UNISYS

DCP Series Telcon

Operations Reference Manual

10R1

May 1995

Printed in U S America

Priced Item

7831 5728-410

Correspondence regarding this publication should be forwarded to Unisys Corporation by addressing remarks to Communication Systems Product Information, Salt Lake City Publications, MS B1C02, 322 North 2200 West, Salt Lake City, UT 84116-2979, U.S.A.

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Product Information Announcement

○ New Release ○ Revision ● Update ○ New Mail Code

Title:

DCP Series Telcon Operations Reference Manual

This Product Information Announcement announces the release and availability of the *DCP Series Telcon Operations Reference Manual* (7831 5728–410).

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This update includes a new appendix describing the Interprocess Communication System (ICS) commands that can be used with the Enterprise Network Services (ENS) program product. The update appendix should be added to the back of the -400 revision level of the manual.

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System: DCP Series
Release: Level 10R1
May 1995
Part number: 7831 5728–410

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This document is a full revision and should completely replace earlier revisions and updates.

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System: DCP Series
Release: Level 10R1
December 1994
Part number: 7831 5728–400

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About This Manual

Purpose

This reference manual is part of the operations subset of the DCP Series Telcon library. It explains the functions of the Telcon system.

The DCP Series Telcon network has three major software components:

- Telcon
- Communications Management System (CMS 1100)
- Distributed Communications Processor Operating System (DCP/OS)

This manual covers Telcon operations reference material only.

Scope

This manual addresses basic Telcon operations.

Telcon is a Unisys proprietary software product that processes transactions between a host and a DCP. Designed initially to support OS 2200 host computers, Telcon is based on the Distributed Communications Architecture (DCA). Telcon also serves as a platform support for Unisys program products and supports a variety of open systems communication protocols.

DCA controls the Distributed Communications Processor (DCP), a major component of the OS 2200 system. In this manual, DCP refers to the DCP/5, 25, 30, 35, 50, 200, or 600 unless stated otherwise.

This manual addresses the following Telcon operations:

- Telcon Network Management Services (NMS)
- Intelligent Line Module (ILM) NMS commands
- 802.3 LAN Platform NMS commands
- Open Systems Interconnection Transport Services (OSITS) NMS commands

- TCP–IP Stack NMS commands
- Remote File System (RFS)
- Instrumentation commands and messages
- CLIST commands
- Software support procedures

Audience

This guide is for communication network operators, [systems] analysts, [systems] programmers, and others requiring a detailed description of NMS commands.

Prerequisites

This guide assumes the reader has advanced computer and communications understanding. It also assumes the reader has a basic understanding of Telcon software and DCA architecture.

How to Use this Manual

Commands are listed alphabetically within the following sections:

- Telcon NMS commands, with examples and descriptions (semantics) for each
- ILM NMS commands, with examples and descriptions (semantics) for each
- 802.3 LAN Platform NMS commands with examples and descriptions (semantics) for each
- OSITS NMS commands, with examples and descriptions (semantics) for each
- TCP–IP Stack NMS commands, with examples and descriptions (semantics) for each
- RFS commands used to transfer files in a DCP and Series 2200 network using Distributed Data Processing (DDP)
- Hardware instrumentation parameters and messages for the *TRON* command

Systems analysts can use this manual to learn how to:

- Dump Telcon and analyze the results
- Write a User Communication Form (UCF)

Organization

This manual is divided into nine sections. Many sections contain quick-reference tables on the first page of the section. A glossary, bibliography, and index are included in the manual.

Section	Description
About This Manual	This section describes the purpose, scope, and notation conventions used to design the manual. This section also discusses the organization and additional product information.
Section 1 **Introduction**	This section describes general NMS information pertaining to the location of specific NMS information, NMS operating commands, and NMS command considerations.
Section 2 **Network Management Services (NMS) Commands**	This section presents all NMS commands and their corresponding parameters and functions.
Section 3 **Intelligent Line Module (ILM) NMS Commands**	This section presents all ILM NMS commands and their corresponding parameters.
Section 4 **802.3 LAN Platform NMS Commands**	This section presents all LAN Platform NMS commands and their corresponding parameters.
Section 5 **Open Systems Interactive Transport Services (OSITS) NMS Commands**	This section presents all OSITS NMS commands and their corresponding parameters.
Section 6 **TCP–IP Stack NMS Commands**	This section presents all TCP–IP Stack NMS commands and their corresponding parameters.
Section 7 **Remote File System (RFS) Commands and Messages**	This section presents the commands used to request both local and remote file-related operations. This section also lists and explains resulting messages. RFS commands are available on the TSTN protocol only. **continued**

Section	Description
Section 8 **Instrumentation Commands and Messages**	This section presents NMS instrumentation commands used to store the instrumentation buffers produced by the communications processor microcode. This section also lists and explains resulting messages.
Section 9 **Software Support Information**	This section provides the instructions for logging a User Communication Form (UCF).

Notation Conventions

This manual uses the conventions that follow to present command formats and other notations.

Notation	Convention	Example
Command formats	`Monofont`	Enter one of the following: 1. `ABRT PASS=`*name* 2. `ABRT PASS=`*name*`,PATH=`*n*
Command names	*ITALIC CAPS*	*ABRT* command
Descriptions Examples	`Monofont`	Enter one of the following: 1. `ABRT PASS=`*name* 2. `ABRT PASS=`*name*`,PATH=`*n*
Filenames	*italic*	Find the *splash.exe* file in your directory.
Messages	`Monofont`	`TRACE-TURNED ON`
Parameters Parameter Values	*ITALIC CAPS*	ABRT PASS=*name*
Responses	`Monofont`	`ABRT PASS=`*name*`,PATH=`*n*
Required keywords	*ITALIC CAPS*	The *ABRT* command terminates the specified Telcon system and executes a Telcon dump. **continued**

Notation	Convention	Example
Screen displays	`Monofont`	`Enter Command or Application number: 2`
Statements (Configuration or Network Definition)	*ITALIC CAPS*	*TYPE=ENTER MENU* statement
User entry	***bold italic***	Generation id? ***UTLGEN***

Required Characters

You may need to use the following characters when entering a CMS 1100, Telcon, or DCP/OS command:

Character	Description
Double colons ::	Separates some Telcon commands.
Semicolons ;	Act as a continuation symbol when you continue a command on the next line. CMS 1100 commands usually require a space before the semicolon; Telcon commands do not.
Spaces	Represents the actual number of spaces you must enter as part of a command.

Command Conventions

The following command conventions are used in this manual:

Convention	Reason for Use	Example
Braces { }	Encloses required parameters; you must select one. (Parameters not enclosed by braces are also required.)	DEST={ *nn.nn.nn.nn* / *adr1,adr2,adr3,adr4* }
Brackets [ ]	Encloses optional parameters. Parameters may also appear stacked in the command syntax notation.	OSI HELP[,*command*][,*type*]
Braces within brackets [{ }]	Enclose two or more optional parameters; you must select one of the parameters.	[NODE={ *name* / [[[*n*/]*n*/]*n*/]*n* }]
Parentheses ( )	Encloses a list of parameters. One parameter from the list is required, however, more than one or all of the parameters may be selected.	MOD=(NODR=*n* / LNKR=*n*, TRNK=*name*)
Ellipses ...	Indicates repeating parameters.	[ACCESS={*amask*[,*amask*...]}]

Related Product Information

Documents are referenced in this manual using a shortened version of the title. To make it easy for you to find them in the table below, they are listed alphabetically by the shortened title, followed by the full title.

Document/Part Number	Description
Buyer's Guide to DCP Communication Products (7436 9828)	This guide provides marketing personnel and clients with detailed information about DCP hardware, software, networking connectivity, and product migration. It fills the gap between marketing brochures and technical manuals.
CMS 1100 Operations Reference Manual (7831 5694)	This manual provides operations information for the CMS 1100 software.
Communications Delivery Software Release Announcement (7430 0088)	The SRA describes new features, migration requirements, support, and ordering information. It also gives the content of the release tape and specific ordering information.
COMUS End Use Reference Manual (7830 7758)	This manual is a reference for using COMUS to install, configure, and update OS 1100 software products on an OS 1100 system. It describes COMUS commands and provides examples of their use.
DCP/OS Operations Reference Manual (7831 5702)	This manual describes all DCP Operating System commands and information.
LAN Platform Configuration and Operations Guide (7831 5512)	This guide describes how to install and configure LAN Platform software on a Distributed Communications Processor (DCP). It includes an overview of the product, hardware and software compatibility, descriptions of the required configuration statements, and examples of typical configurations. This guide also covers operations, with descriptions of the Network Management Services (NMS) commands, messages, and critical event notification and logging (CENLOG) procedures unique to LAN Platform.
OSITS Configuration and Operations Guide (7831 5587)	This guide describes how to install and configure OSI Transport Services (OSITS) software on a Distributed Communications Processor (DCP). It includes an overview of the product, hardware and software compatibility, descriptions of the required configuration statements, and examples of typical configurations. This guide also covers operations, with descriptions of the Network management Services (NMS) commands, messages, and critical event notification and logging (CENLOG) procedures unique to OSITS. **continued**

Document/Part Number	Description
TCP–IP Stack Configuration and Operations Guide (7831 5546)	This guide describes how to install and configure TCP–Ip Stack software on a (DCP). It includes an overview of the product, hardware and software compatibility, descriptions of the required configuration statements, and examples of typical configurations. This guide also covers operations, with descriptions of the Network Management Services (NMS) commands, messages, and critical event notification and logging (CENLOG) procedures unique to TCP–IP Stack.
X.25 PSCS Configuration and Operations Guide (7831 5470)	This guide describes how to install and configure X.25 PSCS software on a Distributed Communications Processor (DCP). It includes an overview of the product, hardware and software compatibility, descriptions of the required configuration statements, examples of typical configurations, and information about the packet-switched networks X.25 PSCS supports. This guide also covers operations, with descriptions of the Network Management Services (NMS) commands, messages, and critical event notification and logging (CENLOG) procedures unique to X.25 PSCS.

Section 1
Introduction

The *DCP Series Telcon Operations Reference Manual* lists and describes in detail the Network Management Services (NMS) commands used to operate a Telcon network. Each section pertaining to NMS includes an alphabetized command index and specialized instructions for operating each type of NMS interface. This book also includes software support procedures for reporting software problems and receiving specialized help from Unisys representatives.

1.1 NMS Information Included in This Book

Table 1–1 describes the NMS information documented in this book.

Table 1–1. NMS Command Information

NMS Command or Interface Type	Information Included
ILM NMS interface	YES
(802.3) LAN Platform NMS commands	YES
Online configuration interface	NO, information found in the *Telcon Configuration Reference Manual* (7831 5686)
Online Hardware Verification Routines (OHVRS) interface	NO, information found in the *Telcon Operations Reference Manual* version (7831 5728–200)
OSITS NMS commands	YES
RFS command interface	YES
SNMS (SNA-NET) NMS command interface	NO, information found in the *SNA/net Operations Reference Manual* (7831 5637)
TCP–IP Stack NMS commands	YES
X.25 NMS commands	YES, X.25 uses many Telcon NMS commands. For more specific information about NMS commands used by X.25 see the *X.25 PSCS Configuration and Operations Guide* (7831 5470)

1.2 NMS Operating Information

The following subsections describe attributes common to all types of NMS commands used in this book.

For more detailed information on NMS concepts, see the *Telcon Operations Guide* (7831 5785).

1.2.1 Entering Network Management Services

Step	Action
1.	Enter the *$$OPEN* command from any Telcon UNISCOPE® or DCA type terminal. (See the *Telcon End Use Guide* [7436 0736] for instructions on how to enter the *$$OPEN* command.) After the *$$OPEN* command executes, your screen displays a two-line heading. Line 1 displays the Telcon product name, Telcon system level number, *DCP PRCSR* name from your configuration file, and the level number of your configuration if your configuration specifies a configuration number. Line 2 contains a row of dashes separating the heading information from the rest of the screen. Lines 3 to 22 are blank. Line 23 contains a start-of-entry (SOE) character. NMS positions the cursor following the SOE.
2.	Enter NMS commands following the SOE character. NMS delivers the reply below the command and then scrolls the screen up. Following the reply, a new SOE appears, followed by the cursor. The cursor is the prompt for the next entry.

Figure 1–1 shows the NMS screen.

```
    Unisys     Telcon   Level-10Rx NODE-PRC1    Config-C12-V5
---------------------------------------------------------------------------------














▶
```

001TG400.CDR

Figure 1–1. NMS Screen Sign On Example

Explanation

Level-10R1

Define the level when generating Telcon using COMUS. This level is the same as reported with the NMS *STAT* and *SST* commands.

NODE=PRC1

Define the DCP name in the configuration using the processor configuration statement.

Config-C12-V5

Define this in your configuration through *CLEVEL EQU* of *CLEVEL SGS* or through configuration level query at COMUS BUILD time.

Figure 1–2 shows an example of an entered command. The command has not been transmitted.

```
    Unisys      Telcon   Level-10Rx NODE-PRC1     Config-C12-V5
------------------------------------------------------------------------------










►DOWN TERM-TM101
```

002TG400.CDR

Figure 1–2. NMS Screen Command Example

Figure 1–3 shows a command example and response after input. The *DOWN* command has been transmitted.

```
    Unisys      Telcon   Level-10Rx NODE-PRC1    Config-C12-V5
-------------------------------------------------------------------------------









►DOWN TERM-TM101
►
►94/12/21   08:40:30   COMMAND ACCEPTED
►
```

003TG400.CDR

Figure 1–3. NMS Transmitted Command Example

1.2.2 NMS Command Formats

You must be familiar with the following NMS command formats before you can enter NMS commands properly.

The following illustrates a sample NMS command format.

Format

```
           ⎧   ⎧DVC=name ⎫ ⎫
           ⎪T, ⎩FILE=name⎭ ⎪   ⎡       ⎧name          ⎫⎤
CNCL FUNC= ⎨M              ⎬   ⎣,NODE= ⎩[[[n/]n/]n/]n ⎭⎦
           ⎪X,XFER= ⎧n⎫    ⎪
           ⎩        ⎩$⎭    ⎭
```

Explanation

CNCL

The command name is always entered first.

FUNC=

Parameters are entered immediately after the command name, and can be entered in any order unless stated otherwise.

{ }

Braces indicate a list of parameter choices. You must choose one.

[ ]

Brackets of any size indicate optional parameters.

[{ }]

Braces within brackets enclose two or more optional parameters. You may choose one of the parameters.

Any parameter not enclosed in braces or brackets is required. Not all command notations are mentioned here. For complete information on command notation conventions, see the "About This Manual" section earlier in this guide.

Example NMS command entries

1. `CNCL FUNC=T,DVC=pat32`

2. `CNCL FUNC=X,XFER=2,NODE=prcl`

NMS Prefixes and Interface Commands

You must specify some types of NMS commands with a prefix or by entering a program product NMS interface. Table 1–2 shows command prefixes or interface commands used to enter specific commands included in this document.

Table 1–2. NMS Command Prefixes and Interface Commands

NMS Command Type	Command Prefix or Interface Command
Telcon	None
ILM interface	ILM (interface command)
802.3 LAN NMS commands	%ILM [command]
OSITS NMS commands	OSI [command]
TCP–IP Stack NMS commands	TCP [command]
RFS NMS command interface	RFS (interface command)

You can also specify which Telcon node to which you want to direct the NMS command by using the following parameter after the command or interface command:

$$\texttt{NODE=}\begin{Bmatrix} \textit{name} \\ \texttt{[[[}\textit{n}\texttt{/]}\textit{n}\texttt{/]}\textit{n}\texttt{/]}\textit{n} \end{Bmatrix}$$

The *NODE* parameter is optional for most commands. This parameter specifies the name of the Telcon node or network address where the command will be executed. If you omit the *NODE* parameter, NMS directs the command to the Telcon node to which your console is logically connected. See Section 2.2 of this manual for a description of the *NODE* parameter. For *%ILM* commands, see Section 4 of this manual.

NMS Command Rules

- Ignore spaces and special characters before the command word.
- Parameters can appear in any order following the command word, unless otherwise specified.
- You can replace the comma and the equal sign with a space to separate parameters or parameter arguments. For clarity in this document, a comma is shown between the parameters and an equal sign is shown between the parameter identifier and its argument.
- Either uppercase or lowercase letters are acceptable.
- Parameter values are no more than eight characters long, unless stated otherwise.
- Numbers are denoted by *n*. Each base of the number has a different format as follows:
  - A decimal starts with a single number, such as 101.
  - A hexadecimal starts with a leading zero, such as 0101.
  - An octal starts with a leading letter O' and ends with a single quote, such as O'101'.
  - A binary starts with a leading letter B, with the numbers following the B in single quotes, such as B'101'.
- Most commands can be abbreviated. However, use parameter abbreviations with caution. If you receive a message that a command is rejected, undefined, or if you receive unexpected results or responses, then reenter the command without parameter abbreviations.
  - All command abbreviations appear in parentheses following the command name on the page header. For example:

    STAT (S)

    or

    COPY (CO)
  - If a command is not abbreviated in the page header, there is no abbreviation for that command and you must enter the whole command name. For example:

    ABRT (ABRT)

    or

    CNFG (CNFG)

Section 2
Network Management Services (NMS) Commands

This section describes NMS command attributes, including:

- Definitions
- Formats
- Required parameters
- Optional parameters
- Examples
- Responses
- Explanations

Note: *The headings at the top of each page show the full name of the NMS command followed, in parentheses, by an abbreviated form of the command name. You can use the abbreviated form of the command name to execute the command. You must, however, use the full command name to obtain help for the command.*

2.1 NMS Command Index

Table 2–1 provides an alphabetical list of NMS commands for easy reference to this section. The mnemonic, description, type and minimum authority required for execution are presented for each command. See the *Telcon Operations Guide* (7831 5785) for an overview of NMS.

Table 2–1. NMS Commands

Command	Command Description	Command Type	Authority
ABRT	Abort Telcon	Physical resource	Privileged
ADDM	Add message	Broadcast message	Region
ASG	Assign file	Mass storage	Node
CAT	Catalog file	Mass storage	Node
CFIL	Change file	Mass storage	Privileged
CHAD	Change destination	Unsolicited message (USM)	Node
CHAM	Change message	Broadcast message	Region
CHAT	Change existence time	Unsolicited message (USM)	Node
CHNG	Change storage	Debugging	Privileged
CNCL	Cancel request	Mass storage	Node
CNFG	Online configuration	Dynamic configuration	Privileged
COND	Console display	Console control	None
CONS	Console set	Console control	None
COPY	Copy file	Mass storage	Node
DBUG	Set and display trace size	Statistics	Privileged
DCON	Disconnect an NMS session	Logical resource	Privileged
DEL	Delete file	Mass storage	Node
DELM	Delete message	Broadcast message	Node
DELQ	Delete queue	Unsolicited message (USM)	Node
DIAG	Online diagnostics	Hardware verification	Node
DISM	Display message	Broadcast message	Node
DISP	Display tables	Physical resource	Privileged
DISQ	Display queue	Unsolicited message	None
DMON	DTP monitor	Physical resource	None

continued

Command	Command Description	Command Type	Authority
DMOR	DTP monitor Repeat	Physical resource	None
DOWN	Bring facility down	Physical resource	Region
DTRC	DNS trace	Physical resource	None
ENS	Enterprise Network Services	ENS	Privileged
FRE	Free file	Mass storage	Node
HELP	Help	Help	None
IDEN	Identity	Console control	None
ILM	Intelligent Line Module (ILM)	ILM	Privileged
INIT	Initialize DNS trunk	Physical resource	Privileged
INS-P	Inspect memory	Debugging	Privileged
ISDM	Initialize standard message file	Broadcast message	Region
ITLN	Initialize line	Physical resource	Region
LCHG	List change numbers	Miscellaneous	None
LIST	List configuration data	Physical resource	Privileged
LOGC	Logging change	Logging/statistics	Node
LOGD	Logging display	Logging/statistics	None
LOGI	Logging inspect	Logging/statistics	Privileged
LOGR	Logging restrictions	Logging/statistics	Privileged
MOD	Modify DNS network parameters	Physical resource	Privileged
MOVE	Move facility	Physical resource	Privileged
MOVS	Move facility	Physical resource	Privileged
MSG	Message	Miscellaneous	Node
MSWT	Matrix switch	Physical resource	Privileged
NMSB	Console display	Console control	None
ONLN	Online	Resiliency	Privileged
QUIT	Disconnect the NMS console session	Logical resource	None
RCVR	Recover	Physical resource	Node
RESL	Resiliency	Resiliency	Node
REST	Restart Telcon without a dump	Physical resource	Privileged

continued

Command	Command Description	Command Type	Authority
RFS	Remote file system	Remote file system (DDP)	Privileged
RMOV	Resilient line move	Physical resource	Privileged
SDNS	Status of DNS network parameters	Physical resource	None
SECI	Initialize Security Facility	Security	Privileged
SECL	List facilities in the Security Management Information Base (SMIB)	Security	Privileged
SET	Set time and date	Physical resource	Privileged
SETI	Set time and interval	Statistics	Node
SNDM	Send message	Broadcast message	Region
SST	Short status	Physical resource	None
STAR	DCP status repeat	Physical resource	None
STAT	Facility status	Physical resource	None
STBY	Standby	Resiliency	Privileged
STOP	Stop input/output	Physical resource	Region
STOR	Local storage	Physical resource	None
STRT	Start input/output	Physical resource	Region
STTH	Set error logging threshold	Physical resource	Node
SWT	Switch	Resiliency	Node
TEST	Test UDLC line	Physical resource	None
TEXT	Text attributes	Console control	None
TROF	Trace off	Statistics	None
TRON	Trace on	Statistics	Node
UP	Bring facility up	Physical resource	Region
UPDT	Update DNS network parameters	Physical resource	Privileged
XCMD	External command	Physical resource	None
XFER	Transfer file from host to DCP or from DCP to host	Mass storage	Privileged

2.2 NODE Parameter

This subsection describes the *NODE* parameter. The *NODE* parameter is included in the format of many commands described in this manual.

The *NODE=* parameter functionality has been expanded to include configuration statements, previously known as Network Definition Statement (NDS) types. The following configuration statements have been included in the *NODE=* parameter: *PRCSR*, *ADDRESS*, *NETADR*, and *XEU*, in addition to an explicit DNS network address. See the *Telcon Configuration Reference Manual* (7831 5686) for detailed information on NDS types.

You may use the *NODE* parameter (when allowed) to direct NMS command input to any desired destination in the network.

You may abbreviate the *NODE=* parameter to *N*.

Format

```
NODE={name
     {[[[n/]n/]n/]n}
```

Explanation

NODE=*name*

Is the Telcon node name unit mnemonic on which the command executes. The default is the Telcon node to which your console is logically connected.

NODE=[[[*n*/]*n*/]*n*/]*n*

Is the network address of a remote DNS node. The first number specifies the subdomain number, the second number specifies the super cluster number, the third number specifies the simple cluster number, and the fourth number specifies the node number. Valid ranges are:

- The subdomain number range is from 1 to 65,535. The default is the local subdomain number.
- The super cluster range is from 1 to 255. The default is the local super cluster number.
- The simple cluster range is from 1 to 255. The default is the local simple cluster number.
- The node range is from 1 to 4,095.

For *NODE=n*, you may omit the subdomain, supercluster, and simple cluster component parts of the network address. Any omitted component parts default to the network address component parts of the network address of the Telcon node to which you are logically connected. Table 2–2 shows which NDS types are used to identify each type of remote node.

Note: *For the NODE parameter in a TS/TN environment, you must use the NODE=name format.*

Table 2–2. Remote Node Network Address Identification

NDS TYPE	TS/TN	DNS	TCP	OSI
ADDRESS	N	Y	Y	Y
EXPLICIT	N	Y	N	N
NETADR	N	Y	N	N
PRCSR	Y	Y	N	N
XEU	Y	Y	Y	Y

2.3 NMS Commands

This subsection defines the NMS commands listed in Table 2–1. This subsection also provides formats, required and optional parameters, explanations, and examples.

2.3.1 ABRT — Abort Telcon

The *ABRT* command terminates the specified Telcon system and executes a Telcon dump.

Format

1. ABRT PASS=*name*

2. $$\texttt{ABRT PASS=}\mathit{name}[\texttt{,RCW=}\mathit{n}]\left[\texttt{,NODE=}\left\{\begin{array}{l}\mathit{name}\\ [[[\mathit{n}/]\mathit{n}/]\mathit{n}/]\mathit{n}\end{array}\right\}\right]$$

Required Parameters

PASS=*name*

Is the NMS password for the node to be terminated.

Optional Parameters

RCW=*n*

Is used to set the run condition word (RCW). The range for *n* is 0–FF. The default is 0.

$$\texttt{NODE=}\left\{\begin{array}{l}\mathit{name}\\ [[[\mathit{n}/]\mathit{n}/]\mathit{n}/]\mathit{n}\end{array}\right\}$$

See Section 2.2 of this manual for a description of the *NODE* parameter.

Example

```
ABRT PASS=PAT123

Response

1994/07/24  15:55:17   ●●● Warning:  NMS ABRT COMMAND RECEIVED FROM:
                       ●●● CONSOLE ID = PU1CON
                       ●●● NODE ID = PRC1
```

Note: *This message is displayed on all NMS active consoles that are logically attached to the Telcon node being aborted. In addition to this message, a similar message is sent to the DCP/OS console.*

Additional Discussion

If you use the standard Telcon runstream, the first result of executing the *ABRT* command is that a Telcon dump is sent to DCP mass storage. The Telcon runstream then specifies the subsequent Telcon absolute and configuration file to execute, based on the path you entered to set the run condition word (RCW). See the Telcon runstream on your OS 2200 host in the standard Telcon source control files (*sym*, *pcf*, and *rel*). The runstream is copied to the *sys$*sysjob* file on the DCP during the download host load phase. See the *DCP/OS Operations Reference Manual* (7831 5702) for more information.

If you are running the standard Telcon runstream, the *sys$*sysjob* implements the following executions:

- RCW = 0
  Default
- RCW = 1
  Executes *TELCON.TELCON with *CONFIG.
- RCW = 2
  Executes *TEST.TELCON with *CONFIG.
- RCW = 3
  Executes *TELCON.TELCON with NEW*TSTCFG.

The following DCP/OS system utilities can interrogate the RCW:

- *@IF*
- *@ELSE*
- *@ENDIF*
- *@RCW*

The *@RCW* command can also alter the run condition word. For a detailed description of these utilities, see the *DCP/OS Operations Reference Manual* (7831 5702).

2.3.2 ADDM – Add Broadcast Message

The *ADDM* command inserts a new broadcast message.

Format

ADDM NUM=*n* *text*

Required Parameters

NUM=*n*

Is the message number.

text

Is the message text, including carriage returns; 240 character maximum.

Optional Parameters

None

Example

```
▸ADDM NUM 1
THIS
MESSAGE
IS
NOT
LONGER
THAN
240
CHARACTERS
```

Response

```
1994/07/24  12:15:37  ADDED MESSAGE
         1  THIS MESSAGE IS NOT LONGER THAN 240 CHARACTERS
```

Example

```
ADDM NUM=7 THE DCP WILL BE REBOOTED AT 8PM
```

Response

```
1994/07/24  12:20:56 ADDED MESSAGE
         7 THE DCP WILL BE REBOOTED AT 8PM
```

Considerations

- Do not end a line with trailing blanks (spaces). Different terminal types transmit different input and blanks may cause unexpected results.
- To put trailing blanks on a line, enter the blanks and then put an alphanumeric character at the end.
- You must have a standard message file initialized before you use the *ADDM* command. See the *ISDM* command (Section 2.3.34 of this manual) for initializing the file.

2.3.3 ASG – Assign Tape File

The *ASG* command specifies physical tape file attributes. The tape system uses the attributes to locate and access user files. You must assign a tape file before a user program can complete an open request for the file.

Format

1. ASG FILE=*name*

2. ASG FILE=*name*[,LTYP=*type*][,SKIP=*n*][,DNSY=*density*][,VOL=*name*/...]
   [,NODE={*name* | [[[*n*/]*n*/]*n*/]*n*}]

Required Parameters

FILE=*name*

Is the name of the user-specified tape file.

Optional Parameters

LTYP=*type*

Indicates label type of the tape. Values include:

- **I** Standard labels are skipped during positioning and not processed by the tape system.
- **L** Standard labels.
- **U** Unlabeled tape (default).
- **IS** Scratch tape with standard labels; they are skipped during positioning and not processed by the tape system.
- **LS** Scratch tape with standard labels.
- **US** Unlabeled scratch tape. The default is *US*.

SKIP=*n*

Is the number of files skipped before the subject file on the first or only tape volume.

Maximum value is 255; default is 0.

DNSY=*density*

Specifies the recording density of the tape. It can be:

H 1600 bps
L 800 bps

The default is *H*.

This parameter is effective only for output tapes written from load point. In all other cases, hardware from the existing data at the beginning of the tape determines the density.

VOL=*name*

Specifies the volumes on which the file resides. You can specify up to eight volumes for a file. The maximum length of a volume name is six characters.

For multiple volumes, each volume ID is separated by a slash (/).

VOL must be specified unless the *LTYP* value is *IS*, *LS*, or *US*.

$$\texttt{NODE=}\left\{\begin{array}{l}\textit{name}\\ \texttt{[[[}n\texttt{/]}n\texttt{/]}n\texttt{/]}n\end{array}\right\}$$

See Section 2.2 of this manual for a description of the *NODE* parameter.

Note: *The current level of the tape system does not process tape labels; therefore, the parameter values L and LS have the same effect as I and IS.*

Example

```
ASG FILE=KATE
```

Response

```
FILE ASSIGNED
```

2.3.4 CAT – Catalog a File

The *CAT* command catalogs a file (which is assigned a name by the command) on mass storage.

Format

```
                                              ⎡          ⎧,VOL=name      ⎫⎤
                                              ⎢          ⎪      ⎧DSKR⎫   ⎪⎥
                                              ⎢          ⎪      ⎪DSKF⎪   ⎪⎥ ⎡ ⎧                           ⎫⎤
           ⎧name            ⎫                 ⎢          ⎪      ⎪IFDC⎪   ⎪⎥ ⎢ ⎪      ⎧name              ⎫ ⎪⎥
CAT FILE=  ⎨*name           ⎬                 ⎢,SIZE=n   ⎨,DTYP=⎨FDDS⎬   ⎬⎥ ⎢,⎨NODE= ⎩[[[n/]n/]n/]n     ⎭ ⎬⎥
           ⎩qualifier*name  ⎭                 ⎢          ⎪      ⎪SCSW⎪   ⎪⎥ ⎣ ⎩XTS=name                   ⎭⎦
                                              ⎢          ⎪      ⎪SCSD⎪   ⎪⎥
                                              ⎢          ⎪      ⎪WDSK⎪   ⎪⎥
                                              ⎣          ⎩      ⎩RAMD⎭   ⎭⎦
```

```
             ⎧name           ⎫
1.  CAT FILE=⎨*name          ⎬
             ⎩qualifier*name ⎭

             ⎧name           ⎫
2.  CAT FILE=⎨*name          ⎬ [,SIZE=n ⎧,DTYP=name⎫]
             ⎩qualifier*name ⎭          ⎩,VOL=name ⎭

             ⎧name           ⎫                          ⎡ ⎧      ⎧name          ⎫⎫⎤
3.  CAT FILE=⎨*name          ⎬ [,SIZE=n ⎧,DTYP=name⎫]   ⎢,⎨NODE= ⎩[[[n/]n/]n/]n ⎭⎬⎥
             ⎩qualifier*name ⎭          ⎩,VOL=name ⎭    ⎣ ⎩XTS=name              ⎭⎦
```

Required Parameters

```
      ⎧name           ⎫
FILE= ⎨*name          ⎬
      ⎩qualifier*name ⎭
```

FILE=

name

Is the basic name of the new file. Refer to Table 2–3.

name

Is the basic name of the file with the default qualifier; eight character maximum, including a–z, 0–9, –, and $. Refer to Table 2–3.

qualifier

Is the qualifier that establishes the uniqueness of the file name, six character maximum, including a–z, 0–9, –, and $. Refer to Table 2–3.

Optional Parameters

SIZE=*n*

Is the number of 256-byte blocks to allocate on mass storage for this file. The default size is 128 blocks.

VOL=*name*

Is the name of the volume of which the file is a portion; six character maximum. The default is any available volume.

DTYP=*name*

Is the type of mass storage device on which you want to catalog your file. Valid types are as follows:

DSKR	Removable cartridge disk
DSKF	Fixed cartridge disk
IFDC	Integrated diskette
FDDS	Double-density diskette
SCSW	Winchester 8441 disk or controller mass storage (8441/integrated DCP/15 and 50 mass storage)
SCSD	Type 8441 diskette
WDSK	Winchester 8409 disk
RAMD	RAM disk

The default is any available type.

Table 2–3 lists the system standard qualifier defaults.

Table 2–3. System Standard Qualifier Defaults

Form	Implied Qualifier	Where Specified	Qualifier
filename	*project id*	@Qual,P *aproj* **else** @RUN x,,*proj* **else** @RUN *x*	*aproj* *proj* *QQQ$*
**filename*	*assumed qualifier*	@QUAL *qual* **else** @RUN x,,*proj* **else** @RUN x	*qual* *proj* *QQQ$*
*qualifier*name*	none	none	*qualifier*

NODE={*name* | [[[*n*/]*n*/]*n*/]*n*}

See Section 2.2 of this manual for a description of the *NODE* parameter.

XTS=*name*

Indicates the name of an external termination system.

VOL and DTYP are mutually exclusive.

Examples

Example 1

```
CAT FILE=UNIQUE,VOL=MOND,SIZE=100,NODE=FEPB
```

Response

```
1994/07/24 11:24:34 CATALOG COMPLETE
```

Example 2

```
CAT FILE=TELFIL
```

Response

```
1994/07/24 11:24:59 CATALOG COMPLETE
```

2.3.5 CFIL – Change File

The *CFIL* command causes Telcon to switch from the current configuration file to a new file under the following conditions:

- You can open the specified file
- You can validate the specified file as a Telcon configuration file
- All currently active facilities exist in the new file

After executing the *CFIL* command, all subsequent internal configuration access requests use the new file for the duration of the Telcon program execution, or until the next *CFIL* command execution. When using the *CFIL* command, specify the same file name that you previously specified on one or more *CNFG* (online configuration) commands. See the *Telcon Configuration Reference Manual* (7831 5685) for information about the *CNFG* command.

Notes:

1. *You can use the CFIL command only with a file that has been created or modified through online configuration.*
2. *CFIL switch processing requires that all facilities in the old file exist in the new file by the same name, type, and order. If not, the file switch aborts and displays the facilities in question. Either add the facilities to the new file or mark them inactive (DOWN) in the old file. You can only insert facilities at the end of the old file configuration.*
3. *If you added an XEU, NETADR, or INN parameters and you are running DSF (RUNID=DSA), the additions will not be in the DSF directory.*

Format

```
               ⎧name          ⎫
1.  CFILFILE=  ⎨*name         ⎬
               ⎩qualifie*name ⎭

               ⎧name          ⎫ ⎡  ⎧NODE=⎧name           ⎫⎫⎤
2.  CFILFILE=  ⎨*name         ⎬ ⎢, ⎨     ⎩[[[n/]n/]n/]n  ⎭⎬⎥
               ⎩qualifie*name ⎭ ⎣  ⎩XTS=name              ⎭⎦
```

Required Parameters

FILE=

name

Is the basic name of the new configuration file. Refer to Table 2–3.

****name***

Is the basic name of the file with the default qualifier; eight character maximum, including a–z, 0–9, –, and $. Refer to Table 2–3.

qualifier

Is the qualifier that establishes the uniqueness of the file name; six character maximum, including a–z, 0–9, –, and $. Refer to Table 2–3.

Note: *You must use the name parameter when you name a file. You can optionally use the *name or qualifier*name parameters to designate the filename. The system provides defaults for omitted parameters, as described in Table 2–3.*

Optional Parameters

$$\texttt{NODE=}\begin{Bmatrix} \textit{name} \\ \texttt{[[[}\textit{n}\texttt{/]}\textit{n}\texttt{/]}\textit{n}\texttt{/]}\textit{n} \end{Bmatrix}$$

See Section 2.2 of this manual for a description of the *NODE* parameter.

XTS=*name*

Indicates the name of an external termination system as defined by a ***DCATS*** configuration statement.

Example

```
CFIL FILE=BILL
```

Response

```
1994/07/24 08:40:30 CFIL SWITCH COMPLETE
```

Additional Discussion

CFIL processing tests for the following conditions:

- Non-existent file
- Non-configuration file
- Missing active facilities
- Same file

If the file you specify is the same as the current file, no switch occurs and an error message is displayed. If any DCP/OS file-access error results from opening, reading, or writing to the new file, the switch is aborted and an error message is displayed to reflect the DCP/OS file-access error. See the *DCP/OS Operations Reference Manual* (7831 5702) for more information about file-access codes.

When the *CFIL* command successfully completes, the following operator display message (using *PRC1* as an example) displays on you console:

```
1994/07/24 13;02;16 ***DCP= PRC1 SYSTEM INITIALIZATION COMPLETE
```

(This message is not displayed if a *CONS* command indicates you have not turned on your *OPDS* messages.)

Some of the changes or additions you made to this new file by using online configuration become effective immediately after the *CFIL* command is processed (unless the facility is marked DOWN). Other changes do not take effect until Telcon is forced to access the configuration file for a changed statement, such as through an *UP*, *DOWN*, *ITLN*, or *$$* command. *See the Telcon End Use Guide* (7436 0736) for descriptions of the *$$* commands. Some other changes do not take effect until Telcon restarts with the new configuration file specified in the Telcon runstream.

When Telcon restarts, it uses the file your runstream specifies. If you want Telcon to restart with the new switched file, edit your Telcon runstream to change the file specification on all appropriate *@TELCON* processor call statements. See the *DCP/OS Operations Reference Manual* (7831 5702) for information about the *@ED* commands.

If you allow Telcon to restart with the default Telcon runstream, Telcon uses the runstream that exists on the DCP in file *sys$*sysjob* in element TELCON. See the *Telcon Installation Guide* (7831 5645) for information about where the runstream originates during a download, how DCP/OS automatically starts the runstream during a DCP reboot (by using file *sys$*sysjob.startup*), and how you can change the runstream.

2.3.6 CHAD – Change USM Destination

The *CHAD* command changes the destination of unsolicited messages (USMs).

Format

1. CHAD FROM=*name*,TO=*name*
2. CHAD FROM=*name*,TO=*name*[,MSG=*name*][,ORIG=*name*]

Required Parameters

FROM=*name*

Identifies destination; original (TERMINAL/SITE name) destination of the queued messages.

TO=*name*

Identifies destination; new (TERMINAL/SITE name) destination to which messages are queued.

Optional Parameters

MSG=*name*

Identifies the message to be moved. Default is all queued messages.

ORIG=*name*

Identifies terminal of message sender. Default is all senders.

Example

CHAD FROM=PU1CON,TO=PU3CON

Response

```
1994/07/24 10:48:57 CHAD COMPLETE
MESSAGES QUEUED TO TERMINAL PU1CON
EMPTY
MESSAGES QUEUED TO TERMINAL PU3CON
MESSAGE  ID    ORIGINATOR    EXISTENCE TIME
 MSGN1          SYSTEM           00:00
 MSGN1          PU3CON           00:00
```

2.3.7 CHAM – Change Broadcast Message

The *CHAM* command replaces an existing broadcast message in the file *s@stdmnn* with a new message. (Also see the *ISDM* command later in this section.)

Format

```
CHAM NUM=n text
```

Required Parameters

NUM=*n*

Indicates number of the message you want to change.

text

Is the message text, including carriage returns; 240 character maximum.

Optional Parameters

None

Example

```
CHAM NUM=1 TODAY IS FRIDAY AUGUST 2
```

Response

```
1994/07/24 09:37:12 NEW STANDARD MESSAGE
                     1 TODAY IS FRIDAY AUGUST 2
```

Considerations

- Maximum number of messages is 225.
- Do not end a line with trailing blanks (spaces). Different terminal types transmit different input and blanks may cause unexpected results.
- To put trailing blanks on a line, enter the blank and put an alphanumeric character at the end.

2.3.8 CHAT – Change Existence Time of USMs

The *CHAT* command lets you change the existence time of unsolicited messages (USMs).

Format

1. `CHAT TERM=`*name*`,MSG=`*name*`,ETIM=`*nn*`:`*nn*

2. `CHAT TERM=`*name*`,MSG=`*name*`,ETIM=`*nn*`:`*nn*`[,ORIG=`*name*`]`

Required Parameters

TERM=*name*

Identifies the terminal.

MSG=*name*

Identifies the message.

ETIM=*nn*:*nn*

Is the new existence time, entered as hours:minutes. Maximum time is 24:00.

Optional Parameters

ORIG=*name*

Identifies the terminal of the end user originating the message.

Example

```
CHAT TERM=pu1con,MSG=msgn5,ETIM=12:50,ORIG=pu1con
```

Response

```
1994/07/24 11:00:08 CHAT COMPLETE
MESSAGES QUEUED TO TERMINAL PU1CON
MESSAGES ID    ORIGINATOR    EXISTENCE TIME
 MSGN5          PU1CON            12:50
 MSGN5          SYSTEM            00:00
```

References

Refer to the *Telcon Configuration Guide* (7831 56678) to see how to calculate time units.

2.3.9 CHNG – Change

The *CHNG* command alters local storage of a DCP.

You can change any number of sequential words with one command by entering the values separated by slashes.

You can enter numbers as octal, decimal, or hexadecimal values.

Format

```
                                   [                                  ]
                                   |SEG= {name}                       |
                                   |     {n   }                       |
                                   |PROG= {name}                      |  [   [NODE= {name              }]]
CHNG ADR= n,VALU= {n          } ,  |      {n   }                      |  [ , [      {[[[n/]n/]n/]n}]]
                  {n/n/n/...  }    |       {name          }           |  [   [XTS= name              ]]
                                   |FILE= {.name          }[,BLK= n]  |
                                   [      {qualifier.name }           ]
```

Required Parameters

ADR=*n*

Identifies word address. Virtual address is assumed relative to virtual address zero in the specified *SEG*, *PROG*, or *FILE* parameters.

```
VALU={n      }
     {n/n/n  }
```

Is the data you want stored in the specified location.

You can enter the number as octal, decimal, or hexadecimal data.

You can enter successive values by separating them with slashes (/).

Optional Parameters

SEG= {*name* | *n*}

Is the name or number of the local-storage-resident segment you want modified.

PROG= {*name* | *n*}

Is the name or number of the local-storage-resident or disk-resident procedure you want modified.

FILE=

name

Is the basic name of the file you want modified. Refer to Table 2–3.

****name***

Is the basic name of the file you want modified, with the default qualifier; eight character maximum, including a–z, 0–9, –, and $. Refer to Table 2–3.

qualifier

Is the qualifier that establishes the uniqueness of the file name; six character maximum, including a–z, 0–9, –, and $. Refer to Table 2–3.

BLK=*n*

Identifies the number of the block within the specified file that you want modified. You can enter BLK only if you specify FILE.

NODE= {*name* | [[[*n*/]*n*/]*n*/]*n*}

See Section 2.2 of this manual for a description of the *NODE* parameter.

XTS=*name*

Indicates the name of an external termination system.

Note: *You must use the NAME parameter when you name a file. You can optionally use the *NAME or QUALIFIER*NAME* parameters to designate the filename. The system provides defaults for omitted parameters, as described in Table 2–3.

Example

```
CHNG ADDR=0,SEG=MLINS,VALU=0B8E3
```

Response

```
000000:  B8E3 D2E0 3000 B8E0 B8D1 IF20 04D8 92A0
```

Considerations

Changes to segments are temporary and do not apply to subsequent local loads.

2.3.10 CNCL – Cancel

The *CNCL* command aborts the following user requests:

- Facility move
- Tape
- Transfer

Format

```
               ┌   ┌DVC=name ┐ ┐
               │ T,│         │ │
               │   └FILE=name┘ │ [        ┌name            ┐]
CNCL FUNC=     │ M             │ [ ,NODE= │                │]
               │               │ [        └[[[n/]n/]n/]n ┘]
               │ X,XFER= ┌n┐   │
               └         └$┘   ┘
```

Required Parameters

FUNC=*m*

Cancels the function, where *m* is one of the following:

T Cancels tape function. If you specify *T*, you must specify either a *DVC* or a *FILE* subparameter.

If you specify the *FILE=* parameter, the request for the file is aborted. If the file is active on a tape drive, the session aborts and the tape system closes the file.

M Cancels the move function.

X Cancels transfer (XFER) function. If you specify *X*, you must specify the *XFER=* parameter.

XFER= {*n* | $}

n Is the sequence number of the file transfer you want to cancel. The sequence number is assigned and displayed when the *XFER* command is initiated.

$ Indicates that you want to cancel all file transfers in progress.

Optional Parameters

NODE= { *name* | [[[*n*/]*n*/]*n*/]*n* }

See Section 2.2 of this manual for a description of the *NODE* parameter.

Example

CNCL FUNC=M

Response

```
1994/07/24/13:21:20 FACILITY MOVE CANCELLED - CONFIGURATION RESTORED
```

2.3.11 CNFG – Configuration

The *CNFG* command activates the online configuration processor. See the *Telcon Configuration Reference Manual* (7831 5686) for a detailed description of the *CNFG* command.

Format

```
           ⎡⎧        ⎧name          ⎫⎤
CNFG       ⎢⎨FILE=   ⎨*name         ⎬⎥ [,NODE= {name                 }]
           ⎢⎩        ⎩qualifier*name⎭⎥         {[[[n/]n/]n/]n        }
           ⎣ SEC=y                    ⎦
```

Required Parameters

None

Optional Parameters

FILE=

name

Is the basic name of the configuration file you want modified. Refer to Table 2–3.

****name***

Is the basic name of the configuration file you want modified, with the default qualifier; eight character maximum, including a–z, 0–9, –, and $. Refer to Table 2–3.

qualifier

Is the qualifier that establishes the uniqueness of the configuration file name; six character maximum, including a–z, 0–9, –, and $. Refer to Table 2–3.

Note:

1. *You must use the NAME parameter when you name a file. You can optionally use the *NAME or QUALIFIER*NAME parameters to designate the filename. The system provides defaults for omitted parameters, as described in Table 2–3.*

2. *If you do not specify a file name, the default is your current configuration file.*

3. *To provide a record, all online configuration changes will be included as CENLOGs. These CENLOGs will not be automatically displayed, but can be accessed through the Configuator Analysis Program (CAP).*

SEC=y

Indicates that the online changes are to be made to the Security Management Information Base (SMIB).

Note: *FILE and SEC parameters are mutually exclusive.*

$$\mathtt{NODE=}\left\{\begin{array}{l}\mathit{name}\\ \mathtt{[[[}\mathit{n}\mathtt{/]}\mathit{n}\mathtt{/]}\mathit{n}\mathtt{/]}\mathit{n}\end{array}\right\}$$

See Section 2.2 of this manual for a description of the *NODE* parameter.

2.3.12 COND – Condition of all NMS Connections

The *COND* command displays the general condition of all NMS connections from and within a particular Telcon. The *COND* also displays a selective listing of the following:

- All NMS connections
- Console sessions
- Displays of formatted destination network addresses for all transport services and protocol types
- Named session
- Remote NMS-to-NMS sessions

Format

$$\texttt{COND}\left[\left\{\begin{matrix}\texttt{TYPE=}\left\{\begin{matrix}\texttt{C}\\\texttt{R}\end{matrix}\right\}\\\texttt{SESN=}\textit{sname}\end{matrix}\right\}\right]\left[\texttt{,NODE=}\left\{\begin{matrix}\textit{name}\\\texttt{[[[}\textit{n}\texttt{/]}\textit{n}\texttt{/]}\textit{n}\texttt{/]}\textit{n}\end{matrix}\right\}\right]$$

Required Parameters

None

Optional Parameters

TYPE=

C Specifies console information.
R Specifies remote NMS connection information.

SESN=*sname*

Is the name of an NMS session.

$$\texttt{NODE=}\left\{\begin{matrix}\textit{name}\\\texttt{[[[}\textit{n}\texttt{/]}\textit{n}\texttt{/]}\textit{n}\texttt{/]}\textit{n}\end{matrix}\right\}$$

See Section 2.2 of this manual for a description of the *NODE* parameter.

Example

```
COND
```

Response

```
NAME   TYPE TRTP STATUS  SN-X EU-NUM  CONV  OPDS  CEDS  CENL-DISPLAY-MASK  AUTH
PU1CON  CONS DNS   UP  000A  0001    -   YES  NO  YYYYYYYY YYYYYYYY  P
CONSOLE CONS TCP   UP  000B  0002    -   YES  YES  YYYYYYYY YYYYYYYY  P

NAME    TYPE  TRTP STATUS  SN-X  NETWORK ADDRESS
NMSTCP4  NMS   TCP   UP   000C  192.60.223.182
NMSDNS4  NMS   DNS   UP   000D  4.30.1.453
PRC1    NMS   TSTN  UP   000E  1.1.1.1
COMMAND COMPLETE
```

Explanation

Console types have the following fields:

NAME

Is the name of the NMS connections.

TYPE

Is the type of NMS connection. Valid types include the following:

CONS indicates NMS console.
NMS indicates NMS connections to remote destinations.

TRTP

Is the transport protocol. Valid types include:

DNS indicates the session is utilizing the DTP transport over a DNS network.
TCP indicates the session is utilizing the DTP transport over a TCP/IP network.
TSTN indicates the session is utilizing the DTP transport over a TS/TN or RTC network.

STATUS

Is the status of the specified connection. It indicates whether the specified connections is UP (functioning normally) or DOWN (inoperative).

SN-X

Is the entry index number.

EU-NUM

Is the ***end user ID*** number.

CONV

Indicates that the console is currently in conversation mode. Valid conversation types include the following:

-(dash) indicates that no conversation is in progress.
CNFG indicates that the console is engaged in online configuration using the *CNFG* command.
DIAG indicates that the console is engaged in online diagnostic tests using the *DIAG* command.
LOGR indicates the console is redefining CENLOG restriction (filtering) parameters.
RFS indicates the console is engaged using the remote file system with the *RFS* command.
ILM indicates the console is in conversation with ILM.
NMS indicates the console is in NMS page mode.
LIST indicates the console is engaged in *LIST* processing.

OPDS

Is the operational display. This portion of the status is either:

YES indicates console is set to receive operational displays, such as `SESSION UP` or `SESSION DOWN`.
NO indicates console is not set to receive operational displays.

CEDS

Are the logging displays. The logging displays can be either:

YES indicates the console is set to receive CENLOG displays.
NO indicates console is not set to receive CENLOG displays.

CEN-DISPLAY-MASK

Is the CENLOG display mask indicating which classes of events you can display on your console. The classes are displayed from class 1 to class 16, in two groups of eight. `Y` indicates a class (represented by enabled bit position). `N` indicates a class display is disabled. The numbers are read from right to left. For example, the `CEN-DISPLAY-MASK YNNNNNYY NYYNNYY` indicates event classes 15, 9, 8 ,6, 5, 4, 1, and 0 are enabled for display, while classes 14, 13, 12, 11, 10, 7, 3, and 2 are inhibited.

See the *Telcon Message Manual* (7436 0728) for complete CENLOG information.

AUTH

Indicates the level of authority. See the *CONS* command in this section for a description of the *AUTH* parameter.

NMS type entries have the following fields:

NAME

Same as the console fields above.

TYPE

Same as the console fields above.

TRTP

Same as the console fields above.

STATUS

Same as the console fields above.

SN-X

Same as the console fields above.

NETWORK ADDRESS

Is the destination address for this session.

2.3.13 CONS – Console Condition

The *CONS* command modifies the state of an NMS console, enabling the supervisor to change authorization (move downward in authority) and logging for that console. *CONS* automatically displays the current conditions for the specified console.

Note: *Use the IDEN command to move up in authority.*

Format

```
1.  CONS
2.  CONS [AUTH=name][,ON=nn[/nn/...]][,CEDS={y|n}][,OPDS={y|n}]
    [,TERM=name][,OFF=nn[/NN/...]][,NODE={name|[[n/]n/]n/]n}]
```

Required Parameters

None

Optional Parameters

AUTH=*name*

Indicates the level of authority.

Valid parameters are:

GLOB

Is the global parameter.

PRIV

Is the privileged parameter.

AREA/aaa

Is the area number (applies to TSTN environment only).

NODE/nnn

Is the nodal (applies to TSTN environment only).

REGN/nnn/rrr

Is the region number (applies to TSTN environment only).

- - - - *(none)*

Is the least authority possible.

You can set the consoles scope-of-control at configuration time.

Specifying *AUTH=NONE* removes all authority to enter control commands; however, you can still enter status inquiries.

The *AUTH* parameter permits you to dynamically limit the authority of any NMS console. For example, if a console is preset for global control, you can use the *CONS* command with the *AUTH* parameter to reduce the console to *AREA* control.

ON=*nn*

Indicates the class of events displayed on the console. Valid parameters are 1 through 16. If you enter 0, events of all classes are enabled. You can string several values after ON. Separate each value with a slash (/).

OFF=*nn*

Indicates the class of events displayed on the console that are inhibited.

You can enter numbers 1 through 16. If you enter 0, events of all classes are disabled. You can string several values together. Separate values with a slash (/).

$\mathrm{CEDS}=\left\{\begin{matrix} Y \\ N \end{matrix}\right\}$

Allows critical events to be displayed, or disabled. Valid values include:

Y enables the display of critical events (CENLOG) messages on the console.
N disables the display of critical events (CENLOG) messages on the console.

$\mathrm{OPDS}=\left\{\begin{matrix} Y \\ N \end{matrix}\right\}$

Allows operation messages to be displayed, or inhibited. Valid values are:

Y enables the display of operational messages on the console.
N disables the display of operational messages on the console.

TERM=*name*

Indicates the name of the terminal to which this console command applies. The default is the console from which you are entering input.

```
NODE={name              }
     {[[[n/]n/]n/]n     }
```

See Section 2.2 of this manual for a description of the *NODE* parameter.

Note: *To display the configured name, plus status of your console, enter the CONS command.*

Example

```
CONS AUTH=NODE,ON=6/7/8
```

Response

```
NAME   TYPE NUM  STATUS CONV OPDS CEDS CEN-DISPLAY-MASK  AUTH
SB2010 CONS 0007 UP     -    NO   NO   NNNNNNNN YYYNNNNN N 01
```

Note: *See the COND command for descriptions of the above fields.*

Additional Discussion

CONS is effective only for UNISCOPE and DCA type terminals in session with NMS as NMS consoles. You can use the *COND* command to determine which consoles are active NMS consoles.

When specifying a remote Telcon using the *NODE* parameter, you must supply the console name using the *TERM* parameter.

References

See the *IDEN* command in this section for authroity details. See the *Telcon Message Manual* (7436 0728) for CENLOG event classes and how to interpret them.

2.3.14 Copy – Copy a File

The *COPY* command copies data from one file to another, on the same DCP or external termination system (XTS).

Format

```
              ⎧name          ⎫       ⎧name          ⎫ ⎡ ⎧NODE=⎧name              ⎫⎫⎤
COPY IFIL=    ⎨*name         ⎬,OFIL= ⎨*name         ⎬ ⎢,⎨     ⎩[[[n/]n/]n/]n     ⎭⎬⎥
              ⎩qualifie*name ⎭       ⎩qualifie*name ⎭ ⎣ ⎩XTS=name                 ⎭⎦
```

Required Paramters

IFIL=

Indicates the name of the file you want to copy (input file).

name

Is the basic name of the file you want copied. Refer to Table 2–3.

***name**

Is the basic name of the file you want copied, with the default qualifier; eight character maximum, including a–z, 0–9, –, and $. Refer to Table 2–3.

qualifier

Is the qualifier that establishes the uniqueness of the file name; six character maximum, including a–z, 0–9, –, and $. Refer to Table 2–3.

OFIL=

Indicates the name of the destination file (output file).

name

Is the basic name of the output file. Refer to Table 2–3.

***name**

Is the basic name of the output file with the default qualifier; eight character maximum, including a–z, 0–9, –, and $. Refer to Table 2–3.

qualifier

Is the qualifier that establishes the uniqueness of the file name; six character maximum, including a–z, 0–9, –, and $. Refer to Table 2–3.

You must use the *NAME* parameter when you name a file. You can optionally use the **NAME* or *QUALIFIER*NAME* parameters to designate the filename. The system provides defaults for omitted parameters, as described in Table 2–3.

Optional Parameters

$$\texttt{NODE=}\begin{Bmatrix} \textit{name} \\ \texttt{[[[}\textit{n}\texttt{/]}\textit{n}\texttt{/]}\textit{n}\texttt{/]}\textit{n} \end{Bmatrix}$$

See Section 2.2 of this manual for a description of the *NODE* parameter.

XTS=*name*

Indicates the name of an external termination system.

Example

```
COPY IFIL=CONFIG,OFIL=BILL
```

Response

```
1994/07/24 08:40:30 FILE COPY COMPLETE
```

Considerations

- You must have the input and output file or volume on the same DCP.
- You must have cataloged the output file (using the *CAT* command) in advance.
- You can copy only those blocks you have already written.
- Table 2–4 lists the NMS copy commands and the copy operations.

Table 2–4. File Copy Commands

Operations	Command Used
File to file (same DCP)	*COPY*
DCP-to-DCP	*XFER* or *RFS*
1100/2200 Host to DCP	*XFER*
DCP to 1100/2200 Host	*XFER*

2.3.15 DBUG – Sets and Displays Current Trace Size

You can use the *DBUG* command to set and display current trace size.

Format

```
DBUG [SIZE=n][,NODE={name          }]
                    {[[[n/]n/]n/]n }
```

Required Parameters

None

Optional Parameters

SIZE=*n*

Is the size of the *DBUG* trace segment. The range is 1-27. A value of 1 is equal to 100 trace entries. The default is 3 (300 entries).

If you increase the size of your trace area, the *DBUG* command will destroy the old trace area and initialize a new trace area to the specified size.

Using the *DBUG* command without parameters will display the current trace size.

```
NODE={name          }
     {[[[n/]n/]n/]n }
```

See Section 2.2 of this manual for a description of the *NODE* parameter.

Examples

Example 1 (Illustrates the *DBUG* command used to display the current trace size.)

```
DBUG
```

Response

```
1994/07/24 10:18:40
DBUG TRACE CURRENT SIZE = 3
```

Example 2 (Illustrates the *DBUG* command used to reinitialize the trace size to 15 [1500] trace entries.)

```
DBUG SIZE = 15
```

Response

```
1994/07/24 10:18:40
DBUG TRACE CURRENT SIZE = 15
```

Note: *For complete information on Telcon debug trace procedures see Section 9 of this manual.*

2.3.16 DCON – Disconnect an NMS Session

The *DCON* command disconnects an NMS session.

Format

DCON SESN=*sname*[,SNX=*n*]

Required Parameters

SESN=*sname*

Is the name of the NMS session to be disconnected.

Optional Parameters

SNX=*n*

Is the entry index number used to uniquely identify a specific session when duplicate session names exist.

Example

```
DCON SESN=prc3
```

Response

```
1994/07/24 15:58:13 SESSION DISCONNECTED ENDUSER-ID = PRC3
```

Note:

1. *To disconnect your own NMS console session without supplying the session name, see the QUIT command.*
2. *To display the entry index (SN-X), use the COND command.*

2.3.17 DEL - Delete a File

The *DEL* command deletes a specified file from mass storage and frees the space on the volume. There is no way to recover a file after using this command.

Format

```
                     name                       NODE= name
DEL FILE= { *name              } [ , { [[[n/]n/]n/]n } ]
          qualifier*name                    XTS=name
```

Required Parameters

FILE=

name

Is the basic name of the file you want deleted. Refer to Table 2-3.

****name***

Is the basic name of the file you want deleted, with the default qualifier; eight character maximum, including a–z, 0–9, –, and $. Refer to Table 2–3.

qualifier

Is the qualifier that establishes the uniqueness of the file name; six character maximum, including a–z, 0–9, –, and $. Refer to Table 2–3.

Note: *You must use the NAME parameter when you name a file. You can optionally use the *NAME or QUALIFIER*NAME parameters to designate the filename. The system provides defaults for omitted parameters, as described in Table 2–3.*

Optional Parameters

NODE= { *name* | [[[*n*/]*n*/]*n*/]*n* }

See Section 2.2 of this manual for a description of the NODE parameter.

XTS=name

Indicates the name of an external termination system.

Example

```
DEL FILE=SYS$*SYSDUMP
```

Response

```
1994/07/24 15:05:50 FILE DEFECTION COMPLETE
```

2.3.18 DELM – Delete Broadcast Message

The *DELM* command deletes an existing broadcast message.

Format

```
DELM NUM=n text
```

Required Parameters

NUM=*n*

Indicates the number of the message being deleted.

text

Is the text of the message. Text is included to make sure that the correct message is being deleted. To display the text, use the *DISM* command.

Optional Parameters

None

Example

```
DELM NUM=2 TOMORROW IS SATURDAY
```

Response

```
DELETED MESSAGE
02 TOMORROW IS SATURDAY
```

Considerations

- Do not end a line with trailing blanks (spaces). Different terminal types produce different input and blanks may cause unexpected results.
- To put trailing blanks on a line, enter the blanks and then place an alphanumeric character at the end.

2.3.19 DELQ – Delete USM Queue

The *DELQ* command deletes unsolicited messages (USMs) queued to a terminal.

Format

1. DELQ TERM=*name*

2. DELQ TERM=*name*[,MSG=*name*][,ORIG=*name*]

Required Parameters

TERM=*name*

Identifies the terminal.

Optional Parameters

MSG=*name*

Identifies the message. Default is all queued messages.

ORIG=*name*

Identifies the terminal from which the messages originated. Default is all messages from any source.

Example

```
DELQ TERM=PU1CON
```

Response

```
1994/07/24 14:56:54 DELQ COMPLETE
MESSAGES QUEUED TO TERMINAL PU1CON
EMPTY
```

2.3.20 DIAG – Online Hardware Diagnostics

The *DIAG* command activates the online hardware diagnostics processor.

Format

```
DIAG [NODE={name          }]
           {[[[n/]n/]n/]n }
```

Required Parameters

None

Optional Parameters

```
NODE={name          }
     {[[[n/]n/]n/]n }
```

See Section 2.2 of this manual for a description of the *NODE* parameter.

Line module diagnostics are now implemented through Maintenance Test Level 3, executed through the DCP Operating System (DCP/OS). See the *DCP Series Maintenance Software Test Level 3: Partition and Line Module Tests Operations Guide* (7431 8080) for more information.

Online Hardware Verification Routine (OHVRs) information is no longer contained in this document. For more information on OHVRs see the –200 version of the *Telcon Operations Reference Manual* (7831 5728–200).

2.3.21 DISM – Display Broadcast Message

The *DISM* command displays a specified broadcast message on the console. Refer to the *ISDM* and *ADDM* commands in this section for more information about broadcast commands.

Format

```
DISM NUM=n
```

Required Parameters

NUM=*n*

Indicates the number of the message you want to display on the console.

Optional Parameters

None

Example

```
DISM NUM=2
```

Response

```
1994/07/24 08:40:30 2 TOMORROW IS SATURDAY
```

2.3.22 DISP – Display Table

The *DISP* command displays information about the following various system and architectural entities:

- Transport network session table
- Remote concentrator (RC) transport network session table
- End-user multiplexer table
- Port processors (information obtained from interface section of system control table and interface control table)
- Station control blocks
- High-level control blocks
  - – TRUNK
  - – TS
  - – LSM
  - – RCM
- Terminals (information obtained from terminal control block and terminal information table)
- Route table (RTC only; for DNS, use the *SDNS* command)
- Network connection table
- Transport connection table
- Queues

Note: *All parameters are positional for the DISP command and must be entered in the order presented.*

Format

```
                       ⎧entity-name                                     ⎫
1.  DISP entity-type=  ⎨starting-entity-number/ending-entity-number      ⎬
                       ⎩ALL                                             ⎭

                       ⎧entity-name                                     ⎫
2.  DISP entity-type=  ⎨starting-entity-number/ending-entity-number      ⎬ [ ,NODE= ⎧name              ⎫ ]
                       ⎩ALL                                             ⎭          ⎩[[[n/]n/]n/]n    ⎭
```

```
       SSTB  { session-number
               start-session-number/end-session-number
               ALL }

       SNTB  { session-number
               start-session-number/end-session-number
               ALL }

       NC=   { tn$-entry-number
               start-tn$-entry-number/end-tn$-entry-number
               ALL }

       NC=tn$-entry-number,EU= { tn$-entry-number
                                 start-tp$-entry-number/end-tp$-entry-number
                                 ALL }

       ROUT= { route-number
               start-route-number/end-route-number
               ALL }

       TERM=terminal-name

       TERM ALL,LINE= { line-name
                        port-number }

       STN= { station-name
              ALL }         ,LINE= { line-name
                                     port-number }

       STN= ALL
DISP
       POR= { port-id
              ALL }

       TRNK= { trunk-number
               trunk-name
               ALL }

       TS= { ts-number
             ts-name
             ALL }

       LSMC= { lsm-number
               lsm-name
               ALL }

       RCMC= { rcm-number
               rcm-name
               ALL }

       QUE= { queue-list-index
              ALL }        ,TYP=CP,PROG= { procedure-name
                                           procedure-number }

       QUE= { queue-list-index
              ALL }        ,TYP=PP,PP= { port-name
                                         port-number/multiline-number }

       QUE= { QNUM
              ALL } ,TYP=QT

[,NODE= { name
          [[[n/]n/]n/]n } ]
```

816TG300.CDR

Required Parameters

Choose one of the following *entity-names*:

SSTB	*TERM*	*TS*
SNTB	*STN*	*LSMC*
NC	*POR*	*RCMC*
ROUT	*TRNK*	*QUE*

Refer to the detailed format for the appropriate subparameters for the *entity-names*.

Optional Parameters

```
NODE={name
     {[[[n/]n/]n/]n}
```

See Section 2.2 of this manual for a description of the *NODE* parameter.

XTS=*name*

Indicates the name of an external termination system.

Considerations

The *LINE-PORT-NUMBER* option, associated with the *TERM* and the *STN* parameters, applies only to single-line ports. You must use the *LINE-NAME* option for multiline ports.

On certain entities, the format N1/N2, where N1 and N2 is any number, is allowed. This format denotes an interval in the table where N1 is the first entry and N2 is the last entry in the interval. If N1 equals N2, only entry N1 is processed.

Use the *ALL* value with caution for any *DISP* command parameter. *ALL* may generate a significant amount of output and is an extravagant use of system buffers. Note that Telcon NMS has no feature similar to the OS 2200 *RSI @@X TIO* interrupt to stop requested output from being transmitted. Therefore, do not use the command unnecessarily, especially with large configurations.

Note: *You must enter DISP parameters in the order in which they appear in the format description. You can stop the display of numerous messages by using the $$CLOSE command to close the NMS. You can establish a new NMS session by entering the $$OPEN command.*

Explanation

Each display is preceded by a header describing the display columns. This header is enclosed by lines of dashes. The header is repeated after every ten lines of data. The operator can interrupt the display using the interrupt key and continue by entering *$$CONT* or entering blank input. All numeric values are expressed in hexadecimal. Flag values are represented by *Y* or *N* for the respective on and off states of the flag. Where values are unobtainable or nonapplicable, the display column contain dashes. The display is completed with a `FUNCTION COMPLETE` message.

Examples

The following example illustrates the display formats for each display:

Example 1 (Transport Network Session Table Display [SS$])

```
DISP SSTB=ALL
```

Response

```
----------------------------------------------------------------------------------
TS/TN SESSION TABLES-SS$

--SESSN--          RNR      -PDU-  PR  BK   RES-FL  FS-FL
FROM  TO   CHAN  TS  W R S U R RT R S A P  TY  DCP  ORPS   TSER S R
----------------------------------------------------------------------------------
0001  2700  002B  01  0 N N N N 00 0 0 0 4  03  00   YNNN   NNNN N N
0002  2804  002C  01  0 N N N N 00 0 0 0 4  03  00   YNNN   NNNN N N
0003  2828  002D  01  0 N N N N 00 0 0 0 4  03  00   YNNN   NNNN N N
0004  284C  002E  01  0 N N N N 00 0 0 0 4  03  00   YNNN   NNNN N N
FUNCTION COMPLETE
```

Explanation

The following list provides an explanation of the previous fields:

FROM is the session number.
TO is the destination session number (SS$SESNM).
CHAN is the logical subchannel number (SS$TSID).
TS is the termination system ID (SS$TSID).
W is the PDU window flag (SS$PDUWC).
R is the receive-not-ready signal received from TS flag (SS$TSRNR).
S is the receive-not-ready sent to TS flag (SS$TNRNR).
U is the UDM sent to TS flag (SS$TSUDM).
R is the reset sent to TS flag (SS$TNRS).
RT is the count of PDUs since TS/TN ACK (SS$TSTNC).
R is the PDU number acknowledged by the TS (SS$PDURO).
S is the PDU number to send to TS (SS$PDUS).
A is the last PDU number acknowledged by the TS (SS$PDURI).
P is the priority (SS$PRIOR).
PR TY is the protocol type number (SS$SPROTY).
BK DCP is the backup DCP number (SS$BKDCP).
RES-FL is the resilient status flag.

O is the session in online state (SS$EXIST).
R is the resilient session (SS$RESIL).
P is the principal session (SS$PRIN).
S is the switch reset sent.
FS-FL is the fast path status (SS$FPAL).
T is the TS supports fast path.
S is the flow reject resent sent (SS$FRJSD).
E is the fast path protocol established (SS$FAST).
R is the fast path rejected by host (SS$FCNTL).
S is the UDM sent to I/F (SS$ITUDM).
R is the Receive-Not-Ready (RNR) received from host (SS$RDRNR).

Example 2 (RC Transport Network Session Table Display [SN$])

```
DISP SNTB=01F
```

Response

```
----------------------------------------------------------------------------
RC TRANSPORT NETWORK SESSION TABLE - SN$
--SESSN--   DUC   RT  TY  ID    TM  1ST   2ND   ALT  BKU  SESSN
FROM  TO   FLAG   IN  NU  NUM   CN  NDU   NDU   DCP  DCP  NAME
----------------------------------------------------------------------------
001F FFFF  0004   IF  03  04B4  00  0000  0000  00   00   DFYSLC
FUNCTION COMPLETE
```

Explanation

The following list gives an explanation of the previous fields:

FROM is the session number you supply.
TO is the destination session number (SN$SESNM).
DUC FLAG is the DUC flags (SN$FLGWD).
RT IN is the route indicator (SN$ROUTE).
TY NU is the type number (SN$TYPE).
ID NUM is the ID number (SN$ID).
TM CN is the timer counter (SN$TMCNT).
1ST NDU is the first NDU information word (SN$NDU1).
2ND NDU is the second NDU information word (SN$NDU2).
ALT DCP is the alternate DCP route (SN$AROUT).
BKU DCP is the backup DCP number (SN$BKDCP).
SESSN NAME is the name of the *SESN* configuration statement.

Example 3 (DTP Network Connection Table Display [TN$])

```
DISP NC=all
```

Response

```
-----------------------------------------------------------------------------
DTP NETWORK CONNECTION TABLE
SEQ NTWK NTWK         D S  UNTTFFNR BKID   DEST ADDR   NBR   TP$ LINKS
NBR  ID  PROT SG/OFF DSSN  N T  DRMNBDSC SRND  #1    #2   #3   TPS   LINK   C P
-----------------------------------------------------------------------------
001 000C DTP  01/004 0343  N 0  NNNNNNNN 0000  0100  0008  0000 0001  0101    N N
```

Explanation

The following list gives an explanation of the previous fields:

SEQNBR	is the TN$ sequence number.
NTWK ID	is the network ID.
NTWK PROT	is the network protocol type.
SG/OFF	is the segment number/entry offset.
DSSN	is the current DSSN.
DN	is the DNS TN$ table.
ST	is the TN$ state (DNS only).
UD	is the UDM state.
NR	is the network RNR.
TM	is the timing RNR.
TN	is the TN$ timing RNR.
FB	is the facility B selected.
FD	is the facility D selected.
NS	is the non-stop network connection.
RC	is the non-stop session recovery active.
BKID	is the backup DCP ID number.
SRND	is the source node (DNS only).
DEST ADDR #1	is the TSU address #1 or destination node (DNS only).
DEST ADDR #2	is the TSU address #2 or simple and super cluster (DNS only).
DEST ADDR #3	is the subnetwork (DNS only).
NBR TPS	is the number of TP$ entries.
TP$ LINK	is the TP$ entry pointer.
LINKS C	is the concatenation link.
LINKS A	is the outstanding ACK link.
LINKS P	is the pending link (DNS only).

Example 4 (DTP Network Connection Table [TN$] and Associated TP$ Entries)

```
DISP NC=1,EU=ALL
```

Response

```
----------------------------------------------------------------------------------
DTP NETWORK CONNECTION TABLE
SEQ NTWK NTWK          D S  UNTTFFNR BKID    DEST ADDR   NBR   TP$ LINKS
NBR  ID  PROT SG/OFF DSSN  N T  DRMNBDSC SRND  #1    #2   #3   TPS   LINK   C P
----------------------------------------------------------------------------------
001 0001 DUC  01/004 01C4  N 2  NNNNNYNN 0000  0200  0008  0000 0002  0047   N N
----------------------------------------------------------------------------------
DTP TRANSPORT PROTOCOL TABLE
   TN$  TP     STATE  FLAGS     ---TSU---     TCR  LINKS SEND  RCV  FACS
SEQ  NBR ENTR DSSN IS MS  #1   #2    ID1   ID2   NUMB   IOD  TS TP TS TP ABCDEF
----------------------------------------------------------------------------------
001 0001 0047 01DF 03 04 8000 0000  0000   0000  010047  NNNY 00 03 02 04 NNNYNN  002 0001
0046 01DF 03 04 8000 0000  0202   0000  010046  NNNN 03 04 01 03 NNNYNN
FUNCTION COMPLETE
```

Explanation

The following list gives an explanation of the previous fields:

SEQ	is the TP$ sequence number.
TN$ NBR	is the TN$ entry number (TP$TN).
TP ENTR	is the next TP$ entry number (TP$FTP).
DSSN	is the SSN of the TP$ entry.
IS	is the transport interface state (TP$TIS).
MS	is the DTP protocol machine state (TP$DTPS).
FLAGS #1	is the DTP flag word 1 (TP$FLAG1).
FLAGS #2	is the DTP flag word 2 (TP$FLAG@).
ID1	is the transport service user ID1 (TP$TSUID).
ID2	is the transport service user ID 2 (TP$TSUI2).
TCR NUMB	is the transport connection reference number (TP$PTCR1, TP$PTCR2, TP$PTCR3).
I	is the input link index (TP$LINKI).
O	is the output link index (TP$LINKO).
D	is the duplicate message link index (TP$LINKD).
A	is the outstanding ACK link (TP$LINKA).
SEND TS	is the TSDU send number (TP$SSEND).
SEND TP	is the TPDU send number (TP$PSEND).
RCV TS	is the TSDU receive number (TP$SRCV).
RCV TP	is the TPDU receive number (TP$PRCV).
FACS ABCDEF	is the facility selected (TP$FAC).

Example 5 (Port Processor State Display)

```
DISP POR-01
```

Response

```
--------------------------------------------------------------------------------
DISPLAY OF PORT PROCESSOR STATE
PPID  CNFG  PPPT C R A          INITIALIZED LINES
--------------------------------------------------------------------------------
01    Y     001E Y Y Y  1/LTTYCAD   2/--------   3/--------   4/--------
```

Explanation

The following list gives an explanation of the previous fields:

PPID	is the port ID.
CNFG	is the configured flag.
PPPT	is the PP program table pointer.
C	is the PP control flag (SC$CW).
R	is the response time (SC$RBIT).
A	is the active flag (SC&ABIT).
1/	is the first-line name if initialized.
2/	is the second-line name if initialized.
3/	is the third-line name if initialized.
4/	is the fourth-line name if initialized.

Example 6 (Station Display)

```
DISP STN=ALL
```

Response

```
--------------------------------------------------------------------------------
STATION DISPLAY
STATION                    ---BUSY-- H-L-FAC--
NAME     STATE  LINE-ID  QN    LOC   REM TYPE   ID
--------------------------------------------------------------------------------
STATNJ   INFO  03     03B6    N    N TNRT  0001
STATNJK   DISK  05/0   0000    N    N TNRT  0006
STDNSJKJ  DISK  05/0   03B6    N    N DNSA  000E
```

Explanation

The following list gives an explanation of the previous fields:

NAME	is the station name.
STATE	is the station state.
LINE-ID	is the port number/multiline number.
QN	is the queue number.
BUSY LOC	is the local-station-busy flag (SC$LSB).
BUSY REM	is the remote station busy flag (SC$RSB).
H-L-FAC TYPE	is the high-level facility type (SC$INCH).
H-L-FAC ID	is the high-level facility ID.

Note: *If you want to display an individual station, you must use the LINE parameter.*

Example 7 (High-Level Facility Display [TRUNK,TS,LSM,RCM])

```
DISP TRNK=ALL
```

Response

```
-------------------------------------------------------------------------------
FACILITY------             PATH       ------PRIORITY-OUTPUT----
TYPE  ID NAME    C HLE  SUBNET BLOCKED  COUNT  P1    P2   P3   P4
-------------------------------------------------------------------------------
TRUNK 001 VTRNK1  N DNS  SER     N      00   02FE  02FE 02FE 02FE
TRUNK 002 VTRNK2  N RTC  SER     N      00   02FC  02FC 02FC 02FC
TRUNK 003 TR13    N RTC  SER     Y      00   02FB  02FB 02FB 02FB
TRUNK 004 TR23    N RTC  SER     Y      00   02F7  02F7 02F7 02F7
TRUNK 005 TR3     N DNS  SER     Y      00   02F3  02F3 02F3 02F3
TRUNK 006 DNS     N DNS  SER     Y      00   02EF  02EF 02EF 02EF
```

Explanation

The following list gives an explanation of the previous fields:

TYPE	is the high-level facility type (TRUNK,TS, LSM,RCM).
ID	is the high-level facility ID.
NAME	is the facility name.
C	is the critical facility flag.
HLE	is the high-level entity type (TS/TN,RTC,LSM,RCM,DNSA,DNS).
SUBNET	is the underlying type of line (SER,CHAN,LAN).
PATH BLOCKED	is the path-blocked flag.
COUNT	is the path count
PRIORITY OUTPUT	is the queue numbers of the priority queues.

Example 8 (Terminal Display)

```
DISP TERM=ALL,LINE=lineb0
```

Response

```
--------------------------------------------------------------------------------
TERMINAL DISPLAY
TERMINAL              -QUEUE-         ----ACCESS----
NAME   ACT  INPUT  OUTPUT  OUT  IN  SESN THRS RGN  AREA AUTH  TRTP  AUTO INOP
SB4810  Y   -----  -----   000  000 CLOS 04   00   00   00   -     Y    N
SB4830  Y   -----  -----   000  000 CLOS 05   00   00   00   -     Y    N
SB4840  Y   ALLOW  ALLOW   000  000 OPEN 06   00   00   00   TSTN  Y    N
SB4850  Y   -----  -----   000  000 CLOS 07   00   00   00   -     Y    N
SB4800  Y   -----  -----   000  000 CLOS 08   00   00   00   -     Y    N
SB48G0  Y   ALLOW  ALLOW   000  000 OPEN 09   00   00   00   TCP   Y    N
FUNCTION COMPLETE
```

Explanation

The following list gives an explanation of the previous fields:

NAME is the terminal name.
ACT is the terminal active flag (active if TCB exists).
INPUT is the session input state indicator.
OUTPUT is the session output state indicator.
QUEUE OUT is the output pace count.
QUEUE IN is the input pace count.
SESN is the session state indicator.
THRS is the queue list index (for UNISCOPE).
ACCESS RGN is the region (TE$IRGN).
ACCESS AREA is the area (TE$IPRC).
ACCESS AUTH is the authority (TE$ICODE).
TRTP is the transport-type protocol.
AUTO is the auto-allocate flag (TE$IAUTO).
INOP is the terminal operative flag (TC$INOP).

Note: *If you enter TERM=ALL, you must supply the port number or line name.*

Example 9 (Route Table Display)

Note: *The route table display is for route control (RTC) tables only. Use the SNDS command for DNS.*

```
DISP ROUT=ALL
```

Response

```
---------------------------------------------------------------------------------
ROUTE TABLE
RT# PRD ARD BLD ABLD DYN S-UDM R-UDM PTHL APHL PTKID ATKID W-ITMQ
---------------------------------------------------------------------------------
001 N N N N N N N 002 003 003 002 0000
002 N N N N N N N 003 004 003 001 0000
003 N N N N N N N 003 004 003 001 0000
004 N N N N N N N 004 005 003 001 0000
005 Y Y N N N Y Y 000 000 000 000 0000
006 N N N N N N N 003 004 003 001 0000
007 Y Y N N N Y Y 000 000 000 000 0000
008 Y Y N N N Y Y 000 000 000 000 0000
009 N N N N N N N 004 005 003 001 0000
00A Y Y N N N Y Y 000 000 000 000 0000
---------------------------------------------------------------------------------
ROUTE TABLE
RT# PRD ARD BLD ABLD DYN S-UDM R-UDM PTHL APHL PTKID ATKID W-ITMQ
---------------------------------------------------------------------------------
00B Y Y N N N Y Y 000 000 000 000 0000
00C Y Y N N N Y Y 000 000 000 000 0000
00D Y Y N N N Y Y 000 000 000 000 0000
00E Y Y N N N Y Y 000 000 000 000 0000
00F Y Y N N N Y Y 000 000 000 000 0000
010 N N N N N N N 004 005 003 001 0000
011 N N N N N N N 003 004 003 001 0000
FUNCTION COMPLETE
```

Explanation

The following list gives an explanation of the previous fields:

RT# is the route number.
PRD is the primary route down flag (RT$PDOWN).
ARD is the alternate route down flag (RT$ADOWN).
BLD is the rebuild in progress flag (RT$REB).
ABLD is the alternate route in rebuild flag (RT$ALT).
DYN is the no dynamic rerouting flag (RT$ROUTE).
S-UDM is the UDM has-been-sent flag (RT$SUDM).
R-UDM is the UDM sent-for-route flag (RT$SUDM).
PTHL is the primary path length (RT$PLEN).
APHL is the alternate path length (RT$ALEN).
PTKID is the primary trunk ID (RT$PTID).
ATKID is the alternate trunk ID (RT$ATID).
W-ITMQ is the number of messages waiting (RT$QCNT).

Example 10 (Queue Header Display)

```
DISP QUE=ALL,TYP=CP,PROG=MLIN
```

Response

```
-----------------------------------------------------------------------------
QUEUE HEADER DISPLAY
PN   PNAME LN-ID QL  QN   ADR    TYP MODE ITMS BACK THR  CR SZ QX SAI      ACC
-----------------------------------------------------------------------------
0356 MLIN  ----  00  0093 0FD3B4 LS  0000 0000 0000 0000 -- -- 01 23560000 GPA
0356 MLIN  ----  01  01EA 0FDA54 MC  0000 0000 0000 0000 13 4B 01 235D0000 GPA
0356 MLIN  ----  02  0013 0FDCIC MC  0000 0000 0000 0000 42 4B 01 235D0000 GPA
0356 MLIN  ----  03  00B6 0FD3DC MC  0000 0000 0000 0000 50 FF 01 23340000 P
FUNCTION COMPLETE
```

Explanation

The following list gives an explanation of the previous fields:

PN is the procedure number (if CP queue).
PNAME is the procedure name (if CP queue).
LN-ID is the port-number/multiline number.
QL is the index into queue list of specified procedure.
QN is the queue table index.
ADR is the queue address.
TY is the queue type (MCT, LITERAL, SPACE, LIST).
M is the maximum number of back items allowed on the queue.
ITMS is the number of unprocessed items on the queue.
BACK is the number of processed items not released from the queue.
THR is the queue threshold.
CR is the current queue item (if MCT, LITERAL, or SPACE queue).
SZ is the queue size (if MCT, LITERAL, or SPACE queue).
QX is the index into the SAI queue list.
SAI is the software attention item.
ACC is the access rights (PUT, GET, ARM).

Note: *The queue number keyword value for the QUE=keyword refers to the queue list index of a procedure or PP. Where queue type is CP or PP and ALL is requested, header information is displayed for each queue in the list. Where queue type is QT and ALL is requested, the entire queue table is displayed. Where TYPE+QT and QUE are integers, queue header information is displayed, along with the queue table entry.*

2.3.23 DISQ – Display USM Queue

The *DISQ* command displays the details of all unsolicited messages (USMs) queued to a terminal.

Format

```
DISQ TERM=name
```

Required Parameters

Term=*name*

Identifies the terminal.

Optional Parameters

None

Example

```
DISQ TERM=pu1con
```

Response

```
1994/07/24 11:13:54 DISQ COMPLETE
MESSAGES QUEUED TO TERMINAL PU1CON
MESSAGE ID  ORIGINATOR  EXISTENCE TIME
 MSG1        PU1CON         00:00
 MSG1        SYSTEM         00:00
 MSG2        PU1CON         00:00
 MSG2        SYSTEM         00:00
```

2.3.24 DMON – DTP Monitor

The *DMON* command displays the various statistics, which are collected by the DTP (DCA Transport Layer).

Format

```
DMON
```

Required Parameters

None

Optional Parameters

None

Example

```
DMON
```

Response

```
1994/07/24 15:23:00  :DTP MONITOR: NODE = PRC1
           INTERVAL = 30 SED, IDLE = 75 %, THROT = N, CENL = 1
           TP ENTRIES  = 45, OP/CL = 1/0, UDM/RNR/RESET = 0/0/0
           INPUT  DATA = 3.2 MSG/SEC, CONCAT RATIO = 1.2
           OUTPUT DATA = 3.7 MSG/SEC, CONCAT RATIO = 1.3
```

Explanation

NODE

Is the name of a Telcon node.

INTERVAL

Is the data collection interval.

IDLE

Is the percentage of idle time for the node.

THROT

Valid values include:

THROT= Y if the throttle occurs during the last data collection interval.
THROT= N if the throttle does not occur during the last data collection interval.

CENL

Is the number of CENLOGs generated.

TP ENTRIES

Is the number of transport entries (DTP sessions).

UDM/RNR/RESET

Is the number of occurrences of *UDM*, *RNR*, and *RESET* during the last data collection interval.

INPUT DATA

Is the input message rate (Messages/Second).

OUTPUT DATA

Is the output message rate (Messages/Second).

CONCAT RATIO

Is the concatenation ratio for input and output messages.

2.3.25 DMOR – DTP Monitor Repeat

The *DMOR* command displays the various statistics, which are collected by the DTP (DCA Transport Layer). The display is repeated every 30 seconds until you enter a valid NMS command.

Format

```
DMOR
```

Required Parameters

None

Optional Parameters

None

Example

```
DMOR
```

Response

```
1994/07/24 15:23:00  :DTP MONITOR: NODE = PRC1
           INTERVAL = 30 SED, IDLE = 75 %, THROT = N, CENL = 1
           TP ENTERIES = 45, OP/CL = 1/0, UDM/RNR/RESET = 0/0/0
           INPUT  DATA = 3.2 MSG/SEC, CONCAT RATIO = 1.2
           OUTPUT DATA = 3.7 MSG/SEC, CONCAT RATIO = 1.3
```

Explanation

For the explanation of the *DMOR* command, see the explanation for the *DMON* command.

2.3.26 DOWN – Bring Down a Facility

The *DOWN* command brings down these facilities:

- Communication channel
- Line
- Poll group
- Site
- Terminal
- Station
- Service Access Point
- Terminal cluster
- Local storage facility (tape)

Bringing down a facility releases its control tables and suspends further use of that activity.

When you bring down a facility, you lose queued output. When bringing a line down, all active resources on the line are deallocated. Bringing down a switched line that is waiting for connections prevents that line from being connected.

Bringing down all facilities is marked in the configuration file and is preserved for subsequent local loads. Bringing down a facility releases all dependent facilities. Information on how to bring down certain types of entities is in the "Additional Discussion" section for this command.

Note: *NMS will inhibit this command when used with a spare line/port.*

Format

```
       ⎧CHAN=⎧name⎫              ⎫
       ⎪     ⎩n   ⎭              ⎪
       ⎪LINE=⎧name  ⎫            ⎪
       ⎪     ⎩n[/n] ⎭            ⎪
       ⎪TERM=name                ⎪  ⎡  ⎧NODE=⎧name            ⎫⎫⎤
       ⎪SITE=name                ⎪  ⎢  ⎪     ⎩[[[n/]n/]n/]n ⎭⎪⎥
       ⎪DVC=name                 ⎪  ⎢, ⎨ADCP=name              ⎬⎥
DOWN   ⎨CLTR=name                ⎬  ⎢  ⎪XTS=name               ⎪⎥
       ⎪STN=name                 ⎪  ⎣  ⎩                       ⎭⎦
       ⎪SAP=name                 ⎪
       ⎪PGRP=n,LINE=⎧name  ⎫     ⎪
       ⎪            ⎩n[/n] ⎭     ⎪
       ⎪PDTE=⎧name⎫              ⎪
       ⎪     ⎩n   ⎭              ⎪
       ⎩PTRK=name                ⎭
```

```
1.  DOWN facility-name=⎧name⎫
                       ⎩n   ⎭
```

```
                                   ⎡  ⎧NODE=⎧name            ⎫⎫⎤
2.  DOWN PGRP=n,LINE=⎧name  ⎫      ⎢, ⎨     ⎩[[[n/]n/]n/]n ⎭⎬⎥
                     ⎩n[/n] ⎭      ⎢  ⎪ADCP=name              ⎪⎥
                                   ⎣  ⎩XTS=name               ⎭⎦
```

Required Parameters

You must choose one of the following *facility-names*:

```
CHAN=⎧name⎫
     ⎩n   ⎭
```

CHAN= indicates the configured name or port number of the channel to be brought down.

```
LINE={name  }
     {n[/n] }
```

Indicates the configured name or number of the line to be brought down.

For the single-line line module, the line number is given as the port number (PPID).

For multiline (4x1 and 8x1) line modules, the line number is given as the port number/multiline number. The multiline number can range from 0 to 3 for 4x1 line modules, and from 0 to 7 for 8x1 line modules. The default is 0.

TERM=*name*

Is the terminal name.

DVC=*name*

Is the name of the tape device.

SITE=*name*

Is the name of a console associated with a batch site.

CLTR=*name*

Is the cluster name.

STN=*name*

Is the name of a station.

SAP=*name*

Is the name of a LAN service access point.

```
PGRP=n, LINE={name  }
             {n[/n] }
```

PGRP=*n*

Specifies the remote identifier (RID) of the poll group that you want to bring down. The RID for multiplex lines (general polling) is 020. The RID for multiplex lines ranges from 021 to 04F. If you specify *PGRP*, you must also specify *LINE*.

```
LINE={name   }
     {n[ /n ]}
```

Indicates the configured name or number of the line to be brought down.

For the single-line line module, the line number is given as the port number (PPID).

For multiline (4x1 and 8x1) line modules, the line number is given as the port number/multiline number. The multiline number can range from 0 to 3 for 4x1 line modules, and from 0 to 7 for 8x1 line modules. The default is 0.

PDTE=*name*

Is an X.25 PSCS program product parameter. See the X.25 PSCS documentation for the program products installed at your site.

PTRK=*name*

Is an X.25 PSCS program product parameter. See the X.25 PSCS documentation for the program products installed at your site.

Optional Parameters

```
NODE={name            }
     {[[[n/]n/]n/]n}
```

See Section 2.2 of this manual for a description of the *NODE* parameter.

ADCP=*name*

Is the name of the target PRCSR in a resilient pair.

This overrides automatic command duplication in a resilient system.

When, in a resilient system the *DOWN* command is entered on (or for) a Telcon node in the standby state, the command affects only that Telcon node. When the command is entered for a Telcon node in either the online or loadshare states, the command is automatically echoed to the paired Telcon node.

XTS=*name*

Indicates the name of an external termination system.

Example

```
DOWN TERM=TM101
```

Response

```
1994/07/24 08:40:30 COMMAND ACCEPTED
```

When you bring down an interactive terminal configured for dynamic sessions, the following message appears on the terminal:

```
*TERMINAL INACTIVE*
```

Additional Discussion

This subsection describes the results of bringing down the following entities.

- Resilient Facilities

  For dual bus ILM's (DBILM) on a P62X enter the *DOWN* command on or for the Telcon in the online state only. Do not enter the *DOWN* command on or for the Telcon in the standby state.

  Notes:

  1. *When bringing down resilient lines, use the line name. If you use the port number, you must verify that the same port number is used for the PPIC and the BPPID.*

  2. *The ADCP parameter is only allowed in a resilient system. This parameter overrides automatic command duplication in a resilient system.*

- Terminal on a UNISCOPE protocol line.

  When you bring down a terminal on a UNISCOPE line, the terminal is not prohibited form polling, but is prevented from signing on.

- BSC 2780, 3780, REM1

  You cannot use the *TERM* facility.

  If you use the *SITE* parameter, the site and all associated terminals are brought down.

- Active batch line or site

  If an active batchline or site is brought down, all active output files are aborted and the remote site is terminated. The batch user can go through the normal sign on procedures later, after the line or site has been brought up.

- NTR

  If an active NTR terminal is brought down, abnormal file termination processing takes place.

  For card readers, an abnormal end-of-file indication is sent to the host and the site.

  For output devices, a lock-and-queue indication is sent to the host, and an immediate terminate-device indication is sent to the site.

- Multidropped line

  If all terminals in a poll group (terminals with the same RID) on a multidropped line are brought down and the line is then brought down and brought back up, the poll group table for those terminals will not be present, and the terminals cannot be brought up until the poll group is brought up.

- Channel

  Bringing down a channel can take several seconds. This is a function of the continued heartbeat time (HBTIM).

- UDLC station

  If a UDLC station is brought down, any station in information transfer state will be logically disconnected. This does not release any in-core tables, as there may be multiple stations multidropped on one line. After the station is brought down, the terminal is not permitted to sign onto the network.

  Bringing down the station does not prevent other stations on this line from operating.

  When the station is brought up, the Telcon network again attempts to establish an information transfer state with the terminal that is associated with the station.

Note: *If a station is down when a line is brought down and brought back up, the line must be brought down again and brought back up after the station is brought up. This must be done for the station to be polled.*

Considerations

The *PDTE* and *PTRK* parameters are valid only when used with an X.25 PSCS program product.

References

Refer to the *X.25 PSCS Programming Reference Manual* (7831 5496) for more information on using the *DOWN* command with X.25 facilities.

2.3.27 DTRC – DNS Trace

The *DTRC* command provides information about the DNS nodes along the optimal paths available from a source node to a destination node.

Format

$$\texttt{DTRC DESN=}\begin{Bmatrix}\textit{name}\\ \texttt{[[[}n\texttt{/]}n\texttt{/]}n\texttt{/]}n\end{Bmatrix}\left[\texttt{,SRCN=}\begin{Bmatrix}\textit{name}\\ \texttt{[[[}n\texttt{/]}n\texttt{/]}n\texttt{/]}n\end{Bmatrix}\right]\left[\texttt{,FMT=}\begin{Bmatrix}S\\ L\end{Bmatrix}\right]$$

Required Parameters

DESN=*name*

Is the name of the destination node at which the trace is to end.

DESN=[[[*n*/]*n*/]*n*/]*n*

Is the network address of the destination node at which the trace is to end. The first number specifies the subdomain number, the second number specifies the super cluster number, the third number specifies the simple cluster number, and the fourth number specifies the node number.

- The subdomain number range is from 1–65,535. The default is the local subdomain number.
- The super cluster range is from 1–255. The default is the local super cluster number.
- The simple cluster range is from 1-255. The default is the local simple cluster number.
- The node range is from 1–4,095.

For *DESN=n*, you can omit the subdomain super cluster and simple cluster component parts of the network address. Any component parts omitted default to the network address component parts of the network address of the Telcon node to which you are logically connected.

Optional Parameters

SRCN=*name*

Is the name of the node from which the trace is to start.

SRCN=[[[*n*/]*n*/]*n*/]*n*

Is the network address of the node from which the trace is to start. The first number specifies the subdomain number, the second number specifies the super cluster number, the third number specifies the simple cluster number, and the fourth number specifies the node number.

- The subdomain number range is from 1-5,535. The default is the local subdomain number.
- The super cluster range is from 1-255. The default is the local super cluster number.
- The simple cluster range is from 1-255. The default is the local simple cluster number.
- The node range is from 1–4,095.

For *SRCN=n*, you can omit the subdomain, super cluster, and simple cluster component parts of the network address. Any component parts omitted default to the network address component parts of the network address of the Telcon node to which you are logically connected.

FMT=*S*

Is the short display format.

FMT=*L*

Is the long display format.

The default is the short display format.

Note: *When the SRCN parameter is omitted, the default is the local network address.*

Examples

Example 1 (Short format)

```
DTRC SRCN=1,DESN=4
```

Response

```
1994/07/24 14:43:12 DNS TRACE STARTED

1994/07/24 14:43:13 DNS TRACE RESULTS:   REFERENCE = 513  SEQUENCE = 0
 SRCN = 1.1.1.1            DESN = 1.1.1.4            REPN = 1.1.1.1
NEIGHBOR(S) = 1.1.1.2

1994/07/24 14:43:13 DNS TRACE RESULTS:   REFERENCE = 513  SEQUENCE = 1
 SRCN = 1.1.1.1            DESN = 1.1.1.4            REPN = 1.1.1.2

1994/07/24 14:43:14 DNS TRACE RESULTS:   REFERENCE = 513  SEQUENCE = 2
 SRCN = 1.1.1.1            DESN = 1.1.1.4            REPN = 1.1.1.4
```

Example 2 (Long format)

```
DTRC DESN=2,FMT=L
```

Response

```
1994/07/24 10:11:55 DNS TRACE STARTED

1994/07/24 10:11:55 DNS TRACE RESULTS:   REPN      = 1.1.1.1
  SEQUENCE  = 0                             INITIATOR   = 1.1.1.1
  SRCN      = 1.1.1.1                       DESN        = 1.1.1.1
  MAX DERIVED NPDU SIZE = 16000
  TRACE TIME = 10:11:55:442                 RESULT TIME =10:11:55:442
  NODE RESISTANCE = 14                      PATH RESISTANCE = 1
  REFERENCE = 258      PROTOCOL  = 2        TRUNCATED = N
  REACHABLE = Y        HOP COUNT = 1        IN-USE ROUTINGS = 1
  NEIGHBOR  = 1.1.1.3  LINK RESISTANCE = 1         MAX LSDU SIZE = 16000

1994/07/24 10:11:56 DNS TRACE RESULTS:   REPN      = 1.1.1.2
  SEQUENCE  = 1                             INITIATOR   = 1.1.1.1
  SRCN      = 1.1.1.1                       DESN        = 1.1.1.2
  MAX DERIVED NPDU SIZE = 16000
  TRACE TIME = 10:11:56:442                 RESULT TIME =10:11:56:617
  NODE RESISTANCE = 14                      PATH RESISTANCE = 0
  REFERENCE = 258      PROTOCOL  = 2        TRUCNATED = N
  REACHABLE = Y        HOP COUNT = 0        IN-USE ROUTINGS = 0
```

Note: *End system (ES) nodes cannot be a part of a DNS trace.*

Explanation

REPN

Is the network address of the node reporting the trace results.

SEQUENCE

Is the send sequence number beginning with the source node=0. The sequence number increments by one at each successive node along the path.

INITIATOR

Is the network address of the node initiating the DNS trace command.

SRCN

Is the network address of the trace source node from which the trace is to start.

DESN

Is the network address of the trace destination node at which the trace ends.

MAX DERIVED NPDU SIZE

Is the maximum derived *NPDU* size of the best path from the sending node to the destination node.

TRACE TIME

Is the real-time clock value in hours, minutes, seconds, and milliseconds at which time the trace initiator node.

RESULT TIME

Is the real-time clock value in hours, minutes, seconds, and milliseconds at which time the trace report is collected.

NODE RESISTANCE

Is the node resistance factor of the reporting node.

PATH RESISTANCE

Is the path resistance factor of the best path from the reporting node to the destination node.

REFERENCE

Is the trace initiator node reference number. This number has the same value on all trace reports generated from a single trace command.

PROTOCOL

Identifies the DNS protocol level of the report nodes.

TRUNCATED

Valid values include:

N indicates that the trace results are not truncated.
Y indicates that the trace results are truncated. The trace results are truncated if the trace result *NPDU* exceeds the maximum initial *NPDU* size of the local node or of the neighbor node.

REACHABLE

Valid values include:

Y indicates that the trace destination node is reachable from the reporting node.
N indicates that the trace destination node is unreachable from the reporting node.

HOPCOUNT

Is the hop count of the best path from the reporting node to the destination node.

IN-USE ROUTINGS

Is the number of in-use routings from the reporting node to the destination node. A value greater than one indicated load splitting.

NEIGHBOR

Is the network address of the next neighbor on the path from the reporting node to the destination node.

LINK RESISTANCE

Is the link-cluster resistance factor to the next neighbor on the path from the reporting node to the destination node.

MAX LSDU SIZE

Is the maximum *LSDU* size of the link cluster to the next neighbor node on the path from the reporting node to the destination node.

Notes:

1. *The last lines of the DNS trace report (NEIGHBOR through MAX LSDU SIZE) are repeating fields. The value of IN-USE ROUTINGS determines the number of times the line displays. If IN-USE ROUTINGS is zero, the last two lines of the report do not display.*

2. *You can include Level 8R1 nodes in a DNS trace. An 8R1 node cannot, however, be the trace initiator node. A DTRC command entered from an 8R1 node is rejected and the message, UNDEFINED COMMAND, is displayed on the originating NMS console.*

Redisplaying a DNS Trace Report

CENLOG logs each DNS trace report; however, the trace report is not automatically displayed in CENLOG format (for example, CLASS=7 EVCD=15). You can redisplay each DNS trace report by using the NMS *LOGI* command.

Note: *The DNS trace report is logged in the format (short or long) you request when you use the DTRC command FMT parameter.*

Example

```
LOGI SEQ=7
```

Response

```
1994/07/24 19:17:49
    CENL: 19:46:59 DCP=P412     SEQ=7 CLASS=7 EVCD=15
          SINGLE NODE LOG OF DNS TRACE DATA
          DNS TRACE RESULTS:   REPN     = 1.1.1.308
      SEQUENCE  = 1                          INITIATOR   = 1.1.1.412
      SOURCE    = 1.1.1.412                  DESTINATION = 1.1.1.308
      MAX DERIVED NPDU SIZE = 16040
      TRACE TIME = 19:16:58.829              RESULT TIME = 19:55:08.24
      NODE RESISTANCE = 100                  PATH RESISTANCE = 0
      REFERENCE = 257      PROTOCOL  = 2     TRUNCATED   = N
      REACHABLE = Y        HOP COUNT = 0     IN-USE ROUTINGS = 0
```

2.3.28 ENS – Enterprise Network Services

The *ENS* command activates the Enterprise Network Services menu interface. (See the *Enterprise Network Services Installation, Configuration, and Operations Guide* [7441 2065–000] for information on how to install and configure ENS.)

Note: *The ENS menu interface has HELP screens describing the various available ENS commands.*

Format

$$\mathit{ENS}\left[\mathtt{,NODE=}\begin{Bmatrix}\mathit{name}\\ \mathtt{[[[}\mathit{n}\mathtt{/]}\mathit{n}\mathtt{/]}\mathit{n}\mathtt{/]}\mathit{n}\end{Bmatrix}\right]$$

Required Parameters

None

Optional Parameters

$$\mathtt{NODE=}\begin{Bmatrix}\mathit{name}\\ \mathtt{[[[}\mathit{n}\mathtt{/]}\mathit{n}\mathtt{/]}\mathit{n}\mathtt{/]}\mathit{n}\end{Bmatrix}$$

See Section 2.2 of this manual for a description of the *NODE* parameter.

2.3.29 FRE – Free Tape File

The *FRE* command deletes a previously executed *ASG* command and releases the resources assigned to the specified tape file.

Format

FRE FILE=*name* [,NODE={*name* | [[[*n*/]*n*/]*n*/]*n*}]

Required Parameters

FILE=*name*

Names the file to be freed.

Optional Parameters

NODE={*name* | [[[*n*/]*n*/]*n*/]*n*}

See Section 2.2 of this manual for a description of the *NODE* parameter.

Example

```
FRE FILE=chivas
```

Response

```
FILE FREE'D
```

2.3.30 HELP – Provide Help

The *HELP* command provides the following:

- A list of all valid NMS commands
- A description of the command syntax for specific commands
- A list of all valid software IDs (for use with *TRON/TROF* commands)
- The state (on/off) of all software IDs

Format

```
1. HELP

2. HELP [TYPE={name|SWID}][,NODE={name|[[[n/]n/]n/]n}]
```

Required Parameters

None

Optional Parameters

TYPE=*name*

Specifies the NMS command name for which you want to display the proper format.

If you do not specify this parameter, a complete list of NMS commands is displayed.

TYPE=SWID

Displays a list of software trace IDs (used with *TRON/TROF* commands).

```
NODE={name|[[[n/]n/]n/]n}
```

See Section 2.2 of this manual for a description of the *NODE* parameter.

Examples

Example 1

```
HELP
```

Response

```
1994/07/24 13:14:13
VALID NMS COMMANDS:-

ASG   ADDM  ABRT  CNFG  CFIL  CHNG  CAT   COPY  CNCL  CONS
COND  CHAD  CHAM  CHAT  DIAG  DISQ  DELQ  DOWN  DEL   DELM
DISM  DISP  DCON  DTRC  DMON  DMOR  DBUG  ENS   FRE   HELP
INSP  IDEN  ILM   ISDM  INIT  ITLN  LOGI  LOGC  LOGD  LOGR
LIST  LCHG  MSG   MOVE  MOVS  MOD   MSWT  NMSB  ONLN  QUIT
RCVR  RESL  RFS   REST  RMOVE STAT  SST   STRT  STOP  SET
STAR  STTH  SWT   STBY  SNDM  STOR  SETI  SDNS  SECI  SECL
TRON  TROF  TEXT  TEST  UP    UPDT  XCMD  XFER

FOR PARAMETER INFORMATION ENTER :-
HELP TYPE=CMD  OR  HELP TYPE=SWID
```

Example 2

To see a specific command format, enter the following:

```
HELP TYPE=CONS
```

Response

```
CONS {DCP=xxxxxxxx,NODE=xxxxxxxx,AUTH=cccc,ON=nn,OFF=nn,CEDS=c
      ,OPDS=c,TERM=cccccccc}
```

Example 3

To see a list of valid software IDs, enter the following:

```
HELP TYPE=SWID
```

Response

```
1994/07/24  14:31:36
TELCON SOFTWARE TRACE IDS

ALL       TPP       S80V      S80L *    U11V *    U11L *    NMDS
X21  *    X25       NMOP      RIBM *    IIBM      TIBM      SNA
DTP  *    DTPX *    TSTN      INMS *    ONMS      CNMS      TNMS
1NMS      DSRV *    EUS       IPC  *    TSM       SRC  *    DCFG *
RMVT      UVTR *    DTVT      PRC       TRS       INIT *    UDLC *
U100      TTY  *    REM1      NTR  *    BSC       TAF       HOST *
DUC  *    ROUT *    NMS       QUE  *    OCNL      PU10      CNFG *
UDLU *    SMS  *    ETN       ILM       PSML      LMS       ALPM
OSI  *    TOMF *    1X24      AX25      VTX       CFTR      CENL
CNLB *    CNLL      ARTV

     * INDICATES THAT THE SOFTWARE ID IS TURNED ON

              ***FUNCTION COMPLETE***
```

2.3.31 IDEN – Identify Authority

The *IDEN* command enables the supervisor to set or remove the authority for a console.

Format

```
      ⎡⎧PASS=name          ⎫⎤
IDEN  ⎢⎨SAUT=name          ⎬⎥
      ⎣⎩PASS=name,NEW=name ⎭⎦
```

Required Parameters

None

Note: *Using IDEN without any parameters results in the console having no authority.*

Optional Parameters

PASS=*name*

Is the NMS password for the node to which your console is connected. You must use this if you want to raise the authority of the console.

Using *IDEN* with only the *PASS* parameter raises the console authority to privileged (maximum length eight characters).

NEW=*name*

Specifies the new user-supplied password, replacing the old password.

SAUT=*name*

Indicates the name of a configured area or region (applicable to a TS/TN environment only).

This parameter allows the supervisor to set area or region authority for the console.

Example

```
IDEN PASS=OLDPASW
```

Response

```
1994/07/24 08:40:30 CHANGE COMPLETE
```

Additional Discussion

To declare a new password:

- The console must have privileged authority.
- You must supply both old and new passwords.

When reloading:

- Changes to password are retained over a reload.

2.3.32 ILM – Entering ILM Mode

The *ILM* command activates the intelligent line module processor. See Section 3 of this manual for more information about the *ILM* command and a list of other *ILM* commands.

Format

```
ILM [NODE={name            }]
          {[[[n/]n/]n/]n   }
```

Required Parameters

None

Optional Parameters

```
NODE={name          }
     {[[[n/]n/]n/]n }
```

See Section 2.2 of this manual for a description of the *NODE* parameter.

2.3.33 INIT – Initialize a Telcon Facility

Use the *INIT* command to do the following:

- Initialize DNS trunks created by using online configuration
- Initialize MENU created by using online configuration
- Reinitialize DNS trunks

The following special considerations apply when you use the *INIT* command to reinitialize a DNS trunk:

- DNS trunk reinitialization affects only functions that are related to the DNS protocol. (No station or line reinitialization occurs.)
- Neighbor communication over the trunk is reinitialized. (Therefore, communication is temporarily disrupted.)

Format

$$\texttt{INIT FAC=}\mathit{name}\left[\texttt{, NODE=}\begin{Bmatrix}\mathit{name} \\ \texttt{[[[}n\texttt{/]}n\texttt{/]}n\texttt{/]}n\end{Bmatrix}\right]$$

Required Parameters

FAC=*name*

Indicates the name of a DNS trunk, or the name of a *MENU* configuration statement.

Optional Parameters

$$\texttt{NODE=}\begin{Bmatrix}\mathit{name} \\ \texttt{[[[}n\texttt{/]}n\texttt{/]}n\texttt{/]}n\end{Bmatrix}$$

See Section 2.2 of this manual for a description of the *NODE* parameter.

Example

```
INIT FAC=TRNKX
```

Response

```
1994/07/24 14:02:20 COMMAND ACCEPTED
```

See the *Telcon Configuration Guide* (7831 5678) for more information about how to dynamically configure a DNS trunk.

2.3.34 INSP – Inspect Storage

The *INSP* command displays a portion of main or mass storage in a DCP.

Format

```
               ⎧ SEG= ⎧name⎫                             ⎫
               ⎪      ⎩n   ⎭                             ⎪
               ⎪ PROG=⎧name⎫                             ⎪          ⎡  ⎧NODE=⎧name          ⎫⎫⎤
INSP ADR=n     ⎨      ⎩n   ⎭                             ⎬[,LEN=n]⎢, ⎨     ⎩[[[n/]n/]n/]n⎭⎬⎥
               ⎪       ⎧name          ⎫                  ⎪          ⎣  ⎩XTS=name           ⎭⎦
               ⎪ FILE= ⎨*name         ⎬[,BLK=n]          ⎪
               ⎩       ⎩qualifier*name⎭                  ⎭
```

Required Parameters

ADR=*n*

Indicates the word address. A virtual address is relative to virtual address zero in the specified *SEG*, *PROG*, or *FILE*.

You must enter a hexadecimal address with a leading zero.

Optional Parameters

SEG={*name* | *n*}

Indicates the name or number of the main storage-resident or disk-resident segment you want to inspect.

PROG={*name* | *n*}

Indicates the name or procedure number of either a storage-resident or disk resident program you want to inspect.

FILE=

Indicates the name of the file you want to inspect.

name

Is the basic name of the new file to be inspected. Refer to Table 2–3.

****name***

Is the basic name of the file with the default qualifier; eight character maximum, including a–z, 0–9, –, and $. Refer to Table 2–3.

qualifier

Is the qualifier that establishes the uniqueness of the file name; six character maximum, including a–z, 0–9, –, and $. Refer to Table 2–3.

BLK=*n*

Is the number of the block within the specified file that you want to inspect.

LEN=*n*

Indicates the number of words you want to display, starting at the specified address. The number is rounded up to a multiple of eight. The default is eight.

$$\text{NODE=}\left\{\begin{array}{l}\textit{name}\\ \texttt{[[[}n\texttt{/]}n\texttt{/]}n\texttt{/]}n\end{array}\right\}$$

See Section 2.2 of this manual for a description of the *NODE* parameter.

XTS=*name*

Indicates the name of an external termination system.

You must use the name parameter when you name a file. You can optionally use the *name or qualifier*name parameters to designate the filename. The system provides defaults for omitted parameters, as described in Table 2–3.

Example

```
INSP ADR=5,FILE=SYSJOB,BLK=3
```

Response

```
000005:  20444 4942 212E 2C2F 2F2F 3230 3030 0013
```

2.3.35 ISDM – Initialize Broadcast Message File

The *ISDM* command initializes the standard broadcast message file.

Format

```
ISDM
```

Required Parameters

None

Optional Parameters

None

Example

```
ISDM
```

Response

```
1994/07/24 08:40:30 STANDARD MESSAGE FILE INITIALIZED
```

Additional Discussion

You must issue this command only once, after the first host load (DOWNLOAD), and before you use any of the following broadcast commands:

- *ADDM*
- *CHAM*
- *DELM*
- *DISM*
- *SNDM*

2.3.36 ITLN – Initialize Line

The *ITLN* command initializes a specific line when you configure multiple lines on the same port.

If you execute *ITLN*, and a line is currently active on the same port as the line you want to initialize, the active line is brought down and the line you are initializing is brought up.

Format

```
ITLN LINE=name [ , { NODE={ name           } } ]
                   {       { [[[n/]n/]n/]n } }
                   { XTS=name              }
```

Required Parameters

LINE=*name*

Indicates the name of the line you want to initialize.

Optional Parameters

```
NODE={ name           }
     { [[[n/]n/]n/]n  }
```

See Section 2.2 of this manual for a description of the *NODE* parameter.

XTS=*name*

Indicates the name of an external termination system.

Example

```
ITLN LINE=LINE16
```

Response

```
1994/07/24 08:40:30 COMMAND ACCEPTED
```

2.3.37 LCHG – Displays a List of Change Document Numbers

The *LCHG* command displays a list of change document numbers (PCR #s).

Format

```
LCHG [PRID=name][,CHGN=n][,NODE={name            }]
                                {[[[n/]n/]n/]n   }
```

Required Parameters

None

Optional Parameters

PRID=*name*

Indicates the product ID name, which must be one of the following:

PRID	Description
TEL	Telcon
SNA	SNA/net program product
X25	PSCS program product
OSI	OSITS program product
TCP	TCP–IP Stack program product

CHGN=*n*

Indicates the starting change document number for the named product.

```
NODE={name          }
     {[[[n/]n/]n/]n }
```

See Section 2.2 of this manual for a description of the *NODE* parameter.

Note: *If the CHGN parameter is omitted, the CHGN number defaults to the base change number for the named product.*

Examples

Example 1

```
LCHG
```

Response

```
1994/07/24 14:48:16 Change Control Summary

     PRID   NUM CHGS    Last chg #  Description
     TEL    00190       19639       Telcon
     TCP    00047       01269       TCP-IP Stack Program Product
     OSI    00012       00369       OSITS Program Product
     SNA    none        none        SNA/net is not installed
     X25    00032       02481       X.25 PSCS Program Product
```

Example 2

```
LCHG PRID=TEL
```

Response

```
1994/07/24 14:48:16 LCHG - Change Control Report
     PRID   Num Chgs  Last chg #  Description
     TEL    00190       19701       TELCON

        19389 19394 19395 19396 19397 19398 19399 19400 10401 19402
        19405 19406 19411 19412 19413 19414 19415 19416 19417 19418
        19419 19420 19421 19425 19426 19427 19428 19429 19431 19433
        19436 19437 19438 19439 19440 19441 19442 19444 19445 19446
        19447 19448 19449 19450 19451 19452 19453 19454 19455 19456
        19457 19458 19460 19461 19462 19463 19464 19467 19468 19469
        19472 19473 19474 19477 19478 19479 19480 19481 19482 19483
        19484 19485 19486 19487 19488 19489 19490 19501 19502 19513
        19514 19515 19516 19517 19518 19519 19525 19526 19527 19528
        19529 19530 19531 19532 19536 19537 19538 19539 19540 19541
        19542 19548 19549 19550 19558 19559 19560 19561 19562 19566
        19567 19568 19569 19570 19571 19572 19573 19576 19577 19578

DO YOU WISH TO DISPLAY THE NEXT PAGE ? XMIT Y OR N
```

Example 3

```
LCHG PRID=TEL,CHNG=19490
```

Response

```
1994/11/10 10:16:03 LCHG - Change Control Report
     PRID   Num Chngs Last Chg #  Description
     TEL    00190       19701       TELCON

        19490 19501 19502 19513 19514 19515 19516 19517 19518 19519
        19525 19526 19527 19528 19529 19530 19531 19532 19536 19537
        19538 19539 19540 19541 19542 19548 19549 19550 19558 19559
        19560 19561 19562 19566 19567 19568 19569 19570 19571 19572
        19573 19576 19577 19578 19579 19580 19581 19582 19583 19590
        19591 19592 19593 19602 19603 19604 19605 19606 19607 19610
        19611 19612 19613 19614 19615 19616 19617 19627 19625 19626
        19638 19633 19634 19635 19636 19637 19638 19639 19640 19641
        19648 19649 19651 19652 19653 19654 19655 19665 19666 19667
        19668 19669 19670 19671 19672 19673 19674 19675 19676 19677
        19678 19679 19680 19681 19692 19693 19694 19695 19696 19697
        19698 19699 19700 19701
```

2.3.38 LIST – List Facilities

The *LIST* command provides a hierarchical status display of active lines and the entities connected to them. With *LIST*, you can quickly find out whether any lines in the system are causing problems, and if so, where the difficulties are. *LIST* also displays selected configuration facilities.

You can use *LIST* to provide the following:

- A list of all active lines and channels on a Telcon node, indicating their general states and total counts of active lines, active terminals, and input/output throughput rates (messages/second).
- The status of a particular line or channel and the status of any active poll groups (if the line is a UNISCOPE line).
- The status of a particular line or poll group and any active terminals.
- A display of symbol and information tables for the selected facility (using *NAME=fac-name* or *NAME=n*).
- A display of symbol and STE indexes for all occurrences of the selected facility type (use NAME=*typename). You can use this format of the *LIST* command to provide a list of configured names for any Telcon NDS type. When a selected facility has a pointer to another facility, only the STE for this facility is displayed. To get additional information on the other facility, enter *LIST name=n* where *n* is the STE displayed.
- A list of all resilient lines on a Telcon node (use *LIST RFAC=*LINE*; note that this format is valid only on resilient Telcon nodes).
- Display of total counts only.
- A list of all inactive (downed) lines on a Telcon node (use *LIST IACT=LINE*).

The list command functions in an interactive mode for output displays that exceed a screen full of data. This Interactive mode is initiated automatically when the amount of output data exceeds a screen page. The following input formats function in the interactive mode:

- *LIST*
- *LIST PGRP=n,Line=Linename*
- *LIST NAME=*name*
- *LIST RFAC=*line*
- *LISI IACT=line*
- *LIST CLC=n*

Format

```
LIST [ { LINE={ name   } ,[PGRP=n] } ] [ ,NODE={ name             } ]
       {      { n[/n]  }           }
       { CHAN={ name }             }
       {      { n    }             }
       { NAME={ name  }            }
       {      { n     }            }
       {      { *name }            }
       { RFAC=*name                }
       { CLC=n                     }
       { IACT=LINE                 }
       { LINK=name                 }
       { TOTL={ line }             }
       {      { link }             }
                                                  { [[[n/]n/]n/]n }
```

Required Parameters

None

Optional Parameters

```
LINE={ name   }
     { n[ /n ]}
```

Indicates the configured name or number of the line from which you want to obtain status.

For the single-line line module, the line number is given as the port number (PPID).

For multiline (4x1 and 8x1) line modules, the line number is given as the port number/multiline number. The multiline number can range from 0 to 3 for 4x1 line modules, and from 0 to 7 for 8x1 line modules. The default is 0.

```
CHAN={ name }
     { n    }
```

Is the configured name or port number of the channel from which you want to obtain status.

PGRP=*n*

Indicates the poll group (ranging from 1 to 02F) for which you want to list a status.

NAME=

name	indicates the configured facility name.
n	indicates the STE index of the facility.
****name***	indicates the configuration NDS type name.

RFAC= **name*

Indicates the resilient facility type. **Line* is currently the only type defined for *RFAC.*

CLC=*n*

Is the *CLC* number. Range is 0 through 15.

IACT=LINE

Displays a list of all inactive lines.

LINK=*name*

Is an AIR/net program product parameter. See the AIR/net documentation for the program products installed at your site.

TOTL=LINE

Specifies the total counts for the named type.

$$\text{NODE}=\left\{\begin{array}{l}\mathit{name}\\ [[[n/]n/]n/]n\end{array}\right\}$$

See Section 2.2 of this manual for a description of the *NODE* parameter.

Examples

Example 1 (General)

Example 1 shows the *LIST* command with no parameters and displays the status of all active lines and channels on the Telcon system.

```
LIST
```

Response

```
LINE    PORT   STAT TYPE MDRP INPT  OUTP GRPS TERMS LAST I/O NAME
LINEC3 0035   DISC UNI  NO   OK    OK   000  000    -    -
LINESZ 0036   DISC UNI  NO   OK    OK   000  000    -    -
LINEBZ 0037   DISC UNI  NO   OK    OK   000  000    -    -
CHAN4  003D   UP   CHOB NO   OK    OK    -   000 15:29:38   -
LINERA 0001/0 DISC UNI  NO   OK    OK   000  000    -    -
LINERB 0001/1 DISC UNI  NO   OK    OK   000  000    -    -
LINECD 0001/2 DISC UNI  NO   OK    OK   000  000    -    -
LINEBE 0001/3 DISC UNI  NO   OK    OK   000  000    -    -
LANB1  0003   UP   ILM  NO   00.9  01.4  -   000 15:32:26 DSAPBD
REM100 0004   DISC REM1 NO   OK    OK   000  000    -    -
LINCONB 0005  UP   UNI  NO   00.0  00.2 001  001 15:31:56 CONSLB
CHAN1  000E   UP   CH32 NO   00.1  00.1  -   000 15:32:18  -
TOTALS-------------------------------------------------
   ELAPSED ACTIVE -THRU PUT RATES (MSG/SEC)  ACTIVE
  TIME(MIN) LINES   INPUT      OUTPUT     TERMS
     7       3    0.1        0.4        3
            *** FUNCTION COMPLETE ***
```

Explanation

LINE

Is the name of the line or channel.

PORT

Is the CLC port to which the line is connected. For a multiline port, the port numbers are displayed as *n/n*, where *n/n* is the port number/multiline number (0 to 3 for 4x1 line modules and 0 to 7 for 8x1 line modules).

STAT

Is the line status. Valid parameters are:

UP the line is functioning normally.
DISC the line is disconnected.

TYPE

Is the type of line. Valid parameters are:

BSC	Bisynchronous
CH32	Host channel
NTR	Nine Thousand Remote
UDLC	UDLC
UNI	UNISCOPE
ALPM	Asynchronous link
PUSP	Parallel UNISCOPE
ILML	ILM–20

MDRP

Is the multidropped line. Valid parameters are:

YES	Multidropped line
NO	Not a multidropped line

INPT

Is the input. If line statistics are enabled and traffic has been active since the start of the current line statistics interval, the average messages per second is displayed, instead of the OK message.

OUTP

Is the output. If line statistics are enabled and traffic has been active since the start of the current line statistics interval, the average messages per second is displayed, instead of the OK message.

GRPS

Is the number of active poll groups per line.

TERMS

Is the number of active terminals on the line.

LAST I/O

Is the time (hh:mm:ss) of last *I/O* on this hardware address, regardless of the line name currently being shown. Collecting and reporting is established from the *STATS* parameter on the processor statement or the NMS *SETI* command. If statistics are not configured, this field contains a dash (-).

NAME

Is the name that performed the last *I/O* on this hardware address, regardless of the line name currently being shown. Collecting and reporting is established from the *STATS* parameter on the processor statement or the NMS *SETI* command.

ELAPSED TIME

Is the time interval in minutes needed to collect the input/output throughput rates. (Time interval is established using the *STATS* parameter on the processor statement or the NMS *SETI* command.)

ACTIVE LINES

Is the number of active lines.

THRU-PUT RATES

Are the message flow rates (messages per second).

ACTIVE TERMS

Are the total number of active terminals for all active lines.

Example 2 (Total Counts for Lines)

If *LIST TOTAL=LINE* is entered, it displays the total count of active lines, active terminals, and input/output through rates (messages/second).

```
LIST TOTL=LINE
```

Response

```
TOTALS---------------------------------------------------
      ELAPSED  ACTIVE  -THRU PUT RATES(MSG/SEC)-    ACTIVE
     TIME(MIN) LINES      INPUT        OUTPUT        TERMS
        11        4        0.3          0.8             10
                      *** FUNCTION COMPLETE  ***
```

Example 3 (Poll Group)

If the *LIST* command is used with both the *LINE* and *PGRP* parameters, the supervisor can display the status of a poll group and the active terminals.

```
LIST LINE=LRM23,PGRP=1
```

Response

```
LINE    PORT   STAT TYPE MDRP INPT OUTP GRPS TERMS LAST I/O NAME
LRM23    0023   UP   UNI  NO   00.1 00.3 001  004 10:56:32 M2125
      PGRP ADRS POLL PTYP INPT OUTP TERMS
        1 0020 FAST GENL OK   OK   004
      TERM   ADRS STAT TYPE INPT OUTP INPQ OUTQ SESSN
      M2123  2253 UP   U400 OK   OK   0    0    INACTIVE
      M2124  2254 UP   U400 OK   OK   0    0    INACTIVE
      M2125  2255 UP   U400 OK   OK   0    0    DMRS09
      M2127  2257 UP   U400 OK   OK   0    0    INACTIVE
```

Explanation

LINE

Is the name of the line.

PORT

Is the CLC port to which the line is connected. For a multiline port, the port numbers are displayed as *n/n*, where *n* is the port number/multiline number (0 to 3).

STAT

Is the line status. Valid parameters are:

UP	The line is functioning normally.
DISC	The line is disconnected.

TYPE

Is the type of line. Valid parameters are:

BSC	Bisynchronous
CH32	Host channel
NTR	Nine Thousand Remote
UDLC	UDLC
UNI	UNISCOPE
ALPM	Asynchronous link

MDRP

Is the multidropped line. Valid parameters are:

YES	Multidropped line
NO	Not a multidropped line

INPT

Is the input. If line statistics are enabled and traffic has been active since the start of the current line statistics interval, the average messages per second is displayed, instead of the OK message.

OUTP

Is the output. If line statistics are enabled and traffic has been active since the start of the current line statistics interval, the average messages per second is displayed, instead of the OK message.

GRPS

Is the number of active poll groups per line.

TERMS

Is the number of active terminals on the line.

LAST I/O

Is the time (hh:mm:ss) of last *I/O* on this hardware address, regardless of the line name currently being shown. Collecting and reporting is established from the *STATS* parameter on the processor statement or the NMS *SETI* command. This field will display a dash (-) depending upon the following conditions:

- Statistics not configured
  All lines will display a dash.

- Statistics configured
  No I/O on this line since Telcon started.

NAME

Is the name that performed the last *I/O* on this hardware address, regardless of the line name currently being shown. Collecting and reporting is established from the *STATS* parameter on the processor statement or the NMS *SETI* command.

PGRP

Is the poll group.

ADRS

Is the hardware address of the poll group, the *RID*. The value is in hexadecimal.

POLL

Is the poll, indicating whether the poll group is on *FAST* or *SLOW* poll. *SLOW* poll shows that the drop is not responding to normal (*FAST*) poll. The general *RID* (020) is always *FAST* polled.

PTYP

Is the poll type. Indicates whether polling is *GENL* (general) or *SPEC* (specific) to each terminal.

TERMS

Is the number of active terminals.

TERM

Is the name of the terminal.

TYPE

Is the terminal type.

INPQ

Is the number of items in the input queue.

OUTQ

Is the number of items in the output queue.

SESSN

Specifies inactive, active, or pending status for the current session.

Example 4 (Configured Facility Name)

Example 4 illustrates *LIST* by *NAME* of a configured facility name.

```
LIST NAME=T$2255
```

Response

```
************************************************************************
                   ***SYMBOL TABLE ENTRY***
STEX SYMBOL  UP IN OUT PG TYPE LENGTH DSSN IN-CORE-TBL SECTOR WORD
0063 T$2255  N  N  N   N  12    OF  0000   0000     OC    12

                  ***INFORMATION TABLE ENTRY***
TYPE NEXT-X BACKUP-DCP PARENT-X CHAIN-HD-OFFS F-OFFS-X #-OFFS
TERM  0075 PRC2       0073        05      0000     0
TYPE USERTYPE CLASS AUTO R-O CREDIT PACING DENS CCS
U400  NONE   VTR  Y   N    4    6  L   US
ROWS COLUMNS AUTH REGN AREA D-XEU C-XEU CENL OPDS TIME-V CANMSG
 24   80  PRIV 0   0   0000 N/A   N   N  0       Y
ACCESS..........................RIGHTS
1
RID SID DID CPR LONG UTFIL% BYPASS KATA
 34 85  0 N   N   25    N   N
************************************************************************
                   ***FUNCTION COMPLETE***
```

Note: **DSF under the STEX header indicates that the facility does not have an STE Index. This STE Index is configured in the Directory Services Facility (DSF).*

Example 5 (*LINE Configuration Type)

Example 5 illustrates *LIST* by *NAME* of a configured facility type.

```
LIST NAME=*LINE
```

Response

```
***************************************************************************
          *** FACILITY NAMES BY SYMBOL TYPE ***
STEX SYMBOL  ACTIVE **** STEX SYMBOL  ACTIVE **** STEX SYMBOL  ACTIVE
00E0 LTRH1         00E2 LTRH2          00E5 LTR1
00E7 LTR2          00EB LRESL1         00EE LRESL2
00F3 LTR3132        00F6 LTR3132A        00FB LTR3120
00FE LTR3120A       011D LNMS31   Y      0122 LUTS400
012E LUTS20         0137 LUTS30         0140 LUTS40
0149 LUTS60         0150 LTTY01         0155 LTTY02
0158 LTTY03         015C LTTY04         0161 LTTY05
0162 LTTY06         0163 LTTY07         0164 LTTY08
016D LTTY10         0170 LTTY11         0173 LTTY12
0176 LTTY13         0179 LTTY14         017C LTTY15
017F LTTY16         0182 LTTY17         0185 LTTY18
0188 L4040          0195 LUTSTPP        01A2 LTPPSDM
01B5 LVTX1          01B6 LVTX2          01B7 LVTX3
01B8 LVTX4          01C1 LNTR04         01C7 LBSC67
01CD LBSC68         01D3 LBSC70         01D9 LREM1

 DISPLAY THE NEXT PAGE ? XMIT [Y] OR N OR EXIT
```

Notes:

1. *You can use NAME=*typename to obtain a list of configured names for any Telcon NDS type.*

2. *When you use NAME=*typename, the facility-type name used must be a defined configuration-type name.*

3. *The system cannot determine, in all cases, the active state of a facility from the symbol table. When the system cannot determine the active state, blanks appear in the active column.*

Example 6 (Resilient Lines)

```
LIST RFAC=*LINE
```

Response

```
LIST RFAC=*LINE
*******************************************************************************
       *** RESILIENT FACILITY NAMES BY SYMBOL TYPE ***
STEX SYMBOL  ACTIVE BACKUP-DCP PRINC STYP SWTP P-DTE(C,PG,P#) DCE(C,PG,P#)
002C LA1B$0       PRCB      Y  LSM  SETA     -        -
002D LA1B$1       PRCB      Y  LSM  SETA     -        -
0030 LA1C$0       PRCB      Y  LSM  SETA     -        -
0031 LA1C$1       PRCB      Y  LSM  SETA     -        -
0034 LA24$0       PRCB      Y  LSM  SETA     -        -
0035 LA24$1       PRCB      Y  LSM  SETA     -        -
0038 LA27$0       PRCB      Y  LSM  SETA     -        -
0039 LA27$1       PRCB      Y  LSM  SETA     -        -
003C LB1B$0       PRCB      N  LSM  SETA     -        -
003D LB1B$1       PRCB      N  LSM  SETA     -        -
003E LB1C$0       PRCB      N  LSM  SETA     -        -
003F LB1C$1       PRCB      N  LSM  SETA     -        -
0040 LB24$0       PRCB      N  LSM  SETA     -        -
0041 LB24$1       PRCB      N  LSM  SETA     -        -
0042 LB27$0       PRCB      N  LSM  SETA     -        -
 DISPLAY THE NEXT PAGE ? XMIT [Y] OR N OR EXIT

Y
*******************************************************************************
       *** RESILIENT FACILITY NAMES BY SYMBOL TYPE ***
STEX SYMBOL  ACTIVE BACKUP-DCP PRINC STYP SWTP P-DTE(C,PG,P#) DCE(C,PG,P#)
0043 LB27$1       PRCB      N  LSM  SETA     -        -
*******************************************************************************

               *** FUNCTION COMPLETE ***
```

Example 7 (Downed Lines)

```
LIST IACT=line
```

Response

```
********************************************************************************
           *** LINES WITH STATUS EQUAL TO DOWN ***
NAME    PORT   TYPE *** NAME    PORT   TYPE *** NAME    PORT   TYPE
LTRH1   0021/1 ILM     LTRH2   0021/1 ILM     LTR1    0032   UDLC
LTR2    0032   UDLC    LRESL1  0005   UDLC    LRESL2  0005   UDLC
LTR3132 0020/0 UDLC    LTR3132A 0020/0 UDLC   LTR3120 0011   UDLC
LTR3120A 0011  UDLC    LUTS400 0006   UNI     LUTS20  0007/0 UNI
LUTS30  0007/1 UNI     LUTS40  0007/2 UNI     LUTS60  0007/3 UNI
LTTY01  001B/0 TTY     LTTY02  001B/1 TTY     LTTY03  001B/2 TTY
LTTY04  001B/3 TTY     LTTY05  001B/0 TTY     LTTY06  001B/1 TTY
LTTY07  001B/2 TTY     LTTY08  001B/3 TTY     LTTY10  001B/0 ASML
LTTY11  001B/1 ASML    LTTY12  001B/2 ASML    LTTY13  001B/3 ASML
LTTY14  001B/4 ASML    LTTY15  001B/5 ASML    LTTY16  001B/6 ASML
LTTY17  001B/7 ASML    LTTY18  001B/7 ASML    L4040   0004   UNI
LUTSTPP 0008   UNI     LTPPSDM 0008   UDLC    LVTX1   000C/0 VTX
LVTX2   000C/1 VTX     LVTX3   000C/2 VTX     LVTX4   000C/3 VTX
LNTR04  000B   NTR     LBSC67  000B   BSC     LBSC68  000B   BSC
LBSC70  000B   BSC     LREM1   000B   REM1    LREM2   000B   REM1

 DISPLAY THE NEXT PAGE ? XMIT [Y] OR N OR EXIT

Y

********************************************************************************
           *** LINES WITH STATUS EQUAL TO DOWN ***
NAME    PORT   TYPE *** NAME    PORT   TYPE *** NAME    PORT   TYPE
TR3120A LNP1CON 0014   UNI    LINE4   0004   UNI
LMAX    0011   UNI
*************************************************************************
              *** FUNCTION COMPLETE ***
```

Additional Discussion

When a selected facility has a pointer to another facility, only the STE for this facility is displayed.

To get additional information on the other facility, type:

LIST NAME=*n*

where:

n

Is the symbol table entry index (STEX) displayed.

2.3.39 LOGC – CENLOG Change

The *LOGC* command enables or disables attributes for any of the CENLOG classes of events. The attributes determine how the events are logged or displayed, as follows:

Local logging	to a file on the DCP disk. The logging alternates between files ***PRSTATnn*** and ***ALSTATnn***.
Central logging	to a file at the logging central point. The file is ***CLSTATnn***, if the central logging is to a DCP, or file ***TEL*CST-prcsrname*** if the central logging is to a host system.
Local display	displayed on one or more local NMS consoles. The *CONS* command enables or disables the display for each individual console.
Central display	displayed on one or more NMS consoles at the logging central Telcon node.

Note: *See the* Telcon Configuration Reference Manual *(7831 5686) for information about how to use the processor* ***(PRCSR)*** *NDS configuration time.*

Format

1. LOGC CLAS=*nn*

2. LOGC CLAS=*nn*/*nn*/*nn*... [,ATTR=*name*/...] [,NODE={*name* | [[[*n*/]*n*/]*n*/]*n*}]

3. LOGC CLAS=ALL[,ATTR=*name*/...][,NODE={*name* | [[[*n*/]*n*/]*n*/]*n*}]

Required Parameters

CLAS={*nn* | *nn*/*nn*/*nn* | ALL}

Indicates the number of the event class for which you want to change the logging attribute.

The range is 1 through 16.

Enter the number of one event class, a string of two or more event classes, or *ALL* for all 16 event classes.

Optional Parameters

ATTR=*name/...*

Specifies the logging attribute. Default inhibits logging of that class. Valid attributes are:

DSPL Display locally
DSPC Display centrally
LOGL Log locally
LOGC Log centrally

$$\texttt{NODE=}\begin{Bmatrix} \textit{name} \\ \texttt{[[[}\textit{n}\texttt{/]}\textit{n}\texttt{/]}\textit{n}\texttt{/]}\textit{n} \end{Bmatrix}$$

See Section 2.2 of this manual for a description of the *NODE* parameter.

Example

```
LOGC CLAS-6/7/8/9/10,ATTR=DSPL/LOGC
```

Response

```
1994/07/24/08:40:30 COMMAND ACCEPTED
```

Sets the attributes for classes 6 through 10 to *LOGL=N*, *LOGC=Y*, *DSPL=Y*, and *DSPC=N*.

Considerations

You must enter all required attributes together, separated by a slash (/). Any attribute not entered is assumed disabled.

This command temporarily overrides the configuration parameters in the *PRCSR* statement named *LOGL*, *DSPL*, *LOGC*, and *DSPC*. The next Telcon restart reverts to the configuration settings.

2.3.40 LOGD – CENLOG Attribute Display

The *LOGD* command allows you to examine the attribute status of any or all CENLOG classes.

Format

1. `LOGD`
2. `LOGD[,CLAS=n][,NODE={name | [[[n/]n/]n/]n}]`

Required Parameters

None

Optional Parameters

CLAS=*n*

Is the event class for which you want to view the logging attribute status. Range is 1 through 16. The default displays the status for all even classes.

`NODE={name | [[[n/]n/]n/]n}`

See Section 2.2 of this manual for a description of the *NODE* parameter.

Example

```
LOGD CLAS=6
```

Response

```
1994/07/24 13:37:40
CLASS=6 LOGL=N LOGC=Y DSPL=Y DSPC=N
```

2.3.41 LOGI – CENLOG Inspect

The *LOGI* command displays one of the following:

- CENLOG messages already sent to the local CENLOG file (*prstatnns* or *ALSTATnn*).
- CENLOG messages still being accumulated in the 4K memory buffer before being sent to the local or central CENLOG file.
- CENLOG messages already sent to the central file if the central Telcon node is the same as the specified (or implied) *NODE= parameter*.

When CENLOG messages display on your console as CENLOG events occur, the messages usually display in brief format. See the *TRON* and *TROF* command descriptions in this section for more information about the *TYPE=CNLL* parameter. When you enter the *LOGI* command, and your configuration or your last *LOGC* command specifies the logging of any CENLOGs, you can inspect (or redisplay) CENLOG messages. You can display these messages in long format, or you can generate a report of specific types of CENLOGs (for example, after you execute an *@@PRNT* command).

The statistics message is initially displayed at your console in a condensed format. Using *LOGI*, you can redisplay the error message in the long format.

Format

1. `LOGI`

2. `LOGI[,CLAS-`*n/n/n*`][,EVCD-`*n/n/n*`][,SEQ-`*n1*`[/`*n2*`]][,PN-{`*name* | *n*`}][,OPTN-`*name*`]`

   `[,FROM-`*prcsrname*`][,LINE-`*n*`[/`*n*`]][,FAC-`*name*`[/`*name...*`]][,NODE-{`*name* | `[[[`*n*`/]`*n*`/]`*n*`/]`*n*`}]`

Required Parameters

None

Optional Parameters

CLAS=*n*

Logs entries only for that class. You can specify up to 16 classes. Default is all 16 classes. Separate class numbers with slashes (/).

EVCD=*n*

Displays events for these *n* types for each class declared on the *CLAS* keyword.

Each class (*CLAS*) has 16 events. See the *Telcon Message Manual* (7436 0728) for a description of the 16 classes. The range is 1 through 16. The default is all 16 classes.

SEQ=*n1*

Is the log entry numbers to be retrieved. If you only specify *n1*, the log entry bearing this sequence number is retrieved from the local log file and displayed, regardless of whether any search parameters (*PN*, *CLAS*, *EVCD*, *LINE*, or *FAC*) were specified.

If you enter both *n1* and *n2*, log entries with sequence numbers *n1* through *n2*, inclusive, are displayed. (*n1* must be less than or equal to *n2*.)

The range is 1 through 65,535. The default is the last entry logged.

If you enter the *PN*, *CLAS*, *EVCD*, *LINE* or *FAC* parameters, only the *CENL* entries in this sequence range are searched to match the *PN*, *CLAS*, *EVCD*, *LINE*, or *FAC* criteria.

The default is the last entry logged.

$$\text{PN=}\begin{Bmatrix} \textit{name} \\ \textit{n} \end{Bmatrix}$$

Displays events by procedure name or number. Default is all procedures of the system for the given *CLAS/EVCD/SEQ* keyword parameters selection criteria.

OPTN=*name*

Indicates the option. The following displays are available:

OPTN=NUM	Displays a count of events matching the selection criteria, rather than the events themselves.
OPTN=LONG	Displays the complete description of the events matching the selection criteria, including registers R8 through R15 and any dumped data included by the program.
OPTN=BRIEF	Displays the short format for the requested events.
OPTN=MINI	Displays the CENLOG in the single line format.

FROM=*prcsrname*

LOGI commands with the *FROM=* parameter are routed to the central CENLOG node. The central CENLOG node is defined by the XEU named *CNTRLGEU*. If you want to override *CENTRLGEU* XEU, specify the *NODE=* parameter. The destination node searches its *clstatnn* file for CENLOG entries origination from the PRCSR named in the *FROM=* parameter.

```
NODE={name
     {[[[n/]n/]n/]n}
```

See Section 2.2 of this manual for a description of the *NODE* parameter.

LINE=*n*[/*n*]

Indicates the line number from which you want to obtain status.

For the single-line line module, the line number is given as the port number (PPID).

For the multiline (4x1 and 8x1) line modules, the line number is given as the port number/multiline number. The multiline number can range from 0 to 3 for 4x1 line modules and 0 to 7 for 8x1 line modules. The default is 0.

FAC=*name*[/*name...*]

Is the name of the configured facility, such as a terminal or line.

Note: *See the TRON command TYPE parameter. Specifying CNLB as the value for the TROF TYPE= parameter selects the MINI mode display for the LOGI command. Otherwise, you must select BRIEF for the LOGI OPTN= parameter value.*

Examples

Example 1

```
LOGI SEQ=20,OPTN=LONG
```

Response

Displays sequence #20 in the long format.

Example 2

```
LOGI PN=LPHTRS,OPTN=NUM
```

Response

Shows the number of CENLOG entries made by *LPHTRS* to the local log file.

Example 3

```
LOGI CLAS=6,EVCD=1,OPTN=NUM,FROM=PRC2
```

Response

Shows the number of class 6, event code 1 CENLOG entries (that is, terminal sign-on requests completed) made from PRC2. These entries are destined for the central logging machine that is still in the central log buffer in PRC2.

Example 4

```
LOGI CLAS=6/7,EVCD=10/11,SEQ=100/200
```

Response

Displays all CENLOG entries in the local log file between sequence numbers 100 and 200 that are of class 6 or 7, and of event code 10 or 11.

Example 5

```
LOGI SEQ=1/0FFFF
```

Response

Displays all CENLOG entries from the local log file.

Example 6

```
LOGI SEQ=655,OPTN=MINI

Time Seq# Class/Event Facility Name Primary Message Supplementary Message
```

Response

```
10:01:17 #655  5/15     IDST502    Config Error:   LSCH# TOO LARGE
```

Note: *The above header is shown for explanation purposes, but does not display with CENLOG.*

Explanation

time

Is the time the CENLOG is logged.

seq#

Is the sequence number.

Cl/Ev

Is the CENLOG class and event.

FacName

Is the facility name.

Primary-Msg

Is the primary message.

Supplementary-Msg

Is the supplementary message.

Example

```
LOGI SEQ=190,CLAS=7,EVCD=12,OPTN=LONG
```

Response

```
1994/07/24 13:42:58
CENL:  13:40:53 DCP=FEPB      SEQ=190 CLASS=7 EVCD=12
       LINE=LINET4   PPID=16
       LINE/TERMINAL STATISTICS
       0000 = 0005 0059 007B 1181 0A54 0000 0FC0 02EE
       0008 = B992 00F8 5354 4E34 2020 2020 0059 007B
       0010 = 0000 0A54 0000 0FC0 02EE B992 0001
```

Additional Discussion

If you do not enter *SEQ/PN/CLAS/EVCD/FAC/LINE* parameters, only the most recent CENLOG entry is displayed.

If central CENLOG is not available, NMS displays the following message:

```
***ERROR: SESSION REQUEST REJECTED - REASON PATH DOWN***
```

If you enter any of the *CLAS*, *EVCD*, *PN*, *FAC*, or *LINE* parameters, or if you enter the *SEQ* parameter with a large range of sequence numbers, you may receive many CENLOG messages that match your selection criteria. You can use the *LOGI* command with the *OPTN=NUM* parameter to see how many CENLOG messages appear. Therefore, you can prevent a continuous display of old CENLOG messages on your console. If more messages exist than you want to display, repeat the command with a smaller *SEQ=n/n* range parameter until you find an acceptable range. If you select a range that is too large, you can stop the display of numerous message by using the *$$CLOSE* command and reestablishing a new NMS session with the *$$OPEN* command.

Reference

The *Telcon Configuration Guide* (7831 5678) explains the configuration needed to describe which events are provided in the system, and explains how to create a central log point in the network. See the *CONS* command in this section for information on how to control CENLOG messages.

2.3.42 LOGR – CENLOG Control

The *LOGR* command is a full-screen, menu-driven interactive NMS command allowing you to expand control over CENLOGs beyond normal configuration and *LOGC* command control. In order to restrict the CENLOGs, you must be logged or displayed centrally or locally. The configuration and *LOGC* commands allow you to control the CENLOG classes that are centrally or locally logged or displayed. The *LOGR* command also allows you to identify the following:

- The CENLOG events within each class to be logged or displayed.
- A list of configuration facilities (by address or name) for which CENLOGs are logged or displayed, or are restricted from logging and displaying.

You can use the *LOGR* command to specify the same event, facility logging and display attributes that you can specify as class attributes on the *LOGC* command *ATTR=* parameter, and on the PRCSR network definition statement. The attributes are as follows:

LOGC Is the log to either the central logging Telcon node (in file *clstatnn*) or to the central logging host (in file *tel*cst prcsr-name*). The configuration determines the logging file.

LOGL Is the log to the local log files (*prtstatnn* and *alstatnn*). If the *AUTORETV* parameter is configured on the *PRCSR* statement, either the *prtstatnn* or the *alstatnn* files will be automatically transferred to a host when they are full.

DSPL Is the display to local NMS consoles.

DSPC Is the display to NMS consoles on the central logging Telcon node.

Note: *See the* Telcon Configuration Guide *(7831 5678) and the* Telcon Configuration Reference Manual *(7831 5686) for more information about central logging, AUTORETV, and PRCSR features, statements, and parameters.*

The controls you use to identify the *LOGR* command are saved to a mass storage disk file every time you exit the *LOGR* command. This file is destroyed if the following two conditions exist:

- The file used to save your specified controls exists or was cataloged on the system volume. See the *DCP/OS Operations Reference Manual* (7831 5702) for the definition of the system volume.
- The size of the largest adjacent available free disk space on the system volume at the time each new file from the download was created or replaced is less than the size of any file being downloaded. See the *DCP/OS Operations Reference Manual* (7831 5702) for information about displaying the file sizes using the *@SYSV* command.

If both of the above conditions exist during a DCP download, the system volume is purged. The following two procedures protect the *LOGR* files from deletion:

- Before using the *LOGR* command, catalog it on a disk volume other than the system volume. Use a name such as *telcon*logctl.*

- Exit the *LOGR* command and check the name of the cataloged *LOGR* output file. If the cataloged file is on the system volume, do the following:

  - Catalog another file on another volume.

  - Copy the first file into the second.

  - Delete the first file by using the DCPOS *@DELETE* command.

  - Rename the second file with the name previously given to the first file using the *@CHG,F* command.

Note: *See the* DCP/OS Operations Reference Manual *(7831 5702) for more information about file control.*

You can specify the file in which your controls are saved. You can also specify the file from which the previously set controls were read. The default file names are:

- *runid*logctlnn*
- *runid*logctl*
- *TELCON*logctl*

Explanation

runid

Is the *@RUN* name given to DCP/OS for the DCP/OS run in which your Telcon is executing.

nn

Is the two-digit hexadecimal number assigned by HCONFIG to your *PRCSR* statement if no node ID is specified on the *@TELCON* execution statement in the Telcon DCP/OS runstream. Otherwise, *nn* is the two-character node ID.

Telcon searches for these file names each time Telcon starts. Telcon uses the files as further CENLOG restriction parameters beyond the restrictions specified in the configuration.

Format

```
LOGR [NODE={name | [[[n/]n/]n/]n}]
```

Required Parameters

None

Optional Parameters

```
NODE={name | [[[n/]n/]n/]n}
```

See Section 2.2 of this manual for a description of the *NODE* parameter.

Example

```
LOGR
```

Response

```
1994/07/24 13:42:58  MAIN MENU for TELCON CENLOG RESTRICTION CONTROLS
MENU# ----DESCRIPTION--------------------------------------------------
 1  Select a Class# to enable/disable these attributes for any event:
    Log Local, Log Central, Display Local, Display Central.

 2  Select Facility Names or Addresses to Include or Exclude

 3  Reset defaults from some alternate file (other than file
    TELCON*LOGCTL02 which was used).

 4  Save your updated control parameters to a generic file and exit out
    of this LOGR command back to normal NMS mode.

EXIT  Save your updated control parameters to file TELCON*LOGCTL02,
    and cause them to go into effect now, and return to normal NMS
    mode.

OMIT  Terminate the LOGR command without saving your changes and without
    making them go into effect. (Just return back to normal NMS mode.)

Enter one of the above menu items: (1-4), <EXIT>, OMIT, or HELP)
```

2.3.43 MOD – Modify DNS Network Parameters

The *MOD* command modifies the current values of the DNS network parameters to the values used on the command input. The changed values remain in effect until you reload, or you make subsequent changes using the *MOD* command.

Format

```
    ⎧NODR=n               ⎫
    ⎪LNKR=n,TRNK=name     ⎪ ⎡       ⎧name           ⎫⎤
MOD ⎨FRTZ=n               ⎬ ⎢,NODE= ⎨               ⎬⎥
    ⎪TUT=n                ⎪ ⎣       ⎩[[[n/]n/]n/]n  ⎭⎦
    ⎩PRBT=n               ⎭
```

Required Parameters

Choose one or more, or all of the following parameters for the entities you are modifying:

NODR=*n*

Is the node resistance factor. The range is from 0 to 32,767. If 0 is specified, DNS calculates the *NODR* based on DCP type.

LNKR=*n*

Is the resistance factor of the DNS link associated with the named trunk. The range is from 0 to 32,767. If 0 is specified for *LNKR*, DNS calculates the *LNKR* based on the line or lines contained within the associated trunk.

Note: *If you specify LNKR, you must also specify TRNK.*

TRNK=*name*

Is the name of the trunk. If 0 is specified for *LNKR*, DNS calculates the *LNKR* based on the line or lines contained within the associated trunk.

FRZT=*n*

Is the freeze timer. The value for the freeze timer (*FRZT*) can be from 2–600 seconds. The default is 60 seconds.

TUT=*n*

Is the temporarily unreachable timer. This value can be from 1–600 seconds. The default is *FRZT/2* seconds.

PRBT

Is the probe-time interval. The range for the probe timer (*PRBT*) is from 1–600 seconds. The default is 15 seconds.

Note: *See the* Telcon Configuration Reference Manual *(7831 5686) and the* Telcon Configuration Guide *(7831 5678) for more information about the Telcon DNSINFO configuration statement.*

Optional Parameters

```
NODE={name
     [[[n/]n/]n/]n}
```

See Section 2.2 of this manual for a description of the *NODE* parameter.

Example

```
MOD NODR=1025,LNKR=99,TRNK=TRNK1,FRZT=50,TUT=15,PRBT=100
```

Response

```
1994/07/24 15:04:41 TRUNK PARAMETER MODIFIED
1994/07/24 15:04:41 DNS PARAMETER MODIFIED
```

2.3.44 MOVE – Communications Facilities

The *MOVE* command reconfigures communication facilities on a Telcon node or between two Telcon nodes.

You can reconfigure the following facilities:

- Terminal lines
- Terminal clusters
- Terminals
- UDLC lines
- Stations

Information about moving certain types of facilities is described in the "Additional Discussion" section of this command.

To cancel a move before it is completed, use the *CNCL* command. You can also use *CNCL* to restore the configuration to the original state.

If the system fails during a facility move, you are notified of the failure when you reboot the system. You can cancel (*CNCL*) or restart (*RCVR*) the facility move.

Note: *NMS inhibits the MOVE command when used with a spare line/port. While you cannot move a spare line/port, you can move a line (resilient or non-resilient) to a spare port.*

Format

```
      ⎧LINE=name⎫            ⎡⎧TDCP=name                     ⎫⎤
MOVE  ⎨CLTR=name⎬ ,TO=⎧name  ⎫⎢⎨                              ⎬⎥
      ⎪TERM=name⎪     ⎩n[/n] ⎭⎢⎪,NODE=⎧name                  ⎪⎥
      ⎩STN=name ⎭            ⎣⎩      ⎩[[[n/]n/]n/]n         ⎭⎦
```

1. MOVE *facility-type=name*, TO=*name*

2. MOVE *facility-type=name*, TO=*name* [, *TDCP=name*]

Required Parameters

Choose one of the following *facility-types* for the entity you are moving and the *facility-type* for the destination:

LINE=*name*

Indicates the name of the line you are moving.

CLTR=*name*

Indicates the name of the cluster you are moving.

TERM=*name*

Indicates the name of the terminal you are moving.

STN=*name*

Indicates the name of the station you are moving.

$$TO=\left\{\begin{matrix} name \\ n[\,/n\,] \end{matrix}\right\}$$

Indicates the destination facility name or destination port number/multiline number.

For the single-line module, the line number is given as the port number (PPID).

For multiline (4x1 and 8x1) line modules, the line number is given as the port number/multiline number. The multiline number can range from 0 to 3 for 4x1 line modules, and from 0 to 7 for 8x1 line modules. The default is 0.

Table 2–5 explains the relationship of the facility being moved to the destination.

Table 2–5. MOVE Command Facility and Destination Types

Facility	Destination Facility Type
Terminal on a group	Group name
Terminal line	Port number or port number/multiline number (0-7)
Cluster	Group name
Terminal on a cluster	Cluster name
UDLC line	Port number or port number/multiline number (0-7)
Station	UDLC line or group name

Optional Parameters

NODE={name | [[[n/]n/]n/]n}

Use this parameter when you move facilities within a remote node. See Section 2.2 of this manual for a description of the *NODE* parameter.

TDCP=*name*

Is the Telcon node name to which you are moving the facility. If you do not specify the *TDCP* parameter, the default is the Telcon node to which your console is logically connected.

Use this parameter when facilities are moved between nodes.

Note:

1. *If no session currently exists from the source node to the destination node specified by the TDCP parameter, NMS will open an NMS-NMS session prior to executing the MOVE command.*
2. *The TDCP and NODE parameters are mutually exclusive.*

Additional Discussion

Consider the following when using the *MOVE* command.

- **All facilities**

  When you move facilities between Telcon nodes, free space must exist in the destination configuration file. If no free space exists, you will see a warning message displayed. Using online configuration, pack and expand the configuration file on the destination Telcon node.

- **Lines, clusters, and terminals**

  When you move any of these between Telcon nodes, make sure the hardware characteristics at the destination are compatible.

- **Terminals**

  When you move terminals between Telcon nodes, the default and current destinations for dynamic sessions are no longer effective. You must reopen any system sessions that you need.

- **Ports**

  The TO port can be any compatible port, except the following:

  - Mass storage
  - Parallel UNISCOPE
  - Integrated flexible diskette controller
  - Host channel
  - Any port in use by another program

- **Lines**

  When a line is moved, the final state of the move is one of the following:

  - Up if no other line is active on the TO port
  - DOWN if another line is active on the TO port

- **UDLC lines**

  You can only move UDLC lines within a Telcon node.

- **Stations**

  You can only move stations within a Telcon node.

  You can move stations to a UDLC line or to a group.

  The TO parent (line or group) can have a maximum of 32 stations.

  When you move a station, it must be inactive. The TO and FROM parents (line or group) must be inactive.

  When you move a station, the final state of the station will be inactive. To activate the station, use the *UP* command.

References

See information on the *CNCL*, *RCVR*, and *MOVS* commands in this section.

Example

```
MOVE LINE=line4,TO=011
```

Response

```
CENL:  11:29:41 DCP=PRC1     SEQ=61 CLASS=9 EVCD=1
       LINE=LINE4    PPID=11 HEX
       'UP' OF FACILITIES COMMAND

CENL:  11:29:41 DCP=PRC1     SEQ=62 CLASS=6 EVCD=7
       LINE=LINE4    PPID=11 HEX
       LINE CONNECTION COMPLETED
1994/07/24 11:59:43 FACILITY MOVE COMPLETE - FINAL STATE = UP

CENL:  11:29:43 DCP=PRC1     SEQ=63 CLASS=9 EVCD=5
       NMS MOVE OF FACILITIES
```

2.3.45 MOVS – Move Status

The *MOVS* command displays the status of all *MOVE* commands active on a Telcon node.

Format

```
MOVS [NODE={name
            [[[n/]n/]n/]n}]
```

Required Parameters

None

Optional Parameters

```
NODE={name
      [[[n/]n/]n/]n}
```

See Section 2.2 of this manual for a description of the *NODE* parameter.

Example

```
MOVS
```

Response

```
1994/07/24 10:00:03 FACILITY MOVE ACTIVE   FACILITY IS LINE     LINE20
        MOVING FROM 0009      ON NA #     3/1/1/1
        MOVING TO   000C      ON NA #     1/1/1/1
```

Additional Discussion

This command is used infrequently because the *MOVE* command executes so quickly it only needs to be checked if you suspect an error. However, if you are performing a *MOVE* on a remote Telcon node, or if the Telcon node is experiencing a drain on resources, the *MOVE* could take some time. In these cases, the *MOVS* command will indicate that you should use the *RCVR* (*restart move*) command.

2.3.46 MSG – Send NMS Message

The *MSG* command sends a message to all active NMS consoles enabled to display operator messages (*OPDS=Y*).

Format

```
MSG NODE={name              },message-text
         {[[[n/]n/]n/]n     }
```

Required Parameters

```
NODE={name          }
     {[[[n/]n/]n/]n }
```

See Section 2.2 of this manual for a description of the *NODE* parameter.

message-text

Is the text, including carriage returns.

The maximum is 240 characters; however, each carriage return is counted as 3 characters.

Optional Parameters

None

Example

```
MSG NODE=prc300 THIS DCP WILL BE REBOOTED AT 1 P.M.
```

Response

```
COMMAND ACCEPTED
1994/07/24 13:59:51 THIS DCP WILL BE REBOOTED AT 1 P.M.
```

2.3.47 MSWT – Matrix Switch

The *MSWT* command switches control of a resilient line from one partition to it's peer partition.

Format

```
MSWT linename[NODE={name              }]
                   {[[[n/]n/]n/]n     }
```

Required Parameters

linename

Is the configured name of a resilient line to be switched.

Optional Parameters

```
NODE={name            }
     {[[[n/]n/]n/]n   }
```

See Section 2.2 of this manual for a description of the *NODE* parameter.

Example

```
MSWT LINE21
```

Response

```
LINE LINE21 SWITCHED FROM PRC1 TO PRC2.
```

Additional Discussion

If the executing node currently has control of the line, then no action occurs; otherwise, the executing node takes control of the line.

You do not need to connect resilient lines on dual-bus line modules to a matrix switch.

You must connect lines on single-bus modules to a matrix switch.

2.3.48 NMSB – Repainting NMS Banner

The *NMSB* command clears the screen and repaints the NMS banner line.

Format

```
NMSB
```

Required Parameters

None

Optional Parameters

None

2.3.49 ONLN – Switch to Online State

The *ONLN* command switches a Telcon node to the online state and switches the backup to a standby state. In the online state, the processor controls both the resilient and nonresilient lines.

Format

1. `ONLN`

2. ONLN [FOR=*name*][,*NODE*={*name* | [[[*n*/]*n*/]*n*/]*n*}]

Required Parameters

None

Optional Parameters

FOR=*name*

Is the Telcon node name used in a multiple-Telcon node configuration to specify which pair the switch affects. The default Telcon node is the resilient partner.

If you configure more than one resilient partner, the *FOR* parameter is required.

NODE={*name* | [[[*n*/]*n*/]*n*/]*n*}

See Section 2.2 of this manual for a description of the *NODE* parameter.

Example

```
ONLN FOR=PRC2,NODE=PRC1
```

Response

```
1994/07/24 11:28:08 SWITCH COMPLETE
```

2.3.50 QUIT – Disconnect Your NMS Console Session

The *QUIT* command disconnects the NMS console session for the NMS console on which the command is entered.

Format

```
QUIT
```

Required Parameters

None

Optional Parameters

None

Examples

Example 1 (Without Menu)

```
QUIT
```

Response

```
QUIT
SESSION PATH CLOSED
```

Example 2 (With Menu)

```
QUIT
```

Response

Returns user to the menu.

Note: *To disconnect any NMS session other than your own console, see the DCON command.*

2.3.51 RCVR – Recover a Move Command

The *RCVR* command restarts a facility *MOVE* at a Telcon node if the system fails during the *MOVE*. You are notified of the failure during system reload, or if there is no response from the destination Telcon node within 60 seconds.

Format

$$\mathtt{RCVR}\left[\mathtt{,NODE=}\begin{Bmatrix}\mathit{name}\\ \mathtt{[[[}\mathit{n}\mathtt{/]}\mathit{n}\mathtt{/]}\mathit{n}\mathtt{/]}\mathit{n}\end{Bmatrix}\right]$$

Required Parameters

None

Optional Parameters

$$\mathtt{NODE=}\begin{Bmatrix}\mathit{name}\\ \mathtt{[[[}\mathit{n}\mathtt{/]}\mathit{n}\mathtt{/]}\mathit{n}\mathtt{/]}\mathit{n}\end{Bmatrix}$$

See Section 2.2 of this manual for a description of the *NODE* parameter.

Example

```
RCVR
```

Response

```
1994/07/24 08:40:30 CONFIGURATION DATA SENT
```

2.3.52 RESL – Resiliency Auto-Switch Enable/Disable

The *RESL* command enables or disables the auto-switch feature for a resilient pair of Telcon nodes.

Format

```
RESL ATSW={y|n}[,NODE={name|[[[n/]n/]n/]n}]
```

Required Parameters

```
ATSW={y|n}
```

Indicates if the resiliency is enabled/disabled. Valid values are:

y enabled
n disabled

Optional Parameters

```
NODE={name|[[[n/]n/]n/]n}
```

See Section 2.2 of this manual for a description of the *NODE* parameter.

Example

```
RESL ATSW=Y,NODE=PRC1
```

Response

```
1994/07/24 11:13:33 COMMAND PROCESSED
```

Additional Discussion

When you enter the *RESL* command from a standby Telcon node, *RESL* affects only that Telcon node. When you enter the command for a Telcon node in either the online or loadshare states, *RESL* is automatically echoed to the paired Telcon node and affects both.

2.3.53 REST – Terminate Telcon and Restart Telcon Without a Telcon Dump

The *REST* command allows you to terminate and restart Telcon without a Telcon dump.

Format

1. `REST PASS=`*name*

2. `REST PASS=`*name*`[,RCW=`*n*`][,NODE={`*name* | `[[[`*n*`/]`*n*`/]`*n*`/]`*n*`}]`

Required Parameters

PASS=*name*

Is the NMS password for the node you want to restart.

Optional Parameters

RCW=*n*

Is used to set the run condition word (RCW). The range for *n* is 0–FF. The default is 0. See the *ABRT* command in this section for more information on RCWs.

`NODE={`*name* | `[[[`*n*`/]`*n*`/]`*n*`/]`*n*`}`

See Section 2.2 of this manual for a description of the *NODE* parameter.

Example

```
REST
```

Response

```
1994/07/24 15:58:11 *** WARNING:  NMS REST COMMAND RECEIVED FROM:
                    *** CONSOLE ID = PU1CON
                    *** NODE ID=PRC1
```

Note: *This message is displayed on all NMS active consoles that are logically attached to the Telcon node being aborted. In addition to this message, a similar message is sent to the DCP/OS console.*

2.3.54 RFS – Remote File System

The *RFS* command activates remote file system (*RFS*) processing. See the *Telcon Operations Guide* (7831 5785) for more information about the *RFS* command. See Section 7 of this manual for a list of interactive *RFS* commands.

Format

```
RFS [UID=IPCUSERID][,NODE={name            }]
                          {[[[n/]n/]n/]n}
```

Required Parameters

None

Optional Parameters

UID=IPCUSERID

Is the name of the *IPCUSER* NDS.

```
NODE={name          }
     {[[[n/]n/]n/]n}
```

See Section 2.2 of this manual for a description of the *NODE* parameter.

Table 2–6 lists the NMS *COPY* commands and the copy operations for which they are used.

Table 2–6. File Copy Commands

OPERATION	COMMAND USED
File-to-file (same DCP)	*COPY*
DCP-to-DCP	*XFER* or *RFS*
1100/2200 Host to DCP	*XFER*
DCP to 1100/2200 Host	*XFER*

2.3.55 RMOV – Resilient Line Move

The *RMOV* command moves a resilient line to a spare port or from a spare port back to the primary port.

Format

```
RMOV linename, To={SPR } [,NODE={name              }]
                  {PRIM}        {[[[n/]n/]n/]n}
```

Required Parameters

linename

Is the configured name of a resilient line to be moved.

```
To={SPR }
   {PRIM}
```

Is the destination port type.

SPR

Is the spare port.

PRIM

Is the primary port.

Optional Parameters

```
NODE={name          }
     {[[[n/]n/]n/]n}
```

See Section 2.2 of this manual for a description of the *NODE* parameter.

Example

```
RMOV ITYLNI,To=SPR,NODE=PRC1
```

Response

```
Rmove line32,To=spr
1994/07/24 15:29:49 COMMAND ACCEPTED

CENL:  15:29:44 DCP=PRC1     SEQ=5 CLASS=9 EVCD=2
       LINE=LINE32   PPID=10 HEX
       'DOWN' OF FACILITIES COMMAND
CENL:  15:29:53 DCP=PRC1     SEQ=6 CLASS=9 EVCD=1
       LINE=LINE32   PPID=12 HEX
       'UP' OF FACILITIES COMMAND

CENL:  15:29:55 DCP=PRC1     SEQ=7 CLASS=11 EVCD=8
       PPID=12 HEX
       RESILIENT MOVE COMPLETION:
       GOOD
```

2.3.56 SDNS – Status of DNS Network

The *SDNS* command displays the current values of DNS network parameters, DNS node information, and the DNS viewpoint of the network.

Format

```
SDNS [ { TRNK=name, [NGBR= { [[[n/]n/]n/]n } ]  } ] [ ,NODE= { name             } ]
     [ {                   {  ALL           }   } ]
     [ { NGBR= { [[[n/]n/]n/]n }                } ]         { [[[n/]n/]n/]n    }
     [ {       { ALL           }                } ]
     [ { RNOD=name                              } ]
     [ { NA=[[[n/]n/]n/]n                       } ]
```

Required Parameters

None

Optional Parameters

TRNK=*name*

Identifies the name of a trunk.

NGBR=[[[*n*/]*n*/]*n*/]*n*

Is the network address of the neighbor node. (0 is a wild card; that is, 0 allows a match on any value.) Omitted values default to the local node value.

NGBR=ALL

Is all of the neighbors discovered by this node.

RNOD=*name*

Is the configured name of one of the following:

PRCSR
INN
NETADR

NA=[[[*n*/]*n*/]*n*/]*n*

Is the network address of a remote DNS node or cluster.

```
NODE={name
     {[[[n/]n/]n/]n}
```

See Section 2.2 of this manual for a description of the *NODE* parameter.

Note: *The RNOD parameter requires that the name of the remote node specified by the RNOD parameter be defined in either the local configuration file or the Directory Information Base (DIB).*

Examples

Example 1 (Provides information about local nodes)

```
SDNS
```

Response

```
SDNS
1994/07/24 15:37:36 NODE NAME: P503A        NODE ADDRESS: 1.1.1.503
  NODE RF = 100     NODE PRIORITY = 8       TEMP UNREACHABLE TIMER = 12
  MAX HC  = 40      MAX RF        = 32766   PROBE TIMER            = 15
  BCAST   = 1       P-to-P        = 1       NEIGHBOR COUNT         = 1
  ROUTING RATE (packets/sec) = 0 AT 15:37:36, BACKLOG = 0
  FROZEN CLUSTER/NODES = 0/0/0/0, DNS CLUSTERS/NODES  = 0/0/0/1
  ACTIVE ROUTING DESTINATIONS = 0/0/0/1
```

Explanation

NODE NAME

Is the name of the Telcon node on which the *SNDS* command was executed.

NODE ADDRESS

Is the DNS network address (number) of the Telcon node on which the *SDNS* command was executed.

NODE RF

Is the DNS resistance factor for the node.

NODE UNREACHABLE TIMER

Is the DNS temporarily unreachable timer (*TUT*) value for the node.

MAX HC

Is the maximum number of network node links allowed between two destination nodes (hop count).

MAX RF

Is the maximum resistance factor allowed between two destination nodes.

PROBE TIMER

Defines the probe timer (*PRBT*) interval.

BCAST

Is the number of broadcast subnetwork attachments configured on this node.

P-to-P

Is the number of point-to-point subnetwork attachments configured on this node.

NEIGHBOR COUNT

Is the number of neighbors this node has discovered.

ROUTING RATE

Is the number of packets routed by DNS per second and the time when the last packet was routed.

BACKLOG

Indicates the number of packets waiting to be routed.

FROZEN CLUSTER/NODES

Indicates the number of clusters or nodes in the freeze state. The local DNS node knows these clusters or nodes exist, but cannot reach them because of routing updates in progress. The format of the field is the same as the *DNS CLUSTER/NODES* field.

DNS CLUSTER/NODES = *n1/n2/n3/n4*

Is the count of routing destinations discovered by the specified local DNS node.

If the *SDNS* command is executed on multiple nodes, the count of routing destinations can be different on each node.

- ***n1*** is the number of other subdomains in the network.
- ***n2*** is the number of other super clusters in the same subdomain as this node.
- ***n3*** is the number of other simple clusters in the same super cluster as this node.
- ***n4*** is the number of other nodes in the same simple cluster as this node. This count includes *INNs*.

ACTIVE ROUTING DESTINATIONS

Is the number of destinations to which the node is routing packets. The format of this field is the same as the *DNS CLUSTER/NODES* field.

Example 2 (Provides information about a specific remote network address)

```
SDNS NA=105
```

Response

```
1994/07/24 15:08:56   DCP: PRCA
ROUTING INFORMATION TO REMOTE NODE: 1.1.1.105
     STATE                                  = CLEAR REACHABLE
     HOP COUNT                              = 1
     PATH RESISTANCE (ms)                   = 1
     INITIAL NPDU SIZE (bytes)              = 16000
     ALLOWED OUTPUT RATE (bytes/sec)        = 4000
     LAST ACHIEVED OUTPUT RATE (bytes/sec)  = 250
     TIME OF LAST OUTPUT                    = 15:08:12
   TOTAL PATHS IN USE                       = 3
     PATH   NEIGHBOR NODE ADDRESS   MAX DERIVED NPDU SIZE (bytes)
      1       1.1.1.4                         3980
      2       1.1.1.103                       3980
      3       1.1.1.25                        3980
```

Example 3 (Provides information about a specific remote network address)

```
SDNS NA=503
```

Response

```
1994/07/24 10:23:40   DCP: PRC1
ROUTING INFORMATION TO REMOTE NODE: 1.1.1.503
     STATE                                   = FREEZE UNREACHABLE
     HOP COUNT                               = 255
     PATH RESISTANCE (ms)                    = 32767
     ALLOWED OUTPUT RATE (bytes/sec)         = 4000
     LAST ACHIEVED OUTPUT RATE (bytes/sec)   = 0
   TOTAL NEIGHBORS OWING CONFIRMATIONS       = 1
     NGBR    NEIGHBOR NODE ADDRESS
      1        1.1.1.505
```

Example 4 (Provides information about a specific simple cluster)

```
SDNS NA=1/1/1/0
```

Response

```
1994/07/24 16:08:25   DCP: P502A
ROUTING INFORMATION TO REMOTE CLUSTER:  1.1.1.0
STATE                             = CLEAR REACHABLE
HOP COUNT                         = 3
PATH RESISTANCE (ms)              = 1304
TOTAL PATHS IN USE                = 1
PATH   NEIGHBOR NODE ADDRESS   MAX DERIVED NPDU (bytes)
 1       1.1.2.304                       1500
```

Example 5 (Provides information about a specific remote node)

```
SDNS RNOD=PRC2
```

Response

```
1994/07/24 15:08:44   DCP: PRC1   REMOTE NODE: PRC2
ROUTING INFORMATION TO REMOTE NODE: 1.1.1.105
     STATE                                  = CLEAR REACHABLE
     HOP COUNT                              = 1
     PATH RESISTANCE (ms)                   = 1
     ALLOWED OUTPUT RATE (bytes/sec)        = 4000
     LAST ACHIEVED OUTPUT RATE (bytes/sec)  = 250
     TIME OF LAST OUTPUT                    = 15:08:12
     TOTAL PATHS IN USE                     = 3
     PATH   NEIGHBOR NODE ADDRESS   MAX DERIVED NPDU SIZE (bytes)
      1       1.1.1.4                         3980
      2       1.1.1.103                       3980
      3       1.1.1.25                        3980
```

Explanation (For Examples 2 through 5)

DCP

Is the name of the node on which the *SDNS* command was executed.

REMOTE NODE ID

Is the name of the remote node for which the *SDNS* information is requested.

ROUTING INFORMATION TO REMOTE NODE/CLUSTER

Is the network address of the DNS remote node or cluster being viewed from the executing node. The routing information displayed below this heading is for the network address specified.

STATE

Is the routing state between local and remote DNS nodes or clusters. Valid values are:

CLEAR REACHABLE	normal state; node/cluster known and reachable; data transfer allowed.
CLEAR UNREACHABLE	existence of node/cluster known; node/cluster not reachable due to unusable paths; the *MAX HC* or the *MAX RF* exceeded for the paths.
FREEZE REACHABLE	node/cluster reachable, but routing updates in progress.
FREEZE UNREACHABLE	node/cluster not reachable, but known; routing updates in progress.
TEMPORARY UNREACHABLE	existence of node/cluster known, but no usable path exists; routing updates in progress.

HOP COUNT

Is the number of nodes/clusters traversed along the path to the remote node/cluster. This count includes the remote node/cluster, but not the sending node/cluster.

PATH RESISTANCE

Is the resistance factor of the path (in milliseconds). The lower this number, the faster a message traverses the path.

ALLOWED OUTPUT RATE

Is the output window rate (in bytes/sec) to the remote node.

LAST ACHIEVED OUTPUT RATE

Is the last recorded output rate (in bytes/sec) from the network service users on this node to the specified remote node.

TIME OF LAST OUTPUT

Is the time of the last message DNS sent to a remote node from a network service user.

Note: *TIME OF LAST OUTPUT appears only if the last achieved output rate is nonzero.*

TOTAL PATHS IN USE

Is the number of paths being used to send data to the remote node/cluster.

PATH

Is the path number.

NEIGHBOR NODE ADDRESS

Is the DNS network address of neighbor nodes in the following conditions:

When the *STATE* field is *CLEAR REACHABLE* or *CLEAR UNREACHABLE*:

Then the *NEIGHBOR NODE ADDRESS* field lists all neighbors on the routing path between the node executing the *SDNS* command and the specified remote node/cluster.

When the *STATE* field is *FREEZE REACHABLE* or *FREEZE UNREACHABLE*:

Then the *NEIGHBOR NODE ADDRESS* field indicates neighbors who owe routing confirmations to the node executing the *SDNS* command. The routing status to the specified destination does not change until all neighbors return their confirmations.

MAX DERIVED NPDU SIZE

Is the smallest size from the node executing the *SNDS* command to the remote node. Messages larger than this size are segmented.

Example 6 (Provides information about trunk from the perspective of the local node)

```
SDNS TRNK=TRNK1
```

Response

```
1994/07/24 10:18:05   DCP: P503A
TRUNK INFORMATION FOR: TRNK1
     STATE:                  = USEABLE
     SUBNET TYPE             = POINT-TO-POINT
     LOCAL LSDU SIZE         = 16000
     LOCAL LINK RF (ms)      = 16000
     NEIGHBOR COUNT          = 1
     IS-NET MCA              = N/A
     ALL-ES MCA              = N/A
     CNFGRED BNDARY NODES    = NONE
```

Explanation

DCP

Is the name of the node on which the *SDNS* command was executed.

TRUNK INFORMATION FOR

Is the name of the trunk for which the information was requested.

STATE

Indicates the status of the network. Valid values are:

USABLE	indicates that the trunk is in information transfer state.
USABLE/OVERFLOW	indicates that the trunk can be used to communicate with neighbors, but the bandwidth of the trunk is being exceeded.
UNUSABLE	indicates that no data is being exchanged across the trunk.

SUBNET TYPE

Indicates the subnetwork type over which the trunk operates (point-to-point or broadcast).

LOCAL LSDU SIZE

Is either the configured value of the *MAXLSDU* parameter on the *TRUNK* configuration statement or the defaulted value when the *MAXLSDU* parameter is not specified. This is the maximum size (in octets) of the data unit that DNS passes to the link.

LOCAL LINK RF (ms)

Is either the configured value of the *LINKRF* parameter on the trunk NDS statement or the defaulted value when the *LINKRF* parameter is not specified. This is the time (in milliseconds) the average message takes to traverse the link.

NEIGHBOR COUNT

Is the count of the neighbors discovered on this subnetwork.

IS-NET MCA

Specifies the multicast address used to communicate to all intermediate systems and is meaningful only for broadcast type networks. (See *ISNET* parameter on *DNSSN* and *DNSINFO* configuration statements.)

ALL-ES MCA

Specifies the multicast address used to communicate to all end systems and is meaningful only for broadcast type networks. (See *ALLES* parameter on *DNSSN* and *DNSINFO* configuration statements.)

CNFGRED BNDARY NODES

Is the boundary network addresses associated with the named trunk. (See the *BOUNDARY* parameter on the trunk NDS.)

Example 7 (Provides information about logical link between the local node and a specific neighbor)

```
SDNS TRNK=TV503A,NGBR=504
```

Response

```
1994/07/24 10:18:05   DCP: P503A
TRUNK INFORMATION FOR: TV503A          NEIGHBOR: 1.1.1.504
     STATE:                  = ACTIVE
     NEIGHBOR TYPE           = IS
     WORKING LSDU SIZE       = 16000
     WORKING LINK RF (ms)    = 1
     SUBNET TYPE             = POINT-TO-POINT
     LAN MAC ADDRESS         = N/A
     HOLDING  TIMER          = INFINITE
```

Explanation

DCP

Is the name of the node on which the *SDNS* command was executed.

TRUNK INFORMATION FOR

Is the name of the trunk for which the information was requested.

NEIGHBOR

Is the network address of the neighbor associated with the *NGBR* input parameter.

STATE

Indicates the status of the logical connection to the neighbor over this trunk. Valid values are:

ACTIVE	indicates that the logical connection is usable.
INACTIVE	indicates that the logical connection is unusable.
INITIALIZING	indicates that the protocol exchange has started.
ACTIVE/OVERFLOW	indicates that the logical connection is usable, but the bandwidth is being exceeded.

NEIGHBOR TYPE

Describes the node type of the neighbor. Valid values are:

IS is an intermediate system.
ES is an end system.

WORKING LSDU SIZE

Is the byte count of the largest single message that can be sent across this logical connection. This value is the smallest of the local *LSDU* sizes (named with the *SDNS TRNK=* parameter) and the local *LSDU* size of the neighbor (obtained through the protocol exchange). Network service user messages that are larger than this value will be segmented and reassembled.

WORKING RF (ms)

Is the resistance factor (RF) assigned to the logical connection. This parameter is meaningful only if the state is active or active/overflow. This values is the average of the local-link RF (named with the *SDNS TRUNK=* parameter) and the local-link RF of the neighbor (obtained through the protocol exchange).

SUBNET TYPE

Is the type of subnetwork over which the logical connection operates (point-to-point or broadcast).

LAN MAC ADDRESS

Specifies the *LAN MAC* address of the neighbors end of this logical connection This value is applicable only when the subnet type is broadcast. N/A indicates this value is not applicable.

HOLDING TIMER

Indicates the time (in seconds) during which at least one protocol message must be received or the neighbor is considered inactive. Infinite indicates the protocol interval is not being timed.

Example 8 (Provides summary information about all neighbors to which the local node is attached using the named trunk)

```
SDNS NGBR=all,TRNK=tide
```

Response

```
1994/07/24 10:18:05   DCP: P304
TRUNK INFORMATION FOR: TIDE  MATCH KEY REQUESTED : 0.0.0.0
    CLUSTER:1.1.3.0
      NODE =502*
```

Example 9 (Provides summary information about requested neighbors to which the local node is attached using the named trunk)

```
SDNS TRUNK=T12DV,NGBR=1/1/1/0
```

Response

```
1994/07/24 13:51:18   DCP: N2
TRUNK INFORMATION FOR: T12DV  MATCH KEY REQUESTED : 1.1.1.0
     CLUSTER:  1.1.1.0
       NODE =    1*
```

Explanation (for Examples 8 and 9)

DCP

Is the name of the node on which the *SDNS* command was executed.

TRUNK INFORMATION FOR

Is the name of the trunk for which the information is requested.

MATCH KEY REQUESTED FOR

Is the value derived from the *NGBR* parameter.

CLUSTER

Is the simple cluster address.

NODE

Is the node number. A node number followed by an asterisk (*) is an IS node; a node number without an asterisk is an ES node.

Example 10 (Provides summary information about all neighbors)

```
SNDS NGBR=ALL
```

Response

```
1994/07/24 10:18:05   DCP: P503A
LIST OF NEIGHBOR NODES  MATCH KEY REQUESTED FOR:  0.0.0.0

CLUSTER:1.1.1.0
       NODE = 504*
```

Example 11 (Provides summary information about requested neighbors)

Showing use of wild card:

```
SDNS NGBR=1/1/0/0
```

Response

```
1994/07/24 16:15:35   DCP; 304
LIST OF NEIGHBOR NODES  MATCH KEY REQUESTED : 1.1.0.0
        CLUSTER:  1.1.2.0
            NODE:  403*
        CLUSTER:  1.1.3.0
            NODE=  502*
```

Example 12 (Provides summary information about all neighbors in the same simple cluster as the node on which the *SDNS* command executes)

```
SDNS NGBR=0
```

Response

```
1994/07/24 16:23:01   DCP: P304
LIST OF NEIGHBOR NODES  MATCH KEY REQUESTED : 1.1.2.0
    CLUSTER:  1.1.2.0
      NODE =  403*
```

Explanation (for Examples 10 through 12)

DCP

Is the name of the node on which the *SDNS* command was executed.

MATCH KEY REQUESTED FOR

Is the value derived from the *NGBR* parameter.

CLUSTER

Is the simple cluster address.

NODE

Is all the nodes contained in the simple cluster that are neighbors to the specified node. A node number followed by an asterisk (*) is an IS node; a node number without an asterisk is an ES node.

Note: *This report displays only if the NGBR=ALL parameter or if any of the address component parts equals zero.*

Example 13 (Provides information about a specific neighbor)

```
SDNS NGBR=1/1/1/504
```

Response

```
1994/07/24 10:18:05   DCP: P503A
NEIGHBOR INFORMATION FOR: 1.1.1.504
     STATE:                  = ACTIVE
     NEIGHBOR TYPE           = IS
     NODE PRIORITY           = 8
     WORKING LSDU SIZE       = 16000
     WORKING LINK RF (ms)    = 1
     TRUNKS TO NEIGHBOR      = TV503
```

Explanation

DCP

Is the name of the node on which the *SDNS* command was executed.

NEIGHBOR INFORMATION FOR

Is the node address of the neighbor for which the information was requested.

STATE

Indicates the status of the neighbor. Valid values are:

ACTIVE	indicates that the neighbor has at least one logical connection in an active state. (See the SDNS *TRNK=name* parameter.)
INITIALIZING	indicates that the neighbor has at least one logical connection in an initializing state and no logical connections in an active state.

NEIGHBOR TYPE

Describes the node type of the neighbor. Valid values are:

IS is an intermediate system.
ES is an end system.

NODE PRIORITY

Describes the relative priority of the nodes in the network. The range is 1–15, with 1 being the lowest priority.

WORKING LSDU SIZE

Is the byte count of the largest single message that can be sent to this neighbor. This value is the smallest of the local *LSDU* sizes (see the SDNS *TRNK=* parameter) and the local *LSDU* size of the neighbor (obtained through the protocol exchange). Network service user messages that are larger than this value will be segmented and reassembled.

WORKING RF (ms)

Is the resistance factor (RF) assigned to reach this neighbor and is a factor of the working RFs of the in-use logical connections. (See SDNS *TRUNK=name* and *NGBR=* parameters.)

TRUNKS TO NEIGHBOR

Is a list of the names of all the trunks that allow logical connections to this neighbor. A name followed by an asterisk indicates that the connection is in use.

2.3.57 SECI – Distribute Security Information

The SECI command is used to have the Security Control Server (SCS) distribute information from dynamically configured or dynamically modified server or client statements.

Format

$$\texttt{SECI FAC=}\mathit{name}\left[\texttt{, NODE=}\begin{Bmatrix}\mathit{name}\\ \texttt{[[[}n\texttt{/]}n\texttt{/]}n\texttt{/]}n\end{Bmatrix}\right]$$

Required Parameters

FAC=*name*

Indicates the name of a security facility client or server.

Optional Parameters

$$\texttt{NODE=}\begin{Bmatrix}\mathit{name}\\ \texttt{[[[}n\texttt{/]}n\texttt{/]}n\texttt{/]}n\end{Bmatrix}$$

See Section 2.2 of this manual for a description of the *NODE* parameter.

Note: *When updating the Security Management Information Base (SMIB) remember the following:*

- *When master SCS and all alternate SCSs are updated, the SECI command is not required*
- *When updating the master SCS, use the SECI command to distribute to all alternate SCSs.*

Example

```
SECI FAC=SERVER1
```

Response

```
SECI FAC=server1
1994/08/02 11:17:59 COMMAND ACCEPTED
```

2.3.58 SECL – Security List

The *SECL* command provides a display of facilities in the Security Management Information Base (SMIB).

Format

```
SECL NAME={name }
          {*name}
```

Required Parameters

NAME=*name*

Indicates the configured facility from the SMIB.

name

Is the facility type name client or server.

Optional Parameters

None

Examples

Example 1

```
SECL NAME=*SERVER
```

Response

```
***********************************************************************
                    *** SECURITY NAMES BY SYMBOL TYPE ***
NAME  STAT S-KEY    ACCESS SERV-INFO EXT-TIMER TRTP NETWORK ADDRESS
SCS        SCSKEY   8000        0       24      -         -
MENUEN1             4000        0        8      -         -
MENUEN2             4000        0        8      -         -
MENUEN3             4000        0        8      -         -
MENUEN4             4000        0        8      -         -
NMSCEU     NMSKEY   4000        7        1      -         -
MONEU      MONKEY   4000        0        1      -         -
SERVER1    AAAAAAAA 2000       10        1      DNS  1.1.1.1
SERVER2    BBBBBBBB 2000       10        1      DNS  1.1.1.2
SERVER3    CCCCCCCC 2000      255        1      DNS 65123.255.255.4050
SV1                 8000        0       24      -         -
SV2        CCCCCCCC 2000       10       25      DNS    1.1.1.3
SV3        ABCDEFGH FFFF      255       71      TCP    255.0.0.0
SERVER78   ABCDEFGH FF00      255       70      TCP    255.255.255.255
SERVER79   ABCDEFGH FFFF      255       24      DNS 65123.255.255.4052

DISPLAY THE NEXT PAGE ? XMIT [Y] OR N OR EXIT
```

Example 2

```
SECL NAME=SERVER1
```

Response

```
***********************************************************************

                         *** SYMBOL TABLE ENTRY ***
STEX SYMBOL    UP IN OUT PG TYPE LENGTH DSSN IN-CORE-TBL SECTOR WORD
0023 SERVER1   Y   N N   N  SRVR  00A   0000    0000       001   0C4

                       *** INFORMATION TABLE ENTRY ***
S-KEY      ACCESS SERV-INFO EXP-TIMER TRTP NETWORK ADDRESS
AAAAAAAA    2000     10         1     DNS  1.1.1.1
***********************************************************************
                        *** FUNCTION COMPLETE ***
```

2.3.59 SET – Set Time and Date

The *SET* command sets the time (hours, minutes, and seconds) and date (year, month, and day) in a DCP. The time and date can be retrieved from an OS 2200 host in an OS 2200 network by using the *HOST* parameter, or can be specified explicitly by using the *TIME* and *DATE* parameters. If the *HOST* parameter is present, the *TIME* and *DATE* parameters are ignored. If the *HOST*, *TIME*, and *DATE* parameters are omitted, the time and date in the DCP is not modified. The time and date are always displayed when this command is entered.

Format

```
SET [ { DATE=YY:MM:DD,TIME=HH:MM:SS } ] [ ,NODE={ name             } ]
    [ { DATE=YY:MM:DD               } ]        { [[[n/]n/]n/]n  }
    [ { TIME=HH:MM:SS               } ]
    [ { HOST=name                   } ]
```

Required Parameters

None

Optional Parameters

DATE=YY:MM:DD

Is the current date, entered with year 00 month 01 and day 01–days in month.

Year values from 90–99 will be interpreted as 1990–1999.
Year values from 00–89 will be interpreted as 2000–2089.

TIME=HH:MM:SS

Is the current time, entered with hours 00–23, minutes 00–59, and seconds 00–59.

HOST=name

Is the name of any *ADDRESS*, *NETADR*, or *XEU* statement identifying the host that will supply the time and date. The named statement must be present in the configuration file or the DIB.

```
NODE={ name           }
     { [[[n/]n/]n/]n  }
```

See Section 2.2 of this manual for a description of the *NODE* parameter.

Notes:

1. *The ADDRESS statement is not allowed in the DIB.*
2. *If you use a separator, you must use a colon. If the colon is present, you may use one- or two-digit numbers. If the colon is omitted, two-digit numbers are assumed.*

Example

```
SET DATE=1994:07:24,TIME=13:13:13
```

Response

```
Today is Sun 24 Jul 1994. The time is 13:13:13
1994/07/24 13:13:13 EXPLICIT TIME/DATE SETTING COMPLETED
```

2.3.60 SETI – Set Time Interval

The *SETI* command allows you to do the following:

- Turn on or off logging for line and terminal level statistics.
- Increase or decrease the time interval between log entries for line and terminal I/O statistics.
- Increase or decrease the time interval between log entries for CP utilization statistics (if *USTATS* is enabled on the *PRCSR NDS* in the configuration).
- Increase or decrease the time interval the System Integrity Monitor (SIMON) uses to terminate Telcon after a heartbeat is sent and no response is received.

Format

```
1. SETI

         [LINS=n][            {name            }]
2. SETI  [TRMS=n][,NODE=      {[[[n/]n/]n/]n   }]
         [SIMT=n][                              ]
```

Required Parameters

None

Optional Parameters

LINS=*n*

Turns on line statistics logging and designates the time period (in minutes) between logging entries. The range of *n* is 5–720. The default is off.

TRMS=*n*

Turns on line and terminal statistics logging and designates the time period (in minutes) between logging entries. The range of *n* is 5–720. The default is off.

SIMT=*n*

Sets the SIMON time interval. The range is 5–600 seconds. The default is 30 seconds.

```
NODE={name          }
     {[[[n/]n/]n/]n}
```

See Section 2.2 of this manual for a description of the *NODE* parameter.

You can change the SIMT value at system generation time by using the AC$SIMT EQU.

Examples

Example 1

```
SETI LINS=5
```

Response

```
1994/07/24 11:30:10 LINE STATISTICS LOGGING ENABLED
```

Example 2

```
SETI SIMT=30
```

Response

```
1994/07/24 11:55:52 TIME INTERVAL SET
```

Additional Discussion

If you use the *SETI* command without the *LINS* or *TRMS* parameters, line and terminal level statistics logging is turned off.

2.3.61 SNDM – Send Broadcast Message

The *SNDM* command sends broadcast messages to other terminals in the network. You can send up to four consecutive messages at any one time with *SNDM* within the configured existence time.

Format

```
SNDM DEST={prcsrname}, NUM=msg-num
          {ALL      }
```

Required Parameters

DEST=*prcsrname*

Is the name of the *PRCSR* designated to receive messages. Only terminals connected to that *PRCSR* will receive the message.

DEST=ALL

Designates all terminals in the system to receive the message.

NUM=*msg-num*

Is the number of the messages you are sending.

Optional Parameters

None

Example

```
SNDM DEST=ALL,NUM=09
```

Response

```
1994/07/24 08:00:58 MESSAGE RECEIVED BY DCP PRC1
1994/07/24 08:00:58 MESSAGE RECEIVED BY DCP PRC2
1994/07/24 08:00:58 MESSAGE RECEIVED BY DCP PRC3
```

Additional Discussion

When the command is accepted, each Telcon node acknowledges acceptance or rejection of the broadcast message. Acceptance does not imply delivery to the terminals. Terminal operators are notified of the message, but must enter the *$$SEND* command to receive it. See the *Telcon Operations Guide* (7831 5785) for more information about the *$$SEND* command.

Only terminals that are signed on when you enter *SNDM* are notified that there is a message waiting. See also the descriptions of the *ISDM* and *ADDM* commands in this section, both of which are prerequisites for the *SNDM* command.

2.3.62 SST — Short Status

The *SST* command reports an abbreviated Telcon node status.

Format

```
SST [PROD=y][,NODE={name              }]
                   {[[[n/]n/]n/]n     }
```

Required Parameters

None

Optional Parameters

PROD=Y

Appends a list of all COMUS installed program products. The list contains product name, level, and installation date.

```
NODE={name          }
     {[[[n/]n/]n/]n }
```

See Section 2.2 of this manual for a description of the *NODE* parameter.

Example

```
SST PROD=Y
```

Response

```
1994/08/02  10:57:58 DISPLAY - TIME - COLLECTION: 10:57:57
            NODE: SLJ      UP:  2:44  IDLE:  93%
            CONFIG-FILE: SNAPD*CONFIG      LEVEL: 10.168
            MC-LEV: 16.043.000   INT- LEV: 10.168
            HDW-TYPE: DCP50           CONFIG-LEVEL: C941019
            DNS NETWORK ADDRESS: 4.30.1.109
            PRODUCT         LEVEL:              INSTALLED:
            DCPBSCR-3270    4R1K    4.148       94/10/21  16:39:52
            TCP-IP          3R1     3.1.32      94/11/03  16:01:29
            SNA-NPSI        5R2     5.200.8     94/10/27  11:02:44
            SNA-NET         5R2     5.200.8     94/10/27  11:02:40
            SNA-CDRM        5R2     5.200.8     94/10/27  11:02:33
            SNA-IBF         5R2     5.200.8     94/10/27  11:02:36
            SNA-NT21        5R2     5.200.8     94/10/27  11:02:48
            SNA-RBFTE       5R2     5.200.8     94/10/27  11:06:45
            SNA-TERM        5R2     5.200.8     94/10/27  11:23:03
            DCPX25-PSCS     5R2D    5.2.102     94/10/21  15:54:49
```

Additional Discussion

See the *STAT* command for a description of common fields. Most of the fields reported on the *SST* command are also reported on the *STAT* command, as follows:

SST LABEL	STAT LABEL
CONFIG-FILE	CURRENT CONFIGURATION FILE
TEL-LEV (site-developed)	TELCON LEVEL
MC-LEV	MICRO-CODE LEVEL

The following fields are reported on the *SST* command, but not on the *STAT* command:

DISPLAY-TIME

The time of day when the reported information is displayed.

COLLECTION-TIME

The time of day when the reported information is requested. For a remote Telcon node, there will be a time delay between the requested and the reported times.

INT-LEV

The internal Telcon level assigned at system generation. This contrasts with the *STAT* command *TELCON LEVEL* field that can be defined when generating a system using COMUS. See the *Telcon Operations Guide* (7831 5785) for more information about the internal Telcon level.

DCP-TYPE

The type of DCP. It may be any member of the DCP family.

CONFIG LEVEL

The user-defined configuration level.

PRODUCT

The name of the installed program products.

LEVEL

The program product level number.

INSTALLED

The date and time of the program product installation.

References

See the *X.25 PSCS Configuration and Operations Guide* (7831 5470) and the *X.21 CSCS Installation, Configuration, and Operations Guide* (UP–10666) for more information about program products.

2.3.63 STAR — Status Repeat

The *STAR* command displays the system status of the Telcon node connected to the inputting console. The display repeats every 30 seconds, or until you enter a valid NMS command.

Format

```
STAR
```

Required Parameters

None

Optional Parameters

None

Example

```
STAR
```

Response

For a description of the system response, see the *STAT* command.

2.3.64 STAT — Facility Status

The *STAT* command reports the status of the following:

- Telcon node
- Service access point
- Channel
- Line
- Volume
- Poll group
- Terminal
- Tape device
- Site
- Terminal cluster
- File
- Transfer
- Station

The status report varies, depending on the type of facility. You can specify only one facility type. If you do not specify a type, the Telcon node status is reported.

Format

```
      ⎡⎧CHAN={name}                       ⎫⎤
      ⎢⎪      {n   }                      ⎪⎥
      ⎢⎪LINE={name  }                     ⎪⎥
      ⎢⎪      {n[n/]}                     ⎪⎥
      ⎢⎪TERM=name                         ⎪⎥
      ⎢⎪      ⎧name          ⎫            ⎪⎥
      ⎢⎪FILE= ⎨*name         ⎬            ⎪⎥
      ⎢⎪      ⎪qualifie*name ⎪            ⎪⎥
      ⎢⎪      ⎩$             ⎭            ⎪⎥
      ⎢⎪VOL=name[,FILE={$}]               ⎪⎥  ⎡  ⎧NODE={name            }⎫⎤
      ⎢⎪DVC=name                          ⎪⎥  ⎢, ⎨      {[[[n/]n/]n/]n}⎬⎥
STAT  ⎢⎨SITE=name                         ⎬⎥  ⎣  ⎩XTS=name              ⎭⎦
      ⎢⎪CLTR=name                         ⎪⎥
      ⎢⎪STN=name                          ⎪⎥
      ⎢⎪SAP=name                          ⎪⎥
      ⎢⎪PGRP=n,LINE={name  }              ⎪⎥
      ⎢⎪            {n[n/]}               ⎪⎥
      ⎢⎪XFER={n}                          ⎪⎥
      ⎢⎪     {$}                          ⎪⎥
      ⎢⎪PTRK=name                         ⎪⎥
      ⎢⎪CDTE=name                         ⎪⎥
      ⎢⎪PDTE={name}                       ⎪⎥
      ⎢⎪     {n   }                       ⎪⎥
      ⎢⎪LINK=name                         ⎪⎥
      ⎣⎩LCN=n                             ⎭⎦
```

```
1.  STAT

2.  STAT[entity-name] ⎡⎧,NODE={name            }⎫⎤
                      ⎢⎨      {[[[n/]n/]n/]n}⎬⎥
                      ⎣⎩,XTS=name              ⎭⎦
```

Required Parameters

None

Optional Parameters

Choose one of the following entity-names:

CHAN= { *name* | *n* }

The name or port number of a channel.

LINE= { *name* | *n*[/ *n*] }

The configured name or number of the line for which the status is required.

For a single-line line module, the line number is the PPID.

For multiline (4x1 and 8x1) line modules, the line number is the port number/multiline number. The multiline number can range from 0 to 3 for 4x1 line modules and 0 to 7 for 8x1 line modules; default is 0.

TERM=*name*

A terminal name.

FILE=

The name of the file for which the status is needed. The valid values are:

name	The filename for which the status is needed. Refer to Table 2–3.
****name***	The basic name of the file with the default qualifier; eight character maximum, including a–z, 0–9, -, and $. Refer to Table 2–3.
qualifier	The qualifier that establishes the uniqueness of the file's name; six character maximum, including a–z, 0–9, -, and $. Refer to Table 2–3.
$	A list of all catalogued files.

VOL=*name*

The volume name. Six character maximum.

FILE=$

When used with the *VOL* parameter, provides a list of all cataloged files associated with the named *VOL*.

DVC=*name*

The device name referring to a local storage tape device only, not terminal devices (tapes, cassettes, printers).

SITE=*name*

The name of a console associated with a batch site.

CLTR=*name*

The cluster name.

STN=*name*

The name of a station.

SAP=*name*

The name of a LAN service access point.

PGRP=*n*

Specifies the remote identifier (RID) of the poll group. The RID is 020 for multiplexed lines (general polling). For multidropped lines, the RID ranges from 021 to 04F.

$$\texttt{LINE=}\left\{\begin{matrix} \mathit{name} \\ \mathit{n}[\ /\mathit{n}\ ] \end{matrix}\right\}$$

The name or number of the line associated with the poll group. For the single-line line module, the line number is the PPID. For the multiline (4x1 and 8x1) line modules, the line number is the port number/multiline number. The value for the multiline number can be 0 to 3 for 4x1 line modules and 0 to 7 for 8x1 line modules; the default is 0.

$$\texttt{XFER=}\left\{\begin{matrix} \mathit{n} \\ \$ \end{matrix}\right\}$$

n The sequence number of the file transfer. The sequence number is assigned and displayed when the *XFER* command is initiated.

$ Requests status for all file transfers in progress.

PTRK=*name*

An X.25 PSCS program product parameter. See the X.25 documentation for the program products installed at your site.

CDTE=*name*

An X.21 CSCS program product parameter. See the X.21 documentation for the program products installed at your site.

```
PDTE={name
      n   }
```

An X.25 PSCS program product parameter. See the X.25 documentation for the program products installed at your site.

LINK=*name*

An AIR/net program product parameter. See the AIR/net documentation for the program products installed at your site.

LCN=*n*

An AIR/net program product parameter. See the AIR/net documentation for the program products installed at your site.

```
NODE={name
      [[[n/]n/]n/]n}
```

See Section 2.2 of this manual for a description of the *NODE* parameter.

XTS=*name*

The name of an external termination system.

Note: *You must use the name parameter when you name a file. You can optionally use the *name or qualifier*name parameters to designate the filename. The system provides defaults for omitted parameters, as described in Table 2–3.*

Examples

Example 1 (General)

```
STAT
```

Response

```
1994/08/02 11:05:06 NODE PRC1        UP 1:33   IDLE 97%
           8388608 BYTES MEMORY: 229760 RESIDENT, 97152 TRANSIENT
           FREE GRANULES:  7335=51%, TO BE ZEROED: 1=0%
           FREE SEGMENTS:  1=100%, TO BE ZEROED: 0=0%
           FILES CATALOGED:  74  REMAINING CATALOG ENTRIES:  185
           ACTIVE PP:  7  VOLUMES MOUNTED:  BOOT50    SW0    SW2    SW3
           IOP ICW = 00 GLOBAL ICW = 0000
           CURRENT CONFIGURATION FILE: NMS*PAT1
           TELCON LEVEL: 10R1-CPI  MICRO-CODE LEVEL: 16:043.000
           THROTTLE LEVEL:  NORM  DEBUG TRACES:  ON
           SNA/net>DOMAIN: CDRM16 SA: 00016 SSCPsess:0004 LUsess: 00002
           DNS NETWORK ADDRESS 65417.255.15.4001 NODE-ID P5
```

Note: *A response line with ID=SNA/NET or OSI is a program product status line. This line only appears when the program product is installed. Accuracy of the fields in this status line is dependent upon how often the program product updates the system statistics.*

The following lines of additional statistics are output when the *STAT* command is executed on a resilient *PRCSR*:

```
             *** RESILIENT STATUS ***
SWITCH IN PROGRESS = ccc  CRITICAL DEVICE FAILURE = ccc
STATE OF    ALTERNATE   AUTO-SWITCH       PRC1       BACKUP
PRC1          DCP(S)      ENABLED      PROTECTED     ACTIVE
ONLINE         PRC2         YES            NO          NO
```

Example 2

```
STAT
```

Response

```
1994/11/10 08:42:28 NODE P304       UP 0:14   IDLE 84%
           16711680 BYTES MEMORY: 343808 RESIDENT, 52865 TRANSIENT
           FREE GRANULES:  2348=13%, TO BE ZEROED: 251=1%
           FREE SEGMENTS:  1=100%, TO BE ZEROED: 0=0%
           FILES CATALOGED:  88  REMAINING CATALOG ENTRIES:  167
           ACTIVE PP:  5  VOLUMES MOUNTED:  SW0
           IOP ICW = 00 GLOBAL ICW = 0000
           CURRENT CONFIGURATION FILE: Q$Q$Q$*P304
           SOFTWARE LEVEL: 10R1CP2  MICRO-CODE LEVEL: 16:043.000
           THROTTLE LEVEL:  NORM  DEBUG TRACES:  ON
           DNS NETWORK ADDRESS:  1.1.1.304  NODE-ID: E2
           PARTITION:  B  NONSTOP:  YES
```

Note: *A response line with partition and nonstop parameters only displays on DCP600s.*

Explanation

NODE *nnn*

The name of the Telcon node.

UP *n:n*

The up time in hours and minutes.

IDLE *n%*

The percentage of idle time for the central processor on the DCP (DCP/30, 50, 200, and 600 models only).

***n* BYTES MEMORY:**

The DCP real-storage size in bytes.

***n* RESIDENT**

The number of the bytes of real storage required for resident procedures/segments.

***n* TRANSIENT**

The number of bytes of transient procedures/segments in real storage.

FREE GRANULES: *n=n%*

The number of free (128-byte buffers) granules and the percentage this number is to the total number of granules.

TO BE ZEROED: ***n=n%***

The number of to-be-zeroed granules and the percentage this number is to the total number of granules.

FREE SEGMENTS: ***n=n%***

The number of free segments (4096-byte buffers) and the percentage this number is to the total number of segments.

TO BE ZEROED: ***n=n%***

The number of to-be-zeroed segments and the percentage this number is to the total number of segments.

FILES CATALOGED: ***n***

The number of files cataloged on the DCP.

REMAINING CATALOG ENTRIES: ***n***

The number of free entries in the catalog.

ACTIVE PP: ***n***

The number of active port processors on the DCP.

VOLUMES MOUNTED: ***aaa***

The names of the volumes on the DCP.

IOP ICW = ***n***

The IOP instrumentation control word (ICW) containing the hexadecimal representation of the setting of all PP instrumentation bits. See Table 8–2 in this manual.

GLOBAL ICW = ***n***

The instrumentation control word (ICW) containing the hexadecimal representation of the setting of all CP instrumentation bits. See Table 8–1 in this manual.

CURRENT CONFIGURATION FILE: ***aaa***

The currently active configuration file on the Telcon node.

TELCON LEVEL: ***aaa***

The Telcon software level (site-developed).

MICRO-CODE LEVEL: ***aaa***

The DCP microcode level.

THROTTLE LEVEL: ***aaaa***

Means hard, soft, or normal and pertains to the DCP/OS buffer pool.

DEBUG TRACES: ***aaa***

Indicates if debug traces are on or off.

DNS NETWORK ADDRESS

If the response displays a dash (-) instead of a number, there is no network address (the protocol is strictly TS/TN).

NODE-ID

Indicates the two character node ID specified on the Telcon execution statement. if no node-ID is specified, the default is N1.

PARTITION

Indicates the partition Telcon is running on. Valid values are A or B.

NONSTOP

Indicates if the system is configured to run resiliency in a DCP600 with an Interpartition Pipe (IPP) trunk. Valid values are yes or no.

SWITCH IN PROGRESS = ***ccc***

YES Indicates switch is in progress.
NO Indicates switch is not in progress.

CRITICAL DEVICE FAILURE = ***ccc***

YES Indicates there is a critical device failure.
NO Indicates there is no critical device failure.

STATE OF PRC

Indicates the state of the processor: ONLINE, STANDBY, LOADSHARE, or LIMBO.

ALTERNATE DCP(S)

The names of the alternate Telcon nodes.

AUTO-SWITCH ENABLED

YES Indicates the auto switch is enabled.
NO Indicates the auto switch is not enabled.

PRC PROTECTED

The backup status of the Telcon node.

BACKUP ACTIVE

YES Indicates the backup switch is active.
NO Indicates the backup switch is not active.

Additional Discussion

On a DCP/5 or 15, the central processor and the port processor are the same. Idle time does not reflect central processor time only, as it does on a DCP/30, 50, 200, and 600 models.

Example 3 (For a station)

```
STAT STN=UDSTN1
```

Response

```
1994/08/02  09:43:00
STATION UP      CONNECTED
BALANCED MODE
BASIC CONTROL FIELD
BASIC ADDRESS FIELD
LOCAL ADDRESS 3  REMOTE ADDRESS 1  GSA 0
COMBINED LOCAL STATION
SEND WINDOW  7  INPUT THRESHOLD  0
TWS REMOTE STATION IS ASSOCIATED WITH TS  TB502
INFORMATION TRANSFER STATE
IOP #3 PPID # 9
LOCAL STATION IS  ACCEPTING DATA
REMOTE STATION IS  ACCEPTING DATA
```

Example 4 (For file volume information)

```
STAT FILE =$
```

Response

```
1994/08/02  09:43:00
       SYS$*SYSDUMP     SYS$*DCPOS      SYS$*SYSLIB     SYS$*SYSLMC
       SYS$*SYSJOB      CD6R1*TELCON    CD6R1*ILMLOAD   CD6R1*ILMCFG
       SYS$*SYSLOG      SYS$*P$RUN002   SYS$*P$RUN003   SYS$*P$RUN001
       CD6R1*TEL$       CD6R1*CLSTAT07  CD6R1*HLSTAT07  DNS*INM$00E
       CD6R1*PRSTAT07   CD6R1*ALSTAT07  CD6R1*CD5R2$N1  CD6R1*CONFIG
```

Example 5 (For a file)

```
STAT FILE=TELCNFG
```

Response

```
1994/08/02  09:43:00
    FILE NAME : Q$Q$Q$*TELCNFG          FILE SEQUENCE NUMBER : 49
    NO. OF BLKS ALLOCATED : 128    HIGHEST BLOCK WRITTEN : 62
    VOLUME ID * DEVICE TYPE * HIGHEST BLOCK NUMBER * HIGHEST UNIT NUM
       SWD        SCSI WINCH.          105             30153
                      CONFIGURATION FILE DATA
    COMPILATION DATE    TIME      CONFIG LEVEL    CONFIG-ID
       04 NOV 94      14:06:11   DEVNET20          HCONFIG
    NO. CONFIG STATEMENTS  DELIVERY LEVEL
             334               10R1
```

Note: *When the filename is the current configuration file, then the configuration file data is appended to the standard STAT file output display.*

Example 6 (For file transfer sequence)

```
STAT XFER=1
```

Response

```
1994/08/02  09:43:00  XFER  1 - PRC1 STATUS
 FROM=SYS$*SYSDUMP.  *DCP*
 TO  =CNTROLGEU::TEL*SYSDUMP01.
 DCP  FILE BLOCK SIZE = 24579   BLOCKS TRANSFERRED = 1736
```

Explanation

1 - PRC1

The transfer sequence number followed by the name of the Telcon node on which the transfer is executing.

DCP FILE BLOCK SIZE

The size of the DCP file in 256-byte blocks.

BLOCKS TRANSFERRED

The number of DCP file blocks transferred to this point.

On the UTS 60 graphics terminal, several bar charts are also displayed. The chart titles and labels used on each chart are shown in Table 2–7.

Table 2–7. UTS 60 Chart Titles and Labels

Idle Time	Percentage of Total CP Time Idle
MEMORY	
RES	Percentage used for resident procedures/segments of the total real memory.
TRAN	Percentage used for transient procedures/segments of the total real memory.
GRANULES	
FREE	Percentage of granules that are free.
TBZ	Percentage of segments that are to-be-zeroed.
SEGMENTS	
/n/n/nFREE	Percentage of segments that are free.
TBZ	Percentage of segments that are to-be-zeroed.
CAT ENTR	
FILE	The percentage of the total catalog entries that have a file cataloged.
RMNG	The percentage of the total catalog entries that remain free.

2.3.65 STBY — Switch to Standby State

The *STBY* command switches a Telcon node to either a standby or a loadsharing state.

In a standby state, the processor controls only its nonresilient lines or can assume control of its resilient lines if the active Telcon node fails.

In a loadsharing state, the processor controls its nonresilient lines and its principle resilient lines, and can assume control of its secondary resilient lines if the alternate Telcon node fails. To use loadsharing, enter the following on all processors that loadshare with PRCx:

```
STBY FOR=PRCx
```

Format

```
1.  STBY

2.  STBY [ FOR=name][,NODE={name          }]
                           {[[[n/]n/]n/]n}
```

Required Parameters

None

Optional Parameters

FOR=*name*

The Telcon node name used in a multiple Telcon node configuration to specify which pair the switch affects. The default Telcon node is the resilient partner. If more than one resilient partner is configured, the *FOR* parameter is required.

```
NODE={name          }
     {[[[n/]n/]n/]n}
```

See Section 2.2 of this manual for a description of the *NODE* parameter.

Examples

Example 1

```
STBY FOR=prc2
```

Response

```
CENL: 11:28:59  DCP=PRC1 SEQ=673 CLASS=11 EVCD=4
RESILIENT DCP IS NOW
LOADSHARING

1994/08/02 11:28:59 SWITCH COMPLETE
```

Example 2

```
STBY FOR=prc2
```

Response

```
CENL: 11:29:12  DCP=PRC1 SEQ=674 CLASS=11 EVCD=4
RESILIENT DCP IS NOW
STANDBY

1994/08/02 11:29:13 SWITCH COMPLETE
```

References

See the *Telcon Configuration Guide* (7831 5678) for a description of loadsharing configurations.

2.3.66 STOP — Stop Input or Output

The *STOP* command temporarily halts input to or output from a facility until it can be physically taken off that line.

Use *STOP* only when a terminal is hanging the line because of a hardware problem. Do not use *STOP* if it will remain in effect for an extended period of time; no new terminal can sign on and there is a high overhead of specific polling while *STOP* remains in effect.

When you take the terminal offline, you should bring it down so normal polling can be resumed.

When you use *STOP*:

- No control table or messages are release by the command.
- A switched line that is connected remains unconnected.
- The stop executed on a line, site, or terminal is marked in the configuration file and preserved for subsequent local loads.
- The command places a temporary hold on the queues of the designated facility. This is not as drastic as a *DOWN* command.

Format

```
     { LINE={name  }              }
     {      {n[/n] }              }
     { TERM=name                  }
     { SITE=name                  }            [   { NODE={name              } } ]
STOP { CLTR=name                  } [,IO={I}]  [ , {      {[[[n/]n/]n/]n     } } ]
     { STN=name                   }      {O}   [   { ADCP=name               } ]
     { PGRP=n,LINE={name  }       }            [   { XTS=name                } ]
     {             {n[/n] }       }
     { PDNG=name                  }
```

Required Parameters

You must choose one of the following entity-names:

```
LINE={name   }
     {n[ /n ]}
```

The configured name or number of the line for which the status is required.

For the single-line line module, the line number is the PPID.

For the multiline (4x1 and 8x1) line modules, the line number is the port number/multiline number. The multiline number can range from 0 to 3 for 4x1 line modules and 0 to 7 for 8x1 line modules; default is 0.

TERM=*name*

The terminal name.

SITE=*name*

The name of a console associated with a batch site.

CLTR=*name*

The name of a cluster.

STN=*name*

The name of a station.

PGRP=*n*

Indicates the remote identifier (RID) of the poll group from which you want to obtain status. The RID is 020 for multiplexed lines (general polling). For multidropped lines, the RID ranges from 021 to 04F.

If you specify *PGRP*, you must also specify *LINE*:

```
LINE={name   }
     {n[ /n ]}
```

The name or number of the line associated with the poll group. For the single-line line module, the line number is the PPID. For the multiline (4x1 and 8x1) line modules, the line number is the port number/multiline number. The value for the multiline number can be 0 to 3 for 4x1 line modules and 0 to 7 for 8x1 line modules; the default is 0.

PDNG=*name*

An X.21 CSCS program product parameter. See the X.21 documentation for the program products installed at your site.

Note: *NMS will inhibit this command when used with a spare line/port.*

Optional Parameters

$\texttt{IO=}\left\{\begin{matrix} I \\ O \end{matrix}\right\}$

The input/output.

I Stops input
O Stops output

The default is both I and O.

$\texttt{NODE=}\left\{\begin{matrix} name \\ \texttt{[[[}n\texttt{/]}n\texttt{/]}n\texttt{/]}n \end{matrix}\right\}$

See Section 2.2 of this manual for a description of the *NODE* parameter.

ADCP=*name*

The name of the target Telcon node of a resilient pair.

This overrides automatic command duplication in a resilient system.

When in a resilient system the *STOP* command is entered on (or for) a Telcon node in a standby state, the command affects only that Telcon node. The command is entered on (or for) a Telcon node in either the online or loadshare states, the command is automatically echoed to the paired Telcon node.

XTS=*name*

The name of an external termination system.

Considerations

The *ADCP* parameter is allowed only in a resilient system.

The *PDNG* parameter is valid only when used with an X.21 program product.

Note: *The STOP command is not allowed on a UDLC line.*

Additional Discussion

When using *STOP*, you should be aware of the differences involved when stopping the following types of facilities:

BSC 2780/3780	Use of the TERM facility is not allowed.
NTR line	If you stop an NTR line when an NTR site is signed on to that line, a suspend site message is sent to the site.
NTR site	If you stop an NTR site, a suspend device message is sent for all active card readers on that site (unless *IO=O* was specified), and also to the host for all active output devices on that site (unless *IO=I* was specified).
UDLC	Use of the line facility is not allowed.
NTR terminal	If you stop an NTR terminal, a suspend device message is sent to the site if the device is a card reader, or to the host if the device is an output device. If I/O is stopped and a sign on is entered, the sign on takes place but the I/O remains stopped.
REM1	If I/O is stopped and a sign on is entered, the sign on takes place but the I/O remains stopped. Use of the *TERM* facility is not allowed.
UNISCOPE®	If you stop an active UNISCOPE display terminal, specific polling is initiated on the poll group. All active terminals that do not have the input stopped are polled. Terminals that are configured, but not active, are polled.
Resilient Lines	Use the *LINE* name on the *STOP* command for resilient lines. If you use the port number, the operator must verify that the same port number is used for the PPID and the BPPID.

Example

```
STOP TERM=TM100
```

Response

```
1994/08/02  13:24:11  COMMAND ACCEPTED
```

2.3.67 STOR — Storage Usage Statistics

The *STOR* command displays the current allocation of DCP real storage for resident and transient programs and data, architectural and system data, buffer space, and residual transients.

The display divides the storage into three parts:

- Resident programs/data
- Architectural/system data
- Buffer pool

The display divides the buffer pool into two parts:

- 4K byte segments
- 128 byte granules

Within each buffer pool part, the number of buffers, number of bytes, and percentage of the total for the various buffer pool usages are shown, as follows:

- In use for transients
- Residual for transients
- In use for buffers
- In use for dynamic system segments
- Zeroed
- To-be-zeroed

Format

$$\texttt{STOR}\left[\texttt{NODE=}\begin{Bmatrix}\textit{name}\\ \texttt{[[[}\textit{n}\texttt{/]}\textit{n}\texttt{/]}\textit{n}\texttt{/]}\textit{n}\end{Bmatrix}\right]$$

Required Parameters

None

Optional Parameters

```
NODE={name
     {[[[n/]n/]n/]n}
```

See Section 2.2 of this manual for a description of the *NODE* parameter.

Example

```
STOR
```

Response

```
1994/08/02  12:15:10
STORAGE SIZE                  =2097152 BYTES
RESIDENT PROGRAMS/DATA        =  55808 BYTES   2.7% OF STORAGE
ARCHITECTURAL/SYSTEMS DATA = 157184 BYTES   7.5% OF STORAGE
BUFFER POOL                   = 741248 BYTES  35.3% OF STORAGE
SEGMENTS: TOTAL NUMBER        =     50     204800 BYTES  27.6% OF POOL
          IN USE-TRANSIENTS   =     15      61440 BYTES  30.0% OF SEGMENTS
          RESIDUAL TRANSIENTS=      23      94208 BYTES  46.0% OF SEGMENTS
          IN USE-OTHER        =      8      32768 BYTES  16.0% OF SEGMENTS
          IN USE-SSN          =      0          0 BYTES   0.0% OF SEGMENTS
          ZEROED              =      0          0 BYTES   0.0% OF SEGMENTS
          TO-BE-ZEROED        =      4      16384 BYTES   8.0% OF SEGMENTS
GRANULES: TOTAL NUMBER        =   4191     536448 BYTES  72.4% OF POOL
          IN USE-TRANSIENTS   =    109      13952 BYTES   2.6% OF GRANULES
          RESIDUAL TRANSIENTS=    1457     186496 BYTES  34.8% OF GRANULES
          IN USE-OTHER        =   1245     159360 BYTES  29.7% OF GRANULES
          IN USE-SSN          =    234      29952 BYTES   5.6% OF GRANULES
          ZEROED              =   1146     146689 BYTES  27.3% OF GRANULES
          TO-BE-ZEROED        =      0          0 BYTES   0.0% OF GRANULES
```

Additional Discussion

The UTS 60 graphics terminal also displays several pie charts. The titles and labels used on each chart are defined as follows:

Chart Title	Labels	Label Description
STORAGE	RESIDENT ARCHITECTURAL SEGMENT POOL GRANULE POOL	Resident program/data Architectural/system data Buffer pool segments Buffer pool (granules)
SEGMENTS	I-U TRAN RES TRAN I-U OTHR I-U DSSN ZEROED T-B ZERO	In use transients Residual transients In use other In use destination Zeroed To-be-zeroed
GRANULES	I-U TRAN RES TRAN I-U BUFF I-U DSSN ZEROED	In use transients Residual transients In use buffers In use destination To-be-zeroed

2.3.68 STRT — Start Input/Output

The *STRT* command starts or resumes input to or output from a facility previously suspended by the *STOP* command.

Both input and output are assumed if the *I/O* parameter is not present.

Starting input to or output from a facility also starts input to or output from all dependent facilities.

Format

```
     ⎧ LINE={name     }             ⎫
     ⎪      {n[/n]    }             ⎪
     ⎪ TERM=name                    ⎪                    ⎡  ⎧ NODE={name             }⎫⎤
     ⎪ SITE=name                    ⎪ ⎡     {I}⎤         ⎢  ⎪      {[[[n/]n/]n/]n    }⎪⎥
STRT ⎨ CLTR=name                    ⎬ ⎣,IO= {O}⎦         ⎢ ,⎨ ADCP=name              ⎬⎥
     ⎪ STN=name                     ⎪                    ⎣  ⎩ XTS=name               ⎭⎦
     ⎪ PGRP=n,LINE={name  }         ⎪
     ⎪             {n[/n] }         ⎪
     ⎩ PDNG=name                    ⎭
```

Required Parameters

Choose one of the following entity-names:

LINE={*name* | *n*[/*n*]}

The configured name or number of the line for which the status is required.

For the single-line line module, the line number is the PPID.

For the multiline (4x1 and 8x1) line modules, the line number is the port number/multiline number. The multiline number can range from 0 to 3 for 4x1 line modules and 0 to 7 for 8x1 line modules; default is 0.

TERM=*name*

The terminal name.

SITE=*name*

The name of a console associated with a batch site.

CLTR=*name*

The name of a cluster.

STN=*name*

The name of a station.

PGRP=*n*

Indicates the remote identifier (RID) of the poll group from which you want to obtain status. The RID is 020 for multiplexed lines (general polling). For multidropped lines, the RID ranges from 021 to 04F.

If you specify *PGRP*, you must also specify *LINE*:

```
     {name    }
LINE={n[/n]   }
```

The name or number of the line associated with the poll group. For the single-line line module, the line number is the PPID. For the multiline (4x1 and 8x1) line modules, the line number is the port number/multiline number. The value for the multiline number can be 0 to 3 for 4x1 line modules and 0 to 7 for 8x1 line modules; the default is 0.

PDNG=*name*

An X.21 CSCS program product parameter. See the X.21 documentation for the program products installed at your site.

Note: *NMS stops this command when used with a spare line/port.*

Optional Parameters

```
   {I}
IO={O}
```

The input/output.

I Stops input
O Stops output

The default is both *I* and *O*.

```
     {name              }
NODE={[[[n/]n/]n/]n     }
```

See Section 2.2 of this manual for a description of the *NODE* parameter.

ADCP=*name*

The name of the target Telcon node of a resilient pair.

This overrides automatic command duplication in a resilient system.

When in a resilient system the *STOP* command is entered on (or for) a Telcon node in a standby state, the command affects only that Telcon node. The command is entered on (or for) a Telcon node in either the online or loadshare states, the command is automatically echoed to the paired Telcon node.

XTS=*name*

The name of an external termination system.

Example

```
STRT LINE=LINE16,IO=I
```

Response

```
1994/08/02  13:24:11  COMMAND ACCEPTED
```

Additional Discussion

When using *STRT*, you should be aware of the differences involved when stopping the following types of facilities:

BSC 2780/3780	Use of the *TERM* facility is not allowed.
REM1	Use of the *TERM* facility is not allowed.
NTR line	If you start an NTR line when an NTR site is signed on to that line, a resume site message is sent to the site.
NTR site	If you start an NTR site that is signed on, a resume device message is sent to the site for all active card readers on that site (unless *IO=O* has been specified), and a resume device message is sent to the host for all active output devices on that line (unless *IO=I* has been specified).
NTR terminal	If you start an NTR terminal, a resume device message is sent to the site (if the device is a card reader), or to the host (if the device is an output device).
Resilient Lines	Use the line name when starting resilient lines. If you use the port number, the operator must verify that the same port number is used for the PPID and the BPPID.

Considerations

- The *ADCP* parameter is allowed only in a resilient system.
- The *PDNG* parameter is valid only when used with an X.21 program product.
- The *STRT* command is not allowed on a UDLC line.

2.3.69 STTH — Set Error Logging Threshold

The *STTH* command sets the frequency at which recoverable CENLOG errors are logged and displayed for a line.

Format

```
                                  ┌   ┌        ┌name            ┐┐┐
STTH LINE=name,THRS=n │ , │NODE=│                │││
                                  │   │        └[[[n/]n/]n/]n   ┘││
                                  └   └ADCP=name                  ┘┘
```

Required Parameters

LINE=*name*

The line name for which you are setting the threshold value.

THRS=*n*

The threshold value. The range is 0 through 127.

Setting this value permanently changes the value on the disk file; the change is present for subsequent Telcon restarts.

The threshold value of a line can also be set using online configuration (CNFG) by changing the *RCNT* parameter on the *LINE* statement. The default value is 5.

Optional Parameters

```
     ┌name           ┐
NODE=│               │
     └[[[n/]n/]n/]n  ┘
```

See Section 2.2 of this manual for a description of the *NODE* parameter.

ADCP=*name*

The name of the target Telcon node of a resilient pair. This parameter overrides automatic command duplication in a resilient system.

When (in a resilient system) you enter the *STTH* command on (or for) a Telcon node in a standby state, the command affects only that Telcon node. When you enter the command on (or for) a Telcon node in either the online or loadshare states, the command is automatically echoed to the paired Telcon node.

Example

```
STTH LINE=LINE16,THRS=1
```

Response

```
1994/08/02  14:29:52  LINE LOGGING THRESHOLD CHANGE COMPLETE
```

Considerations

The *ADCP* parameter is allowed only in a resilient system.

References

See the *Telcon Configuration Guide* (7831 5678) and the *Telcon Configuration Reference Manual* (7831 5686) for more information on online configuration.

2.3.70 SWT — Switch LSM Lines

The *SWT* command allows you to switch lines on DCPs. The line switch module (LSM or the ASYNC LSM) is the hardware that switches the lines after the Telcon node has received the *SWT* command. Either an operator or the software can switch the lines.

Lines switched using this command are also logically switched in Telcon.

The LSM can also switch the parallel channels from on-site peripherals from one Telcon node to another.

Using one synchronous communication line and a modem, the remote control module/interface (RCM/RCI) controls an unattended installation containing up to four DCPs. Commands from a controlling location are transmitted to the RCM/RCI.

Format

```
1.  SWT ACTN=activity,LSM=name

                     {LSM=name }
2.  SWT ACTN=activity,{RCM=name }[,PORT=n/n/n/...][,NODE={name             }]
                     {LINE=name}                        {[[[n/]n/]n/]n}

3.  SWT ACTN=activity,LINE=name[,NODE={name             }]
                                      {[[[n/]n/]n/]n}
```

Line Switch Module (ASYNC controlled)

```
          {LNC }
          {SETA}
          {SETB}
SWT ACTN= {ALLA} ,LSM=name,PORT=n/n/n...n
          {ALLB}
          {STA }
          {LND }
```

Line Switch Module (UDLC controlled)

```
          {LNC }
          {SETA}
          {SETB}
SWT ACTN= {ALLA} ,LSM=name,PORT=n/n/n...n
          {ALLB}
          {STA }
          {LND }
```

Required Parameters

ACTN=*activity*

One of the following functions performed by the LSM:

LNC	Performs a line connection (auto, manual, direct connect) for this LSM.
SETA	Sets ports to position A.
SETB	Sets ports to position B.
ALLA	Sets all ports to position A.
ALLB	Sets all ports to position B.
RST	Updates switch settings on asynchronous LSM.
STA	Gives return status of port positions for all ports on this LSM.
LND	Indicates line disconnect indication.

Optional Parameters

LSM

The name of the LSM to process this command.

RCM=*name*

The name of the remote control module to process this command.

LINE=*name*

The name of the line to be switched.

PORT=*n/n/n*

Indicates the number of the LSM/RCM port. The range is 0 through 127.

$$\texttt{NODE=}\begin{Bmatrix} \textit{name} \\ \texttt{[[[}\textit{n}\texttt{/]}\textit{n}\texttt{/]}\textit{n}\texttt{/]}\textit{n} \end{Bmatrix}$$

See Section 2.2 of this manual for a description of the *NODE* parameter.

Example

```
SWT ACTN=SETB,LSM=LSM2,PORT=0
```

Response

```
1994/08/02 14:33:24  000D LSM *ADVISORY:  SWITCH COMPLETE*
```

UDLC Controlled Remote Control Module/Interface (RCM/RCI)

A remote control module/interface (RCM/RCI) can control up to four DCPs connected to RCM/RCI ports numbered 0 through 3.

```
          ⎧LNC                                 ⎫
          ⎪STA                                 ⎪
SWT ACTN= ⎨PON/POF/SYST/PGLD/SPAR/CPAR/;       ⎬
          ⎪(SRUO...SRUF)/(SRLO...SRLF)         ⎪
          ⎩LND                                 ⎭

RCM=name[,PORT=n][,NODE={name            }]
                        {[[[n/]n/]n/]n   }
```

Required Parameters

ACTN=*activity*

Performs one of the following activities:

- **LNC** Connects a line (auto, manual, direct connect) for this RCM/RCI.
- **STA** Returns status of the DCPs connected to the RCM/RCI.
- **PON** Indicates power is on at the DCP connected to port X (0 to 3). The RCM/RCI executes this command first.
- **POF** Indicates power is off at the DCP connected to port X.
- **SYST** Indicates system reset on the DCP connected to port X.
- **PGLD** Indicates program load on the DCP connected to port X. The program load takes a few seconds to execute. A second program load is not accepted until the first is processed. This is the same as the operator program load.
- **SPAR** Indicates partition set on the DCP connected to port X.
- **CPAR** Indicates partition clear on the DCP connected to port X.
- **SRUO...SRUF** Means set the load path upper four bits to a hexadecimal value 0 to F on the DCP connected to port X.
- **SRLO...SRLF** Means set the load path lower four bits to a hexadecimal value 0 to F on the DCP connected to port X.
- **LND** Means disconnect a line. (Hang up the line if it is manual or auto-dial. Logically disconnect the line if it is direct-connect.)

RCM=*name*

The name of the remote control module/interface to process this command.

Optional Parameters

PORT=*n*

The RCM/RCI port number. The range is 0 through 3.

```
NODE={name            }
     {[[[n/]n/]n/]n   }
```

See Section 2.2 of this manual for a description of the *NODE* parameter.

Dynamic Line Switching

```
SWT ACTN=activity, LINE={name  }[,NODE={name          }]
                        {n[/n] }[      {[[[n/]n/]n/]n }]
```

Required Parameters

ACTN=*activity*

The function the RCM performs which can be either of the following:

GET Indicates switch LSM ports through which this line is configured. This switches the line to DCP PRCN from the alternate DCP.

REL Indicates the remote DCP configured on the LSM requires the use of a line currently in use by the local DCP. The local DCP may release the line, allowing the remote DCP to do a *GET*.

```
LINE={name  }
     {n[/n] }
```

Indicates the configured name or number of the line to be switched. For the single-line line module, the line number is the PPID. For the multiline (4x1 and 8x1) line modules, the line number is given as the port number/multiline number. The value for the multiline number may be 0 to 3 for 4x1 line modules and 0 to 7 for 8x1 line modules. The default is 0.

Optional Parameters

```
NODE={name            }
     {[[[n/]n/]n/]n   }
```

See Section 2.2 of this manual for a description of the *NODE* parameter.

Example

```
SWT ACTN=GET,LINE=LINEx,DCP=PRCn
```

This generates internally, the following commands:

```
SWT ACTN=SETx,PORT=x,LSM=LSMx
SWT ACTN=SETy,PORT=y,LSM=LSMy
SWT ACTN=SETz,PORT=z,LSM=LSMz
```

where x, y, and z represent appropriate parameters for the action, as specified during system configuration.

2.3.71 SWT Error Messages

The following error messages appear only with the *SWT* command.

ADVISORY: COMMAND ROUTED TO REMOTE DCP

Explanation

The LSM automatic switching *GET/REL* commands could not execute in the local DCP, so the command was changed from a *GET* to a *REL* and routed to a remote DCP. The user should wait for further responses.

ADVISORY: CONTROL LINE CONNECTED

ADVISORY: CONTROL LINE DISCONNECTED

ADVISORY: CONTROL LINE (DIAL) CONNECTION IN PROGRESS

Explanation

Line connection is in progress. The user should wait.

ADVISORY: LSM PORTS IN THE A POSITION = XXXXXX

Explanation

A status command was executed on the LSM. Ports not present on the LSM are not reported.

ADVISORY: LSM PORTS IN THE B POSITION = XXXXXX

Explanation

A status command was executed on the LSM. Ports not present on the LSM are not reported.

```
*ADVISORY: RCM STATUS PORT 0 = AAAA*
*ADVISORY: RCM STATUS PORT 1 = BBBB*
*ADVISORY: RCM STATUS PORT 2 = CCCC*
*ADVISORY: RCM STATUS PORT 3 = DDDD*
```

Explanation

A status command was executed on the RCM/RCI. These four responses are returned. Display after the equal sign (=) is the hexadecimal status returned from the RCM/RCI. After the hexadecimal status, the status bits are interpreted in an ASCII format message.

From right to left, the status bits mean:

Bits 0–3 are the load path lower.
Bits 4–7 are the load path upper.
Bit 8 indicates that the operator did a manual program load or a manual system reset since the last status command.
Bit 9 is set if the program load was done.
Bit 10 is set if a system reset was done.
Bit 11 is set if a parity error was detected.
Bit 12 is set if a partition was set.
Bit 12 is clear if a partition was reset.
Bit 15 is set if the DCP is powered on.
Bit 15 is clear if the DCP is powered off.

The following ASCII messages are also given:

`POWERED ON DCP`

Connection to the specified port is on.

`POWERED OFF DCP`

Connection to the specified port is off or not present.

`PARTITION SET DCP`

Connection to the specified port has partition set.

`PARTITION RESET DCP`

Connection to the specified port has partition reset, or the DCP is powered off or not present.

`PARITY ERROR ON INTERFACE BUS`

Interface bus from the RCM/RCI to the DCP has a parity error.

LOAD PATH=

Current RCM/RCI load path for the DCP connected to the specified port. This load path is lost if the DCP is powered off.

ADVISORY: SWITCH COMPLETE

Explanation

The *LSM/RCM* command has been completed normally. This is the final response, but there may have been other intermediate responses.

ADVISORY: SWITCH FAILED

Explanation

The *LSM/RCM* command has been completed abnormally (final response). The reason for the abnormal completion should also be reported.

ERROR: FACILITY NAME IS NOT AN LSM/RCM

Explanation

The configuration name the operator keyed in is neither an LSM nor an RCM.

ERROR: REQUIRED PARAMETERS UNDEFINED OR MISSING

Explanation

Although NMS accepted the command the operator issued, LSM/RCM control detected an error.

LSM NOT AVAILABLE

Explanation

NMS cannot queue the *SWT* command to the LSM/RCM (usually caused by UDLC being turned off in the configuration).

WARNING: CONTROL LINE BLOCKED - RETRY IN PROGRESS

Explanation

The line connection to the LSM/RCM could not be completed. The line may have been initializing. Try again or check the configuration.

WARNING: CONTROL LINE FAILURE - COMMAND MAY NOT HAVE BEEN EXECUTED

Explanation

The message sent to the LSM or the RCM was accepted for transmission. After acceptance but before transmission, the line went down.

WARNING: CONTROL LINE UNAVAILABLE - IN USE AS A SYSTEM TRUNK

Explanation

The LSM/RCM UDLC control line is pointing to a trunk. The trunk is currently active, so the LSM/RCM cannot execute.

WARNING: CONTROL LINE (DIAL) CONNECTION FAILED

Explanation

Auto-manual dial connection could not be done.

WARNING: ILLEGAL RESPONSE FROM LSM/RCM

Explanation

The LSM/RCM sent input to the DCP unexpectedly. Check the configuration; the device may not be an LSM/RCM.

WARNING: LINE CONFIGURATION HAS NO LSM PARAMETERS - COMMAND ABORTED

Explanation

A *GET* or *REL* command was executed on a resilient line that had no LSM parameters configured. The response indicates an operator or configuration error.

```
*WARNING: LSM/RCM CONTENTION - LAST INPUT IGNORED*
```

Explanation

On a multidropped line where more than one station is present (that is, an LSM and another station, and an RCM/RCI and another station), both stations cannot be connected at the same time. The user should try again.

```
*WARNING: LSM PORT(S) NOT PRESENT = XXX*
```

Explanation

Included with this response is a list of ports that are not present. There may be a configuration error.

```
*WARNING: LSM PORT(S) DID NOT SWITCH = XXX*
```

Explanation

Included with this response is a list of ports that did not switch.

```
*WARNING: LSM/RCM BUSY - LAST INPUT IGNORED*
```

Explanation

The message just entered was lost. Wait a few minutes and try again.

```
*WARNING: MASS STORAGE ACCESS ERROR - LINE CONNECTION ABORTED*
```

Explanation

The LSM/RCM was not configured correctly.

```
*WARNING: RCM COMMAND FAILURE - FUNCTIONS NOT EXECUTED = *
```

Explanation

Included with this response is a list of functions the RCM did not execute. These are as follows:

PGLD

Indicates that the RCM/RCI did not do a program load.

SYST

Indicates that the RCM/RCI did not do a system reset.

PON

Indicates that the RCM/RCI did not do a power on.

POF

Indicates that the RCM/RCI did not do a power off.

SRU

Indicates that the RCM/RCI did not set the load path register upper nibble.

LOAD

Indicates that a system reset or a program load was done without a valid load path.

SRL

Indicates that the RCM/RCI did not set the load path register upper byte.

```
*WARNING: RETRY EXCEEDED - COMMAND ABORTED*
```

Explanation

The command is being rejected. The most probable cause is that the LSM/RCM is not connected and cannot at present be connected.

2.3.72 TEST — Test UDLC Line

The *TEST* command sets up a basic data-link function test pattern by repeatedly sending a test pattern, counting the number of times the pattern is received and sent, and calculating the amount of time it takes to receive the pattern.

You can use any test pattern.

Format

1. TEST STN=*name*

2. TEST STN=*name* [, { TERM=*name* | CFN=*n* }] [,FLEN=*n*] [,RPTC=*n*] [,NODE={ *name* | [[[*n*/]*n*/]*n*/]*n* }]

Required Parameters

STN=*name*

The name of the logical primary station (defined in the configuration) to be tested. There are three types of stations: primary, combined, or secondary. You can use a primary or combined station on a station configuration statement using the *LSTYPE* parameter.

Optional Parameters

TFRM=*name*

The test frame sent to the station. *TRFM* can contain from 1–15 ASCII characters. The default is *CFN=1* (unless a different *CFN* is specified).

CFN=*n*

The number of a canned test frame. The range is 1 through 2. The default is *CFN=1*.

Your site may develop its own canned test frame. The range can be from 3 through 99.

FLEN=*n*

The byte length of the frame sent to the station. The default is 20.

RPTC=*n*

The number of times the test frame is sent to the station. The default is 20.

```
NODE={name
     {[[[n/]n/]n/]n}
```

See Section 2.2 of this manual for a description of the *NODE* parameter.

Example

```
TEST STN=STATN2,RPTC=4
```

Response

```
1994/08/02 11:20:14  ** TEST STARTED **
1994/08/02 11:20:38
*TEST COMPLETE *
FRAMES SENT SUCCESSFULLY = 4
FRAMES SENT UNSUCCESSFULLY = 0
ELAPSED TIME (MS) = 0 23854
```

When the command is completed, you receive a report of any lost frames. This includes frames discarded or lost by the secondary station (the station being tested). You also are told how much time has elapsed from the transmission of the first frame until the receipt of the last frame.

Additional Discussion

If you specify both *TFRM* and *CFN*, the function is rejected. The actual frame sent to the station is either *TFRM* or the canned frame, which is duplicated as many times as possible, as long as the total byte count is less than *FLEN*. If you specify *FLEN* as being larger than the maximum data unit size, the maximum data unit size is used as the parameter for *FLEN*. For additional information on this command, refer to the *STATION* configuration statement *LSTYPE* parameter description in the *Telcon Configuration Guide* (7831 5678).

2.3.73 TEXT — UTS 60 Color Text Attributes

The *TEXT* command modifies the text attributes of a UTS 60 NMS console, enabling you to change the color of normal, error, warning header, data, and CENLOG messages.

TEXT automatically displays the preselected text attributes of the NMS console.

Format

```
     [ NORM=colorname ]
     [ ERR=colorname  ]
     [ WARN=colorname ]
TEXT [ HDR=colorname  ]
     [ DATA=colorname ]
     [ CENL=colorname ]
     [ BACK=colorname ]
```

Required Parameters

None

Optional Parameters

Choose any or all of the following parameters:

NORM=*colorname*

The text color selected for normal messages (positive responses).

ERR=*colorname*

The text color selected for error messages.

WARN=*colorname*

The text color selected for warning messages.

HDR=*colorname*

The text color selected for table headers (fixed text).

DATA=*colorname*

The text color selected for table data (variable text).

CENL=*colorname*

The text color selected for CENLOG messages.

BACK=*colorname*

The text color selected for display background.

The UTS 60 color terminal accepts the following variants for the *colorname* value (abbreviations are accepted):

BLACK	B
BLUE	BLU
CYAN	C
GREEN	G
MAGENTA	M
RED	R
WHITE	W
YELLOW	Y

Examples

Example 1 (Displaying current settings)

```
TEXT
```

Response

TEXT ATTRIBUTES:	NORMAL	ERROR	WARNING	HEADER	DATA	CENLOG
(Green)	(Green)	(Red)	(Yellow)	(Blue)	(White)	(Magenta)

Explanation

The current text attributes also appear with this message. For example, *NORMAL* is displayed with the attributes for normal messages, *ERROR* is displayed with the attributes for error messages, and so on.

Example 2 (Setting colors)

```
TEXT NORM=GREEN,ERR=RED,CENL=YELLOW
```

Response

TEXT ATTRIBUTES:	NORMAL	ERROR	WARNING	HEADER	DATA	CENLOG
(Green)	(Green)	(Red)	(Yellow)	(Blue)	(White)	(Yellow)

Example 3 (Non UTS 60 type terminal)

```
TEXT NORM=GREEN,ERR=RED,CENL=YELLOW
```

Response

```
*** ERROR: COMMAND NOT SUPPORTED FOR THIS TERMINAL TYPE ***
```

2.3.74 TROF — Turn Off

The *TROF* command disables the collection of system traces and critical event notification and logging (CENLOG) or instrumentation buffers within the Telcon system.

The *TROF* command disables the system integrity monitor (SIMON).

Format

```
1. TROF TYPE=name[/name...][,NODE={name | [[[n/]n/]n/]n}]
2. TROF TYPE=SIMON
```

Required Parameters

TYPE=*name*

The name of the tracing to be disabled. If using more than one name, separate them with a slash (/).

Use the following *TROF* parameters to significantly improve your system performance.

TYPE=ALL	Turns off software traces shown in Table 2–8.
TYPE=HDWR	Turns off CP and PP instrumentation.
TYPE=ARTV	Turns off automatic transfer (*XFER*) of local logs.

See the *TRON* command in this section for a list of supported type names. Refer to Section 8 of this manual for information on the instrumentation parameters of the *TRON* and *TROF* commands.

TYPE=SIMON

Specifies you want to disable the system integrity monitor.

Optional Parameters

$$\text{NODE}=\begin{Bmatrix} \textit{name} \\ [[[n/]n/]n/]n \end{Bmatrix}$$

See Section 2.2 of this manual for a description of the *NODE* parameter.

Example

```
TROF TYPE=DTP
```

Response

```
1994/08/02 14:42:13 TRACE TURNED OFF
```

The selected software debug tracing is turned off. No operator action is required.

2.3.75 TRON — Turn On

The *TRON* command activates several tracing and logging functions within Telcon. (The *TRON* command described here is used for software tracing only. The *TRON* command, used with a wider variety of parameters as described in Section 8 of this manual, is used for instrumentation control.)

The *TRON* command activates the system integrity monitor (SIMON).

Format

```
1. TRON TYPE=name[/name...][,NODE={name           }]
                                  {[[[n/]n/]n/]n  }
2. TRON TYPE=SIMON
```

Required Parameters

TYPE=name

You can enable the name (or names) of the trace or log by:

- Telcon software debug traces (refer to Table 2–8)
- CENLOG statistics (refer to Table 2–9)
- CP hardware instrumentation (refer to Section 8 of this manual)
- PP hardware instrumentation (refer to Section 8 of this manual)

TYPE=SIMON

Specifies you want to enable the system integrity monitor.

Table 2–8 lists all of the type names that are allowed for Telcon software debug trace IDs. Use these names to get selective traces. The traces are maintained in DCP memory and are analyzed by the Telcon dump analyzer in the system debug trace analysis. Table 2–8 also lists the ID names (as printed in the dump) associated with each type name.

Table 2–9 lists the type names that control critical event notification and logging (CENLOG). Refer to the *Telcon Message Manual* (7436 0728) for details on CENLOG.

Other type IDs are associated with hardware instrumentation, and are explained in Section 8 of this manual.

To display this list of software IDs, see the HELP section, `HELP TYPE=SWID`.

Table 2–8. Telcon Software Debug Trace IDs

Type Name	Module ID	Description
ALL	None	All debug traces (See Table 2–9 for CENLOG control)
TPP	TPAIR	Twisted Pair Product
S80V	TPAIR	System 80 VTR
S80L	TPAIR	System 80 LPH/PP
U11V	1100/60	1100/60 VTR
U11L	1100/60	1100/60 LPH/PP
NMDS	NMS DYNS	NMS dynamic session establishment
X21	X.21 PDN	PDN circuit switching
X25	X.25 PDN	PDN packet
NMOP	NMS SESS	NMOPEN (NMS session manager)
RIBM	REAL3270	Real 3270
IIBM	INV3270	INVT 3270
TIBM	TRS3270	TRS 3270
SNA	SNA	SNA program product

continued

Type Name	Module ID	Description
DTP	DTP	DCA transport protocol
DTPX	DTPX	DCA transport protocol extension
TSTN	TSTN	Termination system transport network
INMS	NMSIN	NMS input
ONMS	NMSOUT	NMS output
CNMS	NMS CMD	NMD commands
TNMS	NMS TLAT	NMS translation
1NMS	NMS	NMS INT–1 @@ commands
DSRV	DIREC SV	Directory Services
EUS	ENDUSER	End-user services
IPC	IPC	Interprocess control
TSM	TSM	Terminal section manager
SRC	SRC	System resiliency control
DCFG	DYN CFG	Dynamic online configuration
RMVT	BATCH	REM1 VTR
UVTR	UNI VTR	UNISCOPE VTR
DTVT	DCT1 VT	DCT 1000 VTR
PRC	PRCSR	SYSPRC process
TRS	TRS	LPHTRS
INIT	INIT SYS	ISYSTEM
UDLC	UDLC	UDLC LPH
U100	UNI LPH	UNISCOPE LPH

continued

Type Name	Module ID	Description
TTY	TTY	Teletype LPH
REM1	BATCH	REM1 LPH
NTR	BATCH	NTR LPH
BSC	BATCH	BSC LPH
TAF	TAF	TAF
HOST	HOST	Host channel handler
DUC	DUC	Data unit control
ROUT	ROUTE	Route control
NMS	NMSLOC	Network Management Services
QUE	Q SERVE	Queue services
OCNL	CENLCMD	Output display processing of CENLOG messages
PU10	PU100	Parallel UNISCOPE
CNFG	CNFG ACS	Configuration access
UDLU	UNIX DLL	UNIX data-link user
SMS	SMS	Session management services
ETN	ETN	TCP/IP feature
ILM	ILM	Intelligent line module
PSML	PSML	ILM poll select
LMS	LMS	Link management services (terminal platform handler)
ALPM	ALPM	Asynchronous link protocol machine (terminal platform handler)
OSI	OSI	OSI transport services program product
TOMF	TOMF	Terminal operator menu facility (initially off)
VTX	AXCTL/ANET	Videotex terminal

Table 2–9 lists the CENLOG control types and their descriptions.

Type Name	Description
CFTR	Configuration access (CFACCS) own trace area segment (non-CENLOG; initially on).
CENL	Enables logging and display (initially on, unless no CENLOG classes were configured; not enabled).
CNLL	Enables long CENLOG display (initially off).
CNLB	Enables brief CENLOG display (initially on). If both CNLL and CNLB are off, enables the MINI display. (See the *LOGI* command *OPTN* parameter.)
ARTV	Auto-retrieve of local CENLOG files (initially off unless configured by *AUTORETV=name* on the *PRCSR* statement). If no *AUTOREV* parameter was configured on the processor statement, a *TRON* command for *AUTOREV* has no effect. See the *Telcon Configuration Guide* (7831 5678) for more information about the auto-retrieve of CENLOG files.

Note: *TRON TYPE=ALL only affects CFTR and CENL (from Table 2–9).*
TROF TYPE=ALL only affects CFTR and CENL (from Table 2–9).

Optional Parameters

$$\texttt{NODE=}\left\{\begin{array}{l}\textit{name}\\ \texttt{[[[}\textit{n}\texttt{/]}\textit{n}\texttt{/]}\textit{n}\texttt{/]}\textit{n}\end{array}\right\}$$

See Section 2.2 of this manual for a description of the *NODE* parameter.

Example

```
TRON TYPE=DTP
```

Response

```
1994/08/02 14:44:05 TRACE TURNED ON
```

The selected software tracing is turned on. No operator action is required.

Note: *See the associated TROF command.*

2.3.76 UP — Bring Up a Facility

The *UP* command reactivates a Telcon nodal facility that the *DOWN* command has previously suspended. When you reactivate a facility, the Telcon node regains control of the facility and resumes communication to the facility.

While you can bring a line down using either its configured name or its line number, you can only reactivate a line with its name.

Format

```
   ⎧CHAN=name          ⎫
   ⎪LINE=name          ⎪
   ⎪TERM=name          ⎪
   ⎪SITE=name          ⎪ ⎡ ⎧       ⎧name             ⎫⎫⎤
   ⎪DVC=name           ⎪ ⎢ ⎪NODE=  ⎨                 ⎬⎪⎥
   ⎪CLTR=name          ⎪ ⎢ ⎪       ⎩[[[n/]n/]n/]n    ⎭⎪⎥
UP ⎨STN=name           ⎬ ⎢,⎨ADCP=name                 ⎬⎥
   ⎪SAP=name           ⎪ ⎣ ⎩XTS=name                  ⎭⎦
   ⎪PGRP=n,LINE=name   ⎪
   ⎪      ⎧name⎫       ⎪
   ⎪PTDE= ⎨    ⎬       ⎪
   ⎪      ⎩n   ⎭       ⎪
   ⎩PTRK=name          ⎭
```

Required Parameters

You must choose one of the following facility-names:

CHAN=*name*

The configured name of the channel.

LINE=*name*

The configured name of the line you want to bring up.

TERM=*name*

The terminal name.

SITE=*name*

The name of a console associated with a batch site.

DVC=*name*

The name of the tape device.

CLTR=*name*

The cluster name.

STN=*name*

The name of a station.

SAP=*name*

The name of a LAN service access point.

PGRP=*n*

Indicates the RID of the poll group that you want to bring up. The RID for multiplexed lines is 020 (general polling). For multidropped lines, the RID ranges from 021 to 04F.

If you specify *PGRP*, you must also specify *LINE*.

LINE=*name* The name of the line associated with the poll group.

$$\text{PDTE=}\begin{Bmatrix} \textit{name} \\ \textit{n} \end{Bmatrix}$$

An X.25 PSCS program product parameter. See the X.25 documentation for the program product installed at your site.

PTRK=*name*

An X.25 PSCS program product parameter. See the X.25 documentation for the program product installed at your site.

Note: *NMS will inhibit this command when used with a spare line/port.*

Optional Parameters

$$\text{NODE=}\begin{Bmatrix} \textit{name} \\ \text{[[[}\textit{n}\text{/]}\textit{n}\text{/]}\textit{n}\text{/]}\textit{n} \end{Bmatrix}$$

See Section 2.2 of this manual for a description of the *NODE* parameter.

ADCP=*name*

The name of the target Telcon node in a resilient pair.

When, in a resilient system, the *UP* command is entered on (or for) a Telcon node in the standby state, the command affects only that Telcon node. When the command is entered on (or for) a Telcon node in either the online or loadshare states, the command is automatically echoed to the paired Telcon node.

XTS=*name*

The name of an external termination system.

Examples

Example 1 (Reactivating a station)

```
UP STN=UDSTN1
```

Response

```
1994/08/02 08:50:04 COMMAND ACCEPTED
```

Example 2 (Reactivating a line)

```
UP LINE=LINE32S
```

Response

```
1994/08/02 08:50:04 COMMAND ACCEPTED

CENL: 13:22:54 DCP=PRC1 SEQ=48 CLASS=9 EVCD=1
LINE=LINE32S PPID=32
'UP' OF FACILITIES COMMAND

CENL: 13:22:54 DCP=PRC1 SEQ=49 CLASS=6 EVCD=7
LINE=LINE32S PPID=32
LINE CONNECTION COMPLETED
```

You receive this response if CENLOG is turned on, and the console is enabled for CENLOG display.

Additional Discussion

Poll groups

To bring up a poll group, you must specify the line name.

Bringing up a poll group with a specific RID allocates all auto-allocate terminals with that RID. If you specify a general RID (X'20'), all auto-allocate terminals on the group are allocated.

Interactive terminals

If you configure an interactive terminal as an auto-allocate terminal, the next input signs on the terminal.

BSC sites

If you bring a BSC site up, the site is signed on immediately if it is configured as an auto-allocate site.

UDLC stations

When you bring a UDLC station up using the NMS *UP* command, the *UP* command does not take effect until the line is reinitialized. Bringing a UDLC station up requires you to do the following:

1. Bring the station up.

2. Reinitialize the line (use the *ITLN* command).

BSC 2780 and 3780 terminals

Use of the *TERM* facility is not allowed.

REM1 terminals

Use of the *TERM* facility is not allowed.

An active NTR site, console, or card reader

Bringing up one of these has no effect.

An active NTR printer or card punch

Bringing up either of these when associated with a site that is signed on sends an unlock keyin message to the host for that device.

Considerations

The *PDTE* and *PTRK* parameters are valid only when used with an X.25 program product.

The *ADCP* parameter is allowed only in a resilient system.

2.3.77 UPDT — Update DNS Network Parameters

The *UPDT* command dynamically applies previous online configuration (CNFG) input to the DNS run-time tables. *UPDT* dynamically updates DNS network parameters associated with the processor information table, the DNS INFO table, and the named trunk information table.

Format

```
       {TRUNK=name[,DNSI=y][,PRCI=y]}         {name               }
UPDT   {DNSI=y[,TRNK=name][,PRCI=y] }  [NODE= {[[[n/]n/]n/]n      }]
       {PRCI=y[,TRNK=name][,DNSI=y] }
```

Required Parameters

TRNK=*name*

The name of a trunk. When you specify the *TRNK* parameter, DNS updates the Trunk Resistance Factor parameter associated with the named trunk.

DNSI=*name*

The DNS information table. When you specify the *DNSI* parameter, DNS updates the freeze timer and temporary unreachable timer, and the probe timer parameters associated with the DNSINFO information table.

PRCI=*name*

The processor information table. When you specify the *PRCI* parameter DNS updates the node resistance factor associated with the processor information table.

Optional Parameters

```
NODE= {name          }
      {[[[n/]n/]n/]n }
```

See Section 2.2 of this manual for a description of the *NODE* parameter.

Examples

Example 1

```
UPDT TRNK=TRNK1,DNSI=Y
```

Response

```
1994/08/02 15:09:08 TRUNK PARAMETERS MODIFIED
1994/08/02 15:09:08 DNS PARAMETERS MODIFIED
```

Example 2

```
UPDT DNSI=Y
```

Response

```
1994/08/02 10:32:45 DNS PARAMETERS MODIFIED
```

2.3.78 XCMD — External Command

The *XCMD* command sends NMS and non-NMS commands to a configured external termination system (XTS).

For *XCMD*, the *NODE* parameter cannot be substituted for the *XTS* parameter.

All input data following the *XTS* parameter is passed unedited as an ASCII string to the configured external termination system named by the *XTS* parameter.

Format

```
XCMD  XTS=name command string
```

Required Parameters

XTS=name

The name of an external termination system.

Optional Parameters

None

Example

```
XCMD XTS=H7RS COMMAND STRING...
```

References

Do not confuse this command with the CMS 1100 *XCMD* command. For more information on the CMS 1100 *XCMD* command, see the *OS 1100 Communications Management System (CMS 1100) Operations Reference Manual* (7831 5694).

Additional Discussion

To use the *XCMD* command:

- The external termination system must have an interface and the necessary software to receive and execute commands from NMS.

- The external termination system must be configured in the Telcon configuration.

See the *DCATS* statement in the *Telcon Configuration Reference Manual* (7831 5686) for more information about external termination systems.

2.3.79 XFER — File Transfer between a DCP and Host, or Two Hosts

You can use the *XFER* command to transfer files, or absolute and omnibus elements, from a host to a DCP. You can transfer files, and absolute, omnibus, and symbolic elements from a DCP to a host or between DCPs. The destination file on an OS 2200 Series host must be word addressable.

Note: *You can use the NODE= parameter with all formats of the XFER command.*

Format 1

1. DCP to HOST

```
               {filename.      }
XFER [FROM=]   {*filename.     }
               {qual*filename. }
```

Format 2

2. Local DCP to Remote DCP, or Local DCP to Host

```
                                              {prcsrname::      }
     {filename.      }                        {xeuname::        }
XFER {*filename.     }[eltname][,TO=]         {netadrname::     }
     {qual*filename. }                        {addressname::    }
                                              {network-address::}

     {filename.      }
     {qual*filename. }[eltname][,TYPE=xfertype]
```

Format 3

3. Remote DCP to Local DCP

```
            ⎧prcsrname::        ⎫
            ⎪xeuname::          ⎪                                      ⎧filename      ⎫
XFER [FROM=]⎨netadrname::       ⎬{filename     }[eltname] ,            ⎨*filename     ⎬
            ⎪addressname::      ⎪{qual*filename}                       ⎩qual*filename ⎭
            ⎩network-address::  ⎭

            [eltname][,TYPE=xfertype]
```

Format 4

4. HOST to DCP

```
            ⎧                   ⎫
            ⎪xeuname::          ⎪
XFER [FROM=]⎨netadrname::       ⎬{filename     }[eltname]
            ⎪addressname::      ⎪{qual*filename}
            ⎩network-address::  ⎭

              ⎧filename     ⎫
      [,TO=]  ⎨*filename    ⎬[eltname][,TYPE=xfertype]
              ⎩qual*filename⎭
```

Required Parameters

FROM=*name*

The name of the file to be transferred.

You can express the *FROM* parameter in one of the following formats:

Format 1 (OS 1100 Host)

```
{ xeuname::          }
{ netadrname::       }[qual*] filename[(cycle)][/read][/write].[eltname][/version]
{ addressname::      }
{ network-address::  }
```

::

Double colon is a required separator.

xeuname

The name of an external end user (*XEU*) configuration statement pointing to the remote system to, or from which, the file will be transferred. This parameter defaults to the following:

1. LOADXEU (host mass storage)

2. CNTRLGEU (host central logging)

netadrname

The name of a *NETADR* configuration statement and identifies a DNS node that is the source or destination of a file transfer.

addressname::

The name of an ADDRESS NDS identifying a remote node that is the source or destination of a file transfer.

network-address

The explicit network address of a remote DNS node that is the source of a file transfer.

qual*

A 1- to 12-character name consisting of letters, digits, and the special characters, dollar sign ($) and hyphen (-). You can omit the qualifier. If you do omit the qualifier, you must also omit the asterisk (*), and *TEL* becomes the default qualifier.

filename

Indicates the file name consisting of 1 to 12 letters, or digits, and the special characters $ and -
.

cycle

A 1- to 3-digit absolute cycle identifier. The cycle can be a three-digit absolute cycle number, or the relative cycle numbers (+1) and (-1). Default is 1.

read

A 1- to 6-character read-key consisting of letters, digits, and the special characters $ and -.

write

A 1- to 6-character write-key consisting of letters, digits, and the special characters $ and -.

eltname

A 1- to 12-character file element name consisting of letters, digits, and the special characters, dollar sign ($) and hyphen (-).

version

A 1- to 12-character version name consisting of letters, digits, and the special characters, dollar sign ($) and hyphen (-).

Note: *If LOADXEU or CNTRLGEU defines a central Telcon node, you must use an XEU, NETADR, or ADDRESS that specifies the destination host. If you do not use an XEU, NETADR, or ADDRESS that specifies the destination host, the defaults will not work.*

Format 2 (Remote Telcon Node Parameter)

```
{prcsr::           }
{xeuname::         }
{netadrname::      }[qual*] filename[eltname]
{addressname::     }
{networkaddress::  }
```

::

Double colon is a required separator.

xeuname

The name of an external end user (*XEU*) configuration statement pointing to the remote system to, or from which, the file will be transferred.

netadrname

The name of a *NETADR* configuration statement which identifies a DNS node that is the source or destination of a file transfer.

addressname::

The name of an *ADDRESS* NDS identifying a remote node that is the source or destination of a file transfer.

network-address

The explicit network address of a remote DNS node that is the source of a file transfer.

qual*

A 1- to 12-character name consisting of letters, digits, and the special characters, dollar sign ($) and hyphen (-). You can omit the qualifier. If you do omit the qualifier, you must also omit the asterisk (*), and *TEL* becomes the default qualifier.

filename

Indicates the file name consisting of 1 to 12 letters, or digits, and the special characters dollar sign ($) and hyphen (-).

eltname

A 1- to 12-character file element name consisting of letters, digits, and the special characters, dollar sign ($) and hyphen (-).

Format 3 (Local DCP Parameter)

$$\left[\begin{Bmatrix} \mathit{qualifier*} \\ * \end{Bmatrix}\right] \mathit{filename}.[\mathit{eltname}]$$

qualifier

A 1- to 6-character name consisting of letters, digits, and the special characters dollar sign ($) and hyphen (-). If you omit the qualifier, an assumed qualifier selected by an *@QUAL* statement is used. If you omit the qualifier and the asterisk (*), the run-generated qualifier is used.

filename

The 1- to 8-character DCP filename consisting of letters, digits, and the special characters dollar sign ($) and hyphen (-).

eltname

A 1- to 12-character file element name consisting of letters, digits, and the special characters, dollar sign ($) and hyphen (-).

If you omit the *eltname* in the *TO* field of an *XFER* for an element, the *FROM* element name is used to create a *TO* element name.

Optional Parameters

TO=*name*

The name of the destination file in a file transfer. The destination file on the host must be word addressable.

The *TO=name* must be in one of the two formats described for the *FROM=name*. The *TO=* parameter can be omitted if the transfer is from a DCP to a host. If the *TO=* parameter is omitted, the default file name is the file name specified in the *FROM=* parameter, plus the DCP processor number (converted to ASCII characters) appended. The default xeuname is *CNTRLGEU*. If *CNTRLGEU* is not configured, *LOADXEU* is the default xeuname. If neither *CNTRLGEU* nor *LOADXEU* are configured, the file transfer cannot be completed.

TYPE=*xfertype*

The action to be taken in a file element transfer. The possible action types are:

A (absolute)	Transfer an absolute element.
O (omnibus)	Transfer an omnibus element.
S (symbolic)	Transfer a symbolic element between DCPs.
OI	Transfer a omnibus element to a file.
AI	Transfer an absolute element to a file.
SI	Transfer a symbolic element from a DCP to a file on a host.

$$\texttt{NODE=}\left\{\begin{array}{l}\textit{name}\\ \texttt{[[[}\textit{n}\texttt{/]}\textit{n}\texttt{/]}\textit{n}\texttt{/]}\textit{n}\end{array}\right\}$$

See Section 2.2 of this manual for a description of the *NODE* parameter.

Notes:

1. *A FROM file must be previously cataloged. A TO file does not need to be previously cataloged.*
2. *The FROM and TO parameters are positional. The XFER command will not work if there is a deviation in the format.*

Table 2–10 lists the NMS copy commands and the copy operations for which they are used.

Table 2–10. File Copy Commands

Operation	Command Used
File-to-file (same NODE)	COPY
DCP-to-DCP	XFER or RFS
1100/2200 Host to DCP	XFER
DCP to 1100/2200 Host	XFER

Examples

Example 1 (Transfer Absolute Element from Host to DCP)

```
XFER FROM=loadxeu::tel*dtcnfg.telcon,TO=sys1*abs.telcon,TYPE=a
```

Example 2 (Transfer Dumpfile from DCP to Host)

```
XFER FROM=SYS$*SYSDUMP
```

Copying symbolic elements from host to DCP using XFER command

Use the *DCPFILE* program on the 2200 Host to create an omnibus of your symbolic element. *DCPFILE* is the utility that is used to create the down-load omnibus for DCP downloads. In this case, you use it to package the symbolic element into an omnibus because the 2200 utility, *HOSTMS*, does not support symbolic transfers.

Procedure

Step	Action

1	On the 2200 Host:
	
	a. Catalog a file on the 2200 where the omnibus will be stored.
	
	Example
	
	`@CAT,P file-name.,///1000`
	
	b. Using *DCPFILE*, create an omnibus of your symbolic element.
	
	Example
	
	`@DCP1100*DEVABS.DCPFILE file-name.element-name`
	`IN,S your-file.element`
	`END`
	
	File-name.element is now an omnibus element that contains the structure compatible with the DCP file structure.

2	On the DCP:
	
	a. Catalog a file on the DCP where the file will be transferred.
	
	Example
	
	`@CAT,P temp.,///1000`
	
	b. From the NMS console, execute the *XFER* command:
	
	Example
	
	`XFER dmsl01::qual*file-name.element-name,temp.,TYPE=oi`
	
	Where: dmsl01 is the configured *XEU* name (in Telcon) used to open sessions to *DEMAND* on the 2200.
	
	TYPE=oi - Transfers and element to a file. Due to the conversion done by *DCPFILE*, the DCP file contains the symbolic element.

2.4 NMS Console Output Paging Mode

NMS can initiate output paging when output data exceeds a single screen page. Output paging is an interactive mode that allows the console operator to control multiple screen outputs generated by certain NMS commands, such as *SDNS NGBR=ALL*.

When NMS initiates output paging mode, the first screen of a multiple screen output displays. The last output line allows you to display the next screen.

Example

```
Do you wish to display the next page? XMIT Y or N
```

Options

Y (or space)

Displays the next page.

N (or EXIT or enter a new command)

Terminates any remaining pages of the output sequence and the interactive output paging mode.

Note: *The console operator cannot initiate output paging mode. An internal processing routine initiates this mode and generates the multiple screen outputs available. After the multiple outputs are available, the operator controls the output display options.*

2.5 Transparent User Console Commands

Program products such as SNA, or site-developed code, define transparent user console commands. A percentage sign (%) preceding the NMS extension name indicates a transparent user console command. The NMS extension name is one to four characters long and is user-process specific.

Format

```
%cccc[/dddd] user's command string...
```

Required Parameters

%

Indicates a transparent NMS extension command.

cccc

The registered name of the NMS extension.

[dddd]

The destination Telcon node name.

Optional Parameters

None

2.6 NMS Command Error Messages

Table 2–11 lists NMS command error messages and the action you must take to correct the problem.

Table 2–11. NMS Command Error Messages

Message	Operation Action
UNDEFINED COMMAND (USE HELP)	Correct command
UNDEFINED PARAMETER	Correct parameter
UNALLOWED PARAMETER FOUND	Correct parameter
REQUIRED PARAMETERS MISSING	Enter missing parameter
PARAMETER VALUE INVALID	Enter correct value
PARAMETER VALUE TOO LONG	Enter correct parameter
SYNTAX ERROR	Correct syntax
DCP VALUE TOO LARGE	Correct DCP value
DCP VALUE NOT CONFIGURED	Use a configured value
DCP VALUE NOT ALLOWED	Correct DCP value
IO VALUE INVALID	Use valid values (I or O)
KEYWORD NAME TOO LONG	Use correct keyword name
PARAMETER VALUE OVERFLOW	Reenter input
PARAMETER VALUE TOO LARGE	Reenter input
ZERO DCP VALUE INVALID	Enter nonzero values only
DTYP VALUE INVALID	See DTYP definition for valid values
ALGN VALUE INVALID	See ALGN definition for valid values **continued**

Message	Operation Action
FGN VALUE INVALID	See FGN definition for valid values
* AUX DEVICE NOT CONFIGURED *	Configure the device
XTS VALUE NOT CONFIGURED	Use a configured value
XTS VALUE NOT ALLOWED	Use correct XTS value
TEXT MISSING	Supply missing text
ERROR: NO SESSION PATH AVAILABLE	None
GICW VALUE INVALID	Enter correct value
WRAP VALUE INVALID	Enter Y or N
SYSTEM CONFIGURATION IN ERROR	Have configuration element corrected
FOR DCP VALUE NOT CONFIGURED	Correct the DCP value
INVALID PARAMETER VALUE	See parameter definition for correct value
ATTEMPTING TO EXECUTE A RESILIENT TYPE CMD ON A NON-RESILIENT DCP	Command accepted only resilient DCP
* AUX DEVICE CANNOT BE SELECTED	Device needs to be readied (online)
VOL AND DTYP ARE MUTUALLY EXCLUSIVE	Use only one parameter
TFRM AND CFN ARE MUTUALLY EXCLUSIVE	Use only one parameter
PRIVILEGED AUTHORITY REQUIRED	Console lacks authority to execute this command

2.7 CLIST Commands

This subsection describes the *CLIST* commands used to customize NMS and SNA/net (SNMS) commands. You can use *CLIST* to:

- Abbreviate standard commands
- Delay the execution of commands
- Execute several commands

2.7.1 Understanding Command Lists

When using the *CLIST* feature, consider the following:

- The name of a command list is limited to eight characters.
- A command list can contain NMS, or the name of another command list. One command list can call another command list nesting up to a level of 16.
- Each line of a command list can contain a maximum of 72 characters. Characters in excess of 72 are truncated.
- Parameters in the command list are described by the ampersand character (&). For example, &1 represents the first parameter entered on the command line. Recursive parameter references such as &&1 are allowed, but are not useful at this time.
- Command list names override standard command names so extreme caution must be used when naming command lists. For example, a command list named UP would override the normal NMS UP command.
- Letter case is insignificant in a command list.
- Multiple spaces are treated as one space.
- Parameters are delimited by spaces or commas. If a comma is used between parameters, then a comma is substituted in the resulting command.
- If the file *CLIST* does not exist or is empty, then *CLIST* processing is disabled.
- If two Telcons are running on the same DCP, they must have different qualifiers and, therefore, different *CLIST* files.

2.7.2 Creating a CLIST

You can create a *CLIST* using the Standard DCP editor, @ED. @ED is described in the *DCP Series Operating System Operations Reference Manual (7831 5702).*

Individual *CLISTs* are contained in a program file called *CLIST*. The individual *CLISTs* are themselves symbolic elements and are called command lists. Any method that creates this type of file can be used to create a *CLIST* program file.

A command list can contain NMS, or the name of another command list. One command list can call another command list up to a nesting level of 16.

CLISTs can be created on a 2200. The *CLIST* filename (*filename*) is included in the download element.

Format

```
[command] [&1 &2 &3 . . . &31]
```

Required Parameters

command

Is the name of an element in the *CLIST* file which contains NMS, SNMS or other *CLIST* commands.

&1 &2 &3 . . .&31

Are the command parameters.

Examples

Example 1

```
LOGL 125
```

Explanation

This example executes the *LOGI* command. Using the long format, the *LOGI* command retrieves CENLOG messages from the CENLOG file. This command displays: CENLOG messages already sent to the local CENLOG file, CENLOG messages still being accumulated in the 4K memory buffer, or CENLOG messages already sent to the central file.

The command list contains the following commands:

```
LOGI SEQ=&1 OPTN=LONG
```

Example 2

```
COMMAND2
```

Explanation

The *CLIST* COMMAND2 contains the following:

```
UP CDRM1
UP CDRM2
UP CDRM3
```

Entering COMMAND2 activates CDRM1, CDRM2, and CDRM3. COMMAND2 does not require parameters.

Example 3

```
DOWN &1
& SCHEDULE 'UP &1 'DELAY=6
```

Explanation

The *BOUNCE RESX* results in a *DOWN* of *RESX* followed by an *UP* of *RESX* after a delay of six seconds.

2.7.3 Delaying Command Execution

The commands in a command list can be scheduled for delayed execution by using the DELAY=*n* parameter.

Format

n

Is the number of seconds to wait before processing the command.

Note: *Do not use spaces around the equal sign in the DELAY= parameter. DELAY= must be the last parameter in the command.*

Example

```
R20
```

Explanation

`R20` is a command list that contains the following:

```
&1 &2
R20 &1 &2 DELAY=20
```

If you enter the command *R20 S CDRM45*, the result is the immediate execution of the *STAT* command *S CDRM45* followed by the execution of this command every 20 seconds. Use the *CKILL* command to terminate execution of a delayed command.

Considerations

The following considerations apply to delayed commands:

- A delayed command does not affect the processing of any other command in the command list, therefore delayed commands do not need to be placed at the end of a command list.
- Four delayed commands per Telcon can be outstanding at a given time. The delayed commands can be *NMS* or *SNMS* commands, or another command list.

2.7.4 Activating Automatic CLISTS

Telcon defines three *CLISTs* that are automatically activated when specific events occur:

- *TRACES*
- *ISTART*
- *CONSTART*

TRACES

is activated during system initialization and contain the trace commands to be executed. This *CLIST* can contain only SNA/net trace commands. Because the *TRACES CLIST* is automatically activated at system initialization, you are assured that the traces capture all possible data including the data immediately following the completion of system initialization.

ISTART

Is activated when the first console connects to NMS and contains the operator commands to be executed. Because activation of *ISTART* is delayed until the first console connects to NMS, you can direct the command output to an output device.

CONSTART

Is activated each time a console connects to NMS, unless it is the first console connecting to NMS, in which case *ISTART* is activated. *ISTART* can contain commands to activate *CONSTART*.

2.7.5 General CLIST Capabilities

This section details the general capabilities of *CLIST*. These include:

- Local variables
- Task global variables
- Expressions
- Pre-defined variables
- Functions
- Procedures and flow control

2.7.6 Local Variables

There are 32 local variables. A variable is identified by a preceding ampersand (&).

Example

Example 1

```
&abc = &1 + 3
```

Explanation

This adds the number three to the first parameter and assigns the result to `&abc`.

Example 2

```
&abc = 'abcdefgh'
```

Explanation

This assigns the string `abcdefgh` to the variable `&abc`.

2.7.6.1 Task Global Variables

The task global variable allows nested *CLISTs* to modify information accessed by higher *CLISTs*. As soon as the root *CLIST* terminates, the variable disappears. When a task global variable is defined in the first *&TGLOBAL* statement, it is initialized to a string with a length of zero. Each *CLIST* that references a task global variable must include a *&TGLOBAL* directive naming the variables to be referenced.

Example

Example 1

```
&TGLOBAL abc
```

Example 2

```
&TGLOBAL gvar1,gvar2
```

Considerations

- Local and task global variable names consist of a letter, A – Z, followed by up to seven more letters, A – Z, or numbers, 0 – 9. All variable names are converted to upper-case before execution of each *CLIST* line.
- Variables may hold an integer value or an 8-character string value.
- Assignments to local variables and task global variables are allowed. Assignments to parameters are NOT allowed.

2.7.7 Expressions

Expressions are composed of a single term, or two or more terms separated by an operator. Order of evaluation is strictly left to right. A term may be:

- a numeric literal
- a quoted string
- a parameter (&1 ... &31)
- a user variable
- a system function

Terms must be followed by a blank.

Assignment expressions may include one of the following algebraic symbols:

Symbol	Description
+	addition
–	subtraction
*	multiplication
/	division

These operations are valid on numeric operands. A string composed only of a number within the range of 0 – 9 is considered, in this context, to be numeric.

Example

```
&A=32
&B=&A * 2
```

Response

The value for variable &B is 64.

2.7.7.1 Character Increase/Decrease

Addition and subtraction can be used as a character increment or decrement. The character increment or decrement is done on the last character of the string. The resulting value of the final character must be between 0 and 255. The character that is represented by the value is taken from ASCII. If the following two lines were encountered in a *CLIST*:

Examples

Example 1

```
&A = 'ABC'
&A = &A + 1
```

Response

The final value for &A would be 'ABD'.

Example 2

```
&A = '023'
&A = &A + 1
```

Response

The final numeric value for &A is 24, not a string of three characters.

2.7.8 Pre-Defined Variables

The following are pre-defined variables and their definitions:

&date

Returns date in the format mm/dd/yy.

&parmcnt

Returns a count of the number of parameters on the call.

Example

```
&IF &PARMCNT > 1 &THEN &GOTO -labelx
```

Note: *Relational symbols that may be used in the &IF statement are:* <, < =, < >, =, >, > =.

&prscr

Returns a string equal to the processor name from the current configuration.

Example

```
linex line prscr=&prscr,...
```

&time

Returns time in the format hh:mm

2.7.8.1 *CLIST* Functions

&concat

Combines two or more strings together to create a new string.

Example 1

```
&varx: = &concat(&a, &b)
&varx: = &concat(&a, &b, &c, &d)
```

Explanation

If the length of the concatenation exceeds the capacity of the receiving variable, the concatenation is truncated to the capacity of the receiving variable.

Example 2

```
&varx = &concat &a &b
```

Explanation

Example 2 is the alternative IBM syntax for the concatenation function.

&length

Returns the length of the string variable.

Example 1

```
&IF &length(&a) = 0 &THEN &GOTO -null
```

Example 2

```
&b = &length &s
```

Explanation

Example 2 is the alternative IBM syntax for the length function.

&substr

Returns a portion of a string.

Example 1

```
&varx: = &substr(&a,3)
```

Explanation

&varx is assigned all the characters in &a from the third character to the end.

Example 2

```
&varx: = &substr(&a,3,2)
```

Explanation

&varx is assigned the third and fourth characters from &a.

Note: *References starting beyond the length of the string return a null string. References extending beyond the length of the string are terminated to the string length.*

Example 3

```
&varx: = &substr &a 3 2
```

Explanation

Example 3 is the alternative IBM syntax for the substring function.

&rscstat

Returns the status of a resource. Valid values include:

0	undefined
1 - 255	the resource type
resource type + 256	status is UP

Example 1

```
&IF &rscstat(&1) = 0 &THEN &GOTO -undef
&IF &rscstat(&1) > 256 &THEN &GOTO -up
```

&seg

Retrieves either a numeric or string value from a specified offset within a named segment. The segment can also be specified by a number.

Example 1

```
&segx = &SEG('AZSITS',123,2,I)
&name = &SEG(&segs,345,8,C)
```

Explanation

Variable &segx gets a two-byte value at decimal offset 123 in segment AZSITS. Variable &name gets an 8-byte string value at decimal offset 345 in segment &segx. The segment reference can be to a named segment or a segment number. The offset and length operands can be numeric expressions. The last parameter, the information type, must be either an I for integer or C for character.

2.7.8.2 Procedures and Flow Control

&var1 = expression

Assigns the value of expression to &var1.

The term expression is used here as an assignment.

&IF

Is the relational expression.

&THEN

Is a *CLIST* or NMS command.

&CONTROL ALL|CMD|ERR

Is the output control (level of display) from within the *CLIST*. The ALL command displays the control statements such as &IF and &GOTO as well as the NMS commands that are to be forwarded to NMS. The CMD command only displays the NMS commands, and the ERR command only displays the errors encountered while trying to execute the *CLIST*.

Note: *A single command display can be suppressed by beginning the command with a question mark (?).*

&GOTO -labelname

Execution is transferred to the line in the *CLIST* containing -labelname. The reference can be either forward or backward.

Example 1

```
&IF expression &THEN &GOTO -labelname
```

&SCHED term DELAY = seconds

TIME = hhmm (time of day, 24-hour clock)

Note: *Term is a quoted string containing a command to execute either at an absolute time (TIME =) or after a specified number of seconds has elapsed (DELAY =).*

&WAIT seconds

Maximum of 60 seconds. This command prevents other *CLISTs* from executing.

&WRITE (expression)

Allows values of local variables to be printed. This feature is useful when debugging a *CLIST* that has just been written.

2.7.9 CLIST Management

CLIST management mode maintains command lists. The following table summarizes the *CLIST* management.

Command	Use
ADD	Adds a command list to the *CLIST* file
CKILL	Kills an active command list
EXIT	Exits *CLIST* command mode
HELP	Lists *CLIST* command mode commands
LIST	Lists the names of the command lists in a *CLIST* program file or the commands in a command list
ON/OFF ECHO	Turns the command echo capability on or off
ON/OFF MODE	Turns selected console execution modes on or off
REMOVE	Removes a command list from the system

To enter *CLIST* command mode, enter `CLIST`. To exit *CLIST* command mode, enter `EXIT`.

Command Rules

The following rules govern the use of command lists and the *CLIST* management mode:

- You can only access command lists that are on the Telcon to which your console is connected.
- Command lists cannot enter *CLIST* management mode.
- Commands in a command list are always treated as NMS commands. If the operator enters the *CLIST* command mode from the terminal, the commands in a command list continue to execute.
- One command list can execute at a time. This is called the currently active command list. If the active command list contains delayed commands, however, another command list can execute after the non-delayed commands complete executing.
- A console cannot switch NMS modes while a command list is active. Mode change commands from the console are rejected if the console session identifier is the same as the currently executing command list. The operator can kill the currently active command list by using the *CKILL* command.
- When a command is delayed, the current input mode is saved. If the operator changes the mode and the delay expires, *CLIST* forces the console back to the original mode before executing the command.

- *CLIST* management mode can be entered regardless of any other mode settings that are current. When the operator exits the *CLIST* management mode, the console session is restored to its previous mode.
- The maximum number of lines in a *CLIST* file is unlimited. The previous rules and system constraints, however, may limit the length of a *CLIST*. For example, downing 100 lines with a *CLIST* may take three minutes. During this time, *CLIST*s from other consoles cannot execute.

Abbreviated Command Input

When using the *DOWN*, *LIST*, *MOVE*, *STAT*, or *UP* commands, the facility type parameter is not required as long as these commands are the first parameters in a CLIST.

Example 1

```
STAT LINE B1
```

Explanation

In this example line B1 **must** be locally configured.

Example 2

STAT LINE=LINEB1,NODE=*nodename*

Explanation

When line B1 is configured in a remote node, then the facility type parameter must be used.

2.7.9.1 ADD – Add a Command List

Use the *ADD* command to do the following:

- Add a command list by copying an element from a program file into the *CLIST* program file. It allows you to activate a new command list without rebooting the system.
- Rename and add a command list.
- Concatenate command lists and add the new command list.

Formats

Format 1 (add a command list to the CLIST file enabling it to be executable)

ADD *file.element*

Format 2 (rename a command list)

ADD *newname=oldname*

Format 3 (concatenate command lists)

ADD *clistname=file1.element1,file2.element2,. . .*

Required Parameters

file.element

Is the name of the command list to execute.

clistname

Is the name of the concatenated command list.

filen.elementn

Are the names of the command lists to be concatenated.

newname

Is the new name of the *CLIST*.

oldname

Is the old name of the *CLIST*.

Examples

Example 1

```
ADD FILEx
```

Explanation

This command adds the command list named *LOGON*.

Example 2

```
ADD TERM=FILEx
```

Explanation

This command adds the command list *COM.LOGOFF* to *TERM*. The command list *TERM* remains until it is removed.

Example 3

```
ADD TYPE=FILE1.TYPE1,FILE2.TYPE2
```

Explanation

This command concatenates command lists *COM.TYPE1* and *COM.TYPE2* and names the resulting command list *TYPE*.

Example 4

```
ADD TRACES=FILE1.BFTRACE,FILE2.XABTRACE
```

Explanation

This command creates the automatically activated *CLIST* named *TRACES* by concatenating command lists *COM.BFTRACE* and *COM.XABTRACE*.

Note: *The CLISTs in these examples would be placed in a file on the DCP named qual*CLIST. Where "qual" is the project of the Telcon run. The default filename is CD6R1*CLIST.*

2.7.10 CKILL – Kill Command List

The *CKILL* command kills the active and all delayed command lists.

Format

```
CKILL |ALL|
      |n  |
      |ACT|
```

Required Parameters

All

Kills the active command list and all delayed *CLISTs*.

n

Kills delayed command number *n*. The command number *n* can be found by using the *LIST* command.

ACT

Kills the currently active command list.

Example

None

2.7.11 EXIT – Exit CLIST Command Mode

The *EXIT* command is used to exit *CLIST* command mode.

Format

```
EXIT
```

Required Parameters

None

Optional Parameters

None

Example

None

2.7.12 HELP – List CLIST Commands

The *HELP* command lists the *CLIST* mode commands.

Format

```
HELP
```

Required Parameters

None

Optional Parameters

ADD

Refer to the *ADD CLIST* command in this section.

Example

None

2.7.13 LIST – List Command Lists

The *LIST* command lists either the names of the command lists in the *CLIST* program file or the commands in a command list.

Formats

Format 1 (list the names of the command list)

```
LIST
```

Format 2 (list the commands in the command list *NAME*)

LIST *name*

Format 3 (list all delayed commands)

```
LIST,d
```

Format 4 (list the console input modes)

```
LIST,m
```

Explanation

Format 4 will list the console input modes, and whether or not they allow *CLIST*s to be initiated.

Example

Example for the Delayed List Command

```
LIST,d
```

Response

```
#  mode  delay console  command
```

Explanation

#

Is the number of the delayed command (1-4).

command

Is the text of the command.

delay

Is the number of seconds remaining until execution of the command.

console

Indicates which console delayed the command.

mode

Is the console input mode. Valid values include:

REG	is the regular mode, which is the initial mode of all (S)NMS sessions where valid commands include, for example *STAT*, *UP*, *DOWN*, *LIST*, and *DISP.*
RFS	is the remote file system mode.
CNFG	is the online configuration mode.
DIAG	is the online diagnostic tests mode.
CLIST	is the online maintenance functions mode.
ILM	is the intelligent line module command mode.

2.7.14 ON/OFF ECHO – Command Echoing

The *ON/OFF* command turns the command echo capability on and off. The initial setting for command echoing is on.

Formats

Format 1 (turn command echoing off)

Enter `OFF ECHO`.

Format 2 (turn command echoing on)

Enter `ON ECHO`.

Required Parameters

None

Optional Parameters

None

Example

None

2.7.15 ON/OFF MODE – Console Input Mode

The *ON/OFF MODE* command turns selected console input modes on or off.

Format

Format 1 (turns console input mode on)

ON MODE *mode*

Format 2 (turns console input mode off)

OFF MODE *mode*

Required Parameters

mode

Is the console input mode. Enter one or more of the following values separated by a space:

ALL	is all modes.
REG	is no special mode entered.
RFS	is remote file system mode.
CNFG	is online configuration mode.
DIAG	is online diagnostic tests mode.
ILM	is the intelligent line module command mode.

2.7.16 REMOVE – Remove Command List

The *REMOVE* command removes a command list from the system.

Format

```
REMOVE name
```

Required Parameters

name

Is the name of the command list to remove.

Optional Parameters

None

Example

None

Section 3
Intelligent Line Module (ILM) NMS Commands

This section describes intelligent line module (ILM) command definitions, formats, required parameters, and optional parameters.

Use the Telcon NMS *UP*, *DOWN*, *STRT*, *STOP*, *LIST*, and *STAT* commands to bring up and bring down an ILM, to start and stop input or output, and to display facilities and statistics. Refer to Section 2 of this manual for more detailed information about these commands.

To either check the status of an ILM or connected facilities, or to perform a trace on an ILM, you must execute the appropriate commands from ILM mode. This section explains the commands you can use after entering ILM mode.

3.1 Entering ILM Mode

Use the *ILM* command to enter ILM conversational mode in NMS.

Format

$$\texttt{ILM NODE=}\left\{\begin{array}{l} \textit{name} \\ \texttt{[[[}\textit{n}\texttt{/]}\textit{n}\texttt{/]}\textit{n}\texttt{/]}\textit{n} \end{array}\right\}$$

Parameters

$$\texttt{NODE=}\left\{\begin{array}{l} \textit{name} \\ \texttt{[[[}\textit{n}\texttt{/]}\textit{n}\texttt{/]}\textit{n}\texttt{/]}\textit{n} \end{array}\right\}$$

See Section 2.2 of this manual for a description of the *NODE* parameter.

3.2 Exiting ILM Mode

Use the *EXIT* command to exit ILM conversational mode.

Format

```
EXIT
```

Required Parameters

None

Optional Parameters

None

3.3 ILM Commands

This subsection defines ILM commands, provides command formats, and describes required and optional parameters. Examples are also included.

Table 3–1 shows ILM commands and command functions.

Table 3–1. ILM Commands

ILM Command	Function
DISP	Displays line statistics and other facility attributes.
DUMP	Forces a line module dump.
ENV	Controls ILM environment.
FREE	Clears line module and frees port from a Telcon run.
HELP	Displays help information.
LIST	Lists active line facilities.
LOAD	Provides ILM loader.
LOOP	Performs loop-back testing.
SET	Sets loop-back test parameters.
SNAP	Activates trace facilities.
SNOF	Deactivates trace facilities.
STAR	Starts line module buffer and utilization reporting.
STAT	Displays line and IA information.
TCAT	Catalogs a file for logging trace information.
TCLS	Closes a trace file.
TOPN	Opens a trace file.
TSWT	Switches trace files.

3.3.1 DISP Command

Use the *DISP* command to display information about a specific line module.

Format

```
               [ { TYPE=HELP                                                        } ]
               [ {                                                                  } ]
               [ {        { MEM    }                                                } ]
               [ {        { MEMB   }                                                } ]
               [ { TYPE = { MEML   }[,ADR=mem-address]                              } ]
               [ {        { OBJECT }                                                } ]
               [ {        { POOL   }                                                } ]
               [ {                                                                  } ]
               [ {       { LCB                   }                                  } ]
               [ {       { OFFS                  }                                  } ]
               [ {       { OCB[,NAME=offcb-name] }                                  } ]
               [ {       { STAT[,FAC=fac-name]   }                                  } ]
               [ {       { MODEM                 }                                  } ]
DISP PORT=n    [ { TYPE= { CNTRS                 } [,LINE={name}]                   } ]
               [ {       { DRVR                  }        {n   }                    } ]
               [ {       { ERRS                  }                                  } ]
               [ {       { MCAS                  }                                  } ]
               [ {       { MENU                  }                                  } ]
               [ {       { STATUS                }                                  } ]
               [ {                                                                  } ]
               [ {       { ISIT            }                                        } ]
               [ {       { AT[,LBUS=n]     }   { ENTR = entry-num   }               } ]
               [ { TYPE= { IUT[,LBUS=n]    } , { ADR  = mem-address }               } ]
               [ {       { MERT            }                                        } ]
               [ {       { IA              }                                        } ]
```

Required Parameters

PORT=*n*

Is the port number. The range is 1–255 depending on your hardware configuration. If you enter the port number in hexadecimal, it must be preceded by a zero.

Optional Parameters

TYPE=

HELP	Is the type of help information.
MEM	Displays memory in 16-bit words.
MEMB	Displays memory in 8-bit words.
MEML	Displays memory in 32-bit words.
OBJECT	Displays the (temporary block of memory) Message Transfer Facility.
POOL	Allows stepping through an object pool.

ADR=*mem-address*

Is a memory address in the ILM. You must enter the memory address in hexadecimal (precede the address with a zero).

TYPE=

LCB Displays raw line control block (lcb) data.

OFFS Displays a list of first-level offspring and their control block addresses.

OCB Displays offspring control blocks.

If you want to display a specific offspring control block, enter the following parameter:

NAME=*offcb-name* is the offspring control block name.

STAT Displays `LINE I/O` statistics and statistics of facilities attached to a line.

Fac=*fac-name* is the facility name.

MODEM	Displays lines with modem connections.
CNTRS	Displays LINE counter information.
DRVR	Displays LINE driver information.
ERRS	Displays LINE error information.
MCAS	Displays LINE multicast addresses (LAN only).
MENU	Displays LINE driver menu of additional commands.
STATUS	Displays LINE driver status information.

$\mathtt{LINE=}\left\{\begin{matrix} name \\ n \end{matrix}\right\}$

Is the configured line name or multiline number.

For the single-line module, the line number is given as the port number.

For multiline (4x1 and 8x1) line modules, the line number is given as the port number/multiline number. The multiline number can range from 0 to 3 for 4x1 line modules, and 0 to 7 for 8x1 line modules. The default is 0.

TYPE=

ISIT Displays the ILM System Information Table.
AT Displays the Attach Table.

LBUS=*n* Is the partition number. Use this parameter if you have a dual partition DCP. This range is 1 or 0. The default is 0.

IUT Displays the Interface User Table.

LBUS=*n* Is the partition number. Use this parameter if you have a dual partition DCP. This range is 1 or a 0. The default is 0.
MERT Displays the Management Extension Registration Table.
IA Displays Interface Applications.

ENTR=

Is the entry number.

ADR=*mem-address*

Is a memory address in the ILM. You must enter the memory address in hexadecimal (precede the address with a zero).

Examples

Use the *DISP* command, as shown in the following *DISP* examples, to receive line module information. This line module information supplements the information displayed when you use the *LIST* and *STAT* commands.

Notes:

1. *For complete information on how to use the DISPLAY HELP command, see the* Telcon Operations Guide *(7831 5785).*

2. *The display format for each command will be driver-unique. The specific display commands are particular to the link-provider you use. The following drivers/link-providers are currently available on ILMs: Ethernet, FDDI, Token Ring, SDLC, HDLC, and ASYNC.*

3. *Only the most basic ILM command parameters and values are explained in this manual. For more detailed explanations of Interface Application (IA) ILM command parameters and values, call the Unisys Support Center.*

Example 1. (HDLC Driver Table for Specific Line Display)

```
DISP PORT=0B,TYPE=DRVR,LINE=3
```

Response

```
ILM `DISP` response for port # 0B

Display of hdlc Driver Table for line 00B/3

0000000: 0000 01E8 0804 0704 EFEF 03F1 0005 0001    ................
0000010: 0002 0001 0000 001E E050 0000 0000 0000    .........P......
ILM>
```

Example 2. (Line Statistics Display)

```
DISP PORT=0a,TYPE=STAT,LINE=1
```

Response

```
ILM 'DISP' response for port # 0A

Throughput statistics for facility LC145
Mass storage logging is currently on

SEND (previous 05 min 33 sec period)    RECEIVE (previous period)
-----------------------------------     ------------------------------
msg cnt... 0   char cnt.. 0         msg cnt... 0    char cnt.. 0
avg size.. 0   err cnt... 0         avg size.. 0    err cnt... 0
msgs/sec.. 0   errs/sec.. 0         msgs/sec.. 0    errs/sec.. 0
byte/sec.. 0   Kbits/sec. 00000.00  byte/sec.. 0    Kbits/sec. 00000.00

SEND (current 00 min(s) 14 secs(s))   RECEIVE (current period)
-----------------------------------     ------------------------------
msg cnt... 0   char cnt.. 0         msg cnt... 0    char cnt.. 0
avg size.. 0   err cnt... 0         avg size.. 0    err cnt... 0
msgs/sec.. 0   errs/sec.. 0         msgs/sec.. 0    errs/sec.. 0
byte/sec.. 0   Kbits/sec. 00000.00  byte/sec.. 0    Kbits/sec. 00000.00
ILM>
```

Example 3. (LCB Table Display for a Specific Line)

```
DISP PORT=0B TYPE=LCB LINE=3
```

Response

```
ILM `DISP` response for port # 0B

LCB fixed area (adr = 001AF832):
00000000: 4C41 5042 4853 2020 4C32 4853 3033 2020    LAPBHS  L2HS03
00000010: 000B 0000 0000 0003 001A F894 0000 0000    ................

LCB user area (adr = 001AF87E)
00000000:
ILM>
```

Example 4. (Memory Log Table Display for a Specific Line in 32-Bit Format)

```
DISP PORT=0B,TYPE=MEML,ADR=01FE2C8
```

Response

```
ILM `DISP` response for port # 0B

001FE2C8: 0A0008E0 001FEBA8 0000022C 001FE2C8    ..............,....
001FE2D8: 001EF2C8 6D676D74 00151730 00000000    ....mgmt...0....
ILM>
```

Example 5. (Memory Table Display for a Specific Line in 16-Bit Format)

```
DISP PORT=0B,TYPE=MEMB,ADR=01FE2C8
```

Response

```
ILM `DISP` response for port # 0B

001FE2C8: 0A00 08E0 001F EBA8 0000 022C 001F E2C8    ..............,....
001FE2D8: 001E F2C8 6D67 6D74 0015 1730 0000 0000    ....mgmt...0....
ILM>
```

Example 6. (Display a Management Extension Registration Table [MERT] for a Specific Port)

```
DISP PORT=0B,TYPE=MERT,ENTR=0
```

Response

```
ILM `DISP` response for port # 0B

Display of Management Extension Registration Table (MERT) entry # 0

IA name: LAPBHS

      Attach/Detach queue handle........ 001FE088
      NMS queue handle.................. 00000000
      Line initialization queue handle.. 001FE088
      Line termination queue handle..... 001FE088
      Resource management queue handle.. 001FE088
      Return queue handle............... 00000000
ILM>
```

Example 7. (Display an Interface Application [IA] Entry for a Specific Port)

```
DISP PORT=0B,TYPE=IA,ENTR=0
```

Response

```
ILM `DISP` response for port # 0B

Display of Interface Application (IA) entry # 0

IA name............ LAPBHS

Total lines........ 3 (use LIST command)

Total attachments.. 6        Total input atts... 2
                             Total output atts.. 4

LBUS 0 input attachment entries...  00FA  00FB
LBUS 0 output attachment entries..  0001  0002  0003  0004
ILM>
```

Example 8. (Attachment Table [AT] Entry Display for a Specific Port)

```
DISP PORT=0B,TYPE=AT,ENTR=250,LBUS=0
```

Response

```
ILM `DISP` response for port # 0B

Display of Attachment Table (AT) entry # 250
    Attach ID (AID).... 00FA    (hex)     Input/Output ....... Input
    Valid input range.. 00FA to 00FC     Valid output range.. 0000 0004
    Owning IA.......... LAPBHS

                             IAT stage Q1x/Qhdl... 12C  / 001FBF48
                             IAT return Q1x/Qhdl.. 229  / 001FBF88
                             IAT flags:
                                      attachment valid........ Yes
                                      attachment in term...... No
                                      attachment pending...... No
                                      attachment standby.......No
                                      data xfer active.........No
                                      input held condition.....No

AT entry:
0012DC54: 00FA0000 000012C 00000229 00000000    ...........)....
ILM>
```

Example 9. (Interface User Table [IUT] Display for a Specific Port)

```
DISP PORT=0B,TYPE=IUT,ENTR=250,LBUS=0
```

Response

```
ILM `DISP` response for port # 0B

Display of Interface User Table (IUT) entry # 250

    Owning IA.......... LAPBHS       Attachment type.. Input

                          ILM Attach ID....... 0FA
                          AT address.......... 0012DC54
                          Stage/Output queue.. 001FBF48
                          Call func ID........ 001FBF88  00000000:

00178EF8 0012B65C 0017EE30 0011FA52    .......\/...0...B 00000010:
ILM>
```

Example 10. (Display Counters for an Ethernet LINE)

```
DISP PORT=01F,TYPE=ERRS,LINE=LPLAN2
```

Response

```
LPIA 'Display Attributes' response for port 01F
Ethernet Error Counters

Underruns.......0        No Carrier......0     Frame Defers....1911
SQE Errors......84533    Max Collisions..0     Discarded Frms..331
LCC Resets......0

IEEE 802.2 Error Counters

RESET Rqsts.....0      Flow Rqst(RNR)..0      Flow rqst(REJ)..0
FRMR Rqsts......0      Flow Rqsr(inv)..0      RESET Resps.....0
Invalid Rqsts...0      Data Ind(BUSY)..0      Data Ind(REJ)...0
Data Ind(RESET).0      Data Ind(inv)...0      Flow Ind(ReJ)...0
Flow Ind(RNR)...0       Flow Ind(FRMR)..0      RESET Inds......0
RESET Confirms...0     Invalid Ind.....0      Retry Exceeded..0
ACK Timer Exp...0      P Timer Exp.....0      REJ Timer Exp...0
BUSY Timer Exp..0      Send Window Cls.0
ILM-DLCMAN>
```

Example 11. (Display Ethernet LINE Driver Level Information)

```
DISP PORT=01F,TYPE=STATUS,LINE=LPLAN2
```

Response

```
'Get Station Status Attributes` request sent to LPIA for port # 01F

LPIA `Display Attributes` response for port 01F
Ethernet Statistic Counters

Total Xmit......84616     Good Xmit.......84616     Total Receive...83869
UI Rqsts........84261     Connect rqsts...0         I Rqsts.........0
Disconn Rqsts...0         Flow Rqsts(RR)..0         TEST Rqsts......0
XID Rqsts.......0         UI Inds.........0         I Ind(DISCONN)..0
I Ind(NORMAL)...0         XID Inds........0         TEST Inds.......0
Flow Ind(RR)....0         Connect Inds....0         Disconn Inds....0
Connect Cnfms...0
ILM-DLCMAN>
```

Example 12. (Display Available Commands for an Interface Application [IA])

```
DISP PORT=0IF,IA=DLCMAN
```

Response

```
DLCMAN `DISP~ response for port # 01F

Supported NMS commands for DLCMAN:
Stat port=0xx ia=DLCMAN                    - lists ILM`s users of DLCMAN
List port=0xx line=xxxxxxxx ia=DLCMAN      - lists lines assigned to DLCMAN
                                           - line argument may be a 'name'
                                           - or 'port/m1'.
List line=xxxxxxxx ia=DLCMAN               - lists Line`s Line/LSAP info
List line=xxxxxxxx lsap=xxxxxxxx ia=DLCMAN - lists LSAP's SAP info
Disp port=xx type=ACL entr=xxx ia=DLCMAN   - displays details of DLCMAN's
                                           - Attach Control List entries.
Disp port=xx type=UREG entr=xxx ia=DLCMAN  - displays details ofDLCMAN's
                                           - User Registration entries.
ILM-DLCMAN>
```

Example 13. (Display Counters for an FDDI Link Provider [IA])

```
DISP PORT=04D,TYPE=CNTRS,LINE=0
```

Response

```
LPIA 'Display Attributes' response for port 04D
  FDDI SMT State Counters
                   PHYA  /  PHYB                           PHYA  /  PHYB
BREAK state......00000003/00000002   CONNECT state....00000003/00000002
NEXT state.......00000033/00000022   SIGNAL state.....00000030/00000020
ACTIVE state.....00000003/00000002   JOIN state.......00000003/00000002
VERIFY state.....00000003/00000002   RING OP..........00000010

FDDI MAC counters:

   Frame received count......670100   Error isolated count......43520
   Lost frame count..........0        Frame copied count........35001
   Frame not copied count....0        Frame transmitted count...74843
   Token received count......234003

FDDI frame counters:

   SMT/MAC frames sent.......74834    SMT/MAC frames received...81178
   LLC frames sent...........12       LLC frames received.......269547
ILM-DLCMAN>
```

Example 14. (Display Driver Errors for an FDDI Link Provider [IA])

```
DISP PORT=017,TYPE=ERRS,LINE=LANL2,SET=0
```

Response

```
LPIA 'Display Attributes' response for port 017
FDDI Driver Errors

 ReqChn0 errors..0      ReqChn1 errors.0
 ReqChn0 nomem...0      ReqChn1 nonmem..0
 ReqChn0 unserv..0      ReqChn1 unserv..0
 ReqChn0 except..3      ReqChn1 except..0

 IndChn0 errors..0      IndChn1 errors..0      IndChn2 errors..0
 IndChn0 dropped.0      IndChn1 dropped.0      IndChn2 dropped.1
 IndChn0 except..0      IndChn1 except..0      IndChn2 except..0
ILM-DLCMAN>
```

Example 15. (Display Station Status Information for FDDI)

```
DISP PORT=04D,TYPE=STATUS,LINE=0
```

Response

```
LPIA 'Display Attributes' response for port 04D
FDDI Station Status

                                                     FDDI
Canonical
                                               ----------------   --------
---------
Local station MAC address..................  10-00-d0-30-00-80  08-00-
0b-0c-00-01
UNA  (Upstream Neighbor Address)...........  10-00-d0-30-00-40  08-00-
0b-0c-00-02
DNA  (Downstream Neighbor Address).........  10-00-d0-30-00-40  08-00-
0b-0c-00-02

ECM  (Entity Control Management)  State...  IN
CFM  (Configuration Management)  State....  ISOLATED
RMT  (Ring Management)  State.............  RING_OP

>>PCM (Physical Connection Management) information for PHY A and PHY B
     PC Type      PHY0.. A                    PC Type      PHY1.. B
     PCM State    PHY0.. CONNECT              PCM State    PHY1.. CONNECT
     LER Estimate PHY0.. 0                    LER Estimate PHY1.. 0
     PC_Neighbor  PHY0.. ?                    PC_Neighbor  PHY1.. ?
     LCT Fail cnt PHY0.. 0                    LCT Fail cnt PHY1.. 0
ILM-DLCMAN>
```

Example 16. (Display Menu for an FDDI Link Provider IA)

```
DISP PORT=017,IA=FDDIIA,LINE=0
```

Response

```
FDDI Main Menu

FDDI port 017 SMGT Menu    ia fddiia     For SMT support operations
FDDI port 017 BMAC Menu    ia fddiia     For BMAC operations
FDDI port 017 PHY  Menu    ia fddiia     For PHY operations
FDDI port 017 BSI  Menu    ia fddiia     For BSI operations
FDDI port 017 Main Menu    ia fddiia     To return to main menu
ILM-DLCMAN>
```

Example 17. (Display FDDI SMGT Operations Menu)

Use the FDDI Main Menu *SMGT* display command to receive complete information on Station Management (SMT) support operations. Refer to the previous example for complete FDDI Menu Information.

```
FDDI PORT=017,SMGT=MENU,IA=FDDIIA
```

Response

```
FDDI SMT Operations menu:

FDDI port 017  SMT  PolicyA ia fddiia     To read PHYA Connection Policies
FDDI port 017  SMT  PolicyB ia fddiia     To read PHYB Connection Policies
FDDI port 017  SMT  RingLat ia fddiia     For Ring latency calculation

FDDI port 017  Main Menu    ia fddiia     To return to main menu
ILM-FDDIIA>
```

Example 18. (Display FDDI PHYA Connection Policies)

You must use the FDDI SMT operations menu from within the *DISP* command to access the following information.

```
FDDI PORT=04D,SMT=POLICYA,IA=FDDIA
```

Response

```
     Signal bits: 0 1 2 3 4 5 6 7 8 9
           -------------------------------
PHYA Received Policies: 0 0 1 1 0 0 0 0 0 0
PHYA Xmitted  Policies: 0 0 0 1 0 0 0 0 0 0

FDDI port 04D SMGT Menu    ia fddiia     To return to SMT menu
FDDI port 04D Main Menu    ia fddiia     To return to main menu
ILM-FDDIIA>
```

Example 19. (Display FDDI Ring Latency Calculation)

You must use the FDDI SMT operations menu from within the *DISP* command to access the following information.

```
FDDI port=017,SMT=RingLat,IA=FDDIIA
```

Response

```
FDDI Ring Latency Calculation:

  Ring latency = 3.84 microseconds

FDDI port 017 SMGT Menu    ia fddiia     To return to SMT menu
FDDI port 017 Main Menu    ia fddiia     To return to main menu
ILM-FDDIIA>
```

3.3.2 DUMP Command

Use the *DUMP* command to force an LM or ILM dump.

Format

```
DUMP PORT=n [,OPT= {AUTO|BOOT|OFF|NOW}]
```

Required Parameters

PORT=*n*

Is the port number.

Optional Parameters

OPT=

AUTO	Dumps the ILM on a failure and does not restart the ILM.
BOOT	Dumps the ILM on a failure and restarts the ILM.
OFF	Turns off current dump options.
NOW	Dumps the ILM immediately. Has the same result as not choosing an optional parameter.

Additional Discussion

If an ILM dump occurs, you can use the NMS *XFER* command to transfer the dump file to a host. Convert the word-addressable host file to an omnibus element by using the *COPYW* utility (contained in the **1100ABS** file) in the following format:

```
@COPYW tracefile.,newfile.element
```

Send the new file to the remote support site for retrieval by Unisys support personnel.

Example

```
DUMP PORT=10
```

Response

```
ILM Dump Started - Check CENLOGs for Status
```

3.3.3 ENV Command

Use the *ENV* command to establish an LM operational environment.

Format

```
ENV [PORT={n  }] [,SET={YES}] [,HB={ON }] [,INT={sec}]
          {ALL}         {NO }       {OFF}         {60 }
```

Required Parameters

None

Optional Parameters

PORT=*n*

Is the port number.

PORT=*ALL*

Is all the ports. This is the default.

SET=*YES*

Sets the time and date to the LM or ILM.

SET=*NO*

Does not set the time and date to the LM or ILM. This is the default.

HB=*ON*

Turns on the heartbeat (HB), which allows the CP platform to periodically probe the ILM to ensure operability.

HB=*OFF*

Turns off the heartbeat. This is the default.

INT=*sec*

Specifies the heartbeat interval in seconds. This is the default.

INT=*60*

Sets the heartbeat interval at 60 seconds.

Note: *If you use the ENV command with no parameters, you turn the heartbeat (HB) off for all active ILM ports.*

Example

PORT=020,SET=NO,HB=ON,INT=60

Response

Change environment complete

3.3.4 FREE Command

Use the FREE command to free a port from the Telcon run.

Use this command with the Telcon NMS *UP* and *DOWN* commands. For more information see Section 2 of this manual.

Note: *You cannot free a port with normal NMS UP and DOWN commands.*

Format

```
FREE PORT=n
```

Required Parameters

PORT=*n*

Is the port number.

Optional Parameters

None

Example

```
FREE PORT=010
```

Response

```
Port is Free
```

3.3.5 LIST Command

Use the *LIST* command to list the active line facilities.

The *LIST* command displays the status of lines connected to an ILM and the status of any facilities (for example, terminals and stations) on a line. You can use the information displayed to learn if any lines on an ILM are causing LM problems.

You can request status information by specifying a line name, port, all the lines on an ILM port, or all ILM ports on a DCP.

Note: *You can now use the NMS mode LIST command to list LINE and SAP information from the ILM.*

Format

```
     [ LINE={name  } ]
LIST [      {n[/n]} ]
     [ PORT={n  }    ]
     [      {ALL}    ]
```

Required Parameters

None

Optional Parameters

```
LINE={name  }
     {n[/n] }
```

Is the configured line name or multiline number.

For the single-line module, the line number is given as the port number.

For multiline (4x1 and 8x1) line modules, the line number is given as the port number/multiline number. The multiline number can range from 0 to 3 for 4x1 line modules, and 0 to 7 for 8x1 line modules. The default is 0.

PORT=*n*

Is the port number.

PORT=*ALL*

Is all the ports. If you do not specify any parameters, the default is *PORT=ALL*.

Examples

Example 1. (List Port Information)

```
LIST PORT=0B
```

Response

```
ILM `LIST` response for port # 0B

                                Driver   I/O Rate (Kbps)
Line  Line name  IA name    Type    input    / output    Last IO time
----  ---------  --------   ------  -------------------  ------------
0B/0  L2HS00     LAPBHS     hdlc    00000.00 / 00000.00  --:--:--.-
0B/1  L2HS01     LAPBHS     hdlc                         --:--:--.-
0B/2
0B/3  L2HS03     LAPBHS     hdlc                         00:03:38.1
```

Explanation

Line

Is the port/line number of the line.

Line name

Is the name of the line.

IA name

Is the name of the interface application.

Driver type

Is the type of line drive (UDLC, HDLC, SYN, and ASYNC).

Last IO time

Is the last input or output time.

Example 2. (List Line Information)

```
LIST LINE=00/A
```

Response

```
Multi              LPIA    Link    LPIA       Link IO rate
Line#   IA name    type    State   link rate  Input    /Output      Last IO time
-----   --------   ------  ------  ---------  ------------------    ------------
00/A-   DLCMAN     ENET    Open    10 Mbps    00049.66/00002.24     14:24:02

>> List of SAPs for line LANA1

                   Remote         SAPs       SAP     FacIDs
SAP name  HLE name address        loc  rem   state   In   Out    Last IO time
--------  -------- ------------   ---- ----  ------  ---- ----   ------------
SAPAD     HLE-RTC  08000B0CC00D   0004 0004  Open    0017 0017   14:24:00
SAPAB     HLE-RTC  08000B0CC00B   0004 0004  Open    0015 0015   14:23:58
SAPA1     HLE-DNSA 000000000000   0010 0010  Open    0012 0012   14:24:02
D$S5A000  HLE-IP   000000000000   0800 0800  Open    0001 0001   14:24:01
D$s5A001  HLE-ARP  000000000000   0806 0806  Open    0001 0001   14:20:30
```

Explanation

The information displayed is driver-type specific.

3.3.6 LOAD Command

Use the *LOAD* command to force a long load of an ILM load file or element.

Format

```
LOAD PORT=n[,FILE=filename][,ELT=eltname]
```

Required Parameters

PORT=*n*

Is the port number.

Optional Parameters

File=*filename*

Is the name of the specified ILM load file.

ELT=*eltname*

Is the name of the specified ILM load element.

Note: *The default load file is qual*ILMLOAD. Do not enter the default load file as a LOAD command parameter. The LOAD command does not support entered qualifiers.*

Example

```
LOAD PORT=014,elt=ilmplata3
```

Response

```
ILM LOAD COMPLETE
```

3.3.7 LOOP Command

Use the *LOOP* command to send a loop-request packet to a specific interface application. The loop-request packet commands the specified interface application to perform loopback testing on a particular line.

Note: *The default interface application is the ILM loop that performs a loopback test on the requested line. (See also the SET command.)*

Format

```
LOOP LINE={name   } ,MODE={SEND [,LEN=n]        } [,DATA=data] [,CNT=n]
          {n[/n]  }       {RCV  [,IA=ianame]    }
```

Required Parameters

```
LINE={name  }
     {n[/n] }
```

Is the configured line name or multiline number.

For the single-line module, the line number is given as the port number.

For multiline (4x1 and 8x1) line modules, the line number is given as the port number/multiline number. The multiline number can range from 0 to 3 for 4x1 line modules, and 0 to 7 for 8x1 line modules. The default is 0.

```
MODE={SEND}
     {RCV }
```

Is send or receive mode.

Use *SEND* run internal (*INT*), remote (*REM*), and local (*LOC*) loop.

Use the *RCV* to set one end into echo mode during external loop.

Optional Parameters

LEN=*n*

Is the loop message link. The default is 100 bytes, unless data is specified.

IA=*ianame*

Is the interface application. The default is the provided loop back (IA=ILMLOOP).

DATA=*data*

Is the data. The data entered is duplicated until LEN occurs.

CNT=*n*

Is the loop message count. The default is 100.

3.3.8 SET Command

Use the *SET* command to set loopback test parameters to a requested interface application.

Note: *If the interface application is the default ILM loop, the parameters are sent to the requested driver and line in preparation for the LOOP command. (See also the LOOP command.)*

Format

```
SET LINE={name  }[,IA=ianame     ][,LOOP={INT}][,SPD=bps      ][,PRTY={EVEN}]
         {n[/n] }[,CLEN={5}      ][      {EXT}][,STOP={1  }   ][      {ODD }]
                 [      {6}      ][      {REM}][      {1.5}   ][      {NONE}]
                 [      {7}      ][      {LOC}][      {2  }   ]
                 [      {8}      ][      {OFF}]

    [,CLS={SYN }][,TA=ms][,SSAP=0xx][,DSAP=0xx][,DA1=xx-xx-xx-xx][,DA2=xx-xx]
    [     {ASY }]
    [     {BOP }]
    [     {ENET}]
    [     {FDDI}]
    [     {TR  }]
```

Required Parameter

```
LINE={name  }
     {n[/n] }
```

Is the configured line name or multiline number.

For the single-line module, the line number is given as the port number.

For multiline (4x1 and 8x1) line modules, the line number is given as the port number/multiline number. The multiline number can range from 0 to 3 for 4x1 line modules, and 0 to 7 for 8x1 line modules. The default is 0.

Optional Parameters

IA=*ianame*

Is the interface application. The default is the provided loop back (`IA,ILMLOOP`).

LOOP=

Is the type of loop (internal, external, remote, local, or off).

You must specify *MODE=SEND* on the *LOOP* command if you specify an internal, remote, or local *LOOP*.

If you specify an external *LOOP*, you must specify *MODE=RCV* for one end and *MODE=SEND* for the other end.

CLEN=

Is the character length (used only for the asynchronous class). The default is eight.

STOP=

Is the number of stop bits (used only for the asynchronous class).

PRTY=

Sets the parity (even, odd, or none). The default is none.

CLS=

Is the class (synchronous, asynchronous, bit-oriented protocol, ethernet, FDDI, or Token Ring). The default is synchronous.

TA=*ms*

Is the turnaround propagation delay in milliseconds.

SSAP=

Is the source service access point. Enter this parameter in hexadecimal notation.

DSAP=

Is the destination service access point. Enter this parameter in hexadecimal notation.

Note: *The SSAP and DSAP parameters default to 002.*

DA1=

Is destination address number one. DA1 defaults to 08-00-0B-0C.

DA2=

Is destination address number two. DA2 defaults to 00-00.

Example

```
SET LINE=010/3
```

Response

```
ILM-20 Loopback Summary:                                     09/18 11:32.001
------------------------
Port/Line: 010/3  IA name: ILMLOOP  Line name: n/a  Hardware: A1-H/S 4x1

Parameters:
-----------
Loop:      n/a  Cls:   n/a  Mode:  n/a   Count: 00000  Data Length: 0000
State: initial  Fail: stop  Display interval: 030 sec  I/O timer: 00 sec
Parity:    Line speed:  00000

Data:
-----
00000000:

Test Results:
-------------
Start time:00:00:00.0  Total loops completed: 000000  Send errors: 00000
End time:  00:00:00.0  Transmit count/second: 00.000  Rec. errors: 00000
SID status: ffffffff   Modem signals:
```

3.3.9 SNAP Command

Use the *SNAP* command to turn on tracing in the CP or in the line module.

Format

```
                {L}                   {CP}
SNAP TYPE=      {M} ,FAC=name [ ,LEV= {LM} ][,PORT=port,][IA=ianame]
                {H}
```

Required Parameters

TYPE=

Is the tracing level, defined as follows:

L	is low-level tracing.
M	is medium-level tracing.
H	is high-level tracing.

Note: *The meaning of the levels is product-dependent.*

FAC=*name*

Is the facility name.

Optional Parameters

LEV={CP | LM}

Is the trace location (either CP or LM).

PORT=*port*

Is the port number. The *PORT* parameter is required if an associated port cannot be determined from *FAC* parameter.

IA=*ianame*

Is the interface application. The *IA* parameter is required only if you set the *LEV=CP* parameter.

Note: *For line module tracing use, "DLCMAN." For CP tracing use the CP name (for example "ASYNC").*

Example

```
SNAP TYPE=1,FAC=LR10HS03,LEV=LM,PORT=010,IA=LAPBHS
```

Response

```
Trace Turned-on
```

3.3.10 SNOF Command

Use the *SNOF* command to turn off tracing in the CP or in the line module.

Format

SNOF TYPE= $\begin{Bmatrix} \text{L} \\ \text{M} \\ \text{H} \end{Bmatrix}$,FAC=*name* [,LEV= $\begin{Bmatrix} \text{CP} \\ \text{LM} \end{Bmatrix}$][,PORT=*port*,][IA=*ianame*]

Required Parameters

TYPE=

Is the tracing level, defined as follows:

L	is low-level tracing.
M	is medium-level tracing.
H	is high-level tracing.

FAC=*name*

Is the facility name.

Optional Parameters

LEV= $\begin{Bmatrix} \text{CP} \\ \text{LM} \end{Bmatrix}$

Is the trace location (either CP or LM).

PORT=*port*

Is the port number. The *PORT* parameter is required if an associated port cannot be determined from the *FAC* parameter.

IA=*ianame*

Is the interface application. The *IA* parameter is required only if you set the *LEV=CP* parameter.

Note: *For line module tracing use, "DLCMAN." For CP tracing use the CP name (for example, "ASYNC").*

Example

```
SNOF TYPE=1,FAC=LR10HS03,LEV=LM,PORT=010,IA=LAPBHS
```

Response

```
Trace Turned-off
```

3.3.11 STAR Command

Use the *STAR* command to start line module reporting of CP busy/buffer utilization on periodic 30-second intervals.

To stop the repeating display, enter another ILM command or exit ILM conversational mode.

Format

```
STAR PORT=n
```

Required Parameters

PORT=*n*

Is the port number.

Optional Parameters

None

Example

```
STAR PORT=020
```

Response

```
ILM ''STAT' response for DCP SLD      port # 020

   Time: 10:39:56
   Processor busy.... current = 4%   30 sec avg = 4%  30 sec peak = 5%
   Buffer pool....... initial bytes    current bytes    % free    Quanta
                      -------------    --------------   -------   ------
                      584 K bytes     576 K bytes        98%        10

ILM>

ILM ''STAT' response for DCP SLD      port # 020

   Time: 10:40:27
   Processor busy.... current = 4%   30 sec avg = 4% 30 sec peak = 5 %
   Buffer pool....... initial bytes   current bytes    % free    Quanta
                      -------------   --------------   -------   ------
                      584 K bytes     577 K bytes        98%        10

ILM>

ILM ''STAT' response for DCP SLD      port # 020

   Time: 10:40:58
   Processor busy.... current = 4%  30 sec avg = 4%  30 sec peak = 5%
   Buffer pool....... initial bytes  current bytes    % free    Quanta
                      -------------  --------------   -------   -------
                      584 K bytes     576 K bytes        98%        10
```

3.3.12 STAT Command

Use the *STAT* command to do one of the following:

- Solicit line module CP busy/buffer and interface application information
- Turn on line statistics for a particular line

Note: *You can now use the NMS mode STAT command to display LINE and SAP information from an ILM.*

Use the following *STAT* command format and parameter information to

- Set line statistics collection interval
- Turn on line statistics for a particular line

Format

1. STAT PORT=*n*

2. $\texttt{STAT}\left[\texttt{LINE=}\begin{Bmatrix}\textit{name}\\ n[/n]\end{Bmatrix}\right]\left[\texttt{,TMNG=}\begin{Bmatrix}\texttt{ON}\\ \texttt{OFF}\end{Bmatrix}\right][\texttt{,RSET=}\textit{time}]$

Required Parameters

PORT=*n*

Is the port number.

Optional Parameters

LINE={*name* / *n*[/*n*]}

Is the configured line name or multiline number.

For the single-line module, the line number is given as the port number.

For multiline (4x1 and 8x1) line modules, the line number is given as the port number/multiline number. The multiline number can range from 0 to 3 for 4x1 line modules, and 0 to 7 for 8x1 line modules. The default is 0.

TMNG={ON / OFF}

Turns the statistics reporting interval on or off. Do not use this parameter if you are requesting LM busy/buffer information.

RSET=*time*

Establishes the time, in minutes, that statistical counters are reset. Do not use this parameter if you are requesting LM busy/buffer information.

PORT=

Solicits ILM help screen.

IA=

Solicits ILM IA help screen.

xxxx=

Is from the Telcon NMS *STAT* command parameter set (for example *SAP*, *STN*, *TERM*, or *IA* defined set).

Note: *Statistics are always collected on a per line basis and can be displayed by using the DISP TYPE=stat command. Use the STAT command (as described here) to force the statistics buffer to be logged to the CP.*

Example

```
STAT PORT=0B
```

Response

```
ILM 'STAT' DCP PA0        Part  A   port # 0A ILM Platform level: 1.12.0

  Hardware type..... ILM\t20\t4x1   Hdw ID: A1       Time: 14:56:00

  Processor busy.... current = 0%   30 sec avg = 3%  30 sec peak = 0%

  Buffer pool....... initial bytes  current bytes    % free   Quanta
                     -------------   -------------   -------  ------
                     584 K bytes    485 K bytes        82%       12

  IA information.... IA#  IA name     Release level
                     ---  -------     -------------
                      0   LAPBHS      1.1.90
                      1   ILMOOP      1.1.13
ILM>
```

Explanation

ILM PLATFORM LEVEL

Is the release level of the ILM Platform.

Processor busy

Is the percentage of idle time for the ILM in 30-second statistics.

Buffer pool: Initial bytes

Is the size of the buffer pool in bytes.

current bytes

Is the current size in bytes of the buffer pool in use.

% free

Is the percentage of the buffer pool that is unused.

Quanta

Is the relative buffer pool unity factor.

IA#

Is the interface application number.

IA name

Is the interface application name.

Release level

Is the interface application level.

3.3.13 TCAT Command

Use the *TCAT* command to catalog a local storage file on DCP local storage for logging trace information.

Format

```
TCAT [VOL=vol-name][,FILE=filename][,NBR=nbr-files][,SIZE=file-size]
```

Required Parameters

None

Optional Parameters

VOL=*vol-name*

Is the volume name. The system should select the volume name.

FILE=*filename*

Is the file name. The default is *ILMTRC.* The filename may be from one to six characters. File names with less than six characters are filled with "$". If you use more than six characters, the file name changes to the default.

Two sets of traces can be cataloged (ILMTR00, ILMTR01). When one trace file is full, the trace routine automatically switches to the other file. You can switch the files manually using the ILM *TSWT* command. Once a trace file is inactive, you can use the NMS *XFER* command to transfer the inactive file to a convenient site for editing and analysis.

NBR=*nbr-files*

Is the number of files to catalog. The default is 2; the maximum is 30. The cycle numbered 00 is appended.

SIZE=*file-size*

Is the size of the file in 256-byte blocks. The default is 1,000; the minimum is 100.

Example

```
TCAT FILE=TCATFILE,NBR=2,SIZE=100
```

Response

```
Opened Trace File :- ILMTRC
```

3.3.14 TCLS Command

Use the *TCLS* command to close a trace file.

Format

```
TCLS
```

Required Parameters

None

Optional Parameters

None

Example

```
TCLS
```

Response

```
Closed Trace File :- ILMTRC00
```

3.3.15 TOPN Command

Use the *TOPN* command to open a trace file.

Format

```
TOPN
```

Required Parameters

None

Optional Parameters

None

Example

```
TOPN
```

Response

If the trace file is closed, you receive the following response:

```
Opened Trace:-ILMTRC00
```

If the trace file is already open, you receive the following response:

```
Trace File is open, TCLS Required
```

3.3.16 TSWT Command

Use the *TSWT* command to switch trace files.

Format

```
TSWT
```

Required Parameters

None

Optional Parameters

None

Example

```
TSWT
```

Response

```
Closed Trace File :- ILMTRC00
Opened Trace File :- ILMTRC01
```

3.4 FDDI Information Access

The ILM40 FDDI implementation provides information to assist installation. This information is accessed through the ILM platform and DLCMAN menu interfaces.

3.4.1 ILM Platform Line Module Menus

The menu interfaces for the Line Module (LM) is accessed by using the ILM *DISPLAY* entry.

Format

DISP [port number]

Example

```
DISP port 9
```

Response

```
---------------------------------------------------------------------------
ILM 'DISP' response for port # 09
   Help screen # 1 (general commands) for ILM 'DISP' command.
   Disp port 09                       displays this screen
   Disp port 09  type help            displays this screen
   Disp port 09  type help page 2     Tab,Xmit for LINE display help.
   Disp port 09  type help page 3     Tab,Xmit for TABLE display help.
   Disp port 09  type help page 4     Tab,Xmit for MTF display help.
   Disp port 09  type help page 5     Tab,Xmit for MEMORY display help.
ILM>
---------------------------------------------------------------------------
```

3.4.2 FDDI HELP Entry

The menu entry for the FDDI *HELP* entry is found in the LINE menu entry described in the ILM menu. (See the ILM DISP response on page 3–47 of this manual.)

Example

With the ILM DISP command response on your screen, move your cursor to the entry for type help page 2 and transmit.

Response

```
------------------------------------------------------------------------
ILM 'DISP' response for port # 09  Help screen # 2 (LINE display
commands)
   Disp port=09  type=lcb     line=zzzz   - displays line's raw LCB
   Disp port=09  type=ocb     name=zzzz   - displays NAME's raw OCB
   Disp port=09  type=offs    line=zzzz   - displays LINE's list of
OCB(s)
   Disp port=09  type=stat    line=zzzz   - displays LINE's I/O
statistics
   Disp port=09  type=stat    line=zzzz fac=xxxxxxxx displays FAC's
stats
   Disp port=09  type=MODEM   line=zzzz   - displays LINE's MODEM info
   Disp port=09  type=CNTRS   line=zzzz   - displays LINES Counter info
   Disp port=09  type=DRVR    line=zzzz   - displays LINE's driver table
   Disp port=09  type=ERRS    line=zzzz   - displays LINE's error table
   Disp port=09  type=MCAS    line=zzzz   - displays LINE's
Multi-Cast-Addrs
   Disp port=09  type=MENU    line=zzzz   - displays LINE's driver menu
   Disp port=09  type=STATUS  line=zzzz   - displays LINE's driver level
info
ILM>
------------------------------------------------------------------------
```

Explanation

The *HELP* entry lists a menu containing entries for generic line level information. The significant entries for FDDI are: *CNTRS, ERRS, MCAS, MENU, STATUS,* and *STAT*. The *DRVR* entry retrieves the same information as the *STATUS* entry.

3.4.3 FDDI Specific Menu

The *MENU* entry retrieves a menu which is specific to links associated with a line.

Note: *Not all links will have additional menus.*

Example

Move your cursor to `disp port 09 type menu line 0` and transmit.

Response

```
-----------------------------------------------------------------------
 DLCMAN 'DISP' response for port # 09
 'Get Menu Attributes' request sent to LPIA for port # 09
 ILM-DLCMAN>
 LPIA 'Display Attributes' response for port #09
 FDDI  Main Menu
   FDDI port 09 SMGT Menu ia fddiia    For SMT support operations
   FDDI port 09 BMAC Menu ia fddiia    For BMAC operations
   FDDI port 09 PHY  Menu ia fddiia    For PHY operations
   FDDI port 09 BSI  Menu ia fddiia    For BSI operations
ILM-DLCMAN>
-----------------------------------------------------------------------
```

Explanation

The *SMGT* entry is a significant entry on the menu.

Note: *Entries for BMAC, PHY, and BSI are for engineering and development use only.*

3.4.4 FDDI Station Management Menu

FDDI Station Management (SMT) provides information in its Management Information Base (MIB). Information about installation is provided from the following entries from the LINE information menu:

- disp port 09 type status line
- disp port 09 type cntrs line

Additional information from SMT is available from the SMGT Menu.

Example

Move your cursor to `FDDI port 09 SMGT menu ia fddiia.`

Response

```
---------------------------------------------------------------------
FDDI SMT Support Operations Menu:
   FDDI port 09 SMT PolicyA ia fddiia      To read PhyA Connection
Policies
   FDDI port 09 SMT PolicyB ia fddiia      To read PhyB Connection
Policies
   FDDI port 09 SMT RingLat ia fddiia      For Ring latency calculation
ILM_FDDIIA>
---------------------------------------------------------------------
```

3.4.4.1 PHY Connection Policies

When an FDDI station connects to the ring, it exchanges information with its neighbor in an effort to coordinate the connection process. If there are connection problems (i.e. the PCM state does not go active (refer to STATUS entry), this information could be useful.

Example

Move your cursor to `FDDI port 9 SMT PolicyA ia fddiia.`

Response

```
-----------------------------------------------------------------------
          Signal bits:      0 1 2 3 4 5 6 7 8 9
          -------------------------------
    PHYA Received Policies: R T T A D D M F L P
    PHYA Xmitted  Policies: R T T A D D M F L P
ILM-FDDIIA>
-----------------------------------------------------------------------
```

Explanation

R

Reserved (must be zero).

TT

Physical connection type.

Valid values include: 00 = A
01 = B
10 = S
11 = M

Note: *Use establish mode of connection or detect topology problems.*

A

Set to indicate compatibility of sent and received policies

DD

Define LCT (Link Confidence Test) duration.

Valid values include: 00 = short
01 = medium
10 = long
11 = extended

M

MAC available for LCT.

F

When set to 1 Link Confidence Test (LCT) failed on the station sending this bit.

L

If set, this bit indicates that the sending end of the connection will provide a MAC for the MAC Local Loop. MAC Local Loop is performed following the signalling of this bit.

P

If set, This bit indicates that the sending end of the connection intends to place a MAC in the output token path of this PHY.

3.4.4.2 FDDI Ring Latency Information

The FDDI implementation must be able to determine the latency of the FDDI ring. This entry invokes the procedures required by the FDDI chip set to determine the latency. The latency is the time between tokens. This constitutes the time between send opportunities. The more stations on the ring, the greater the latency will be.

Example

Move your cursor to `FDDI port 9 SMT RingLat ia fddiia.`

Response

```
-----------------------------------------------------------------------
FDDI Ring Latency Calculation
   Ring Latency = 3.84 microseconds
-----------------------------------------------------------------------
```

3.4.5 FDDI STATUS Information

The status display of the FDDI station provides useful information for installation and ring monitoring functions.

Example

Move your cursor to `disp port 9 type status line 0`, or `disp port 9 type drvr line 0`

Response

```
---------------------------------------------------------------------
FDDI Station Status
                                          FDDI              Canonical
                                   -----------------   -----------------
Local station MAC address..........10-00-d0-30-07-1c   08-00-0b-0c-e0-38
UNA (Upstream Neighbor Address)....10-00-d0-30-07-ec   08-00-0b-0c-e0-37
DNA (Downstream Neighbor Address)..10-00-90-a6-cd-ab   08-00-09-65-b3-d5

ECM (Entity Control Management) State.. IN
CFM (Configuration Management) State... THRU
RMT (Ring Management) State............ RING_OP

>>PCM (Physical Connection Management) information for PHY_A and PHY_B
     PC Type      PHYA.. A               PC Type      PHYB.. B
     PCM State    PHYA.. ACTIVE          PCM State    PHYB.. ACTIVE
     LER Estimate PHYA.. 11              LER Estimate PHYB.. 11
     PC Neighbor  PHYA.. B               PC Neighbor  PHYB.. A
     LCT Fail cnt PHYA.. 0               LCT Fail cnt PHYB.. 0
ILM-DLCMAN>
```

Response

Local Station MAC address

The configured Media Access Control (MAC) address for this FDDI station. FDDI requires that the Most Significant Bit (MSB) is transmitted first on the media. The "FDDI" column presents the MAC address in the form it would appear on the media.

The "Canonical" column presents the MAC address in the form it would appear in configuration documentation or link user interfaces.

UNA (Upstream Neighbor Address)

The UNA as determined by the Station Management (SMT) protocol. (MAC) address for the Upstream Neighbor to this FDDI station. FDDI requires that the Most Significant Bit (MSB) is transmitted first on the media. The "FDDI" column presents the MAC address in the form it would appear on the media.

The "Canonical" column presents the MAC address in the form it would appear in configuration documentation or link user interfaces.

DNA (Downstream Neighbor Address)

The UNA as determined by the Station Management (SMT) protocol. (MAC) address for the Downstream Neighbor to this FDDI station. FDDI requires that the Most Significant Bit (MSB) is transmitted first on the media. The "FDDI" column presents the MAC address in the form it would appear on the media.

The "Canonical" column presents the MAC address in the form it would appear in configuration documentation or link user interfaces.

ECM (Entity Control Management) State

FDDI Station Management (SMT) performs two basic functions: Connect Management (CMT) and Ring Management (RMT). ECM, CFM, RMT, and PCM are all part of CMT. ECM signals all PCMs within the node when the media is available. States:

- OUT——ECM waits for a connect request from CMT. The ECM will remain in this state until the line is UPped.
- IN——This is the final state of the ECM. When IN state is achieved, CMT starts the PCM machines.
- TRACE—This state is used to isolate a stuck BEACON This indicates a problem somewhere in the ring.
- LEAVE—This state is entered when the line has been DOWNed (i.e. the FDDI station is "leaving" the ring.
- PATH_TEST-This state is entered as a result of TRACE state being entered.

- INSERT—This state is entered to allow time for the optical bypass switch to insert.
- CHECK—This state is entered to ensure that both primary and secondary bypass relays have switched.
- DEINSERT–This state is entered to allow time for the optical bypass switches to deinsert.

CFM (Configuration Management) State

FDDI Station Management (SMT) performs two basic functions: Connect Management (CMT) and Ring Management (RMT). ECM, CFM, RMT, and PCM are all part of CMT. CFM specifies the state of the physical/logical connection path. For a Single MAC Dual Attach Station (SMDAS) such as a DCP, The possible states are:

- ISOLATED-No connections are made between PHYs and MACs.
- C_WRAP_A-Data may be transmitted and received on the PHYA interface. (This state indicates there is a break in a dual-ring environment. This is the normal state if the PC Neighbor in the PCM is type M).
- C_WRAP_B-Data may be transmitted and received on the PHYB interface. (This state indicates there is a break in a dual-ring environment. This is the normal state if the PC Neighbor in the PCM is type M).
- THRU—Data is received on PHYA and transmitted on PHYB. (This is the normal state in a dual-ring environment. This is an illegal state if either PC Neighbor is type M).

RMT (Ring Management) State

FDDI Station Management (SMT) performs two basic functions: Connect Management (CMT) and Ring Management (RMT). ECM, CFM, RMT, and PCM are all part of CMT. RMT specifies the state of the MAC connection to the ring. For a Single MAC Dual Attach Station (SMDAS) such as a DCP, The possible states are:

- ISOLATED—This is the initial state of the RMT.
- NON_OP—MAC has reported that its connection to the ring is **not** Operational (CLAIM procedures are not completed).
- RING_OP—MAC has reported that its connection to the ring is operational (CLAIM procedures have been completed).
- DETECT—Detect indicates that an abnormal condition status has been detected and the error isolation procedures are being invoked.
- NON_OP_DUP–Ring is not operational due to a duplicate address detection.
- DIRECTED—The MAC has been instructed to send BEACON frames to its upstream neighbor.
- TRACE—If DIRECTED state has not resolved the BEACON condition in the allotted time. TRACE state is entered until PATH_TEST is initiated.

PCM (Physical Connection Management) Information

The PCM information is broken out separately for PHYA and PHYB.

- PC Type — Defines the local PHY type. FDDI defines A, B, M, and S. The DCP implements a Single MAC Dual Attach Station (SMDAS). The PHY types are always A and B.
- PCM State — See discussion of SMT State Counters in section FDDI Counters Information.
- LER Estimate - Line Error Rate as estimated by SMT. This value is the absolute value of the exponent of the number of bits transferred since the last reported link error.
- PC Neighbor - The PHY type of the remote PHY connected to this PHY.
- LCT Fail cnt - Link Confidence Test failure count. If errors are detected during the connection process, an LCT may be on the interface. This value is the count of LCTs that failed.

3.4.6 FDDI Counters Information

FDDI maintains a set of operational counters. These counters are useful in the determination of link problem areas and for isolating those problems.

Example

Move your cursor to `disp port 9 type cntrs line 0"`.

Response

```
------------------------------------------------------------------------
FDDI SMT State counters:
         PHYA  /  PHYB                             PHYA  /  PHYB
BREAK state......00000002/00000001     CONNECT state....00000002/00000001
NEXT state.......00000022/00000011     SIGNAL state.....00000020/00000010
ACTIVE sta.......00000002/00000001     JOIN state.......00000002/00000001
VERIFY state.....00000002/00000001     RING_OP..........00000005

FDDI MAC counters:
    Frame received count.......71233      Error isolated count.......0
    Lost frame.................1          Frame copied count.........933
    Frame not copied count.....0          Frame transmitted count....5419
    Token received count.......218674

FDDI frame counters:
    SMT/MAC frames sent........935        frames received....2160
    LLC frames sent............4486       LLC frames received........3906
ILM-DLCMAN>
------------------------------------------------------------------------
```

3.4.7 SMT State Counters

Station Management controls the connection of an FDDI station to the FDDI ring. A series of states are traversed during this connection procedure. These counters count the number of times each state has been entered. All counters except RING_OP are used during the connection process. Once all states are correctly traversed, the MAC will be inserted into the token path and the ring will go operational. RING_OP indicates the number of times the ring has entered the operational state.

Explanation

The following is an explanation of the operational states:

BREAK

Is the entry point in the start of the PCM connection.

CONNECT

Is used to synchronize the ends of the connection for the SIGNALing sequence.

NEXT

Is used as a transition state during the SIGNALing process.

SIGNAL

Is used to signal information to the opposite end of the connection and to receive signalled information from the opposite end of the connection. This signalled information indicates what the makeup of a connection is (refer to PHY Connection Policies).

ACTIVE

Is the final state of the connection procedures. This state indicates that all states have been properly traversed and the connection is now ready for operation.

JOIN

Is entered before the VERIFY state. The JOIN and VERIFY states are used to insure that both ends of the connection enter the ACTIVE state simultaneously.

VERIFY

Is used in conjunction with the JOIN state to insure both ends of a connection enter the ACTIVE state at the same time.

The descriptions of the FDDI MAC counters are explained below:

Note: *These counters are maintained by the FDDI hardware.*

Frame received count

Is a count of successfully received frames addressed to this MAC address.

Error isolated count

Is when the ring is not operational, this is the time elapsed since the ring was operational. If the ring is operational, the count represents the amount of time it took for the ring to recover the last time the ring was not operational.

Lost frame count

Is the count of all format errors in frames or tokens which would render the PDU credibility to be questionable.

Frame copied count

Is a count of frames addressed to this station and successfully copied.

Frame not copied count

Is a count of frames intended for this station but were not copied due to insufficient buffering or frame processing capabilities.

Frame transmitted count

Is a count of frames successfully transmitted by this station.

Token received count

Is a count of valid tokens received by this station.

Below is an explanation of FDDI frame counters:

SMT/MAC frames count

Is a count of Station Management (SMT) and MAC frames transmitted by this station.

SMT/MAC frames received

Is a count of SMT and MAC frames received by this station.

LLC frames sent

Is a count of LLC frames sent by this station.

LLC frames received

Is a count of LLC frames received by this station.

Section 4
802.3 LAN Platform NMS Commands

This section describes NMS commands for the LAN Platform. ILM NMS commands are found in Section 3 of this manual.

4.1 802.3 LAN Platform NMS Command Index

The following list summarizes 802.3 LAN Line Module (LM) related NMS commands:

Table 4–1. 802.3 LAN LM NMS Commands

Command	Description
%ILM DOWN	Disables a Link-Service Access Point (LSAP).
%ILM LIST	Lists active line facilities.
%ILM RETV	Retrieves ILM traces.
%ILM SEND	Simulates input/output messages.
%ILM SET	Sets attributes in the LAN line module.
%ILM SNAP	Turns on snapshot levels.
%ILM SNOF	Turns off snapshot levels.
%ILM STAT	Gets attribute/counter values from the LAN line module or a SAP.
%ILM TCAT	Catalogs trace files.
%ILM TCLS	Closes trace files.
%ILM TOPN	Opens trace file.
%ILM TROF	Turns off traces.
%ILM TRON	Turns on traces.
%ILM TSWT	Switches trace files.
%ILM UP	Enables an LSAP.

4.2 Entering 802.3 LAN Platform NMS Commands

To specify that these NMS commands apply to the LAN Platform, you must enter the *%ILM* prefix, followed by a space, before each command.

Example

```
%ILM TCAT
```

Sending 802.3 LAN Platform NMS commands to a Remote Node

Format

To send *%ILM* commands to a remote node use the following format:

%ILM/*nodename command-string*

Required Parameters

%ILM/

Is the *%ILM* prefix.

nodename

Is the name of the remote node where you want to send the *%ILM* NMS command. This parameter is positional and must be entered after the *%ILM/* prefix.

command-string

Is the *%ILM* command and parameters.

Optional Parameters

None

Example

```
%ILM/PRC5 STAT LINE=LANL1
```

Note: *For more information on how to send NMS commands to remote nodes see Section 2.2 and Section 2.5 in this manual.*

4.3 802.3 LAN Platform NMS Commands

This subsection defines the 802.3 LAN line module NMS commands listed in Table 4–1. This subsection also provides formats, required and optional parameters, examples, responses, and explanations.

You can enter parameters in any order after the interface command.

4.3.1 %ILM DOWN — Disable an LSAP

The *%ILM DOWN* command allows you to disable an individual LSAP for a specific LAN line module, interrupting traffic to and from that LSAP. This command refers to a named *SAP* statement in your LAN Platform configuration, and affects only communication traffic associated with the RSHLE entity (LSU) and LSAP address defined on that statement. You can use the *UP* command to restore the disabled LSAP to normal operation.

Format

%ILM DOWN SAP=*sap-name*

Required Parameters

SAP=*sap-name*

Is the name of the *SAP* configuration statement defining the LSAP you want to disable.

Optional Parameters

None

Example

```
%ILM DOWN SAP=OSISAP
```

4.3.2 %ILM LIST — List Active Line Facilities

The *%ILM LIST* command lists all the SAPs on a line, including HLEMAN interface dynamic attachments.

Format

```
%ILM LIST{,LINE=linename}
```

Required Parameters

LINE=*linename*

Specifies a configured name for a Telcon *LINE* statement.

Optional Parameters

None

Example

```
%ILM LIST,LINE=LAN8A
```

Response

```
94/07/24 12:52:01
LINE NAME= LAN8A       PORT= 004B   TYPE= 8023   STATE=UP

SAP NAME     LSAP    RSAP     STATE           TYPE
LRL8B        00CC    00CC     ATTACHED        CONNECTIONLESS
LTK8         0004    0004     ATTACH PEND     CONNECTION
```

Explanation

SAP NAME

Displays the name for the SAPs.

LSAP

Displays the LSAP addresses.

RSAP

Displays the RSAP addresses.

STATE

Displays the state of the SAP, which can be any of the following values:

ATTACHED	the SAP is attached.
ATTACH PEND	Telcon has sent the attach request to the LM and is waiting for a response.
TERMINATED	the SAP has been downed.
TERM PENDING	Telcon has sent the termination request to the LM and is waiting for a response.

TYPE

Displays the type of SAP connectivity, which can be any of the following values:

CONNECTIONLESS	the SAP uses an LLC connectionless protocol (for example, OSI).
CONNECTION	the SAP uses an LLC connection-oriented protocol (for example, TS/TN).
MAC	the SAP uses a MAC protocol (for example, TCP/IP).
TRANSPARENT	the SAP leaves LLC protocol control to the link-service user (LSU).

Note: *This example shows the %ILM LIST command used to display SAPs associated with a line named LAN8A.*

4.3.3 %ILM RETV — Retrieve Line Module Traces

The *%ILM RETV* command retrieves internal traces from the ILM. This command is primarily a diagnostic tool for repeatable ILM problems, allowing you to develop ILM specific information to accompany a UCF.

Format

```
%ILM RETV LINE={line-name    }[,RSET={Y}][,TIME=seconds][,TYPE={CONS}]
               {port-numbers}        {N}                       {DISK}
                                                               {BOTH}
```

Required Parameters

LINE=

line-name	is the name of the *LINE* configuration statement associated with this LAN line module.
port-number	is the PPID associated with this LAN line module.

Optional Parameters

RSET=

Y reset the LAN traces.
N do not reset the LAN traces. The default is N.

TIME=*seconds*

Is the time interval, in seconds, between requests to retrieve traces. This parameter enables automatic retrieval. You must specify a value to use this feature. There is no default value.

Range = 10 to 65,535

TYPE=

Specifies where you want trace data sent. Valid values are:

CONS selects output to the NMS console only.
DISK selects output to disk only.
BOTH selects output to both console and disk. This is the default.

Example

```
%ILM RETV LINE=LNP20A,TIME=60
```

4.3.4 %ILM SEND — Simulate Input/Output Messages

The *%ILM SEND* command simulates input and output messages at various levels. The *%ILM SEND* command is not allowed unless *SNAP TYPE=C* was previously selected.

Note: *The %ILM SEND command is not used in normal LAN operations. It should be used only by a qualified systems analyst for debugging purposes.*

Format

```
%ILM SEND { ,FAC=fac-name   } { ,DIR= { IN  } } [,BH$=buff-hdr]
          { ,QUE=queue-nbr  } {       { OUT } }

     [ ,CNTL= { 0 } ] [,ID1=bhid1] [,ID2=bhid2] [,ID=facility-id]
     [        { 1 } ]

     [,DBO=data-offset] [,RPT=count] [,DUP=count] [,DATA=data]
```

Required Parameters

FAC=*fac-name*

Is used to put a message on the input or output queue of the named facility (*SAP* configuration statement name).

QUE=*queue-nbr*

Causes data to be queued to the QN queue.

DIR

DIR=IN	the input QN of the facility is used.
DIR=OUT	the output QN is used.

Optional Parameters

BH$=*buff-hdr*

Is the complete contents of the buffer in hexadecimal.

CNTL

1 sets the BH$CNTL in buffer header.
0 clears the BH$CNTL in buffer header.

ID1=*bhid1*

Is the BH$ID1 value. May be in hexadecimal or decimal.

ID2=*bhid2*

Is the BH$ID2 value. May be in hexadecimal or decimal.

ID=*facility-id*

Is the facility ID (BH$ID) value. May be in hexadecimal or decimal.

DBO=*data-offset*

Is the data byte offset for start of data (default is AA$FVTR*2). May be in hexadecimal or decimal.

RPT=*count*

Is the repeat count, the number of times the message is repeated (maximum is 65,535 times). May be in hexadecimal or decimal.

DUP=*count*

Is the duplication count, the number of times the data parameter is duplicated within a single message. May be in hexadecimal or decimal.

DATA=*data*

Is a character string that may be entered as ASCII character codes in hexadecimal notation, or as ASCII characters. Hexadecimal ASCII codes must be entered with no leading zero. ASCII character strings must be enclosed in single quotation marks. The data parameter may be a combination of hexadecimal and ASCII, but all characters delimited by single quotation marks are interpreted as ASCII characters only. A single quotation mark (apostrophe) within an ASCII string is indicated by two consecutive single quotation marks.

Example

```
DATA=F0F0'Jim''s 10'BBCC
```

Explanation

This data is interpreted as follows:

```
F0F04A694D2753203130BBCC
```

All lowercase ASCII characters entered as part of the string are interpreted as uppercase. Telcon NMS converts input from the console before passing it to an NMS extension. To include lowercase characters in the data parameter, you must enter them as hexadecimal ASCII character codes.

The data is presented at offset AA$FVTR*2 unless DBO is specified.

Example

```
%ILM SEND FAC=SAP1,DIR=OU,DUP=30,DATA=`SAP1TEST'
```

4.3.5 %ILM SET — Set Line Module Attribute Values

The *%ILM SET* command sets the value of some of the line module's internally defined attributes.

Note: *The %ILM SET command is not used in normal LAN operations. You can use the %ILM SET command to specify non-default values for the A and B frame counter parameters (to monitor frame size/frequency) for a specific LAN line module.*

Format

```
%ILM SET {,LINE={port-nbr | line-name}}[,STA=station-addr][,MULT=multi1/multi2/.../multi30]

         [,OPT={MAC | LOOP | NORM}][,MFL=max-lgth][,XRT=secs][,A=n][,B=n]
```

Required Parameters

LINE=

line-name	is the name of the *LINE* configuration statement associated with this LAN line module.
port-number	is the PPID associated with this LAN line module.

Optional Parameters

STA=*station-addr*

Is the 6-byte hexadecimal LAN station address. It must be in hexadecimal with no leading zero.

MULT=*multi1/multi2/.../multi30*

Specifies up to 30 6-octet (12-digit) hexadecimal multicast addresses. They must be specified in hexadecimal with no leading zero. Multiple multicast addresses are separated by slashes (/).

OPT=

Is the interface option.

MAC is exclusively the MAC interface.
LOOP is the 802.3 serial interface loopback.
NORM is normal operation.

MFL=*max-lgth*

Is the maximum frame data length in bytes. The maximum is 4,096.

XRT=*secs*

Is the connectionless interface XID response time in seconds. The maximum is 65,535.

A=*n*,B=*n*

Are the A and B values for the frame counters. Set A and B values to compare frame sizes in bytes. Default values: A = 100, B = 240. The *%ILM STAT* command returns the following values:

- The number of frames less than or equal to A bytes.
- The number of frames greater than A bytes and less than or equal to B bytes.
- The number of frames greater than B bytes.

The maximum value for A and B is 4096. A must not be larger than B.

Example

```
%ILM SET LINE=LNP11B,A=256,B=1000
```

4.3.6 %ILM SNAP — Turn On Snapshot Levels

The *%ILM SNAP* command turns on a snapshot (trace) of data (messages or tables), either to disk, the NMS console, or both.

Format

%ILM SNAP{,TYPE=*type*}{,FAC=*fac-name*}

Required Parameters

TYPE=*type*

Is the concatenation of one or more of the following letters: C, L, M, or S. Notice that four letters are shown for type, while only three types of ILM traces are allowed. The letter C only indicates that the data produced is to be displayed on the NMS console.

The ILM handler produces the following SNAP types:

L Messages between the handler and a line module
M Messages between the handler and its users (IP, TSTN, RTC, LOADER, and so on)
S ILM user table with either of the other types that is active

FAC=*fac-name*

Is the name of a configuration statement supported by this facility. The supported statement is the *SAP*.

Optional Parameters

None

Example

```
%ILM SNAP,TYPE=CLM,FAC=BFDMAN
```

4.3.7 %ILM SNOF — Turn Off Snapshot Levels

The *%ILM SNOF* command turns off a snapshot (trace) of data (messages or tables).

Format

```
%ILM SNOF{,TYPE=type}{,FAC=fac-name}
```

Required Parameters

TYPE=*type*

Is the concatenation of one or more of the following letters: C, L, M, or S. Notice that four letters are shown for type, while only three types of ILM traces are allowed. The letter C only indicates that the data produced is to be displayed on the NMS console.

The ILM handler produces the following SNAP types:

- **L** Messages between the handler and a line module
- **M** Messages between the handler and its users (IP, TSTN, RTC, LOADER, and so on)
- **S** ILM user table with either of the other types that is active

FAC=*fac-name*

Is the name of a configuration statement supported by this facility. The supported statement is the *SAP*.

Optional Parameters

None

Example

```
%ILM SNOF,TYPE=CLM,FAC=BFDMAN
```

4.3.8 %ILM STAT — Get Line Module Attribute Values

The *%ILM STAT* command displays conditions and internally defined attribute values for both LMs and SAPs. Optionally, the LAN and frame counters can be reset to zero.

Format 1

This following format shows the *%ILM STAT* command used to display LM statistics:

```
%ILM STAT {,LINE={line-name|port-nbr}} [,RSET={Y|N}] [,TIME=secs] [,TYPE={CONS|DISK|BOTH}]
```

Format 2

The following format shows how to use the *%ILM STAT* command to display a *SAP*:

```
%ILM STAT,SAP=sap-name
```

Required Parameters

LINE=

line-name is the name of the line for which you want information.
port-nbr is the number of the port for which you want information.

SAP=*sap-name*

Is the name of the service access point for which you want information.

Optional Parameters

RSET

Resets the LAN and frame counters to zero after they are read.

Y resets the counters.
N does not reset the counters. The default is N.

TIME=*secs*

Specifies the time interval for updating attribute display requests. The minimum interval is 10 seconds.

TYPE=

CONS selects output to the NMS console only.
DISK selects output to disk only.
BOTH selects output to both console and disk.

Examples

Example 1

```
%ILM STAT,LINE=riffl
```

Response

```
94/07/24 15:12:01 LINE UP, TYPE:ILM, 3 ATTACH(ES) ACTIVE
 ID/REV= 80040700A0410100 STRAP= FFFF
 UCODE= OPER LAN= OPER STATION= 08000B0C0044
 MULTICAST= 09002B000005
 INTF-OPS= NORMAL
 MAX-FRAME= 4099 INV-ATTACH= 0 XID-RSP= 10
 CRC-ERR= 0 ALIGN-ERR= 0 RSRC-ERR= 0 OVERRUN= 0
 FRM-SND= 1812 FRM-REC= 4226 DEFER= 17 UNDERRUN= 0
 NO-CARRIER= 0 SQE-TEST= 1 COLLISIONS= 3 MAX-COLLISIONS= 0
 RESETS= 0 DISC-FRAMES= 1000 LESS-A= 1598 LESS-B= 1697
 GRT-B= 1425 OVERSIZE= 0 EVENT-INT= 0 A= 100
 B= 240
```

Explanation

This example shows the *%ILM STAT* command used to display line module statistics.

ID/REV= Line Module Identifier:

80=	Microcode ID.
04=	Release level.
07=	Version number.
00=	Field update level.
A0=	Hardware ID.
41=	pSOS version.
01=	PROM level.
00=	Reserved.

STRAP=

Strap switch settings.

UCODE=

Microcode status.

LAN=

Current LAN status.

STATION=

MAC (LAN) address.

MULTICAST=

All registered multicast addresses.

INTF-OPS=

Interface options.

MAX-FRAME=

Maximum frame size.

INV-ATTACH=

Number of invalid attaches received.

XID-RSP=

Connectionless interface XID response time in seconds.

CRC-ERR=

Number of properly aligned frames received with a CRC error.

ALIGN-ERR=

Number of misaligned frames received with a CRC error.

RSRC-ERR=

Number of frames discarded due to lack of memory availability.

OVERRUN=

Number of frames lost because the memory bus was not available.

FRM-SND=

Number of frames sent out over the LAN.

FRM-REC=

Number of frames received from the LAN.

DEFER=

Number of frames that were deferred because of LAN traffic.

UNDERRUN=

Number of frame transmissions stopped due to DMA underrun.

NO-CARRIER=

Number of times the carrier sense signal was lost.

SQE-TEST=

Number of times the SQE test signal was detected (normally 1).

COLLISIONS=

Number of times an output collision occurred.

MAX-COLLISIONS=

Number of times the maximum collision number was reached.

RESETS=

Number of times the LAN chip was reset.

DISC-FRAMES=

Number of discarded frames.

LESS-A=

Number of frames counted less than or equal to A.

LESS-B=

Number of frames counted greater than A and less than or equal to B.

GRT-B=

Number of frames counted greater than B.

OVERSIZE=

Number of frames larger than MAX-FRAMES that were received.

EVENT-INT=

The time interval for repeating the get-attribute requests.

A=

Frame size A (Default = 100).

B=

Frame size B (Default = 240).

Example 2

```
%ILM STAT,SAP=SAP1
```

Response

```
94/10/24 12:45:00
SAP NAME = SAP1 LINE NAME = LAN1P1
LSAP = 04 RSAP = 04
MAC = 08000B0C1234
CONDITION = OPERATIONAL
STATE = ATTACHED
TRACING = L M S
```

Explanation

This example shows the *%ILM STAT* command used to display SAP statistics.

SAP NAME

Name of *SAP* configuration statement.

LINE NAME

Name of the line configuration statement the SAP is on.

LSAP

Local service access point value (hex).

RSAP

Remote service access point value (hex).

MAC

Station (LAN) address (hex).

CONDITION

Current *SAP* status (*OPERATIONAL* or *DOWN*).

STATE

Current state of the *SAP* (*TERMINATED, TERMINATE PENDING, ATTACHED, ATTACH PENDING*).

TRACING

Type of tracing being done (*OFF, L, M, S*). (See *SNAP TYPE* Parameters.)

4.3.9 %ILM TCAT — Catalog Trace Files

The *%ILM TCAT* command catalogs a specified number of trace files and automatically opens the first file.

Format

```
%ILM TCAT[,VOL=vol][,FILE=name][,NUM=num][,SIZE=size]
```

Required Parameters

None

Optional Parameters

VOL=*vol*

Is the volume name to catalog trace files. The default is any volume.

FILE=*name*

Is a 6-character partial name file. The default is l@antr.

NUM=*num*

Is the number of trace files. The default is 2 and the maximum is 30.

SIZE=*size*

Is the number of 256-byte blocks for each file. The default is 1,000 and the minimum is 100.

Example

```
%ILM TCAT
```

4.3.10 %ILM TCLS — Close Trace Files

The *%ILM TCLS* command closes any active trace files. Closed trace files may be retrieved (*RETV*) or copied (*@COPY*) to the OS 2200 host for editing.

Note: *See the TRACEEDIT/DOC element of the UTIL file on the release tape for information about editing trace files.*

Format

```
%ILM TCLS
```

Required Parameters

None

Optional Parameters

None

Example

```
%ILM TCLS
```

4.3.11 %ILM TOPN — Open Trace Files

The *%ILM TOPN* command opens the next available trace file. If the file is being reused, it is deleted, recataloged, and opened.

Format

```
%ILM TOPN
```

Required Parameters

None

Optional Parameters

None

Example

```
%ILM TOPN
```

4.3.12 %ILM TROF — Turn Off Traces

The *%ILM TROF* command turns off port processor traces that are in progress (started by the *%ILM TRON* command). Running with traces off provides up to a ten percent increase in throughput.

Format

```
%ILM TROF LINE={line-name  }
               {port-number}
```

Required Parameters

LINE=

line-name Specifies the line associated with this LAN line module.
port-number Specifies the PPID associated with this LAN line module.

Optional Parameters

None

Example

```
%ILM TROF LINE=LNP11B
```

4.3.13 %ILM TRON — Turn On Traces

The *%ILM TRON* command turns on port processor traces.

Format

```
%ILM TRON LINE={line-name  }
               {port-number}
```

Required Parameters

LINE=

line-name	specifies the line associated with this LAN line module.
port-number	specifies the PPID associated with this LAN line module.

Optional Parameters

None

Example

```
%ILM TRON LINE=LNP11B
```

4.3.14 %ILM TSWT — Switch Trace Files

The *%ILM TSWT* command closes the currently open trace file and opens the next file.

Format

```
%ILM TSWT
```

Required Parameters

None

Optional Parameters

None

Example

```
%ILM TSWT
```

4.3.15 %ILM UP — Enable an LSAP

The *%ILM UP* command allows you to enable an individual LSAP for a specific LAN line module, establishing normal traffic to and from that LSAP. This command refers to a named *SAP* statement in your LAN Platform configuration, and affects only communication traffic associated with the RSHLE entity (LSU) and LSAP address defined on that statement. You can use the *%ILM DOWN* command to interrupt normal LSAP operation.

Format

```
%ILM UP SAP=sap-name
```

Required Parameters

SAP=*sap-name*

Is the name of the *SAP* configuration statement that defines the LSAP you want to enable.

Optional Parameters

None

Example

```
%ILM UP SAP=OSISAP
```

Section 5
OSITS NMS Commands

This section describes OSITS NMS command definitions, formats, and parameters.

5.1 OSITS NMS Command Index

Table 5–1 provides an alphabetical list of NMS commands, gives a brief description of each, and specifies if online parameter changes are allowed.

Table 5–1. OSITS NMS Commands

Command	Description	Changes
OSI ADJACENCY	Displays all directly connected subnetworks.	NO
OSI AREAADDR	Displays list of area addresses making up a level 1 area.	YES
OSI BROADT	Displays the broadcast link-state PDU transmission interval in milliseconds.	YES
OSI CIRCUITS	Displays current status of each network interface.	YES
OSI CLOSE	Closes a specified X.25 static circuit.	NO
OSI CSEQNUM	Displays the complete sequence number PDU interval in seconds.	YES
OSI DEFLIFE	Displays current interval before system generated PDUs are discarded in half seconds.	YES
OSI DESIGIIH	Displays interval time between the generation of Intermediate System-to-Intermediate System Hello PDUs on a LAN in seconds.	YES
OSI DIRECTES	Enables and disables direct routing to an End System connected on a subnetwork, but not in your level 1 area.	YES
OSI HELP	Displays online help.	NO

continued

Command	Description	Changes
OSI LISTEN	Enables a specified X.25 static circuit to open on an outside request.	YES
OSI LSPBUFSIZE	Displays the current maximum size of link-state PDUs and sequence-number PDUs.	YES
OSI MAXAREAS	Displays the maximum number of area addresses defining a level 1 area.	YES
OSI MAXGEN	Displays the maximum link-state protocol data unit (PDU) generation interval in seconds.	YES
OSI MINGEN	Displays the minimum link-state PDU generation interval in seconds.	YES
OSI MINXMT	Displays the minimum link-state PDU transmission interval in seconds.	YES
OSI NEIGHBORS	Displays all OSI level 1 IS routers present on any circuits.	NO
OSI NEWADDR	Rereads all *ADDRESS* configuration statements entered through online configuration.	NO
OSI OPEN	Opens a specified X.25 static circuit.	NO
OSI PARAMETERS	Displays changeable parameter values.	NO
OSI PING	Send an echo request to a specified network service access point (NSAP) and displays reply.	NO
OSI POLLES	Displays current value of the end system configuration timer in intermediate system Hello PDUs.	YES
OSI PSEQNUM	Displays the partial sequence number PDU interval in seconds.	YES
OSI RECVPASS	Lists additional valid passwords for incoming packets.	YES
OSI RMPASS	Removes a password.	YES
OSI RMROUTES	Removes a specified route.	YES
OSI ROUTES	Displays OSI routing information base.	YES
OSI STATS	Displays non-changeable parameter values.	NO

continued

Command	Description	Changes
OSI TRACE	Turns OSI IP and OSITS tracing off and on.	NO
OSI TRANSLATE	Toggles from numerical NSAP addresses to ASCII names.	YES
OSI WAITTIME	Displays the current delay time in seconds before entering the ON state.	YES
OSI XMITPASS	Lists, or modifies the chosen password for outgoing packets, and validates incoming packets.	YES

5.2 Entering OSITS NMS Commands

To use OSITS NMS commands, you must first be on an active NMS console. Specify the commands applying to OSITS by entering the prefix OSI, followed by a space, before each command.

Example

At the prompt enter:

```
OSI ROUTES
```

5.2.1 Sending OSITS NMS Commands to a Remote Node

To send OSITS NMS commands to a remote node use the following format:

Format

OSI *command-string* NODE=$\left\{\begin{array}{l}\textit{name}\\ [[[n/]n/]n/]n\end{array}\right\}$

Required Parameters

OSI

Is the OSI command prefix.

command-string

Is the OSI command and parameters.

NODE=*name*

Is the Telcon node name or network address. See Section 2.2 of this manual for a description of the *NODE* parameter.

Example

```
OSI ROUTES NODE=PRC1
```

5.2.2 Making Online Parameter Value Changes

Many OSITS NMS commands allow you to modify parameter values online. To modify a value online, use the following steps:

Step	Action

1	Enter the command you want:
	Example
	`OSI BROADT`
	Response
	`94/07/24 04:06:17`
	`OSI BROADT P 33`

2	Move the cursor to the value you want to change. Overwrite the value with the new value(s):
	Value before being overwritten:
	`93/07/24 04:06:17`
	`OSI BROADT P 33`
	Value after being overwritten:
	`94/07/24 04:06:17`
	`OSI BROADT T 40`

3	Position the cursor at the end of the line and press the transmit key.

Notes:

1. *All response fields and values are command dependent.*

2. *For an example of this procedure refer to Section 5.3.4 of this manual.*

5.3 OSITS NMS Commands

This subsection defines the OSITS NMS commands listed in Table 5–1. This subsection also provides formats, parameters, explanations, and examples.

Note: *OSITS NMS commands are positional and must be entered in the same order as shown.*

5.3.1 OSI ADJACENCY — Displays All Directly Connected Systems Sharing the Same Subnetwork

You can use the *OSI ADJACENCY* command to display a list of systems directly connected to the same subnetwork.

Note: *If the OSI DIRECTES command is disabled, then only systems in level 1 area are displayed. See the OSI DIRECTES command later in this section for more information.*

Format

```
OSI ADJACENCY
```

Required Parameters

None

Optional Parameters

None

Example

```
OSI ADJACENCY
```

Response

```
94/07/24 14:27:14
STATE TYPE CIRCUIT  SNPA            NSAP
UP    ES   X2510    1234567         ODD
UP    ES   LAN3B    ANY IS          GOODRTE
UP    ES   LAN08    08000BE0C002    TEST
UP    ES   LAN08    08000B40432A    49000308000B40432AFE00
```

Explanation

This example shows an *OSI ADJACENCY* command used to display all systems directly connected to the same subnetwork.

STATE

Is the current state of your connection with the adjacent system. The connection may be *UP* or *DOWN*.

TYPE

Is the type of system you are adjacent to.

ES	End system
IS	Intermediate system
L1 IS	Level 1 intermediate system
L2 IS	Level 2 intermediate system
Unknown	The system type is unknown

CIRCUIT

Is the configured name of the *OSISN* connecting your node to the adjacent subnetwork.

SNPA

Is the subnetwork point of attachment address.

NSAP

Is the numerical or ASCII name of the network service access point of the route.

5.3.2 OSI AREAADDR — Displays a List of Area Addresses

You can use the *OSI AREAADDR* command to display a list of area addresses that can be modified online. Refer to Section 5.2.2 of this manual for information on how to make online changes.

Format

```
                      [ { REST           } ]
OSI AREAADDR[=n]      [ { TEMP=area_addr } ]
                      [ { PERM=area_addr } ]
```

Required Parameters

None

Optional Parameters

[=*n*]

Sets the number of the area address you want to display. The range is from 2 to 10. If you do not specify an area from 2 to 10, all configured area address are displayed.

PERM

Indicates a permanent configuration value.

TEMP

Indicates a temporary value change not registered in the configuration.

REST

Restores a temporary value back to the permanent configuration value.

area_addr

Is the name of the existing area address you want to restore, make permanent, or make temporary.

When entering the *PERM*, *REST*, and *TEMP* parameters, you can abbreviate them to *P*, *R*, and *T*, respectively. The OSITS command response fields for these parameters are often displayed in abbreviated form.

Example

```
OSI AREAADDR
```

Response

```
94/07/24 03:30:07
OSI AREAADDR 1     47000400120004
OSI AREAADDR 2
OSI AREAADDR 3
OSI AREAADDR 4
```

Explanation

This example shows the *OSI AREAADDR* command used to display current area addresses. This command is used without any optional parameters, therefore, all configured addresses are displayed.

5.3.3 OSI BROADT — Displays Broadcast Link State of PDU Transmission Intervals

You can use the *OSI BROADT* command to display and specify the broadcast link-state PDU transmission interval in milliseconds. You can modify interval length online. Refer to Section 5.2.2 of this manual for information on how to make online changes.

Format

$$\texttt{OSI BROADT}\left[\begin{Bmatrix}\texttt{REST}\\ \texttt{TEMP[}=n\texttt{]}\\ \texttt{PERM[}=n\texttt{]}\end{Bmatrix}\right]$$

Required Parameters

None

Optional Parameters

REST

Restores a temporary value back to the permanent configuration value.

TEMP

Indicates a temporary value change, not registered in the configuration.

[=*n*] is the length of the broadcast link-state PDU transmission interval. This value is displayed in milliseconds. The range is 1 to 1,000. The default is 33.

PERM

Indicates a permanent configuration value.

[=*n*] is the length of the broadcast link-state PDU transmission interval. This value is displayed in milliseconds. The range is 1 to 1,000. The default is 33.

Example

```
OSI BROADT
```

Response

```
94/07/24 13:07:34
OSI BROADT P 33
```

Explanation

This example shows the *OSI BROADT* command entered without any optional parameters used to display the current value of the broadcast link-state PDU transmission interval.

P 33

P indicates a permanent configuration value.
33 is the default configuration value of 33 milliseconds for the broadcast link-state PDU transmission interval.

5.3.4 OSI CIRCUITS — Displays Network Status of each Network Interface

You can use the *OSI CIRCUITS* command to display the network status of each network interface. You can make either temporary or permanent changes online.

Format

```
OSI CIRCUITS
```

Required Parameters

None

Optional Parameters

None

How to Make Online Changes

To modify a value online, use the following steps:

Step	Action

1	Enter the following command to display the network status:
	`OSI CIRCUITS`
	You will see the following response (your values will differ):
	`94/07/24 04:06:17`
	`NAME STATUS TYPE METRIC IIH ISH`
	`OSI CIRCUITS P THREEB UP LAN 25 3 10`

2	Move the cursor to the value displayed immediately after the *OSI CIRCUITS* field. Overwrite the value with one of the following options: **P** indicates a permanent configuration value. **T** indicates a temporary value change not registered in the configuration. **R** restores a temporary value back to the permanent configuration value. **continued**

Step	Action
3	Move the cursor to change the values for any or all of the following fields: **METRIC** indicates the capacity of a circuit for handling traffic. The range is 1–63. **IIH** indicates the interval between ISO 10589 intermediate system to intermediate system hello protocol data units (IIH PDUs). The range is 1–65,535. **ISH** indicates the interval between ISO 9542 intermediate system hello protocol data units (ISH PDUs). The range is 1–65,535. ***Note:*** *Changes to the METRIC, IIH, and ISH parameters are only valid if the SYSTYPE=IS on the NSAP configuration statement.*
4	Position the cursor at the end of the line and press the transmit key.

Explanation

The following fields are for display purposes only and cannot be modified online:

NAME

Is the name of the circuit.

STATUS

Is the current status of the circuit. The following status types are valid:

UP the circuit is in use.
DOWN the circuit is not in use.

TYPE

Is the type of circuit. The following type are valid:

DNS is a Dynamic Network Services circuit.
CHAN is a channel circuit.
LAN is an Ethernet, Token Ring, or FDDI circuit.
DX25 is a dynamic X.25 circuit.
SX25 is a static X.25 circuit.

5.3.5 OSI CLOSE — Closes a Specified X.25 Static Circuit

You can use the *OSI CLOSE* command to close a specified static circuit. Use this command only on circuits of SX25 type as displayed by the *OSI CIRCUITS* command.

Format

```
OSI CLOSE osisn_name
```

Required Parameters

osisn_name

Specifies the name on the *OSISN* configuration statement of the subnetwork used to reach the destination NSAP address.

Optional Parameters

None

Example

```
OSI CLOSE RSVX25
```

Response

```
94/07/24 04:06:25
STATIC CIRCUIT TO RSVX25 DOWN.
```

Explanation

This example shows circuit RSVX25 being closed or deactivated.

5.3.6 OSI CSEQNUM — Displays the Complete Sequence Numbers PDU Interval

You can use the *OSI CSEQNUM* command to display and specify the complete sequence numbers PDU interval in seconds. You can use this command to modify the value online. Refer to Section 5.2.2 of this manual for information on how to make online changes.

Format

```
             ┌┌          ┐┐
             ││REST      ││
OSI CSEQNUM  │┤TEMP[=n]  ├│
             ││PERM[=n]  ││
             └└          ┘┘
```

Required Parameters

None

Optional Parameters

REST

Restores a temporary value back to the permanent configuration value.

TEMP

Indicates a temporary value change, not registered in the configuration.

[=*n*] specifies the complete sequence numbers PDU transmission interval in seconds. The range is from 1 to 600. The default is 10.

PERM

Indicates a permanent configuration value.

[=*n*] specifies the complete sequence numbers PDU transmission interval in seconds. The range is from 1 to 600. The default is 10.

Examples

Example 1

```
OSI CSEQNUM
```

Response

```
94/07/24 04:06:25
OSI CSEQNUM T 200
```

Explanation

This example shows the *OSI CSEQNUM* command used to set a temporary value of 200 seconds between complete sequence numbers PDU transmissions.

Example 2

```
OSI CSEQNUM PERM=10
```

Response

```
94/07/24 04:06:25
OSI CSEQNUM P 10
```

Explanation

Example 2 shows the *OSI CSEQNUM* command used to set the interval between complete sequence number PDU transmissions to a permanent value of 10 seconds.

5.3.7 OSI DEFLIFE — Displays and Modifies the Default Lifetime

You can use the *OSI DEFLIFE* command to display and modify the lifetime, in half seconds, before system-generated PDUs are discarded. Refer to Section 5.2.2 of this manual for information on how to make online changes.

Format

```
              ⎡⎧REST      ⎫⎤
OSI DEFLIFE   ⎢⎨TEMP[=n]  ⎬⎥
              ⎣⎩PERM[=n]  ⎭⎦
```

Required Parameters

None

Optional Parameters

REST

Restores a temporary value back to the permanent configuration value.

TEMP

Indicates a temporary value change, not registered in the configuration.

[=*n*] specifies how long (in half seconds) system-generated PDUs are allowed to exist before they are discarded. The range is 1 to 254. The default is 15.

PERM

Indicates a permanent configuration value.

[=*n*] specifies how long (in half seconds) system-generated PDUs are allowed to exist before they are discarded. The range is 1 to 254. The default is 15.

Example

```
OSI DEFLIFE,TEMP=30
```

Response

```
94/07/24 04:06:25
OSI DEFLIFE T 30
```

Explanation

This example shows the *OSI DEFLIFE* command used to change the interval before system-generated PDUs are discarded to a temporary value of 30 half seconds.

5.3.8 OSI DESIGIIH — Displays Time Between the Generation of Intermediate System-to-Intermediate System Hello PDUs

You can use the *OSI DESIGIIH* command to display and modify the interval, in seconds, between the generation of Intermediate System-to-Intermediate System Hello IIH PDUs by the pseudo node on a LAN. Refer to Section 5.2.2 of this manual for information on how to make online changes.

Format

```
              [ { REST      } ]
OSI DESIGIIH  [ { TEMP[=n]  } ]
              [ { PERM[=n]  } ]
```

Required Parameters

None

Optional Parameters

REST

Restores a temporary value back to the permanent configuration value.

TEMP

Indicates a temporary value change, not registered in the configuration.

[=*n*] specifies the interval between the generation of IIH PDUs by the designated IS on a LAN. The range is from 1 to 60. The default is 1.

PERM

Indicates a permanent configuration value.

[=*n*] specifies the interval between the generation of IIH PDUs by the designated IS on a LAN. The range is from 1 to 60. The default is 1.

Examples

Example 1

```
OSI DESIGIIH
```

Response

```
94/07/24 04:06:25
OSI DESIGIIH T 30
```

Explanation

Example 1 shows the *OSI DESIGIIH* command used to display the generation interval between IIH PDUs is set temporarily at 30 seconds.

Example 2

```
OSI DESIGIIH PERM=1
```

Response

```
94/07/24 04:06:25
OSI DESIGIIH P 1
```

Explanation

Example 2 shows the *OSI DESIGIIH* command used to set the value back to the permanently configured default.

5.3.9 OSI DIRECTES — Specifies Direct Routing to Network End Systems Not in the Level 1 Area

You can use the *OSI DIRECTES* command to display or modify direct routing to network end systems on your subnetwork, but not in your level 1 area. Refer to Section 5.2.2 of this manual for information on how to make online changes.

Format

```
               [ { REST                   } ]
               [ {       { ENABLED  }     } ]
OSI DIRECTES   [ { TEMP= { DISABLED }     } ]
               [ {       { ENABLED  }     } ]
               [ { PERM= { DISABLED }     } ]
```

Required Parameters

None

Optional Parameters

REST

Restores a temporary value back to the permanent configuration value.

TEMP

Indicates a temporary value change, not registered in the configuration.

PERM

Indicates a permanent configuration value.

ENABLED

Enables direct routing.

DISABLED

Disables direct routing. This is the default.

Example

```
OSI DIRECTES PERM=ENABLED
```

Response

```
94/07/24 04:06:25
OSI DIRECTES P ENABLED
```

Explanation

This example shows the *OSI DIRECTES* command used to write to the configuration file to permanently enable direct routing.

5.3.10 OSI HELP — OSITS NMS Online Help Facility

You can use the *OSI HELP* command to activate the OSITS NMS help facility.

Format

```
OSI HELP [command]
```

Required Parameters

None

Optional Parameters

command

Is the name of the OSITS command on which you need information.

Example

```
OSI HELP
```

Response

```
OSI HELP
94/07/24 03:16:54
The following commands are valid:
OSI ?           [command]
OSI ADJACENCY
OSI AREAADDR    [2..maxareas [REST | {(TEMP|PERM) area_addr}]]
OSI BROADT      [REST | {(TEMP|PERM) [1..1000]]}
OSI CIRCUITS    [REST | {(TEMP|PERM) [name status type metric [iih[ish]]]}]
OSI CLOSE       osisn_name
OSI CSEQNUM     [REST | {(TEMP|PERM) [1..600]]}
OSI DEFLIFE     [REST | {(TEMP|PERM) [1..254]]}
OSI DESIGIIH    [REST | {(TEMP|PERM) [1..60]]}
OSI DIRECTES    [REST | {(TEMP|PERM) (ENABLED|DISABLED)}]
OSI HELP        [command]
OSI LISTEN      osisn_name
OSI LSPBUFSIZE  [REST | {(TEMP|PERM) [512..1492]}]
OSI MAXAREAS    [REST | {(TEMP|PERM) [1..10]}]
OSI MAXGEN      [REST | {(TEMP|PERM) [60..900]}]
OSI MINGEN      [REST | {(TEMP|PERM) [5..30]}]

DO YOU WISH TO DISPLAY THE NEXT PAGE ? XMIT Y OR NO
Y

OSI MINXMT      [REST | {(TEMP|PERM) [5..30]}]
OSI NEIGHBORS
OSI NEWADDR
OSI OPEN        osisn_name
OSI PARAMETERS
OSI PING        nsap [{count|RECORD} [[size [lifetime]]]
OSI POLLES      [REST | {(TEMP|PERM) [1..50]}]
OSI PSEQNUM     [REST | {(TEMP|PERM) [1..600]}]
OSI RECVPASS    [{ADD|index} [REST | {(TEMP|PERM) (ASCIIpassword |X'...')}]]
OSI RMPASS      (TEMP|PERM) {index|XMITPASS}
OSI RMROUTE     (TEMP|PERM) type nsap
OSI ROUTES      [type[nsap [(TEMP|PERM) snpa [circuit [lifetime]]]]]]
OSI STATS       [circuitname]
OSI TRACE       {IP|TP} [hex mask]
OSI TRANSLATE   [{ENABLED|DISABLED}]
OSI WAITTIME    [REST | {(TEMP|PERM) [1..120]}]
OSI XMITPASS    [REST | {(TEMP|PERM) (ASCIIpassword | X'...')}]
```

Explanation

This command shows the *OSI HELP* command used to display all OSI NMS commands. For a detailed explanation of how to use the *OSI HELP* facility, see the *Telcon Operations Guide* (7831 5785).

5.3.11 OSI LISTEN — Activates an X.25 Static Circuit to Accept Call Requests

You can use the *OSI LISTEN* command to activate an X.25 static circuit to accept incoming call requests.

Format

```
OSI LISTEN osisn_name
```

Required Parameters

osisn_name

Specifies the name of the static circuit you want to activate to respond to incoming requests to open.

Optional Parameters

None

Example

```
OSI LISTEN RSVX25
```

Response

```
94/07/24 04:06:25
Static Circuit is in LISTEN mode.
```

Explanation

This example shows the *OSI LISTEN* command used to activate an X.25 static circuit named RSVX25 to accept incoming requests to open.

5.3.12 OSI LSPBUFSIZE — Displays Current Maximum Size of Link and Sequence Number PDUs

You can use the *OSI LSPBUFSIZE* command to display and specify, in bytes, the current maximum size of link-state PDUs and sequence number PDUs. Refer to Section 5.2.2 of this manual for information on how to make online changes.

Format

```
                 ⎡⎧REST      ⎫⎤
OSI LSPBUFSIZE   ⎢⎨TEMP[=n]  ⎬⎥
                 ⎣⎩PERM[=n]  ⎭⎦
```

Required Parameters

None

Optional Parameters

REST

Restores a temporary value back to the permanent configuration value.

TEMP

Indicates a temporary value change, not registered in the configuration.

[=*n*] specifies the maximum size, in bytes, of Level 1 LSPs and SNPs originated by the system. The range is 512 to 1,492. The default is 1,492.

PERM

Indicates a permanent configuration value.

[=*n*] specifies the maximum size, in bytes, of level 1 LSPs and SNPs originated by the system. The range is 512 to 1,492. The default is 1,492.

Example

```
OSI LSPBUFSIZE
```

Response

```
94/07/24 04:06:25
OSI LSPBUFSIZE P 1492
```

Explanation

This example shows the *OSI LSPBUFSIZE* command used to display the current setting of the maximum size of link-state and sequence number PDUs. The size is set to the permanent configuration default of 1,492 bytes.

5.3.13 OSI MAXAREAS — Display Maximum Number of Area Addresses

You can use the *OSI MAXAREAS* command to display and specify the maximum number of area addresses that make up a level 1 area. All ISs in a given level 1 area must have the same value. Refer to Section 5.2.2 of this manual for information on how to make online changes.

Format

```
              ⎡⎧REST     ⎫⎤
OSI MAXAREAS  ⎢⎨TEMP[=n] ⎬⎥
              ⎣⎩PERM[=n] ⎭⎦
```

Required Parameters

None

Optional Parameters

REST

Restores a temporary value back to the permanent configuration value.

TEMP

Indicates a temporary value change, not registered in the configuration.

[=*n*] specifies the maximum number of area addresses in a level 1 area. The range is 1 to 10. The default is 3.

PERM

Indicates a permanent configuration value.

[=*n*] specifies the maximum number of area addresses in a level 1 area. The range is 1 to 10. The default is 3.

Example

```
OSI MAXAREAS
```

Response

```
94/07/24 04:06:25
OSI MAXAREAS P 3
```

Explanation

This example shows the *OSI MAXAREAS* command used to display the maximum areas allowed in a level 1 area.

5.3.14 OSI MAXGEN — Displays Maximum Link State PDU Generation Interval

You can use the *OSI MAXGEN* command to display and modify the maximum link-state PDU generation interval in seconds. Refer to Section 5.2.2 of this manual for information on how to make online changes.

Format

```
              ┌ ┌          ┐ ┐
              │ │REST      │ │
OSI MAXGEN    │ {TEMP[=n] }  │
              │ │PERM[=n]  │ │
              └ └          ┘ ┘
```

Required Parameters

None

Optional Parameters

REST

Restores a temporary value back to the permanent configuration value.

TEMP

Indicates a temporary value change, not registered in the configuration.

[=*n*] specifies the maximum link-state PDU generation interval in seconds. The range is 60 to 900. The default is 900.

PERM

Indicates a permanent configuration value.

[=*n*] specifies the maximum link-state PDU generation interval in seconds. The range is 60 to 900. The default is 900.

Example

```
OSI MAXGEN TEMP=650
```

Response

```
94/07/24 04:06:25
OSI MAXGEN T 650
```

Explanation

This example shows the *OSI MAXGEN* command used to temporarily modify the maximum link-state PDU generation interval to 650 seconds.

5.3.15 OSI MINGEN — Displays Minimum Link State PDU Generation Interval

You can use the *OSI MINGEN* command to display and modify the minimum link-state PDU generation interval in seconds. Refer to Section 5.2.2 of this manual for information on how to make online changes.

Format

```
              [ ⎧REST       ⎫ ]
OSI MINGEN    [ ⎨TEMP[=n]   ⎬ ]
              [ ⎩PERM[=n]   ⎭ ]
```

Required Parameters

None

Optional Parameters

REST

Restores a temporary value back to the permanent configuration value.

TEMP

Indicates a temporary value change, not registered in the configuration.

[=*n*] specifies the minimum link-state PDU generation time in seconds. The range is 5 to 30. The default is 30.

PERM

Indicates a permanent configuration value.

[=*n*] specifies the minimum link-state PDU generation time in seconds. The range is 5 to 30. The default is 30.

Example

```
OSI MINGEN
```

Response

```
94/07/24 04:06:25
OSI MINGEN P 30
```

Explanation

This example shows the *OSI MINGEN* command used to display the minimum generation time of a link-state PDU. The generation time displayed is the permanent default of 30 seconds.

5.3.16 OSI MINXMT — Display Minimum Link State PDU Transmission Interval

You can use the *OSI MINXMT* command to display and modify the minimum link-state PDU interval in seconds. Refer to Section 5.2.2 of this manual for information on how to make online changes.

Format

```
             [ ⎧REST      ⎫ ]
OSI MINXMT   [ ⎨TEMP[=n]  ⎬ ]
             [ ⎩PERM[=n]  ⎭ ]
```

Required Parameters

None

Optional Parameters

REST

Restores a temporary value back to the permanent configuration value.

TEMP

Indicates a temporary value change, not registered in the configuration.

[=*n*] specifies the minimum link-state PDU transmission interval in seconds. The range is 5 to 30. The default is 5.

PERM

Indicates a permanent configuration value.

[=*n*] specifies the minimum link-state PDU transmission interval in seconds. The range is 5 to 30. The default is 5.

Examples

Example 1

```
OSI MINXMT
```

Response

```
94/07/24 04:06:25
OSI MINXMT P 5
```

Explanation

Example 1 shows the *OSI MINXMT* command used to display the minimum link-state PDU transmission time. The transmission time displayed is the permanent configuration default of five seconds.

Example 2

```
OSI MINXMT TEMP=30
```

Response

```
94/07/24 04:06:25
OSI MINXMT T 30
```

Explanation

Example 2 shows the *OSI MINXMT* command used to temporarily change the minimum link-state PDU transmission time to 30 seconds.

5.3.17 OSI NEIGHBORS — Displays all OSI Level 1 IS Routers

You can use the *OSI NEIGHBORS* command to display all OSI ISIS Level 1 IS Routers on all of your configured circuits. If your system type is an End System, a message displays indicating this command is only valid for ISs. You cannot make any online changes with the *OSI NEIGHBORS* command.

Format

```
OSI NEIGHBORS
```

Required Parameters

None

Optional Parameters

None

Example

```
OSI NEIGHBORS
```

Response

```
94/07/24 04:06:25
SYSTEM_ID      CIRCUIT  SNPA          PRIORITY
408000B40083B  LANL1    08000B30081B        40
      Area Addresses:  47000400120004
```

Explanation

This example shows the *OSI NEIGHBORS* command used to display all OSI ISIS routers on any connected circuits.

SYSTEM_ID

Is the last 1 to 8 bytes (two digits equal one byte) of the NSAP address, excluding the final byte that constitutes the network selector.

CIRCUIT

Is the name of a circuit configured in an *OSISN* configuration statement.

SNPA

Is the subnetwork point of attachment (level 2 address).

PRIORITY

Is the neighbor's priority for becoming the level 1 designated intermediate system (IS). The higher the number, the greater the priority.

Area Address

Is the area address of the listed neighbor.

5.3.18 OSI NEWADDR — Recognizes Online ADDRESS Configuration Statement Changes

You must use the *OSI NEWADDR* command when a you enter a new *ADDRESS* configuration statement using online configuration. OSITS will not recognize online configuration changes to *ADDRESS* configuration statements until this command has been entered.

Format

```
OSI NEWADDR
```

Required Parameters

None

Optional Parameters

None

Example

```
OSI NEWADDR
```

Response

```
94/07/24 04:06:25
READING ALL ADDRESS NDSs.
```

Explanation

This example shows the *OSI NEWADDR* command used to make OSITS read all address configuration statements. This uses all configured addresses.

5.3.19 OSI OPEN - Opens a Specified X.25 Static Circuit

You can use the *OSI OPEN* command to open a X.25 connection to the named *OSISN*. Use this command only on SX25 type circuits as displayed by the *OSI CIRCUITS* command.

Format

```
OSI OPEN osisn_name
```

Required Parameters

osisn_name

Specifies the statement name of the *OSISN* configuration statement subnetwork used to reach the destination *NSAP* address.

Optional Parameters

None

Examples

Example 1

```
OSI OPEN RSVX26
```

Response

```
94/07/24 04:06:25
TRYING TO OPEN STATIC CIRCUIT TO RSVX26...
UNABLE TO OPEN STATIC CIRCUIT TO RSVX26.
```

Explanation

Example 1 shows the *OSI OPEN* command used to open a static circuit named *RSVX26*. The command is unsuccessful.

Example 2

```
OSI OPEN RSVX20
```

Response

```
94/07/24 04:06:25
TRYING TO OPEN STATIC CIRCUIT TO RSVX20...
STATIC CIRCUIT IS UP.
```

Explanation

Example 2 shows the *OSI OPEN* command successfully used to open a circuit named *RSVX20.*

5.3.20 OSI PARAMETERS — Displays Changeable Parameter Values

You can use the *OSI PARAMETERS* command to display a list of the *OSI NMS* commands with changeable parameter values. You can modify values displayed by the *OSI PARAMETERS* command. Refer to Section 5.2.2 of this manual for information on how to make online changes.

Format

```
OSI PARAMETERS
```

Required Parameters

None

Optional Parameters

None

Example

```
OSI PARAMETERS
```

Response

```
94/07/24 03:21:35
Intermediate System (IS) Parameters
OSI AREAADDR      1 P 47000400120004
OSI AREADDR       2 T 47000500120005
OSI BROADT          P 33
OSI CSEQNUM         P 10
OSI DEFLIFE         T 15
OSI DESIGIIH        P 1
OSI DIRECTES        P DISABLED
OSI LSPBUFSIZE      P 1492
OSI MAXAREAS        P 5
OSI MAXGEN          P 900
OSI MINGEN          P 30
OSI MINXMT          P 5
OSI POLLES          P 50
OSI PSEQNUM         P 10
OSI RECVPASS      1 P FRED
OSI RECVPASS      2 P WILMA
OSI TRANSLATE       ENABLED
OSI WAITTIME        P 60
OSI XMITPASS        P DINO
```

Explanation

This example shows the display of the *OSI PARAMETERS* command. The command name and the changeable values specific to each command is listed. For an explanation of each value, reference the individual command in this section.

P

Indicates a permanent configuration value.

T

Indicates a temporary value change, not registered in the configuration.

5.3.21 OSI PING — Sends an Echo Request

You can use the *OSI PING* command to send an echo request Protocol Data Unit (PDU) to a specified network service access point (NSAP) and display an echo reply.

Format

```
OSI PING NSAP [{count[,size][,lifetime] }]
              [{RECORD[,size][,lifetime]}]
```

Required Parameters

NSAP

Is the numerical or ASCII name of the network service access point of the system.

Optional Parameters

count

Specifies the number of echo requests to send. The default is 1.

RECORD

Turns on route recording and sends only 1 echo request.

size

Indicates the packet message size. The range is 512 bytes to 8K bytes. The default is 512 bytes.

lifetime

Indicates how long, in seconds, you want the echo packet to remain in the network before it is discarded. The range is 1 to 254. The default is 15.

Examples

Example 1

```
OSI PING 470004001200040800OB30062B
```

Response

```
94/07/24 04:06:25
470004001200040800OB30062B SENT 1 RECEIVED 1 MIN/AVG/MAX 21/21/21ms
```

Explanation

This example shows a default *OSI PING* command for the NSAP 470004001200040800OB30062B. One echo request packet was sent and received. The packet size was 512 bytes (default). The packet lifetime was 15 seconds (default).

MIN

Is the minimum echo transmission time in milliseconds.

AVG

Is the average echo transmission time in milliseconds.

MAX

Is the maximum echo transmission time in milliseconds.

Example 2

```
OSI PING SL01 RECORD,1024,20
```

Response

```
94/07/24 04:06:25
SL01 SENT 1 RECEIVED 1 MIN/AVG/MAX 35/35/35ms
FORWARDED BY SLD
FORWARDED BY SLT
FORWARDED BY SLT
FORWARDED BY SLD
```

Explanation

This example shows an *OSI PING* command for the *NSAP* named *SL01*. The *OSI PING* command is set to record the route. One echo request packet was sent with a modified size of 1,024 bytes and a modified lifetime of 20 seconds. The minimum, average, and maximum transmission time was 35 milliseconds. The echo request packet was recorded as forwarded along the route by *NSAPs SLD* and *SLT*.

5.3.22 OSI POLLES — Displays Suggested Configuration Time in Intermediate System PDUs

You can use the *OSI POLLES* command to display and specify the current value, in seconds, of the end system configuration timer sent in Intermediate System Hello PDUs. Refer to Section 5.2.2 of this manual for information on how to make online changes.

Format

```
            [ { REST      } ]
OSI POLLES  [ { TEMP[=n]  } ]
            [ { PERM[=n]  } ]
```

Required Parameters

None

Optional Parameters

REST

Restores a temporary value back to the permanent configuration value.

TEMP

Indicates a temporary value change, not registered in the configuration.

[=*n*] specifies the numerical value, in seconds, used for the end system configuration timer in Intermediate System Hello (ISH) PDUs when polling for the ES configuration. The range is 1 to 50. The default is 50.

PERM

Indicates a permanent configuration value.

[=*n*] specifies the numerical value, in seconds, used for the end system configuration timer in Intermediate System Hello (ISH) PDUs when polling for the ES configuration. The range is 1 to 50. The default is 50.

Example

```
OSI POLLES
```

Response

```
94/07/24 04:06:25
OSI POLLES P 50
```

Explanation

This example shows an *OSI POLLES* command used to display the current setting of the end system configuration timer for intermediate system Hello PDUs. The timer displayed is 50 seconds (the permanent configuration default).

5.3.23 OSI PSEQNUM — Displays Partial Sequence Numbers PDU Interval

You can use the *OSI PSEQNUM* command to display and modify the partial sequence numbers PDU interval in seconds. Refer to Section 5.2.2 of this manual for information on how to make online changes.

Format

```
              ⎡⎧REST      ⎫⎤
OSI PSEQNUM   ⎢⎨TEMP[=n]  ⎬⎥
              ⎣⎩PERM[=n]  ⎭⎦
```

Required Parameters

None

Optional Parameters

REST

Restores a temporary value back to the permanent configuration value.

TEMP

Indicates a temporary value change, not registered in the configuration.

[=*n*] specifies the partial sequence numbers PDU interval in seconds. The range is 1 to 600. The default is 10.

PERM

Indicates a permanent configuration value.

[=*n*] specifies the partial sequence numbers PDU interval in seconds. The range is 1 to 600. The default is 10.

Example

```
OSI PSEQNUM
```

Response

```
94/07/24 04:06:25
OSI PSEQNUM P 10
```

Explanation

This example shows an *OSI PSEQNUM* command used to display the current setting of the partial sequence number PDU interval. The interval displayed is 10 seconds (the permanent configuration value).

5.3.24 OSI RECVPASS — Lists Additional Valid Receive Passwords

You can use the *OSI RECVPASS* command to list, add, and modify additional valid receive passwords for incoming ISIS packets. You can have more than one receive password.

Format

```
               [ { ADD,TEMP= {ASCII password }                        } ]
               [ {           {X'...'password}                         } ]
OSI RECVPASS   [ {        { ,REST                                 }   } ]
               [ { index  { ,TEMP= {ASCII password }              }   } ]
               [ {        {        {X'...'password}               }   } ]
               [ {        { ,PERM= {ASCII password }              }   } ]
               [ {        {        {X'...'password}               }   } ]
```

Note: *If you use the ADD parameter to add a temporary password, you cannot make the password permanent, or use any permanent functions. However, you can modify a permanent password without any restrictions.*

Required Parameters

None

Optional Parameters

ADD

Adds a temporary receive password.

index

Specifies the number of an existing receive password to modify.

REST

Restores a temporary value back to the permanent configuration value.

TEMP

Indicates a temporary value change, not registered in the configuration.

PERM

Indicates a permanent configuration value.

ASCII *password*	specifies the ASCII text password. The range is 1–254 ASCII characters.
X'...'*password*	specifies a numerical password (for example X'62'). The range is an even number from 2–508 hexadecimal digits.

Examples

Example 1

```
OSI RECVPASS ADD,TEMP=DINO
```

Response

```
94/07/24 02:20:45
OSI RECVPASS 3 T DINO
```

Explanation

Example 1 shows the *OSI RECVPASS* command used to add a new temporary receive password named *DINO.*

3

Is the index number of the newly added password.

T

Indicates the password is temporary.

Example 2

```
OSI RECVPASS
```

Response

```
94/07/24 02:22:45
OSI RECVPASS 1 P FRED
OSI RECVPASS 2 T WILMA
OSI RECVPASS 3 T DINO
```

Explanation

Example 2 shows the *OSI RECVPASS* command used to display an indexed list of receive passwords. The display shows an index number (in ascending order), a permanent or temporary flag, and an ASCII name or number for each individual receive password.

Example 3

```
OSI RECVPASS 2,PERM=WILMA
```

Response

```
94/07/24 02:25:45
Updating ISIS PASS NDS,
OSI RECVPASS 2 P WILMA
```

Explanation

Example 3 shows the *OSI RECVPASS* command used to modify a temporary receive password, index number 2 named Wilma, to a permanent password. This is only possible because the Wilma password was not added with this interface, but was part of the system configuration.

5.3.25 OSI RMPASS — Removes a Password

You can use the *OSI RMPASS* command to remove passwords from the list of valid passwords.

Format

```
OSI RMPASS {TEMP} {,index    }
           {PERM} {,XMITPASS }
```

Required Parameters

PERM

Indicates a permanent configuration value.

TEMP

Indicates a temporary value change, not registered in the configuration.

index

Specifies a receive password to remove.

XMITPASS

Removes the transmit and all receive passwords.

Optional Parameters

None

Example

```
OSI RMPASS PERM,XMIT
```

Response

```
94/07/24 02:25:45
Passwords removed. Removing all ISISPASS NDSs.
```

Explanation

This example shows the *OSI RMPASS* command used to permanently delete the transmit password and all of the receive passwords.

5.3.26 OSI RMROUTES — Removes a Specified Route

You can use the *OSI RMROUTES* command to remove a specified route.

Format

```
OSI RMROUTES {TEMP} ,type,nsap
             {PERM}
```

Required Parameters

TEMP

Indicates a temporary value change, not registered in the configuration.

PERM

Indicates a permanent configuration value.

type

Is the type of route. Routes include the following types:

DYN	is a non-configured route retrieved from another system. DYN routes are only noted by a system ID.
MAN	any static route configured to an end system reachable through the OSITS IP component network service (ENDS).
CONS	a manual route reachable through connection oriented network service.
C80	is a *CONS* manual route using the 1980 X.25 convergence protocol for calling and called NSAP addresses.
C84	is a *CONS* manual route using the 1984 X.25 data terminal equipment (DTE) facilities for calling and called NSAP address.
NUL	is a manual route to an end system through Internet Protocol (IP) using the Null IP subset.
L1A	is a manual route to a level 1 area not in your system.
DFLT	is either the configured default route, or the nearest level 2 IS.

nsap

Is the numerical or ASCII name of the network service access point of the route.

Note: *You may rediscover the dynamic routes you have already deleted, because dynamic routes are retrieved from other systems and not part of the configuration.*

Optional Parameters

None

Example

```
OSI RMROUTE TEMP,MAN,47000400400120001080000B5008240
```

Response

```
94/07/24 02:25:45
NSAP REMOVED.
```

Explanation

This example shows the *OSI RMROUTES* command used to remove a temporary manual route whose NSAP number is 47000400400120001080000B5008240.

5.3.27 OSI ROUTES — Displays and/or Modifies OSI Routing Information

You can use the *OSI ROUTES* command to display or modify the OSI routing information base. You can also use this command to add temporary routes to the routing table. If you want to add permanent routes, you must use Telcon online configuration or reconfigure your source file. See the *Telcon Configuration Reference Manual* (7831 5686) for more information.

Format

To display or modify the OSI routing base, use the following format:

$$\texttt{OSI ROUTES}\left[\mathit{type}\left[,\mathit{nsap}\left[,\begin{Bmatrix}\texttt{TEMP},\mathit{snpa}\\ \texttt{PERM},\mathit{snpa}\end{Bmatrix}[,\mathit{circuit}][,\mathit{lifetime}]\right]\right]\right]$$

To add a temporary manual (MAN) route, use the following format:

$$\texttt{OSI ROUTES } \mathit{type},\mathit{nsap},\texttt{TEMP},\mathit{snpa},\mathit{circuit}[,\mathit{lifetime}]$$

Required Parameters

None

Optional Parameters

type

Is the type of route. Routes include the following types:

DYN is a non-configured route retrieved from another system. *DYN* routes are only noted by a system ID.

MAN any static route configured to an end system reachable through the OSITS IP component network service (ENDS).

CONS a manual route reachable through connection-oriented network service.

C80 is a *CONS* manual route using the 1980 X.25 convergence protocol for calling and called NSAP addresses.

C84 is a *CONS* manual route using the 1984 X.25 data terminal equipment (DTE) facilities for calling and called NSAP address.

NUL is a manual route to an end system through Internet Protocol (IP) using the Null IP subset.

L1A is a manual route to a level 1 area not in your system.

DFLT is either the configured default route or the nearest level 2 IS.

nsap

Is the numerical or ASCII name of the network service access point.

PERM

Indicates a permanent configuration value.

TEMP

Indicates a temporary value change, not registered in the configuration.

snpa

Is the subnetwork point-of-attachment.

circuit

Is a subset *OSISN* on which to route PDUs.

lifetime

Indicates how long (in seconds) you want the echo packet to stay within the system before it is discarded. The range is 1 to 254. The default is 15.

Examples

Example 1

```
OSI ROUTES
```

Response

```
94/07/24 03:48:49
    TYP NSAP/SYSTEM ID                      SNPA         CIRCUIT   LT
OSI CON 470004001200040800OB50850801      P *LOCAL*
OSI MAN 470012000400120800OB40802B01      P 08000B40802B THREEB    15
OSI DYN *08000B508508                     T *LOCAL*      *LOCAL*   15
OSI DYN *00000C0154EE                     T 00000C0154EE THREEB    15
OSI DYN *08000BE0C002                     T 08000BE0C002 THREEB    15
OSI DYN *08000B0CD00D                     T 08000B0CD00D THREEB    15
OSI DYN *02608C704493                     T 02608C704493 THREEB    15
OSI DYN *02608C3D8771                     T 02608C3D8771 THREEB    15
OSI DYN *080047000A22                     T 080047000A22 THREEB    15
OSI DYN *08000BABC306                     T 00000C0154EE THREEB    15
```

Note: *The * before the NSAP in the previous display indicates a SYSTEM ID.*

Explanation

Example 1 shows the *OSI ROUTES* command used to display the routing table.

TYP

Is the route type.

*****

Indicates a SYSTEM ID.

NSAP/SYSTEM ID

Is the numerical address is either an NSAP, SYSTEM ID, or an ASCII name.

P

Indicates a permanent route.

T

Indicates a temporary route.

SNPA

Is the subnetwork point-of-attachment address.

CIRCUIT

Is the circuit name.

LT

Is the lifetime of the route.

Example 2

```
OSI ROUTES DYN
```

Response

```
94/07/24 03:57:20
    TYP NSAP/SYSTEM ID                    SNPA         CIRCUIT   LT
OSI DYN *08000B508508                   T *LOCAL*      *LOCAL*   15
OSI DYN *00000C0154EE                   T 00000C0154EE THREEB    15
OSI DYN *08000BE0C002                   T 08000BE0C002 THREEB     0
OSI DYN *08000B0CD00D                   T 08000B0CD00D THREEB     0
OSI DYN *02608C3D8771                   T 02608C3D8771 THREEB     0
OSI DYN *080047000A22                   T 080047000A22 THREEB     0
OSI DYN *08000BABC306                   T 00000C0154EE THREEB    15
```

Explanation

Example 2 shows the *OSI ROUTES* command used to display only the dynamic routes in the routing table.

Example 3

```
OSI ROUTES MAN,470004001200040800000B50084B,TEMP,08000B50084B,LANL1
```

Response

```
94/07/24 0:4:01:21
    TYP NSAP                           SNPA           CIRCUIT  LT
OSI MAN 470004001200040800000B50084B   T 08000B50084B LANL1    15
```

Explanation

Example 3 shows the *OSI ROUTES* command used to add a temporary *MAN* route to the routing table.

5.3.28 OSI STATS — Displays System Statistics

You can use the *OSI STATS* command to display the current status of the OSI system. You can display either general system statistics or circuit specific statistics.

Format

```
OSI STATS [circuitname]
```

Required Parameters

None

Optional Parameters

circuitname

Is the name of the circuit for which you want information displayed.

Examples

Example 1

```
OSI STATS
```

Response

```
94/07/24 03:21:05
Version: 2R2
System type: Intermediate System - Level 1 only
NSAP Address: 47000400120004080000B50850804
Area Address(es)  .47000400120004
System Id . . . . . .08000B508508
Level 1 state . . . . . . . . . ON
Maximum Path Splits . . . . . . 1
Corrupted LSPs  . . . . . . . . 0
Database Overloads  . . . . . . 0
Manual Area Addresses Dropped . 0
Exceeded Max Sequence Number  . 0
Sequence Number Skips . . . . . 0
Own LSP Purges  . . . . . . . . 0
ID Length Mismatches  . . . . . 0
Max Area Address Mismatches . . 0
Authentication Failures . . . . 0
```

Explanation

This example shows the *OSI STATS* command used to display general system statistics.

Version:

Indicates the OSITS software version you are running.

System type:

Indicates whether your system is an Intermediate System (IS) or an End System (ES).

NSAP Address:

Is the numerical address of your network service access point.

Area Address(es)

Are the numerical addresses of areas included in your routing area. You can have up to ten area addresses.

System Id

Is the numerical address of ES or IS.

Level 1 state

Indicates the state of the LSP database. Valid values are:

ON indicates all received LSPs have been successfully stored in the LSP database.
WAITING indicates the LSP database is overloaded and no information should be routed through this system.

Maximum Path Splits

Indicates how many equal cost paths are used when load sharing. This number is always 1 because the OSITS program product does not load share PDUs when routing.

Corrupted LSPs

Indicates the number of received link-state PDUs with checksum errors.

Database Overloads

Indicates the number of times your system buffers are full and are unable to store LSPs.

Manual Area Addresses Dropped

Indicates the number of times a manually configured area address on your system is dropped. This occurs when the number of your manual area addresses combined with another system's manual area addresses exceeds the system configured maximum number of allowed area addresses.

Exceeded Max Sequence Number

Indicates the number of times link-state PDUs sequence numbers exceeded the maximum.

Sequence Number Skips

Indicates the number of times a link-state PDU sequence number is incremented by more than one. This indicates one or more LSPs were lost.

Own LSP Purges

Indicates the number of times your system receives its own zero aged link-state PDU from another system. This is an erroneous attempt to purge the system of its link-state PDUs.

ID Length Mismatches

Indicates the number of times PDUs are received with a value for ID field length which is not the same as the *SYSIDLEN* value on the *NSAP* configuration statement.

Max Area Address Mismatches

Indicates the system configured maximum number of area addresses differs from the value in a received PDU.

Authentication Failures

Indicates the number of PDUs that were rejected because they contained an incorrect password.

Example 2

```
OSI STATS THREEB
```

Response

```
94/07/24 03:21:19
Type: Broadcast LAN
Level 1 IS Priority . . . . . . . . 64
Level 1 Designated IS . . . . . . . 08000B508508
LAN Level 1 Designated IS Changes . 0
Changes in Adjacency State  . . . . 0
Initialization Failures . . . . . . 0
Rejected Adjacencies  . . . . . . . 0
ISIS control PDUs Sent  . . . . . . 0
ISIS control PDUs Received  . . . . 0
ID Field Length Mismatches  . . . . 0
Level 1 Circuit ID  . . . . . . . . 1
```

Explanation

This example shows the *OSI STATS* command used to display circuit statistics.

Type:

Indicates the type of circuit. Valid values are:

DNS	is a Dynamic Network Services circuit.
CHAN	is a channel circuit.
LAN	is an Ethernet, Token Ring, or FDDI circuit.
DX25	is an dynamic X.25 circuit.
SX25	is a static X.25 circuit.

Level 1 IS Priority

Is the priority for becoming the Designated Level 1 Intermediate System (IS). The range is 1 to 127 with 127 being the highest priority.

Level 1 Designated IS

Is the system address of the current Level 1 Designated IS.

LAN Level 1 Designated IS Changes

Is the number of times the system either elects to, or resigns from, being the LAN L1 Designated IS.

Changes in Adjacency State

Is the number of times there is a change in the number of systems directly connected to your system.

Initialization Failures

Is the number of times when an attempt to initialize with an adjacent system fails as a result of not sharing any common area addresses. This means the ISs are on the same LAN, but not in the same area.

Rejected Adjacencies

Is the number of times an attempt to create a new adjacency is rejected because of lack of resources.

ISIS control PDUs Sent

Is the number of ISIS PDUs sent.

ISIS control PDUs Received

Is the number of ISIS PDUs received.

ID Field Length Mismatches

Is the number of times a PDU is received with a different value for System ID length than the *SYSIDLEN* value on the *NSAP* configuration statement.

Level 1 Circuit ID

Is the ID assigned by the LAN Level 1 Designated Intermediate System. The ID starts with 1 and increases sequentially with each circuit.

5.3.29 OSI TRACE — Turns Tracing On and OFF

You can use the *OSI TRACE* command to turn tracing on and off by sending a new trace mask to either OSI Internet Protocol (OSIIP) or OSI Transport Protocol (OSITP). Setting a mask to zero turns all tracing off. Each bit in the trace mask corresponds to a particular trace option. For alternative tracing methods, see the *DCP Series OSITS Configuration and Operations Guide* (7831 5587).

Format

```
OSI TRACE {IP} [,16-bit hex mask]
          {TP}
```

Required Parameters

IP

Indicates the trace mask is set for the Internet Protocol and opens a file where tracing information is stored named *OSI*zz$OSIIP*. The *zz* is the your Telcon node identifier.

TP

Indicates the trace mask is for the Transport Protocol and opens a file where tracing information is stored named *OSI*zz$OSITS*. The *zz* is the your Telcon node identifier.

Optional Parameters

16-bit hex mask

Determines which tracing mask you want to activate. If you do not input any tracing mask, a list of all available tracing masks for each protocol is displayed. Refer to the following examples to see which tracing options and corresponding 16-bit hex masks are available.

Examples

Example 1

```
OSI TRACE IP
```

Response

```
94/07/24 04:06:25
AVAILABLE IP TRACING OPTIONS

     Mask  Description                       Identifier
     0000  Closes trace file OSI*zz$OSIIP
     0001  Message input from OSISIS         MFIS
     0002  Message output to OSISIS          MTIS
     0004  Message input from OSITS          MFTS
     0008  Message output to OSITS           MTTS
     0010  Literal to/from OSISIS            ISLT
     0020  Message from link area            MFLA
     0040  Message to link area              MTLA
     0080  Packet input from OSITS           PFTS
     0100  Packet output to OSITS            PTTS
     0200  Message input from LAN            MFLN
     0400  Message output to LAN             MTLN
     0800  Message input from PSCS           MF25
     1000  Message output to PSCS            MT25
```

Explanation

Example 1 shows the *OSI TRACE* command used to display the available IP trace options.

Example 2

```
OSI TRACE IP,OFFFF
```

Response

```
94/07/24 04:06:25
IP TRACE MASK SET TO OFFFF
```

Explanation

Example 2 shows the *OSI TRACE* command used to activate and open a trace file named file *OSI*zz$OSIIP*. All IP tracing options have been activated with the 16-bit hex mask *OFFFF*.

Example 3

```
OSI TRACE IP,0
```

Response

```
94/07/24 04:06:25
IP TRACING HAS BEEN TERMINATED
```

Explanation

Example 3 shows the *OSI TRACE* command used to terminate IP tracing and close the trace file *OSI*zz$OSIIP* with the 16-bit hex mask *0*.

Example 4

```
OSI TRACE TP
```

Response

```
94/07/24 04:06:25
AVAILABLE TP TRACING OPTIONS

     Mask  Description                        Identifier
     0000  Closes trace file OSI*zz$OSITS
     0001  Packet input from transport user   TUIH
     0002  Message input from transport user  TUIM
     0004  Packet output to transport user    TUOH
     0008  Message output to transport user   TUOM
     0010  Packet input from PSCS             TPIH
     0020  Message input from PSCS            TPIM
     0040  Packet output to PSCS              TPOH
     0080  Message output to PSCS             TPOM
     0100  Packet input from OSIIP            TIIH
     0200  Message input from OSIIP           TIIM
     0400  Packet output to OSSIP             TIOH
     0800  Message output to OSSIP            TIOM
     1000  Network connection table entry     TXNT
     2000  Transport connection table entry   TXTP
     4000  Registration table entry           TXRT
     8000  General registers                  REGS
```

Explanation

Example 4 shows the *OSI TRACE* command used to display the available TP tracing options.

Example 5

```
OSI TRACE TP 0300
```

Response

```
94/07/24 04:06:25
TP TRACE MASK SET TO 0300
```

Explanation

Example 5 shows the *OSI TRACE* command used to activate TP traces and open a trace file named *OSI*zz$OSITS*. The *0100 Packet input from OSIIP*, and the *0200 Message input from OSIIP* tracing options have been activated with the 16-bit hex mask *0300*.

For more information on OSI tracing see the *DCP Series OSITS Configuration and Operations Guide* (7831 5587).

5.3.30 OSI TRANSLATE — Enables NSAP-to-ASCII Translation

You can use the *OSI TRANSLATE* command to toggle the state of NSAP to ASCII translations. If translation is on, OSITS will attempt to convert numeric NSAPs to ASCII names. If translation is off, numerical NSAPs are always displayed.

Format

```
OSI TRANSLATE [{ENABLED }]
              [{DISABLED}]
```

Required Parameters

None

Optional Parameters

ENABLED

Turns NSAP-to-ASCII translation on.

DISABLED

Turns NSAP-to-ASCII translation off.

Examples

Example 1

```
OSI TRANSLATE
```

Response

```
94/07/24 04:06:25
OSI TRANSLATE ENABLED
```

Explanation

Example 1 shows the *OSI TRANSLATE* command used to display the current state of numeric-to-ASCII translation. Translation is enabled.

Example 2

```
OSI TRANSLATE DISABLED
```

Response

```
94/07/24 04:06:25
OSI TRANSLATE DISABLED
```

Explanation

Example 2 shows the *OSI TRANSLATE* command used to disable numeric-to-ASCII translation.

5.3.31 OSI WAITTIME — Displays the Current Delay Time

You can use the *OSI WAITTIME* command to display and modify the current delay time in seconds before entering the ON state after a link-state PDU database overflow. Refer to Section 5.2.2 of this manual for information on how to make online changes.

Format

```
              ⎡⎧REST     ⎫⎤
OSI WAITTIME  ⎢⎨TEMP[=n] ⎬⎥
              ⎣⎩PERM[=n] ⎭⎦
```

Required Parameters

None

Optional Parameters

PERM

Indicates a permanent configuration value.

TEMP

Indicates a temporary value change, not registered in the configuration.

[=*n*] this is the numerical value of the time delay in seconds. The default is 60. The range is 1–65,535.

REST

Restores a temporary value back to the permanent configuration value.

[=*n*] this is the numerical value of the time delay in seconds. The default is 60. The range is 1–65,535.

Example

```
OSI WAITTIME TEMP=90
```

Response

```
94/07/24 04:06:25
OSI WAITTIME T 90
```

Explanation

This example shows the *OSI WAITTIME* command used to modify the delay time before entering the ON state after a LSP database overflow. The delay time is modified to the temporary time of 90 seconds.

5.3.32 OSI XMITPASS — Enters Password for Outgoing Packets

You can use the *OSI XMITPASS* command to list or modify a chosen password for outgoing packets. The transmit password is also used as a receive password.

Format

```
              [ { REST                         } ]
              [ {                              } ]
              [ { TEMP= {ASCII password  }     } ]
OSI XMITPASS  [ {       {X'...'password  }     } ]
              [ {                              } ]
              [ { PERM= {ASCIIpassword   }     } ]
              [ {       {X'...'password  }     } ]
```

Required Parameters

None

Optional Parameters

REST

Restores a temporary value back to the permanent configuration value.

TEMP

Indicates a temporary value change, not registered in the configuration.

PERM

Indicates a permanent configuration value. Valid values are:

ASCII *password*	specifies the ASCII text password. The range is 1–254 ASCII characters.
X'...'*password*	specifies a numerical password (for example X'62'). The range is an even number from 2–508 of hexadecimal digits.

Example

```
OSI XMITPASS
```

Response

```
94/07/24 03:41:43
OSI XMITPASS P X'6641'
```

Explanation

This example shows the *OSI XMITPASS* command used to display the current and permanently configured password for outgoing packets is the numerical password (noted by the *X'..'*) 6641.

Section 6
TCP–IP Stack NMS Commands

This section describes TCP–IP Stack NMS command definitions, format, required parameters, and optional parameters.

6.1 TCP–IP Stack NMS Command Index

Table 6–1 provides an alphabetical list of TCP–IP Stack NMS commands.

Table 6–1. TCP–IP Stack NMS Commands

Command	Function
TCP DISPLAY=ARP	Displays LAN IP-to-MAC address mappings.
TCP DISPLAY=IP	Displays IP status.
TCP DISPLAY=RIPNBR	Displays RIP neighbors.
TCP DISPLAY=ROUTE	Displays IP routing tables.
TCP DISPLAY=SAT	Displays the entire source address table for TCP–IP Stack.
TCP DISPLAY=TCP	Displays active TCP connections (sockets).
TCP HELP	Online Help facility.
TCP KILL=ARP	Deletes LAN-to-MAC address mappings, forcing an ARP request.
TCP KILL=RIPNBR	Deletes a RIP neighbor.
TCP KILL=TCP	Terminates a specific TCP connection.
TCP MODIFY=ROUTE	Modifies a specific entry in the IP routing table.
TCP PING	Sends ICMP echo request.
TCP SNAP=IP	Turns on traces and opens a trace file.
TCP SNAP=TCPTB	Turns on Transport Bridge (TB) traces.
TCP SNAP=TCPTS	Turns on Transport Services (TS) traces.
TCP SNOF=IP	Turns off traces and closes a trace file.
TCP SNOF=TCPTB	Turns off Transport Bridge (TB) traces.
TCP SNOF=TCPTS	Turns off Transport Services (TS) traces.

6.2 Entering TCP–IP Stack NMS Commands

You must be on an active NMS console. To specify these NMS commands apply to TCP–IP Stack, you must enter the prefix TCP, followed by a space before each command.

Example

```
TCP DISPLAY=ROUTE
```

Sending TCP–IP Stack NMS Commands to a Remote Node

To send TCP–IP Stack NMS commands to a remote node, use the following format:

Format

$$\texttt{TCP}\ \textit{command-string}\ \texttt{NODE=}\left\{\begin{array}{l}\textit{name}\\ \texttt{[[[}\textit{n}\texttt{/]}\textit{n}\texttt{/]}\textit{n}\texttt{/]}\textit{n}\end{array}\right\}$$

Required Parameters

TCP

Is the TCP prefix.

command-string

Is the TCP command and parameters.

$$\texttt{NODE=}\left\{\begin{array}{l}\textit{name}\\ \texttt{[[[}\textit{n}\texttt{/]}\textit{n}\texttt{/]}\textit{n}\texttt{/]}\textit{n}\end{array}\right\}$$

Is the Telcon node or network address. See Section 2 of this manual for a description of the *NODE* parameter.

Example

```
TCP DISPLAY=TCP NODE=PRC4
```

6.3 TCP–IP Stack NMS Commands

This subsection defines the TCP–IP Stack commands listed in Table 6–1. This subsection also provides formats, required and optional parameters, explanations, and examples.

Note: *Parameters may be entered in any order after the command unless specified otherwise.*

6.3.1 TCP DISPLAY=ARP — Display ARP Address Mappings

The *TCP DISPLAY=ARP* command displays the physical address-to-IP address mapping that TCP–IP Stack (ARP) maintains. Typically, this command is used to determine if the TCP–IP Stack is communicating with another TCP/IP host. If you use the command without the *DEST* parameter, the mappings for every address that ARP maintains will be displayed.

Format

```
TCP DISPLAY=ARP [,DEST={nn.nn.nn.nn
                        (adr1,adr2,adr3,adr4)}]
```

Required Parameters

DISPLAY=ARP

Specifies ARP related address mapping information for LAN configurations.

Optional Parameters

```
DEST={nn.nn.nn.nn
      (adr1,adr2,adr3,adr4)}
```

Optionally specifies address mapping information about a specific destination IP address. You can use one of the following address formats to specify the destination address.

nn.nn.nn.nn	is the standard Internet address format.
(*adr1,adr2,adr3,adr4*)	is identical to the TCP–IP Stack configuration statement in configuration files.

Each address segment (*nn* or *adr*) represents a value ranging from 0 to 255 (decimal). You can specify address values in decimal, hexadecimal, or binary notation, and use wildcard characters to match or mask values as follows:

Notation	Prefix	Example	Wildcard Examples
Decimal	none	63	OXXX ('XX'=any byte)
Hexadecimal	'OX'	OX3F	OXXX ('X'=any 4 bits)
Binary	'OB'	OB111111	OBBBBBBBB ('B'=any 1 bit)

Example

```
TCP DISPLAY=ARP
```

Response

```
94/07/24 11:39:50 ***  COMMAND ACCEPTED  ***
94/07/24 11:39:50 ***  TCP-IP  ADDRESS CACHE DISPLAY   ***
  DESTINATION       TYPE     MAPPED ADDRESS
192.60.223.163    LAN/MAC   0X000000000000
208.0.6.2       REDIRECTED  192.60.223.163
***  FUNCTION COMPLETE  ***
```

Explanation

This example shows the *TCP DISPLAY=ARP* command used to display all ARP address mappings.

DESTINATION

Is the TCP–IP destination address.

TYPE

Is the interface type. The following interface types are valid:

CHANNEL
DCA/DNS
DDN/X.25
FDDI
LAN/MAC
LAN/LLC
PDN/X.25
REDIRECTED
T-RING
UNKNOWN

MAPPED ADDRESS

Is the address for the interface specified in the TYPE field.

INTERFACE	MAPPED ADDRESS TYPE
CHANNEL	not applicable (NA)
DCA/DNS	DNS network address
DDN/X.25	Data Terminal Equipment (DTE) address
FDDI	6–byte station address
LAN/MAC	6–byte station address
LAN/LLC	6–byte station address
PDN/X.25	DTE address
REDIRECTED	IP address
T-RING	6–byte station address
UNKNOWN	(NA)

If you receive an UNKNOWN interface type, please fill out a User Complaint Form (UCF). See Section 9 of this manual for more information on UCFs.

6.3.2 TCP DISPLAY=IP — Display IP Status

The *TCP DISPLAY=IP* command lets you collect and display run-time statistics. You can reset IP related statistical counters to begin data collection at a known time. The IP counters have a range of 0 to 65,535 events. Items counted include the following:

- Inbound segments and datagrams
- Outbound segments and datagrams
- Inbound and outbound fragmented datagrams
- Datagram errors and timeouts

You can collect and display statistics for a specific network service provider (NSP) interface, a specific source or destination address, or for all IP communication handled through the local processor.

Format

$$\texttt{TCP DISPLAY=IP}\left[\texttt{,SUBNET=}\begin{Bmatrix}\textit{subnet}\\ \texttt{ALL}\end{Bmatrix}\right]\left[\texttt{,RESET=}\begin{Bmatrix}\texttt{YES}\\ \texttt{NO}\end{Bmatrix}\right]$$

Required Parameters

DISPLAY=IP

Is the command to collect and display IP related run-time statistical information.

Optional Parameters

SUBNET=

subnet specifies a network service provider (NSP) interface for which the information will be displayed. Identify the NSP by specifying either the network number from the *IPNETID* parameter of a *SUBNET* statement or the name of a *SUBNET* statement.

ALL specifies all NSPs (default).

RESET=

YES resets all statistical counters associated with the specified IP address or NSP interface. If you do not specify the *DEST* or *SUBNET* parameters, only counters associated with the Telcon node from which the command was issued are reset.

NO does not reset statistical counters.

Example

```
TCP DISPLAY=IP
```

Response

```
94/07/24 11:40:08 ***  COMMAND ACCEPTED  ***
94/07/24 11:40:09 ***  TCP-IP  IP STATUS DISPLAY  ***
IP:
--- SEGMENTS RECEIVED FROM ULP:                   8  ---
    SEGMENTS SENT TO ULP:                        39
--- DATAGRAMS RECEIVED FROM NSP:                 47  ---
    DATAGRAMS SENT TO NSP:                        8
--- DATAGRAMS RECEIVED FRAGMENTED:                0  ---
    DATAGRAMS SENT FRAGMENTED:                    0
    DATAGRAM FRAGMENTS RECEIVED:                  0
    DATAGRAM FRAGMENTS SENT:                      0
    DATAGRAM FRAGMENTS TIMED OUT:                 0
    DUPLICATE FRAGMENTS RECEIVED:                 0
--- DATAGRAMS RECEIVED IN ERROR:                  0  ---
    DATAGRAMS WITH BAD HEADER:                    0
    DATAGRAMS WITH NO TIME TO LIVE:               0
    DATAGRAMS WITH BAD CHECKSUM:                  0
    DATAGRAMS DISCARDED SILENTLY:                 8
    UNDELIVERABLE DATAGRAMS:                      0
ICMP:
--- DATAGRAMS RECEIVED BY ICMP:                   0  ---
    DATAGRAMS SENT BY ICMP:                       0
    DATAGRAMS TO ICMP IN ERROR:                   0

INTERFACES:
SUBNET = SUBX1       TYPE = PDN/X.25   PDNGRP = X25GRP1     STATUS = DOWN
  NETWORK NUMBER = 126.17.0.0        ADDRESS MASK = 255.255.0.0
  LOCAL ADDRESS  = 126.17.0.5             ROUTING = YES       RIP = NO
SUBNET = SUBL11      TYPE = LAN/MAC      LINE = LAN11       STATUS = UP
  NETWORK NUMBER = 192.60.223.0      ADDRESS MASK = 255.255.255.0
  LOCAL ADDRESS  = 192.60.223.162         ROUTING = YES       RIP = NO

   BYTES SENT   BYTES REC-D       BYTES SENT   BYTES REC-D
     TOTAL        TOTAL              RATE          RATE
   ----------   -----------       ----------   -----------
            0        17,272                0             0

SUBNET = SUBL15      TYPE = FDDI         LINE = LAN15A      STATUS = DOWN
  NETWORK NUMBER = 193.2.8.0         ADDRESS MASK = 255.255.255.0
  LOCAL ADDRESS  = 193.2.8.7              ROUTING = YES       RIP = YES
SUBNET = SUBTEL      TYPE = DCA/DNS    NO LINE  (INTERNAL)  STATUS = DOWN
  NETWORK NUMBER = 132.75.0.0        ADDRESS MASK = 255.255.0.0
  LOCAL ADDRESS  = 132.75.9.2             ROUTING = YES       RIP = YES
SUBNET = SUBL16      TYPE = DDN/X25      PDNGRP = X25GRP1   STATUS = UP
  NETWORK NUMBER = 193.2.7.0         ADDRESS MASK = 255.255.255.0
  LOCAL ADDRESS  = 193.2.7.7              ROUTING = YES       RIP = YES

                BYTES SENT   BYTES REC-D   O/PUT   INPUT  DESTINATION
 VC     STATE     TOTAL        TOTAL       RATE    RATE     ADDRESS
-----   -----   ----------   -----------   -----   -----  --------------
00150   CALL             0             0       0       0  111100012100

***  FUNCTION COMPLETE  ***
```

Explanation

This example shows the *TCP DISPLAY=IP* command used to display all run-time statistics and counters.

Most of the response fields for the *TCP DISPLAY=IP* commands are self-explanatory. The following descriptions apply only to the *INTERFACE* portion of the display. For more information on TCP–IP stack conceptual information see the *DCP Series TCP–IP Stack Configuration and Operations Guide* (7831 5546).

SUBNET=

Is the network service provide (NSP) for which information is being displayed.

TYPE=

Is the type of network interface. The following interface types are valid:

CHANNEL
DCA/DNS
DDN/X.25
FDDI
LAN/MAC
LAN/LLC
PDN/X.25
REDIRECTED
T-RING
UNKNOWN

PDNGRP=

Is an X.25 configuration statement that connects link-service providers (LSPs) with TCP/IP.

LINE=

Is the name of a LAN connection to TCP/IP.

CHANNEL=

Is the name of a channel connection to TCP/IP.

NO LINE=

Indicates a DCA/DNS interface to TCP/IP.

STATUS=

Indicates if the interface is currently sending or receiving data.

UP indicates the interface is active.
DOWN indicates the interface is inactive.

NETWORK NUMBER=

Is the network, or subnetwork number, assigned to the interface by TCP/IP.

ADDRESS MASK=

Is a locally configured number conforming to the IP address format. TCP–IP stack uses this number to interpret IP addresses in incoming datagrams.

LOCAL ADDRESS=

Is the address IP uses locally as a source address.

ROUTING=

Indicates if the node allows received messages to route to other nodes on the network. Values are:

YES indicates routing is allowed.
NO indicates routing is not allowed.

RIP=

Indicates if the subnet is configured to use the routing information protocol. Values include:

YES *RIP* is available and active.
NO *RIP* is not available.
SILENT *RIP* is in listen mode. *RIP* does not send messages, but uses received *RIP* messages to build a routing information base.

BYTES SENT TOTAL

Is the total number of bytes sent.

BYTES REC-D TOTAL

Is the total number of bytes received.

BYTES SENT RATE

Is the rate of transmitted bytes.

BYTES REC-D RATE

Is the rate of received bytes.

If you receive an UNKNOWN interface type, please fill out a User Complaint Form (UCF). See Section 9 of this manual for more information on UCFs.

Explanation for DDN/X.25

VC

Is the virtual channel number. The range is 1 to 4,096.

STATE

Is the current state of the virtual channel. Values available are:

CALL	call is being established, waiting for response.
DATA	call is established, data transfer is possible.
ORNR	network or DTE has requested no data be sent until further notice.
CLRNG	call is being disconnected, waiting for acknowledgement from other DTEs.
?????	unknown system error. Please fill out a User Complaint Form (UCF). See section 9 of this manual for more information on UCFs.

O/PUT RATE

Is the rate of data transmission.

INPUT RATE

Is the rate of incoming data.

DESTINATION ADDRESS

Is the data terminal equipment (DTE) address of the virtual channel.

6.3.3 TCP DISPLAY=RIPNBR — Display RIP Neighbors

The *TCP DISPLAY=RIBNBR* command displays information on all known Routing Information Protocol *(RIP)* neighbors on the Telcon DNS network. This information includes the neighbor IP address and the subnetwork with which the neighbor is associated.

Format

```
TCP DISPLAY=RIPNBR [,SUBNET={nn.nn.nn.nn                }]
                            {(adr1,adr2,adr3,adr4)      }
```

Required Parameters

DISPLAY=RIPNBR

Is the command to display information on *RIP* neighbors.

Optional Parameters

```
SUBNET={nn.nn.nn.nn          }
       {(adr1,adr2,adr3,adr4)}
```

Specifies the subnet where the *RIP* neighbors are located. Use the value specified on the *IPNETID* parameter of a *SUBNET* statement to identify the subnet.

nn.nn.nn.nn	is the standard Internet address format.
(adr1,adr2,adr3,adr4)	is identical to the TCP–IP Stack configuration statement in configuration files.

Each address segment (*nn* or *adr*) represents a value ranging from 0 to 255 (decimal). You can specify address values in decimal, hexadecimal, or binary notation, and use wildcard characters to match or mask values as follows:

Notation	Prefix	Example	Wildcard Examples
Decimal	none	63	0XXX ('XX'=any byte)
Hexadecimal	'0X'	0X3F	0XXX ('X'=any 4 bits)
Binary	'0B'	0B111111	0BBBBBBBB ('B'=any 1 bit)

Example

```
TCP DISPLAY=RIPNBR
```

Response

```
94/07/24 14:09:16 ***  COMMAND ACCEPTED  ***
94/07/24 14:09:16 ***  TCP-IP RIP NEIGHBOR DISPLAY  ***
IP ADDRESS       DNS ADDRESS
132.75.9.3       1.1.1.3
```

Explanation

This command shows the *TCP DISPLAY=RIPNBR* command used to display all *RIP* neighbors. The command shows the IP and DNS addresses of all *RIP* neighbors.

6.3.4 TCP DISPLAY=ROUTE — Display IP Routing Tables

The *TCP DISPLAY ROUTE* command lets you display IP routing table information for either a specified destination IP address or for all IP addresses known to TCP–IP Stack.

Format

```
TCP DISPLAY=ROUTE [,DEST={nn.nn.nn.nn              }]
                         {(adr1,adr2,adr3,adr4)    }
```

Required Parameters

DISPLAY=ROUTE

Is the command to display IP routing table information.

Optional Parameters

```
DEST={nn.nn.nn.nn            }
     {(adr1,adr2,adr3,adr4)  }
```

Specifies a destination IP address for which routing table information will be displayed. Address specifications are identical to those for the *TCP DEST=ARP* command.

default=0xxx.xx.xx.xx	specifies all IP addresses.
nn.nn.nn.nn	is identical to the TCP–IP Stack online configuration format (and the standard Internet address format).
(*adr1,adr2,adr3,adr4*)	is identical to the TCP–IP Stack configuration statements in configuration files.

Each address segment (*nn* or *adr*) represents a value ranging from 0 to 255 (decimal). You can specify address values in decimal, hexadecimal, or binary notation, and use wildcard characters to match or mask values as follows:

Notation	Prefix	Example	Wildcard Examples
Decimal	none	63	0XXX ('XX'=any byte)
Hexadecimal	'0X'	0X3F	0XXX ('X'=any 4 bits)
Binary	'0B'	0B111111	0BBBBBBBB ('B'=any 1 bit)

Note: *The routing table display can be very large. Use the DEST parameter to display routing information for specific entries.*

Example

```
TCP DISPLAY=ROUTE
```

Response

```
94/07/24 11:40:46 ***  COMMAND ACCEPTED  ***
94/07/24 11:40:46 ***  TCP-IP ROUTE DISPLAY  ***
DESTINATION       1ST GATEWAY     COST  STATIC  LOCK
0.0.0.0           192.60.223.250   1      YES    NO
208.0.6.0         192.60.223.163   1      YES    NO
193.2.7.0         192.60.223.163   1      YES    NO
205.13.9.0        192.60.223.163   1      YES    NO
126.18.0.0        192.60.223.163   1      YES    NO
***  FUNCTION COMPLETE  ***
```

Explanation

This example shows the *TCP DISPLAY=ROUTE* command used to display the routing table for all known TCP–IP Stack IP addresses.

DESTINATION

Is the network address.

1ST GATEWAY

Is the IP address of the first gateway to the network.

COST

Is the number of times the message crosses a router before arriving at the destination address.

STATIC

Displays if the route is configured or dynamic.

YES the route is configured.
NO the route is dynamic.

LOCK

Displays if the current dynamic routing information can be changed.

YES the route is locked and cannot change.
NO the route is not locked and changes can occur.

6.3.5 TCP DISPLAY=SAT — Display TCP–IP Stack Source Address Table

You can use the *TCP DISPLAY=SAT* command to display addresses configured for TCP–IP Stack. This includes addresses assigned to DCA TSs or DNS nodes not residing in the same node as TCP–IP Stack, for which TCP–IP Stack provides a DCA to TCP/IP gateway.

Format

```
TCP DISPLAY=SAT
```

Required Parameters

None

Optional Parameters

None

Example

```
TCP DISPLAY=SAT
```

Response

```
94/08/02 14:42:52 ***  COMMAND ACCEPTED  ***
94/08/02 14:42:52 *** TCP-IP SOURCE ADDRESS ***

SOURCE ADDRESS     DCA ADDRESS
129.221.2.91          1.1.1.2
129.221.2.91          13.2
129.221.2.92          1.1.1.3
129.221.2.92          13.12
129.221.2.93          1.1.1.4
129.221.2.93          13.27
***  FUNCTION COMPLETE  ***
```

Explanation

The example shows several IP addresses (129.221.2.91) used by the DCP. All are paired with DNS addresses (1.1.1.2) and processor *TRUNK* statement identifications (13.2). Depending on the TCP–IP Stack configuration and the use of DNS versus TSTN, a DCP can show the IP addresses paired with either DNS or TS/TN addresses, or both.

6.3.6 TCP DISPLAY=TCP — Display Active TCP Connections

The *TCP DISPLAY=TCP* command displays the status of all TCP connections. You can gather this status based on the source or destination IP address, or on a source or destination TCP port number. To uniquely identify a single TCP connection, specify all the parameters.

Format

TCP DISPLAY=TCP [,SRC= { *nn.nn.nn.nn* | *(adr1,adr2,adr3,adr4)* }] [,DEST= { *nn.nn.nn.nn* | *(adr1,adr2,adr3,adr4)* }]

[,SRCPORT= *xxxx*] [,DESTPORT= *xxxx*]

Required Parameters

DISPLAY=TCP

Is the command to display TCP connection information.

Optional Parameters

SRC= { *nn.nn.nn.nn* | *(adr1,adr2,adr3,adr4)* }

Specifies a source IP address for which TCP connection information will be displayed.

nn.nn.nn.nn	is the standard Internet address format.
(adr1,adr2,adr3,adr4)	is identical to the TCP–IP Stack configuration statements in configuration files.

Each address segment (*nn* or *adr*) represents a value ranging from 0 to 255 (decimal). You can specify address values in decimal, hexadecimal, or binary notation, and use wildcard characters to match or mask values as follows:

```
Notation     Prefix  Example   Wildcard Examples
Decimal      none    63        0XXX ('XX'=any byte)
Hexadecimal  '0X'    0X3F      0XXX ('X'=any 4 bits)
Binary       '0B'    0B111111  0BBBBBBBB ('B'=any 1 bit)
```

DEST= { *nn.nn.nn.nn* | *(adr1,adr2,adr3,adr4)* }

Specifies a destination IP address for which TCP connection information will be displayed. For address format, see the *SRC* parameter explanation.

SRCPORT=*xxxx*

Specifies a source TCP port number.

DESTPORT=*xxxx*

Specifies a destination TCP port number.

Examples

Example 1

```
TCP DISPLAY=TCP
```

Response

```
94/07/24 11:41:25 ***  COMMAND ACCEPTED  ***
94/07/24 11:41:26 ***  TCP-IP TCP CONNECTION DISPLAY  ***
SOURCE          SRC  DESTINATION     DEST ST  SEQUENCE ACK      REC  SEND #
ADDRESS         PORT ADDRESS         PORT ATE NUMBER   NUMBER   WIND WIND TO
0.0.0.0         256  0.0.0.0         0     LI 00000000 00000000 8192    0 0
0.0.0.0         257  0.0.0.0         0     LI 00000000 00000000 8192    0 0
0.0.0.0         258  0.0.0.0         0     LI 00000000 00000000 8192    0 0
0.0.0.0         258  0.0.0.0         0     LI 00000000 00000000 8192    0 0
0.0.0.0         264  0.0.0.0         0     LI 00000000 00000000 8192    0 0
0.0.0.0         264  0.0.0.0         0     LI 00000000 00000000 8192    0 0
0.0.0.0         264  0.0.0.0         0     LI 00000000 00000000 8192    0 0
0.0.0.0         265  0.0.0.0         0     LI 00000000 00000000 8192    0 0
192.60.223.162 301  192.60.223.163 265   SS 02801230 00000000 8192    0 1
192.60.223.162 302  192.60.223.163 265   SS 02801240 00000000 8192    0 1
***  FUNCTION COMPLETE  ***
```

Explanation

This example shows the *TCP DISPLAY=TCP* command used to display the status of all TCP connections.

SOURCE ADDRESS

Is the IP address for the statistics being displayed.

SRC PORT

Is the TCP port number connecting the source address to the TCP component.

DESTINATION ADDRESS

Is the specified IP address of the current route destination.

DESTINATION PORT

Is the TCP port number connecting the destination address to the TCP component.

STATE

Is the current state of the connection.

CL connection closing.
CW connection closed, waiting.
ES connection established, data transfer possible.
LA last acknowledgement, waiting for an acknowledgement the connection has been terminated.
LI listen state.
SR synchronous request received.
SS synchronous request sent.
TW time wait.
W1 finish wait state 1. This state is entered when sending a request to close a connection.
W2 finish wait state 2. This state is entered when a request to close a connection has been acknowledged, activating a countdown timer that closes the connection after expiring.

SEQUENCE NUMBER

Is the sequence number assigned to the last byte sent.

ACK NUMBER

Is the sequence number of the last byte received.

REC WIND

Is the receive window that specifies the number of bytes you can receive without sending an acknowledgement.

SEND WIND

Is the send window that specifies the number of bytes you can send without receiving an acknowledgement.

 # TO

Is the number of time-outs that have occurred.

Example 2

```
TCP DISPLAY=TCP,SRC=124.54.0.34,DEST=124.54.0.36
```

Response

```
94/07/24 11:45:25 ***  COMMAND ACCEPTED  ***
94/07/24 11:45:26 ***  TCP-IP TCP CONNECTION DISPLAY  ***
SOURCE          SRC  DESTINATION     DEST ST  SEQUENCE ACK      REC  SEND #
ADDRESS         PORT ADDRESS         PORT ATE NUMBER   NUMBER   WIND WIND TO
124.54.0.34     250  124.54.0.36     300  LI  00000000 00000000 8192    0 0
```

Explanation

This example shows the *TCP DISPLAY=TCP* command used to display the status of a specified TCP connection.

6.3.7 TCP HELP — Activates Online Help Facility

The *TCP HELP* command activates the TCP–IP Stack online help facility.

Format

```
TCP HELP[,CMD][,TYPE]
```

Required Parameters

TCP=HELP

Displays a list of accepted values for the *CMD* parameter in addition to general help information about TCP–IP Stack NMS commands.

Optional Parameters

CMD

Provides a list of accepted values for the *TYPE* parameter in addition to general help about the *CMD* parameter.

TYPE

Lists any parameters that may accompany the *CMD* parameter.

Example

```
TCP HELP
```

Response

```
94/07/24 11:41:50 ***********************************

    TCP/IP Help
    -----------

The following NMS Commands are available for TCP/IP:

DISPLAY  -- Display TCP/IP status
HELP     -- Display Help Information
KILL     -- Discontinue TCP/IP Connection
MODIFY   -- Change TCP/IP parameters
PING     -- Check TCP/IP reachability
SNAP     -- Set up message tracing
SNOF     -- Stop message tracing

Commas and equal signs shown in the command format descriptions are not
necessary for correct command input and may be replaced with spaces.

Parameter values shown as "nn" must be in the range from 0 to 255. Values
shown as "xxxx" must be in the range from 0 to 65535.

Hexadecimal values may be entered by preceding the hexadecimal characters
with the characters zero and X ("0X"). Binary values (numbers composed
entirely of the digits 0 and 1) may be entered by preceding the binary
digit sequence with the characters zero and B ("0B").

Some parameters allow wildcard values. "XX" may be used wherever "nn" is
shown and matches any value. "X" used in place of an hexadecimal character
matches any value in that position. "B" used in place of a binary
character matches any value in that position.

For more help enter "TCP HELP {command}"
*************************************************
```

Explanation

This example shows the *TCP HELP* command used to display general TCP help.

6.3.8 TCP KILL=ARP — Delete ARP Address Mappings

The *TCP KILL=ARP* command deletes ARP addresses from the cache. Normally, these addresses are updated when the ARP timer expires. However, to update them before the timer expires, use the *TCP KILL=ARP* command.

Format

```
TCP KILL=ARP [,DEST={nn.nn.nn.nn                   }]
                    {(adr1,adr2,adr3,adr4)}
```

Required Parameters

KILL=ARP

Is the command to delete ARP addresses.

Optional Parameters

```
DEST={nn.nn.nn.nn          }
     {(adr1,adr2,adr3,adr4)}
```

Specifies a destination IP address to delete.

nn.nn.nn.nn	is the standard Internet address format.
(*adr1,adr2,adr3,adr4*)	is identical to the TCP–IP Stack configuration statements in configuration files.

Each address segment (*nn* or *adr*) represents a value ranging from 0 to 255 (decimal). You can specify address values in decimal, hexadecimal, or binary notation, and use wildcard characters to match or mask values as follows:

```
Notation     Prefix  Example   Wildcard Examples
Decimal      none    63        0XXX ('XX'=any byte)
Hexadecimal  '0X'    0X3F      0XXX ('X'=any 4 bits)
Binary       '0B'    0B111111  0BBBBBBBB ('B'=any 1 bit)
```

WARNING

If you do not use the *DEST* parameter, all ARP addresses are deleted!

Example

```
TCP KILL=ARP,DEST=124.54.0.3
```

Response

```
94/07/24 11:42:11 ***  COMMAND ACCEPTED ***
94/07/24 11:42:11 *** FUNCTION COMPLETE ***
```

Explanation

This example shows the *TCP KILL=ARP* command deleting ARP address 124.54.0.3.

6.3.9 TCP KILL=RIPNBR — Remove a RIP Neighbor

The *TCP KILL=RIPNBR* command removes discovered RIP neighbors. Use this command on DNS networks only.

Format

```
                        ┌ nn.nn.nn.nn                  ┐
TCP KILL=RIPNBR ,ADR=   └ (adr1,adr2,adr3,adr4)        ┘
```

Required Parameters

KILL=RIPNBR

Is the command to remove a RIP neighbor from the neighbor list.

Optional Parameters

```
     ┌ nn.nn.nn.nn             ┐
ADR= └ (adr1,adr2,adr3,adr4)   ┘
```

specifies the address of the RIP neighbor to be removed.

nn.nn.nn.nn	is the standard Internet address format.
(*adr1,adr2,adr3,adr4*)	is identical to the TCP–IP Stack configuration statements in configuration files.

Each address segment (*nn* or *adr*) represents a value ranging from 0 to 255 (decimal). You can specify address values in decimal, hexadecimal, or binary notation, and use wildcard characters to match or mask values as follows:

Notation	Prefix	Example	Wildcard Examples
Decimal	none	63	0XXX ('XX'=any byte)
Hexadecimal	'0X'	0X3F	0XXX ('X'=any 4 bits)
Binary	'0B'	0B111111	0BBBBBBBB ('B'=any 1 bit)

Example

```
TCP KILL=RIPNBR,ADR=124.54.0.6
```

Response

```
94/07/24 11:42:47 ***  COMMAND ACCEPTED ***
94/07/24 11:42:47 *** FUNCTION COMPLETE ***
```

Explanation

This example shows the *TCP KILL=RIPNBR* command use to delete the RIP neighbor 124.54.0.6.

6.3.10 TCP KILL=TCP — Terminate a TCP Connection

The *TCP KILL=TCP* command terminates all TCP connections. Use it to free a suspended TCP connection when no keep-alive mechanism is configured. You must use all the parameters listed to identify and terminate a specific TCP connection.

Format

```
TCP KILL=TCP ,SRC={nn.nn.nn.nn                  } ,DEST={nn.nn.nn.nn                  }
                  {(adr1,adr2,adr3,adr4)}              {(adr1,adr2,adr3,adr4)}

             ,SRCPORT=nn ,DESTPORT=nn
```

Required Parameters

KILL=TCP

Is the command to terminate TCP connections.

```
SRC={nn.nn.nn.nn            }
    {(adr1,adr2,adr3,adr4)}
```

Specifies a source IP address of a TCP connection to terminate.

nn.nn.nn.nn	is identical to the TCP–IP Stack online configuration format (and the standard Internet address format).
(*adr1,adr2,adr3,adr4*)	is identical to the TCP–IP Stack configuration statements in configuration files.

Each address segment (*nn* or *adr*) represents a value ranging from 0 to 255 (decimal). You can specify address values in decimal, hexadecimal, or binary notation, and use wildcard characters to match or mask values as follows:

Notation	Prefix	Example	Wildcard Examples
Decimal	none	63	0XXX ('XX'=any byte)
Hexadecimal	'0X'	0X3F	0XXX ('X'=any 4 bits)
Binary	'0B'	0B111111	0BBBBBBBB ('B'=any 1 bit)

```
DEST={nn.nn.nn.nn            }
     {(adr1,adr2,adr3,adr4)}
```

Specifies a destination IP address of a TCP connection to terminate.

SRCPORT=*nn*

Specifies a source TCP port number.

DESTPORT=*nn*

specifies a destination TCP port number.

Optional Parameters

None

Example

```
TCP KILL=TCP,SRC=192.60.223.162,DEST=192.60.223.163,SRCPORT=0x301,DESTPORT=265
```

Response

```
94/07/24 11:44:35 ***  COMMAND ACCEPTED ***
94/07/24 11:44:35 *** FUNCTION COMPLETE ***
```

Explanation

This example shows the *TCP KILL=TCP* used to terminate a TCP connection.

6.3.11 TCP MODIFY=ROUTE — Modify an IP Routing Table Entry

The *TCP MODIFY=ROUTE* command changes entries in the routing table. The command requires the *DEST* parameter.

Format

```
TCP MODIFY=ROUTE,DEST={nn.nn.nn.nn              } ,GATEWAY={nn.nn.nn.nn              }
                      {(adr1,adr2,adr3,adr4)    }          {(adr1,adr2,adr3,adr4)    }

              [,COST={nn      }][,LOCK={ON }]
              [      {INFINITE}][      {OFF}]
```

Required Parameters

MODIFY=ROUTE

Is the command to modify an entry in the routing table.

```
DEST={nn.nn.nn.nn          }
     {(adr1,adr2,adr3,adr4)}
```

Is the subnetwork number of the destination subnetwork.

nn.nn.nn.nn is the standard Internet address format.
(adr1,adr2,adr3,adr4) is identical to the TCP–IP Stack configuration statements in configuration files.

Each address segment (*nn* or *adr*) represents a value ranging from 0 to 255 (decimal). You can specify address values in decimal, hexadecimal, or binary notation, and use wildcard characters to match or mask values as follows:

Notation	Prefix	Example	Wildcard Examples
Decimal	none	63	0XXX ('XX'=any byte)
Hexadecimal	'0X'	0X3F	0XXX ('X'=any 4 bits)
Binary	'0B'	0B111111	0BBBBBBBB ('B'=any 1 bit)

```
GATEWAY={nn.nn.nn.nn          }
        {(adr1,adr2,adr3,adr4)}
```

Is the IP address of the first router on the path to the destination subnetwork. You cannot use wildcards on this parameter.

Optional Parameters

COST={nn | INFINITE}

Is the number of hops to the destination. Entering `INFINITE` deletes the route. The default is 1.

LOCK={ON | OFF}

Specifies whether RIP is to update the route.

Example

```
TCP MODIFY=ROUTE,DEST=124.54.0.36,GATEWAY=120.45.9.54,COST=3
```

Response

```
94/07/24 11:46:37 ***  COMMAND ACCEPTED  ***
94/07/24 11:46:37 *** FUNCTION COMPLETE ***
```

Explanation

This example changes the route to the host at IP address. The example specifies the gateway to the destination subnetwork and the number of gateway hops to the destination subnetwork.

6.3.12 TCP PING — Sends ICMP Echo Request

The *TCP PING* command sends an ICMP (Internet Control Message Protocol) echo request to another TCP/IP host. This allows the operator or network administrator to collect information about connectivity. Use the *TCP PING* command when you want to verify an IP address and receive route information.

Format

```
TCP PING={nnn.nnn.nnn.nnn} [,TIMEOUT=nn][,REPEAT=nn]
         {name           }

      [,LENGTH=nnn][,RECORD={ON }]
                            {OFF}
```

Required Parameters

```
TCP PING={nnn.nnn.nnn.nnn}
         {name           }
```

Is the name or IP address of the destination host.

Optional Parameters

TIMEOUT=*nn*

The time to wait for a response. Choose a value from 1–99. The default is 2 seconds.

REPEAT=*nn*

The number of times to repeat the ICMP echo. Choose a value from 1–99. *nn* is equivalent to milliseconds. The default is 1.

LENGTH=*nnn*

Is the number of bytes a datagram can contain. Length can be a value from 40 to 576. The default is 100 bytes.

RECORD= {ON | OFF}

Records the route of the ICMP echo.

ON record route.
OFF do not record route. This is the default.

If ON is selected, TELNET displays a message in the following format, showing the recorded IP addresses (oldest entry first):

```
Record route: nnn.nnn.nnn.nnn  nnn.nnn.nnn.nnn
```

When the last ICMP echo response is received, NMS displays a message in the following format:

n packets transmitted, *n* packets received, *n* packets lost,
round trip (ms) (min/avg/max) = nn/nn/nn

n	is the number of packets.
(ms)	is the number of milliseconds for the last round trip.
(min/avg/max)	is the minimum, average, and maximum round trip time.
nn/nn/nn	is the number of milliseconds.

Example

```
TCP PING=192.60.224.1
```

Response

```
94/07/24 11:46:56 ***  COMMAND ACCEPTED  ***
94/07/24 11:46:56 ***  TCP-IP PING RESPONSE RECEIVED  ***
TIME=148 ms
    1 PACKETS TRANSMITTED,     1 PACKETS RECEIVED,     0 PACKETS LOST
ROUNDTRIP (MS) (MIN/AVG/MAX) =   148/  148/  148
```

Explanation

This example shows the *TCP PING* command used to send one IMCP echo packet to the destination host at address 192.60.224.1.

6.3.13 TCP SNAP=IP — Turn On IP Traces

The *TCP SNAP=IP* command turns on message tracing in the internet component.

Format

```
                                                          ⎡      ⎧line    ⎫⎤
                 ⎡     ⎧IN  ⎫⎤⎡    ⎧NSP ⎫⎤               ⎢      ⎪pdngrp  ⎪⎥
TCP SNAP=IP      ⎢,DIR=⎨OUT ⎬⎥⎢,IF=⎨ULP ⎬⎥               ⎢,FAC= ⎨channel ⎬⎥
                 ⎣     ⎩BOTH⎭⎦⎣    ⎩BOTH⎭⎦               ⎣      ⎩ALL     ⎭⎦

   ⎡,SRC=⎧nn.nn.nn.nn                 ⎫⎤⎡,DEST=⎧nn.nn.nn.nn                 ⎫⎤
   ⎣     ⎩(adr1,adr2,adr3,adr4)       ⎭⎦⎣      ⎩(adr1,adr2,adr3,adr4)       ⎭⎦

   ⎡     ⎧ICMP⎫⎤
   ⎢     ⎪TCP ⎪⎥
   ⎢,PID=⎨UDP ⎬⎥[,FILE=filename]⎡,PARSE=⎧IP  ⎫⎤[,REUSE=n][,LENGTH=length]
   ⎢     ⎪xxxx⎪⎥                ⎣       ⎩NONE⎭⎦
   ⎣     ⎩ALL ⎭⎦
```

Required Parameters

SNAP=IP

Is the command that turns on message tracing for the IP software.

Optional Parameters

DIR=

Specifies the direction messages are to be traced. Valid values include:

IN specifies only messages received from a network, or passed to an upper layer protocol (ULP), are to be traced.

OUT specifies that only messages received from a ULP, or sent to a network, are to be traced.

BOTH specifies both *IN* and *OUT* messages will be traced. If *BOTH* is specified, the *SRC* and *DEST* parameters are interchangeable. This is the default.

IF=

Specifies the interface where messages are to be traced. Valid values include:

NSP specifies messages on the interface between IP and NSP are to be traced.
ULP specifies messages on the interface between IP and the ULP are to be traced.
BOTH specifies that messages on both the *NSP* and *ULP* interfaces will be traced. If *BOTH* is specified, all messages will be traced twice. This is the default.

FAC=

Specifies the facility that is to be traced. If you do not use this parameter, all facilities will be traced. Valid values include:

line specifies a *LINE* statement that defines the line to trace.
pdngrp specifies a *PDNGRP* statement that defines the PDN line or lines to trace. Normally, there is a one-to-one relationship between a *LINE* and a *PDNGRP*. If you have multilink configured, however, several *LINE*s form a *PDNGRP*; therefore, use this parameter only with multilink.
channel specifies a *CHANNEL* statement that defines a host channel connection to trace.
ALL specifies tracing for all facilities.

```
SRC={nn.nn.nn.nn              }
    {(adr1,adr2,adr3,adr4)    }
```

Specifies a source IP address of a TCP connection to trace.

nn.nn.nn.nn	is the standard Internet address format.
(adr1,adr2,adr3,adr4)	is identical to the TCP–IP Stack configuration statements in configuration files.

Each address segment (*nn* or *adr*) represents a value ranging from 0 to 255 (decimal). You can specify address values in decimal, hexadecimal, or binary notation, and use wildcard characters to match or mask values as follows:

```
Notation     Prefix  Example    Wildcard Examples
Decimal      none    63         0XXX ('XX'=any byte)
Hexadecimal  '0X'    0X3F       0XXX ('X'=any 4 bits)
Binary       '0B'    0B111111   0BBBBBBBB ('B'=any 1 bit)
```

```
DEST={nn.nn.nn.nn              }
     {(adr1,adr2,adr3,adr4)    }
```

Is the destination IP address of the datagrams to be traced.

By specifying both source and destination addresses, tracing is done only on datagrams with matching addresses.

PID=

Limits tracing to datagrams of a specific ULP, which may be specified by name or number. Valid values include:

ICMP specifies tracing for the ICMP component.
TCP specifies tracing for the TCP component.
UDP specifies tracing for the UDP component.
xxxx specifies tracing for all messages on a port, which is identified by a *PID* parameter on a *LINE* statement.
ALL specifies tracing for all ULPs.

File=*filename*

Specifies the name of a file to which tracing information is sent. If the *FILE* parameter is used without the *PARSE* parameter, then traced messages will not be displayed.

This parameter cannot be changed unless all tracing is terminated by the *TCP SNOF* command.

PARSE=

Specifies if output to the screen should be presented by protocol. Valid values include:

IP specifies that tracing information on IP be presented separately on the terminal screen.
NONE specifies that tracing information not be separated by protocol.

REUSE=*n*

Specifies the number of trace files to open while tracing messages. This value is either 1 (the default), indicating trace files are not to be reused, or a value ranging from 2 to 99. This causes TCP/IP to open a specified number of files and reuse the first file when the last file is full. When *REUSE* is greater than 1, the specified filename is truncated to no more than six characters and a two-digit sequence number is added to the end of the filename. If *REUSE* is specified, and the filename is not specified, then the filename is set to *tracefil*.

This parameter cannot be changed unless all tracing is terminated by the *TCP SNOF* command.

LENGTH=*length*

Is used to limit the length of traced messages. If the length of the messages is greater than the specified length, then the traced message is truncated to the specified length. The default is 0, which indicates no length limit.

Example

```
TCP SNAP=IP,IF=NSP,SRC=192.60.224.1
```

Response

```
94/07/24 11:47:40 ** TRACE ACTIVE FOR IP **
94/07/24 11:47:40 *** FUNCTION COMPLETE ***
94/07/24 11:47:56 *** TCP-IP MESSAGE TRACE ***
11:47:56.929  DIRECTION: OUT              INTERFACE: IP-NSP LAN11
0000: 4500 0040 0155 4000 0F01 2A4B C03C DFA2    E..@.U@...*K.<..
0008: C03C E001 0800 EC9E 0155 0002 0101 0000    .<.......U......
0010: 0100 0102 0001 0041 7FFF 0000 0000 7CBB    .......A......|.
0018: 4141 4141 4141 4141 4141 4141 4141 4141    AAAAAAAAAAAAAAAA

94/07/24 11:47:57 *** TCP-IP MESSAGE TRACE ***
11:47:56.956  DIRECTION: IN               INTERFACE: IP-NSP LAN11
0000: 4500 0040 23B0 4000 FE01 18EF C03C E001    E..@#.@......<..
0008: C03C DFA2 0000 F49E 0155 0002 0101 0000    .<.......U......
0010: 0100 0102 0001 0041 7FFF 0000 0000 7CBB    .......A......|.
0018: 4141 4141 4141 4141 4141 4141 4141 4141    AAAAAAAAAAAAAAAA
```

Explanation

This example shows the *TCP SNAP=IP* command used to turn on message tracing for both incoming and outgoing messages for the Network Service Provider IP interface only.

DIRECTION IN/OUT

Specifies the trace display is for IN (incoming) or OUT (outgoing) messages.

INTERFACE

Is the network interface for which the traces are displayed.

6.3.14 TCP SNAP=TCPTB — Turn On Transport Bridge Traces

The *TCP SNAP=TCPTB* command turns on message tracing in the transport bridge component. The TCP transport bridge (TCPTB) allows bridging between the DCA transport (DTPX) and the TCP transport.

Format

```
                   [       {IN  }] [      {DTP }]
TCP SNAP=TCPTB     [,DIR=  {OUT }] [,IF=  {TSP }] [,FILE=filename] [,REUSE=n] [,LENGTH=length]
                   [       {BOTH}] [      {BOTH}]
```

Required Parameters

SNAP=TCPTB

Turns on message tracing for the TCP bridge software module.

Optional Parameters

DIR=

Specifies the direction messages are to be traced. Valid values include:

IN	specifies only messages received from TCPTS or sent to DTP are to be traced.
OUT	specifies only messages received from DTP or sent to TCPTS are to be traced.
BOTH	specifies that both *IN* and *OUT* messages are to be traced. This is the default.

IF=

Specifies the interface where messages are to be traced. Valid values include:

DTP	specifies the interface between the TCPTB and the DTP for message tracing.
TSP	specifies the interface between the TCPTB and the TCPTS for message tracing.
BOTH	specifies that messages on the interfaces defined by both the *TSP* and *STP* parameters are to be traced. This is the default.

File=*filename*

Specifies the name of the file where tracing information is sent. If the filename is not cataloged, then TCP–IP Stack automatically catalogs the file.

If the *RESUSE* parameter is specified and the filename is not specified, the filename defaults to *tracefil*.

You cannot modify this parameter when traces are active. If you want to change the filename, you must turn off traces with the *TCP SNOF* command and then reactivate the traces.

REUSE=*n*

Specifies the number of trace files to open while tracing messages. This value is either 1 (the default), indicating trace files are not to be reused, or a value ranging from 2 to 99. This causes TCP/IP to open a specified number of files and reuse the first file when the last file is full. When *REUSE* is greater than 1, the specified filename is truncated to no more than six characters and a two-digit sequence number is added to the end of the filename. If *REUSE* is specified, and the filename is not specified, then the filename is set to *tracefil*.

This parameter cannot be changed unless all tracing is terminated by the *TCP SNOF* command.

LENGTH=*length*

Is used to limit the length of traced messages. If the length of the messages is greater than the specified length, then the traced message is truncated to the specified length. The default is 0, which indicates no length limit.

Example

```
TCP SNAP=TCPTB
```

Response

```
94/07/24 11:48:35 ** TRACE ACTIVE FOR TCPTB **
94/07/24 11:48:35 *** FUNCTION COMPLETE ***
```

Explanation

This example shows the default *TCP SNAP=TCPTB* command used to activate incoming and outgoing message traces on both the TCP transport bridge component and the user interface component.

6.3.15 TCP SNAP=TCPTS — Turns On Transport Service Traces

The *TCP SNAP=TCPTS* command turns on message tracing in the TCP transport service (TCP TS) component. The TCPTS provides an interface to the user allowing them to use the TCP transport.

Format

```
                   [      {IN  }] [     {TSU }]
TCP SNAP=TCPTS     [,DIR= {OUT }] [,IF= {TCP }] [,SRC=local tsap id][,DEST=remote tsap id]
                   [      {BOTH}] [     {BOTH}]

                   [,FILE=filename][,REUSE=n][,LENGTH=length]
```

Required Parameters

SNAP=TCPTS

Turns on TCP transport service message tracing.

Optional Parameters

DIR=

Specifies the direction messages are to be traced. Valid values include:

- **IN** specifies only messages received from TCPTS or sent to DTP are to be traced.
- **OUT** specifies only messages received from DTP or sent to TCPTS are to be traced.
- **BOTH** specifies that both *IN* and *OUT* messages are to be traced. This is the default.

IF=

Specifies the interface where messages are to be traced. Valid values include:

- **TSU** specifies the transport services user, which means messages are to be traced on the user side of TCPTS.
- **TCP** specifies the transport control protocol, which means messages are to be traced on the TCP side of TCPTS. On this side, incoming messages will be traced after they have been extracted from the data received from TCP.
- **BOTH** specifies that messages are to be traced on both sides of TCPTS. This is the default.

SCR=*source tsap-id*

Is the ID of the local transport service access point. The format of the *tsap-id* can be an ASCII or a hexadecimal string up to 20 bytes long. If you use an ASCII string, use the format *'ascii string'*. If you use a hexadecimal string, use the format *x'hex string'*. The hexadecimal string must be an even number of characters, because it takes two hex characters to specify a byte.

If the *DIR* parameter specifies the *BOTH* option, then *SRC* and *DEST* parameters are exchangeable.

DEST=*destination tsap-id*

Is the ID of the destination transport service access point. The format of the *tsap-id* can be an ASCII or a hexadecimal string up to 20 bytes long. If you use an ASCII string, use the format *'ascii string'*. If you use a hexadecimal string, use the format *x'hex string'*. The hexadecimal string must be an even number of characters, because it takes two hex characters to specify a byte.

If the *DIR* parameter specifies the *BOTH* option, then *SRC* and *DEST* parameters are exchangeable.

File=*filename*

Specifies the name of the file where tracing information is sent. If the filename is not cataloged, then TCP–IP Stack automatically catalogs the file.

If the *RESUSE* parameter is specified and the filename is not specified, the filename defaults to *tracfil.*

You cannot modify this parameter when traces are active. If you want to change the filename, you must turn off traces with the *TCP SNOF* command and then reactivate the traces.

REUSE=n

Specifies the number of trace files to open while tracing messages. This value is either 1 (the default), indicating trace files are not to be reused, or a value ranging from 2 to 99. This causes TCP/IP to open a specified number of files and reuse the first file when the last file is full. When *REUSE* is greater than 1, the specified filename is truncated to no more than six characters and a two-digit sequence number is added to the end of the filename. If *REUSE* is specified, and the filename is not specified, then the filename is set to *tracefil.*

This parameter cannot be changed unless all tracing is terminated by the *TCP SNOF* command.

LENGTH=*length*

Is used to limit the length of traced messages. If the length of the messages is greater than the specified length, then the traced message is truncated to the specified length. The default is 0, which indicates no length limit.

Example

```
TCP SNAP=TCPTS
```

Response

```
94/07/24 11:48:50 ** TRACE ACTIVE FOR TCPTS **
94/07/24 11:48:50 *** FUNCTION COMPLETE ***
```

Explanation

This example shows the default *TCP SNAP=TCPTS* command used to activate traces for incoming and outgoing messages in both the TCP TS component and the user interface component.

6.3.16 TCP SNOF=IP — Turn Off IP Traces

The *TCP SNOF=IP* command turns off the IP message tracing started by the *TCP SNAP=IP* command. The command also closes an IP trace file if one is open and no other traces are active.

Format

```
TCP SNOF=IP
```

Required Parameters

SNOF=IP

Is the command that turns IP tracing off.

Optional Parameters

None

Example

```
TCP SNOF=IP
```

Response

```
94/07/24 11:48:05 ** NO TRACES ARE ACTIVE **
94/07/24 11:48:05 *** FUNCTION COMPLETE ***
```

Explanation

This example shows the *TCP SNOF=IP* command used to turn all tracing off.

6.3.17 TCP SNOF=TCPTB — Turns Off Transport Bridge Traces

The *TCP SNOF=TCPTB* command turns off the transport bridge message tracing started by the *TCP SNAP=TCPTB* command. It also turns off the TCP TB trace file if one is open and no other traces are active.

Format

```
TCP=SNOF=TCPTB
```

Required Parameters

SNOF=TCPTB

Turns transport bridge tracing off.

Optional Parameters

None

Example

```
TCP SNOF=TCPTB
```

Response

```
94/07/24 11:48:43 ** NO TRACES ARE ACTIVE **
94/07/24 11:48:43 *** FUNCTION COMPLETE ***
```

Explanation

This example shows the *TCP SNOF=TCPTB* command used to turn transport bridge tracing off and close the active trace file if no other traces are active.

6.3.18 TCP SNOF=TCPTS — Turns Off Transport Service Traces

The *TCP SNOF=TCPTS* command turns off the transport service message tracing started by the *TCP SNAP=TCPTS* command. It also closes a TCP TS trace file if one is open and no other traces are active.

Format

```
TCP SNOF=TCPTS
```

Required Parameters

SNOF=TCPTS

Turns off transport service traces.

Optional Parameters

None

Example

```
TCP SNOF=TCPTS
```

Response

```
94/07/24 11:48:57 ** NO TRACES ARE ACTIVE **
94/07/24 11:48:57 *** FUNCTION COMPLETE ***
```

Explanation

This example shows the *TCP SNOF=TCPTS* command used to turn transport bridge tracing off and close the active trace file if no other traces are active.

Section 7
Remote File System (RFS) Commands and Messages

This section describes RFS commands, command formats, parameters, and messages. The RFS interface works over DNS and TS/TN protocols. Use the NMS *XFER* command for TCP/IP and OSI protocols.

7.1 RFS Commands

Enter the remote file system with the *RFS* command.

Format

$$\textbf{RFS}\ [\textbf{UID}=\textit{name}]\left[,\textbf{NODE}=\left\{\begin{array}{l}\textit{name}\\ [[[n/]n/]n/]n\end{array}\right\}\right]$$

Required Parameters

None

Optional Parameters

UID

Is the user ID of the operator entering the RFS mode (used to determine the operating environment). Refer to the *Telcon Configuration Guide* (7831 5678) and the *Telcon Configuration Reference Manual* (7831 5686) for information on access validation.

$$\textbf{NODE}=\left\{\begin{array}{l}\textit{name}\\ [[[n/]n/]n/]n\end{array}\right\}$$

See Section 2.2 of this manual for a description of the *NODE* parameter.

See the *Telcon Operations Guide* (7831 5785) for more information about the *RFS* command.

Additional Information

Use RFS commands, followed by keyword parameters in the keyword=value format. The first parameter you use after the command must always be the *File=* or *From=* keyword. You can supply the remaining parameters in any order. The blank space is a separator between the command and the keyword parameters, and also between individual keyword parameters.

When an RFS command is encountered, the request is analyzed to determine the host on which the service is to be performed. The request, including all specified parameters, is then routed to the appropriate host for processing. When the processing is completed (successfully or unsuccessfully), a message showing the outcome of the processing is returned to the requesting host.

RFS commands described in this section use the following symbols:

[ ] delimits an option or set of optional items.

:: is a separator within a keyword value whenever the keyword value includes a system destination. The only system destination currently defined is NODE-ID.

/ separates items in a list of options, of which you can select only one.

< > are descriptive delimiters. The words enclosed in these symbols describe the set of characters you can use to specify a parameter value.

Table 7–1 lists the NMS copy commands and the copy operations for which they are used.

Table 7–1. File Copy Commands

Operation	Command Used
File-to-file (same node)	*COPY*
NODE-to-NODE	*XFER* or *RFS*
1100/2200 Host-to-NODE	*XFER*
NODE-to-1100/2200 Host	*XFER*

7.1.1 CREATE Command

The *CREATE* command establishes a new file on a designated host and makes it available for use.

Format

```
CREATE FILE= <NODE-ID>::<FILE-NAME>
[FILE_TYPE=UNDEFINED/RELATIVE/INDEXED/LIBRARY/SEQUENTIAL]
[DEVICE_CLASS=DISK/TAPE/DISKETTE]
[DEVICE_TYPE=<1-6 ALPHANUMERIC>]
[VOLUME=<1-6 ALPHANUMERIC>]
[REGISTER=CATALOG/VTOC]
[ACCESS=PUBLIC/PRIVATE]
[RECORD_FORM=FIXED/VARIABLE/UNDEFINED]
[RECORD_SIZE=<1-4 DECIMAL DIGITS>]
[BLOCK_SIZE=<1-9 DECIMAL DIGITS>]
[INITIAL_SIZE=<1-9 DECIMAL DIGITS>]
[INCREMENT_SIZE=<1-9 DECIMAL DIGITS>]
[MAXIMUM_SIZE=<1-9 DECIMAL DIGITS>]
[PARITY=ODD/EVEN]
[DENSITY=200/556/800/1600/6250]
```

Required Parameters

NODE-ID

Is a termination system (TS), such as a host, Telcon node, or an XTS.

FILE-NAME

Is the name of the file, and optionally, the location. If *NODE-ID* is omitted, the default value is the processor from which the command was entered into the network.

DDP allows four characters for *NODE-ID*. The host ID is the name on either a *NETADR*, *DCATS*, or the *PRSCR* statement, depending upon the destination. Telcon configuration statements allow a maximum of eight characters for any processor name, so only the first four characters in a Telcon statement are recognized when referencing a DDP processor.

The format of the file name depends on the rules of the system on which the file is to reside. You must supply the file name and security read and write keys as part of the qualifier, filename, and cycle for each system. If any of the following characters are embedded in the file name, you must specify the filename as a quoted string by enclosing it in apostrophes.

Apostrophes (`')
Commas (,)
Spaces ( )
Semicolon (;)
Exclamation mark (!)
Quotation marks (" ")
Ampersand (&)
Number character (#)

Each single occurrence of an apostrophe within the file name must be replaced by two apostrophes. DDP allows a maximum of 80 characters per file name.

FILE_TYPE

Is the file structure to employ in data storage and retrieval within the file. The default is UNDEFINED.

DEVICE_CLASS

Is the storage medium. If not specified, the default is *DISK*.

DEVICE_TYPE

Is a particular device type (within a device class) for allocation of facilities to a file. The default for this parameter is system-dependent.

VOLUME

Is the name of the volume on which the file is to reside.

REGISTER

Specifies the file registration characteristics. The default is system-dependent.

ACCESS

Specifies the access requirements. The definitions of *PUBLIC* and *PRIVATE* are system-dependent. The default is *PRIVATE* (not applicable for DCPs).

RECORD_FORM

Is the form of the logical records of a file (may be of fixed or variable lengths). The default is *FIXED*.

RECORD_SIZE

Is the maximum number of octets that make up a record of this file. The default is system-dependent.

BLOCK_SIZE

Is the number of octets that make up a block. The default is system-dependent.

INITIAL_SIZE

Is the number of units of *BLOCK_SIZE* to allocate for initial file use. The default is system-dependent.

INCREMENT_SIZE

Is the number of blocks of storage to add to the already available storage. The maximum value and the default are system-dependent.

MAXIMUM_SIZE

Is the maximum file size in *BLOCK_SIZE* units. The default is system-dependent.

PARITY

Specifies either odd or even for tape files. This parameter is meaningless for anything other than tape files. When omitted and *DEVICE_CLASS=TAPE*, the default is system-dependent.

DENSITY

Is the density to use when *DEVICE_CLASS=TAPE*. Otherwise, it is meaningless. When omitted and *DEVICE_CLASS=TAPE*, the default is system-dependent.

Optional Parameters

None

7.1.2 PURGE Command

The *PURGE* command removes a file on a designated node by returning the file space to the system and removing its entry from the catalog or designated volume.

Format

```
PURGE FILE=[<NODE-ID>::] <FILE-NAME>
```

Required Parameters

FILE=

Optional Parameters

NODE-ID

Is a termination system (TS), such as a host, Telcon node, or an XTS.

FILE-NAME

Is the name of the file, and optionally, the location. If *NODE-ID* is omitted, the default value is the processor from which the command was entered into the network.

DDP allows four characters for *NODE-ID*. The host ID is the name on either a *NETADR, DCATS*, or the *PRSCR* statement, depending on the destination. Telcon configuration statements allow a maximum of eight characters for any processor name, so only the first four characters in a Telcon statement are recognized when referencing a DDP processor.

The format of the file name depends on the rules of the system on which the file is to reside. You must supply the file name and security read and write keys as part of the qualifier, filename, and cycle for each system. If any of the following characters are embedded in the file name, you must specify the filename as a quoted string by enclosing it in apostrophes.

Apostrophes (')
Commas (,)
Spaces ( )
Semicolon (;)
Exclamation mark (!)
Quotation marks (" ")
Ampersand (&)
Number character (#)

Each single occurrence of an apostrophe within the file name must be replaced by two apostrophes. DDP allows a maximum of 80 characters for file name.

Note: *If NODE-ID is omitted, the default is the processor at which the command was entered.*

7.1.3 COPY Command

The *COPY* command allows you to do the following:

- Duplicate the entire contents of a file on one node to another node.
- Duplicate a single element or a set of elements of a specifiable type to a library.

The *COPY* command is usually split across the two nodes involved in transferring the file or element. The source file is assigned and opened on one node, and the data records are read and sent to the other node. At the second node, the destination file is assigned and opened, and the data records are received from the first node and written to the destination file. Several options are available with the *MODE* parameter to permit the *COPY* command to wait for available source and destination files.

Format

```
COPY FROM=[<NODE-ID>::]<FILE-NAME>
TO=[<NODE-ID>::]<FILE-NAME>
[SOURCE_ENCODING=ASCII/EBCDIC/TRANSPARENT]
[TRANSLATE=ASCII/EBCDIC/NONE]
[MODE=DIRECT/WAIT/INDIRECT]
[POSITION=SOF/EOF]
[ELEMENT_TYPE=SYMBOLIC/RELOCATABLE/ABSOLUTE/OMNIBUS/
MACRO/PROC/COMPILED_JOB/SCREEN_FORMAT]
```

Required Parameters

FROM

Specifies the source file for this *COPY* command.

TO

Specifies the destination file for this *COPY* command. The *TO=* parameter must follow the *FROM=* parameter.

SOURCE_ENCODING

Specifies the source file character code on the source system. The default source file character code is system-dependent.

TRANSLATE

Is the type of source file data translation to perform. The default destination file character code is system-dependent.

MODE

Specifies how long the user can wait for the file transfer. Available settings include:

DIRECT	indicates both source and destination files must be available immediately
WAIT	indicates the file transfer operation waits until both the source and destination files become available
INDIRECT	indicates the source file must be available immediately, but the transfer operation can wait for the destination file if necessary

When a file must be available immediately but is not, the command is aborted and a message to that affect is sent to the user. The default for this parameter is *DIRECT.*

POSITION

Defines whether to overwrite or extend the existing destination file. Available values are:

start-of-file (SOF)	indicates the previous contents are lost
end-of-file (EOF)	indicates the existing contents are untouched and the source file data is appended to the end of the destination file. The default value is EOF.

ELEMENT_TYPE

Is needed only when you copy elements from a library file. When omitted, SYMBOLIC is assumed. For DDP, you can copy only symbolic elements between heterogeneous host types.

Optional Parameters

NODE-ID

Is a termination system (TS), such as a host, Telcon node, or an XTS.

FILE-NAME

Is the name of the file, and optionally, the location. If *NODE-ID* is omitted, the default value is the processor from which the command was entered into the network.

DDP allows four characters for *NODE-ID.* The host ID is the name on either a *NETADR, DCATS,* or the *PRSCR* statement, depending on the destination. Telcon configuration statements allow a maximum of eight characters for any processor name, so only the first four characters in a Telcon statement are recognized when referencing a DDP processor.

The format of the file name depends on the rules of the system on which the file is to reside. You must supply the file name and security read and write keys as part of the qualifier, filename, and cycle for each system. If any of the following characters are embedded in the file name, you must specify the filename as a quoted string by enclosing it in apostrophes.

Apostrophes (' ')
Commas (,)
Spaces ( )
Semicolon (;)
Exclamation mark (!)
Quotation marks (" ")
Ampersand (&)
Number character (#)

Each single occurrence of an apostrophe within the file name must be replaced by two apostrophes. DDP allows a maximum of 80 characters for file name.

Note: *If NODE-ID is omitted, the default is the processor at which the command was entered.*

7.1.4 EXIT Command

The *EXIT* command terminates RFS control and returns control to NMS.

Format

```
EXIT
```

Required Parameters

None

Optional Parameters

None

7.1.5 FORMAT Command

The *FORMAT* command displays the input format for a remote file system command. The formats displayed are those that DDP defines and do not necessarily apply to a specific type of processor. Different types of processors may support only a subset of the displayed keywords and parameters.

Format

```
FORMAT CREATE/PURGE/COPY/HELP/FORMAT/EXIT
```

Required Parameters

NODE-ID

Is a termination system (TS), such as a host, Telcon node, or an XTS.

FILE-NAME

Is the name of the file, and optionally, the location. If *NODE-ID* is omitted, the default value is the processor from which the command was entered into the network.

DDP allows four characters for *NODE-ID*. The host ID is the name on either a *NETADR, DCATS,* or the *PRSCR* statement, depending on the destination. Telcon configuration statements allow a maximum of eight characters for any processor name, so only the first four characters in a Telcon statement are recognized when referencing a DDP processor.

The format of the file name depends on the rules of the system on which the file is to reside. You must supply the file name and security read and write keys as part of the qualifier, filename, and cycle for each system. If any of the following characters are embedded in the file name, you must specify the filename as a quoted string by enclosing it in apostrophes.

Apostrophes (' ')
Commas (,)
Spaces ( )
Semicolon (;)
Exclamation mark (!)
Quotation marks (" ")
Ampersand (&)
Number character (#)

Each single occurrence of an apostrophe within the file name must be replaced by two apostrophes. DDP allows a maximum of 80 characters for file name.

FILE_TYPE

Is the file structure to use for data storage and retrieval within the file. The default is *UNDEFINED.*

DEVICE_CLASS

Is the storage medium. If not specified, the default is *DISK*.

DEVICE_TYPE

Is a particular device type (within a device class) for allocation of facilities to a file. The default for this parameter is system-dependent.

VOLUME

Is the name of the volume on which the file is to reside.

REGISTER

Specifies the file registration characteristics. The default is system-dependent.

ACCESS

Specifies the access requirements. The definitions of *PUBLIC* and *PRIVATE* are system-dependent. The default is *PRIVATE* (not applicable for DCPs).

RECORD_FORM

Is the form of the logical records of a file (may be of fixed or variable lengths). The default is *FIXED*.

RECORD_SIZE

Is the maximum number of octets that make up a record of this file. The default is system-dependent.

BLOCK_SIZE

Is the number of octets that make up a block. The default is system-dependent.

INITIAL_SIZE

Is the number of units of *BLOCK_SIZE* to allocate for initial file use. The default is system-dependent.

INCREMENT_SIZE

Is the number of blocks of storage to add to the already available storage. The maximum value and the default are system-dependent.

MAXIMUM_SIZE

Is the maximum file size in *BLOCK_SIZE* units. The default is system-dependent.

PARITY

Specifies either odd or even for tape files. This parameter is meaningless for anything other than tape files. When omitted and *DEVICE_CLASS=TAPE*, the default is system-dependent.

DENSITY

Is the density to use when *DEVICE_CLASS=TAPE*. Otherwise, it is meaningless. When omitted and *DEVICE_CLASS=TAPE*, the default is system-dependent.

Optional Parameters

None

7.1.6 HELP Command

The *HELP* command displays the available RFS commands.

Format

```
HELP
```

Required Parameters

None

Optional Parameters

None

7.2 RFS Messages

Remote file system error messages, text messages, and status codes are generated from:

- RFS Syntax Analyzer (RFSYN)
- Distributed Data Processing (DDP). The conditions responsible for generating these messages are detected after syntax-analyzer processing.
- Local report text error messages and warnings

7.2.1 Error Messages Generated by RFS Syntax Analyzer (RFSYN)

Error messages generated by RFSYN are listed below. Explanations precede the individual error message.

Error Message 1

```
INVALID RFS COMMAND
```

Explanation

The command is not one of the valid commands: *CREATE*, *PURGE*, *COPY*, *HELP*, *FORMAT*, or *EXIT*.

Error Message 2

```
RFS SYNTAX ERROR
```

Explanation

There is insufficient data to execute the command. Possible reasons for this condition are:

- Invalid NODE IDs
- Invalid file names

Error Message 3

```
INVALID RFS KEYWORD NAME
```

Explanation

The syntax analyzer does not recognize a supplied keyword.

Error Message 4

```
INVALID RFS KEYWORD VALUE
```

Explanation

An invalid value is supplied for the specified keyword.

Error Message 5

```
UNABLE TO CREATE WORK ORDER LOG
```

Explanation

The syntax analyzer is unable to get a dynamic segment for its command ID information table.

Error Message 6

```
WORK ORDER LOG IS FULL
```

Explanation

The command ID information table is full and the syntax analyzer cannot process further commands until a slot is freed.

7.2.2 Error Messages Defined by DDP

The error codes corresponding to these messages are transparent to the operator when the text of the message displays. Table 7–2 lists the error messages defined by DDP.

Table 7–2. Error Messages Defined by DDP

Error	Description
1	PARAMETER ERROR
2	TEMPORARILY UNABLE—PLEASE RETRY
3	FUNCTION CODE NOT SUPPORTED
4	WORK ORDER HEADER ERROR
5	WORK ORDER CLASS NOT SUPPORTED
6	CHECKPOINT NOT AVAILABLE
130	FILE NAME ALREADY EXISTS
131	VOLUME SPACE NOT AVAILABLE
132	VOLUME NAME NOT AVAILABLE
133	SOURCE VOLUME NOT AVAILABLE
134	FILE TYPE NOT SUPPORTED
135	INVALID KEY SPECIFICATION
136	INVALID FILE SIZE SPECIFICATION
140	DEVICE CLASS/TYPE NOT AVAILABLE
141	DEVICE CLASS/TYPE NOT SUPPORTED
142	FILE NAME SYNTAX ERROR
160	SOURCE FILE NOT FOUND

continued

Error	Description
161	SOURCE ELEMENT TYPE NOT SUPPORTED
162	ELEMENT NAME NOT FOUND
163	SOURCE FILE NOT AVAILABLE
165	READ KEY INVALID OR MISSING
170	ERROR IN SOURCE FILE PROCESSING
180	DESTINATION FILE NOT FOUND
181	DESTINATION ELEMENT TYPE NOT SUPPORTED
183	DESTINATION FILE NOT AVAILABLE
184	WRITE KEY INVALID OR MISSING
185	DESTINATION FILE READ KEY INVALID
186	DESTINATION FILE ENCODING NOT SUPPORTED
189	FILE NOT COPIED, UNRECOVERABLE ERROR
190	ERROR IN DESTINATION FILE PROCESSING
200	HOST WITH DESTINATION FILE NOT AVAILABLE
201	EXECUTION HOST NOT AVAILABLE

7.2.3 Local Report Text Messages

RFS text messages consist of warning messages, error messages, and interprocessor communication (IPC) status codes.

Warning Messages

Table 7–3 lists the warning messages that may accompany a work order completion message.

Table 7–3. Warning Messages

Warning Message
** WARNING ** RECORD SIZE NOT SUPPORTED
** WARNING ** BLOCK SIZE NOT SUPPORTED
** WARNING ** INITIAL SIZE NOT SUPPORTED
** WARNING ** KEY SPECIFICATION NOT SUPPORTED
** WARNING ** REGISTER ENTRY CAN ONLY BE 'CATALOG'
** WARNING ** ACCESS CAN ONLY BE 'PUBLIC'
** WARNING ** RECORD FORMAT SUPPORTED
** WARNING ** MAXIMUM SIZE NOT SUPPORTED
** WARNING ** DEVICE PARITY CAN ONLY BE 'ODD'
** WARNING ** MAXIMUM SIZE DEFAULTED TO 10 BLOCKS

Error Messages

Table 7–4 lists error messages that may accompany a work order rejection message.

Table 7–4. Error Messages

Error Messages
PROTOCOL ERROR
INDIRECT MODE NOT SUPPORTED
SOURCE FILE EMPTY
ATTEMPTED TO WRITE PAST EOF IN DESTINATION FILE
OPERATOR CANCELED TAPE FILE >tape file name<
ATTEMPTED TO WRITE MORE THAN 2048 WORDS TO FILE BLOCK
TIMEOUT WAITING FOR FILE >file name<
DESTINATION NAME UNKNOWN
IPC DETECTED ERROR CLASS=>60<ipc error class>62<
/n/n/nCODE=>60<ipc error code>62<
FILE TRANSFER SESSION IS DOWN
AUTHORIZATION DENIED

7.2.4 Interprocessor Communication (IPC) Status Codes

IPC Class 3 Status Code Error Messages

Table 7–5 lists Class 3 IPC status codes, which indicate that the request was not accepted by IPC.

Table 7–5. IPC Class 3 Status Code Error Messages

Code	Description
1	AP name not found in external directory.
2	Destination name unknown.
3	Authorization denied.
4	Interface parameter unknown.
5	Interface parameter missing.
6	Conversation ID unknown.
7	Context area unavailable.
8	Exception reply pending.
9	Abort pending.
10	Command discipline violation.
11	Unknown operation request.
12	Solicited response not arrived.
13	No data.
15	Conversation not terminated on close.

IPC Class 4 Status Code Error Messages

Table 7–6 lists IPC Class 4 error codes, which indicate that the conversation was aborted locally by IPC.

Table 7–6. IPC Class 4 Status Code Error Messages

Code	Description
1	Timeout waiting for response.
2	Error on underlying level.
3	IPC logic error.
4	IPC load error.

IPC Class 10 Status Code Error Messages

Table 7–7 lists IPC class 10 status code error messages, which indicate that the request was not accepted by image transformation.

Table 7–7. IPC Class 10 Status Code Error Messages

Code	Description
1	Presentation format descriptor name unknown.
2	Presentation error.

IPC Class 128 Status Code Error Messages

Table 7–8 lists IPC class 128 status code error messages, which indicate a request error.

Table 7–8. IPC Class 128 Status Code Error Messages

Code	Description
1	Required heading item missing.
2	Header item not expected.
3	Invalid function code.
4	Invalid response type.
5	Invalid user ID.
6	Invalid external AP reference.
7	Message sequence error.
8	Invalid mode of operation.
9	Invalid priority.
10	IPC protocol procedure error.
11	Invalid header item.

continued

Code	Description
12	Version not supported.
13	Class of procedure not supported.
0	Other.

IPC Class 129 Status Code Error Messages

Table 7–9 lists IPC class 129 status code error messages, which indicate a system error.

Table 7–9. IPC Class 129 Status Code Error Messages

Code	Description
1	Load error.
2	User program check.
3	User program loop.
4	User program exceeded timeout count.
0	Other.

IPC Class 130 Status Code Error Messages

Table 7–10 lists IPC class 130 status code error messages, which indicate a recovery error.

Table 7–10. IPC Class 130 Status Code Error Messages

Code	Description
1	Recovery error.
0	Other.

IPC Class 131 Status Code Error Messages

Table 7–11 lists IPC class 131 status code error messages, which indicate an access error.

Table 7–11. IPC Class 131 Status Code Error Messages

Code	Description
1	User program issued invalid data command.
0	Other.

IPC Class 132 Status Code Error Messages

Table 7–12 lists IPC class 132 status code error messages, which indicate a user request error.

Table 7–12. IPC Class 132 Status Code Error Messages

Code	Description
1	Invalid successor ID.
2	Invalid procedural request.
3	User issued abort.

Section 8
Instrumentation Commands and Messages

This section lists the parameters and response messages for operating central processor (CP) and port processor (PP) hardware instrumentation.

See the *Telcon Operations Guide* (7831 5785) for information about the following:

- How to enable and disable instrumentation collection
- How to use the TRON command for instrumentation collection

See the *Implementation Reference Manual, Volumes 1–3* (UP–12728) for information about the following:

- The information the hardware collects into instrumentation buffers
- The format of instrumentation buffers

8.1 Controlling Instrumentation

You control instrumentation by using the Network Management System (NMS) *TRON* command. (The *TRON* command can, with fewer parameter options, be used to activate software tracing as shown in Section 2 of this manual.)

Format

```
                                    GICW-y
                                    PPID-n                                             name
TRON TYPE-name[/ name...],  {             }  [,IBPI-n][,WRAP-{y}][,NODE-{                      }]
                                    PN-{name}                    {n}           [[[n/]n/]n/]n
                                        {n   }
```

Required Parameters

TYPE=*name*

See discussion in Section 8.1.1 of this manual for the specific *TYPE* parameters allowed for CP instrumentation. See Section 8.1.2 of this manual for specific *TYPE* parameters allowed for PP instrumentation.

GICW=Y

Allows you to establish global instrumentation for all processes for this Telcon run. You must establish global instrumentation before setting instrumentation for a specific process or procedure.

PPID

Specifies the port number for which instrumentation is established. You can verify the PP interrupt control work (ICW) settings by cross checking with the general NMS *STAT* command after making a *TRON* command. The *STAT* output reports, among other things, the IOP *ICW=nn* with bit settings 0–7 from left to right, as illustrated in Table 8–2. Refer to Section 2 of this manual for more information on the *STAT* command.

PN

Specifies the procedure name or number for which instrumentation is established.

IBPI=*n*

Selects the instrumentation buffer to be used for CP or PP instrumentation. The value specified is an idx from 0 to 511 (2048/4 word items). The default is 0. Each specification of an active instrumentation buffer (IB) index requires allocation of 4K bytes of local storage for the additional IB. The *WRAP* parameter has meaning for this new IB.

The recommended procedure is to use the default of zero for meaningful data collection in user data reduction processing.

WRAP

Specifies whether the instrumentation buffer is to be reused when full (*Y*) or saved for analysis (*N*). The default (not specified) allows wraparound of the IB.

WRAP=N

Activates instrumentation data collection and logging to disk.

To turn on instrumentation, enter:

```
TRON TYPE=NONE,GICW=Y.
```

To turn off instrumentation, enter:

`TROF TYPE=HDWR`. (See the *TROF* command for more information.)

$$\texttt{NODE=}\left\{\begin{array}{l}\textit{name}\\ \texttt{[[[}n\texttt{/]}n\texttt{/]}n\texttt{/]}n\end{array}\right\}$$

See Section 2.2 of this manual for a description of the *NODE* parameter.

Optional Parameters

None

8.1.1 CP Instrumentation

The *TRON* parameters specific to CP instrumentation are as follows:

Required Parameters

TYPE

Is the parameter for global (with global ICW) and procedure (with PN) levels of instrumentation, including the levels listed here. Refer to Table 8–1 for bit descriptions.

Each specific *TYPE* name used with global ICW sets a bit in the global ICW. They include the following:

ALL sets all bits.

NONE clears all bits, except bit 0. *NONE* enables global instrumentation by setting bit 0 of the global ICW. This allows global instrumentation to execute without turning on any other trace bit. If you specify *TYPE=NONE* after other global trace bits have been turned on, they will be turned off.

PPP enables procedure trace and recording of each procedure traversed. Bit number in CP active *ICW=2.*

PQT enables queue trace. Enables each entry placed on, or removed from, a queue and pertinent queue location information to be recorded. Bit number in CP active *ICW=4.*

PLT enables link trace. Enables each item through a link area to be traced. Bit number in CP active *ICW=5.*

PMT enables MCT trace. Enables a particular message identified by software through various queues and link areas it traverses to be traced. Bit number in CP active *ICW=6.*

PBI enables build IDW. Provides a consistent and efficient method of software gathering and information storing to the instrumentation buffer. Bit number in CP active *ICW=7.*

PBU enables buffer resource utilization. Allows the execution of any buffer or space management-related activities to be counted. Updates procedure use table entry. Bit number in CP active *ICW=8.*

PPU enables procedure utilization. Allows the number of times a procedure is invoked to be counted. Updates procedure use table (PUT) entry. Bit number in CP active *ICW=11.*

PIC enables instrumentation call. Allows software instrumentation call instruction to be executed. Bit number in CP active *ICW=12.*

PPA enables path analysis. Allows software path instruction to be executed. Bit number in CP active *ICW=14.*

PN specifies the procedure name or number for which instrumentation is established.

Note: *You must use IMT (PP trace) for PMT.*

Verify the CP ICW settings by cross checking with the general NMS *STAT* command after making a *TRON* command. The *STAT* output reports, among other things, GLOBAL *ICW=nnnn* with bit settings 0–15, left to right, listed in Table 8–1. Refer to Section 2 of this manual for more information on the *STAT* command.

Table 8–1. CP Global ICW Bit Descriptions

Bit	0	2	4	5	6	7	8	11	12	14
Type	GLO	PPP	PQT	PLT	PMT	PBI	PBU	PPU	PIC	PPA

Note: *Bits 1, 3, 9, 10, 13, and 15 are not used.*

Optional Parameters

None

8.1.2 PP Instrumentation

The *TRON* parameters specific to PP instrumentation are as follows:

Parameters

TYPE

Refer to the *Implementation Reference Manual* (UP–12728) for detailed descriptions of each of the following *TYPE* field bits:

IBR enables buffer resource utilization. Allows 128-byte buffers obtained by the PP to be counted. Bit number in PP active *ICW=3.*

IQT enables queue trace. Allows entries placed or removed from queues and pertinent queue location information to be counted. Bit number in PP active *ICW=4.*

IDT enables data transfer trace. Allows initiation and termination of I/O activities using a software-defined message identifier to be recorded on a per message basis. Bit number in PP active *ICW=5.*

IMT enables MCT trace. Allows a particular message identified by software through the various queues it traverses and pertinent queue location information to be traced. Bit number in PP active *ICW=6.*

IIR enables idle resource usage. Allows software-induced port idle time to be recorded. Bit number in PP active *ICW=7.*

IDW enables build IDW. Allows certain software instructions concerned with information gathering and storage in the IB to be executed. Bit number in PP active *ICW=2.*

Invoke IDW by using the PP build IDW instruction (PBID). The instruction is used by Telcon for PP software trace entries and available for customer-defined use.

PPID

Specifies the port number for which instrumentation is established. You can verify the PP ICW settings by cross checking with the general NMS *STAT* command after making a *TRON* command. The *STAT* output reports, among other things, the IOP *ICW=nn* with bit settings 0–7, from left to right, as illustrated in Table 8–2. Refer to Section 2 of this manual for more information on the *STAT* command.

Note: *See PMT (CP trace) for complete usage.*

Table 8–2. IOP ICW Bit Descriptions

Bit	2	3	4	5	6	7
Type	IDW	IBR	IQT	IDT	IMT	IIR

Note: *Bits 0 and 1 are not used.*

Optional Parameters

None

8.1.3 Required TRON and TROF Parameters

The *TYPE* parameter is required on each *TRON* and *TROF* command. The *GICW* parameter is required on the initial *TRON* command and one of the group (*GICW*, *PN*, or *PPID*) is required on each subsequent *TRON* command.

The purpose of most *TRON* commands is to change the trace *TYPE*. In some cases, however, you may want to leave the trace *TYPE* intact and change other parameters. These cases may include the following:

- Enabling data collection to disk (*WRAP=N*)
- Disabling data collection to disk (*WRAP=Y*)
- Selecting the instrumentation buffer (*IBPI=N*)

See the *Telcon Operations Guide* (7831 5785) for more information about the instrumentation buffer.

In any of these cases, if no new trace type is to be added to the collection, you must specify one of the existing trace types for *TYPE*. In these cases, the *TYPE* parameter is strictly a dummy to satisfy the NMS required parameter constraints.

In all *TRON* commands after the first one, the *GICW*, *PN*, or *PPID* parameters are paired with the *TYPE*. The parameters designate which instrumentation control word (ICW) *TYPE* is to set. *GICW=Y* and *GICW=N* are equivalent.

8.2 Instrumentation Messages

You may see the following messages on the NMS console during the instrumentation process.

Format

```
INSTRUMENTATION IS ALREADY ACTIVE
```

Explanation

This notifies the generator that instrumentation has been previously initialized.

Format

```
PP INSTRUMENTATION TABLE NOT ESTABLISHED
```

Explanation

The port processor (PP) instrumentation table cannot be created because it requires more than 4K bytes of local storage. Get help from your local Unisys system analyst.

Format

```
PROCEDURE USE TABLE NOT ESTABLISHED
```

Explanation

The procedure use table (PUT) cannot be created dynamically because it requires more than 4K bytes of local storage. Therefore, the PUT must be created at system load time.

Format

```
REQUIRED PARAMETERS MISSING
```

Explanation

A *TRON* command did not include the *TYPE=* parameter. Reenter the command.

Format

SERVICE DENIED: INSTRUMENTATION NOT ACTIVE

Explanation

An instrumentation service has been requested before the required instrumentation environment has been set up. Initialize instrumentation with the command *TRON type=none,gicw=y.*

Format

SERVICE DENIED: INSUFFICIENT MEMORY

Explanation

A service could not be carried out due to a lack of table or buffer space. Shortage of buffer space is a transient condition. Retry.

Format

SERVICE DENIED: INVALID BUFFER INDEX

Explanation

The instrumentation buffer pointer index supplied is either out of range, or there is an incompatibility between the request and an already existing entry. For example, there is a wrap indicator mismatch.

Format

SERVICE DENIED: INVALID PROCEDURE SPECIFIED

Explanation

An invalid procedure name or number was specified on a service request.

Format

```
SERVICE DENIED: INVALID REQUEST
```

Explanation

This reflects a probable internal software error.

Format

```
SERVICE DENIED: INVALID RUN IDENTIFIER
```

Explanation

This reflects a probable internal software error.

Format

```
SERVICE DENIED: NO FREE BUFFER POINTER ENTRIES
```

Explanation

This reflects a possible internal software error.

Format

```
SERVICE DENIED: NO PP INSTRUMENTATION TABLE
```

Explanation

A PP-related service was requested, but PP instrumentation table has not been set up due to a shortage of contiguous table space. This condition is unlikely to clear and may reflect a general shortage of memory.

Format

```
SERVICE DENIED: NO PROCFMPF USE TABLE
```

Explanation

A CP-related instrumentation service was requested, but no procedure use table (PUT) was previously set up due to a shortage of contiguous table space. This condition is unlikely to clear and may reflect a general shortage of memory.

Format

```
SERVICE DENIED: SYSTEM THROTTLING
```

Explanation

The system will not allow instrumentation to be turned on while a throttle condition exists. Retry when there is no throttle condition.

Format

```
TRACE TURNED OFF
```

Explanation

A *TROF TYPE=HDWR* was given to turn off instrumentation collection for this Telcon run.

Format

```
TRACE TURNED ON
```

Explanation

The selected hardware instrumentation is turned on with a valid *TRON* parameter.

Format

```
UNDEFINED TRACE TYPE
```

Explanation

A *TRON* command did not include the *GICW*, *PN*, or *PPID* parameter. Reenter the command.

Format

```
WARNING: INSTRUMENTATION BUFFERS DISCARDED
```

Explanation

Some buffers were discarded during *TROF* processing due to an SQL5 full condition.

Format

```
WARNING: PP INSTRUMENTATION TABLE NOT ESTABLISHED
```

Explanation

DCP/OS was unable to allocate contiguous table space for the port processor identifier (PPID). CP instrumentation is initialized.

Format

```
WARNING: PROCEDURE USE TABLE NOT ESTABLISHED
```

Explanation

DCP/OS was unable to find enough contiguous table space for the PUT. Central processor (CP) instrumentation is not possible; however, PP instrumentation is initialized.

Section 9
Software Support Procedures

This section is written for systems analysts and describes the following:

- What to do if you encounter problems with hardware or software
- How to write a User Communication Form (UCF)
- What to do if you have questions or comments about the documentation
- How to suggest enhancements to the documentation
- How to log the system debug trace area
- How to maintain the dynamic network services (DNS) function

Telcon is a fully supported software product. Therefore, it is periodically updated, revised, and enhanced. Unisys provides a software correction service for the product.

9.1 Unisys Customer Support Center

IF you...	THEN contact...	AND they will...
encounter hardware or software problems while installing Telcon or program products	your site administrator	find a solution
have a problem that requires Unisys Customer Support	your site administrator	call the Unisys Customer Support Center

IF you are a customer...	AND you need...	THEN...
within the continental United States	software support	Call: 1-800-328-0440 Hours: 7 a.m. to 7 p.m. Days: Monday – Friday
within the continental United States	hardware support	Call: 1-800-328-0440 Hours: 24 hours a day Days: 7 days per week
outside the continental United States	software or hardware support	contact your local Unisys customer service representative and ask for the Support Center telephone number for your area

If a solution to your problem is on file, the Support Center tells you what to do. If no record of the problem exists, the Support Center authorizes a UCF and provides you with the following items:

- A UCF register number
- A UCF form
- Instructions for supporting materials

9.2 How to Report a Software Problem or New Feature Suggestion (NFS)

Submit a UCF to report software problems or request a new feature. Complete a separate UCF for each problem or suggestion. The Support Center uses keywords for database searching. Include as many keywords on your UCF as apply. For Telcon stops or system hangs, always include the keyword *ABORT-xxxx*, where *xxxx* is the stop or abort code.The following information can help Unisys isolate a problem:

- The level of Telcon you are using
- A dump or trace
- A listing of your configuration and any elements to which you have applied corrections
- A description of what happened just before the error occurred
- A report on the exact syntax of the last command entered before the error condition
- A copy of the status or error messages printed at the time the error occurred (be sure to check the system console, NMS console, or DCP/OS workstation)
- A description of any files (and their types) involved in the operation. Enter *@PRT,F QUALIFIER*filename* to get a description of the files. Include the file type, also.

When submitting a UCF regarding line, terminal, and terminal handler problems, be sure to provide the following:

- Telcon dump (full dump is required)
- Configuration listings indicating hung lines and terminals
- PCR listings or the corrections applied above the release level
- Hardware used
- Line monitor trace, where applicable and possible

The following is an abbreviated list of keywords to use on UCFs. This is a sample list. Refer to the information file on your release tape for the current list of keywords.

ASYNC	*BLDDIB*	*BSC*	*BSCTIF*	*CENLOG*
COMUS	*CONFIGURATION*	*DCPDUMP*	*DCPOS*	*DNA*
DOCUMENTATION	*DSA*	*DTP*	*DUAL-SCREEN*	*DUMP*
ETN	*FLOW-CONTROL*	*FULL-SCREEN*	*HARDWARE*	*HCONFIG*
I2780	*I3270*	*INITIALIZATION*	*INSTRUMENTATION*	*LAN*
LINE-HANG	*MONITOR*	*NMS*	*NTR*	*OIS*
ONLINE-CNFG	*ONLINE-DIAG*	*PACE-COUNT*	*PDN-CS*	*PDN-PS*
PERFORMANCE	*R3270*	*RBFTE*	*REM1*	*RESILIENCY*
SECURITY	*SESSION-HANG*	*SNA*	*SPERRYLINK*	*STATISTICS*
SX1100	*TAPE*	*TELCON*	*TELCONU*	*TERMINAL-HANG*
THROTTLING	*TIMEOUT*	*TNAS*	*TOMF*	*TRUNK*
TSM	*TSTN*	*TTY*	*TWISTED-PAIR*	*UDLC*
UDM	*UNISCOPE*	*USM*	*UTILITY*	*USER-OWN-CODE*
UTS20L	*UTS40*	*UTS400*	*VIDEOTEX*	*VTE*
VTR	*XFER*	*X25*	*X21*	

A comprehensive list of keywords is maintained in the PRIMUS product validation profile (PVP) for Telcon. Contact your Unisys representative for more information on PRIMUS.

The following is a list of components. Select only one. If no component is selected, the component TELCON will be assigned.

ASYNC-UTS	*BSC*	*CAP/WARE*	*CENLOG*	*CFACCS*
CNMS	*DCP-LAN*	*DCPOS*	*DDN-GATWAY*	*DMF-PFC*
DNS	*DTP-DTPX*	*DUC*	*EUSERV*	*FILE-MGT*
HARDWARE	*HOST-CHANNEL*	*I-R3270*	*ILM*	*ILM-FDDI*
ILM-HDLC	*ILM-ISDN*	*ILM-PLAT*	*ILM-SDLC*	*ILM-TR*
ILM-UDLC	*LOADER-CMPLX*	*NIF*	*NMS*	*NTR*
ONLINE-CNFG	*ONLINE-DIAG*	*OSITS*	*PDN-CS*	*PDN-PS*
PLATFORM	*PP-HOOKS*	*REM1*	*REMOTE-FILES*	*RTC*
SNA	*SNA-NET*	*SRC*	*STATDCR*	*STATDCR*
SUPER	*SX1100*	*SYS-GEN*	*SYS-INIT*	*TCP-IP*
TELCON	*TELCONU*	*TOMF*	*TPP*	*TRS*
TSM	*TSTN*	*TTY*	*UDLC*	*UNISCOPE*
USER-DOC	*USM*	*XFER*		

9.3 How to Submit Corrections and Comments on Documentation

If you find an error in the documentation, or if you want to suggest improvements, you can:

- Fill out the user comment form at the back of the document and return it to Unisys.
- Submit a UCF, just as you would for a software problem or feature suggestion. Refer to subsection 9.2 for instructions.

If you submit a UCF, include the following document information.

Table 9–1. UCF Information for Documentation

Item No.	Item Name	What to Enter	Example
1	Class	Documentation	Documentation
2	Form	Indicate whether you are submitting a correction or a suggestion.	Improvement suggestion
15	Product style	Product name	Telcon
16	Product level	Product level	9R2
17	Component	USER-DOC	USER-DOC
25,27	Supporting materials	Indicate if you are including document pages with the UCF.	Yes, p. 3–33 of the Telcon Configuration Reference Manual (7831 5686–100)
35	Detailed description	Describe the documentation error and give your suggested change.	

9.4 Telcon Debug Trace and Analysis Procedures

CD5R4 implemented a new Telcon debug tracing procedure. This new process provides the following advantages:

- Increased throughput
- Increased debug trace area memory size

9.4.1 How to Use Debug Trace Functions

Use the following steps to extend the debug trace memory area, take SNAP dumps of Telcon, analyze the trace online, and transfer the dump or dumps to the host for hard copy processing.

Step	Action
1	Activate the debug traces you specify. Follow these steps: 1. Use the NMS *TROF* command to turn off any traces that may be active. 2. Choose the debug traces you want to activate. 3. Use the NMS *TRON* command to turn on the debug trace. See Section 2 of this manual for information on how to operate the NMS *TRON* and *TROF* commands.
2	Use the NMS *DBUG* command to specify the trace area memory size. The trace area memory size can be expanded to record from 100 to 2,700 trace entries. See Section 2 of this manual for more information on how to operate the NMS *DBUG* command. ***Note:*** *Telcon no longer uses CENLOGs to automatically write trace entries to a file. If you want to write trace entries to a file, you must follow the procedures in Step 3 of this table.* **continued**

<table>
<tr><th>Step</th><th>Action</th></tr>
<tr><td>3</td><td>Write the debug trace to a dump file by using the following procedure:

1. Turn off all debug traces with the NMS TROF command. If debug tracing is still active, the system continues to write new, or overwrite existing, traces.

2. Use the DCP/OS @@CONS SNAP command in the following format to capture Telcon traces to a dump file:

<code>@@CONS SNAP TELCON,SYS$*SYSDUMP</code>

@@CONS is the DCP/OS console mode command.

SNAP is the DCP/OS snapshot dump command.

TELCON specifies you want a dump of run: TELCON.

SYS$*SYSDUMP specifies the name of the file where the dump is captured.

You may have to take multiple SNAP dumps to capture the information you require.

For more information on the @@CONS and SNAP commands see the DCP/OS Operations Reference Manual (7831 5702).</td></tr>
<tr><td>4</td><td>If you want to analyze the dump online, you must use the DCP/OS @DMPI dump inspect utility. Use the following procedure to display a dump:

1. Enter the @DMPI command in the following format:

<code>@DMPI,A SYS$*SYSDUMP.</code>

@DMPI specifies the DCP/OS dump utility.

A is an option of the @DMPI utility specifying you want to analyze a dump file.

SYS$*SYSDUMP specifies the filename of the dump.

A menu of file analysis functions is displayed (see example in Section 9.4.1.1 of this manual).

2. Enter T at the command prompt. T specifies that the @DMPI utility display the trace buffer entries. The trace buffer is displayed.</td></tr>
<tr><td>5</td><td>If you want to save the dump to the host, use the NMS XFER command. For information on the XFER command see Section 2 of this manual.</td></tr>
<tr><td>6</td><td>Reset the size of the trace to the default (300 entries with the NMS DBUG command). This frees additional memory for processor applications.</td></tr>
</table>

9.4.1.1 An Example of Debug Trace Output Using the DCP/OS @DMPI Utility

The following is an extraction of the output produced using the DCP/OS *@DMPI* utility.

Example

```
@DMPI, A SYS$*SYSDUMP.
```

Response

```
DMPI 5R4.01  [RSYS-7R4.000] - FRI 06 AUG 1993 13:04:14

-------------------------------------------------------
FILE ANALYSIS FUNCTIONS ARE :-
C - DISPLAY A SPECIFIC CONTEXT [1-N].
E - END FILE ANALYSIS MODE.
F - RE-DISPLAY FIRST PAGE.
H - DISPLAY THIS HELP INFORMATION.
I - DISPLAY PP ICT DATA.
M - DISPLAY REAL MEMORY GRANULE.
N - [OR XMIT] DISPLAY NEXT PAGE.
S - DISPLAY SYSTEM VIRTUAL MEMORY.
T - DISPLAY RUN TRACE BUFFER ENTRIES.
V - DISPLAY USER VIRTUAL MEMORY.
-------------------------------------------------------

FILE SYS$*SYSDUMP CONTAINS A DUMP DATED 09:13:22 ON 07/24/94.

DCP NUMBER  = 6011              PROGRAM     = TELCON
ERROR CODE  = 040A              ERROR TYPE  = 8282
FAILING PN  = 00EF [DTP]        ERROR ADDR  = 129F
SAVED CONTEXT COUNT = 32
FAILING PID = 010C, CONTEXT NUMBER 7

                                       SCRS
00-07 8000A200 000B8000 04E00C00 000AC000 00000000 00100898 009C0000 22AF015C
08-15 0000DC08 00000000 0006AC80 00000000 04000404 FA8AA00C 00000000 00003303

NEXT FUNCTION [C/E/F/H/I/M/N/S/T/V/]

►T
```

```
-------- LAST 8 ENTRIES --------

->293.  RTC=09:13:04.216  PID=0104  PN/NAME=00EF/DTP       PSW=4ADD  PARM=0016
0241 0016 0000 0EEE 0000 08D0 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000

->294.  RTC=09:13:09.217  PID=0104  PN/NAME=00EF/DTP       PSW=4ADD  PARM=0016
0241 0016 0000 0EEE 0000 08D0 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000

->295.  RTC=09:13:14.218  PID=0104  PN/NAME=00EF/DTP       PSW=4ADD  PARM=0016
0241 0016 0000 0EEE 0000 08D0 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000

->296.  RTC=09:13:19.219  PID=0104  PN/NAME=00EF/DTP       PSW=4ADD  PARM=0016
0241 0016 0000 0EEE 0000 08D0 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000

->297.  RTC=09:13:22.815  PID=0100  PN/NAME=04AB/TP        PSW=11D1  PARM=0002
0221 0002 0000 0003 1049 0013 2700 3FB5 1303 C011 522A 4642 2F2D D201 0681 8480

->298.  RTC=09:13:22.815  PID=0100  PN/NAME=04AB/TP        PSW=11D1  PARM=0004
0221 0004 01EA 0003 0013 2700 3FB5 1303 C011 522A 4642 2F2D D201 0681 8480 581D

->299.  RTC=09:13:22.816  PID=010C  PN/NAME=00EF/DTP       PSW=19F3  PARM=01EA
0241 01EA 00F1 F61C 0000 1327 003F B513 03C0 1152 2A46 422F 2DD2 0106 8184 8000

->300.  RTC=09:13:22.817  PID=010C  PN/NAME=00EF/DTP       PSW=19F3  PARM=003F
0241 003F 127E 0008 0000 1303 C011 E901 0380 0000 0000 0000 0000 0000 0000 0000

NEXT FUNCTION [C/E/F/H/I/M/N/S/T/V/]
```

Explanation

The first portion of the response shows the *@DMPI* analysis options menu followed by basic information about the dump file. The "T" option is entered, and the second portion of the response is displayed showing trace debug entries. Entries are listed in groups of eight and in order of most recently traced. Therefore, the last entries displayed are the first traces recorded.

Each entry is made up of two lines of data. The first line includes the following fields:

->300.

Is the number of trace entry displayed.

RTC=

Is the real-time clock (RTC).

PID=

Is the process ID (PID).

PN/NAME=

Is the procedure number or name.

PSW=

Is the program state word or program offset.

PARM=

Is the parameter value passed to the debug processor.

The second line comprises registers 0 through 15.

9.5 Maintaining Dynamic Network Services (DNS)

Maintaining DNS can involve using one or more of the following:

- NMS commands *SDNS*, *MOD*, *UPDT*, or *INIT*. (Refer to Section 2 of this manual for more information about these commands.)
- Dump analysis (specific control structures for the network layer as part of the standard DCP dump analysis program.)
- Critical Event Notification and Loggins (CENLOG)
- Diagnostic Aids Program (DAP)

9.6 NMS *TRAC* Commands

You can use the NMS *TRAC* command to extract detailed information about the DNS network layer for analysis or as additional UCF data to send to the Unisys Support Center. The traces collected can be sent to an NMS console, a trace file, or both.

The trace file created using the NMS *TRAC* command can be transferred to the OS 2200 system using the NMS *XFER* command. The trace file on the OS 2200 system can be analyzed using the Telcon *TRACEEDIT*. The absolute element (ABS) of this reduction program is provided on the Telcon release tape in the *LIBABS* file. A formatted trace listing can be obtained by executing the OS 2200 *TRACEEDIT* program.

9.6.1 DNS TRACE Command Index

The following table provides a list of DNS *TRACE* commands.

Table 9–2. DNS TRACE Commands

Command	Function
TCAT	catalog trace files
TCLS	close trace files
TOPN	open trace files
TSWT	switch trace files
SNAP	turn on snapshot levels
SNOF	turn off snapshot levels

9.6.1.1 *TCAT* Command

Use the *TCAT* command to catalog a specific number of trace files and to automatically open the first file.

Format

```
TRAC TCAT [VOL=vol][,FILE=name][,NUM=number][,SIZE=size][NODE={name | [[[n/]n/]n/]n}]
```

Required Parameters

None

Optional Parameters

VOL=*vol*

Is the volume name of which the file is a part. The default is any currently available volume.

FILE=*name*

Is a six character partial file name. The default is *T@RACE*. The file names are a concatenation of the specified partial name and 00 through - *NUM*-minus-1. *T@RACE00* and *T@RACE01* are sample partial file names.

NUM=*number*

Is the number of trace files. The default is 2 and the maximum is 30.

SIZE=size

Is the number of 256-byte blocks for each file. The default is 1,000 and the minimum is 100.

$$\text{NODE=}\begin{Bmatrix} \textit{name} \\ [[[n/]n/]n/]n \end{Bmatrix}$$

See Section 2.2 of this manual for a description of the *NODE* parameter.

9.6.1.2 TCLS Command

Use the *TCLS* command to close any active trace files. You can send retrieved, closed trace files to the OS 2200 host for editing.

Format

```
TRAC TCLS [NODE={name
                {[[[n/]n/]n/]n}]
```

Required Parameters

None

Optional Parameters

```
NODE={name
     {[[[n/]n/]n/]n}
```

See Section 2.2 of this manual for a description of the *NODE* parameter.

9.6.1.3 TOPN Command

Use the *TOPN* command to open the next available trace file. A reused file is deleted, cataloged again, and opened.

Format

```
TRAC TOPN [NODE={name | [[[n/]n/]n/]n}]
```

Required Parameters

None

Optional Parameters

NODE={*name* | [[[*n*/]*n*/]*n*/]*n*}

See Section 2.2 of this manual for a description of the *NODE* parameter.

9.6.1.4 TSWT Command

Use the *TSWT* command to close the current open file and open the next file.

Format

```
TRAC SNAP xxxx TYPE=type,DATA=data[,NODE={name
                                         [[[n/]n/]n/]n}]
```

Required Parameters

None

Optional Parameters

```
NODE={name
     [[[n/]n/]n/]n}
```

See Section 2.2 of this manual for a description of the *NODE* parameter.

9.6.1.5 SNAP Command

Use the *SNAP* command to turn on the trace for three separate levels of data messages and tables. The traces you turn on using this command are sent to either the NMS console or to disk. The levels of information that you can trace are included in the description of the *TYPE=* parameter.

Format

```
TRAC SNAP xxxx TYPE=type,DATA=data[,NODE={name | [[[n/]n/]n/]n}]
```

Required Parameters

xxxx

Type of trace to be performed. xxxx must specify one of the following values:

DNS traces DNS control messages
DNMA main path DNS traces
DNCB control block access traces
DNLM logical link machine traces
DNSM DNS submanaged program
DNSU NSU interface traces
DNRM routing machine traces
DNTM timer routine traces
DNUT DNS utility routine traces

TYPE=*type*

Indicates the trace level. The trace level can be one or more of the following:

C traced data to be displayed on the NMS console. **C** is used with the **L**, **M**, or **H** values.
L low tracing volume. Provides overview level trace information; typically state events.
M medium tracing volume; typically internal operations.
H high tracing volume. Provides detailed tracing information; typically data.

DATA=data

Identifies a specific entity to trace (2 bytes). For example, if you specify a DNRM trace, the data represents a subject node ID. Table 9–3 describes the relationship between trace types and data values. A value of zero specifies that all entities are traced.

```
NODE={name | [[[n/]n/]n/]n}
```

See Section 2.2 of this manual for a description of the *NODE* parameter.

Optional Parameters

None

Table 9–3. Trace Types/Data Values

Trace Type	Data Value
DNS	Not applicable
DNMA	Not applicable
DNCB	Not applicable
DNLM	Not applicable
DNSM	DNS Submanaged program
DNSU	Not applicable
DNRM	Subject node ID
DNTM	Not applicable
DNUT	Does not apply (should be zero, if entered)

9.6.1.6 SNOF Command

Use the *SNOF* command to turn off snapshot tracing of the trace types specified in the *SNAP* command.

Format

```
TRAC SNOF xxxx TYPE=trace-type,[NODE={name | [[[n/]n/]n/]n}]
```

Required Parameters

xxxx

Is the type of trace to be performed. xxxx must specify one of the following values:

DNS	all DNS traces
DNMA	main path DNS traces
DNCB	control block access traces
DNLM	logical link machine traces
DNSM	DNS submanaged program
DNSU	NSU interface traces
DNRM	routing machine traces
DNTM	timer routine traces
DNUT	DNS utility routine traces

TYPE=*trace-type*

Identifies the trace level. The trace level can be one or more of the following:

C	traced data to be displayed on the NMS console. **C** is used with the **L**, **M**, or **H** values.
L	low tracing volume. Provides overview level trace information; typically state events.
M	medium tracing volume; typically internal operations.
H	high tracing volume. Provides detailed tracing information; typically data.

Optional Parameters

```
NODE={name | [[[n/]n/]n/]n}
```

See Section 2.2 of this manual for a description of the *NODE* parameter.

9.6.1.7 SNAP Console Display Command

The following is an example of the *SNAP* Console Display command.

Format

```
*** iiii SNAP ***
RTC=rrrrrrrr LEVEL=v DIR=dddd FAC-ID=ffff
SNAP-ID1=ssssssss SNAP-ID2=SSSS
R0-R7=  ---- ---- ---- #### #### xxxx xxxx xxxx xxxx
R8-R15= xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx
ADDR   HEXADECIMAL                                  ASCII
0000   zzzz ......                                  aaaa ..
 .          .                                        .
END DISPLAY
```

Required Parameters

iiii

Is the trace type.

rrrrrrrr

Is the RTC value.

LEVEL=*v*

Is the trace program level.

DIR=*dddd*

Is the direction of data (input or output).

FAC-ID=*ffff*

Is the data value being monitored.

Ssssssssss

Is the trace identifier.

SNAP-ID2=SSSS

Is the trace identifier.

R0-R7= and R8-R15=*####*

Are not relevant.

HEXADECIMAL=*zzzz*

Is the trace-dependent data.

ASCII=*aaaa*

Is the ASCII representation of trace data.

Optional Parameters

None

Example

```
TRAC SNAP=DNLM,TYPE=H
```

Explanation

This command performs a high-volume trace of *DNLM*.

9.6.2 OS 2200 Trace Edit Utility

The trace edit utility provides data reduction for snapshot trace files transferred to an OS 2200 host file (using the *XFER* command). A processor call to *TRACEEDIT* results in an edited print listing of trace data.

The *TRACEEDIT* absolute element (ABS) is provided in the *LIBABS* file on the Telcon release tape as a category 3 support item. The source elements are available for generation or modification and regeneration of a new ABS. Refer to the *LIBREL.DOC* element on the Telcon release tape for specific information.

The following is the processor call to *TRACEEDIT*:

Format

```
@ASG,A file-name
@TEL*LIBABS.TRACEEDIT file-name
@EOF
```

Explanation

Use the NMS *XFER* command or the DCP/OS *COPY* facility to retrieve the trace file from the DCP. The OS 2200 files created by the *XFER* command are in word-addressable format. When the DCP/OS copy facility is used to transfer the trace file from the DCP to the OS 2200 for analysis, you should specify the D value in the *TYPE=* parameter of the OS 2200 *@CAT* control statement to indicate that a word-addressable file is required. There are no processor call options. The format of the edited listing is the same as the *SNAP* console display.

Edit Options

Trace entry edit options are provided for the maximum number of trace edit pages (*PAGE*), for the start trace edit time (*SRTC*), and for the end trace edit time (*ERTC*) for snapshot trace entries. The edit options are multiline input parameters; they must be in uppercase. The edit options must also start in column 1, after the processor call.

Example

```
@TEL*LIBABS.TRACEEDIT file-name
PAGE
200
```

9.6.2.1 PAGE Option

The maximum amount of trace edit pages default is 1,000. You can increase or decrease this number by using the *PAGE* option.

Format

```
PAGE
maximum number of pages
```

Required Parameters

PAGE

Identifies the *PAGE* option

maximum number of pages

Is the maximum number of pages

Optional Parameters

None

Example

```
PAGE
200
```

Explanation

This sets the maximum number of pages at 200.

If the maximum number of pages is exceeded before you edit all entries in the trace file, the following message appears at the end of the trace listing:

```
*****MAX. PAGES EXCEEDED
```

9.6.3 SRTC/ERTC Options

You can use the *SRTC* and *ERTC* options to set the start trace edit time and the end trace edit time. The default *SRTC* is 000000. The default *ERTC* is 235,959.

Format

```
SRTC (or ERTC)
xxxxxx
```

Required Parameters

SRTC (or ERTC)

Is the start (or end) trace edit time

xxxxxx

Is the start (or end) time in `hh:mm:ss` format

Optional Parameters

None

Example

```
SRTC
095000
```

Explanation

This command sets the start trace edit time at 09:50:00. Trace editing starts at the first entry at or after the specified time and ends at 23:59:59, or at the end of the trace file, whichever comes first.

Appendix A
Using the ICS Program and ICS Operator Commands

Interprocess Communication System (ICS) provides the parallel processing capabilities for the Enterprise Network Services (ENS) program product. ICS consists of a communication processor (CP)-based ICS manager program and an ICS component within participating ILMs. ICS manages the ILMs that are owned by ENS and handles communications between ENS applications, such as IPX or SNMP.

This appendix describes how to access the ICS program, use ICS and ILM commands, and interpret ICS error codes. For a complete description of ENS, refer to the *ENS Configuration and Operation Guide* (7441 2065).

Running the ICS Program

ICS is installed as part of a Telcon/ENS installation. The ICS program is started automatically when the runstream ENSCHIC detects that the necessary components for ENS are available on the DCP.

ICS can also be executed in demand mode. In demand mode, only one ICS program can run at one time per partition. If you try to start another ICS program, ICS automatically terminates.

The following describes the format of the ICS program call line. The options, except for the H option, can be displayed and modified while ICS is running by using the *OPTION* command.

Format

*@qual*file.*ICS[,*options*] [*command-file*]

Options

B causes the ICS to reboot the system if an ICS contingency error is detected. The B option takes precedence over the K option. If neither option is set, ICS logs and cleans up any non-fatal contingency errors and continues running.

C displays CENLOGs at the ICS console. If in batch mode, also adds CENLOGs to the spool file.

E displays extended CENLOGs at the ICS console. If in batch mode, also adds extended CENLOGs to the spool file.

H displays a help message describing this syntax.

K Aborts (kills) ICS if an ICS contingency error is detected. The B option takes precedence over the K option. The default (neither option set) is for the ICS to log the non-fatal contingency error information and continue running.

P enables P$TRAP mode by preventing the ICS run from registering for dispatch in the case of an @@X C keyin. Applies to demand mode only.

V displays internal activity (demand mode) or adds it to the spool file (batch mode).

Parameters

*qual*file.* is the name of the file containing the executable ICS element.

command-file is the name of a file (*qual*file.*) or element (*qual*file.element*) containing the initial ICS commands.

ICS Runstreams

To run ICS in batch mode, you can use the default runstream or create your own runstream. The following is an example of an ICS runstream. This runstream is assumed to be in the element `ICS*RUN.ICSRUN`.

Runstream	Action
@RUN ICS,,ENS	The batch run-name is ICS and the project ID (qualifier) is ENS.
@CRASH,F ENS*ENSDUMP	If the ICS program aborts, a full memory dump is written to the file ENS*ENSDUMP. A full memory dump is recommended because the ICS interacts with other programs.
@ENS*ENSLIB.ICS	Executes the ICS program.
@START ICS*RUN.ICSRUN	Restarts this runstream automatically after an ICS program termination.

See the *DCP/OS Series Operations Reference Manual* for details on how to use the *ST*, *@START*, *@ADD*, and *@CRASH* commands to execute runstreams under DCP/OS.

Accessing the ICS Interfaces

The ICS program includes two sets of operator commands: ICS and ILM Platform. ICS commands are used to perform line module operations such as changing dump options, getting status, and loading and initializing line modules. ILM Platform commands incorporated in ICS were originally from the Telcon ILM Platform and include functions such as diagnosing ILM problems, checking ILM status, controlling ILM traces, displaying statistics, and switching ILM software levels..

ICS operator commands are accessed by either of the following interfaces:

- ENS menus on an NMS console
- DCP/OS console

These interfaces are invoked differently. On an NMS console, there is an ENS menu for ICS commands and a separate ENS menu for ILM Platform commands. On a DCP/OS console menus are not used; rather, both types of commands are entered at the prompt. However, the format of the commands is consistent between the NMS and the DCP/OS consoles. The following subsections explain how to access the ICS operator commands from the different interfaces.

Accessing ICS from a DCP/OS Workstation (Console Mode)

Use the following steps to access ICS operator commands from a DCP/OS workstation in console mode.

Step	Action

1	Enter the following command:
	`II <ics-run-name>`
	An interrupt is sent to the ICS program asking it to enter command mode, if it isn't already in command mode.
	The following prompt appears:
	`n=ICS   : Enter an ICS command (enter HELP for assistance.)`
	where:
	n is the run number of the ICS program.

2	Enter an ICS command in the following format: `n <command>` where: *n* is the run number in the prompt. *command* is an ICS command. (See "Using ICS Commands," later in this section.)
3	To exit command mode, enter the following command: `n EXIT` where: *n* is the run number in the prompt displayed after entering an ICS command.

Accessing ICS from a DCP/OS Virtual Workstation (Demand Mode)

To enter ICS operator commands from a DCP/OS workstation in demand mode, follow these steps.

Step	Action
1	Enter the following command: `@RUN,X run-name,,project-id` where: *run-name* is the name of the user's run. *project-id* is the name of the project identifier (optional). The X option puts you in console mode. If this option is not entered, you must use the @@CONS command. If you do not enter console mode, ICS prompts and responses are not displayed.
2	Enter commands as explained earlier in "Accessing ICS from a DCP/OS Workstation (Console Mode)."

Accessing ICS from an NMS Console

To connect to ENS from an NMS console and display the **ENS Main Menu**, follow these steps:

Step	Action
1	At an NMS console, enter the following command: ▸*ENS* If the connection to CIM-MENU fails, the following prompt appears and you must try the *ENS* command again. CIM-MENU is not registered with ICS. OR NMS has disconnected from CIM-MENU. If ENS is installed, the following prompt appears: : Connection to CIM-MENU in progress. Connected to CIM-MENU. If the connection to ENS is successfully established, the **ENS Main Menu** appears, as follows: ▸Main Menu ▸1 - Network Application Access ▸2 - ICS Command Mode ▸3 - ILM Platform Command Mode ▸4 - Help ▸5 - Exit ENS Menu System ▸Enter selection:
2	To access standard ICS commands in command mode, enter 2 (**ICS Command Mode**). The following prompt displays: Entering ICS Command Mode. Enter "CLOSE" to return to the Main Menu. Enter an ICS command (enter "HELP" for assistance.) See the subsection "Using ICS Commands," later in this section for information on ICS commands.

3	To access ILM commands, enter 3 (**ILM Platform Command Mode**). The following prompt displays: Entering ILM Platform Command Mode. Enter "CLOSE" to return to the Main See the subsection "Using ILM Platform Commands," later in this section for information on ILM Platform commands. ***Note:*** *Only one user at a time per Telcon may access ENS menus. If a second user attempts to access ENS applications, this user will receive an error message.*

Refer to the *Enterprise Network Services Configuration and Operations Guide* (7441 2065) for more information on the ENS menu and information on how to operate network applications, such as the SNMP agent and IPX router.

Using ICS Commands

Table A-1 summarizes ICS commands. Some of the ICS commands are similar to ILM commands implemented by Telcon, such as *LOAD*, *DUMP*, and *FREE*, although ICS use of these commands varies somewhat from regular Telcon usage.

Table A–2 summarizes the ILM Platform commands included with ICS.

ICS command syntax resembles the DCP/OS command format rather than the NMS command format. ICS commands may be abbreviated to the point where they are not ambiguous. The required characters for unambiguous abbreviated ICS commands are underlined in the following table. Asterisks indicate ICS commands that are similar to the ILM Platform commands.

Table A–1. ICS Operator Commands

Command	Function
ABORT	Terminates and dumps the ICS program. Dismantles all ICS connections. Terminates all ports controlled by this ICS node.
COMMD	Executes the contents of the specified ICS command file or element. This file or element must contain a sequence of ICS commands.
*DUMP	Sets the dump options for an ILM port. To dump the ICS program on the CP, use the ABORT command or the DCP/OS SNAP command. (Note that the DCP/OS SNAP command is not the same as the ILM SNAP command).
EXIT	Leaves command or interactive mode. ICS commands are no longer solicited from the operator and the command prompt no longer appears.
*FREE	Frees an ILM port from ICS control. Terminates the port, dismantles ICS connections, and deletes the ILM from the ICS system.
HELP	Displays help information for a particular ICS command or list all valid commands.
ILM	Sends a command to the ILM Platform. This command may be used to invoke an ILM Platform command that is not included in Table A-2.
INIT	Initializes (load and start) an ILM port. This function combines the LOAD and STRT commands into a single command.
LEVEL	Displays the level (version) of the ICS program and the time and date at which the program started running.
*LOAD	Loads an ILM with the indicated ILM software. Do not start the port.
MORE	Displays queued ICS console output. Used to display additional screen pages when command output exceeds one screen (e.g., for QUERY or SUMMARY commands).
OPTION	Displays or toggles ICS command line options.

Command	Function
QUERY	Displays information on selected ICS users.
QUIT	Terminates the ICS program. Dismantles all ICS connections. Terminates all ports controlled by this ICS node.
REM	Remark. This command does nothing but may be included in a command file for readability.
RESET	Performs a hard reset on an ILM port. This may be necessary before loading new ILM software.
STRT	Starts an ILM port that is already loaded. The LOAD and STRT commands together perform the same function as the INIT command.
SUMMARY	Displays a summary of ICS nodes or ICS activity within a specified ICS node

ABORT

Terminates and dumps the ICS program. Use the *ABORT* command only if the program is not operating predictably or is hung.

Notes:

1. *Using the ABORT command deactivates all ILMs under ICS control.*

2. *The dump file must be selected ahead of time via the @CRASH DCP/OS utility . Once a dump file has been generated, it can be inspected via either the @IDUMP or the @DMPI utility, or it may be copied to an OS2200 host and processed via the @DCPDUMP utility. These dump utilities are described in the DCP/OS Operations Reference Manual (7831 5702).*

To generate a program dump **without** terminating the ICS program, use the DCP/OS console command *SNAP*. See the *DCP/OS Operations Reference Manual* (7831 5702) for information on the *SNAP* command.

Format

```
ABORT
```

or

```
A
```

COMMD

A command file (or element) is an ASCII (symbolic) file/element in which each line contains one of the ICS operator commands. The *COMMD* command causes the ICS to execute the contents of the specified command file or element, as though the individual commands were entered from a console. This command is useful if a large number of commands must be executed repeatedly. However, some ILM commands require that the operator wait before typing in the next command for the same ILM. For example, a *RESET* command followed by a *LOAD* and a *COMMD* command does not wait for responses between commands. The commands in the command file or element will generally be completed by the ICS in parallel instead of serially, if they take any significant amount of time.

Format

COMMD command-file

or

C command-file

Parameters

command-file	is the name of a symbolic file or element containing the sequence of ICS commands to execute.

DUMP

Adjusts the dump options for a particular ILM port or forces ICS to immediately dump the ILM microcode to a DCP/OS file and to terminate the port. This command should be used if an ILM is not operating predictably and you need more information about the problem.

Note: *ILM dumps should be generated sparingly since they require large amounts of mass storage on the DCP.*

Dump options tell the ICS whether to dump the ILM microcode to a file if the ILM aborts. This is useful for tracking certain types of ILM problems, but again it should be used sparingly because of the large amount of mass storage required. The name of the dump file is *ENS$*ILMDMPnn.*, where *nn* ranges from 00 to 02. If a dump file of the reserved name already exists, the existing file is deleted and re-cataloged for the new dump. ILM dumps triggered by the ICS are processed the same way as ILM dumps generated by Telcon.

Format

DUMP[,*options*] port-id

or

DU[,options] port-id

Options

F	Force an immediate termination and dump of the ILM.
C	Cancel the previously set dump option. The ILM will **not** be dumped if a state item occurs.
(none)	Dump the ILM if a state item occurs.

Parameters

port-id is the number of the ILM port for which dump options are to be set. This number is assumed to be decimal if no leading zero is entered and hexadecimal if a leading zero is entered.

EXIT

Terminates the ICS command mode. The ICS program will no longer solicit operator input. This may be used to prevent unauthorized users from sending operator commands to the ICS or to remove an unwanted prompt or solicitation from the console screen. To re-enter ICS command mode, use the II command on a DCP/OS console or workstation (see above).

Format

EXIT

or

E

FREE

Frees an ILM port from ICS control. This ILM can then be restarted with the *INIT* command or used by another run. The *FREE* command clears any restart or dump options previously set by *DUMP*, *INIT*, *LOAD*, or *STRT* commands.

Format

FREE *port-id*

or

F port-id

Parameters

port-id is the port number of the ILM to be freed from ICS control. A leading zero indicates that the number is hexadecimal; otherwise it is decimal.

HELP

Displays a list of available ICS operator commands or displays the syntax of a particular command.

Format

HELP [*command-name*]

Parameters

command-name

is the name of the command for which help information is needed. If no *command-name* is provided, a list of ICS commands is displayed.

ILM

Sends a command string to the ILM Platform. This command may be used to execute an ILM command that is not listed in Table A-2.

Format

ILM *ilm-command*

or

IL *ilm-command*

Parameters

ilm-command One of the commands currently supported by Telcon.

INIT

Loads an ILM with the ILM software in the indicated file or element and then starts the ILM port. This command is equivalent to using the *LOAD* command followed by the *STRT* command. Its primary use is in a development environment or if a new ILM is being brought online manually. Optional parameters let you tailor the ILM initialization process.

Format

INIT[,*options*] *port-id*[,*hrdwr-id*] *mcode-file*[,*mcode-id*]

or

IN[,*options*] *port-id*[,*hrdwr-id*] *mcode-file*[,*mcode-id*]

Options

D	triggers an ILM dump if the ILM fails.
F	forces a microcode load even if the ILM has previously been loaded. The default is to allow a short load with previously loaded microcode.
L	reloads the ILM automatically after a failure (equivalent to using the *LOAD,F* command).
S	restarts the ILM after a failure (equivalent to using the *INIT* command without options).
S and L	reloads the ILM automatically and restarts the ILM after a failure (equivalent to using the *INIT,F* command).

Parameters

port-id	is the port number of the port to be loaded. The number is assumed to be hexadecimal if it has a leading zero and decimal otherwise.
hrdwr-id	is a numeric value that will be compared with the hardware identifier of the line module. If the two values do not match, the *INIT* command will abort. The number is assumed to be hexadecimal if it has a leading zero and decimal otherwise.
mcode-file	is the name of the file (*qual*file.*) or element (*qual*file.element*) containing the microcode to load into the line module.
mcode-id	is a numeric value that will be compared with the microcode identifier for the line module after the load has completed. If the values do not match, the command is aborted with an error. The number is assumed to be hexadecimal if it has a leading zero and decimal otherwise.

LEVEL

Displays the current level or version number of the ICS program, along with the time and date at which the program started running.

Format

LEVEL

or

LE

LOAD

Loads the ILM with the ILM software in the indicated element but does not start the ILM port. It is primarily used in a development environment when an external debugger on the ILM requires that the port be loaded before the debugger can be used but should not be started until after an operator dialogue with the debugger.

The *STRT* command is used after the debugging environment is initialized to start the ILM software. The *LOAD* command allows optional parameters to further tailor the ILM initialization process.

Format

LOAD[,*options*] *port-id*[,*hrdwr-id*] *mcode-file*[,*mcode-id*]

Options

D	triggers an ILM dump if the ILM fails.
F	forces a microcode load even if the ILM has previously been loaded. The default is to allow a short load with previously loaded microcode.
L	reloads the ILM automatically after a failure (equivalent to using the LOAD,F command after the ILM fails).
S	restarts the ILM after a failure (equivalent to using the *INIT* command without options after the ILM fails).
S and L	reloads the ILM automatically and restarts the ILM after a failure (equivalent to using the *INIT,F* command after the ILM fails).

Parameters

port-id	is the port number of the port to be loaded. The number is assumed to be hexadecimal if it has a leading zero and decimal otherwise.
hrdwr-id	is a numeric value that will be compared with the hardware identifier of the line module. If the two values do not match, the *LOAD* command will abort. The number is assumed to be hexadecimal if it has a leading zero and decimal otherwise.
mcode-file	is the name of the file (*qual**file.*) or element (*qual**file.element*) containing the microcode to load into the line module.
mcode-id	is a numeric value that will be compared with the microcode identifier for the line module after the load has completed. If the values do not match, the command is aborted with an error. The number is assumed to be hexadecimal if it has a leading zero and decimal otherwise.

MORE

Displays subsequent screens when the output from a console command exceeds a single screen. For instance, the *QUERY* and *SUMMARY* commands may generate more output than fits on a single screen. If the output you want to see is on the first screen and you do not want to see further output, the *MORE* command can also be used to delete the queued output. The *MORE* command is required if the output didn't fit on the first screen. No other commands are processed until you enter either the *MORE* command and the F or the X option.

Format

MORE[,*options*]

or

M[,*options*]

Options

F	flushes all queued output to the console without further paging.
X	deletes all queued output without displaying it.

OPTION

Displays or toggles ICS command line options. If no options are specified on this command, the current option settings are displayed. If one or more options are specified, these option settings are toggled. (The options are described in more detail in the subsection, "Running the ICS Program," earlier in this section.)

Format

OPTION[,*options*]

or

O[,*options*]

Options

none	displays the current option settings.
B	enable/disable rebooting system on ICS contingency error.
C	enable/disable CENLOG display to the console. (CENLOGs are displayed on any workstation in console mode.)
E	enable/disable extended CENLOG display to the ICS console.
K	enable/disable killing ICS on ICS contingency error.
P	disable P$TRAP mode (only applies to Demand mode). This disables P$TRAP by registering the ICS run for dispatch in the case of an @@X C keyin.
V	enable/disable verbose mode. Verbose mode sends trace messages of internal activity to the ICS

QUERY

Displays information on all or some of the software processes registered with the ICS. You can specify one or more search parameters, allowing display of software processes by ICS node, product, domain, or class. This is the simplest way to get a quick snapshot of ICS activity. The QUERY function restricts its search to the specified ICS node, if one is provided.

Format

QUERY [node-id][,[product][,[domain][,[class[,subclass]]]]]

Parameters

node-id is the identifier of a particular ICS node. It can be the port number of an ICS ILM. A leading zero implies hexadecimal; otherwise the number is decimal. *CP* is the default if no node-id is entered.

product identifies one of the following products supported by the ICS:

CIM	Configuration, Installation, Maintenance
IP	Internet Protocol
IPX	Internetwork Packet Exchange
SNMP	Simple Network Management Protocol
UDP	User Datagram Protocol

Either the product name may be entered or the product number. The number is assumed to be hexadecimal if it has a leading zero and decimal otherwise. The QUERY function restricts its search to ICS software users registered as the specified product.

domain is the number of a configured domain. The QUERY function ignores ICS software users that are not part of the specified domain. The number is assumed to be hexadecimal if it has a leading zero and decimal otherwise.

class is the 16-bit numerical value of an ICS class. The value is assumed to be hexadecimal if a leading zero is entered and decimal otherwise. The QUERY function ignores ICS software users which are not members of the specified ICS class.

subclass — is the 32-bit numerical value of a subclass of the entered ICS class. This field is ignored if no ICS class value is entered. The subclass value is assumed to be hexadecimal if a leading zero is entered and decimal otherwise. The QUERY function ignores all ICS software users which are not members of the specified subclass.

QUIT

Terminates the ICS program without a dump. All ILMs under ICS control are deactivated.

Format

QUIT

REM

Defines a remark in a command file. It has no effect when entered interactively. It is used for documenting and clarifying command file entries.

Format

REM [remark-text]

Parameters

remark-text is any text which may be of use to the reader. Only one line of text may be used for each *REM* command.

RESET

Performs a hard clear of the specified ILM. This may be necessary before loading the ILM with new or different microcode, depending on the state of the operational software on the ILM. This command clears any restart or dump options previously set by the *DUMP*, *INIT*, *LOAD*, or *STRT* commands.

Format

RESET[,*options*] *port-id*

or

RES[,*options*] *port-id*

Options

none	resets the ILM only if it is not currently in use.
F	forces a hard clear even if the ILM is currently in use. The default is to abort this command if the ILM is currently in use.

Parameters

port-id	is the port number of the port to be reset. The number is assumed to be hexadecimal if it has a leading zero and decimal otherwise.

STRT

Starts a previously loaded ILM. Using the *LOAD* and *STRT* commands together perform the same function as the *INIT* command.

Format

STRT[,*options*]   port-id

Options

none	uses the options from the previous *LOAD* or *INIT* command for this ILM.
C	cancels the options from the previous *LOAD* or *INIT* command for this ILM.
D	indicates that the ILM should be dumped if it fails.
L	indicates that the ILM should be reloaded with the same microcode if it fails (equivalent using the to *LOAD,F* command).
S	indicates that the ILM should be restarted if it fails (equivalent to using the *INIT* command without options).
S and L	indicate together that the ILM should be reloaded and restarted after a failure (equivalent to using the *INIT,F* command).

Parameters

port-id is the port number of the port to start. The entered number is assumed to be hexadecimal if it has a leading zero and decimal otherwise. This port must have previously been loaded.

SUMMARY

Displays a summary of ICS activity on a particular ICS node. This command displays more detailed information than the *QUERY* command, including information on ICS connections and statistics on messages.

Format

SUMMARY[*node-id*]

Parameters

node-id	is the identifier of a particular ICS node. This can be the port number of an ICS ILM. A leading zero implies hexadecimal; otherwise the number is decimal. *CP* is the default.

Using ILM Platform Commands

This subsection summarizes ILM Platform commands used in the ICS program. Some of the ICS operator commands (such as *LOAD*, *DUMP*, and *FREE*) are similar to the ILM Platform operator commands implemented by Telcon, although ICS use of these commands varies somewhat from regular Telcon usage. Through the DCP/OS interface, the *LOAD*, *DUMP*, and *FREE* commands default to the ICS version unless preceded by the characters ILM. Through the NMS interface, there are two separate menus: one for ICS and one for ILM, enabling *LOAD*, *FREE*, and *DUMP* commands to be assigned appropriately.

Notes:

1. *Use of LINE=<name> is confusing if using default line names in the ENSCFG configuration file. All the line names default to ENSLINE0. Use PORT=<port-id> or LINE=<port-id> instead.*

2. *The ICS implementation of these ILM Platform commands* ***require*** *the PORT=n PORT=all, or LINE=port#/line# parameters.*

The following table summarizes ILM Platform commands used with ICS. See Section 3, "Intelligent Line Module (ILM) NMS Commands," for a detailed definition of all ILM Platform command formats and required and optional parameters.

Table A-2. ILM Platform Commands

Command	Function
DISP	Displays information and statistics about a specific ILM under ICS control.
ENV	Adjusts the ILM environment. Adjusts the ILM "heartbeat", which is a software signal that is passed periodically from the ILM to the CP to indicate that the ILM is functioning. If the heartbeat does not occur on schedule, the ICS program assumes that the ILM is hung or dead and takes action according to the DUMP options.
LIST	Lists active line facilities on ILMs. Displays information on one or all ILMs controlled by ICS. (ICS cannot use line names; you must explicitly provide a port number.)
LOOP	Performs loopback testing. Places an ILM port in loopback mode so that data does not actually leave the ILM over one of the external data ports but stays within the ILM. This is a test mode only.
SET	Sets loopback test parameters. This command is used in conjunction with the *LOOP* command.

Command	Function
SNAP	Turns on ILM tracing. The name of the trace file defaults to ENS$*ILMTRC*nn*., where *nn* varies from 00 to *maxfiles*, a parameter that is adjustable via the *TCAT* command but defaults to 2. The contents of the trace file vary depending on the ILM type and software. ILM tracing records ILM activity over a period of time and is used for diagnosing certain types of problems.
SNOF	Turns off ILM tracing.
STAR	Starts timed statistics reporting for an ILM.
STAT	Turns on ILM statistics or solicits ILM information.
TCAT	Catalogs an ILM trace file.
TCLS	Closes an ILM trace file.
TOPN	Opens an ILM trace file.
TSWT	Switches to an alternate ILM trace file.

The following list describes some implementations of the *LIST* command:

Command	Description
LIST PORT=ALL	Displays information about ILMs under ICS control. Only minimal information is listed.
LIST LINE=01E/0	Displays information about line 0 on port 01E, including the driver type, line speed, modem signals (if applicable), and SAP names. The port number is required.
LIST PORT=01E LINE=ENSLINE0	Displays information about line 0 on port 01E, as above. The default LINE name for the first (or only) line on an ICS ILM has the format ENSLINE0. It is possible to configure a different line name (see the *Enterprise Network Server Configuration and Operations Guide.).*

The following list describes some implementations of the *STAT* command:

Command	Description
STAT PORT=01E	Displays information about ILMs in port 01E, including hardware type, processor and buffer pool utilization, and IA information. A leading zero is required if the port number is hexadecimal instead of decimal.
STAT LINE=01E/0	Displays information about line 0 on port 01E, including IA name, LPIA type, and information and statistics on link and I/O rates. Port number is required.
STAT PORT=01E LINE=ENSLINE0	Displays information about line 0 on port 01E, as above. Default LINE name for first (or only) line on an ICS ILM is ENSLINE0. Line name is configurable.
STAT PORT=01E SAP=IPXSTA00	Displays information about SAP named IPXSTA00, including I/O information and addresses. SAP name can be obtained through the *LIST* command.

ICS Error Codes

If ICS is unable to successfully complete a command, an error code and a message describing the error are displayed. Error codes of the format "Cxxx" are ICS error codes. They are listed in Tables A–3 and A–4; however, some of these errors may require interpretation by an analyst. Error codes of the format "8xxx" are DCP/OS error codes and are explained in the *DCP/OS Operations Reference Manual.*

An error code (for example, C10A 8634) represents two hexadecimal error codes, where the first value (C10A, in this example) describes the error in general terms and the second value (8634) gives more specific information. In this particular example, C10A 8634 indicate that ICS was unable to initialize the cooperating ICS program in the ILM because there was no response from the port.

Table A-3 lists the primary error codes and values assigned by the ICS manager.

Table A-3. Primary ICS Error Codes

Error Code	Value (Hex)	Description
IER$OK	0	Successful completion.
IER$NMRCV	C102	Unable to connect to the user's Management Receiver queue during ICS registration (ICS$REG).
IER$NDRCV	C103	Unable to connect to the user's Data Receiver queue during ICS registration (ICS$REG).
IER$CSPP	C104	Cannot start PP. Port already active on Start command. This occurs when the port is already active on an ICS$PSTRT request.
IER$BFC	C107	Unrecognized function code received. The function code passed from ICSSVC to ICSMGMT is not in the ICSFTBL table in ICSMGMT. This is an internal coding error.
IER$CLILM	C108	Can't load ILM. Load Port general error code and INIT general error. This error may be found in an ICS$ILDR or ICS$PINR response packet
IER$CIPP	C109	Can't initialize PP. Reset Port general error code. This can be an Output Attach error, failure to add an entity table entry, or an ICS$RESET error.
IER$CIICS	C10A	Can't initialize ICS on ILM. General error code indicating an error while attempting to start a port.
IER$IRP	C10C	Invalid request packet. The message may be non-present or zero length, the BH$ fields may be incorrect, the message type may be undefined, or the message type may be inappropriate for the response from the ILM (i.e., a packet other than a FREE request is found in the link area). In DBMTASK, the packet has an incorrect BH$DBO or BH$DBC value.
IER$PAA	C10D	Port already assigned on function request.
IER$NMHW	C10E	Hardware ID of ILM does not match the hardware ID in the ILM load request.
IER$LNK	C10F	Unable to LINK an ILM INIT or START request.

Error Code	Value (Hex)	Description
IER$GLNK	C110	Unable to GLINK an ILM load request. START or INIT port request packet not in link area. This error code is seen only if breakpoints are set in the ICS program.
IER$NIMP	C111	Function not implemented. Currently, the only function to which this applies is the ICS$MSEND (multicast data) function.
IER$UQIM	C112	Unable to queue ILM request to QILMLD. The queue is full.
IER$UDM	C113	Undeliverable message. The receiving user is unavailable or blocked (queue full) or an internal queue (QTODTA or QRTNICS) is full.
IER$UPMG	C114	Unable to process Management Request. Either an internal queue is full (QTODBM or QTOMGR), there is an incorrect status on a registration response, there is an invalid request packet or insufficient internal resources, or the ICS$FREE failed.
IER$MID	C115	Loaded microcode does not match requested microcode ID. This is with a LOAD or INIT command.
IER$IUID	C116	Invalid User ID. On registration, the Data Receiver QLx is in use while the Management Receiver QLx is not (an internal error). Dismantling a user, the indicated call-back User ID is not a call-back user.
IER$FRILM	C117	Free ILM error. This may be found in an ICS$FREER packet.
IER$BDST	C118	Incorrect destination address. The first byte of the destination address must be 80 hex, for a CP destination, or 0, for an ILM destination. Any other value returns this error.
IER$IVRQ	C119	Invalid SVC request. The SVC function code is for an internal ICS function or for a response function instead of a request function.
IER$ACKPN	C11A	No expedited acknowledgement pending but an expedited acknowledgement message has been received. This message is returned with this error code.
IER$CRDPN	C11B	Credit pending on a connection-oriented data message. Credit is exhausted. (Not currently implemented.)

Error Code	Value (Hex)	Description
IER$EXPPN	C11C	Expedited acknowledgement pending. This status is returned on an Expedited Data message received by the ICS before a previous Expedited Data message has been acknowledged
IER$STATE	C11D	Invalid ICS state. A user has attempted to send connection-related data without an open connection, or a disconnect has been sent when the connection is neither open nor pending.
IER$NORES	C11E	No resources. The ICS is unable to allocate space for internal tables. In DBMTASK, unable to allocate a memory management control block.
IER$ICID	C11F	Invalid connection ID. (Not Currently Implemented.)
IER$NUID	C120	No available user ID on registration. All available ICS address slots are currently in use and the requesting user cannot register at this time. Only 16 IPM users and 32 call-back SVC users may register concurrently.
IER$ISVC	C121	Invalid user SVC. The user's management service code is invalid or the procedure is blocked, or the run number of the SVC owner does not match the run number in the registration packet.
IER$IMCT	C122I	Invalid MCT in SVC request. The virtual address in R1 is either not present or not allocatable. The most likely cause is an incorrect R1 parameter when the ICS SVC is called.
IER$URCB	C123	Unable to register call-back SVCs. This error code is returned to the ICS$REGC caller if the ICS found the user SVCs invalid or had no available slots for call-back users.
IER$ISEG	C124	Segment present but not allocatable after returning from a user SVC. **THIS IS A FATAL CONDITION!!!**
IER$DEL	C125	Completion code set in a user's call-back SVC procedure to signal the ICS to deallocate the MCT and message after completion of the SVC. The virtual address of the MCT should be in R1.

Error Code	Value (Hex)	Description
IER$IAPP	C126I	Inaccessible PP. This status is added to an undeliverable message destined for an ILM which could not be delivered.
IER$UREJ	C127	Message rejected by the call-back user. This is assumed if there is a nonzero value in R0 when the call-back SVC completes plus a valid packet in visibility. The message is treated as undeliverable.
IER$NOCON	C128	ICS connection does not exist. This status code is generated when a connection-oriented request references a connection which does not exist or has been dismantled
IER$DUMP	C129	Error encountered on a DUMP command.
IER$ATF	C12A	An attach or INIT with other ports failed.
IER$ACTV	C12B	ICS port already active.
IER$RETR	C12C	Port temporarily busy; retry later.
IER$RUN	C12D	Port assigned by a run other than the ICS.
IER$XSVC	C12E	Error in ICS SVC processing.

Table A-4 lists the secondary ICS error codes.

Table A-4. Secondary ICS Error Codes

Error Code	Value (Hex)	Description
IER$OK	0	Successful completion.
IER$EDSS	C002	Attempt to expand a dynamic system segment failed. Unable to expand an entity or chain table. This occurs when the CPA$ESSN service fails. May indicate a low memory condition.
IER$CSS	C003	Attempt to create a system segment failed. This may be encountered during ICS initialization or ILM port initialization. Indicates a CPA$CSEG failure which is most likely from lack of system buffers.
IER$TF	C004	Internal table full on a LOAD, INIT, or START request.
IER$TEA	C006	Bad internal table (entity or chain) address. The table entry address is too large.
IER$TENC	C007	The table entry was not in a chain (although it should be). The port is not active for a FREE, START, or DUMP request.
IER$BS	C008	Bad buffer size requested for message buffer allocation request in ICSMGMT. The requested size exceeds 4 Kbytes.
IER$PQUO	C00A	No port queue list index available for output attach request.
IER$PQUI	C00B	No port queue list index available for input attach request. (Error code lost.)
IER$UAOQ	C00C	Unable to add output queue to port's queue list. (Error code not preserved.)
IER$UMAR	C00D	Unable to modify access rights of a port queue. The CPA$MPPQL service failed. [Error code not preserved.)
IER$UAIQ	C00E	Unable to add input queue to port's queue list. (Error code not preserved.)
IER$UROQ	C00F	Unable to remove output queue from port's queue list. (Error code not preserved.)
IER$URIQ	C010	Unable to remove input queue from port's queue list. (Error code not preserved.)

Error Code	Value (Hex)	Description
IER$UQPM	C011	Unable to put message on port's management output queue.
IER$UCPQ	C012	Unable to create port queue. The CPA$CQUE service failed.
IER$UGPN	C013	Unable to get procedure number to create port queue. The CPA$GPN service failed.
IER$UPQC	C014	Unable to put a queue into the CP queue list.
IER$NET	C015	No entity table. Initialization failed or has not occurred.
IER$BMSO	C016	Bad message size or offset. The BH$DBC or BH$DBO field in an incoming message from an ILM is too small for the expected message type (ICSMGMT).
IER$CGPN	C017	Unable to get PN. This error is returned if unable to register an IPM receiver or connect an IPM transmitter because the provided GPLx cannot be translated into a PN value. The most likely cause is a corrupted GPLx value.
IER$CGQN	C018	Unable to get the QN needed. This error code is returned if unable to register an IPM receiver or connect an IPM transmitter because the provided QLx cannot be translated into a QN value. The most likely cause is a corrupted QLx value. Another occurrence is at ICS initialization time if any of the fixed queues QCPMGR, QCPDTA, QPPMGT, or QPPDTA is missing.
IER$NFSDR	C019	No free SDR is available for an IPM packet. The ICS is unable to connect to a user's IPM receiver.
IER$USDO	C01B	Unable to load the port's SDO segment. The SSN for the PP's SDO segment is not available for an INIT or START request.
IER$PARM	C01C	Parameter error (not one of the acceptable values in LUCLMG, LUMGMG, or LUCALMG) while processing user registration or deregistration, or an unexpected function in ICSMGMT, including a FREE of the CP entity. IER$DBQFC01DDBMTASK queue is full. Either QTODBM or QEXDBM is full and unable to queue a packet for further processing. This is unlikely to occur unless the DBMTASK task is hung, since these are LIST queues.

Error Code	Value (Hex)	Description
IER$ULNK	C01E	Unknown item in link area on FREE request. The unknown item is discarded. (Error code not preserved.)
IER$LNKC	C01F	Link confusion. Cannot LINK and then cannot GLINK. This can occur on a FREE command.
IER$IPIP	C020	Init Port in progress. START or INIT Port in progress when FREE Port entered. This is encountered during a FREE response.
IER$DPIP	C021	Delete Port in progress. Free Port entered while Delete Port is active.
IER$NCONT	C022	No contingency handler is enabled.

Terminating the ICS Program

There are various ways to terminate the ICS program other than involuntarily with a hardware or software stop.

- The *ABORT* and *QUIT* ICS commands stop the ICS program and restarts ICS if the program is running in batch mode with the standard ICS runstream. Note that *ABORT* starts a dump; *QUIT* does not.

- The DCP/OS commands, *TERM*, *X* and *E* also terminate the run or program in batch mode. Note that *E* starts a dump, *X* does not start a dump, and *TERM* stops everything. Also note that the *TERM* or *@@TERM* command terminates the ICS run so that the runstream does not continue to execute.

The standard ICS runstream is set so that if the ICS aborts voluntarily or involuntarily, the runstream restarts. Two files are created or updated when the ICS aborts:

- ENS*ENSDUMP

  This dump file provides a snapshot of the state of the ICS program at the time it terminated.

- SYS$*P$ICS

  This spool file contains copies of messages sent by the program to the console screen. It provides a dynamic trace of ICS activity over time.

The standard runstream activates the ICS program with the C option set, subsequently this trace contains any CENLOGs that were displayed by the program. If the runstream has the V option set, the spool file may be full because of the quantity of data generated in this mode. The spool file does not wrap around when it becomes full; it remains open and further data is discarded.

Glossary

A

ABM
See asynchronous balanced mode.

absolute element
An OS 2200 element containing a complete program suitable for execution by the Exec. Such elements normally occur as output from a collection of relocatable elements.

ACKSET
See acknowledge set.

adapt
An interface (hardware or software) that converts the data, address, and control formats of an attachment of one communications architecture to the data, address, and control formats of another communications architecture.

application management services (AMS)
The group of network control service functions associated with a particular applications environment. These functions are accessed, principally by CSUs and Network Management Services (NMS), to establish session paths between ports. Logically, each AMS function group is treated as a CSU with attached AMS end users that provide services to host applications for managing the activation, monitoring, control, and deactivation of the various application processes.

ARC
See Automatic Recovery of Components.

area
A subdivision of a network that includes one or more regions or nodes. The regions within an area may be in different nodes. They may also overlap. The area subdivision is controlled by the area level of NMS authority.

ASCII
Acronym for American Standard Code for Information Interchange (pronounced ASKEY), a 7-bit character code that defines 128 standard alphanumeric characters. ASCII is an industry standard that defines the codes for a character set to be used for information interchange between equipment of various manufacturers. It is the standard for digital communication over telephone lines. (This term is not spelled out in Unisys documentation.)

asynchronous balanced mode (ABM)
An operational mode in which either of two stations may initiate transmission without receiving permission from the other station.

automatic data rate detection (ADRD)
A Telcon feature that detects the line speed of an asynchronous terminal by sampling the first input character.

Automatic Recovery of Components (ARC)
A Hot-Standby feature that automates host and component recovery exclusively for Hot-Standby systems. It automatically recovers CMS 1100 using a preconfigured backup. ARC consists of the application interface bank (AIB) and the monitor run. ARC functions as one unit that consists of AFCBs, an executable absolute element (@XQT), and runstreams. Because some ARC components exist outside the Exec, ARC is installed separately using the COMUS INSTALL procedure.

B

backup host
A host that is not actively connected to a shared application group until a system failure occurs on the production host. When this happens, the Hot-Standby software installed on the backup host attaches the backup host to the application group and also recovers the failing host. The backup host takes over for the failed host as soon as the application group is successfully attached. The backup host can process non-shared batch and demand programs while the production host of a Hot-Standby system is running.

binary synchronous communications (BSC)
A protocol developed by IBM for synchronous transmission of binary coded data. One of the first protocols for transparent text transmission. *Same as* bisync.

broadcast
The simultaneous transmission of data or text to a variety of users over a network such as radio, coaxial cable, or satellite.

broadcast messages
A message that is broadcast simultaneously to a variety of users over a network.

buffer

A storage area in random access memory where a computer temporarily places data until the data can be transferred to a peripheral device or the next phase of operations. By removing data from the immediate processing environment, buffers free the computer to continue processing other data.

buffer pool

All local storage not used by resident elements. The segment pool is a pool of 4K-byte buffers. The remainder of real storage becomes a general buffer pool of 128-byte buffers.

Build DIB (BLDDIB)

A stand-alone program that takes pertinent information from the Telcon configuration file and builds it into the Directory Information Base (DIB) by way of the local DSA for run-time use in the distributed directory system.

C

CDRSC

See cross-domain resource.

CENLOG

See critical event notification and logging.

CENLOG Analysis Program (CAP)

An OS 1100 interactive, menu-driven utility program that runs on OS 1100 systems and analyzes Telcon CENLOG files transferred from the DCP.

CENLOG events

The CENLOG complex of the Telcon system provides a means of reporting and recording significant system events and errors for the DCP family of processors.

central processing unit (CPU)

A unit of a computer that includes the circuits that control the interpretation and execution of instructions. Sometimes called central processor.

CMS 1100

See Communications Management System.

CMS 1100 network

One or more (directly) interconnected CMS 1100 nodes. Node interconnections may be direct or indirect (for example, through an intermediate Telcon node or through a TCP/IP or OSI internetwork connection).

CMS 1100 node
A CMS 1100 program (in a Series 1100/2200 host). Each Series 1100/2200 host may have more than one CMS 1100 node. Each CMS 1100 node has its own configuration file. A CMS 1100 node is defined by CMS 1100 NDS and its related configuration file. Each CMS 1100 node may be configured to use more than one protocol at the network layer (DNS, TS/TN, TCP/IP, or OSI) and may be a member (node) of several different networks at the same time. Each CMS node may, therefore, be a DNS node, a TS/TN node, a TCP/IP node, or an OSI node.

communication line controller (CLC)
The processor used to implement port processors.

communication system
The total environment in which Distributed Communications Architecture (DCA) controls logical structure as well as the interfaces and protocols. Logically, the communication system encompasses the transport network and all the connected termination systems, but not the attached TSUs and their end users.

Communications Management System (CMS 1100)
The software that manages all data communication into and out of OS 1100 host computers. CMS 1100 provides an interface between the OS 1100 and either the Telcon/DCP or the GCS/CTMC network.

communications processor architecture (CPA)
The model for Distributed Communications Processors (DCPs). CPA defines relationships among DCP hardware and software components.

communications system administrator (CSA)
A package of information-gathering facilities that enables the systems analyst or operator to acquire information about the operation of CMS 1100.

communications system user (CSU)
DCA Level I only. The applications-related control structure, to DCA, that interfaces with the communications system through one or more ports. CSUs control one or more end users, directing data and commands to and from them. The standard Telcon CSU is called the Device Management Facility (DMF). CSUs in DCA Level I can be compared with TSUs in DCA Level II.

COMUS
Acronym for Computerized Onsite Maintenance of User System. COMUS is an OS 1100 processor that leads you interactively through the process of defining the configuration and parameters for the software products you want to install. For example, after you define a CMS 1100 configuration, COMUS calls the symbolic stream generator, which creates a runstream to generate a CMS 1100 configuration file. COMUS can also initiate generation of the Telcon software for DCPs in your network.

computer network
A set of one or more computing systems, communication facilities, and terminals interconnected to provide services to a set of users.

configuration
The arrangement of a computer system or network, defined by the nature, number, and chief characteristics of its functional units.

configuration file
A file containing configuration information. The CMS 1100 reads this file during its initialization to establish the initial operating environment and accesses the file during operation for additional information.

configuration generator (HCONFIG)
Runs on a host computer and provides a means of online configuration.

configuration ID information table
A table that contains configuration names and ID numbers. The HCONFIG utility processor builds the table automatically. The table can be altered by online configuration.

configuration statement
A formatted statement that names and defines a network entity for CMS 1100, Telcon, or associated program products. CMS 1100 and Telcon NDS syntax and format structure differ. Configuration statements were formerly system configuration statements (SCSs) or network definition statements (NDSs).

console messages
The messages generated in the Telcon environment by Network Management Services (NMS) to inform you of errors, events, and activities that occur.

CPA
See communications processor architecture.

CR/LF
Carriage Return/Line Feed

cycle
A complete sequence of operations, at the end of which the series can be repeated.

D

data collection module
A device that captures raw data before a file is created.

data index number
A number that specifies the data to be used in a test.

data set ready (DSR)
A hardware signal. If set, it means the data set (modem) is connected. For a dial line adapter, it means the communication line is in use.

data unit control (DUC)
The portion of the transport network control region that segments port data units into network data units and controls network flow. This function implies the reassembly of network data units into port data units and the sequencing of the network data units.

DCA
See Distributed Communications Architecture.

DCA host
A central processing system that adheres to end-to-end DCA protocols and the TS/TN interface. The termination system or systems, and the Application Management System implemented within the DCA host must conform to some agreed-upon subset of DCA rules and protocols.

DCA network
One or more interconnected DCA nodes. Node interconnections may be logical, or indirect (for example, through a TCP/IP or OSI internetwork connection).

DCA node
A system that runs DCA protocols. Each DCA node may consist of one DNS node, one TS/TN node, or both. DCA nodes include Telcon nodes, CMS 1100 nodes, System 80 nodes, DCA terminals, and DCA products supplied by another vendor.

DCA terminal
A special type of terminal connected to a DCP through a trunk (UDLC protocol). DCA terminals are commonly used as network consoles. UTS 20L, SVT 1121, and DDP 4000 terminals are DCA terminals. DCA terminals operate as end systems in a DCA network.

DCA transport network
The systems and protocols that provide network-wide communication services in a distributed computing environment. The transport network includes layers 1 through 4 of the distributed communications architecture (DCA).

DCA transport protocol (DTP)
The DCA Level II layer 4 protocol that defines the set of rules for creating and maintaining end-to-end communication paths between computing systems or transport service users. It establishes and disestablishes connections, controls data flow, recovers errors, and segments and recombines messages. DTP replaced port flow control and the Device Management Facility (DMF), which are functions supported by DCA Level I.

DCA transport protocol extension (DTPX)
The DCA Level II layer 5 protocol that establishes and controls interactive sessions, session layer addressing, and data assurance.

DCATS
A combined acronym for Distributed Communications Architecture (DCA) and termination system (TS), both defined in this glossary. DCATS refers to any termination system (such as an OS 1100 host, U Series host, or DCA terminal) that functions as an end system in a DCA network.

DCP
See Distributed Communications Processor.

DCP/OS
See Distributed Communications Processor Operating System.

DCP/OS utilities
A suite of utility programs for file manipulation, DCP/OS configuration, and program building. A disk utility program is included.

DCPTS
A combined acronym for Distributed Communications Processor (DCP) and termination system (TS), both defined in this glossary. DCPTS refers specifically to a termination system on a DCP that operates as an intermediate system (routing node) or as a front-end processor in a DCA network.

demand mode
The mode of operation in which a terminal operator can enter a job stream statement-by-statement and have each statement transacted immediately (on demand).

device identifier (DID)
A character that represents the address of an auxiliary device attached to a UNISCOPE display terminal or UTS 400 display terminal cluster.

dial-up line
A standard telephone line used with a dial telephone or an automatic dialing device, as opposed to a dedicated or leased line.

DIB
See directory information base.

directory information base (DIB)
The database of a directory server agent (DSA).

directory server agent (DSA)
A stand-alone program that enables a Telcon run or other user to access the directory information base (DIB). When necessary, the DSA communicates with other DSAs so a user has only to send updates or information from one DSA.

directory service facility (DSF)
A function of DNS that eliminates duplication of NDSs in configurations. End user information no longer needs to be replicated for each DCP. DSF also enables separate Telcon configurations to be run in the same network. This means more than one Telcon configuration can be run in a single DCP. Although the DSF services only DCPs, it is in fact a layer 7 implementation from the perspective of network architecture.

Distributed Communications Architecture (DCA)
A Unisys proprietary network architecture and set of communication protocols based on the seven-layer Reference Model for Open Systems Interconnection. DCA supports the protocols required for several different network environments to interoperate. The main differences between DCA and OSI architecture are in protocol implementation. DCA software implementations allow integration and concurrent operation of appropriate protocol modules or protocol conversion software that provide functions required in OSI, TCP/IP, and other network environments.

Distributed Communications Processor (DCP)
A special-purpose computer designed exclusively for communication applications. The DCP is used as a front-end processor for OS 1100 computers, or to interconnect networks of OS 1100 computers and other machines. Depending on how it is configured, a DCP can function as a remote concentrator, a message-switch (or nodal) processor, or a front-end processor. DCPs are available in several models. *Compare with* communication terminal module controller (CTMC).

Distributed Communications Processor Operating System (DCP/OS)
A multi-programming operating system for DCPs. DCP/OS supports architectural entities defined by CPA, and controls all DCP hardware operations. The DCP/OS executes programs that are installed from diskettes or that are initially downloaded to the DCP from an OS 1100 system. DCP/OS is released in absolute format as part of the Telcon release tape. *See also* Telcon.

distributed communications terminal (DCT)
A terminal with keyboard, paper tape, and card reader.

Distributed Data Processing (DDP)
A computing environment in which processing and storage facilities are geographically dispersed, but loosely coupled by transmission media. These computers are capable of interfacing with each other to share, transfer, or distribute files and processing tasks associated with applications.

distributed systems processor (DSP)
A general-purpose communications processor.

DNS
See dynamic network services *or* domain name.

DNS network
One or more connected DNS nodes.

DNS node
A DCA network node that uses DNS protocol at the network layer. A DNS node may be a Telcon node or a CMS 1100 node.

DSA
See directory server agent.

DSF
See directory service facility.

DSP
See distributed systems processor.

Dynamic Network Services (DNS)
The connectionless mode network layer service that supplies the network layer protocol and routing functions without configuring network connections (such as SESSN statements) and allows dynamic node addition to an existing network.

E

ECC memory log
A log file that contains corrected local storage bit errors.

ECL
See Executive Control Language.

element
A named grouping of information typically manipulated as a unit based on a primary element, and typically defining a logical program part such as a subroutine. There are four basic types of elements: absolute, omnibus, relocatable, and symbolic (all defined in this glossary).

end user (EU)
The human and non-human physical and logical sources and links of information across the network. Non-human end users are the programs and devices that generate and receive the data transmitted over a DCA communication system.

entity
A hardware or software component named in a configuration file. Software entities are individual processes, or elements, operating at each layer within an open systems architecture (for example, session entity, transport entity). These elements can represent one layer, one part of a layer, or several layers of the OSI Reference Model. One layer can include several entities. *See also* service.

EOF
Abbreviation for end of file. *See also* symbolic element.

Exec
See Executive.

Executive (Exec)
A multiple-task main operating system for OS 1100 computers. Exec manages the operation of the system optimize hardware and software resources.

Executive Control Language (ECL)
A command language user interface to the Exec. ECL lets a user specify the environment in which a job is to be run, as well as the sequence of all input, output, and processing tasks. ECL command can be used interactively (demand mode), or can be submitted as runstreams for batch processing.

Executive Request (ER)
A request to the executive program.

external termination system (XTS)
A termination system external to a particular DCP, such as another DCP, host, or terminal. Used primarily for user applications.

F

FEP
See front-end processor.

file retrieval
The process of retrieving a file from mass storage.

foreign file
A user file whose name is not in the system catalog, that does not reside on the system volume, and whose location on disk is specified by its data set label.

front-end processor (FEP)
A communications computer (usually a DCP) associated with a host computer. It may perform line control, message handling, code conversion, error control and application functions such as control and operation of terminals. The function of the FEP is to offload the communication-related functions from the host.

full-duplex
A function of hardware whereby both ends of a communication circuit can transmit and receive data simultaneously across a serial or parallel communication link. *Compare with* two-way simultaneous, a function of software.

H

half-duplex
A function of hardware, whereby both ends of a communication circuit can transmit and receive data, though not simultaneously. *Compare with* two-way alternate, a function of software.

half-duplex transmission
A communication circuit where each end of a communication line can transmit and receive, but not simultaneously.

header information code (HIC)
A software message sent from one module to another to pass control information. The actual message code defines the function to be performed.

HLC
See host LAN controller.

host
A medium to large central processor attached to a network. Also referred to as an end system. The host is generally dedicated to data processing functions, such as executing application or system programs, rather than data communication functions. Architecturally, there is no distinction between a DCA host and a DCA terminal, because both contain a termination system, although of vastly differing powers. In SNA, a host is defined as an SNA node that contains a PU Type 5. *See also* backup host, Hot-Standby host, production host.

host LAN controller (HLC)
A control unit that connects a host to an IEEE 802.3 LAN. The HLC connects to a host through a block multiplexer channel.

Hot-Standby
A Resilient Systems software product that ensures the availability of Series 1100 and 2200 system hardware and software. Hot-Standby uses redundant hardware and software to make it an uninterruptible system. From the end user's viewpoint, the system never goes down. If a critical component (such as a processor) fails, the workload automatically switches to another host in the loosely coupled configuration. Features related to Hot-Standby exist in Exec/TIP, UDS/IRU, and communication software such as MCB, CMS 1100, and Telcon.

Hot-Standby host
A backup host or a production host in the Hot-Standby system. Hot-Standby is a dual-host system (for example, two 1100/92 systems) in which one host is the production host and the other is a backup host. The backup host can process batch and demand runs while the production host is running TIP, batch, and demand runs. Each host has its own operating system, mass storage, and shared mass storage.

I

ICW

See interrupt control word.

initial program load (IPL)

A load from a host processor (or a DCP, for a remote load). An IPL places the generated system on mass storage and completely loads and initializes the system.

input/output processor (IOP)

An independent hardware processor (within a DCP) that implements virtual port processors (PPs), which manage line modules. IOPs can support up to 16 different interfaces, which provide a powerful programmable communication channel. The IOP provides the line handling protocol required by a particular type or class. Previously, IOPs were referred to as communication line controllers (CLCs).

instrumentation data collection module (IDCM)

A module that enables the user to store the instrumentation buffers produced by the hardware when instrumentation is turned on.

interface

(1) Generically, the point or set of points at which two autonomous entities establish contact. (2) A connection point at which a set of rules governs the exchange of data and controls the information between two adjacent architectural levels. These levels may be software or hardware areas. For example, in Information Services (IS) program-to-program services, the programming interface is the dialog between a user-written program and IPC. In Information Services command interfaces, the interface is the dialog between a shell script, C program, or operator and Information Services. DSS products and Information Services products provide program-callable interfaces and user interfaces.

I/O

Abbreviation for input/output.

IOP

See input/output processor.

IPL

See initial program load.

L

level
A logical structure in which the system is partitioned into a number of levels or layers. It is normally applied to software where each level transforms lower layers (nearer the hardware) or virtual machines into more useful machines.

line
The conductors that connect communication devices in a physical circuit.

line control block (LCB)
The in-core control table that contains information for controlling a physical communication line.

line descriptor table (LDT)
The table that contains configuration information for a physical communication line. The address is in the third word of the LCB.

line module (LM)
The hardware in the DCP that terminates and controls data transmission of serial communication lines, host channel connections, and peripheral connections.

line parameter
A line parameter is necessary during testing procedures if the line to be tested is configured as a dial-up line.

line protocol handler (LPH)
The software that handles a particular line discipline, such as UDLC or the UNISCOPE line handler. The LPH is responsible for all the logical functions that control a communications line and provides the interface between the devices attached to that line and the Telcon network.

line switch module (LSM)
A module that physically connects the lines that run from the operating and backup front-end processors (FEPs) to the terminals. If the operating FEP fails, the LSM switches the communication lines to the backup FEP so data transmission can continue.

LM
See line module.

logging central node
The node that centrally logs event messages in a network. Logging may be done locally or at a logging central node.

loopback test
The circuit configuration in which test signals are returned by a remote terminal to the originating point.

LPH
See line protocol handler.

LSM
See line switch module.

M

macro code loader (MCL)
A service routine that loads the boot block and I/O routines from the specified load source.

mass storage
The ancillary memory storage media, usually disk subsystems.

MCC
See multichannel communication controller.

MCL
See macro code loader.

MCT
See message control table *or* Master Control Table *or* master configuration table.

message control table (MCT)
The programming vehicle for passing messages through the DCP series systems.

multichannel communications controller (MCC)
An interface between remote terminals and a 90/60, a 90/70, or a 90/80 virtual processor.

N

network
A group of hardware and software components that are physically and logically linked, and that interact according to established protocols. Network functions are determined by the types of cooperating application systems within the network.

network address
(1) The unique address supplied by the PDN that identifies a node of the network. (2) The address of a DNS node, which consists of these hierarchical components: subnetwork number, super cluster number, simple cluster number, and node number. (3) In OSI, the network address that identifies transport entities in the network layer (layer 3 of the OSI model).

network administrator
(1) Generally, the person responsible for trouble-free, efficient operation of a data communication network. (2) A person or program that uses Network Management Services (NMS) for external control and monitoring of an entire communication system or some part of it.

network commands
The instructions an operator enters to change or display the status of network entities. In CMS 1100, network commands are referred to as communication system administrator (CSA) commands.

network connection
A connection, used by the DCA transport protocol (DTP), between two peer transport layer entities. The network connection replaces the logical port in DTP.

network definition statement (NDS)
See configuration statement

Network Management Services (NMS)
A group of network control and reporting functions that establishes, maintains, and modifies the operations of the Telcon communication network. NMS control functions reside as TSUs and TSU end users within network processors. NMS supports network administration through persons or programs that maintain the operational capabilities of the network. NMS is subdivided into a hierarchy of control ports. The network control ports are linked to the Application Management System (AMS) ports through a preestablished session path to control the total network. Telcon NMS commands can be compared with CMS 1100 communication system administrator (CSA) commands.

network supervisor
Same as network administrator.

Nine Thousand Remote (NTR)
(1) A program that controls communication between a Telcon network and any terminal using NTR batch communication protocol. (2) The remote batch terminal protocol that originally ran on the Series 9300 hardware.

NMS
See Network Management Services.

NMS authority
A Telcon feature that enables you to configure NMS consoles with varying levels of control over the network. These levels are classified by network subdivision: region, node, area, and global, all of which are defined in this glossary.

nodal processor (NP)
A processor that performs communication (message-switching) functions at a node in a network.

node
(1) A data communication device that follows the instructions of the host computer to control various functions that ultimately affect the network. (2) An intersection of two or more trunks in a network that uses Telcon. (3) An element that supports dynamic network services (DNS) in a network that uses Telcon.

NTR
See Nine Thousand Remote.

O

OHVR
See online hardware verification routine.

online configuration
A means of dynamically modifying or extending a network that is already operating. Online configuration also enables networks to be built using it as the primary means of network generation.

online hardware verification routine (OHVR)
The routines that reside in the local load device as part of the Telcon system. They operate within the Telcon framework, interfacing with many of the Telcon routines. OHVRs consist of the online peripheral verification routine (OPVR), the online terminal verification routine (OTVR), and the checking routine of the hardware memory log.

online peripheral verification routine (OPVR)
An element of the OHVR that checks the basic hardware function of peripheral devices and verifies their correct operation.

online terminal verification routine (OTVR)
An element of the OHVR that checks the basic hardware function of terminals and verifies their correct operation. **OSI Transport Services (OSITS)**
The software that provides a system foundation from which to route messages, connect devices to the network, and detect transmission errors. OSITS is a Telcon program product that implements the ISO transport and internetwork protocols. It connects a DCP to an OSI network using either X.25 or 802.3 lower layer protocols. OSITS provides OSI data transport services for message handling system (MHS) and file transfer, access, and management (FTAM) applications operating on OS 1100 systems. Transport services generally reside among the lower four layers of the OSI Reference Model.

OSI Transport and Network Services (OSI-TNS)
A Unisys software product that operates on U Series processors to provide OSI transport, network, and data-link layer services.

OSITS
See OSI Transport Services.

P

packet
(1) A defined data area in memory (a contiguous set of words) that is used to pass parameters between two programs. Packets contain information for executing an operation or function such as controlling data routing and assembling and disassembling messages. (2) A self-contained portion of data routed through a communication network by a connectionless (datagram or packet-switching) protocol.

Packet Switched Communications Software (PSCS)
A Unisys product that enables DCP/Telcon to communicate over an X.25 packet-switched public data network (PDN).

Partitioned Applications
An XTPA product that follows Hot-Standby and builds upon it. Partitioned Applications enables different TIP applications to be active simultaneously on both hosts. It also enables TIP applications to be moved between hosts automatically (as a result of a failure) or manually (at the discretion of the site administrator) with minimal impact on sessions.

PCF
See permanent correction file.

Peripheral Control Table (PCT)
A table that describes mass storage devices. It is built at sysgen time from information in the DCP configuration and is maintained on the system volume in the file L@PCT.

Peripheral Device Table (PDT)
A table in DCP memory that describes mass storage devices. It is built by the system loader using information in the PCT.

permanent correction file (PCF)
A permanent file of symbolic correction elements with which you can create and update a variety of symbolic elements.

poll group table (PGT)
The in-core control table that contains information for controlling a poll group on a UNISCOPE display terminal communication line.

port
The unique physical address of each line module installed in a DCP. *See* also port number. Physical communication link from a programmable line module to an external device.

port identifier (PID)
A numeric identifier that gives the location of ports in a DCP.

port processor (PP)
A virtual processor within a DCP IOP, on which the line protocol handler (LPH) operates in the communications processor with an external terminal or device.

PRCSR statement
PRCSR statements define all Distributed Communications Processors (DCPs) in a Telcon communication system. The configuration for a communication network must contain a PRCSR statement for each DCP.

process control register (PCR)
A hardware entity in the DCP that is used to direct processes.

production host
The online Series 1100 or Series 2200 hardware system. In a Resilient System, the production host can process TIP, batch, and demand runs. *See also* backup hst.

protocol
A general term for the predefined sequence of requests and responses by which units in a network coordinate control operations, data transfer operations, and other operations between the units.

protocol data unit (PDU)
A Protocol Data Unit is the unit of information that is sent or received by a OSITS Communications System User.

PSCS
See Packet Switched Communications Software.

Q

queue
A line or group of items waiting to be processed. These items are usually in-core and chained together by address words.

R

RC
See remote concentrator.

relocatable element
An element containing a program part in relocatable binary format, suitable for combining with other relocatable elements to produce an executable program (absolute element). Relocatable elements are most commonly the output of a language processor for input to a collection. They are usually produced by MASM from the source element and stored in a temporary program file.

remote concentrator (RC)
A communications computer (usually a DCP) with a direct connection to only one termination system (TS) of the two TSs that make up the end points of a session. This enables multiplexed communication between many low-speed synchronous or asynchronous lines, and one or more high-speed, usually synchronous, lines. The remote concentrator can be polled by a computing system and can in turn poll terminals. For example, if several terminals are directly connected to a node (the RC), messages from the RC can go to another node (an FEP), and then into a host.

Remote File System (RFS)
A system that consists of a set of related functions for manipulating files across a distributed computing network. The RFS communicates with its peers on other systems (any host or DCP in the network) to create, purge, and copy files.

remote identifier (RID)
A character representing the address of a poll group in a UNISCOPE display terminal communication line.

response number
A number that can be entered with commands. The number is then displayed with the output response.

RFS
See Remote File System.

RID
See remote identifier.

route
A path through the transport network whose identity is assigned when the transport network session is established. This route ID is subsequently appended to the message header.

route control (RTC) protocol
A protocol that determines the transport network route or path over which particular network data units (NDUs) travel to reach the paired data unit control (DUC) entity. RTC applies one of a selection of routing algorithms according to the needs of the transport network.

routing node
(1) A node that enables data related to Network Management Services (NMS) to be transferred around a network even when two end points do not have an established session. (2) An intermediate node that routes messages to other destinations within the network.

RTC
See route control protocol.

runstream
A sequence of linked Exec control language (ECL) statements that form a self-contained unit of work.

S

session path
The logical path through the network from one end user to another, including any internal associations within the CSU environment.

site identifier (SID)
A 1- to 8-character identifier for a terminal.

SGL
See system generation log.

SGS
See system generation statement.

SIL
See system installation log.

site-developed code
All code written and controlled by users. This includes applications programs and site-developed code in any of the communication network processors. Formerly called user-own-code.

SNA/net
A Unisys implementation of Systems Network Architecture (SNA) on the DCP family of communications processors. SNA/net is based on the concepts of extending SNA networks to accommodate non-SNA network needs, and operating the SNA network without continuous dependence on the host.

SOE
Abbreviation for start-of-entry. ASCII character code IE, which determines start of input on Uniscope compatible terminals, up to the cursor position.

SRL
See system registration log.

SSG
See Symbolic Stream Generator.

symbol table entry (STE)
A ten word structure in the symbol table that names a configured facility. The name is the user-assigned first field of a Telcon network definition statement.

Symbolic Stream Generator (SSG)
A general-purpose Series 1100 language processor that creates and manipulates symbolic streams. By using the SSG, temporary correction files (TCFs) and permanent correction files (PCFs) can be updated, merged with another set of corrections, printed in the symbolic output stream, or reinserted in the original input file for use in future programming. The SSG creates a runstream that, when executed, generates software on an OS 1100 system.

SYSGEN
See system generation.

system control register (SCR)
A set of sixteen 32-bit registers that provide information for all communication processing.

system control table (SCT)
A table that provides pointers to the port processor control tables, starting and stopping mechanisms, and other port processor controls.

system generation (SYSGEN)
The customizing of an operating system to meet site requirements.

system generation log (SGL)
A document created by COMUS during product generation. SGLs contain data related to the product generation.

system generation statement (SGS)
The instructions entered during installation and used by the symbolic stream generator and the Series 1100 Exec to generate a system.

system installation log (SIL)
A document created by COMUS during product installation. SILs contain data related to product installation, verification of installation, and product deinstallation.

system registration log (SRL)
A document created by COMUS when you enter the REGISTER command. SRLs contain data related to a product release master tape or a separately packaged feature tape.

system segment number (SSN)
A number that identifies entries in the system segment table.

system segment table (SST)
A table in which program data can be stored. The SST starts at a fixed block number in an absolute element and is used as a directory for the rest of the system.

System User Report (SUR)
See User Communication Form.

T

task
(1) An item of work that an activity is scheduled to perform. (2) A discrete processing step in a run, involving the execution of an absolute element. Synonymous with program in run processing contexts.

TCF
See temporary correction file.

TCP-IP Stack
A Unisys DCP Series program product that provides added functions for Telcon software on a Unisys Distributed Communications Processor (DCP). TCP–IP Stack provides front-end communications for OS 1100 hosts running DDN 1100, which provides two TCP/IP applications — file transfer protocol (FTP) and simple mail transfer protocol (SMTP). TCP–IP Stack enables communication with peer devices running compatible TCP/IP software.

Telcon
A Unisys distributed communications software system for data communication networks. The software runs in a Distributed Communications Processor (DCP) and is defined by the Distributed Communications Architecture (DCA). Telcon software handles communication connections to CMS 1100, to Telcon software in other DCPs, to various terminal types, and to other DCA compliant entities.

Telcon network
One or more interconnected Telcon nodes. Node interconnections may be direct or indirect (for example, through an intermediate CMS 1100 node or through a TCP/IP or OSI internetwork connection). A subset of DCA network nodes.

Telcon node
A Telcon program (in a DCP). Each DCP may have more than one Telcon node. Each Telcon node has its own configuration file. A Telcon node is defined by a Telcon PRCSR NDS and its related configuration file. Each Telcon node may be configured to use more than one protocol at the network layer (for example, DNS, TS/TN, TCP/IP, OSI, SNA.) and may be a member (node) of several different networks at the same time. Each Telcon node may, therefore, be a DNS node, a TS/TN node, a TCP/IP node, an OSI node, an SNA node, and so on.

Teletype Terminal (tty)
A terminal made by the Teletype Corporation or an emulation of a TELETYPE terminal. TELETYPE terminals may incorporate features that allow them to operate as complete communication centers, answering calls and returning messages automatically, or as input/output devices for computers.

temporary correction file (TCF)
A temporary file of symbolic correction elements used to create or update a permanent correction file (PCF) or a variety of symbolic elements.

TERM statement
TERM statements define terminals.

terminal
A device for sending or receiving data over a communication channel.

terminal attach facility (TAF)
The module used for passing messages to terminal resource services (TRS) and the terminal session manager (TSM). It can also be used for passing messages between a line protocol handler (LPH) and a virtualizer (VTR).

terminal control block (TCB)
The Telcon in-core control table that contains information needed to control a terminal on a communication line.

terminal resource services (TRS)
The Telcon module that manages resources for terminals. This includes allocating and removing resources as needed.

termination system (TS)
A facility that enables an application system to interface with another application system and use the services provided by the communication system.

TIP
See Transaction Processing.

transaction
A real-time sequence of operations in which an input message from a terminal is followed by an output response from a host.

Transaction Processing (TIP)
A Unisys product that executes transaction processing programs. The OS 1100 TIP enables a remote terminal operator to initiate execution of a preregistered program at the central computer site. Once in execution, the transaction program has access to all functions of the OS 1100, as well as the specialized TIP functions and services.

transport connection
A connection established between two or more session entities, identified by their transport service access point (TSAP) addresses, to exchange transport service data units. In DTP, transport connection replaces system session.

TS/TN network
One or more interconnected TS/TN nodes.

TS/TN node
A DCA network node that uses TS/TN protocols (TS/TN, RTC) at the network layer. A TS/TN node may be a Telcon node, A CMS 1100 node, or a DCA terminal.

trunk
A collection of one or more physical data links (or lines) that connect DCPs. Trunk lines are full-duplex. The physical lines are operated in parallel to improve reliability and performance and reduce costs.

TTY
Abbreviation for teletypewriter.

U

UDLC
See universal data link control.

UDM
See undeliverable message.

Undeliverable Message (UDM)
A message that cannot be sent to the desired destination because either the destination is not currently active or a blockage exists somewhere along the path between the message's originator and the destination.

UNISCOPE
(1) A Unisys interactive line protocol for display terminals. (2) The Unisys UNISCOPE 100/200 nonintelligent interactive display terminals.

universal data link control (UDLC)
A set of data link protocols defined by Unisys for carrying data over a data link with error and flow controls. UDLC can be compared with the high level data link control (HDLC) procedure defined by ISO, and the synchronous data link control (SDLC) procedure developed by IBM.

unsolicited message (USM)
A message sent from one demand terminal to another demand terminal. No session path is required between the two terminals. USMs are typically short.

unsolicited message central node
The unsolicited message central node handles unsolicited messages and pertains primarily to the broadcast of messages using the $$MSG command.

User Communication Form (UCF)
The form used at computer sites to report system problems to Unisys. *Formerly called* System User Report (SUR).

USM
See unsolicited message.

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