

VMS Network Control Program Manual

Order Number: AA-LA50A-TE

April 1988

This document lists the commands of the Network Control Program (NCP) Utility for those VMS users responsible for DECnet-VAX network management.

Revision/Update Information: This document supersedes the *VAX/VMS Network Control Program Reference Manual, Version 4.4.*

Software Version: VMS Version 5.0

**digital equipment corporation
maynard, massachusetts**

April 1988

The information in this document is subject to change without notice and should not be construed as a commitment by Digital Equipment Corporation. Digital Equipment Corporation assumes no responsibility for any errors that may appear in this document.

The software described in this document is furnished under a license and may be used or copied only in accordance with the terms of such license.

No responsibility is assumed for the use or reliability of software on equipment that is not supplied by Digital Equipment Corporation or its affiliated companies.

Copyright ©1988 by Digital Equipment Corporation

All Rights Reserved.
Printed in U.S.A.

The postpaid READER'S COMMENTS form on the last page of this document requests the user's critical evaluation to assist in preparing future documentation.

Telenet is a trademark of GTE Telenet Communication Corporation.
PSS is a trademark of British Telecommunications plc.

The following are trademarks of Digital Equipment Corporation:

DEC	DIBOL	UNIBUS
DEC/CMS	EduSystem	VAX
DEC/MMS	IAS	VAXcluster
DECnet	MASSBUS	VMS
DECsystem-10	PDP	VT
DECSYSTEM-20	PDT	
DECUS	RSTS	
DECwriter	RSX	

digital™

ZK4553

**HOW TO ORDER ADDITIONAL DOCUMENTATION
DIRECT MAIL ORDERS**

USA & PUERTO RICO*

Digital Equipment Corporation
P.O. Box CS2008
Nashua, New Hampshire
03061

CANADA

Digital Equipment
of Canada Ltd.
100 Herzberg Road
Kanata, Ontario K2K 2A6
Attn: Direct Order Desk

INTERNATIONAL

Digital Equipment Corporation
PSG Business Manager
c/o Digital's local subsidiary
or approved distributor

In Continental USA and Puerto Rico call 800-258-1710.
In New Hampshire, Alaska, and Hawaii call 603-884-6660.
In Canada call 800-267-6215.

* Any prepaid order from Puerto Rico must be placed with the local Digital subsidiary (809-754-7575).
Internal orders should be placed through the Software Distribution Center (SDC), Digital Equipment Corporation, Westminister, Massachusetts 01473.

Production Note

This book was produced with the VAX DOCUMENT electronic publishing system, a software tool developed and sold by DIGITAL. In this system, writers use an ASCII text editor to create source files containing text and English-like code; this code labels the structural elements of the document, such as chapters, paragraphs, and tables. The VAX DOCUMENT software, which runs on the VMS operating system, interprets the code to format the text, generate a table of contents and index, and paginate the entire document. Writers can print the document on the terminal or line printer, or they can use DIGITAL-supported devices, such as the LN03 laser printer and PostScript[™] printers (PrintServer 40 or LN03R ScriptPrinter), to produce a typeset-quality copy containing integrated graphics.



Contents

PREFACE	ix
---------	----

NEW AND CHANGED FEATURES	xiii
--------------------------	------

NCP Description	NCP-1
-----------------	-------

1	COMMAND SYNTAX	NCP-1
---	----------------	-------

2	ENTERING COMMANDS	NCP-2
---	-------------------	-------

3	COMMAND PROMPTING	NCP-4
3.1	Exiting the Prompting Sequence	NCP-5
3.2	Prompting Examples	NCP-6

4	COMPONENT AND PARAMETER SYNTAX RULES	NCP-7
---	--------------------------------------	-------

5	NCP HELP FACILITY	NCP-11
---	-------------------	--------

NCP Usage Summary	NCP-12
-------------------	--------

NCP Commands	NCP-13
--------------	--------

CLEAR/PURGE CIRCUIT	NCP-15
CLEAR/PURGE EXECUTOR	NCP-18
CLEAR EXECUTOR NODE	NCP-22
CLEAR/PURGE LINE	NCP-23
CLEAR/PURGE LOGGING	NCP-26
CLEAR/PURGE LOGGING EVENTS	NCP-28
CLEAR/PURGE LOGGING NAME	NCP-30
CLEAR/PURGE MODULE X25-ACCESS	NCP-31
CLEAR/PURGE MODULE X25-PROTOCOL	NCP-33
CLEAR/PURGE MODULE X25-SERVER/X29-SERVER	NCP-36
CLEAR/PURGE NODE	NCP-39
CLEAR/PURGE NODE CIRCUIT	NCP-43
CLEAR/PURGE OBJECT	NCP-44
CONNECT NODE	NCP-46
CONNECT VIA	NCP-48

Contents

COPY KNOWN NODES	NCP-49
DISCONNECT LINK	NCP-53
HELP	NCP-55
LOAD NODE	NCP-57
LOAD VIA	NCP-60
LOOP CIRCUIT	NCP-63
LOOP EXECUTOR	NCP-66
LOOP LINE	NCP-68
LOOP NODE	NCP-70
PURGE MODULE CONFIGURATOR	NCP-72
SET CIRCUIT ALL	NCP-73
SET/DEFINE CIRCUIT	NCP-74
SET EXECUTOR ALL	NCP-80
SET/DEFINE EXECUTOR	NCP-81
SET EXECUTOR NODE	NCP-89
SET KNOWN PROXIES ALL	NCP-91
SET LINE ALL	NCP-92
SET/DEFINE LINE	NCP-93
SET LOGGING ALL	NCP-100
SET/DEFINE LOGGING EVENTS	NCP-101
SET/DEFINE LOGGING STATE	NCP-103
SET/DEFINE MODULE CONFIGURATOR	NCP-105
SET/DEFINE MODULE X25-ACCESS	NCP-107
SET/DEFINE MODULE X25-PROTOCOL	NCP-109
SET/DEFINE MODULE X25-SERVER/X29-SERVER	NCP-115
SET NODE ALL	NCP-120
SET/DEFINE NODE	NCP-121
SET/DEFINE NODE CIRCUIT	NCP-127
SET OBJECT ALL	NCP-128
SET/DEFINE OBJECT	NCP-129
SHOW AREA	NCP-133
SHOW/LIST CIRCUIT	NCP-136
SHOW/LIST EXECUTOR	NCP-142
SHOW/LIST LINE	NCP-145
SHOW LINKS	NCP-149
SHOW/LIST LOGGING	NCP-152
SHOW/LIST MODULE CONFIGURATOR	NCP-155
SHOW/LIST MODULE X25-ACCESS	NCP-159
SHOW/LIST MODULE X25-PROTOCOL	NCP-161
SHOW/LIST MODULE X25-SERVER/X29-SERVER	NCP-165

SHOW/LIST NODE	NCP-167
SHOW/LIST OBJECT	NCP-173
TELL	NCP-175
TRIGGER NODE	NCP-177
TRIGGER VIA	NCP-179
ZERO CIRCUITS	NCP-180
ZERO EXECUTOR	NCP-181
ZERO LINE	NCP-182
ZERO MODULE X25-PROTOCOL	NCP-183
ZERO MODULE X25-SERVER/X29-SERVER	NCP-184
ZERO NODE	NCP-185

APPENDIX A SUPPLEMENTAL NCP INFORMATION A-1

A.1	NETWORK COUNTER SUMMARY	A-1
A.1.1	Circuit Counters _____	A-3
A.1.2	Line Counters _____	A-7
A.1.3	Node Counters _____	A-11
A.1.4	X.25 Protocol Module DTE Counters _____	A-13
A.1.5	X.25 and X.29 Server Module Counters _____	A-14
A.2	DECNET CIRCUIT AND LINE DEVICES	A-15
A.3	CIRCUIT, LINE, LINK, DTE, AND SERVER MODULE STATES AND TRANSITIONS	A-16
A.3.1	Circuit and Line States and Transitions _____	A-16
A.3.2	Link States _____	A-19
A.3.3	DTE States and Transitions _____	A-20
A.3.4	X.25 Server Module States and Transitions _____	A-21
A.4	EVENT CLASS AND TYPE SUMMARY	A-22
A.4.1	Network Management Layer Events _____	A-23
A.4.2	Session Control Layer Events _____	A-25
A.4.3	End Communications Layer Events _____	A-26
A.4.4	Routing Layer Events _____	A-26
A.4.5	Data Link Layer Events _____	A-31
A.4.6	X.25 Packet Level Events _____	A-33
A.4.7	VMS System-Specific Events _____	A-35

Contents

INDEX

TABLES

NCP-1	Object Type Codes _____	NCP-131
A-1	DECnet Circuit and Line Devices _____	A-15
A-2	Circuit and Line States and Substates _____	A-16
A-3	Circuit and Line State Transitions _____	A-17
A-4	Link States _____	A-19
A-5	DTE States and Substates _____	A-20
A-6	DTE State Transitions _____	A-20
A-7	X.25 Server States _____	A-22
A-8	X.25 Server State Transitions _____	A-22

Preface

This reference manual presents the commands that make up the Network Control Program (NCP).

Intended Audience

The *VMS Network Control Program Manual* is intended as a reference to the formats and syntax of the NCP commands for those already familiar with DECnet-VAX and VAX PSI concepts. System managers can use NCP to configure, control, monitor, or test DECnet-VAX and VAX PSI software running on a VMS operating system.

Document Structure

This document consists the following four sections:

- Description—Provides a full description of the NCP Utility, including the following topics:
 - Command syntax
 - Entering commands
 - Command prompting
 - Component and parameter syntax rules
 - NCP HELP Facility
- Usage Summary—Outlines the following NCP information:
 - Invoking the utility
 - Exiting from the utility
 - Directing output
 - Restrictions or privileges required
- Commands—Describes NCP commands, including format, parameters, qualifiers, and examples.
- Appendix A, Supplemental NCP information—Contains tables and reference matter pertaining to all NCP commands.

Associated Documents

Before using the Network Control Program, you should be familiar with the basic networking concepts described in the *Guide to DECnet-VAX Networking*. DECnet-VAX concepts and NCP usage information are presented in the *VMS Networking Manual*, which also describes the procedures needed to configure, manage, test, and monitor your network. Refer to that manual for more information about any NCP command listed in this manual. Refer also to the *VMS Mini-Reference* for a quick-reference summary of NCP command formats.

For information concerning VAX PSI, refer to the following manuals, which make up the VAX PSI documentation set:

- *P.S.I. Introduction*
- *VAX P.S.I. Installation Procedures*
- *VAX P.S.I. X.25 Programmer's Guide*
- *VAX P.S.I. X.29 Programmer's Guide*
- *VAX P.S.I. Management Guide*
- *VAX P.S.I. PAD and MAIL Utilities Manual*
- *VAX P.S.I. Problem Solving Guide*
- *Public Network Information*

The following functional specifications define DIGITAL Network Architecture (DNA) protocols to which all implementations of DECnet adhere:

- *DECnet DIGITAL Network Architecture General Description*
- *DIGITAL Data Communications Message Protocol Functional Specification*
- *Network Services Protocol Functional Specification*
- *Maintenance Operation Protocol Functional Specification*
- *Data Access Protocol Functional Specification*
- *Routing Layer Functional Specification*
- *DNA Session Control Functional Specification*
- *DNA Phase IV Network Management Functional Specification*
- *Ethernet Node Product Architecture Specification*
- *Ethernet Data Link Functional Specification*

Conventions

Convention	Meaning
RET	In examples, a key name (usually abbreviated) shown within a box indicates that you press a key on the keyboard; in text, a key name is not enclosed in a box. In this example, the key is the RETURN key. (Note that the RETURN key is not usually shown in syntax statements or in all examples; however, assume that you must press the RETURN key after entering a command or responding to a prompt.)
CTRL/C	A key combination, shown in uppercase with a slash separating two key names, indicates that you hold down the first key while you press the second key. For example, the key combination CTRL/C indicates that you hold down the key labeled CTRL while you press the key labeled C. In examples, a key combination is enclosed in a box.
\$ SHOW TIME 05-JUN-1988 11:55:22	In examples, system output (what the system displays) is shown in black. User input (what you enter) is shown in red.
\$ TYPE MYFILE.DAT . . .	In examples, a vertical series of periods, or ellipsis, means either that not all the data that the system would display in response to a command is shown or that not all the data a user would enter is shown.
input-file, . . .	In examples, a horizontal ellipsis indicates that additional parameters, values, or other information can be entered, that preceding items can be repeated one or more times, or that optional arguments in a statement have been omitted.
[logical-name]	Brackets indicate that the enclosed item is optional. (Brackets are not, however, optional in the syntax of a directory name in a file specification or in the syntax of a substring specification in an assignment statement.)
quotation marks apostrophes	The term quotation marks is used to refer to double quotation marks ("). The term apostrophe (') is used to refer to a single quotation mark.



New and Changed Features

The following technical changes have been made to the Network Control Program (NCP) Utility and to DECnet-VAX software as described in this manual for VMS Version 5.0.

- Commands can be recalled on the NCP command line. By pressing CTRL/B or the arrow keys, you can recall multiple commands previously entered.
- The asterisk (*) and percent sign (%) can be used as wildcard characters to represent certain component names on the NCP command line.
- The following parameter is supported for the CLEAR/PURGE LINE command:
RECEIVE BUFFERS
- The following parameters are supported for the CLEAR/PURGE EXECUTOR and SET/DEFINE EXECUTOR commands:
MAXIMUM PATH SPLITS
PATH SPLIT POLICY
- The following parameter is supported for the CLEAR/PURGE LINE and SET/DEFINE LINE commands:
HOLDBACK TIMER
- The DEFAULT PROXY parameter has been replaced with the following parameters for the CLEAR/PURGE EXECUTOR and SET/DEFINE EXECUTOR commands:
INCOMING PROXY
OUTGOING PROXY
- The following parameters are supported for the CLEAR/PURGE NODE, SET/DEFINE NODE, LOAD NODE and LOAD VIA commands:
LOAD ASSIST AGENT
LOAD ASSIST PARAMETER
MANAGEMENT FILE
- SET KNOWN PROXIES ALL has been added as a new command.
- New counters have been added to the list of circuit and node counters, and some of the descriptions of the circuit and node counters have been changed.
- New states and substates have been added to the list of circuit states and substates.
- New devices have been added to the list of DECnet circuit and line devices, and some of the mnemonics for the devices have been changed.
- The table of DTE states and substates has been revised.
- A new event has been added to the list of Routing layer events.



NCP Description

The Network Control Program (NCP) is the utility program system managers and operators use to configure and control DECnet-VAX networks. System managers can also use NCP to monitor network resources and test network components. This manual presents the formats of the NCP commands used to perform these tasks.

Consult the *VMS Networking Manual* for detailed descriptions explaining the usage of the NCP commands. The *VMS Networking Manual* also contains an overview of networking concepts and descriptions of the components that make up the network. After you read the appropriate sections of the *VMS Networking Manual* and know which NCP command (or series of commands) you need to use, refer to this manual to find the exact format of the commands.

The description of NCP covers the following topics:

- Command syntax
- Entering commands
- Command prompting
- Component and parameter syntax rules
- NCP HELP Facility

1

Command Syntax

To invoke NCP, type `RUN SYS$SYSTEM:NCP` in response to the DCL prompt. The `NCP>` prompt indicates that you are using the NCP utility program. When you receive this prompt, you can enter NCP commands.

The NCP command syntax has four parts: a command verb, a component, one or more parameters and, optionally, one or more qualifiers. Following is an example of this syntax.

Command Verb	Component	Parameter	Qualifier
SHOW	ACTIVE LINES	CHARACTERISTICS	TO filespec
	KNOWN LINES	COUNTERS	
	LINE line-id	STATUS	
		SUMMARY	

For each command, you must supply a command verb, a component, one or more parameters from the parameter list, and any qualifier required from the qualifier list. Unless otherwise indicated, you can specify parameters in any order.

NCP Description

2

Entering Commands

Enter NCP commands as verbs, components, parameters, and qualifiers separated by spaces or tabs. To continue a long command to the next line, use the standard continuation line convention (a hyphen as the last character in the line). The *NCP>* prompt is not displayed on continuation lines; instead, continuation lines prompt with an underscore character. For example:

```
NCP>SET EXECUTOR -  
_ ADDRESS 11 -  
_ INCOMING TIMER 30 -  
_ STATE ON  
NCP>
```

Use an exclamation point (!) to designate a comment line. NCP ignores hyphens within and at the end of a comment line. However, NCP does not ignore lines beginning with an exclamation point if they follow a command line ending with a hyphen.

When entering an NCP command, you can truncate any command verb, component name, parameter name, or qualifier name to its fewest unique letters. For example, the following two commands perform the same function:

```
NCP>SET EXECUTOR ADDRESS 11 STATE ON  
NCP>SET EXE AD 11 STA ON
```

For clarity, all examples show the full command syntax.

NCP allows you to omit certain words when you enter commands. These are helping words that provide syntactic clarity. If omission of a word does not produce an ambiguous result, that word is optional. You can enter the first of the following commands without specifying WITH, as shown in the second example. Both commands have the same meaning.

```
NCP>LOOP NODE TRNTO COUNT 100 WITH ONES  
NCP>LOOP NODE TRNTO COUNT 100 ONES
```

Recalling Commands

You can recall NCP commands that you previously entered by pressing CTRL/B or the arrow keys in response to the *NCP>* prompt.

You can press CTRL/B or the up-arrow key up to 20 times to recall the last 20 commands you have typed. After you recall an NCP command, you can edit it and then reenter it. You can press the down-arrow key to recall the next (most recent) command in the NCP command recall buffer.

Using Wildcard Characters to Enter Commands

You can use the asterisk (*) and the percent sign (%) as wildcard characters in an NCP command line to represent NCP components by a general name, rather than specify each component name individually.

You can use the wildcard characters to represent the following component names:

- Node name
- Node address
- Circuit name

- Line name
- Object name
- Events

The asterisk wildcard represents one or more characters, while the percent sign represents a single character.

Rules for Using Wildcard Characters

The following rules define how you can use wildcard characters with component names:

- If the component name is a string, the wildcard character may occur at any location in the string. For example:

```
NCP>LIST NODE ST%R STATUS
NCP>SHOW OBJECT M* CHARACTERISTICS
```

The first command requests a list of status information for all nodes with four-letter node names beginning with "ST" and ending with "R." The second command requests a listing of characteristics for all objects with names beginning with "M."

- For node addresses, which are represented by the format *area-number.node-number*, only the *node-number* portion of the node address (the numeral on the right side of the period) can contain a wildcard. For example, the following command sets a COUNTER TIMER value of 45 seconds for all nodes in area 4:

```
NCP>SET NODE 4.* COUNTER TIMER 45
```

Specifying a node address such as *.5 is invalid because the *area-number* cannot contain a wildcard.

- In a node address, a wildcard character cannot be combined with a numeral to represent a partial *node-number*. The node addresses 4.* and 4.% contain valid uses of the wildcard characters, but the node addresses 4.%2 and 4.1* are invalid.
- For events, which are represented by the format *class.type*, only the *type* portion of the event (the numeral on the right side of the period) can contain a wildcard. For example, the following command specifies that all class 2 events are to be logged:

```
NCP>SET KNOWN LOGGING EVENTS 2.*
```

- Except in the case of events, only component names can contain wildcards. Parameter values cannot contain wildcards. The following command is invalid because the circuit name UNA-* is not the component name in the command. Rather, it is a parameter used to modify the component named BOSTON. Only component names can be represented by wildcard characters.

```
NCP>SET NODE BOSTON SERVICE CIRCUIT UNA-* !INVALID COMMAND
```

The component name EVENT is used as a parameter to the LOGGING commands and can contain wildcard characters, as long as only the *type* portion of the event number (the numeral to the right of the period) contains the wildcard.

NCP Description

For example, the following command clears logging to the logging file for all class 2 events:

```
NCP>CLEAR LOGGING FILE EVENTS 2.*
```

- Unit numbers of circuit and line devices can contain wildcard characters, but device names of circuits and lines cannot contain wildcard characters. Circuit and line devices are typically identified by the format *dev-c*, where *dev* is a mnemonic device name, and *c* is a device unit number. In the following example, the asterisk replaces the unit number in this request for circuit information for all DMC devices:

```
NCP>SHOW CIRCUIT DMC-*
```

However, the *device-name* portion of a circuit or line name cannot contain wildcard characters. Therefore, the following commands are invalid:

```
NCP>SHOW CIRCUIT D* STATUS !INVALID COMMAND  
NCP>SHOW LINE %NA-0 SUMMARY !INVALID COMMAND
```

Note that substituting a wildcard character for an entire component name is equivalent to specifying the command component KNOWN. For example:

```
NCP>SHOW NODE * STATUS
```

This command is equivalent to the following command:

```
NCP>SHOW KNOWN NODES STATUS
```

3

Command Prompting

NCP prompts for selected components and parameters if you do not supply them when you enter the command. These components and parameters are those that you use most often. Each prompt is either a list of valid choices for that position in the command string or the name of a parameter and a description of the value required.

Note: Prompting does not occur when NCP receives input from a command file. Parameter names must be supplied in command files.

Each prompt consists of two parts: the component or parameter desired, and its format. The syntax is as follows:

component (format):

The component part indicates the name of either the component or parameter. The format part indicates the range of acceptable values. The format part presents command words in uppercase, value classes in lowercase as descriptive strings, and numeric ranges as two numbers separated by a hyphen. Commas indicate alternatives that are mutually exclusive. For example:

```
(LINES, NODES):  
Sink node (node-name, address):  
Node address (1.1-63.1023):
```

You should bear in mind that prompting does not guarantee that you are entering a valid command. Even if parameters are required to make

the command meaningful, prompting does not demand a response when prompting for parameter values or names, as the following example indicates:

```
NCP>SET OBJECT NML 
Object number          (0-255): 
File name              (filename.type): 
Privileges (List of VMS privileges): 
User ID                (1-16 characters): 
Password               (1-8 characters): 
Account                (1-16 characters): 
Proxy access INCOMING, OUTGOING, BOTH, NONE:) 
%NCP-F-NOPARM, no parameters
NCP>
```

3.1 Exiting the Prompting Sequence

You can exit a prompting sequence by pressing CTRL/Z in response to the *NCP>* prompt. When you do so, the prompt returns, and you can then enter another NCP command. You can exit NCP directly from the prompting sequence by pressing CTRL/C or CTRL/Y, as shown in the following example:

```
NCP>SET 
(CIRCUIT, EXECUTOR, KNOWN, LINE,
 LOGGING, MODULE, NODE, OBJECT): LINE
Line ID                (dev-c-u.t): DMC-1
Number of receive buffers (1-1024): 
Interrupt
$
```

If after responding to one or more prompts you want to exit the prompting sequence but retain whatever information you have provided in the database, you can respond to the next prompt with *_DONE*, as follows:

```
NCP>DEFINE OBJECT 
Object Name            (12 characters): TALOS
Object Number          (0-255): 101
File name              (filename): TALOS.EXE
Privileges (List of VMS privileges): _DONE
NCP>
```

In this example, NCP makes a new entry in the permanent database for object TALOS. Because *_DONE* is used in response to a prompt, NCP writes no other parameter information to the database for this object, and NCP exits the prompting sequence. Note that the NML object returns a success message whenever it modifies the permanent database successfully.

Using *_DONE* may not be successful, however, if you do not provide all of the necessary parameters for a given component. For example:

```
NCP>DEFINE OBJECT 
Object Name            (12 characters): RIGEL
Object Number          (0-255): 
File name              (filename): RIGEL.EXE
Privileges (List of VMS privileges): _DONE
%NCP-I-NMLRSP, listener response - Parameter missing, number
Object = RIGEL
NCP>
```

This example is similar to the previous example except that the object number is omitted. Because each object must have a unique object number defined in the database, and because none currently exists for object RIGEL, NML fails to update the database with this information.

NCP Description

3.2 Prompting Examples

The following examples illustrate three types of prompting that NCP provides:

- Prompts to supply missing component

```
NCP>CLEAR   
(CIRCUIT, EXECUTOR, KNOWN, LINE, LOGGING, MODULE, NODE, OBJECT):
```

No component is specified for the CLEAR command. The prompt format is a list of valid components separated by commas. Note that the plural component KNOWN is included in this list.

- Prompts to supply parameter values

```
NCP>CLEAR LINE   
LINE ID (dev-c-u):
```

NCP prompts for the *line-id* for this component because it is not provided with the command.

The following example shows variations of the prompting scheme for parameter values:

```
NCP>SET EXECUTOR   
Node address (1.1-63.1023): 2.11  
State (ON, OFF, SHUT, RESTRICTED): OFF  
.  
.  
.  
Outgoing timer (0-65535 seconds): 45  
Retransmit factor (0-65535): 10  
Routing timer (0-65535 seconds): 600
```

- Prompts to select parameter names

```
NCP>CLEAR LINE   
Line ID (dev-c-u.t): DMC-1  
All line parameters (Y,N):
```

NCP prompts for the selected parameter names whose values are to be removed from the database. In this case, no parameter name is given; consequently, NCP asks if all values should be removed. The Y parameter indicates that all values should be removed. Using N or RETURN causes NCP to provide a different response.

```
NCP> CLEAR NODE BOSTON   
All node parameters (Y,N):   
Host node (Y,N): Y  
.  
.  
Service password (Y,N): Y  
Tertiary loader (Y,N): N
```

Because RETURN is the response to the first prompt, NCP prompts for all of the parameter names.

Component and Parameter Syntax Rules

When you enter NCP commands, many components, parameters, and qualifiers require you to supply additional information. For the most part, their syntax follows a standard set of rules. Exceptions to these rules are documented in the description of the component, parameter, or qualifier to which they apply.

The syntax of the various component-name, parameter, and qualifier values is summarized. In the following list, all numeric values are in decimal and have a range of 0 to 65,535 unless otherwise specified.

account	A string of up to 39 alphanumeric and hyphen characters. VMS operating systems do not currently use this string for access control.
area-number	A decimal value in the range 1 to 63 to be specified in the beginning of the <i>node-address</i> and separated from the <i>node number</i> by a period. If you do not specify an area number, the area number of the executor is used. The default area number for the executor is 1.
circuit-id	A string of characters whose exact syntax is that for a DECnet or X.25 circuit identification. Circuit identification takes one of the following formats: <div style="margin-left: 40px;"> dev-c dev-c-u dev-c.t dev-c-u.t </div>
dev	Is a device name. Refer to the description of <i>device-type</i> for a list of device mnemonic names. For a complete list of possible DECnet-VAX circuit devices and descriptions, see Table A-1.
c	Is a decimal number (0 or a positive integer) designating the device's hardware controller.
u	Is a decimal unit or circuit number (0 or a positive integer) included only if more than one unit is associated with the controller.
t	Is a decimal number (0 or a positive integer) that identifies a tributary on a multipoint circuit. This is a logical tributary number, not to be confused with the tributary address used to poll the tributary.
	For X.25 circuits provided by VAX PSI, <i>circuit-id</i> is a string of up to 16 characters beginning with "X25-".
count	A decimal numeric value.

NCP Description

- cpu-type** A string of characters consisting of one of the following:
- DECSYSTEM1020
 - PDP11
 - PDP8
 - VAX
- dest-name** An identification string consisting of 1 to 16 alphanumeric characters.
- device-type** A string of characters representing the mnemonic name for the device. Devices supported by DECnet-VAX include the following:
- BNA DMF TT
 - CI DMP TX
 - DMB QNA UNA
 - DMC SVA
- dte-address** A string of up to 15 decimal digits. See the *Public Network Information* manual for the exact format of this parameter on your network.
- E-address** A string of 12 hexadecimal digits, represented by 6 bytes separated by hyphens (for example, AA-00-04-00-AB-04). The string indicates an Ethernet address. The bytes are ordered from left to right as transmitted and received on the Ethernet.
- event-list** A list of event types for a given class in the format *class.type*. When specifying an event list, you may specify only one class; however, you can specify a range of types by using commas and hyphens, for example, 4.3-5,7-10. You can use the asterisk wildcard character in an event list, but only to replace an event type. The following table provides examples of these formats.

Event List	Meaning
4.4	Identifies event class 4, type 4.
4.5-7	Identifies event class 4, types 5 through 7.
4.5,7-9,11	Identifies event class 4, types 5, 7 through 9, and 11. Note that types must be specified in ascending order.
4.*	Identifies all event types for class 4 events.

NCP Description

filespec	<p>A VMS file specification string in the following general format:</p> <p>node-spec::device:[directory]filename.type;version</p> <p>Logical names are permitted. For a file in your current directory, you need specify only a file name of up to 39 alphanumeric characters, optionally followed by a period and a file type of up to 39 alphanumeric characters.</p> <p>Refer to the <i>VMS DCL Concepts Manual</i> for the format of a VMS file specification, and the <i>Guide to VMS File Applications</i> for more information about specifying files.</p>
hex-password	A string of up to 8 hexadecimal digits.
hex-value	A string of up to 32 hexadecimal digits.
id-string	A string of up to 32 characters. If the string includes spaces or tabs, enclose it within quotation marks.
line-id	<p>A string of characters whose exact syntax is that for a DECnet or X.25 line identification. For VMS operating systems, <i>line-id</i> takes one of the following formats:</p> <p>dev-c</p> <p>dev-c-u</p> <p>dev</p> <p>Is a device name. Refer to the description of <i>device-type</i> for a list of device mnemonic names. For a complete list of possible DECnet-VAX line devices and descriptions, see Table A-1.</p> <p>c</p> <p>Is a decimal number (0 or a positive integer) designating the device's hardware controller.</p> <p>u</p> <p>Is a decimal unit or line number (0 or a positive integer) included if the device is a multiple unit line controller.</p>
milliseconds	A decimal numeric value.
network-name	For X.25 circuits, specifies a 1- to 16-character alphanumeric identifier that indicates the network to be used.
node-address	A numeric value in the range 1.1 to 63.1023, composed of an area number to the left of the period followed by a node number to the right of the period. (The node number indicates the address of the node within the specified area.) If the area number is not supplied, the area number of the executor node is used. The default area number for the executor is 1.
node-id	Either a <i>node-name</i> or a <i>node-address</i> .
node-name	A string of up to six alphanumeric characters containing at least one alphabetic character.

NCP Description

node-spec	A <i>node-id</i> followed by optional access control information as specified for VMS operating systems, in the following format: node-id"user password account"
node-type	A string of characters consisting of one of the following: Routing III Nonrouting III Routing IV Nonrouting IV Area
number	A decimal numeric value.
object-name	A string of up to 12 printable characters.
password	A string of up to 39 printable characters.
privilege-list	A list of VMS privilege names delimited by space characters.
seconds	A decimal numeric value.
sink-name	A string of alphanumeric characters. The logging console name is a string in the form TTcnn (if a terminal) or a file specification if it is a file that receives events in the console format. The logging file name is a file specification. The logging monitor name is a 1- to 9-character name. If the string includes spaces or tabs, enclose it in quotation marks.
software-id	A string of up to 16 characters.
software-type	A string of characters consisting of one of the following: MANAGEMENT FILE SECONDARY LOADER SYSTEM TERTIARY LOADER
tributary-address	A numeric value in the range of 0 to 255.
user-id	A string of up to 39 alphanumeric and hyphen characters.

Quotation mark delimiters are valid for the *node-spec* format. In addition, you can use quotation marks as delimiters when providing receive and transmit passwords for the SET NODE and DEFINE NODE commands. For example:

```
NCP>SET NODE TRANSMIT PASSWORD "HI VAX"
```

Also, use quotation marks to delimit the software identification string specified for the IDENTIFICATION parameter of the SET EXECUTOR command. For example:

```
NCP>SET EXECUTOR IDENTIFICATION "VMS HOST SYSTEM"
```

5 NCP HELP Facility

NCP provides an extensive HELP Facility that contains information about each NCP command and its parameters and qualifiers, including general examples of its use. The information in the HELP file is tree structured, which makes it easy to retrieve information quickly and efficiently. The HELP command description in the Command Section provides examples to illustrate the use of the HELP command for a typical terminal session.

Use the HELP command to display information at various levels of detail. For example, each HELP display includes a list of command words under an "Additional Information Available" section. These command words serve as topics for the next level of information accessible by the HELP command. In the general format of the HELP command shown in the following example, the topic is a command word from the list:

```
NCP>HELP [topic...]
```

You can abbreviate command words when you enter the command. When you enter a particular level of detail, that level becomes the current level for accessing information. Through the use of the prompts *Topic?* and *Subtopic?*, you can return to a higher or lower level of information, respectively. The highest level of information is the general description of the HELP Facility.

NCP Usage Summary

The Network Control Program (NCP) is a DECnet-VAX utility that accepts terminal commands to configure, control, monitor, and test a DECnet network.

FORMAT	RUN SYS\$SYSTEM:NCP
---------------	----------------------------

COMMAND PARAMETERS	<i>None.</i>
-------------------------------	--------------

usage summary

To invoke NCP, enter the following DCL command:

```
$ RUN SYS$SYSTEM:NCP
```

NCP returns the following prompt:

```
NCP>
```

Alternatively, you can execute a single NCP command by using a DCL string assignment statement. For example:

```
$ NCP=="$NCP"  
$ NCP SHOW STATUS KNOWN LINES
```

NCP executes the SHOW KNOWN LINES command and returns control to DCL.

To exit from an NCP session, type EXIT or press CTRL/Z after the NCP> prompt.

Output for the SHOW and LIST commands is normally displayed on the default output device, SYS\$OUTPUT. Alternatively, you may direct output to a specified file using the TO qualifier with the SHOW or LIST command. You need certain privileges to use most NCP commands. The only commands you can use without privileges are CLEAR EXECUTOR NODE, HELP, LOOP EXECUTOR, LOOP LINE, LOOP NODE, SET EXECUTOR NODE, SHOW, and TELL.

The LIST command requires the system privilege (SYSPRV), or some other way to access files with system protection. Remaining NCP commands require operator privilege (OPER). Note that at any time you may use access control parameters with the SET EXECUTOR NODE command to activate the network management listener (NML) to run under an account with the OPER privilege.

**NCP
COMMANDS**

The following section presents the NCP commands in alphabetical order.

CLEAR/PURGE CIRCUIT
CLEAR/PURGE EXECUTOR
CLEAR EXECUTOR NODE
CLEAR/PURGE LINE
CLEAR/PURGE LOGGING
CLEAR/PURGE LOGGING EVENTS
CLEAR/PURGE LOGGING NAME
CLEAR/PURGE MODULE X25-ACCESS
CLEAR/PURGE MODULE X25-PROTOCOL
CLEAR/PURGE MODULE X25-SERVER/X29-SERVER
CLEAR/PURGE NODE
CLEAR/PURGE NODE CIRCUIT
CLEAR/PURGE OBJECT
CONNECT NODE
CONNECT VIA
COPY KNOWN NODES
DISCONNECT LINK
HELP
LOAD NODE
LOAD VIA
LOOP CIRCUIT
LOOP EXECUTOR
LOOP LINE
LOOP NODE
PURGE MODULE CONFIGURATOR
SET CIRCUIT ALL
SET/DEFINE CIRCUIT
SET EXECUTOR ALL
SET/DEFINE EXECUTOR
SET EXECUTOR NODE
SET KNOWN PROXIES ALL
SET LINE ALL
SET/DEFINE LINE
SET LOGGING ALL
SET/DEFINE LOGGING EVENTS
SET/DEFINE LOGGING STATE
SET/DEFINE MODULE CONFIGURATOR
SET/DEFINE MODULE X25-ACCESS
SET/DEFINE MODULE X25-PROTOCOL
SET/DEFINE MODULE X25-SERVER/X29-SERVER
SET NODE ALL
SET/DEFINE NODE
SET/DEFINE NODE CIRCUIT
SET OBJECT ALL
SET/DEFINE OBJECT
SHOW AREA
SHOW/LIST CIRCUIT
SHOW/LIST EXECUTOR
SHOW/LIST LINE
SHOW LINKS
SHOW/LIST LOGGING
SHOW/LIST MODULE CONFIGURATOR
SHOW/LIST MODULE X25-ACCESS
SHOW/LIST MODULE X25-PROTOCOL
SHOW/LIST MODULE X25-SERVER/X29-SERVER

NCP

NCP Commands

SHOW/LIST NODE
SHOW/LIST OBJECT
TELL
TRIGGER NODE
TRIGGER VIA
ZERO CIRCUITS
ZERO EXECUTOR
ZERO LINE
ZERO MODULE X25-PROTOCOL
ZERO MODULE X25-SERVER/X29-SERVER
ZERO NODE

You can abbreviate any command verb, component, parameter, or qualifier as long as the abbreviation is not ambiguous. Certain words provide syntactic clarity but are optional. If omission of a word in an NCP command line produces an unambiguous result, that word is optional.

For convenience, commands that have the same components and parameters, yet different command verbs—depending upon whether they access the volatile or the permanent database—are listed together. Examples of commands listed together are CLEAR and PURGE, SET and DEFINE, and SHOW and LIST, where CLEAR, SET, and SHOW verbs apply to the volatile database and PURGE, DEFINE and LIST verbs apply to the permanent database. When two commands are grouped together, components and parameters are described for the command that accesses the volatile database. Typically, the actions described for the volatile database also apply to the permanent database. However, if certain commands apply only to a particular database or if a different action is required for the volatile and permanent databases, these exceptions are specifically noted under the command.

In general, the NCP commands and parameters are common to most network configurations. Exceptions to this general rule are noted under the command or parameter to which they apply. For example, if a parameter is restricted in use to a certain context (for example, to VAX PSI operations only), this restriction is noted under the parameter.

Note: Although NCP may accept a particular command syntax, this is no guarantee that NML on DECnet-VAX or some other DECnet implementation supports the function.

For a complete description of the network components specified in NCP commands, see the *VMS Networking Manual*. That manual also explains how to use the NCP commands to manage the DECnet network.

Appendix A contains tables and descriptive information to supplement the individual command summaries. This information includes the following:

- A network counter summary
- A table of DECnet circuit and line devices
- Tables of circuit, line, link, DTE, and server module states and substates
- A summary of DECnet event classes and types

NCP

CLEAR/PURGE CIRCUIT

BABBLE TIMER

Applies only to DDCMP CONTROL circuits. Resets to its default value the BABBLE TIMER value in the volatile database.

COUNTER TIMER

Cancels the logging timer. This cancellation prevents any further circuit counter logging for the indicated circuit or circuits.

DEAD THRESHOLD

Applies only to DDCMP CONTROL circuits. Resets to its default value the DEAD THRESHOLD count in the volatile database.

DTE

Applies only to DLM circuits. Allows the X.25 call to be set up using any local DTE.

DYING BASE

Applies only to DDCMP CONTROL circuits. Resets to its default value the DYING BASE value in the volatile database.

DYING INCREMENT

Applies only to DDCMP CONTROL circuits. Resets to its default value the DYING INCREMENT value in the volatile database.

DYING THRESHOLD

Applies only to DDCMP CONTROL circuits. Resets to its default value the DYING THRESHOLD count in the volatile database.

INACTIVE BASE

Applies only to DDCMP CONTROL circuits. Resets to its default value the INACTIVE BASE value in the volatile database.

INACTIVE INCREMENT

Applies only to DDCMP CONTROL circuits. Resets to its default value the INACTIVE INCREMENT value in the volatile database.

INACTIVE THRESHOLD

Applies only to DDCMP CONTROL circuits. Resets to its default value the INACTIVE THRESHOLD value in the volatile database.

MAXIMUM BUFFERS

Applies only to DDCMP CONTROL circuits. Resets to its default value the MAXIMUM BUFFERS value in the volatile database.

MAXIMUM RECALLS

Applies only to X.25 DLM circuits. Resets to its default value the limit on the number of call retries.

MAXIMUM ROUTERS

Applies only to Ethernet circuits. Resets to its default value the MAXIMUM ROUTER value in the volatile database.

MAXIMUM TRANSMITS

Applies only to DDCMP CONTROL circuits. Resets to its default value the MAXIMUM TRANSMIT count in the volatile database.

NETWORK

Applies only to purging X.25 PVCs and X.25 DLM circuits. Removes the circuit's network parameters from the permanent database.

NUMBER

Applies only to incoming DLM circuits. Removes the restriction on accepting calls only from a particular remote DTE number.

RECALL TIMER

Applies only to X.25 DLM circuits. Resets to its default value the RECALL TIMER value in the volatile database.

ROUTER PRIORITY

Applies only to Ethernet circuits. Resets to its default value the priority assigned to the router in the volatile database.

TRANSMIT TIMER

Applies only to DDCMP CONTROL circuits. Resets to its default value the TRANSMIT TIMER value in the volatile database.

EXAMPLES

1 NCP>CLEAR CIRCUIT DMC-0 ALL

This command removes all parameter entries for circuit DMC-0 in the volatile database. As a result, the circuit no longer exists for the local DECnet software.

2 NCP>CLEAR CIRCUIT DMP-0.4 COUNTER TIMER

This command removes the COUNTER TIMER parameter for circuit DMP-0.4 from the volatile database.

3 NCP>PURGE CIRCUIT X25-ANDIES ALL

This command removes all parameter entries in the permanent database for the X.25 permanent virtual circuit (PVC) called X25-ANDIES.

4 NCP>CLEAR CIRCUIT UNA-* ALL

This command clears all UNA circuits and the associated parameters for all UNA circuits in the volatile database.

NCP

CLEAR/PURGE EXECUTOR

CLEAR/PURGE EXECUTOR

The CLEAR EXECUTOR command resets selected local node parameters to the default value (if any) or removes them from the volatile database on the local node. The PURGE EXECUTOR command removes selected local node parameters from the permanent database on the local node.

You cannot clear the BUFFER SIZE or STATE parameter from the volatile database.

FORMAT

CLEAR EXECUTOR *parameter [...]*
PURGE EXECUTOR *parameter [...]*

Command Parameters

<i>ALIAS INCOMING</i>	<i>MAXIMUM BUFFERS</i>
<i>ALIAS MAXIMUM LINKS</i>	<i>MAXIMUM CIRCUITS</i>
<i>ALIAS NODE</i>	<i>MAXIMUM COST</i>
<i>ALL</i>	<i>MAXIMUM HOPS</i>
<i>AREA MAXIMUM COST</i>	<i>MAXIMUM LINKS</i>
<i>AREA MAXIMUM HOPS</i>	<i>MAXIMUM PATH SPLITS</i>
<i>BROADCAST ROUTING TIMER</i>	<i>MAXIMUM VISITS</i>
<i>BUFFER SIZE</i>	<i>NONPRIVILEGED</i>
<i>COUNTER TIMER</i>	<i>OUTGOING PROXY</i>
<i>DELAY FACTOR</i>	<i>OUTGOING TIMER</i>
<i>DELAY WEIGHT</i>	<i>PATH SPLIT POLICY</i>
<i>IDENTIFICATION</i>	<i>PIPELINE QUOTA</i>
<i>INACTIVITY TIMER</i>	<i>PRIVILEGED</i>
<i>INCOMING PROXY</i>	<i>RETRANSMIT FACTOR</i>
<i>INCOMING TIMER</i>	<i>ROUTING TIMER</i>
<i>MAXIMUM ADDRESS</i>	<i>SEGMENT BUFFER SIZE</i>
<i>MAXIMUM AREA</i>	<i>STATE</i>
<i>MAXIMUM BROADCAST NONROUTERS</i>	<i>SUBADDRESSES</i>
<i>MAXIMUM BROADCAST ROUTERS</i>	<i>TYPE</i>

COMMAND PARAMETERS

ALIAS INCOMING

Removes from the volatile database the ALIAS INCOMING parameter for the local node.

ALIAS MAXIMUM LINKS

Resets to its default value the ALIAS MAXIMUM LINKS value for the local node in the volatile database.

ALIAS NODE

Removes from the volatile database the alias node identifier for the local node.

ALL

Removes from the permanent database all executor parameters.

AREA MAXIMUM COST

Resets to its default value the AREA MAXIMUM COST value for the local node in the volatile database.

AREA MAXIMUM HOPS

Resets to its default value the AREA MAXIMUM HOPS value for the local node in the volatile database.

BROADCAST ROUTING TIMER

Resets to its default value the BROADCAST ROUTING TIMER value in the volatile database.

BUFFER SIZE

Removes from the permanent database the BUFFER SIZE value.

COUNTER TIMER

Removes from the volatile database the logging timer to prevent any further circuit counter logging for the local node.

DELAY FACTOR

Resets to its default value the DELAY FACTOR value for the local node in the volatile database.

DELAY WEIGHT

Resets to its default value the DELAY WEIGHT value for the local node in the volatile database.

IDENTIFICATION

Removes from the volatile database the identification string for the local node.

INACTIVITY TIMER

Resets to its default value the INACTIVITY TIMER value for the local node in the volatile database.

INCOMING PROXY

Resets to its default value the INCOMING PROXY value for the local node in the volatile database.

INCOMING TIMER

Resets to its default value the INCOMING TIMER value for the local node in the volatile database.

MAXIMUM ADDRESS

Resets to its default value the MAXIMUM ADDRESS value for the local node in the volatile database.

MAXIMUM AREA

Resets to its default value the MAXIMUM AREA value for the local node in the volatile database.

MAXIMUM BROADCAST NONROUTERS

Resets to its default value the MAXIMUM BROADCAST NONROUTERS value in the volatile database.

NCP

CLEAR/PURGE EXECUTOR

MAXIMUM BROADCAST ROUTERS

Resets to its default value the MAXIMUM BROADCAST ROUTERS value in the volatile database.

MAXIMUM BUFFERS

Resets to its default value the MAXIMUM BUFFERS value for the local node in the volatile database.

MAXIMUM CIRCUITS

Resets to its default value the MAXIMUM CIRCUITS value for the local node in the volatile database.

MAXIMUM COST

Resets to its default value the MAXIMUM COST value for the local node in the volatile database.

MAXIMUM HOPS

Resets to its default value the MAXIMUM HOPS value for the local node in the volatile database.

MAXIMUM LINKS

Resets to its default value the MAXIMUM LINKS value for the local node in the volatile database.

MAXIMUM PATH SPLITS

Resets to its default value the MAXIMUM PATH SPLITS value for the local node in the volatile database.

MAXIMUM VISITS

Resets to its default value the MAXIMUM VISITS value for the local node in the volatile database.

NONPRIVILEGED item

Removes from the volatile database the specified nonprivileged access control information. Specify any or all of the following items for removal:

ACCOUNT
PASSWORD
USER

OUTGOING PROXY

Resets to its default value the OUTGOING PROXY value for the local node in the volatile database.

OUTGOING TIMER

Resets to its default value the OUTGOING TIMER value for the local node in the volatile database.

PATH SPLIT POLICY

Resets to its default value the PATH SPLIT POLICY value for the local node in the volatile database.

PIPELINE QUOTA

Resets to its default value the PIPELINE QUOTA value for the local node in the volatile database.

PRIVILEGED item

Removes from the volatile database the specified privileged access control information. Specify any or all of the following items for removal:

ACCOUNT
PASSWORD
USER

RETRANSMIT FACTOR

Resets to its default value the RETRANSMIT FACTOR value for the local node in the volatile database.

ROUTING TIMER

Resets to its default value the ROUTING TIMER value for the local node in the volatile database.

SEGMENT BUFFER SIZE

Resets to its default value the SEGMENT BUFFER SIZE value in the volatile database.

STATE

Removes from the permanent database the local node's state.

SUBADDRESSES

Removes from the volatile database the value of the range of local DTE subaddresses.

TYPE

Resets to its default value the type of the local node in the volatile database.

EXAMPLES

1 NCP>PURGE EXECUTOR IDENTIFICATION INCOMING TIMER

This command removes the local node's identification string and incoming timer value from the permanent database.

2 NCP>PURGE EXECUTOR COUNTER TIMER

This command removes the local node counter timer value from the permanent database.

3 NCP>CLEAR EXECUTOR AREA MAXIMUM COST

This command resets to its default value the AREA MAXIMUM COST parameter in the volatile database for the local node whose type is AREA. AREA MAXIMUM COST is the total cost allowed from the local node to any other level 2 router.

NCP

CLEAR EXECUTOR NODE

CLEAR EXECUTOR NODE

The CLEAR EXECUTOR NODE command clears the default executor designation for all NCP commands. The executor of commands becomes the local node. You cannot use the TELL prefix with this command.

After you enter the CLEAR EXECUTOR NODE command, NML, linked with NCP on the local node, performs all NML operations. NML uses the privileges of your current process instead of the default nonprivileged or privileged accounts.

FORMAT **CLEAR EXECUTOR NODE**

PARAMETERS *None.*

EXAMPLE

```
NCP>SET EXECUTOR NODE TRNTO"GRAY MARY"
```

```
NCP>CLEAR EXECUTOR NODE
```

The first command sets the executor node to node TRNTO. The second command clears the default executor node designation specified previously by the SET EXECUTOR NODE command.

NCP

CLEAR/PURGE LINE

HANGUP

Applies only to asynchronous DDCMP lines. Removes the HANGUP parameter from the volatile database.

HOLDBACK TIMER

Applies only to X.25 lines. Removes the HOLDBACK TIMER parameter from the volatile database, causing the X.25 software to acknowledge received data immediately.

LINE SPEED

Applies only to asynchronous DDCMP lines. Removes the LINE SPEED parameter from the volatile database.

MAXIMUM RETRANSMITS

Applies only to X.25 lines. Resets the maximum number of retransmissions of a frame to the default value for the specified line or all known lines in the volatile database.

RECEIVE BUFFERS

Applies only to DDCMP lines. Resets the RECEIVE BUFFERS parameter to its default value in the volatile database.

SCHEDULING TIMER

Applies only to DDCMP lines. Resets the SCHEDULING TIMER parameter to its default value in the volatile database.

STREAM TIMER

Applies only to DDCMP lines. Resets the STREAM TIMER parameter to its default value in the volatile database.

SWITCH

Applies only to asynchronous DDCMP lines. Removes the SWITCH parameter from the volatile database.

TRANSMIT PIPELINE

Applies only to DMR11 lines. Removes the TRANSMIT PIPELINE parameter from the volatile database.

EXAMPLES

1 NCP>CLEAR LINE DMC-0 ALL

This command removes line DMC-0 from the volatile database.

2 NCP>CLEAR LINE DUP-0 ALL

This command removes the line called DUP-0 from the volatile database.

3 NCP>CLEAR KNOWN LINES MAXIMUM RETRANSMITS

This command resets the maximum number of retransmissions of a frame for all known lines in the volatile database. The parameter is reset to its default value.

4 NCP>CLEAR LINE DMC-* ALL

This command removes all DMC lines from the volatile database.

NCP

CLEAR/PURGE LOGGING

CLEAR/PURGE LOGGING

The CLEAR LOGGING command removes logging parameters from the volatile database on the local node or DTE. The PURGE LOGGING command removes logging parameters from the permanent database on the local node or DTE.

FORMAT

CLEAR *logging-component parameter*
PURGE *logging-component parameter*

Logging Components

<i>KNOWN LOGGING</i>	<i>LOGGING FILE</i>
<i>LOGGING CONSOLE</i>	<i>LOGGING MONITOR</i>

Command Parameters

<i>ALL</i>	<i>MODULE</i>
<i>CIRCUIT</i>	<i>NODE</i>
<i>LINE</i>	

LOGGING COMPONENTS

KNOWN LOGGING

Removes from the volatile database the parameters for all known logging.

LOGGING CONSOLE

Removes from the volatile database all parameters for logging to the console.

LOGGING FILE

Removes from the volatile database all parameters for logging to a file.

LOGGING MONITOR

Removes from the volatile database all parameters for logging to a monitor.

COMMAND PARAMETERS

ALL

Removes all parameters from the volatile database. After you enter the CLEAR/PURGE LOGGING command with this parameter, the logging component is no longer recognized by the network.

CIRCUIT circuit-id

Removes from the volatile database all logging parameters for the specified circuit.

LINE line-id

Removes from the volatile database all logging parameters for the specified line.

NCP

CLEAR/PURGE LOGGING

MODULE name

Removes from the volatile database all logging parameters for the specified module. Note that the word MODULE is optional. Module names include the following:

X25-PROTOCOL
X25-SERVER
X29-SERVER
X25-ACCESS

NODE node-id

Removes from the volatile database all logging parameters for the specified node.

EXAMPLE

NCP>CLEAR LOGGING CONSOLE ALL

This command clears logging to the logging console, after which the logging component is no longer recognized by the network.

NCP

CLEAR/PURGE LOGGING EVENTS

CLEAR/PURGE LOGGING EVENTS

The CLEAR LOGGING EVENTS command removes source-related logging parameters from the volatile database on the local node or DTE. The PURGE LOGGING EVENTS command removes source-related logging parameters from the permanent database on the local node or DTE. If no source is specified in the command, the source specific events will not be affected.

FORMAT **CLEAR** *logging-component parameter [...]*
 PURGE *logging-component parameter [...]*

Logging Components

<i>KNOWN LOGGING</i>	<i>LOGGING FILE</i>
<i>LOGGING CONSOLE</i>	<i>LOGGING MONITOR</i>

Command Parameters

<i>EVENTS</i>	<i>KNOWN EVENTS</i>
---------------	---------------------

LOGGING COMPONENTS **KNOWN LOGGING**
Removes from the volatile database the parameters for all known logging.

LOGGING CONSOLE
Removes from the volatile database the parameters for logging to the console.

LOGGING FILE
Removes from the volatile database the parameters for logging to a file.

LOGGING MONITOR
Removes from the volatile database the parameters for logging to a monitor program.

COMMAND PARAMETERS **EVENTS event-list**
 KNOWN EVENTS
Removes from the volatile database an event class and type or all event classes and types. You can associate any of the following source parameters when you specify the EVENTS parameter.

NCP

CLEAR/PURGE LOGGING EVENTS

CIRCUIT circuit-id	Identifies the circuit to which the events apply. Events will not be logged for this circuit.
LINE line-id	Identifies the line to which the events apply. Events will not be logged for this source.
MODULE name	Identifies the module to which the events apply. Events will not be logged for this source. Module names include the following: X25-PROTOCOL X25-SERVER X29-SERVER X25-ACCESS
NODE node-id	Note that the word MODULE is optional. Identifies the node to which the events apply. Events will not be logged for this source.
SINK	Identifies the node where the event logger runs to log the events. There are two possibilities: EXECUTOR Identifies the local node NODE node-id Identifies the node at which events are being logged Only events being logged to this node are removed from the volatile database. If this parameter is omitted, the local node is assumed to be the sink node affected.

EXAMPLES

1 NCP>CLEAR LOGGING FILE EVENTS 2.*

This command clears logging to the logging file for all class 2 events.

2 NCP>CLEAR LOGGING CONSOLE KNOWN EVENTS LINE DMC-1

This command clears logging to the console for all known events currently being logged for line DMC-1.

NCP

CLEAR/PURGE LOGGING NAME

CLEAR/PURGE LOGGING NAME

The CLEAR LOGGING NAME command removes the name of the logging sink from the volatile database on the local node or DTE. The PURGE LOGGING NAME command removes the name of the logging sink from the permanent database on the local node or DTE.

You must enter a SET LOGGING *component* STATE OFF command before attempting to use the CLEAR command.

FORMAT

CLEAR *logging-component NAME*
PURGE *logging-component NAME*

Logging Components

<i>KNOWN LOGGING</i>	<i>LOGGING FILE</i>
<i>LOGGING CONSOLE</i>	<i>LOGGING MONITOR</i>

LOGGING COMPONENTS

KNOWN LOGGING

Indicates that the name of the logging sink for all known logging is to be removed from the volatile database.

LOGGING CONSOLE

Indicates that the name of the logging console is to be removed from the volatile database.

LOGGING FILE

Indicates that the name of the logging file is to be removed from the volatile database.

LOGGING MONITOR

Indicates that the name of the logging monitor is to be removed from the volatile database.

EXAMPLE

NCP>CLEAR LOGGING CONSOLE NAME

This command clears the name of the logging console from the volatile database.

CLEAR/PURGE MODULE X25-ACCESS

The CLEAR MODULE X25-ACCESS command removes from the volatile database network names and parameters used by the host node to access a specified X.25 network or networks through a connector node. The PURGE MODULE X25-ACCESS command removes these same network names and parameters from the permanent database. Note that the word MODULE is optional.

FORMAT	CLEAR MODULE X25-ACCESS	<i>qualifier</i>
		<i>parameter [...]</i>
	PURGE MODULE X25-ACCESS	<i>qualifier</i>
		<i>parameter [...]</i>

Qualifiers

*NETWORK**KNOWN NETWORKS*

Parameters

*ACCOUNT**PASSWORD**ALL**USER*

QUALIFIERS

NETWORK network-name***KNOWN NETWORKS***

The name of a specific network or all of the network names to be removed from the volatile database. After you specify the NETWORK qualifier, you should follow it with one or more of these parameters:

ACCOUNT	Removes user account access control information from the volatile database.
ALL	Removes all X25-ACCESS module parameters from the volatile database.
PASSWORD	Removes the password access control information from the volatile database.
USER	Removes the user identification from the access control information in the volatile database.

NCP

CLEAR/PURGE MODULE X25-ACCESS

EXAMPLES

1 NCP>CLEAR MODULE X25-ACCESS NETWORK TELENET1 ALL

This command removes the network TELENET1 from the volatile database in the local node. The local node can no longer connect to X.25 network TELENET1 through the connector node.

2 NCP>CLEAR MODULE X25-ACCESS NETWORK TELENET1 PASSWORD

This command removes the password access control information for the network TELENET1 from the volatile database in the local node.

NCP

CLEAR/PURGE MODULE X25-PROTOCOL

NETWORK network-name	Selects the DTE(s) specified on a particular network. With the PURGE command, you can omit the network part of the qualifier if there is only one network defined.
KNOWN NETWORKS	Selects the DTE(s) on all known networks.

Additionally, you must follow the DTE qualifier with one or more of the following parameters:

ALL	Removes the specified DTE or all known DTEs from the volatile database.
CALL TIMER	Resets the call timer to its default value in the volatile database.
CLEAR TIMER	Resets the clear timer to its default value in the volatile database.
COUNTER TIMER	Removes the counter timer for the specified DTE or all known DTEs from the volatile database.
DEFAULT DATA	Resets the default packet size to its default value in the volatile database.
DEFAULT WINDOW	Resets the default window size to its default value in the volatile database.
INTERRUPT TIMER	Resets the interrupt timer to its default value in the volatile database.
MAXIMUM CIRCUITS	Resets the maximum number of virtual circuits allowed at once on the DTE to its default value in the volatile database.
MAXIMUM CLEARS	Resets to the default value in the volatile database the maximum number of attempts to clear a circuit.
MAXIMUM DATA	Resets the maximum packet size to its default value in the volatile database.
MAXIMUM RESETS	Resets to the default value in the volatile database the maximum number of attempts to reset a circuit.
MAXIMUM RESTARTS	Resets to the default value in the volatile database the maximum number of attempts to restart the DTE.
MAXIMUM WINDOW	Resets the maximum window size to its default value in the volatile database.
RESET TIMER	Resets the reset timer to its default value in the volatile database.
RESTART TIMER	Resets the restart timer to its default value in the volatile database.

GROUP group-name ***KNOWN GROUPS***

Removes parameters for the specified closed user group (CUG) or bilateral closed user group (BCUG), or all known groups, in the database. If you specify a group qualifier, you must follow it with the following parameter:

ALL	Removes all parameters for the specified group or all known groups.
-----	---

NETWORK network-name
KNOWN NETWORKS

Removes all DTEs, groups, and parameters for the specified network or all known networks in the volatile database. You must specify the following parameter:

ALL Removes all parameters for the network or networks.

EXAMPLES

1 NCP>CLEAR MODULE X25-PROTOCOL GROUP ESECUG ALL

This command removes the closed user group ESECUG from the volatile database.

2 NCP>PURGE MODULE X25-PROTOCOL GROUP ESECUG ALL

This command removes the parameters of the closed user group ESECUG from the permanent database. When the system is rebooted, the group no longer exists for VAX PSI.

3 NCP>CLEAR MODULE X25-PROTOCOL DTE 123789456 NETWORK PSS1 ALL

This command removes the specified DTE belonging to the network PSS1 from the volatile database.

4 NCP>PURGE MODULE X25-PROTOCOL DTE 123789456 KNOWN NETWORKS ALL

This command removes all parameter entries for all the DTEs of that DTE number, for all networks in which the DTE exists, from the permanent database. When the network is restarted, the DTE no longer exists for VAX PSI.

5 NCP>CLEAR MODULE X25-PROTOCOL ALL

This command removes all network, DTE, group, and X25-PROTOCOL module parameters from the volatile database.

6 NCP>CLEAR MODULE X25-PROTOCOL NETWORK PSS1 ALL

This command removes all DTEs and groups on network PSS1 and then removes the network name itself.

7 NCP>CLEAR MODULE X25-PROTOCOL KNOWN DTES -
_ KNOWN NETWORKS COUNTER TIMER

This command removes the COUNTER TIMER parameter for all DTEs on all networks from the volatile database.

NCP

CLEAR/PURGE MODULE X25-SERVER/X29-SERVER

CLEAR/PURGE MODULE X25-SERVER/X29-SERVER

The CLEAR MODULE X25-SERVER or CLEAR MODULE X29-SERVER command resets or removes the X.25 or X.29 call handler from the volatile database or removes individual parameters. The PURGE MODULE X25-SERVER or PURGE MODULE X29-SERVER command removes the parameters of the X.25 or X.29 call handler from the permanent database. Note that the word MODULE is optional.

FORMAT	CLEAR MODULE X25-SERVER <i>[qualifier]</i> <i>parameter [...]</i>
	CLEAR MODULE X29-SERVER <i>[qualifier]</i> <i>parameter [...]</i>
	PURGE MODULE X25-SERVER <i>[qualifier]</i> <i>parameter [...]</i>
	PURGE MODULE X29-SERVER <i>[qualifier]</i> <i>parameter [...]</i>

Qualifiers

DESTINATION

KNOWN DESTINATIONS

Parameters

ACCOUNT
ALL
CALL MASK
CALL VALUE
CALLED ADDRESS
EXTENSION MASK
EXTENSION VALUE
GROUP
INCOMING ADDRESS

NETWORK
OBJECT
PASSWORD
PRIORITY
RECEIVING DTE
REDIRECT REASON
SENDING ADDRESS
SUBADDRESSES
USER

Command Parameter

COUNTER TIMER

QUALIFIERS

DESTINATION* *dest-name
KNOWN DESTINATIONS

Identifies the destination or all known destinations whose parameters are to be reset or removed from the database. If you specify a destination qualifier, you must follow it with one or more of the following parameters.

CLEAR/PURGE MODULE X25-SERVER/X29-SERVER

ACCOUNT	Removes from the volatile database the account for the specified destination or all known destinations.
ALL	Removes from the volatile database all parameters for the specified destination or all known destinations.
CALL MASK	Removes from the volatile database the call mask for the specified destination or all known destinations.
CALL VALUE	Removes from the volatile database the call value for the specified destination or all known destinations.
CALLED ADDRESS	Removes from the volatile database the called DTE address for the specified destination or all known destinations.
EXTENSION MASK	Removes from the volatile database the extension mask for the specified destination or all known destinations.
EXTENSION VALUE	Removes from the volatile database the extension value for the specified destination or all known destinations.
GROUP	Removes from the volatile database the group name for the specified destination or all known destinations.
INCOMING ADDRESS	Removes from the volatile database the incoming address for the specified destination or all known destinations.
NETWORK	Removes from the volatile database the network name for the specified destination or all known destinations.
OBJECT	Removes from the volatile database the object identification for the specified destination or all known destinations.
PASSWORD	Removes from the volatile database the password for the specified destination or all known destinations.
PRIORITY	Resets to the lowest value the priority for the specified destination or all known destinations.
RECEIVING DTE	Removes from the volatile database the receiving DTE address for the specified destination or all known destinations.
REDIRECT REASON	Removes from the volatile database the redirect reason code for the specified destination or all known destinations.
SENDING ADDRESS	Removes from the volatile database the sending DTE address for the specified destination or all known destinations.
SUBADDRESSES	Removes from the volatile database the subaddress range for the specified destination or all known destinations.
USER	Removes from the volatile database the user identification for the specified destination or all known destinations.

**COMMAND
PARAMETER**

COUNTER TIMER

Resets the module counter timer to 0. This is the only parameter with which you are not required to supply a destination qualifier.

NCP

CLEAR/PURGE MODULE X25-SERVER/X29-SERVER

EXAMPLES

1 NCP>CLEAR MODULE X25-SERVER KNOWN DESTINATIONS ALL

This command removes all X.25 destinations from the volatile database.

2 NCP>PURGE MODULE X25-SERVER KNOWN DESTINATIONS ALL

This command removes all parameters for all X.25 destinations from the permanent database.

CLEAR/PURGE NODE

The CLEAR NODE command removes node parameters from the volatile database on the local node. The PURGE NODE command removes node parameters from the permanent database on the local node.

To remove a loop node name from the database, use the CLEAR/PURGE NODE node-id command and specify either the ALL parameter (with the loop node name or address as the node-id), or the CIRCUIT parameter.

FORMAT

CLEAR *node-component parameter [...]*
PURGE *node-component parameter [...]*

Node Components

NODE

KNOWN NODES

Command Parameters

<i>ALL</i>	<i>NAME</i>
<i>COUNTER TIMER</i>	<i>NONPRIVILEGED</i>
<i>CPU</i>	<i>PRIVILEGED</i>
<i>DIAGNOSTIC FILE</i>	<i>RECEIVE PASSWORD</i>
<i>DUMP ADDRESS</i>	<i>SECONDARY LOADER</i>
<i>DUMP COUNT</i>	<i>SERVICE CIRCUIT</i>
<i>DUMP FILE</i>	<i>SERVICE DEVICE</i>
<i>HARDWARE ADDRESS</i>	<i>SERVICE NODE VERSION</i>
<i>HOST</i>	<i>SERVICE PASSWORD</i>
<i>INBOUND</i>	<i>SOFTWARE IDENTIFICATION</i>
<i>LOAD ASSIST AGENT</i>	<i>SOFTWARE TYPE</i>
<i>LOAD ASSIST PARAMETER</i>	<i>TERTIARY LOADER</i>
<i>LOAD FILE</i>	<i>TRANSMIT PASSWORD</i>
<i>MANAGEMENT FILE</i>	

NODE COMPONENTS

NODE node-id

Identifies the node (local or remote) whose parameters are to be removed from the volatile database.

KNOWN NODES

Removes from the volatile database the specified parameters for all known nodes.

COMMAND PARAMETERS

ALL

Removes from the volatile database all parameters for the specified node or all known nodes. The component is no longer recognized by the network. The PURGE KNOWN NODES ALL command purges both the executor and remote node databases.

COUNTER TIMER

Removes the COUNTER TIMER value from the volatile database.

NCP

CLEAR/PURGE NODE

CPU

Removes the node's CPU identification from the volatile database.

DIAGNOSTIC FILE

Removes from the volatile database the identification of the downline loading diagnostics file.

DUMP ADDRESS

Removes from the volatile database the upline dump address of the adjacent node.

DUMP COUNT

Removes the upline dump count from the volatile database.

DUMP FILE

Removes the upline dump file identification from the volatile database.

HARDWARE ADDRESS

Removes the hardware Ethernet address from the volatile database.

HOST

Removes from the volatile database the identification of the host node.

INBOUND

Applies only to nodes connected by DDCMP point-to-point circuits. Removes the INBOUND parameter from the volatile database.

LOAD ASSIST AGENT

Removes from the volatile database the identification of the VMS image used to assist a downline load. The LOAD ASSIST AGENT parameter applies to downline load operations to Local Area VAXclusters only.

LOAD ASSIST PARAMETER

Removes from the volatile database the value to be passed to the load assist agent. The LOAD ASSIST PARAMETER value applies to downline load operations to Local Area VAXclusters only.

LOAD FILE

Removes from the volatile database the identification of the downline loading file.

MANAGEMENT FILE

Removes from the volatile database the identification of the downline loading management information file.

NAME

Removes from the volatile database the node name parameter for the node address.

NONPRIVILEGED item

Removes the specified nonprivileged access control information from the volatile database. Specify any or all of the following items for removal:

ACCOUNT
PASSWORD
USER

PRIVILEGED item

Removes the specified privileged access control information from the volatile database. Specify any or all of the following items for removal:

ACCOUNT
PASSWORD
USER

RECEIVE PASSWORD

Removes from the volatile database the receive password expected from the remote node during a Routing initialization sequence.

SECONDARY LOADER

Removes from the volatile database the identification of the secondary downline loading file.

SERVICE CIRCUIT

Removes from the volatile database the circuit parameter associated with the node for downline loading purposes.

SERVICE DEVICE

Removes the service device type from the volatile database.

SERVICE NODE VERSION

Removes from the volatile database the DECnet-VAX software version number of the node to be downline loaded.

SERVICE PASSWORD

Removes from the volatile database the password parameter required to trigger the bootstrap mechanism of the node to be downline loaded.

SOFTWARE IDENTIFICATION

Removes the identification of the software from the volatile database.

SOFTWARE TYPE

Removes the initial load software program type from the volatile database.

TERTIARY LOADER

Removes from the volatile database the identification of the tertiary downline loading file.

TRANSMIT PASSWORD

Removes from the volatile database the transmit password sent to the remote node during a Routing initialization sequence.

NCP

CLEAR/PURGE NODE

EXAMPLES

1 NCP>CLEAR NODE TRNTO ALL

This command removes all parameter entries for node TRNTO from the volatile database. As a result, the node no longer exists for local DECnet-VAX software.

2 NCP>CLEAR NODE 14 NAME

·
·
·
NCP>SET NODE 15 NAME DENVER

The first command disassociates the name DENVER from node 14. The second command associates the same name with node 15.

3 NCP>CLEAR NODE 5.14 NAME

·
·
·
NCP>SET NODE 5.15 NAME DENVER

The first command disassociates the name DENVER from node 5.14. The second command associates the same name with node 5.15. Use this example in place of the previous example when the network is divided into multiple areas.

4 NCP>CLEAR NODE BOSTON RECEIVE PASSWORD

This command removes the receive password from the record for the local node from the volatile database.

5 NCP>CLEAR NODE 5.* NAME

This command disassociates the node names from their addresses for all nodes in area 5.

CLEAR/PURGE NODE CIRCUIT

The CLEAR NODE CIRCUIT command removes a loop node from the volatile database on the executor node. The PURGE NODE CIRCUIT command removes a loop node from the permanent database on the executor node.

FORMAT **CLEAR** *node-component CIRCUIT*
 PURGE *node-component CIRCUIT*

Node Components

NODE

KNOWN NODES

NODE ***NODE node-id***
COMPONENTS Identifies the loop node to be removed from the volatile database.

KNOWN NODES

Indicates that all loop nodes are to be removed from the volatile database.

EXAMPLE

```
NCP>SET NODE TESTER CIRCUIT DMC-0
```

```
  .  
  .
```

```
NCP>CLEAR NODE TESTER CIRCUIT
```

The first command sets a loop node for circuit DMC-0. The second command removes the loop node from the volatile database.

NCP

CLEAR/PURGE OBJECT

CLEAR/PURGE OBJECT

The CLEAR OBJECT command removes from the volatile database object parameters on the local node. The PURGE OBJECT command removes from the permanent database object parameters on the local node.

FORMAT

CLEAR *object-component parameter [...]*
PURGE *object-component parameter [...]*

Object Components

KNOWN OBJECTS *OBJECT*

Command Parameters

<i>ACCOUNT</i>	<i>PASSWORD</i>
<i>ALIAS INCOMING</i>	<i>PRIVILEGES</i>
<i>ALIAS OUTGOING</i>	<i>PROXY</i>
<i>ALL</i>	<i>USER</i>
<i>FILE</i>	

OBJECT COMPONENTS

KNOWN OBJECTS

Indicates that parameters for all known objects are to be removed from the volatile database.

OBJECT object-name

Identifies the object whose parameters are to be removed from the volatile database.

COMMAND PARAMETERS

ACCOUNT

Removes the account access control information from the volatile database.

ALIAS INCOMING

Removes from the volatile database the ALIAS INCOMING parameter for the specified object or all known objects. Does not apply to VAX PSI.

ALIAS OUTGOING

Removes from the volatile database the ALIAS OUTGOING parameter for the specified object or all known objects. Does not apply to VAX PSI.

ALL

Removes from the volatile database all parameters for the specified object or all known objects. After you enter this parameter, the component is no longer recognized by the network.

FILE

Removes the name of the object's startup command file from the volatile database.

PASSWORD

Removes the password access control information from the volatile database.

PRIVILEGES

Removes from the volatile database the privileges required to access the object. Does not apply to VAX PSI.

PROXY

Removes from the volatile database the proxy access information for the object. Does not apply to VAX PSI.

USER

Removes the user access control information from the volatile database.

EXAMPLE

NCP>CLEAR OBJECT DTR ALL

This command removes all parameter entries for the DTR object from the volatile database. As a result, the object no longer exists for the local DECnet-VAX software.

NCP

CONNECT NODE

CONNECT NODE

The CONNECT NODE command sets up a logical connection between the host node and the console interface on a specified target node. Both the host node and the target node must be on the same Ethernet circuit.

To define default information for the target node in the volatile database, use the NCP command SET NODE to specify the SERVICE CIRCUIT, SERVICE PASSWORD, and HARDWARE ADDRESS parameters for the target node. Once set, you can override these default parameters for the target node by specifying new parameters in the CONNECT command.

FORMAT **CONNECT** *node-component [parameter] [...]*

Node Component

NODE

Command Parameters

PHYSICAL ADDRESS *VIA*
SERVICE PASSWORD

NODE COMPONENT ***NODE node-id***
Identifies the node name or address of the target node to be connected to the local node.

COMMAND PARAMETERS ***PHYSICAL ADDRESS E-address***
Specifies the Ethernet physical address of the target node. The value is the Ethernet address that the target node has set for itself or, if the target node has not set an Ethernet address, the HARDWARE ADDRESS parameter associated with the target node in the executor node's volatile database.

SERVICE PASSWORD hex-password
Identifies the password required to create the logical link between the host node and the target node. The password is a 16-digit hexadecimal number in the range 0 to FFFFFFFFFFFFFFFF.

VIA circuit-id
Specifies the circuit to be used to create the logical link between the host node and the target node. This circuit must be an Ethernet circuit.

EXAMPLE

```
NCP>CONNECT NODE RTRDEV SERVICE PASSWORD FEFEFEFEFEFEFEF -  
_ VIA UNA-0 PHYSICAL ADDRESS AA-00-04-00-38-04
```

This command connects the host node to the console interface on the target node RTRDEV specifying the service password FEFEFEFEFEFEFEF, the service circuit UNA-0, and the Ethernet physical address AA-00-04-00-38-04.

NCP

CONNECT VIA

CONNECT VIA

The CONNECT VIA command sets up a logical connection between the host node and the console interface on a target node using the specified circuit. If the DECnet node address of the target node is not known, use the CONNECT VIA command instead of the CONNECT NODE command. Both the host node and the target node must be on the same Ethernet circuit.

FORMAT **CONNECT VIA** *circuit-id parameter [...]*

Command Parameters

PHYSICAL ADDRESS

SERVICE PASSWORD

**COMMAND
PARAMETERS**

PHYSICAL ADDRESS E-address

Specifies the Ethernet physical address of the target node. The value is the Ethernet address that the target node has set for itself. This parameter is required.

SERVICE PASSWORD hex-password

Identifies the password required to create the logical link between the host node and the target node. The password is a hexadecimal number in the range 0 to FFFFFFFFFFFFFFFF.

EXAMPLE

NCP>CONNECT VIA UNA-0 PHYSICAL ADDRESS AA-00-04-00-38-00

This command connects the host node to the console interface on the target node by specifying the circuit over which the connection is to be made and the Ethernet physical address of the target node.

NCP

COPY KNOWN NODES

TO option

Specifies the node database on the local node to which the information is to be copied. There are three possible options:

- VOLATILE Indicates that the information is to be copied to the volatile database on the local node.
- PERMANENT Indicates that the information is to be copied to the permanent database on the local node.
- BOTH Indicates that the information is to be copied to both the volatile and permanent databases on the local node.

The default is VOLATILE.

WITH option

Clears or purges the node database on the local node before the copy operation is performed. Retains the executor node characteristics and the name and address of the remote node from which the node information is to be copied. The node database to be cleared or purged is the local database to which the information will be copied. There are two options:

- CLEAR Clears the volatile node database at the local node.
- PURGE Purges the permanent node database at the local node.

Note that you can actually specify either CLEAR or PURGE for either database or for both databases.

If you do not specify the WITH qualifier, the node entries copied are added to the existing node database(s).

EXAMPLES

1 NCP>LIST KNOWN NODES

Known Node Permanent Summary as of 30-DEC-1988 13:50:20

Executor node = 2.20 (ROBIN)
State = on

Remote node = 2.21 (THRUSH)
No information available

Remote node = 2.22 (LARK)
No information available

NCP>TELL LARK LIST KNOWN NODES

Known Node Permanent Summary as of 30-DEC-1988 13:50:20

Executor node = 2.22 (LARK)
State = on

Remote node = 2.20 (ROBIN)
No information available

Remote node = 2.23 (DOVE)
No information available

NCP COPY KNOWN NODES

NCP>COPY KNOWN NODES FROM LARK USING PERMANENT -
_ TO PERMANENT WITH PURGE

%NCP-I-SUCCESS - Success
Remote node = 2.21 (THRUSH)
%NCP-I-RECDELET, Database entry deleted
%NCP-I-SUCCESS - Success
Remote node = 2.22 (LARK)
%NCP-I-RECDELET, Database entry deleted
%NCP-I-SUCCESS - Success
Executor node = 2.20 (ROBIN)
%NCP-I-RECDELET, Database entry deleted

NCP>LIST KNOWN NODES

Known Node Permanent Summary as of 30-DEC-1988 14:01:05

Executor node = 2.20 (ROBIN)
State = on

Remote node = 2.22 (LARK)
No information available

Remote node = 2.23 (DOVE)
No information available

This copy command copies the node information from the permanent node database on node LARK into the permanent node database on the local node (ROBIN). The node database is purged before the copy operation is begun.

2 NCP>SHOW KNOWN NODES

Known Node Volatile Summary as of 30-DEC-1988 13:50:20

Executor node = 2.20 (ROBIN)
State = on
Identification = DECnet-VAX V5.0, VMS V5.0
Active links = 2

Node	State	Active Links	Delay	Circuit	Next node
2.21 (THRUSH)				QNA-0	2.19 (EGRET)
2.22 (LARK)				QNA-0	2.19 (EGRET)

NCP>TELL LARK SHOW KNOWN NODES

Known Node Volatile Summary as of 30-DEC-1988 13:53:27

Executor node = 2.22 (LARK)
State = on
Identification = DECnet-VAX V5.0, VMS V5.0
Active links = 2

Node	State	Active Links	Delay	Circuit	Next node
2.20 (ROBIN)				QNA-0	2.19 (EGRET)
2.23 (DOVE)				QNA-0	2.19 (EGRET)

NCP

COPY KNOWN NODES

NCP>COPY KNOWN NODES FROM LARK

NCP>SHOW KNOWN NODES

Known Node Volatile Summary as of 30-DEC-1988 14:01:05

Executor node = 2.20 (ROBIN)

State = on

Identification = DECnet-VAX V5.0, VMS V5.0

Active links = 2

Node	State	Active Links	Delay	Circuit	Next node
2.21 (THRUSH)				QNA-0	2.19 (EGRET)
2.22 (LARK)				QNA-0	2.19 (EGRET)
2.23 (DOVE)				QNA-0	2.19 (EGRET)

This COPY command copies the node information from the volatile node database on node LARK into the volatile node database on the local node (ROBIN). In this example, the volatile node database on the local node is not cleared before the copy operation is begun.

NCP

DISCONNECT LINK

2 NCP>SET EXECUTOR NODE DENVER

.
NCP>DISCONNECT KNOWN LINKS
NCP>CLEAR EXECUTOR NODE

The first command sets the executor node to DENVER. The DISCONNECT KNOWN LINKS command disconnects the link to NML on DENVER. As a result, you must either enter the SET EXECUTOR NODE command again, or you must enter the CLEAR EXECUTOR NODE command to reestablish communication with the local node's NML.

HELP

The HELP command displays general information about NCP commands and parameters. See Section 5 for more information about the NCP HELP Facility.

FORMAT **HELP** *[topic...]*

COMMAND *topic*
PARAMETER A command word listed in the HELP display. You may specify up to eight topics separated by spaces or tabs.

EXAMPLES

1 NCP>HELP
 Information available:

CLEAR	Commands	CONNECT	COPY	DEFINE	DISCONNECT	EVENTS
EXIT	HELP	LIST	LOAD	LOOP	PARAMETERS	Prompting
PURGE	SET	SHOW	TELL	TRIGGER	ZERO	

Topic?

This command displays all command verbs for which further information exists.

2 NCP>HELP CLEAR CIRCUIT
 CLEAR
 CIRCUIT

The CLEAR CIRCUIT command resets circuit parameters in the volatile database to the default value (if any), or removes them from the volatile database on the local node or DTE.

The PURGE CIRCUIT command always removes circuit parameters from the permanent database on the local node or DTE.

CLEAR KNOWN CIRCUITS (parameters...)
 CIRCUIT circuit-id

Additional information available:

KNOWN CIRCUITS	CIRCUIT circuit-id	ACTIVE BASE	
ACTIVE INCREMENT	ALL	BABBLE TIMER	COUNTER TIMER
DEAD THRESHOLD	DYING BASE	DYING INCREMENT	DYING THRESHOLD
INACTIVE BASE	INACTIVE INCREMENT	INACTIVE THRESHOLD	
MAXIMUM BUFFERS	MAXIMUM RECALLS	MAXIMUM ROUTERS	
MAXIMUM TRANSMITS	NETWORK	RECALL TIMER	ROUTER PRIORITY
TRANSMIT TIMER	Examples		

This command provides a description of the NCP command CLEAR CIRCUIT and displays command words for which further information exists.

NCP HELP

3 NCP>HELP SHOW
SHOW

Use the SHOW command to display information from the volatile database on the executor node. Use the LIST command to display information from the permanent database on the executor node.

Additional information available:

CHARACTERISTICS	COUNTERS	EVENTS	STATUS	SUMMARY	
TO file-id AREA	CIRCUIT	EXECUTOR	LINE	LINKS	LOGGING
MODULE NODE	OBJECT				

This command provides a description of the NCP command SHOW and displays command words for which further information exists.

LOAD NODE

The LOAD NODE command downline loads software to a target node, using either the identified circuit (if specified) or the circuit obtained from the volatile database. Any parameter left unspecified in the command defaults to whatever entry is specified in the volatile database on the executor node.

FORMAT **LOAD** *node-component parameter [...]*

Node Component
NODE

Command Parameters

<i>ADDRESS</i>	<i>PHYSICAL ADDRESS</i>
<i>CPU</i>	<i>SECONDARY LOADER</i>
<i>FROM</i>	<i>SERVICE DEVICE</i>
<i>HOST</i>	<i>SERVICE PASSWORD</i>
<i>LOAD ASSIST AGENT</i>	<i>SOFTWARE IDENTIFICATION</i>
<i>LOAD ASSIST PARAMETER</i>	<i>SOFTWARE TYPE</i>
<i>MANAGEMENT FILE</i>	<i>TERTIARY LOADER</i>
<i>NAME</i>	<i>VIA</i>

NODE COMPONENT ***NODE node-id***
Identifies the node name or address of the target node to be downline loaded.

COMMAND PARAMETERS ***ADDRESS node-address***
Identifies the address that the target node is to use (when it comes up).

CPU cpu-type
Identifies the node's CPU type. There are four possibilities:

DECSYSTEM1020
PDP11
PDP8
VAX

FROM filespec
Identifies the file specification of the load file containing the system software to be downline loaded.

HOST node-id
Identifies the default host that the target node is to use (when it comes up).

LOAD ASSIST AGENT filespec
Specifies the VMS image that defines the system software to be downline loaded to the target node. The load assist agent can be used to tailor the

NCP

LOAD NODE

system software to be loaded. The LOAD ASSIST AGENT parameter applies to downline load operations to Local Area VAXclusters only.

LOAD ASSIST PARAMETER *item*

Specifies a parameter to be passed to a load assist agent. The LOAD ASSIST PARAMETER value applies to downline load operations to Local Area VAXclusters only.

MANAGEMENT FILE *filespec*

Specifies a file containing the management information to be downline loaded to the target node.

NAME *node-name*

Identifies the name that the target node is to use (when it comes up).

PHYSICAL ADDRESS *E-address*

Applies only to nodes on Ethernet circuits. Specifies the Ethernet address that the target node to be downline loaded currently uses to identify itself. The value is the Ethernet address that the target node has set for itself or, if the target node has not set an Ethernet address, the HARDWARE ADDRESS parameter if associated with the target node in the executor node's volatile database.

SECONDARY LOADER *filespec*

Identifies the file specification of a secondary load file containing the software to be downline loaded.

SERVICE DEVICE *device-type*

Identifies the target node's line controller for the service line over which the operation is to take place. The possibilities are as follows:

BNA	DA	DL	DLV	DMB	DMC
DMF	DMP	DMR	DMV	DP	DQ
DTE	DU	DUP	DV	DZ	KDP
KDZ	KL	PCL	QNA	SVA	UNA

Only the synchronous port on the DMF service device may be used.

SERVICE PASSWORD *hex-password*

Identifies the password required to trigger the bootstrap mechanism on the target node. The password is a hexadecimal number. For DDCMP circuits, it is in the range 0 to FFFFFFFF; for Ethernet circuits, it is in the range 0 to FFFFFFFFFFFFFFFF.

SOFTWARE IDENTIFICATION *software-id*

Is the ID of the software to be downline loaded.

SOFTWARE TYPE *software-type*

Identifies the particular file type to be loaded first. There are four possibilities:

- MANAGEMENT FILE
- SECONDARY LOADER
- SYSTEM
- TERTIARY LOADER

TERTIARY LOADER filespec

Identifies the file specification of a tertiary load file containing the software to be downline loaded.

VIA circuit-id

Identifies a circuit over which the loading sequence is to take place.

EXAMPLES

1 NCP>LOAD NODE NYC HOST BOSTON VIA DMC-2

This command initiates a downline load operation for node NYC over circuit DMC-2. When loaded, node NYC has node BOSTON as its default host specification.

2 NCP>LOAD NODE BANGOR

This command initiates a downline load operation for node BANGOR. Any required default information is retrieved from the volatile database on the executor node.

3 NCP>LOAD NODE SWIFT PHYSICAL ADDRESS AA-00-04-00-07-04

This command initiates a downline load operation for node SWIFT on an Ethernet circuit. The executor node uses the Ethernet physical address specified in the command to address node SWIFT.

NCP

LOAD VIA

LOAD VIA

The LOAD VIA command downline loads software to a target node using the specified circuit. The target node identification is obtained from the volatile database on the executor node. If the target node is on an Ethernet circuit, you must specify the PHYSICAL ADDRESS parameter in this command.

FORMAT **LOAD VIA** *circuit-id parameter [...]*

Command Parameters

<i>ADDRESS</i>	<i>PHYSICAL ADDRESS</i>
<i>CPU</i>	<i>SECONDARY LOADER</i>
<i>FROM</i>	<i>SERVICE DEVICE</i>
<i>HOST</i>	<i>SERVICE PASSWORD</i>
<i>LOAD ASSIST AGENT</i>	<i>SOFTWARE IDENTIFICATION</i>
<i>LOAD ASSIST PARAMETER</i>	<i>SOFTWARE TYPE</i>
<i>MANAGEMENT FILE</i>	<i>TERTIARY LOADER</i>
<i>NAME</i>	

**COMMAND
PARAMETERS**

ADDRESS node-address

Identifies the address that the target node is to use (when it comes up).

CPU cpu-type

Identifies the node's CPU type. There are four possibilities:

- DECSYSTEM1020
- PDP11
- PDP8
- VAX

FROM filespec

Identifies the file specification of the load file containing the system software to be downline loaded.

HOST node-id

Identifies the default host that the target node is to use (when it comes up).

LOAD ASSIST AGENT filespec

Specifies the VMS image that defines the system software to be downline loaded to the target node. The load assist agent can be used to tailor the system software to be loaded. The LOAD ASSIST AGENT parameter applies to downline load operations to Local Area VAXclusters only.

LOAD ASSIST PARAMETER item

Specifies a parameter to be passed to a load assist agent. The LOAD ASSIST PARAMETER value applies to downline load operations to Local Area VAXclusters only.

MANAGEMENT FILE filespec

Specifies a file containing the management information to be downline loaded to the target node.

NAME node-name

Identifies the name that the target node is to use (when it comes up).

PHYSICAL ADDRESS E-address

Applies only to nodes on Ethernet circuits. Specifies the Ethernet address that the target node to be downline loaded currently uses to identify itself. The value is the Ethernet address that the target node has set for itself or, if the target node has not set an Ethernet address, the HARDWARE ADDRESS parameter if associated with the target node in the executor node's volatile database.

SECONDARY LOADER filespec

Identifies the file specification of a secondary load file containing the software to be downline loaded.

SERVICE DEVICE device-type

Identifies the target node's line controller for the service line over which the operation is to take place. The possibilities are as follows:

BNA	DA	DL	DLV	DMB	DMC
DMF	DMP	DMR	DMV	DP	DQ
DTE	DU	DUP	DV	DZ	KDP
KDZ	KL	PCL	QNA	SVA	UNA

Only the synchronous port on the DMF service device may be used.

SERVICE PASSWORD hex-password

Identifies the password required to trigger the bootstrap mechanism on the target node. The password is a hexadecimal number. For DDCMP circuits, it is in the range 0 to FFFFFFFF; for Ethernet circuits, it is in the range 0 to FFFFFFFFFFFFFFFF.

SOFTWARE IDENTIFICATION software-id

Is the ID of the software to be downline loaded.

SOFTWARE TYPE software-type

Identifies the particular file type to be loaded first. There are four possibilities:

MANAGEMENT FILE
SECONDARY LOADER
SYSTEM
TERTIARY LOADER

TERTIARY LOADER filespec

Identifies the file specification of a tertiary load file containing the software to be downline loaded.

NCP

LOAD VIA

EXAMPLES

1 NCP>LOAD VIA DMP-0.4

This command initiates a downline load operation over circuit DMP-0.4. Any required default information is retrieved from the volatile database on the executor node. NCP scans the node database until it finds a node whose service circuit matches the load circuit.

2 NCP>LOAD VIA DMC-0 SOFTWARE TYPE SECONDARY LOADER

This command initiates a downline load operation over circuit DMC-0, commencing with the secondary loader file.

3 NCP>LOAD VIA UNA-0 PHYSICAL ADDRESS AA-00-04-00-07-04

This command initiates a downline load operation over Ethernet circuit UNA-0, to the target node whose Ethernet physical address is specified in the command.

LOOP CIRCUIT

The LOOP CIRCUIT command tests a specified circuit in the network by causing test blocks of data to be transmitted over the specified circuit. The parameters are optional and can be entered in any order.

FORMAT **LOOP** *circuit-component* [*parameter*] [...]

Circuit Component

CIRCUIT

Command Parameters

<i>ASSISTANT NODE</i>	<i>LENGTH</i>
<i>ASSISTANT PHYSICAL ADDRESS</i>	<i>NODE</i>
<i>COUNT</i>	<i>PHYSICAL ADDRESS</i>
<i>HELP</i>	<i>WITH</i>

CIRCUIT COMPONENT

CIRCUIT circuit-id

Does not apply to X.25 circuits. Identifies the circuit for loopback testing.

COMMAND PARAMETERS

ASSISTANT NODE node-id

Applies only to Ethernet circuits. Identifies the name of the node or the address of the node that is to perform the role of loopback assistant for Ethernet third-party loop testing. You can use this parameter instead of the ASSISTANT PHYSICAL ADDRESS parameter.

ASSISTANT PHYSICAL ADDRESS E-address

Applies only to Ethernet circuits. Identifies the Ethernet physical address of the node that is to perform the role of loopback assistant for Ethernet third-party loop testing. If HELP is included in this command, you must specify ASSISTANT PHYSICAL ADDRESS. The address cannot be a multicast address. You can use this parameter instead of the ASSISTANT NODE parameter.

COUNT number

Specifies the number of blocks to be sent during loopback testing over the circuit. The count must be a decimal integer in the range of 1 through 65,535. If you omit this parameter, only one block is looped.

HELP help-type

Applies only to Ethernet circuits. Indicates the amount of assistance to be provided during Ethernet loopback testing by the assistant node, whose address is specified in the ASSISTANT PHYSICAL ADDRESS or *node-id* as specified in the ASSISTANT NODE parameter. There are three possible values for *help-type*.

NCP

LOOP CIRCUIT

- FULL The assistant node relays the request and the reply between the executor node and the destination node.
- RECEIVE The executor node sends the request directly to the destination node, which relays the reply to the assistant node for transmission to the executor node.
- TRANSMIT The assistant node relays the request to the destination node, which replies directly to the executor node.

If you specify HELP, you must also specify ASSISTANT PHYSICAL ADDRESS or ASSISTANT NODE.

LENGTH number

Specifies the length (in bytes) of the blocks to be sent during loopback testing. The length must be a decimal integer in the range of 1 through 65,535. Note that the LENGTH parameter must be less than 50 for the DMC-11 circuit operating in either controller loopback mode or cable loopback (a DMC-11 with an attached loopback cable). If you omit this parameter, a block length of 40 bytes is used.

NODE node-id

Applies only to Ethernet circuits. Identifies the destination node to be used for loopback testing of the specified Ethernet circuit. You can use this parameter instead of the PHYSICAL ADDRESS parameter.

PHYSICAL ADDRESS E-address

Applies only to Ethernet circuits. Identifies the Ethernet physical address of the destination node to be used for loopback testing of the specified Ethernet circuit.

WITH data-type

Specifies the type of binary information to be sent during testing. If you omit this parameter, a combination of ones and zeros (the MIXED data type) is sent. There are three types of data:

MIXED
ONES
ZEROS

EXAMPLES

1 NCP>LOOP CIRCUIT DMC-0 COUNT 5 LENGTH 20

This command initiates a circuit-level loopback test over circuit DMC-0. The software loops five messages, 20 bytes in length with mixed binary information.

2 NCP>LOOP CIRCUIT UNA-0 PHYSICAL ADDRESS AA-00-04-00-FF-04

This command initiates an Ethernet circuit-level loopback test with a node whose Ethernet physical address is AA-00-04-00-FF-04.

NCP LOOP CIRCUIT

3 NCP>LOOP CIRCUIT UNA-0 NODE 224

This command initiates an Ethernet circuit-level loopback test with a node whose address is 224. In this example, the NODE parameter with a *node-id* value of 224 is used in place of the PHYSICAL ADDRESS parameter.

4 NCP>LOOP CIRCUIT UNA-0 PHYSICAL ADDRESS -
_ AA-00-04-00-12-04 ASSISTANT NODE GULL HELP RECEIVE

This command initiates an Ethernet circuit-level loopback test by transmitting a message directly to a node whose Ethernet physical address is AA-00-04-00-12-04. Additionally, the command requests the assistance of an Ethernet node named GULL to receive the message from the target node and then relay the message back.

LOOP EXECUTOR

The LOOP EXECUTOR command tests the executor node in the network by causing test data to be transmitted to the executor node. The parameters are optional and can be entered in any order. You can supply explicit access control information for the LOOP EXECUTOR command.

FORMAT **LOOP EXECUTOR** *[parameter][...]*

Command Parameters

<i>ACCOUNT</i>	<i>PASSWORD</i>
<i>COUNT</i>	<i>USER</i>
<i>LENGTH</i>	<i>WITH</i>

**COMMAND
PARAMETERS**

ACCOUNT* *account

Identifies the user's account for access control verification for the executor node.

COUNT* *number

Specifies the number of blocks to be sent during loopback testing over the executor node. The count must be a decimal integer in the range of 1 through 65,535. If you omit this parameter, only one block is looped.

LENGTH* *number

Specifies the length (in bytes) of the blocks to be sent during loopback testing. The length must be a decimal integer in the range of 1 through 65,535. If you omit this parameter, a block length of 40 bytes is used.

PASSWORD* *password

Identifies the user's password for access control verification for the executor node.

USER* *user-id

Specifies the user's identification for access control verification for the executor node.

WITH* *data-type

Specifies the type of binary information to be sent during testing. If you omit this parameter, a combination of ones and zeros (the MIXED data type) is sent. There are three types of data:

MIXED
ONES
ZEROS

EXAMPLE

NCP>LOOP EXECUTOR

This command initiates a loopback test on the executor node.

LOOP LINE

The LOOP LINE command initiates loopback tests of X.25 lines only. The parameters are optional and can be entered in any order. Before beginning loopback testing of an X.25 line, use the SET LINE command to set the STATE SERVICE and CONTROLLER LOOPBACK parameters for internal loopback testing or the STATE SERVICE and CONTROLLER NORMAL parameters for all other loopback testing.

FORMAT **LOOP** *line-component* [*parameter*] [...]

Line Component
LINE

Command Parameters
COUNT
LENGTH
WITH

LINE COMPONENT ***LINE line-id***
Applies only to VAX PSI. Identifies the X.25 line for loopback testing. Specify a line name using the *dev-c-u* format for the *line-id*.

COMMAND PARAMETERS ***COUNT number***
Specifies the number of blocks to be sent during loopback testing over the line. The count must be a decimal integer in the range of 1 through 65,535. If you omit this parameter, only one block is looped.

LENGTH number
Specifies the length (in bytes) of the blocks to be sent during loopback testing. The length must be a decimal integer in the range of 1 through 65,535. If you omit this parameter, a block length of 40 bytes is used.

WITH data-type
Specifies the type of binary information to be sent during testing. If you omit this parameter, a combination of ones and zeros (the MIXED data type) is sent. There are three types of data:

MIXED
ONES
ZEROS

EXAMPLES

1 NCP>LOOP LINE DUP-0

This command initiates a line-level loopback test over X.25 line DUP-0. The software loops one message, 40 bytes in length, with mixed binary information.

2 NCP>LOOP LINE DUP-1 COUNT 10 WITH ONES

This command initiates a line-level loopback test over X.25 line DUP-1. The software loops 10 messages, 40 bytes in length, with all binary ones information.

NCP

LOOP NODE

LOOP NODE

The LOOP NODE command tests a specified node (other than the executor node) in the network by causing test blocks of data to be transmitted to the node. The parameters are optional and can be entered in any order. You can supply explicit access control information for the LOOP NODE command.

To test the executor node, use the LOOP EXECUTOR command.

FORMAT **LOOP** *node-component* [*parameter*] [...]

Node Component

NODE

Command Parameters

ACCOUNT

PASSWORD

COUNT

USER

LENGTH

WITH

NODE COMPONENT

NODE node-id

Does not apply to VAX PSI. Identifies the node on which the loopback mirror is to run.

COMMAND PARAMETERS

ACCOUNT account

Identifies the user's account for access control verification for the designated node.

COUNT number

Specifies the number of blocks to be sent during loopback testing over the node. The count must be a decimal integer in the range of 1 through 65,535. If you omit this parameter, only one block is looped.

LENGTH number

Specifies the length (in bytes) of the blocks to be sent during loopback testing. The length must be a decimal integer in the range of 1 through 65,535. Note that the LENGTH parameter must be less than 50 for the DMC-11 circuit operating in either controller loopback mode or cable loopback (a DMC-11 with an attached loopback cable). If you omit this parameter, a block length of 40 bytes is used.

PASSWORD password

Identifies the user's password for access control verification for the designated node.

USER user-id

Specifies the user's identification for access control verification for the designated node.

WITH data-type

Specifies the type of binary information to be sent during testing. If you omit this parameter, a combination of ones and zeros (the MIXED data type) is sent. There are three types of data:

MIXED
ONES
ZEROS

EXAMPLE

```
NCP>SET NODE TESTER CIRCUIT DMC-0
NCP>LOOP NODE TESTER
.
.
.
NCP>CLEAR NODE TESTER CIRCUIT
```

The first command creates a loop node name (TESTER) for the associated circuit, the second command initiates a node-level loopback test with the loop node name, and the third command removes the loop node name from the volatile database when the loop test is completed.

SET CIRCUIT ALL

The SET CIRCUIT ALL command updates the volatile copy of the database on the local node with all the circuit parameters stored for a particular circuit or for all known circuits in the permanent database on the local node.

FORMAT **SET** *circuit-component ALL*

Circuit Components

CIRCUIT

KNOWN CIRCUITS

**CIRCUIT
COMPONENTS**

CIRCUIT circuit-id

Instructs NCP to update the parameters for a specific circuit.

KNOWN CIRCUITS

Instructs NCP to update all parameters for all known circuits.

EXAMPLE

NCP>SET KNOWN CIRCUITS ALL

This command loads all permanent database entries stored for all known circuits into the volatile database.

NCP

SET/DEFINE CIRCUIT

SET/DEFINE CIRCUIT

The SET CIRCUIT command creates or modifies circuit parameters in the volatile database on the local node. The DEFINE CIRCUIT command creates or modifies circuit parameters in the permanent database on the local node. The circuit must be in the OFF state before you modify any parameters other than COST, COUNTER TIMER, STATE, or VERIFICATION.

FORMAT

SET *circuit-component parameter [...]*

DEFINE *circuit-component parameter [...]*

Circuit Components

CIRCUIT

KNOWN CIRCUITS

Command Parameters

ACTIVE BASE

ACTIVE INCREMENT

BABBLE TIMER

CHANNEL

COST

COUNTER TIMER

DEAD THRESHOLD

DTE

DYING BASE

DYING INCREMENT

DYING THRESHOLD

HELLO TIMER

INACTIVE BASE

INACTIVE INCREMENT

INACTIVE THRESHOLD

MAXIMUM BUFFERS

MAXIMUM DATA

MAXIMUM RECALLS

MAXIMUM ROUTERS

MAXIMUM TRANSMITS

MAXIMUM WINDOW

NETWORK

NUMBER

OWNER EXECUTOR

POLLING STATE

RECALL TIMER

ROUTER PRIORITY

SERVICE

STATE

TRANSMIT TIMER

TRIBUTARY

TYPE X25

USAGE

VERIFICATION

CIRCUIT COMPONENTS

CIRCUIT *circuit-id*

Identifies the circuit whose parameters are to be updated.

KNOWN CIRCUITS

Indicates that parameters for all known circuits are to be updated.

COMMAND PARAMETERS

ACTIVE BASE *base*

Applies only to DDCMP CONTROL circuits. Sets the base priority of an ACTIVE tributary after the tributary has been polled. You can set a separate base for each of the indicated polling states. The base value must be a decimal integer from 0 to 255. The default is 255.

ACTIVE INCREMENT *increment*

Applies only to DDCMP CONTROL circuits. Sets the increment value added to the ACTIVE tributary priority each time the scheduling timer expires. The *increment* value must be a decimal integer from 0 to 255. The default is 0.

BABBLE TIMER *milliseconds*

Applies only to DDCMP CONTROL circuits. Represents the number of milliseconds that a selected tributary or remote half-duplex station is allowed to transmit. The *milliseconds* value must be a decimal integer in the range 1 to 65,535. The default is 6000 (6 seconds).

CHANNEL *number*

Applies only to X.25 and DLM permanent virtual circuits (PVCs). Identifies the logical channel number for the X.25 PVCs. Specify a value in the range 1 to 4095. When you specify an X.25 PVC or a DLM PVC for the first time, this parameter is mandatory.

COST *cost*

Does not apply to X.25 PVCs. Specifies the routing cost of the circuit. Messages travel between nodes along the path with the smallest total cost. The *cost* value must be a decimal integer in the range 1 to 25. The default value is 10.

COUNTER TIMER *seconds*

Specifies the number of seconds that the circuit counter timer will run. When the counter timer expires, a circuit counter logging event occurs. The *seconds* value must be a decimal integer in the range 0 to 65,535. If no value is set for COUNTER TIMER, the circuit counters are not logged automatically.

DEAD THRESHOLD *count*

Applies only to DDCMP CONTROL circuits. Defines the number of times to poll the active, inactive, or dying tributary before changing that tributary's polling state to DEAD because of receive timeouts. The *count* value must be a decimal integer in the range 0 to 255. The default count is 8.

DTE *dte-address*

Applies only to X.25 PVCs and DLM circuits. Identifies the local DTE for the circuit. Specify a decimal integer of 1 to 15 digits. See the *Public Network Information* manual for the format of the address on your network. This parameter is optional for DLM SVCs and mandatory when you specify an X.25 PVC or DLM PVC for the first time.

DYING BASE *base*

Applies only to DDCMP CONTROL circuits. Sets the base priority of a DYING tributary after the tributary has been polled. You can set a separate base for each of the indicated polling states. The *base* value must be a decimal integer from 0 to 255. The default is 0.

DYING INCREMENT *increment*

Applies only to DDCMP CONTROL circuits. Sets the increment value added to the DYING tributary priority each time the scheduling timer expires. The *increment* value must be a decimal integer from 0 to 255. The default is 16.

NCP

SET/DEFINE CIRCUIT

DYING THRESHOLD count

Applies only to DDCMP CONTROL circuits. Specifies the number of times to poll the active or inactive tributary before changing that tributary's polling state to dying because of receive timeouts. The *count* value must be a decimal integer in the range 0 to 255. The default count is 2.

HELLO TIMER seconds

Does not apply to X.25 PVCs. Specifies the frequency of Routing Hello messages sent to adjacent nodes on the circuit. The *seconds* value must be a decimal integer in the range 0 to 8191. The default value is 15. The value of the read-only circuit parameter LISTEN TIMER is three times that of the HELLO TIMER parameter.

INACTIVE BASE base

Applies only to DDCMP CONTROL circuits. Sets the base priority of an inactive tributary after the tributary has been polled. You can set a separate base for each of the indicated polling states. The *base* value must be a decimal integer from 0 to 255. The default is 0.

INACTIVE INCREMENT increment

Applies only to DDCMP CONTROL circuits. Sets the increment value added to the inactive tributary priority each time the scheduling timer expires. The *increment* value must be a decimal integer from 0 to 255. The default is 64.

INACTIVE THRESHOLD count

Applies only to DDCMP CONTROL circuits. Specifies the number of times to poll the active tributary before changing that tributary's polling state to inactive because of no data response. The *count* value must be a decimal integer in the range 0 to 255. The default count is 8.

MAXIMUM BUFFERS count

Applies only to DDCMP CONTROL circuits. Specifies the maximum number of buffers from a common buffer pool that the tributary can use. If you do not set this parameter, there is no common buffer pool and the higher level will explicitly supply the buffers. The *count* value must be a decimal integer in the range up to 254 or the word UNLIMITED.

MAXIMUM DATA count

Applies only to X.25 PVCs and DLM circuits. Specifies the maximum packet size for the X.25 circuit. This value must be at least 5 bytes less than the MAXIMUM BLOCK value that you specify in the SET or DEFINE LINE command and must be a power of 2. Specify a value in the range 16 to 4096 bytes. By default, the *packet size* takes the value specified by the PROFILE parameter of the SET or DEFINE MODULE X25-PROTOCOL command. See the *Public Network Information* manual for the network value of this parameter.

MAXIMUM RECALLS count

Applies only to DLM outgoing switched virtual circuits (SVCs). Specifies the maximum number of call retries generated on an outgoing DLM circuit before the circuit is declared nonoperational. The range of possible values for MAXIMUM RECALLS is 0 to 255. A *count* value of 0 specifies an infinite number of call retries. The default value is 100.

MAXIMUM ROUTERS number

Applies only to Ethernet circuits. Specifies the maximum number of routers (other than the executor node) allowed by the Routing layer on this circuit. Use a number in the range 1 to 33. The default value is 33.

MAXIMUM TRANSMITS count

Applies only to DDCMP CONTROL circuits. Specifies the maximum number of data messages that can be transmitted at one time. The *count* value must be a decimal integer in the range 1 to 255. The default is 4.

MAXIMUM WINDOW count

Applies only to X.25 PVCs and DLM circuits. Specifies the maximum window size allowed for the X.25 circuit—that is, the maximum number of packets for which outstanding acknowledgments are allowed. Specify a value in the range 1 to 127. By default, *window size* takes the value specified by the PROFILE parameter of the SET or DEFINE MODULE X25-PROTOCOL command. See the *Public Network Information* manual for the network value of this parameter.

NETWORK network-name

Applies only to X.25 PVCs and DLM circuits. Specifies the network that the circuit runs through. If only one network is set up, this parameter is not required. Otherwise, the parameter is mandatory.

NUMBER dte-address

Applies only to DLM switched virtual circuits. For outgoing circuits, specifies the remote DTE address and subaddress that this DLM circuit will call. For incoming circuits, specifies the address of the remote DTE from which this circuit will accept calls. If the NUMBER parameter is not specified for an incoming circuit, a call from any remote DTE can be directed to this circuit. Specify a decimal integer of 1 to 15 digits.

OWNER EXECUTOR

Applies only to DLM circuits. Identifies the circuit owner as the Routing layer. This parameter is mandatory for a DLM circuit.

POLLING STATE polling-state

Applies only to DDCMP CONTROL circuits. Identifies the multipoint polling state of the tributary. There are five possible states:

AUTOMATIC	The tributary's state varies according to the operation of the polling algorithm. This is the default.
ACTIVE	The tributary is locked in the ACTIVE state.
DEAD	The tributary is locked in the DEAD state.
DYING	The tributary is locked in the DYING state.
INACTIVE	The tributary is locked in the INACTIVE state.

RECALL TIMER seconds

Applies only to outgoing DLM SVCs. Sets a timer whose expiration causes a remote DTE to be called again during an attempt to set up a DLM circuit. Specify a decimal integer up to a maximum of 65,535.

ROUTER PRIORITY number

Applies only to Ethernet circuits. Specifies the priority this router (the executor node on this circuit) is to have in the selection of a designated router for this circuit. Use a value in the range 0 to 127. The default is 64.

NCP

SET/DEFINE CIRCUIT

SERVICE service-mode

Does not apply to X.25 circuits. Specifies whether service operations (loading and loop testing) are allowed for the circuit. There are two possible modes:

- DISABLED The circuit cannot be put into service state and cannot perform service functions. The default mode is DISABLED.
- ENABLED The circuit can be put into service state and perform service functions.

STATE circuit-state

Specifies the circuit's operational state. There are three possible states:

- OFF The circuit is not in use.
- ON The circuit is available for normal use or service functions.
- SERVICE The circuit is available for service functions only. (Does not apply to X.25 circuits.)

TRANSMIT TIMER milliseconds

Does not apply to X.25 circuits. Defines the number of milliseconds to delay between data message transmits. The *milliseconds* value must be a decimal integer up to 65,535. The default is 0.

TRIBUTARY tributary-address

Applies only to DDCMP CONTROL circuits. Defines the data link physical tributary address of the circuit. The *tributary-address* value must be a decimal integer up to a maximum of 255.

TYPE X25

Applies only to X.25 circuits. Specifies the type of circuit.

USAGE usage-type

Applies only to X.25 circuits. Defines the usage type of an X.25 virtual circuit. There are three possible usage types:

- INCOMING Applies only to DLM switched virtual circuits (SVCs). The circuit is used only for incoming calls.
- OUTGOING Applies only to DLM SVCs. The circuit is used only for outgoing calls.
- PERMANENT Mandatory for X.25 PVCs. The circuit is permanently connected to a remote DTE and does not need to be switched dynamically.

VERIFICATION option

Applies only to synchronous and asynchronous circuits. Requires the remote node to send its routing initialization password. There are three options:

- DISABLED Does not require the remote node to send its routing initialization password. This is the default.
- ENABLED Requires the remote node to send its routing initialization password.

INBOUND Applies to any DDCMP point-to-point circuit. Specifies that the executor node expects to receive a routing initialization password for verification from a remote node before a connection is made between the nodes. The executor is prohibited from sending its routing initialization password to the remote node. This parameter is specified automatically for dynamic asynchronous DDCMP circuits. If you specify the VERIFICATION INBOUND parameter for a circuit, you must specify the INBOUND node parameter (by using the SET/DEFINE NODE command) for the remote node.

COMMENTS

If you plan to run DECnet over a CI, you must first install the driver CNDRIVER. To do this, add the following lines to the LOADNET.COM command procedure in SYS\$MANAGER:

```
$ RUN SYS$SYSTEM:SYSGEN
CONNECT CNAO/NOADAPTER
```

Refer to the *VMS Networking Manual* for a table of circuit parameters grouped according to circuit type.

EXAMPLES

1 NCP>SET CIRCUIT DMC-0 COST 4 STATE ON

This command sets the circuit STATE to ON and the circuit cost to 4 for circuit DMC-0.

2 NCP>SET CIRCUIT UNA-0 STATE ON MAXIMUM ROUTERS 5

This command sets Ethernet circuit UNA-0 to ON and sets the maximum number of routers permitted on the circuit to 5.

3 NCP>DEFINE CIRCUIT X25-ANDIES CHANNEL 3 DTE 123789456 -
_ NETWORK PSDND MAXIMUM DATA 1024 MAXIMUM WINDOW 7 USAGE PERMANENT STATE ON

This command defines an X.25 PVC called X25-ANDIES with a logical channel number of 3 on the local DTE with address 123789456 on network PSDND. The circuit has a maximum packet size of 1024 bytes and a maximum window size of 7.

4 NCP>DEFINE CIRCUIT X25-DLM-0 NUMBER 456789012 NETWORK PSDNA -
_ USAGE OUTGOING STATE ON

This command defines a DLM SVC called X25-DLM-0 connected to the remote DTE on network PSDNA with address 456789012, and used for outgoing calls.

5 NCP>DEFINE CIRCUIT X25-DLM1 NUMBER 12345677 NETWORK PSDNB -
_ USAGE INCOMING STATE ON

This command defines a DLM SVC called X25-DLM-1 on network PSDNB that accepts only incoming calls from the remote DTE with address 12345677.

6 NCP>SET CIRCUIT DMC-* COST 5

This command sets the circuit cost to 5 for all DMC circuits.

NCP

SET EXECUTOR ALL

SET EXECUTOR ALL

The SET EXECUTOR ALL command updates the volatile copy of the local node's database with all the local node parameters stored for that node in its permanent database.

FORMAT **SET EXECUTOR ALL**

PARAMETERS *None.*

EXAMPLE

NCP>SET EXECUTOR ALL

This command loads all permanent database entries stored for the local node into the volatile database.

SET/DEFINE EXECUTOR

The SET EXECUTOR command creates or modifies parameters in the volatile database that controls the network on the local node. The DEFINE EXECUTOR command creates or modifies parameters in the permanent database that controls the network on the local node.

After the local node's state is set to ON, you cannot change the ADDRESS, ALIAS NODE, ALIAS INCOMING, BUFFER SIZE, NAME, or TYPE parameter for the local node. If the local node whose state is ON is connected to an Ethernet circuit whose state is ON, you cannot change the MAXIMUM CIRCUITS parameter for the local node.

The SET EXECUTOR command cannot be used with the TELL prefix.

FORMAT

SET EXECUTOR *parameter [...]*
DEFINE EXECUTOR *parameter [...]*

Command Parameters

<p>ADDRESS ALIAS INCOMING ALIAS MAXIMUM LINKS ALIAS NODE AREA MAXIMUM COST AREA MAXIMUM HOPS BROADCAST ROUTING TIMER BUFFER SIZE COUNTER TIMER DEFAULT ACCESS DELAY FACTOR DELAY WEIGHT IDENTIFICATION INACTIVITY TIMER INCOMING PROXY INCOMING TIMER MAXIMUM ADDRESS MAXIMUM AREA MAXIMUM BROADCAST NONROUTERS MAXIMUM BROADCAST ROUTERS</p>	<p>MAXIMUM BUFFERS MAXIMUM CIRCUITS MAXIMUM COST MAXIMUM HOPS MAXIMUM LINKS MAXIMUM PATH SPLITS MAXIMUM VISITS NAME NONPRIVILEGED OUTGOING PROXY OUTGOING TIMER PATH SPLIT POLICY PIPELINE QUOTA PRIVILEGED RETRANSMIT FACTOR ROUTING TIMER SEGMENT BUFFER SIZE STATE SUBADDRESSES TYPE</p>
---	---

COMMAND PARAMETERS

ADDRESS *node-address*

Establishes a node address for the local node, in the following format:

area-number.node-number

where:

area-number	Is in the range 1 to 63.
node-number	Is in the range 1 to 1023.

NCP

SET/DEFINE EXECUTOR

If you do not specify *area-number*, the default value is 1. You need not supply the area number in the *node-address* if your node is in area 1. When you configure the local node, this parameter is required.

ALIAS INCOMING option

Specifies whether the local node accepts incoming connect requests directed to the alias node identifier specified for the local node. The alias node identifier is described under the ALIAS NODE parameter. There are two options for ALIAS INCOMING:

DISABLED	Specifies that the local node will not accept incoming connect requests directed to the alias node identifier.
ENABLED	Specifies that the local node will accept incoming connect requests directed to the alias node identifier. This is the default if an alias node identifier has been specified.

ALIAS MAXIMUM LINKS number

Specifies the maximum number of logical links for the local node that can use the alias node identifier. The alias node identifier is described under the ALIAS NODE parameter. The maximum value for ALIAS MAXIMUM LINKS is 200. The default value is 32. If you specify this parameter, the maximum value permitted for the MAXIMUM LINKS parameter for the local node is reduced.

ALIAS NODE node-id

Establishes a cluster alias node identifier for use by the local node. The *node-id* is a DECnet node identifier that can be either a node name or a node address. This alias permits the local node to be associated with a cluster node identifier common to some or all nodes in the cluster, in addition to its own unique *node-id*. If you do not specify this parameter, the local node is not associated with a cluster alias node identifier. If a node name is to be used as the alias *node-id*, the node name must previously have been defined in the database.

AREA MAXIMUM COST number

Applies only to an executor node whose type is AREA. Specifies the maximum total path cost allowed from the executor to any other level 2 routing node (area router). You can specify a decimal value in the range 1 to 1022. The default is 1022.

AREA MAXIMUM HOPS number

Applies only to an executor node whose type is AREA. Specifies the maximum number of routing hops allowable from the executor to any other level 2 routing node. You can specify a decimal value in the range 1 to 30. The default is 30.

BROADCAST ROUTING TIMER seconds

Specifies the maximum amount of time allowed between routing updates on Ethernet circuits. When the timer expires before a routing update occurs, a routing update is forced. The routing update produces a routing configuration message for each adjacent node. You can specify a number in the range 1 to 65,535. The default is 40.

BUFFER SIZE number

Specifies in bytes the size of the receive buffers, thereby controlling the maximum size of NSP message segments that can be received and forwarded. (The size includes protocol overhead down to and including the End Communication layer, but does not include Data Link layer overhead.) This buffer size applies to all circuits known to the executor. Use a value up to a maximum of 65,535. The default value is equal to the value of the SEGMENT BUFFER SIZE, if specified; otherwise the default is 576.

COUNTER TIMER seconds

Specifies a timer whose expiration causes a node counter logging event.

DEFAULT ACCESS option

Assigns the default access to all nodes that do not have a specific node ACCESS entry in the volatile database. There are four options:

BOTH	Allows incoming and outgoing logical link connections. This is the default.
INCOMING	Allows logical link connections from the remote node.
NONE	Does not allow incoming or outgoing logical link connections to this node.
OUTGOING	Allows the local node to initiate connections to the remote node, but does not allow connections from the remote node.

If you have OPER privilege on the local system, you can override the default access restriction specified in this parameter.

DELAY FACTOR number

Specifies the number by which to multiply one-sixteenth of the estimated round trip delay to a node to set the retransmission timer to that node. Use a number up to a maximum of 255. If you do not set this parameter, the default value is 80.

DELAY WEIGHT number

Specifies the weight to apply to a new round-trip delay data point when updating the estimated round-trip delay to a node. Use a number in the range up to a maximum of 255. If you do not set this parameter, the default value is 5.

IDENTIFICATION id-string

Specifies a text string that describes the executor node (for example, "VMS Host System"). The string can be a maximum of 32 characters. If it contains blanks or tabs, you must enclose the string in quotation marks. If you do not set this parameter, the default value is DECnet-VAX V5.n VMS X5.n.

INACTIVITY TIMER seconds

Specifies the maximum duration of inactivity (no data in either direction) on a logical link before the node checks to see if the logical link still works. If you do not set this parameter, the default value is 60.

NCP

SET/DEFINE EXECUTOR

INCOMING PROXY option

Indicates whether proxy login requests present on incoming logical links are to be honored. There are two options for INCOMING PROXY:

DISABLED	Ignores all incoming proxy requests and instead relies exclusively on access control information supplied in the connect requests to validate the logical link.
ENABLED	Invokes the appropriate proxy, based on the source user, source node, and supplied access control information (if any). This is the default.

Note that proxy access characteristics established in the object database take preference over the proxy access characteristics established in the executor database.

INCOMING TIMER seconds

Specifies the maximum amount of elapsed time between the time a connection is received for a process and the time that process accepts or rejects the connection. For very busy systems, use a value in the range of 45 to 60 seconds. Otherwise use a value of 30 seconds. The default value is 45.

MAXIMUM ADDRESS number

Defines the largest node address and, consequently, the greatest number of nodes that can be addressed by the local node. Use as small a number as possible. The default value is 1023.

If you receive an "invalid value" error, you probably have not allocated enough nonpaged pool space. You must lower the MAXIMUM ADDRESS value or increase the VMS NPAGEDYN value. (Use the System Generation Utility to change the NPAGEDYN parameter.)

MAXIMUM AREA number

Applies only to an executor node whose type is AREA. Specifies the largest area number and, therefore, the greatest number of areas that can be known about by the executor node's Routing layer. You can specify a decimal value up to a maximum of 63. The default is 63.

MAXIMUM BROADCAST NONROUTERS number

Specifies the maximum total number of nonrouting nodes (end nodes) the executor node can have on its Ethernet circuits. Use a number up to a maximum of 65,535. The default value is 64.

MAXIMUM BROADCAST ROUTERS number

Specifies the maximum total number of routers the executor node can have on its Ethernet circuits. Use a number up to a maximum of 65,535. The default value is 32.

MAXIMUM BUFFERS number

Specifies the maximum number of buffers in the transmit buffer pool. DECnet normally allocates only what it needs. At minimum, use a value that is 15 times the square root of the number of lines. Increase this value if you experience congestion loss. The default value is 100.

MAXIMUM CIRCUITS number

Defines the maximum number of routing circuits that the local node can use. The number must be in the range 1 to 127. The default value is 16.

MAXIMUM COST number

Specifies the maximum total path cost allowed from the local node to any node. The path cost is the sum of the circuit costs along a path between two nodes. Use as small a number as possible in the range of 1 to 1022. The default is 1022.

MAXIMUM HOPS number

Specifies the maximum routing hops from the local node to any other reachable node. A hop is the logical distance over a circuit between two adjacent nodes. Use as small a number as possible in the range of 1 to 30, and be sure that this value is less than or equal to the MAXIMUM VISITS parameter. The default value is 30.

MAXIMUM LINKS number

Specifies the maximum logical link count for the local node. A reasonable range for most networks is 25 to 50. The maximum value for MAXIMUM LINKS is 960; this value is reduced to 512, however, if the ALIAS MAXIMUM LINKS parameter is also specified. The default value of MAXIMUM LINKS is 32.

MAXIMUM PATH SPLITS number

Indicates the maximum number of equal cost paths to a given destination node among which the packet load may be split. The default value is 1.

MAXIMUM VISITS number

Specifies the maximum number of nodes a message can visit before it is received by the destination node. Use a number in the range of the value of the MAXIMUM HOPS parameter to 63. You should specify a number that is twice the MAXIMUM HOPS value. The default value is 63.

NAME node-name

Specifies the node name to be associated with the executor node identification. You can assign only one name to a node address or node identification.

NONPRIVILEGED item

Specifies nonprivileged inbound access control information for the node. Associate any of the following parameters with the NONPRIVILEGED parameter:

ACCOUNT account	Identifies the account for the default nonprivileged DECnet account on the executor node.
PASSWORD password	Identifies the password for the default nonprivileged DECnet account on the executor node.
USER user-id	Identifies the user name for the default nonprivileged DECnet account on the executor node.

OUTGOING PROXY option

Indicates whether proxy login may be used on outgoing connect requests. There are two options for OUTGOING PROXY.

NCP

SET/DEFINE EXECUTOR

DISABLED	Specifies that proxy login is not requested on any outgoing logical links.
ENABLED	Specifies that proxy login is requested on outgoing logical links. This is the default.

Note that proxy access characteristics established in the object database take preference over the proxy access characteristics established in the executor database.

OUTGOING TIMER seconds

Specifies the timeout value for the elapsed time between the moment a connection is requested and the moment that connection is acknowledged by the destination node. A value in the range of 30 to 60 seconds is recommended. The default is 45.

PATH SPLIT POLICY policy

Specifies the policy for equal cost path splitting of network traffic. There are two values for PATH SPLIT POLICY:

INTERIM	Specifies that traffic will be split over all equal cost paths while forcing packets for individual network sessions to follow the same paths in order to guarantee that packets will be received by the destination node in the correct order. The INTERIM value should be set if some of the nodes in the network do not support out-of-order packet caching. (DECnet-VAX Version 4.5 and lower DECnet-VAX versions do not support out-of-order packet caching.)
NORMAL	Specifies that all traffic will be split equally over all equal cost paths to a destination node. All destination nodes must support out-of-order packet caching (supported by DECnet-VAX Version 4.6 or higher); otherwise, network performance may suffer. This is the default.

PIPELINE QUOTA quota

Specifies the maximum number of bytes of nonpaged pool that DECnet will use for transmission over logical links. Use this parameter for multibuffering at the NSP level. The default value is 3000 bytes. For satellite communications, a value of 6000 or greater is recommended.

PRIVILEGED item

Specifies privileged inbound access control information for the node. Associate any of the following parameters with the PRIVILEGED parameter:

ACCOUNT account	Identifies the account for the default privileged DECnet account on the executor node.
PASSWORD password	Identifies the password for the default privileged DECnet account on the executor node.
USER user-id	Identifies the user name for the default privileged DECnet account on the executor node.

These parameters are not needed unless the PRIVILEGES parameter is used explicitly in the object database.

RETRANSMIT FACTOR number

Defines the maximum number of times any given message (except a connect initiate message) will be retransmitted before the logical link is disconnected. If you do not set this parameter, the default value is 10.

ROUTING TIMER seconds

Specifies the maximum amount of elapsed time before a routing update is forced on non-Ethernet circuits. The routing update produces a routing configuration message for each adjacent node. You can use a number up to a maximum of 65,535. If you do not set this parameter, the default value is 600.

SEGMENT BUFFER SIZE number

Specifies in bytes the maximum size of transmit buffers, thereby controlling the maximum size NSP message segment that can be transmitted. (This value is the maximum size message the End Communications layer can transmit; it does not include Data Link layer overhead.) Use a value up to a maximum of 65,535. The default value is equal to the value of BUFFER SIZE, if specified; otherwise, the default is 576.

The SEGMENT BUFFER SIZE is always less than or equal to the BUFFER SIZE. The two values are normally equal but may differ to permit the network manager to alter buffer sizes on all nodes without interruption of service.

STATE node-state

Specifies the operational state of the local node. There are four possible states:

OFF	Allows no new logical links, terminates existing links, and stops route-through traffic.
ON	Allows logical links.
RESTRICTED	Allows no new inbound links from other nodes.
SHUT	Allows no new logical links, does not destroy existing links, and goes to the OFF state when all logical links are disconnected.

If you have OPER privilege, you can override the state value specified in this parameter.

SUBADDRESSES range

Applies only to DLM circuits. Specifies a range of local DTE subaddresses that the Routing layer accepts as X.25 DLM calls. VAX PSI routes all incoming X.25 calls within the specified subaddress range to the Routing layer to be handled as DLM calls.

TYPE node-type

Indicates the type of the executor node. There are three possible node types:

AREA
NONROUTING IV
ROUTING IV

The default depends upon the DECnet-VAX license registered. If the full function kit is installed, the default is ROUTING IV; if the end node kit is installed, the default (and only possible value) is NONROUTING IV.

NCP

SET/DEFINE EXECUTOR

A routing node has full routing capability. A nonrouting node (or end node) can deliver packets to or receive them from any node, but cannot route packets from other source nodes through to destination nodes.

An area node is a level 2 router that can route packets between areas.

COMMENTS

You can use the SET and DEFINE EXECUTOR commands to create or modify local node parameters, including certain parameters common to both the local and remote nodes. Refer to the *VMS Networking Manual* for a table of node parameters that indicates those used for the local node only and those common to the local and remote nodes.

EXAMPLES

1 NCP>SET EXECUTOR ADDRESS 2.11

This command sets the local node's address to 2.11.

2 NCP>SET NODE 2.13 NAME CLUSTR

NCP>SET EXECUTOR ALIAS NODE CLUSTR

The SET NODE command establishes a node address 2.13 with the associated node name CLUSTR. The SET EXECUTOR ALIAS NODE command then establishes the node name CLUSTR as the alias node identifier.

3 NCP>SET EXECUTOR ALIAS INCOMING ENABLED

This command specifies that incoming connect requests directed to the alias node identifier are permitted.

4 NCP>SET EXECUTOR ADDRESS 11

```
NCP>SHOW EXECUTOR SUMMARY
Node Volatile Summary as of 30-DEC-1988 15:40:20
Executor node = 1.11 (BOSTON)
State           = off
Identification  = VMS HOST SYSTEM
```

This command sets the local node's address to 1.11. As the display indicates, the system default value is 1 if the *area-number* is not specified.

5 NCP>SET EXECUTOR STATE ON

This command turns on the local node.

6 NCP>SET EXECUTOR NAME BOSTON

This command sets the local node's name to BOSTON.

SET EXECUTOR NODE

The SET EXECUTOR NODE command sets the default executor for all NCP commands. The executor is the node on which the network management listener (NML) runs to perform these commands. The TELL prefix cannot be used with the SET EXECUTOR NODE command. The SET EXECUTOR command cannot be used with TELL prefix.

FORMAT **SET EXECUTOR** *parameter* [...]

Command Parameter
NODE

**COMMAND
PARAMETER**

NODE node-spec

Specifies a node name or address optionally followed by access control information as specified for VMS operating systems. Use one of the following formats:

node-id

node-id"user password account"

The *node-spec* may be a logical name. You can override access control in a logical name by specifying access control information explicitly in the command.

Associate any or all of the following optional access control parameters with this parameter:

ACCOUNT account Identifies the user's account for access control verification at the designated executor node.

PASSWORD password Identifies the user's password for access control verification at the designated executor node.

USER user-id Identifies the user's identification for access control verification at the designated executor node.

DESCRIPTION

For this command, you must enter the command verb SET EXECUTOR followed by the NODE *node-spec* parameter. You can then enter the optional access control parameters in any order.

Also, if you have implemented area routing on your node and you specify a node address, you must use the area-number prefix with the node address. Refer to the following examples.

If the SET EXECUTOR NODE command fails, you must explicitly use the CLEAR EXECUTOR NODE or the SET EXECUTOR NODE command with a different node name or address; otherwise, NCP continues to try to establish a logical link to NML running on the first executor node named.

NCP

SET EXECUTOR NODE

EXAMPLES

1 NCP>SET EXECUTOR NODE 5.14

NCP>CLEAR EXECUTOR NODE

The first command sets the executor to node 5.14. The second resets the executor to the local node.

2 NCP>SET EXECUTOR NODE 14"GRAY MARY"

This command uses access control information to set the executor node to node 1.14. This example assumes a default area number of 1 for the executor node.

3 NCP>SET EXECUTOR NODE TRNTO USER GRAY PASSWORD MARY

This command uses an alternate access control format to set the executor to node TRNTO.

4 NCP>SET EXECUTOR NODE 0"GRAY MARY"

This command uses access control information to cause NML to run under user GRAY's current privileges instead of the privileges of the NCP user.

5 \$ DEFINE NODE\$MY TRNTO"""GRAY MARY"""
\$ RUN SYS\$SYSTEM:NCP
NCP>SET EXECUTOR NODE NODE\$MY

The first command defines a logical name (NODE\$MY) for the given *node-spec*. When running NCP, you can use this logical name with the SET EXECUTOR NODE command. Note that you must use three sets of quotation marks to delimit access control information (if supplied) in the *node-spec* for this example.

SET KNOWN PROXIES ALL

The SET KNOWN PROXIES ALL command clears the contents of the volatile proxy database and rebuilds the volatile proxy database from the contents of the permanent proxy database.

FORMAT **SET** *proxy-component ALL*

Proxy Component
KNOWN PROXIES

PROXY COMPONENT ***KNOWN PROXIES***
Indicates that all proxy values are to be updated.

EXAMPLE

NCP>SET KNOWN PROXIES ALL

This command rebuilds the volatile database of proxy values from the permanent database.

NCP

SET LINE ALL

SET LINE ALL

The SET LINE ALL command updates the volatile database on the local node or DTE with all the line parameters stored for a particular line in the permanent database on the local node or DTE.

FORMAT **SET** *line-component ALL*

Line Components

LINE

KNOWN LINES

**LINE
COMPONENTS**

LINE line-id

Identifies the line whose parameters are to be updated.

KNOWN LINES

Indicates that all parameters for all known lines are to be updated.

EXAMPLE

NCP>SET KNOWN LINES ALL

This command loads all permanent database entries stored for all known lines into the volatile database.

SET/DEFINE LINE

The SET LINE command creates or modifies line parameters in the volatile database on the local node. The DEFINE LINE command creates or modifies line parameters in the permanent database on the local node. A line must be in the OFF state in order for all but the COUNTER TIMER, SERVICE TIMER, and STATE parameters to be changed.

FORMAT

SET *line-component parameter [...]*
DEFINE *line-component parameter [...]*

Line Components

LINE

KNOWN LINES

Command Parameters

<i>BUFFER SIZE</i>	<i>MAXIMUM WINDOW</i>
<i>CLOCK</i>	<i>MICROCODE DUMP</i>
<i>CONTROLLER</i>	<i>NETWORK</i>
<i>COUNTER TIMER</i>	<i>PROTOCOL</i>
<i>DEAD TIMER</i>	<i>RECEIVE BUFFERS</i>
<i>DELAY TIMER</i>	<i>RETRANSMIT TIMER</i>
<i>DUPLEX</i>	<i>SCHEDULING TIMER</i>
<i>HANGUP</i>	<i>SERVICE TIMER</i>
<i>HOLDBACK TIMER</i>	<i>STATE</i>
<i>INTERFACE</i>	<i>STREAM TIMER</i>
<i>LINE SPEED</i>	<i>SWITCH</i>
<i>MAXIMUM BLOCK</i>	<i>TRANSMIT PIPELINE</i>
<i>MAXIMUM RETRANSMITS</i>	

LINE COMPONENTS

LINE line-id

Identifies the line for which specified parameters are to be created or modified in the volatile database.

KNOWN LINES

Indicates that the specified parameters for all known lines are to be created or modified in the volatile database.

COMMAND PARAMETERS

BUFFER SIZE number

Specifies in bytes the size of receive buffers for the specified line, thereby controlling the maximum size of NSP message segments that can be received from or forwarded to an adjacent node that has accepted the line buffer size. Use a value up to a maximum of 65,535. For Ethernet lines, a default value of 1498 bytes is provided. For all other types of line, the default is the executor BUFFER SIZE value (as specified in the SET EXECUTOR command). This parameter does not apply to X.25 lines.

You can use the line parameter BUFFER SIZE to increase the size of NSP messages for logical links over this line.

NCP

SET/DEFINE LINE

CLOCK *clock-mode*

Applies only to synchronous DDCMP lines. Specifies the hardware clock mode for the line. There are two values for *clock-mode*:

- EXTERNAL For normal clock operating mode. The clock signal is supplied externally to the controller.
- INTERNAL For use of the clock in test mode. Setting this value causes the line device to supply a clock signal that will allow all transmitted messages to be looped back from outside the device. Note that, in order to use this parameter, the operator may have to connect a loopback plug in place of the normal line.

CONTROLLER *mode*

Specifies the controller mode for the line. There are two possible modes:

- LOOPBACK Internal device loopback mode
- NORMAL Normal operating mode, which is the default

COUNTER TIMER *seconds*

Specifies a timer whose expiration causes a line counter logging event. Specify a decimal integer up to a maximum of 65,535.

DEAD TIMER *milliseconds*

Applies only to DDCMP CONTROL lines. Specifies the number of milliseconds between polls of one of the sets of dead tributaries. The *milliseconds* value must be a decimal integer up to a maximum of 65,535. The default is 10,000 (10 seconds).

DELAY TIMER *milliseconds*

Applies only to DDCMP CONTROL lines. Defines the minimum number of milliseconds to delay between polls. This timer limits the effect of a very fast control station on slower tributaries. The *milliseconds* value must be a decimal integer up to a maximum of 65,535. If you do not set this parameter, there is no delay.

DUPLEX *mode*

Does not apply to X.25 or Ethernet lines. Specifies the hardware duplex mode of the line. There are two possible modes:

- FULL Full-duplex (default)
- HALF Half-duplex

HANGUP *option*

Applies only to asynchronous DDCMP lines. Indicates whether the modem signals are dropped when the line is shut down. There are two possible options:

- DISABLED Indicates that modem signals should not be dropped when the line is shut down. This is the default for static asynchronous DDCMP lines.
- ENABLED Indicates that modem signals should be dropped when the line is shut down.

This parameter is supplied automatically for dynamic asynchronous DDCMP lines. The default is HANGUP ENABLED if the /HANGUP qualifier was specified for the DCL command SET TERMINAL, and HANGUP DISABLED if /NOHANGUP was specified.

HOLDBACK TIMER milliseconds

Applies only to X.25 lines. Specifies the maximum delay before the X.25 software acknowledges successful receipt of data. If you do not specify this parameter, then the acknowledgment is sent immediately. If you specify a holdback timer, performance may be improved by allowing the acknowledgment to be included with a subsequent data message transmitted. This parameter cannot be set to a value larger than one half the value of the RETRANSMIT TIMER parameter.

INTERFACE interface-code

Applies only to X.25 lines using the ISO8208 profile. Specifies the way in which the X.25 level 2 software acts when it uses the line. There are two values for the *interface-code*:

DCE	Specifies that the software operates as a DCE.
DTE	Specifies that the software operates as a DTE.

The default code is DTE.

LINE SPEED number

Applies only to asynchronous DDCMP lines. Specifies the speed of the line in baud. This parameter must be set to the same value on both sides of an asynchronous DDCMP connection. It is specified automatically for dynamic asynchronous DDCMP lines. If not specified, the value of this parameter is equal to the current speed of the line.

MAXIMUM BLOCK count

Applies only to X.25 lines. Specifies the maximum size in bytes of the frame for the line. This value must be at least 5 bytes larger than the maximum packet size you specify in the SET CIRCUIT (for PVCs) or SET MODULE X25-PROTOCOL (for SVCs) command. Specify a value in the range 21 to 4103. By default, the size of the frame takes the value specified by the PROFILE parameter of SET MODULE X25-PROTOCOL commands. See the *Public Network Information* manual for the network value of this parameter.

MAXIMUM RETRANSMITS count

Applies only to X.25 lines. Specifies the maximum number of retransmissions of a frame on the specified line. Specify a value up to a maximum of 255. By default, the retransmission value takes the value specified by the PROFILE parameter of the SET MODULE X25-PROTOCOL command. See the *Public Network Information* manual for the network value of this parameter.

MAXIMUM WINDOW count

Applies only to X.25 lines. Specifies the maximum number of frames for which outstanding acknowledgments are allowed. Specify a value up to a maximum of 127. By default, the outstanding frame value takes the value specified by the PROFILE parameter of the SET MODULE X25-PROTOCOL command. See the *Public Network Information* manual for the network value of this parameter.

NCP

SET/DEFINE LINE

MICROCODE DUMP filespec

Applies only to X.25 lines. Dumps the microcode of the specified KMS11, KMS1P, or KMV1A device to the indicated file. By default, the output file takes the following format:

`SY$ERRORLOG:fileid.DMP`

The KMS/KMV Dump Analyzer (PSIKDA) is the utility program used to process the dump file created by the MICROCODE DUMP parameter. Refer to the *VAX P.S.I. Problem Solving Guide* for more information about PSIKDA.

NETWORK network-name

Applies only to X.25 lines. Specifies the network to which the line is connected. If only one network is set up, that network is the default. Otherwise, the NETWORK parameter is mandatory.

PROTOCOL protocol-name

Defines the Data Link protocol to be used on this line. The following values can be used for *protocol-name*:

DDCMP CONTROL	Specifies this line as a multipoint control station. You can specify multiple circuits for CONTROL lines, but each circuit must have a unique physical tributary address.
DDCMP DMC	Specifies that this line is in DMC emulator mode. DMC is similar to POINT, except that DMC uses an older version of DDCMP (Version 3.2). This protocol should be set for the local line when the remote line is a DMC. Note that this protocol is valid only when a DMP11 or DMV11 is being used.
DDCMP POINT	Defines this line as one end of a point-to-point DDCMP connection. You may specify only one circuit per POINT line.
DDCMP TRIBUTARY	Specifies that this line is a tributary end of a DDCMP multipoint group. You may specify only one circuit per TRIBUTARY line.
ETHERNET	Specifies that this line uses the Ethernet protocol.
LAPB	Specifies that the line uses the X.25 level 2 protocol. The line must be a line for the X25-PROTOCOL module.
LAPBE	Specifies that the line uses the X.25 level 2 protocol with extended sequencing. The line must be used by the X25-PROTOCOL module.

Default line protocols based on line names are as follows:

BNA	ETHERNET
CI	No protocol specified
DMB	DDCMP POINT
DMC/DMR	DDCMP POINT
DMF	DDCMP POINT
DMP/DMV	DDCMP POINT
DPV	LAPB
DUP	LAPB
KMV	LAPB
KMX	LAPB
KMY	LAPB
QNA	ETHERNET
SVA	ETHERNET
UNA	ETHERNET

RECEIVE BUFFERS number

Specifies the length of the line's receive queue. Use a value in the range 1 to 32. A value in the range 2 to 4 is adequate for line speeds of less than 56 kilobits/second. Line speeds of 1 megabit/second may require eight or more buffers depending on the observed error rate. For X.25 lines, specify a value in the range 2 to 32. The default is 4, which is normally adequate for DUP, DPV, and DMF lines. However, note that KMX, KMY, and KMV lines can use 8 buffers.

RETRANSMIT TIMER milliseconds

Does not apply to Ethernet lines. For a DDCMP multipoint line, specifies the maximum amount of time allowed to elapse before a retransmission is necessary. This is the amount of time a control station will wait for a tributary to respond. The number of milliseconds must be a decimal integer up to a maximum of 65,535. The default value is the network default.

For an X.25 line, this parameter specifies the time before a frame is retransmitted. By default, the time takes the value specified in the PROFILE parameter of the SET MODULE X25-PROTOCOL command. See the *Public Network Information* manual for the network value of this parameter. The RETRANSMIT TIMER cannot be set to a value smaller than twice the value of the HOLDBACK TIMER parameter (if specified).

SCHEDULING TIMER milliseconds

Applies only to DDCMP CONTROL lines. Specifies the number of milliseconds between recalculation of tributary polling priorities. The number of milliseconds must be a decimal integer up to a maximum of 65,535. The default is 50.

SERVICE TIMER milliseconds

Does not apply to X.25 lines. Specifies the maximum amount of time allowed to elapse before a receive request completes while performing service operations on a line. The default value is 4000 (4 seconds).

NCP

SET/DEFINE LINE

STATE line-state

Specifies the line's operational state. The possible states include the following:

- OFF The line is not in use.
- ON The line is available for normal use or service functions.
- SERVICE The line is available for active service functions. Applies only to X.25 lines.

STREAM TIMER milliseconds

Applies only to DDCMP CONTROL lines. Defines the number of milliseconds that a tributary or half-duplex remote station is allowed to hold the line. The number of milliseconds must be a decimal integer up to a maximum of 65,535. The default is 1000 (1 second).

SWITCH option

Applies only to asynchronous DDCMP lines. Forces the line currently being used as a DECnet asynchronous communications line to be converted back to a terminal line. There are two values for *option*:

- DISABLED The line is not switched to a terminal line. This is the default for static lines.
- ENABLED The line is switched to a terminal line after it is disconnected from the network (when the channel to the network is deassigned). This is the default for dynamic lines.

TRANSMIT PIPELINE count

Applies only to DMR11 lines. Specifies the maximum number of DDCMP messages for which outstanding acknowledgments are allowed. Specify a value in the range 1 to 32. By default, the value for outstanding DDCMP messages is 7. To avoid excessive use of system memory, do not arbitrarily set this value higher than necessary. Refer to the *VMS Networking Manual* for the procedure for determining an optimum TRANSMIT PIPELINE value.

COMMENTS

Note that no protocol is specified for a CI line. The CI uses its own private protocols for communication between nodes. If you plan to run DECnet over a CI, you must install the driver CNDRIVER. To do this, add the following lines to the LOADNET.COM command procedure in SYS\$MANAGER:

```
$ RUN SYS$SYSTEM:SYSGEN
CONNECT CNAO/NOADAPTER
```

Refer to the *VMS Networking Manual* for a table of line parameters grouped according to line type.

EXAMPLES

1 NCP>SET LINE UNA-0 STATE ON

This command sets Ethernet line UNA-0 to the ON state.

2 NCP>SET LINE DMC-0 DUPLEX FULL STATE ON

This command sets line DMC-0 to the ON state in full duplex mode.

3 NCP>SET LINE DMC-0 PROTOCOL DDCMP POINT

This command sets the line protocol to DDCMP POINT for line DMC-0.

4 NCP>SET LINE DUP-1 -
_ RETRANSMIT TIMER 500 MAXIMUM RETRANSMITS 10 -
_ MAXIMUM BLOCK 133 MAXIMUM WINDOW 2 STATE ON

This command sets up a line called DUP-1 that uses the LAPB protocol and has an associated DUP11-DA synchronous line interface with controller number 1. If a frame is not acknowledged within 500 milliseconds, it is retransmitted, and this operation is to be performed a maximum of 10 times. The maximum frame size is 133 bytes, and the maximum number of frames for which outstanding acknowledgments are allowed is 2. The line is operational.

5 NCP>SET LINE KMX-0-0 MICROCODE DUMP BARRY

This command dumps the microcode of the KMX to the file SYS\$ERRORLOG:BARRY.DMP.

6 NCP>SET LINE KMV-0 NETWORK PSS STATE ON

This command sets up the line KMV-0 to the PSS network.

7 NCP>SET LINE DMF-* CONTROLLER LOOPBACK

This command sets the controller mode to loopback for all DMF lines.

NCP

SET LOGGING ALL

SET LOGGING ALL

The SET LOGGING ALL command updates the volatile copy of the database on the executor node with all the logging parameters stored for the logging component in the permanent database on the executor node.

For VAX PSI, the SET LOGGING ALL command updates the volatile database at the local DTE with the logging parameters for the logging component in the permanent database at the local DTE.

FORMAT **SET** *logging-component ALL*

Logging Components

KNOWN LOGGING

LOGGING FILE

LOGGING CONSOLE

LOGGING MONITOR

**LOGGING
COMPONENTS**

KNOWN LOGGING

Indicates that all parameters for all known logging sinks are to be updated.

LOGGING CONSOLE

Indicates that all parameters for the logging console are to be updated.

LOGGING FILE

Indicates that all parameters for the logging file are to be updated.

LOGGING MONITOR

Indicates that all parameters for the logging monitor are to be updated.

EXAMPLE

NCP>SET LOGGING CONSOLE ALL

This command loads all permanent database entries stored for the logging console into the volatile database.

SET/DEFINE LOGGING EVENTS

The SET LOGGING EVENTS command creates or modifies source-related logging parameters in the volatile database on the local node. The DEFINE LOGGING EVENTS command creates or modifies source-related logging parameters in the permanent database on the local node.

The logging state (in the SET/DEFINE LOGGING STATE command) must be set to ON for all logging. Source-related and sink-related parameters are mutually exclusive; you cannot use parameters from both categories in a single command.

FORMAT

SET *logging-component parameter [...]*
DEFINE *logging-component parameter [...]*

Logging Components

<i>KNOWN LOGGING</i>	<i>LOGGING FILE</i>
<i>LOGGING CONSOLE</i>	<i>LOGGING MONITOR</i>

Command Parameters

<i>EVENTS</i>	<i>KNOWN EVENTS</i>
---------------	---------------------

LOGGING COMPONENTS

KNOWN LOGGING

Indicates that the specified parameters for all known logging are to be created or modified in the database.

LOGGING CONSOLE

Indicates that the specified parameters for the logging console are to be created or modified in the database.

LOGGING FILE

Indicates that the specified parameters for the logging file are to be created or modified in the database.

LOGGING MONITOR

Indicates that the specified parameters for the logging monitor are to be created or modified in the database.

COMMAND PARAMETERS

EVENTS event-list **KNOWN EVENTS**

Indicates a specific event or all known events to be logged. The EVENTS parameter may be followed by one or more of the following source-related parameters:

CIRCUIT circuit-id	Identifies the circuit from which events are logged.
LINE line-id	Identifies the line from which events are logged.

NCP

SET/DEFINE LOGGING EVENTS

MODULE name	Indicates that the logging parameters for the specified source are to be created or modified in the database. Possible module names are as follows: X25-PROTOCOL X25-SERVER X29-SERVER X25-ACCESS
NODE node-id	Identifies the node from which events are logged.
SINK node	Identifies the node that is to receive events. There are two possibilities: EXECUTOR Identifies the local node (default). NODE node-id Identifies a node in the network.

COMMENTS

For a table of the source-related parameters used with the SET/DEFINE LOGGING EVENTS command, refer to the *VMS Networking Manual*. For a description of event-lists, refer to Section 4. For a summary of event class and types and information about specific events that VMS operating systems will log, refer to Appendix A.

EXAMPLES

1 NCP>SET LOGGING MONITOR LINE DMC-1 KNOWN EVENTS

This command causes all events for line DMC-1 to be logged on the console.

2 NCP>SET LOGGING CONSOLE KNOWN EVENTS SINK NODE TRNTO

This command causes all events generated locally to be logged to the logging console on remote node TRNTO.

3 NCP>SET LOGGING CONSOLE EVENTS 4.* SINK EXECUTOR

This command causes all class 4 events to be logged on the console of the executor node.

SET/DEFINE LOGGING STATE

The SET LOGGING STATE command creates or modifies sink-related logging parameters in the volatile database on the local node. The DEFINE LOGGING STATE command creates or modifies sink-related logging parameters in the permanent database on the local node. The STATE parameter is required for all logging.

FORMAT **SET** *logging-component parameter [...]*
 DEFINE *logging-component parameter [...]*

Logging Components

<i>KNOWN LOGGING</i>	<i>LOGGING FILE</i>
<i>LOGGING CONSOLE</i>	<i>LOGGING MONITOR</i>

Command Parameters

<i>NAME</i>	<i>STATE</i>
-------------	--------------

LOGGING COMPONENTS

KNOWN LOGGING

Indicates that the specified parameters for all known logging are to be created or modified in the database.

LOGGING CONSOLE

Indicates that the specified parameters for the logging console are to be created or modified in the database.

LOGGING FILE

Indicates that the specified parameters for the logging file are to be created or modified in the database.

LOGGING MONITOR

Indicates that the specified parameters for the logging monitor are to be created or modified in the database.

COMMAND PARAMETERS

NAME sink-name

Identifies the name of a console, file, or monitor program to which events will be logged. For the monitor sink, all network operator terminals (enabled by the command REPLY/ENABLE=NETWORK) receive formatted events. You can change this parameter only if the sink is in the OFF state.

NCP

SET/DEFINE LOGGING STATE

STATE sink-state

Specifies the operational state of the sink. There are three possible states:

- HOLD The sink is temporarily unavailable and events are queued.
- OFF The sink is unavailable for receiving events; they are discarded.
- ON The sink is available for receiving events.

COMMENTS

Refer to the *VMS Networking Manual* for a table of sink-related logging parameters and their functions.

EXAMPLES

1 NCP>SET LOGGING CONSOLE NAME SYS\$MANAGER:EVENTS.LOG

 This command establishes a logging file, EVENTS.LOG, on the local node.

2 NCP>SET LOGGING MONITOR STATE ON

 This command turns on logging to OPCOM, the default VMS monitor. All operator terminals that were previously declared as network operator terminals (with REPLY/ENABLE=NETWORK) will now receive all formatted events.

SET/DEFINE MODULE CONFIGURATOR

The SET MODULE CONFIGURATOR command creates or modifies the parameters of the Ethernet configurator module component in the volatile database at the local node on an Ethernet circuit. The DEFINE MODULE CONFIGURATOR command creates or modifies the parameters of the configurator module component in the permanent database. You must specify a qualifier following the CONFIGURATOR command verb. Note that the word MODULE is optional.

The configurator module constructs a list of systems active on the Ethernet circuits specified.

FORMAT **SET MODULE CONFIGURATOR** *[qualifier] parameter*
DEFINE MODULE CONFIGURATOR *[qualifier]*
parameter

Qualifiers

CIRCUIT

KNOWN CIRCUITS

Command Parameters

ALL

SURVEILLANCE

QUALIFIERS

CIRCUIT circuit-id

Applies only to Ethernet circuits. Specifies that configurator information on the circuit identified by *circuit-id* is to be stored in the volatile database.

KNOWN CIRCUITS

Applies only to Ethernet circuits. Specifies that configurator information on all known Ethernet circuits is to be stored in the volatile database.

**COMMAND
PARAMETERS**

ALL

Copies configurator module information from the permanent database into the volatile database at the local node.

SURVEILLANCE control

Indicates whether a list of active systems is to be kept for the Ethernet circuit or circuits specified. There are two control values:

DISABLED The list is not to be kept. This is the default value.

ENABLED The list is to be kept.

NCP

SET/DEFINE MODULE CONFIGURATOR

EXAMPLES

1 NCP>SET MODULE CONFIGURATOR KNOWN CIRCUITS -
_ SURVEILLANCE ENABLED

This command specifies that a list of active systems on all known Ethernet circuits is to be kept.

2 NCP>SET CONFIGURATOR CIRCUIT UNA-0 SURVEILLANCE ENABLED

This command specifies that a list of active systems on Ethernet circuit UNA-0 is to be kept.

3 NCP>SET MODULE CONFIGURATOR ALL

This command loads all permanent database entries for the configurator module into the volatile database at the local node.

NCP

SET/DEFINE MODULE X25-ACCESS

PASSWORD password	Specifies the password for use by the access routines when connecting to the multihost connector node. Specify a string from 1 to 39 characters. The default is that no password is used.
USER user-id	Specifies the user identification for use by the access routines in connecting to the multihost connector node. Specify a string from 1 to 16 characters. The default is that no user identification is used.

EXAMPLES

- ```
NCP>SET MODULE X25-ACCESS NETWORK TELENET1 NODE FRED
NCP>SET MODULE X25-ACCESS NETWORK PSS1 NODE GINGER
```

These two commands allow users on the host node to access the network called TELENET1 through node FRED, and the network called PSS1 through node GINGER.

- ```
NCP>SET MODULE X25-ACCESS KNOWN NETWORKS ALL
```

This command loads all permanent database entries stored for the X25-ACCESS database into the volatile database at the local node.

NCP

SET/DEFINE MODULE X25-PROTOCOL

NETWORK network-name	Selects the DTE(s) specified on a particular network.
KNOWN NETWORKS	Selects the DTE(s) on all known networks.

If you have only one network set up, that network is the default for SET commands. For DEFINE commands the NETWORK parameter is mandatory. If you have more than one network set up, the NETWORK parameter is mandatory. In either case, you must follow the DTE qualifier with one or more of the following parameters:

ALL	Copies DTE parameters from the permanent database into the volatile database. Used only with the SET MODULE X25-PROTOCOL command.
CALL TIMER seconds	Specifies a timer that starts when a request to set up an X.25 virtual circuit is transmitted, and whose termination clears the request if no response has been received. Specify a value up to a maximum of 255. By default, the timer takes the network value specified by the PROFILE parameter. See the <i>Public Network Information</i> manual for the network value of this parameter.
CHANNELS list	Specifies a list of logical channel numbers (LCNs) reserved for outgoing calls. The <i>list</i> value is one or more LCNs. Separate multiple channel numbers with hyphens to indicate ranges and with commas to indicate individual numbers. Specify a value up to a maximum of 4095 for each number in the list. If the DTE is to make outgoing calls, this parameter is mandatory when you specify a DTE for the first time. The LCN range at the DTE is defined by PSDN authorities at subscription time.
CLEAR TIMER seconds	Specifies a timer that starts when a request to clear an X.25 virtual circuit is transmitted, and whose termination retransmits the clear request if no response has been received. Specify a value up to a maximum of 255. By default, the timer takes the network value specified by the PROFILE parameter. See the <i>Public Network Information</i> manual for the network value of this parameter.
COUNTER TIMER seconds	Sets a timer whose expiration causes a DTE counter logging event. Specify a decimal integer up to a maximum of 65,535.

NCP

SET/DEFINE MODULE X25-PROTOCOL

DEFAULT DATA bytes	Specifies the default packet size for X.25 virtual circuits. This value must be at least 5 bytes less than the MAXIMUM BLOCK value you specify in the SET LINE command and must be a power of 2. Specify a value in the range 16 to 4096 bytes. By default, packet size takes the network value specified by the PROFILE parameter. See the <i>Public Network Information</i> manual for the network value of this parameter.
DEFAULT WINDOW count	Specifies the default window size for X.25 virtual circuits, that is, the maximum number of packets for which outstanding acknowledgments are allowed. Specify a value up to a maximum of 127. By default, window size takes the network value specified by the PROFILE parameter. See the <i>Public Network Information</i> manual for the network value of this parameter.
INTERFACE interface-code	Specifies the way in which the processor operates. This parameter can be used only with the ISO8208 profile. The parameter can take one of the following values: DTE The processor operates as a DTE. DCE The processor operates as a DCE. NEGOTIATED The processor can operate either as a DTE or DCE. The restart protocol determines the appropriate method of operation. The default <i>interface-code</i> is DTE.
INTERRUPT TIMER seconds	This is the interrupt timer (ISO T26 timer). This parameter can be used only with the ISO8208 profile. Specify a value up to a maximum of 255. If you do not specify a value, there is no time limit on interrupt acknowledgments.
LINE line-id	Identifies the line associated with the DTE. Specify a line name in the format <i>dev-c[-u]</i> . This parameter is mandatory when you specify a DTE for the first time.
MAXIMUM CIRCUITS count	Specifies the maximum number of virtual circuits for the DTE. By default, the count takes the network value specified by the PROFILE parameter. See the <i>Public Network Information</i> manual for the network value of this parameter.

NCP

SET/DEFINE MODULE X25-PROTOCOL

MAXIMUM CLEARS count	Specifies the maximum number of attempts to clear an X.25 virtual circuit. Specify a value up to a maximum of 255. By default, the count takes the network value specified by the PROFILE parameter. See the <i>Public Network Information</i> manual for the network value of this parameter.
MAXIMUM DATA bytes	Specifies the maximum packet size for X.25 virtual circuits. This value must be at least 5 bytes less than the MAXIMUM BLOCK value you specify in the SET LINE command and must be a power of 2. Specify a value in the range 16 to 4096 bytes. By default, packet size takes the network value specified by the PROFILE parameter. See the <i>Public Network Information</i> manual for the network value of this parameter.
MAXIMUM RESETS count	Specifies the maximum number of attempts to reset an X.25 virtual circuit. If this count is exceeded, the virtual circuit will be cleared. Specify a value up to a maximum of 255. By default, the count takes the network value specified by the PROFILE parameter. See the <i>Public Network Information</i> manual for the network value of this parameter.
MAXIMUM RESTARTS count	Specifies the maximum number of attempts to restart an X.25 virtual circuit. Specify a value up to a maximum of 255. By default, the count takes the network value specified by the PROFILE parameter. See the <i>Public Network Information</i> manual for the network value of this parameter.
MAXIMUM WINDOW count	Specifies the window size allowed for X.25 virtual circuits, that is, the maximum number of packets for which outstanding acknowledgments are allowed. Specify a value up to a maximum of 127. By default, the window size takes the network value specified by the PROFILE parameter. See the <i>Public Network Information</i> manual for the network value of this parameter.
RESET TIMER seconds	Specifies a timer that starts when a reset is transmitted, and whose termination retransmits the reset if no response has been received. Specify a value up to a maximum of 255. By default, the timer takes the network value specified by the PROFILE parameter. See the <i>Public Network Information</i> manual for the network value of this parameter.

SET/DEFINE MODULE X25-PROTOCOL

RESTART TIMER seconds	Specifies a timer that starts when a restart is transmitted, and whose termination retransmits the restart if no response has been received. Specify a value up to a maximum of 255. By default, the timer takes the network value specified by the PROFILE parameter. See the <i>Public Network Information</i> manual for the network value of this parameter.
STATE dte-state	Specifies the operational state of the DTE. This parameter takes one of the following values: <ul style="list-style-type: none"> ON The DTE is available for normal use. OFF The DTE is not in use. This is the default state. SHUT The DTE is to be closed down but only when all present activity has ceased. Used only with the SET MODULE X25-PROTOCOL command.

GROUP *group-name*
KNOWN GROUPS

Identifies a closed user group (CUG) or bilateral closed user group (BCUG) or specifies all known groups. Each group specified should have a unique *group-name*, from 2 to 16 characters long. If you specify the GROUP qualifier, you must follow it with one or more of the following parameters:

ALL	Copies the group parameters from the permanent database into the volatile database. Used only with the SET MODULE X25-PROTOCOL command.
DTE dte-address	Identifies the local DTE associated with the group name. This parameter is mandatory when you are creating a group.
NETWORK network-name	Identifies a network to which the DTE is connected. This parameter is mandatory when you are creating a group.
NUMBER group-number	Specifies the CUG or BCUG number. You can omit leading zeros. This parameter is mandatory when you are associating a DTE with a group.
TYPE BILATERAL	Specifies the user group as a BCUG. This parameter is mandatory when you are associating a DTE with a BCUG. It is omitted if the user group is a CUG.

NETWORK *network-name*
KNOWN NETWORKS

Identifies a network or specifies all known networks. If you specify the NETWORK qualifier, you must follow it with one of the following parameters.

NCP

SET/DEFINE MODULE X25-PROTOCOL

ALL	Copies the profile name from the permanent database to the volatile database. Use only with the SET MODULE X25-PROTOCOL command.
PROFILE profile-name	Specifies a profile to be used on the network. The <i>profile-name</i> is a character string of up to 32 characters. This parameter is mandatory. Refer to the <i>Public Network Information</i> manual for the valid <i>profile-name</i> .

EXAMPLES

1 NCP>SET MODULE X25-PROTOCOL DTE 123789456 NETWORK TELENET -
_ CHANNELS 20-10,3,9 LINE DUP-0 MAXIMUM CIRCUITS 400 STATE ON

This command creates a record for your local DTE (DTE address 123789456) and associates a line DUP-0 and a set of logical channels with this DTE.

2 NCP>SET MODULE X25-PROTOCOL NETWORK NET1 PROFILE PSDNC

This command specifies that you are going to use PSDNC, and that you are going to connect to this PSDN through the network NET1.

3 NCP>SET MODULE X25-PROTOCOL GROUP ESECUG DTE 123789456 -
_ NETWORK NET1 NUMBER 12

This command specifies that your DTE is a member of closed user group ESECUG with group number 12.

SET/DEFINE MODULE X25-SERVER/X29-SERVER

The SET MODULE X25-SERVER and SET MODULE X29-SERVER commands create or modify the parameters of the X.25 or X.29 call handler in the volatile database. The DEFINE MODULE X25-SERVER and DEFINE MODULE X29-SERVER commands create or modify the parameters of the X.25 or X.29 call handler in the permanent database.

Use separate SET MODULE X25-SERVER or DEFINE MODULE X29-SERVER commands to specify the module parameters and the destinations. The server modules contain records that identify and specify parameters for a destination, specify the maximum number of circuits that each module (that is, all destinations for a particular module) may have, and specify the state of the module. Note that the word MODULE is optional.

FORMAT	SET MODULE X25-SERVER <i>[qualifier]</i> <i>parameter [...]</i>
	SET MODULE X29-SERVER <i>[qualifier]</i> <i>parameter [...]</i>
	DEFINE MODULE X25-SERVER <i>[qualifier] parameter</i> <i>[...]</i>
	DEFINE MODULE X29-SERVER <i>[qualifier] parameter</i> <i>[...]</i>

Qualifiers

*DESTINATION**KNOWN DESTINATIONS*

Command Parameters

*ALL**COUNTER TIMER**MAXIMUM CIRCUITS**STATE*

Parameters

*ACCOUNT**ALL**CALL MASK**CALL VALUE**CALLED ADDRESS**EXTENSION MASK**EXTENSION VALUE**GROUP**INCOMING ADDRESS**NETWORK**NODE**OBJECT**PASSWORD**PRIORITY**RECEIVING DTE**REDIRECT REASON**SENDING ADDRESS**SUBADDRESSES**USER*

NCP

SET/DEFINE MODULE X25-SERVER/X29-SERVER

QUALIFIERS

DESTINATION dest-name

KNOWN DESTINATIONS

Identifies a destination or specifies all known destinations. If you specify the destination qualifier, you must follow it with one or more of the following parameters:

ACCOUNT account	Identifies the user account used in connecting to a host node for incoming calls to a destination. Specify a string from 1 to 39 characters. By default, no account is used.
ALL	Copies the destination parameters from the permanent database into the volatile database. Use only with the SET MODULE X25-SERVER or the SET MODULE X29-SERVER command.
CALL MASK hex-value	Specifies the mask applied to the incoming call data before it is tested. By default, no value is used.
CALL VALUE hex-value	Specifies the string used to test the incoming call data. By default, no value is used.
CALLED ADDRESS dte-address	For redirected calls, identifies the DTE that was originally called. The parameter value is used to select a destination for a redirected call. By default, no called DTE is used.
EXTENSION MASK hex-string	Provides a mask for the called address extension facility. Using logical AND, the mask is merged with the called address extension in the incoming call and the result is compared with the extension value. By default, no extension mask is used.
EXTENSION VALUE hex-string	Provides a value for the called address extension facility. The value is compared with the address extension in the incoming call (after merging as described for EXTENSION MASK). By default, no extension mask is used.
GROUP group-name	Identifies a closed user group (CUG) or bilateral closed user group (BCUG). The <i>group-name</i> is an ID string. By default, no group name is used.
INCOMING ADDRESS	Identifies the address of the DTE receiving the call (as specified in the call packet).
NETWORK network-name	Specifies the network for which calls are accepted. By default, no network name is used.

NCP

SET/DEFINE MODULE X25-SERVER/X29-SERVER

NODE node-id	Identifies the PSI Access node that is to be the destination of the incoming X.25 call. Specify this parameter if the executor node is a VMS node with VAX PSI software in multihost mode installed, serving as a connector node. This parameter is mandatory when you specify this destination for the first time. Used only with the SET MODULE X25-SERVER command or the DEFINE MODULE X25-SERVER command.						
OBJECT object-id	Identifies the object used in connecting to a host node for incoming calls to a destination. The <i>object-id</i> is an ID string. If the object name looks like a number, enclose the string in quotation marks. This parameter is mandatory when you specify a destination for the first time.						
PASSWORD password	Specifies the password used in connecting to a host node for incoming calls to a destination. Specify a string from 1 to 39 characters. The default is that no password is used.						
PRIORITY priority	Specifies the priority of the destination record and is used to select one of a set of destinations for which the incoming call may be valid. Specify a value up to a maximum of 255, where 255 is the highest priority. By default, <i>priority</i> takes a value of 0.						
RECEIVING DTE dte-address	Identifies the local DTE. It is used to select a destination for calls received on the local DTE. By default, no receiving DTE is used.						
REDIRECT REASON reason-code	Identifies a reason for redirecting an incoming call. The <i>reason-code</i> can take one of the following values: <table><tr><td>BUSY</td><td>The original DTE was busy and could not accept any more calls.</td></tr><tr><td>OUT OF ORDER</td><td>The original DTE was out of order.</td></tr><tr><td>SYSTEMATIC</td><td>All calls to the original DTE are automatically rerouted.</td></tr></table> <p>The <i>reason-code</i> is used to select a destination for a redirected call. By default, no <i>reason-code</i> is used.</p>	BUSY	The original DTE was busy and could not accept any more calls.	OUT OF ORDER	The original DTE was out of order.	SYSTEMATIC	All calls to the original DTE are automatically rerouted.
BUSY	The original DTE was busy and could not accept any more calls.						
OUT OF ORDER	The original DTE was out of order.						
SYSTEMATIC	All calls to the original DTE are automatically rerouted.						
SENDING ADDRESS dte-address	Identifies the address of the remote DTE that originated a call. By default, no sending DTE is used.						

NCP

SET/DEFINE MODULE X25-SERVER/X29-SERVER

SUBADDRESSES range

Specifies the range of local DTE subaddresses that identify the destination for the incoming call. The *range* consists of one or two subaddresses. The subaddress is a decimal integer up to a maximum of 9999. See the *Public Network Information* manual for the maximum length of the subaddress on your network. Separate two subaddresses with a single hyphen to indicate a range. The second subaddress must be greater than the first. By default, no subaddress range is used.

USER user-id

Specifies the user identification for use by incoming calls to the destination. Specify a string from 1 to 16 characters. The default is that no user identification is used.

COMMAND PARAMETERS

ALL

Copies the call handler parameters from the permanent database into the volatile database. Used only for the SET MODULE X25-SERVER command or the SET MODULE X29-SERVER command.

COUNTER TIMER seconds

Sets a timer whose expiration causes a server module counter logging event. Specify a decimal integer up to a maximum of 65,535.

MAXIMUM CIRCUITS count

Specifies the maximum number of circuits that the module (that is, all destinations) may have. By default, the maximum is 512.

STATE module-state

Specifies the operational state of the server module. This parameter takes one of the following values:

OFF The module is not in use. For the X.29 server module, OFF is the default state.

ON The module is available for normal use. For the X.25 server module, ON is the default state.

SHUT The module is to be closed down but only when all present activity has ceased. The SHUT value applies only to the SET MODULE X25-SERVER or X29-SERVER command.

EXAMPLES

1 NCP>SET MODULE X25-SERVER DESTINATION JOE SUBADDRESSES 12-24 -
_ SENDING ADDRESS 987321654 PRIORITY 3 OBJECT OBJONE

This command creates a destination called JOE that will handle incoming X.25 calls from a DTE with an address of 987321654 and a subaddress in the range 12 to 24 specified in the DECnet object database.

SET/DEFINE MODULE X25-SERVER/X29-SERVER

2 NCP>SET MODULE X25-SERVER DESTINATION DEFDES -
_ OBJECT LAST PRIORITY 0

This command modifies the destination called DEFDES that will handle any incoming calls. The destination has the lowest priority and will only handle calls that fail to find another destination.

3 NCP>SET MODULE X25-SERVER DESTINATION THRUSH SUBADDRESSES 11-20 -
_ OBJECT 36 NODE THRUSH

This command creates a destination called THRUSH for node THRUSH that will match incoming X.25 calls with a subaddress in the range 11 to 20. This command is used if the executor node is a VMS node with VAX PSI software in multihost mode installed, serving as a connector node. Object 36 is the object number for VAX PSI Access on the remote node.

NCP

SET NODE ALL

SET NODE ALL

The SET NODE ALL command updates the volatile database on the executor node with all the parameters stored for a particular node in the permanent database on the executor node.

FORMAT **SET** *node-component ALL*

Node Components

NODE

KNOWN NODES

NODE COMPONENTS ***NODE node-id***
Identifies the node whose parameters are to be updated.

KNOWN NODES

Indicates that all parameters for all known nodes are to be updated.

EXAMPLE

NCP>SET KNOWN NODES ALL

This command loads all permanent database entries stored for all known nodes into the volatile database.

NCP

SET/DEFINE NODE

COMMAND PARAMETERS

ACCESS option

Specifies the allowed logical link connections for the node. There are four options:

- | | |
|----------|--|
| BOTH | Allows incoming and outgoing logical link connections. This is the default. |
| INCOMING | Allows logical link connections from the remote node. |
| NONE | Does not allow incoming or outgoing logical link connections to this node. |
| OUTGOING | Allows the local node to initiate connections to the remote node, but does not allow connections from the remote node. |

If you have OPER privilege, you can override the access restriction specified in this parameter.

ADDRESS node-address

Specifies the address of the node to which you want the database entry to refer.

COUNTER TIMER seconds

Specifies a timer whose expiration causes a node counter logging event.

CPU cpu-type

Identifies the node's CPU type. There are four possibilities:

- DECSYSTEM1020
- PDP11
- PDP8
- VAX

DIAGNOSTIC FILE filespec

Applies to nodes on Ethernet circuits. Identifies the file to be read when the adjacent node has been downline loaded and has requested diagnostics. The *filespec* is interpreted according to the file system of the executor node.

DUMP ADDRESS number

Identifies the address in memory to begin an upline dump of the adjacent node.

DUMP COUNT number

Specifies the default number of memory units to upline dump from the adjacent node.

DUMP FILE filespec

Identifies which file to write to when the adjacent node is dumped upline. The *filespec* is interpreted according to the file system of the executor node.

HARDWARE ADDRESS E-address

Identifies the Ethernet address originally assigned to the Ethernet controller for the system on the adjacent node. Used during operations such as downline loading to communicate with the system before the system has set up its physical address.

HOST node-id

Identifies the host node. For an adjacent node, the host address is a parameter that the adjacent node receives when it is downline loaded. If no host is specified, the default is the executor node.

INBOUND node-type

Required for nodes when the VERIFICATION INBOUND parameter is specified for the circuit over which the connection is to be made. Specifies the type of the node. The *node-type* is checked by the executor node if the specified node attempts to form a dynamic connection with the executor node. If VERIFICATION INBOUND is not specified for the circuit, the INBOUND parameter for the node is ignored. There are two possible node types:

- | | |
|---------|---|
| ENDNODE | Allows the remote node to be connected only if it is configured as an end node. |
| ROUTER | Allows the remote node to be connected whether it is configured as an end node or a router. |

LOAD ASSIST AGENT filespec

Specifies the VMS image that will define the system software to be downline loaded to an adjacent node. The load assist agent can be used to tailor the system software to be loaded. The LOAD ASSIST AGENT parameter applies to downline load operations to Local Area VAXclusters only.

LOAD ASSIST PARAMETER item

Specifies a parameter to be passed to a load assist agent. The LOAD ASSIST PARAMETER value applies to downline load operations to Local Area VAXclusters only.

LOAD FILE filespec

Specifies a file containing the system software to be downline loaded to an adjacent node.

MANAGEMENT FILE filespec

Specifies a file containing the management information to be downline loaded to an adjacent node.

NAME node-name

Specifies the node name to be associated with the node identification. You can assign only one name to a node address or line identification.

NONPRIVILEGED item

Specifies nonprivileged inbound access control information for the node. Associate any of the following parameters with the NONPRIVILEGED parameter:

- | | |
|-------------------|---|
| ACCOUNT account | Identifies the account for the default nonprivileged DECnet account on the designated node. |
| PASSWORD password | Identifies the password for the default nonprivileged DECnet account on the designated node. |
| USER user-id | Identifies the user name for the default nonprivileged DECnet account on the designated node. |

NCP

SET/DEFINE NODE

PRIVILEGED item

Specifies privileged inbound access control information for the node. Associate any of the following parameters with the PRIVILEGED parameter:

ACCOUNT account	Identifies the account for the default privileged DECnet account on the designated node.
PASSWORD password	Identifies the password for the default privileged DECnet account on the designated node.
USER user-id	Identifies the user name for the default privileged DECnet account on the designated node.

RECEIVE PASSWORD password

Does not apply to nodes on an Ethernet circuit. Defines the password (1 to 8 characters) that is expected from the remote node during a routing initialization sequence. You use this parameter only if verification is enabled or set to INBOUND for the circuit.

SECONDARY LOADER filespec

Specifies a file containing the secondary boot loader to be downline loaded to an adjacent node.

SERVICE CIRCUIT circuit-id

Establishes the circuit to be used for downline loading. This circuit is the default value for the VIA parameter of the LOAD command. The node identification must be that of the target node.

SERVICE DEVICE device-type

Identifies the target node's line controller for the service line over which the operation is to take place. The possibilities are as follows:

BNA	DA	DL	DLV	DMB	DMC
DMF	DMP	DMR	DMV	DP	DQ
DTE	DU	DUP	DV	DZ	KDP
KDZ	KL	PCL	QNA	SVA	UNA

Only the synchronous port on the DMF service device may be used.

SERVICE NODE VERSION version

Specifies the DECnet-VAX software version of the node that downline loads its software to a target node. The two possibilities are PHASE III and PHASE IV. The default is PHASE IV.

SERVICE PASSWORD hex-password

Defines the password required to trigger the bootstrap mechanism on the target node. The password is a 16-digit hexadecimal number. For DDCMP circuits, the password is in the range 0 to FFFFFFFF; for Ethernet circuits, it is in the range 0 to FFFFFFFFFFFFFFFF. The default is 0.

SOFTWARE IDENTIFICATION software-id

Specifies the ID of the software to be downline loaded.

SOFTWARE TYPE *software-type*

Identifies a particular file type to be downline loaded. There are four possibilities:

MANAGEMENT FILE
SECONDARY LOADER
SYSTEM
TERTIARY LOADER

The default is SECONDARY LOADER.

TERTIARY LOADER *filespec*

Specifies a file containing a tertiary boot loader to be downline loaded to an adjacent node.

TRANSMIT PASSWORD *password*

Does not apply to nodes on an Ethernet circuit. Specifies a password (1 to 8 characters) sent to the remote node during a routing initialization sequence. This parameter is used only if the VERIFICATION parameter has been set to ENABLED or INBOUND for the circuit.

COMMENTS

You can use this command to create or modify parameters for a remote node. You can also use this command, specifying the local node address, to create or modify certain executor parameters.

Refer to the *VMS Networking Manual* for a table of the parameters used with the SET NODE command according to their functions.

EXAMPLES

1 NCP>SET NODE 5.14 NAME DENVER

This command sets the node name of node 5.14 to DENVER.

2 NCP>SET NODE 2.11 -
_ NONPRIVILEGED -
_ USER NETNONPRIV -
_ PASSWORD NONPRIV -
_ PRIVILEGED -
_ USER NETPRIV -
_ PASSWORD PRIV

This command establishes default privileged and nonprivileged access control information for node 2.11.

3 NCP>SET NODE 14 ADDRESS 2

This command associates the information for node 1.14 with a new node whose address is 1.2. The executor is assumed to be in area 1.

NCP

SET/DEFINE NODE

4 NCP>SET NODE LARK HARDWARE ADDRESS AA-00-03-00-00-C0

This command associates with the node LARK the Ethernet hardware address originally assigned to the Ethernet controller at node LARK. This information in the volatile database can be used during downline loading of target node LARK over an Ethernet circuit.

5 NCP>SET NODE 8.* ACCESS NONE

This command prevents incoming or outgoing logical link connections to all nodes in area 8.

SET/DEFINE NODE CIRCUIT

The SET NODE command with the CIRCUIT parameter creates or modifies loop node parameters in the volatile database on the local node. The DEFINE NODE command with the CIRCUIT parameter creates or modifies loop node parameters in the permanent database on the local node.

The CIRCUIT parameter is the only valid parameter for loop nodes. You can assign only one loop node name to a particular circuit.

FORMAT **SET** *node-component parameter*
 DEFINE *node-component parameter*

Node Component
NODE

Command Parameter
CIRCUIT

NODE COMPONENT ***NODE node-id***
Identifies the loop node name or address for which the CIRCUIT parameter is to be created or modified in the database.

COMMAND PARAMETER ***CIRCUIT circuit-id***
Identifies which circuit to use for all traffic to the node.

EXAMPLE

NCP>SET NODE TESTER CIRCUIT DMP-0.4

This command sets the loop node name (TESTER) and identifies the circuit over which loop information is to be transmitted.

NCP

SET OBJECT ALL

SET OBJECT ALL

The SET OBJECT ALL command updates the volatile database on the local node with all the object parameters stored for a particular object in the permanent database on the local node.

FORMAT **SET** *object-component ALL*

Object Components

OBJECT

KNOWN OBJECTS

**OBJECT
COMPONENTS**

OBJECT object-name

Identifies the object whose parameters are to be updated.

KNOWN OBJECTS

Indicates that all parameters for all known objects are to be updated.

EXAMPLE

NCP>SET KNOWN OBJECTS ALL

This command loads all permanent database parameter entries stored for all known objects into the volatile database.

NCP

SET/DEFINE OBJECT

- DISABLED** Does not allow a specified object to receive incoming connect requests that have been directed to the alias node address. An object whose resources are not accessible clusterwide should have ALIAS INCOMING disabled. If an attempt is made to connect to an object that does not have ALIAS INCOMING enabled, the status message NO SUCH OBJECT is returned.
- ENABLED** Allows a specified object to receive incoming connect requests that have been directed to the alias node address. An object such as PHONE, which uses a protocol that depends on multiple links, should not be enabled for ALIAS INCOMING. By default, if an alias node identifier has been specified, ALIAS INCOMING is enabled for all objects except for PHONE.

ALIAS OUTGOING option

Does not apply to VAX PSI. Specifies whether a particular object uses the alias node identifier specified in the SET EXECUTOR command in its outgoing connect requests and other protocols. Specify either of the following two options:

- DISABLED** Does not allow a specified object to use the alias node address in its outgoing connect requests.
- ENABLED** Allows a specified object to use the alias node address in its outgoing connect requests. An object such as PHONE, which uses a protocol that depends on multiple links, should not have the ALIAS OUTGOING parameter enabled. By default, only the object MAIL has ALIAS OUTGOING enabled.

FILE filespec

Specifies the command file containing the command procedure used to start the indicated object. If not specified, the default is SYS\$SYSTEM:object-name.COM. When you specify an object for the first time, this parameter is mandatory.

NUMBER number

Specifies the object number. Use a number up to a maximum of 255, except for those reserved. See Table NCP-1 for a list of reserved object numbers. When you specify an object for the first time, this parameter is mandatory. For VAX PSI, specify this parameter as 0.

PASSWORD password

Identifies the default user's password for access control on inbound connects to the object when no access control is specified by the remote node. This password must match the password established for the account. For VAX PSI, this parameter identifies the user's password for use by incoming X.25 or X.29 calls to the object.

PRIVILEGES privilege-list

Does not apply to VAX PSI. Specifies those privileges normally required by the object. A user with those privileges may be supplied with default outbound privileged access control information when connecting to the object. Refer to the *Guide to Setting Up a VMS System* for a complete list of privileges and their meanings.

PROXY option

Assigns the proxy login access defaults to individual objects. Specify one of the following four options:

- BOTH Allow both incoming and outgoing proxy login access. This is the default option.
- INCOMING Allows proxy login to the object.
- NONE Does not allow incoming or outgoing proxy login access.
- OUTGOING Allows the object to initiate proxy login.

USER user-id

Identifies the default user's identification for access control on inbound connects to the object when no access control is specified by the remote node. For VAX PSI, this parameter specifies the user identification for use by incoming X.25 calls to the object. When you specify an object for the first time, this parameter is mandatory.

DESCRIPTION

A DECnet object is identified by object name and object type. (The type is specified in the NUMBER parameter.) For VAX PSI operations, an object is identified by *object-name*.

The privilege list in the SET/DEFINE OBJECT command is used to validate the user privileges for outbound connections to that object. The access control information is used as the default access control for inbound connections.

Refer to the *VMS Networking Manual* for a table of object parameters and their functions. Table NCP-1 lists the object type codes used with the SET OBJECT and DEFINE OBJECT commands. All values in Table NCP-1 are expressed in decimal.

Table NCP-1 Object Type Codes

Code	Object Type Mnemonic	Description
0	TASK	User program
1-16		Reserved for DIGITAL use
17	FAL	File Access Listener for remote file and record access
18	HLD	Host loader for RSX-11S downline task loading requests
19	NML	Network Management Listener object
20		RSTS/E media transfer program (NETCPY)
21-22		Reserved for DIGITAL use
23	REMACP	Network terminal handler (host side)
24		Network terminal handler (terminal side)
25	MIRROR	Loopback mirror

NCP

SET/DEFINE OBJECT

Table NCP-1 (Cont.) Object Type Codes

Code	Object Type Mnemonic	Description
26	EVL	Event receiver
27	MAIL	VMS Mail Utility
28		Reserved for DIGITAL use
29	PHONE	VMS Phone Utility and RSX-11M/M-PLUS Phone Utility
30-41		Reserved for DIGITAL use
42	CTERM	Network terminal handler
43-62		Reserved for DIGITAL use
63	DTR	DECnet Test Receiver object
64-127		Reserved for DIGITAL use
128-255		Reserved for customer use

EXAMPLES

1 NCP>SET OBJECT NML NUMBER 19

This command sets an object number, 19, for the NML object.

2 NCP>SET OBJECT NML -
_ PRIVILEGES OPER DIAGNOSE -
_ USER NET_NONPRIV -
_ PASSWORD NET_NONPRIV

This command establishes default access control information for the NML object and sets those privileges required to connect to this object.

3 NCP>SET OBJECT OBJONE FILE STARTUP.COM NUMBER 0 -
_ USER NET PASSWORD NET

This command creates an object called OBJONE with a command procedure called STARTUP.COM. The incoming connection uses a password and user identification of NET.

4 NCP>SET EXECUTOR ALIAS NODE 2.13

NCP>SET OBJECT FOX ALIAS OUTGOING ENABLED

The SET EXECUTOR ALIAS NODE command establishes address 2.13 as the alias node identifier for the local node. The SET OBJECT command associates the object FOX with the alias node identifier for all outgoing connect requests.

5 NCP>SET OBJECT T* PROXY NONE

This command prevents incoming or outgoing proxy login access for all objects with names beginning with T.

SHOW AREA

The SHOW AREA command displays area information from the volatile database available to the local node.

FORMAT **SHOW** *area-component parameter [qualifier]*

Area Components

ACTIVE AREAS
AREA

KNOWN AREAS

Command Parameters

CHARACTERISTICS
STATUS

SUMMARY

Qualifier

TO

AREA COMPONENTS

ACTIVE AREAS

Indicates that information for all active areas is to be displayed.

AREA area-id

Identifies a particular area for which information is to be displayed.

KNOWN AREAS

Indicates that information for all known areas is to be displayed.

COMMAND PARAMETERS

CHARACTERISTICS

Indicates that static area information is to be displayed.

STATUS

Indicates that dynamic area information is to be displayed.

SUMMARY

Indicates that only the most useful area information is to be displayed. This is the default display type.

QUALIFIER

TO filespec

Specifies the output file. If none is specified, SYS\$OUTPUT is the default.

NCP

SHOW AREA

INTERPRETING THE DISPLAY

CIRCUIT *circuit-id*

This read-only parameter identifies the circuit used to get to a remote area. The *circuit-id* is an ID string.

COST *cost*

This read-only parameter represents the total cost over the current path to the destination area. The *cost* is a positive integer value associated with using a circuit. The Routing layer routes messages (data) along the path between two areas with the least cost.

HOPS *hops*

This read-only parameter represents the number of hops over to a destination area. A hop is the routing value representing the logical distance between two areas in a network.

NEXT NODE *node-id*

This read-only value indicates the next node on the circuit used to get to the destination area.

STATE *state*

This read-only value indicates the state of the area. The two possible states are REACHABLE and UNREACHABLE.

EXAMPLES

1 NCP>SHOW KNOWN AREAS STATUS

```
Known Area Volatile Status as of 30-DEC-1988 09:50:34
Area   State   Cost  Hops  Circuit      Next node to area
  2    reachable  0    0      DMC-0        2.11 (BOSTON)
  3    reachable  4    1      DMC-0        3.5 (TRNTO)
  5    reachable  7    2      DMC-0        3.5 (TRNTO)
 11    reachable  4    1      DMC-3       11.9 (DALLAS)
 44    reachable 11    1      X25-INC     44.2 (LONDON)
```

This command displays status information for all known areas in the network.

NCP SHOW AREA

2 NCP>SHOW KNOWN AREA CHARACTERISTICS

Known Area Volatile Characteristics as of 30-DEC-1988 11:16:27

```
Area = 2
State           = reachable
Next node to area = 2.11 (BOSTON)
Area = 3
State           = reachable
Circuit         = DMC-0
Next node to area = 3.5 (TRNTO)
Area = 5
State           = reachable
Circuit         = DMC-0
Next node to area = 3.5 (TRNTO)
Area = 11
State           = reachable
Circuit         = DMC-3
Next node to area = 11.9 (DALLAS)

Area = 44
State           = reachable
Circuit         = X25-INC
Next node to area = 44.2 (LONDON)
```

This command displays characteristics for all known areas in the network.

3 NCP>SHOW AREA 11 SUMMARY

Known Area Volatile Summary as of 30-DEC-1988 11:16:44

Area	State	Circuit	Next node to area
11	reachable	DMC-3	11.9 (DALLAS)

This command displays only the most useful information for area 11 in the network.

NCP

SHOW/LIST CIRCUIT

SHOW/LIST CIRCUIT

The SHOW CIRCUIT command displays circuit information from the volatile database available to the local node or DTE. The LIST CIRCUIT command displays circuit information from the permanent database available to the local node or DTE.

FORMAT **SHOW** *circuit-component parameter [qualifier] [...]*
LIST *circuit-component parameter [qualifier] [...]*

Circuit Components

ACTIVE CIRCUITS *KNOWN CIRCUITS*
CIRCUIT

Command Parameters

CHARACTERISTICS *STATUS*
COUNTERS *SUMMARY*

Qualifiers

ADJACENT NODE *TO*

CIRCUIT COMPONENTS

ACTIVE CIRCUITS

Indicates that information for all active circuits is to be displayed.

CIRCUIT circuit-id

Identifies a particular circuit for which information is to be displayed.

KNOWN CIRCUITS

Indicates that information for all known circuits is to be displayed.

COMMAND PARAMETERS

CHARACTERISTICS

Indicates that static circuit information is to be displayed.

COUNTERS

Indicates that circuit error and performance statistics are to be displayed.

STATUS

Indicates that dynamic circuit information is to be displayed, including end node adjacencies and routing node adjacencies.

SUMMARY

Indicates that dynamic circuit information is to be displayed, including the routing adjacencies available to this circuit. SUMMARY is the default display type.

QUALIFIERS

ADJACENT NODE node-id

Indicates that the display of a list of circuits is to be restricted to those circuits leading to the specified adjacent node.

TO filespec

Specifies the output file. If none is specified, SYS\$OUTPUT is the default.

**INTERPRETING
THE DISPLAY**

Adjacent node node-id

This read-only parameter indicates an adjacent node on the circuit. There can be many adjacent nodes on an Ethernet circuit.

Block size number

This read-only parameter is the block size in bytes for the adjacent node, as negotiated with the adjacent Routing layer during routing initialization over the circuit.

Designated router node-id

This read-only value is the Routing layer identification of the node that is to be used for routing to nonrouting nodes (end nodes) on this circuit.

Listen timer seconds

This read-only parameter determines the maximum time allowed to elapse before a message (a Routing Hello message or a user message) is received from an adjacent node on the circuit. The value can be up to a maximum of 65,535. Note that the LISTEN TIMER value is three times that of the HELLO TIMER circuit parameter.

Loopback name

This read-only parameter is the node name associated with a circuit for loopback testing. It identifies the circuit to be used for all traffic to the loop node.

Polling substate

Applies only to DDCMP CONTROL circuits. This read-only value represents the state of the tributary as determined by the polling algorithm when the multipoint polling state is AUTOMATIC. The polling substate is displayed as a tag on the polling state (for example, AUTOMATIC-INACTIVE). Possible values of the polling substate are as follows:

- Active
- Inactive
- Dying
- Dead

Substate

This read-only value is the operational substate of the circuit. The substate is displayed as a tag on the STATE parameter (for example, ON-SYNCHRONIZING). See Table A-2 for a complete list of circuit/line substates. Possible substate values are as follows:

- Synchronizing
- Starting
- Reflecting
- Looping
- Loading
- Dumping

NCP

SHOW/LIST CIRCUIT

Triggering
Autoservice
Autoloading
Autodumping
Autotriggering
Failed

EXAMPLES

1

```
NCP>SHOW KNOWN CIRCUITS STATUS
Known Circuit Volatile Status as of 30-DEC-1988 15:39:04
  Circuit      State      Loopback      Adjacent      Block
              State      Name          Node          Size
DMC-0         on              3.5 (TRNTO)   576
DMC-1         on      -starting
UNA-0         on              2.22 (LARK)   576
              2.23 (DOVE)   576
              2.20 (ROBIN)  576
              2.21 (THRUSH) 576
X25-INC       on              44.2 (LONDON) 576
X25-INC2      on      -synchronizing
X25-RY1       off              RY1
X25-RY2       off              RY2
X25-ZK        off              ZK
```

This command displays status information for all known circuits connected to the local node. This information includes the current state of the circuit; a loop node name (if any) associated with the circuit; and the address, name, and block size of the adjacent node on that circuit. For Ethernet circuits, all nodes attached to the circuit are displayed.

2

```
NCP>SHOW ACTIVE CIRCUITS CHARACTERISTICS
Active Circuit Volatile Characteristics as of 30-DEC-1988 15:39:21
Circuit = DMC-0
State           = on
Service         = enabled
Cost            = 12
Hello timer    = 15
Listen timer   = 30
Maximum buffers = 255
Verification   = disabled
Adjacent node   = 3.5 (TRNTO)
Listen timer   = 30

Circuit = UNA-0
State           = on
Designated router = 2.20 (ROBIN)
Cost            = 1
Maximum routers allowed = 33
Router priority = 64
Hello timer    = 15
Verification   = disabled
Adjacent node   = 2.22 (LARK)
Listen timer   = 45
```

NCP

SHOW/LIST CIRCUIT

```
Circuit = UNA-0
Adjacent node      = 2.23 (DOVE)
Listen timer      = 45
Circuit = UNA-0
Adjacent node      = 2.20 (ROBIN)
Listen timer      = 45
Circuit = UNA-0
Adjacent node      = 2.21 (THRUSH)
Listen timer      = 45
Circuit = X25-INC
State              = on
Loopback name     = INC
Cost              = 20
Hello timer       = 15
Listen timer      = 30
Owner             = Executor
Usage            = incoming
Type             = X.25
Verification      = disabled
Adjacent node     = 44.2 (LONDON)
Listen timer      = 30
```

This command displays circuit characteristics for all circuits whose states are ON.

3 NCP>SHOW CIRCUIT UNA-0 STATUS

```
Circuit Volatile Status as of 30-DEC-1988 15:45:04
Circuit      State      Loopback      Adjacent      Block
              State      Name          Node          Size
UNA-0        on                2.22 (LARK)   576
UNA-0                2.23 (DOVE)   576
UNA-0                2.20 (ROBIN)  576
UNA-0                2.21 (THRUSH) 576
```

This command displays status information for circuit UNA-0.

4 NCP>TELL DOVE SHOW CIRCUIT UNA-0 CHARACTERISTICS

```
Circuit Volatile Characteristics as of 30-DEC-1988 15:46:20
Circuit = UNA-0
State              = on
Designated router = 2.20 (ROBIN)
Cost              = 1
Maximum routers allowed = 33
Router priority    = 64
Hello timer       = 15
Verification      = disabled
Adjacent node     = 2.20 (ROBIN)
Listen timer      = 45
Circuit = UNA-0
Adjacent node     = 2.11 (BOSTON)
Listen timer      = 45
```

NCP

SHOW/LIST CIRCUIT

```
Circuit = UNA-0
Adjacent node      = 2.22 (LARK)
Listen timer      = 45

Circuit = UNA-0
Adjacent node      = 2.21 (THRUSH)
Listen timer      = 45
```

This command displays circuit characteristics for circuit UNA-0 on node DOVE.

5 NCP>TELL MYNODE SHOW CIRCUIT TX-0-5 CHARACTERISTICS

```
Circuit Volatile Characteristics as of 30-DEC-1988 15:35:12
Circuit = TX-0-5
State           = on
Substate        = -synchronizing
Service         = enabled
Cost            = 10
Hello timer     = 15
Verification    = inbound
```

This command displays circuit characteristics for circuit TX-0-5 on node MYNODE.

6 NCP>SHOW KNOWN CIRCUIT ADJACENT NODE BOSTON

```
Known Circuit Volatile Summary as of 30-DEC-1988 15:50:19
Circuit      State      Loopback      Adjacent
              State      Name           Node
DMC-0        on           2.11 (BOSTON)
UNA-0        on           2.11 (BOSTON)
```

This command displays summary information for all circuits connected to adjacent node BOSTON.

7 NCP>SHOW ACTIVE CIRCUIT COUNTERS

```
Active Circuit Counters as of 30-DEC-1988 16:10:31
Circuit = DMC-0
>65534 Seconds since last zeroed
 734 Terminating packets received
 101 Originating packets sent
   0 Terminating congestion loss
   0 Transit packets received
   0 Transit packets sent
   0 Transit congestion loss
  17 Circuit down
   0 Initialization failure
3165010 Bytes received
3066061 Bytes sent
 45098 Data blocks received
43538 Data blocks sent
  105 Data errors outbound, including:
      NAKs received, header block check error
   0 Data errors inbound
   0 Local buffer errors
  228 Remote buffer errors, including:
      NAKs received, buffer unavailable
   0 Local reply timeouts
   0 Remote reply timeouts
```

NCP SHOW/LIST CIRCUIT

```
Circuit = UNA-0
>65534 Seconds since last zeroed
184949 Terminating packets received
214036 Originating packets sent
  0 Terminating congestion loss
555679 Transit packets received
555334 Transit packets sent
  2 Transit congestion loss
  1 Circuit down
  0 Initialization failure
1142708 Data blocks sent
104475601 Bytes sent
 2389413 Data blocks received
277120757 Bytes received
  0 Unrecognized frame destination
  9 User buffer unavailable

Circuit = X25-INC
>65534 Seconds since last zeroed
  650 Terminating packets received
  959 Originating packets sent
  0 Terminating congestion loss
11540 Transit packets received
19461 Transit packets sent
  243 Transit congestion loss
  18 Circuit down
  0 Initialization failure
```

This command displays counter information for all active circuits. Refer to Appendix A for a description of each circuit counter.

8 NCP>SHOW CIRCUIT SVA-* SUMMARY

This command displays dynamic circuit information for all SVA circuits, including the routing adjacencies available to those circuits.

NSP version n.n.n

This read-only parameter identifies the version number of the End Communication layer. The format for the number is the same as for the management version number.

Physical address E-address

This read-only parameter is the Ethernet address that identifies the executor node.

Routing version n.n.n

This read-only parameter identifies the version number of the Routing layer. The format for the number is the same as for the management version number.

EXAMPLES

```
1 NCP>SHOW EXECUTOR CHARACTERISTICS
Node Volatile Characteristics as of 30-DEC-1988 15:37:32
Executor node = 2.11 (BOSTON)
Identification           = DECnet-VAX V5.0,  VMS V5.0
Management version      = V4.0.0
Incoming timer          = 45
Outgoing timer          = 45
Incoming Proxy           = Enabled
Outgoing Proxy           = Enabled
NSP version              = V4.0.0
Maximum links           = 128
Delay factor             = 80
Delay weight             = 5
Inactivity timer        = 60
Retransmit factor        = 10
Routing version          = V2.0.0
Type                     = routing IV
Routing timer            = 600
Broadcast routing timer = 40
Maximum address          = 1023
Maximum circuits         = 16
Maximum cost             = 1022
Maximum hops             = 15
Maximum visits           = 63
Maximum area             = 63
Max broadcast nonrouters = 64
Max broadcast routers    = 32
Maximum path splits      = 1
Area maximum cost        = 1022
Area maximum hops        = 30
Maximum buffers          = 100
Buffer size              = 576
```

NCP

SHOW/LIST EXECUTOR

```
Default access      = incoming and outgoing
Pipeline quota     = 1500
Alias incoming      = Enabled
Alias maximum links = 32
Alias node          = 2.10 (CLUSTR)
Path split policy  = Normal
```

This command displays local node characteristics. This display shows values that you have set for the local node. In addition, it provides supplemental information about the software versions of NML, NSP, and Routing.

2 NCP>SHOW EXECUTOR STATUS

```
Node Volatile Status as of 30-DEC-1988 15:37:53
Executor node = 2.11 (BOSTON)
State          = on
Physical address = AA-00-04-00-AB-04
Active links   = 2
Delay         = 1
```

This command displays status information for the local node. This format includes the operational state of the local node. The physical address is the Ethernet address of the executor node.

3 NCP>SHOW EXECUTOR SUMMARY

```
Node Volatile Summary as of 30-DEC-1988 15:38:04
Executor node = 2.11 (BOSTON)
State          = on
Identification = VMS HOST SYSTEM
Active links   = 4
```

This command displays summary information for the executor node.

4 NCP>SHOW EXECUTOR COUNTERS

```
Node Counters as of 30-DEC-1988 15:38:17
Executor node = 2.11 (BOSTON)
>65534 Seconds since last zeroed
1073585 Bytes received
1069826 Bytes sent
96120 Messages received
96120 Messages sent
1267 Connects received
1267 Connects sent
11 Response timeouts
0 Received connect resource errors
15 Maximum logical links active
34 Aged packet loss
70 Node unreachable packet loss
0 Node out-of-range packet loss
0 Oversized packet loss
0 Packet format error
0 Partial routing update loss
0 Verification reject
```

This command displays counter information for the executor node. Refer to Appendix A for a description of each node counter.

NCP

SHOW/LIST LINE

QUALIFIER *TO filespec*
Specifies the output file. If none is specified, SYS\$OUTPUT is the default.

INTERPRETING THE DISPLAY *Hardware address E-address*
This read-only parameter is the Ethernet address associated with the line device hardware.

Substate
This read-only value is the operational substate of the line. The substate is displayed as a tag on the STATE parameter (for example, ON-SYNCHRONIZING). See Appendix A for a complete list of circuit/line substates. Possible substate values are as follows:

- Synchronizing
- Starting
- Reflecting
- Looping
- Loading
- Dumping
- Triggering
- Autoservice
- Autoloading
- Autodumping
- Autotriggering
- Failed

EXAMPLES

1 NCP>SHOW ACTIVE LINES CHARACTERISTICS

Active Line Volatile Characteristics as of 30-DEC-1988 17:54:19

Line = DMF-0

Receive buffers	= 4
Controller	= normal
Duplex	= full
Protocol	= DDCMP point
Service timer	= 4000
Retransmit timer	= 3000

Line = QNA-0

Receive buffers	= 6
Controller	= normal
Protocol	= Ethernet
Service timer	= 4000
Hardware address	= AA-00-03-01-25-AB
Device buffer size	= 1498

This command displays line characteristics for all active lines; that is, those lines whose state is ON. This display shows values for line parameters that you have set for individual lines.

2 NCP>SHOW KNOWN LINES STATUS

Known Line Volatile Status as of 30-DEC-1988 10:21:27

Line	State
DMC-0	on
DMC-1	on
DUP-0	on
UNA-0	on

This command displays status information for all known lines connected to the local node. This display shows the current state of the line.

3 NCP>SHOW LINE UNA-0 SUMMARY

Line Volatile Summary as of 30-DEC-1988 10:22:11

Line	State
UNA-0	on

This command displays summary information for line UNA-0.

4 NCP>TELL LARK SHOW LINE UNA-0 CHARACTERISTICS

Line Volatile Characteristics as of 30-DEC-1988 10:23:41

Line = UNA-0

Receive buffers	= 9
Controller	= normal
Protocol	= Ethernet
Hardware address	= AA-00-03-00-00-C0
Buffer size	= 1498

This command displays line characteristics for line UNA-0 on node LARK.

NCP

SHOW/LIST LINE

5 NCP>SHOW LINE UNA-0 COUNTERS

Line Counters as of 30-DEC-1988 10:25:43

Line = UNA-0

>65534	Seconds since last zeroed
3098176	Data blocks received
1928504	Multicast blocks received
0	Receive failure
302792074	Bytes received
200175224	Multicast bytes received
0	Data overrun
0	Local buffer errors
1652342	Data blocks sent
452703	Multicast blocks sent
226	Blocks sent, multiple collision
351	Blocks sent, single collision
12169	Blocks sent, initially deferred
139320099	Bytes sent
46438927	Multicast bytes sent
0	Send failure
0	Collision detect check failure
17270	Unrecognized frame destination
0	System buffer unavailable
5401	User buffer unavailable

This command shows the line counters for Ethernet circuit UNA-0. Refer to Appendix A for a complete description of each line counter.

6 NCP>SHOW LINE DMC-* STATUS

This command displays status information for all DMC lines connected to the local node.

NCP

SHOW LINKS

INTERPRETING THE DISPLAY

State

This read-only value is the operational state of the link. See Appendix A for a complete list of link states. Possible state values are as follows:

- Closed
- CI sending
- CI ACKed
- CI receiving
- CC sending
- Run
- DI received
- DI sending

EXAMPLES

1 NCP>SHOW KNOWN LINKS

Known Link Volatile Summary as of 30-DEC-1988 15:53:42

Link	Node	PID	Process	Remote link	Remote user
4104	11.9 (DALLAS)	20600090	GRAY	3116	MAIL
8229	3.5 (TRNTO)	2060014C	DAVIS	7217	NML
3125	2.17 (NYC)	2060023D	REMACP	5175	THOMPSON_1

This command displays link information for all links known to the local node. This format is the same for all three display types. The display shows the local link number, node name and address to which the links apply, the process identification number (PID), the process associated with the link, the remote link, and the remote user's PID or process name.

2 NCP>SHOW KNOWN LINKS WITH NODE DALLAS

Known Link Volatile Summary as of 30-DEC-1988 15:53:42

Link	Node	PID	Process	Remote link	Remote user
4104	11.9 (DALLAS)	20600090	GRAY	3116	MAIL

This command displays link information for all active links with remote node DALLAS.

3 NCP>SHOW KNOWN LINKS CHARACTERISTICS

Known Link Volatile Characteristics as of 30-DEC-1988 15:00:42

Link = 8245
State = run
PID = 264006AB
Remote node = 2.58 (THRUSH)
Delay time = 1
Remote link = 9270
Remote user = TERM
Username = MARTIN
Process name = MARTIN

NCP

SHOW LINKS

```
Link = 9270
State           = CI received
PID             = 26400091
Remote node     = 2.58 (THRUSH)
Delay time      = 1
Remote link     = 8245
Remote user     = BARNETT
Username        = SYSTEM
Process name    = REMACP
```

This command displays link characteristics for all links known to the local node. Refer to Appendix A for a complete description of each link state.

SHOW/LIST LOGGING

The SHOW LOGGING command displays logging information (from the volatile database) available to the local node. The LIST LOGGING command displays logging information (from the permanent database) available to the local node.

FORMAT **SHOW** *logging-component parameter [qualifier] [...]*
LIST *logging-component parameter [qualifier] [...]*

Logging Components

<i>ACTIVE LOGGING</i>	<i>LOGGING FILE</i>
<i>KNOWN LOGGING</i>	<i>LOGGING MONITOR</i>
<i>LOGGING CONSOLE</i>	

Command Parameters

<i>CHARACTERISTICS</i>	<i>STATUS</i>
<i>EVENTS</i>	<i>SUMMARY</i>

Qualifiers

<i>KNOWN SINKS</i>	<i>TO</i>
<i>SINK NODE</i>	

LOGGING COMPONENTS

ACTIVE LOGGING

Indicates that information for all active logging is to be displayed.

KNOWN LOGGING

Indicates that information for all known logging is to be displayed.

LOGGING CONSOLE

Indicates that information for the logging console is to be displayed.

LOGGING FILE

Indicates that information for the logging file is to be displayed.

LOGGING MONITOR

Indicates that information for the logging monitor is to be displayed.

COMMAND PARAMETERS

CHARACTERISTICS

Indicates that static logging information is to be displayed.

EVENTS

Indicates that event logging information is to be displayed.

STATUS

Indicates that dynamic logging information is to be displayed.

SUMMARY

Indicates that only the most useful logging information is to be displayed. This is the default display type.

QUALIFIERS

KNOWN SINKS

Indicates that information for all known sinks is to be displayed.

SINK NODE *node-id*

Identifies a particular sink node for which information is to be displayed. If you do not include this parameter, NCP displays only local node logging.

TO *filespec*

Specifies the output file. If none is specified, SYS\$OUTPUT is the default.

EXAMPLES

1 NCP>SHOW LOGGING CONSOLE CHARACTERISTICS SINK NODE TRNTO
Logging Volatile Characteristics as of 30-DEC-1988 13:36:54
Logging sink type = console
Sink Node = 3.5 (TRNTO)
Events = 4.0-5,8-10
Events = 5.0-5

This command displays logging console characteristics for logging to that component on remote node TRNTO. This display shows the sink node to which the events apply and those events that are set for the logging console component at the local node.

2 NCP>SHOW LOGGING FILE EVENTS KNOWN SINKS
Logging Volatile Events as of 30-DEC-1988 13:40:54
Logging sink type = file
Sink node = 3.5 (TRNTO)
Events = 4.0-5
Logging sink type = file
Sink node = 11.9 (DALLAS)
Events = 0.0-7
Events = 2.0-1
Events = 5.0-4

This command displays events being logged to the logging file component as specified for all known sinks. This display lists the sink node, the source for events, and the actual events that are logged to the logging file at that node.

NCP

SHOW/LIST LOGGING

3 NCP>SHOW ACTIVE LOGGING STATUS KNOWN SINKS

Active Logging Status as of 30-DEC-1988 14:02:15

Logging sink type = console

Sink Node	Source	Events	State	Name
3.5 (TRNTO)	DMC-0	4.0-5,8-10 5.0-4	on	

Logging sink type = file

Sink Node	Source	Events	State	Name
3.5 (TRNTO)	DMC-0	4.0-5,8-10 5.0-4	on	NET.LOG
11.9 (DALLAS)	DMC-3	5.0-4		
11.9 (DALLAS)		0.0-7 2.0-1		

This command displays status information for all active logging at all known sinks. This display identifies each logging component and information particular to that component. The status format is similar to the events format, except that the name of the component and its operational state are included in this display. Note that the executor node in this example is node TRNTO.

4 NCP>SHOW KNOWN LOGGING SUMMARY SINK NODE TRNTO

Known Logging Volatile Summary as of 30-DEC-1988 15:30:20

Logging sink type = console

Sink Node	Source	Events	State	Name
5 (TRNTO)	DMC-0	4.0-5,8-10 5.0-4	on	

This command displays summary information for all known logging to node TRNTO. The summary format is the same as the events format.

NCP

SHOW/LIST MODULE CONFIGURATOR

QUALIFIER ***TO filespec***
Specifies the output file. If none is specified, SYS\$OUTPUT is the default.

INTERPRETING THE DISPLAY ***Circuit name***
This read-only parameter identifies the circuit for which surveillance is being maintained.

Device type device-type
This read-only value identifies the type of device over which the remote system is communicating on the circuit. The *device-type* value represents one of the standard line devices (for example, UNA).

Elapsed time hours:minutes:seconds
This read-only value indicates the amount of time that surveillance has been enabled on the circuit. The *hours* value is a decimal integer up to a maximum of 65,535; the *minutes* and *seconds* values are decimal integers in the range 0 to 59 (for example, 19:48:24).

Function list
This read-only parameter lists the maintenance functions that the remote system supports. The list consists of one or more of the following items:

Item	Meaning
Boot	Remote controlled boot
Counters	Data link counter can be read
Dump	Upline dump
Load	Multiblock downline load
Loop	Loopback
Primary	Primary loader

Hardware address E-address
This read-only value is the Ethernet hardware address originally assigned to the DEUNA controller hardware at the remote system.

Maintenance version n.n.n
This read-only value indicates the maintenance protocol version of the remote system, consisting of the version number, the Engineering Change order (ECO) number, and the user ECO number (for example, V3.0.0).

Physical address E-address
This read-only value represents the Ethernet physical address of a remote system on the Ethernet. If the system has not set its own physical address, the value will be the same as the Ethernet hardware address originally assigned to the system.

Surveillance flag
This read-only value indicates whether surveillance is enabled or disabled for the system indicated.

Surveillance control

This read-only value indicates whether a list of active systems is to be kept for the indicated circuit. A control value of disabled means that the list is not being kept (this is the default value). A control value of enabled means that the list is being kept.

Time of last report day-month hour:minute:second

This read-only value is the date and time the remote system last reported in on a circuit under surveillance. The *day* value is a decimal integer in the range 1 to 31, *month* is the name of the month, *hour* is a decimal integer in the range 0 to 23, and *minute* and *second* are decimal integers in the range 0 to 59 (for example, 16-JUL 14:30:03).

EXAMPLES

1 NCP>SHOW CONFIGURATOR KNOWN CIRCUITS SUMMARY TO PRINTFILE

Module Configurator Volatile Summary as of 30-DEC-1988 08:55:21

Circuit	Surveillance	Elapsed Time
UNA-0	enabled	00:12:31

This command causes summary information about surveillance on all known Ethernet circuits to be directed to the file PRINTFILE.

2 NCP>SHOW MODULE CONFIGURATOR KNOWN CIRCUITS STATUS

Module Configurator Volatile Status as of 30-DEC-1988 09:15:25

Circuit name	= UNA-0
Surveillance flag	= enabled
Elapsed time	= 00:32:43
Physical address	= AA-00-04-00-A3-4
Time of last report	= 29-Dec 09:14:08
Maintenance version	= V3.0.0
Function list	= Loop, Primary loader
Hardware address	= AA-00-03-00-00-07
Device type	= UNA

Circuit name	= UNA-0
Surveillance flag	= enabled
Elapsed time	= 00:32:43
Physical address	= AA-00-03-00-0A-04
Time of last report	= 29-Dec 09:11:29
Maintenance version	= V3.0.0
Function list	= Loop, Primary loader
Hardware address	= AA-00-03-00-00-0A
Device type	= UNA

NCP

SHOW/LIST MODULE CONFIGURATOR

```
Circuit name           = UNA-0
Surveillance flag      = enabled
Elapsed time           = 00:32:43
Physical address       = AA-00-04-00-D8-04
Time of last report    = 29-Dec 09:11:44
Maintenance version    = V3.0.0
Function list          = Loop, Primary loader
Hardware address       = AA-00-03-00-00-1C
Device type            = UNA
```

This command displays information about active systems on all Ethernet circuits known to the executor node.

SHOW/LIST MODULE X25-ACCESS

The SHOW MODULE X25-ACCESS command displays network names and parameters of the X.25 Access module from the volatile database. The LIST MODULE X25-ACCESS command displays networks and parameters of the X.25 Access module from the permanent database. Note that the word MODULE is optional.

FORMAT	SHOW MODULE X25-ACCESS	<i>network-qualifier parameter [qualifier]</i>
	LIST MODULE X25-ACCESS	<i>network-qualifier parameter [qualifier]</i>

Network Qualifiers

NETWORK

KNOWN NETWORKS

Command Parameters

CHARACTERISTICS

SUMMARY

STATUS

Qualifier

TO

NETWORK QUALIFIERS

KNOWN NETWORKS

NETWORK network-name

Displays information about a specific X.25 network or about all of the X.25 networks accessed through any connector nodes.

COMMAND PARAMETERS

CHARACTERISTICS

Indicates that static X25-ACCESS information is to be displayed.

STATUS

Indicates that dynamic X25-ACCESS information is to be displayed.

SUMMARY

Indicates that only the most useful X25-ACCESS information is to be displayed. This is the default display type.

QUALIFIER

TO filespec

Specifies the output file. If none is specified, SYS\$OUTPUT is the default.

NCP

SHOW/LIST MODULE X25-ACCESS

EXAMPLES

1 NCP>SHOW MODULE X25-ACCESS KNOWN NETWORKS STATUS TO MYFILE.NET

This command writes status information for all known X.25 networks to the file named MYFILE.NET.

2 NCP>SHOW MODULE X25-ACCESS NETWORK PSS1 SUMMARY

Module X25-Access Volatile Summary as of 30-DEC-1988 12:00:56
Network = PSS1
Node = 13.4 (EGRET)

This command displays static network information about the X.25 network named PSS1.

NCP

SHOW/LIST MODULE X25-PROTOCOL

COMMAND PARAMETERS

CHARACTERISTICS

Displays static module information.

COUNTERS

Displays DTE error and performance statistics. Does not apply to the LIST MODULE X25-PROTOCOL command.

STATUS

Displays dynamic module information. Does not apply to the LIST MODULE X25-PROTOCOL command.

SUMMARY

Displays only the most useful module information. This is the default display type.

QUALIFIER

TO filespec

Specifies the output file. If you omit this parameter, the default file is SYS\$OUTPUT.

INTERPRETING THE DISPLAY

Active channels count

This read-only parameter is the count of known switched virtual circuit (SVC) logical channel numbers currently in use. This counter applies only to those channels defined by the CHANNELS parameter of the SET MODULE X25-PROTOCOL command. The channels can be in use for either outgoing or incoming SVCs.

Active switched count

This read-only parameter is the count of SVCs currently in use.

Maximum channels number

This read-only parameter indicates the number of logical channels defined.

EXAMPLES

```
1 NCP>SHOW MODULE X25-PROTOCOL NETWORK FRED CHARACTERISTICS
Module X25-Protocol Volatile Characteristics as of 30-DEC-1988 17:55:24
Network                = FRED
Profile                 = PSS
```

This command displays module characteristics for the X25-PROTOCOL module.

NCP

SHOW/LIST MODULE X25-PROTOCOL

2 NCP>SHOW MODULE X25-PROTOCOL KNOWN DTES CHARACTERISTICS

Known Module X25-Protocol Volatile Characteristics as of 30-DEC-1988 18:07:49

DTE = 12345
Network = TALOS
Line = KMV-0-0
Channels = 31-1
Maximum channels = 31
Maximum circuits = 255
Default data = 128
Default window = 2
Maximum data = 1024
Maximum window = 7
Maximum clears = 6
Maximum resets = 6
Maximum restarts = 6
Call timer = 200
Clear timer = 180
Reset timer = 180
Restart timer = 180
Interface mode = DTE

DTE = 54321
Network = FRED
Line = DPV-0-0
Channels = 64-1
Maximum channels = 64
Maximum circuits = 255
Default data = 128
Default window = 2
Maximum data = 1024
Maximum window = 7
Maximum clears = 6
Maximum resets = 6
Maximum restarts = 6
Call timer = 200
Clear timer = 180
Reset timer = 180
Restart timer = 180
Interface mode = DTE

This command displays characteristics for all DTEs known to the X25-PROTOCOL module.

3 NCP>SHOW MODULE X25-PROTOCOL DTE 123456789 NETWORK -
_ PSS-COMBINATION STATUS

Module X25-Protocol Volatile Status as of 30-DEC-1988 11:50:12

DTE	Network	State	Active Channels	Active Switched
123456789	PSS_COMBINATION	on -running	0	0

This command displays the status of DTE 123456789 in the network PSS-COMBINATION.

NCP

SHOW/LIST MODULE X25-PROTOCOL

4 NCP>SHOW MODULE X25-PROTOCOL DTE 123456789 NETWORK FRED COUNTERS

```
Module X25-Protocol Counters as of 30-DEC-1988 18:08:26
DTE                               = 54321
Network                            = FRED
  7144 Seconds since last zeroed
 11705 Bytes received
 11705 Bytes sent
   501 Data blocks received
   501 Data blocks sent
    2  Calls received
    2  Calls sent
    0  Fast selects received
    0  Fast selects sent
    2  Maximum switched circuits active
    1  Maximum channels active
    0  Received call resource errors
    0  Locally initiated resets
    0  Remotely initiated resets
    0  Network initiated resets
    0  Restarts
```

This command displays information about each DTE counter. Refer to Appendix A for a description of each DTE counter.

5 NCP>SHOW MODULE X25-PROTOCOL KNOWN GROUPS CHARACTERISTICS

```
Known Module X25-Protocol Volatile Characteristics as of 30-DEC-1988 18:13:50
Group      DTE      Network      Number      Type
SEALS      54321      FRED         54      bilateral
WALES      54321      FRED         6
```

This command displays information about each closed user group.

SHOW/LIST MODULE X25-SERVER/X29-SERVER

The SHOW MODULE X25-SERVER and SHOW MODULE X29-SERVER commands display the parameters of the X.25 and X.29 call handlers stored in the volatile database. The LIST MODULE X25-SERVER and LIST MODULE X29-SERVER commands display the parameters of the X.25 and X.29 call handlers stored in the permanent database. Note that the word MODULE is optional.

FORMAT	SHOW MODULE X25-SERVER	<i>[component-qualifier]</i> <i>parameter [qualifier]</i>
	SHOW MODULE X29-SERVER	<i>[component-qualifier]</i> <i>parameter [qualifier]</i>
	LIST MODULE X25-SERVER	<i>[component-qualifier]</i> <i>parameter [qualifier]</i>
	LIST MODULE X29-SERVER	<i>[component-qualifier]</i> <i>parameter [qualifier]</i>

Component Qualifiers

*DESTINATION**KNOWN DESTINATIONS*

Command Parameters

*CHARACTERISTICS**STATUS**COUNTERS**SUMMARY*

Qualifier

TO

COMPONENT QUALIFIERS

DESTINATION name***KNOWN DESTINATIONS***

Displays information about the specified destination or about all known destinations.

COMMAND PARAMETERS

CHARACTERISTICS

Displays static module information.

COUNTERS

Displays module error and performance statistics. Does not apply to the LIST MODULE X25-SERVER or LIST MODULE X29-SERVER command.

STATUS

Displays dynamic module information. Does not apply to the LIST MODULE X25-SERVER or LIST MODULE X29-SERVER command.

NCP

SHOW/LIST MODULE X25-SERVER/X29-SERVER

SUMMARY

Displays only the most useful module information. This is the default display type.

QUALIFIER

TO filespec

Specifies the output file. If you omit this parameter, the default file is SYS\$OUTPUT.

INTERPRETING THE DISPLAY

Active circuits count

This read-only parameter indicates the number of circuits the module currently has open.

EXAMPLES

1

```
NCP>SHOW MODULE X25-SERVER CHARACTERISTICS
```

```
Module X25-Server Volatile Characteristics as of 30-DEC-1988 12:04:58
```

```
Maximum circuits      = 255
```

This command displays characteristics for the X25-SERVER module.

2

```
NCP>LIST MODULE X25-SERVER DESTINATION XTR CHARACTERISTICS
```

```
Module X25-Server Permanent Characteristics as of 30-DEC-1988 12:04:27
```

```
Destination           = XTR
Object                 = PSIXTR
Priority                = 30
Sending DTE            = 234273412345
Subaddresses           = 33-35
```

This command displays server module characteristics from the permanent database for destination XTR.

3

```
NCP>SHOW MODULE X25-SERVER STATUS
```

```
Module X25-Server Volatile Status as of 30-DEC-1988 12:05:13
```

```
Active circuits       = 1
State                  = on
```

This command displays status information for the X25-SERVER module.

4

```
NCP>SHOW MODULE X25-SERVER COUNTERS
```

```
Module X25-Server Counters as of 30-DEC-1988 12:05:21
```

```
4704 Seconds since last zeroed
7 Maximum circuits active
2 Incoming calls rejected, no resources
```

This command displays counter information for each server module. See Appendix A for a description of each server module counter.

SHOW/LIST NODE

The SHOW NODE command displays node information from the volatile database available to the local node. The LIST NODE command displays node information from the permanent database available to the local node.

FORMAT **SHOW** *node-component parameter [qualifier]*
LIST *node-component parameter [qualifier]*

Node Components

<i>ACTIVE NODES</i>	<i>LOOP NODES</i>
<i>ADJACENT NODES</i>	<i>NODE</i>
<i>KNOWN NODES</i>	

Command Parameters

<i>CHARACTERISTICS</i>	<i>STATUS</i>
<i>COUNTERS</i>	<i>SUMMARY</i>

Qualifier

TO

NODE COMPONENTS

ACTIVE NODES

For a routing node, indicates that information about all reachable nodes is to be displayed. For a nonrouting node (end node), indicates that information about the executor is to be displayed. Optionally, you can associate the following CIRCUIT parameter with this parameter:

CIRCUIT circuit-id Specifies that the display of a list of nodes is to be restricted to those nodes adjacent to the specified circuit.

ADJACENT NODES

Indicates that information about all adjacent nodes is to be displayed. Adjacent nodes are those the executor perceives Routing can reach that are separated from the executor by a single circuit. Each occurrence of a node on a different circuit appears as a separate adjacent node. Optionally, you can associate the following CIRCUIT parameter with this parameter:

CIRCUIT circuit-id Specifies that the display of a list of nodes is to be restricted to those nodes adjacent to the specified circuit.

KNOWN NODES

Indicates that information about all known nodes is to be displayed. Optionally, you can associate the following CIRCUIT parameter with this parameter:

CIRCUIT circuit-id Specifies that the display of a list of nodes is to be restricted to those nodes adjacent to the specified circuit.

NCP

SHOW/LIST NODE

LOOP NODES

Indicates that information about all loop nodes is to be displayed.

NODE *node-id*

Identifies a particular node about which information is to be displayed.

COMMAND PARAMETERS

CHARACTERISTICS

Indicates that static node information is to be displayed.

COUNTERS

Indicates that node error and performance statistics are to be displayed.

STATUS

Indicates that dynamic node information is to be displayed.

SUMMARY

Indicates that only the most useful node information is to be displayed. This is the default display type.

QUALIFIER

TO *filespec*

Specifies the output file. If none is specified, SYS\$OUTPUT is the default.

INTERPRETING THE DISPLAY

Active links number

This read-only parameter represents the number of active logical links from the executor to the destination node.

Circuit *circuit-id*

This read-only parameter identifies the circuit used to get to a remote node.

Cost number

This read-only parameter represents the total cost over the current path to the destination node. The DECnet Routing layer routes messages (data) along the path between two nodes with the smallest cost. Cost is a positive integer value.

Delay seconds

This read-only parameter is the average round-trip delay in seconds from the executor to the destination node.

Hops number

This read-only parameter indicates the number of hops from the executor node to a destination node. A hop is a value assigned by the Routing layer that represents the logical distance between two nodes on a network.

Management version *n.n.n*

This read-only parameter identifies the version number of the Network Management layer. The format of the number consists of the version number, the Engineering Change Order (ECO) number, and the user ECO number (for example, V3.0.0).

Next node node-id

This read-only parameter indicates the address and name of the next node on the circuit used to get to the node whose status is being displayed. Knowing which node is the partner on the next hop of the path to the destination node aids in tracing the path to that destination over a large number of hops.

NSP version n.n.n

This read-only parameter identifies the version number of the End Communication layer. The format for the number is the same as for the management version number.

Physical address E-address

This read-only parameter is the Ethernet address that identifies the executor node.

Routing version n.n.n

This read-only parameter identifies the version number of the Routing layer. The format for the number is the same as for the Management version number.

Type node-type

This read-only parameter indicates the type of the specified node. The values of *node-type* are as follows:

- Phase II
- Routing III
- Nonrouting III
- Routing IV
- Nonrouting IV
- Area

If the specified node is not adjacent to the local node, the *node-type* will be blank.

EXAMPLES

```
1 NCP>SHOW ACTIVE NODES CHARACTERISTICS
Active Node Volatile Characteristics as of 30-DEC-1988 13:38:34
Executor node = 2.11 (BOSTON)
Identification           = DECnet-VAX V5.0,  VMS V5.0
Management version      = V4.0.0
Incoming timer           = 45
Outgoing timer           = 45
```

NCP

SHOW/LIST NODE

```
Incoming Proxy      = Enabled
Outgoing Proxy      = Enabled
NSP version         = V3.2.0
Maximum links       = 128
Delay factor        = 80
Delay weight        = 5
Inactivity timer    = 60
Retransmit factor   = 10
Routing version     = V2.0.0
Type                = routing IV
Routing timer       = 600
Maximum address     = 1023
Maximum circuits    = 16
Maximum cost        = 1022
Maximum hops        = 15
Maximum visits      = 63
Maximum area        = 63
Max broadcast nonrouters = 64
Max broadcast routers = 32
Maximum path splits = 1
Area maximum cost   = 1022
Area maximum hops   = 30
Maximum buffers     = 100
Buffer size         = 576
Default access      = incoming and outgoing
Pipeline quota      = 1500
Alias incoming      = Enabled
Alias maximum links = 32
Alias node          = 2.10 (CLUSTER)
Path split policy   = Normal
```

```
Remote node = 3.5 (TRNTO)
Nonprivileged user id = NETNONPRIV

Remote node = 11.9 (DALLAS)
Nonprivileged user id = NETNONPRIV

Remote node = 12.34 (MYNODE)
Inbound = router

Remote node = 2.13 (KANSAS)
Nonprivileged user id = NETNONPRIV

Remote node = 2.17 (NYC)
Nonprivileged user id = NETNONPRIV

Loop node = 0 (TESTER)
```

This command displays characteristics for all active nodes. This display shows values that you have set for both the local node and remote nodes.

NCP SHOW/LIST NODE

2 NCP>SHOW NODE TRNTO STATUS

Node Volatile Status as of 30-DEC-1988 13:39:05

Node	State	Active Links	Delay	Type	Cost	Hops	Line
3.5 (TRNTO)	reachable	1	2	routing IV	1	1	DMC-0

This command displays status information about remote node TRNTO. This format includes the following information:

- Node name and address.
- Routing state (reachable or unreachable).
- Active links associated with the node.
- Delay time required to set the retransmission (estimated round trip delay).
- Node type (phase II, routing III, routing IV, nonrouting III, nonrouting IV, or area).
- Minimum total path cost to the node. This value represents the cost of the actual path a packet will use to get to this node.
- Minimum total hops to the node. Note that the minimum cost path may be different from the minimum hops path. This value does not necessarily prevent the actual path from being used.
- Line associated with the node, that is, the line over which traffic to the node is currently being routed.

Full status information is displayed only for reachable nodes.

3 NCP>SHOW KNOWN NODES SUMMARY

Known Node Volatile Summary as of 30-DEC-1988 13:39:47

Executor node = 2.11 (BOSTON)

State = on
Identification = HOST SYSTEM
Active links = 2

Node	State	Active Links	Delay	Line
3.5 (TRNTO)	reachable			DMC-0
11.9 (DALLAS)	reachable	1	2	DMC-3
2.13 (KANSAS)	reachable	1	4	DMC-4
5.14 (DENVER)	unreachable			
2.15 (BANGOR)	unreachable			
2.17 (NYC)	reachable			DMC-2
0 (LOCAL)				DMC-0

This command displays summary information for all known nodes. The summary format contains a subset of the information displayed in the status format. Note that the display also shows loop nodes and the line associated with the loop node name.

NCP

SHOW/LIST NODE

4 NCP>SHOW NODE TRNTO COUNTERS
Node Counters as of 30-DEC-1988 13:40:08
Remote node = 3.5 (TRNTO)
18748 Seconds since last zeroed
557304 Bytes received
231849 Bytes sent
27703 Messages received
27556 Messages sent
56 Connects received
5 Connects sent
12 Response timeouts
0 Received connect resource errors

This command displays counter information about remote node TRNTO. Note that remote node counters are a subset of those maintained for the local node. Refer to Appendix A for a description of each node counter.

5 NCP>SET NODE LOCAL LINE DMC-0
NCP>SHOW LOOP NODES STATUS
Loop Node Volatile Status as of 30-DEC-1988 13:43:19

Node	State	Active Delay Links	Type	Cost	Hops	Line
0 (LOCAL)						DMC-0

This command displays status information about all loop nodes.

6 NCP>SHOW NODE M* STATUS

This command displays status information about all nodes whose names begin with *M*.

7 NCP>SHOW NODE %SU STATUS

This command requests a display of status information of all nodes that have three-letter node names and *SU* as the second and third characters of their names.

SHOW/LIST OBJECT

The SHOW OBJECT command displays object information from the volatile database available to the local node. The LIST OBJECT command displays object information from the permanent database available to the local node.

For VAX PSI, the SHOW OBJECT or LIST OBJECT command displays the parameters of a process that is activated by module X25-SERVER or X29-SERVER when an incoming X.25 call arrives.

FORMAT

SHOW *object-component parameter [qualifier]*
LIST *object-component parameter [qualifier]*

Object Components

OBJECT *KNOWN OBJECTS*

Command Parameters

CHARACTERISTICS *SUMMARY*
STATUS

Qualifier

TO

OBJECT COMPONENTS

KNOWN OBJECTS

Indicates that information about all known objects is to be displayed.

OBJECT object-name

Identifies a particular object about which information is to be displayed.

COMMAND PARAMETERS

CHARACTERISTICS

Indicates that static object information is to be displayed. The SHOW OBJECT CHARACTERISTICS command displays only those parameters that you have defined.

STATUS

Indicates that dynamic object information is to be displayed.

SUMMARY

Indicates that only the most useful object information is to be displayed. This is the default display type.

NCP

SHOW/LIST OBJECT

QUALIFIER *TO filespec*
Specifies the output file. If none is specified, SYS\$OUTPUT is the default.

COMMENTS This command is a system-specific network management command; therefore, an error occurs if you execute this command at a node other than a DECnet-VAX node, because objects may have different characteristics on different nodes.

EXAMPLES

1 NCP>SHOW OBJECT MAIL CHARACTERISTICS
Object Volatile Characteristics as of 30-DEC-1988 13:46:22

Object = MAIL
Number = 27
File id = MAIL.EXE
User id = NETNONPRIV
Proxy access = outgoing
Alias outgoing = Enabled
Alias incoming = Enabled

This command displays object characteristics for the MAIL object. This display shows values that you have set for the object.

2 NCP>SHOW OBJECT NML CHARACTERISTICS TO NMLCHARS.NET

This command copies NML object characteristics from the volatile database to a file named NMLCHARS.NET.

3 NCP>SHOW OBJECT PACKETSINK SUMMARY
Object Volatile Summary as of 30-DEC-1988 12:07:44

Object	Number	File/PID	User Id	Password
PACKETSINK	0	DISK\$USER01:[X25TEST]PR	X25TEST	TESTER

This command displays object characteristics for the PACKETSINK object.

4 NCP>SHOW OBJECT I* SUMMARY

This command displays object characteristics for all objects whose names begin with I.

NCP

TELL

EXAMPLES

1 NCP>TELL 3.5 SET KNOWN LINES ALL

This command sets the executor to node 3.5 where the SET KNOWN LINES ALL command executes.

2 NCP>TELL TRNTO"GRAY MARY" SHOW KNOWN LINES

This command uses access control information to set the executor to node TRNTO where the SHOW KNOWN LINES command executes. The information is displayed locally.

3 NCP>TELL TRNTO USER SYSTEM PASSWORD MANAGER ZERO EXECUTOR

This command uses an alternate access control format to set the executor to node TRNTO where the ZERO EXECUTOR command executes.

TRIGGER NODE

The TRIGGER NODE command starts the bootstrap mechanism of a target node to allow the node to load itself. Use this command to initiate the loading sequence for an unattended system.

FORMAT **TRIGGER** *node-component parameter [...]*

Node Component

NODE

Command Parameters

PHYSICAL ADDRESS *VIA*
SERVICE PASSWORD

NODE COMPONENT ***NODE node-id***
Identifies the node whose bootstrap is to be triggered.

COMMAND PARAMETERS ***PHYSICAL ADDRESS E-address***
Applies only to nodes on Ethernet circuits. Specifies the Ethernet address that the target node currently uses to identify itself. The value is the Ethernet physical address the target node has set for itself, or, if the target node has not set an Ethernet address, the **HARDWARE ADDRESS** parameter if associated with the target node in the executor node's volatile database.

SERVICE PASSWORD password
Identifies the password required to trigger the bootstrap mechanism on the target node. The password is a 16-digit hexadecimal number. For DDCMP circuits, it is in the range 0 to FFFFFFFF; for Ethernet circuits, it is in the range 0 to FFFFFFFFFFFFFFFF.

VIA circuit-id
Identifies the circuit over which the operation is to take place.

EXAMPLES

1 NCP>TRIGGER NODE NYC

This command triggers the bootstrap mechanism on node NYC to initiate a downline load operation.

2 NCP>TRIGGER NODE NYC SERVICE PASSWORD FEFEFEFEFEFEFEFEF VIA DMC-2

This command provides a service password in order to trigger the bootstrap mechanism on node NYC and to initiate a downline load operation over circuit DMC-2.

NCP

TRIGGER NODE

- 3 NCP>TRIGGER NODE SWIFT PHYSICAL ADDRESS AA-00-04-00-07-04 -
_ VIA UNA-0

This command triggers the bootstrap mechanism on Ethernet node SWIFT to initiate a downline load operation. The executor node uses the Ethernet physical address specified in the command to address the node SWIFT on Ethernet circuit UNA-0.

- 4 NCP>TRIGGER NODE SWIFT VIA UNA-0

This command triggers the bootstrap mechanism on node SWIFT on Ethernet circuit UNA-0 to initiate a downline load operation. DECnet-VAX at the executor node attempts to address node SWIFT using an Ethernet physical address derived from the node number. If node SWIFT does not recognize this address, the executor node uses the Ethernet hardware address for node SWIFT if specified in the volatile database at the executor node.

TRIGGER VIA

The TRIGGER VIA command starts the bootstrap mechanism of a target node using the specified circuit to allow the node to load itself. Use this command to initiate the loading sequence for an unattended system.

FORMAT **TRIGGER VIA** *circuit-id parameter [...]*

Command Parameters

PHYSICAL ADDRESS *SERVICE PASSWORD*

**COMMAND
PARAMETERS**

PHYSICAL ADDRESS E-address

Applies only to target nodes on Ethernet circuits. Specifies the Ethernet address that the target node currently uses to identify itself. The value is the Ethernet physical address the target node has set for itself, or, if the target node has not set an Ethernet address, the **HARDWARE ADDRESS** parameter if it is associated with the target node in the executor node's volatile database. This parameter must be included if an Ethernet circuit is specified in **VIA circuit-id**.

SERVICE PASSWORD password

Identifies the password required to trigger the bootstrap mechanism on the target node. The password is a hexadecimal number. For DDCMP circuits, it is in the range 0 to FFFFFFFF; for Ethernet circuits, it is in the n range 0 to FFFFFFFFFFFFFFFF. The word **SERVICE** is optional.

COMMENTS

This command triggers the target node through the specified circuit. The target node identification is obtained from the volatile database on the executor node.

EXAMPLES

1 NCP>TRIGGER VIA DMC-0

This command triggers the bootstrap mechanism on the node connected to circuit DMC-0.

2 NCP>TRIGGER VIA UNA-0 PHYSICAL ADDRESS AA-00-04-00-07-04

This command triggers the bootstrap mechanism at the target node whose Ethernet physical address on circuit UNA-0 is specified in the command.

NCP

ZERO CIRCUITS

ZERO CIRCUITS

The ZERO CIRCUITS command resets circuit counters on the local node. Note that the word COUNTERS is optional.

FORMAT **ZERO** *circuit-component* [*COUNTERS*]

Circuit Components

CIRCUIT

KNOWN CIRCUITS

**CIRCUIT
COMPONENTS**

CIRCUIT circuit-id

Identifies a particular circuit for which counters are to be reset. For VAX PSI, specify the X.25 circuit name using an ID string.

KNOWN CIRCUITS

Indicates that counters for all known circuits are to be reset.

EXAMPLE

NCP>ZERO KNOWN CIRCUITS COUNTERS

This command resets all circuit counters for all known circuits.

ZERO EXECUTOR

The ZERO EXECUTOR command resets all counters for the local node.
Note that the word COUNTERS is optional.

FORMAT **ZERO EXECUTOR** [*COUNTERS*]

EXAMPLE

NCP>ZERO EXECUTOR COUNTERS

This command resets all counters for the local node.

NCP

ZERO MODULE X25-SERVER/X29-SERVER

ZERO MODULE X25-SERVER/X29-SERVER

The ZERO MODULE X25-SERVER and ZERO MODULE X29-SERVER commands zero the counters for the X.25 and X.29 call handlers. Note that the words MODULE and COUNTERS are optional.

FORMAT	ZERO MODULE X25-SERVER <i>[COUNTERS]</i>
	ZERO MODULE X29-SERVER <i>[COUNTERS]</i>

EXAMPLE

NCP>ZERO MODULE X25-SERVER COUNTERS

This command zeroes all module counters associated with the X.25 call handler.

ZERO NODE

The ZERO NODE command resets node counters on the local node. Note that the word COUNTERS is optional.

FORMAT **ZERO** *node-component* [*COUNTERS*]

Node Components

NODE

KNOWN NODES

NODE COMPONENTS ***NODE node-id***
Identifies a particular node for which counters are to be reset.

KNOWN NODES

Indicates that counters for all known nodes are to be reset.

EXAMPLE

NCP>ZERO NODE TRNTO COUNTERS

This command resets all node counters maintained on the local node for remote node TRNTO.



A Supplemental NCP Information

This appendix contains tables and descriptive information that supplement the preceding NCP command summary. The four sections discuss the following:

- A network counter summary
- A table of DECnet circuit and line devices
- Tables of circuit, line, link, DTE, and server module states and substates
- A summary of DECnet event classes and types

A.1 Network Counter Summary

Following are descriptions of circuit, line, node, X.25 protocol module, and X.25 and X.29 server module counters. Where possible, the description of each counter includes the probable causes for the particular type of occurrence. In some cases, the counters correspond to network events. The events and event descriptions provide additional information relative to the specific occurrence. The individual counter descriptions state which counters correspond to events. Refer to Section A.4 for complete descriptions of these events.

NCP reports the contents of all circuit, line, node, and module counters in decimal notation. Counter content displays with an angle bracket (>) indicate that the counter has overflowed. In some cases where the counter has more than one error associated with it, the standard counter is expanded to include a reason.

The following examples illustrate the display of circuit and line counters.

Supplemental NCP Information

A.1 Network Counter Summary

NCP>SHOW KNOWN CIRCUITS COUNTERS

Known Circuit Counters as of 30-DEC-1988 20:06:19

Circuit = DMC-0

```
>65534 Seconds since last zeroed
  11 Terminating packets received
   5 Originating packets sent
   0 Terminating congestion loss
1769 Transit packets received
1884 Transit packets sent
   0 Transit congestion loss
  26 Circuit down
   2 Initialization failure
  625 Adjacency down
  326 Peak adjacencies
782495 Bytes received
757263 Bytes sent
16972 Data blocks received
17740 Data blocks sent
   0 Data errors outbound
  54 Data errors inbound, including:
      NAKs sent, header block check error
      NAKs sent, data field block check error
   0 Local buffer errors
   0 Remote buffer errors
  16 Local reply timeouts
   0 Remote reply timeouts
```

Circuit = UNA-0

```
>65534 Seconds since last zeroed
241392 Terminating packets received
248861 Originating packets sent
   0 Terminating congestion loss
351707 Transit packets received
351510 Transit packets sent
  12 Transit congestion loss
   3 Circuit down
   0 Initialization failure
  625 Adjacency down
  326 Peak adjacencies
 628570 Data blocks sent
51239061 Bytes sent
1199899 Data blocks received
148469990 Bytes received
   0 Unrecognized frame destination
  1095 User buffer unavailable
```

Supplemental NCP Information

A.1 Network Counter Summary

```
NCP>SHOW KNOWN LINE COUNTERS
```

```
Known Line Counters as of 30-DEC-1988 20:06:31
```

```
Line = DUP-0
```

```
>65534 Seconds since last zeroed
1879643 Bytes received
5349550 Bytes sent
137572 Data blocks received
117752 Data blocks sent
  19 Data errors inbound
  0 Data errors outbound
>254 Remote reply timeouts
  0 Local reply timeouts
  0 Remote buffer errors
  7 Remote process errors, including:
    FRMR sent, header format error
  4 Local process errors, including:
    FRMR received, header format error
```

```
Line = UNA-0
```

```
>65534 Seconds since last zeroed
1240675 Data blocks received
608195 Multicast blocks received
  0 Receive failure
146028085 Bytes received
78201969 Multicast bytes received
  0 Data overrun
686344 Data blocks sent
49646 Multicast blocks sent
  363 Blocks sent, multiple collisions
  384 Blocks sent, single collision
  9520 Blocks sent, initially deferred
53774695 Bytes sent
7160674 Multicast bytes sent
  6 Send failure, including:
    Carrier check failed
  6 Collision detect check failure
7014 Unrecognized frame destination
  5 System buffer unavailable
1148 User buffer unavailable
```

A.1.1 Circuit Counters

This section contains a description of each circuit counter.

Adjacency down

This counter indicates a loss of connection to an adjacent node that may result from any of the following:

- Node listener timeout
- Invalid data received at a node listener
- Unexpected control (initialization or verification) message received
- Routing message received with a checksum error
- Node identification from a routing message or a Hello message that is not the one expected
- Hello message received indicating that connectivity became one-way
- Adjacency idled

Supplemental NCP Information

A.1 Network Counter Summary

Bytes received

This counter indicates the number of bytes of data received by the local node over the circuit. You can use this information together with the data blocks received counter to determine the inbound traffic load.

Bytes sent

This counter indicates the number of bytes of data sent by the local node over the circuit. You can use this information together with the data blocks sent counter to determine the outbound traffic load.

Circuit down

This counter indicates the number of failures—operator or software induced—for the circuit. These failures may include any number of hardware-, software-, or operator-caused problems. This counter corresponds to events 4.7–9 (circuit down).

Data blocks received

This counter indicates the number of data blocks received by the local node. You can use this information as a statistical base when evaluating the number of inbound data errors, remote reply timeouts, and local buffer errors.

Data blocks sent

This counter indicates the number of data blocks sent by the local node. You can use this information as a statistical base when evaluating the number of outbound data errors, local reply timeouts, and remote buffer errors.

Data errors inbound

This counter indicates the number of data errors that normally result from errors on the inbound communications channel to the local node. These errors are caused usually by a noisy communications line or a poorly functioning modem. This counter may include either or both of the following qualifiers if they contribute any of the following errors:

- NAKs sent, header block check error
- NAKs sent, data field block check error

Data errors outbound

This counter indicates the number of data errors that normally result from errors on the outbound communications channel from the local node. These errors are caused usually by a noisy communications line or a poorly functioning modem. This counter represents the sum of all NAKs received.

Initialization failure

This counter indicates the number of times the circuit failed to initialize with remote Routing software. These failures may include any number of hardware-, software-, or operator-caused problems. This counter corresponds to events 4.11–13 (initialization failure).

Supplemental NCP Information

A.1 Network Counter Summary

Local buffer errors

This counter indicates the number of local buffer errors that normally result from a local receive buffer that is too small. These errors are caused when a remote node sends a block that is too big for the local node's receive buffer. This counter may include the following qualifier if it contributes to the error:

NAKs sent, buffer unavailable

This counter corresponds to event 5.9 (local buffer too small) and event 4.3 (oversized packet loss).

Local reply timeouts

This counter indicates the number of timeouts that normally result from the following:

- The loss of communication between nodes while the local node has data to transmit
- An inappropriate value set for the reply timer on the local node

Locally initiated resets

This counter indicates the number of resets sent over the circuit.

Network initiated resets

This counter indicates the number of resets originated by the PSDN received over the circuit.

Originating packets sent

This counter indicates the number of data packets sent by the Routing layer on the local node.

Peak adjacencies

This counter indicates the maximum number of nodes that are up on a circuit.

Remote buffer errors

This counter indicates the number of remote buffer errors that normally result from a remote receive buffer that is too small.

Remote reply timeouts

This counter indicates the number of timeouts that normally result from the following:

- The loss of communication between nodes while the remote node has data to transmit
- An inappropriate value set for the reply timer on the remote node

Remotely initiated resets

This counter indicates the number of resets received over the circuit.

Supplemental NCP Information

A.1 Network Counter Summary

Seconds since last zeroed

This counter indicates the number of seconds that have elapsed since the circuit counters were zeroed. This counter provides a time frame for other counter values. The software increments this counter every second and clears it when other counters are cleared.

Selection intervals elapsed

This counter indicates the number of selection intervals for half-duplex and multipoint control stations. This is the number of times a station selects another station. You can use this information as a statistical base when evaluating selection timeout errors.

Selection timeouts

This counter indicates the number of selection timeouts that normally result from the following:

- Loss of communication with a remote station.
- Data errors on the communications channel to or from that station.
- An inappropriate value for the station's select timer. This counter corresponds to event 5.5 (select error threshold) and may include either the *No reply to select* or the *Incomplete reply to select* qualifiers if they contribute to the errors.

Terminating congestion loss

This counter indicates the number of packets intended for the node that were discarded because Routing could not buffer them.

Terminating packets received

This counter indicates the number of data packets received by the Routing layer on the local node.

Transit congestion loss

This counter indicates the number of transit data packets discarded for congestion reasons. This counter is maintained only on full-routing nodes. If congestion loss increases, increase the MAXIMUM BUFFERS parameter for the local node.

Transit packets received

This counter indicates the number of data packets received over the circuit and to be routed through the local node to another node. It is maintained only on full-routing nodes.

Transit packets sent

This counter indicates the number of data packets sent over the circuit and being routed through the local node to another node. It is maintained only on full-routing nodes.

Unrecognized frame destination

This counter indicates the number of times a frame was discarded because the frame was addressed to a multicast address not enabled on the circuit.

Supplemental NCP Information

A.1 Network Counter Summary

User buffer unavailable

This counter indicates the total number of times that no user buffer was available for an incoming frame that passed all filtering. User buffers are supplied by users on receive requests.

A.1.2 Line Counters

This section contains a description of each line counter. The counters in this section may be displayed for devices other than the DMC11 on remote nodes other than DECnet-VAX.

Blocks sent, initially deferred

This counter indicates the total number of times a frame transmission was deferred on its first transmission attempt. Used in measuring Ethernet contention with no collisions.

Blocks sent, multiple collisions

This counter indicates the total number of times a frame was successfully transmitted on the third or later attempt after normal collisions on previous attempts.

Blocks sent, single collision

This counter indicates the total number of times a frame was successfully transmitted on the second attempt after a normal collision on the first attempt.

Bytes received

This counter indicates the number of bytes of data received over the line. Applies to Ethernet and VAX PSI operations.

Bytes sent

This counter indicates the number of bytes of data sent over the line. Applies to Ethernet and VAX PSI operations.

Collision detect check failure

This counter indicates the approximate number of times a collision detect was not sensed after a transmission. This counter is also reported each time a packet is transmitted using either a DEUNA or DELUA on a broadband Ethernet.

Data blocks received

This counter indicates the number of data blocks received over the line. Applies to Ethernet and VAX PSI operations.

Data blocks sent

This counter indicates the number of data blocks sent over the line. Applies to Ethernet and VAX PSI operations.

Supplemental NCP Information

A.1 Network Counter Summary

Data errors inbound

This counter indicates the number of incoming data errors that result from faults on the channel between the local DTE and DCE. The counter can include any of the following qualifiers:

- Block too long
- Block check error
- Reject sent

Data errors outbound

This counter indicates the number of outgoing data errors that result from faults on the channel between the local DTE and DCE. The counter can include the following qualifier:

- Reject received

Data overrun

This counter indicates the total number of times the hardware lost an incoming frame because it was unable to keep up with the data rate.

Local buffer errors

This counter indicates the number of receive-not-ready (RNR) frames sent. The counter can include the following qualifier:

- RNR sent, buffer unavailable

Local process errors

This counter indicates errors for both VAX PSI and DDCMP lines. For VAX PSI operations, this counter indicates that a frame reject (FRMR) has been received over the line or that your system is being overloaded. The counter can include any of the following qualifiers:

- Transmit underrun
- Receive overrun
- FRMR received, header format error

The first two qualifiers usually indicate that the system is overloaded and the third usually indicates that the VAX PSI software may be incorrectly configured.

For DDCMP operations, this counter indicates the number of local DDCMP processing errors. DECnet-VAX maintains this counter only for DMP and DMF lines. For a multipoint circuit, this counter reflects the total errors for the control station, and not for each tributary. These errors may be caused by a programming error at the local node, or by a circuit error that was not detected by the Data Link protocol. This counter may include any of the following qualifiers if they contribute to the errors:

- NAKs sent, receive overrun
- Receive overrun, NAK not sent
- Transmit overruns
- NAKs received, header format error

For DDCMP lines, this counter corresponds to events 5.3-4 and 5.6.

Supplemental NCP Information

A.1 Network Counter Summary

Local reply timeouts

This counter indicates the number of times a frame with a poll bit set has been received over the line, that is, the number of errors that result from faults on the line.

Multicast blocks received

This counter indicates the total number of multicast blocks successfully received.

Multicast bytes received

This counter indicates the total number of multicast data bytes successfully received (includes bytes in Ethernet data field but not the Ethernet data link headers).

Multicast blocks sent

This counter indicates the total number of multicast blocks successfully sent.

Multicast bytes sent

This counter indicates the total number of multicast data bytes successfully sent (including bytes in the Ethernet data field, but not in the Ethernet data link headers).

Receive failure

This counter indicates the total number of blocks received with some data error (the blocks are data frames) that passed either physical or multicast address comparison. For each increment of the counter, a type of failure is recorded, as follows:

- Block check error
- Framing error
- Frame too long

Remote buffer errors

This counter indicates the number of receive-not-ready (RNR) frames received. The counter can include the following qualifier:

- RNR received, buffer unavailable

Remote process errors

This counter indicates errors for both VAX PSI and DDCMP lines. For VAX PSI operations, this counter indicates an invalid n(R) and a frame reject (FRMR) sent over the line. The counter can include the following qualifiers:

- Invalid n(R) received
- FRMR sent, header format error

These errors usually indicate that the DCE is functioning incorrectly.

For DDCMP operations, this counter indicates the number of remote DDCMP processing failures. DECnet-VAX maintains this counter only for DMP and DMF lines. For a multipoint circuit, this counter reflects the total errors for the control station, and not for each tributary. These errors may be caused by a programming error or a hardware malfunction at the adjacent node. They could also be caused by a circuit error that was not detected by the Data Link

Supplemental NCP Information

A.1 Network Counter Summary

protocol. This counter may include any of the following qualifiers if they contribute to these errors:

- NAKs received, receive overrun
- NAKs sent, header format error
- Selection address errors
- Streaming tributaries

For DDCMP lines, this counter corresponds to events 5.4 and 5.6–8.

Remote reply timeouts

This counter indicates the number of times the retransmit timer for that line has expired. Either the line is not connected to a modem, the PSDN is not responding fast enough, or the retransmit timer is set too low.

Seconds since last zeroed

This counter indicates the number of seconds that elapsed since the line counters were zeroed. This counter provides a time frame for other counter values. The software increments this counter every second and clears it when other counters are cleared.

Send failure

This counter indicates the total number of times a transmit attempt failed. For each increment of the counter, a type of failure is recorded, as follows:

- Excessive collisions
- Carrier check failed
- Short circuit
- Open circuit
- Frame too long
- Remote failure to defer

The “short circuit” failure is also reported each time a packet is transmitted using a DEQNA with a DECOM transceiver.

System buffer unavailable

This counter indicates the total number of times no system buffer was available for an incoming frame. This can be any buffer between the hardware and the user buffers (those supplied on receive requests).

Unrecognized frame destination

This counter indicates the number of times a frame was discarded because there was no portal with the protocol enabled. The count includes frames received for the physical address only. It does not include frames received for the multicast or broadcast address.

User buffer unavailable

This counter indicates the total number of times no user buffer was available for an incoming frame that passed all filtering. The user buffer is one supplied by the user on a receive request.

Supplemental NCP Information

A.1 Network Counter Summary

A.1.3 Node Counters

This section contains a description of each node counter.

Aged packet loss

This counter indicates the number of data packets discarded for visiting too many nodes. This usually occurs while the databases throughout the network are recovering from a disruption (for example, when a circuit or line goes down) in the former path to a destination. This counter is maintained only on full-routing nodes and corresponds to event 4.0 (aged packet loss).

Buffer unavailable

This counter indicates the number of data segments transferred from the remote node that were discarded because of insufficient cache buffering.

Bytes received

This counter indicates the number of user data bytes received from a remote node. This includes interrupt messages, but excludes Connect, Accept, Reject, and Disconnect messages.

Bytes sent

This counter indicates the number of user data bytes sent to a remote node.

Connects received

This counter indicates the number of logical link connection requests received by the local node.

Connects sent

This counter indicates the number of logical link connection requests sent by the local node.

Maximum logical links active

This counter indicates the largest number of logical links that have been active since DECnet-VAX software was started or since executor counters were zeroed.

Messages received

This counter indicates the number of NSP messages received from a remote node.

Messages sent

This counter indicates the number of NSP messages sent to a remote node.

Node out-of-range packet loss

This counter indicates the number of data packets discarded because the destination node's address is greater than the maximum address defined for the local node. This counter corresponds to event 4.2 (node out-of-range packet loss).

Supplemental NCP Information

A.1 Network Counter Summary

Node unreachable packet loss

This counter indicates the number of data packets lost because the destination node could not be accessed. This counter is maintained only on full-routing nodes. This counter corresponds to event 4.1 (node unreachable packet loss).

Oversized packet loss

This counter indicates the number of received data packets that were too large to forward because of the block size of the data link that would be used. This counter is maintained only on full-routing nodes, and corresponds to event 4.3 (oversized packet loss).

Packet format error

This counter indicates the number of packet format errors that occur because of invalid packet control information. This counter corresponds to event 4.4 (packet format error).

Partial routing update loss

This counter indicates the number of received routing messages that were too long to process. Part of a routing update may be lost if it contains a reachable node with an address greater than the maximum address defined for the local node. This counter is maintained only on full-routing nodes, and corresponds to event 4.5 (partial routing update loss).

Received connect resource errors

This counter indicates the number of inbound connect messages for which the local node did not have sufficient resources. These errors may result from dynamic memory problems or too few logical link slots; that is, the MAXIMUM LINKS parameter value is too small.

Response timeouts

This counter indicates the number of times there was no response to an NSP segment within the allotted timeout period. This implies that the local node is having to retransmit messages. Such retransmission can be caused either by messages being discarded in the network or by a wide variance in the round-trip delay to the node. Normally, it indicates an overload condition in the network.

Seconds since last zeroed

This counter indicates the number of seconds that have elapsed since the node counters were zeroed. It provides a time frame for other counter values. The software increments this counter every second and clears it when other counters are cleared.

Verification reject

This counter indicates the number of received verification messages that were invalid. It corresponds to event 4.6 (verification reject).

Supplemental NCP Information

A.1 Network Counter Summary

A.1.4 X.25 Protocol Module DTE Counters

This section contains a description of each X.25 protocol module DTE counter. These counters apply only to VAX PSI operations.

Bytes received

This counter indicates the number of bytes of data received by the local DTE. You can use this information together with the data blocks received counter to determine the total traffic load.

Bytes sent

This counter indicates the number of bytes of data sent by the local DTE. You can use this information together with the data blocks sent counter to determine the total traffic load.

Calls received

This counter indicates the number of incoming calls received.

Calls sent

This counter indicates the number of outgoing calls made.

Data blocks received

This counter indicates the number of data blocks received by the local DTE.

Data blocks sent

This counter indicates the number of data blocks sent by the local DTE.

Fast selects received

This counter indicates the number of calls received with the fast select facility specified.

Fast selects sent

This counter indicates the number of calls sent with the fast select facility specified.

Locally initiated resets

This counter indicates the number of resets sent by the local DTE.

Maximum channels active

This counter indicates the maximum number of channels from the logical channels list that were active at any one time since the counters were last zeroed.

This counter applies only to those channels defined by the CHANNELS parameter of the SET MODULE X25-PROTOCOL command.

Maximum switched circuits active

This counter indicates the number of switched virtual circuits that were active at any one time since the counters were last zeroed.

Supplemental NCP Information

A.1 Network Counter Summary

Network initiated resets

This counter indicates the number of resets (originated by the PSDN) received by the local DTE.

Received call resource errors

This counter indicates the number of times an incoming call has been rejected because of insufficient resources or an incorrect configuration (for example, no destination or object specified).

Remotely initiated resets

This counter indicates the number of resets (originated by a remote DTE) received by the local DTE.

Restarts

This counter indicates the number of times the restart protocol procedure was used on the DTE.

Seconds since last zeroed

This counter indicates the number of seconds that have elapsed since the module counters were zeroed. This counter provides a time frame for other counter values. The VAX PSI software increments this counter every second and clears it when the counters are zeroed.

A.1.5 X.25 and X.29 Server Module Counters

This section contains a description of each X.25 and X.29 server module counter. These counters apply only to VAX PSI operations.

Incoming calls rejected, no resources

This counter indicates the number of times the incoming call handler rejected a request to set up a virtual circuit because of insufficient resources. It includes calls rejected by security for the X.25 server module.

Maximum circuits active

This counter indicates the number of switched virtual circuits that have been set up since the counters were last zeroed.

Seconds since last zeroed

This counter indicates the number of seconds that have elapsed since the module counters were zeroed. This counter provides a time frame for other counter values. The VAX PSI software increments this counter every second and clears it when the counters are zeroed.

Supplemental NCP Information

A.2 DECnet Circuit and Line Devices

A.2 DECnet Circuit and Line Devices

Table A-1 lists all recognized DECnet circuit and line devices. Note that the DECnet-VAX system does not support all of the devices in this table.

Table A-1 DECnet Circuit and Line Devices

Mnemonic	Multi-plexed	Multi-access	DECnet-VAX Support	VAX PSI Support	Description
BNA	No	Yes	Yes	No	DEBNA multiaccess communications link
CI	No	Yes	Yes	No	CI-780, CI-750, CIBCA, or CIBCI computer interconnect
DA	No	No	No	No	DA11-B or DA11-AL UNIBUS link
DL	No	No	No	No	DL11-C, DL11-WA, and DL11-E asynchronous line interface
DLV	No	No	No	No	DLV11-E asynchronous line interface (11/03 and 11/23 only)
DMB	No	No	Yes	Yes	DMB32 synchronous line unit
DMC	No	No	Yes	No	DMC11-DA/AR, DMC11-MA/AL, DMC11-MD/AL, DMC11-FA/AR interprocessor links; DMR11-AA, DMR11-AB, DMR11-AC, DMR11-AE interprocessor links
DMF	No	No	Yes	Yes	DMF32 synchronous line unit
DMP	No	Yes	Yes	No	DMP11 multipoint synchronous line device, DMV11 multipoint synchronous line device
DP	No	No	No	No	DP11-DA synchronous line interface
DPV	No	No	No	Yes	DPV11-DA synchronous line interface
DQ	No	No	No	No	DQ11-DA synchronous serial line interface
DTE	No	No	No	No	DTE20 interprocessor link
DU	No	No	No	No	DU11-DA synchronous line interface (includes DUV11)
DUP	No	No	No	Yes	DUP11-DA synchronous line interface
DV	Yes	No	No	No	DV11-AA/BA NPR synchronous line multiplexer
KDP	Yes	No	No	No	KMC11/DUP11-DA NPR synchronous line multiplexer
KDZ	Yes	No	No	No	KMC11/DZ11-A, -B, -C, -D NPR asynchronous line multiplexer
KL	No	No	No	No	KL8-J serial line interface
KMV	No	No	No	Yes	KMV1A synchronous line interface combined with X.25 level 2 microcode
KMX	Yes	No	No	Yes	KMS11-BD or -BE synchronous line interface combined with X.25 level 2 microcode

Supplemental NCP Information

A.2 DECnet Circuit and Line Devices

Table A-1 (Cont.) DECnet Circuit and Line Devices

Mnemonic	Multi-plexed	Multi-access	DECnet-VAX Support	VAX PSI Support	Description
KMY	No	No	No	Yes	KMS1P synchronous line interface combined with X.25 level 2 microcode
QNA	No	Yes	Yes	No	DEQNA or DELQA multiaccess communications link
SVA	No	Yes	Yes	No	DESVa multiaccess communications link
TT	Yes	No	Yes	No	DZ11-F, DZ32-F, DZV11-D, or DZQ-11 asynchronous serial line multiplexer
TX	No	No	Yes	No	DHU11, DHV11, DMF32, or DMZ32 asynchronous line unit
UNA	No	Yes	Yes	No	DEUNA or DELUA multiaccess communications link

A.3 Circuit, Line, Link, DTE, and Server Module States and Transitions

Each circuit, line, and logical link has sets of states and substates that reflect internal network software activity. The following subsections contain descriptions of circuit, line, and link states, and their substates and transitions, where appropriate. Also described are X25-SERVER module and DTE states, substates, and their transitions, which reflect internal VAX PSI activity. You cannot set or clear substates, but you can display them by using NCP.

A.3.1 Circuit and Line States and Transitions

Table A-2 lists all possible network management circuit and line states and substates. Table A-3 provides a list of state transitions that take place in response to certain user-initiated NCP functions. Some substates in these tables have an AUTO- prefix. These substates occur when circuit or line service operations take place. Refer to the *DNA Phase IV Network Management Functional Specification* for further information about circuit or line states, substates, and their transitions.

Table A-2 Circuit and Line States and Substates

State	Substate	Meaning
OFF	None	The circuit/line cannot be used.
ON	None	The circuit/line is in normal use by the owner.
	-SYNCHRONIZING	The circuit/line is in the hardware initialization cycle. For X.25 permanent virtual circuits, the circuit is being reset, restarted, or an error has occurred.
	-STARTING	The circuit/line is in the owner routing initialization cycle.
	-REFLECTING	The circuit/line is in use for passive loopback testing.
	-AUTODUMPING	The circuit/line is reserved for upline dumping.

Supplemental NCP Information

A.3 Circuit, Line, Link, DTE, and Server Module States and Transitions

Table A-2 (Cont.) Circuit and Line States and Substates

State	Substate	Meaning
SERVICE	-AUTOSERVICE	The circuit/line is reserved for service use.
	-AUTOLOADING	The circuit/line is in use for automatic loading.
	-AUTOTRIGGERING	The circuit/line is in use for automatic triggering.
	-DUMPING	The circuit/line is in use by the operator for upline dumping.
	-LOADING	The circuit/line is in use by the operator for loading.
	-LOOPING	The circuit/line is in use by the operator for active circuit or line loopback testing.
	-TRIGGERING	The circuit/line is in use by the operator for triggering.
	-FAILED	The DLM SVC has not been able successfully to call the remote DTE, and the maximum recalls limit has been reached.
	None	The circuit/line is reserved by the operator for an active service function.
	-REFLECTING	The circuit/line is in use for passive loopback testing.
	-LOADING	The circuit/line is in use by the operator for loading.
	-LOOPING	The circuit/line is in use by the operator for loopback testing.
	-TRIGGERING	The circuit/line is in use by the operator for triggering.

Table A-3 Circuit and Line State Transitions

Old State	New State	Cause of Change
Any	OFF	Operator commands for non-X.25 lines and circuits: SET LINE STATE OFF, SET CIRCUIT STATE OFF
OFF	ON-STARTING	Operator command for non-X.25 lines and circuits: SET LINE STATE ON, SET CIRCUIT STATE ON
	ON-SYNCHRONIZING	Operator command for X.25 lines and circuits: SET LINE STATE ON, SET CIRCUIT STATE ON
ON	SERVICE	Operator command: SET LINE STATE SERVICE
	OFF	Operator command: SET LINE STATE OFF and SET CIRCUIT STATE OFF
	ON-STARTING	Routing restarted the data link (from either end).
	ON-SYNCHRONIZING	Hardware is being restarted on either end of the link, or X.25 virtual circuit has been cleared.
	ON-REFLECTING	The local node received a circuit/line loopback message from a remote system.
	ON-AUTOSERVICE	NETACP received a service request.
	ON-LOADING	Operator command: LOAD
ON-LOOPING	Operator command: LOOP CIRCUIT	

Supplemental NCP Information

A.3 Circuit, Line, Link, DTE, and Server Module States and Transitions

Table A-3 (Cont.) Circuit and Line State Transitions

Old State	New State	Cause of Change
ON-STARTING	ON-TRIGGERING	Operator command: TRIGGER
	SERVICE	Operator command: SET LINE STATE SERVICE, SET CIRCUIT STATE SERVICE
	ON	Routing initialization completed.
	ON-REFLECTING	The local node received a circuit/line loopback message from a remote node.
	ON-AUTOSERVICE	NETACP received a service request.
	ON-LOADING	Operator command: LOAD
	ON-LOOPING	Operator command: LOOP CIRCUIT
ON-SYNCHRONIZING	ON-TRIGGERING	Operator command: TRIGGER
	SERVICE	Operator command: SET LINE STATE SERVICE, SET CIRCUIT STATE SERVICE
	None	The circuit/line is attempting to come up.
ON-REFLECTING	OFF	Operator command: SET CIRCUIT STATE OFF
	ON	For an X.25 PVC, the hardware has been restarted and both ends of the PVC have agreed to communicate.
	ON-FAILED	For an outgoing DLM SVC, the MAXIMUM RECALLS limit has been reached and the remote DTE still cannot be called successfully.
	ON-SERVICE	A passive circuit/line loopback operation terminated.
	ON-AUTOSERVICE	NETACP received a service request.
ON-AUTOLOADING	ON-LOADING	Operator command: LOAD
	ON-LOOPING	Operator command: LOOP CIRCUIT
	ON-TRIGGERING	Operator command: TRIGGER
	SERVICE	Operator command: SET LINE STATE SERVICE, SET CIRCUIT STATE SERVICE
ON-AUTOTRIGGERING	ON-STARTING	NML released the line.
	ON-AUTOLOADING	NML initiated a load operation.
	ON-AUTOTRIGGERING	NML initiated a trigger operation.
ON-AUTOSERVICE	ON-AUTOSERVICE	The load operation completed.
ON-AUTOTRIGGERING	ON-AUTOSERVICE	The trigger operation completed.
ON-LOADING	ON-STARTING	The load operation completed.
ON-LOOPING	ON-STARTING	The active circuit/line loopback test completed.
ON-TRIGGERING	ON-STARTING	The trigger operation completed.
SERVICE	SERVICE-SYNCHRONIZING	The circuit/line is attempting to come up in MOP mode.
	SERVICE-REFLECTING	The local node received a circuit/line loopback message from a remote node.
	SERVICE-LOADING	Operator command: LOAD

Supplemental NCP Information

A.3 Circuit, Line, Link, DTE, and Server Module States and Transitions

Table A-3 (Cont.) Circuit and Line State Transitions

Old State	New State	Cause of Change
	SERVICE-LOOPING	Operator command: LOOP CIRCUIT
	SERVICE-TRIGGERING	Operator command: TRIGGER
	OFF	Operator command: SET LINE STATE OFF, SET CIRCUIT STATE OFF
	ON-STARTING	Operator command: SET LINE STATE ON, SET CIRCUIT STATE ON
SERVICE-REFLECTING	SERVICE	A passive circuit/line loopback test completed.
	SERVICE-LOADING	Operator command: LOAD
	SERVICE-LOOPING	Operator command: LOOP CIRCUIT
	SERVICE-TRIGGERING	Operator command: TRIGGER
SERVICE-LOADING	SERVICE	The load operation completed.
SERVICE-LOOPING	OFF	Operator command: SET CIRCUIT STATE OFF
	SERVICE	The active circuit/line loopback test completed.
SERVICE-TRIGGERING	SERVICE	The trigger operation completed.

A.3.2 Link States

Table A-4 lists all possible network management states for logical links. Refer to the *Network Services Protocol Functional Specification* for further information about link states.

Table A-4 Link States

State	Meaning
CC sending	Connect confirm sending. Confirmation of a connection is being sent from the destination node in response to a connect initiate from the originating node.
CI ACKed	Connect initiate acknowledged. The originating node has received a connect confirm from the destination node.
CI received	Connect initiate received. The destination node has received a connect initiate from the originating node.
CI sending	Connect initiate sending. The originating node is sending a connect initiate request to the destination node.
closed	The destination port is not available. The logical link has been disconnected, but the user program has not yet deassigned the channel to the network device.
DI received	Disconnect initiate received. The destination node has received a disconnect initiate message from the originating node.
DI sending	Disconnect initiate sending. The originating node is sending a disconnect initiate message to the destination node.
run	The logical link may be used for sending and receiving data.

Supplemental NCP Information

A.3 Circuit, Line, Link, DTE, and Server Module States and Transitions

A.3.3 DTE States and Transitions

Table A-5 lists all possible VAX PSI management states and substates for DTEs. Table A-6 provides a list of DTE state transitions that take place.

Table A-5 DTE States and Substates

State	Substate	Meaning
OFF	RUNNING	X.25 level 2 and level 3 software is operational but the DTE is not available for use. Incoming calls are cleared.
	SYNCHRONIZING	X.25 level 2 software is operational but level 3 software is not. The DTE is not available for use.
	UNSYNCHRONIZED	X.25 levels 2 and 3 are not operational and the DTE is not available for use.
ON	RUNNING	The DTE is available for normal use.
	SYNCHRONIZING	X.25 level 2 software is operational, level 3 software is starting up, and the DTE will soon be available for use.
	UNSYNCHRONIZED	X.25 level 2 software is starting up and the DTE will soon be available for use.
SHUT	RUNNING	X.25 levels 2 and 3 are operational but the DTE is not to be used for any new activity; that is, all existing virtual circuits will be allowed to complete their operations. Incoming calls are cleared.
	SYNCHRONIZING	X.25 level 2 software is operational and level 3 software is starting up. When the DTE is available for use, no circuits may be established.
	UNSYNCHRONIZED	X.25 level 2 software is starting up. When the DTE is available for use, no circuits may be established.

Table A-6 DTE State Transitions

Old State	New State	Cause of Change
OFF-RUNNING	ON-RUNNING	Operator command: SET MODULE X25-PROTOCOL DTE STATE ON
	OFF-SYNCHRONIZING	X.25 level 3 software is resynchronizing.
	OFF-UNSYNCHRONIZED	X.25 level 2 software is resynchronizing.
OFF-UNSYNCHRONIZED	ON-UNSYNCHRONIZED	Operator command: SET MODULE X25-PROTOCOL DTE STATE ON
	OFF-SYNCHRONIZING	X.25 level 2 startup has completed.
OFF-SYNCHRONIZING	ON-SYNCHRONIZING	Operator command: SET MODULE X25-PROTOCOL DTE STATE ON
	OFF-RUNNING	X.25 level 3 startup has completed.

Supplemental NCP Information

A.3 Circuit, Line, Link, DTE, and Server Module States and Transitions

Table A-6 (Cont.) DTE State Transitions

Old State	New State	Cause of Change
ON-RUNNING	OFF-UNSYNCHRONIZED	X.25 level 2 software is resynchronizing.
	OFF-RUNNING	Operator command: SET MODULE X25-PROTOCOL DTE STATE OFF
	SHUT-RUNNING	Operator command: SET MODULE X25-PROTOCOL DTE STATE SHUT
ON-UNSYNCHRONIZED	ON-SYNCHRONIZING	X.25 level 3 software is resynchronizing.
	ON-UNSYNCHRONIZED	X.25 level 2 software is resynchronizing.
	OFF-UNSYNCHRONIZED	Operator command: SET MODULE X25-PROTOCOL DTE STATE OFF
ON-SYNCHRONIZING	SHUT-UNSYNCHRONIZED	Operator command: SET MODULE X25-PROTOCOL DTE STATE OFF
	ON-SYNCHRONIZING	X.25 level 2 startup has completed.
	OFF-SYNCHRONIZING	Operator command: SET MODULE X25-PROTOCOL DTE STATE OFF
SHUT-RUNNING	SHUT-SYNCHRONIZING	Operator command: SET MODULE X25-PROTOCOL DTE STATE SHUT
	ON-RUNNING	X.25 level 3 startup has completed.
	ON-UNSYNCHRONIZED	X.25 level 2 software is resynchronizing.
SHUT-UNSYNCHRONIZED	OFF-RUNNING	Operator command: SET MODULE X25-PROTOCOL DTE STATE OFF
	ON-RUNNING	Operator command: SET MODULE X25-PROTOCOL DTE STATE ON
	SHUT-SYNCHRONIZING	X.25 level 3 software is resynchronizing.
SHUT-SYNCHRONIZING	SHUT-UNSYNCHRONIZED	X.25 level 2 software is resynchronizing.
	OFF-UNSYNCHRONIZED	Operator command: SET MODULE X25-PROTOCOL DTE STATE OFF
	ON-UNSYNCHRONIZED	Operator command: SET MODULE X25-PROTOCOL DTE STATE ON
SHUT-SYNCHRONIZING	SHUT-SYNCHRONIZING	X.25 level 2 startup has completed.
	OFF-SYNCHRONIZING	Operator command: SET MODULE X25-PROTOCOL DTE STATE OFF
	ON-SYNCHRONIZING	Operator command: SET MODULE X25-PROTOCOL DTE STATE ON
SHUT-SYNCHRONIZING	SHUT-RUNNING	X.25 level 3 startup has completed.
	SHUT-UNSYNCHRONIZED	X.25 level 2 software is resynchronizing.

A.3.4 X.25 Server Module States and Transitions

Table A-7 lists all possible VAX PSI management states for the X.25 server module. Table A-8 summarizes state transitions that take place.

Supplemental NCP Information

A.3 Circuit, Line, Link, DTE, and Server Module States and Transitions

Table A-7 X.25 Server States

State	Meaning
OFF	The module is not in use.
ON	The module is available for normal use.
SHUT	The module is to be closed down but only when all present activity has ceased.

Table A-8 X.25 Server State Transitions

Old State	New State	Cause of Change
OFF	ON	Operator command: SET MODULE X25-SERVER STATE ON
ON	OFF	Operator command: SET MODULE X25-SERVER STATE OFF
ON	SHUT	Operator command: SET MODULE X25-SERVER STATE SHUT
SHUT	ON	Operator command: SET MODULE X25-SERVER STATE ON
SHUT	OFF	Operator command: SET MODULE X25-SERVER STATE OFF

A.4 Event Class and Type Summary

Following is a summary of NCP events in terms of their class and type. In general, event classes relate to specific layers of the DECnet architecture. The event logging components support the event classes summarized.

Event Class	Description
0	Network Management layer
1	Applications layer
2	Session Control layer
3	End Communications layer
4	Routing layer
5	Data Link layer
6	Physical Link layer
7	X.25 packet level events
8-31	Reserved for other common classes
32-63	RSTS system specific
64-95	RSX system specific
96-127	TOPS 10/20 system specific
128-159	VMS system specific

Supplemental NCP Information

A.4 Event Class and Type Summary

Event Class	Description
160-191	RT system specific
192-223	CT system specific
224-255	Communication server specific
256-479	Reserved for future use
480-511	Customer specific

DECnet-VAX logs events only for event classes 0, 3, 4, and 128-159. If you attempt to turn on logging for any other event, it does not get logged. All other classes are supported for logging of processed events from other remote nodes. Events in class 7 are logged only on nodes that have VAX PSI installed.

If the logging sink is the monitor and no name is specified, DECnet-VAX uses the OPCOM facility to display event messages on all terminals enabled as NETWORK (by means of REPLY/ENABLE=NETWORK), including the console. Event messages have the following format:

```
event type class.type, event-text
from node address [(node-name)] dd-mmm-yy hh:mm:ss.ms
component-type, event-qualifiers,...
```

The event text is a standard text message for each event class and type. The message format also includes the source node (address and node name, if available) and time stamp for when the event occurred. For most events, the message format includes the component type and name for which the event applies. Finally, the message format may include one or more event qualifiers that provide additional information as to the cause of the event. The following example is a typical message that may be displayed on the console:

```
Opcom, 22:45:51.19, SYSTEM      Acct=
Opcom, DECnet event 4.7, line down, line fault
From node 5 (TRNT0), 30-DEC-1988 22:45:51.13
Line DMC-0, Line synchronization lost
```

The information accompanying each event description in Section A.4.1 includes a brief description of event qualifiers that may be displayed for the event.

Note that OPCOM does not display line or node counters on the terminal device. However, they are written to the console sink.

A.4.1 Network Management Layer Events

The following specific event classes and types are supported for each layer. Only those events and entire event classes marked with an asterisk (*) are logged by DECnet-VAX components.

0.0 Event records lost*

Events occurred too rapidly for the event logger to buffer them.

Supplemental NCP Information

A.4 Event Class and Type Summary

0.1 Automatic node counters

A node counter timer expired, thus prompting this event. This message displays the name of the node to which the event applies, along with the node counters for that node.

0.2 Automatic line counters

A line counter timer expired, thereby producing this event. This message displays the name of the line to which the event applies, along with the line counters for that line.

0.3 Automatic circuit service

An adjacent node requested an automatic circuit service operation. This message displays the name of the circuit to which the event applies, along with the following event qualifiers: the service function performed (load or dump), the status of the operation (requested, successful, or failed), the node address, the file specification, and the software type. If the operation fails, this status includes an NML error message and details.

0.4 Line counters zeroed

Line counters were zeroed. This message displays the name of the line to which the event applies. The event logger logs these counters prior to the execution of a request to zero them.

0.5 Node counters zeroed

Node counters were zeroed. This message displays the name of the node to which the event applies. The event logger logs these counters prior to the execution of a request to zero them.

0.6 Passive loopback*

The software initiated or terminated a passive loopback test on behalf of an adjacent node. This message displays the name of the line to which the event applies, along with one event qualifier that specifies the state of the operation (initiated or terminated).

0.7 Aborted service request*

An adjacent node requested a service over a line connected to the local node. However, a problem prevented it from being processed at the local node. This message displays the name of the line to which the event applies, along with one event qualifier that specifies the reason for the failure. The reason may be one of the following:

- Line open error

NML received an MOP message and was unable to acquire control of the line. Either NML did not have the privilege to perform the operation or it could not set the substate of the line; or the line had another owner.

- Line state change by higher level

The line was preempted by a higher priority function. For example, you used NCP to turn off the line.

Supplemental NCP Information

A.4 Event Class and Type Summary

- Receive error

A line error occurred while the Network Management layer was trying to receive the request.

- Receive timeout

The line message receive timer expired before the request could be received from the adjacent node. Either the timer was too short, the line error level was too great for any message to get through, or the adjacent node stopped requesting.

- Unrecognized request

A message was received but was not recognizable as a request for upline dumping, downline loading, or passive loopback testing. The adjacent node may be running an incompatible version of the line service protocol.

0.8 Automatic counters*

A counter timer for a node, circuit, or line has expired, thereby producing this event. This message displays the name of the component to which the event applies, along with the counters for that line.

0.9 Counters zeroed*

Counters were zeroed for the node, circuit, or line. This message displays the name of the component to which the event applies. The event logger logs these events prior to the execution of a request to zero them.

A.4.2 Session Control Layer Events

The following specific event classes and types are supported for the session control layer.

2.0 Local node state change

The operational state of the local node changed because of an operator command. Note, however, that the transition from SHUT to OFF also happens automatically when the last logical link is disconnected (under normal operation).

This message displays three event qualifiers: the reason for the state change (operator command or normal operation), the old state (ON, OFF, SHUT, or RESTRICTED), and the new state.

2.1 Access control reject

The local node rejected a connection request because of invalid access control information.

This message displays four event qualifiers: the name and address of the source node, the object type number and process ID of the source process requesting the connection, the object type number and process ID of the destination process to receive the connection request, and the invalid access control information.

Supplemental NCP Information

A.4 Event Class and Type Summary

A.4.3 End Communications Layer Events

The following specific event classes and types are supported for the End Communications layer. The Network Services Protocol (NSP) is the protocol that operates within the End Communications layer. Only those events and entire event classes marked with an asterisk (*) are logged by DECnet-VAX components.

3.0 Invalid message*

NSP received a message that could not be interpreted. This may indicate a software malfunction in either the local or remote NSP. This message displays one event qualifier—the NSP message that was invalid. Refer to the *Network Services Protocol Functional Specification* for a description of NSP messages.

3.1 Invalid flow control*

The remote NSP attempted to modify the local flow control value in an invalid manner. This may indicate a software malfunction in either the local or remote NSP. This message displays one event qualifier—the current flow control value. Refer to the *Network Services Protocol Functional Specification* for a description of flow control.

3.2 Database reused

The local node received a connection request from a node for which there is no counter block. All counter blocks have been previously used, and one of the previously used blocks is available for this new node. This results in the loss of node counters for the node that formerly occupied the database entry.

This message displays the name of the node for which the database entry was formerly used, along with the node counters for that node.

A.4.4 Routing Layer Events

The following specific event classes and types are supported for the Routing layer. Only those events and entire event classes marked with an asterisk (*) are logged by DECnet-VAX components.

4.0 Aged packet loss*

Routing discarded a packet because it had visited too many nodes. This can be a normal occurrence when the network is reconfiguring its routing databases. It can be a failure when the MAXIMUM HOPS value is set too small. This can cause the MAXIMUM VISITS value to be too small for a path that should be usable.

This message displays the name of the line to which the event applies, along with one event qualifier—the packet header. This is information from the beginning of the packet. For non-Ethernet packets, it consists of a hexadecimal byte of flags, the decimal destination and source node addresses, and a hexadecimal byte of forwarding data. For Ethernet packets, it also includes the Ethernet address of the destination and source, the service type, and the protocol type. Refer to the *Routing Layer Functional Specification* for additional information.

Supplemental NCP Information

A.4 Event Class and Type Summary

4.1 Node unreachable packet loss*

Routing discarded a packet because the local node found that the destination node was unreachable. This event provides a trace of what has happened to packets that are not reaching their destination.

This message displays the name of the line to which the event applies, along with one event qualifier—the packet header (as described for event 4.0).

4.2 Node out-of-range packet loss*

Routing discarded a packet because the destination node number was greater than the maximum node number known to the local node. Typically, this results from the addition of a new node to the network without increasing the MAXIMUM ADDRESS value on the local node, yet expecting the local node to route packets to that node.

This message displays the name of the line to which the event applies, along with one event qualifier—the packet header (as described for event 4.0).

4.3 Oversized packet loss*

Routing discarded a packet because it was too large to forward to the appropriate adjacent node. Typically, this occurs when the adjacent node's buffer size is too small or when the source node sends a packet that is too large.

This message displays the name of the line over which the packet was to be forwarded, along with one event qualifier—the packet header (as described for event 4.0).

4.4 Packet format error*

Routing discarded a packet because of a format error in the packet header. This usually results from a programming error in the packet formatting by the adjacent node, though it could result from a line error that was not detected by the line protocol.

This message displays the name of the line to which the event applies, along with one event qualifier—the packet beginning. This consists of the first 6 bytes of the packet, displayed as hexadecimal.

4.5 Partial routing update loss*

Routing received a routing message that contained node addresses greater than the maximum address known to the local node. Subsequently, information on these nodes was lost. This occurs when the MAXIMUM ADDRESS value on an adjacent node has been increased to accommodate more nodes, but the local node's has not.

This message displays the name of the line over which this message was received, along with two event qualifiers—the packet header (as described for event 4.0) and the highest node address in the routing update that was lost.

Supplemental NCP Information

A.4 Event Class and Type Summary

4.6 Verification reject*

An attempt to initialize with another node failed. The local node received an invalid password in the verification requested of the adjacent node during routing initialization over the line. Either the local node expected the wrong receive password, or the adjacent node sent the wrong transmit password.

This message displays the name of the line to which the event applies, along with one event qualifier—the address of the adjacent node that failed to initialize.

4.7 Circuit down, circuit fault*

An error has occurred for the circuit. This message displays the name of the circuit to which the event applies, along with one event qualifier—the reason for the event. The reason could be one of the following:

- Adjacent node address change

The adjacent node changed addresses without going through the normal initialization sequence. This is also logged when an adjacent node attempts to initialize with the local node, but the address of the adjacent node is not in the database.

- Adjacent node address out of range

The adjacent node's address is greater than the maximum address defined for the local node. This may be caused by an incorrectly defined node address or by a failure to update the local node's database when a new node was added.

- Adjacent node block size too small

The line block size provided by the adjacent node is too small for normal network operation. The block size may be set incorrectly at the adjacent node.

- Adjacent node listener receive timeout

The node has received no message over the data link within the last 30 seconds. This usually means that the remote node is not running.

- Adjacent node listener received invalid data

A test message sent by the adjacent node contained invalid or corrupted data. This is most likely caused by a hardware problem.

- Call failed

An outgoing SVC call failed. This is an X.25 event.

- Data errors

The line was declared down by the line protocol of the local node handler when the line exceeded an error threshold.

- Dropped by adjacent node

The adjacent node was responsible for breaking the circuit connection.

- Invalid verification seed value

A Routing initialization message sent by an adjacent node is not formatted properly. This is most likely caused by a remote network software problem.

Supplemental NCP Information

A.4 Event Class and Type Summary

- Line synchronization lost

The normal line protocol was restarted or terminated by the adjacent node. Either a line exceeded an error threshold, or network management initiated a line state change. DMR/DMC failures that cause a line synchronization error are as follows:

 - Threshold errors, including more than eight attempts to transmit a message, or eight NAKs received in a row.
 - Start message received in the ON state (that is, the remote system detected an error and restarted the line).
 - Maintenance requested while in the ON state (that is, the remote system tried to perform a maintenance operation such as LOOP CIRCUIT).
 - Message was lost because no buffer was available in CPU memory.
 - Nonexistent memory error.
 - Procedure error, because of driver failure or hardware failure.
 - Timeout on request to transmit a message in 255 seconds.
 - Power failure.
- Routing update checksum error

A routing update packet failed its internal integrity test.
- Unexpected packet type

A packet was received out of the normal protocol sequence. For example, the local node received a normal data packet when it expected a verification packet.
- Verification password required from Phase III node

A required routing initialization password was not specified before an attempt was made to initialize the Phase III node in a Phase IV network.
- Verification receive timeout

A required verification packet was not received from the adjacent node within the required response time. Either packets were lost on the line or a failure occurred at the adjacent node.
- Version skew

The routing version of the adjacent node is unacceptable to the local node. The operator may have installed incorrect software at the adjacent node.

4.8 Circuit down*

An error has occurred for the circuit. This message displays the name of the circuit to which the event applies, along with the following event qualifiers: the packet header (as described for event 4.0), the reason (as described for event 4.7), and the address of the adjacent node.

Supplemental NCP Information

A.4 Event Class and Type Summary

4.9 Circuit down, operator initiated*

An operator error has occurred for the circuit. This message displays the name of the circuit to which the event applies, along with the following event qualifiers—the packet header (as described for event 4.0), the reason (as described for event 4.7), and the addresses of the expected node and the adjacent node.

4.10 Circuit up*

A remote node has initialized on one of the physical lines connected to the local node. This message displays the name of the line to which the event applies, along with one event qualifier—the address of the newly initialized node.

Be sure to note that this event does not imply that the node is reachable. Reachability is determined by the higher-level routing algorithms.

4.11 Initialization failure, line fault*

A remote node failed to initialize with the local node because of a physical line error. This message displays the name of the line to which the event applies, along with one event qualifier—the reason for the event (as described for event 4.7).

4.12 Initialization failure*

A remote node failed to initialize with the local node because of a software error. This message displays the name of the line to which the event applies, along with two event qualifiers—the packet header (as described for event 4.0) and the reason (as described for event 4.7).

4.13 Initialization failure, operator initiated*

A remote node failed to initialize with the local node because of an operator error. This message displays the name of the line to which the event applies, along with three event qualifiers—the packet header (as described for event 4.0), the reason (as described for event 4.7), and the version received from the adjacent node.

4.14 Node reachability change*

Because of Routing operation, the reachability of a remote node has changed. This message displays the name of the node to which the event applies, along with one event qualifier—the routing status of the node (reachable or unreachable).

4.15 Adjacency up*

The adjacent node on the circuit is initialized. This message displays the name of the circuit to which the event applies, and one event qualifier—the address of the adjacent node.

4.16 Adjacency rejected*

The adjacent node on the circuit is not initialized. This message displays the name of the circuit to which the event applies, and two event qualifiers—the address of the adjacent node and the reason for the event (as described for event 4.7).

Supplemental NCP Information

A.4 Event Class and Type Summary

4.17 Area reachability change*

Because of Routing operation, the reachability of an area has changed. This message displays the name of the area to which the event applies, along with one event qualifier—the routing status of the area (reachable or unreachable).

4.18 Adjacency down*

An error has occurred for an adjacency on the circuit. This message displays the name of the circuit to which the event applies, along with the following event qualifiers—the reason (as described for event 4.7), the packet header (as described for event 4.4), and the address of the adjacent node on the circuit.

4.19 Adjacency down, operator initiated*

An adjacency on the circuit is down because of an operator error. This message displays the name of the circuit to which the event applies, along with the following event qualifiers—the reason (as described for event 4.7), the packet header (as described for event 4.0), and the addresses of the expected node and the adjacent node on the circuit.

A.4.5 Data Link Layer Events

The following specific event classes and types are supported for the Data Link layer. Only those events and entire event classes marked with an asterisk (*) are logged by DECnet-VAX components.

5.0 Locally initiated state change

The line state changed because of an operator command. This message displays the name of the line to which the event applies, along with two event qualifiers—the old DDCMP state (HALTED, ISTRT, ASTRT, RUNNING, or MAINTENANCE) and the new DDCMP state. Refer to the *DIGITAL Data Communications Message Protocol Functional Specification* for a description of these states.

5.1 Remotely initiated state change

A remote user changed the line state. This message displays the name of the line to which the event applies, along with two event qualifiers (see event 5.0).

5.2 Protocol restart received in maintenance mode

The remote node restarted normal operation while the local node had the line in maintenance mode. This message displays the name of the line to which the event applies.

5.3 Send error threshold

Too many data transmission errors occurred. This message displays the name of the line to which the event applies, along with the line counters for that line and one event qualifier—the address of the received station (node).

5.4 Receive error threshold

Too many data reception errors occurred. This message displays the name of the line to which the event applies, along with the line counters for that line and one event qualifier (see event 5.3).

Supplemental NCP Information

A.4 Event Class and Type Summary

5.5 Select error threshold

Too many selection errors occurred. This message displays the name of the line to which the event applies, along with the line counters for that line and one event qualifier (see event 5.3).

5.6 Block header format error

DDCMP received an invalid block header. This message displays the name of the line to which the event applies, along with one event qualifier—the invalid block header. Refer to the *DIGITAL Data Communications Message Protocol Functional Specification* for a description of the block header format.

5.7 Selection address error

The wrong tributary responded in the polling process. This event occurs only for a multipoint control station when one receives a message that does not match the address of the currently selected tributary.

This message displays the name of the line to which the event applies, along with three event qualifiers—the tributary addresses of the selected tributary, the received tributary, and the previous tributary.

5.8 Streaming tributary

A tributary on the line is impeding the use of that line. This message displays the name of the line to which the event applies, along with two event qualifiers—the tributary address of the received tributary and the status of the tributary. The status may be any of the following:

- Streaming
- Continued send after timeout
- Continued send after deselect
- Ended streaming

5.9 Local buffer too small

A local buffer is too small for receiving a block of data. This message displays the name of the line to which the event applies, along with two qualifiers—the length (in bytes) of the received block and the length (in bytes) of the buffer.

5.13 Line initialization failure

An initialization failure occurred over an Ethernet line. This message displays the name of the line to which the event applies.

5.14 Send failure on line

A data transmission attempt failed on an Ethernet line. This message displays the name of the line to which the event applies, along with two event qualifiers—the reason for the failure and the distance. Failure reasons can include excessive collisions, short or open circuits, too long a frame, a framing error, an unrecognized frame destination, a remote failure to defer, a block check error, or data overrun.

Supplemental NCP Information

A.4 Event Class and Type Summary

5.15 Receive failed on line

Data was not received on an Ethernet line. This message displays the name of the line to which the event applies, along with two event qualifiers—the reason for the failure (as described in event 5.14) and the Ethernet header, which includes the source and destination node addresses and the protocol type.

5.16 Collision detect check failed on line

A check for collision detection failed on an Ethernet line. This message displays the name of the line to which the event applies.

5.17 DTE up*

A local DTE has synchronized X.25 levels 2 and 3. The DTE address and network name are displayed.

5.18 DTE down*

A local DTE is resynchronizing X.25 levels 2 and 3. The DTE address and network name are displayed.

5.19 Retransmit maximum exceeded*

A frame has been retransmitted the maximum number of times for this line without having received an acknowledgment. This means that either the PSDN or the line to the PSDN has failed.

5.20 FRMR received*

A frame reject was received. This is an error that you cannot correct by retransmitting the same frame again. This is usually due to a protocol violation.

5.21 Illegal frame received*

The frame received was not correctly formatted, or was not the frame expected by the X.25 protocol.

A.4.6 X.25 Packet Level Events

The following specific event classes and types are supported for X.25 packet level events. Only those events and entire event classes marked with an asterisk (*) are logged by DECnet-VAX components on nodes that have VAX PSI installed.

7.0 DTE state change*

The operator has altered the DTE state to that displayed.

7.1 Illegal packet received*

VAX PSI has received a packet from the PSDN that is invalid in some way. This is usually because of a protocol violation by the PSDN.

Supplemental NCP Information

A.4 Event Class and Type Summary

7.2 Invalid LCN*

This is used whenever the logical channel number (LCN) in the received packet is invalid. For example: the network has sent a restart packet with a nonzero LCN, a call request packet on an LCN already in use, or a packet on an unused LCN, or tried to use an LCN reserved for a PVC. This is usually because of a protocol violation by the PSDN, but can be caused by not correctly configuring the PVCs in the database.

7.3 Flow control invalid*

Invalid P(S) received or invalid P(R) received. This is because of a protocol error.

7.4 Restart*

Either a restart packet was received or sent (in which case another event may also be logged). This indicates either a protocol error or that the DCE or DTE has reinitialized.

7.5 Clear*

A clear packet with a nonzero cause code was either received or sent because of a protocol error. See the PSDN documentation for the cause of the message and the diagnostic codes displayed.

7.6 Reset*

A reset packet with a nonzero cause code was either received or sent because of a protocol error. See the PSDN documentation for the cause of the message and the diagnostic codes displayed.

7.7 Diagnostic*

A diagnostic packet was either received or sent because of a protocol error. See the PSDN documentation for the cause of the message and the diagnostic codes displayed.

7.8 Reject*

A reject packet was received. VAX PSI does not support receiving reject packets, because PSDNs are not permitted to send them.

7.9 Retransmission maximum exceeded*

The specified control packet has been transmitted the maximum number of times without being acknowledged by the PSDN. Usually this is caused by a failure by the PSDN or the connection to the PSDN, but may be because the DTE is not correctly configured.

7.10 Call failed*

The call (incoming or outgoing) has failed because of one of the following reasons: the application process has exited, the application has rejected the call, no destination has been set up, insufficient resources are available, a call has collided, security checks have failed, or a PSDN or a remote DTE has cleared the call.

Supplemental NCP Information

A.4 Event Class and Type Summary

7.11 State change*

The operator has initiated a state change, such as shutting down the node. This event is displayed when you shut down PSI (or a part of PSI, such as the X.29 server).

A.4.7 VMS System-Specific Events

The following system-specific event classes and types are supported for VMS operating systems. Events and event classes marked with an asterisk (*) are logged by DECnet-VAX components.

128.1 DAP CRC error detected*

A CRC error was detected at the DAP level by the file access listener (FAL) or by RMS. The event displays the name of the node to which the connection was established.

128.2 Duplicate PHASE 2 address error*

A circuit connection was attempted to a PHASE 2 node that was already reachable. You are allowed only one circuit connection to any PHASE 2 node.

128.3 Process created*

A process has been created to handle an incoming X.25 call. The message displays the process name, process ID, and the status returned by the \$CREPRC system service.

128.4 Process terminated*

A process created to handle an incoming X.25 call has terminated. The message displays the process ID and the exit status of the process.



Index

A

Abbreviating NCP commands • NCP-2
AUTO prefix • A-16

C

Circuit
 counters • A-1, A-3
 devices • A-15, A-16
 states • A-16 to A-18
 transitions • A-16 to A-18
Circuit counter summary • A-1, A-3
CLEAR CIRCUIT command • NCP-15
CLEAR EXECUTOR command • NCP-18
CLEAR EXECUTOR NODE command • NCP-22
CLEAR LINE command • NCP-23
CLEAR LOGGING command • NCP-26
CLEAR LOGGING EVENTS command • NCP-28
CLEAR LOGGING NAME command • NCP-30
CLEAR MODULE X25-ACCESS
 command • NCP-31
CLEAR MODULE X25-PROTOCOL
 command • NCP-33
CLEAR MODULE X25-SERVER command • NCP-36
CLEAR MODULE X29-SERVER command • NCP-36
CLEAR NODE CIRCUIT command • NCP-43
CLEAR NODE command • NCP-39
CLEAR OBJECT command • NCP-44
Command prompting
 See Prompt syntax
Commands
 continuing • NCP-2
 entering • NCP-2
 recalling • NCP-2
Command syntax
 See Syntax
Component names
 using wildcards with • NCP-2
CONNECT NODE command • NCP-46
CONNECT VIA command • NCP-48
COPY KNOWN NODES command • NCP-49
Counters
 circuit • A-1, A-3

Counters (cont'd.)

 line • A-7
 node • A-11
 summary of network • A-1
 X.25 protocol module • A-13
 X.25 server module • A-14

D

Data Link layer events • A-31
DECnet
 circuit and line devices • A-14
 event class and type summary • A-22 to A-35
DECnet-VAX
 devices supported by • A-14
 using Network Control Program to
 control • NCP-1
DEFINE CIRCUIT command • NCP-74
DEFINE EXECUTOR command • NCP-81
DEFINE LINE command • NCP-93
DEFINE LOGGING EVENTS command • NCP-101
DEFINE LOGGING STATE command • NCP-103
DEFINE MODULE CONFIGURATOR
 command • NCP-105
DEFINE MODULE X25-ACCESS
 command • NCP-107
DEFINE MODULE X25-PROTOCOL
 command • NCP-109
DEFINE MODULE X25-SERVER
 command • NCP-115
DEFINE MODULE X29-SERVER
 command • NCP-115
DEFINE NODE CIRCUIT command • NCP-127
DEFINE NODE command • NCP-121
DEFINE OBJECT command • NCP-129
Directing output • NCP-12
DISCONNECT LINK command • NCP-53
DTE • A-20 to A-21

E

E-address
 See Ethernet address
End Communications layer events • A-26

Index

Entering commands • NCP-2
Ethernet address • NCP-8
Event
 Data Link layer • A-31
 End Communications layer • A-26
 Network Management layer • A-23
 Routing layer • A-26
 Session Control layer • A-25
 VMS specific • A-35
 X.25 Packet level • A-33
Event class and type summary • A-22 to A-35
Event list • NCP-8
External clock • NCP-93

H

HELP command • NCP-55
HELP facility • NCP-11
Hex password • NCP-9

I

Internal clock • NCP-94

L

Line
 counters • A-7
 devices • A-15
 states • A-16 to A-19
 transitions • A-16 to A-19
Line counter summary • A-7
Link
 states • A-19
LIST CIRCUIT command • NCP-136
LIST EXECUTOR command • NCP-142
LIST LINE command • NCP-145
LIST LOGGING command • NCP-152
LIST MODULE CONFIGURATOR
 command • NCP-155
LIST MODULE X25-ACCESS command • NCP-159
LIST MODULE X25-PROTOCOL
 command • NCP-161
LIST MODULE X25-SERVER command • NCP-165
LIST MODULE X29-SERVER command • NCP-165
LIST NODE command • NCP-167

LIST OBJECT command • NCP-173
LOAD NODE command • NCP-57
LOAD VIA command • NCP-60
LOOP CIRCUIT command • NCP-63
LOOP EXECUTOR command • NCP-66
LOOP LINE command • NCP-68
LOOP NODE command • NCP-70

N

NCP (Network Control Program)
 abbreviating commands • NCP-2
 circuit, line, link, DTE, and server module states
 and transitions • A-16 to A-22
 commands • NCP-14 to NCP-185
 directing output • NCP-12
 event class and type summary • A-22 to A-35
 exiting • NCP-12
 invoking • NCP-1, NCP-12
 network counter summary • A-1 to A-14
 prompt • NCP-12
 required privileges • NCP-12
 supplemental technical
 information • A-1 to A-35
 usage summary • NCP-12
Network
 circuit devices • A-15
 line devices • A-15
Network Management layer events • A-23
Node counters • A-11
 summary • A-1

O

Object code values • NCP-131

P

PIPELINE QUOTA parameter • NCP-86
Privilege
 required for NCP commands • NCP-12
Prompting sequence
 examples • NCP-6
 exiting • NCP-5
Prompt syntax • NCP-4
Protocol module counters • A-13

PURGE CIRCUIT command • NCP-15
 PURGE EXECUTOR command • NCP-18
 PURGE LINE command • NCP-23
 PURGE LOGGING command • NCP-26
 PURGE LOGGING EVENTS command • NCP-28
 PURGE LOGGING NAME command • NCP-30
 PURGE MODULE CONFIGURATOR
 command • NCP-72
 PURGE MODULE X25-ACCESS
 command • NCP-31
 PURGE MODULE X25-PROTOCOL
 command • NCP-33
 PURGE MODULE X25-SERVER command • NCP-36
 PURGE MODULE X29-SERVER command • NCP-36
 PURGE NODE CIRCUIT command • NCP-43
 PURGE NODE command • NCP-39
 PURGE OBJECT command • NCP-44

Q

Quota
 pipeline • NCP-86

R

Recalling commands • NCP-2
 Required privileges • NCP-12
 Routing layer events • A-26

S

Server module counters • A-14
 Session Control layer events • A-25
 SET CIRCUIT ALL command • NCP-73
 SET CIRCUIT command • NCP-74
 SET EXECUTOR ALL command • NCP-80
 SET EXECUTOR command • NCP-81
 SET EXECUTOR NODE command • NCP-89
 SET KNOWN PROXIES ALL command • NCP-91
 SET LINE ALL command • NCP-92
 SET LINE command • NCP-93
 SET LOGGING ALL command • NCP-100
 SET LOGGING EVENTS command • NCP-101
 SET LOGGING STATE command • NCP-103
 SET MODULE CONFIGURATOR
 command • NCP-105

SET MODULE X25-ACCESS command • NCP-107
 SET MODULE X25-PROTOCOL
 command • NCP-109
 SET MODULE X25-SERVER command • NCP-115
 SET MODULE X29-SERVER command • NCP-115
 SET NODE ALL command • NCP-120
 SET NODE CIRCUIT command • NCP-127
 SET NODE command • NCP-121
 SET OBJECT ALL command • NCP-128
 SET OBJECT command • NCP-129
 SHOW AREA command • NCP-133
 SHOW CIRCUIT command • NCP-136
 SHOW EXECUTOR command • NCP-142
 SHOW LINE command • NCP-145
 SHOW LINKS command • NCP-149
 SHOW LOGGING command • NCP-152
 SHOW MODULE CONFIGURATOR
 command • NCP-155
 SHOW MODULE X25-ACCESS
 command • NCP-159
 SHOW MODULE X25-PROTOCOL
 command • NCP-161
 SHOW MODULE X25-SERVER
 command • NCP-165
 SHOW MODULE X29-SERVER
 command • NCP-165
 SHOW NODE command • NCP-167
 SHOW OBJECT command • NCP-173
 State
 substates • A-16
 transitions • A-17
 Syntax
 for event list identification • NCP-8
 of NCP commands • NCP-1
 rules for naming NCP components and
 parameters • NCP-7 to NCP-10

T

TELL command • NCP-175
 TRIGGER NODE command • NCP-177
 TRIGGER VIA command • NCP-179

V

VAX PSI
 DTE states and substates • A-20
 DTE state transitions • A-20

Index

VAX PSI (cont'd.)

- server module states • A-21
- server module state transitions • A-22

VMS system-specific events • A-35

W

Wildcards • NCP-2

- rules for using with NCP • NCP-3

X

X.25

- protocol module counters • A-13
- server module counters • A-14

X.25 (cont'd.)

- server module states • A-21
- server module state transitions • A-22

X.25 packet level events • A-33

Z

ZERO CIRCUITS command • NCP-180

ZERO EXECUTOR command • NCP-181

ZERO LINE command • NCP-182

ZERO MODULE X25-PROTOCOL

command • NCP-183

ZERO MODULE X25-SERVER command • NCP-184

ZERO MODULE X29-SERVER command • NCP-184

ZERO NODE command • NCP-185

Reader's Comments

VMS Network Control
Program Manual
AA-LA50A-TE

Please use this postage-paid form to comment on this manual. If you require a written reply to a software problem and are eligible to receive one under Software Performance Report (SPR) service, submit your comments on an SPR form.

Thank you for your assistance.

I rate this manual's:	Excellent	Good	Fair	Poor
Accuracy (software works as manual says)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Completeness (enough information)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clarity (easy to understand)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Organization (structure of subject matter)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Figures (useful)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Examples (useful)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Index (ability to find topic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Page layout (easy to find information)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

I would like to see more/less _____

What I like best about this manual is _____

What I like least about this manual is _____

I found the following errors in this manual:

Page	Description
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Additional comments or suggestions to improve this manual:

I am using **Version** _____ of the software this manual describes.

Name/Title _____ Dept. _____

Company _____ Date _____

Mailing Address _____

Phone _____

-- Do Not Tear - Fold Here and Tape --

digital™

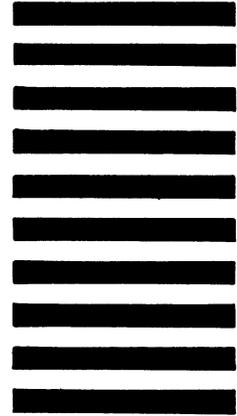


No Postage
Necessary
if Mailed
in the
United States

BUSINESS REPLY MAIL
FIRST CLASS PERMIT NO. 33 MAYNARD MASS.

POSTAGE WILL BE PAID BY ADDRESSEE

DIGITAL EQUIPMENT CORPORATION
Corporate User Publications—Spit Brook
ZK01-3/J35 110 SPIT BROOK ROAD
NASHUA, NH 03062-9987



-- Do Not Tear - Fold Here --

Cut Along Dotted Line

Reader's Comments

VMS Network Control
Program Manual
AA-LA50A-TE

Please use this postage-paid form to comment on this manual. If you require a written reply to a software problem and are eligible to receive one under Software Performance Report (SPR) service, submit your comments on an SPR form.

Thank you for your assistance.

I rate this manual's:

	Excellent	Good	Fair	Poor
Accuracy (software works as manual says)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Completeness (enough information)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clarity (easy to understand)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Organization (structure of subject matter)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Figures (useful)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Examples (useful)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Index (ability to find topic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Page layout (easy to find information)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

I would like to see more/less _____

What I like best about this manual is _____

What I like least about this manual is _____

I found the following errors in this manual:

Page	Description
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Additional comments or suggestions to improve this manual:

I am using **Version** _____ of the software this manual describes.

Name/Title _____ Dept. _____

Company _____ Date _____

Mailing Address _____

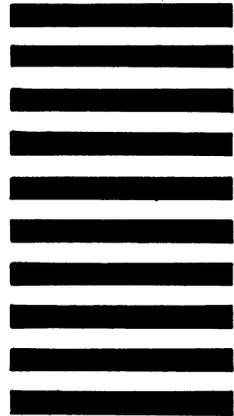
Phone _____

-- Do Not Tear - Fold Here and Tape --

digital™



No Postage
Necessary
if Mailed
in the
United States



BUSINESS REPLY MAIL
FIRST CLASS PERMIT NO. 33 MAYNARD MASS.

POSTAGE WILL BE PAID BY ADDRESSEE

DIGITAL EQUIPMENT CORPORATION
Corporate User Publications—Spit Brook
ZK01-3/J35 110 SPIT BROOK ROAD
NASHUA, NH 03062-9987



-- Do Not Tear - Fold Here --

Cut Along Dotted Line