

DECnet-RSX Supplemental Information and Release Notes

Order Number: AA-J517K-TC

November 1998

This manual describes all the changes to the DECnet-RSX product for this maintenance release. This manual also describes technical enhancements made in the previous release of DECnet-RSX including a chapter on network management and a method of transferring files between Phase IV and Phase V nodes, DAP cyclical redundancy checking, and enhanced LAT support. Finally, this manual covers software and documentation changes made since the last release of the documentation.

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RSX-11M-PLUS/Micro/RX V4.6

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DECnet-11M-PLUS V4.6
DECnet-Micro/RX V4.6



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Mentec, Inc.
Nashua, New Hampshire

Phone: +1(603)883-7711
FAX: +1(603)883-7799

Mentec Ltd.
Dublin, Ireland

Phone: +353 1 2059797
FAX: +353 1 2059798

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Preface

This manual provides information pertaining to the current release of DECnet-RSX. Also included in this manual is information on enhancements, modifications, and new features relative to previous versions of the DECnet-RSX product.

Compaq Computer Corporation

Throughout this document, when Digital Equipment Corporation is used, it shall also include Compaq Computer Corporation.

Intended Audience

This manual is intended for anyone who is responsible for building, maintaining, and managing a DECnet-RSX network. In this manual, all such people are collectively referred to as the network manager and, accordingly, have privileges appropriate for system management.

Structure of This Manual

This manual consists of three chapters.

- Chapter 1 - Provides release note information that describes enhancements and corrects errors in the existing documentation set. This chapter contains information about the current release and the two previous releases Version 4.5 and version 4.4 and includes the following:
 - A description of Poor Man's Routing (PMR). PMR is a routing strategy that allows DECnet-RSX nodes to transfer files to and from Phase V DECnet systems.
 - A description of the new NFT/FTS switch (/DC) that enables cyclical redundancy checking on file transfers.
 - Support for 128 LAT application terminals.
 - LAT control program enhancements, including the option of redirecting command output to a file and the ability to specify a range of port numbers using the CREATE command.
 - Correction of outstanding documentation errors contained in previous versions of the DECnet-RSX product.
 - An increase in the number of LAT terminals permitted in DECnet-Micro/RXS and DECnet11M-PLUS I/D networks.
 - Repair to problems with the Network Control Terminal (NCT) utility for all varieties of the DECnet-RSX product.

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- A fix for the NCT utility logical and CTERM (command terminal protocol) characteristics and CTERM WRITES that span multiple segments for all varieties of the DECnet-RSX product.
- A new (CFE) command.
- An enhancement for NVP to support network access restrictions.
- Enhancements for Year 2000 Readiness.
- A correction for NFT when transferring a file in block mode with an odd byte count.
- Chapter 2 - Describes the node name service and its supporting utilities (Node Name Collector, Server Control Program, and Node Name Server) that extend the node name service for DECnet-Micro/RX and DECnet11M-PLUS software. This chapter includes information on the following:
 - How to operate the node name service to manage the node name database.
 - How to operate the Server Control Program to start and stop the Node Name Server.
 - How to operate the Node Name Collector utility to create and reorganize an established permanent node name database.
- Chapter 3 - Describes the source code corrections that were made to create the maintenance release version of DECnet-11M-PLUS V4.6, DECnet-11M/S V4.8 and DECnet-Micro V4.6. Provides a description of the changes to the media distribution kits.

Media distribution changes include the following:

- DECnet files now distributed in BRU savesets
- PREgenerated DECnet included on End Node media

The following is a Summary of the source corrections that were applied to the DECnet components:

The following is a Summary of the source corrections that were applied to the DECnet components:

- Corrections to the Name Server for a system Hang and dropping a name from the database
- Corrections to the Initialization of a DZ line in DDCMP
- Correction for abnormal disconnects from the End Communication Layer
- Several corrections for CRC checking, PMR and the File protection Switch in Network File Transfer
- Correction to the Data Access Protocol in File Access Listener
- DLX interface correction for a task abort
- Correction to the Clear command and for an I/O error in the Network Control Program
- Correction to a network call in the Network Application Library

- Correction to Network File Transfer when copying a file in block mode with an odd byte count for the last record
- Year 2000 corrections for all of the utilities
- Use of century inferencing for utilities which utilize dates.
- A change to command file processing in the Configuration File Editor
- Added missing Program Examples

A detail summary of all the source corrections to all DECnet components is included at the end of Chapter 3

Associated Documents

Before reading this manual, you should have a working knowledge of DECnet software and the RSX-11 operating system you are using. A prerequisite to the effective use of this manual is familiarity with the overall character of DECnet software as described in the following manuals.

- DECnet-RSX Guide to Network Management Utilities
- DECnet-RSX Guide to User Utilities
- DECnet-RSX Network Management Concepts and Procedures
- DECnet-RSX Network Generation and Installation Guide
- DECnet-Micro/RX Installation Guide
- DECnet-RSX Network Manager's Pocket Guides
- DECnet-RSX Programmer's Reference Manual
- DECnet-RSX Programmer's Pocket Guide
- DECnet-RSX User's Pocket Guide

Conventions Used in This Manual

Table 1 The following graphic conventions are used throughout this manual.

Convention	Meaning
Special type	Special type in command examples indicates system output or examples of user input.
UPPERCASE LETTERS	All command keywords are shown in uppercase. You can abbreviate command keywords to the three characters or the minimum unique abbreviation.

Preface

Table 1 (Cont.) The following graphic conventions are used throughout this manual.

Convention	Meaning
<i>italics</i>	Lowercase italics in commands and report layouts indicate variables that you must replace with an appropriate word or value.
[]	Square brackets indicate that you can enter one, and only one, of the the enclosed options, but that it is not required. Do not type the brackets when you enter the option.
{ }	Braces indicate that you must enter one, and only one, of the enclosed options. Do not type the braces when you enter the option.
()	Parentheses enclose a set of options that must be specified together or not at all.
Options in lists	The absence of brackets around vertical lists indicates that the items are optional.
[Return]	This symbol indicates that you should press the [Return] key. Unless otherwise noted, all command lines are terminated by pressing the [Return] key.
[Ctrl/x]	This symbol indicates that you should press the key labeled Ctrl and the specified key simultaneously.

All Ethernet addresses are hexadecimal; all other numbers are decimal unless otherwise noted.

1

Release Notes

1.1 Release Description

These are release notes for DECnet11M/S V4.8, DECnet-11M-PLUS V4.6, and DECnet-Micro/RX V4.6 software.

1.1.1 Required Operating System Software

This kit can be generated and run on the following operating system versions:

- RSX-11M and RSX-11S V4.8
- RSX-11M-PLUS V4.6
- Micro/RX V4.6

1.2 New features

The major features included in this release are:

- Modify all utilities to use the new \$DATS subroutine to allow for system specific date output.
- Correct FTS/FTSDEQ to correctly interface with the Queue Manager when spooling files.
- Correct NFARS to consistently process incoming date messages outside of the specifications of DAP.
- Correct utilities to be able to correctly process ISO 8601 format date specifications.
- Correct FTS processing of dates.
- Correct NFT when processing files in block mode which have an odd length record for the final transfer.

1.3

Previous Release Features

The major features from the previous releases are:

- A Phase V routing strategy named Poor Man's Routing(PMR). PMR allows DECnet-RSX nodes to transfer files to and from Phase V DECnet systems that use DECdns names or extended addresses.
- A new NFT/FTS switch (/DC) that enables cyclical redundancy on file transfers.
- Support for 128 LAT application terminals.
- LAT control program enhancements, including the option of redirecting command output to a file and the ability to specify a range of port numbers using the CREATE command.
- Changes to NFT, FTS, and FAL that will allow them to function properly at the turn of the century (year 2000).
- Correction of documentation errors contained in previous versions of DECnet-RSX software.

1.3.1

Phase V File Transfers

DECnet Phase V has several features that distinguish it from the previous (Phase IV) implementation of DECnet. Two of these features are DECdns directory services and extended addressing. DECdns allows you to give your node a name that is up to 256 characters long. Extended addressing allows you to have networks with more than 63 areas and more than 1023 nodes per area. As a Phase IV implementation of DECnet, this DECnet-RSX release does not support those Phase V features.

This release of DECnet-RSX does support Poor Man's Routing (PMR), a feature that allows file transfer between DECnet-RSX nodes and DECnet Phase V systems that use DECdns names or extended addresses. PMR is a means of specifying a series of communications hops between the Phase IV and the Phase V system. PMR is supported by the DECnet-RSX Network File Transfer (NFT) and File Transfer Spooler(FTS) utilities and uses the following syntax:

```
COMMAND [1st nodename]::[2nd nodename]::[nth nodename]::[target system]::=[filename]
```

PMR requires that you satisfy the following conditions.

- All the nodes in the series must be OpenVMS systems except for the last node, which may be an OpenVMS or an ULTRIX system.

- The PMR feature of OpenVMS File Access Listener (FAL) must be enabled for each intermediate node in the series (the default is for it to be enabled).
- The node before the target system must be running Phase V DECnet. Also, it must have a Phase IV-compatible address and be in the same name space as the target system.

The following example 1-1 shows how you would issue a typical file transfer command from a DECnet-RSX node to a Phase V OpenVMS node with one intervening hop.

Example 1-1 NFT using Poor Mans Routing(PMR)

```
NFT>MOE::LARRY::dec::engineering::curlsnode=anyfile.txt
```

Note: DECnet-RSX only parses the first node in the series. Subsequent node names are parsed by intermediate OpenVMS nodes as they receive them.

1.3.2 Data Access Protocol (DAP) CRC

The DECnet-RSX NFT, FTS and FAL utilities now support DAP cyclical redundancy checking (CRC). This feature adds enhanced reliability for data transfers between DECnet-RSX systems and other DECnet systems that support DAP CRC. To use DAP CRC, you must include the following switch as part of your command Line syntax: /DC.

The following example shows how you would use this switch in an NFT operation.

Example 1-2 NFT using DAP CRC switch

```
NFT ANYNOD::=ANYFIL.XXX/DC/L0
```

You can use the /DC switch with the following NFT and FTS functions.

- APPEND
- COPY
- SPOOL
- SUBMIT

1.3.3 LAT Control Program(LCP) Enhancements

This release of DECnet-RSX includes the following LCP enhancements.

- LAT now supports up to 128 LAT application terminals.
- The output of the SHOW and LIST commands can now be redirected from the screen to a file. To use this feature, use the following syntax:

Example 1-3 LCP list to a file

```
LCP {LIST|SHOW} [keyword] TO [filename] [Return]
```

Be sure to include spaces before and after the TO qualifier and before the carriage return.

- The /RESERVED keyword of the CREATE command now accept a range of port numbers, as in the following example.

Example 1-4 reserves port 1, ports 3 through 7, and ports 9 through 15.

Example 1-4 LCP using port number ranges

```
LCP CREATE /RESERVED=1,3-7,9-15 [return]
```

1.3.4 Date and Time Enhancements

The DAP protocol specification includes support for files with date field between 1970 and 2069.

After the year 2000, file transfers will still work properly; that is, the date 00 will be interpreted as the year 2000, not the year 1900.

For other utilities, such as EVF and FTS, these have been enhanced to allow for either a two digit year specification, or a four digit year specification.

All utilities have been enhanced to support century inferencing, and support for four digit years. Dates may be input to utilities in one of the following formats:

- DD-MMM-YY
- DD-MMM-YYYY
- YYYY-MM-DD

The first format shows the standard date input, and the two digit year will be inferred to be in the range of 1965 through 2064. The second format allow a full year specification to be used, and allows the year to be in the range from 1900 through 2155. The third format conforms to ISO 8601:1988 format, and allows the year to be in the range from 1900 through 2155.

1.4 Reporting and Isolating Problems

For information on submitting problem reports, refer to Appendix B.

User problems are often difficult to reproduce. Therefore, in the SPR please describe the system state when the problem occurred. Keep the description simple but accurate, and illustrate a general problem with several examples. When an SPR contains concise information about a problem, the problem is more easily reproduced and corrected. Please ensure that questions are direct and simply stated so that they can be answered clearly and directly.

1.4.1 Severe Errors

Severe errors are errors that hang or crash your system. To investigate and correct severe errors, the following information is essential:

- A description of the events leading up to the problem
- Console dialog or output, if appropriate
- A machine-readable copy of:
 - The crash dump file
 - The RSX symbol table file (RSX11M.STB) for RSX-11M-PLUS only
 - The CEX symbol table file (CEX.STB) for RSX-11M/S only

- The CEX database file (CETAB.MAC)
- Any user task involved (source copy)
- The task build command files or parameters used at NETGEN for the appropriate network tasks involved
- The task build map files created during NETGEN for the appropriate network tasks involved
- If the problem is device related, the modem or type of local connection being used
- Suggestions for problem isolation

If the problem occurs when the network is running and involves software that does not use the network, unload the network software and see whether you can still reproduce the problem.

If the problem occurs during periods of high interrupt loading, try to reproduce the problem without the load. Examples of high interrupt loading include many active high-speed communications lines, many active terminals, and any process I/O operations.

If the problem involves file transfer or file access, please include a DAP trace of the situation. See the following sections on NFT, NFARs, and FAL for information on creating DAP traces.

1.4.2 Reporting a Documentation Error

When describing a problem in a manual, specify the full title of the manual, and identify the section and page number where the error occurs. Please list any recommendations or solutions that you have.

1.5 Previous Documentation Changes

This section lists the changes to information in the manual sets for DECnet11M/S V4.5, DECnet11M-PLUS V4.3, and DECnet-Micro/RSX V4.3 and DECnet11M/S V4.7, DECnet11M-PLUS V4.4, and DECnet-Micro/RSX V4.4

1.5.1 DECnet-RSX Network Generation and Installation Guide

Please note the following changes to the DECnet-RSX Network Generation and Installation Guide manual:

- In Chapter 2, Section 2.1.1- The host system can be an RSX-11M/S Version 4.4, an RSX-11M-PLUS Version 4.1, or a OpenVMS system running VAX-11 RSX Version 2.4.
- In Chapter 2, Section 2.1.2- A target system must be an RSX-11M/S Version 4.5, or an RSX-11M-PLUS Version 4.2.
- In Chapter 3, Section 3.1.1.2- This section must be removed because SYSGEN no longer asks question CE122 . The LAT terminal server support is included in the terminal driver itself.

- In Chapter 3, Section 3.2.6.2- Near the bottom of the page the two appearances of the word SUPPORT should not be on separate lines. (Red type in the documentation is used to indicate user responses; so there should not be red type here for these editorial insertions.) The text should read:

C\$\$CKP=0 ; CHECKPOINTING SUPPORT

D\$\$ISK=0 ; TASK LOADER SUPPORT

- In Chapter 3, Section 3.3.6.2- Step 1 should note that the distribution tape must be loaded onto the tape device before mounting the tape. In step 3, the symbol tdu refers to the user's area.
- In Chapter 4, Section 4.2.1- Before you run NETGEN, the logical LB: must be correctly assigned. Use the following MCR command, where ddnn: is the device that contains SYSLIB.OLB:

>ASN ddnn:=LB:

- The documentation on page 5-42 is not stated clearly. Actually, the default large data buffer size is calculated during NETGEN, and it varies depending on the network that is generated. Normally, a size of 292 is large enough for all normal network traffic, but if you generate all the network components and if LAT is also included in your system, then the default LDB size is 576.

- In Chapter 9, the note on page 9-1 should show the following command:

SET /NETUIC={x,54}

where the syntax x refers to the group code of the NETINS.CMD procedure as declared during NETGEN.

- In Chapter 9, on page 9-9, replace the existing text of Section 9.3.1 with the following text (there is now an additional step).

To install a task using VMR commands, perform the following procedure. After you enter the PIP command, you must invoke the virtual monitor routine. Then the VMR will prompt you for the RSX-11S system image filename.

```
MCR> SET /NETUIC=[1,64]
MCR> PIP /NV=dduu:[x,64]*.*
MCR> VMR
Enter filename: RSX11S.SYS
```

- In Chapter 10, Section 10.1.2 the sample command for running the test should be:

>@ddnn:[xxx,24]NTEST.CMD

where the syntax ddnn: indicates the device containing the generated network.

- In Chapter 10 the following three lines of the sample listing for the NTEST.CMD are not displayed by the command file:

```
>SET /BUF=TI:80
>SET /UIC=[1,1]
>SET /UIC=[100,24]
```

- In Chapter 10 the sample listing for the NTEST.CMD may be different than your actual listing. For example, the counters for Aged packet loss, Node out-of-range packet loss, and Partial routing update loss do not appear for end nodes. Also, NTEST.CMD may exist on a device other than SY.

1.5.2 DECnet-RSX Guide to Network Management Utilities

Please note the following changes to the DECnet-RSX Guide to Network Management Utilities:

- In Chapter 1, the SET EXECUTOR command- the MAXIMUM BROADCAST ENDNODES parameter is not supported.
- In Chapter 1, the NCP SET KNOWN CIRCUITS command- the COUNTER TIMER parameter is not supported.
- In Chapter 1, the SET KNOWN LINES command- the COUNTER TIMER parameter is not supported.
- A clarification for LAT regarding application ports should be noted in Chapter 5, Section 5.3.9 SET PORT. The maximum number of ports that can be set for application terminals is 128. Refer to Section 1.9 for new information about LAT and LCP.
- A new section (1.3.3) should be added to page 1-6. The text for this section should read as follows:

"1.3.3 VNP Software Boot Restriction

After you use VNP to set Line states to ON and before you software boot the resultant system image, set all corresponding line states in the currently running system to OFF. This action prevents a possible system crash caused by a device interrupt on the Line during the system boot. Please refer to section 1.5.3 for the SET LINE and SET CIRCUIT command descriptions."

- The following Note should be added to pages 1-100, 1-106, and 109.

"Note- (VNP Only) Refer to Section 1.3.3 for a possible restriction on software booting a VNPed system image with a line state set to ON."

1.5.3 DECnet-Micro/RX Installation Guide

After you install DECnet-Micro/RX on a Micro/PDP-11/23, you must reboot the system.

The list of files on the distribution media for the Version 4.3 is not correct. The following tables List the files that are on the distribution media.

Table 1-1 Micro/RX Distribution Diskette 1

Diskette	Account	File Name	Description
DECNET1	[5,54]	CFERES.TSK	Configuration File editor
		NTL.TSK	Network Loader task

Table 1-1 (Cont.) Micro/RSX Distribution Diskette 1

Diskette	Account	File Name	Description
		SCPRES.TSK	Node Name Server control program
		NNCRES.TSK	Node Name collector task
		NNS.TSK	Node Name Server task
		NNS.DAT	Default Node Name Server permanent database
		LTD.TSK	local Area Transport process image [D-space]
		LTD1.TSK	local Area Transport subprocess image [D-space]
		LTD.STB	Local Area Transport process symbol table [D-space]
		LTD1.STB	Local Area Transport subprocess symbol table [D-space]

Table 1-2 Micro/RSX Distribution Diskette 2

Diskette	Account	File Name	Description
DECNET2	[5,54]	NCPRES.TSK	Network Control program
		FAL.TSK	File Access Listener
		FALLOG.tsk	File Access Listener logger task
		DTS.TSK	DECnet Test Sender task
		DTR.TSK	DECnet Test Receiver task
		SPACER.TSK	Partition Spacer task
		NNDRV.TSK	Node Name Server device driver process image
		NNDRV.STB	Node Name Server device driver symbol table
		TRXCOLD.TSK	CTERM Trace Collector task
		TRXCTL.TSK	CTERM Trace Control task

Table 1-3 Micro/RSX Distribution Diskette 3

Diskette	Account	File Name	Description
DECNET3	[5,54]	NMVACPTSK	Network Management volatile database ACP task
		PROXY.TSK	Proxy access database management task
		NFTRES.TSK	Network File Transfer utility
		FTSRES.TSK	File Transfer Spooler utility

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Table 1-3 (Cont.) Micro/RSX Distribution Diskette 3

Diskette	Account	File Name	Description
		FTSDEQRES.TSK	File Transfer Spooler dequeuing task
		TLKRES.TSK	Talk utility
		LSN.TSK	Talk Server utility
		NVP.TSK	Network Verification Program

Table 1-4 Micro/RSX Distribution Diskette 4

Diskette	Account	File Name	Description
DECNET4	[5,54]	MCM.TSK	MCR batch/command file submission task
		LIN.TSK	Line Watcher task
		LOO.TSK	Loopback task
		MIR.TSK	Loopback Mirror task
		NTD.TSK	Network Display task
		NTDEMO.TSK	Network Display Server task
		NTINIT.TSK	Network Initializer task
		TCL.TSK	Remote Task Control task
		NICE.TSK	Network Information Control and Exchange task
		EVC.TSK	Event Collector task
		EVR.TSK	Event Receiver task
		EVFRES.TSK	Event File Interpreter utility
		RMT.TSK	Remote Terminal task
		RMTACP.TSK	Remote Terminal ACP
		RMHACP.TSK	Remote Terminal Host ACP
		PHONE.TSK	PHONE communications utility
		LCP.TSK	LAT Control Program
		NCTCTL.TSK	NCT Terminal Management Control task

Table 1-5 Micro/RSX Distribution Diskette 5

Diskette	Account	File Name	Description
DECNET5	[5,1]	NETGEN.CMD	DECnet-Micro/RSX installation and customization procedure command file
		DECDV2.CMD	Installation device flags file
		NETVER.CMD	Verification Procedure command file
		NETVER.DAT	Verification Procedure data file
		NETSTOP.CMD	Network Stop command file

Table 1-5 (Cont.) Micro/RSX Distribution Diskette 5

Diskette	Account	File Name	Description
	[5,54]	NTEST.CMD	Network Test command file
		RSXVEC.STB	Symbol table for RSX Executive vector table
		NMDRV.TSK	Network Management device driver
		NMDRV.STB	Network Management device driver symbol table
		STCRC.TSK	CRC calculation CEX library routine
		STCRC.STB	CRC calculation CEX library routine symbol table
		DDHAR.TSK	DDCMP header analysis CEX library routine
		DDHAR.STB	DDCMP header analysis CEX library routine symbol table
		DCP.TSK	DDCMP process image
		DCP.STB	DDCMP process image symbol table
		EPM.TSK	Ethernet Protocol Manager process image
		EPM.STB	Ethernet Protocol Manager process symbol table
		NETACP.TSK	Session Control ACP
		ECL.TSK	End Communication Layer process image
		ECL.STB	End Communication Layer process symbol table
		ECLTAB.TSK	ECL device driver table
		ECLTAB.STB	ECL device driver table symbol table
		XPT.TSK	Routing Layer process image
		XPT.STB	Routing Layer process symbol table
		XPTI.TSK	Routing Layer subprocess image
		XPTI.STB	Routing Layer subprocess symbol table
		AUX.TSK	Auxiliary process image
		AUX.STB	Auxiliary process symbol table
		EVL.TSK	Event Logger process image
		EVL.STB	Event Logger process symbol table
		DLX.TSK	Direct Line Access process image
		DLX.STB	Direct Line Access process symbol table
		DLXTAB.TSK	DLX device driver table
		DLXTAB.STB	DLX device driver table symbol table
		HTDRV.TSK	Remote Terminal Host device driver
		HTDRV.STB	Remote Terminal Host device driver symbol table

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Table 1-5 (Cont.) Micro/RSX Distribution Diskette 5

Diskette	Account	File Name	Description
		NCT.TSK	Network Command Terminal process image
		NCT1.TSK	Network Command Terminal subprocess image
		NCT.STB	Network Command Terminal process symbol table
		NCT1.STB	Network Command Terminal subprocess symbol table
		RTH.TSK	Remote Terminal Host process image
		RTH.STB	Remote Terminal Host process symbol table
		RTH1.TSK	Remote Terminal Host Subprocess image
		RTH1.STB	Remote Terminal Host subprocess symbol table
		RHTAB.TSK	Remote Terminal Host device driver database
		RHTAB.STB	Remote Terminal Host device driver database symbol table
		LAT.TSK	Local Area Transport process image (l-space)
		LAT.STB	Local Area Transport process image symbol table (l-space)
		LAT1.TSK	Local Area Transport subprocess image (l-space)
		LAT1.STB	Local Area Transport subprocess image symbol table (l-space)
		DPV.TSK	DPV DDM process image
		DPV.STB	DPV DDM process image symbol table
		DMV.TSK	DMV DDM process image
		DMV.STB	DMV DDM process image symbol table
		DLV.TSK	DLV DDM process image
		DLV.STB	DLV DDM process image symbol table
		DZV.TSK	DZV DDM process image
		DZV.STB	DZV DDM process image symbol table
		DHV.TSK	DHV DDM process image
		DHV.STB	DHV DDM process image symbol table
		QNA.TSK	QNA DDM process image
		QNA.STB	QNA DDM process image symbol table
		DPV.DAT	DPV DDM NTL template
		DMVST.DAT	DMV DDM NTL multipoint station template
		DMV.DAT	DMV DDM NTL template

Table 1-5 (Cont.) Micro/RSX Distribution Diskette 5

Diskette	Account	File Name	Description
		DLV.DAT	DLV DDM NTL template
		DZVLN.DAT	DZV DDM MUX line NTL template
		DZV.DAT	DZV DDM NTL template
		DHVLN.DAT	DHV DDM MUX line NTL template
		DHV.DAT	DHV DDM NTL template
		QNA.DAT	QNA DDM NTL template
		EPMST.DAT	EPM process NTL station table template
		EPM.DAT	EPM process NTL template
		DCP.DAT	DCP process NTL template
		DCPST.DAT	DCP process NTL station table template
		ECL.DAT	ECL process NTL template
		XPT.DAT	XPT process NTL template
		AUX.DAT	AUX process NTL template
		EVL.DAT	EVL process NTL template
		DLX.DAT	DLX process NTL template
		LAT.DAT	LAT (I-space) process NTL template
		LTD.DAT	LAT (D-space) process NTL template
		NCT.DAT	NCT process NTL template
		RTH.DAT	RTH process NTL template

Table 1-6 Micro/RSX Distribution Diskette 6

Diskette	Account	File Name	Description
DECNET6	[1,2]	PHONEHELP.HLP	Phone help file
		NETHLP.ULB	Network help library
	[5,24]	CETDMV.TSK	CETAB file with device DMV
		CETDMV.STB	Symbol table file for CETAB with device DMV
		CETDMVT.TSK	CETAB file with device DMV as a multipoint tributary
		CETDMVT.STB	Symbol table file for CETAB with device DMV as a multipoint tributary
		CETDPV.TSK	CETAB file with device DPV
		CETDPV.STB	Symbol table file for CETAB with device DPV
		CETDPVT.TSK	CETAB file with device DPV as a multipoint tributary
		CETDPVT.STB	Symbol table file for CETAB with device DPV as a multipoint tributary

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Table 1-6 (Cont.) Micro/RSX Distribution Diskette 6

Diskette	Account	File Name	Description
		CETDLVT.TSK	CETAB file with device DLV as a multipoint tributary
		CETDLVT.STB	Symbol table file for CETAB with device DLV as a multipoint tributary
		CETDLV.TSK	CETAB with device DLV
		CETDLV.STB	Symbol table file for CETAB with device DLV
		CETDLV1.TSK	CETAB file with device DLV with modem control
		CETDLV1.STB	Symbol table file for CETAB with device DLV with modem control
		CETDZV.TSK	CETAB file with device DZV
		CETDZV.STB	Symbol table file for CETAB with device DZV
		CETDZVI.TSK	CETAB file with device DZV with modem control
		CETDZVI.STB	Symbol table file for CETAB with device DZV with modem control
		CETDZVT.TSK	CETAB file with device DZV as a multipoint tributary
		CETDZVT.STB	Symbol table file for CETAB with device DZV as a multipoint tributary
		CETDHV.TSK	CETAB file with device DHV
		CETDHV.STB	Symbol table file for CETAB with device DHV
		CETDHVI.TSK	CETAB file with device DHV with modem control
		CETDHVI.STB	Symbol table file for CETAB with device DHV with modem control
		CETDHVT.TSK	CETAB file with device DHV as a multipoint tributary
		CETDHVT.STB	Symbol table file for CETAB with device DHV as a multipoint tributary
		CETQNA.TSK	CETAB file with device QNA
		CETQNA.STB	Symbol table file for CETAB with device QNA

Table 1-7 Micro/RSX Distribution Diskette 7

Diskette	Account	File Name	Description
DECNETAP1	[5,54]	NDA.TSK	Network crash dump analyzer
		CEDUMPT.TSK	Interactive CEX database dump task

Table 1-8 Micro/RSX Distribution Diskette 8

Diskette	Account	File Name	Description
DECNETAP2	[1,1]	NETFOR.OLB	Network object library
		NETLIB.MLB	Network macro library
	[5,1]	FLOAT.CMD	CSR address calculation command file
		APOVER.CMD	Advanced programmer option verification procedure command file
	[5,10]	APOVER.DAT	APO verification procedure data file
		COBTRN.CBL	COBOL intertask communication programming example (transmitter)
		COBREC.CBL	COBOL intertask communication programming example (receiver)
		COBAPP.CBL	COBOL remote file access programming example (append)
		COBRRW.CBL	COBOL remote file access programming example (read/write)
		FTNTRN.FTN	FORTTRAN intertask communication programming example (transmitter)
		FTNREC.FTN	FORTTRAN intertask communication (receiver)
		FTNAPP.FTN	FORTTRAN remote file access programming example (append)
		FTNRRW.FTN	FORTTRAN remote file access programming example (read/write)
		RUNABO.FTN	FORTTRAN task control programming example
		BASTRN.B2S	BASIC intertask communication programming example (transmitter)
		BASREC.B2S	BASIC intertask communication programming example (receiver)
		BASAPP.B2S	BASIC remote file access programming example (append)
		BASRRW.B2S	BASIC remote file access programming example (read/write)
		SEN10.MAC	MACRO-11 intertask communication programming example (transmitter)
		REC10.MAC	MACRO-11 intertask communication programming example (receiver)
		XTS.MAC	MACRO-11 DLX transmit programming example (for non-Ethernet device)
		XTR.MAC	MACRO-11 DLX receive programming example (for non-Ethernet device)
		DLXRCV.MAC	MACRO-11 DLX programming example (for Ethernet device)
		802TST.MAC	MACRO-11 802.3 protocol test program
		TRGQNA.MAC	MACRO-11 QNA remote trigger program

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Table 1-8 (Cont.) Micro/RSX Distribution Diskette 8

Diskette	Account	File Name	Description
		LATORG.MAC	MACR-11 LAT application terminal programming example (explicit connection)
		LATEX.MAC	MACRO-11 LAT application terminal programming example (implicit connection)

Table 1-9 Micro/RSX Distribution Diskette 9

Diskette	Account	File Name	Description
DECNETSSC	[5,1]	SSCOVER.CMD	Satellite support components verification command procedure
		SSCOVER.DAT	Satellite support components verification command procedure data file
	[5,54]	HLDDAT.CMD	Host loader command file
		DUM.TSK	Up-line dump task
		HLD.TSK	Host Down-line task loader
		DLL.TSK	Host Down-line system loader
		CCR.TSK	Console carrier request task
		SECDU.SYS	DU-11 secondary bootstrap image
		TERDU.SYS	DU-11 tertiary bootstrap image
		SECDUV.SYS	DUV-11 secondary bootstrap image
		TERDUV.SYS	DUV-11 tertiary bootstrap image
		SECDL.SYS	DL-11 secondary bootstrap image
		TERDL.SYS	DL-11 tertiary bootstrap image
		SECDLV.SYS	DLV-11 secondary bootstrap image
		TERDLV.SYS	DLV-11 tertiary bootstrap image
		SECDMC.SYS	DMC-11/DMR-11 secondary bootstrap image
		TERDMC.SYS	DMC-11/DMR-11 tertiary bootstrap image
		SECDMP.SYS	DMP-11 secondary bootstrap image
		TERDMP.SYS	DMP-11 tertiary bootstrap image
		SECDMV.SYS	DMV-11 secondary bootstrap image
		TERDMV.SYS	DMV-11 tertiary bootstrap image
		SECDPV.SYS	DPV-11 secondary bootstrap image
		TERDPV.SYS	DPV-11 tertiary bootstrap image
		SECDUP.SYS	DUP-11 secondary bootstrap image
		TERDUP.SYS	DUP-11 tertiary bootstrap image

Table 1-9 (Cont.) Micro/RSX Distribution Diskette 9

Diskette	Account	File Name	Description
		SECUNA.SYS	DEUNA secondary bootstrap image
		TERUNA.SYS	DEUNA tertiary bootstrap image
		SECQNA.SYS	DEQNA secondary bootstrap image
		TERQNA.SYS	DEQNA tertiary bootstrap image
		SECLUA.SYS	DELUA secondary bootstrap image
		TERLUA.SYS	DELUA tertiary bootstrap image

1.5.4 DECnet-RSX Network Manager's Pocket Guide

Please note the following changes to the DECnet-RSX Network Manager's Pocket Guide:

- In the NCP and VNP Command Summary sections, the SET EXECUTOR command does not support the MAXIMUM BROADCAST ENDNODES parameter.
- In the NCP Command Summary section, the NCP SET KNOWN CIRCUITS command does not support the COUNTER TIMER parameter.
- In the NCP Command Summary section, the SET KNOWN LINES command does not support the COUNTER TIMER parameter.

1.5.5 DECnet-RSX Network Management Concepts and Procedures

Please note the following changes to the DECnet-RSX Network Management Concepts and Procedures manual.

- In Chapter 5, on page 5-8, Table 5-1 incorrectly shows that the DELQA does not support down-line load detection. The table should read as follows:

DEQNA	N/A	5	5
DELQA	6	5	5

Also, the list following this table should contain this information: 6 Device configured (switch settings) for manual mode On page 5-19, Table 5-2, the table entry for the LQA should be changed to the following:

LQA	N/A	TERQNA.SYS
-----	-----	------------

In the appendixes, please note the following changes:

- In the NCP and VNP Command Summary sections of Appendix A the SET EXECUTOR command does not support the MAXIMUM BROADCAST ENDNODES parameter.
- In the NCP Command Summary section of Appendix A the NCP SET KNOWN CIRCUITS command does not support the COUNTER TIMER parameter.

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- In the NCP Command Summary section of Appendix A, the SET KNOWN LINES command does not support the COUNTER TIMER parameter.
- In Appendix A, the MAXIMUM BROADCAST ENDNODES parameter should not be listed for the SET EXECUTOR command in the VNP and NCP Command Summary sections.
- At the end of the Data Link Layer Event section on page D-17 of Appendix D, the text should read:

5.16 Collision detect check failed on line n

A check for collision detection failed on an Ethernet line. This message displays the name of the line to which the event applies.

1.5.6 DECnet-RSX Programmer's Reference Manual

Please note the following changes to the DECnet-RSX Programmer's Reference Manual:

- A documentation error appears on page 2-24 regarding the CONB\$\$ macro. Please note the description of the fmt and the descrip argument should read as follows:

fmt

is the descriptor format type. To connect to a named object, specify 1 for the descriptor format type and specify the descrip argument. To connect to a numbered object, specify 0 and omit the descrip argument.

descrip

is the target task name (1 to 16 ASCII characters). Specify this argument only if the object type is a named object (in other words, if you specified 1 for the fmt argument).

- The same documentation error appears on page 2-29 regarding the CONL\$\$ macro. Please note the description of the "fmt" and the "descrip" argument should read as described in the previous paragraph.
- On page 2-24, Table 2-4, the text in the status word 1 byte 1 column describing the NT.ABT condition should read "LUN over which the user abort message was received", instead of "LUN over which the network abort message was received."
- On page 2-65, the SPA\$ example near the top of the page is incorrect. The third line of the example appears as follows:

```
SPA$$      ... #CMPAST,<SPAAST>
```

Please change this text to read correctly:

```
SPA$$      ... #CMPAST,<#SPAAST>
```

- The table on page 3-22 omits some important information. The length in Decimal Bytes\Characters for the Access Control offsets (User ID, Password, and Account Number) is listed as the value 39. However, these access control offsets include a one byte pad, for a total of 40 bytes each, to guarantee that the next offsets are even (word aligned).

- A documentation error appears on page 3-26, under the BFMT1 macro call. The explanation for the parameter name should be read as: name specifies a 1-to-16 element array/string containing the name of the target program.
- On page 3-41, Status Table B, the low-order byte and high-order byte descriptions for type code 3 are missing. The low-order byte description should read the same as the status word 1 byte 0 description (see Table 2-4, page 2-44) for the NT.DSC condition. The high-order byte description should read the same as the status word 1 byte 1 description (see Table 2-4, page 2-44) for the NT.DSC condition.

Also note the type of message for type code 4 should read "User abort", instead of "User disconnect".

- The low-order byte and high-order byte descriptions for type code 4 are missing. The low-order byte description should read the same as the status word 1 byte 0 description (see Table 2-4, page 2-44) for the NT.ABT condition. The high-order byte description should read the same as the status word 1 byte 1 description (see Table 2-4, page 2-44) for the NT.ABT condition.
- The following information should be added to the GLNNT command.
 - Add to the buflen argument on page 3-37:
"If you specify 10. bytes/characters, the node name, the default NSP segment size, and the local node number are returned."
 - Substitute the following table for the one on page 3-38:

Length In Bytes/characters	Contents/Meaning
6	Local node name in ASCII (left justified and filled with spaces if the name is less than 6 Bytes/Characters)
8	Local node name, default NSP segment size
10	local node name, NSP segment, node number The first six bytes contain the local node name. The next two bytes contain the default segment size. The last two bytes contain the local node number in the lower 10 bits and the local area number in the higher 6 bits.

- The following information should be added to the description of the IO.XOP QIO p3 option on page 4-22:
"The high-order byte of this word designates the Line mode as follows:
 - mode=0 for normal node.
 - mode=1 for Maintenance Operation Protocol (MOP) mode. "
- A documentation error appears in Table C-3 on page C-6. The last column (Miccode Table) refers to the table in the appendix which contains miccode values that correspond to maccode values. All references to Tables E-2, E-3, and E-4 should be changed to C-4, C-5, and C-6, respectively.

1.5.7 DECnet-RSX Guide to User Utilities

Please note the following changes to the DECnet-RSX Guide to User Utilities manual:

Two additions have been made to the NFT switches that are discussed in Chapter 4. A new NFT switch, /CD, preserves the creation date of the output file created by a transfer. If this switch is not used, the output file is given the date and time of the transfer.

The switch /CO, has been modified. This switch, which forces the output file to have contiguous allocation, can now be explicitly negated (/CO) to force the creation of a noncontiguous output file. If neither /CO nor /CO is specified, the output file takes the same attribute as the input file.

- The following footnote should be added to Table 5-1 on page 5-4:
The APPEND, COPY, SPOOL, and SUBMIT commands now support the /BK qualifying switch.
- The text explaining the block mode xfer qualifying switch (/BK) should be added to page 5-6. This text will be identical to the BK text on page 4-15, Section 4.2.3.
- In Chapter 8, in Section 8.5.9, page 8-16, add the following description of how to use the MAIL command from PHONE utility:
RSX Mail-11 product must be installed on the system in order to use this command.
- In Appendix A Section A.2.3, on page A-10, the explanation of NFT's secondary error message was not documented. The information should read:

Input file has conflicting attributes

This error is caused by the concatenation of files with different attributes.

- In Appendix A Section A.6.2, on page A-31, please add the following error message:

An error has occurred trying to send mail. MAIL and/or SEND task not installed.

This message indicates that the necessary RSX Mail- 11 product tasks are not installed on the system.

1.5.8 NETGEN Notes

1.5.8.1 Prerequisites

This release of DECnet-RSX software runs on the following systems:

- RSX-11M V4.8
- RSX-11S V4.8
- RSX-11M-PLUS V4.6
- Micro/RXS V4.6

If you are upgrading your node from a version of DECnet prior to Version 4.3, you should read Chapter 2 before you generate the new network. This chapter describes how to create an initial node name database.

Saved answer files from DECnet-11M-PLUS V4.0, DECnet-Micro/RX V4.0, DECnet-11M V4.3, DECnet-11S V4.3 and older releases cannot be used.

This version of DECnet-RSX references new symbols in SYSLIB, and FCSRES, and can only be used for on the documented versions of the operating systems.

The following information belongs in Section 9.0 (see note on page 9-1) of the DECnet-RSX Network Generation and Installation Guide manual.

If you set the network UIC to the wrong UIC, NETINS.COMD will use that UIC and might load the wrong network.

In Chapter 9, on page 9-14, in Section 9.4.3, Loading the Network Using VNP Commands, when doing an RSX-11S NETGEN under VAX-11, the file extension .TSK for VNP should be used on the RUN command to invoke VNP, or you can rename the task to VNPEXE and invoke VNP without specifying the file extension. This should also apply to CFE and NDA,

1.5.8.2 Post-NETGEN Considerations

If you are upgrading your node from a version of DECnet prior to Version 4.3, you should read Chapter 2 before generating the new network. This chapter describes how to create a node name database. If you are upgrading from a version of DECnet-RSX later than Version 4.0, you may use that existing permanent node database (NNS.DAT) with the new network. To do this, copy the existing database into the new network's task directory. Use PIP /SR or the DCL COPY /SHARED if the database being copied is currently being used by the node name server (NNS).

Use the CFE, NCP, and VNP commands to modify an existing database. Note that for all of these commands, you can use the abbreviated form or just the first three letters. The following list explains the uses of the commands.

- CFE and VNP commands add, delete, and show node names in the permanent database, NNS.DAT.
- NCP commands add,delete, and show node names in the temporary database, NNS.TMP.

1.5.8.3 Abnormal NETGEN Termination

The information in Section 4.6 (see page 4-12) of the DECnet-RSX Network Generation and Installation Guide manual should read:

If NETGEN terminates abnormally with an "AT." error message (such as ..AT.- File read error), or if it simply stops prematurely with an end-of-file (such as @<EOF>) on the command file, the indirect command file processor (AT.) most likely encountered a disk error. Restarting NETGEN from the beginning and using a different disk drive may alleviate the problem.

1.5.9 Device Notes

1.5.9.1 Powerfall Recovery

If a power failure occurred while any DMC-11 Line was active, there is a possibility that the DMC can corrupt memory before the network software is aware of the recovery. This situation can cause the system to crash.

1.5.9.2 Error Counters

If a header CRC error occurs as a result of line interference, the Header Format Error counter flag and the Buffer Too Small Error counter flag might be incremented instead of the Header CRC Error counter. This happens because the device drivers check these conditions before calculating the header CRC.

1.5.9.3 Device CSRs for Down-Line Loaded Systems

The following information belongs in Section 3.2.6 (see page 3-26) in the DECnet-RSX Network Generation and Installation manual.

It is important to have the "floating" device Controller Status Registers (CSRs) at the proper addresses on the system to be loaded. The proper addresses are determined by the standard UNIBUS and Qbus device rankings. The command file [200,200]FLOAT.CMD on the DECnet distribution kit will help you determine what these CSR addresses should be.

1.5.9.4 Down-Line Loading 11S Systems

Please add the devices DELUA and DELQA to the text in the DECnet-RSX Network Management Concepts and Procedures manual in Section 5.1.1.3, page 5-6, paragraph 1.

The following paragraph belongs as a footnote in Table 5-1, on page 5-8.

If you down-line load an 11S system to a remote node that contains a DELQA the node database on the host node should have TERQNA.SYS specified as the tertiary loader. Refer to the DELQA User's Guide for the switch settings that enable down-line system loading.

1.5.10 System Notes

The following information belongs in the DECnet-RSX Network Concepts and Procedures manual, Section 6.

1.5.10.1 Testing

If you run NTEST after NETGEN by the remote node function, you must install DTR and FAL as described in DECnet-RSX Network Generation and Installation Guide, page 10-22, Section 10.3.1.

1.5.10.2 Tuning DSR Usage

If your system experiences dynamic storage region(DSR or RSX pool) shortages on Ethernet networks, you can alleviate the shortage by reducing the number of Ethernet ports. The default number of Ethernet ports is set to 16. To lower this value, change the \$DEPMU symbols in [137,10]DECPRM.CMD on the NETGEN disk to the desired value, then

perform a NETGEN. Use the following table to determine a value for \$DEPMU:

Table 1-10 \$DEPMU Values

Protocol	Number of Required Ports
DECnet	1
LAT	1
Loop	1
Down-line load	1
Up-line load	1
User Written	1 per protocol
DLX Programs	

1.5.10.3 Tuning Buffers

When tuning your system, you should periodically check the system counters, using the command NCP SHOW SYSTEM COUNTERS.

If there are allocation failures for receive buffers, increase the minimum number of receive buffers, using the CFE command DEFINE SYSTEM MINIMUM RECEIVE BUFFERS. You may also want to use the CFE command SET SYSTEM MAXIMUM LARGE BUFFERS to increase the number of large buffers. By increasing the minimum number of receive buffers, you effectively decrease the number of large buffers that can be used for transit messages.

If there are allocation failures for large buffers, use the CFE command DEFINE SYSTEM MAXIMUM LARGE BUFFERS to increase the number of large buffers. Alternately, you can decrease the minimum number of receive buffers, using the CFE command DEFINE SYSTEM MINIMUM RECEIVE BUFFERS, because this effectively increases the number of large buffers that can be used for transit messages. If you do this, however, watch for allocation failures on receive buffers.

1.5.10.4 Support for Multi-Segment CTERM WRITE Messages

A correction has been made to the Network Command Terminal (NCT) process to support multi-segment CTERM WRITES. Multi-segment CTERM WRITE messages are received whenever the data buffer is larger than the size of a Large Data Buffer (LDB). The message is segmented on the transmit side and then sent in multiple packets. These packets are then reassembled on the receive side by NCT into a large buffer, allocated from the network pool, and then output in a single QIO.

The size of the buffer allocated by NCT for multi-segment WRITES is 8128 bytes, which is the largest write allowed by the terminal driver. In the event NCT is unable to allocate the required buffer space when a multi-segment CTERM WRITE is processed, then each message is written as it arrives. If this occurs, the text will probably be displayed incorrectly on the user's screen due to the carriage control written with each message.

1.5.10.5 Allocating Network Pool For Multi-Segment WRITES

If your system uses multi-segment messages and you want to enable this capability, you must allocate additional network pool using the command **DEFINE SYSTEM POOL BLOCK-AREA n**. This command specifies the number of 32-word blocks to allocate. To calculate the value for **POOL BLOCK-AREA n**, use the following equation:

current UMR-unmapped block-area + ((number-of-buffers * 8128) / 32)

The current UMR-unmapped block-area can be obtained by using the CFE command **LIST SYSTEM**. The number-of-buffers is the number of connections that will be using multi-segment CTERM WRITES. For example, to enable three connections for multi-segment WRITES, the additional blocks necessary would be calculated with the following equation:

$$(3 * 8128) / 32 = 762$$

After you increase the network pool in the permanent network database using CFE, you must change the volatile network database by reloading the network. There is no equivalent NCP command to change the network pool since this area is allocated when the network is loaded. If the VNP command was used on your system, you must issue the appropriate VNP commands to unload and reload the network in the system image.

The advantages of this network enhancement are:

- Faster writes for multi-segment messages since only one QIO is issued for the entire message.
- Applications writing large buffers to the screen now display properly on the user's terminal.
- You tailor your network with the number of connections requiring multi-segment WRITES.

The disadvantages of this network enhancement are:

- You must calculate and allocate the additional network pool manually instead of automatically during the NETGEN process.
- You must reload the network after you increase the network pool using CFE to enable this feature.
- You cannot specify which lines have this feature enabled for them. All connections will attempt to use this feature when multi-segment WRITE messages are processed.

1.5.10.6 Powerfail Recovery

If a power failure occurs during the loading of network software, logical Links may be aborted and switched Lines are disconnected. They are restarted upon recovery.

1.5.10.7 Running SHUTUP

The Shutup procedures used under RSX-11M and RSX-11M-PLUS correctly dismount the network during the dismount phase. If you want to clear the network from memory during Shutup, include the following entry in LB:[1,2]SHUTUP.CMD:

```
NCP SET EXECUTOR STATE OFF
.WAIT NETACP
NCP CLEAR SYSTEM
```

Because the NCP command SET EXECUTOR STATE OFF completes asynchronously, issuing the CLEAR SYSTEM command immediately afterwards displays the following error message:

```
NTL-- Device NS: Still Active
Including .WAIT NETACP avoids this problem.
```

1.5.10.8 CFE Utility Enhancements

The following information belongs in Section 1.1 of the DECnet-RSX Guide to Network Management Utilities manual.

The CFE command LIST NODE node-id is enhanced to allow you to enter the wildcard character (*) in the area and/or number fields of the node address. For example, *.* specifies all nodes in all areas, n.* specifies all nodes in area number n, and *.n specifies all areas that have a node address of n. When the node information displays, enter Ctrl/C abort the output.

1.5.10.8.1 CFE Error Messages

The following error messages have been added to CFE for errors you might encounter during a Node Name Server request:

```
Node Name Server QIO directive failed $DSW=dec
```

This error is displayed whenever the QIO directive issued to NNS fails. The Directive Status Word, dec, is a decimal value which indicates the exact nature of the failure.

```
Node Name Server QIO returned wrong length, expected=exp,
received=rec
```

This error displays after an NNS QIO completes successfully, but the I/O status block indicates that the server returns a different amount of data than expected. The amount expected displays in exp and the amount received displays in rec.

```
Node Name Server QIO failed, Function=func, I/O Status=sts
```

This error displays whenever the QIO issued to NNS completes with an error. The function, func, will be one of the NNS function codes IO.WND, IO.RND, IO.RMD, IO.DND, IO.OST, IO.CST, or IO.CCX. The I/O status code, sts, displays as an octal value and will be either an RSX standard I/O status error or an NNS function code error described in Section 2.1.5.

```
Node Name Server assign of the LUN failed on device NN: $DSW=dec
```

If CFE is used to modify an RSX-11M-PLUS CETAB.MAC on a system which does not support the node name service, or if the NN: driver is not loaded the assign LUN directive to the NN0:, the device will fail. The reason for failure is described by the directive status word, dec. Since this is only a warning message, you can still use CFE to modify the non-volatile database.

1.5.11 Utility Notes

1.5.11.1 CFE

This section belongs in the DECnet-RSX Guide to Network Management Utilities manual, Section 1.1.

If you have a very large CETAB.MAC you may get the "CFE-Insufficient Buffer Space" error while CFE is attempting to read in the CETAB.MAC. If this happens, run or install CFE with an increment large enough to fit your CETAB. Refer to the RSX-11M-PLUS MCR Operations Manual for details about the RUN and INS commands.

1.5.11.2 NCP

The following sections belong in the Guide to Network Management Utilities manual, Section 1.2.

NCP allows you to change, override, or delete the down-line load parameters in the volatile network database.

You can set and clear up-line dump parameters with NCP.

DECnet-RSX parses all NCP commands, except those that are system specific to non-RSX systems. When DECnet-RSX does not support a command, NCP fails with the message "command failed- invalid message format." These commands are parsed so that the local node may be used as a network control center. For example, "TELL vms-node SHOW SIGNIFICANT NODES COUNTERS" will be parsed and passed to the named node. If the remote node supports the command, it will be executed there; any messages will be displayed on the originating terminal or written to the specified local file.

The Phase II node name delimiter "_" (underscore) is no longer a valid node name delimiter. It can now be used in passwords and in the RSX-specific form: NODE/user/password:.. Also, NCP no longer converts characters within quoted strings to uppercase. This allows better communication with systems that require case-sensitive passwords.

Alias user name and password size have been extended to 39 characters.

1.5.11.3 NFT

The following information belongs in the DECnet-RSX Guide to User Utilities manual, Chapter 4, Section 4.2.

Multiblock support has been added to both NFT and to the RMS FAL in order to improve the performance of block file transfers between RSX systems. This feature reduces both the number of disk accesses and the number of DAP data messages that must be processed during a file transfer in block mode. Note that only single-block transfers will be done against RSX and OpenVMS systems that are running DAP V7.0 or earlier.

NFT now supports 39-character passwords, user names, and accounts.

When reporting problems with NFT, adding a DAP message trace of your particular problem will help us isolate the problem quickly. Please submit trace output with any NFT-related IPMT case. NFT must be rebuilt to enable message tracing.

To add trace support, modify [137,24]DECPRM.CMD to change \$DNFTR to true and then rebuild NFT using the NETGEN component mode.

To activate tracing, assign the TR: logical device name to the desired trace, using the ASN ddnn:=TR: command.

If the trace output device is a disk, the output will be placed in the file NFARS.TRC under the current UIC.

1.5.11.4 FAL

The following information belongs in the DECnet-RSX Guide to User Utilities manual, Section 4.

There are two versions of FAL: one supports basic sequential FCS file access and can be made into a subset for use on RSX-11S nodes, and one supports RMS11 file access.

FAL allows network file access only to or from public devices. If a device is to be accessed by a remote user, using either NFT, FTS, or any task which is linked to the NFARS, the device must be made public. To make a device public, use the SET /PUB=dduu: MCR command before mounting the disk. Note that magtapes can be set public but must be mounted for use by a single user. Since FAL cannot mount the tape, mag tapes cannot be accessed by FAL.

FAL can provide logging of file accesses. To enable logging, you must provide the empty file LB:[1,4]FAL.LOG. If this file exists, FAL makes an entry in it for each file access request. The system manager should ensure that the file is emptied often enough so that it does not grow too large.

When reporting problems with FAL or NFT, a DAP message trace of your particular problem will help isolate the problem quickly. Please submit trace output with any FAL-related SPR. FAL must be rebuilt to enable message tracing.

To add trace support, modify [137,24]DECPRM.CMD to change \$DFLTR to true and then rebuild FAL using the NETGEN component mode.

To activate tracing, assign the FT: logical device name to the desired trace, using the ASN ddnn:=FT/GBL command.

If the trace output device is a disk, the output will be placed in the file [1,4]FAL.TRC.

The FCS-11 based FAL does not support random record access, relative or indexed files, stream files, and VFC files with fixed record headers whose header length is not equal to 2. It also does not support the rename, change protection, or block mode transfer features of NFT.

If the RMSRES version of FAL is improperly installed, it will abort (T-BIT TRAP or BPT EXECUTION) during file transfer. The following is a list of the correct install commands:

Example 1-5 RMS install commands

```
INS LB: [1,1]RMSRESAB.TSK/PAR=GEN/RON=YES
INS LB: [1,1]RMSLBL.TSK/PAR=GEN/RON=YES
INS LB: [1,1]RMSLEB.TSK/PAR=GEN/RON=YES
```

Note: RMSRESAB is installed from [1,1]. There is also a file [1,1]RMSRES.TSK that is not used by the RMS based FAL.

1.5.11.5 NFARs

The following information belongs in DECnet-RSX Programmer's Reference Manual, Section 3.9. This release includes extended access control information size to the network file access routines (NFARs).

You may wish to use the DAP trace module to remove errors in user programs that use the NFARs. To add trace support, explicitly include in the task image the NFATRC module from the DAPTRC object library. The reference to NFATRC must come before any references to the DAPFOR Library in the task build command file. Also, you must add the following line to the options in the taskbuild file:

```
GELDEF = $TRLUN:6
```

To activate tracing, assign the TR: logical device name to the desired trace device. If the trace output device is a disk, the output will be placed in the file NFARS.TRC under the current UIC.

1.5.11.6 CTERM

The following information belongs in the DECnet-RSX Guide to User Utilities manual, Section 6.

Note the following when using CTERM:

- The character size for a CTERM session is now set in the following manner:
 - Before setting host, set the terminal driver character size. For example, to set eight bit mode, issue the MCR command SET /EBC=TI:.
 - If necessary, set the terminal controls that are appropriate to the character size that you selected in the prior step.
 - After Set Host has been done the character size may not be altered for the duration of the CTERM session.
- OpenVMS treats the ESCAPE control-key differently than RSX. When a OpenVMS system sends an ESCAPE to an RSX system, the RSX system does not recognize it as a terminator. You can prevent this by setting NOLINEEDIT on the OpenVMS system before connecting to the RSX system.
- OpenVMS-style command line editing and recall are not supported between OpenVMS and RSX systems. When you SET HOST from an RSX to a OpenVMS system, the UP ARROW, DOWN ARROW, and certain other control-key sequences such as Ctrl/A and Ctrl/E cannot be used to perform OpenVMS-style command editing. Due to the way

OpenVMS handles command Line recall, one level of command line recall is available, in both directions, by using the UP ARROW and DOWN ARROW keys or by entering Ctrl/B.

RSX does not support command line editing or recall; therefore neither function can be performed when you SET HOST from RSX to RSX.

- Certain control characters may echo differently when using CTERM from a OpenVMS system to an RSX system than on a local RSX system. For example, Ctrl/Z echoes as EXIT when logged onto RSX from OpenVMS and ^Z when logged onto RSX from RSX.
- There may be some screen formatting differences between using NCT from an RSX system to a OpenVMS system and using a local OpenVMS terminal. These differences do not affect EDT or screen display programs, but may affect read-with-prompt operations.
- OpenVMS applications using FMS or TDMS to do screen I/O are not supported using CTERM from an RSX system.
- Previously, when setting host to an RSX system from a different type of operating system (OpenVMS, RSX, or other), the following message appeared at the beginning of the session:

```
Connected to 'xxxxxx', System type = RSX-11M-PLUS
System ID: xxxxxxxxxxxxxxxxxxxx
```

For security reasons, this message is changed to:

```
Connected to 'xxxxxx'
```

- The following CTERM problem occurs when running RSX-11M-PLUS V4.2 or Micro/RSX V4.2. RSX-11M-PLUS V4.3 or Micro/RSX V4.3 solves this problem.

When setting host from a terminal which does not recognize the inquire escape sequence, ESC Z, the SET TERMINAL /INQUIRE and SET /INQUIRE=TI: commands hang. To work around this problem, press the Return key after the command hangs.

1.5.11.7 RMT

1.5.11.7.1 Use of RMT from Command Files

The following information belongs in the DECnet-RSX Guide to User Utilities manual, Section 7.

Avoid invoking the RMT utility from an indirect command file or batch job. The results are unpredictable and depend on the system and the timing involved.

1.5.11.7.2 Terminal Characteristics

When using RMT, the characteristics of your terminal depend on two things:

- The local node's terminal driver features

- The local device characteristics, as set by the MCR SET command prior to the RMT session
Optional features not supported at the local node are generally not supported during the RMT session. However, certain characteristics (ANSI, DEC, AVO, EDT, BLK, RGS and SFC) can be set on a remote host, even when the local host does not support them. These characteristics are implicitly set according to the RMT user's local terminal type. The terminal type at the start of the RMT session determines these characteristics for the session; however, the user can change characteristics by changing terminal types during the session.

1.5.11.7.3 Aborting RMT

DECnet-11M-PLUS systems allow the aborting of the Remote Terminal task (RMTACP) through an Executive feature.

RSX-11M and RSX-11S systems do not include this feature, and it is possible for a privileged user to abort RMTACP while it is in use. If RMTACP or any other privileged task is aborted, the system data structures may be left corrupted. If this occurs, a user connected through RMT can enter a line of random characters. This invokes RMTACP again and resets the user's terminal to its original state.

If RMTACP is aborted, do not remove it from the system until all terminals are reconnected to the local system. Prematurely removing RMTACP after an abort may lead to a system crash.

1.5.12 Local Area Transport (LAT) Support

The following information belongs in the DECnet-RSX Guide To Network Management Utilities manual, Section 5.

1.5.12.1 Increase in the Number of LAT Terminals

The maximum number of LAT terminals is increased to 128 for DECnet-Micro/RX and DECnet-11M-PLUS I/D systems. The maximum number of LAT application terminals is 128.

1.5.12.2 LAT Partition Names

When you load the D-space version of LAT, use the NT.LTD partition name rather than NT.LAT.

1.5.12.3 Additional SHOW PORT Information

This section provides information about the SHOW PORT command that is not presently covered in the documentation set.

1.5.12.3.1 SHOW PORT TTnn: Command

You can use the SHOW PORT TTnn: command (where TTnn: is a specific terminal) to display information about a single terminal. When an application terminal is specified, /FULL information is displayed. The example 1-6 shows a sample command and display.

Example 1-6 SHOW PORT

```
>LCP SHO PORT TT30:
```

```
LAT Interactive Terminals:
```

Terminal	Local Port	User Name	Server Name	Server Port Name
TT30:	PORT_1	S. DAVIS	GROTON	PORT_7

Example 1-7 SHOW PORT/APP

```
>LCP SHO PORT /APP
```

```
LAT Application Terminals:
```

Terminal	Local Port	Server Name	Service Name	Server Port Name
TT47:	PORT_26	SERVER1	None Provided	PORT_2

```
Status: Not Connected Flags: RSV
```

```
Connect Requests: 532 Requests Retransmitted: 3
```

```
Connect Request Failures: 1 Server Address: 08-00-2B-02-ED-B7
```

```
Last Status Received: 0 Last Error Received: 0
```

1.5.12.3.2 SHOW PORT TTnn: Error Messages

The following error messages are defined for the SHOW PORT TTnn: command.

LCP - Device specified is not a valid LAT device

The specified device is not a LAT terminal or is not a valid device name.

LCP- Device not active.

The device is available for an interactive session or for use as an application terminal if set up by LCP or a user program.

1.5.12.3.3 SHOW PORT /APP Display Parameters

The LCP SHOW PORT command displays detailed information about LAT application terminals, including server (Ethernet) address, last status, and last error. Individuals such as Digital Field Service specialists and network managers use this detailed information for correcting errors and problem determination.

The following example shows a sample SHOW PORT command and display. Descriptions of the new parameters follow the example.

- The Server Address parameter is the Ethernet address, and is the first parameter with which the terminal server responds to a connect request initialization. The Server Address parameter is always returned, even if the requested port or service is unavailable or does not exist.

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The Server Address parameter is set to 00-00-00-00-00-00 when a LAT terminal is initialized or when the target node (terminal server, port, or service) information is changed. The address remains at this setting until the terminal server has returned this parameter as a result of a connection solicitation.

- The Last Status Received parameter is used by Digital Field Service specialists and others involved in correcting network problems. The Last Status Received parameter contains the last entry status that was received from the terminal server as the result of a connection solicitation sequence. This value is usually 0. A value of 200 indicates that an error has occurred during the connection solicitation. If the value is 200, the Last Error Received parameter should contain an error value.
- The Last Error Received parameter is used by Digital Field Service specialists and others involved in correcting network problems. This parameter contains the numerical value returned by the terminal server when the Last Status Received parameter is 200. The value contained in the Last Error Received parameter is translated to one of the LAT error codes described in the DECnet-RSX Programmer's Reference Manual.

In some cases, more than one parameter value is translated to the same LAT error code.

The following list shows the parameter value codes that may occur when a connection solicitation is rejected (Last Status Received = 200).

Last Error Received Code	Meaning
0.	Reason is unknown
1.	User requested disconnect
2.	System shutdown in progress
3.	Invalid slot received
4.	Invalid Service class
5.	Insufficient resources to satisfy request
6.	Service in use
7.	No such service
8.	Service is disabled
9.	Service is not offered by the requested port
10.	Port name is unknown
11.	Invalid password
12.	Entry is not in the queue
13.	Immediate access rejected
14.	Access denied
15.	Corrupted Solicit request
16.	COMMAND_TYPE code is illegal/unsupported

Last Error Received Code	Meaning
17.	Start slot cannot be sent
18.	Queue entry deleted by local code
19.	Inconsistent or illegal request parameter

1.5.12.4 New LCP Error Messages

There are several new error messages added which relate to the creation and deletion of the common data region. The List of these error messages follows:

- Number of terminals exceeds maximum - This error displays when the command LCP CREATE/TERM=n exceeds the maximum value allowed. Support exists for only 64 terminals on a non-I/D space system, or 128 terminals on an I/D space system.
- NT.LA2 data space region not loaded - This error displays when the data region cannot be created. It will be preceded by one of the other messages described in the following text which indicates the exact reason for the region not being loaded.
- Main partition GEN not found - Since the data region is only supported on RSX-11M-PLUS operating systems with I/D space support, LCP always expects the GEN partition to exist (where all other processes are loaded) and attempts to load the data region into this main partition. This error displays if the GEN partition could not be located while searching the partition list.
- NT.LA2 PCB DSR allocation failed - This error displays when the call to the Executive routine (\$ALOCB) returns an error while trying to allocate a Partition Control Block (PCB) for the NT.LA2 subpartition.
- No memory available in partition - This error displays when LCP is unable to find a contiguous chunk of memory in the GEN partition large enough for the NT.LA2 subpartition that it is attempting to create. Under usual circumstances this will not happen if the LAT process is loaded and started at boot time. If it does happen, memory will have to be released by removing other tasks and/or commons from the GEN partition.
- NT.LA2 common already installed - This error displays when LCP detects the NT.LA2 common already being loaded before attempting to create the data region. Since the LAT process is not loaded when this routine is called, either the LAT process did not successfully delete the common when the process was cleared by NCP/NTL, or the region was inadvertently left existing after an unsuccessful load by NTL.
- Common region NT.LA2 not found - This error displays when LCP attempts to delete the data region after detecting an error from NTL after requesting the loading of the LAT process. This error indicates LCP could not locate the NT.LA2 data region which it created prior to requesting NTL. This is the only time LCP attempts to delete the data region since the LAT process is expected to delete the region at process termination time.

1.5.13 Cross-System File Transfer Notes

1.5.13.1 RSX-11M, M-PLUS, and Micro/RSX File Transfer Capabilities

Support of the DAP Rename operation is currently limited to the RMS-11 based FAL and RSX based 11M, M-PLUS, and Micro/RSX NFT utilities.

Support of the DAP Change Protection operation is currently limited to the RSX based 11M, M-PLUS, and Micro/RSX NFT utility, and to the 11M, M-PLUS, and Micro/RSX and OpenVMS RMS based FAL utilities.

Neither the RMS-11 based nor the FCS-11 based 11M, M-PLUS, and Micro/RSX FAL will support the FOP delete-on-close option bit in combination with the spool-on-close option. The file will be spooled but not deleted.

1.5.13.2 OpenVMS File Transfer Capabilities

OpenVMS supports a transparent remote file access interface integrated with the RMS file system. For more information, see the OpenVMS VAX-11 RMS manuals. The OpenVMS FAL supports most of the capabilities of VAX-11 RMS.

Wildcard transfers from OpenVMS to RSX-11M nodes may result in errors. These errors occur because OpenVMS has decimal file-name version numbers while RSX-11M supports octal file-name version numbers. See the previous NFT section for details.

Many text files on OpenVMS systems use the print file carriage control attribute (RAT=PRN). In particular OpenVMS batch log files and files created by OpenVMS DCL default to print file carriage control. This is now a supported record format for the 11M/M-PLUS RMS-11 based FAL, but not for most RSX text editors and utilities. Users must be careful when transferring files from a OpenVMS system to an RSX system. If the file is to be used on the RSX system, it must be converted by the RMS Convert utility.

RSX 11M/M-PLUS and OpenVMS have differing meanings for the E protection category. On RSX, E means "extend" file access. On OpenVMS, it means "execute" (run) file access. Files transferred to a OpenVMS system will lose the "extend" setting and gain the "execute" setting. Files transferred from a OpenVMS system will lose the "execute" setting and gain the "extend" setting.

Space for OpenVMS files is always allocated according to the cluster size of the disk. When the OpenVMS COPY command transfers files from a OpenVMS system to an RSX system, the extra blocks allocated due to cluster round-up will not be truncated. When this happens, you can truncate the file on the RSX node, using the PIP file/TR command. RSX task image files transferred from a OpenVMS system must especially be truncated, because the INSTALL command on the RSX system will not install a file whose high block is not the same as the end-of-file block.

The VAX-11 RMS file system supports a superset of the RMS-11 V2.0 capabilities. Some capabilities are suppressed or modified by the VAX-11 RMS network access code when working against an RSX system, and some are not. See the OpenVMS Cross System Notes for more detail. In particular the following capabilities or attributes are not supported by the RSX RMS-11 based FAL:

- Stream-CR or Stream-LF Record Format (RFM) types.

- The Contiguous-Best-try Allocation option (FOP or AOP = CTB). OpenVMS suppresses this option.
- Numerous FOP options including truncate-On-Close.
- Prologue Version 3 indexed sequential files. You must use CONVERT to change the file to Prologue Version 1 or 2.
- \$RELEASE and record locking: RMS-11 V2.0 supports bucket level locking only.

1.5.13.3 RSTS DECnet/E V2.0 File Transfer Capabilities

RSTS/E now supports an RMS-11 based FAL and NFT. For information on the RSTS/E DAP utilities, consult the RSTS DECnet/E Guide to User Utilities and the RSTS DECnet/E Release Notes.

Most text files on RSTS/E systems are in Stream ASCII record format. This is now a supported record format for the 11M/M-PLUS RMS-11 based FAL, but not for most RSX text editors and utilities. Users must be careful when transferring files from a RSTS/E system to an RSX system. DECnet/E NFT will translate stream ASCII files into variable length record format if the /VA switch is specified. RSX NFT will translate variable length record files into stream ASCII if the IAS switch is specified.

DECnet/E NFT cannot copy sequential files in block mode from an RSX RMS-11 based FAL that have an FFB value of other than 0 or 512. RSTS/E RMS-11 currently restricts block I/O writes to units of 512 bytes. Such sequential files must be transferred in record mode.

The DECnet/E FAL only supports block mode transfer of indexed files.

1.5.13.4 RT-11 V2.0 File Transfer Capabilities

The RT-11 FAL supports only sequential files and a basic set of file operations. For more information see the RT-11 DECnet Guide to User Utilities and the RT-11 DECnet Release Notes.

Most text files on RT-11 systems are in Stream ASCII record format. This is now a supported record format for the RSX-11M/M-PLUS RMS-11 based FAL, but not for most RSX text editors and utilities. Users must be careful when transferring files from an RT-11 system to an RSX system. RT-11 NFT will translate stream ASCII files into variable length record format if the /AS switch is specified. RSX NFT will translate variable length record files into stream ASCII if the IAS switch is specified.

The RT-11 FAL does not support the following:

- Relative and Indexed file organizations
- Variable and VFC record formats
- FORTRAN and Implied LF/CR record attributes

1.5.13.5 IAS V3.0 File Transfer Capabilities

The IAS FAL is FCS-11 based and supports only basic FCS file transfer services. It is essentially the same as the RSX-11M DECnet V3.1 FAL.

The IAS NFT is essentially the same as the RSX-11M/M-PLUS NFT, but without the new features.

1.5.13.6 TOPS-20 File Transfer Capabilities

The TOPS-20 FAL supports only sequential files and a basic set of file operations. For more information see the TOPS-20 DECnet Guide to User Utilities and the TOPS-20 DECnet Release Notes.

Most text files on TOPS-20 systems are in Stream ASCII record format. This is now a supported record format for the 11M/M-PLUS RMS-11 based FAL, but not for most RSX text editors and utilities. Users must be careful when transferring files from a TOPS-20 system to an RSX system. TOPS-20 NFT will translate stream ASCII files into variable length record format if the IAS switch is specified. RSX NFT will translate variable length record files into stream ASCII if the IAS switch is specified.

TOPS-20 does not support the following:

- Relative and Indexed file organizations
- Fixed, Variable and VFC record formats
- FORTRAN and Implied LF/CR record attributes
- Random record and Block I/O access modes

1.5.14 Installing a DECnet Router Server

During DECnet Router Server installation, the installation procedure looks for the account program (ACNT) in [1,54] when you answer YES to the question "Do you need to run the Account program?" With DECnet-11M-PLUS V4.0 systems, the account program (ACNT) resides in [3,54]. Because of the change in location, if the PLUTO account and UIC [40,40] do not exist you should run the RSX account program before you install the DECnet Router Server to create the correct account and directory.

1.5.15 Unsupported Software

The UFD [200,200] on the distribution media contains Unsupported Software provided by Mentec as a courtesy to customers. These utilities are not supported by Digital Equipment Corporation or Mentec Inc.

Invoke the file [200,200]UNSGEN.CMD on the distribution disk to generate all unsupported software.

1.5.15.1 Communication Executive Database Dump (CEDUMP) Program

The CEDUMP utility dumps the internal data structures in formatted text. This utility is not supported by Mentec and Digital, but is provided for use by Mentec and Digital Software Specialists and as a courtesy to our customers.

CEDUMP functions are controlled by switches. There are three types of switches:

- General
- Comm/Exec
- DECnet

The following sections List the switches in these categories.

1.5.15.1.1 General CEDUMP switches

For ease of use, two switches of general use for all Comm/Exec-based communications products are provided:

/HE	List the CEDUMP switch descriptors The switches listed by the /HE switch are the valid switches at the time the /HE switch is invoked. For instance, if a DECnet system is available but not currently active (Executor state = ON), the DECnet specific switches will not be listed.
/AL	Dump all available data structures The data structures that the /AL switch will dump depend on the support built into the program at generation time and on the state of the network software when the switch is invoked. For instance, if the Comm/Exec is not loaded (through SET SYSTEM), no data structures will be dumped.

1.5.15.1.2 Comm/Exec CEDUMP Switches

The following switches dump the basic network data structures (those present for all products layered upon the Comm/Exec).

/CM	Dump the Comm/Exec Common Database
/FR	Dump the Free Resource List Status
/LT	Dump the DLC/DDM Process Line Tables and LLC Databases
/NL	Dump the Network Loader Information
/PD	Dump the Process Descriptors
/PO	Dump the Pool Statistics
/RV	Dump the Reverse Mapping Table
/SL	Dump the System Line Table

1.5.15.1.3 DECnet CEDUMP Switches

The following switches dump the DECnet specific data structures.

/DH	Dump the DECnet Home Block
/GE	Dump the DECnet General Delivery Queue
/IO	Dump the NETACP I/O Queue
/LI	Dump the Active Line Count
/LL	Dump the Logical Links
/LN	Dump the Physical Link Blocks
/MB	Dump the DECnet Mailbox Queue

1.5.16 Network Loading Hints for Systems with 512KB

The following information belongs in the DECnet-RSX Network Generation and Installation Guide manual, Section 9.

If the NTL error message "Partition too fragmented" occurs during network loading, this indicates that the GEN partition does not contain enough available memory for loading the network. If this error occurs, you must tailor your system to make more memory available.

Release Notes

After the initial attempt to load the network fails, you should use the following series of commands (depending upon your system) to remove the AT. task and retry the loading procedure:

```
REM AT.  
NCP SET EXEC STATE OFF  
NCP CLEAR SYS  
NCP SET SYS  
NCP SET EXEC STATE ON  
LCP START (for RSX-11M-PLUS and Micro/R SX systems with Ethernet support)  
INS LB: [3,54]ICM (for RSX-11M-PLUS systems)  
INS LB: [3,54]ICMRES (for Micro/R SX systems)  
INS LB :[1,54]ICP (for RSX-11M systems)
```

If the network loading still fails after using the preceding commands, you must remove other tasks from GEN. Once you have successfully loaded the network, you can reinstall the tasks that you removed.

In the DECnet-RSX Guide to Network Management Utilities manual, on page 1-62 after the table entry for MINIMUM RECEIVE BUFFERS number, insert the following:

```
POOL BLOCK AREA block-count
```

Where *block-count* is the number of statically allocated UMR-unmapped blocks of 32 words each.

2

Node Name Service

DECnet-RSX provides the node name service for DECnet-Micro/R SX and DECnet-11M-PLUS networks. This utility allows you to build and maintain up to 64,000 addresses/nodenames in the extended node name database (NNS.DAT).

2.1

Overview of the Node Name Service

The Node Name Collector (NNC) utility within the node name service allows you to create a new node name database as described in Section 2.3.2, or reorganize an established permanent node name database as described in Section 2.3.3. You will read about these features and see an example interactive dialogues. Section 2.3.4 tells you what actions to take when a conflict arises while you collect node names and addresses to build a database.

In addition to describing the procedures to use when you are working with the node name service, this chapter also tells you about components of the node name service.

The node name service consists of three components:

- The Node Name Collector(NNC)
NNC is a utility that helps you build a new permanent node name data base as described in Example 2-1, or to reorganize an established database as described in Example 2-2.
- The Server Control Program (SCP)
SCP is used to start and stop the Node Name Server (see Section 2.1.2).
- The Node Name Server (NNS)
NNS manages the node name database at the request of network components (see Section 2.1.7).
For a listing of NNS return code information, see Section 2.4

2.1.1

The Node Name Collector Utility

The NNC utility enables you to build a new node name database and reorganize an established node name database.

Prior to running NNC, you must assign LB: to the device contained by the network that is having its permanent node name database created or reorganized. You should set the UIC of the network being modified by NNC by using the command SET/NETUIC = [netuic].

The sources of node name and address pairs input to NNC are:

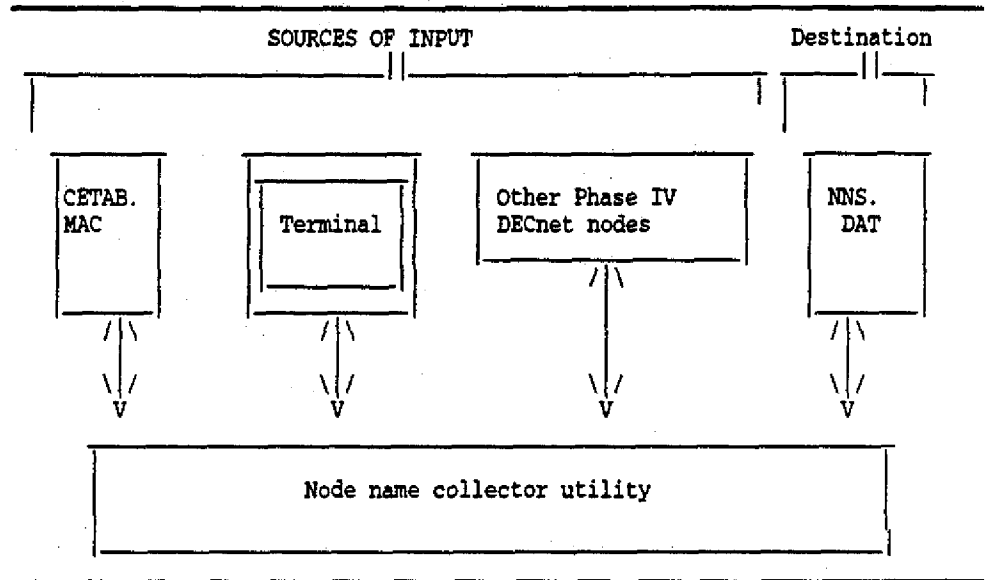
- CETAB.MAC - versions of CETAB.MAC for software releases prior to DECnet-11M-PLUS V4.3 and DECnet- Micro/R SX V4.3
- The terminal
- Other Phase IV DECnet nodes

Node Name Service

In the case of a database reorganization, an established permanent node name database (NNS.DAT) is the source of input.

Figure 2-1 shows the different sources and the destination of database input within the NNC utility.

Figure 2-1 Sources and Destination of Data in NNC



2.1.2 The Server Control Program

SCP is a utility that allows you to control NNS by starting and stopping the server.

The following are the SCP commands you use to control NNS. All SCP commands can be abbreviated to just the first three letters.

- **START** options - causes the server to start
- **STOP** options - causes the server to stop
- **EXIT** options - causes SCP to stop, after which control returns to the CLI prompt

In these SCP commands the options are:

- **FROM dduu:[net dir]** - specifies the device and directory in which the network tasks reside. The **FROM** option may be applied only to the command **START**. The default value for this option is **LB:[netuic]**.
- **CACHE_SIZE x** - specifies the size of the node definition cache in numbers of node definitions. Specify cache size as a decimal value from 1 to 511. The **CACHE_SIZE** option may be applied only to the command **START**. The default value for this option is 50. (See the discussion of optimal cache sizing in Section 2.1.6)

- **TEMPORARY_DATABASE_SIZE x** - specifies the size of the node definition database, in numbers of node definitions, used to hold temporary (volatile) definitions. Specify database size as a decimal value from 1 to 64449. The **TEMPORARY_DATABASE_SIZE** option may be applied only to the command **START**. The default value for this option is 25.
- **SILENCE (x)** - suppresses display of informational, warning, and error messages(see Section 2.1.3). By default, all messages will be displayed unless you use this option. It is coded where x can be I, E, and/or W in any combination. For example, **SILENCE (IE)** suppresses display of informational and error messages but still allows warnings to be output; whereas **SILENCE (I)** silences only informational messages. The **SILENCE** option may be applied to the commands **START**, **STOP**, and **EXIT**.

2.1.3 SCP Error Message Information

SCP error messages documented in this section are classified according to severity and cause. Both classifications are described in the following paragraphs and are noted at the beginning of each error description.

2.1.4 Severity Classifications

Warning type	Explanation
Informational	Gives status information not associated with an error condition.
Warning	Minor error. Processing continues,
Error	Major error. The command was rejected. The system waits for a new command.

2.1.5 Error Messages and Causes

SCP-I-1: The node name server was successfully "oper"

Explanation: Indicates that the node name server was either successfully started or stopped.

SCP-W-0: The supplied file name will be ignored

Explanation: The **FROM** option takes as its argument a device and directory where the node server permanent database can be found. If a file name is also supplied, this message will be displayed indicating that it will not be used.

SCP-E-dec: Failed to assign LUN to NN:

Explanation: SCP could not assign the LUN to the node server device (NN:). The reason for failure is reflected in the directive error code, dec, in the message header. The directive error codes can be found under the Executive Directive Summary in the **RSX-11M-PLUS** Mini-Reference guide

SCP-E-375: Command file name syntax error

Explanation: The name of the command file presented to SCP was not valid.

Node Name Service

SCP-E-dec: Executive directive failure: Directive = x

Explanation: The executive directive **x** failed with a directive error code of **dec**.

SCP-E-fec: Failed to "oper" file "filnam"

Explanation: An FCS operation "oper" on file "filnam" failed with an FCS error code of "fec".

SCP-E-0: FROM option argument error- "errtyp"

Explanation: The argument supplied for the FROM option was in error. The error text "errtyp" explains the exact reason for the failure.

SCP-E-0: Illegal element at "errtxt"

Explanation: An undefined option or command was detected in the command input, or an option was used inappropriately with a command.

SCP-E-377: An I/O error occurred while reading the command line from "filnam". The I/O error code is fec.

Explanation: GCML detected an error while reading the command file "filnam". The FCS error code fec describes the problem in detail.

SCP-E-374: Command file nesting limit of "lmt" exceeded

Explanation: The maximum number of nested command input files "lmt" was exceeded.

SCP-E-sts: Server error- "errtxt"

Explanation: The node name server encountered an error while trying to fulfill the current request. The server error code sts is described in detail by the text in "errtxt".

SCP-E-sts: An unexpected status was returned from the node name server - "errtxt"

Explanation: A status, sts, inappropriate for the current request was returned by the node server. The problem is described in detail by errtxt.

SCP-E-sts: An errtyp error occurred in the node name server while "oper". The error status is err

Explanation: Either an executive directive or I/O error was detected by the node server while it was trying to fulfill a user request. The operation being performed is defined by oper. Depending on the operation, err is either an I/O error code or a directive error code.

SCP-E-0: The opt option argument is "errtxt"

Explanation: SCP detected a command option error with the opt option in the current command line. The error is described in detail by the "errtxt".

SCP-E-376: Unable to open or reopen the command file "filnam". The I/O error code is fec

Explanation: The supplied command file filnam could not be opened. The FCS error code fec describes the exact nature of the problem.

SCP-E-330: Command line 'cmdlin' too long

Explanation: The command Line supplied is too long.

SCP-E-0: The parameter(s) for the SILENCE option are missing or invalid

Explanation: The arguments supplied for the SILENCE option are either:

- Missing
- Not I, W, E or some combination of the three
- Not enclosed in parentheses

The "errtxt", "errtyp", "oper" and "err" parameter on the error message is a text string which is to help clarify the the error message. An example of such text would be the text string that follows the error message "Server error-" as in the following error message.

SCP-E-sts: Server error- internal server pool allocation failure

2.1.6 Optimal Sizing for the Node Name Cache and Temporary Node Database

The node name cache is a repository in memory of the remote nodes that you have most recently connected to. You should size this cache by setting the size to the number of nodes that you connect to frequently. If that number is less than the default cache size, then you need not adjust the size downward. If that number is greater than the default size, set the size to match that number.

The temporary node (volatile) database is a disk file that holds the node definitions you created using NCP. If the default database size is greater than the number of node definitions, then you need not adjust the size downward. If the number of node definitions is greater than the default size, set the size to match that number. The size determines the internal structure of the database and does not limit the number of node definitions that the database can actually hold. For example, if you set the size to 26, the database will hold more than 26 node definitions. However, if the size is less than the number of definitions, the database access time could be affected, resulting in non-optimal performance.

2.1.7 The Node Name Server

Other DECnet components obtain node name and address information from the Node Name Server. This server is composed of the following five components:

- The server task (NT.NNS)
- The server device driver (NNDRV.TSK)
- The permanent node name database (NNS.DAT)
- The temporary node name database (NNS.TMP)
- The server common region

The functions of the NNS components are:

Node Name Service

The server task (NT.NNS) Fulfills the request for node name and address information. The server task also uses two task names: NT.NNS when it is executing and NT\$NNS when it is stopped.

The server device driver (NNDRV.TSK), which uses the logical (NN:), is the interface between requesting tasks and the server.

The permanent node name database (NNS.DAT) Contains permanent node name and address pairs.

The temporary node name database (NNS.TMP) Contains volatile node name definitions.

The server common region contains parts of the node name databases and a node name cache for quick access. This cache contains the most recently referenced node definitions.

As noted previously, the database is managed differently from past RSX versions. Node definitions are no longer stored in CETAB.MAC. In order for DECnet components (such as CFE or VNP) to access node name information, NNS must be operating.

Figure 2-2 illustrates the components and the flow of data within NNS.

2.1.8 System Crashes and Aborts

In the event of a system crash or NNS abort, you should delete the old temporary node database (NNS.TMP) using the following instructions.

- 1 If the system crashes, reboot.
- 2 Before you start the network, delete the temporary node name database (NNS.TMP) using the following commands:

```
PIP [netdir]NNS.TMP;*/PR/WO:D {return}
```

```
PIP [netdir]NNS.TMP;*/DE {return}
```

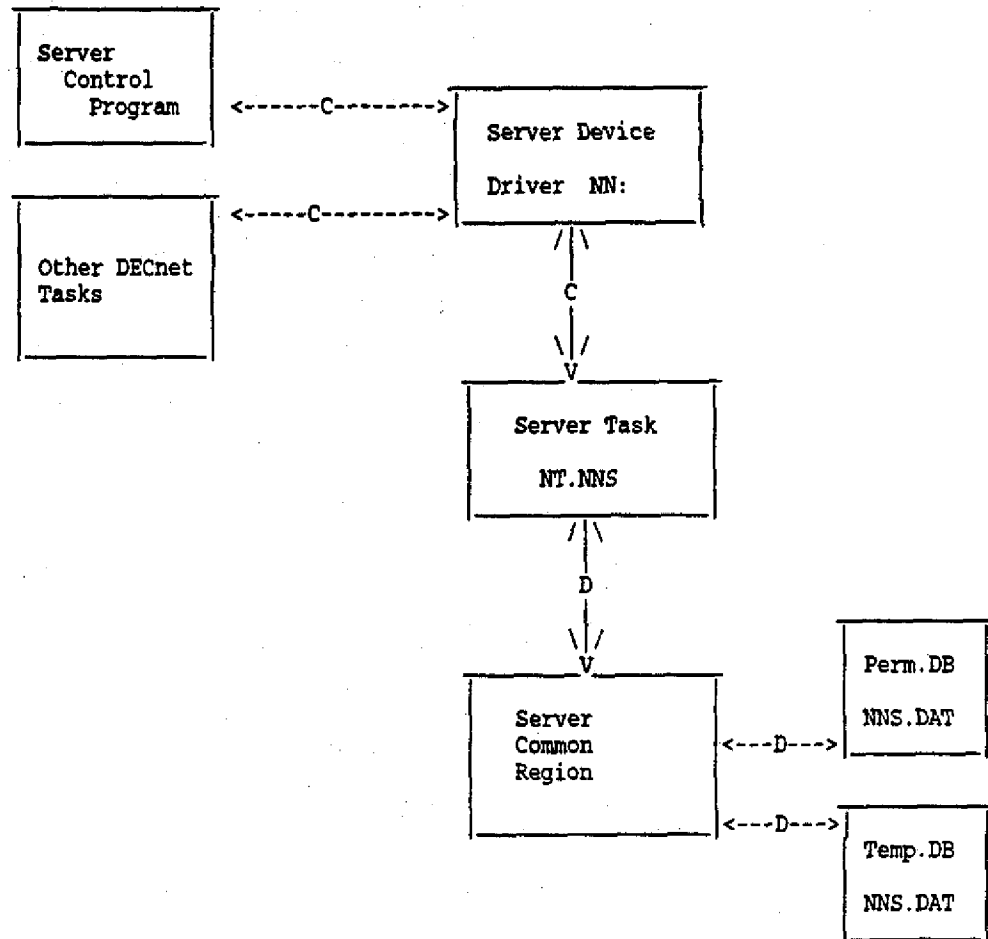
- 3 If the system had to be rebooted then restart the network; otherwise, restart the node name server using the SCP command (see Section 2.1.2).

2.2 Considerations for Creating the Node Name Database

Before generating a network, please consider the method by which you will build the permanent node name database. The following text lists several methods and describes respective advantages and disadvantages of each. These points should influence your final decision on how you build the permanent node name database.

- Enter node names and addresses during NETGEN. Node names and addresses entered during NETGEN are no longer placed in CETAB.MAC. Instead they are moved to a file in [netuic,1]NETRND.CMD. When you initially start the network using NETINS.CMD, you invoke CFE using the command file NETRND.CMD to define the node names and addresses in the empty database provided by NETGEN. If you start the network by means other than NETINS.CMD, it is the user's responsibility to make

Figure 2-2 Structure of Node Name Service



Legend:

C = Control Path

D = Data Path

sure the node name definitions are entered into the permanent database. The following table lists advantages and disadvantages of this method.

Node Name Service

Advantages	Disadvantages
Quick method to set up the permanent database for a small network, or when only a small subset of node name definitions is needed.	NNS.DAT will not contain the executor node definitions, making it not generic, so NNS.DAT can not be distributed easily to other RSX nodes that support the node name service.

- After NETGEN is complete, use NNC to build a new permanent node name database. This is used to create the database if your network is very large and/or you want to construct a generic database containing all node definitions in your network. The following table lists advantages and disadvantages of this method.

Advantages	Disadvantages
You need only build the database once and then distribute it to all other RSX nodes supporting the node name Service.	Inconvenient if you start your network using the default database (supplied by NETGEN) and then build a new database. You must stop and restart the server to begin using the new data base.
Useful because the existing database may be used with future networks.	

The commands to stop and restart the server are SCP STOP and SCP START FROM dduu:[netuic].

To use NNC, you must first install it by using the following command:

```
INSTALL dduu:[netuic]NNCtyp
```

where typ is either RES or FSL, depending on how you generated your network.

- After the NETGEN is complete, use CFE or VNP to define node names and addresses in the empty database provided by NETGEN. The following table lists advantages and disadvantages of this method.

Advantages	Disadvantages
Quick method to set up the permanent database for a small network, or when only a small subset of node name definitions is needed.	NNS.DAT will not contain the executor node definitions, making it not generic, so NNS.DAT can not be distributed easily to other RSX nodes that support the node name service.

- Use NCP to define node names and addresses each time you start the network. The following table lists advantages and disadvantages of this method.

Advantages	Disadvantages
Quick method to set up the permanent database for a small network, or when only a small subset of node name definitions is needed.	NNS.DAT will not contain the executor node definitions, making it not generic, so NNS.DAT can not be distributed easily to other RSX nodes that support the nodename service.
	The node name database must be defined each time the network is started
	There is no permanent database which can be distributed to other RSX nodes.

2.3 Using the NNC Utility

This section tells you how to initiate the build or reorganization procedures by specifying options displayed within a menu. Interactive dialog, as described in Section 2.3.1, shows you how to implement your option. Three examples help illustrate the node name database management tasks and show how to resolve the possible conflicting situations that might occur while running the NNC utility.

When you start NNC, the options you can exercise are displayed at your terminal (see Section 2.1.1). Enter all input from the terminal. Because you will not need to run this program frequently, NNC does not accept input from indirect command files.

The examples of interactive dialog instruct the user to exercise options. User responses appear in the text in bold type. Where a default is selected, the [Return] key is shown.

Refer back to 2-1 for an illustration of the flow of data from the possible sources of input flowing into the NNC utility and then to the destination in permanent storage (NNS.DAT).

2.3.1 Selecting Options from the Menu

The following section shows interactive dialog and the consequences of selecting the various options. Should problems arise with any menu selection, the information contained within the displayed text helps you choose the proper action.

The examples in the following section outline the procedures for:

- Building the node name database by:
 - Providing information from a terminal
 - Collecting information from CETAB.MAC
 - Collecting information from another Phase IV node
- Reorganizing an existing node name database
 - Reorganizing compresses dead space (caused by deleted node name definitions) and cleans up partial definitions caused by deletes or incomplete writes due to system crashes.

2.3.2 Building a New Node Name Database

Note: It is assumed that the network UIC has been set and LB: is assigned to the proper device (see Section 2.1.1).

The Example 2-1 illustrates the interactive dialog generated when you use NNC to collect node names and addresses to build a new node name database.

Example 2-1 Collecting Node Names and Addresses for a New Database

>RUN NNC\bold) [return]

To select a menu item, enter the letter to the left of the item's description at the prompt. Your choices are:

- A) Collect node names and addresses and build a node name database from them
- B) Reorganize an existing node name database
- C) Exit

Enter your choice here [Default :C] > A [return]

To select a menu item, enter the letter to the left of the item's description at the prompt. Your choices are:

- A) Input node names and addresses from the terminal
- B) Collect node names and addresses from old CETAB.MAC files
- C) Collect node names and addresses from another node
- D) Build the node name data base and exit to the main menu
- E) Exit to the main menu without building the node name data base

Enter your choice here [Default :D] > A [return]

At the prompt, enter the node's address and name separated by a blank (for example, 12.386 FIDO). When there are no more node names and addresses to enter, press [return] or enter Ctrl/z to return to the previous menu.

Enter a node definition

Enter your choice here [Default :] > 4.19 APPLES [return]

Enter a node definition

Enter your choice here [Default:] > 55.129 PEARS [return]

Enter a node definition

Enter your choice here [Default :] > [ctrl/z]

To select a menu item, enter the letter to the left of the item's description at the prompt. Your choices are:

Example 2-1 Cont'd on next page

Example 2-1 (Cont.) Collecting Node Names and Addresses for a New Database

- A) Input node names and addresses from the terminal
- B) Collect node names and addresses from old CETAB.MAC files
- C) Collect node names and addresses from another node
- D) Build the node name data base and exit to the main menu
- E) Exit to the main menu without building the node name data base

Enter your choice here [Default :D] > B [return]

Enter the name of the CETAB.MAC file you want to collect node definitions from. To return to the previous menu, enter [ctrl/z]. (NOTE: Depending on the number of node definitions in the CETAB.MAC file, this operation could take several minutes to complete .)

Enter your choice here [Default:SYO:[005,054]CETAB.MAC] >[return]

Enter the name of the CETAB.MAC file you want to collect node definitions from. To return to the previous menu, enter ctrl/z or press [return]. (NOTE: Depending on the number of node definitions in the CETAB.MAC file, this operation could take several minutes to complete .)

Enter your choice here [Default:SYO:[005,054]CETAB.MAC] > [ctrl/z]

To select a menu item, enter the letter to the left of the item's description at the prompt. Your choices are:

- A) Input node names and addresses from the terminal
- B) Collect node names and addresses from old CETAB.MAC files
- C) Collect node names and addresses from another node
- D) Build the node name data base and exit to the main menu
- E) Exit to the main menu without building the node name data base

Enter your choice here [Default:D] > C [return]

Enter the name of the node from which you want to collect node definitions. To return to the previous menu, enter ctrl/Z or press [return] without entering a node name. (NOTE: Depending on network activity, line speed, and the number of definitions being collected from the remote node, this operation could take up to several hours to complete .)

Enter your choice here [Default :] > MYHOME [return]

Enter the name of the node from which you want to collect node definitions. To return to the previous menu, enter [ctrl/Z] or press [return] without entering a node name. (NOTE: Depending on network activity, line speed, and the number of definitions being collected from the remote node, this operation could take up to several hours to complete .)

Example 2-1 Cont'd on next page

Node Name Service

Example 2-1 (Cont.) Collecting Node Names and Addresses for a New Database

Enter your choice here [Default:] > [ctrl/Z]

To select a menu item, enter the letter to the left of the item's description at the prompt. Your choices are:

- A) Input node names and addresses from the terminal
- B) Collect node names and addresses from old CETAB.MAC files
- C) Collect node names and addresses from another node
- D) Build the node name data base and exit to the main menu
- E) Exit to the main menu without building the node name data base

Enter your choice here [Default:D] > [return]

637. node definitions have been loaded into DUO:[005,054]NNS.DAT;4

To select a menu item, enter the letter to the left of the item's description at the prompt. Your choices are:

- A) Collect node names and addresses and build a node name database from them
- B) Reorganize an existing node name database
- C) Exit

Enter your choice here [Default:C] > [return]

\$

2.3.3 Reorganizing an Existing Node Name Database

The Example 2-2 illustrates a sample dialog generated when you use NNC to reorganize an existing node name database,

2.3.4 Resolving Conflicts When Building a Database

When using NNC to build a database, conflicts arise when you attempt the following:

- Enter two node definitions having the same node address but with different node names
- Enter two node definitions having different node addresses but with the same node names

The Example 2-3 illustrates what actions to take when such conflicts arise.

Example 2-2 Reorganizing an Existing Database

>RUN NNC [return]

To select a menu item, enter the letter to the left of the item's description at the prompt. Your choices are:

- A) Collect node names and addresses and build a node name database from them
- B) Reorganize an existing node name database
- C) Exit

Enter your choice here [Default:C] > B [return]

Enter the file specification of the node name database to reorganize. To return to the previous menu, enter [ctrl/Z]. (NOTE: Depending on the number of node definitions in the database, this operation could take several minutes to complete .)

Enter your choice here [Default:SYO:[005,054]NNS.DAT] > [return]

637. node definitions have been loaded into DUO:[005,054]NNS.DAT;5

To select a menu item, enter the letter to the left of the item's description at the prompt. Your choices are:

- A) Collect node names and addresses and build a node name database from them
- B) Reorganize an existing node name database
- C) Exit

Enter your choice here [Default:C] > [return]

>

Example 2-3 Resolving Conflicts When Building a Database

>RUN NNC [return]

To select a menu item, enter the letter to the left of the item's description at the prompt. Your choices are:

- A) Collect node names and addresses and build a node name database from them
- B) Reorganize an existing node name database
- C) Exit

Enter your choice here [Default:C] > A [return]

To select a menu item, enter the letter to the left of the item's description at the prompt. Your choices are:

- A) Input node names and addresses from the terminal
- B) Collect node names and addresses from old CETAB.MAC files
- C) Collect node names and addresses from another node
- D) Build the node name data base and exit to the main menu
- E) Exit to the main menu without building the node name data base

Enter your choice here [Default :D] > A [return]

At the prompt, enter the node's address and name separated by a blank (for example, 12.386 FIDO). To return to the previous menu, enter [ctrl/Z] or press [return] without entering a node definition.

Enter a node definition

Enter your choice here [Default :] > 1.1 FIRST [return]

Enter a node definition

Enter your choice here [Default :] > 1.2 SECOND [return]

Enter a node definition

Enter your choice here [Default :] > 1.1 OTHER [return]

The node definition being added, OTHER (1.1) and the previous definition, FIRST (1.1), conflict. To resolve this condition, chose one of the menu items below by entering the letter to the left of the item's description at the prompt.

- A) Discard the definition being added
- B) Discard the previous definition
- C) Discard all of the conflicting definitions, both new and previous

Enter your choice here [Default :A] > [return]

Enter a node definition

Enter your choice here [Default :] > 1.1 SECOND [return]

The node definition being added, SECOND (1.1) and the previous definitions, SECOND (1.2) and FIRST (1.1), conflict. To resolve this condition, chose one of the menu items below by entering the letter to the left of the item's description at the prompt.

Example 2-3 Cont'd on next page

Example 2-3 (Cont.) Resolving Conflicts When Building a Database

- A) Discard the definition being added
- B) Discard the previous definitions
- C) Discard all of the conflicting definitions, both new and previous

Enter your choice here [Default :A] > C [return]

Enter a node definition

Enter your choice here [Default :] > [ctrl/Z]

To select a menu item, enter the letter to the left of the item's description at the prompt. Your choices are:

- A) Input node names and addresses from the terminal
- B) Collect node names and addresses from old CETAB.MAC files
- C) Collect node names and addresses from another node
- D) Build the node name data base and exit to the main menu
- E) Exit to the main menu without building the node name data base

Enter your choice here [Default :D] > E [return]

To select a menu item, enter the letter to the left of the item's description at the prompt. Your choices are:

- A) Collect node names and addresses and build a node name database from them
- B) Reorganize an existing node name database
- C) Exit

Enter your choice here [Default:C] > [return]

>

2.4 NNS Return Codes

A List of NNS return code information follows:

Symbol from NNSDFS	Description	Octal value	Decimal value
IS.SUC	Request was successful	1	1
IS.MOR	Request successful and there is more information to return	2	2
IS.DON	Request was successful and there is no more information to return	3	3
IE.SNP	Server not present	233	-101
IE.SNI	Server not initialized	232	-102
IE.SAI	Server already initialized	231	-103

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Symbol from NNSDF\$	Description	Octal value	Decimal value
XE.SSD	Server shutting down	230	-104
IE.CLS	Stream shutting down	221	-105
IE.IDV	Network device not valid	226	-106
IE.FID	FID not valid	225	-101
IE.TDS	Temporary database size error	224	-108
IE.CAS	Cache size error	223	-109
IE.DIR	Directive error	222	-110
IE.IO	I/O error	221	-111
IE.ALC	Internal pool allocation error	220	-112
IE.BCF	Bad control flags	217	-113
IE.BSI	Bad stream ID	216	-114
IE.BNA	Bad node address	215	-115
IE.BNM	Bad node name	216	-116
IE.BNF	Bad node flags	215	-117
IE.IE	Internal error- you should always make out an SPR	214	-118
IE.OOC	Operation out of context	213	-119
IE.DNF	Definition not found	212	-120
IE.NSK	No search key supplied- node name and address are missing	211	-121
IE.NAU	Node address in use	210	-122
IE.NNU	Node name in use	201	-123
IE.UIC	Network UIC not valid	206	-124

3

Release Changes

This release of DECnet is a maintenance release. All the patch corrections to DECnet since the release of V4.4 of DECNET-11M-PLUS and DECnet-Micro/RSX have been applied to the appropriate DECnet source module. Incorporating all existing patches into a single release facilitates the installation process of the DECnet product. The list of all the changes are included further in this document and are grouped by component.

3.1 Distribution Changes

After release of DECnet-11M-PLUS V4.5 and DECnet-11M-Pregen, the RL02 distribution media has been discontinued. The Pre-generated RL02 kit has been replaced with tape media. The DECnet-11M-PLUS kits are now in BRU format and the DEC kit and NET kit are now BRU save sets and are on one tape. The PREGEN procedure has been modified to reflect this change.

3.1.1 Pregen RL02 Media

The Pregen RL02 replacement kit is either on TK50 or 1600 bpi tape. This tape will be in BRU format and can be restored to an RL02 disk. In restoring the pregenerated RL02 kit to a disk a backup saveset name is required in order to pull the correct distribution kit. The saveset name for the pregenerated RL02 kit is PREGENRL02. For example, if you have a 1600 bpi DECnet-11M-PLUS Pregenerated tape on MU0 and an RL02 on device DL1, use the following command sequence below to restore your PREGENRL02 kit. However a word of caution, you should not confuse this PREGENRL02 kit with the PREGEN procedure used in creating a Full Function or an End Node kit.

Warning: The RL02 Pregen disk must not be restored to the system disk. It should be restored to the non-system disk of a Dual-RL02 system only.

```
>mou DL1:/for [return]      This will mount the target disk
>mou MU0:/for [return]      This will mount the 1600 bpi distribution tape
>BRU/DENSITY:1600/VER/BAC:PREGENRL02 MU0: DL1:[return] This command will restore
                                                                the 1600 bpi tape onto
                                                                the target disk

BRU - Starting Tape 1 on MU0:
BRU - End of Tape 1 on MU0:
BRU - Starting verify pass Tape 1 on MU0:
BRU - Starting verify pass Tape 1 on MU0:
BRU - End of Tape 1 on MU0:
BRU - Completed
>
```

Release Changes

Note: When using a TK50 the /DENSITY:1600 should be omitted from the commandline. If the user wishes a speedier restore the /VER switch can also be removed

Once the DECnet-11M-PLUS Pregenerated tape distribution has been copied to the target disk you can then turn to chapter 8 in the *Network Generation and Installation Guide* and proceed as you normally would with a configuration of your Pregenerated DECnet-11M-PLUS End Node.

3.1.2 DECnet-11M-PLUS Media kits

The DECnet-11M-PLUS tape media kits are now in BRU backup format and both DEC and NET kits are now save sets on a single tape. There still will be a Full Function kit and an End Node kit. The PREGEN procedure has been modified to reflect the latest backup changes.

3.2 Documentation Changes

This section lists the changes to information in DECnet11M/S V4.8, DECnet11M-PLUS V4.5, and DECnet-Micro/RSX V4.5 manual set.

3.2.1 DECnet-RSX Network Generation and Installation Guide

Please note the following changes to the DECnet-RSX Network Generation and Installation Guide manual:

- In Chapter 3, Section 3.3.6.2 Magnetic Tape Distribution Media

Change the following:

4. Using FLX, copy the PREGEN command file from the NETKIT tape to the disk:

```
>FLX tdu:/UI=mmu: [137,10]PREGEN.CMD /RW[/DNS:n]
```

where n is either 800 or 1600 depending on which density tape you are using. The default is 800, so if your tape density is 800 you can omit /DNS:n

To:

4. Using BRU, copy the PREGEN command file from the KIT distribution tape to the disk:

```
>BRU/REW/MOU/UFD/NOINIT/BAC:INSTALL mmu: tdu:
```

where n is set to 1600 for tape density tape you are using. If you are using a TK50 you can omit the /DNS:n

- In Chapter 3, Section 3.3.7 Understanding the PREGEN Dialog

Remove references to PIP/FR and PREGENS with Small Dual-Disk systems. With PREGEN now doing BRU format distributions PREGEN no longer will split the objects to another disk for DECKIT and NETKIT.

- In Chapter 3, Section 3.3.8 Standard PREGEN

Replace this section with the following:

- PREGEN displays Question 3.00 for all kits except the NETKIT because NETKIT is always required.**
- >* 03.00 Copy the **network** distribution kit? [Y/N]:
- Answer this question YES if you have this distribution kit, and you will be generating a **network network**.
- >* 04.00 Where is the **network** distribution kit loaded [S]:
- Specify the tape drive where the distribution kit is or will be loaded (e.g. MM0).
- >* 04.01 Is the **tape** already loaded in **mmu::?** [Y/N]:
- Answer this question YES when the distribution kit is loaded and ready to be mounted. PREGEN will actually mount the **tape**.
- >* 04.02 Is the **tape** 1600 BPI? [Y/N]:
- Answer this question YES if the distribution is encoded at 1600 bpi (bits per inch). Answer NO if the tape is a TK50.
- >* 05.00 Where is the **NETGEN** disk loaded [S]:
- The **NETGEN** disk, created by PREGEN, is the primary disk used during a network generation. It will contain all command files, from all distribution kits, which are necessary during the question/answer phase of the generation.
- Also the data files, object files, and task images which will be used during the task build phase of the generation will also be placed on this disk. The only exception is PSI which will allow the objects to be placed on another volume.
- >* 05.01 Is the disk already loaded in **ddu: (netgen-disk-drive):?** [Y/N]:
- Answer this question YES when the **NETGEN** disk is loaded and ready to be mounted. PREGEN will actually mount the disk if it is not already mounted.
- >* 06.00 Should the **NETGEN** Disk be initialized? [Y/N]:
- Answer this question YES if the disk should be initialized. This will place an initial file system on the disk, and destroy any files that may have been on the disk previously. If the disk has already been properly initialized, answer NO.
- If you answer YES, the disk will be given the label '**NETGEN**'.
- PREGEN displays Question 6.00 only if the NETGEN disk has not already been mounted. It displays the following statement if you answer YES to Question 6.00**
- The disk will be initialized with the label '**NETGEN**'.
- >* 06.01 What is the label used to mount the **NETGEN** Disk [S]:
- Specify the label PREGEN is to use when mounting the previously initialized **NETGEN** disk. This should be from 0 to 12 alphanumeric characters.
- PREGEN displays Question 6.01 if you answer NO to question 6.00. At This point, the command files are copied to the NETGEN disk.**
- >* 07.00 Should the **network** object files be moved to the **NETGEN DISK**? [Y/N]:

Release Changes

The object files are those files which are used by NETGEN only during the build phase, when all of the questions have been answered, and the process and tasks are going to be built.

If the object files are on the NETGEN disk, they are immediately available for use by NETGEN. If they are on a separate Object disk, NETGEN will have to wait until that disk is ready to be mounted before it can build the tasks for that product. For systems with a limited number of disk drives, this may also involve dismounting and unloading some other disk (such as the NETGEN disk).

If the netgen disk has enough free space, you may wish to move all of the object files to the NETGEN disk in order to minimize the time needed to perform a network generation. If so, answer this question YES. If there is not enough free space or if you are not sure answer no. This question no longer applies to the NETKIT or DECKIT install. This portion of the PREGEN is now in a BRU backup saveset and does an image restore. However, PSI is still maintained in a FLX restore and continues to allow a split of the objects.

>* 08.00 Where is the network Object Disk loaded [S]:

This object disk, created by PREGEN, will contain all object, data and task files which are necessary during the phase of the network generation which builds the network product.

The object disk will be a separate disk which will contain only the PSI object files. NETKIT and DECKIT no longer utilize the separation of the object files from the rest of the kit files.

Specify the disk drive where the Object disk is or will be loaded (e.g. DU1:)

>* 08.01 Is the disk already loaded in ddu:? [Y/N]:

Answer this question YES when the Object disk is loaded and ready to be mounted. PREGEN will actually mount the disk if it is not already mounted.

In Question 8.01, ddu: refers to the Object disk drive specified in Question 8.00.

>* 09.00 Should the Object Disk be initialized? [Y/N]:

Answer this question YES if the disk should be initialized. This will place an initial file system on the disk, and destroy any files that may have been on the disk previously. If the disk has already been properly initialized, answer NO.

If you answer YES, the disk will be given the label "psiobj"

PREGEN displays Question 9.00 only if the disk has not already been mounted.

PREGEN displays the following statement if you answer Question 9.00 YES.

The disk will be initialized with the label "psiobj".

>* 09.01 What is the label used to mount the Object Disk [S]:

Specify the label PREGEN is to use when mounting the previously initialized Object disk. This should be from 0 to 12 alphanumeric characters.

PREGEN displays Question 9.01 if you answer Question 9.00 NO.

At this point, the Object files are copied to the Object disk. This completes one pass of PREGEN. If all distribution kits are complete, PREGEN stops here and displays the following statement. If not, PREGEN returns to Question 3.00 and displays questions for the next distribution kit.

```
> ; =====
> ; PREGEN - Stopped at time on date
> ; =====
```

- In Chapter 3, Section 3.3.9 PREGEN for Small Dual-Disk System This section must be removed because PREGEN does not ask the questions for moving objects to a separate disk for NETKIT and DECKIT now.
- In Chapter 3, Section 3.3.10 Sample Standard PREGEN

Replace this section with the following:

The following is sample of a standard PREGEN. Not all of the copy commands will be executed for all systems. Where no response is indicated to PREGEN questions, the default value has been selected by pressing **return**.

```
>SET /UIC=[137,10]
>@PREGEN
> ; =====
> ; PREGEN - RSX-11M/S/M-PLUS CEX System Pre-Generation Procedure
> ; Started at time on date
> ; =====
> ;
> ; Copyright (c) 1998 by Mentec, Inc., U.S.A.
> ; All rights reserved
> ;
>* 01.00 Do you wish to see the PREGEN notes? [Y/N]: N [return]
>* 04.00 Where is the Network distribution kit loaded [S]: MM1 [return]
>* 04.01 Is the tape already loaded in MM1:? [Y/N]: Y [return]
>* 04.02 Is the tape 1600 BPI? [Y/N]: Y [return]
>DMO MM1:/LOCK=V [return]

DMO -- TT17:  dismounted from MM1:  *** Final dismount initiated ***

>* 05.00 Where is the NETGEN disk loaded [S]: DL4 [return]
>* 05.01 Is the disk already loaded in DL4:? [Y/N]: Y [return]

BRU - Starting Tape 1 on MM1:
BRU - End of Tape 1 on MM1:
BRU - Completed

DMO -- TT17:  dismounted from MM1:  *** Final dismount initiated ***

>* 03.00 Copy the DECnet distribution kit? [Y/N]: Y [return]
>* 04.00 Where is the DECnet distribution kit loaded [S]: MM1 [return]
>* 04.01 Is the tape already loaded in MM1:? [Y/N]: Y [return]
>* 04.02 Is the tape 1600 BPI? [Y/N]: Y [return]
BRU - Starting Tape 1 on MM1:
BRU - End of Tape 1 on MM1:
BRU - Completed

DMO -- TT17:  dismounted from MM1:  *** Final dismount initiated ***
```

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```
>;
>* 03.00 Copy the PSI distribution kit? [Y/N]: Y [return]
>* 04.00 Where is the PSI distribution kit loaded [S]: MM1 [return]
>* 04.01 Is the tape already loaded in MM1:? [Y/N]: Y [return]
>* 04.02 Is the tape 1600 BPI? [Y/N]: Y [return]
>DMO MM1:/LOCK=V [return]
DMO -- TT17:  dismounted from MM1:  *** Final dismount initiated ***
>;
>; Copying UIC '[151,10]'.
>;
>* 07.00 Should the PSI object files be moved to the NETGEN Disk? [Y/N]: Y [return]
>;
>; Copying UIC '[151,10]'.
>; Copying UIC '[1,1]'.
>; Copying UIC '[155,24]'.
>; Copying UIC '[153,54]'.
>; Copying UIC '[152,24]'.
>; Copying UIC '[153,24]'.
>; Copying UIC '[140,10]'.
>; Copying UIC '[140,24]'.
>; Copying UIC '[130,10]'.
>;
>;
DMO -- TT17:  dismounted from MM1:  *** Final dismount initiated ***
>;
DMO -- TT17:  dismounted from DL4:  *** Final dismount initiated ***
>;
>; =====
>;  PREGEN - Stopped at time on date
>;  =====
>;
>
```

- In Chapter 3, Section 3.3.11 **Sample Small Dual-Disk PREGEN** This section must be removed because PREGEN does not ask the questions for moving objects to a separate disk for NETKIT and DECKIT now.

3.3

Source Corrections

As mentioned previously in this document the following is the list of all the problems corrected in DECnet-11M-PLUS V4.5, DECnet-11M/S V4.7, and DECnet-Micro/R SX V4.5:

EVF - Event File Utility

- 1 Allow input with either two digit year, four digit year, or ISO standard format.
- 2 Output dates using the system specific date routine \$DATS

CTERM - Command Terminal

- 1 If a CTERM session was active and another SET HOST was initiated to a node that did not support CTERM, on returning to the local node the terminal that activated the non CTERM session would no longer do a SET HOST function.
- 2 The Modem characteristic Present/NotPresent was not functioning properly and caused other characteristics to be ignored.
- 3 When setting host to OpenVMS either from a LAT terminal or a DZ terminal a SET TERM/char resulted in the setting of the WIDTH characteristic to zero.

- 4 When multiple SET HOST sessions were terminated at the same time a double deallocation occurred and caused a system crash.
- 5 When doing a QIO with a timeout and then activating the program after SET HOSTing into the PDP-11, the timeout value was always getting set to the maximum value.

NNS - Name Server

- 1 An NNS hangup caused a low primary pool condition.
- 2 When nodes were added to the node name database it would sometimes drop a node name already in the database.

DDCMP - Digital Data Communications Message Protocol

- 1 If trying to stop an already stopped DZ line the counter DCNT was getting decremented to a minus number and when starting the line again it didn't always initialize correctly.

ECL - End Communications Layer

- 1 A timeout on the line occurred causing the logical link to be disconnected. This was caused by an incorrect setting of the 'C'bit after an ADD instruction in the ECL timeout module.

NFT - Network File Transfer

- 1 The CRC was being calculated twice for the same record of a file when there was no send buffer available.
- 2 The CRC was being calculated incorrectly on a file being copied to an ULTRIX system with a VFC format type.
- 3 When packets with multiple status slots were received the system would crash when trying to process the second status message.
- 4 When pulling files using wildcards a CRC error would be received on files with VFC format types.
- 5 When spooling a file with NFT or FTS it did not print the file but left the file in the directory of the destination node.
- 6 When transferring a file using /PR switch an error message was encountered even though the protection was changed.
- 7 When using a PMR string which contained a wildcard filename, the file was not copied to the PMR node address.
- 8 Correction to Network File Transfer when copying a file in block mode with an odd byte count for the last record
- 9 Correction to directory display routine to allow conversion from DAP format date field to RSX GTIM\$ format.
- 10 Correction to use system specific date format routine when outputting date fields.

FAL - File Access Listener

- 1 When pulling a file to OpenVMS from an RSX system with an FCS FAL a "DAP message received out of sequence" error was displayed on the VAX.

DLX - Direct Line Access

- 1 When aborting a task that was using the DLX interface, location zero was getting decremented causing unspecified results(i.e. system crash).

Release Changes

NCP - Network Control Program

- 1 When doing a CLEAR NODE ALL, the setting for Outgoing Proxy for the EXEC NODE was getting set to ENABLE.
- 2 When changing the EXEC name and address and leaving the Host parameter alone, if a LIST EXEC CHAR was invoked, it would result in an I/O error 215 being returned from the Name Server.
- 3 Correct format module to use system specific date routine when displaying date information.

All Utilities

- 1 Allow input of dates to be of the form:
 - DD-MMM-YY
 - DD-MMM-YYYY
 - YYYY-MM-DD
- 2 Use system specific date routine when displaying date information.

Fortran Application Library

- 1 When specifying the IMMED parameter on the GNDNT call the results were opposite of what the documentation indicates.

CFE - Configurator File Editor

- 1 On VAX-11 RSX, CFE encountered an error if you used a command file as input.

Program Examples

- 1 The program examples DLXRCV.MAC, LATORG.MAC, LATEX.MAC, TRGQNA.MAC, 802TST.MAC AND FTS.MAC were missing from the kits.

A

Reporting Problems

This appendix describes submitting problem reports.

Note: If you have a software support contract with Digital Equipment Corporation, you should submit Software Performance Reports (SPRs) to Digital.

All other customers may submit Software Problem Reports (SPR) to Mentec, Inc.

An SPR can be used for:

- Software errors
- Documentation errors
- Follow-up on a previous SPR
- Questions
- Suggestions

An SPR cannot be used for:

- Software license and price policies
- Obvious hardware problems
- Logistical or clerical problems with kits, such as blank media
- Problems with user-written software

In general, when you complete an SPR, use the following guidelines:

- Describe only one problem per SPR.
- Define as accurately as possible the state of the system and circumstances when the problem occurred.
- Illustrate the problem with specific examples.
- If you report a documentation error, specify the title of the manual, and include the section and page number where the error occurred. Include a table or figure number if appropriate.

Categories of SPRs:

- Problem/Error SPR

This type of SPR contains a software problem. It is assigned a priority of 1 to 5. You receive an answer to this report.

- Suggested Enhancements/Other SPR

This type of SPR contains a question or suggestion. It is assigned a priority of 5. You may or may not receive an answer.

Reporting Problems

Priorities Assign a priority of 1 to 5 to your SPR, 1 being the highest using these guidelines:

- 1** Most production work cannot be run.
 - Major system functions are unusable.
 - You cannot boot the system.
 - Necessary peripherals cannot be used.
- 2** Some production work cannot be run.
 - Certain functions are unusable.
 - System performance has declined.
 - Installation does not have excess capacity.
- 3** All production work can be run with some user impact.
 - Significant manual intervention is required.
 - System performance has declined.
 - Installation has excess capacity.
- 4** All production work can be run with no significant impact on user.
 - Problem can be patched or easily bypassed.
- 5** No system modifications are needed to return to normal production.
 - Suggestions are supplied.
 - Errors in documentation are noted.

Please supply the following information (in machine-readable form where applicable) when you report a problem:

- **CRASH**—A copy of the Executive task-build map, output from the console terminal, the SYSGEN saved-answer file, the Executive STB file, and the crash dump. If the crash is reproducible, accurately describe the details and supply a hard copy or user source code when necessary.
- **DRIVERS**—Controller/device information, software options, error log output, a copy of device registers, and a sample program.
- **UTILITIES**—A copy of your terminal output, showing setup commands, before and after effects, and relevant file information.
- **TASK BUILDER**—A copy of your terminal output command files, the task map, and a dump of the first few blocks of the task image.
- **FILE SYSTEM**—For a corrupted volume: output from the File Structure Verification Utility (VFY) and dump of the volume; for improper results: the error code, a file header dump, and a sample program.
- **ERROR LOG REPORT GENERATOR (RPT)**—A copy of the report file generated by RPT, either a hardcopy listing or machine-readable media.

If a failure occurs when you are running privileged, add-on software (for example, the DECnet package), try to reproduce the failure without the additional software. Then, when you write the SPR, indicate how the system operated with and without the add-on software.



Computers & Communications

Nashua, New Hampshire

Cover Letter for RSX-11S Version 4.8

AV-KX77F-TC

The *RSX-11M / RSX-11S Release Notes* contain descriptions of enhancements and corrections.

For information on installing your operating system, please consult the *RSX-11M / RSX-11S Release Notes* and the *Version 4.2 RSX-11S System Generation and Installation Guide*.

Please note that the Update procedure is no longer required or supported for the RSX-11S operating system. Digital now issues maintenance releases, consisting of completely remastered kits, at regular intervals. Relevant documentation is included with each release.

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Computers & Communications

Nashua, New Hampshire

Cover Letter for RSX-11M Version 4.8

AV-KX78G-TC

Version 4.8 is a maintenance release of RSX-11M software and documentation that contains several enhancements to make computing with RSX faster and easier. The *RSX-11M/RSX-11S Release Notes* contain descriptions of the enhancements, a list of new hardware products that are supported in Version 4.8, and corrections to the RSX-11M/RSX-11S documentation set, including corrections to the *RSX-11M/RSX-11S System Generation and Installation Guide*.

For information on installing your operating system, please consult the *RSX-11M/RSX-11S Release Notes* and the *RSX-11M/RSX-11S System Generation and Installation Guide*.

Please note that the Update procedure is no longer required or supported for the RSX-11M operating system. Digital and Mentec now issue maintenance releases, consisting of completely remastered kits. Relevant documentation is included with each release.

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