COMPAQ

DSNlink Version 2.2D for OpenVMS Release Notes

September 15, 1999

These release notes describe fixed problems and known bugs in this version of DSNlink.

Revision/Update Information:	This is a revised manual, which supersedes all previous versions.
Operating System and Version:	OpenVMS Versions 6.2, 7.1, or 7.2
Software Version:	DSNlink Version 2.2D for OpenVMS

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The MD5 software contained in this product is derived from the RSA Data Security, Inc. MD5 Message-Digest Algorithm.

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Preface

This document explains:

- New features in DSNlink Version 2.2D
- Fixed Problems from earlier kits and field tests
- Restrictions and known bugs
- How to start DSNlink

Overview

The DSNlink software is a service tool that provides electronic communication capabilities between customers' systems and a Compaq Customer Support Center. Using DSNlink, customers can send electronic service requests and receive help from Compaq specialists. Customers can also use DSNlink to search Compaq's technical support databases for information about products for which they have service contracts.

Intended Audience

The audience for this document is anyone who uses DSNlink.

A Guide to the Documentation

DSNlink has no hardcopy documentation. The documentation consists of PostScript and text files you can print and embedded online documentation that is displayed by the Mosaic or Lynx browsers.

The files you can print are:

- *DSNlink Version 2.2D for OpenVMS Release Notes* - this document
- *DSNlink Version 2.2D for OpenVMS Installation Guide*
- *DSNlink Version 2.2C for OpenVMS Quick Reference Card*
- *DSNlink Version 2.2D for OpenVMS Service Tool Description*

For the location of the files, see the Preface in the *DSNlink Version 2.2D for OpenVMS Installation Guide*.

Conventions Used in This Document

This document uses the conventions listed in Table 1.

Table 1 Document Conventions

Convention	Description
DSNlink	DSNlink is an abbreviated product name used for convenience to refer to DSNlink Version 2.2D.
bold	Bold text used in examples indicates user input.
UPPERCASE	OpenVMS commands appear in examples as all uppercase. They can be typed in uppercase, lowercase, or mixed case.
lowercase italic	Lowercase words or letters in italics indicates that you substitute a word or value of your choice.
. . .	A horizontal ellipsis indicates that part of the example, which is not pertinent, is missing.
. . .	A vertical ellipsis in an example indicates that not all lines are shown.

1

What's New in DSNlink Version 2.2D

DSNlink Version 2.2D is an engineering change order (ECO) kit. It includes an earlier ECO kit, DSNlink Version 2.2C, which contains bug fixes for DSNlink Version 2.2 for OpenVMS. Consequently, installing DSNlink Version 2.2D gives you all the new features and bug fixes for DSNlink Version 2.2.

Note

Before you install DSNlink Version 2.2D, your system must have DSNlink Version 2.2, 2.2A, 2.2B, or 2.2C.

1.1 New Features

1.1.1 Modem Error Recovery Improved with New Protocol

Previously: When modem connections failed, the majority of the failures were due to data overruns between the DTE device and the modem. Flow control did not work properly. Errors were detected but not corrected.

Currently: Modem connection problems due to data overruns have been significantly reduced with a new error recovery protocol. Errors are detected and corrected.

1.1.2 Modem Transport Testing Utility

DSNlink Version 2.2D now contains a utility that checks your modem setup. It does the following:

- Verifies that information about your modem line is present in the files that need the information
- Verifies that the same values appear in files such as the modem devices definition file (DSN$DATA:DSN_MODEM_DEVICES.DAT) and the configuration file (DSN$DATA:DSN_CONFIG.DAT), where the values need to be the same
- Tests the line initialization
- Checks the fields in the modem devices definition file for acceptable entries
- Checks the volatile databases (DSN$DATA:DSN_MODEM_LINES.DAT)

This utility is a guide to troubleshooting modem problems. It does not check everything that could cause modem problems nor do its messages always present complete solutions.

Suggestions for improvements are welcome. Please submit them to dsnlink@service.digital.com.

To run the utility, enter this command:

```
$ @DSN$UTILITIES:DSNLINK_MODEM_CHECKUP
```

Messages appear as DSNlink tests the modem transport. Some messages may suggest changes you can make.

The utility stops the modem line. Restart it with this command:

```
$ DSN START LINE
```

1.1.3 DSN SHOW LINE Includes HDLC Information

Previously: The DSN SHOW LINE command did not include information about the HDLC layer.

Currently: The DSN SHOW LINE/STATISTICS command includes information about the HDLC (high-level data link control) component. For example:

```
dsn_9809         LIS   A/B  0/10 m/pstn.719-592-9808/    //
    Frames Sent:            0  Frames Read:               0
    Frame Discards:         0  Protocol Discards:         0
    Local Busy:            No  Remote Busy:              No
    Ack Timer (msec):    3000  Backoff Timer (msec):    1000
    Max Retries:            7  Sequence Modulus:          8
    Retransmits:            0  Bad Sequence Errs:         0
    FCS Errors:             0  Destuff Errors:            0
    Read Overruns:          0  Write Overruns:            0
    Length Errors:          0  Protocol Count Unk:        0
    Acknowledge Fails:      7  Protocol Count AES:       21
    Unexpected Hangups:     0  Protocol Count DSN:      123
```

Where the fields are:

- **Frames Sent:** The number of HDLC data frames sent across the modem to the remote system. It does not include retransmitted frames, acknowledgements, or any control frames.
- **Frames Read:** The number of HDLC data frames correctly read by the daemon. It does not include retransmitted frames, acknowledgements, frames with errors, or any control frames.
- **Frame Discards:** The number of frames received and discarded because they were the wrong type. There is no threshold that indicates a problem.
- **Protocol Discards:** The number of frames received that were discarded because they were for the wrong protocol. There is no threshold that indicates a problem.
- **Local Busy:** Indicates if the local daemon is busy and cannot accept more data from the remote system.
- **Remote Busy:** Indicates if the remote daemon is busy and cannot accept more data from this local daemon.
- **Ack Timer (msec):** The maximum time to wait for an acknowledgement of a delivered frame before either giving up or retransmitting the frame.
- **Backoff Timer (msec):** The time to wait before retrying the transmission of a frame if the local DTE device is overrun with data.
- **Max Retries:** The maximum number of times to resend a frame before giving up.
- **Sequence Modulus:** Indicates the number of times a frame had to be retransmitted to a remote system.

- **Bad Sequence Errs:** Indicates the number of times a frame was received with an incorrect sequence number.
- **FCS Errors:** The number of frames received that did not pass the Cyclic Redundancy Check (error checking). These frames were garbled during transmission. It indicates noise on the line.
- **Destuff Errors:** The number of frames that, when protected (data transparent) bytes were expanded, contained illegal expansion codes.
- **Read Overruns:** Indicates the number of times an incoming data frame overran the input capacity of the DTE device or system's read buffers.
- **Write Overruns:** Indicates the number of times an outgoing frame overfilled the output buffering capacity of the DTE device or related components, such as terminal servers.
- **Length Errors:** Indicates the number of frames received that were either too short or too long.
- **Acknowledge Fails:** The number of times acknowledge failures occur, which happens when data is not successfully received during transmission. One cause of high counts is noise on the modem line.
- **Protocol Count Unk, Protocol Count AES, Protocol Count LAPB, and Protocol Count DSN** Counts the number of connections by protocol type.

The fields are not reset when the modem line disconnects. The numbers continue to accumulate until the line is stopped or you issue the DSN ZERO LINE command.

The DSN SHOW LINE command now also includes the HDLC protocol field. The HDLC's protocol appears when the line is in the ONLINE state. Otherwise, the field has —/— for a value. For example:

```
Information for modem line dsn_9811:
------------------------------------
  Description:      US Robotics Sportster 33.6k Faxmodem
  Device Node Port: lta9811  dsnlink_2  port_4
  DTE Speed:        19200
  Device Location:  Local
  Line Type:        pstn
  Script:           hayeshw
  Subnet Reliable:  No
  On Commbox:       mba2091
  Current State:    ONLINE
  Curr/Allow Mode:  Answer/Both
  Curr/Max Links:   0/10
  HDLC protocol:    DSN/Server
  LNA:              m/pstn.719-592-9808/
  DNA:              //
  RNA:              //
  Last Used Link:   0
  Work List Depth:  0
  Age From Create:  502358
  Age Last Morph:   502311
```

1.1.4 The DSN ZERO LINE Command Resets the HDLC Counters

The DSN ZERO LINE command has been added to reset the counter fields to zero in the HDLC statistics display for a modem line. The display appears when you enter the DSN SHOW LINE/STATISTICS command. For more information about the display, see Section 1.1.3.

1.1.5 Single-Port Firewall Option

Previously: To set up a single port through your firewall required editing the DSNlink route map to move the local entries to the learned entries section and then changing their cost factor. The details are in an article in the ITS technical support database titled "DSNlink V2.x How to Configure for 1 Firewall Port."

Currently: You can now use the regenerate route map feature of the Configuration utility to set up a single-port option for communications with Compaq. By default, DSNlink sets up a port for each application.

To set up the single-port firewall:

1. Start the DSNlink Configuration utility with this command:

   ```
   $ @DSN$COMMAND:DSN$CONFIG
   ```

2. Choose the Route Map Operations menu item

3. From the Route Map Operations menu, choose this menu item:

   ```
   2 - Rebuild the DSNlink Route Map, in single-port firewall mode
            NOTE: No questions will be asked.
   ```

   DSNlink rebuilds the route map so that all applications use a single port, 2370, for communications with your Customer Support Center. If you do not perform this operation, each DSNlink application has a different port. The ports are listed in the *DSNlink Version 2.2 for OpenVMS Service Tool Description*.

4. Choose the Exit option from menus until you exit the configuration utility.

1.1.6 Service Requests Created and Augmented in OpenVMS Mail Are Now Submitted to Batch

Previously: When using OpenVMS mail to create or augment a service request, an interactive connection was established and you were not returned to the MAIL> prompt until after the request completed.

Currently: Creating or augmenting a service request using OpenVMS Mail is submitted to batch. The command procedures DSN$COMMAND:DSN_BATCH_CREATE_SRA.COM, and DSN$COMMAND:DSN_BATCH_AUG_SRA.COM are used.

1.1.7 You Can Mail Yourself the Service Request Augmentation Confirmation

Previously: When you augment a service request, you could not mail yourself a copy of the confirmation message.

Currently: You can now mail yourself a copy of the confirmation message when you augment a service request. If you use the DECwindows Motif interface, when you complete the augmentation, a message box appears with the confirmation message. If you click on Mail in that box, DSNlink mails you a copy of the message. If you use the command line interface, you can add the /MAILCONFIRM qualifier to the DSN AUGMENT command to send yourself the confirmation message. The command has this format:

Notes: The DSNlink command line help, which you get when you enter the command HELP DSNLINK, and the online documentation, which you see when you type DSN HELP, have been updated. The *DSNlink User's Guide* for the DECwindows Motif interface, which is available from the Help menu in the DSNlink window, has also been updated with this information.

1.1.8 The Code Is Year 2000 Ready

Currently: DSNlink Version 2.2 for OpenVMS and subsequent kits are Year 2000 Ready.

This is a Year 2000 Readiness Disclosure of Compaq Computer Corporation. For further information and notices about Compaq's Year 2000 readiness, see this Web site:

http://www.compaq.com/year2000/

1.2 Enhancements

The following enhancements appear in DSNlink Version 2.2D.

1.2.1 UIC and PID Format Changed in Modem Daemon Run Log

The modem daemon run log, DSN$LOGS:DSN_RUN_*line-type*_000.LOG, now has the UIC (user identification code) in [group,member] format instead of the octal value. And, the PID (process ID) value is now a hex value instead of a decimal value.

This is an example of the previous display:

```
JPI$_UIC = 16646272
```

The current display is:

```
JPI$_UIC = [75,16]
```

1.2.2 Options for the DSN TEST Command

Qualifiers have been added to the DSN TEST command. The DSN TEST command allows you to test your modem line. The new qualifiers are:

- /LINE

  The /LINE qualifier gets values for the device, line type, location, node, port, script, and speed from the file DSN$DATA:DSN_MODEM_DEVICES.DAT so that you do not have to supply them in the command. You must specify the modem line's name, for example:

  ```
  $ DSN TEST HDLC/LINE=dsn-000
  ```

  You can override individual values from the DSN$DATA:DSN_MODEM_ DEVICES.DAT file by entering the qualifier and the value you want on the command line. For example, to use all the values for line dsn-000 but override the speed, enter this:

  ```
  $ DSN TEST HDLC/LINE=dsn-000/SPEED=38400  ...
  ```

  Note that most TEST commands require the dialed network address (DNA) qualifier. Because the DNA is not in the DSN$DATA:DSN_MODEM_ DEVICES.DAT file, you must specify it. A complete command example follows:

  ```
  $ DSN TEST DIAL/LINE=dsn-000/DNA="m/719-555-1234"
  ```

- /VERBOSE

This qualifier displays the test parameters for confirmation before the test begins. For client tests of the WIRE, DIAL, HDLC, and API levels, a message reminds the tester to start the test server before doing the client test. Verbose is enabled by default. Disable it by entering /NOVERBOSE.

The DSN TEST WIRE command now accepts the /SPEED qualifier for the DTE speed. Also, /SPEED permits a flow control specifier. Append the letter H to the speed to specify RTS/CTS (hardware) flow control. For example:

- To specify 19200 baud with XON/XOFF flow control:

```
$ DSN TEST WIRE/SPEED=19200
```

- To specify 19200 baud with RTS/CTS flow control:

```
$ DSN TEST WIRE/SPEED=19200H
```

Note: The flow control type works for hardwired ports (direct attachments) only. Terminal server ports do not appear to accept the flow control change although they do accept the speed change. Therefore, for a terminal server (LAT), manually set the flow control type on the terminal server port.

For more information on the DSN TEST command, use the HELP DSNLINK TEST command.

1.2.3 ITS Inactivity Timer Is Suspended During an Extraction Process

Previously: When using ITS to extract a long article to a file, if the process took more than 15 minutes, the inactivity timer closed the ITS session before the download was complete.

Currently: The inactivity timer is suspended during an extraction process.

1.2.4 No Long Pause After Exiting ITS

Previously: When exiting ITS, there was a long pause before the system prompt appeared.

Currently: The long delay in exiting ITS has been shortened.

1.2.5 DSNlink Version Number Added to Logs

Previously: The DSNlink version number did not appear in history log records and error tracing messages.

Currently: DSNlink output, such as Gateway layer traces and history log records, now include the DSNlink version in the platform information.

1.2.6 Modem Initialization Includes the Modem Script Name in Logs

Previously: When a modem line was initialized, the modem script was not recorded in the logs or included in messages.

Currently: The name of the modem script is included in messages and log files. For example:

```
Initializing modem on line line-000 with script HAYESHW...
```

The message is visible on the screen when you initialize the modem you use with DSNlink, and it appears in the DSNlink startup log file.

1.3 Files and Images

This section lists the files and images in DSNlink Version 2.2D. For information about preinstallation procedures you may want to perform before installing DSNlink Version 2.2D, see the *DSNlink Version 2.2D for OpenVMS Installation Guide*.

Table 1–1 shows the files and images in DSNlink Version 2.2D.

Table 1–1 Files and Images

Directory	File	Comments
DSN$COMMAND	DSN_BATCH_CREATE_SRA.COM	Submits service requests in batch mode.
	DSN_BATCH_AUG_SRA.COM	Augments service requests in batch mode.
DSN$DATA	CO2264.DDSF_SRC CO2264HW.DDSF_SRC	Codex modem scripts.
	DSN_ROUTE_MAP.TEMPLATE	Current route map. DSNlink uses it if you regenerate your route map.
	DSN_SERVICES.DAT	
	HAYES.DDSF_SRC HAYESHW.DDSF_SRC	Hayes modem scripts.
	KITINSTAL.COM	
	MULTIMODEM.DDSF_SRC MULTIMODEMHW.DDSF_SRC MULTIMODEMHW_EU.DDSF_SRC MULTIMODEM_EU.DDSF_SRC	Multi-Tech modem scripts for the U.S. and Europe.
	USROBOTICS.DDSF_SRC USROBOTICSHW.DDSF_SRC	U.S. Robotics modem scripts.
DSN$HELP	HLP_xxx.HTML	Online documentation files.
DSN$SYSTEM	DSNFILECOPY.CLI	
	DSNFILECOPYSERVER.EXE	
	DSNFILESERVER.EXE	
	DSNGENERATEROUTEMAP.EXE	
	DSNK2SERVER.EXE	
	DSNLOGINSERVER.EXE	

(continued on next page)

Table 1–1 (Cont.) Files and Images

Directory	File	Comments
	DSNMAILSERVER.EXE	
	DSNMAIN.CLI	
	DSNMAIN.EXE	
	DSNMAINGUI.EXE DSNMAPQ.EXE	
	DSNMODEMDAEMON.EXE	
	DSNMODEMMGR.CLI	
	DSNMODEMTEST.CLI	
	DSNNETEX.CLI	
	DSNNETEXSERVER.EXE	
	DSNNSDSERVER.EXE	
	DSNSHARE022.EXE	
	DSN_MAILSHR.EXE	
DSN$UTILITIES	DSNLINK_MODEM_ CHECKUP.COM	See Section 1.1.2
SYS$COMMON: [DECW$DEFAULTS. SYSTEM]	DSNEMAIL.DAT DSNEMAILGUI.UID DSNFILECOPY.DAT DSNFILECOPYGUI.UID DSNITS.DAT DSNMAIN.DAT DSNNETEX.DAT DSNSRAAUG.DAT DSNSRAAUG.UID DSNSRACREATE.DAT DSNSRAFETCH.DAT DSNSRAREVIEW.DAT	Resource files in English.
SYS$COMMON: [DECW$DEFAULTS. SYSTEM.JA_JP]	DSNEMAIL_JA_JP.DAT DSNFILECOPY_JA_JP.DAT DSNITS_JA_JP.DAT DSNMAIN_JA_JP.DAT DSNNETEX_JA_JP.DAT DSNSRAAUG_JA_JP.DAT DSNSRACREATE_JA_JP.DAT DSNSRAFETCH_JA_JP.DAT DSNSRAREVIEW_JA_JP.DAT	Resource files for Japanese.
SYS$HELP:	DSNLINK022D.RELEASE_ NOTES	The text version of the release notes.

1.3.1 Modem Scripts

Table 1–2 shows the modem scripts in DSNlink Version 2.2D. No new modem scripts have been added or modified since DSNlink Version 2.2C. The list is provided for your reference.

The scripts are in the directory defined by the logical name DSN$DATA.

Table 1–2 Modem Scripts

Modem	DSNlink Version 2.2 Scripts	DSNlink Version 2.2D Scripts	Change
Codex 2264	CO2264.DDSF_SRC	CO2264.DDSF_SRC	No changes. The script for software flow control.
		CO2264HW.DDSF_SRC	The script for CTS/RTS hardware flow.
DIGITAL DF196	DF196.DDSF_SRC	DF196.DDSF_SRC	No changes.
DIGITAL DF296	DF296.DDSF_SRC	DF296.DDSF_SRC	No changes.
Hayes	HA288.DDSF_SRC	HAYES.DDSF_SRC and HAYESHW.DDSF_SRC	Scripts for Hayes and Hayes-compatible modems. The scripts are for software and hardware flow control.
Multi-Tech 1432 Multi-Tech 1932 Multi-Tech 2834	MT1432.DDSF_SRC MT1932.DDSF_SRC MT2834.DDSF_SRC	MULTIMODEM.DDSF_SRC	Individual scripts for Multi-Tech modems 1432, 1932, and 2834 now have one script for XON/XOFF software flow control. The scripts have several improvements.
		MULTIMODEMHW.DDSF_SRC	The script for CTS/RTS hardware flow control for Multi-Tech modems 1432, 1932, and 2834.
		MULTIMODEMHW_EU.DDSF_SRC and MULTIMODEM_EU.DDSF_SRC	Scripts for European Multi-Tech modems.
Null modem	null.ddsf_src	null.ddsf_src	No changes. The script is for testing purposes.
U.S. Robotics	none	USROBOTICS.DDSF_SRC and USROBOTICSHW.DDSF_SRC	Scripts for 3Com U.S. Robotics modems, software and hardware flow control.

Note that new or modified scripts may become available in the future. The latest modem scripts are available from the following Web site:

http://www.service.digital.com/dsnlink/modem_scripts.htm

2
Fixed Problems

The following problems have been fixed in DSNlink Version 2.2D. If you have already installed DSNlink Version 2.2C, this section explains the additional bug fixes in DSNlink Version 2.2D.

2.1 Communications and Networking

2.1.1 CSC Entries in Route Map Were Doubled

Previously: When the route map was rebuilt at the end of the installation process, the Customer Support Center (CSC) entries were appended to the learned entries section of the route map, causing the CSC entries to be doubled.

Currently: When DSNlink rebuilds the route map at the end of the installation procedure, the CSC entries are not doubled.

Note: You should check your route map to see if the learned entries section at the bottom of the file has duplicates of the Part 1 CSC entries from a prior kit. This ECO does not correct previously doubled entries. If you find that duplicates exist, rebuild the route map without learned entries using these commands:

```
$ DSNGENRM:=$DSN$UTILITIES:DSNGENERATEROUTEMAP
$ DSNGENRM -n
```

2.2 File Copy

The notes in this section are fixes to the File Copy application.

2.2.1 The /DELETE_AFTER Qualifier Was Not Recognized

Previously: When you attempted to delete your copy of a file after copying it to Compaq, the /DELETE_AFTER qualifier was not recognized. For example:

```
$ DSN COPY NETSERVER.LOG/SRQ=Z990903-3/DELETE_AFTER
DSNlink T2.2D-EFT2 for OpenVMS VAX File Copy Application
Copyright (c) 1989, 1999 by Digital Equipment Corporation
Compaq Computer Corporation Proprietary Service Tool
All Rights Reserved

--- DsnMsg::CLISYNTAX, Command syntax error.
--- DsnMsg::CLISYNTAX, Command syntax error.
  - DsnPCLI::UNKNOWN_ITEM, Unknown item or excess: 'DELETE_AFTER'
```

Currently: The /DELETE_AFTER qualifier is now recognized and deletes your copy of the file after it is successfully copied.

2.2.2 File Copy Had an RMS Error When Restarting Text File Copies

Previously: If a host-to-customer or customer-to-host nonbinary file copy was interrupted and then restarted, an RMS error said the input was too large for the user's buffer, and the file copy failed.

The problem did not occur when restarting a binary file copy.

Currently: The RMS error no longer occurs when a nonbinary file copy is restarted.

2.2.3 SUPPORTCENTER Qualifier Was Ignored by DSN COPY

Previously: The DSN COPY command did not use the Support Center specified in the /SUPPORTCENTER qualifier. In the following example, DSNlink used the Support Center listed in your configuration file and not the Support Center CSCABC:

```
$ DSN COPY/SUPPORTCENTER=CSCABC file-name service-request-number
```

Currently: If you specify a Support Center in the command line qualifier /SUPPORTCENTER, the File Copy command DSN COPY uses it. Note that you must have previously arranged for access to the Support Center for the connection to succeed.

2.3 Installation

2.3.1 The Installation Procedure Did Not Purge Files

Previously: During the installation procedure, you are asked if you want to purge all the files that have been replaced by newer files provided in the DSNlink kit. If you answered yes, the files provided to the directories DSN$COMMAND, DSN$HELP, and one of the files in DSN$UTILITES were purged. However, the files provided to the directories DSN$SYSTEM, DSN$LIBRARY, and the .EXE files in DSN$UTILITIES were not purged.

Currently: This problem has been fixed. If you choose to have the replaced files purged, all DSNlink directories are purged.

2.4 ITS

The following problems with the Interactive Text Search application (ITS) have been fixed.

2.4.1 ITS Sessions Timed Out with a CORRUPT Error or ACCVIO

Previously: Some actions caused an inactive ITS session to timeout with an error. For example, if you used CTRL/S to stop the screen display while reading an article, then paused long enough for the DSNlink inactivity timer to end the ITS session, when you restarted the screen display, one of these errors appeared:

- With the modem transport–A DsnCompressionBase::CORRUPT error
- With the TCP/IP transport–An ACCVIO error

Currently: This error is fixed. A thread synchronization problem caused the session layer's compression tables to get corrupted by a writer thread while a reader actively used the tables.

However, to prevent timeouts from ending the ITS session while you are reading an article, use the pagination feature of DSNlink. It displays a screenful of text from the article followed by the ITS> prompt. When you press Return at the prompt, DSNlink displays the next screenful of text and resets the ITS expiration timer on the host. The pagination feature is controlled by the Its.Paginate parameter in the file DSN$DATA:DSN_CONFIG.DAT. The parameter's value is on by default, which paginates the text.

2.4.2 Erroneous JACKETMSGCORRUPT Errors Fixed

Previously: The host software caused JACKETMSGCORRUPT errors such as these:

```
Message not found: JACKETMSGCORRUPT
Message not found: DsnIts::SESSION_FAILED
```

Currently: The reasons for the messages and ITS session failures had many causes. All erroneous causes of this error have been fixed.

2.4.3 Quitting a Database Listing Took Awhile

Previously: If you had access to many databases, and you entered the SHOW DATABASE command and then quit the listing, the quitting process took a long time because the server continued to send the entire database list.

Currently: This is fixed. The server now processes the interrupt message and stops sending the database listing at the quit point.

2.5 Mail

This section explains problems in DSNlink mail that have been fixed.

2.5.1 Message Body Window Did Not Show the Typed Message

Previously: If you attempted to enter a mail message in the DECwindows Motif interface, when you typed in the Message area, no text appeared as you typed it. However, when the message was received on the host, the message appeared.

Currently: This has been fixed. Characters appear as you type them in Mail Message Body window.

2.6 Modem Transport

2.6.1 Modem Connections ACCVIO on OpenVMS Versions 7.1 and 7.2

Previously: On VAX systems running OpenVMS Version 7.1 and 7.2, the DSNlink modem daemon stops with an ACCVIO error when attempting to make both incoming and outgoing connections.

Currently: The modem daemon no longer stops when making connections on OpenVMS Version 7.1 and 7.2 VAX systems.

2.6.2 Modem Line Was Left in Type Ahead Mode

Previously: When a DSNlink modem line was stopped for any reason, the modem retained the type-ahead mode. This created a potential security vulnerability. When a line was stopped in the type-ahead mode, someone could have dialed in to the daemon's modem and pressed the Return key a few times to invoke a Username prompt.

Type-ahead mode also allows noise characters on a port to trigger a phantom login. The device is then allocated to the phantom for a few seconds, which prevents the modem from using the device. To prevent any transitional noise for the first use of the modem line, set the terminal device to /NOTYPEAHEAD /PERM manually.

Currently: When the line is stopped, the modem switches to the No Type Ahead setting.

2.6.3 Modem Daemon Disappeared Without Warning

Previously: The DSNlink modem daemon disappeared without warning. The modem deamon process ran for most of a day then shut down. This error message appeared in the log files:

```
%CMA-F-EXCCOP, exception raised; VMS condition code follows
-SYSTEM-F-OPCDEC, opcode reserved to Digital fault at PC=00000830, PSL=03C00000
%CMA-F-IN_USE, object referenced is already in use
```

Currently: This problem has been fixed.

2.6.4 Cause of Modem Data Corruption Messages Is Fixed

Previously: When using a modem for communications, occasional data corruption messages appeared, such as the following:

```
--- DsnNetEx::RECVFAIL, Receive failed.
  - DsnSession::GATEWAYERR, DsnGateway error
  - DsnGateway::CORRUPTMSG, Corrupted input message from DsnTransport
```

Currently: The cause of the problem has been fixed. The interprocess communications mechanism had an AST re-entrancy problem in a threaded environment.

2.7 Network Exerciser Fixes

2.7.1 Network Exerciser Could Fail Authentication

Previously: Host-to-customer Network Exerciser tests resulted in authentication failures when the Network Exerciser on the customer's system did not have sufficient privileges to access authentication keys. The authentication failure was visible on the host.

Currently: The DSNlink Version 2.2D installation procedure modifies the DSNlink startup file, SYS$STARTUP:DSN$STARTUP.COM, to install the Network Exerciser with the privileges necessary to access authentication keys.

2.8 Remote Login Application Fixes

2.8.1 Remote Logins Could Fail with an ACCVIO Error

Previously: Remote logins to Alpha systems could cause the remote login server to fail with an ACCVIO. This happened mostly when using the modem protocol.

Currently: Remote logins to Alpha systems no longer fail with an ACCVIO due to pseudoterminal page alignment issues.

2.9 Service Request Application Fixes

The notes in this section are fixes to the DSNlink Version 2.2 Service Request Application.

2.9.1 Users with Insufficient Privileges Could Not Send Mail to DSN% Addresses

Previously: Users without the privilege SYSPRV could not send service requests to DSN% addresses using OpenVMS mail. The authentication key files could not be accessed.

Currently: SYSPRV is no longer required to send service requests to DSN% addresses.

2.9.2 Mail to a DSN% Address Failed After Defining MAIL$INTERNET_TRANSPORT

Previously: When the logical name MAIL$INTERNET_TRANSPORT is defined, for example, to SMTP, DSNlink mail replies failed to addresses that begin with DSN%. Simply defining MAIL$INTERNET_TRANSPORT caused the mail to Compaq or reply mail from Compaq to fail.

Currently: If you define MAIL$INTERNET_TRANSPORT, you must insert quotation marks around the routing code and service request number parts of DSNlink mail addresses. These are the accepted formats for mail addresses:

DSN%"routing-code" and DSN%"SRQ$service-request-number"

If you reply to the acknowledgement mail, the quotation marks are present around the service request number. For example:

```
MAIL> REPLY

To:     DSN%"SRQ$Z990704-50"
Subj:   RE: Acknowledgement Mail for Service Request Z990704-50
Enter your message below. Press CTRL/Z when complete, or CTRL/C to quit:
 .
 .
 .
```

If you use the SEND command instead of REPLY, you must enter the quotation marks. For example:

```
MAIL> SEND

To:     DSN%"SRQ$Z990723-4"
 .
 .
 .
```

If the quotation marks are missing, an error message appears.

Note that if the logical name MAIL$INTERNET_TRANSPORT is not defined on your DSNlink system, quotation marks around the routing code or service request number are optional. DSNlink processes the mail with or without the quotation marks.

2.9.3 Acknowledgement Mail Had Wrong Address in From Field

Previously: When you submit a service request, the host responds with an acknowledgement mail message. The From field had the address of the sender instead of the address for the service request number. Customers could not use the Mail REPLY command to augment the service request.

Currently: The acknowledgement mail now has the correct format, DSN%SRQ$*service-request-number*, in the From field. For example:

```
From:   DSN%SRQ$Z990827-1234
```

2.9.4 Successful DSN FETCH Returned Incorrect Status Symbol

Previously: You can run the DSN FETCH command in a command procedure. If you do so and use a $STATUS symbol to determine the outcome of the operation, the command procedures got the wrong $STATUS from a successful DSN FETCH operation. The $STATUS indicated an incomplete operation.

Currently: The $STATUS symbol has been changed as follows:

1 - success
0 - failure

2.9.5 Process Privileges Were Disabled After Canceling a Service Request Submission in OpenVMS Mail

Previously: Process privileges were disabled if you used Ctrl/C to cancel a service request submission and then entered QUIT at the MAIL> prompt. This problem only happened if you used OpenVMS mail to submit the service request.

Currently: This problem has been fixed.

2.10 System Fixes

2.10.1 Quota List Was Not Used on Alpha Systems

Previously: The process quota list was not being used by Alpha systems, although it worked properly on VAX systems. The quota list is passed to DsnProcess when creating the process for the modem daemon. It may have caused the modem daemon to fail because of insufficient quota values for the process. VMS EXQUOTA errors were visible in the daemon run log.

Currently: The list is passed to Alpha systems. VMS EXQUOTA errors do not appear in the modem daemon run log unless they indicate normal problems, such as running out of a quota.

2.10.2 AES_DSNLINK Account Password Was Inconsistent with DECnet Objects Password

Previously: On a cluster with DSNlink V2.2 for OpenVMS installed on several nodes and a common SYSUAF file, the password of AES_DSNlink account changed every time a node started DSNlink. Using DECnet Phase IV, this password must be the same as the DECnet objects. When a second DSNlink node started, the password changed and caused problems.

Currently: The DSNlink Version 2.2D installation procedure modifies the DSNlink startup file, SYS$STARTUP:DSN$STARTUP.COM, to set the password of the AES_DSNLINK account to a random, fixed value.

Note: Using a fixed password does not weaken the security of the system. Access is still just by the network to the DSN network objects, which require a strong authentication when they execute. In DECnet Phase V, the password is not used at all, and the security comes from the executed objects.

3
Known Problems and Restrictions

This chapter lists the known problems and restrictions in DSNlink Version 2.2D.

3.1 Restrictions

3.1.1 The Year Part of Dates Must Have Four Digits

Restriction: To ensure that DSNlink does not misinterpret dates beginning in the year 2000, you must enter all years with four digits. Previously, you could enter either two or four digits for the year. Without this requirement, DSNlink might interpret the date Jan 01, 01 as January 01, 1901 when the intended date was January 01, 2001.

You enter dates in the following places:

- ITS, when you search for articles based on their last technical review date
- Service requests, when you fetch lists of open or closed service requests based on their dates
- The local and remote authorizations files when you allow or disallow access to DSNlink applications and include the year in the date
- Configuration file parameters that specify a date, such as Its.BeginDate

Some date formats without the year imply the current year. The date formats dd month (01 January), dd-month (01-Jan), and month dd (Jan 01) force the application to use the current year.

If you do not enter a four-digit year, DSNlink displays an error message.

3.1.2 The Modem Daemon Must Be Started from a Privileged Account

Restriction: You must start the modem daemon from a privileged account. The account you use must have at least these privileges: DETACH, LOG_IO, NETMBX, OPER, SYSPRV, TMPMBX, and WORLD. Without sufficient privileges, when you attempt to start the modem daemon, the modem daemon does not start and messages list the necessary privileges.

DSNlink developers recommend starting the modem daemon from the SYSTEM account.

3.1.3 Mixed Architecture Clusters Require Separate Installations

Restriction: You cannot run the installation procedure once to install DSNlink on clusters of both Alpha and VAX systems.

In clusters of both Alpha and VAX systems, you must apply this ECO kit, DSNlink Version 2.2D, to one node in each group that shares a common disk. For example, in a mixed cluster of five nodes, A, B, C, D, and E, if nodes A, B, and C are VAXes that share a common disk, you must install DSNlink Version 2.2D on

either node A, B, or C. If nodes D and E are Alpha systems that share a common disk, you must install DSNlink Version 2.2D on either node D or E.

Important: When installing on a cluster of both Alpha and VAX systems, you must install the kits on separate disks.

3.1.4 Defining EDIT Prevents TPU from Displaying Files

Restriction: In the DECwindows Motif interface, if you define the EDIT command, it prevents the TPU editor from displaying these files on the Utilities menu: Local Authorizations, Remote Authorizations, History Records, and the Systemwide and User Configuration files. This message appears in the window where you start DSNlink:

```
%DCL-W-IVQUAL, unrecognized qualifier - check validity, spelling, and placement
 \INTERFACE\
```

If you see the above error message, look for definitions such as the following, which may appear in your LOGIN.COM file:

```
$ EDIT      :== EDIT/EDT/COMMAND=EDTINI.EDT
```

Workaround: Deassign the symbol for the DSNlink session. For example:

```
$ DELETE/SYMBOL/LOCAL EDIT
```

Note: The EDIT definition does not interfere with the ITS view command, which invokes TPU.

3.1.5 Lynx Requires DIGITAL TCP/IP Services for OpenVMS (UCX)

Restriction: The Lynx browser, which is included in the kit to display the online help for the command line interface, requires DIGITAL TCP/IP Services for OpenVMS (UCX). Lynx uses UCX to make Internet connections. Without the files SYS$LIBRARY:UCX$ACCESS_SHR.EXE and UCX$IPC_SHR, the DSNlink online help is not displayed.

3.2 File Copy Problems

The following are problems found in the File Copy application.

3.2.1 File Copy Is Unable to Copy Beyond the EOF Marker

Description: The File Copy application does not copy any part of a file beyond the end-of-file (EOF) marker. Usually, the part of the file beyond the EOF marker contains unused bytes that do not need to be copied. However, if the EOF is misset due to a file corruption problem, the entire file might need to be copied to Compaq for repair, which includes the bytes beyond the EOF marker.

Workaround: If you need to copy a file to Compaq and include the data beyond the EOF marker:

1. Enter this command, which sets the EOF to the end of the file:

   ```
   $ SET FILE/END_OF_FILE filename
   ```

   where *filename* is the name of the file to copy.

2. Use the File Copy application to send the file to Compaq.

3.2.2 File Copies by Specialists from a Customer's System Are Not Supported

Description: The feature that allows specialists to copy files from your system to the host was not implemented.

However, the kit still contains the directory DSN$ROOT:[OUTGOING_FILES], which was intended to be the directory where customers placed files for specialists to copy to the host. Also, there is a configuration file parameter, FileServer.Root.Path, which defines the outgoing files directory. The directory has no function.

Workaround: No action is required.

3.2.3 History Log Does Not Have Outgoing File Copy Records

Description: The history log file, DSN$LOGS:DSN_HISTORY.LOG, does not have records for files you copy to the host with the File Copy application. The history log file does record host-initiated file copies.

Workaround: None.

3.3 Interactive Text Search (ITS) Problems

The following are problems in the Interactive Text Search (ITS) application.

3.3.1 OPCOM Messages May Appear After Receiving an ECO

Description: After you successfully receive an engineering change order (ECO) and its accompanying confirmation mail messages, OPCOM messages may appear if OPCOM is enabled on the system. For example:

1. This message is related to using MultiNet instead of DIGITAL Services for TCP/IP (UCX) and is not a problem that DSNlink can address:

```
%%%%%%%%%%  OPCOM   5-JAN-1998 00:06:00.67  %%%%%%%%%%
Message from user SYSTEM on WINTER
MultiNet Server: DSN_NSD (accepted) from [111.222.33.444,5555]
(dsnlink.service.digital.com)
```

2. This message is also a normal notification message:

```
%%%%%%%%%%  OPCOM  30-JUL-1997 09:17:30.99  %%%%%%%%%%
Message from user INTERnet on SPRING
INTERnet ACP DSN_NSD Accept Request from Host: 111.2.33.44
Port: 1179
```

3. Messages about sockets indicate a DSNlink application's completion:

```
%%%%%%%%%%  OPCOM  13-JAN-1998 10:54:22.95  %%%%%%%%%%
%%%%%%%%%%  OPCOM  13-JAN-1998 10:54:22.95  %%%%%%%%%%
Message from user INTERnet on FALL
INTERnet ACP detected DSN_FILE exiting before 'socket'
```

Workaround: Consult your TCP/IP implementation documentation to disable the messages.

3.3.2 An ITS Timeout Causes TPU to Exit with an Access Violation

Description: In the ITS command line interface, if you are reading an article in the editor when the session time limit expires, TPU exits with an access violation message.

Workaround: None. This problem does not affect future ITS sessions.

3.4 Mail Problems

The errors in this section pertain to DSNlink mail.

3.4.1 You Cannot Reply to Mail from Compaq

Description: When you receive mail from Compaq, such as Flash mail, surveys, marketing information, and responses to your service requests, if you reply to the mail, DSNlink appears to send the reply, but it is not delivered.

Workaround: Contact your Customer Support Center by telephone or with a new service request to respond to mail. To respond to replies to service requests, use the Augment Service Request function of the Service Request application.

3.4.2 A Mail File Cannot Be Restored from the Pulldown Menu

Description: If you include a file name when you invoke the DSNlink Mail window, the specified file properly appears in the Message Body window. For example, this command displays the DSNlink Mail window and enters the file TEXT.TXT in the window:

```
% DSN MAIL/WINDOWS TEST.TXT
```

However, if you erase the file from the window and then try to restore it by choosing its name from the pop-up menu (where the file name is listed), only the file name appears in the Message Body area.

Workaround: Instead of including the file name in the DSN MAIL/WINDOWS command, in the DSNlink Mail window, use the Include File... menu item to choose the file to include.

3.5 Maintenance or Multiple Application Problems

The following are problems that apply to DSNlink maintenance or to multiple applications.

3.5.1 Notification of Incoming Files and Response Mail Is Restricted to the Submitter

Limitation: When Compaq specialists copy files to your system, mail notification is sent to the person who submitted the service request associated with the file copy. When engineering change orders (ECOs) are copied to your system, the person requesting the ECO receives the confirmation mail. Compaq sends responses to service requests to the person specified for the reply. There is currently no way to set up DSNlink to notify anyone else.

Workaround: To see what files Compaq has copied to a system, check the history log file, DSN$LOGS:DSN_HISTORY.LOG, on each node.

To have a list of all service requests and Compaq's responses, periodically fetch the lists of your service requests for each access number. Then save the responses for each service request. Contact your Customer Support Center to find out how long the information for closed service requests remains on the system before it is archived.

3.5.2 History Log File Does Not Show Some Rejected Applications

Description: The history log file, DSN$DATA:DSN_HISTORY.LOG, does not have failure records when the host rejects the Network Exerciser, fetches of lists by the Service Request application, and File Copy jobs. Rejection occurs when the host system disallows access by applications, usually because the service contract has expired.

When you run the application, such as the Network Exerciser, a message appears that the application is rejected. However, the history log file has this information:

- Network Exerciser–the record's status is CANCEL followed by the test results
- File copy–no record
- Create service request–a failure record
- ITS–a failure record
- Fetch service requests–two records, one for failure, one for success
- Review service requests–a failure record
- Service request augmentations–a failure record

A failure record should appear for the application.

Workaround: Contact your Customer Support Center if the application is rejected even if the history record does not show a failure.

3.6 Modem Problems

3.6.1 DTE Speed in MDDF Is Not Set on the DTE Device

Description: After installing DSNlink Version 2.2C to use the modem transport, the DTE speed from the modem devices definition file (MDDF) does not modify the direct port to use the specified speed.

Workaround: Set the port speed manually to match the DTE speed in the MDDF during startup. The command to use is:

```
$ SET TERM/PERM/SPEED=xxxx TTAx:
```

Substitute the speed you want and your device designation in the example.

This problem was discovered in DSNlink Version 2.2D.

3.6.2 Modem Reset Phase Is Lengthened During Simultaneous Connections

Description: When customer and host systems make simultaneous connections to each other, for example the host begins a Network Exerciser test at the same time your system initiates a Network Exerciser test, it takes the modem about 12 seconds to reset. It should take one or two seconds.

Workaround: None.

This problem was discovered in DSNlink Version 2.2D.

3.7 Networking Problems

3.7.1 The X.25 Transport Does Not Work with X.25 Routers

Description: The X.25 transport does NOT work with DSNlink if you use an X.25 router. If you configure X.25 and a router is involved, the connection to the host appears to work. However, the host cannot connect back to your system to reply to communications, and, therefore, several functions will not work.

Warning: Do not configure X.25 for use with DSNlink Version 2.2C if your X.25 network includes an X.25 router.

The X.25 transport does work if the X.25 nodes are local. When all the X.25 nodes are local, the host can use X.25 to respond to your communications. Because X.25 communications do not work if the host uses a router node, verify that your Customer Support Center does not use X.25 router nodes before using X.25 for DSNlink communications.

3.7.2 Modem Daemon Ignores Sick and Dead Limits on Alpha Systems

Description: The modem daemon has error thresholds that place it in the sick or dead state. For example, it is in a sick state if it cannot detect a heartbeat message in three consecutive attempts or when there are too many attach errors. The daemon is considered dead if there is no heartbeat message after 20 attempts to detect it, or if the daemon exceeds an error threshold. On Alpha systems, the sick and dead limits for detecting errors are ignored. Consequently, the modem daemon cannot properly process the errors.

Workaround: None.

3.8 Network Exerciser Problems

The following are bugs in the Network Exerciser application.

3.8.1 Defining DSNGATEWAY_TRACE Results in Transport Error

Description: If you define the logical name DSNGATEWAY_TRACE to CT to trace connection errors and then run the Network Exerciser, DSNlink has transport errors. For example:

```
$ define dsngateway_trace ct
$ dsn netex
DSNlink T2.2D-EFT2 for OpenVMS Alpha Network Exerciser Utility
Copyright (c) 1989, 1999 by Digital Equipment Corporation
Compaq Computer Corporation Proprietary Service Tool
All Rights Reserved

Connecting to target host.digital.dsn.  Please wait...
```

```
DsnGateway::Connect HIT:
        Date:            Mon, 30 Aug 1999 14:15:20 -0600
        Hop Count:       1
        Redirect Count:  0
        State:           CONNREPLY
        Status:          --- DsnGateway::OK, Operation successful
        System ID:       digital/host
        Platform ID:     VMS ZHOST V6.2 0 VAX T2.2D-EFT2
        Version:         2.37 Exp
        Network Address: (None)
        Path:   112125/RAINY|VMS RAINY V6.2 0 Alpha T2.2D-EFT2||T/RAINY/1078&
T/host1.compaq.com/DSN_NETEX
                digital/host|VMS HOST1 V6.2 0 VAX
T2.2D-EFT2|T/rainy.splat.com/1078&T/zhost/DSN_NETEX|
Connection established.
Stats: M100/100/100/0   B49070/49070/49070/0   e981400
Testing complete.
        Messages Sent:      100
        Messages Read:      100
        Messages Good:      100
        Messages Bad:         0
        Bytes Sent:       49070
        Bytes Read:       49070
        Bytes Good:       49070
        Bytes Bad:            0
        e-baud:          981400
--- DsnGateway::TRANSPORTERR, Transport error: caller = T/RAINY/1078,
callee =T/host1.compaq.com/DSN_NETEX
  - DsnTransport::END, End of data; connection was abruptly terminated
```

Workaround: None.

Perform the Network Exerciser without defining DSNGATEWAY_TRACE. It may be normal, although when DSNGATEWAY_TRACE is defined, the errors occur.

This problem was discovered in DSNlink Version 2.2D.

3.8.2 Network Exerciser Hangs After a Midtest Error

Description: During a Network Exerciser test on the modem transport, if an error occurs during the data looping phase, a message says the testing is complete, provides statistics about the test and then the Network Exerciser hangs. This error was not reported for other transports but may have occurred on them too.

Workaround: To exit the Network Exerciser and continue, press CTRL/Y, then enter STOP, and press CTRL/Y again. The two CTRL/Y interrupts are necessary to terminate waiting threads.

3.8.3 The Network Exerciser Does Not Support the LZW_DYN Compression Option

Description: When you specify the LZW_DYN (dynamic Lempel-Ziv-Welsh) compression algorithm when using the Network Exerciser, a message tells you the operation failed and the LZW_DYN compression option is unsupported.

Workaround: Use the Network Exerciser compression option None to test the effects of compression. If you then click on LZW, DSNlink compresses the Network Exerciser messages the same way it compresses all transferred data.

3.8.4 Error Messages Overwrite Statistics Report

Description: If an error occurs when using the Network Exerciser in the command line interface with the modem transport, the error message overwrites the statistics line. For example,

```
--- DsnTransport::MODEMERR, Modem error982/39982/0   C726
  - DsnModem::LINK_ABORT, Data link aborted by session entity
```

Workaround: If possible, perform the test in the DECwindows Motif interface. If modem errors appear there or when you use other applications, contact your Customer Support Center.

3.8.5 The Network Exerciser Has Not Implemented Mirror Options or Language Recognition

Description: The mirror clarity items for the Network Exerciser utility are not implemented, except for Pure, which returns bytes without any manipulations. The unimplemented mirror options are: Invert, Reject Always, Reverse, Rotate, and Scratched. Tests with those items selected run as Pure tests. There are no error messages that the items are not implemented.

The Language field is also ignored.

Workaround: None.

3.9 Service Request Application Problems

3.9.1 Some Routing Code Descriptions Are Displayed Twice

Description: When you fetch a list of your routing codes, some of the routing code descriptions appear twice. For example:

```
$ DSN FETCH ROUTING_CODES
 .
 .
 .
DIA                       DIA (DIGITAL Dial-In Access) Support

                          DIA (DIGITAL Dial-In Access) Support

DSNLINK                   DSNlink for OpenVMS, DSNlink for ULTRIX and
                            DSNlink for DIGITAL UNIX[R]: Questions with the
                            installation and use of the DSNlink service tool;
                            Modem and phone line connections; Security
                            issues; DSNlink configuration and application
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                            issues; DSNlink configuration and application
                            management issues.
  .
  .
  .
```

Workaround: None.

3.9.2 Problem Description Lines Over 255 Characters Are Truncated

Description: If you create a service request in the DECwindows Motif interface and enter the problem description without pressing the Return or Enter keys, even if the text wraps in the window, DSNlink converts the text into a single line. If you view a copy of the service request, the problem description, now a single line, is truncated after 255 characters.

Workaround: When entering a problem description in the Create Service Request Application window, press the Return or Enter key after each line of text. Make sure that lines do not exceed 256 characters.

4
Starting DSNlink and Getting Help

4.1 Starting DSNlink

To display the DSNlink main window, use this command:

```
$ DSN/WINDOWS
```

To use DSNlink in the command line interface, see the online help. To display the online documentation, enter this command:

```
$ DSN HELP
```

4.2 Getting Help

In the DECwindows interface, use the Help menus or Help buttons to access the online help. It is displayed by the Mosaic browser, which is included in your kit. The Help menu includes the *DSNlink Getting Started*, which shows you how to use the DSNlink applications.

In the command line interface, the DSN HELP command displays a list of documents you can access. The information is displayed in the Lynx browser, which is included in the kit.

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