DSNlink Version 3.0 for OpenVMS Installation Guide

November 1, 2000

This guide explains how to install Compaq DSNlink Version 3.0 software on an OpenVMS™ Alpha™ or VAX™ system.

Revision/Update Information: This is a revised document, which supersedes all previous versions.

Operating System and Version: VMS Version 5.5-2 (VAX only), OpenVMS Versions 6.2, 7.1, or 7.2 (VAX and Alpha systems)
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<th>A–1</th>
</tr>
</thead>
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<td>C–1</td>
</tr>
</tbody>
</table>
Preface

This manual explains how to install Compaq DSNlink Version 3.0 on an Alpha or VAX system. The prerequisite software and hardware is also listed. A sample script shows examples of what you enter for each prompt. The last chapter has postinstallation instructions.

Overview

DSNlink is a service tool that allows customers with service contracts to receive support electronically from their Compaq Customer Support Center. Using DSNlink, customers submit and track service requests, copy files, perform searches of technical support databases, and send DSNlink mail. Compaq specialists respond electronically to service requests. If granted permission by the customer, Compaq specialists can also log in to the customer's system to diagnose and correct problems remotely.

DSNlink provides the software necessary to connect to and maintain connections between a customer's DSNlink system and the Compaq host. Furthermore, to prevent impersonation and unauthorized access, DSNlink connections undergo a rigorous cryptographic authentication and authorization process. All subsequent messages are automatically encrypted, except in countries that cannot support encryption for political reasons.

Intended Audience

This manual is intended for the system manager who installs DSNlink software.

Document Structure

This manual is structured as follows:

- Chapter 1, Preparing to Install DSNlink, lists the tasks that must be completed prior to installing DSNlink and provides supporting detail for the various tasks.
- Chapter 2, Installing DSNlink, supplies step-by-step guidance for the DSNlink installation procedure.
- Chapter 3, After Installation, lists the tasks to perform after installing DSNlink.
- Appendix A, Dialer Driver Script Facility Commands, lists the commands in modem dialer scripts.
- Appendix B, Services Configurations for DSNlink Applications, shows the services' configurations for DSNlink applications using TCP/IP Services for OpenVMS (UCX).
• Appendix C, DSNlink Directories and Files, lists the directories created by DSNlink and describes their files.

Conventions Used in This Document

This document uses the conventions listed in Table 1, as needed:

Table 1 Manual Conventions

<table>
<thead>
<tr>
<th>Convention</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>UPPERCASE</td>
<td>Indicates file names and commands. You do not have to type them in uppercase. DSNlink is case insensitive.</td>
</tr>
<tr>
<td>DSNlink</td>
<td>The abbreviated service tool name is used for convenience to refer to the DSNlink Version 3.0 for OpenVMS software.</td>
</tr>
<tr>
<td>boldface text</td>
<td>Boldface text is used in examples to show what the user types to contrast that with the results of the command.</td>
</tr>
<tr>
<td>monospace type</td>
<td>Monospace type designates commands and examples.</td>
</tr>
<tr>
<td></td>
<td>A vertical ellipsis indicates the example continues, but the additional text is not displayed.</td>
</tr>
</tbody>
</table>

Send Us Your Comments

We welcome your comments on this guide, other DSNlink documents, or the online help. If you have suggestions for improvements or discover errors, please send the information to one of the following addresses:

• The Internet mail address is:
  dsnlink@service.digital.com

• You can submit a service request using the routing code DSNLINK.

• Letters can be sent to:
  Compaq Computer Corporation
  DSNlink Engineering
  CXO3/2B8
  305 Rockrimmon Blvd.
  Colorado Springs, CO 80919-2303
Preparing to Install DSNlink

This chapter contains information you need to know or verify before installing DSNlink.

1.1 Overview of the Installation Process

The DSNlink installation procedure uses VMSINSTAL.COM. It does not require shutting down your system.

Restrictions

These restrictions apply to the DSNlink installation:

- You must be logged in to the SYSTEM account to install DSNlink. A user account with privileges is not sufficient.

- If you use a modem for communications with Compaq, the OpenVMS Cluster must have just one A node (A nodes communicate directly with Compaq), for the modem and the other systems must be B nodes (B nodes communicate through the A node). By default, the installation makes the node where you install DSNlink the A node and the other nodes B nodes.

- You cannot run DSNlink Version 3.0 and any previous versions of DSNlink on the same system.

- The Queue Manager must be running. If the Queue Manager is not running, the installation stops.

- If you use X.25, the Compaq host must be running DSNlink Version 2.2E or 3.0. If the host has an earlier version of DSNlink and your DSNlink Version 3.0 system uses X.25 router nodes, the host cannot make return connections to your system.
  Contact your Customer Support Center to verify that the DSNlink host has DSNlink Version 2.2E or 3.0.

- X.25 is not available as a transport between A and B nodes within an OpenVMS Cluster. DECnet™ and TCP/IP are allowed between A and B nodes in the same OpenVMS Cluster.

Recommendations

Compaq recommends that you back up your system before installing any software. For details on performing a system backup, see your OpenVMS documentation.

For single-node installations (as opposed to OpenVMS Cluster installations), install DSNlink on an A node first. An A node is one that has a direct connection to Compaq. After installing on an A node, you can install DSNlink on systems that connect to it.
Preparing to Install DSNlink
1.1 Overview of the Installation Process

What the Installation Procedure Does

The DSNlink installation procedure does the following:

1. Presents a Compaq Service Tools License agreement. If you agree to the terms, the installation procedure continues. To preview the agreement, see the sample installation script in Section 2.2.

2. Checks for system management privileges.

3. Checks for the minimum version of OpenVMS, which is OpenVMS Version 6.2. VMS Version 5.5-2 on VAX systems is also allowed.

4. If DECwindows Motif is installed, it checks for the minimum version, which is Version 1.2-4.

   OpenVMS Version 7.2 requires DECwindows Motif Version 1.2-5.

5. Checks that certain system parameters are defined or have the necessary minimum values.

6. Verifies that you have sufficient disk space for DSNlink.

7. Deletes DSNlink Version 1.2 for OpenVMS, if it is present.

   For more information, see Section 1.5.

8. Prompts you for information necessary to create connections between your systems and the Compaq host system. If you have not previously installed DSNlink, you need information from your DSNlink authorization letter.

9. Creates the account AES_DSNLINK.

   The account is the user account for the DSNlink servers, DECnet network objects, X.25 destinations, and TCP/IP Services for OpenVMS. It also has the default quota values required by the modem daemon process.

10. Prompts you for the name and phone number of a person to call if Compaq needs to reach someone by telephone.

11. Creates the DSN$ROOT directory tree and copies DSNlink files to their subdirectories.

12. Sets the ownership and protection on DSNlink files.

13. Starts DSNlink and tests the installation by using the DSNlink Network Exerciser application to loop messages between your system and the host.

14. Removes and recreates the DSNlink network objects, DSNlink X2.5 destinations, and TCP/IP services.

15. Notifies you that the installation was successful.

After the installation, go to Chapter 3 for information about postinstallation tasks.

If the Installation Fails

If any of the prerequisite checks fail, the installation procedure stops and a message informs you of the problem. DSNlink deletes any files it created on your disk to that point. After you correct the problem, restart the installation procedure. For information on what to check to ensure that the installation succeeds, see Section 1.3.

Time Required

The installation takes up to 30 minutes.
1.2 What You Need from Compaq

If your site has no earlier versions of DSNlink, you need an authorization letter from Compaq before installing DSNlink. The letter contains the following items:

- Your access number. Instead of an access number, your letter may have a contract number or serial number.
- Your authentication key, which is not the same as the authorization code used in DSNlink Version 1.2 for OpenVMS.
  
  For more information, see Section 1.5.
- The location of your Compaq Customer Support Center.

The installation procedure prompts you for these items.

If you have previous versions of DSNlink, you do not need an authorization letter. You can use the same access number and Customer Support Center.

______________________________

Note

It is extremely important to keep your authentication key secret. Anyone who has your access number, authentication key, and DSNlink has access to your DSNlink account.

______________________________

What You Do Not Need

There is no product authorization key (PAK) necessary to use DSNlink.

1.3 What to Determine or Verify Before Starting

This section lists the preinstallation requirements for DSNlink and how to verify that your system meets those requirements. The following checklist is a summary of the requirements. Before you install DSNlink, be sure to do the following:

- Verify that you have all the DSNlink Version 3.0 save sets. See Section 1.3.1.
- Determine if there is sufficient disk space. See Section 1.3.2.
- Be sure you can log in to the SYSTEM account. You must install DSNlink from the SYSTEM account.
- Determine which transport or transports you will use to connect your DSNlink node to Compaq. DSNlink supports DECnet\(^1\), TCP/IP, X.25, or a modem. You can configure more than one transport. If the lowest cost transport is unavailable, DSNlink automatically uses the next least expensive transport. For more information, see Section 1.3.4.
- Check the software requirements. See Section 1.3.4.
- Check the hardware requirements. See Section 1.3.5.
- Check the required system parameters. See Section 1.3.6.
- Check quota values on user accounts that will be using DSNlink. See Section 1.3.7.

\(^{1}\) Compaq sites can choose DECnet to communicate with the Compaq host. Customer sites can use DECnet for communications within their site but cannot choose it for communications between their site and Compaq.
Preparing to Install DSNlink

1.3 What to Determine or Verify Before Starting

☐ If you have earlier versions of DSNlink on another disk on the system where you will install DSNlink Version 3.0, deinstall the earlier version to remove outdated files. For more information, see Section 1.3.11.

☐ Back up the system.

1.3.1 The Software Distribution Kit

The DSNlink Version 3.0 kit is available from the following sources:

- You can order a kit from Compaq. If you have another version of DSNlink, you can order the kit by submitting a service request to the routing code DSNLINK.

- You can copy files via anonymous FTP from the Compaq directory ftp.support.compaq.com.
  For information about which files to copy, see the DSNLINK030_README.TXT file in the directory public/DSNlink.

- You can get the kit from this Internet site:
  http://www.support.compaq.com/dsnlink/kit_vms_v30.htm

The DSNlink kit consists of the save sets shown in Table 1–1. The save set sizes are rounded to the next 100 blocks.

Table 1–1 Kit Contents

<table>
<thead>
<tr>
<th>Save Set</th>
<th>Description</th>
<th>Uncompressed Size in Blocks</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSNLINK030.A</td>
<td>Installation script and setup files</td>
<td>1,100</td>
</tr>
<tr>
<td>DSNLINK030.B</td>
<td>Files common to Alpha and VAX systems</td>
<td>5,900</td>
</tr>
<tr>
<td>DSNLINK030.C</td>
<td>Files and images for VAX systems</td>
<td>10,300</td>
</tr>
<tr>
<td>DSNLINK030.D</td>
<td>Files and images for Alpha systems</td>
<td>12,200</td>
</tr>
<tr>
<td>DSNLINK030.E</td>
<td>VAX images for systems running VMS Version 5.5-2</td>
<td>10,300</td>
</tr>
<tr>
<td>DSNLINK030.S</td>
<td>Documentation files, as listed in Section 1.7</td>
<td>25,146</td>
</tr>
</tbody>
</table>

The CD-ROM kit you order from Compaq also contains the following documentation:

- The cover letter
- A Read This First page that explains how to begin
1.3.2 Disk Space Requirements

The DSNlink installation checks your system for the disk space shown in Table 1-2.

Table 1–2 DSNlink Kit Sizes

<table>
<thead>
<tr>
<th>Platform</th>
<th>Disk Space Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alpha standalone</td>
<td>20,000 blocks</td>
</tr>
<tr>
<td>VAX standalone</td>
<td>20,000 blocks</td>
</tr>
<tr>
<td>OpenVMS Cluster†</td>
<td>40,000 blocks</td>
</tr>
</tbody>
</table>

† The OpenVMS Cluster kit includes both the VAX and Alpha files.

To determine if your system has enough disk space, use this command:

\$ SHOW DEVICE ddcu

where ddcu is the device where you will install DSNlink.

1.3.3 Privileges Required to Run DSNlink

To run DSNlink, nonprivileged users need the following:

- Process privileges: NETMBX and TMPMBX
- Process rights: INTERACTIVE and LOCAL

Nonprivileged users cannot edit the authorizations or systemwide configuration files or perform system management operations.

1.3.4 Software Requirements

DSNlink Version 3.0 requires the following software:

- VMS Version 5.5-2 or OpenVMS Versions 6.2, 7.1, or 7.2.
  VMS Version 5.5-2 is supported on VAX systems only.
- The AACRT060.A save set, Compaq C/C++ Run-Time Components for OpenVMS VAX V6.0, is required on VMS 5.5-2 systems. It is available from ITS.

________ Warning ________

Although DSNlink does not use the SMG routines, after installing AACRT060, some users experience problems when using applications that use OpenVMS Screen Management (SMG$) routines. Some effects might include cursor jumping involuntary, screen jumps a line and other screen related updates.

For more information, see the ITS article [OpenVMS] AACRT060 Installation Causes SMG Programs to Behave Differently in the ECO-SUMMARY database.

- If you want to use the DECwindows Motif interface, DECwindows Motif Version 1.2-4 or higher is required. OpenVMS Version 7.2 requires DECwindows Motif Version 1.2-5. (DECwindows Motif is not required to use the command line interface.)
Preparing to Install DSNlink
1.3 What to Determine or Verify Before Starting

- The appropriate network software for the network transport you choose:
  - DECnet requires DECnet for OpenVMS (Phase IV), which is included in the OpenVMS Version 6.2 kit. DECnet-Plus (formerly known as DECnet/OSI Phase V) is also acceptable.
  - TCP/IP requires TCP/IP software. You can use any of the following:
    Digital TCP/IP Services for OpenVMS Version 3.3 or higher
    Multinet Version 4.2 or higher
    TCPware Version 5.4 or higher
    For services information for DSNlink applications, see Appendix B.
  - DECnet-Plus is required for X.25.
  - The modem transport, which supports ISDN and PSTN line types, must use MNP (Microcom Networking Protocol) class 5, which provides error checking and data compression. See the technical specifications for your modem to verify that it is MNP class 5 compliant and does not disable MNP5.
    Although DSNlink provides dialer scripts for several types of modems, you do not have to use one of those modems. If you use a modem for which there is no dialer script, you must create a script for the modem. For more information, see Section 3.4.

- The Netscape browser for OpenVMS is required. If Netscape is not installed on your system, see Section 1.3.4.1 for information on downloading it to your system.

1.3.4.1 Downloading Netscape

If the Netscape browser is not installed on your system, you can download it from this URL:

www.support.compaq.com/dsnlink/kit_vms_30.htm

To download Netscape:
1. From a system with an Internet browser, enter the above URL. A page describing DSNlink Version 3.0 appears.
2. Find the link to the Web site for the Netscape kit. A page with the heading Web-Enabled Solutions for OpenVMS Customers appears.
3. Click on Downloadable Software. The link goes to a part of the page where downloadable software is listed.
4. In the section "Netscape Browsers for OpenVMS," click on Netscape Navigator Gold for Alpha V3.03—if you want to run Netscape on an Alpha system—or Netscape Navigator Gold for VAX V3.03—if you are downloading Netscape to a VAX.
   A registration form appears.
5. Complete the registration form. A page titled "Netscape Navigator Gold V3.03 for OpenVMS VAX now available" appears if you chose the VAX version. If you chose the Alpha version of Netscape the page is titled "Netscape Navigator Gold V3.03 for OpenVMS Alpha (with Java) now available."
Preparing to Install DSNlink
1.3 What to Determine or Verify Before Starting

Directions for downloading the files appear on the page.

6. Follow the directions for downloading the files to your system.
   On Alpha systems, the file you download is:
   NETSCAPE-EXPORT-ALPHA-V303VCR4-J AVA-GOLD.;1
   You do not need the Java class library file to use Netscape to display DSNlink
   online help.
   On VAX systems, the file you download is:
   NETSCAPE-EXPORT-VAX-V303C4R-GOLD.;1

7. Copy the file to SYS$COMMON:[SYSEX].

8. Uncompress the file with the RUN command. For example
   $ RUN NETSCAPE-EXPORT-VAX-V303C4R-GOLD.;1
   At the prompt for the file specification, enter NETSCAPE.EXE. For example:
   Decompress into (file specification): NETSCAPE.EXE

9. Delete the file you downloaded to save disk space.

1.3.5 Hardware Requirements

Hardware Required for Installation
You can install DSNlink Version 3.0 on any Alpha or VAX system. You need a
CD–ROM drive if you install DSNlink from CD–ROM.

Modem Hardware
If you use the modem transport for DSNlink communications, you must have
a modem dedicated to DSNlink. A dedicated modem permits the immediate
handling of both incoming and outgoing communications.

You must also have an asynchronous serial port on your system or DECserver.
For information on DECserver settings, see Section 1.3.9.2.

1.3.6 Required System Parameters

Table 1–3 lists the minimum required SYSGEN values for installing and running
DSNlink Version 3.0.

<table>
<thead>
<tr>
<th>SYSGEN Parameter</th>
<th>Minimum Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCSNODE</td>
<td>Must be defined</td>
</tr>
<tr>
<td>SCSSYSTEMID</td>
<td>Must be defined</td>
</tr>
<tr>
<td>MAXBUF Alpha: 8192</td>
<td>VAX: 8192</td>
</tr>
<tr>
<td>TTY_ALTYPAHD(^1)</td>
<td>Alpha: 2048</td>
</tr>
<tr>
<td></td>
<td>VAX: 2048</td>
</tr>
<tr>
<td>GBLPAGES Alpha: 6623</td>
<td>VAX: 6754</td>
</tr>
</tbody>
</table>

\(^1\)TTY_ALTYPAHD is checked only if you choose the modem transport.

(continued on next page)
Preparing to Install DSNlink

1.3 What to Determine or Verify Before Starting

Table 1–3 (Cont.) Required System Parameters

<table>
<thead>
<tr>
<th>SYSGEN Parameter</th>
<th>Minimum Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>GBLSECTIONS</td>
<td>Alpha: 21</td>
</tr>
<tr>
<td></td>
<td>VAX: 33</td>
</tr>
</tbody>
</table>

Use this command to display the current system parameters:

```
$ RUN SYSSYSTEM:SYSGEN
SYSGEN> SHOW parameter
```

For example, this command displays the settings for MAXBUF:

```
SYSGEN> SHOW MAXBUF
```

Node DSN: Parameters in use: ACTIVE

<table>
<thead>
<tr>
<th>Parameter Name</th>
<th>Current</th>
<th>Default</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Unit</th>
<th>Dynamic</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAXBUF</td>
<td>8192</td>
<td>8192</td>
<td>4096</td>
<td>65535</td>
<td>Bytes</td>
<td>D</td>
</tr>
</tbody>
</table>

If the parameters are not set correctly, see the OpenVMS documentation for directions on setting system parameters.

1.3.7 Checking Quotas on User Accounts

DSNlink Version 3.0 requires the following minimum quota values on user accounts:

- ASTLM = 40
- BIOLM = 40
- BYTLM = 50000
- DIOLM = 40
- ENQLM = 200
- FILLM = 100
- PRCLM = 7
- PGFLQUO = 32768
- TQELM = 20

1.3.8 TCP/IP Ports

When you install DSNlink on A nodes (the nodes that communicate directly with Compaq), the installation procedure generates the route map in single-port mode so that all DSNlink applications use port 2370. If the node had a multiple-port route map from previous DSNlink installations, it is converted to single-port mode and all multiple port route map entries are removed. Installations on B nodes (which connect to an A node), do not convert a multiple-port route map to single port.

To convert to multiple-port mode or to prevent DSNlink from creating a single-port mode, see the instructions in the postinstallation chapter.

1.3.9 Setting Up Your System to Use a Modem for Communications

If you want to use a modem to communicate with Compaq, use this section to make sure the modem is set up correctly for DSNlink.

Note that you do this procedure only for DSNlink nodes that will be A nodes. (A node systems, also called gateways, provide direct communications to Compaq without going through other DSNlink nodes.) The modem transport is not supported on DSNlink B nodes, which connect to A node systems.
To use a modem, do the following:

- Verify the telephone number. See Section 1.3.9.1.
- Find the DTE speed of the modem in your modem’s specifications. Note the number for the installation procedure. If you use a DECserver, verify the DTE speed in the port settings. See Section 1.3.9.2.
- If you use an LTA device and a DECserver, you need to prepare them. See Section 1.3.9.2.
- Verify that the modem and the future DSNlink node can communicate. See Section 1.3.9.3.
- Make notes about the items that you need for installation questions. See Section 1.3.9.4.

### 1.3.9.1 Verify the Telephone Number

Verify the telephone number of the modem you want to use by connecting a telephone to the telephone set jack on the modem. Then dial the modem’s telephone number from another telephone. The telephone connected to the modem should ring.

If your system has a built-in modem and you are not using a DECserver, skip to Section 1.3.9.3.

### 1.3.9.2 Set Up the DECserver

This section explains how to set up a DECserver to use an LTA device for modem communications.

DSNlink supports the DECserver 700/MC running Version 1.0 or higher. The DECserver 200/MC running Version 3.1 or higher is also supported, although its maximum data rate is 19200 baud. Consequently, performance is relatively slow on DECserver 200 systems.

You need to verify that the DECserver has the recommended settings and record the port name, DTE speed, and the server’s device name. To do that:

1. To see the current settings for a terminal server port, log in to the DECserver, enable privileges and enter the LOGOUT command followed by the SHOW PORT n command (where n is the terminal server port number where the DSNlink modem is to be attached).

Recommended DECserver parameters are shown in the following example:

```
Local> LOGOUT
Local> SHOW PORT 2

Port 2:                      Server: GRU703
Character Size: 8            Input Speed: 19200
Flow Control: CTS            Output Speed: 19200
Parity: None                 Modem Control: Enabled
Stop Bits: 1                 Access: Remote
Backwards Switch: None       Local Switch: None
Break: Local                 Name: Port_2
Forwards Switch: None        Type: Soft
Default Protocol: LAT        Default Menu: None
Dialer Script: None          Preferred Service: None
Authorized Groups: 0
(Current) Groups: 0
```
Preparing to Install DSNlink
1.3 What to Determine or Verify Before Starting

Enabled Characteristics:
Dialup, DTRwait, Input Flow Control, Output Flow Control,

1. This number must match the DTE speed of the modem. Set the port speed to the highest speed the server can support up to 57600 bps.

2. CTS flow control is recommended. XON flow control may result in errors.

3. Be sure the port name is unique.
   Note the port name for future use.
   Note that the Remote Modification characteristic should be disabled.

2. To change settings on the DECserver, log in to the DECserver and change the settings to meet the recommended values. Use these commands:
   Local> SET PRIVILEGE
   Password> Local>
   DEFINE PORT n parameter value key
   Note that the password entry is not echoed.

3. Make any changes.

4. Be sure you have the server's device name, which is required by the installation procedure. To get the name, enter this command:
   Local> SHOW SERVER

5. Log out of the port:
   Local> LOGOUT PORT n

6. At the DCL prompt, find an unallocated LTA device on the system. Compaq recommends you use a device that matches the modem's phone number, if possible. This example shows allocated devices:
   $ SHOW DEVICES LTA
   LTA9023: Online alloc 0
   LTA9026: Online alloc 0
   LTA9027: Online alloc 0
   LTA9030: Online spooled 0
   LTA9031: Online spooled 0
   In this example, the devices you can use, LTA9024, LTA9025, LTA9028, and LTA9029 are available because they are not listed.

7. Map the LTA device to a server port.
   If the DSNlink communications device is an LTA device, you will need to map it to a server port. Do this by entering the following commands:
   $ RUN SYS$SYSTEM:LATCP
   LCP> CREATE PORT LTAnnnn: 3
   LCP> SET PORT LTAnnnn:
   /NODE=server_name 4
   /PORT=port_name 5
   LCP> Ctrl/Z
   where:
   3 nnnn = an unused LTA device number
   4 server_name = the name of the DECserver
   5 port_name = the port on that DECserver
1.3 What to Determine or Verify Before Starting

1.3.9.3 Verify That the Modem and DSNlink Node Can Communicate

After the modem is connected and powered on, verify that the modem and your intended DSNlink node can communicate by entering the following commands on the DSNlink node, where nnnnn is the DTE speed of the modems and ddcu: is the name of your communications device:

```
$ SET TERMINAL/PERMANENT/TYP...=nnnnn/MODEM ddcu: 6
$ SET HOST/DTE/ERROR=EXIT ddcu: 7
%REM-I-TOEXIT, connection established, type ^\ to exit 8
```

6 If the DSNlink communications device is an LTA device, omit the /MODEM qualifier.

7 Entering a SET HOST/DTE command to an LTA device is not supported by Compaq, but should function adequately for this test.

8 Enter a modem wakeup sequence appropriate to the modem being used (refer to the modem's manual). For example, Ctrl/B is the wakeup sequence for Compaq modems and AT [Return] is the wakeup sequence for Hayes modems.

If the modem is correctly connected to the system, it displays the appropriate response (for example, in the case of Compaq modems: Ready). If the modem does not respond properly, enter the wakeup sequence several more times. If the modem still does not respond, recheck all connections and make sure that the modem power is on.

1.3.9.4 Make Notes for Installation Questions

Make notes about the following items, which you need for the installation questions:

- The line type, which can be either PSTN or ISDN.
- The DTE speed, which is set by the modem manufacturer. If you use an LTA device, the DTE speed also appears in the port specification. See callout 1 in Section 1.3.9.2.
- The modem's phone number, including any prefixes for local and long distance calls.
- For DEC servers, these items are shown at the end of Section 1.3.9.2:
  - The LTA device number, as shown in 3. You enter this device for the prompt for the ISDN or PSTN modem device name. (See step 31 in the installation procedure in Section 2.3.)
  - The server name, as shown in 4. You enter the name at the prompt for the LAT terminal server name. (See step 32 in the installation procedure in Section 2.3.)
  - The port name, as shown in 2 and 5. You enter the name at the prompt for the LAT terminal server's port name. (See step 33 in the installation procedure in Section 2.3.)
Preparing to Install DSNlink

1.3 What to Determine or Verify Before Starting

1.3.10 Ensuring the X.25 DTE Name Is Available

During the DSNlink startup, if you chose X.25 as a transport, DSNlink attempts to find the DTE name. If the DSNlink node is not the X.25 gateway, then the X.25 gateway system's CML$SERVER account must have the NET$EXAMINE identifier. If NET$EXAMINE is not held by the CML$SERVER account and the DSNlink node is not an X.25 gateway, the startup fails with the following messages:

%DSN-E-NOACCESS, Unable to query the remote X.25 gateway system, x25-gateway-nodename.
-DSN-E-NOACCESS, The CML$SERVER account on x25-gateway-nodename needs NET$EXAMINE identifier.
-DSN-E-NOACCESS, The DSNlink X.25 DTE class and default DSNlink template will not be created.

To check the CML$SERVER account for the NET$EXAMINE identifier:

1. Enter this command:

   $ MCR AUTHORIZE
   UAF>

2. At the UAF prompt, enter this command:

   UAF> SHOW CML$SERVER

   Check for the NET$EXAMINE identifier at the bottom of the display:

   Identifier       Value        Attributes
   --------------- --------------- -------------
   NET$EXAMINE     %X91F50001    
   UAF>

3. To add the identifier:

   UAF> GRANT/IDENTIFIER NET$EXAMINE CML$SERVER

1.3.11 Deleting Previous Versions When you Change Disks

If you have earlier versions of DSNlink on another disk on the system where you will install DSNlink Version 3.0, deinstall the earlier version to remove outdated files. To do so, enter this command on the outdated disk:

   $ @DSN$COMMAND:DSN$DEINSTALL.COM

That procedure removes most files but leaves ones that you would need if you reinstalled DSNlink on the system to provide default values. To remove all files, see the instructions in Section 3.16.

1.4 Configuring Nodes

If you have no previous versions of DSNlink, you need to decide which nodes at your site you want to connect directly to Compaq. DSNlink refers to those as A node systems. All communications between your systems and Compaq originate on or pass through the A nodes. All other DSNlink nodes, called B nodes, connect to an A node. The installation procedure asks whether you are installing DSNlink on an A node or a B node. If the answer is a B node, the installation prompts you for the name of the A node. Therefore, before you install DSNlink decide:

- Which systems will be A nodes
- Which systems will be B nodes
- Which transports you want to use between the A nodes and Compaq
1.4 Configuring Nodes

1.4.1 Guidelines for Designating A and B Nodes

The following are guidelines about how to designate systems as A or B nodes:

- If you install DSNlink on an OpenVMS Cluster, if you want to use a modem for communications with Compaq, you must have at least one A node. Therefore, if you install DSNlink once, do it on the node you want to be the A node and select the modem as your transport. The installation procedure makes the other nodes in the OpenVMS Cluster B nodes.

For more information on installing on an OpenVMS Cluster, see Section 2.1.1.

- If you install DSNlink on an OpenVMS Cluster and do not use the modem for communications, all nodes in the OpenVMS Cluster may be B nodes, A nodes, or a combination. However, make sure there is one node that is an A node for each access number.

- If you install DSNlink on several single nodes, choose at least one as an A node. Install DSNlink on the A node or nodes first.

1.4.2 Using WorldWire and DSNlink as A and B Nodes

If you have a product that uses Compaq’s WorldWire software, for example Compaq Remote Support Service (CRSS), you can set up DSNlink to use a WorldWire A node or allow the DSNlink A node to accept connections from WorldWire B nodes. The A node systems (called front-end nodes in WorldWire), are the gateways that make connections to Compaq. B nodes, (referred to as back-end nodes in WorldWire), connect to the A nodes.

Configuring a DSNlink B Node to Use a WorldWire A Node

To make a DSNlink B node use a WorldWire A node:

1. During the DSNlink installation, when the prompt appears for the node type, enter that the node is a B node. For example:

```
|NODE_B|----- TCP/IP, ----->|NODE_A|----- TCP/IP, ---->| Compaq |
+-------+ DECnet, +------+ DECnet, +--------+
or X.25  (DSNlink X.25, or
   Gateway)  Modem
```

Is wynken like NODE_A, NODE_B, or NODE_C in the above diagrams? [A]: B

2. When prompted for the transports to use between the A and B nodes, enter TCP/IP. (TCP/IP must be the only selected transport for this node.)

3. When prompted for the name of the A node, enter the IP name or address of the WorldWire node as the fully-qualified IP host name.

4. Continue with the rest of the installation.

Configuring a WorldWire B Node to Use a DSNlink A Node

You can route WorldWire Versions 2.7 and 2.8 connections through DSNlink A nodes. The WorldWire and DSNlink systems may connect to different service providers and use different access numbers (referred to as service IDs in WorldWire).
Preparing to Install DSNlink
1.4 Configuring Nodes

To set up a DSNlink A node to process connections from B nodes with WorldWire:

1. During the DSNlink installation, when the prompt appears for the node type, enter that the node is an A node. For example:

```
| NODE_B | TCP/IP | NODE_A | TCP/IP | Compaq |
+--------+--------+--------+--------+--------+-------+
| [1]    | [2]    |        |        | +------+
|        |        |        |        | DECnet,
|        |        |        |        | or X.25
|        | (DSNlink) |        |        | Gateway) | Modem
```

Is wynken like NODE_A, NODE_B, or NODE_C in the above diagrams? [A]: Return

2. When prompted for the transports to use between the A and B nodes, enter TCP/IP. (TCP/IP must be the only selected transport for this node.)

3. Complete the installation

After the installation is complete:

1. Using dsnmapq, determine if an entry already exists in your route map for a connection to a WorldWire service provider.

   You do that by finding the welcome letter from the product that uses DSNlink and seeing if the Service Provider ID exists in the route map. In this example, compaq is the service provider and the portal is crgcxo:

   ```
   $ dsnmapq compaq/crgcxo
   Entry <compaq/crgcxo> not found
   ```

2. If no previous entry exists, add an entry for the WorldWire service provider. Use this format:

   SPID/SPP t/sp_ip_address/2370

   where:
   - SPID is the Service Provider ID specified in your WorldWire welcome letter
   - SPP is the Service Provider Portal specified in your welcome letter
   - sp_ip_address is the Service Provider’s IP Address specified in your welcome letter
   - 2370 is the port number for dsn_nsd

   For example:

   ```
   $ dsnmapq -a "compaq/crgcxo t/dsn.service.compaq.com/2370"
   ```

   Be sure to include the quotation marks around the entry.

3. On the WorldWire node, attempt a connection to the service provider to ensure that the route map entry is correct.

1.5 Shut Down DSNlink Version 1.2 for OpenVMS

Your system can run only one version of DSNlink. Therefore, if your system has DSNlink Version 1.2, you should shut it down before starting the DSNlink Version 3.0 installation. The installation procedure checks for DSNlink Version 1.2 modem processes. If any are found, DSNlink gives you the choice of exiting the installation procedure or continuing and having the processes stopped immediately.
Preparing to Install DSNlink

1.5 Shut Down DSNlink Version 1.2 for OpenVMS

The DSNlink Version 3.0 installation procedure deletes DSNlink Version 1.2. However, before doing so, the installation:

- Transfers communique mail addresses to DSNlink Version 3.0. For more information, see the DSNlink Version 3.0 for OpenVMS Release Notes.
- Creates an authentication key from the DSNlink Version 1.2 for OpenVMS authorization code. The key's file specification is: DSN$KEYS:HMAC-DIGITAL-accessid.;1.
  The key has this format:
  1DIGITAL-access_number-authorization_code
- Gives you a chance to exit the procedure before it deletes DSNlink Version 1.2.

Although you cannot run DSNlink Version 1.2 and Version 3.0 on the same system, your site can run them on separate systems. You can also use the same access number on each system.

Suggestion

Compaq recommends that you do not delete DSNlink Version 1.2 for OpenVMS before installing DSNlink Version 3.0. If you delete Version 1.2, you must supply the authentication key.

1.6 Ensure No One Is Using DSNlink Version 2.2 for OpenVMS

If your system previously ran DSNlink Version 2.2 for OpenVMS make sure no one is using DSNlink before starting the DSNlink Version 3.0 installation. The installation procedure detects modem processes and allows you to exit the installation without stopping them. However, DSNlink applications using TCP/IP, DECNex, and X.25 transports are not detected. The installation procedure does not stop processes that are using DECNex, TCP/IP, or X.25. However, Compaq recommends that no one use DSNlink while it is being reinstalled.

You can use the DSN STOP LINE command to prevent use of the line between the time you discover that the line is not in use and when the installation shuts down DSNlink. For example:

$ DSN STOP LINE dsn_001

You can check for modem processes using the DSN SHOW LINE command. DSNlink displays information about the current line. If the Current State field is Listening, Idle, or Offline, the line is not in use. If the Current State is Online or Dialing, the line is in use.

You should not deinstall DSNlink Version 2.2 for OpenVMS from the system where you will install DSNlink Version 3.0. The installation procedure uses many of the previously-established files and logical names. However, you should deinstall DSNlink Version 2.2 for OpenVMS if you install V3.0 on a different disk. For more information, see Section 1.3.11.
1.7 Where to Find the Release Notes and Other Documents

The DSNLINK030.S save set has the following documents:

- DSNlink Version 3.0 for OpenVMS Service Tool Description
- DSNlink Version 3.0 for OpenVMS Installation Guide—this document
- DSNlink Version 3.0 for OpenVMS Release Notes
- DSNlink Version 3.0 for OpenVMS Quick Reference Cards
  The Quick Reference Card is a three-column PostScript file. It is available in two paper sizes: 8½ by 11 inches or A4.
- DSNlink Version 3.0 User's Guide for the DECwindows Motif Interface

To see the file names in the save set, use this command, replacing SYS$SYSDEVICE:[KITS] (if the files are elsewhere), with the location of the distribution media on your system:

```
$ BACKUP/LIST SYS$SYSDEVICE:[KITS]DSNLINK030.S/SAVE
```

To restore the files from the save set to a directory, enter this command, substituting your system's device name and directory for ddcu:[dir]:

```
$ BACKUP/SELECT=*.*/LOG DSNLINK030.S/SAVE ddcu:[dir]
```

Printing the Release Notes Before You Begin the Installation

You can also print or display the DSNlink Version 3.0 for OpenVMS Release Notes before installing DSNlink. To display the release notes before starting the installation procedure, use this procedure, which includes responding N to the prompt Enter installation options you wish to use:

```
$ @SYS$UPDATE:VMSINSTAL
```

The OpenVMS installation procedure begins. Respond to the initial prompts to continue the installation then enter the following responses, substituting the location of the kit on your system for SYS$SYSDEVICE:[KITS]:

```
OpenVMS AXP Software Product Installation Procedure V6.2
.
.
.* Where will the distribution volumes be mounted: SYS$SYSDEVICE:[KITS]
Enter the products to be processed from the first distribution volume set.
* Products: DSNLINK030
* Enter installation options you wish to use (none): N
The following products will be processed:
  DSNLINK V3.0

Beginning installation of DSNLINK V3.0 at 17:08
%VMSINSTAL-I-RESTORE, Restoring product save set A ...
```

Additional Release Notes Options:

1. Display release notes
2. Print release notes
3. Both 1 and 2
4. None of the above
Preparing to Install DSNlink

1.7 Where to Find the Release Notes and Other Documents

* Select option [2]: [Return]
* Queue name [SYS$PRINT]: [Return]
Job DSNLINK (queue SYS$PRINT, entry 456) started on LPS40$DSNLPS
* Do you wish to continue the installation [NO]? [Return]
%VMSINSTAL-I-RELMOVED, Product’s release notes have been moved to SYS$HELP.

VMSINSTAL procedure done at 17:10

None of the notes pertains to the installation. However, Compaq recommends you read the release notes before using the product.
Installing DSNlink

This chapter provides a sample installation for DSNlink Version 3.0. The DSNlink installation procedure consists of a series of questions and informational messages. For an overview of the process, see Section 1.1.

Postinstallation tasks are described in Chapter 3.

Before you start, know the location of the DSNlink save sets or distribution media. You could have the DSNlink kit on either of the following:

- A CD-ROM
- A disk, to which you previously copied the kit from the Compaq FTP or Internet Web sites.

2.1 Installing on OpenVMS Clusters

2.1.1 If the OpenVMS Cluster Has a Common Disk—Install Once

DSNlink Version 3.0 supports DSNlink installations on OpenVMS Clusters comprised of both Alpha and VAX systems running OpenVMS. When installing DSNlink on an OpenVMS Cluster containing both Alpha and VAX systems, you can install DSNlink Version 3.0 once on either a VAX or an Alpha as long as the OpenVMS Cluster members all have access to the common disk, where the installation places the files.

Figure 2–1 shows an example of an OpenVMS Cluster with both Alpha and VAX systems that share a common disk.

Figure 2–1 Example of Alpha and VAX Systems with a Common Disk

Which Save Sets to Install

To install DSNlink Version 3.0 on an OpenVMS Cluster of Alpha and VAX systems, you can either:
Installing DSNlink

2.1 Installing on OpenVMS Clusters

- Install on one of the VAX systems, in which case you download the save sets for VAXes. The installation asks if you want the Alpha images provided. You respond yes.

- Install on one of the Alpha systems, in which case you download the save sets for Alphas. The installation asks if you want the VAX images provided. You respond yes.

If your OpenVMS Cluster does not have a common disk, install once on each group of nodes that shares a system disk. For example, in Figure 2–1, you can install on either of the Alpha nodes or either of the VAX nodes.

2.2 Sample Installation

The following sample installation procedure configures all the network transports you can use with DSNlink: TCP/IP, DECnet, X.25, and modem to illustrate the process. Your installation will vary from this script depending on your choice of transports and whether DSNlink Version 3.0 or Version 1.2 was installed previously. If you are reinstalling DSNlink Version 3.0, the installation procedure saves the files listed in Table 3–3.

The installation script uses the following sample entries, which you change to the names your system uses:

- DSNlink is installed on a node named WYNKEN.
- The sample access number is 12345.

Boldface text shows examples of entries.

To respond to prompts:

- Default values appear within square brackets ([ ]). You can accept the default value by pressing [Return].
- To override the default, enter the value you want.
- If a prompt has no default, and you press the Return key without entering a response, DSNlink prompts you again for the information.
- To add to the default answer, enter both the default and the addition separated by a comma.

To get help on a prompt, enter a question mark (?).

At the end of the sample installation are descriptions of each callout number.

Stopping the Installation

To stop the installation procedure at any time, enter [Ctrl/Y]. The installation procedure deletes all files it has created up to that point and exits. You can then restart the installation.

Starting the Installation

To start the installation procedure, you invoke the VMSINSTAL command procedure as shown in the following sample installation. For detailed information on VMSINSTAL, see the OpenVMS System Manager’s Manual: Essentials.

Username: SYSTEM 1
Password:

...
OpenVMS AXP Software Product Installation Procedure V7.2

It is 24-OCT-2000 at 09:53.

Enter a question mark (?) at any time for help.

VMSINSTALL-W-ACTIVE, The following processes are still active: 2
DECW$SERVER_0
DECW$MWM
DECW$TE_009B
HARDY
DECW$TE_009E
DECW$TE_00A4_FTA38:

* Do you want to continue anyway [NO]? Y
* Are you satisfied with the backup of your system disk [YES]?
* Where will the distribution volumes be mounted: SYS$SYSDEVICE:[KITS] 3

Enter the products to be processed from the first distribution volume set.

* Products: DSNLINK030 4
* Enter installation options you wish to use (none): N 5

The following products will be processed:
DSNLINK030 V3.0

Beginning installation of DSNLINK030 V3.0 at 09:53

VMSINSTALL-I-RESTORE, Restoring product save set A ...

Additional Release Notes Options:
1. Display release notes
2. Print release notes
3. Both 1 and 2
4. None of the above

* Select option [2]: [Return]

Job DSNLINK (queue SYS$PRINT, entry 456) started on LPS40$DSNLPS

* Do you wish to continue the installation [NO]? Y

VMSINSTALL-I-RELMOVED, Product’s release notes have been moved to SYS$HELP.

********************************************************************************
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Installing DSNlink

2.2 Sample Installation

This product includes software developed by the University of California, Berkeley and its contributors: Copyright (c) 1983, 1986, 1987, 1988, 1993
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********************************************************************************

Note: You can enter a question mark (?) when prompted for input and a detailed explanation will be displayed about what information is needed.

Please read the following Compaq Proprietary Service Tool License. 6

* Press <RETURN> to display the license agreement: [Return]

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Exports of this product are subject to U.S. Export Administration Regulations pertaining to encryption items and may require that the exporter obtain individual export authorization from the U.S. Department of Commerce.

* Do you accept all the terms of the preceding license [YES]? [Return]

%DSNLINK030-I-PREINSTALL, Checking for username SYSTEM
%DSNLINK030-I-PREINSTALL, Checking for minimum version of OpenVMS 7
%DSNLINK030-I-PREINSTALL, Checking for minimum version of DECwindows Motif 8
%DSNLINK030-I-PREINSTALL, Checking for C/C++ Run-Time Components 9
%DSNLINK030-I-PREINSTALL, Checking SYSGEN parameter SCSNODE 10
%DSNLINK030-I-PREINSTALL, Checking SYSGEN parameter SCSSYSTEMID 11
%DSNLINK030-I-PREINSTALL, Checking SYSGEN parameter MAXBUF 12
%DSNLINK030-I-PREINSTALL, Checking for alternate root option 13
%DSNLINK030-I-PREINSTALL, Checking for sufficient disk space 14
%DSNLINK030-I-PREINSTALL, Checking for executing Queue Manager 15
%DSNLINK030-I-PREINSTALL, Checking for running DSNlink modem process

A DSNlink modem process is currently running on this system. In order to continue with this installation, it must be shut down, which will terminate all existing links. If you decide to proceed, this installation procedure will shut down the DSNlink process.

* Do you want to continue with the installation of DSNlink? [NO] 16

%DSNLINK030-I-PREINSTALL, Removing installed DSNlink images 17
%DSNLINK030-I-PREINSTALL, Checking for sufficient global pages 18
%DSNLINK030-I-PREINSTALL, Checking for sufficient global sections 19
%DSNLINK030-I-PREINSTALL, Gathering configuration information
Enter the access numbers you intend to use with DSNlink. Separate multiple values with commas.

Your access number may be your contract number, system ID, hardware serial number, or obligation identifier. Refer to your DSNlink authorization letter or contact your Compaq account representative if you are not sure what to enter.

* Enter one or more access numbers for this system: \textbf{12345 20}

The following lists the various Compaq Customer Support Centers (CSCs) throughout the world:

1. Athens, Greece
2. Australia & New Zealand
3. Bangkok, Thailand
4. Bratislava, Slovakia
5. Brussel, Belgium
6. Budapest, Hungary
7. Caracas, Venezuela
8. Colorado Springs, Colorado, USA
9. Copenhagen, Denmark
10. Dublin, Ireland
11. Evry, France
12. Helsinki, Finland
13. Herzlia, Israel
14. Hong Kong, Peoples Republic of China
15. Hull, Canada
16. Lisbon, Portugal
17. Luxembourg, Grand Duche de Luxembourg
18. Madrid, Spain
19. Mexico City, Mexico
20. Milan, Italy
21. Munich, Germany
22. Oslo, Norway
23. Prague, Czech Republic
24. Rio de Janeiro, Brazil
25. Reading, England
26. Rio de Janeiro, Brazil
27. Seoul, South Korea
28. Singapore, Republic of Singapore
29. Sundbyberg, Sweden
30. Taipei, Taiwan
31. Tokyo, Japan
32. Utrecht, The Netherlands
33. Vienna, Austria
34. Zurich, Switzerland

* Enter your Customer Support Center: \textbf{8 21}

DSNlink for OpenVMS applications can communicate with Compaq directly, using a single protocol, or, communicate through one or more DSNlink gateways using multiple protocols. This feature allows applications to communicate over heterogeneous networks.

```
+--------+       +--------+       +--------+
| NODE_B | ------ TCP/IP, ------| NODE_A | ------ TCP/IP, ------| Compaq |
+--------+       +--------+       +--------+
or X.25  | (DSNlink X.25, or  
          | Gateway) Modem
```

Note that a DSNlink Gateway must also have the appropriate DSNlink software installed. \textbf{22}

* Is \textit{WYNKEN} like \textit{NODE_A} or \textit{NODE_B} in the above diagram \[A\]: \textbf{23}
Installing DSNlink
2.2 Sample Installation

You can configure the following network protocols for communications between DSNlink nodes on your network (NODE_B to NODE_A in the diagram above). Choose one or more abbreviations. Separate abbreviations with a comma.

Note 1: You may not use the DSNlink modem protocol.
Note 2: X.25 is not allowed within an OpenVMS Cluster.

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Network Protocol</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>DECnet (Phase IV) or DECnet/OSI</td>
</tr>
<tr>
<td>T</td>
<td>TCP/IP</td>
</tr>
<tr>
<td>X</td>
<td>X.25</td>
</tr>
</tbody>
</table>

* Enter the networking protocols for communications within your network: D,T,X 24

You can configure the following network protocols for communications with Compaq (NODE_A to Compaq in the diagram above). Choose one or more abbreviations. Separate abbreviations with a comma.

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Network Protocol</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>DECnet (Phase IV or DECnet/OSI)</td>
</tr>
<tr>
<td>M</td>
<td>DSNlink Modem Protocol</td>
</tr>
<tr>
<td>T</td>
<td>TCP/IP</td>
</tr>
<tr>
<td>X</td>
<td>X.25</td>
</tr>
</tbody>
</table>

* Enter the networking protocols for communications with Compaq [D,T]: D,M,T,X 25

Modem Transport Setup:
----------------------

* Is this a PSTN or ISDN line: PSTN 26

* Enter the DTE speed: 19200 27

You will now be asked to enter the local telephone number of the modem you will use for DSNlink. Only the digits (0-9) and the dash (-) character are allowed. Use a dash to separate levels of the telephone number.

For example, the correct format for the modem telephone number of your Compaq CSC is as follows:

555-555-5555

* Enter your modem’s telephone number: 555-222-1111 28

* Enter the local dialing prefix: 9 29

* Enter the long distance dialing prefix: 1 30

* Enter the PSTN modem device name: LTA5006 31

* Enter the LAT terminal server name: DSNLINK_2 32

* Enter the LAT terminal server’s port name: PORT_2 33

The following modem scripts were found in DSN$DATA:
Installing DSNlink

2.2 Sample Installation

<table>
<thead>
<tr>
<th>File Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) CO2264.DDSF_SRC Codex 2264</td>
</tr>
<tr>
<td>2) CO2264HW.DDSF_SRC Codex 2264 using HW flow control</td>
</tr>
<tr>
<td>3) DF196.DDSF_SRC Digital DF196</td>
</tr>
<tr>
<td>4) DF296.DDSF_SRC Digital DF296</td>
</tr>
<tr>
<td>5) HAYES.DDSF_SRC Hayes with XON/XOFF flow control</td>
</tr>
<tr>
<td>6) HAYESHW.DDSF_SRC Hayes with RTS/CTS flow control</td>
</tr>
<tr>
<td>7) MULTIMODEM.DDSF_SRC Multi-Tech MultiModem with</td>
</tr>
<tr>
<td>XON/XOFF flow control</td>
</tr>
<tr>
<td>8) MULTIMODEMHW.DDSF_SRC Multi-Tech MultiModem with</td>
</tr>
<tr>
<td>RTS/CTS flow control</td>
</tr>
<tr>
<td>9) MULTIMODEMHW_EU.DDSF_SRC Multi-Tech MT1432, MT1932, MT2834 with RTS/CTS flow control for Europe</td>
</tr>
<tr>
<td>10) MULTIMODEM_EU.DDSF_SRC Multi-Tech MT1432, MT1932, MT2834 with XON/XOFF flow control for Europe</td>
</tr>
<tr>
<td>11) NULL.DDSF_SRC Null Modem</td>
</tr>
<tr>
<td>12) REPKO_EU.DDSF_SRC REPKO with XON/XOFF flow control (Europe)</td>
</tr>
<tr>
<td>13) REPKOHW_EU.DDSF_SRC REPKO with RTS/CTS flow control (Europe)</td>
</tr>
<tr>
<td>14) USROBOTICS.DDSF_SRC 3Com U.S. Robotics with XON/XOFF flow control</td>
</tr>
<tr>
<td>15) USROBOTICSHW.DDSF_SRC 3Com U.S. Robotics with RTS/CTS flow control</td>
</tr>
</tbody>
</table>

* Enter the number of your selection: 5

TCP/IP Transport Setup: 35

* Enter the fully qualified IP host name for this system [wynken.splat.com]: X.25 Transport Setup:

* Enter the optional X.25 network name: fishnet 36

* Enter the X.25 DTE address for this system: bonnet.6203240 37

* Enter the device for the DSNlink directory tree [SYS$SYSDEVICE:[DSN]]: Return 38

* Do you want VAX images provided? [NO]?

To ensure that DSNlink runs with the proper quotas and privileges, this installation procedure will create an account for the DSNlink servers. The name of the account is AES_DSNLINK. It is set for batch and network access and has TMPMBX and NETMBX privileges.

%DSNLINK030-I-ACCTEXISTS, Using existing AES_DSNLINK account

The DSNlink for OpenVMS Service Request Application requires the name and phone number of the primary contact for your contract. This contact information, which is appended to all service requests, is stored in the file DSN$DATA:DSN_SRA_SIGNATURE.TXT.

* Enter the name of the primary contact: Ollie Hardy 40

* Enter the phone number of the primary contact: 555-555-2222 41

* Do you want to purge files replaced by this installation [YES]?

All installation questions have been answered. The rest of the installation will proceed automatically and may take up to 30 minutes, depending on your system type. 43

%DSNLINK030-I-COMMONFILES, Restoring files common to Alpha and VAX
%VMSINSTAL-I-RESTORE, Restoring product save set B ...

%DSNLINK030-I-ALPHASPECIFIC, Restoring Alpha specific saveset
%VMSINSTAL-I-RESTORE, Restoring product save set D ...
Installing DSNlink
2.2 Sample Installation

%DSNLINK030-I-MODACC, Modifying account AES_DSNLINK
%DSNLINK030-I-CREDIRTREE, Creating the DSNlink directory tree

An existing
    SYS$COMMON:[SYS$STARTUP]DSN$STARTUP.COM
has been found and renamed to
    SYS$COMMON:[SYS$STARTUP]DSN$STARTUP.COM

Any site specific changes that you have made to the old file may need to be incorporated into the new file.

A new DSN$STARTUP.COM command procedure that reflects the parameters you have specified during this installation will now be created in DSN$COMMAND.

%DSNLINK030-I-GETCURVAL, Getting current values for new DSN$STARTUP.COM
%DSNLINK030-I-CRESTARTUP, Creating a new DSN$STARTUP.COM

The installation has provided a new startup file for DSNlink. It has been tailored to reflect the parameters you specified during this installation.

If you wish to change any of these parameters, create a site-specific startup file, DSN$COMMAND:DSN$SYSTARTUP.COM, and place your customizations there. Any logical names definitions found in your site-specific startup file will supersede those in the site-independent startup file.

It is important that you include the DSNlink startup as a part of your normal system startup. Please edit your system startup file and include the following line after the Queue Manager and DECnet are started:

    $ @ddcu:[DSN.COM]DSN$STARTUP.COM

Or, you can add an entry to SYSMAN STARTUP to invoke DSNlink.

An existing
    DSN$ROOT:[DAT.WYNKEN]DSN_CONFIG.DAT
has been found and renamed to
    DSN$ROOT:[DAT.WYNKEN]DSN_CONFIG.OLD

Any site specific changes that you have made to the old file may need to be incorporated into the new file.

An existing
    DSN$ROOT:[DAT.WYNKEN]DSN_ROUTE_MAP.DAT
has been found and renamed to
    DSN$ROOT:[DAT.WYNKEN]DSN_ROUTE_MAP.OLD

Any site specific changes that you have made to the old file may need to be incorporated into the new file.

%DSNLINK030-I-CRECONFIG, Creating a new DSN_CONFIG.DAT for node WYNKEN
%DSNLINK030-I-CRERTEMAP, Creating a new DSN_ROUTE_MAP.DAT for node WYNKEN
%DSNLINK030-I-CRESRASIG, Creating a new DSN_SRA_SIGNATURE.TXT
%DSNLINK030-I-CREMDDF, Creating a new DSN_MODEM_DEVICES.DAT
%DSNLINK030-I-CREMDST, Creating a new DSN_MODEM_SUBSTITUTION.DAT
%DSNLINK030-I-PRODCLCMD, Providing DSN DCL command
%DSNLINK030-I-PRODCLHLP, Providing DSNlink DCL Help
Installing DSNlink
2.2 Sample Installation

%DSNLINK030-I-PROFILIMG, Providing DSNlink files and images
%DSNLINK030-I-PRODATFIL, Providing new and updated template files

Updated file-> DSN$DATA:MULTIMODEM_EU.TEMPLATE
    Compare to DSN$DATA:MULTIMODEM_EU.DDSF_SRC
Updated file-> DSN$DATA:MULTIMODEMHW_EU.TEMPLATE
    Compare to DSN$DATA:MULTIMODEMHW_EU.DDSF_SRC

%VMSINSTAL-I-MOVEFILES, Files will now be moved to their target directories...
%DSNLINK030-I-POSTINSTALL, Deassigning installation created process logicals
%DSNLINK030-I-POSTINSTALL, Deleting obsolete Motif files from SYS$COMMON:[DECW$DEFAULT.SYSTEM]
%DSNLINK030-I-POSTINSTALL, Setting owner and protection on DSNlink directories
%DSNLINK030-I-POSTINSTALL, Setting owner and protection on DSNlink files
%DSNLINK030-I-POSTINSTALL, Creating DSNlink DECnet network objects...
%DSNLINK030-I-POSTINSTALL, Creating DSNlink TCP/IP services...
%DSNLINK030-I-STARTUP, Startup of DSNlink beginning...
Job DSN$STARTUP (queue DSN$BATCH_WYNKEN, entry 13) started on DSN$BATCH_WYNKEN
%DSNLINK030-I-END_STARTUP, Startup of DSNlink completed

DSNlink Installation Verification Procedure
-------------------------------------------
To verify that DSNlink has been successfully installed, this procedure will prompt you for your authentication key value(s). An authentication key file will then be created in DSN$KEYS if one does not already exist, or if the authentication key value is being changed.
For more information about authentication keys, refer to the DSNlink Version 3.0 for OpenVMS Installation Guide.

Press RETURN to continue...

Enter the authentication key for access number 12345:
3DIGITAL-12345-AAAA-BBBB-CCCC-DDDD-EEEE-FFFF-GGGG-HHHH

A connection to Compaq will now be attempted using the DSNlink Network Exerciser application.

DSNlink V3.0 for OpenVMS Alpha Network Exerciser Utility
Copyright 1989, 2000 Compaq Computer Corporation
Compaq Registered in U.S. Patent and Trademark Office.
Proprietary service tool software. Valid license required.
Connecting to target cscabc.digital.dsn. Please wait...

DsnSession Security Parameters:
    TDES encryption (NIST Triple DES cipher with 168-bit key)
    SR160 authentication (SHA-1/RIPEMD-160 RFC 2104 HMAC)
Connection established.

Connection path used:
    Encounter #0
    System ID: 12345/wynken
    System Information: VMS WYNKEN V7.2 0 Alpha T=V3.0
Installing DSNlink

2.2 Sample Installation

Inbound Link: ---
Outbound Link: T/wynken/1054 => T/cscabc.cxo.dec.com/DSN_NETEX

Encounter #1
System ID: digital/cscabc
System Information: VMS ZHOST V6.2 0 VAX V3.0
Inbound Link: T/wynken.splat.com/1054 => T/zhost/DSN_NETEX
Outbound Link: ---
Stats: M10/10/10/0 B4864/4864/4864/0 e97280

Testing complete.
Messages Sent: 10
Messages Read: 10
Messages Good: 10
Messages Bad: 0
Bytes Sent: 4864
Bytes Read: 4864
Bytes Good: 4864
Bytes Bad: 0
e-baud: 97280

The DSNlink IVP was successful. 50
Installation of DSNLINK030 V3.0 completed at 10:06
Creating installation data file: VMI$ROOT:[SYSUPD]DSNLIN030.VMI_DATA
Enter the products to be processed from the next distribution volume set.
* Products:
VMSINSTAL procedure done at 10:10

2.3 Help on the Installation Procedure

The following callouts explain parts of the sample DSNlink installation.

1 Username: SYSTEM
   You must be logged in to the SYSTEM account. A privileged account is not sufficient. If you log in to another account, the installation stops.

2 The following processes are still active:
The installation procedure checks for DSNlink Version 1.2, DSNlink Version 2.x, and DSNlink Version 3.0 modem processes.
The installation procedure will not complete with active modem processes. However, Compaq suggests that you wait until step 16 to either stop the processes or have the installation procedure do it for you. If you wait, the installation procedure will verify that your system has all the minimum requirements for installing DSNlink. If any requirements are missing, the installation stops. In that case, your modem processes will not have been stopped needlessly. If your system has all the minimum requirements, you can determine how to stop the modem processes in step 16.

3 Where will the distribution volumes be mounted:
Enter the device where the DSNlink kit is located. For example, if the kit is on disk, enter the directory specification, such as SYS$SYSDEVICE:[KITS].

Enter the products to be processed from the first distribution volume set. Products:
   Enter DSNLINK030 for the product name.

Enter installation options you wish to use (none):
   Enter the N option to display or print the release notes.

Please read the following Compaq Electronic Service Tools License Agreement.
   If you have questions about the agreement, contact Compaq.

Checking for minimum version of OpenVMS
   The minimum version of OpenVMS is Version 6.2. VMS Version 5.5-2 is also supported on VAX systems. If your system does not have the minimum version, the installation stops.

Checking for minimum version of DECwindows Motif.
   The minimum is DECwindows Motif Version 1.2-4. OpenVMS Version 7.2 requires DECwindows Motif Version 1.2-5. If DECwindows Motif is not installed, DSNlink installs a version of the Motif image in DSN$LIBRARY to support the command line interface. However, that image is not sufficient for running the DSNlink DECwindows Motif interface.

Checking for C/C++ Run-Time Components
   This message appears only on VMS Version 5.5-2 systems. For more information, see Section 1.3.4.

Checking SYSGEN parameter SCSNODE
   SCSNODE must be defined.

Checking SYSGEN parameter SCSSYSTEMID
   SCSSYSTEMID must be defined.

Checking SYSGEN parameter MAXBUF
   The minimum for MAXBUF is 8192 on Alpha and VAX systems. For more information on SYSGEN parameters, see Section 1.3.6.

Checking for alternate root option
   If you attempt to install DSNlink in an alternate root directory, the installation stops. Before restarting the installation, change the default to the system root directory.
   For more information on system and alternate root directories, see the OpenVMS System Manager’s Manual: Essentials.

Checking for sufficient free blocks on system disk
   For disk space requirements, see Section 1.3.2.

Checking for executing Queue Manager
   The Queue Manager must be running. If it is not, the installation stops.

Do you want to continue with the installation of DSNlink?
Installing DSNlink
2.3 Help on the Installation Procedure

You see this question when DSNlink finds a modem process from DSNlink Version 1.2, 2.2, or 3.0. The installation will not proceed with a running modem process.

Compaq recommends that you accept the default response, NO, and stop the installation.

- For DSNlink Version 1.2 modem processes, before you shut down the network, make sure there are no batch queue jobs in progress. Then shut down the network and begin the installation again.

  The installation procedure does not restart the DSNlink Version 1.2 modem line.

- For a DSNlink Version 2.2 or 3.0 modem process, you can determine if the modem is being used by a DSNlink application. If possible, go to another window and enter this command:

  $ DSN SHOW LINE
  Information for modem line line-000:
  ----------------------------------------
  Description: -none-
  Device: lta9011
  LAT Node: dsnlink_1
  LAT Port: port_2
  Line Type: pstn
  On Commbx: mba0035
  Current State: LISTENING

  If the Current State line is LISTENING or IDLE, the line is not in use. If the Current State is ACTIVE or RESPONDING, the line is in use.

  To prevent use of the modem line until the installation is complete, enter this command:

  $ DSN STOP LINE

  The installation procedure restarts the modem line.

17 Removing installed DSNlink images

The installation removes all previously installed images for all versions of DSNlink.

Following this notice, this message appears on some versions of OpenVMS:

%INSTALL-E-NODELShrADR, unable to delete image with sharable address data

This is followed by a message to reboot.

The installation cannot delete an image installed with shareable address data. The following images are automatically installed this way when the SYSGEN parameter IMGREG_PAGES is nonzero: DECC$SHR, DPML$SHR, LIBRTL, LIBOTS, and CMA$TIS_SHR.

If the message appears, reboot the system, which replaces an image installed with shareable address data. In the future, to replace the images listed above without rebooting the system, set the IMGREG_PAGES parameter to 0 (zero). Reboot to make the setting take effect.

18 Checking for sufficient global pages
The minimum requirements are 6623 on Alpha systems and 6754 on VAX systems.

19 Checking for sufficient global sections

The minimum requirements are 21 on Alpha systems and 33 on VAX systems.

20 Enter one or more access numbers for this system:

Enter your access number as provided by Compaq, or you can enter the access number you use with other versions of DSNlink. If you have more than one access number, enter a comma between the numbers. The first number becomes your default access number.

Note that some countries do not use access numbers. Instead, they use contract numbers, serial numbers, or some other identifier. That number should be entered for the access number. The following are examples of access numbers in use in the United Kingdom and Ireland:

- 0AY12345678-A2100: A serial number and system type
- CLUK1234567-CLUST: Clustered systems
- 03UK1234567-AEDSN: United Kingdom serial number and system type
- 16IR1234567-AEDSN: Ireland serial number and system type
- SIOLO123556-SITE: New contract serial number

If you have many access numbers, you do not have to enter all of them during the installation. One access number is sufficient. However, you must enter all access numbers you will use with DSNlink after the installation. For more information, see Section 3.11.

21 Enter your Customer Support Center:

Enter the number for the Customer Support Center provided in the authorization letter from Compaq. You can also get the location of your Support Center from your Compaq account representative. Be sure to choose the correct Support Center because it has the authentication files necessary for connections. If you choose another Support Center, the installation verification procedure fails.

If you are unsure which center to choose, enter the number for the Support Center in your country. If your country does not have a Support Center, enter the Support Center in the nearest country.

If you accidentally enter the wrong Support Center, see Section 3.11.

22 Note that a DSNlink Gateway must also have the appropriate DSNlink software installed.

You can use the DSNlink kit to install DSNlink on multiple systems. The same kit installs DSNlink on both gateway systems (A nodes) and internal systems (B nodes) that connect to gateways.

23 Is WYNKEN like NODE_A or NODE_B in the above diagrams?

Enter A if the specified node will communicate directly with Compaq without going through another intermediate DSNlink node at your site.

Enter B if the node will route connections to an A node, which is also known as a DSNlink gateway. In this case, this message appears:

Because this system is unable to communicate directly with Compaq, you will now be asked for the name of the DSNlink gateway for each protocol you have specified.
Installing DSNlink

2.3 Help on the Installation Procedure

Enter the gateway's name in the format required by the transport. These are sample gateway node names for each transport:

- Enter the DECnet network name of the DSNlink gateway system: **puffin**
- Enter the TCP/IP network name of the DSNlink gateway system: **puffin.splat.com**
- Enter the optional X.25 network name of the DSNlink gateway system: **puffin**

**NOTE:** If you install DSNlink on a B node before you install on an A node, the installation verification procedure (IVP) fails because there is no connection to the Compaq host. To continue installing on a node without a gateway to Compaq, at the prompts for a gateway (see the previous list of sample gateway nodes names), enter the name of the node where you will install DSNlink. Complete the installation, although the IVP will fail. Then install DSNlink on the gateway node.

To verify the connections, after you install DSNlink on the A node, go back to the B node and run the Network Exerciser. For information on running the Network Exerciser, see Section 3.13.

If you accidentally enter the wrong node type, stop the installation with **Ctrl/Y** and begin again. If you want to convert an A node into a B node or a B node into an A node after the installation, you must reinstall DSNlink on the node you want to change.

24 Enter the networking protocols you wish to use for communications within your network:

This prompt is for the transports to use between A and B nodes.

If you specify more than one protocol, DSNlink chooses the one with the lowest cost factor when routing DSNlink connections between systems at your site.

Although you might not install DSNlink on a B node in the future, the questions prepare the A node for future connections with B nodes.

When you install on a B node, be sure that the same internal-use transports specified on an A node are also specified on the B node. You can determine which transports are configured on a system by looking at the configuration file, DSN$DATA:DSN_CONFIG.DAT. The transports are listed for the parameter Transport.Inside.

25 Enter the networking protocols you wish to use for communications with Compaq:

If you reply to the question in step 24 that your system is like NODE_A in the diagram, this prompt appears for the transports to configure for use between your system and Compaq. If you configure more than one protocol, DSNlink chooses the one with the lowest cost factor when making a connection to Compaq.

DSNlink checks your system for the TCP/IP, DECnet, and X.25 protocols. If they are installed, DSNlink enters them as default choices. If they are not installed, DSNlink does not install them for you. DECnet is supported for connections between Compaq's internal sites. Customers can configure DECnet for use between their internal systems but not from their systems to Compaq.
Installing DSNlink

2.3 Help on the Installation Procedure

Note that you can configure the modem transport only on a DSNlink node that makes outgoing connections to Compaq's DSNlink host. You cannot configure the modem transport for use within your site.

DSNlink assigns each transport a cost factor. When making connections, DSNlink uses the one with the lowest cost factor if it is available. If not, DSNlink automatically tries the transport with the next lowest cost. If no transports can connect to Compaq, DSNlink displays a message.

You can add or remove transports after the installation using the DSNlink Configuration utility.

26 Is this a PSTN or ISDN line?

Enter either ISDN (Integrated Services Digital Network) or PSTN (Public Switched Telephone Network) depending on which type of line you have. The line must be dedicated to DSNlink to ensure that Compaq can respond to your service requests and perform other operations you request.

Note that the next series of prompts for modem information has default responses only if you previously installed DSNlink Version 3.0 and did not remove all the DSNlink files. The default responses are your previous answers.

27 Enter the DTE speed:

Enter the DTE speed for your modem transport. You can enter the highest speed your modem supports. Enter digits only—no commas. Note that the Compaq host and your modem negotiate the transmission speed at connect time, which may be lower than your modem's maximum speed.

For more information, see Section 1.3.9.2.

28 Enter your modem’s telephone number:

Enter your modem’s telephone number. Make sure the number you enter is composed of only digits and hyphens. The following examples show how to enter modem phone numbers:

<table>
<thead>
<tr>
<th>If you write it like this:</th>
<th>Enter this:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(719) 592-1234</td>
<td>719-592-1234</td>
</tr>
<tr>
<td>16-93.24.25.26</td>
<td>16-93242526</td>
</tr>
<tr>
<td>(31) 30-28323640</td>
<td>31-30-28323640</td>
</tr>
<tr>
<td>0171 123556</td>
<td>44-171-123556</td>
</tr>
</tbody>
</table>

In the last example, the parts of the last phone number are:

- 0171 - area code
- 123556 - telephone number
- 44 - long distance code
- 171 - the area code without the leading 0 (zero)

Enter all the numbers, such as 44-171-123556, even if your Support Center is a local call. The host removes any unnecessary numbers when dialing your system.

Use the telephone number of your Customer Support Center as a model for the number you should enter.

29 Enter the local dialing prefix:
Installing DSNlink

2.3 Help on the Installation Procedure

The local dialing prefix is anything you use before you dial a local number. For example, if you dial 9 to escape your site's local network, 9 is the local prefix. You do not have to enter T (for tone dialing) or P (for pulse dialing) if your modem is set up to accommodate either mode.

If you do not have to enter a local dialing prefix, press [Return].

30 Enter the long distance dialing prefix:

The long distance dialing prefix is whatever your modem requires before dialing a long distance number. For example, if the modem requires a 1 (one) before dialing a long distance telephone number, then 1 is the long distance prefix.

If your modem does not require a long distance dialing prefix, press [Return].

31 Enter the PSTN modem device name:

A PSTN or ISDN modem device name has the format LTA$nnnn where nnnn is a number that is NOT allocated. You need to have previously mapped the LTA device to a port.

For more information on LTA devices, see Section 1.3.9.2.

32 Enter the LAT terminal server name:

Enter the LAT terminal server name for the device you entered in step 32.

For more information, see Section 1.3.9.2.

33 Enter the LAT terminal port name:

Enter the LAT terminal port name for the device you entered in step 32.

For more information, see Section 1.3.9.2.

34 Enter the number of your selection:

If your modem is not listed, do not stop the installation procedure. Instead, choose the script you intend to modify or the null script. The script will not be able to dial your modem, and the installation verification procedure (IVP) properly fails. However, although the IVP fails, the modem scripts are installed and are available for you to modify.

For more information on creating a modem script, see Section 3.4.

You may see a different list of modems than are shown in the example. DSNlink displays the scripts found in the DSN$DATA directory, which includes any obsolete scripts from previous installations and scripts you have created.

35 TCP/IP Transport Setup:

The installation determines if you have Digital TCP/IP Services for OpenVMS, MultiNet, or TCPware installed. If one is installed, but it does not meet the minimum version requirement, you see one of these messages, depending on which TCP/IP software you have:

• For UCX, the message is:

The DSNlink installation requires Digital TCP/IP Services for OpenVMS V3.3 or higher.

The UCX BIND Resolver is not started and enabled.
Installing DSNlink

2.3 Help on the Installation Procedure

- For MultiNet, the message is:
  The DSNlink installation requires MultiNet V4.2 or higher.
  The MultiNet DNS Server is not started.

- For TCPware, the message is:
  The DSNlink installation requires TCPware V5.4 or higher.
  The TCPware DNS Server is not started.

If your system does not have the minimum version, the installation progresses until the IVP, which will fail. You then need to upgrade to at least the minimum version.

If the installation does not find any TCP/IP software on the system, this message appears:

DSNlink for OpenVMS requires TCP/IP software to process TCP/IP connections. The DNS Name Server must also be enabled and started.

This installation supports the following TCP/IP software packages:
  - Digital TCP/IP Services for OpenVMS V3.3 or higher.
  - Multinet V4.2 or higher.
  - TCPware V5.4 or higher.

None of the above TCP/IP software packages have been found on the system. DSNlink will not be able to connect to Compaq using TCP/IP until one of the above TCP/IP software packages is installed, configured and started.

If your system does not have any of the allowed TCP/IP software, the installation continues until the IVP, which will fail unless you also configure another transport. If you configure an additional transport, for example, the modem, the installation procedure uses it for the IVP test. If you later install one of the allowed TCP/IP software products, you can configure it using the Configuration utility. See Section 3.11.

36 Enter the optional X.25 network name:
If you do not know the name, ask your communications or operations support group.

37 Enter the X.25 DTE address for this system:
If you chose to configure X.25, this prompt appears. Enter the addresses you want to use. You can find the address using NCP.

38 Enter the device and directory for the DSNlink directory tree:
The default device is SYS$SYSDEVICE and the default directory is [DSN]. You can use any device on the system and change the directory.

39 Do you want VAX images provided? [NO] or Do you want Alpha images provided? [NO]?
You see the first prompt if you are installing DSNlink on an Alpha system. You see the second prompt if you are installing DSNlink on a VAX system. Respond Yes or Y if you are installing on an OpenVMS Cluster of Alpha and VAX systems that have a common disk. The installation provides files on the common disk for use by all systems.
Accept the NO response if you are installing on one standalone Alpha or if all systems in the OpenVMS Cluster are Alpha systems. Similarly, enter NO if the system is a standalone VAX or in an OpenVMS Cluster of all VAX systems.

40 Enter the name of the primary contact:
Enter the name of the person for Compaq to contact by telephone if necessary. Compaq specialists call that person only if they cannot respond to the service request electronically. You can change the contact by editing the file DSN$DATA:DSN_SRA_SIGNATURE.TXT.

When you submit a service request, you do not see the signature file although it is included. Be sure the contact information remains accurate.

41 Enter the phone number of the primary contact:
Include any region or area code with the phone number.

42 Do you want to purge files replaced by this installation [YES]?
This prompt appears if you reinstall DSNlink Version 3.0. During a reinstall, files that are modified by the installation procedure, such as the configuration file and the service request signature file, are updated and the previous files have their extensions changed to .OLD. Files that are not modified by the installation procedure, such as modem scripts and authorizations files, are not renamed.

If you answer YES to this prompt, DSNlink does not remove the latest .OLD files. However, DSNlink does remove all other noncustomizable files from previous installations.

For a list of files that are renamed and saved, see Section 3.15.1.

43 All installation questions have been answered.
Although there are no more installation questions, there is another prompt for the authentication key, as described in step 49.

44 Restoring product save set C …
You see this message if you install DSNlink on a VAX system. On an Alpha system, you see a message about restoring product save set D.

45 Creating a new DSN$STARTUP.COM
You see this message when you install DSNlink on a DSNlink Version 2.2 for OpenVMS system.
Note that DSNlink Version 1.2 had a template file, SYS$MANAGER:DSN$SYSTARTUP.TEMPLATE, which allowed you to create your own DSNlink startup procedure. This file is no longer provided. The installation procedure checks for the DSNlink Version 1.2 file SYS$STARTUP:DSN$SYSTARTUP.COM. If found, a message explains that you should create a file DSN$COMMAND:DSN$SYSTARTUP.COM and place your customizations there.

Do not modify the DSNlink Version 3.0 startup file, DSN$COMMAND:DSN$STARTUP.COM.

46 Setting the owner and protection on the DSNlink directories
Most DSNlink directories have this protection: S:RWE,O:RWE,G:RE,W:E. The DSN$KEYS directory, where your secret authentication key is stored, has the increased protection S:RW,O:RW,G,W. The file protection varies. You should not change the protection without consulting a DSNlink specialist.
For more information about authentication keys, refer to the DSNlink Version 3.0 for OpenVMS Installation Guide.

For information on converting a DSNlink Version 1.2 for OpenVMS authorization code to an authentication key or using ULTRIX or Compaq UNIX authentication keys, see the next step. For information on correcting an authentication key, see Section 3.11.6.

Enter the authentication key...

If there is no default authentication key, you must enter a key. Default keys for each access number appear if you previously installed DSNlink on the system. Note that the prompt is for the key itself, which begins with 0DIGITAL, 1DIGITAL, or 3DIGITAL. Do not enter the key's file name.

If there is no default authentication key, use these guidelines for what to enter:

- Request a new HMAC key from Compaq. The new keys are longer than the old MD5 keys and are, therefore, harder to break. (The new keys have 32 characters after the access number instead of 16 characters.)
- If you have DSNlink running on a Tru64™ UNIX system and the access number is the same as on the VAX or Alpha, you can use the Tru64 UNIX authentication key on the OpenVMS system. The Tru64 UNIX key has the following path:
  /usr/lib/dsn/keys/MD5-DIGITAL-access_number

  If the system has DSNlink Version 3.0, the key name is as follows:
  /usr/lib/dsn/keys/HMAC-DIGITAL-access_number

- If you use the access number with DSNlink Version 1.2 for OpenVMS on another system, you can create an authentication key from the DSNlink Version 1.2 for OpenVMS authorization code. On the DSNlink Version 1.2 for OpenVMS system, get the authorization code from the protected logical name table, DSN$PROTECTED_INFORMATION. Make a note of the definitions for the following logical names. In this example, 12345 is the access number and AAAA-BBBB-CCCC-DDDD is the authorization code:

  $ SHOW LOGICAL/TABLE=DSN$PROTECTED_INFORMATION
  "DSNACCESS_NUMBER" [exec,no_alias] = "12345"
  "DSNACCESS_NUMBER_AUTHORIZATION_CODE" [exec,no_alias] = "AAAA-BBBB-CCCC-DDDD"

  The authorization code is also in DSN$STARTUP.COM

  On the DSNlink Version 3.0 system, at the prompt for the authentication key, add 1DIGITAL-access_number- to the beginning of the authorization code. For example:

  1DIGITAL-12345-AAAA-BBBB-CCCC-DDDD

- If you have a new access number, you must enter its authentication key, which is provided by Compaq. There is no default.
- If your site has no earlier versions of DSNlink, enter the authentication key as it appears in your authorization letter from Compaq.
Installing DSNlink
2.3 Help on the Installation Procedure

DSNlink is insensitive to the case of the letters in the key. A zero (0) may appear in the part of the key following the access number, but there are no O letters to avoid confusion between 0s and Os.

Caution

Safeguard the authentication key. Anyone who knows it can impersonate you in communications with Compaq. The authentication key file provides the necessary security for DSNlink to create communication connections between your system and Compaq.

If you mistype the key, wait until the end of the installation procedure and then edit the file DSN$KEYS:HMAC-DIGITAL-access_number. For more information, see Section 3.11.6.

If you have multiple access numbers, be sure to enter the authentication key for its corresponding access number. The access number appears near the beginning of the key. Each access number has a unique authentication key. You cannot use the same authentication key for different access numbers.

For more information about authenticating messages from Compaq, see the section on security in the Overview chapter of the DSNlink Version 3.0 User’s Guide. For directions on displaying the User’s Guide, see Section 3.14.

Note that the conversion of the DSNlink Version 1.2 authorization code into a DSNlink Version 3.0 authentication key does not occur during the IVP portion of the installation procedure. The IVP only presents the key that was generated before the IVP portion. Therefore, you cannot generate keys by running the IVP separately.

A connection to Compaq will now be attempted using the DSNlink Network Exerciser application.

The installation verification procedure (IVP) uses the Network Exerciser utility, which is part of the DSNlink kit, to test the connection between your system and the Compaq host. If you have multiple access numbers, note that only the first access number is tested. Therefore, you should test the others with the Network Exerciser application after the installation procedure completes. For more information, see Section 3.13.

Your test should have the same number in the Bytes Sent, Bytes Read, and Bytes Good fields. The Messages Bad and Bytes Bad fields should be 0 (zero). For example:

Messages Sent: 10
Messages Read: 10
Messages Good: 10
Messages Bad: 0
Bytes Sent: 5043
Bytes Read: 5043
Bytes Good: 5043
Bytes Bad: 0
Bps: 5043

If any messages or bytes are bad, you may have transport errors that will affect DSNlink. After the installation, repeat the network test with this command:

$ DSN NETEX

If the problem persists, contact Compaq.
50  The DSNlink IVP was successful.

If the installation verification procedure (IVP) succeeds, you are ready to use
DSNlink.

If the IVP fails, check your responses to the prompts for:

•  Your DSNlink access number, step 20
•  Your Customer Support Center, step 21
•  Modem setup information, steps 26 through 34
•  Your authentication key, step 48

If all are correct, contact Compaq for assistance.

If you mistyped any of the above, see Section 3.11 to change your responses.

Please see Chapter 3 for information about the postinstallation tasks.
This chapter describes three categories of postinstallation tasks: tasks recommended by Compaq, optional customizations, and how to correct your responses to installation questions. The chapter also explains how to learn DSNlink. Deinstallation instructions are included.

3.1 Overview of the Postinstallation Tasks

Tasks Recommended by Compaq

After installing the DSNlink Version 3.0 software, Compaq recommends you perform the following tasks:

- To secure the DSNlink system, give the DSNlink root directory (defined by DSN$ROOT) an ACL that does not allow network access. Use the following command:

$$\text{SET ACL/ACL=(IDENTIFIER=[fal_server_uic],ACCESS=NONE) ddcu:[000000]DSN.DIR}$$

where fal_server_uic is the UIC of the account used by DECnet object 17 (FAL), and ddcu is the device on which the DSNlink root directory is located.

- If this is an initial installation of DSNlink, edit the system startup and shutdown files to include DSNlink as described in Section 3.2.

- The installation procedure makes A nodes the default receiver nodes. Override the default receiver node designation if that is not acceptable. For more information, see Section 3.3.

- If you will use the modem transport and there is no script for your modem, customize a script. For more information, see Section 3.4.

Optional Customizations

The following tasks are optional:

- Modify the local and remote authorizations files to specify who can use DSNlink applications. For details see Section 3.5.

- Customize the values supplied to DSNlink applications by modifying the configuration file. You can also create configuration files for individual DSNlink users. For more information, see Section 3.6.

Note that there is a new parameter, Mail.Incoming.CC, in the configuration file that allows you to specify the people to receive copies of incoming mail.

- Create a signature file for mail messages. See Section 3.8.

- Specify recipients for mail from Compaq. See Changing Mail.Incoming.CC in Section 3.6.3.

- Set up an automatic purge of log files. See Section 3.10.
3.1 Overview of the Postinstallation Tasks

- Create initialization files for Interactive Text Search (ITS) sessions. For more information, see section 3.3.3, Using an Initialization File, in the DSNlink User’s Guide. For information on accessing the User’s Guide, see Displaying the DSNlink User’s Guide in Section 3.14.

- Define a symbol for Lynx. DSNlink uses Lynx Version 2.7 to display the command line help. If you want to use just one version of Lynx on your system, create the following symbol:

  \$ LYNX := $ddcu: [DSN.EXE]LYNX

  where ddcu is the device where the DSNlink directory tree files were installed. The default is $SYS$COMMON.

- If you want to use the DSNlink SRQ utility, perform the tasks in Section 3.9.

- If you want to route communications from products that use WorldWire software through a DSNlink A node, see Section 1.4.2 for information about ensuring that the communications succeed.

- If your DSNlink host continues to use DSNlink Version 2.2 for OpenVMS, you must add the NOENCRYPT option to your cipher suite to prevent encryption. For more information, see Section 3.7.

- If you previously used a multiple-port firewall because each DSNlink application had its own TCP/IP port, you can remove all ports except port 2370 if you want to continue using the single-port mode provided in DSNlink Version 3.0. For more information, see Section 3.6.5.

Changing Your Responses to Installation Prompts

If you want to change your responses to installation prompts, see Section 3.11.

Learning to Use DSNlink

DSNlink includes a User’s Guide and other online documentation for both the DECwindows Motif and command line interfaces. For more information, see Section 3.14.

Deinstalling DSNlink

For information about deinstalling DSNlink see Section 3.16.

3.2 Editing the System Startup and Shutdown Files

The startup procedures are different depending on whether you use SYSMAN. To set up the DSNlink startup procedures, follow the directions for whichever of the following scenarios pertains to your system:

- The startup uses SYSMAN and this is an initial installation (see Section 3.2.1).

- The startup uses SYSMAN and the system had a previous version of DSNlink (see Section 3.2.2).

- The startup does not use SYSMAN and this is an initial installation (see Section 3.2.3).

- The startup does not use SYSMAN and the system had a previous version of DSNlink (see Section 3.2.4).

Also make sure your system shuts down DSNlink by doing whichever of the following pertains to your system:

- Adding the shutdown to new systems (see Section 3.2.5)
3.2 Editing the System Startup and Shutdown Files

3.2.1 Setting the System Startup for SYSMAN on an Initial Installation

If you use SYSMAN to have your system execute the startup file during system startup, do the following:

1. Create the file SYS$COMMON:[SYS$STARTUP]DSN_STARTUP.COM.
2. Enter the following line in the file, substituting your disk specification for ddcu:
   
   ```
   $ @ddcu:[DSN.COM]DSN$STARTUP.COM
   ```
3. Exit SYS$COMMON:[SYS$STARTUP]DSN_STARTUP.COM.
4. Invoke SYSMAN and add the DSNlink startup file as follows:
   
   ```
   $ SYSMAN
   SYSMAN> ADD FILE SYS$COMMON:[SYS$STARTUP]DSN_STARTUP.COM
   ```

The creation of SYS$COMMON:[SYS$STARTUP]DSN_STARTUP.COM allows SYSMAN STARTUP to run the DSNlink startup procedure because the SYS$COMMON:[SYS$STARTUP] directory is in the SYS$STARTUP search list.

3.2.2 Setting the System Startup for SYSMAN on Systems with Previous Versions of DSNlink

If you had a previous version of DSNlink on the system and are using SYSMAN, to set up the DSNlink startup procedure:

1. Follow the procedure in Section 3.2.1 to allow SYSMAN to start DSNlink.
2. Remove the following line from all SYS$MANAGER:SYSTARTUP_VMS.COM files:
   
   ```
   $ @SYS$STARTUP:DSN$STARTUP.COM
   ```

3.2.3 Setting the System Startup Command if You Do Not Use SYSMAN and It Is an Initial Installation

If you do NOT use SYSMAN, and this is an initial installation, to set up the DSNlink startup:

Edit SYS$MANAGER:SYSTARTUP_VMS.COM to add the following line after the Queue Manager and DECnet are started:

```
$ @ddcu:[DSN.COM]DSN$STARTUP.COM
```

3.2.4 Setting the System Startup if You Do Not Use SYSMAN on a System with a Previous Version of DSNlink

If you had a previous version of DSNlink on the system and do NOT use SYSMAN, to set up the DSNlink startup:

Change the following obsolete line in SYS$MANAGER:SYSTARTUP_VMS.COM:

```
$ @SYS$MANAGER:SYSTARTUP_VMS.COM
```

To the following:

```
$ @ddcu:[DSN.COM]DSN$STARTUP.COM
```

Where ddcu is your disk specification.
After Installation

3.2 Editing the System Startup and Shutdown Files

3.2.5 Setting the System Shutdown Command for an Initial Installation

If you have not installed DSNlink previously, add the following command line to the system shutdown file, SYS$MANAGER:SYSHUTDWN.COM:

$ @DSN$COMMAND:DSN$SHUTDOWN.COM

3.2.6 Setting the System Shutdown Command for a System with a Previous Version of DSNlink

If you have installed DSNlink previously, change the following line in SYS$MANAGER:SYSHUTDWN.COM:

$ @SYS$MANAGER:DSN$SHUTDOWN.COM

To:

$ @DSN$COMMAND:DSN$SHUTDOWN.COM

For information about the DSNlink Version 1.2 startup file, see the explanation for callout 45 in Section 2.3.

3.3 Overriding the Default Receiver Node

**Note:** If you installed DSNlink Version 3.0 on only one A node (the node that communicates directly with Compaq), and did not previously define a receiver node for ECOs and file copies from Compaq, you can skip this section.

Previously, if you wanted to designate a node to receive ECOs and file copies from Compaq, you added a name (which comes before all other node names at your site in ASCII sort order), to the Local.Node parameter in the configuration file, DSN$DATA:DSN_CONFIG.DAT. This causes the DSNlink host to send ECOs and file copies (for the access numbers defined on the node) to that node rather than to another node at your site whose name happens to be first in ASCII order.

Currently, the DSNlink installation adds the name 4DSN to the A node during the installation. For example:

Local.Domain: 123456,789101
Local.Node: zanode,4DSN

The result is that DSNlink delivers all future ECOs and file copies to the receiver node, zanode in this example, for the access numbers 123456 and 789101.

**Systems with Multiple Receiver Nodes**

However, if you install DSNlink on multiple A nodes, DSNlink adds 4DSN to each node’s name. If those A nodes use the same access numbers (as defined in the configuration file parameter Local.Domain), the host uses the first A node where a successful installation occurred as the default receiver node.

To override the default receiver node:

1. Choose the node you want to be the receiver node. Also, decide if you want one receiver node for all access numbers used at your site. The receiver node does not have to be an A node.

2. On the future receiver node, in the file DSN$DATA:DSN_CONFIG.DAT, replace 4DSN with a name earlier in ASCII sort order, such as 3DSN, to ensure that it is found first. For example:

Local.Domain: 123456,789101
Local.Node: zanode,3DSN
Or, remove the name 4DSN from the configuration files for all nodes except the one that you want to be the receiver node.

3. If you want separate receiver nodes for different access numbers, repeat the process on those nodes. This example shows entries on another receiver node with different access numbers:

```
Local.Domain: 76543,888777
Local.Node: zother,3DSN
```

4. Run the Network Exerciser from each receiver node to have its name and access number entered in the host’s route map for future deliveries to the receiver node. You can use the Network Exerciser window or this command:

```
$ DSN NETEX
```

### Systems with Previously-Defined Receiver Nodes

If you previously designated a receiver node and want it to continue as the receiver node, if its node name (check the configuration file parameter Local.Node) comes before 4DSN in ASCII sort order, you can do nothing. If its node name comes after 4DSN and you installed DSNlink on one or more A nodes:

1. Edit the configuration file, DSN$DATA:DSN_CONFIG.DAT, on the receiver node and change the node name to a name that comes before 4DSN in ASCII sort order. For example, if you previously added the name AFIRST to make ZANODE the receiver node, now add a name that comes before 4DSN, such as 3DSN:

```
Local.Node: zanode,afirst,3DSN
```

2. Regenerate the route map using the Configuration utility.

3. Run the Network Exerciser from the receiver node to have its name entered in the host’s route map for future deliveries to the receiver node. You can use this command:

```
$ DSN NETEX
```

4. Optionally, to avoid future confusion, on the other A nodes, remove the 4DSN from the Local.Node parameter and add a comment (preceded by a pound sign) for the node that is the receiver node. For example, change:

```
Local.Node: zlast,4DSN
```

To:

```
Local.Node: zlast #zanode is the receiver node
```

### 3.4 Creating or Modifying Modem Scripts

If you want to use a modem to communicate with Compaq and the modem is not supported, you must create a modem script for it. You can use the supplied scripts as models.

To create or modify a modem script:

1. If possible, choose an existing script to modify. The scripts are in the directory DSN$DATA with these file names:

   - CO2264.DDSF_SRC — for Codex 2264 modems with XON/XOFF flow control
3.4 Creating or Modifying Modem Scripts

- CO2264HW.DDFS_SRC — for Codex 2264 modems with RTS/CTS flow control
- DF196.DDFS_SRC — for Digital DF196 modems
- DF296.DDFS_SRC — for Digital DF296 modems
- HAYES.DDFS_SRC — for Hayes modems with XON/XOFF flow control
- HAYESHW.DDFS_SRC — for Hayes modems with RTS/CTS flow control
- MULTIMODEM.DDFS_SRC — for Multi-Tech MT1432, MT1932, and MT2834 modems with XON/XOFF flow control
- MULTIMODEMHW.DDFS_SRC — for Multi-Tech MT1432, MT1932, MT2834 modems with RTS/CTS flow control
- MULTIMODEM_EU.DDFS_SRC — for European Multi-Tech MT1432, MT1932, MT2834 modems with XON/XOFF flow control
- MULTIMODEMHW_EU.DDFS_SRC — for European Multi-Tech modems with RTS/CTS flow control
- NULL.DDFS_SRC — a script to aid in troubleshooting modem problems
- REPKO_EU.DDFS_SRC — for European REPKO modems with XON/XOFF flow control
- REPKOHW_EU.DDFS_SRC — for the European REPKO modems with RTS/CTS flow control
- USROBOTICS.DDFS_SRC — for U.S. Robotics modems with XON/XOFF flow control
- USROBOTICS HW.DDFS_SRC — for U.S. Robotics modems with RTS/CTS flow control

If your modem is connected to the system's serial port, such as TTA0, use a modem script with XON flow control. In this case, the recommended DTE speed is 19200 bps. The scripts with RTS/CTS flow control are recommended for modems connected to DEC servers.

2. If you want to create a new script, use the existing scripts as a guide to the sequence and contents of the script commands. For a list of commands, see Appendix A.

3.4.1 Guidelines for Scripts

The following are guidelines and suggestions for modifying and creating modem dialer scripts:

- Modify an existing script if possible. Use a script whose control commands are most like your modem's commands. For example, if your modem uses Hayes-compatible commands and is connected to a DEC server, make a copy of the HAYESHW.DDFS_SRC script and modify it.
- For descriptions of the commands in the dialer scripts, see Appendix A.
- Make sure the modem's description is on the same line as the Description: label in the script. The following example shows the correct placement:
3.4 Creating or Modifying Modem Scripts

- Use verbose mode rather than numeric mode for returns. The following example uses the verbose "CONNECT 14400" instead of the numeric FIND "13":

```
FIND "CONNECT 14400"
IF FOUND RETURN CONNECT SPEED 144000
```

This example shows the verbose "NO CARRIER" instead of the numeric "3".

```
FIND "NO CARRIER"
IF FOUND RETURN NO_ANSWER_PROTOCOL "No carrier detected"
```

Verbose mode is easier to maintain and troubleshoot than numeric mode.

- Disable the +++ escape sequence, if your modem uses it.

Most modems have an escape sequence that switches the modem from communicating mode back to command mode. On a Hayes modem, it is the sequence ++++. Disabling the escape sequence prevents a disconnection if data sent by DSNlink includes the escape sequence.

- Because the modem is dedicated to DSNlink, disable call waiting, if you have it, to prevent an incoming call from interrupting the DSNlink modem connection. You can include the command in the dialer script.

For example, a *70 at the start of the dial string disables call waiting, and the comma creates a pause for a few seconds before processing the next command:

```
SEND "ATDT*70,"
```

- Set the modem’s DTE (Data Terminating Equipment) flow control to CTS if you use a DECserver.

Do not use “XON/XOFF Passthru” mode or DTR/DTS flow control.

- Use 8-bit characters. The 7-bit data transfer is not supported.

- Many modems provide a feature whereby an incoming call to the modem causes announcement and attachment messages, such as "Ring Detected" and "Attached: xxxx baud."

Disable these messages for incoming calls. This prevents their being interpreted as data, which must then be discarded.

- Note that several DSNlink applications can make incoming calls to your modem, such as DSNlink Mail, File Copy, Network Exerciser, and Remote Login. Therefore, you should not disable incoming calls.

- The modem should be configured so that when a dialed connection loses the carrier (when the remote system hangs up or the line drops), the modem lowers its DCD¹ signal. This allows the operating system to signal a "carrier lost" event to the DSNlink software.

Typically, this is achieved by:
- Enabling Modem Control on the terminal server port

¹ The Data Carrier Detect (DCD) signal is transmitted by the modem and read by the computer or terminal server on pin 8.
After Installation

3.4 Creating or Modifying Modem Scripts

- If the modem understands Hayes commands, set the &C1 characteristic in the modem’s permanent memory (AT&C1&W0).

- The modem should be configured so that if your local system terminates the connection by lowering its DTR\(^2\) signal, the modem responds by hanging up and resetting itself. Typically, this is achieved by:
  - Enabling Modem Control on the terminal server port.
  - If the modem understands Hayes commands, use the &D2 command. Compaq recommends you do this in permanent memory on the modem (AT&D2&W0) and NOT in your dialer script because just issuing the command can cause a modem to reset and disconnect.

- If your modem is connected to a LAT terminal server, such as a DECserver, the terminal server port should disallow the Remote Modification feature. This feature permits the host computer system to change the baud rate, character length, and parity settings of the terminal server port. The terminal server should not permit those modifications.

- If your modem has a speed buffering capability (most do), enable it. This feature allows the modem to communicate with your computer at a fixed speed regardless of the phone line connection speed. Use the highest DTE speed supported by both your modem and your DTE device (computer or terminal server port).

- For maximum throughput, use RTS/CTS hardware flow control on modem speeds greater than 9600 baud.

3.4.2 Testing the Script

To test the script:

1. Copy your script to the directory DSN$DATA. Be sure the file name has the format modem-name.ddsf_src, for example, PP288.DDSF_SRC.

2. If you modify a dialer script supplied in the kit, rename it. This prevents the purging of the original script if you reinstall DSNlink. For example, if you modify the DSN$DATA:CO2264.DDSF_SRC script, your modified script name could be DSN$DATA:CO2264NEW.DDSF_SRC.

3. Test the script using the DSN TEST SCRIPT command. The following command tests the script PP288.DDSF_SRC. As shown, do not include the .DDSF_SRC file extension in the command. In the example, the baud rate is 14400, and the dialed network address (DNA) is the host’s modem number or a number you want to test on one of your systems:

```
$ DSN TEST SCRIPT -
  _$ /DEVICE=LTA001 -
  _$ /SCRIPT=pp288 -
  _$ /SPEED=14400 -
  _$ /DNA=m/pstn.555-1111/dsn_nsd
```

---

\(^2\) The Data Terminal Ready (DTR) signal is transmitted by your computer or terminal server and read by your modem on pin 20 of an EIA RS–232 connector.
3.4 Creating or Modifying Modem Scripts

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Establishing connection, please wait...
S>ATZ^M
R>0^M
S>ATEQ0V0 S0=1 S2=128 *DL0*FL1*SL0*SM2*XCI^M
R>0^M
R>
S>ATD
S>T5551111
S>^M
R>34^M
Dialing complete

For more information, use the following command to see the online help for the DSN TEST SCRIPT command:

$ HELP DSNLINK TEST

4. Start the DSNlink Configuration utility with the command
@DSN$COMMAND:DSN$CONFIG and choose the Reconfigure Transports menu item. Then choose the Modem Connections and Enable Modem Connections. Near the end of the series of prompts, when you get to the list of modem scripts, yours should be listed. Enter its number.

5. Run the Network Exerciser utility to verify that the script makes the connection and sends and returns all bytes accurately. For information on running the Network Exerciser, see Section 3.13.

3.5 Establishing Who Can Use DSNlink

This section explains how to control who has access to DSNlink applications both at your site and from remote Compaq hosts.

3.5.1 Specifying Local DSNlink Users

By default, all users at your site are allowed access to all DSNlink applications and the Network Exerciser utility. You can edit the local authorizations file to specify who is allowed to use DSNlink applications at your site. For example, you may want to limit who is allowed to submit service requests.

The local authorizations file is in:

DSN$DATA:DSN_LOCAL_AUTH.DAT

Getting Help in the DECwindows Motif Interface

For information on modifying the file:

1. Start DSNlink with this command:

   $ DSN/WINDOWS

2. From the DSNlink main window, choose Help => User's Guide.

3. From the Table of Contents, go to Chapter 8 and click on Section 8.2, Specifying Who Can Use DSNlink Applications at Your Site.

Getting Help in the Command Line Interface

If you do not use the DECwindows Motif interface, from the command line interface:

1. Enter this command to display DSNlink documents:

   $ DSN HELP

   The Lynx browser displays a series of documents.
After Installation

3.5 Establishing Who Can Use DSNlink

2. Move the cursor to the User's Guide and press Return. DSNlink displays the Table of Contents.
3. Press the space bar until you get to Chapter 8.
4. Choose Section 8.2, Specifying Who Can Use DSNlink Applications at Your Site.
5. Choose the section on Modifying the File.

3.5.2 Specifying Remote Access to DSNlink

The remote authorizations file controls which DSNlink applications Compaq can initiate on your system. The file gives Compaq access to these applications:

- File Copy — allows Compaq to copy files to or from DSNlink directories on your system.
- DSNlink Mail — allows Compaq to send mail to you and to respond to service requests.
- Network Exerciser — allows Compaq to initiate network tests from the Compaq host.

The remote authorizations file disallows remote logins through DSNlink. When you want to permit Compaq specialists to log on remotely, edit the remote authorizations file in:

DSN$DATA:DSN_REMOTE_AUTH.DAT

For More Information

For information on modifying the file, see the DSNlink User’s Guide, which you can access by following this procedure:

1. Enter this command:
   
   $ DSN/WINDOWS

2. From the DSNlink main window, choose Help ⇒ User’s Guide.
3. From the Table of Contents, go to Section 8.3, Allowing Remote Access to DSNlink.

If you do not use the DECwindows Motif interface, use the directions in section 3.5.1 for getting help in the command line interface. From the Table of Contents, go to Section 8.3, Allowing Remote Access to DSNlink.

3.6 Modifying the Configuration File

The DSNlink kit includes this systemwide configuration file:

DSN$DATA:DSN_CONFIG.DAT

The purpose of the configuration file is to supply values for applications.

Configuration Files on OpenVMS Clusters

If you install DSNlink on an OpenVMS Cluster, node-specific systemwide configuration files appear in DSN$ROOT:[DAT.member-name] subdirectories on the OpenVMS Cluster members. Although you do not have to modify the configuration files, you can customize the individual configuration files as long as you do not change the values for communications parameters.

You may want to define the parameters in the following sections in the systemwide file.
3.6 Modifying the Configuration File

3.6.1 Setting a Default Routing Code

Changing SRA.RoutingCode

A routing code is an abbreviated name for the specialized group or account at Compaq that handles service requests for a specific product.

The routing code you enter appears in the Routing Code field of the Create Service Request window. For example, this definition displays the routing code C-PLUS-PLUS:

SRA.RoutingCode: C-PLUS-PLUS

Some European Customer Support Centers have only one routing code, ESR (electronic service request). If your Support Center uses only ESR, enter it for the SRA.RoutingCode parameter:

SRA.RoutingCode: ESR

If you use several routing codes for most of your service requests, you can enter them within quotation marks. For example:

SRA.RoutingCode: "C-PLUS-PLUS, MS-Windows-NT, Storage"

In this case, all routing codes appear in the Create Service Request window. You must erase the routing codes you do not want from the Routing Codes field.

Note that default routing codes are not supplied to the command line interface. You must enter one with the DSN CREATE command.

3.6.2 Defining People to Get Copies of Service Request Submissions

Changing SRA.CC

This parameter defines the people to copy on service request submissions to Compaq. For example, the first person, PRYER, has an account on the DSNlink system, the others have accounts on systems that can receive mail from the DSNlink node:

SRA.CC: "PRYER, TIME::CHARLES, WATCH::PETERS, CLOCK::HANNES"

3.6.3 Defining People to Copy on All Incoming Mail

Changing Mail.Incoming.CC

This parameter defines a list of people to get copies of all incoming mail from Compaq. The people on this list receive copies of replies to service requests, notices that engineering change orders (ECOs) have been copied to your system, notices of incoming file copies, communique mail, and System-Initiated Call Logging (SICL) responses, if you have DECevent and SICL software.

As with the SRA.CC parameter, enter the names of individuals within quotation marks, separating names with commas. Be sure to remove the comment flag (#) in the first column.

Mail.Incoming.CC "PONDER::PAUL, SPRUCE::KONSTANTIN, WHTFIR::MARKS \ SYSTEM"

3.6.4 Defining the Recipients of Communique Mail

Use the following parameters to define people to receive copies of communique mail from Compaq.
After Installation
3.6 Modifying the Configuration File

Mail.Flash
This parameter defines a list of people to get copies of flash mail. Flash mail contains urgent product information including software engineering change orders (ECOs). The default definition is NONE. To redefine the parameter, use the same conventions as for the Mail.Incoming.CC parameter.

Mail.Informative
This parameter defines a list of people to get copies of general product information. The default definition is NONE. To redefine the parameter, use the same conventions as for the Mail.Incoming.CC parameter.

Mail.Marking
This parameter defines a list of people to get copies of mail explaining new products and services. This mail also provides information about updates to existing products and services. The default definition is NONE. To redefine the parameter, use the same conventions as for the Mail.Incoming.CC parameter.

Mail.Surveys
This parameter defines a list of people to get copies of surveys that ask for your opinions on Compaq services and product quality. The default definition is NONE. To redefine the parameter, use the same conventions as for the Mail.Incoming.CC parameter.

3.6.5 Using the TCP/IP Multiple-Port Mode

DSNlink Version 3.0 uses a single TCP/IP port, number 2370, for all applications. This creates a single-port entry in your route map, which makes firewall setup simpler. For more information about single and multiple-port modes, see the section on TCP/IP changes in the DSNlink Version 3.0 for OpenVMS Release Notes.

If you want to replace a single-port route map with a multiple-port route map, do the following:
1. Log on to the system where you want a route map in multiple-port mode.
2. Display the Configuration file, DSN$DATA:DSN_CONFIG.DAT in an editor.
3. Enter the parameter Setup.Routemap.IP.Ports.Single and set it to False. For example:

```
# General DSNlink parameters
#
Local.Domain: 12345
Local.Node: znode
Remote.Domain: digital
Remote.Node: cscabc
```

4. Start the Configuration utility with this command:

```
$ @DSN$COMMAND:DSN$CONFIG.COM
```

DSNlink displays the Configuration menu.
5. Choose menu item 4, Route Map Operations.
6. From the Route Map Operations menu, choose menu item 1 - Rebuild the DSNlink Route Map.

DSNlink rebuilds the route map from your route map template and moves any learned entries from your route map to the new one.

In multiple-port mode, DSNlink applications assign the ports shown in Table 3–1. Use these port numbers to configure your firewall to allow access by DSNlink.

<table>
<thead>
<tr>
<th>Application Abbreviation</th>
<th>Port</th>
<th>Application Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>dsn_nsd</td>
<td>2370</td>
<td>Name services directory</td>
</tr>
<tr>
<td>dsn_mail</td>
<td>2372</td>
<td>DSNlink Mail</td>
</tr>
<tr>
<td>dsn_login</td>
<td>2374</td>
<td>Remote Login</td>
</tr>
<tr>
<td>dsn_netex</td>
<td>2375</td>
<td>Network Exerciser</td>
</tr>
<tr>
<td>dsn_k2</td>
<td>2377</td>
<td>Cryptographic Services</td>
</tr>
<tr>
<td>dsn_file</td>
<td>2379</td>
<td>File Copy</td>
</tr>
</tbody>
</table>

Note that if you maintain the single-port route map, you can remove the entries for all ports except port 2370 from your firewall.

3.6.6 Customizing Configuration Files for Individual Users

Optionally, you can create local configuration files for individual DSNlink users. When you start an application, DSNlink reads the local configuration file, if it is present in their login directory, and then the systemwide file for any values not supplied by the local file.

For example, this section of a configuration file supplies beginning and ending dates for searches using the Interactive Text Search application:

```
# Parameter Value(s)...
#==============================================#
# DSNlink Interactive Text Search field defaults
#
#Its.BeginningDate: "August 1, 1999"
#Its.EndingDate: "October 1, 2000"
```

The DSNlink installation modifies the configuration file so that it contains the parameters necessary for DSNlink to connect to Compaq. You do not need to add any other values. However, to save time when using DSNlink applications, you may want to define optional parameters.

For More Information

For information on customizing the systemwide configuration file or creating a local configuration file, see the DSNlink User’s Guide using this procedure:

1. Start DSNlink in the DECwindows interface with this command:

   `DSN/WINDOWS`

   The DSNlink main window appears.

2. Choose Help => User’s Guide
3. From the Table of Contents, go to Section 8.5, Customizing Configuration Files.

If you use the command line interface, see Section 3.5.1, for directions on getting help in the command line interface. From the DSNlink User’s Guide Table of Contents, go to Section 8.5, Customizing Configuration Files.

3.7 Changing the Encryption Method to Prevent Encryption

In some countries, the DSNlink host may not be able to implement DSNlink Version 3.0 because of local restrictions on running encrypted software. If your DSNlink host continues to run DSNlink Version 2.2 for OpenVMS, your DSNlink Version 3.0 system cannot communicate with the host at all. The following messages appear:

```
$ DSN FETCH OPEN
...
--- DsnSra::CONNECTFAIL, Connection to server failed
   DsnSession::NOCIPHER, No common cipher found in specified cipher suite.
   Client cipher suite: TDES,RC5_128,RC4_128,DES
   Server cipher suite: NOENCRYPT
Failed to fetch the requested list.
Connection to server failed
No common cipher found in specified cipher suite.
   Client cipher suite: TDES,RC5_128,RC4_128,DES
   Server cipher suite: NOENCRYPT
Failed to fetch the requested list.
Connection to server failed
No common cipher found in specified cipher suite.
   Client cipher suite: TDES,RC5_128,RC4_128,DES
   Server cipher suite: NOENCRYPT
```

The workaround for this problem is to add the NOENCRYPT option to your cipher suite. That process prevents your system from encrypting any messages. To do so, change the definition of the logical name DSNSESSION_CIPHER_SUITE as follows:

```
$ DEFINE/SYSTEM DSNSESSION_CIPHER_SUITE -
$_ "TDES,RC5_128,RC4_128,DES,NOENCRYPT"
```

Note that the quotation marks are required in the DEFINE command.

To make the change permanent, enter the definition in your DSNlink startup command file, DSN$COMMAND:DSN$STARTUP.COM. For example:

```
$ ds dnsession_cipher_suite "TDES,RC5_128,RC4_128,DES,NOENCRYPT"
```

3.8 Creating a Mail Signature File

Optionally, you can create a systemwide signature file for appending to mail messages created with the DSNlink Mail application.

To create a signature file for mail messages:

1. Create a text file named DSN_MAIL_SIGNATURE.TXT.
2. Include at least the name and phone number of the person to contact when the response cannot be handled electronically.
After Installation

3.8 Creating a Mail Signature File

3. Put the file in DSN$DATA (on OpenVMS Clusters put it in DSN$ROOT:[DAT], not in the subdirectories for cluster members):

    DSN$DATA:DSN_MAIL_SIGNATURE.TXT

4. Optionally, create signature files for individual users and place them in their login directories:

    SYS$LOGIN:DSN_MAIL_SIGNATURE.TXT

When you use DSNlink Mail, DSNlink first searches your login directory and then the DSN$DATA directory for the file DSN_MAIL_SIGNATURE.TXT. If the file is found in your login directory, it is appended to mail messages. If it is absent, DSNlink uses the mail signature file in DSN$DATA.

For more information, see the chapter on the DSNlink Mail application in the DSNlink User’s Guide. (See Section 3.14 for information on displaying the User’s Guide.)

Your mail signature file is attached to any messages delivered by DSNlink mail such as courtesy copies of service requests and ITS articles.

3.8.1 Individual Signature Files for Service Requests

There is another signature file that DSNlink automatically attaches to new service requests, which can be created by any of these methods:

- OpenVMS Mail using DSN% mail addresses, as is done in DSNlink Version 1.2
- The DSNlink SRQ utility
- The DECwindows Motif and command line interfaces

The DSNlink installation procedure prompts you for information necessary to create the systemwide service request signature file but not the mail signature file.

The systemwide service request signature file is in:

    DSN$DATA:DSN_SRA_SIGNATURE.TXT

As with mail signature files, DSNlink searches your SYS$LOGIN directory for the signature file, DSN_SRA_SIGNATURE.TXT. You must create that file for individual users. If the file is absent, DSNlink uses the systemwide file in DSN$DATA.

Note

When you create service requests or mail messages, the signature file does not appear on the screen because it is added after you exit the Service Request or DSNlink Mail application. However, if you want to check it, copy yourself on the submission or mail. The signature file appears at the end.
After Installation

3.9 Setting Up the DSNlink SRQ Utility

3.9 Setting Up the DSNlink SRQ Utility

The DSNlink SRQ (Service Request) utility allows you to keep a database of your hardware systems and software contracts. Instead of having to find items such as hardware serial numbers, model names, or contract numbers, and then enter them in windows' fields or on the command line, you run the utility, choose the menu item to log a service request, and select the system pertinent to the service request. The information in the entry is automatically included in the service request.

To use the utility:

1. Optionally, define a symbol for running the SRQ utility. If you place the symbol in SYS$MANAGER:SYLOGIN.COM, it will be available to users when they log in to the system. For example:

   \$ DSN_SRQ := $DSN$UTILITIES:DSN$SRQ_UTILITY

   Note that if you enter the symbol in the DSNlink startup file, DSN$STARTUP.COM, it is valid for only the process executing DSN$STARTUP.COM, which is SYSTEM.

2. If you have not done so before, create the database of hardware systems or service contracts.

   For more information, see Section 8.10.2, Setting Up the Database, in the DSNlink User's Guide. To access the User's Guide, see Displaying the DSNlink User's Guide in Section 3.14.

3.9.1 Using the Mail Utility Database with the DSNlink V3.0 SRQ Utility

The DSNlink Version 2.2 SRQ utility is nearly identical to the DSNlink Version 1.2 Mail utility that was available from some Customer Support Centers. Table 3–2 shows the changes to file names.

<table>
<thead>
<tr>
<th>DSNlink Version 1.2 Mail Utility</th>
<th>DSNlink Version 3.0 SRQ Utility</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSN$MAIL_DATABASE.DAT</td>
<td>DSN$HARDWARE_DB.DAT</td>
</tr>
<tr>
<td>DSN$MAIL_TEMPLATE.TXT</td>
<td>DSN$SRQ_UTILITY_TEMPLATE.TXT</td>
</tr>
<tr>
<td>DSN$MAIL_UTILITY.EXE</td>
<td>DSN$SRQ_UTILITY.EXE</td>
</tr>
<tr>
<td>DSN$MAIL_UTILITY.HLB</td>
<td>DSN$SRQ_UTILITY.HLB</td>
</tr>
</tbody>
</table>

If you have a DSNlink Version 1.2 mail database file, to use it in the DSNlink Version 3.0 SRQ utility:

1. Rename DSN$MAIL_DATABASE.DAT to DSN$HARDWARE_DB.DAT.

2. Place DSN$HARDWARE_DB.DAT in the directory DSN$ROOT:[UTILITIES.HARDWARE_DB].

3. Be sure the file DSN$ROOT:[UTILITIES.HARDWARE_DB]DSN$SRQ_UTILITY_STARTUP.TXT, or at least its logical names, are included in the DSNlink startup file, SYS$STARTUP:DSN$STARTUP.COM.

If you do not have the DSNlink Version 1.2 for OpenVMS Mail system, DSNlink uses your current VMS Mail utility.
3.10 Managing Log Files

DSNlink creates several types of log files in the directory DSN$LOGS. You can purge, archive, or delete the files as desired.

To automatically purge files, use a command similar to the following:

$ SET FILE/VERSION_LIMIT=n filename.ext;*

Where filename.ext is the name of the file whose versions you want to purge. For example, to keep only three versions of the server log files, enter this command:

$ SET FILE/VERSION_LIMIT=3 DSN$LOGS:DSN_*.SERVER.LOG

The asterisk (*) is the abbreviation for DSNlink applications, such as NSD (Name Services Directory), FILE (File Copy), or ITS.

These are the log files in DSN$LOGS:

- The history log file, DSN$LOGS:DSN_HISTORY.LOG
  This file contains records for each use of DSNlink applications. DSNlink continues to write to this file indefinitely. Therefore, if the file gets too large, you can create a new one and archive or delete the old log file.

- Application server log files, which have the format
  DSN_application_SERVER.LOG
  When Compaq connects to your system, DSNlink creates these log files.

- Records of remote login sessions, such as:
  DSN_LOGIN_95006160902_23341.LOG and
  DSN_LOGIN_95006160902_23341.LOG_SESSION

- A modem daemon run log, which has the format
  DSN_RUN_linetype_LINE_nnn.LOG
  This file lists the modem daemon's activities. It may become quite large with time.

- The DSNlink startup log file, DSN$STARTUP.LOG

Additional log files appear in your login directory if you use batch mode to run DSNlink applications. For more information, see Section 8.4, Using the History Records and Other Log Files, in the DSNlink User's Guide.

3.11 Changing Your Responses to Installation Questions

When you install DSNlink, you may accidentally enter incorrect responses to questions or want to change your responses later. This section explains how to change the following:

- Your access number
- Your Customer Support Center
- Network transport information
- The DSNlink node name
- Your authentication key
- The signature file for service requests

NOTE: Do not edit the DSN$DATA:DSN_CONFIG.DAT file to change responses to installation questions. Doing so will not update other associated files.
After Installation
3.11 Changing Your Responses to Installation Questions

3.11.1 What You Can Change with the Configuration Utility
You can change the following items with the DSNlink Configuration utility:

- Your access number. You can add, change, delete or reorder your access numbers.
- Your Customer Support Center.
- Network transport information.

For information on changing your authentication key value when the access number does not need to be changed, see Section 3.11.6.

3.11.1.1 Starting the Configuration Utility
To start the Configuration utility, enter this command:

```
$ @DSN$COMMAND:DSN$CONFIG.COM
```

The Configuration utility's menu appears:

DSNlink for OpenVMS VAX Configuration Menu

1 - Change Access Number
2 - Change Support Centers
3 - Deinstall DSNlink
4 - Route Map Operations
5 - Stop DSNlink
6 - Start DSNlink
7 - Reconfigure Transports
E - Exit Configuration Procedure

Enter configuration option:

For more information on the Configuration utility, see the DSNlink User's Guide, Section 8.8, Using the DSNlink Configuration Utility on OpenVMS Systems.

3.11.1.2 Adding, Changing, or Deleting an Access Number
Use menu item 1, Change Access Number, when you need to add, delete, reorder, or change your access numbers.

If you add an access number, the procedure also requires that you enter the authentication key for the access number.

If you want to change only the contents of the authentication key, do not use this menu item. See Section 3.11.6.

Adding an Access Number

To add an access number:

1. Choose menu item 1, Change Access Number

DSNlink displays this menu:

```
Access Number Maintenance (Local.Domain)

1 - Add Access Number
2 - Delete Access Number
3 - Change Order of Access Numbers
4 - Exit with No Changes
E - Exit Access Number Maintenance
```

Enter option:

2. Enter 1 at the Enter option prompt.
3.11 Changing Your Responses to Installation Questions

DSNlink displays a list of your access numbers. For example:

These are your current access numbers:
1 - 151515
2 - 262626
3 - 373737

Enter your access number(s) (Return to exit):

The first number is your default access number. The number you add will be last on the list.

3. Enter the new access number. You can enter more than one new access number. Separate them with commas.

4. At the next prompt, enter the authentication key for the access number.
Note that the authentication key for another access number will fail authentication on the Compaq host. Each access number has its own unique key, which is provided by Compaq.
If you press the Return key without making any changes, DSNlink exits the menu.

5. Choose E to exit the procedure.
After you exit, DSNlink rebuilds the route map and displays the Configuration utility menu.

After you complete the procedure, run the Network Exerciser to verify that the new access number and its key are authenticated by the host. Use this command substituting your new access number for 88888:

$ DSN NETEX/ACCESSID=88888

Removing an Access Number
To remove an access number:

1. From the Configuration utility menu, choose menu item 1, Change Access Number.

2. From the Access Number Maintenance menu, choose item 2, Delete Access Number.
DSNlink displays the list of your access numbers.

3. Enter the number of the access number to delete. For example, to delete access number 2, 262626 in the previous example, enter 2 at the prompt.
After you confirm that you want to delete the access number, DSNlink deletes the access number and its authentication key.
If you next choose menu item 4, Exit with No Changes, the route map is not rebuilt and the deleted access number continues to appear in the route map. If you choose E, Exit Access Number Maintenance, DSNlink rebuilds the route map to remove the deleted access number.

Reordering Access Numbers
You reorder your access numbers when you have multiple access numbers and want to make a different access number the default.

To reorder your access numbers:

1. From the Configuration utility menu, choose menu item 1, Change Access Number.
After Installation

3.11 Changing Your Responses to Installation Questions

2. From the Access Number Maintenance menu choose item 3, Change Order of Access Numbers.
   A prompt appears for the new order.

3. Enter the numbers of the access numbers separated by commas. For example:
   Enter the new order for your access numbers (Return to exit): 2,1,3
   To verify the order, choose 3 again from the menu. If the access number you want to be the default number is listed first, press Return at the prompt to exit the prompt and accept the new order.

4. If you made a new access number the default, use the Network Exerciser to verify that it passes authentication on the host system. To run the Network Exerciser, choose Utilities => Network Exerciser from the DSNlink main window or enter DSN NETEX at the system prompt.
   The new default access number should appear in the messages.

Changing an Access Number

To change an access number, first delete the incorrect number and then add the new number as explained in the previous sections.

TIP: If you are changing an access number because you mistyped it, but you entered the correct authentication key, make a copy of the authentication key before you delete the mistyped access number. When you are prompted for the new access number’s authentication key, enter the saved authentication key, correcting it as necessary.

3.11.1.3 Changing Your Customer Support Center

Use menu item 2, Change Support Centers, when you either entered the wrong Support Center during installation or are changing Support Centers.

To change Support Centers:

1. Enter menu item 2, Change Support Centers.
   DSNlink displays the list of Support Centers. At the end of the list is a prompt for the Support Center. For example:
   Enter your Compaq Customer Support Center: [22]:

2. Enter the number of the new Support Center. For example:
   Enter your Compaq Customer Support Center: [22]: 24
   After you enter the Support Center, DSNlink rebuilds the route map.

3. Choose E to exit the utility.

Changing Access Numbers, Support Centers and Common Files on OpenVMS Clusters

If you add, change, or remove access numbers, change your Support Center, or make other changes with the Configuration utility on one node in an OpenVMS Cluster, the changes take effect only on the node where you make the changes. Consequently, if you change any of the files that reside the the DSN$ROOT:[DAT:nodename] directories, you need to change them on all cluster members.
3.11.2 To Add a New Member to the OpenVMS Cluster

The easiest way to add a new member is to reinstall DSNlink Version 3.0 on the common disk used by the new member. That sets up the files needed by the new member.

If you do not want to reinstall DSNlink to add a new OpenVMS Cluster member, do the following:

1. On the new node, create a node-specific directory, DSN$ROOT:[DAT_new_member]. The subdirectory name new_member is the node’s DECnet name, not an alias name.
2. Copy the DSN_MODEM_* files into the subdirectory from another OpenVMS Cluster member’s subdirectory.
3. Create a configuration file, DSN_CONFIG.DAT, and a route map, DSN_ROUTE_MAP.DAT, for the new OpenVMS Cluster member as follows:
   - Set default to the node-specific subdirectory:
     
     $ SET DEF DSN$ROOT:[DAT.member-name]
   - Create a new configuration file from the DSN$DATA:DSN_CONFIG.TEMPLATE file or use the DSN_CONFIG.DAT file from another cluster member. Modify the parameter that begin with Transport to have the transports used by the new cluster member. Also use the DECnet node name in the parameters that include the string LocalName. For example:

     Gateway.Direct: no
     Transport.Inside: TCP/IP
     Transport.Outside: TCP/IP
     Transport.LocalName.TCP: znew.splort.com
     Transport.LocalName.DECnet: znew
     Transport.LocalName.X25: dsnx25hub.11223344
   - Use the Configuration utility to rebuild the route map. See Section 3.11.1.1.

3.11.3 Changing A and B Node Types

This section explains how to change an A node into a B node or a B node into an A node without reinstalling DSNlink. Optionally, you can reinstall DSNlink on the system you want to change, which may be the easiest procedure. You do not have to deinstall DSNlink before reinstalling it to change the node type.

To Change an A Node into a B Node

1. Identify an existing A node that the new B node will use for communications with Compaq.
   - Note the DECnet name or TCP/IP address for this A node. The A node you choose can be any DSNlink Version 2.0 (or higher) system. You will enter this information in a file on the new B node.
After Installation
3.11 Changing Your Responses to Installation Questions

2. On the A node to become a B node, edit the DSNlink configuration file, DSN$DATA:DSN_CONFIG.DAT as follows:
   - Find the Gateway.Direct parameter. Change its value from Yes to No.
   - Add a new parameter to identify the A node (from step 1).
     Choose the parameter appropriate for the network transport you will use to communicate with the A node. The parameters are:
     Gateway.Name.DECnet
     Gateway.Name.TCP
   - Enter the parameter name at the beginning of a line in the file, follow it with a colon, and enter the node name/address of the A node. For example:
     Gateway.Direct: no
     Gateway.Name.TCP: alpha7.mycorp.com
     The transports you choose (TCP/IP in the above example) are listed in the Transport.Inside parameter. If the transports are not listed, add them to Transport.Inside. The values can be TCP/IP or DECnet. For example:
     Transport.Inside: TCP/IP
   - Exit the configuration file, saving the changes you made.

3. Run DSN$UTILITIES:DSNGENERATEROUTEMAP.EXE.
   This utility reads the parameters you just modified, and rebuilds the route map to have the new B node make DSNlink connections through the A node.

4. Verify that your A node is running and can make DSNlink connections. Use the Network Exerciser to test the connection to the host:
   $ DSN NETEX

5. Verify that the new B node can make connections to the host through the A node by running the Network Exerciser test from it. See the previous step for the command.
   If the connections are successful, the new B node is ready to use.

To Change a B Node into an A Node

1. Verify that the A node can communicate directly with Compaq over DECnet, TCP/IP, X.25, or with a modem. If the connection goes through a company firewall, have the firewall configured before performing these steps.

2. On the B node to become an A node, edit the DSNlink configuration file, DSN$DATA:DSN_CONFIG.DAT as follows:
   - Find the Gateway.Direct parameter. Change its value from No to Yes to indicate that direct connections are possible.
   - The transports you use to connect to Compaq are listed in the Transport.Outside parameter. If your transports are not there, add them to Transport.Outside. Use commas to separate the values. The values can be TCP/IP, DECnet, X25, or Modem. For example:
     Transport.Outside: TCP/IP, Modem
3.11 Changing Your Responses to Installation Questions

For each transport you listed in the Transport.Outside parameter, you need a corresponding Transport.Localname.* parameter, set to the appropriate network address of your system. For example:

- Transport.LocalName.DECnet: alpha7
- Transport.LocalName.Modem: pstn.719-555-0911
- Transport.LocalName.TCP: alpha7.mycorp.com
- Transport.LocalName.X25: net1.3101234567890

- Enter or change each parameter as needed. If you add parameters, follow the parameter name with a colon (:) as shown in the examples.

- Exit the configuration file, saving the changes you made.

3. Run DSN$UTILITIES:DSN$GENERATEROUTEMAP.EXE.

This utility reads the parameters you modified and rebuilds the route map on the new A node to direct DSNlink connections directly to Compaq.

4. Verify that your A node makes DSNlink connections. Use the Network Exerciser to test the connection to the host:

\$ DSN NETEX

If the Network Exerciser test is successful, the A node is functional.

3.11.4 Changing Network Information

Use menu item 7, Reconfigure Transports, to do the following:

- Change any information about transports such as your modem's phone number
- Add a transport
- Remove a transport
- Disable a transport, which prevents only DSNlink from using it

When you choose menu item 7, this menu appears:

Reconfigure Transports
1 - DECnet Connections
2 - Modem Connections
3 - TCP/IP Connections
4 - X.25 Connections
E - Exit Reconfigure Transports

Enter option:

When you choose a transport, the menu items allow you to enable and disable the transport for use by DSNlink. For example:

Enter option: 3
TCP/IP Connections
1 - Disable TCP/IP connections
2 - Enable TCP/IP connections
E - Exit TCP/IP Connections

Enter option:
After Installation

3.11 Changing Your Responses to Installation Questions

Disabling Transports
When you disable a transport, you make it unavailable for use by DSNlink. A message informs you that DSNlink has rebuilt the route map, which removes the paths for that transport. The transport remains available to other applications.

NOTE: You must disable the transport before changing it.

Enabling Transports
When you enable a transport, DSNlink prompts you for the same information requested by the installation procedure. DSNlink rebuilds the route map to create paths for the transport.

Stopping Transports
NOTE: If you want to stop the modem transport temporarily, use the DSN STOP LINE command instead of the Configuration utility. To restart the line, use the DSN START LINE command.

For more information on transports, see the sample installation script in Section 2.2. Look for the prompt in the installation script for the item you want to change and see the corresponding callout for an explanation.

Testing Transports
If you have multiple transports, the Network Exerciser uses only the lowest cost transport to make connections. Therefore, if you want to test them all, disable all the transports except one. Repeat the procedure until each is tested.

3.11.5 Changing the DSNlink Node Name

The DSNlink node name is the simple name of your DSNlink node, as opposed to the name as required by a network transport. The installation procedure used the node name WYNKEN as an example. You can change the node name either because you mistyped it during the installation process or because the node's name has changed.

To change your DSNlink node name:

1. Edit the systemwide configuration file, DSN$DATA:DSN_CONFIG.DAT and change the node name defined for the parameter Local.Node. For example, this defines your DSNlink node to be ISLAND:

   Local.Node: island

2. Rebuild the route map by starting the Configuration utility and entering item 4, Route Map operations. (For directions on starting the Configuration utility, see Section 3.11.1.1.)

   After you choose item 1, Rebuild the DSNlink Route Map, DSNlink rebuilds the route map using the new node name.

3.11.6 Changing an Authentication Key Only

When only the authentication key needs changing:

1. Edit this file:

   DSN$KEYS:HMAC-DIGITAL-access_number

   where access_number is the number associated with the key you want to change.
3.11 Changing Your Responses to Installation Questions

2. Enter the correct authentication key. Do not enter spaces or press Return anywhere. The key is similar to the following:

\[0\text{Compaq-12345-AAAA-BBBB-CCCC-DDDD}\]

where the key begins with 0 (zero) or 1, the word Compaq, and the access number. The remaining characters are unique to your key.

3. Test the corrected authentication key with the Network Exerciser as described in Section 3.13.

If the connection fails due to an authentication error, call Compaq to verify the contents of your authentication key.

3.11.7 Changing the Service Request Signature File

You can change the signature file that is attached to service requests by editing the file DSN\$DATA:DSN_SRA_SIGNATURE.TXT. The file is similar to this one:

```
********************************************************************************
Name : Ollie Hardy
Phone : 555-555-2222
********************************************************************************
```

Do not remove the row of 78 asterisks or the Name or Phone labels. Otherwise, you may change or add to the contact information.

Note that you can also create a mail signature file, DSN\$DATA:DSN_MAIL_SIGNATURE.TXT. It is automatically appended to your messages processed by DSNlink mail. See Section 3.8.

3.12 Copying DSNlink Startup Customizations to the New File

If you had an earlier version of DSNlink and customized the startup file, you need to copy any customizations you made to DSN\$COMMAND:DSN\$SYSTARTUP.COM. Do not change DSN\$STARTUP.COM. If the file DSN\$SYSTARTUP.COM does not exist, you must create it.

3.13 Running the Network Exerciser

You can run the Network Exerciser to test your connection to the Compaq host or to troubleshoot transport problems. The utility performs the usual DSNlink authentication and then loops messages between your system and the host.

Running the Network Exerciser in the Command Line Interface

To run the Network Exerciser in the command line interface, enter the DSN NETEX command. This example specifies the access number to use, 54321:

```
$ DSN NETEX/ACCESSID=54321
```

DSNlink V3.0 for OpenVMS VAX Network Exerciser Utility
Copyright 1989, 1998 Compaq Computer Corporation
Compaq Registered in U.S. Patent and Trademark Office.
Proprietary service tool software. Valid license required.
Connecting to target cscabc.digital.dsn. Please wait...

DsnSession Security Parameters:
- TDES encryption (NIST Triple DES cipher with 168-bit key)
- SR160 authentication (SHA-1/RIPEMD-160 RFC 2104 HMAC)
After Installation

3.13 Running the Network Exerciser

Attached to line line-000 for connection to
m/pstn.800-721-5555/dsn_netex
Local modem line responding, waiting for remote connection

For more help on the DSN NETEX command, enter this command:

$ HELP DSNLINK NETEX

Running the Network Exerciser in the DECwindows Motif Interface

To run the test in the DECwindows Motif interface:

1. Enter the DSN NETEX/WINDOWS command with the access number you want to test:

   $ DSN NETEX/WINDOWS/ACCESSID=access-number

   DSNlink displays the Network Exerciser window.

2. Make sure the test access number is part of the system locator in the Tester ID field.

3. Click on Begin Test.

Information about messages sent and returned appears next. If you see bad bytes, perform the test again. If bad bytes continue to be returned, notify Compaq.

3.14 Learning to Use DSNlink

Getting Help While Using DSNlink

To get help while you are using DSNlink in the DECwindows Motif interface:

- In the window where you want help, pull down the Help menu. Choose Help => Tutorial if you want a brief set of instructions for using the application. Choose Help => On Window if you want reference help on fields and items in the window.
- In a dialog box, click on Help.
- To get help on an error message, choose Help => Error Messages from the DSNlink main window. Choose the Netscape window's File => Find in Current... to display a dialog box that allows you to enter a search string.
- To see the DSNlink glossary, choose Help => Glossary from the DSNlink main window.
- To dismiss the online help windows, choose File => Exit Program from the Netscape window.

Getting Help on the Command Line Interface

To display the DSNlink documentation for the command line interface, enter this command:

$ DSN HELP

Following the Lynx notice, DSNlink displays a list of hypertext links to the documentation.
Displaying the DSNlink User's Guide
To display the DSNlink User's Guide for the DECwindows Motif interface:

1. Start DSNlink:
   
   ```
   $ DSN/WINDOWS
   ```
   The DSNlink main window appears.

   
   DSNlink displays the Table of Contents and Preface for the DSNlink User's Guide using the Netscape browser.

3. Click on the topic you want.

Getting Help on the VT Menu
The DSNlink VT Menu allows you to use DSNlink applications by choosing menu items. If you do not use the DECwindows Motif interface, the VT Menu is an alternative to using the command line interface, which requires that you enter commands.

To get help on the DSNlink VT Menu:

1. Display the DSNlink VT Menu with this command:
   
   ```
   $ @DSN$ROOT:[COM]DSN_VT_MENU.COM
   ```

2. Choose menu item 1, DSNlink Help.
   The Lynx browser displays a list of the DSNlink documentation.

3. Choose the Index and use the search feature to get information on individual menu items.

3.15 Reinstalling DSNlink
If you reinstall DSNlink Version 3.0, the procedure deletes files from the previous installation with the exception of the files listed in Table 3–3. Those files are also not deleted when you use the Deinstall DSNlink option on the Configuration utility menu or enter the DSN$DEINSTALL command, as shown in Section 3.16. Preserving the files provides default values to the reinstallation procedure and keeps files you may have customized.

3.15.1 Files That Are Not Removed When You Reinstall DSNlink
Table 3–3 shows the DSNlink Version 3.0 files that are not deleted by subsequent installations or the deinstallation command file.

<table>
<thead>
<tr>
<th>Directory</th>
<th>Contents</th>
<th>Description of the Files</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSN$DATA</td>
<td>DSN_CONFIG.DAT</td>
<td>The systemwide configuration file.</td>
</tr>
<tr>
<td>DSN$DATA</td>
<td>*.DDSF_SRC</td>
<td>Modem scripts.</td>
</tr>
</tbody>
</table>

(continued on next page)
# After Installation

## 3.15 Reinstalling DSNlink

### Table 3–3 (Cont.) Files Not Deleted by a Reinstallation or Deinstallation

<table>
<thead>
<tr>
<th>Directory</th>
<th>Contents</th>
<th>Description of the Files</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSN$DATA</td>
<td>DSN_LOCAL_AUTH.DAT</td>
<td>The file that permits local users access to DSNlink and the file that allows Compaq access to your DSNlink applications.</td>
</tr>
<tr>
<td></td>
<td>DSN_REMOTE_AUTH.DAT</td>
<td>The route map has routes for connections between your system and Compaq.</td>
</tr>
<tr>
<td>DSN$DATA</td>
<td>DSN_ROUTE_MAP.DAT</td>
<td>Signature files are automatically appended to service requests and mail messages.</td>
</tr>
<tr>
<td>DSN$DATA</td>
<td>DSN_SRA_SIGNATURE.TXT</td>
<td>Signature files are automatically appended to service requests and mail messages.</td>
</tr>
<tr>
<td></td>
<td>DSN_MAIL_SIGNATURE.TXT</td>
<td>Signature files are automatically appended to service requests and mail messages.</td>
</tr>
<tr>
<td>DSN$KEYS</td>
<td>HMAC-DIGITAL-access_number</td>
<td>Your authentication keys.</td>
</tr>
<tr>
<td>DSN$LOGS</td>
<td>DSN_HISTORY.LOG</td>
<td>The file that records DSNlink usage.</td>
</tr>
<tr>
<td>DSN$INCOMING_ FILES</td>
<td>Files transferred by the File Copy application</td>
<td>Directories for files copied to and from your system.</td>
</tr>
<tr>
<td>DSN$OUTGOING_ FILES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SYS$STARTUP</td>
<td>DSN$STARTUP.COM</td>
<td>The startup and shutdown procedures.</td>
</tr>
<tr>
<td></td>
<td>DSN$SHUTDOWN.COM</td>
<td></td>
</tr>
</tbody>
</table>

Note that the online documentation is in the DSN$HELP directory. If you customized any documentation files you want to keep, you should rename or move them before reinstalling DSNlink Version 3.0.

## 3.16 Deinstalling DSNlink

If you want to delete all DSNlink files, do the following:

1. **Make a note of the device where DSNlink is installed for future reference.**

   To find the device, enter these commands, which show the device name WYNKEN$DKA100:

   ```
   $ SHOW LOG DSN$ROOT
   "DSN$ROOT" = "SYS$SYSDEVICE:[DSN.]" (LNMSYSTEM_TABLE)
   $ SHOW DEV SYS$SYSDEVICE:[DSN.]
   
<table>
<thead>
<tr>
<th>Device</th>
<th>Device Error</th>
<th>Volume Label</th>
<th>Free Blocks Count</th>
<th>Trans Mnt Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>WYNKEN$DKA100</td>
<td>Mounted</td>
<td>0 VMS062</td>
<td>121212</td>
<td>111</td>
</tr>
</tbody>
</table>
   ```

2. **Enter the following command from a privileged account:**

   ```
   $ @DSN$COMMAND:DSN$DEINSTALL
   
   A series of questions ask about deleting DSNlink items.
   ```

3. **Answer Y (yes) to all questions.**

4. **After the deinstallation procedure is complete, remove the remaining files, which are listed in Table 3–3, with this command:**

   ```
   $ DELETE ddcu:[DSN...]*.*;*
   
   where ddcu: is the device where DSNlink is installed. Some directories may have contents, which prevent their deletion.
   ```
5. Delete the contents of the subdirectories that were not removed by the previous command.

6. Delete the top-level DSNlink directory:
   
   ```
   $ DELETE ddcu:[000000]DSN.DIR;*
   ```

7. When removing DSNlink Version 2.x installations, use this command to delete the DSNlink DSN$STARTUP.COM and DSN$SHUTDOWN.COM files:

   ```
   $ DELETE SYS$STARTUP:DSN$*.*;*
   ```

   Note that the command removes .OLD and .LOG files as well as .COM files.

   This step in not necessary for DSNlink Version 3.0 installations because the DSN$STARTUP.COM and DSN$SHUTDOWN.COM files are in DSN$ROOT:[COM] not SYS$STARTUP.

8. Remove commands for DSNlink from the system startup and shutdown files.
   
   For the file names and commands to delete, see Section 3.2.

   The DSNlink Version 3.0 software is now completely removed.
A.1 Description

This appendix lists the commands in modem dialer scripts. The information is intended for reference when you create a new dialer script or modify an existing one.

The modem script language, Dialer Driver Script Facility (DDSF), must be used to create the modem scripts for use by DSNlink applications. The purpose of a modem script is to automate the process of dialing the phone number for the Compaq host and establishing a connection. If the connection is not established, the script's error handling procedures notify the user of the reason for the connection failure.

Modem Scripts
The DSNlink modem dialer scripts are in:

DSN$DATA:*.DDSF_SRC

Any dialer script you create or modify must be in this directory and have the file extension .DDSF_SRC to be accessible to DSNlink.

For More Information
For information on modifying dialer scripts, see Section 3.4.

A.2 Delimiters

Table A–1 describes the valid DDSF command language delimiters.

<table>
<thead>
<tr>
<th>Delimiter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Space or Tab</td>
<td>All commands and keywords must be separated by at least one space or tab character.</td>
</tr>
<tr>
<td>Quotation marks</td>
<td>All text strings used in the commands must be enclosed in quotation marks (&quot; &quot;).</td>
</tr>
<tr>
<td>Exclamation point</td>
<td>An exclamation point (!) in the script file tells the DDSF processor that any text from that point to the end of that line is a comment and should be ignored. Do not use comments on the command line.</td>
</tr>
</tbody>
</table>
A.3 Control Characters

Table A–2 shows the format for control characters in DDSF scripts.

<table>
<thead>
<tr>
<th>Control Character</th>
<th>Character Format</th>
<th>Control Character</th>
<th>Character Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUL</td>
<td>^@</td>
<td>DLE</td>
<td>^P</td>
</tr>
<tr>
<td>SOH</td>
<td>^A</td>
<td>DC1</td>
<td>^Q</td>
</tr>
<tr>
<td>STX</td>
<td>^B</td>
<td>DC2</td>
<td>^R</td>
</tr>
<tr>
<td>ETX</td>
<td>^C</td>
<td>DC3</td>
<td>^S</td>
</tr>
<tr>
<td>EOT</td>
<td>^D</td>
<td>DC4</td>
<td>^T</td>
</tr>
<tr>
<td>ENQ</td>
<td>^E</td>
<td>NAK</td>
<td>^U</td>
</tr>
<tr>
<td>ACK</td>
<td>^F</td>
<td>SYN</td>
<td>^V</td>
</tr>
<tr>
<td>BEL</td>
<td>^G</td>
<td>ETB</td>
<td>^W</td>
</tr>
<tr>
<td>BS</td>
<td>^H</td>
<td>CAN</td>
<td>^X</td>
</tr>
<tr>
<td>HT</td>
<td>^I</td>
<td>EM</td>
<td>^Y</td>
</tr>
<tr>
<td>LF</td>
<td>^J</td>
<td>SUB</td>
<td>^Z</td>
</tr>
<tr>
<td>VT</td>
<td>^K</td>
<td>ESC</td>
<td>^</td>
</tr>
<tr>
<td>FF</td>
<td>^L</td>
<td>FS</td>
<td>^\</td>
</tr>
<tr>
<td>CR</td>
<td>^M</td>
<td>GS</td>
<td>^]</td>
</tr>
<tr>
<td>SO</td>
<td>^N</td>
<td>RS</td>
<td>^^</td>
</tr>
<tr>
<td>SI</td>
<td>^O</td>
<td>US</td>
<td>^_</td>
</tr>
</tbody>
</table>

NOTE: There is no implied CR at the end of commands. Therefore, if a command requires processing by the modem software, send a CR (carriage return) character after the command. In general, you do not need a CR after commands that pass control or assign values within the dialer script. For example, the ^M in the next set of commands is necessary to dial the phone number:

```
SEND "ATDT"
SEND PHONENUMBER
SEND "^M"
```

The following commands do not require a CR:

```
WAITFOR 60 RESPONSE SIZE=40 TERM=8192
IF TIMEOUT RETURN TIME_OUT
```

A.3.1 Sending the Circumflex Character

If you need to send a circumflex (^) by itself followed by an uppercase letter, make it two strings. For example, to send an ^ and an M:

```
SEND "^"
SEND "M"
```

A.4 Numeric Values

All numeric values specified within the script file must be in decimal (base 10) notation. The command parser does not recognize hexadecimal, octal, or binary numbers.
A.5 DDSF Script Commands

The next sections describe these DDSF script commands:

- FIND
- GOTO
- IF
- INCREMENT
- LET
- ON...GOTO
- PURGE
- RETURN
- SECTION
- SEND
- SET
- WAITFOR
- WAITSTRING
- ZERO

The commands are case insensitive.
DESCRIPTION

The FIND command searches the RESPONSE buffer for the specified string and sets the FOUND and NOTFOUND flags accordingly. The maximum length of the text string is 80 characters. If the data in the RESPONSE buffer contains the text string, a match occurs. Null strings always set the FOUND flag.

SYNTAX

FIND parameter

PARAMETER

"string-constant"

The match string pattern used or string keyword to search for in the RESPONSE buffer. Enclose the string in quotation marks ("string-constant").

PARAMn

Equates to the internal parameters param1, param2, or param3.

EXAMPLES

1. FIND "Ready"

   This command searches the RESPONSE buffer for the string "Ready".

2. FIND PARAM1

   This command searches the RESPONSE buffer for the PARAM1 string.
GOTO

Description
The GOTO command moves the processor to the command section specified by the value of n. If you do not declare a section for n, an error is returned. The maximum number of section labels is 20.

Syntax
GOTO n

Parameter
n
The script section entry point for the branch.

Example
GOTO 2
This command branches to location SECTION 2 in the script file.
IF

Description
The IF command tests one of several conditions and performs a logical execution flow control.

Syntax
IF condition action

Conditions

RESPONSE="text"
A 512-character buffer where modem responses are stored. Use the RESPONSE parameter to test whether the RESPONSE buffer contents are equal to the specified text string.

[NO]TIMEOUT
A DDSF Boolean expression whose value is determined whenever a WAITFOR command is processed. If the specified time period expires before completion of the WAITFOR command, this Boolean expression becomes TRUE; otherwise, it is FALSE. Use this parameter to test whether the last WAITFOR command resulted in a timeout.

[NOT]FOUND
A DDSF Boolean expression whose value is determined whenever a FIND command is processed. If the text string specified in the FIND command is located within the response buffer, the FOUND Boolean expression becomes TRUE; otherwise, it is FALSE. Use this parameter to test whether the last FIND command was a success or failure.

COUNTERn ( <, >, =, <=, =>) numeric_value
One of several DDSF counters. These counters can be used to create looping algorithms within the structure of a script file. There are five counters: COUNTER1 through COUNTER5. Use this parameter to compare the counter contents with the specified numeric value, according to the specified relational operator.

PARAMn="text"
Equates to the internal parameter param1, param2, or param3.
Actions

**GOTO n**
If the condition is TRUE, branch to the specified script section (n).

**LET PARAMn="string"**
If the condition is TRUE, assign the string to parameter n.

**RETURN exit-keyword [SPEED integer] [PROTOCOL "string"]**
If the condition is TRUE, return to the caller with the specified exit-keyword and optional SPEED and PROTOCOL values. See the RETURN command description for more details.

Examples

1. **IF RESPONSE="r^M" GOTO 3**
   This command compares the RESPONSE buffer to the "r^M" string. If the string matches, go to SECTION 3.

2. **IF COUNTER1>=3 RETURN DIAL_ERR**
   This command compares the value of COUNTER1 with 3. If they are equal, then return DIAL_ERR status to the application.

3. **IF FOUND RETURN CONNECT SPEED 9600 PROTOCOL "None"**
   This command checks the FOUND flag value. If the value is TRUE, then return the CONNECT status to the application with speed 9600 and protocol "None".
INCREMENT

Description
The INCREMENT command adds 1 to the current value of an internal counter COUNTERn. This command, with IF and GOTO commands, is usually used for loop control.

Syntax
INCREMENT COUNTERn

Parameter
COUNTERn
Specifies one of the DDSF counters to be incremented. Use these counters to create looping algorithms within the structure of a script file. There are a total of five counters: COUNTER1 through COUNTER5.

The counters can be initialized with the LET or ZERO commands.

Example
INCREMENT COUNTER1
This command increments the keyword COUNTER1.
LET

Description
The LET command allows you to set any counter to a known (or base) value. It assists in the creation of states within the script when used with the ON COUNTER GOTO command. Counter values cannot exceed 65535.

Syntax
LET COUNTERn = y

Parameters
COUNTERn
Specifies one of several DDSF counters to be set. You can use these counters to create looping algorithms within the structure of a script file. There are a total of five counters: COUNTER1 through COUNTER5.

y
The decimal value for the counter.

Example
LET COUNTER1=5
This command sets COUNTER1 to the value 5.
ON...GOTO

Description
The ON...GOTO command is used to perform computed branches within the execution of a script. Script execution branches to the section \(x\) whose position in the destination list corresponds to the value in the specified counter. An error occurs if the contents of the specified counter exceed the number of sections in the destination list. If the counter contains 0, execution continues with the command that follows the ON...GOTO command.

Syntax
ON COUNTER\(n\) GOTO \(x_1\) \(x_2\) \(x_3\) ... \(x_{10}\)

Parameters
- **COUNTER\(n\)**
  Specifies one of several DDSF counters to be tested. You can use these counters to create looping algorithms within the structure of a script file. There are a total of five counters: COUNTER1 through COUNTER5.

- **\(x_1\) \(x_2\) \(x_3\) ... \(x_{10}\)**
  A destination list of valid sections that exist within the script. You can specify a maximum of 10 sections. Sections can appear more than once and in any order within the destination list. Entries in the destination list are separated by spaces.

Example
ON COUNTER1 GOTO 5 6 7

In this command, if the value in COUNTER1 is 1, execution branches to SECTION 5. If COUNTER1 contains a 2, execution branches to SECTION 6, and so on.
**PURGE**

**Description**

The PURGE command clears the terminal-to-modem communications channel of any unread modem responses. Purging does not affect data already in the RESPONSE buffer.

**Syntax**

```
PURGE
```

**Example**

```
PURGE
```

This command clears the DDSF type-ahead buffer.
**RETURN**

**Description**

The RETURN command causes the DDSF processor to do the following procedures, usually in this order:

- Stop processing the DDSF script file
- Assign the optional speed and/or protocol values in the DDSF status block
- Return control to DSNlink with a status code

**Syntax**

```
RETURN  exit_keyword [SPEED integer] [PROTOCOL "string"]
```

**Parameters**

**exit_keyword**

The exit keywords equate to predefined result values. You can assign these values to the DDSF return status block through the RETURN command. The exit keywords are listed in Table A–3.

**Table A–3 Exit Keywords**

<table>
<thead>
<tr>
<th>Keywords</th>
<th>Description</th>
<th>DDSF Return Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUSY</td>
<td>DDSF detected target line busy</td>
<td>DDSF_S_BUSY</td>
</tr>
<tr>
<td>CALL_FAIL</td>
<td>DDSF failed to establish the connection</td>
<td>DDSF_S_CALLFAIL</td>
</tr>
<tr>
<td>CONNECT</td>
<td>Connection established</td>
<td>DDSF_S_CONNECT</td>
</tr>
<tr>
<td>DIAL_ERR</td>
<td>DDSF sensed device problem when trying to dial</td>
<td>DDSF_S_DIALERR</td>
</tr>
<tr>
<td>NO_ANSWER</td>
<td>DDSF detected no answer</td>
<td>DDSF_S_NOANSWER</td>
</tr>
<tr>
<td>NO.DialTone</td>
<td>DDSF detected no dial tone</td>
<td>DDSF_S_NODIALTONE</td>
</tr>
<tr>
<td>TIME_OUT</td>
<td>DDSF timed out without getting modem status</td>
<td>DDSF_S_TIMEOUT</td>
</tr>
</tbody>
</table>

**[SPEED integer]**

If a SPEED value is specified, it will be put into the speed field of DDSF status block and returned to the calling application.

The speed can be any positive integer. Common SPEED values include 300, 1200, 2400, 4800, 9600, and 19200 baud.

**[PROTOCOL "string"]**

If a PROTOCOL value is specified, it will be put into the protocol field of DDSF status block and returned to the calling application. DDSF does not check the "string" value, so you can put any value into the "string." The maximum length is 20.
Examples

1. RETURN DIAL_ERR
   This command returns to the application with exit status DDSF_S_DIALERR.

2. RETURN CONNECT SPEED 2400
   This command returns to the application with exit status DDSD_S_CONNECT, and puts 2400 into the speed field of the DDSF status block.

3. RETURN CONNECT PROTOCOL "MNP"
   This command returns to the caller with exit status DDSF_S_CONNECT, and puts "MNP" into the protocol field of the DDSF status block.

4. RETURN CONNECT SPEED 9600 PROTOCOL "Reliable"
   This command returns to the caller with exit status DDSF_S_CONNECT, and puts 9600 into the speed field, and "Reliable" into the protocol field of the DDSF status block.
The \texttt{SECTION} command creates the script command sections by defining entry points within the script file. All \texttt{SECTION} keywords must be followed by a unique number in the range of 1 to 20.

\textbf{Syntax}

\begin{verbatim}
SECTION n
\end{verbatim}

\textbf{Parameter}

\begin{itemize}
\item \texttt{n} \\
A unique integer in the range of 1 to 20.
\end{itemize}

\textbf{Example}

\begin{verbatim}
SECTION 1
\end{verbatim}

This command marks the code that follows it as belonging to \texttt{SECTION 1}, similar to the way a label is used in standard programming languages. Hence, a \texttt{GOTO 1} command causes script execution to resume at the first line that follows the \texttt{SECTION 1} entry point.
SEND

Description

The SEND command lets you send a string parameter to the modem. If you specify a script string keyword, the DDSF script processor sends the contents of the string keyword to the modem.

Syntax

SEND parameter

Parameters

"string-constant"
A text string enclosed in double quotation marks ("").

PARAMn
Equates to the internal parameters param1, param2, or param3.

PHONENUMBER
The telephone number of the DSNlink host. The number is provided by the code and does not appear as an argument to PHONENUMBER in the dialer script.
SEND

Examples

1. SEND "^B"
   This command sends a Ctrl-B character to the modem.

2. SEND "12345678"
   This command sends a text string "12345678" to the modem.

3. SEND PARAM1
   This command sends the string in the PARAM1 keyword to the modem.

4. SEND PHONENUMBER
   This command sends the string in the PHONENUMBER keyword to the modem.
SET

Description

Used mainly as a script debugging tool, this option enables and disables the display of text strings received from or sent to the modem.

Syntax

SET parameter

Parameters

DISPLAY ON/OFF/FULL

The SET DISPLAY ON and SET DISPLAY FULL commands display data sent to the modem through SEND commands, and data received from the modem through WAITFOR commands. The SET DISPLAY OFF command disables this feature.

Examples

1. SET DISPLAY FULL
   This command enables the DDSF debugging option.

2. SET DISPLAY OFF
   This command disables the DDSF debugging option.
The `WAITFOR` command provides a mechanism for specifying a time period during which the processor waits for a given event to occur. The event can be a certain number of characters are received, or a terminate character is detected. When an event is detected within the timeout period, the `time_out` variable is assigned the value FALSE. Otherwise, `time_out` is assigned the value TRUE.

You can also use `WAITFOR` as a simple delay mechanism if you specify a `time_out` parameter without an associated event.

**Syntax**

```
WAITFOR  time_out [RESPONSE] [SIZE=integer] [TERM=integer]
```

**Parameter**

- `time_out`
  This parameter specifies the maximum time in seconds the `WAITFOR` command is executed.

- `RESPONSE`
  This is an optional keyword for syntax clarity.

- `SIZE=integer`
  This parameter specifies the maximum number of characters to accept by the `WAITFOR` command. When it is reached, the command exits. Be sure the size is equal to or larger than the number of characters that are likely to be in the RESPONSE buffer.

- `TERM=integer`
  This parameter specifies a 32-bit, unsigned integer mask to be the terminator of the `WAITFOR` command. Each bit corresponds to one ASCII character: bit 0 corresponds to ASCII 0, and so on. Specify the mask in decimal. A value of zero means no terminators.

  If you want the terminators to be a control character, such as `^M` (CR), assign its value to the `TERM` parameter. For example, `^M` is equal to $2^{13}$ or 8192. The `^J` (LF) control character has a value equal to $2^{10}$ or 1024.
Examples

1.  **WAITFOR 4 RESPONSE SIZE=20 TERM=8192**

   This command waits a maximum of 4 seconds for either 20 characters or a CR (213) terminator received from the modem.

2.  **WAITFOR 10 RESPONSE TERM=1024**

   This command waits a maximum of 10 seconds for an LF (210) terminator received from the modem.

3.  **WAITFOR 40**

   This command waits 40 seconds then continues with the next command.

4.  **WAITFOR 30 RESPONSE TERM=9344**

   This command waits 30 seconds for the BEL, LF, and CR terminators. The value of TERM is the combined values of BEL (128), LF (1024) and CR (8192).
WAITSTRING

Description
The WAITSTRING command replaces the <wait> tag in the PHONENUMBER buffer with the "string" provided and leaves the result in the PHONENUMBER buffer.

Syntax
WAITSTRING "string"

Parameter
"string"
The "string" is composed of any valid wait characters that the modem can interpret.

Examples
1. WAITSTRING ",,"  
The <wait> tag in PHONENUMBER buffer is replaced by ",," in this command. This command can be used in the DDSF script for Hayes modems.

2. WAITSTRING "="  
The <wait> tag in PHONENUMBER buffer is replaced by "=" in this command. This command can be used in the DDSF scripts for DF196 and DF296 modems.

See your modem's specifications for what to use for the value of "string."
ZERO

Description

The ZERO command resets a specified counter (COUNTER1 to COUNTER5) to zero.

Syntax

ZERO COUNTERn

Parameter

COUNTERn
The internal counter that will be initialized to zero.

Example

ZERO COUNTER1

This example initializes the keyword COUNTER1 to a value of zero.
This appendix shows the services' configurations for DSNlink applications using DEC TCP/IP Services for OpenVMS (UCX). The information is displayed when you enter this command:

```
$ UCX SHOW SERVICE/FULL DSN_app
```

where `app` is the application abbreviation, such as DSN_ITS. For descriptions of the applications, see the DSNlink Service Tool Description, which is included in the save set DSNLINK030.S.

### B.1 Cryptographic Services Service

The service for the DSNlink Cryptographic Services application is as follows:

```
Service: DSN_K2
State: Enabled
Port: 2377 Protocol: TCP Address: 0.0.0.0
Inactivity: 5 User_name: AES_DSNLINK Process: DSN_K2
Limit: 32767 Active: 0 Peak: 0
File: DSN$COMMAND:DSN_K2_SERVER.COM
Flags: Listen Multi
Socket Opts: Rcheck Scheck
Receive: 0 Send: 0
Log Opts: Acpt Actv Dactv Conn Error Exit Logi Logo Mdfy Rjct TimO Addr
File: DSN$LOGS:DSN_K2_SERVER.LOG
Security
Reject msg: not defined
Accept host: 0.0.0.0
Accept netw: 0.0.0.0
```

### B.2 File Copy Service

The service for the DSNlink File Copy application is as follows:

```
Service: DSN_FILE
State: Enabled
Port: 2379 Protocol: TCP Address: 0.0.0.0
Inactivity: 5 User_name: AES_DSNLINK Process: DSN_FILE
Limit: 32767 Active: 0 Peak: 0
File: DSN$COMMAND:DSN_FILE_SERVER.COM
Flags: Listen Multi
Socket Opts: Rcheck Scheck
Receive: 0 Send: 0
```
Services Configurations for DSNlink Applications

B.2 File Copy Service

Log Opts: Acpt Actv Dactv Conn Error Exit Logi Mdfy Rjct TimO Addr
File: DSN$LOGS:DSN_FILE_SERVER.LOG
Security
Reject msg: not defined
Accept host: 0.0.0.0
Accept netw: 0.0.0.0

B.3 Mail Service

The service for the DSNlink Mail application is as follows:

Service: DSN_MAIL
State: Enabled
Port: 2372 Protocol: TCP Address: 0.0.0.0
Inactivity: 5 User_name: AES_DSNLINK Process: DSN_MAIL
Limit: 32767 Active: 0 Peak: 0
File: DSN$COMMAND:DSN_MAIL_SERVER.COM
Flags: Listen Multi
Socket Opts: Rcheck Scheck
Receive: 0 Send: 0
Log Opts: Acpt Actv Dactv Conn Error Exit Logi Mdfy Rjct TimO Addr
File: DSN$LOGS:DSN_MAIL_SERVER.LOG
Security
Reject msg: not defined
Accept host: 0.0.0.0
Accept netw: 0.0.0.0

B.4 Network Exerciser Service

The service for the DSNlink Network Exerciser application is as follows:

Service: DSN_NETEX
State: Enabled
Port: 2375 Protocol: TCP Address: 0.0.0.0
Inactivity: 5 User_name: AES_DSNLINK Process: DSN_NETEX
Limit: 32767 Active: 0 Peak: 0
File: DSN$COMMAND:DSN_NETEX_SERVER.COM
Flags: Listen Multi
Socket Opts: Rcheck Scheck
Receive: 0 Send: 0
Log Opts: Acpt Actv Dactv Conn Error Exit Logi Mdfy Rjct TimO Addr
File: DSN$LOGS:DSN_NETEX_SERVER.LOG
Security
Reject msg: not defined
Accept host: 0.0.0.0
Accept netw: 0.0.0.0

B.5 Name Services Directory Service

The service for the DSNlink name services directory application is as follows:

Service: DSN_NSD
State: Enabled
Port: 2370 Protocol: TCP Address: 0.0.0.0
Inactivity: 5 User_name: AES_DSNLINK Process: DSN_NSD
Limit: 32767 Active: 0 Peak: 0
File: DSN$COMMAND:DSN_NSD_SERVER.COM
Flags: Listen Multi
B.5 Name Services Directory Service

Socket Opts: Rcheck Scheck
Receive: 0 Send: 0

Log Opts: Acpt Actv Dactv Conn Error Exit Logi Logo Mdfy Rjct TimO Addr
File: DSN$LOGS:DSN_NSD_SERVER.LOG

Security
Reject msg: not defined
Accept host: 0.0.0.0
Accept netw: 0.0.0.0

B.6 Remote Login Service

The service for the DSNlink Remote Login application is as follows:

Service: DSN_LOGIN
State: Enabled
Port: 2374 Protocol: TCP Address: 0.0.0.0
Inactivity: 5 User_name: AES_DSNLINK Process: DSN_LOGIN
Limit: 32767 Active: 0 Peak: 0

File: DSN$COMMAND:DSN_LOGIN_SERVER.COM
Flags: Listen Multi

Socket Opts: Rcheck Scheck
Receive: 0 Send: 0

Log Opts: Acpt Actv Dactv Conn Error Exit Logi Logo Mdfy Rjct TimO Addr
File: DSN$LOGS:DSN_LOGIN_SERVER.LOG

Security
Reject msg: not defined
Accept host: 0.0.0.0
Accept netw: 0.0.0.0
DSNlink Directories and Files

This appendix lists the directories and files created by the DSNlink Version 3.0 installation.

Table C–1 shows the directories and files. The directories are subdirectories under DSN$ROOT.

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<tr>
<th>Directory</th>
<th>Logical Name</th>
<th>Files</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSN$ROOT:[COM]</td>
<td>DSN$COMMAND</td>
<td>Command procedures:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DSN$CONFIG.COM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DSN$DEINSTALL.COM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DSN$IVP.COM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DSN$SET_SECURITY.COM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DSN$SHUTDOWN.COM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DSN$STARTUP.COM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DSN_BATCH_AUG_SRA.COM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DSN_BATCH_COPY.COM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DSN_BATCH_CREATE_SRA.COM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DSN_FILE_SERVER.COM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DSN_K2_SERVER.COM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DSN_LOGIN_SERVER.COM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DSN_MAIL_SERVER.COM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DSN_NETEX_SERVER.COM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DSN_NSD_SERVER.COM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DSN_TUNNEL_SERVER.COM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DSN_VT_MENU.COM</td>
</tr>
<tr>
<td>DSN$ROOT:[DAT]</td>
<td>DSN$DATA</td>
<td>Modem scripts, data files, and original templates:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CO2264.DDSF_SRC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CO2264HW.DDSF_SRC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DF196.DDSF_SRC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DF296.DDSF_SRC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DSN$HARDWARE_DB.DAT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DSN$MULTINET_INCOMING_SERVERS.DAT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DSN$SRQUTILITY_TEMPLATE.TXT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DSNEMAIL.DAT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DSNEMAILGUI.UID</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DSNFILECOPY.DAT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DSNFILECOPYGUI.UID</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DSNITS.DAT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DSNITS.UID</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DSNMAIN.DAT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DSNMAIN.UID</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DSNNETEX.DAT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DSNNETEXGUI.UID</td>
</tr>
</tbody>
</table>

(continued on next page)
## DSNlink Directories and Files

<table>
<thead>
<tr>
<th>Directory</th>
<th>Logical Name</th>
<th>Files</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DSN$ROOT:[DAT.node-name]</td>
<td>DSN$DATA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>System-specific data files:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DSN_CONFIG.DAT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DSN_MAIL_SIGNATURE.TXT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DSN_MODEM_LINES.DAT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DSN_MODEM_SUBSTITUTION.DAT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DSN_ROUTE_MAP.DAT</td>
</tr>
<tr>
<td></td>
<td>DSN$ROOT:[EXE.platform]</td>
<td>DSN$SYSTEM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Executable images and online help for the command line interface:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DSNFILECOPIYSERVER.EXE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DSNFILESERVER.EXE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DSNK2SERVER.EXE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DSNLOGINSERVER.EXE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DSNMAILSERVER.EXE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DSNMAIN.EXE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DSNMODEMDAEMON.EXE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DSNNETEXSERVER.EXE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DSNNSDSERVER.EXE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LYNX.EXE</td>
</tr>
</tbody>
</table>

(continued on next page)
### Table C–1 (Cont.) Directories and Files

<table>
<thead>
<tr>
<th>Directory</th>
<th>Logical Name</th>
<th>Files</th>
<th>Description</th>
</tr>
</thead>
</table>
| DSN$ROOT:[HELP]                  | DSN$HELP     | *.HTML - documentation files to be displayed by the Netscape and Lynx browsers  
|                                  |              | LYNX.CFG - the Lynx configuration file  
|                                  |              | *.GIF - figure files  
|                                  |              | For specific file names, see the description of the documentation set, which follows the Table of Contents in the DSNlink Version 3.0 User’s Guide. |
| DSN$ROOT:[INCOMING_FILES]        | None         | Files copied from Compaq to your system. |
| DSN$ROOT:[KEYS]                  | DSN$KEYS     | Authentication keys. |
| DSN$ROOT:[LIB]                   | DSN$LIBRARY  | DSNMAINGUI.EXE  
|                                  |              | DSNSHARE030.EXE  
|                                  |              | DSN_MAILSHR.EXE  |
| DSN$ROOT:[LOGS]                  | DSN$LOGS     | Log files. See Section 3.10 for descriptions. |
| DSN$ROOT:[OUTGOING_FILES]        | None         | Files for Compaq to copy from your system. |
| DSN$ROOT:[TOOLS]                 | DSN$TOOLS    | Analysis tools, which you get from Compaq. |
| DSN$ROOT:[UTILITIES]             | DSN$UTILITIES | Maintenance tools:  
|                                  |              | DSNLINK_MODEM_CHECKUP.COM  
|                                  |              | DSNMAPQ_SETUP.COM  
|                                  |              | GREP_SETUP.COM  
|                                  |              | HARDWARE_DB.DIR  
|                                  |              | WHAT_SETUP.COM  |
| DSN$ROOT:[UTILITIES.HARDWARE_DB] | DSN$HWDB_DIR | Previously used for SRQ utility files:  
|                                  |              | DSN$HARDWARE_DB.OLD |
| DSN$ROOT:[UTILITIES.platform]    | DSN$UTILITIES | Platform-specific utilities:  
|                                  |              | DSN$SRQ.utility.EXE  
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