COMPAQ

DSNlink Version 3.0 for Tru64 UNIX Installation Guide

This guide describes how to install DSNlink on the Compaq Tru64™ UNIX operating system and how to perform the postinstallation tasks.

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Operating System and Version:	Tru64 UNIX Versions 4.0d, 4.0e, 4.0f, 5.0, 5.0a, and 5.1
Software Version:	DSNlink Version 3.0 for Tru64 UNIX

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Contents

3 Postinstallation Tasks

A Dialer Driver Script Facility Commands

B DSNlink Directories on Your System

Index

Tables

Preface

This document describes how to install the DSNlink Version 3.0 software on an Alpha™ system that runs Compaq Tru64 UNIX.

Overview

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

The installation procedure creates DSNlink file systems subordinate to the `/usr/lib/dsn/` directory and loads DSNlink software subsets.

You can install DSNlink on a local node or from a Remote Installation Services (RIS) server area.

Keep this document with your distribution kit. You will need it to install maintenance updates or to reinstall DSNlink for any other reason.

Intended Audience

The audience for this document is the system administrator who installs DSNlink software.

Structure of this Document

This document is organized as follows:

- Chapter 1, Preparing to Install DSNlink, describes the operating system, related software, and hardware requirements for DSNlink installation and the related procedures you complete before the installation.
- Chapter 2, Installing DSNlink on a Tru64 UNIX System, shows a sample installation.
- Chapter 3, Postinstallation Tasks, describes the postinstallation procedures you must complete.
- Appendix A, Dialer Driver Script Facility Commands, is a list of the commands you can enter in modem dialer scripts.
- Appendix B, DSNlink Directories on Your System, describes the hierarchy and contents of DSNlink Version 3.0 directories.

For a list of the documentation, see Chapter 3.

Conventions Used in This Document

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

Table 1 Manual Conventions

Convention	Description
boldface text	Boldface text is used in examples to show what the user types to contrast that with the results of the command.
`monospace type`	Monospace type designates commands and examples.
. . .	A vertical ellipsis indicates the example continues, but the additional text is not displayed.

1
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 setld. It does not require shutting down your system.

Restrictions

These restrictions apply to the DSNlink installation:

- You cannot have DSNlink Version 3.0 and any previous versions of DSNlink on the same system. If there is a previous version of DSNlink on the system, you must delete it before installing DSNlink Version 3.0. See Section 1.11.

Recommendations

Compaq recommends that you back up your system before installing any software. For details on performing a system backup, see your Tru64 UNIX documentation.

Install DSNlink on a gateway node first. A gateway node is one that has a direct connection to Compaq. After installing on a gateway, you can install DSNlink on systems that connect to the gateway.

Note that if your site has multiple DSNlink nodes, you do not have to upgrade to DSNlink Version 3.0 on all nodes. It is compatible with previous versions of DSNlink.

What the Installation Procedure Does

The DSNlink installation procedure does the following:

1. Presents an Electronic Service Tools agreement. If you agree to the terms, the installation procedure continues. To preview the agreement, see the sample installation script in Chapter 2.
2. Checks for the supported versions of Tru64 UNIX, which are Versions 4.0d, 4.0e, 4.0f, 5.0, 5.0a, and 5.1.
3. Verifies that you have sufficient disk space for DSNlink.
4. Checks for previously installed versions of DSNlink
5. Prompts you for a unique group for the DSNlink executables and files

   For more information, see Section 1.8.3.
6. Sets the group ownership of the files or directories to the group you created

7. Prompts you for your access number or numbers, the node's name, your Customer Support Center, which transports you want to use with DSNlink, the name of a person to contact if Compaq must reach you by telephone, and your authentication key
8. Adds entries to /etc/services and /etc/inetd.conf for communications with the DSNlink host system, if you agree to the additions
9. Prompts you for information necessary to configure each of the transports

   For more information, see Section 1.10.2.1.
10. Runs the DSNlink Network Exerciser to test the connection to the host system

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
- The location of your Customer Support Center.

The installation procedure prompts you for the previous 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.

1.3 Release Notes

DSNlink provides online release notes only. Compaq recommends you read the release notes before using the product.

For the location of the release notes and other online documents, see Section 3.2.

1.4 Checking the Software Distribution Kit

If you order a DSNlink kit from Compaq, the DSNlink Version 3.0 for Tru64 UNIX kit contains a CD—ROM optical disk for Alpha systems. The kit also includes the following additional items:

- The cover letter
- A Read This First page that explains how to begin

All other documents are on line.

1.5 How to Get DSNlink Version 3.0

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

- The DSNlink Web site:

  http://www.support.compaq.com/dsnlink/kit_unix_v30.htm

  Click on the link to the page for DSNlink Version 3.0.

- An FTP directory:

  ftp.support.compaq.com

  Set default to the directory public/DSNlink/unix.

  The Readme on the Web site explains how to copy the kit from both the Web site and FTP directory.

1.6 Using RIS for Client Installations

You can install DSNlink on a Remote Installation Services (RIS) server area and then use RIS to install DSNlink on local systems. In this case, you need to do the following:

1. Use the `ris` utility to install the DSNlink subsets from the distribution media into the RIS server area.
2. Make the DSNlink subsets available on line so that subsequent installations of DSNlink can use RIS.
3. Make sure the local system is registered as a RIS client.
4. Provide the name of the server system to the local node for the installation procedure.

1.7 Installing DSNlink on Clusters

You can install DSNlink on a cluster running Tru64 UNIX Version 5.0a or 5.1 with these restrictions:

- You can use only the TCP/IP transport. Modems, X2.5, and DECnet™ are not supported.
- You must supply the cluster alias name when the prompt for the DSNlink node name appears in the installation procedure.
- The installation, which you perform once, makes all nodes in the cluster either A nodes or B nodes, depending on which node type you specify during the installation.

The configuration portion of the installation may occur multiple times, for example, three times on a two-node cluster. This does not create any problems or require follow up actions.

1.8 Preinstallation Requirements

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:

- [ ] Be able to log in to the target node as root.
- [ ] Create the group for DSNlink files. See Section 1.8.3.

If you installed a previous version of DSNlink, you do not have to create a new group. The DSNlink Version 3.0 installation presents the previous group for your confirmation.

- [ ] Check the hardware requirements. See Section 1.8.5.
- [ ] Check the software requirements. See Section 1.8.6.
- [ ] Determine which subsets to install. See Section 1.8.7
- [ ] Determine if there is sufficient disk space. See Section 1.8.8.
- [ ] Determine which transport or transports you will use to connect your DSNlink node to Compaq. See Section 1.10.
- [ ] Set up the DECserver, if you have one, for use with DSNlink. See Section 1.10.2.
- [ ] Deinstall previous DSNlink kits. See Section 1.11.
- [ ] Back up the system.

1.8.1 Time Required

A local installation takes approximately 5 to 15 minutes. An RIS client installation may take longer because it is dependent on network activity at the time of the installation. If the network is not active, you should expect an installation time roughly equal to a local installation.

1.8.2 Have Root Login Privileges

You must be able to log in as root where you are installing DSNlink. Only when you are logged in as root do you have the required permissions to install the DSNlink software.

1.8.3 Create a Group for the DSNlink Files

Before you install DSNlink, you must create a group for the DSNlink executables. To prevent possible security breaches, Compaq recommends that you create a unique, new group. Do not use general user groups such as `users`, `guest`, or `staff`. Use of a group such as `system`, `kmem`, `operator`, or `daemon` can create a serious security problem. You can name the group `dsnlink`.

If your system had DSNlink installed previously, you can use the group name used by the last DSNlink kit.

Make sure no one is a member of the group. Its purpose is to run DSNlink. If there are members, potential security breaches could occur because members could read files that are otherwise readable only by the superuser and DSNlink software.

For information on creating groups, see the addgroup (8) reference page. If you use BIND, refer to the network setup manual. If you use Hesiod or NIS to maintain groups, see the operating system's documentation for instructions.

1.8.4 BIND Recommendations

Compaq recommends that you run a naming service such as BIND rather than entering a host name manually in `/etc/hosts`. See the appropriate documentation for information.

1.8.5 Hardware Requirements

Hardware Required for Installation

You must install DSNlink on an Alpha system. You also need a CD—ROM reader 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. Compaq uses the incoming mode to respond to your service requests and make other connections as you authorize.

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 3.9.

You must also have an asynchronous serial port on your system or DECserver.

1.8.6 Software Requirements

DSNlink Version 3.0 requires the following software:

- Tru64 UNIX Version 4.0d, 4.0e, 4.0f, 5.0, 5.0a, and 5.1.
- The DEC OSF/1 Base System subset (OSFBASE) must be loaded on the system where you install DSNlink.

  To verify that the subset is loaded, do the following:

  1. Log in to the system where you will install DSNlink.
  2. Enter the following command to verify that the OSFBASE subset is installed. This example shows the command and the response when the subset for Tru64 UNIX Version 5.0 is installed:

     ```
     % /usr/sbin/setld -i | grep OSFBASE
     OSFBASE500          installed  Base System (- Required -)
     ```

     If the word `installed` is missing or there is no response, the subset is not loaded. For information on how to load the operating system software, see the Tru64 UNIX documentation.

- The appropriate network software for the network transport you choose:
  - X.25 for Tru64 UNIX—the version required for your operating system and the corresponding Compaq software
  - DECnet/OSI for Tru64 UNIX—the version required for your operating system and the corresponding Compaq software
  - TCP/IP—Tru64 UNIX includes this transport; no additional software is required
  - Modem—does not require operating system software

1.8.7 Determining Which Subsets to Load

DSNlink has these subsets:

- DSNALIB300–with the description "DSNlink V3.0 Communications Library"

  This is a required subset.

- DSNALIBNE300–with the description "DSNlink NE V3.0 Communications

  If you install the kit without encryption, this subset is required.

- DSNABASE300—with the description "DSNlink V3.0 Customer"

  This is a required subset.

- DSNALANG300—with the description "DSNlink V3.0 International Language Support"

  This subset contains translated files for Japanese and French. Other languages may be added in the future. Contact your local Compaq representative to determine if other languages are supported. DSNALANG300 requires the WWBASE subset.

- DSNADOC300—with the description "DSNlink V3.0 On-line Documentation"

  Load this subset to make the online documentation accessible to DSNlink. Note that all user documentation is on line.

  The DSNlink reference pages are in a separate subset.

- DSNAMAN300—with the description "DSNlink V3.0 Reference Pages"

  Load this file to have the DSNlink reference pages.

1.8.8 Determining Disk Space Requirements

The disk space requirements apply to the disks where you load the DSNlink subsets for RIS and local installations.

Note

If you have a previous version of DSNlink on your system, you **must** deinstall it before installing DSNlink Version 3.0. If the previous subsets remain in place, the installation fails.

Table 1–1 lists the disk space requirements for loading DSNlink software subsets.

Table 1–1 DSNlink Kit Size

Kit Size	Size After Installation	/usr	/var
20.5 MB	22.0 MB	21.0 MB	1.0 MB

To determine if your system has enough disk space, use the `df` command. The following example shows the total space and free space in the `/var/opt` directory on a Tru64 UNIX system:

```
# df -k
Filesystem   1024-blocks       Used   Available Capacity  Mounted on
/dev/rz10d        534210      98462      382326    20%    /var
```

1.9 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 Node A 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
- Which transports to use between the A and B nodes

If you have previous versions of DSNlink, you do not have to upgrade them to DSNlink Version 3.0.

1.9.1 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 node A or allow the DSNlink node A system to accept connections from WorldWire node B systems. The node A systems (called front-end nodes in WorldWire), are the gateways that make connections to Compaq. Node B systems (referred to as back-end nodes in WorldWire), connect to the Node A systems.

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:

```
+------+       [1]        +------+       [2]       +--------+
|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 Node A, 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).

To set up a DSNlink Node A to process connections from Node B systems 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:

```
+------+        [1]         +------+        [2]        +--------+
|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]: 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
   ```

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"
   ```

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

1.10 Preinstallation Information for the Network Transports

You can use any of the following network transports to connect your DSNlink node to Compaq:

- DECnet
- TCP/IP
- X.25
- Modem, which supports IDSN and PSTN line types

If you have more than one of the above network protocols, you can specify which ones to configure for use by DSNlink. For example, if your system has all the transports, you can configure them all or specify just the ones you want to use. DSNlink assigns each a cost factor. When making connections, DSNlink uses the one with the lowest cost factor.

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

1.10.1 TCP/IP Ports

If using the TCP/IP transport, DSNlink applications assign the ports shown in Table 1–2.

Table 1–2 Ports Used by DSNlink Applications

Application Abbreviation	Port	Application Name
dsn_nsd	2370	Name server daemon
dsn_mail	2372	DSNlink Mail
dsn_its	2373	Interactive Text Search
dsn_login	2374	Remote Login
dsn_netex	2375	Network Exerciser
dsn_sra	2376	Service Request application
dsn_k2	2377	Cryptographic Services
dsn_file	2379	File Copy
dsn_osha	2380	Obligation and Service History application

The port entries must be added to the file `/etc/services`. During the installation, you can choose to have the installation procedure add the entries to `/etc/services` for you.

NOTE: You can configure a single port. For more information, see the ITS article, "V2.x How to Configure for 1 Firewall Port" in the DSNlink database.

1.10.2 Settings for DECservers

DSNlink supports the DECserver 700/MC and DECserver 200. Note that the maximum speed of a DECserver 200 is 19200 baud. If you use it, expect performance problems.

To see the current settings for a terminal server port, log in to the DECserver, enable privileges, and enter the LIST PORT *n* command (where *n*) is the terminal server port number where the DSNlink modems are to be attached).

Recommended DECserver parameters are shown in the following example:

```
Local> LIST PORT n

Port n:

Character Size:          8          Input Speed:       9600 1
Flow Control:          CTS 2           Output Speed:      9600
Parity:               None          Modem Control:   Enabled

Access:             Remote          Local Switch:      None
Backwards Switch:     None          Name:      DSN_MODEM_nnn 3
Break:               Local          Session Limit:        1
Forwards Switch:      None          Type:              Soft
```

```
Preferred Service: None

Authorized Groups:  0
(Current)  Groups:  0

Enabled Characteristics: 4

Dialup, DTRwait, Input Flow Control, Output Flow Control,
```

1 This number must match the DTE speed of the modem.

You can enter any speed your modem can achieve.

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

3 Be sure the port name is unique.

4 Disable the Remote Modification characteristic.

Note: When Remote Modification is enabled on the terminal server port, it accepts the modem speed from the modem device definitions file until the speed setting is greater than 38400. Above 38400 bps, the terminal server port ignores the speed setting in the modem device definitions file and uses 9600 baud instead. Disabling Remote Modification on the terminal server port and setting it to a port speed greater than 38400 corrects the problem.

1.10.2.1 Make Notes for Installation Questions

Make notes about the following items, which you need for the modem transport 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.
- [ ] The modem's phone number, including any prefixes for local and long distance calls.
- [ ] For DECservers:
  - A LAT number, which you can choose during the installation. You enter this device for the prompt for the ISDN or PSTN modem device name.
  - The server name. You enter the name at the prompt for the LAT terminal server name.
  - The port name. You enter the name at the prompt for the LAT terminal server's port name.

1.10.3 Modem Dialer Scripts

If you want to use the modem transport, you must have a dialer script for your modem. DSNlink includes dialer scripts for several modems. If yours is not in the list, you can modify one of the provided scripts.

For information on modem scripts, see Section 3.9.

1.11 Deinstalling DSNlink Kits

The DSNlink installation stops if any of these versions of DSNlink are installed on your system:

- DSNlink Version 2.0
- DSNlink Version 2.1
- DSNlink Version 2.1A

- DSNlink Version 2.3
- DSNlink Version 2.3E
- DSNlink Version 3.0

Therefore, you must use the following procedure to deinstall the kits before proceeding with the next DSNlink installation. Note that the deinstallation process does not delete customizable files. For a list of the files that are NOT deleted, see Table 1–3.

To determine if any previous savesets are on the system, use this command:

```
% ls /usr/var/opt/DSNA*
```

To remove existing DSNlink subsets and the directory paths for them:

1. Log in as root to the system containing the subsets to remove.
2. The following commands deinstall different versions of DSNlink. Enter the one that applies to the version of DSNlink you want to deinstall:
   - For DSNlink Version 2.0 for Tru64 UNIX, use this command to remove the base and documentation subsets:

     ```
     # setld -d DSNABASE200 DSNADOC200
     ```

   - For DSNlink Version 2.1, use this command to remove the base, documentation, language, and reference pages subsets:

     ```
     # setld -d DSNABASE210 DSNADOC210 DSNALANG210 DSNAMAN210
     ```

   - For DSNlink Version 2.1A, use this command to remove the base, documentation, language, and reference pages subsets:

     ```
     # setld -d DSNABASE211 DSNADOC211 DSNALANG211 DSNAMAN211
     ```

   - For DSNlink Version 2.3, use this command to remove the base, documentation, language, and reference pages subsets:

     ```
     # setld -d DSNABASE230 DSNADOC230 DSNALANG230 DSNAMAN230
     ```

   - For DSNlink Version 2.3E, use this command to remove the base, documentation, language, and reference pages subsets:

     ```
     # setld -d DSNABASE235 DSNADOC235 DSNALANG235 DSNAMAN235
     ```

   - For DSNlink Version 3.0, use this command to remove the library, base, documentation, language, and reference pages subsets:

     ```
     # setld -d DSNALIB300 DSNABASE300 DSNADOC300 DSNALANG300 DSNAMAN300
     ```

     If you have the nonencrypted version of DSNlink, you need to remove the following subsets:

     ```
     # setld -d DSNALIBNE300 DSNABASE300 DSNADOC300 DSNALANG300 DSNAMAN300
     ```

     The deinstallation procedure asks if you want the installation procedure to automatically modify the file /etc/services and /etc/inetd.conf. If you answer yes, the deinstallation procedure removes entries for DSNlink from those files.

     Note that the DSNlink Version 3.0 deinstallation process does not correctly delete the X.25 entities. For information on how to delete them, see the *DSNlink Version 3.0 for Tru64 UNIX Release Notes*.

3. If you do not want to reinstall DSNlink, also delete the files listed in the Table 1–3.

Do not delete other directories left behind if you are reinstalling DSNlink.

The deinstallation procedure does not delete all DSNlink files and directories. Therefore, if you do not want to reinstall DSNlink, you should delete the files and directories shown in Table 1–3. They are all rooted at `/var/opt/DSNA300`.

Table 1–3 Files Not Deleted by a Deinstallation

Directory	Contents	Description of the Files
config	routemap	The route map for making connections between your system and Compaq
config	dsn_local_auth.dat dsn_remote_auth.dat	The file that permits local users access to DSNlink The file that allows Compaq access to your DSNlink applications
config	.dsnrc	The configuration file
config	dsn_sra_signature.txt	A signature file that is automatically appended to service requests
keys	MD5-DIGITAL-access_ number	Your authentication keys
logs	dsn_history.log and application log files	Log files that record DSNlink usage
public	/incoming and /outgoing	Directories for files copied to and from your system using the DSNlink File Copy application Note: The /outgoing files directory is not used. Specialists cannot use the DSNlink File Copy application to copy files from your system even if they are placed in that directory.

Note that the online documentation is in the `/usr/lib/dsn/help` directory. If you customized any documentation files you want to keep, you should rename or move them before installing DSNlink Version 3.0.

Note

The deinstallation procedure removes the modem scripts in `/usr/lib/dsn/modem`. If you modified scripts from previous DSNlink installations and want to keep them, rename or move them before reinstalling DSNlink. DSNlink Version 2.0 scripts are obsolete.

1.11.1 Deleting the X.25 NCL Configuration

When deleting old DSNlink base subsets with `setld`, you can choose to delete the X.25 entities or modify them afterwards.

Note that deleting the entities disconnects any currently established X.25 connections.

1.12 Backing Up Your System

Compaq recommends that you back up your system before installing any software. For details on performing a system backup, see your Tru64 UNIX documentation.

1.13 Stopping the Installation

You can stop the installation procedure any time by entering Ctrl+C. However, files created up to this point are not deleted automatically. You must delete these files. Appendix B lists the directories created during the installation procedure.

1.14 Error Recovery

If errors occur during the installation, the system displays failure messages. If the installation fails due to insufficient disk space, the installation procedure displays a message indicating that there is not enough file system space for the subset and that it will not be loaded.

Errors can occur during the installation if any of the following conditions exist:

- The operating system version is not supported.
- The prerequisite software is not installed, or its version is not supported.
- DSNlink has already been installed.
- The target architecture is not Alpha.

2

Installing DSNlink on a Tru64 UNIX System

This chapter provides a sample installation for DSNlink Version 3.0.

Before starting the installation, read Chapter 1, which describes options and requirements for installing the product.

For information about the DSNlink documents you can print or display before you install DSNlink, see Section 3.2.

Warning

DECnet/OSI for DIGITAL UNIX may hang the installation. We recommend shutting down DECnet during the installation using this command:

```
# /usr/sbin/decnetshutdown
```

You can restart DECnet with this command:

```
# /usr/sbin/decnetstartup
```

2.1 Installing the tar File

Start the installation procedure as follows:

1. Log in as superuser (login name root) where you are installing DSNlink.
2. Create a scratch directory for extracting the tar file's contents. For example:

   ```
   # mkdir /usr/scratch
   ```

3. Set default to the scratch directory:

   ```
   # cd /usr/scratch
   ```

4. Extract the contents of the tar file:

   ```
   # tar xvf /tar-directory/DSNA300.tar
   ```

5. Begin the installation with a `setld` command that specifies the load function (-l) and identifies the directory where the DSNlink subsets are located. For example:

   ```
   # setld -l /usr/scratch/dsna300/kit
   ```

2.2 Sample Installation

The following installation procedure configures all transports, TCP/IP, DECnet, X.25, and modem. Your installation will vary from this script depending on your choices of subsets and transports and whether a previous version of DSNlink was installed. If you deinstalled previous versions of DSNlink for Tru64 UNIX, some files remain which this installation procedure renames and saves.

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

- The installer created the group `dsn` before starting the installation.
- DSNlink is installed on a node named `Wynken`.
- The sample access number is `1234567`.
- Default values appear within square brackets ([ ]). You can accept the default value by pressing the Return key. Or, you can override the default by entering the value you want. Boldface text shows examples of entries that replace the default values.

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

```
----------------------------------------------------------------------------
# setld -l /usr/scratch/dsna300/kit 1

*** Enter subset selections ***

The following subsets are mandatory and will be installed automatically
unless you choose to exit without installing any subsets:

      * DSNlink V3.0 Communications Library 2
      * DSNlink V3.0 Customer

The subsets listed below are optional:

     There may be more optional subsets than can be presented on a single
     screen. If this is the case, you can choose subsets screen by screen
     or all at once on the last screen. All of the choices you make will
     be collected for your confirmation before any subsets are installed.

 - Other:
     1) DSNlink V3.0 International Language Support 3
     2) DSNlink V3.0 On-line Documentation
     3) DSNlink V3.0 Reference Pages

Or you may choose one of the following options:

     4) ALL mandatory and all optional subsets
     5) MANDATORY subsets only
     6) CANCEL selections and redisplay menus
     7) EXIT without installing any subsets


Estimated free diskspace(MB) in root:32.4 usr:265.4 var:354.4 i18n:413.3 4

Enter your choices or press RETURN to redisplay menus.

Choices (for example, 1 2 4-6): 4 5

You are installing the following mandatory subsets:

        DSNlink V3.0 Communications Library
        DSNlink V3.0 Customer

You are installing the following optional subsets:
```

```
 - Other:
        DSNlink V3.0 International Language Support
        DSNlink V3.0 On-line Documentation
        DSNlink V3.0 Reference Pages

Estimated free diskspace(MB) in root:32.4 usr:261.5 var:354.4 i18n:413.3


Is this correct? (y/n): y

Checking file system space required to install selected subsets:

File system space checked OK.

5 subset(s) will be installed.

Loading 1 of 5 subset(s)....

DSNlink V3.0 Communications Library
   Copying from /usr/scratch/dsna300/kit (disk)
   Verifying

Loading 2 of 5 subset(s)....

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   Press Return or Enter to continue: 6

        You can stop the installation procedure at any time by pressing
```

- U.S. Robotics modems

If you have another modem, you must create a script for it. To create a modem script:

1. If possible, choose an existing script to modify. The scripts are in the directory `/usr/lib/dsn/modem/` with these file names:
   - `co2264.ddsf_src` — the Codex 2264 script for XON/XOFF flow control
   - `co2264hw.ddsf_src` — the Codex 2264 script for RTS/CTS hardware flow control
   - `df196.ddsf_src` — for Digital DF196 modems
   - `df296.ddsf_src` — for Digital DF296 modems
   - `hayes.ddsf_src` — for Hayes™ modems, XON/XOFF flow control
   - `hayeshw.ddsf_src` — for Hayes™ modems, RTS/CTS hardware flow control
   - `multimodem.ddsf_src` — for Multi-Tech® modems XON/XOFF software flow control
   - `multimodemhw.ddsf_src` — for RTS/CTS hardware flow control for Multi-Tech modems `multimodem_eu.ddsf_src` — for European Multi-Tech modems XON/XOFF software flow control `multimodemhw_eu.ddsf_src` — for European Multi-Tech modems RTS/CTS hardware flow control
   - `null.ddsf_src` — a script to aid in troubleshooting modem problems
   - `repko_eu.ddsf_src` — for European REPKO modems with XON/XOFF flow control
   - `repkohw_eu.ddsf_src`—for the European REPKO modems with RTS/CTS flow control
   - `usrobotics.ddsf_src` for U.S. Robotics® modems XON/XOFF software flow control
   - `usrobotics.ddsf_src` for U.S. Robotics RTS/CTS hardware flow control

   Modem scripts may be updated in the future. For the current modem scripts, see the following Compaq Web site:

   http://www.support.compaq.com/dsnlink/modem_scripts.htm

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. See Section 3.9.1 for guidelines on modifying or creating scripts.
4. Copy your script to: `/usr/lib/dsn/modem/`

   Be sure the file name has the format `modem-name.ddsf_src`, for example, `ourmodem.ddsf_src`. The name must be in lowercase.
5. If you modify a dialer script supplied in the kit, rename it. This prevents its being overwritten if you reinstall DSNlink later. A reinstallation replaces the original scripts with new ones but does not delete unrecognized scripts.

   For example, if you modify the `co2264.ddsf_src` script, your modified script name could be `co2264new.ddsf_src`.

6. Test the script using the `dsnmmgr test script` command. The following command tests the script ourmodem.ddsf_src (note that the file extension is not included) at the baud rate 14400, and a dialed network address (dna) as shown:

   ```
   # dsnmmgr test script \
   -device /dev/tty02 \
   -script ourmodem \
   -speed 14400 \
   -dna m/pstn.719-555-5555/dsn_nsd
   ```

   For more information, see the `dsnmmgr(8)` reference page.

7. If you copied a new script to the `/usr/lib/dsn/modem` directory, you must make it available to DSNlink. Start the DSNlink Setup utility as explained in Section 3.8. Use menu item m, Change the Modem Configuration, and go to the prompt for your modem script. Choose the script you created from the list of modem scripts.

8. Run the installation verification procedure from the DSNlink Setup utility, menu item v or run the Network Exerciser utility.

3.9.1 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, make a copy of the `hayes.ddsf_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 DSNlink Setup utility and the installation process display the description when listing the modem scripts. The following example shows the correct placement:

  ```
  !*  Module Name:
  !*
  !*      ourmodem.DDSF_SRC
  !*
  !*  Description: Script for our modem
  !*
  ```

- 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"
  ```

- 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.

- Consider disabling a call waiting line, if you have one, 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 between the modem and your computer or terminal server to RTS/CTS if you use a DECserver. The DSNlink software protects the dc1 and dc3 characters in data transmission so they are not interpreted as flow control.

  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 create incoming calls to your modem, such as DSNlink Mail, the Service Request application, 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 DCD[1] 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 or by using the hupctl characteristic on the `/dev/tty` or `/dev/lat/nnn` device

  – If the modem understands Hayes commands, set up 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, using the hupctl characteristic on the `/dev/tty` or `/dev/lat/nnn` device, or by setting the Modem characteristic on the TXAn: or TTAn: device.

  – 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.

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

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.

- 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.

3.10 Log Files

DSNlink creates several types of log files in the directory `/usr/lib/dsn/logs`. You can archive or delete the files as desired.

- The history log file, `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.
- Server log files, which have the format `dsn_application_yydddhhmmss_pid.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`.
- Modem daemon run logs, which have the format `dsn_run_linetype_linename.log`

  These files list the modem daemon's activities.

For more information, see section 8.4, Using the History Records and Other Log Files, in the *DSNlink User's Guide*. See also the reference page dsn_netd.sh.

3.11 Changing a Multiple-Port Firewall to Single-Port

If you used previous versions of DSNlink, your firewall may be set up to use multiple ports for DSNlink applications. If so, you can remove all the ports except port 2370, which is used in DSNlink Version 3.0 for all applications. These are the ports previously used by DSNlink applications that you can remove:

Port	Abbreviation	Application
2372	dsn_mail	DSNlink Mail
2373	dsn_its	Interactive Text Search
2374	dsn_login	Remote Login
2375	dsn_netex	Network Exerciser
2376	dsn_sra	Service Request Application

Port	Abbreviation	Application
2377	dsn_k2	Cryptographic Services
2379	dsn_file	File Copy

3.12 Learning to Use DSNlink

Getting Help While Using DSNlink

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

- In a window, 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 Mosaic 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 Mosaic window.

Getting Help on the Command Line Interface

To learn how to use DSNlink in the command line interface, enter the dsnhelp command:

```
% dsnhelp
```

DSNlink displays a list of hypertext links. Choose the one that interests you.

Displaying the DSNlink User's Guide

1. Start DSNlink with the dxdsn command:

   ```
   % dxdsn
   ```

   The DSNlink main window appears.

2. From the Help menu, choose User's Guide.

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

3. Click on the topic you want.

A

Dialer Driver Script Facility Commands

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 DSNlink 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:

`/usr/lib/dsn/modem/`

The scripts have the file extension `.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 3.9.

A.2 Delimiters

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

Table A–1 Supported DDSF Command Language Delimiters

Space or Tab	All commands and keywords must be separated by at least one space or tab character.
Quotation marks	All text strings used in the commands must be enclosed in quotation marks (" ").
Exclamation point	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.

A.3 Control Characters

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

Table A–2 DDSF Control Characters

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

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.

FIND

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

Parameters

"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*").

PARAM*n*
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.

COUNTER*n* (<, >, =, <>, <=, >=) 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.

PARAM*n*="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 COUNTER*n*. This command, with IF and GOTO commands, is usually used for loop control.

Syntax

INCREMENT COUNTER*n*

Parameter

COUNTER*n*
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

COUNTER*n*
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 COUNTERn GOTO   x1 x2 x3...x10
```

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.

x1 x2 x3...x10
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 valid exit keywords are listed in Table A–3.

Table A–3 Valid Exit Keywords

Keywords	Description	DDSF Return Status
BUSY	DDSF detected target line busy	DDSF_S_BUSY
CALL_FAIL	DDSF failed to establish the connection	DDSF_S_CALLFAIL
CONNECT	Connection established	DDSF_S_CONNECT
DIAL_ERR	DDSF sensed device problem when trying to dial	DDSF_S_DIALERR
NO_ANSWER	DDSF detected no answer	DDSF_S_NOANSWER
NO_DIALTONE	DDSF detected no dial tone	DDSF_S_NODIALTONE
TIME_OUT	DDSF timed out without getting modem status	DDSF_S_TIMEOUT

[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.

SECTION

Description

The SECTION command creates the script command sections by defining entry points within the script file. All SECTION keywords must be followed by a unique number in the range of 1 to 20.

Syntax

```
SECTION n
```

Parameter

n
A unique integer in the range of 1 to 20.

Example

```
SECTION 1
```

This command marks the code that follows it as belonging to SECTION 1, similar to the way a label is used in standard programming languages. Hence, a GOTO 1 command causes script execution to resume at the first line that follows the 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 ("").

PARAM*n*
Equates to the internal parameters *param1, param2, or param3*.

PHONENUMBER
The telephone number of the DSNlink host after any conversions by the telephone number substitution database.

For more information on the telephone number substitution database, see the chapter on Maintaining DSNlink in the *DSNlink Version 2.1 User's Guide.* (This is an online document accessible from the Help menu on the DSNlink main window or by using the dsnhelp command.)

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 modem through SEND commands, and data received from 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.

WAITFOR

Description

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 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 (2^{13}) terminator received from the modem.

2. `WAITFOR 10 RESPONSE TERM=1024`

   This command waits a maximum of 10 seconds for a LF (2^{10}) terminator received from the modem.

3. `WAITFOR 40`

   This command waits 40 seconds then continues with 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 COUNTER*n*

Parameter

COUNTER*n*
The internal counter that will be initialized to zero.

Example

```
ZERO COUNTER1
```

This example initializes the keyword COUNTER1 to a value of zero.

B

DSNlink Directories on Your System

This appendix lists:

- Directories used by DSNlink
- Directories created by DSNlink
- Files modified by the DSNlink installation procedure

Table B–1 lists the directories used by DSNlink.

Table B–1 Directories Used by DSNlink

Directory Name	Description
/usr/bin/	Links for command names
/usr/sbin/	Links for system administrator
/usr/lib/x11/app-defaults	Links to the resource files for the applications running in the DECwindows Motif interface
/usr/lib/x11/uid	Links to the UID files
/usr/share/man/man1	Links for reference pages
/usr/share/man/man4	Links for reference pages
/usr/share/man/man8	Links for reference pages

Table B–2 lists the DSNlink directories, which are created during the installation procedure.

Table B–2 DSNlink Directories Created by the DSNlink Installation

Directory Name	Description
/usr/opt/DSNA300/app-defaults	Resource files for the applications running in the DECwindows Motif interface
/usr/opt/DSNA300/bin.alpha	Commands
/usr/opt/DSNA300/doc	ElectronicServiceToolsLicenseAgreement.txt
/usr/opt/DSNA300/help	The online documentation help files
/usr/opt/DSNA300/man	The reference pages
/usr/opt/DSNA300/msg	Message files
/usr/opt/DSNA300/uid.alpha	UID files for DSNlink applications running in the DECwindows Motif interface

(continued on next page)

Table B–2 (Cont.) DSNlink Directories Created by the DSNlink Installation

Directory Name	Description

/var/opt/DSNA300/config
alias: /usr/lib/dsn/config/
	Configuration files:
	• .dsnrc — the systemwide configuration file, also referred to as the resource file
	• dsn_local_auth.dat — authorizations file for DSNlink users at your site
	• dsn_remote_auth.dat — authorizations file to allow Compaq specialists access to your DSNlink systems
	• dsn_sra_signature.txt — the signature file that is appended to service requests
	• routemap — the DSNlink route map, which has paths for connections between your site and Compaq. (Do not edit this file. Make any additions or changes through the DSNlink Setup utility.)
	routemap-sorted — is a sorted version of the route map, which reduces the access time for a large route map.
	• Template files:
	  • .template...dsnrc
	  • .template..dsn_local_auth.dat
	  • .template..dsn_remote_auth.dat
	  • .template..routemap and .template..routemap-sorted — the route map template has entries for all Customer Support Centers. (Do not edit this file. DSNlink uses it for route map generation and rebuilding.)

/var/opt/DSNA300/keys alias: /usr/lib/dsn/keys/	Cryptographic keys. (Keep the contents of the files confidential.)
/var/opt/DSNA300/logs alias: /usr/lib/dsn/logs/	Application log files: • dsn_history.log — records of each use of DSNlink applications • *.log — log files created by incoming DSNlink applications and the modem transport

(continued on next page)

Table B–2 (Cont.) DSNlink Directories Created by the DSNlink Installation

Directory Name	Description

/var/opt/DSNA300/modem
alias: /usr/lib/dsn/modem/
	Files related to modems:
	• *.ddsf_src files — modem dialer scripts
	• dsn_modem_devices.dat — modem settings established during the installation procedure
	• dsn_modem_instantiate.dat — links to the commands that start Compaq-to-customer application servers
	• dsn_modem_lines.dat — shared variables for the modem line. Do not edit this file.
	• dsn_modem_servers.dat — shared variables for modem server processes. Do no edit this file.
	• dsn_modem_substitution.dat — dialing information and conventions
	• Template files:
	  • .template..dsn_modem_devices.dat
	  • .template..dsn_modem_instantiate.dat
	  • .template..dsn_modem_substitution.dat

/var/opt/DSNA300/public alias: /usr/lib/dsn/public/	Contains files copied to or from your system by Compaq. It has two directories: • incoming — files copied from Compaq to your system • outgoing — not used
/var/opt/DSNA300/spool	Not used
/var/opt/DSNA300/stumps	Not used

Table B–3 lists the files that are modified by the installation procedure.

Table B–3 Files Modified by the DSNlink Installation

File	Description of Modification
/var/adm/sendmail/aliases	Added DSNlink mailing lists
/etc/services	Added ports used by DSNlink applications
/etc/inetd.conf	Added servers for DSNlink

Index