DECnet/OSI for OpenVMS

Installation and Basic Configuration

Part Number: AA-QPSUA-TE

November 1995

Documentation Comments

If you have comments or suggestions for this book or any of the DECnet/OSI documents, mail your comments to the following address:

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doc_quality@lkg.mts.dec.com

Revision/Update Information: This is a new manual.

Operating Systems: OpenVMS Alpha
OpenVMS VAX

Software Versions: DECnet/OSI for OpenVMS
X.25 for OpenVMS Alpha

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Preface

This is the **first** installation book you should read in order to successfully install DECnet/OSI for OpenVMS™. It also includes how to configure DECnet/OSI for OpenVMS using the BASIC configuration option and information about name services.

The **second** installation book (*DECnet/OSI for OpenVMS Applications Installation and Advanced Configuration*) describes using the ADVANCED configuration option, and how to install and configure:

- X.25 for OpenVMS Alpha
- VAX P.S.I. and VAX P.S.I. Access for OpenVMS VAX
- OSI layered software applications:
  - File Transfer, Access, and Management (FTAM)
  - Virtual Terminal (VT)
  - OSI Applications Kernel (OSAK)

Note

DECnet/OSI for OpenVMS *must* be installed on your system before you can install X.25, FTAM, VT, or OSAK software.

Intended Audience

This book is written for:

- Network planners and managers
- OpenVMS system managers
- DECnet/OSI software installers

Structure of This Book

This book has three parts:

Part I	Describes the pre-installation and installation steps necessary to install DECnet/OSI for OpenVMS.
Part II	Provides help to determine which configuration option to use: BASIC or ADVANCED. Describes how to run a BASIC configuration including examples for either an Alpha or a VAX system. Also includes an overview of the naming services you can select during configuration.

Part III Includes a basic overview on the POLYCENTER™ Software Installation utility, an example of installing DECnet/OSI for OpenVMS from an InfoServer™, and a list of system files loaded during installation.

Related Documents

The following books provide additional information.

- *DECnet/OSI for OpenVMS Applications Installation and Advanced Configuration*

  The second installation book to read in order to successfully install and configure X.25 for OpenVMS Alpha, P.S.I and P.S.I. Access for OpenVMS VAX, FTAM, VT, and OSAK. It also includes how to configure DECnet/OSI for OpenVMS using the ADVANCED configuration option and how to modify a configuration.

- *DECnet/OSI for OpenVMS Introduction and User's Guide*

  Introduces the DECnet/OSI for OpenVMS features and tools, and how to use and manage a DECnet/OSI for OpenVMS end system. Also provides a comprehensive glossary of DECnet/OSI terminology.

- *DECnet/OSI Planning Guide*

  Explains in detail the transition from DECnet Phase IV to DECnet/OSI, providing configuration guidelines and planning tasks.

- *DECdns Management*
- *DECnet/OSI DECdts Management*
- *DECnet/OSI Network Management*
- *X.25 for OpenVMS Configuration Guide*
- *OpenVMS License Management Utility Manual*
- *OpenVMS System Management Utilities Reference Manual*
- *OpenVMS VAX Version 6.3 Upgrade and Installation Manual*
- *OpenVMS Alpha Version 6.3 Upgrade and Installation Manual*
- *DECwindows Motif Version 1.2-3 for OpenVMS Installation Guide*
- *OpenVMS Backup Utility Manual*

Terminology

The following terms are used interchangeably in this book.

- Alpha and AXP
- Transition and migration
- Phase IV and DECnet™ Phase IV
- End system and end node
- Intermediate system and router
- DECnet/OSI and Phase V

Conventions

The following conventions are used in this book.

Convention	Meaning
`special type`	Indicates a literal example of system output or user input. In text, indicates command names, keywords, node names, file names, directories, utilities and tools.
UPPERCASE	Indicates keywords that you enter. You can type the characters in uppercase or lowercase. You can abbreviate command keywords to the smallest number of characters that OpenVMS, NCP, NCL, or the other tools accept. Uppercase also indicates the names of files, directories, utilities, tools, commands, parameters, and procedures.
italic type	Indicates a variable.
bold	Indicates a new term defined in the text or important information.
Return	Indicates that you press the Return key.
Ctrl/*x*	Indicates that you press the Control key while you press the key noted by *x*.
[YES]	Brackets indicate that the enclosed item is a default value in an installation prompt.
{ }	In command format descriptions, indicates you must enter at least one listed element.

How To Order Additional Documentation

Use the following table to order additional documentation or information. If you need help deciding which documentation best meets your needs, call 800-DIGITAL (800-344-4825).

Table 1 Telephone and Direct Mail Orders

Location	Call	Fax	Write
U.S.A.	DECdirect 800-DIGITAL 800-344-4825	Fax: 800-234-2298	Digital Equipment Corporation P.O. Box CS2008 Nashua, NH 03061
Puerto Rico	809-781-0505	Fax: 809-749-8300	Digital Equipment Caribbean, Inc. 3 Digital Plaza, 1st Street, Suite 200 P.O. Box 11038 Metro Office Park San Juan, Puerto Rico 00910-2138
Canada	800-267-6215	Fax: 613-592-1946	Digital Equipment of Canada Ltd. Box 13000 100 Herzberg Road Kanata, Ontario, Canada K2K 2A6 Attn: DECdirect Sales
International			Local Digital subsidiary or approved distributor
Internal Orders	DTN: 264-3030 603-884-3030	Fax: 603-884-3960	U.S. Software Supply Business Digital Equipment Corporation 10 Cotton Road Nashua, NH 03063-1260

Part I

DECnet/OSI for OpenVMS Installation

Part I describes the prerequisite steps necessary to install DECnet/OSI for OpenVMS, and how to install it.

- Chapter 1 — Preparing to Install DECnet/OSI for OpenVMS
- Chapter 2 — Pre-Installation Tasks
- Chapter 3 — Installing DECnet/OSI for OpenVMS

1

Preparing to Install DECnet/OSI for OpenVMS

This chapter describes the tasks you must perform before installing and configuring the DECnet/OSI for OpenVMS distribution kit.

1.1 The POLYCENTER Software Installation Utility

The POLYCENTER Software Installation (PCSI) utility replaces VMSINSTAL as the method of installing layered products for OpenVMS systems. PCSI allows you to install several software products with a single command.

Full details for using the POLYCENTER Software Installation utility to install and manage software products on your system are provided in the *OpenVMS System Management Utilities Reference Manual*. This manual also provides information on removing products and other PCSI features.

Refer to Appendix A for a basic overview of the PCSI utility.

1.2 Inspecting the Distribution Kit

Before you install the DECnet/OSI for OpenVMS software, make sure you have a complete software distribution kit. If you have the OpenVMS condist CD-ROM distribution kit, check the CD Master Index for the kit location. If you have a magtape or TK50 kit, supply the device name to PCSI when requested.

Check that the kit contains everything listed on the bill of materials (BOM). If anything is missing or damaged, contact your Digital representative.

The distribution kit contains the following component kit files:

- Base components software
  - DECnet/OSI for OpenVMS base kit
- Optional software
  - OSI remote file operations support kit (FTAM software)
  - OSI applications support kit (OSAK software)
  - Virtual Terminal software kit

For a more detailed list, refer to Chapter 3.

Note

Before installing any of the software, read the *DECnet/OSI Planning Guide* (included with your DECnet/OSI for OpenVMS core documentation set). This guide contains installation planning information, including namespace planning instructions.

1.3 Time Required for Installation and Configuration

The time required to complete the DECnet/OSI installation and configuration procedures depends on the following:

- Configuration option used (BASIC or ADVANCED)
- Optional software installed
- CPU on the system
- Type of distribution media

The time required to install and configure DECnet/OSI can vary from 30 minutes to 2 hours, depending on the combination of choices you make from the above list.

1.4 Prerequisite Software and Licenses

Before you can install and configure the software, the system must have the required operating system software and license(s).

1.4.1 Software and Licenses

The prerequisites for installing DECnet/OSI for OpenVMS software are as follows:

- OpenVMS operating system Version 7.0
- One of the available DECnet/OSI licenses

The specific license required on your system is determined by the functions you want to use:

- Basic function license (DVNETEND) — provides end system support.
- Extended function license (DVNETEXT) for Alpha systems — provides end system support, DECdts server, cluster alias, and OSI applications gateways.
- Extended function license (DVNETRTG) for VAX systems — provides end system support, DECdns server, DECdts server, cluster alias, and OSI applications gateways.

  For the extended function licenses, the TELNET/VT gateway also requires the Digital TCP/IP Services for OpenVMS product.
- X.25 license (Alpha systems only) — provides functionality over a wide area network link.

At least one node of a VMScluster™ system requires the extended function license to use cluster alias.

1.4.1.1 DECnet and OSI Applications over TCP/IP

If you plan to use the DECnet/OSI over TCP/IP feature, then TCP/IP software is a prerequisite. Your end system will be able to operate over TCP/IP if and only if the TCP/IP product used on your system supports the PATHWORKS™ Internet Protocol (PWIP) interface.

The PWIP interface is currently supported by the products listed below. Contact the vendor for the required versions of their product.

- Digital TCP/IP Services for OpenVMS
- TCPware™

  Process Software Corporation
  959 Concord Street
  Framingham, MA 01701
  800-722-7770
  info@process.com
- MultiNet™ for OpenVMS

  TGV, Inc.
  101 Cooper Street
  Santa Cruz, CA 95060
  408-457-5200
  sales@tgv.com
- PATHway for OpenVMS

  The Wollongong Group, Inc.
  1129 San Antonio Road
  Palo Alto, California 94303
  800-872-8649 (800-962-8649 in CA)
  sales@twg.com

Note

For more information on using DECnet over TCP/IP or the OSI Applications over TCP/IP, refer to the *DECnet/OSI Network Management* guide.

1.4.2 Checking Licenses

To determine the OpenVMS operating system version number, enter the following DCL command:

```
$ show system Return
```

To determine whether a DECnet/OSI license is registered, enter the following DCL command:

```
$ show license dvnet* Return
```

If the system does not have the required license(s), obtain the Product Authorization Key (PAK) and register the license. For instructions on registering a license, refer to the *OpenVMS License Management Utility Manual*.

1.5 System Requirements

Before you install the DECnet/OSI for OpenVMS software, make sure that your system meets the following requirements.

1.5.1 Disk Space

If this is the first time you are installing DECnet/OSI on a particular system, ensure that you have enough free blocks on the system disk (see Table 1–1). You need enough blocks to install the DECnet/OSI Base components and any options you select.

If you already have DECnet/OSI installed, you need considerably less free space for the installation because the earlier installation allocated most of the blocks that a subsequent installation needs.

Required Disk Space — Base Components

The total amount of disk space required to install the software for base components is 73,000 blocks (for VAX systems) or 82,000 blocks (for Alpha systems).

Disk Space — Optional Software

Table 1–1 shows the amount of disk space needed to install the optional software. Make sure you have enough free space to install the required software and the optional software.

Table 1–1 Disk Space Requirements — Optional Software

Component	Blocks for Alpha	Blocks for VAX
DECdts server	1400	1800
DECdns server	N/A	3000[1]
VAX P.S.I.	N/A	7000
VAX WANDD	N/A	5500
X.25	12144	N/A
OSAK	6900	6000
FTAM	28000	12000
Virtual Terminal	3500	1700

[1]Approximate amount — actual amount depends on the size of the namespace, the number of logs created, and so forth. The amount of required disk space could double when running tests, then return to original amount when duplicate files are deleted.

To find out how many free blocks exist on the system disk, enter the following command:

```
$ show device sys$sysdevice Return
```

`show device` shows the number of free blocks on the disk. If the number of required blocks exceeds the number of free blocks, you must clear space on the system disk.

1.5.2 Required System Parameters

This section provides information about the system parameters, their values, and how to modify them.

Table 1–2 lists the minimum system parameters required for the base software.

Table 1–2 Minimum System Parameters Required — Base Software Installation

Parameter	Minimum Value for Alpha	Minimum Value for VAX
MIN_GBLSECTIONS	512	400
MIN_GBLPAGES	100000	50000
MIN_GBLPAGES[1]	100000	60000
MIN_GBLPAGFIL	1024	4096
MIN_CLISYMTBL	500	500
MIN_KSTACKPAGES[2]	2	N/A

[1]Larger values apply if you are running the optional OSI applications.

[2]Larger values apply if you are running X.25.

To check these parameters, invoke the SYSGEN utility and enter the following command:

```
$ mcr sysgen
SYSGEN> show gblsections
```

If any of the system parameters need to be modified, follow these steps:

1. Edit the `modparams.dat` file by entering:

   ```
   $ edit sys$system:modparams.dat
   ```

2. Enter the values into the file in the following format:

   ```
   SCSSYSTEMID=65187

   SCSNODE="SUPER1"
   MIN_GBLSECTIONS=512
   .
   .
   .
   MIN_GBLPAGFIL=1024
   ```

3. Exit from the editor.

4. Run AUTOGEN by entering the following command:

   ```
   $ @sys$update:autogen getdata reboot
   ```

   Note

   Run AUTOGEN to ensure that your system is tuned with the appropriate parameters.

1.5.2.1 SYSGEN Parameters for VMScluster Members

When installing DECnet/OSI for OpenVMS on an OpenVMS cluster, make sure that all cluster members have the suggested SYSGEN parameters set correctly. If a node in the cluster does not have the required minimum parameters, startup of the network will fail. If the network fails to start for this reason, the logical NET$STARTUP_STATUS is set to OFF-AUTOGENREQ. Set the parameters to the recommended values before you run `net$configure`.

1.5.3 Backing Up the System Disk

Use the OpenVMS BACKUP utility to make a copy of the system disk. For information on BACKUP, refer to the *OpenVMS Backup Utility Manual*.

1.6 Notifying Users

Inform users on the system that you plan to install a product and that they must log out.

Use the `reply/all` command and be sure to indicate the exact time you plan to begin running the POLYCENTER Software Installation utility. For example:

```
$ set logins/interactive=0
$ reply/all "Installing software at 18:00; Please log out."
```

If possible, give users an estimated time when they will be able to log in to the system.

2
Pre-Installation Tasks

Before installing the software, complete the Installation Planning Checklist at the end of this chapter. This ensures that you have the information you need to complete the installation and configuration in the minimum amount of time. In addition to identifying necessary information and directing you to sources of help, the checklist also assists you in choosing optional software.

2.1 Information Required to Complete the Installation Planning Checklist

Determine the following information before you begin the installation and configuration procedure. Enter this information on your Installation Planning Checklist:

- System's full name (you may have a DECdns full name, a Local namespace full name, a fully qualified host name for the Domain Name System [DNS/BIND])
- Node synonym
- Phase IV-compatible address to interface with Phase IV nodes
- Phase IV prefix
- Network address

Each of these items is discussed in the following sections.

2.1.1 Specifying the System's Full Name

The DECnet/OSI for OpenVMS configuration procedure `net$configure.com` prompts you for the system's full name. You can enter a DECdns full name, a Local namespace full name, a fully qualified host name for the Domain Name System (DNS/BIND), or all three. For DECdns and Local namespace full names, you must specify a node full name that includes a namespace nickname (this complies with DECdns distributed namespace requirements). The full name format is the same for distributed namespaces and Local namespaces.

The full name uses the following form:

```
NamespaceNickname:.DirectoryPath.NodeObject
```

The following are the guidelines for selecting a full name:

- For DECdns and Local, the node full name must begin with the namespace nickname and a colon (:).
- For DECdns and Local, the directory path must begin with a dot (.).
- The full name can be up to 511 characters long: the namespace nickname can be up to 255 characters, and the directory path and node object can be up to 255 characters.

- The full name can be any combination of letters, digits, and certain punctuation characters from the ISO Latin-1 character set. Some other characters are allowed as long as they are enclosed in quotation marks. For a list of all allowable characters, refer to the *DECdns Management* guide.
- For DNS/BIND, enter a fully qualified IP host name.

The following are some examples of suitable node full names:

```
XYZ_CORP:.sales.east_coast.GraceKelly
Mbi:.MIS.Europe.Monaco_headquarters.F_Riviera
AU:.chemistry$lab.rachel$williams
local:.bryan
smilee.mass.acme.edu
```

Note

If you plan to use a Local namespace and you are converting a Phase IV system to DECnet/OSI, Digital recommends that you use the system's Phase IV node name in the DECnet/OSI full name (for example, LOCAL:.PASTRY).

If you plan to use a Local namespace, your namespace nickname will be `LOCAL:`.

Node full names should be planned carefully and must be unique within the namespace. If your network administrator has not assigned a unique node full name for your system, be sure to read the *DECnet/OSI Planning Guide* before you assign a node name for your system. For more information on name services, refer to Chapter 6.

2.1.2 Specifying a Node Synonym

The node synonym is an alphanumeric character string between one and six characters long. The first character must be an alphabetic character; after the first character, the string can contain either alphabetic or numeric characters.

The node synonym is primarily a transition tool that allows you to use a Phase IV-style node name for your DECnet/OSI node. Other users can then find your node by using this synonym rather than your full name. If you were using DECnet Phase IV, consider using your Phase IV node name as your synonym. The synonym is required for Phase IV applications that can only handle Phase IV-style node names. If your network has only DECnet/OSI or OSI systems, you may not need a node synonym.

The default node synonym is the first six characters of the system's last simple name. The last simple name is the string that follows the last period of your full name. For example, if you specify `XYZ_CORP:.sales.east_coast.GraceKelly` as a node full name, the default node synonym is `GraceK`.

2.1.3 Specifying a Phase IV-Compatible Address

If you want your system to communicate with Phase IV nodes, you must specify a Phase IV address and a Phase IV prefix. These will be used to construct a DECnet Phase IV-compatible address.

A DECnet Phase IV-compatible address is a DECnet/OSI address (NSAP) that conforms to the Phase IV area and node limits; that is, the area number is from 1 to 63, and the node number is from 1 to 1023.

If there are no Phase IV systems on your network or you do not want to communicate with Phase IV systems, you do not need a Phase IV-compatible address. Entering a Phase IV address of 0.0 at configuration time indicates that this DECnet/OSI system will not have a Phase IV-compatible address, and will not communciate with Phase IV nodes.

```
* Enter PhaseIV Address                         [15.27] :
```

2.1.4 Specifying a Phase IV Prefix

The default value for the Phase IV prefix is 49:: which represents the private network IDP. This is appropriate for a Phase IV DECnet network that contains some DECnet/OSI systems. All nodes within a single addressing domain contain the same IDP in their network addresses.

If you are using a Phase IV prefix other than 49::, it **must** be assigned by an authorized standards organization, such as ANSI, or you must construct a Phase IV prefix that you know will be globally unique (based on your telephone number, for instance). If your organization has allocated its own Phase IV prefix, you can enter that value instead of 49::. The *DECnet/OSI Planning Guide* contains a detailed description of how to construct an IDP and how to apply to a standards organization for an IDP.

2.2 Installation Planning Checklist

Complete the checklist in Table 2–1 before continuing with the installation process.

Table 2–1 Installation Planning Checklist

Question	Yes	No	For More Information
What is the system's DECdns node name?			See Section 5.2
What is the system's Local node name?			See Section 5.2
What is the system's fully qualified host name for DNS/BIND?			See Section 5.2
What is the system's node synonym?			See Section 5.2.2
Will the system communicate with Phase IV nodes? If yes, you'll need: • Phase IV-compatible address • Phase IV prefix	☐	☐	See Section 5.2.3
Will the system autoconfigure its network addresses? If not, you will need network entity titles.	☐	☐	See Section 5.2.5
Have you backed up your system disk? If not, then do so before you start the installation.	☐	☐	See the *OpenVMS Backup Utility Manual*
Do you want to install VAX WANDD software for VAX? You must install this software if you want to use any of the following: – Non-LAN connections to the network – Routing over synchronous connections – X.25 software over synchronous lines	☐	☐	See the *DECnet /OSI for OpenVMS Applications Installation and Advanced Configuration* guide

(continued on next page)

Table 2–1 (Cont.) Installation Planning Checklist

Question	Yes	No	For More Information
Do you want to install X.25 software for Alpha? You must install this software if you want to use any of the following: – X.25 communications via DEC X25gateway – X.25 coummunications via X.25 Multihost – X.25 communications on local system (X.25 Native) – LAN X.25 (LLC Class 2) – DECnet over X.25	☐	☐	See the *DECnet /OSI for OpenVMS Applications Installation and Advanced Configuration* guide
Do you want to install DECdts server software? If you want to install DECdts on your network and the system is the first node on the network, install this software. If there is a DECdts server node already running on the network, you do not have to install this software. **Note:** Digital recommends that there be a minimum of three DECdts server nodes on each local area network. If there are fewer than three DECdts servers, DECdts cannot detect a faulty clock and may propagate incorrect times throughout the network.	☐	☐	Refer to the *DECnet /OSI Planning Guide*
Do you want to install DECnet/OSI for OpenVMS Virtual Terminal software? If you plan to support remote logins and access to remote applications on OSI-compliant systems, you must install this software.	☐	☐	See the *DECnet /OSI for OpenVMS Applications Installation and Advanced Configuration* guide
Do you want to install DECnet/OSI for OpenVMS OSAK software? If you plan to use DECnet/OSI for OpenVMS Virtual Terminal software or other OSI application other than FTAM, you must install this software.	☐	☐	See the *DECnet /OSI for OpenVMS Applications Installation and Advanced Configuration* guide

(continued on next page)

Table 2–1 (Cont.) Installation Planning Checklist

Question	Yes	No	For More Information
Do you want to install DECnet/OSI for OpenVMS FTAM software? If you plan to copy files to and from other OSI-compliant systems or manage such files, you must install this software.	☐	☐	See the *DECnet/OSI for OpenVMS Applications Installation and Advanced Configuration* guide

3
Installing DECnet/OSI for OpenVMS

The DECnet/OSI for OpenVMS distribution software is provided on compact disc (CD-ROM). The software consists of the following components:

Components for Alpha Systems

- Base Components
  - DECnet/OSI for OpenVMS base kit
  - DECdts server
- Optional Components (included with the base kit but must be installed separately)
  - FTAM
  - VT
  - OSAK
- X.25 for Alpha (requires a separate license)

Components for VAX Systems

- Base Components
  - DECnet/OSI for OpenVMS base kit
  - VAX P.S.I.
  - WANDD for VAX
  - DECdns server
  - DECdts server
- Optional Components (included with the base kit but must be installed separately)
  - FTAM
  - VT
  - OSAK

Note

The DECnet/OSI base components, FTAM, OSAK, and VT, are all packaged as separate installation kits on the distribution medium. They are usually located in the same directory. The X.25 for OpenVMS Alpha kit, however, is a separately licensed product and as such is in a different directory on the distribution medium. Consult the documentation with your distribution medium for the location of the kits you desire.

Use the POLYCENTER Software Installation (PCSI) utility to install the base components and any combination of optional components. Refer to Appendix A for information on using the DCL or Motif interface with PCSI.

3.1 Recommended Order for Installing Software

The following sections describe the order in which you should install the DECnet /OSI for OpenVMS software for either an Alpha or VAX system.

3.1.1 Installing DECnet/OSI for an OpenVMS Alpha System

If you choose to install all the software products at the same time, install and configure the OpenVMS operating system and layered products in the following order, referring to the appropriate documentation. For a quick reference, refer to Figure 3–1. **After OpenVMS has been installed**, perform the following steps:

1. Inspect the distribution kit.
2. Verify that all prerequisite software and licenses are installed.

   Refer to the OpenVMS system documentation set.
3. Shut down all network-related applications and tell users to log out.
4. Install DECnet/OSI for OpenVMS.

   Refer to Section 3.2.
5. Set the system parameters.
6. **Reboot the system**.
7. Install X.25 for OpenVMS Alpha and WANDD, if necessary.

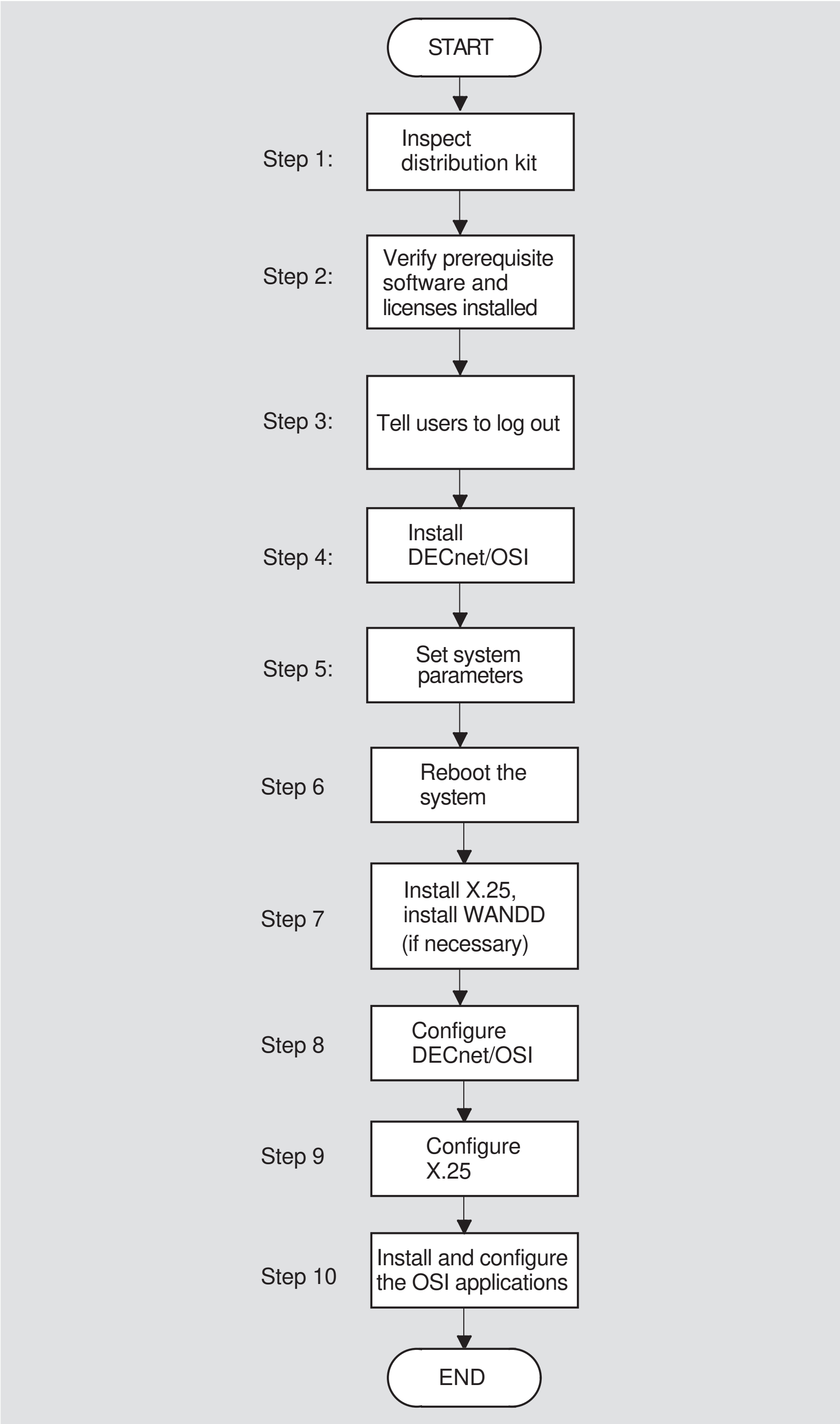
   Refer to the *DECnet/OSI for OpenVMS Applications Installation and Advanced Configuration* guide.
8. Configure DECnet/OSI for OpenVMS. First, review Table 4–1 to determine which configuration option to choose: BASIC or ADVANCED.

   For a BASIC configuration, refer to Chapter 5. For an ADVANCED configuration, refer to the *DECnet/OSI for OpenVMS Applications Installation and Advanced Configuration* guide.
9. Configure X.25 for OpenVMS Alpha.

   Refer to the *DECnet/OSI for OpenVMS Applications Installation and Advanced Configuration* guide.
10. Install and configure the OSI Applications (FTAM, VT, OSAK).

    Refer to the *DECnet/OSI for OpenVMS Applications Installation and Advanced Configuration* guide.

Figure 3–1 Installation and Configuration Flowchart (Alpha Only)



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3.1.2 Installing DECnet/OSI for a VAX System

If you choose to install all the software products at the same time, install and configure the OpenVMS operating system and layered products in the following order, referring to the appropriate documentation. For a quick reference, refer to Figure 3–2. **After OpenVMS has been installed**, perform the following:

1. Inspect the distribution kit.
2. Verify that all prerequisite software and licenses are installed.

   Refer to the OpenVMS system documentation set.
3. Shut down all network-related applications and tell users to log out.
4. Install DECnet/OSI for OpenVMS.

   Refer to Section 3.2.

   Note

   If you want to install VAX P.S.I., select the option now while installing DECnet/OSI for OpenVMS.

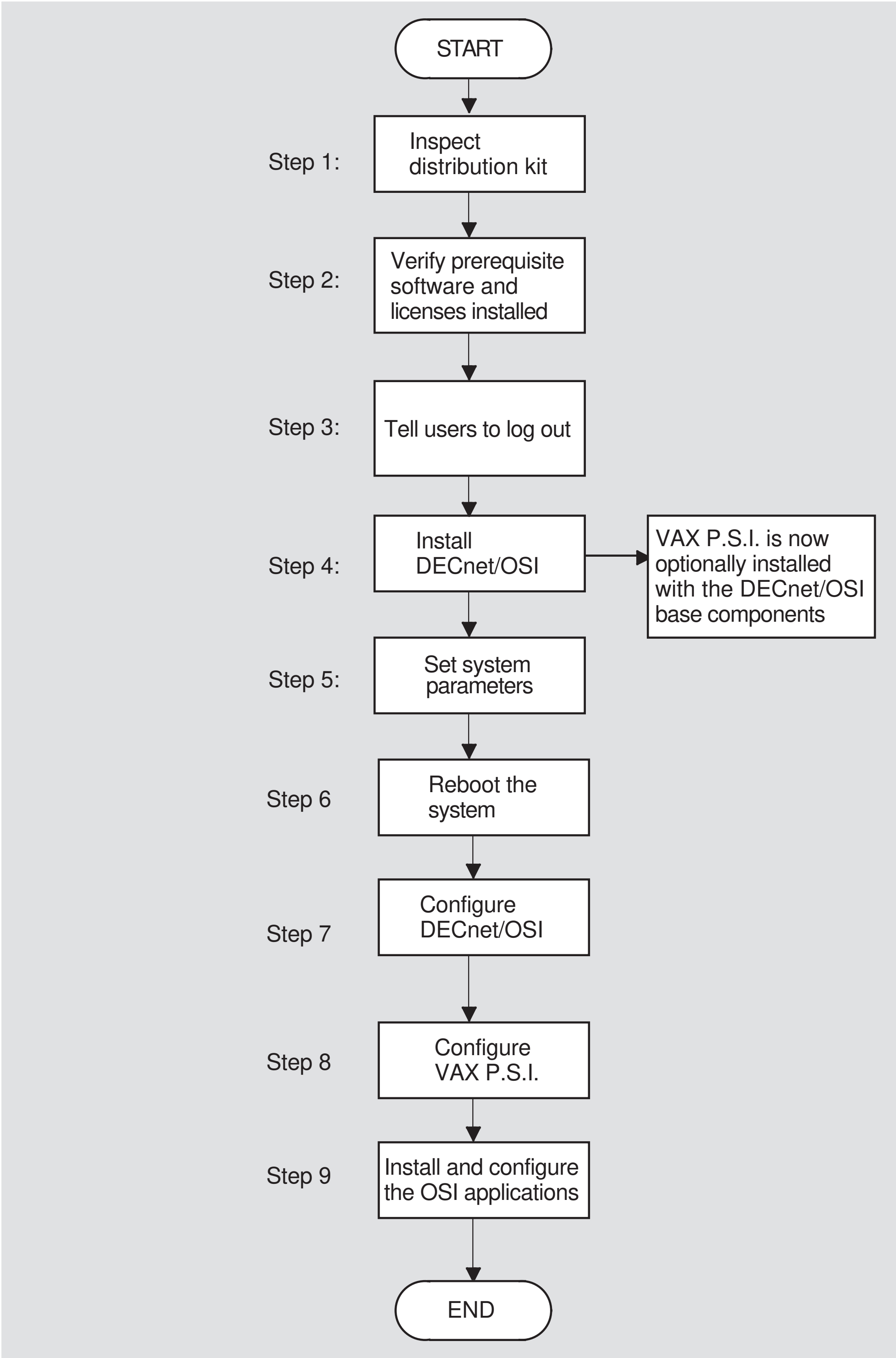
5. Set the system parameters.
6. **Reboot the system**.
7. Configure DECnet/OSI for OpenVMS. First, review Table 4–1 to determine which configuration option to choose: BASIC or ADVANCED.

   For a BASIC configuration, refer to Chapter 5. For an ADVANCED configuration, refer to the *DECnet/OSI for OpenVMS Applications Installation and Advanced Configuration* guide.
8. Configure VAX P.S.I.

   Refer to the *DECnet/OSI for OpenVMS Applications Installation and Advanced Configuration* guide.
9. Install and configure the OSI applications (FTAM, VT, OSAK).

   Refer to the *DECnet/OSI for OpenVMS Applications Installation and Advanced Configuration* guide.

Figure 3–2 Installation and Configuration Flowchart (VAX Only)



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3.2 Installing DECnet/OSI using PCSI

This section describes the steps for installing DECnet/OSI software using the POLYCENTER Software Installation (PCSI) utility (for more information on this utility, refer to Appendix A). You must have SYSPRV privileges on the local or remote node where you want to run PCSI.

3.2.1 Sample DECnet/OSI for OpenVMS Alpha Installation

To start the installation, follow these steps:

1. Log in to the SYSTEM account.
2. Mount the software CD-ROM. Refer to the *OpenVMS Layered Products Compact Disc User's Guide* for instructions on mounting and removing a compact disc.
3. Enter the following command, substituting the name of your device for the *devicename* parameter:

```
$ product install decnet_osi /source=devicename:[dnvosi063.kit]
```

You are then prompted for installation information as in the following example. In this example, numbered callouts (❶, ❷, ❸, . . .) guide you through the sequence of steps that require your response. For Alpha systems, you will see AXPVMS as product information on your screen.

```
  The following product has been selected:
  DEC AXPVMS DECNET_OSI V6.3     [Available]

❶ Do you want to continue? [YES]

  *** DEC AXPVMS DECNET_OSI V6.3: DECnet/OSI V6.3 for OpenVMS AXP

      Requires from 78873 to 80555 disk blocks depending upon configuration.

                                  DECnet/OSI

            DECnet/OSI for OpenVMS allows an OpenVMS system to participate
            in an Open Systems Interconnect (OSI) network.

            DECnet/OSI for OpenVMS is a replacement product for DECnet for
            OpenVMS.  Installation of this product allows systems to continue
            to belong to DECnet networks as well as OSI networks.

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      This product requires one of two PAKS: DVNETEND or DVNETEXT.

      The DVNETEND PAK allows full DECnet/OSI function on a LAN, WAN (via
      HDLC only), and X.25 operation over LLC2.

      The DVNETEXT PAK provides all the functions of DVNETEND, but also adds
      the OSI Application Gateways (FTAM-DAP Gateway, VT-Telnet Gateway,
      VT-LAT Gateway), DECdts Server, and cluster alias.  Only one extended
      function PAK is required in each cluster to support cluster alias.

      The X25 PAK is required for all X.25 functionality other than LLC2.

❷ Do you want all the default values for this product? [YES]

❸ Do you want to view the values? [NO]  y

    DEC AXPVMS DECNET_OSI V6.3: DECnet/OSI V6.3 for OpenVMS AXP
    DEC AXPVMS VMS V6.2      [Available]
    DECdts Server software: NO

    Are you satisfied with the values? [YES]
```

```
%PCSIUI-I-DONEASK, execution phase starting
The following product will be installed:
DEC AXPVMS DECNET_OSI V6.3
%PCSI-I-VOLINFO, estimated space information for volume DISK$MEUM_SYSTEM
-PCSI-I-VOLSPC, 0 required; 520731 available; 520731 net
Portion Done: 0%...10%...20%...30%...40%...50%...80%...90%...100%
The following product has been installed:
DEC AXPMS DECNET_OSI V6.3
*** DEC AXPVMS DECNET_OSI V6.3: DECnet/OSI V6.3 for OpenVMS AXP

❹ This product requires the following SYSGEN parameters:
        VIRTUALPAGECNT minimum 80000

    This product requires the following SYSGEN parameters:
        GBLSECTIONS minimum 512

    This product requires the following SYSGEN parameters:
        GBLPAGES minimum 100000

    This product requires the following SYSGEN parameters:
        GBLPAGFIL minimum 1024

    This product requires the following SYSGEN parameters:
        KSTACKPAGES minimum 2

    This product requires the following SYSGEN parameters:
        CLISYMTBL minimum 500


    Release notes are available in SYS$HELP:DECNET_OSI-V6_3.RELEASE_NOTES

    The release notes contain the latest information about DECnet/OSI for
    OpenVMS which may not be included in the standard documentation.  It is
    strongly recommended that you read the release notes before configuring
    DECnet/OSI.

❺ Please be sure your system parameters are properly set.

    The system parameters listed above are the minimums required in order
    to run DECnet/OSI for OpenVMS.  Make sure your system has at least the
    required value for each parameter.  The recommended method to make these
    changes permanent is to insert these requirements in your MODPARAMS.DAT
    file and AUTOGEN your system.  Please see the DECnet/OSI for OpenVMS
    Installation and Configuration manual for further instructions.

    It is necessary to reboot your system for the software to take effect.

    You must now reboot your system before you can configure and start
    DECnet/OSI.  Be sure you have run AUTOGEN (if necessary) first, so that the
    appropriate system parameters will be properly set when the system is
    rebooted.

    You may install OSI Applications after rebooting and configuring.

    Once you have rebooted your system and configured DECnet/OSI using
    the SYS$MANAGER:NET$CONFIGURE.COM procedure, you may install any OSI
    Applications that are included in this software distribution.  These
    include DECnet/OSI OSAK, DECnet/OSI FTAM, and DECnet/OSI VT.  Refer to
    the DECnet/OSI Installation and Configuration manual for more information.
```

❶ At this point, you can stop the installation process. If you want to continue, press Return. If you want to stop, type NO, then press Return.

❷ This question allows you to select which optional parts of the DECnet/OSI product you want to install. If you want to install just the base software, press Return. If you want to select the optional software, type NO and press Return. The procedure then displays a list of choices for you.

❸ This question allows you to review and change your current selections. Type YES if you are satisfied with the current selected options. Type NO if you want to make changes.

❹ After the product installs, PCSI tells you which SYSGEN parameters to set and the required values. If you have already set these parameters correctly, ignore this informational message.

❺ If your parameters are correct, reboot your system. If not, set the parameters first, then reboot the system. You can find instructions on how to set these parameters in Section 1.5.2.

3.2.2 Sample DECnet/OSI for OpenVMS VAX Installation

To start the installation, follow these steps:

1. Log in to the SYSTEM account.
2. Mount the software CD-ROM. Refer to the *OpenVMS Layered Products Compact Disc User's Guide* for instructions on mounting and removing a compact disc.
3. Enter the following command, substituting the name of your device for the *devicename* parameter:

```
$ product install decnet_osi /source=devicename:[dnvosi063.kit]
```

You are then prompted for installation information as in the following example. In this example, numbered callouts (❶, ❷, ❸, . . .) guide you through the sequence of steps that require your response. For VAX systems, you will see DEC VAXVMS as product information on your screen.

```
  The following product has been selected:
  DEC VAXVMS DECNET_OSI V6.3     [Available]

❶ Do you want to continue? [YES]

  *** DEC VAXVMS DECNET_OSI V6.3: DECnet/OSI V6.3 for OpenVMS VAX

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      Digital Equipment Corporation

      This product requires one of two PAKS: DVNETEND or DVNETRTG.

❷ Do you want all the default values for this product? [YES]

❸ Do you want to view the values? [NO]  y

  DEC VAXVMS DECNET_OSI V6.3: DECnet/OSI V6.3 for OpenVMS VAX
      DEC VAXVMS VMS V6.1      [Available]
      VAX P.S.I. or P.S.I. Access software: NO
      VAX Wide Area Device Drivers: NO
      DECdns Server software: NO
      DECdts Server software: NO

      Are you satisfied with the values? [YES]
```

```
%PCSIUI-I-DONEASK, execution phase starting
The following product will be installed:
DEC VAXVMS DECNET_OSI V6.3
%PCSI-I-VOLINFO, estimated space information for volume DISK$OPENVMS062
-PCSI-I-VOLSPC, 58234 required; 35570000 available; 3498766 net
Portion Done: 0%...10%...20%...30%...40%...80%...90%...100%
The following product has been installed:
DEC VAXVMS DECNET_OSI V6.3

*** DEC VAXVMS DECNET_OSI V6.3: DECnet/OSI V6.3 for OpenVMS VAX

❹ This product requires the following SYSGEN parameters:
        VIRTUALPAGECNT minimum 20000

    This product requires the following SYSGEN parameters:
        GBLSECTIONS minimum 400

    This product requires the following SYSGEN parameters:
        GBLPAGES minimum 50000

    This product requires the following SYSGEN parameters:
        GBLPAGFIL minimum 4096

    This product requires the following SYSGEN parameters:
        CLISYMTBL minimum 500

 Release notes are available in SYS$HELP:DECNET_OSI-V6_3.RELEASE_NOTES

❺ Please be sure your system parameters are properly set.

 It is necessary to reboot your system for the software to take effect.

 You may install OSI Applications after rebooting and configuring.
```

❶ At this point, you can stop the installation process. If you want to continue, press Return. If you want to stop, type NO, then press Return.

❷ This question allows you to select which optional parts of the DECnet/OSI product you want to install. If you want to install just the base software, press Return. If you want to select the optional software, type NO and press Return. (For example, if you want to configure wide area devices such as WANDD, X.25, or P.S.I, answer NO to this question. The procedure then displays a list of choices for you.)

❸ This question allows you to review and change your current selections. Type YES if you are satisfied with the current selected options. Type NO if you want to make changes.

❹ After the product installs, PCSI tells you which SYSGEN parameters to set and the required values. If you have already set these parameters correctly, ignore this informational message.

❺ If your parameters are correct, reboot your system. If not, set the parameters first, then reboot the system. You can find instructions on how to set these parameters in Section 1.5.2.

3.3 Files Installed on Your System

The DECnet/OSI installation procedure installs a number of files on your system. To list the files, enter the following command:

```
$ product show object /product=decnet_osi
```

Part II

DECnet/OSI for OpenVMS BASIC Configuration

Part II describes how to configure DECnet/OSI for OpenVMS using the BASIC configuration option.

It includes the following chapters:

4
Configuration Options

This chapter presents information about the two configuration options you can use to configure your system for DECnet/OSI. Both configuration options enable you to configure the DECnet/OSI for OpenVMS base components, so that the system becomes a DECnet/OSI end system on a network. The procedure you use to configure your system for DECnet/OSI is `sys$manager:net$configure.com`. You can use either of the following `net$configure` configuration options:

- BASIC configuration option (*Chapter 5*)

  The BASIC configuration allows you to configure your system for DECnet/OSI by answering a few questions and using the default answers on others.

- ADVANCED configuration option (*DECnet/OSI for OpenVMS Applications Installation and Advanced Configuration* guide)

  The ADVANCED configuration allows you to customize your system's network configuration.

This chapter presents additional information about the following topics:

- Selecting a configuration option
- How to run `net$configure`
- Privileges required to run `net$configure`

4.1 Selecting a Configuration Option

If you installed the required software, you can configure your system with the `net$configure basic` configuration option (the default) or with the `net$configure advanced` configuration option.

Table 4–1 provides some guidelines for making your configuration choice.

If you prefer to use the BASIC configuration option, continue with this section. If you prefer to customize your system's network configuration with the ADVANCED configuration option, see the *DECnet/OSI for OpenVMS Applications Installation and Advanced Configuration* guide.

Table 4–1 Choosing Your Configuration

Use the Basic Option if ...	Use the Advanced Option if ...
You want the option to use more than one directory service (DECdns, Local namespace, Domain, or all of these).	You want the option to use more than one directory service (DECdns, Local namespace, Domain, or all of these).
You will be using a Local namespace on your system, your system is going to be a DECdns clerk in an existing distributed namespace, you will be using the Domain Name System, or all of these.	You will be using a Local namespace on your system, your system is going to be a DECdns clerk in an existing distributed namespace, you will be using the Domain name system, or all of these.
You only have one communications device, or you have multiple devices, all of which will be used for DECnet/OSI communications.	Your system has multiple communication devices, and you want them to run a mix of protocols.
You want the option to configure your DECnet/OSI software to use X.25 services.	You want more flexibility in configuring your DECnet/OSI software to use X.25 services.
You want to use the default names for all devices and routing circuits.	You want the option to give specific names to all devices and routing circuits. You also want the option of not configuring all of your devices for DECnet/OSI.
You want to use a Phase IV Prefix value of 49::	You want the option of using a Phase IV Prefix value other than 49::
You want to autoconfigure your network addresses only.	You want the option of manually entering your network addresses.
You want to configure both the NSP and OSI Transports and only want to create default OSI templates. You want to enable both DECnet over TCP/IP or OSI applications over TCP/IP.	You want to configure either the NSP Transport or the OSI Transport (or both). You want the option to create additional OSI templates. You want the option of enabling/disabling DECnet over TCP/IP or OSI Applications over TCP/IP.
You want the default Event Dispatcher configuration.	You want the default Event Dispatcher configuration, or the option to customize the Event Dispatcher configuration.
You do not want to enable FDDI large packet support (if you have an FDDI-type circuit).	You want the option of enabling FDDI large packet support (if you have an FDDI-type circuit).
You want to set the routing characteristic DNA Address Format to TRUE (this attribute controls the interpretation of address structuring).	You want the option of setting the routing characteristic DNA Address Format to TRUE or FALSE (to control the interpretation of address structuring).
You want to use integrated mode routing.	You want the option of using either integrated mode routing or segregated mode routing.
You want default accounts created for CML, MAIL, VPM, MIRROR, and PHONE, but not FAL.	You want the option to provide default accounts for FAL, CML, MAIL, VPM, MIRROR, and PHONE.

4.2 How to Run NET$CONFIGURE

The `net$configure.com` procedure configures the DECnet/OSI for OpenVMS software. This command creates or modifies the Network Control Language (NCL) scripts required to run DECnet/OSI for OpenVMS on your node.

`net$configure.com` is an interactive procedure that displays a series of questions. After each question, the default response, if there is one, appears in brackets ([ ]). At the end of each question, a colon (:) appears. Respond in one of the following ways:

- To get help after a question, type a question mark (?). After the help display, the same question reappears.
- To select the default response, press Return.
- To enter information, type it immediately after the colon or question mark; then press Return.
- Type Y for YES and N for NO.
- To terminate the procedure, press Ctrl/Y.

If you execute `net$configure.com` **without** specifying BASIC or ADVANCED, the BASIC configuration option is invoked by default. To invoke `net$configure.com` with the BASIC option, enter the following:

```
$ @sys$manager:net$configure
```

If you prefer to have `net$configure` invoke the ADVANCED configuration option by default without having to explicitly enter the command `@sys$manager:net$configure advanced`, you can define the logical `net$configure_advanced_option`. Use the following command to change the default:

```
$ define /system net$configure_advanced_option 1
```

Once you have entered this command, if you execute `net$configure.com` without specifying the BASIC or ADVANCED option, `net$configure` invokes the ADVANCED configuration option by default.

4.2.1 Local and Global Symbols

`net$configure.com` deletes all of your local and global symbols at the beginning of the procedure in order to free the symbol table. This happens because `net$configure.com` creates and uses a large number of symbols. If the symbols were not deleted at the beginning of the procedure, `net$configure` would often run out of symbol table space to use while configuring the system.

4.2.2 Running the Procedure from Different Processes

Although `net$configure.com` can be run simultaneously on different nodes in a cluster, it should not be run simultaneously from different processes on the same node.

4.3 Privileges Required to Run NET$CONFIGURE

In order to use `net$configure.com`, you must have an account with the following privileges:

- CMKRNL
- NETMBX
- OPER
- SYSNAM
- SYSPRV
- TMPMBX
- WORLD

Note

The account cannot have the locked password (LOCKPWD) flag set.

You may also need to grant the following rights identifiers:

- NET$MANAGE
- NET$SECURITY
- NET$REGISTERDNSOBJECT

Note

If your account has the BYPASS privilege, then you do not need to grant these rights identifiers.

5

Using the BASIC Configuration Option

This chapter describes how to configure the DECnet/OSI for OpenVMS base components using the BASIC configuration option so that the system becomes a DECnet/OSI for OpenVMS end system on a network.

The BASIC configuration option allows you to configure your system by answering a few questions and using the default answers on others.

If you have already configured the DECnet/OSI for OpenVMS software and you want to customize the configuration, refer to Table 4–1 to determine if you want to use the BASIC or ADVANCED option.

5.1 Invoking the BASIC Configuration Option

To invoke the `net$configure.com` procedure using the BASIC configuration option, enter the following command:

```
$ @sys$manager:net$configure
```

The procedure starts:

```
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    DECnet/OSI for OpenVMS BASIC network configuration procedure

This procedure will help you create or modify the management scripts
needed to operate DECnet on this machine. You may receive help about
most questions by answering with a question mark '?'.

You have chosen the BASIC configuration option.  This option enables
you to quickly configure your system by answering a few questions and
using most of the default answers.  If you would rather do some specific
tailoring of your  system's network configuration, you should invoke
NET$CONFIGURE.COM with the ADVANCED configuration option, ie:
               @SYS$MANAGER:NET$CONFIGURE ADVANCED

* Do you want to continue?                            [YES] :
```

Press Return to continue with the BASIC configuration option.

The procedure informs you that this is the first time you are configuring your system to use DECnet/OSI for OpenVMS:

```
%NET$CONFIGURE-I-SETUPNEW, setting up for new configuration
```

If a Phase IV database exists on the system, the procedure displays the following message:

```
%NET$CONFIGURE-I-PHASEIVDATA, Phase IV DECnet database found
```

You have the option of using the existing Phase IV database to generate the Network Control Language (NCL) scripts and configure the system. If you do not want to use the existing Phase IV database to generate the NCL scripts and configure the system, then `net$configure` configures the system based on your answers to the configuration questions.

```
* Do you want to convert Phase IV database?          [YES] :
```

If you answer YES, the `net$configure` procedure uses the system's existing Phase IV database to generate NCL scripts and configure the system.

If you answer NO, the `net$configure` procedure does not use the system's existing Phase IV database to generate NCL scripts and proceeds to ask all the configuration questions, starting with the directory services to use on the system. If you need more information to answer a question, you can type ? at the prompts. Review the installation planning checklist in Chapter 2 before continuing.

5.2 Directory Name Services

DECnet/OSI provides access to the node name and addressing information stored in one or more name services. This release of DECnet/OSI supports the following directory name services:

- Local namespace — A discrete, nondistributed namespace that stores name and address information locally in database files, the Local namespace replaces the DECdns Local Naming Option (LNO). It also has the ability to hold 100,000 nodes, and can scale beyond that number. The actual number of nodes that the Local namespace can hold depends on the space available on your system. For more detailed information on namespaces, refer to Section 6.1.1.
- DECdns distributed namespace — Digital's Distributed Name Service, DECdns is a distributed, global name service. For more information, refer to Section 6.1.2.
- Domain Name System — The Domain Name System (DNS/BIND) is supported for storage of IP addresses. For more information, refer to Section 6.1.3.

If you choose to enter more than one directory name service for your system, enter them in order of priority. The ordering of this list is **very** important: the first directory service entered in this list is considered the primary directory service to use on the system. The primary directory service is considered the first choice to use when looking up naming information for the system.

Enter an ordered list of the directory services you want to use on the system. If you enter more than one directory service, separate each service with a comma.

```
* Enter the directory services to use on the system [LOCAL,DECDNS,DOMAIN] :
```

5.2.1 Node Full Name

Enter a node full name for each directory service chosen. The node full name is the name of your system's node object in the directory service. It includes the namespace nickname and the full list of directories leading to the node object name. Examples of node full names include:

```
Local namespace -  LOCAL:.TomThumb
DECdns          -  ACME:.wabbit.Elmer
Domain          -  elmer.wabbit.acme.edu
```

For the Local namespace, the namespace nickname LOCAL is prepended to the full name and is terminated with a colon (:). The namespace nickname LOCAL means that the Local namespace is used. The node object name must begin with a dot (.), and no element of the name (namespace name, directory, or node object name) can be a null string. Note that the namespace nickname LOCAL is reserved, and indicates that the Local namespace is used on this system. For example, if you enter "DECdns,Local,Domain" at the previous prompt, you will be asked for a DECdns full name, a Local full name, and a fully qualified host name for DNS/BIND.

```
* Enter the full name for directory service LOCAL   : LOCAL:.ELMER

* Enter the full name for directory service DECDNS  : ACME:.WABBIT.ELMER

* Enter the fully qualified host name for DNS/BIND  : ELMER.WABBIT.ACME.EDU
```

5.2.2 Node Synonym

The node synonym is an alphanumeric character string between one and six characters long. The first character must be an alphabetic character; after the first character, the string can contain either alphabetic or numeric characters.

If this system had previously been running DECnet Phase IV software, then you should use the old Phase IV node name as the synonym. If this system is joining a DECnet network for the first time, you can use any name for the synonym, as long as it meets the criteria listed above, and is unique within the network.

```
* What is the synonym name for this node?            [ELMER] :
```

For more information on node synonym directories, see Section 6.4.

5.2.3 DECnet Phase IV-Compatible Address

If you want your system to communicate with Phase IV nodes, you must specify a Phase IV address and a Phase IV prefix. These will be used to construct a DECnet Phase IV-compatible address.

A DECnet Phase IV-compatible address is a DECnet/OSI address (NSAP) that conforms to the Phase IV area and node limits; that is, the area number is from 1 to 63, and the node number is from 1 to 1023.

If there are no Phase IV systems on your network or you do not want to communicate with Phase IV systems, you do not need a Phase IV-compatible address. Entering a Phase IV address of 0.0 at configuration time indicates that this DECnet/OSI system will not have a Phase IV-compatible address, and will not communciate with Phase IV nodes.

```
* Enter PhaseIV Address                              [15.27] :
```

Enter the Phase IV address you want to use, or enter 0.0 if you do not want to communicate with Phase IV nodes.

5.2.4 Phase IV Prefix

The `net$configure basic` configuration option provides 49:: as the default value for the Phase IV prefix. If you do not enter a Phase IV-compatible address, you will not have a Phase IV prefix.

5.2.5 Configuring Network Addresses

The `net$configure basic` configuration option autoconfigures one network address for you.

5.2.6 DNA Address Format

The `net$configure basic` configuration sets the routing characteristic DNA address format to TRUE.

5.3 Configuring Devices

The `net$configure` procedure checks for network devices on the system that are supported by `net$configure` and then configures them. If the procedure finds that you have WANDD or X.25 installed but not configured, you will see the following information:

```
You have installed wide area device support, but it has not been
configured.  You may configure it now if you want.

* Do you want to configure Wide Area devices?         [YES] : N
%NET$CONFIGURE-I-SCANCONFIG, scanning device configuration - please wait
```

5.3.1 Configuring an Alpha System

For an Alpha system, the procedure displays the following information:

```
DEC X.25 software has been installed on this system.  You have
the option of configuring DECnet to run over X.25.

* Do you want to configure DECnet over X.25?           [NO] :
```

Answer YES if you want to configure DECnet over X.25.

If you answer YES, you will see a list of choices for the type of X.25 circuit to use:

```
     Types of X.25 circuits:

     [1] - X.25 Dynamic Assigned (DA)
     [2] - X.25 Static Incoming (IN)
     [3] - X.25 Static Outgoing (OUT)
     [4] - X.25 Permanent (PVC)

* Which type of X.25 circuit do you want to use?            : 4
* Routing Circuit Name to use?                   [X25-PVC-0] :
* Template name?                                 [X25-PVC-0] :
* Configure another PSI routing circuit for DECnet?     [NO] :
```

Enter the number for the type of circuit you want, then enter a routing circuit name and a template name to use for that circuit. If you do not want to configure any other PSI routing circuits, press Return for the default. The configuration procedure continues with the next series of questions (such as time zone or transports, for example).

If no devices are found on the Alpha system, the procedure displays the following prompt:

```
* Should a SYSMAN IO AUTO be executed?                       :
```

If you answer YES, the `net$configure` procedure invokes the SYSMAN IO AUTO command to find devices on the system. If you answer NO, there are no devices to configure.

5.3.2 Configuring a VAX System

If you answer YES to the question, "Do you want to configure Wide Area devices?" and you are using a VAX system, the procedure displays the following information:

```
The VAX P.S.I. software has been installed on this system.  You have
the option of configuring DECnet over P.S.I. (i.e., configuring
DECnet over X.25 datalink mapping).

* Do you want to configure DECnet over P.S.I.?          [NO] :
```

Answer YES if you want to configure DECnet over P.S.I.

If you anwer YES, the procedure displays the following list of choices:

```
     Types of X.25 circuits:

     [1] - X.25 Dynamic Assigned (DA)
     [2] - X.25 Static Incoming (IN)
     [3] - X.25 Static Outgoing (OUT)
     [4] - X.25 Permanent (PVC)

* Which type of X.25 circuit do you want to use?             :
```

The procedure continues to ask for information. Refer to Section 5.3.1 for the types of questions you will see and possible responses you can enter.

If no devices are found on the VAX system, the procedure displays the following prompt:

```
* Should a SYSGEN AUTOCONFIGURE ALL be executed?             :
```

If you answer YES, the `net$configure` procedure invokes the SYSGEN AUTOCONFIGURE ALL command to find devices on the system. If you answer NO, there are no devices to configure.

5.4 Configuring Transports

Next, the NSP Transport and the OSI Transport are configured.

The procedure displays the following message to indicate that the default OSI templates have been created:

```
%NET$CONFIGURE-I-CREDEFOSITEMPLATE, created default OSI templates
```

The default OSI templates are used by the OSAK and FTAM installation verification procedures (IVPs) to perform loopback testing. You will not be able to use OSI applications to make connections to other OSI systems unless you use the `net$configure advanced` configuration option to create additional OSI templates. You can do this at a later time.

5.5 Configuring Time Differential Factors

The DECdts software needs to determine which time zone rule (TZR) you want to use. You need to answer a number of questions for DECdts to configure the time zone for your system.

```
        Timezone Options:

        [0]     Exit Timezone Configuration
```

```
[1]     Choose a timezone using menus
[2]     Use Universal Coordinated Time (UTC)
[3]     Type in your own timezone rule

* Enter an option number                           [1] :
```

DECdts software offers three time zone options. Option 1 is most commonly used and is discussed here. For discussions of Options 2 and 3, refer to the *DECnet/OSI for OpenVMS Applications Installation and Advanced Configuration* guide.

To choose the geographical region and conventional time zone rule, press Return to select Option 1. The procedure displays a menu of continental regions:

```
Timezone Region Options:

[0]     Return to the Timezone Options menu

[1]     Europe
[2]     North America
[3]     Central & South America
[4]     Africa
[5]     Asia
[6]     South Pacific
[7]     Antarctica

* Enter a timezone region number                   : 2
```

Enter the option number for the region where the system resides and press Return, or return to the previous menu by typing 0.

If you select a region, the procedure displays a menu of subregions within the region you select. For example, if you enter Option 2 (North America), the procedure displays:

```
Timezone Subregion Options:

[0]     Return to Region Options menu

[1]     US/Eastern
[2]     US/East-Indiana
[3]     US/Central
[4]     US/Mountain
[5]     US/Pacific
[6]     US/Alaska
[7]     US/Arizona
[8]     US/Navajo
[9]     US/Michigan
[10]    US/Aleutian
[11]    US/Hawaii
[12]    US/Samoa
[13]    Canada/Newfoundland
[14]    Canada/Atlantic
[15]    Canada/Eastern
[16]    Canada/Central
[17]    Canada/East-Saskatchewan
[18]    Canada/Mountain
[19]    Canada/Pacific
[20]    Canada/Yukon

* Enter a timezone subregion number                : 1
```

Enter the option corresponding to the subregion where the system resides and press Return, or type 0 to return to the previous menu. The subregion you select from this menu determines the time zone rule for the system.

5.6 Configuring an Event Dispatcher

The procedure then provides the default Event Dispatcher configuration:

```
%NET$CONFIGURE-I-EVDDEFAULT, providing default Event Dispatcher configuration
```

5.7 Configuring an Application Database

The procedure creates the DECnet/OSI default applications to include in the application database. The procedure creates default user accounts for the CML, MAIL, VPM, MIRROR, and PHONE applications (no account is created for FAL):

```
%NET$CONFIGURE-I-MAKEACCOUNT, this procedure creates user account CML$SERVER
%NET$CONFIGURE-I-MAKEACCOUNT, this procedure creates user account MAIL$SERVER
%NET$CONFIGURE-I-MAKEACCOUNT, this procedure creates user account VPM$SERVER
%NET$CONFIGURE-I-MAKEACCOUNT, this procedure creates user account MIRRO$SERVER
%NET$CONFIGURE-I-MAKEACCOUNT, this procedure creates user account PHONE$SERVER
```

- CMIP Management Listener (CML) is the DECnet/OSI management module that implements DNA Common Management Information Protocol (DNA CMIP). CML provides access to CMIP.
- MAIL allows users to send and receive messages.
- VMScluster Performance Monitor (VPM) needs an account for your system to support the OpenVMS Monitor utility command MONITOR CLUSTER.
- MIRROR is needed for particular forms of loopback testing.
- PHONE allows users on the same or different OpenVMS systems to communicate interactively.

5.8 Configuring a Cluster Alias

The following steps describe how to configure a cluster alias.

1. If the node is a VMScluster member or if `net$configure` finds an alias NCL script on the system, the procedure prompts you to enter the full name of a cluster alias.

   ```
    * Full name of Cluster Alias             : ACME:.WABBIT.HELP
   ```

   If you do not want the node to participate in a cluster alias, press Return.

   If you want the node to participate in a cluster alias, specify the full name that uniquely identifies the cluster alias node (for example, `ACME:.WABBIT.HELP`).

2. If you entered a cluster alias full name in response to the previous prompt, the procedure displays the following prompt:

   ```
   * Cluster Alias Phase IV Address (aa.nnnn OR AA-00-04-00-xx-xx) : 12.139
   ```

   Do not use your address for the cluster alias. If you are unsure which address to enter, consult your network manager.

   Specify either the DECnet Phase IV node address or Ethernet physical address of the alias.

   The Phase IV node address has the format `area-number.node-number` (for example, 12.139).

The Ethernet physical address has the format AA-00-04-00-*xx-xx*, where *xx-xx* is calculated from the Phase IV node address. To determine the Ethernet physical address, proceed as follows:

a. Convert the Phase IV node address to its decimal equivalent as follows:

```
(area-number * 1024) + node-number = decimal equivalent
(For example, (12 * 1024) + 139 = 12427 decimal)
```

b. Convert the decimal node address to its hexadecimal equivalent and reverse the order of the bytes to form the hexadecimal node address. For example:

```
(12427 decimal = 308B hex, reversed = 8B30 hexnodeaddress)
```

c. Incorporate the hexadecimal node address in the following format:

```
AA-00-04-00-hexnodeaddress
(For example, AA-00-04-00-8B-30)
```

3. If you entered a cluster alias full name and a Phase IV address, the procedure displays the following prompt:

```
* Selection weight for this cluster node [0 for satellites]  :
```

The selection weight determines the number of sequential incoming connects passed to this alias member node in the round-robin sequence before proceeding to the next member node in the sequence. A value of zero means this node is not eligible to receive incoming connections to this alias address. Selection weight apportions incoming alias connections according to the capacity of each alias member. For example, nodes with greater capacity should have larger values of selection weight, while VMScluster satellites should generally have a value of zero. Specify a nonzero selection weight if this node is connected locally to a dual-ported disk, or if it will be serving any multihost disks, such as RFxx or HSC-connected disks, to other cluster members. Digital recommends values between 0 and 10.

4. The procedure then displays:

```
                   Summary of Configuration

Node Information
       Directory Services Chosen:      DECDNS,LOCAL,DOMAIN
       Primary Directory Service:      DECDNS
       DECdns Full name:       ACME:.WABBIT.ELMER
       Local Full name:        LOCAL:.ELMER
       Fully Qualified
       Host name:       ELMER.WABBIT.ACME.EDU
       Node Synonym:           ELMER
       Phase IV Address:       15.27
       Phase IV Prefix:        49::
       Autoconfiguration of Network Addresses: Enabled

       Alias Name:     ACME:.WABBIT.HELP

Device Information:
       Device: ESA0 (DESVA):
               Data Link name: CSMACD-0
               Routing Circuit Name:   CSMACD-0
```

```
 Transport Information:
        NSP Transport:                          Configured
          Maximum number of logical links:         200
          Maximum Transmit and Receive Window:     20
          Maximum Receive Buffers:                 4000

        OSI Transport:                          Configured
          Maximum number of logical links:         200
          Maximum Transmit and Receive Window:     20
          Maximum Receive Buffers:                 4000

        Congestion Avoidance Disabled


 Event Dispatcher Configuration:
        Sinks:            local_sink
        Outbound Streams: local_stream
        Phase IV Relay:   Enabled

* Do you want to generate NCL configuration scripts?   [YES] :
```

Answer YES to accept the configuration you just specified. The procedure automatically generates the NCL scripts and then configures the system according to the information you supplied.

```
%NET$CONFIGURE-I-CHECKSUM, checksumming NCL management scripts
```

Note

The `net$configure` procedure only provides checksums of those NCL management scripts it creates or modifies. It does *not* provide checksums of user-modified NCL scripts.

5. The procedure displays the following prompt:

```
 * Do you want to start the network?         [YES] :
```

Answer YES if you want to start the network and complete your system's network configuration.

If you want to postpone starting the network, answer NO. When you answer NO, the procedure displays the following message:

```
********************************************************************
You have decided not to start the network. NET$CONFIGURE.COM
cannot complete your system's network configuration since it needs
the network to be partially started in order to perform certain
operations.  As a result, your system may be left in an inconsistent
state if you try to startup the network manually or if you decide
to reboot your system.

Once you are ready to start the network, please invoke the
NET$CONFIGURE.COM procedure, choose menu Option 2 (Change node
name/namespace name), and respond YES to starting the network so
that the configuration procedure can finish your system's network
configuration.
********************************************************************

Network Startup Incomplete
```

Digital recommends that you answer YES and start the network.

6. When you choose to start the network, the procedure displays information similar to the following:

```
Copyright (c) Digital Equipment Corporation 1995. All rights reserved.
.
.
.
%NET$STARTUP-I-OPERSTATUS, DECnet/OSI for OpenVMS operational status is
RUNNING-MAJOR

sys$manager:net$dns_clerk_startup.ncl changed to use the new default namespace.

Your default namespace nickname is ACME.

Your default namespace NSCTS is 08-00-2B-0D-2E-89-23-5B-15-9E-F1-85-95-00.

Node 0
at 1995-05-26-14:12:24.170-04:00I0.404

%NET$CONFIGURE-I-NODERENAMED, node successfully renamed to ACME:.WABBIT.ELMER

Directory Service: DECdns
```

7. You can ignore the `Error - Node name lookup failure` message during startup.

```
Error - Node name lookup failure
     ACME:.WABBIT.ELMER

Number of nodes reported on:  0

%NET$CONFIGURE-W-NODENOTREG, node is not completely registered yet in the
DECdns directory service

Directory Service: Local name file

Error - Node name lookup failure
     LOCAL:.ELMER

Number of nodes reported on:  0

%NET$CONFIGURE-W-NODENOTREG, node is not completely registered yet in the
LOCAL directory service
%NET$CONFIGURE-I-IMPORTFILECREATED, created the DECNET_REGISTER import file

Directory Service: DECdns

Updating nodes listed in SYS$MANAGER:DECNET_REGISTER_IMPORT_FILE_ELMER.TXT

Number of nodes registered: 1
Number of nodes modified:   0

%NET$CONFIGURE-I-REGSUCCESS, node has been successfully registered in the
DECdns directory service

Directory Service: Local name file

Updating nodes listed in SYS$MANAGER:DECNET_REGISTER_IMPORT_FILE_ELMER.TXT

Number of nodes registered: 1
Number of nodes modified:   0

%NET$CONFIGURE-I-REGSUCCESS, node has been successfully registered in the
LOCAL directory service

Node 0
at 1995-05-26-14:13:25.980-04:00I0.411

%NET$CONFIGURE-I-NODERENAMED, node successfully renamed to
ACME:.WABBIT.ELMER
```

```
Node 0 Session Control Tower Maintenance ACME:.WABBIT.ELMER
at 1995-05-26-14:13:35.360-04:00I0.411

%NET$CONFIGURE-I-TOWERSUPDATED, updated address towers for node

Node 0 Session Control Backtranslation Softlink *
at 1995-05-26-14:13:43.360-04:00I0.412

Node 0 Session Control Backtranslation Softlink *
at 1995-05-26-14:13:43.370-04:00I0.412

%NET$CONFIGURE-I-BCKTRNUPDATED, updated backtranslation softlink for node
%NET$CONFIGURE-I-CONFIGCOMPLETED, DECnet/OSI for OpenVMS configuration
completed
$
```

You have just completed the initial configuration of a DECnet/OSI for OpenVMS system. It should now be operational as an end system on the network.

Refer to Figures 3-1 and 3-2 to determine your next step. According to the flowcharts, you have just completed configuring the base components.

5.9 Changing a Current DECnet/OSI System Configuration

You can use the `net$configure` procedure to modify the current configuration. Depending on which menu option you select, `net$configure` either modifies the configuration automatically or produces modified NCL scripts that you can use to modify the system's configuration.

Refer to Table 4–1 to determine whether you want to use the BASIC or ADVANCED configuration option to change your configuration. Refer to the *DECnet/OSI for OpenVMS Applications Installation and Advanced Configuration* for instructions on how to run the ADVANCED configuration.

6

Managing Name Services

If this is the first time you are configuring the DECnet/OSI for OpenVMS software on your system, the information in this chapter further explains some of the topics that appear as you run the configuration procedure.

6.1 Names Services Overview

DECnet/OSI includes a Local namespace. While configuring DECnet/OSI, the system administrator specifies one or more of the following directory name services to use on the node: the Local namespace, DECdns, or Domain (for DNS/BIND).

- Local namespace — A discrete, nondistributed namespace that stores name and address information locally in database files.
- DECdns — Digital's Distributed Name Service, a distributed, global name service.
- Domain Name System — The Domain Name System (DNS/BIND) supported for storage of IP addresses.

For more information on Name Services, refer to the *DECnet/OSI Planning Guide*.

6.1.1 The Local Namespace

DECnet/OSI includes a new Local namespace, independent of DECdns, that replaces functionality previously provided by the DECdns Local Naming Option (LNO). Depending on the number of address towers stored, the Local namespace is designed to scale to at least 100,000 nodes.

The Local namespace is a discrete, nondistributed namespace that exists on a single node and provides that node with a local database of name and address information. The prefix `LOCAL:` (or `local:`) is reserved to indicate that the information for the node is stored in the Local namespace. DECnet /OSI recognizes that when a node full name begins with `LOCAL:`, information for that node is stored in a Local namespace. The following are typical node full names properly formatted for the Local namespace: `LOCAL:.xyz.abc` and `local:.maximum`.

Unlike DECdns, the Local namespace does not employ backtranslation directories for address to node name translation.

6.1.1.1 Creating a Local Namespace

If you want to create a Local namespace, enter LOCAL:.*DirectoryPath.NodeObject* at the following prompt:

```
* Enter the full name for directory service LOCAL:
```

The directory path identifies the namespace subdirectory (if any). The node object is the system's node name.

6.1.1.2 Converting an Existing LNO Text File to a Local Namespace

The decnet_register_lno tool translates an existing LNO text file into a new Local namespace file. Run decnet_register_lno with the following command:

```
$ mcr sys$system:decnet_register_lno
```

This tool is supplied for backward compatibility only. You must have an existing LNO text file to use this procedure.

6.1.1.3 Managing the Local Namespace

The DECdns distributed namespace is no longer a requirement for DECnet/OSI and the new Local namespace is not dependent on DECdns. However, in this version the DECdns clerk software is still required on each node. You cannot use the DECdns Control Program (DNSCP) to manage information stored in the Local namespace. Instead, use decnet_register to manage the node name and address information stored in your namespace. The new decnet_register tool is described in the *DECnet/OSI Network Management* guide.

6.1.2 The Digital Distributed Name Service (DECdns)

DECdns is a network-wide service that makes it possible to use network resources without knowing their physical location. Users and applications can assign DECnet/OSI names to resources such as nodes. The creator of a name also supplies other relevant information, such as the resource's network address, for DECdns to store. Users then need to remember only the name, and DECdns acts as a lookup service, providing the rest of the data when necessary.

6.1.2.1 Creating a New Namespace

You only need to create a new DECdns namespace if you are configuring the first DECdns server for the network or if you are creating an additional namespace. If you already have a DECdns namespace, you do not need to create a new namespace to be able to run DECnet/OSI. However, if this is the first system in a network where no namespace exists and you do not intend to use the Local namespace, you must create (and populate) a DECdns namespace.

If you are unsure about whether you need to create a new namespace or configure your system as a server, see your network manager. For information about namespace planning, see the *DECnet/OSI Planning Guide*.

When you create a namespace, you need a namespace nickname and clearinghouse name. The namespace nickname is part of the full name of every subsequent system in the network and should be unique to your network. The namespace nickname that you specify becomes the actual name of the namespace. A clearinghouse is a collection of directory replicas that contains the names and addresses of objects (for example, servers, clerks, files).

Use the decnet_register manage command to invoke sys$manager:decnet_register_decdns.com to create the namespace directories before invoking net$configure.com to create the new namespace.

6.1.2.2 Creating a DECdns Namespace

If you select DECdns as a directory service, net$configure prompts you for the full name you want to use:

```
* Enter the full name for directory service DECDNS:   new_ns:.mrv042
```

If this is a new namespace, `net$configure` prompts you for more information once the configuration procedure completes and you have started the network. The startup information will be similar to the following:

```
%NET$STARTUP-I-OPERSTATUS, DECnet/OSI for OpenVMS operational status is RUNNING-
MAJOR

The namespace you specified was NEW_NS.

%DNS-E-NOMATNS, The specified namespace is not being served on your LAN.
        please choose from the following list

 [1]  BB_NS
 [2]  DOMAIN
 [3]  LOCAL
 [4]  X500

 [0]  - Reject this list -

 Pick a number from the list: 0
```

Because you are creating a new namespace, the namespace you specified at the prompt, "What is the full name of this node?" does not appear in the list. To continue, enter 0 and press Return to reject the list.

```
       If you are installing DECnet/OSI for OpenVMS for the first time
       and you want to create a namespace, type Y.  If you want to
       attempt a WAN connection to a remote DECdns server,
       type N (default) at the following prompt:

Do you want to proceed with creating a new namespace [n]: y
```

At this point, the configuration procedure needs to determine whether you intend to configure your system as a clerk on a WAN (connect to an off-LAN server) or create a new namespace. Since you cannot create a new namespace unless you have installed DECdns server software on the system, the procedure first verifies that the server software has been installed.

If you want to create a new namespace, type YES at the prompt and press Return. The procedure continues prompting you for information necessary to create the namespace and the appropriate directories. The procedure displays information about the namespace, the directories, and other network parameters, then tells you when the configuration is complete.

```
       Your next input will determine the name of the clearinghouse
       in your namespace new_ns.  Enter the clearinghouse name as
       alphanumeric and/or underscore characters.

Enter a simple name for the clearinghouse: .mrv042_new_ns_ch

Node 0
at 1995-04-06-15:49:35.420-04:00Iinf

Creating DECdns Server process ...
%RUN-S-PROC_ID, identification of created process is 00000122

Your default namespace nickname is new_ns.

Node 0
at 1995-04-06-15:49:42.100-04:00Iinf

%NET$CONFIGURE-I-FLUSHCACHE, flushing selected cache entries

Node 0
at 1995-04-06-15:49:47.180-04:00Iinf
```

```
%NET$CONFIGURE-I-NODERENAMED, node successfully renamed to new_ns:.mrv042
%NET$CONFIGURE-I-NEWNAMESPACE, a new namespace has been created

%NET$CONFIGURE-I-ADDGROUP, adding .WorldRead_Group to the new namespace

Create the initial namespace directories.
Press Ctrl/Z at any question to cancel the initialization.

* Phase IV prefix value [afi:idi:predsp, Def=47:0027:]:
* Maximum Phase IV area to use [1-63, Def=63]: 2

The DECdns namespace groups and directories will now be created.  This might
take up to 6 minutes or more, depending on the speed of the DECdns
server system and the amount of traffic on the network.

Creating the NEW_NS:.DNA_Registrar group.
Creating the NEW_NS:.DNA_BackTranslation directory.
Creating the NEW_NS:.DNA_BackTranslation.%X470027 directory.
Creating the NEW_NS:.DNA_BackTranslation.%X470027.%X0001 directory.
Creating the NEW_NS:.DNA_BackTranslation.%X470027.%X0002 directory.
Creating the NEW_NS:.DNA_NodeSynonym directory.
Creating the NEW_NS:.DTSS_GlobalTimeServers directory.

DECdns namespace initialization for DECnet use is complete.


If this is the first time you have initialized the namespace for DECnet
use, use SYS$SYSTEM:DECNET_REGISTER.EXE to:

  - Create a command file to automatically register previously defined
    Phase IV nodes.  Execute this command file before you manually
    register any other nodes using SYS$SYSTEM:DECNET_REGISTER.EXE.

  - Create any directories you need for node names that should be registered
    immediately, according to your namespace design.  This includes the node
    you are currently running on.

  - Be sure to add backtranslation directories for any non PhaseIV areas/IPDs.
    Failure to do so will lead to Backtranslation Failures.  Once you've added
    the necessary backtranslation directories, you may need to use the
    ncl flush session control naming cache entry "*" command.

  - Change the local node's registered name from its default name to its
    final full name.  The local node will be registered as a Phase IV node
    with a default name when you execute the Phase IV node registration
    command file above.

  - Change the currently registered names of other nodes from their default
    names to their final full names when appropriate (for example, when they
    are upgraded to run DECnet/OSI software).

Continue to use SYS$SYSTEM:DECNET_REGISTER.EXE to:

  - Create any additional directories you need for node names, as new nodes
    are brought up on the network.

  - Register new nodes as they are brought up on the network.

  - Add members to the NEW_NS:.DNA_Registrar access control group.


Additionally, you can use the DECdns control utility to:

  -  Add specific access control to individual directories, objects, and
     soft links.

  -  Create replicas of directories.


The following were created:
```

```
     Group:       NEW_NS:.DNA_Registrar
     Directory:   NEW_NS:.DNA_BackTranslation
     Directory:   NEW_NS:.DNA_BackTranslation.%X470027
     Directories: NEW_NS:.DNA_BackTranslation.%X470027.*
     Directory:   NEW_NS:.DNA_NodeSynonym
     Directory:   NEW_NS:.DTSS_GlobalTimeServers

%NET$CONFIGURE-I-CREATEINITDIR, created initial namespace directories

Registering the node NEW_NS:.mrv042
  Type is DECnet/OSI
  Synonym is MRV042

%NET$CONFIGURE-I-REGSUCCESS, node has been successfully registered in the
!NEW_NS directory service

Node 0
at 1995-04-06-15:50:29.390-04:00Iinf

%NET$CONFIGURE-I-NODERENAMED, node successfully renamed to new_ns:.mrv042

 .  .   .
 .  .   .
 .  .   .
 .  .   .
 .  .   .

%NET-I-LOADED, executive image NET$LOOP_APPLICATION.EXE loaded
%NET$STARTUP-I-OPERSTATUS, DECnet/OSI for OpenVMS operational status is RUNNING-
ALL
%NET$CONFIGURE-I-CONFIGCOMPLETED, DECnet/OSI for OpenVMS configuration completed
```

6.1.3 Domain Name System

Refer to your BIND server documentation for specific installation and configuration instructions. For a list of supported vendors, refer to Section 1.4.1.1. Any properly constructed DNS/BIND node name is supported by DECnet/OSI.

6.1.4 Namespace Management

DECnet/OSI includes a new in-memory naming cache to improve performance of name and address resolution for all supported name services. See the section on Naming Cache in the *DECnet/OSI Network Management* guide for more information.

DECnet/OSI includes several new features to ease namespace management including `decnet_register` (a new namespace management tool), several new Network Control Language (NCL) commands, and Common Trace Facility (CTF) support for monitoring node name and address resolution.

The `decnet_register` tool, an executable image located in SYS$SYSTEM:, centralizes and simplifies namespace management tasks by replacing functionality previously provided by both the `decnet_dns_register` and `decnet_loc_register` command procedures, which were located in SYS$MANAGER:. The `decnet_register` tool manages information in both the DECdns distributed name service and the Local namespace. The `decnet_register manage` command assists with setting up tasks for the DECdns name service. For example, it creates namespace directories and access groups, and enables autoregistration. See the section on `decnet_register` in the *DECnet/OSI Network Management* guide for more information.

6.2 Name Service Search Path

The name service search path applies systemwide and allows DECnet/OSI to search a list of name services in a predetermined order when looking up names or addressing information. The search path includes naming templates that tell DECnet/OSI how to interpret any abbreviated node names entered by users.

The **primary** name service (the name service to be searched first) is listed before the **secondary** name services. The secondary name services are listed in the order in which they are to be searched after the primary name service.

If you choose to use a search path and configure more than one name service on your system, the ordering of the name services is **very** important. The first name service listed is the primary name service to use on the system. The primary name service is considered the first choice to use when looking up names and addressing information. The remaining name services listed are considered to be the secondary services to use on the system.

The search path contains a list of name service keywords, each followed by a **naming template** that specifies a "defaulting rule" so users can enter shorter node names.

6.2.1 Configuring the Search Path Information

During DECnet/OSI configuration, the system administrator uses `net$configure.com` to set up one, two, or three name services on each node.

From the information provided by the system administrator, `net$configure` creates NET$SEARCHPATH_STARTUP.NCL, the standard search path NCL startup script which contains the name service search path information for the node.

The system administrator supplies one or two properly formatted DECnet/OSI node full names (in the case of the Local namespace and the DECdns distributed name service) and one fully qualified host name for DNS/BIND (if DNS/BIND is to be used on the node).

The first full name is specified in the proper format for the name service to be searched first. The second and third node names are properly formatted for the name services to be searched second and last.

If more than one name service is to be used on the node, the name services are searched in the order specified by the system administrator. For example, if the system administrator specifies Local, DECdns or Domain for the name services to use on the system, the Local namespace is searched before the DECdns namespace and DNS/BIND.

The following configuration example illustrates how to upgrade to DECnet/OSI Version 6.3 and use the new name service access features. Invoke `net$configure.com` and select Option 2 (Change node name/namespace name). The following prompt is displayed:

```
* Enter the directory services to use on the system:
```

You can choose the following name services for the system: `LOCAL`, `DECDNS`, and `DOMAIN`. At the prompt, enter an ordered list of the name services you want to use on the system. If you enter more than one name service, separate each name with commas.

For example, entering `DECDNS,LOCAL,DOMAIN` at the prompt, means the following:

- You want to use the name services DECdns, Local, and DNS/BIND.
- The primary name service is DECdns.
- The secondary name services are Local and DNS/BIND.

Note

If your node is also a DECdns server, the primary name service must be DECdns.

6.2.1.1 Naming Search Path in a Cluster

All members in a cluster should have identical naming search paths configured. This will help to ensure that nodes are recognized in the various services you have identified.

For example, if you receive mail on one node in the cluster, the "from" node name would be LOCAL:.NODE::SMITH. If you attempt to reply to this node from a node in the cluster that does not have Local configured, the system would indicate that there is no such node.

6.2.2 Displaying the Search Path Information

The system maintains two separate search paths:

- One search path supports forward translation or naming (node name to address translation).

  ```
  $ mcr ncl show session control naming search path
  ```

- Another separate search path supports backtranslation (address to node name translation).

  ```
  $ mcr ncl show session control backtranslation search path
  ```

6.2.3 Modifying the Search Path Information

Digital recommends that you rerun `net$configure.com` to revise the standard search path NCL script (NET$SEARCHPATH_STARTUP.NCL) whenever it is necessary to reorder access to the name services on the node. To modify the standard search path startup script, run `net$configure.com` and use Option 2 (Change node name/namespace name).

Note

Whenever you directly edit an existing NET$SEARCHPATH_STARTUP.NCL script, or when you use the NCL `set` command to change the script (rather than changing the script by rerunning `net$configure.com`), your edits are overwritten by any new NET$SEARCHPATH_STARTUP.NCL scripts you subsequently generate by rerunning `net$configure.com`.

6.2.4 Creating a Site-Specific Search Path NCL Script

Digital recommends that you allow `net$configure.com` (and in some cases `net$startup.com`) to create and use the standard NCL search path script (NET$SEARCHPATH_STARTUP.NCL).

However, if you need to make site-specific changes to your search path NCL script and you do not want `net$configure` to overwrite these changes, you can create a site-specific search path NCL script by renaming the standard search path script (NET$SEARCHPATH_STARTUP.NCL) to NET$SEARCHPATH_LOCAL.NCL and making your changes to the new file.

For example, you might want to use the NCL `set` command described in Section 6.2.6 to create site-specific naming templates in NET$SEARCHPATH_LOCAL.NCL.

`net$configure.com` and `net$startup.com` check for the presence of a site-specific search path script (NET$SEARCHPATH_LOCAL.NCL) on the node. If NET$SEARCHPATH_LOCAL.NCL is present on the node, it is invoked instead of the standard script. A message similar to the following is displayed:

```
   ************************************************************
   A site-specific searchpath NCL script has been found on the
   system (SYS$SYSROOT:[SYSMGR]NET$SEARCHPATH_LOCAL.NCL;). The
   configuration procedure will use this script to set the
   searchpath instead of using the standard searchpath script
   that is created by NET$CONFIGURE (NET$SEARCHPATH_STARTUP.NCL).
   ************************************************************
%NET$CONFIGURE-I-SITESEARCHPATH, invoking site-specific searchpath
   NCL script found on system
```

`net$configure.com` and `net$startup.com` do not modify the site-specific search path NCL script; rather, they invoke the site-specific search path script as it currently exists. Therefore, when using a site-specific search path NCL script, you must modify it prior to invoking `net$configure.com` whenever you change any of the following name service information:

- The number of name services used on the node
- The order of the name services used on the node
- The specific name services used on the node

6.2.5 Using the Search Path to Ease Migration

A search path can be used to simplify migration from one name service to another. The system administrator can create a search path designating the currently used name service as the primary name service (to be searched first) and the new name service as the secondary name service (to be searched second after the primary name service is searched). As the secondary name service becomes populated with node and addressing information, the system administrator can rerun `net$configure.com` and select Option 2 to reverse the positions of the name services in the search path. This causes the current secondary service to become primary, to be searched first for node and addressing information.

6.2.6 Setting Up Naming Templates

In each template, the user-supplied portion of the name (usually the node's terminating name or rightmost simple name) is indicated with an asterisk (*). For example, if the DECdns template is: `"ABCDE:.xyz.*"` and a user supplies the name `fin`, then the following full name: `ABCDE:.xyz.fin` is looked up in namespace ABCDE in the DECdns name service.

You should specify only one asterisk per template. Only the first occurrence of an asterisk (*) in the template is substituted with the user-supplied name. Any additional asterisks are passed to the name service as part of the full name. When you specify a template without an asterisk, the template string is passed to the name service unchanged.

If the user-supplied name should be passed to the name service as entered by the user, the template should be specified as follows: `"*"`.

DECnet/OSI provides an NCL `set` command for modifying the naming templates associated with the naming and backtranslation search paths. Do not use the NCL `set` command to modify aspects of the search path other than the naming templates. The following NET$SEARCHPATH_LOCAL.NCL script creates typical naming and backtranslation search paths. In this script `ABCDE` represents the namespace nickname. Your namespace nickname will appear in your NCL script:

```
$ type sys$manager:net$searchpath_local.ncl
  set node 0 session control naming search path ( -
 [Directory Service = Local ,Template = ".*"], -
 [Directory Service = Local ,Template = "*"], -
 [Directory Service = DECdns ,  Template = "ABCDE:.xyz.*" ], -
 [Directory Service = DECdns ,  Template = "ABCDE:*" ], -
 [Directory Service = DECdns ,  Template = "*"], -
 [Directory Service = DECdns_synonym ,  Template = "ABCDE:.dna_nodesynonym.*" ])

$ set node 0 session control backtranslation search path ( -
 [Directory Service = Local ,Template = ""], -
 [Directory Service = DECdns , Template = "ABCDE:.dna_backtranslation" ] )
```

6.3 Domain Synonyms

Support for the Domain Name System (DNS/BIND) provides for the use of node synonyms. This allows for backward compatibility with older applications that cannot use long domain names.

There are two ways to configure node synonyms for use with DNS/BIND:

- By constructing an appropriate set of naming search path templates
- By defining local aliases

6.3.1 Search Path Naming Template Support for Domain Synonyms

You can provide synonym support for entire domains by constructing an appropriate set of search path templates. Note that excessively long search paths (search paths with many entries) can increase the time it takes to look up node addresses. See Section 6.2 for general information on name service search paths.

Entering the following NCL command sets up a search path for a system using DNS/BIND:

```
$ mcr ncl set session control naming search path =       -
    { [Directory Service = Domain, Template = "*"],       -
      [Directory Service = Domain, Template = "*.finbar.com"],     -
      [Directory Service = Domain, Template = "*.abc.finbar.com"], -
      [Directory Service = Domain, Template = "*.xyz.finbar.com"]}
```

This NCL command results in the following DNS/BIND naming templates:

```
*
*.finbar.com
*.abc.finbar.com
*.xyz.finbar.com
```

When DECnet/OSI receives a connection from node `koi.abc.finbar.com`, it determines that `koi` is a usable synonym for this node, and DECnet/OSI will return the name `koi` to applications that require Phase IV style node names.

Using search path naming templates for synonym support allows the user to enter any of the following node names: `koi`, `koi.abc`, or `koi.abc.finbar.com` for node `koi`.

6.3.2 Local Aliases

Another way to define a node synonym for a particular node is by adding DNS/BIND *alias names* to the local host's database. The following is an example using Digital TCP/IP Services for OpenVMS:

```
$ ucx set host koi.abc.finbar.com/address=aa.bb.cc.dd/alias=koi
```

DECnet/OSI now returns the node synonym `koi` to applications that require Phase IV-style node names.

6.4 Node Synonym Directories

The default node synonym directory is `.DNA_NodeSynonym`. If you plan to use a node synonym directory other than this default directory, you must define the logical name DECNET_MIGRATE_DIR_SYNONYM to the synonym directory name you want to use in `sys$manager:net$logicals.com`. (If you do not have a `sys$manager:net$logicals.com` procedure on your system, you can create one using `sys$manager:net$logicals.template`.) This makes the definition permanent (that is, it will not be deleted when you reboot the system).

6.4.1 Defining an Alternate Node Synonym Directory

Use the following format to define an alternate node synonym directory:

```
$ define decnet_migrate_dir_synonym "alt-directory-name"
```

If you use a synonym directory name that includes special characters or three or more dots, the system might produce an error. To avoid this, enclose the synonym directory name in quotes. For example:

```
$ define/system decnet_migrate_dir_synonym ".ch.noun.synonym"
```

`net$configure` needs this logical name to be defined at all times if you wish to use a synonym directory other than `.DNA_NodeSynonym`. Be sure to add this definition to `net$logicals.com` to ensure that the definition of the synonym directory will be permanent.

6.4.2 When to Use the New Logical Name

You can use this logical name for either the BASIC or the ADVANCED configuration option.

This logical name must be defined before using any of following procedures:

```
net$configure.com
decnet_register.exe
decnet_migrate.exe
```

If synonym lookup fails in the namespace, the software does one of the following:

- The startup procedure defines SYS$NODE, SYS$CLUSTER_NODE, or both to be the first six characters of the last simple name of the respective node full name or cluster full name.
- The configuration procedure defines SYS$NODE to be the node synonym name that was entered during configuration.

The system displays a message that it has redefined the logical names.

6.5 Using a DNS Version 1 Namespace with DECdns Version 2

If you are already using a namespace created with Version 1 of the VAX Distributed Name Service (DNS) (running on DECnet Phase IV), you can continue to use the namespace when you upgrade your networking software to DECnet/OSI for OpenVMS. However, because of differences in the way that DNS Version 1 and DECdns Version 2 handle access control, you must prepare your DNS Version 1 namespace for use by DECnet/OSI. DNS Version 1 and DECdns Version 2 interpret principal specifications in access control entries (ACEs) differently.

In DNS Version 1, servers recognize principals only in the form *nodename::username*. In DECdns Version 2, servers recognize principals primarily in the form *nodename.username*. For DECdns Version 2 clerks and servers to interpret and process existing DNS Version 1-style access control entries in the namespace, you need to create a backtranslation directory `(.DNA_BackTranslation)` and a node synonym directory `(.DNA_NodeSynonym)` in the root directory of the namespace. You must then populate these directories by registering all the nodes participating in the Version 1 namespace.

6.5.1 Preparing a DNS Version 1 Namespace for Use by DECdns Version 2

To prepare a namespace created with DNS Version 1 for use by DECnet/OSI, follow these steps:

1. Install and configure DECnet/OSI for OpenVMS on any node in your namespace that is **not** currently functioning as a DNS Version 1 server. Configure the node as a DECdns Version 2 clerk. Refer to Chapters 3 and 5 of this book if you plan to use the BASIC configuration option, or the *DECnet/OSI for OpenVMS Applications Installation and Advanced Configuration* guide if you plan to use the ADVANCED configuration option.
2. From any node running DNS Version 1 server software, use the DNS Version 1 control program (DNS$CONTROL) `add access` command to grant the following DNS Version 1-style access on behalf of the SYSTEM account on the new Version 2 clerk node that you configured in Step 1:
   - Read, write, delete, test, and control access to the root directory of the namespace

- Read, write, delete, test, and control access to the clearinghouse that stores the master replica of the root directory

For example, if the DECnet/OSI full name of the new clerk is `.pastry`, and the master replica of the Version 1 namespace is stored in the `.paris_ch` clearinghouse, enter the following two commands:

```
DNS> add access pastry::system directory . /rights=(r,w,d,t,c)
```

```
DNS> add access pastry::system clearinghouse .paris_ch /rights=(r,w,d,t,c)
```

You need to grant this access to ensure that the SYSTEM account on the new Version 2 clerk has sufficient access to run the `decnet_register` utility. The Version 2 clerk must also have permission to create and populate a backtranslation directory (`.DNA_BackTranslation`) and node synonym directory (`.DNA_NodeSynonym`) in the root directory of the namespace during the next step of this procedure.

Note

If the node you configured as a Version 2 clerk in Step 1 is a new node, or is being assigned a new DECnet Phase IV-compatible address, you should update the DECnet node databases on all Version 1 servers in the namespace to include the new address before you proceed.

---

3. Log in to the new Version 2 clerk node under the SYSTEM account and invoke the `sys$manager:decnet_register_decdns.com` utility. Do the following:
   a. Choose Option 3 on the `decnet_register_decdns.com` menu to create and populate a backtranslation directory (`.DNA_BackTranslation`). Choose Option 2 to create a node synonym directory (`.DNA_NodeSynonym`).
   b. Choose Option 2 on the `decnet_register` menu to register the new Version 2 clerk node (the node you are logged in to) and to register all other DECnet Phase IV nodes in the namespace including all nodes that are currently functioning as DNS Version 1 servers.

See the *DECnet/OSI Network Management* guide for complete information on how to use the `decnet_register` utility and the `decnet_register_decdns.com` utility to perform these steps.

6.5.2 Using the DNS Version 1 Namespace

When you have completed this step, the DNS Version 1 namespace is ready for use by other nodes running DECdns Version 2 on DECnet/OSI for OpenVMS software.

Perform this procedure only once to prepare a DNS Version 1 namespace for use with DECnet/OSI. After the node synonym and backtranslation directories are populated, you can configure new DECdns clerks, new DECdns servers (for VAX only) into an existing namespace, or convert existing DNS Version 1 servers to DECdns Version 2 format in the normal manner. See the *DECdns Management* guide for information on how to convert a DNS Version 1 clearinghouse to DECdns Version 2 format.

6.6 Registering a Node in the Namespace

The `net$configure.com` procedure creates an Export/Import file to register your node in the appropriate namespace. If your node is already registered, the `decnet_register` Export/Import file is not created.

6.6.1 Export/Import File Format

The `decnet_register` Export/Import file is a text file that has the following format:

sys$manager:decnet_register_import_file_<*synonym*>.TXT

where <*synonym*> is the node synonym name you selected during configuration.

6.6.2 Problems Registering a Node

If you encounter problems registering your node in the Local namespace or in the DECdns namespace, you will see information similar to the following:

```
.
.
.
Updating nodes listed in SYS$MANAGER:DECNET_REGISTER_IMPORT_FILE_ELMER.TXT

 1) local:.elmer

Error - Node registration was unsuccessful
        Please correct any problems and re-register the node LOCAL:.elmer

  The specified node name is already in use as a synonym
        Used by node: LOCAL:.WABBIT.ELMER
        Synonym:      elmer

You can choose to stop processing this command, continue executing this
command until completion or until the next error, or ignore further errors
and continue to completion.


Number of nodes registered: 0
Number of nodes modified:   0
Number of update failures: 1

%NET$CONFIGURE-E-COULDNOTREG, could not automatically register node in the LOCAL
 directory service

     **********************************************************************
                                WARNING

     This node could not be registered in one or more of the directory
     services you have chosen.  When this procedure completes you or your
     network manager will have to manually register this node in the directory
     service(s) for which the error occurred.  See the DECnet/OSI Installation
     and Configuration guide for more details, or contact your network manager.

     Once the problem has been rectified, you or your namespace manager can
     use the following decnet_register command(s) to register your node in the
     appropriate directory service(s):

        For the LOCAL directory service:
        DECNET_REGISTER IMPORT DIRECTORY LOCAL FILE -
                SYS$MANAGER:DECNET_REGISTER_IMPORT_FILE_ELMER.TXT

     Once the node has been successfully registered in the appropriate
     directory service(s), invoke option 2 of NET$CONFIGURE.COM (Change
     node name/namespace name) to complete the node's network configuration
     and startup.

     **********************************************************************
```

If net$configure.com cannot access the DECdns namespace you have selected, it is most likely because:

- The namespace is not available at the moment.
- Your node does not have proper access to the DECdns namespace.
- The namespace you are using is new and the directories have not been created yet.

When this happens, you will see the following message (this example uses ACME: as the namespace that is not accessible):

```
*************************************************************************
                              WARNING
NET$CONFIGURE.COM cannot access the ACME: namespace, either because
the namespace is not available at the moment, your node does
not have proper access to the namespace, or because the namespace
you are using is new and the directories have not been created yet.
Therefore, the decnet_register tool cannot attempt to look up or register
your node into the ACME: namespace.

When the problem is rectified, please use the decnet_register import file
to register your node into the ACME: namespace.

*************************************************************************
```

If you receive this message because the namespace you are using is new and the namespace directories have not been created yet, use the decnet_register manage command to invoke decnet_register_decdns.com (located in SYS$MANAGER:) to create the proper directories. For more details, refer to the *DECnet/OSI Network Management* guide.

If you see the preceding warning messages, net$configure will display another message indicating how you or your namespace manager can attempt node registration once the problem is resolved. For example:

```
**********************************************************************
                            WARNING

This node could not be registered in one or more of the directory
services you have chosen.  When this procedure completes you or your
network manager will have to manually register this node in the directory
service(s) for which the error occurred.  See the DECnet/OSI Installation
and Configuration guide for more details, or contact your network manager.

Once the problem has been rectified, you or your namespace manager can
use the following decnet_register command(s) to register your node in the
appropriate directory service(s):

   For the DECdns directory service:
   DECNET_REGISTER IMPORT DIRECTORY DECDNS FILE -
       DECNET_REGISTER_IMPORT_FILE_ELMER.TXT

   For the LOCAL directory service:
   DECNET_REGISTER IMPORT DIRECTORY LOCAL FILE -
       DECNET_REGISTER_IMPORT_FILE_ELMER.TXT

Once the node has been successfully registered in the appropriate
directory service(s), invoke option 2 of NET$CONFIGURE.COM (Change
node name/namespace name) to complete the node’s network configuration
and startup.

**********************************************************************
```

You may see the previous messages if the following exists:

- You enter LOCAL for the primary directory service and DECDNS for the secondary directory service and,
- Your primary Local node full name does not have the proper access necessary to look up or register your secondary DECdns node full name.

  If this is the case, you or your network manager need to perform the following steps on the node that has the DECdns server in order for your primary Local node to obtain this access to the DECdns namespace:

  1. Make sure the .WorldRead_Group is created on the DECdns server node. If the .WorldRead_Group has not been created yet, use the decnet_register manage command to invoke decnet_register_decdns.com (located in sys$manager:) to create the .WorldRead_Group. For more details, refer to the *DECnet/OSI Network Management* guide.
  2. Once you or your namespace manager knows that the .WorldRead_Group has been created, invoke the DNS$CONTROL utility on the node with the DECdns server and enter the following commands:

     ```
     $ mcr dns$control
     DNS> add group <ns>:.worldread_group member local:.*...
     DNS> add clear <ns>:.<ch_name> access <ns>:.worldread_group as group for r,t
     ```

     where <ns> is the DECdns namespace name to which you want your LOCAL node to have access and <ch_name> is the clearinghouse name of the DECdns namespace you are using.

These commands will give your primary Local full name the proper access it needs to look up information regarding the secondary DECdns full name you have chosen.

Note

If you use DECDNS for the primary directory service and LOCAL for the secondary directory service, these steps are not necessary.

Part III

Additional Installation Information

Part III contains the following appendixes:

- Appendix A — Overview of the POLYCENTER Software Installation Utility
- Appendix B — Installing DECnet/OSI for OpenVMS from an InfoServer
- Appendix C — System Files Loaded During Installation

A

The POLYCENTER Software Installation Utility

The POLYCENTER Software Installation (PCSI) utility replaces VMSINSTAL as the method of installing layered products for OpenVMS such as the OSI Applications for DECnet/OSI for OpenVMS, and X.25 for OpenVMS Alpha. PCSI allows you to install several software products with a single command.

Note

Before installing DECnet/OSI using PCSI for the first time on OpenVMS VAX Version 6.1, you should execute the following DCL command:

```
$ product register product vms/version=v6.1/source=sys$update
```

This needs to be done only once in the life of the OpenVMS system; it makes a permanent entry in the PCSI database, so it remains effective across system boots and for all future software upgrades.

If you do not perform this operation before installing DECnet/OSI, the installation recommends termination due to the failure to locate the product "DEC VAXVMS VMS Version 6.1." Answer YES to the question `Do you want to terminate?` and perform the `product register` command as in the above example.

If you use the PCSI DECwindows interface to register OpenVMS, you should exit and re-enter the DECwindows PCSI interface before installing DECnet/OSI.

Full details for using the POLYCENTER Software Installation utility to install and manage software products on your system are provided in the *OpenVMS System Management Utilities Reference Manual*. This manual also provides information on removing products and other PCSI features.

PCSI offers both DECwindows Motif and DCL user interfaces. You must have a workstation or an X terminal that supports DECwindows Motif in order to use the Motif interface. Details for how to use each interface to install DECnet/OSI for OpenVMS and the OSI applications are provided in Chapter 3, and the *DECnet/OSI for OpenVMS Applications Installation and Advanced Configuration* guide.

A.1 DCL Help with POLYCENTER

To obtain DCL Help for POLYCENTER, type the DCL command `help product`, followed by the name of a POLYCENTER Software Installation utility command (for example: `help product install`).

A.1.1 DCL Command Summary

DCL Help for the PRODUCT commands listed in Table A–1 describes all the tasks you can perform from the DCL interface.

Table A–1 DCL PRODUCT Commands and Qualifiers

PRODUCT Command	Qualifiers
CONFIGURE Creates a product configuration file (PCF) for one or more products in reference format. Optionally, uses the values in an existing PCF to create the new PCF.	*/CONFIGURATION* */HELP* */LOG* */OUTPUT*
COPY Manipulates a product distribution. You can use copy to create a sequential copy from a reference copy, a reference copy from a sequential copy, or to create a copy without changing the format.	*/DESTINATION* */FORMAT* */HELP* */LOG* */OUTPUT* */OWNER_UIC* */SOURCE*
EXTRACT RELEASE_NOTES Accesses the release notes for the selected product or group of products.	*/DISPLAY* */LOG* */OUTPUT* */SOURCE*
FIND Looks at the distribution media and reports on the products it finds there.	*/LOG* */OUTPUT* */SOURCE*
INSTALL Installs one or more software products on your system.	*/CONFIGURATION* */DESTINATION* */HELP* */LOG* */OUTPUT* */PURGE* */REMARK* */SOURCE* */TEST* */WORK*
RECONFIGURE Changes the active configuration choices for a product.	*/CONFIGURATION* */HELP* */LOG* */OUTPUT* */REMARK* */SOURCE*

(continued on next page)

Table A–1 (Cont.) DCL PRODUCT Commands and Qualifiers

PRODUCT Command	Qualifiers
REGISTER PROCESSOR Adds a processor in a computing facility. Used primarily within a DCL command procedure during system startup.	*/BASE_SYSTEM* */BOOTSTRAP* */DESTINATION* */GLOBAL* */HELP* */LOG* */OPERATING* */OUTPUT* */REMARK*
REGISTER PRODUCT Registers a product in the product database.	*/DESTINATION* */HELP* */LOG* */OUTPUT* */REMARK* */SOURCE*
REGISTER VOLUME For a volume containing installed products, records a change in volume label in the product database.	*/HELP* */LOG* */OUTPUT*
REMOVE Removes a software product from your system and the product database.	*/HELP* */LOG* */OUTPUT* */REMARK* */WORK*
SHOW FILE Displays information about files created during a software product installation.	*/BRIEF* */DEVICE* */DIRECTORY* */FULL* */PRODUCT*
SHOW HISTORY Displays a log of actions, users, and remarks that apply to a particular product.	*/ACTION* */BEFORE* */BRIEF* */FULL* */REMARK* */SINCE* */STATE* */USER*

(continued on next page)

Table A–1 (Cont.) DCL PRODUCT Commands and Qualifiers

PRODUCT Command	Qualifiers
SHOW PRODUCT Displays information about the products installed on your system.	*/ACTION* */BEFORE* */BRIEF* */DEVICE* */DIRECTORY* */FILE* */FULL* */LINK* */PATCHED* */SINCE* */SOFTWARE* */STATE* */STATUS* */USER*
UNREGISTER PROCESSOR Removes a processor from a computing facility. Used primarily within a DCL command procedure during system startup.	*/HELP* */LOG* */OUTPUT* */PURGE* */REMARK*

A.2 Motif Help with POLYCENTER

Table A–2 lists Motif Help options that are available while using the POLYCENTER Software Installation utility.

Table A–2 Motif Help Options

Option	Action
1	Choose On Context from the Help menu. For a description of objects and labels in the main window, move the resulting ? to a screen object or label and click MB1.
2	Choose On Window from the Help menu. For a description of how fonts are used to convey different types of information, double click the **List Box Display Conventions** topic. Double click other help topics for information on how to perform a specific task.
3	Double click option names that are preceded by a right arrow $\Longrightarrow$ in the Selected Products to be Installed list box. For a full description of suboptions (if provided), continue clicking on the resulting right arrow $\Longrightarrow$ that precedes each suboption.
4	Choose On Help from the Help menu to learn more about using the online help system.

A.2.1 Motif Help Topics

Motif Help on the topics listed in Table A–3 explains how to get started performing a task from the Motif interface.

Table A–3 Motif Help Topics

Step	Help Topic
1	Select the task
2	Select one or more products
3	Select product options
4	Start the task

For information about how you can customize menus by adding and removing menu items, refer to the Customize help topic for each menu.

A.3 Creating and Using a Product Configuration File

Some software products require you to make a set of choices when you install the product. For example, if you are installing a tool that checks spelling, you might choose which languages you want to include. When you use the POLYCENTER Software Installation utility, you can configure a product in one of three ways:

- By responding to questions asked during the installation procedure
- By modifying your choices after you install a product
- By creating a product configuration file (PCF) before you install the product

By saving your answers in a PCF and using the file for subsequent installations, you can reduce or eliminate the questions asked when you install a product. You can also create multiple PCFs for each product. This allows you to customize software installations for unique hardware situations or for different usage patterns within a group.

If you create a PCF as a separate operation, rather than as part of the installation procedure, you can determine how your choices are recorded in the PCF. You have the following options:

- Save your answer.

  You can specify that your response to an installation question (rather than the current default value) be stored in the PCF.

- Use your answer only once.

  You can answer a question without recording your answer in the PCF. This is useful for responding to questions that are specific to a single system (such as a DECnet/OSI node name) or installation (such as a time setting).

- Defer a question so that it is asked again during a future installation.

  For example, you might want an installer to verify that a particular response is still valid for the systems on which each installation is being performed.

- Prevent a question from being asked again.

  If you do not defer a question when you create a PCF, the default response recorded in the PCF is used during future installations. The installer is not prompted for the information. This reduces the length and complexity of the actual installation procedure.

A.3.1 Responding to Installation Questions

The following are valid responses to questions asked during an installation:

- Enter your own value and press Return.
- Press Return to accept a default value.
- Press the defer key F17 or ~D to ask the same question during future installations.
- Press F18 or ~W if you do not want to record the answer as the default value in the PCF.
- Press the noexpand key F19 to accept default values for a subset of options.

Table A–4 lists the help topics for installation responses.

Table A–4 Help Topics for Responding to Installation Questions

Interface	Help Topics
DCL	Performing the installation as a batch job
Motif	Getting an online description of options Selecting product options Supplying answers from a product configuration file

Table A–5 lists the Help topics for DCL and Motif product configuration files.

Table A–5 Help Topics for Product Configuration Files

Interface	Help Topic
DCL	PRODUCT CONFIGURE PRODUCT RECONFIGURE
Motif	Creating a product configuration file Using an existing product configuration file Supplying answers from a product configuration file Making and saving product configuration choices before installation

A.4 Verifying Pre-installation Tasks

The POLYCENTER Software Installation utility verifies that any or all of the following are true, depending on your product:

- You are logged in to a privileged account.

  It is good practice to install software from the system manager's account with your default device and directory set to SYS$UPDATE.
- Quotas, system parameters, disk space (and memory) are adequate for installation.

  The POLYCENTER Software Installation utility checks for the quota values specified in Chapter 1. If sufficient disk space is not found, the installation procedure provides the following options:
  - You can restart the installation and specify another disk to use as an alternate working device for the temporary working directory.

  – You can terminate the installation and then create more disk space on the system disk. The *OpenVMS VAX Upgrade and Installation Manual, OpenVMS Alpha Upgrade and Installation Manual*, and *DECwindows Motif Version 1.2-3 for OpenVMS Installation Guide* describe how to use tailoring utilities so you can delete files and create more disk space.

  If you lack sufficient free disk space for installation or have no other disk to use as an alternate working device, the installation procedure terminates.

- Version 6.1 (minimum) of the OpenVMS operating system is installed.

When the POLYCENTER Software Installation utility detects a problem in any of these areas, it asks if you want to continue the installation. If you want to continue, type YES. If you want to stop the installation, press Return.

A.5 Resolving Conflicts

The POLYCENTER Software Installation utility resolves some conflicts automatically. For other types of conflicts, the POLYCENTER Software Installation utility provides feedback on the nature of the conflict, letting you decide how you want to proceed.

For example, if the wrong version of DECnet/OSI is installed, the Software Integrator prompts you to install the required version.

Similarly, if the correct version of OpenVMS is installed and you elect not to use the default values when installing X.25, the Software Integrator warns you that you will need to use the RECONFIGURE option if you want to change the version of OpenVMS to be used.

A.6 Determining Installation Progress

As an installation procedure progresses, the system displays a percentage to indicate how much of the installation has been completed. For example:

```
Percent Done: 0%...10%...20%...30%...40%...50%...80%...90%...100%

The following product has been installed:
DEC AXPVMS DECNET_OSI V6.3
```

Or, as another example:

```
Percent Done: 0%...10%...20%...30%...40%...50%...80%...90%...100%

The following product has been installed:
DEC VAXVMS DECNET_OSI V6.3
```

If you started the installation using the /LOG qualifier, the system displays details of the installation.

A.7 Possible Installation Errors

If the installation procedure fails for any reason, an error message appears. For example, if the installation of X.25 fails, the following message appears:

```
%POLYCENTER Software Installation UtilityINSTAL-E-INSFAIL, The
... installation of X.25 for OpenVMS Alpha Version 1.0 has failed.
```

An error can occur during the installation if one or more of the following conditions exist:

- The operating system version is incorrect.
- The prerequisite software version is incorrect.

- Quotas necessary for successful installation are inadequate.
- Process quotas required by the POLYCENTER Software Installation utility are inadequate (see Chapter 1).
- The OpenVMS Help library is currently in use.

If the installation fails, you must restart the installation procedure.

A.8 Reporting Problems

If you encounter a problem while using DECnet/OSI for OpenVMS or X.25 for OpenVMS Alpha, report it to Digital. Depending on the nature of the problem and the type of support you have, you can take one of the following actions:

- If your software contract or warranty agreement entitles you to telephone support, call Digital.
- Submit a Software Performance Report (SPR).
- If the problem is related to the product's user documentation, send comments and suggestions to the electronic address on the front cover of this guide. Include the section and page number of the error.

Review the Software Product Description (SPD) and Warranty Addendum for an explanation of warranty. If you encounter a problem during the warranty period, report the problem as previously indicated or follow alternate instructions provided by Digital for reporting SPD nonconformance problems.

When you submit an SPR, take the following steps:

1. Describe as accurately as possible the circumstances and state of the system when the problem occurred. Include in the description the version number of the product being used. Demonstrate the problem with specific examples.
2. Describe the problem as concisely as possible. Concise, complete information helps Digital give accurate and timely service to software problems.
3. Remember to include listings of any command files, INCLUDE files, relevant data files, and so forth.
4. Provide a listing of the program.
5. If the program is longer than 50 lines, submit a copy of it on machine-readable media (diskette or magnetic tape). If necessary, also submit a copy of the program library used to build the application.
6. Mail the SPR to Digital.

B

Installing DECnet/OSI for OpenVMS from an InfoServer

B.1 Steps to Installing the Software from an InfoServer

The following steps show you how to access the distribution kit via an InfoServer and install the software on your system.

Note

The InfoServer does not use DECnet/OSI software to install software kits over the network.

1. Verify that the network hardware is installed and working properly.
2. Log into the system manager account on your system.
3. Set your system's SCSNODE SYSGEN parameter to a non-blank value.

   Note

   The InfoServer requires that the SCSNODE parameter be set to a non-blank value even if your system is running in a non-clustered environment.

4. Check with the InfoServer manager to verify that the DECnet/OSI for OpenVMS distribution kit is available. If necessary, the InfoServer manager can refer to the *OpenVMS Layered Products Compact Disc User's Guide* that came with the compact disc distribution kit for specific details about the disc that contains the distribution kit.
5. Get the distribution kit service name from the InfoServer manager. For example, CDBIN is used in the commands in this appendix as a kit service name.
6. Enter the following command to start the InfoServer client software on your system:

   ```
   $ @sys$startup:ess$startup disk tape
   ```

7. Assuming a service name of CDBIN, enter this command to bind the service containing the distribution kit.

   ```
   $ mcr ess$ladcp bind cdbin
   ```

8. Assuming a service name of `CDBIN`, enter this command to mount the kit device (optional):

   ```
   $ mount/override=identification dad$cdbin
   ```

B.2 Install Commands

To install DECnet/OSI from the CDBIN service, for example, you would enter:

```
$ product install decnet_osi /source=dad$cdbin:[dnvosi063.kit]
```

C

System Files Loaded During Installation

This appendix lists the system files that are placed on the system or copied to the system disk during the installation procedure.

The following table lists the files according to the directory into which they are copied.

System Files Loaded During Installation

Directory/Files	
[SYS$LDR]	
LES$CHECK_LICENSE.EXE	LES$LES_V30.EXE
LES$NETMAN.EXE	LES$NETMANLDR.EXE
LES$PROFILE.EXE	NET$ALIAS.EXE
NET$ALIAS.STB	NET$DRIVER.EXE
NET$DRIVER.STB	NET$LOOP_APPLICATION.EXE
NET$MOPS0.EXE	NET$MOPS0.STB
NET$OSDRIVER.EXE	NET$OSDRIVER.STB
NET$OSVCM.EXE	NET$OSVCM.STB
NET$ROUTING_ES.EXE	NET$ROUTING_ES.STB
NET$ROUTING_VCM.EXE	NET$SESSION_CONTROL.EXE
NET$SESSION_CONTROL.STB	NET$TPCONS.EXE
NET$TPCONS.STB	NET$TRACER.EXE
NET$TRANSPORT_NSP.EXE	NET$TRANSPORT_NSP.STB
NET$TRANSPORT_OSI.EXE	NET$TRANSPORT_OSI.STB
SYS$NAME_SERVICES.EXE	SYS$NAME_SERVICES.STB
SYS$NETWORK_SERVICES.STB	NET$MESSAGE.EXE
SYS$NETWORK_SERVICES.DECNET_OSI	SYS$NETWORK_SERVICES.EXE
[SYS$STARTUP]	
DNS$CLERK_STARTUP.COM	DNS$CLERK_STOP.COM
DTSS$STARTUP.COM	NET$ROUTING_STARTUP.COM
NET$STARTUP.COM	
[SYSEXE]	
ALIAS$SYMBOLS.STB	CDI$TRACE.EXE
CDI_CACHE_DUMP.EXE	CML.EXE
CTF$DCP.EXE	CTF$SERVER.EXE
CTF$SYMBOLS.STB	CTF$UI.EXE
CTI$SYMBOLS.STB	DECNET_LOC_REGISTER.EXE
DECNET_REGISTER.EXE	DECNET_REGISTER_LNO.EXE
DNS$ADVER.EXE	DNS$ANALYZE.EXE
DNS$CONFIGURE.EXE	DNS$CONTROL.EXE
DNSBROWSER.EXE	DNSCP.BPT
DNSCP.MBF	DSMDECDNS.EXE
DTSS$SERVICE.EXE	DTSS$SET_TIMEZONE.EXE
ESIS$SYMBOLS.STB	LES$ACP_V30.COM
LES$ACP_V30.EXE	LES$FINDPTMAX.EXE
LES$STARTUP_V30.EXE	NCL.EXE
NET$ACP.EXE	NET$ACP.STB
NET$CCR.EXE	NET$DEBUG.EXE

Directory/Files	
NET$EVENT_DISPATCHER.EXE	NET$LES_CONTROL.DAT
NET$LOAD.EXE	NET$MGMT.EXE
NET$MIRROR.EXE	NET$MOP.EXE
NET$MOP.STB	NET$QIO_SYMBOLS.STB
NET$SERVER.COM	NET$SERVER.EXE
NET$SYMBOLS.STB	NSPTP$SYMBOLS.STB
OSITP$SYMBOLS.STB	OSVCM$SYMBOLS.STB
SCL$SYMBOLS.STB	TPCONS$SYMBOLS.STB
CTF$CONFIG.EXE	NCP.DECNET_OSI
NCP.EXE	
[SYSHLP.EXAMPLES.DNVOSI]	
DNS_ADD_VALUE_TO_ATTRIBUTE.C	DNS_CREATE_OBJECT.C
DNS_READ_ATTRIBUTE.C	IPC_BACKTRANSLATE.C
IPC_BUILD.COM	IPC_CLIENT.C
IPC_COMMON.C	IPC_DEF.H
IPC_SERVER.C	
[SYSHLP.EXAMPLES]	
CX.C	NSAPS.DAT
OSIT$CMD_EXECUTOR.COM	OSIT$CMD_EXECUTOR.MAR
OSIT$CMD_SOURCE.CLD	OSIT$CMD_SOURCE.MAR
OSIT$ECHO.FOR	OSIT$RANDOM.C
OSIT$RECEIVER.PAS	OSIT$RECORD_STRUCTURES.FOR
OSIT$STORAGE.FOR	OSIT$TRANSMITTER.PAS
SETUP_NCL_KEYPAD.COM	SUBX.C
SX.C	VMS_OSI.H
XTIUTIL.C	XTI_EXAMPLES.COM
[SYSHLP]	
CTF$HELP.HLB	DECNET_LOC_REGISTER.HLB
DECNET_MIGRATE.HLB	DECNET_REGISTER_COMMANDS.HLB
DECNET_REGISTER_FORMS.HLB	DNS$CPHELP.HLB
DSMDECDNS.DECW$BOOK	LES$SDAHELP.HLB
NCLHELP.HLB	NET$CONFIGURE_HELP.HLB
NET$MGMT_HELP.HLB	NET$SDA.HLB
[SYSLIB]	
CDI$SHR.EXE	CDI$SHR.STB
CML.OLB	CTF$ALIAS_ANALYZE.EXE

System Files Loaded During Installation

Directory/Files	
CTF$CSMA-CD_TRACEPOINTS.DAT	CTF$CTI_ANALYZE.EXE
CTF$DECNET_TRACEPOINTS.DAT	CTF$DNA_ANALYZE.EXE
CTF$DUMP_ANALYZE.EXE	CTF$ESEVENT_ANALYZE.EXE
CTF$IEEE8022_ANALYZE.EXE	CTF$IEEE8023_ANALYZE.EXE
CTF$KEY.INIT	CTF$KEY.TEMPLATE
CTF$MOP_ANALYZE.EXE	CTF$NSPTP_ANALYZE.EXE
CTF$NSP_ANALYZE.EXE	CTF$NSP_TRACEPOINTS.DAT
CTF$OSITP_ANALYZE.EXE	CTF$OSVCM_ANALYZE.EXE
CTF$ROUTING_ANALYZE.EXE	CTF$ROUTING_TRACEPOINTS.DAT
CTF$SCL_ANALYZE.EXE	CTF$TPCONS_ANALYZE.EXE
CTF$VOTS_ANALYZE.EXE	DNS$RTL.EXE
DNSDEF.ADA	DNSDEF.BAS
DNSDEF.FOR	DNSDEF.H
DNSDEF.MAR	DNSDEF.PAS
DNSDEF.PLI	DNSDEF.R32
DNSMSG.ADA	DNSMSG.BAS
DNSMSG.FOR	DNSMSG.H
DNSMSG.MAR	DNSMSG.PAS
DNSMSG.PLI	DNSMSG.R32
DSMDECDNS.DAT	DSMDECDNS.UID
DTSS$RUNDOWN.EXE	DTSS$SHR.EXE
DTSS$SHRD.EXE	LES$ACP_CODE_V30.EXE
LES$NETMANSHR.EXE	LES$SDA.EXE
NCL$GLOBALSECTION.DAT	NCLSHR.EXE
NET$CMISE.EXE	NET$EVD_RELAY_FORMATTER.EXE
NET$NISCS_LAA.EXE	NET$NISCS_LAA.STB
NET$PROCESS_EMAA.EXE	NET$ROUTING_ACPSHR.EXE
NET$SDA.EXE	NET_CMISE.H
NET_EXTERNALS.ADA	NET_EXTERNALS.BAS
NET_EXTERNALS.FOR	NET_EXTERNALS.H
NET_EXTERNALS.L32	NET_EXTERNALS.MLB
NET_EXTERNALS.PAS	NET_EXTERNALS.PLI
OSIT$LIBRARY.EXE	OSIT$LIBRARY.OLB
OSIT.ADA	OSIT.FOR
OSIT.H	OSIT.L32
OSIT.MAR	OSIT.MLB
OSIT.PAS	OSIT.PEN
OSIT.PLI	OSIT.R32
OSIT.SDI	UTC.H
XTI$DNETSHR.EXE	XTI$OSISHR.EXE

Directory/Files	
XTI$UCXSHR.EXE	XTI$XTILIB.EXE
XTI.H	
[SYSMGR]	
CTF$STARTUP.COM	
DECNET_DNS_REGISTER.COM	DECNET_DNS_TOWERS.COM
DECNET_LOC_REGISTER.COM	DECNET_REGISTER_DECDNS.COM
DNS$CLERK_CLUSTER.NCL	DNS$CONFIGURE.COM
DTSS$CONFIG.COM	DTSS$CONFIG_TEMPLATE.DAT
NET$CONFIGURE.COM	NET$DNS_CLERK_STARTUP.NCL
NET$DTSS_CLERK_STARTUP.NCL archive	NET$EVENT_LOCAL.TEMPLATE
NET$LOGICALS.TEMPLATE	NET$SHUTDOWN.COM
[SYSMSG]	
CTF$MESSAGES.EXE	DNS$MSG.EXE
LES$ACP_MESSAGES_V30.EXE	LES$NM_MESSAGES.EXE
OSIT$VOTS_MSG.EXE	
[SYSTEST]	
OSIT$IVP.CLD	OSIT$IVP.EXE
OSIT$IVPINIT.COM	OSIT$IVPRESP.COM
OSIT$IVP_SUPPORT.COM	
[SYSUPD]	
CTF.CLD type command module TRACE	CTF.CLD
DECNET_MIGRATE.EXE	DECNET_MIGRATE_LSE.ENV
DTSS$INSTALL_TIMEZONE_RULE.COM	DTSS$TIMEZONE_RULES.DAT
NCP_EMULATOR.TXT	NET$CONFIGURE_UPGRADE.COM
NET$CONVERT_DATABASE.EXE	NET$PARSE_PREFIX.EXE
NET$REMOVE_EMU.COM	NET_ISHFILTER.EXE
NET$FIXUP_IDENTIFIERS.EXE	NET$PCSI_INSTALL.COM

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