DECdfs for OpenVMS
Installation Guide

April 2001

This document contains installation information for DECdfs Version 2.3-1 for OpenVMS.

Software Version:	DECdfs Version 2.3-1 for OpenVMS
Operating System and Version:	OpenVMS Alpha Version 6.2, 7.1, 7.2 and 7.3
	OpenVMS VAX Version 5.5–2, 6.2, 7.1, 7.2 and 7.3

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The OpenVMS documentation set is available on CD–ROM.

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Preface

Intended Audience

This guide is intended for the person who installs DECdfs for OpenVMS Version 2.3-1.

Associated Documents

The DECdfs documentation set consists of this installation guide, the *DECdfs for OpenVMS Management Guide*, and the release notes document. You can find related information in the following documents:

- The OpenVMS installation and operations guide for your system.
- *OpenVMS System Manager's Manual*
- *DECnet for OpenVMS Networking Manual*
- *OpenVMS Guide to System Security*
- *OpenVMS License Management Utility Manual*
- *OpenVMS System Services Reference Manual*
- *DECnet-Plus for OpenVMS Network Management*
- *DECnet-Plus DECdns Management*

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Conventions Used in This Document

The following graphic conventions are used in this document.

`Special type`	This special type in examples indicates system output or user input.
`Bold type`	Bold type in examples indicates user input.
[ ]	Brackets in command lines indicate that the enclosed values are optional. (Do not type the brackets.)
UPPERCASE	Uppercase letters in command lines indicate keywords that must be entered. You can enter them in either uppercase or lowercase. You can abbreviate command keywords to the minimum unique abbreviation.
lowercase letters	Lowercase letters (often hyphenated) in command syntax or examples indicate variables that the user replaces with appropriate values.

The Return key, which you must press in order to execute commands, is assumed in command examples.

1
Installation Prerequisites

This chapter describes the prerequisites for installing the DECdfs software on an OpenVMS VAX or OpenVMS Alpha system. It covers the following topics:

- Contents of the kit
- Hardware and software requirements
- License registration
- Disk space requirements
- Installing over earlier DECdfs versions
- System Generation (SYSGEN) parameters
- Account and quota requirements
- Installation time
- Configuration planning
- Reviewing the installation procedure
- Maintenance updates

1.1 Contents of the Kit

DECdfs software is available on compact disc read-only memory (CD-ROM). Contact your Compaq support representative if any components of the software distribution kit are missing.

The DECdfs documentation set consists of this installation guide, the *DECdfs for OpenVMS Management Guide*, and the *DECdfs for OpenVMS Release Notes*. Keep the installation guide with your distribution kit for future reference. You can use this guide to install maintenance updates (see Section 1.12) or reinstall the DECdfs software.

The DECdfs release notes are available on line. Read steps 2 and 6 in Section 2.2 for instructions on how to access them. After you install DECdfs, the release notes file (DECDFS01023.RELEASE_NOTES) resides in the SYS$HELP directory. Compaq recommends that you read the release notes and the installation guide before you install DECdfs.

1.2 Required Hardware

The only required hardware is the DECnet Phase IV or DECnet Phase V network hardware. For a list of supported hardware and configurations, refer to the Software Product Description (SPD) for DECdfs for OpenVMS Version 2.3-1 and to the SPD for the version of the OpenVMS operating system on which you plan to run DECdfs.

1.3 Required Software

You must be running DECnet for OpenVMS, DECnet/OSI, or DECnet-Plus for OpenVMS on your OpenVMS operating system before you install DECdfs.

In the DECdfs documentation, DECnet Phase IV is used to refer to DECnet for OpenVMS, and DECnet Phase V is used to refer to either or both DECnet/OSI and DECnet-Plus for OpenVMS.

The software required to run DECdfs Version 2.3-1 is as follows:

- OpenVMS VAX Version 5.5-2 (with DECnet Phase IV only)
- OpenVMS VAX Version 6.2, 7.1, 7.2 or 7.3 with DECnet Phase IV or DECnet Phase V
- OpenVMS Alpha Version 6.2, 7.1, 7.2 or 7.3 with DECnet Phase IV or DECnet Phase V

1.4 License Registration (PAK)

You must register and load the DECdfs license Product Authorization Key (PAK) before you can run the DECdfs software and the Installation Verification Procedure (IVP).

Use the License Management utility (LICENSE) to register and load the DECdfs license PAK in the LMF database before or after installing the DECdfs software. Use the License Management utility (LICENSE) documentation to learn how to register and load a license PAK.

When you register the license PAK before you install, the IVP runs automatically (if selected) and DECdfs starts automatically at the end of the installation. Neither happens if you do not register the license PAK until after the installation.

See the *OpenVMS License Management Utility Manual* for more information about registering and loading licenses for OpenVMS layered products.

1.5 Required Disk Space

To install DECdfs, there must be a minimum amount of free disk space (peak block count) on the system disk (SYS$SYSDEVICE:). After DECdfs is installed, the DECdfs files require less disk space (net block count). Required space depends on the processor, as shown in the following table:

Processor	Peak Blocks	Net Blocks
VAX	1500	1250
Alpha	3525	3250

To display the number of free blocks, enter the following DCL command:

```
$ SHOW DEVICES SYS$SYSDEVICE
```

The number of free blocks is displayed on your screen under the Free Blocks heading, as follows:

```
Device   Device   Error   Volume  Free   Trans  Mnt
Name     Status   Count   Label   Blocks Count  Cnt
DUA0:    Mounted    0     DAISY   31625    82   1
```

If the system disk does not contain enough free space, you must purge files, remove unused files (log files, for example), or remove some applications or user files. You can then install the DECdfs software.

1.6 Installing Over Earlier Versions of DECdfs Software

As of DECdfs Version 1.3, several tuning parameters were removed to ease performance management tasks. Consequently, the following command qualifiers and logical names are obsolete:

- /SESSIONS_MAXIMUM and /CONNECTIONS_MAXIMUM qualifiers

  In the Communication Entity, both the /SESSIONS_MAXIMUM and /CONNECTIONS_MAXIMUM qualifiers have been removed from the SET COMMUNICATION and SHOW COMMUNICATION commands. DECdfs now automatically allocates session and communication blocks to accommodate increased requests.

- /FILES_MAXIMUM qualifier

  In the server, the /FILES_MAXIMUM qualifier for the SET SERVER and SHOW SERVER commands has been removed. DECdfs now automatically allocates blocks that correspond to open files.

- /PERSONA_CACHE=BLOCKS_THRESHOLD qualifier and value

  As part of persona cache autosizing in the server entity of DECdfs, the BLOCKS_THRESHOLD value for the /PERSONA_ CACHE qualifier of the SET SERVER and SHOW SERVER commands has been disabled. DECdfs now automatically recalculates this threshold periodically.

- DFS$PQL_FILLM and DFS$PQL_BYTLM logical names

  The two logical names DFS$PQL_FILLM and DFS$PQL_BYTLM, which were defined in file DFS$CONFIG.COM in versions of DECdfs prior to Version 1.3, are no longer necessary and will be ignored if they exist in the file. DECdfs now automatically computes values for these server process quotas based on the SYSGEN parameter CHANNELCNT.

If you are installing DECdfs over a version of DECdfs earlier than Version 1.3 and the existing DFS$CONFIG.COM contains any of the qualifiers or logical names shown in the above list, you should either rename DFS$CONFIG.COM to disable it or edit the file and remove the obsolete qualifiers or logical names. DECdfs issues a warning message if it finds obsolete qualifiers or logical names during startup.

1.7 SYSGEN Parameters

The following sections describe how to check and modify the System Generation (SYSGEN) parameters that are needed to run DECdfs. After modifying any SYSGEN parameters in the MODPARAMS.DAT file, invoke the OpenVMS AUTOGEN command procedure to automatically adjust the values of the other system parameters and reboot the system to set the new parameter values. For information about AUTOGEN, see the *OpenVMS System Manager's Manual*.

To run DECdfs, you might need to modify the following SYSGEN parameters:

- NPAGEDYN (nonpaged dynamic pool size)

- INTSTKPAGES (system interrupt stack size)
- GBLPAGES (global pages) and GLBSECTIONS (global sections)

1.7.1 Increasing the Nonpaged Pool Size

To use DECdfs, you may need to increase the size of the nonpaged dynamic pool (the SYSGEN parameter NPAGEDYN).

For a client-only node, add 100,000 bytes of nonpaged pool. For a server node, Compaq recommends an additional 250,000 bytes of nonpaged pool. The additional bytes are usually sufficient for the normal use of approximately 10 to 20 DECdfs client devices.

To increase the nonpaged pool size, edit the MODPARAMS.DAT file in the SYS$SYSTEM directory. Add the statements that increase the value of the SYSGEN parameter NPAGEDYN as follows:

- For a client-only node, add the following comment and statement at the end of the file:

```
! Add some nonpaged pool for DECdfs client
!
ADD_NPAGEDYN=100000
```

- For a server node, add the following comment and statement at the end of the file:

```
! Add some nonpaged pool for DECdfs server
!
ADD_NPAGEDYN=250000
```

If you decide to increase the data cache size on the server node, increase the server node's nonpaged pool size further (see the *DECdfs for OpenVMS Management Guide*).

1.7.2 Increasing the System Interrupt Stack Size (VAX Systems Only)

To use DECdfs, increase the size of the system interrupt stack four pages more than your current use. To increase the size of the interrupt stack, edit the SYS$SYSTEM:MODPARAMS.DAT file to add a statement that increments the value of the SYSGEN parameter INTSTKPAGES.

For a server node, add the following statement at the end of the MODPARAMS.DAT file:

```
! Increase the size of the interrupt stack for the DECdfs
! server.
ADD_INTSTKPAGES=4
```

By increasing the size of the system interrupt stack, you can prevent the DECdfs server from experiencing occasional system halts. An interrupt stack pointer error (ISP ERR) or similar hardware error message is displayed when the size of the interrupt stack is too small. The specific error message that is displayed depends on the VAX model you are using.

1.7.3 Increasing Global Pages and Global Sections

To use DECdfs, you may need to increase the number of global pages and global sections (the SYSGEN parameters GBLPAGES and GBLSECTIONS). If the current settings for these parameters are inadequate, VMSINSTAL cannot start DECdfs after installation.

The following table shows how many additional global pages and global sections you need for a DECdfs server node running on a VAX or Alpha processor:

Processor	Global Pages	Global Sections
VAX	1080	21
Alpha	1312	10

For a client-only node, DECdfs requires about 60 percent of the global page values shown in the previous table; the global section requirements are the same.

To check the number of available global pages and global sections, use the WRITE command with the F$GETSYI lexical function to find the number of free global pages and global sections. The following example shows how to get this information at your terminal or workstation (the default destination for SYS$OUTPUT):

```
$ WRITE SYS$OUTPUT F$GETSYI("FREE_GBLPAGES")
  15848
$ WRITE SYS$OUTPUT F$GETSYI("FREE_GBLSECTS")
  24
```

If the number of unused global pages and global sections is insufficient to run DECdfs, edit the SYS$SYSTEM:MODPARAMS.DAT file and insert statements that raise the values of the SYSGEN parameters GBLPAGES and GBLSECTIONS.

To increase the values for GBLPAGES and GBLSECTIONS, add the following statements at the end of the MODPARAMS.DAT file. The variables *nnn* and *mmm* represent numbers that you add to the current setting for these SYSGEN parameters.

```
ADD_GBLPAGES=nnn
ADD_GBLSECTIONS=mmm
```

1.7.4 Increasing the Channel Count

Your system's channel count parameter, CHANNELCNT, specifies the maximum number of files that any process on the system can open concurrently. Each file requires one channel, and the DECdfs server process opens all local files that users at DECdfs clients access. If the server is your system's most active file user, you may need to increase the channel count to accommodate the server.

Determine the appropriate CHANNELCNT parameter by estimating the maximum number of simultaneously open files you expect on the server. Add 15 to this number to allow for some additional channels for the server's own use. For example, if you expect 250 files to be open simultaneously, set the CHANNELCNT parameter to 265 channels before running DECdfs.

Insert the following line in the MODPARAMS.DAT file in the SYS$SYSTEM directory, and then run the AUTOGEN procedure:

```
ADD_CHANNELCNT = 265
```

For information on AUTOGEN, see the *OpenVMS System Management Utilities Reference Manual*. You can read the online help information about the CHANNELCNT parameter by entering the following SYSGEN HELP command:

```
$ RUN SYS$SYSTEM:SYSGEN
SYSGEN> HELP PARAMETERS SPECIAL_PARAMS CHANNELCNT
```

1.8 Account and Quota Requirements

To run VMSINSTAL, you must have the following privileges: SYSPRV, SYSNAM, OPER, NETMBX, TMPMBX, CMKRNL, DETACH, ALTPRI, ACNT, PRMMBX, PSWAPM, and PHY_IO. Use the system manager account to install the DECdfs software.

The default values for the system quotas are sufficient to install DECdfs. See the *OpenVMS System Services Reference Manual* for more information about system quotas.

1.9 Installation Time

The DECdfs software installation takes less than 5 minutes when installed from CD-ROM. The time that it takes to install DECdfs client or server software is similar, but can vary depending on the processor, distribution media, and system load. The installation verification procedure (IVP) takes approximately 30 seconds.

1.10 Configuration Planning

Before you install any DECdfs software, you need to plan your configuration. Decide which nodes will be DECdfs server nodes (those with active DECdfs server and client software) and which will be DECdfs client-only nodes (those with active DECdfs client software only). You must consider how many servers and client-only nodes exist in your network, as well as their locations. This information is important in deciding where to place servers.

A DECdfs server allows users at DECdfs clients to access server disks and directories. These disks and directories appear to be local to the DECdfs client system. For information on DECdfs server and client functions, see the *DECdfs for OpenVMS Management Guide*.

When you install DECdfs software without specifying that you want a client-only node, the software for clients and servers is loaded and the node becomes a DECdfs server. When you specify client-only, then only the DECdfs client software starts up on the client-only node. The server software is present but inactive on client-only nodes.

See Section 1.10.3 or Section 3.7 for information on changing the configuration of client systems and server systems.

1.10.1 Configuration Questions

As you plan your configuration, consider the following criteria:

- The nodes on which you will install DECdfs client-only software.
- The nodes on which you will install DECdfs server software.
- The namespace naming conventions used on your network. See Section 1.10.2 for information on DECdns.

- Whether the DECdfs and DECnet license PAKs are registered and loaded on systems that will be clients and servers.
- Whether each node in a cluster environment has DECdfs and DECnet license PAKs.

1.10.2 The DECdns Distributed Name Service (DECdns)

On all DECnet Phase V systems, and on VAX systems running DECnet Phase IV, DECdfs uses the facilities of the DECdns Distributed Name Service to identify file services. This allows clients to access file services without explicitly knowing the name or location of the node that provides the service. On Alpha systems running DECnet Phase IV, DECdns is not available, and consequently, DECdfs operational procedures are adjusted to include specifying the node name of the server in appropriate places.

The following stated requirements here and elsewhere in this guide regarding DECdns do not apply to DECnet Phase IV Alpha systems. However, you should refer to the *DECdfs for OpenVMS Management Guide* for information concerning the interaction between nodes that do and do not use DECdns.

DECdns provides a database (called a namespace) for storing and managing the names and addresses of resources that are distributed throughout a network. This scheme permits users and applications throughout the network to locate a particular resource by its name rather than its address. Thus, network resources can move to a new location without affecting users or applications seeking them. If someone moves a resource, that person writes the new address information into the namespace. The next user or application seeking that resource by name automatically gets the updated address information from the namespace.

1.10.2.1 Access Points

DECdfs servers store address information for access points in the DECdns namespace. An access point represents the file resources that a DECdfs server makes available to a DECdfs client. Each access point name resides in the DECdns namespace and provides the address information for a DECdfs server that offers that particular file resource.

Ask your network's DECdns manager to help you perform the following tasks:

- Identify a node that has the DECdns server software. A DECdns server must be installed, running, and accessible before you can use the DECdfs software or run the IVP.
- Create access point names that comply with the DECdns naming conventions used on your network.

The DECdns manager must also provide access rights to DECdfs server accounts and client accounts, as follows:

- The account from which you operate a DECdfs server needs read and write access rights in any DECdns directory in which you plan to store access points.
- The account from which you plan to run a DECdfs client installation and verification procedure (IVP) needs read access rights in the DECdns directory containing any DECdfs access point.

1.10.2.2 DECdns Clerk

DECdfs Version 2.3-1 should be installed on nodes running OpenVMS Version 5.5-2 or a higher version. These versions of OpenVMS include the DECdns clerk, so the DECdfs installation no longer supplies the DECdns clerk. The installation, however, still attempts to start the DECdns clerk if it has not already been started and if file DNS$DEFAULT_FILE.DAT exists. If this file does not exist, the installation reminds you to execute procedure SYS$STARTUP:DNS$CHANGE_DEF_FILE.COM before you try to start DECdfs. This procedure copies file DNS$DEFAULT_FILE.DAT to your node and starts the DECdns clerk.

On systems running DECnet Phase V, the file DNS$DEFAULT_FILE.DAT is no longer used. The DECdns clerk is always installed and running on DECnet Phase V systems.

1.10.2.3 DECdns Logical Name Table

DECdns uses its own logical name table for DECdns objects. You must supply the name of this table, DNS$SYSTEM_TABLE, to any DEFINE command that applies to related DECdns objects. For example, suppose you want to define a system logical name in your DFS$SYSTARTUP.COM procedure for your namespace name or directory. Supply the DEFINE statement with the qualifier that specifies the DECdns logical name table, DNS$SYSTEM_TABLE. To create the logical name EXAMPLE_DIR, you could include the following line:

```
$ DEFINE/TABLE=DNS$SYSTEM_TABLE EXAMPLE_DIR -"THIS.IS.AN.EXAMPLE"
```

Keep this OpenVMS and DECdns change in mind if you are upgrading to DECdfs Version 2.3-1 from an earlier version of DECdfs.

1.10.3 Installing DECdfs on OpenVMS Cluster Systems

In an OpenVMS Cluster environment with only one system disk, you need to install DECdfs server software on only one cluster member. VMSINSTAL places all DECdfs files in the SYS$COMMON directory. This provides identical DECdfs environments for each cluster member; for example, mounting the same access points and serving the same access points added by using the ADD ACCESS_ POINT command with the /CLUSTER qualifier.

Note

All nodes in an OpenVMS Cluster system that will run DECdfs need a registered and loaded DECdfs license PAK before DECdfs can be started.

You can create a different DECdfs environment on each node in an OpenVMS Cluster system by copying the DFS$SYSTARTUP.COM and DFS$CONFIG.COM files to each node's SYS$SPECIFIC:[SYS$STARTUP] directory and modifying it for that specific cluster member.

If you want to run some cluster members as DECdfs client-only nodes and others as DECdfs server nodes, copy:

- The DFS$CONFIG.COM file to each member's SYS$SPECIFIC:[SYS$STARTUP] directory and modify it for that specific cluster member.
- The DFS$SYSTARTUP.COM file to each member's SYS$SPECIFIC:[SYSMGR] directory and modify it for that specific cluster member.

- The DFS$STARTUP.COM file to each member's SYS$SPECIFIC:[SYS$STARTUP] directory and edit the following lines:

```
$! Installation specific parameters:
$!
$ START_CLIENT_FLAG = "TRUE"
$ START_SERVER_FLAG = "TRUE"
$!
$!
$! Title = DFS$STARTUP.COM
```

The flag START_SERVER_FLAG = "TRUE" indicates that the DECdfs server software can be started on this node. Edit the DFS$STARTUP.COM file only when you change the configuration of the node. Make one of the following changes:

- When you change from a server to a client-only node, you must change the flag START_SERVER_FLAG from "TRUE" to "FALSE."
- When you change from a client-only to a server node, you must change the flag START_SERVER_FLAG from "FALSE" to "TRUE."

To run DECdfs on a *heterogeneous* OpenVMS Cluster system, on a *mixed architecture* OpenVMS Cluster system, or on a homogeneous OpenVMS Cluster system that uses multiple system disks, install DECdfs on each of the system disks. Each node and system disk needs a registered and loaded license PAK before DECdfs can be started on that node.

1.11 Reviewing the DECdfs Installation Procedure

Before installing DECdfs, assemble the information that you must provide to VMSINSTAL during the installation procedure. To determine the context in which VMSINSTAL requires this information, review the installation procedure (as described in Section 2.2).

Read the DECdfs release notes before continuing the installation procedure. Use the OPTIONS N parameter in the command line to gain access to the release notes. After you complete the installation, you can access the release notes in SYS$HELP:DECDFS01023.RELEASE_NOTES. See Chapter 2 for more information about the installation procedure.

If DECdfs files exist on your system from a previous installation, read the following three sections.

1.11.1 Rebooting an Existing DECdfs System Before or After the Installation

DECdfs uses OpenVMS drivers that, once loaded, cannot be unloaded without rebooting the system. Therefore, if a previous version of DECdfs is running on the target system, one of the following two actions must be taken:

- Reboot the system without starting DECdfs before doing the installation.
- Do the installation and promptly reboot the system. In this case, once you complete the installation and before the system is rebooted, you will not be able to run DFS$CONTROL because of version incompatibilities between drivers, installed images, and new files. Furthermore, you cannot run the IVP until after the reboot.

Compaq recommends that you reboot the system without starting DECdfs before you perform this installation. If you choose to do the installation first, reboot the system as soon as possible after the installation is complete. Do not attempt to run DFS$CONTROL or the IVP, or restart DECdfs, until after the reboot.

If you reboot first, you will not need to reboot again when the installation completes. To avoid starting DECdfs, you must edit your SYS$SYSTARTUP file or otherwise temporarily eliminate the call to DFS$STARTUP.COM.

1.11.2 Renaming Existing DFS*.EXE Files

The installation checks whether any DFS*.EXE files are in the SYS$SPECIFIC:[SYSEXE], SYS$SPECIFIC:[SYSLIB], SYS$SPECIFIC:[SYS$LDR], or SYS$SPECIFIC:[SYSMSG] directories. If you moved DFS*.EXE files to any of these directories, VMSINSTAL asks you if you want to rename all DFS*.EXE files to DFS*.OLD (see Section 2.3.1). If you answer YES, the installation procedure renames the files and continues. Otherwise, the installation procedure aborts and displays an error message.

If you want to conserve disk space, remember to delete all the previous versions of the DFS*.EXE files from the SYS$SPECIFIC:[SYSEXE], SYS$SPECIFIC:[SYSLIB], SYS$SPECIFIC:[SYS$LDR], and SYS$SPECIFIC:[SYSMSG] directories before you install DECdfs. If DECdfs runs on a cluster system, delete these files on all cluster members.

1.11.3 Processing Existing DFS*.COM Files

As part of its installation, DECdfs Version 2.3-1 looks for existing DFS$CONFIG.COM and DFS$SYSTARTUP.COM files in directories SYS$STARTUP and SYS$MANAGER. If it does not find these files, the installation procedure places a default version of the missing file in SYS$MANAGER. If it finds these files, the installation procedure places the respective template files (DFS$CONFIG.TEMPLATE and DFS$SYSTARTUP.TEMPLATE) in SYS$MANAGER. Note that if you have previously moved either DFS$CONFIG.COM or DFS$SYSTARTUP.COM to SYS$SPECIFIC directories, the installation proceeds as if these two files do not exist. DECdfs uses the DFS$SYSTARTUP.COM and DFS$CONFIG.COM files for adding or mounting access points (or both) and for configuration purposes.

The installation procedure always renames previously existing DFS$STARTUP.COM files to DFS$STARTUP.OLD and provides a new startup file in directory SYS$STARTUP.

1.12 Maintenance Updates

Compaq may periodically issue a maintenance update release of the DECdfs software. If you are upgrading from a previous version of DECdfs, your software installation kit will not include new documentation if the documentation has not been revised. In this case, use the installation guide for the previous version to install the new software.

The release notes included with each software release describe new and changed software features. Compaq recommends that you read the release notes before installing the software to ensure that you are aware of any special installation or operating requirements.

For more information about reading, printing, and accessing the release notes before you install the software, follow steps 1 through 6 of the installation procedure in Section 2.2. You can stop the installation procedure during step 6 by answering the "Do you want to continue the installation [NO]?" prompt with NO. You can read, display, or print the release notes after the installation by specifying the SYS$HELP:DECDFS01023.RELEASE_NOTES file.

2
Installation and Verification

This chapter contains general information about the OpenVMS installation procedure (VMSINSTAL) and explains each step of the procedure. This chapter also describes additional DECdfs installation messages that you may receive during an installation.

2.1 Preliminary Information

Compaq recommends that you read Section 1.11 and this section before you install DECdfs. Compaq also recommends that you back up your system before beginning the installation.

Use the installation procedure, VMSINSTAL, to install the DECdfs software on an OpenVMS system. The sample procedure in Section 2.2 installs both client and server software on a node. If you are establishing a client-only node, you can delete the files that are used by only the server after the DECdfs installation is complete. See Section 3.8 for more information about reclaiming disk space.

VMSINSTAL asks a series of questions, to which you must provide appropriate responses. Default responses appear in brackets ([ ]). Press Return to accept the default response. For help while installing DECdfs, enter a question mark (?) after the prompt.

To abort the installation procedure, press Ctrl/Y. The installation procedure deletes all DECdfs files that it has created up to that point and returns to the DCL prompt ($). If you want to retry the installation procedure after you press Ctrl/Y, you must invoke VMSINSTAL again. See Step 2 in Section 2.2 for additional information.

To save a copy of the VMSINSTAL session on disk for future reference, use the SET HOST 0 /LOG command before invoking VMSINSTAL. Node 0 represents the local node. See Appendix B for sample installations.

Before you install DECdfs, ensure that:

- Your system is running the required software (see Section 1.3 for additional information).
- Your system has the required free disk space on the system disk (see Section 1.5 for additional information).
- You modified the SYSGEN parameters as described in Section 1.7.
- Your DECnet Phase IV or DECnet Phase V software is installed and running.
- At least one DECdfs server is installed, running, and accessible and at least one registered access point is available if you wish to create a DECdfs client-only configuration and run the Installation Verification Procedure (IVP).

- If you are running DECnet Phase IV on a VAX processor, the DECdns Distributed Name Service is running on the network and is accessible (see Section 1.10.2 for additional information).
- If you are running DECnet Phase IV on a VAX processor, the file SYS$SYSTEM:DNS$DEFAULT_FILE.DAT is necessary for DECdns to work properly. If this file does not exist on your system, execute SYS$STARTUP:DNS$CHANGE_DEF_FILE.COM to obtain a copy of this file from your DECdns server. The file is not necessary if you are running DECnet Phase V. DECdns is not available on Alpha systems running DECnet Phase IV.

2.2 Installation Procedure

This section presents the steps of a sample installation procedure for installing DECdfs client and server software. To install the DECdfs software, follow these steps:

Step 1. Log in to the system manager account.

The system manager account has the necessary privileges to run VMSINSTAL.

Step 2. Invoke VMSINSTAL.

To invoke VMSINSTAL, enter the following command line:

```
$ @SYS$UPDATE:VMSINSTAL DECDFS01023 ddcu: OPTIONS N
```

The value *ddcu*: represents the name of the device where you mounted the distribution media. For example, if the DECdfs kit is in a subdirectory on a user disk, you might construct the device name MY_SYS$DUA1:[MY_DIRECTORY]. When you invoke VMSINSTAL and include the OPTIONS N parameter in the command line, you can view or print the release notes automatically. If you omit OPTIONS N in the command line, you cannot print or read the release notes until after the installation procedure is complete.

The following message is displayed on the screen:

```
        VAX/VMS Software Product Installation Procedure Vn.n

It is dd-mmm-yyyy at hh:mm.
Enter a question mark (?) at any time for help.
```

Note

The real version number, date, and time will be substituted for the variables shown in italic type.

Step 3. Check the system environment.

VMSINSTAL checks your system environment and notifies you of any running processes. For example, your system might display the following message:

```
%VMSINSTAL-W-ACTIVE, The following processes are still active:
        MAIL_38503

* Do you want to continue anyway [NO]?
```

This message is informational only. Enter NO (or press Return) to end the installation and return to the DCL prompt ($). Enter YES to continue installing DECdfs.

Step 4. Check backup.

The following message reminds you to back up your system disk before installing software:

```
* Are you satisfied with the backup of your system disk [YES]?
```

Enter YES to continue installing DECdfs. Enter NO to end the installation and return to the DCL prompt ($).

Step 5. Mount the installation kit volume.

If the device you provided in step 2 for the distribution media is not mounted, VMSINSTAL prompts you to mount the installation kit volume. Mount the volume and ensure that the device is in the READY state. Enter YES and press Return when you are ready. A message confirms that the media is mounted and ready:

```
Please mount the first volume of the set on ddcu:

* Are you ready? YES
%MOUNT-I-MOUNTED, DECDFS01023 mounted on _ddcu:.
```

Step 6. Start the installation.

After you mount the installation kit volume, VMSINSTAL displays the following messages:

```
The following products will be processed:

  DECDFS01 V2.3

        Beginning installation of DECDFS01 V2.3 at hh:mm

%VMSINSTAL-I-RESTORE, Restoring product save set A ...
```

Release notes included with this kit are always copied to SYS$HELP. If you included OPTIONS N in the command line in step 2, the Additional Release Notes Options menu is displayed. You can select one of the following options:

```
Additional Release Notes Options:

        1.  Display release notes
        2.  Print release notes
        3.  Both 1 and 2
        4.  None of the above

* Select option [2]: 2
```

If you choose option 1, VMSINSTAL displays the release notes at your terminal.

If you choose option 2, VMSINSTAL prompts you to enter a print queue name as follows:

```
Queue name [SYS$PRINT]:
```

Type a print queue name or press Return. VMSINSTAL queues a copy of the release notes to print and displays a message such as the following:

```
Job DECDFS01023 (queue queue, entry nnn) started on queue
```

If you select option 3, VMSINSTAL displays the release notes on your screen and prompts you for a print queue name.

If you select option 4, VMSINSTAL does not display or print the release notes at any time during the installation procedure.

After you select any of the options, VMSINSTAL displays the following message:

```
* Do you want to continue the installation [NO]?
```

One way to read the release notes now is to respond NO and locate them in SYS$HELP. A NO response terminates the installation and requires you to start again at step 1. Regardless of your response, the procedure displays the following message:

```
%VMSINSTAL-I-RELMOVED, The product's release notes have been
successfully moved to SYS$HELP.
```

Step 7. Run the Installation Verification Procedure.

VMSINSTAL asks whether you want to run the Installation Verification Procedure (IVP) as part of the installation procedure. If you enter YES, you need to supply an access point name in step 13. If you enter NO, VMSINSTAL skips steps 13 and 14.

```
* Do you want to run the IVP after the installation [YES]?
```

Step 8. Purge old files.

VMSINSTAL asks whether you want to purge files that are replaced during the installation process. To retain the old copies, enter NO; otherwise, enter YES (or press Return).

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

If VMSINSTAL finds DFS*.EXE files in any SYS$SPECIFIC: directory, the procedure lists the files and asks whether you want to rename them. See Section 2.3.1 for the dialog and possible responses.

If VMSINSTAL finds DECdfs driver files in SYS$SYSTEM, the procedure asks whether you want to delete them. See Section 2.3.2 for the dialog and possible responses.

Step 9. Verify the configuration.

VMSINSTAL asks whether the stated configuration is correct or not.

DECnet Phase IV:

```
 Current configuration:   OpenVMS/xxx Vn.n - DECnet

* Install the DFS files that support this configuration? [YES]?
```

DECnet Phase V:

```
 Current configuration:   OpenVMS/xxx Vn.n - DECnet-
Plus

* Install the DFS files that support this configuration? [YES]?
```

In the previous examples, the variables can have the following values:

- *xxx* can be either a VAX or an Alpha processor
- V*n.n* can be Version 5.5–2, 6.2, 7.1, 7.2 or 7.3 for VAX processors, and Version 6.2, 7.1, 7.2 or 7.3 for Alpha processors

To use the configuration displayed, enter YES (or press Return). If this configuration does not represent the system, enter NO. If you enter NO, you are given the opportunity to choose one of the following alternate configurations:

```
 Possible configurations:
           1. OpenVMS VAX V5.5-2 - DECnet Phase IV

           2. OpenVMS VAX V6.2   - DECnet Phase IV
              OpenVMS VAX V7.1   - DECnet Phase IV

           3. OpenVMS VAX V6.2   - DECnet/OSI
              OpenVMS VAX V7.1   - DECnet-Plus

           4. OpenVMS Alpha V6.2 - DECnet Phase IV

           5. OpenVMS Alpha V6.2 - DECnet/OSI

           6. OpenVMS Alpha V7.1 - DECnet-Plus

           7. OpenVMS Alpha V7.1 - DECnet Phase IV

           8. OpenVMS Alpha V7.2 - DECnet-Plus

           9. OpenVMS Alpha V7.2 - DECnet Phase IV
              OpenVMS Alpha V7.3 - DECnet Phase IV

          10. OpenVMS VAX V7.2   - DECnet-Plus
              OpenVMS VAX V7.3   - DECnet-Plus

          11. OpenVMS VAX V7.2   - DECnet Phase IV
              OpenVMS VAX V7.3   - DECnet Phase IV

           0. Stop installation

* Enter number [8]
```

If you want to stop the installation, enter 0. The default is the stated configuration. If you prefer the alternate configuration, enter one of the other numbers. If you choose an alternate configuration, a difference will exist between the stated configuration and the chosen configuration, and a warning message and question therefore will be displayed.

```
 %DECDFS_-VRMISM-E, Architecture type, VMS version,
 -DECDFS_-VRMISM-E, or DECnet version mismatch detected

* Do you wish to continue with this configuration? [NO]
```

If you answer NO, the installation ends. If you answer YES, it continues.

Step 10. Install the Help Message Utility.

If you are installing on a system that is running OpenVMS Version 6.2 or later, the following question is displayed:

```
* Install DFS Help Message file? [YES]
```

If you answer YES, the installation procedure displays the following message:

```
  Add SYS$HELP:DFS.MSGHLP$DATA to the searchlist defined by
  MSGHLP$LIBRARY in order to include the DFS messages in your
  HELP/MESSAGE search. Please refer to the OpenVMS SYSTEM
  MANAGER'S MANUAL: ESSENTIALS for more information.
```

Step 11. Install client or server software.

Indicate whether you want to install client or server software on this node at this VMSINSTAL prompt. Enter YES to install both the client and server software. Enter NO to establish a client-only node.

```
* Do you want to install the DECDFS01 V2.3 SERVER software on this node [YES]?
```

After you answer these questions, VMSINSTAL displays the following message:

```
Product:       DFS
Producer:      DEC
Version:       2.0
Release Date:  20-JUN-1994
```

The Product name DFS indicates a server software installation; the Product name DFS-CLIENT indicates a client software installation. The Product name is also the PAK name, which is checked in the next step.

Step 12. Check for a License Product Authorization Key (PAK).

VMSINSTAL checks for a registered and loaded DECdfs license PAK.

```
* Does this product have an authorization key registered and loaded?
```

Enter YES or press Return to indicate that the DECdfs license PAK is installed. Enter NO and press Return if the DECdfs license PAK is not installed.

If you are installing DECdfs client software (you answered NO in step 11), the installation procedure looks for a PAK named DFS-CLIENT, which includes only the client. If you are installing DECdfs server software (you answered YES in step 11), the installation procedure looks for a PAK named DFS, which includes both server and client.

You can continue to install DECdfs without a license, but the IVP cannot run and DECdfs cannot be started as part of the installation or when the installation finishes. After using the License Management Facility (LMF) to register and load the license PAK, you can start DECdfs or run the IVP.

Step 13. Read informational messages.

VMSINSTAL displays the following informational messages:

```
        Installation will be complete in approximately 1 - 5 minutes
        depending upon your configuration.

        There are no more questions unless you choose to run the IVP.
        Installing DECdfs software . . .
%VMSINSTAL-I-RESTORE, Restoring product save set B ...
```

The following table shows the save sets installed for each possible operating system/processor/network transport combination:

DECnet Phase IV	
Operating System	**Save Sets**
VAX/VMS Version 5.5–2	A,B
OpenVMS VAX Version 6.2	A,C
OpenVMS VAX Version 7.1	A,C
OpenVMS VAX Version 7.2	A,L
OpenVMS VAX Version 7.3	A,L
OpenVMS Alpha Version 6.2	A,E
OpenVMS Alpha Version 7.1	A,H
OpenVMS Alpha Version 7.2	A,J
OpenVMS Alpha Version 7.2	A,J

DECnet Phase IV	
Operating System	**Save Sets**

DECnet Phase V	
Operating System	**Save Sets**
OpenVMS VAX Version 6.2	A,D
OpenVMS VAX Version 7.1	A,D
OpenVMS VAX Version 7.2	A,K
OpenVMS VAX Version 7.3	A,K
OpenVMS Alpha Version 6.2	A,F
OpenVMS Alpha Version 7.1	A,G
OpenVMS Alpha Version 7.2	A,I
OpenVMS Alpha Version 7.3	A,I

Step 14. Complete the DECdfs installation.

If the installation has proceeded without errors on a node that does not have DECdfs running, VMSINSTAL displays the following text as it completes the installation of DECdfs:

DECnet Phase IV:

```
        The following line should be added to your SYSTARTUP command
        file to automatically start DFS at system startup time:

   "@SYS$STARTUP:DFS$STARTUP.COM"

        Put DFS$STARTUP after the statement that invokes the DECnet
        startup command file (STARTNET.COM). The DECnet software
        must be started before the DECdfs software.

%VMSINSTAL-I-MOVEFILES, Files will now be moved to their target
directories...
```

DECnet Phase V:

```
        The following line should be added to your SYSTARTUP command
        file to automatically start DFS at system startup time:
   "@SYS$STARTUP:DFS$STARTUP.COM"
%VMSINSTAL-I-MOVEFILES, Files will now be moved to their target
directories...
```

Note

Additional text may appear in the preceding display. See Section 2.3.4 for information about this text.

Step 15. Run the Installation Verification Procedure (IVP).

If you answered NO to the question in step 7, proceed to step 15c.

If you previously specified that you want to run the IVP after the installation and no errors occurred, VMSINSTAL starts DECdfs and displays the following message:

```
    The Installation Verification Procedure will now be run.  Please
    review preceding messages and take note of postinstallation actions
    that may be required (such as editing the SYSTARTUP procedure).

Begin the DECdfs IVP? [YES]
```

Enter YES to start the IVP; enter NO to skip the IVP. VMSINSTAL displays a message that is specific for either a client-only (step 15a) or a server (step 15b) installation. The IVP prompts you for an access point name. Section 3.1 describes how to run the IVP and Section B.1 includes an example of the IVP.

Step 15a. Client-Only IVP.

If you are verifying a client-only software installation, the IVP displays the following message and prompts you for an existing access point name (a DECdns name that you can get from the system manager of a DECdfs server node). The IVP uses an access point name to test a DECdfs mount and dismount operation.

Note

The account you use to run the DECdfs client IVP needs read-access rights to the DECdns directory where the access point resides.

```
This system will run as a DECdfs Client. To verify the
installation, an Access Point must exist on a Server Node. You
must have already ADDed this Access Point on one of your Server
Nodes. To do this, use the DFS$CONTROL command ADD ACCESS_POINT on
a Server Node.

* Enter an Access Point name [] ? access_point_name
```

Note

On Alpha systems running DECnet Phase IV, the following message is displayed:

```
    DNS is not available on this system. Therefore, the name of the node
    which serves this access point must also be entered. Note that for
    normal operation, the /NODE qualifier must be supplied on DFS MOUNT
    commands on this system.

 * Enter the node which serves this access point [] :
```

The IVP verifies that the DECdfs client can communicate with the DECdfs server and at least one DECdns server. The IVP displays the following messages:

```
$ DFSCP MOUNT access_point_name DFS$IVP_DISK
%MOUNT-I-MOUNTED, access_point_name mounted on _DFSC1001: (40FORD)
$ DFSCP DISMOUNT DFS$IVP_DISK
%DFS-S-DISMNT_SUCCESS, Dismount was successfully performed
```

Step 15b. Server IVP.

If you are verifying a server software installation, the IVP displays the following message and prompts you for a unique name to use as a temporary access point. This name must follow the DECdns naming conventions in use in your namespace. Ask the DECdns manager about your network naming conventions. The IVP uses this name to add the access point, mount and dismount the access point, and remove the access point. The IVP can then verify whether there is communication among the DECdfs clients and the DECdfs and DECdns servers.

Note

The account you use to run the DECdfs server IVP needs read and write access rights in the DECdns directory where you plan to add the temporary access point.

```
 This system will run as a DECdfs Server.  To verify the
 installation, an Access Point must be ADDed on the Server.
 This procedure creates an Access Point for its own use. You must
 supply a name for this Access Point that does not already exist
 and is consistent with the DECdns naming policy used in your network.

* Enter an Access Point name [] ? access_point_name
```

Note

On Alpha systems running DECnet Phase IV, the following additional message is displayed before the access point prompt:

```
   Be sure to use the namespace prefix (e.g., DEC:.nam.nam).
```

The IVP now executes while displaying the following messages:

```
$ DFSCP ADD ACCESS_POINT access_point_name SYS$SYSDEVICE:[000000]
$ DFSCP MOUNT access_point_name DFS$IVP_DISK
%MOUNT-I-MOUNTED, access_point_name mounted on _DFSC1001:
   .
   .
   .
$ DFSCP DISMOUNT DFS$IVP_DISK
%DFS-S-DISMNT_SUCCESS, Dismount was successfully performed
$ DFSCP REMOVE ACCESS_POINT access_point_name
```

Step 15c. End the IVP.

After the specific client or server IVP in step 15a or step 15b, VMSINSTAL displays a message verifying that either the DECdfs software was installed successfully or the IVP failed. If you receive any error messages during the IVP, see the explanations in the *DECdfs for OpenVMS Management Guide*.

```
*****************************************************************
            DECdfs V2.3-1 IVP Successful
*****************************************************************
```

You can run the IVP at any time to check the DECdfs software. See Section 3.1 for more information and for instructions on how to run the IVP after installing DECdfs.

Step 16. End the installation procedure.

After the installation of the DECdfs software is complete, VMSINSTAL displays the following message:

```
 Installation of DECDFS01 V2.3 completed at hh:mm.
```

The following message then indicates that VMSINSTAL successfully completed installation and verification of the DECdfs software:

```
 VMSINSTAL procedure done at hh:mm
```

If VMSINSTAL reports a failure, review the installation prerequisites. If you removed console media before you installed the software, replace the media in the console drive.

2.3 Additional DECdfs Messages

You may receive additional messages during a DECdfs installation. The following sections describe those DECdfs messages and the conditions that can cause them.

2.3.1 Renaming Files Message

If VMSINSTAL finds existing DECdfs files in any SYS$SPECIFIC: directory, the following message appears after step 8 in Section 2.2:

```
Previous versions of the following files were found in the
SYS$SPECIFIC directories. In order for DECdfs to be installed
properly, the files must be renamed so that they do not
interfere with the installation.  You may continue with the
installation by answering "YES" to the following question;
otherwise, the installation will be aborted.

Also, as part of a cluster, please delete or rename the
following files on ALL members of the cluster.

SYS$SPECIFIC:[SYSEXE]DFSCDRIVER.EXE
SYS$SPECIFIC:[SYSEXE]DFSRRDRIVER.EXE
SYS$SPECIFIC:[SYSEXE]DFS$COM_ACP.EXE
SYS$SPECIFIC:[SYSEXE]DFSSDRIVER.EXE
SYS$SPECIFIC:[SYSEXE]DFS$SERVER_ACP.EXE
SYS$SPECIFIC:[SYSEXE]DFS$COM_LOGGER.EXE
SYS$SPECIFIC:[SYSEXE]DFS$CONTROL.EXE

SYS$SPECIFIC:[SYS$LDR]DFSCDRIVER.EXE
SYS$SPECIFIC:[SYS$LDR]DFSRRDRIVER.EXE
SYS$SPECIFIC:[SYS$LDR]DFSSDRIVER.EXE

SYS$SPECIFIC:[SYSLIB]DFS$MESSAGE.EXE
SYS$SPECIFIC:[SYSLIB]DFS$MNGT_SHR.EXE
SYS$SPECIFIC:[SYSLIB]DFS$MOUNT_SHR.EXE

* Do you want to rename all SYS$SPECIFIC DECdfs files to .OLD [YES]?
```

If you enter YES, VMSINSTAL renames the listed DFS*.EXE files to DFS*.OLD and continues with the installation procedure.

If you enter NO, VMSINSTAL ends the installation and displays the following error message:

```
%VMSINSTAL-E-INSFAIL, The installation of DECdfs V2.3-1 has successfully
failed.
```

If you are installing the software on a cluster, you must delete the listed files or rename them on all cluster members before retrying the DECdfs installation procedure.

2.3.2 Deleting Old Driver Files Message

VMSINSTAL displays the following message after step 8 in Section 2.2 if you chose to purge files and if it finds old DECdfs driver files in the SYS$SYSTEM directory:

```
* Do you want to delete old DECdfs driver images from SYS$SYSTEM [YES]?
```

If you enter YES, VMSINSTAL deletes the obsolete DECdfs driver files. If you enter NO, DECdfs operates successfully but the obsolete DECdfs driver files remain in the SYS$SYSTEM directory.

2.3.3 DECdfs License PAK Message

VMSINSTAL displays the following message after step 9 in Section 2.2 if the DECdfs license PAK is not installed:

```
The startup file will not be executed after installation and
the IVP will not run.  Install the DECdfs license PAK before you
start DECdfs and run the IVP.
```

2.3.4 DECdfs Startup Messages

The following is a list of all the possible messages that can be displayed before step 12 in Section 2.2 if VMSINSTAL cannot start DECdfs or run the IVP:

```
Before starting DECdfs . . .

* You must install the DECdfs license PAK.

* You must increase your GLOBAL PAGES.

* You must increase your GLOBAL SECTIONS.

* You must start DECnet.

* You must execute SYS$STARTUP:DNS$CHANGE_DEF_FILE.COM.

* You must increase the size of your nonpaged pool.
  See the DECdfs for OpenVMS Installation Guide

* You must reboot your system because you already
  have DECdfs drivers loaded.

Since DECdfs is not being started, you cannot
run the Installation Verification Procedure (IVP).
A copy of the DFS$IVP.COM file is in the SYS$TEST
directory, so you can run the IVP after you start DECdfs.
```

The message about executing the command procedure SYS$STARTUP:DNS$CHANGE_DEF_FILE.COM appears if the installation procedure did not find file SYS$SYSTEM:DNS$DEFAULT_FILE.DAT on your node. This file defines the default DECdns namespace for your node. Executing this procedure copies file SYS$SYSTEM:DNS$DEFAULT_FILE.DAT from the DECdns server node (whose name you provide). Then DECdns can start and DECdfs can run.

VMSINSTAL displays the following message after step 12 in Section 2.2 if you need to increase the size of your interrupt stack:

```
You should also increase the size of your Interrupt Stack
before starting the DECdfs server software. See the
DECdfs for OpenVMS Installation Guide
for more information.
```

3
Postinstallation Procedures

This chapter describes the procedures that can be performed after installing DECdfs on a system:

- Running the Installation Verification Procedure (IVP)
- Editing the local system startup command file
- Using DECdfs command files
- Setting additional DECnet and system parameters
- Using DECdfs security (OpenVMS proxy)
- Reinstalling DECdfs
- Changing clients to servers
- Changing servers to clients
- Deleting server software from client-only systems
- Checking OpenVMS Cluster systems after installing DECdfs software

3.1 Running the Installation Verification Procedure

The DECdfs software distribution kit contains a command procedure that verifies the correct installation and operation of DECdfs. The installation procedure places the procedure file, DFS$IVP.COM, in the SYS$TEST directory. The Installation Verification Procedure (IVP) tests whether the major components of DECdfs were installed correctly. Successful completion of the IVP indicates that the DECdfs software operates properly.

You can run the IVP when you install the DECdfs software (as shown in steps 7 and 13 in Section 2.2) or at any time after the software is installed and running. If you want to run the IVP during the installation, VMSINSTAL invokes the IVP after the DECdfs components are moved to their target directories. The procedure displays a message that the IVP is running. You then enter information that VMSINSTAL needs to complete the IVP. To the IVP independent of the installation procedure, supply the same information.

To verify a *client-only* software installation, supply the name of an access point that was previously added on an accessible DECdfs server. The IVP uses this access point name to test a DECdfs mount and dismount operation. The IVP can then verify that the DECdfs client can communicate successfully with the DECdfs server and the Digital Distributed Name Service (DNS) server.

To verify a *server* software installation, supply a unique, temporary access point name (a DECdns name, as discussed with the DECdns manager). The IVP uses this name to add the access point, mount and dismount the access point, and remove the access point from the DECdns namespace. This verifies successful

communication among the DECdfs clients and the DECdfs server and DECdns server.

To run the IVP, you need the account privileges SYSNAM, OPER, NETMBX, and TMPMBX, or the privilege SETPRV (allows all privileges to be set). On a DECdfs client, read access to the DECdns namespace directory that stores an access point name for that client is sufficient to run the IVP. You need read and write access rights in the DECdns namespace directory to run the IVP on a DECdfs server. Your DECdns manager grants these access rights. The IVP fails if you do not have the appropriate access rights.

You need the read and write access rights for your user name on a specific DECnet node for the DECdns namespace directory that you plan to use. You need access to at least one DECdns directory (usually the directory where you plan to add access points) to perform an IVP on a DECdfs server. For example, if the DECdns manager grants the access rights to the SALES.WEST directory, you can add a unique access point name to that directory, such as SALES.WEST.DFSIVPTEST.

To run the IVP independently from the installation procedure, enter the following command:

```
$ @SYS$TEST:DFS$IVP
```

You can delete the DFS$IVP.COM file without adversely affecting any DECdfs operations. However, Compaq recommends that you not delete this file as you may want to run the IVP later.

3.2 Editing the Local System Startup Command File

Edit your system startup command file if you want to start DECdfs automatically.

For VAX/VMS Version 5.5-2 systems running DECnet Phase IV, the system startup command file is SYS$STARTUP:SYSTARTUP_V5.COM.

For other OpenVMS systems, the system startup command file is SYS$STARTUP:SYSTARTUP_VMS.COM.

Edit the file so that it invokes the DECdfs startup command file, SYS$STARTUP:DFS$STARTUP.COM, by adding the following line:

```
@SYS$STARTUP:DFS$STARTUP.COM
```

For DECnet Phase IV systems, insert this line after the statement that invokes the DECnet startup command file:

```
STARTNET.COM.
```

For DECnet Phase V systems, the network startup command file does not appear in the system startup file.

DECnet software must be started before the DECdfs software. If you use a batch job to start the DECnet software, start the DECdfs software later in the same batch stream to ensure that the DECdfs software starts after the DECnet software.

The following sample portion of a system startup file shows the statement that invokes the DECdfs startup command file. This statement executes the DFS$STARTUP command procedure in your SYS$STARTUP directory. The sample applies to both DECnet Phase IV and DECnet Phase V systems.

```
                    .
$ !Command procedure to start up DECnet
$ !
$ IF F$SEARCH("SYS$SYSTEM:NETACP.EXE") .NES. "" -
        THEN @SYS$STARTUP:STARTNET.COM
                    .
                    .
                    .
$ !Command procedure to start up DECdfs
$ !
$ IF F$SEARCH("SYS$STARTUP:DFS$STARTUP.COM") .NES. "" -
        THEN @SYS$STARTUP:DFS$STARTUP.COM
                    .
                    .
                    .
```

3.3 Using DECdfs Command Files

The DECdfs startup command procedure (DFS$STARTUP) executes two DECdfs command files: DFS$CONFIG.COM and DFS$SYSTARTUP.COM. Modify these files to suit your network environment.

When DECdfs starts, the DFS$STARTUP.COM file invokes SYS$MANAGER:DFS$CONFIG.COM. This configuration file sets configuration parameters. To change the static DECdfs parameters, you must change the values for the parameters in the DFS$CONFIG.COM file. A related file named DFS$CONFIG.TEMPLATE contains the default settings for each parameter.

The DFS$STARTUP.COM file also invokes SYS$STARTUP:DFS$SYSTARTUP.COM, which adds access points to the DECdfs server and mounts DECdfs client devices that are shared throughout the system.

If you have files DFS$CONFIG.COM or DFS$SYSTARTUP.COM from earlier versions (prior to Version 2.3-1) of DECdfs, you may wish to process them as follows, because they can contain obsolete commands:

1. Rename existing versions of DFS$CONFIG.COM and DFS$SYSTARTUP.COM files to DFS$CONFIG.OLD and DFS$SYSTARTUP.OLD, respectively.
2. Create new DFS$*.COM files by copying the DECdfs Version 2.3-1 DFS$CONFIG.TEMPLATE file to DFS$CONFIG.COM and the DFS$SYSTARTUP.TEMPLATE file to DFS$SYSTARTUP.COM in the SYS$MANAGER directory.
3. Copy any changed configuration and access point information from DFS$CONFIG.OLD and DFS$SYSTARTUP.OLD files into the new command files in the SYS$MANAGER directory.

   Do not copy any values for the following obsolete parameters from old versions of DFS$CONFIG.COM:

   DFS$PQL_BYTLM
   DFS$PQL_FILLM
   SET COMMUNICATION/CONNECTIONS_MAXIMUM
   SET COMMUNICATION/SESSIONS_MAXIMUM
   SET SERVER/FILES_MAXIMUM
   SET SERVER/PERSONA_CACHE=(BLOCKS_THRESHOLD=*xxx*)

If you decide to use older DFS$*.COM files, Compaq recommends that you move them to the SYS$MANAGER directory if possible. Then edit the DFS$CONFIG.COM file to remove the following lines:

```
DEFINE/SYSTEM DFS$PQL_FILLM "nn"
DEFINE/SYSTEM DFS$PQL_BYTLM "nn"
SET COMMUNICATION/CONNECTIONS_MAXIMUM=nn
SET COMMUNICATION/SESSIONS_MAXIMUM=nn
SET SERVER/FILES_MAXIMUM=nn
SET SERVER/PERSONA_CACHE=(BLOCKS_THRESHOLD=nn)
```

DECnet Phase V:

On DECnet Phase V systems, do not copy any of the following parameters from old versions of DFS$SYSTARTUP.COM:

```
SET/DEFINE EXECUTOR ALIAS NODE
SET OBJECT DFS$COM_ACP ALIAS OUTGOING ENABLED
```

Edit the DFS$SYSTARTUP.COM file to remove the following NCP commands if they are present in the file:

```
SET/DEFINE EXECUTOR ALIAS NODE cluster–alias–name
SET OBJECT DFS$COM_ACP ALIAS OUTGOING ENABLED
```

Note

Failure to remove the obsolete commands from older DFS$CONFIG.COM and DFS$SYSTARTUP.COM files as recommended in this section does not affect DECdfs operation. However, any values entered for the preceding list of obsolete commands are meaningless and will not be displayed in response to the SHOW COMMUNICATION or SHOW SERVER commands.

If your system is in a cluster, see Section 1.10.3 before you edit any startup command files.

For more information, see the *DECdfs for OpenVMS Management Guide*.

3.4 Setting Additional DECnet and System Parameters

The DECdfs for OpenVMS software was designed to provide excellent performance using the default DECnet parameters and default RMS parameters. In some cases, however, you might enhance performance by setting several parameters. See Appendix C in the *DECdfs for OpenVMS Management Guide* for information about setting network and RMS parameters.

3.5 Creating OpenVMS Proxy Accounts

You must create OpenVMS proxy accounts, a DFS$DEFAULT account, or both, on DECdfs server systems to ensure that users on client systems can access a DECdfs server.

To create proxy accounts, run AUTHORIZE on the server system and use the ADD/PROXY command to equate an end user on a DECdfs client system to a local user with appropriate rights and privileges.

The following example assumes that the client end user already has an account (WPINE) on the server and an account on node WRKSTN:

```
$ SET DEFAULT SYS$SYSTEM
$ RUN AUTHORIZE
UAF> ADD/PROXY WRKSTN::WPINE WPINE/DEFAULT
UAF> EXIT
$
```

Note that OpenVMS VAX Version 6.2 and later systems running DECnet Phase V provide long name support in the proxy database. On these systems, refer to the following example:

```
$ SET DEFAULT SYS$SYSTEM
$ RUN AUTHORIZE
UAF> ADD/PROXY FOO:.NET.WRKSTN::WPINE WPINE/DEFAULT
UAF> EXIT
$
```

To provide access to your DECdfs server to users on client systems without explicit proxy, create a default DECdfs account (DFS$DEFAULT). To make this account available for use by DECdfs only (and not for logging in), create DFS$DEFAULT as a restricted account following the example in the *OpenVMS System Manager's Manual*. You can use the DFS$DEFAULT account as an example of how to create proxy accounts that can only be used for DECdfs access. Make sure you choose a user identification code (UIC) for the DFS$DEFAULT account that does not match the UIC of an existing user.

Note

When creating the DFS$DEFAULT account or a proxy account on a server, note the authorized privileges as well as the default privileges of the DFS$DEFAULT account and the proxy accounts. The authorized privileges can become effective for users, depending on the current privileges on the DECdfs client when the file was accessed.

For more information about the DFS$DEFAULT account, see the *DECdfs for OpenVMS Management Guide*. For detailed information about creating proxy accounts, see the *OpenVMS Guide to System Security* and the *DECnet-Plus for OpenVMS Network Management*.

Note

Make sure you set up the proxy accounts so that DECdfs users have the necessary rights and privileges they need to gain access to files. If there is a DFS$DEFAULT account (and its DISUSER and CAPTIVE flags are not set), all the users who do not have explicit proxy in the proxy database file (NETPROXY.DAT on systems running DECnet Phase IV and NET$PROXY.DAT for DECnet Phase V) have only the rights and privileges of the DFS$DEFAULT account.

3.6 Reinstalling DECdfs

Although it is not usually necessary, you can reinstall the DECdfs software on your system at any time. Note that you must reinstall DECdfs if you change versions of OpenVMS or DECnet software. After you reinstall the DECdfs software, you need to reboot the system to use the DECdfs software if DECdfs drivers were previously loaded.

When you reinstall DECdfs software, the installation procedure copies new DFS$CONFIG.TEMPLATE and DFS$SYSTARTUP.TEMPLATE files to the SYS$MANAGER directory. These files contain default DECdfs settings.

3.7 Changing DECdfs Configurations

With DECdfs Version 2.3-1, there are now two types of license: a full license called DFS, and a client-only license called DFS-CLIENT. To change a DECdfs client-only system to a server system may require loading and registering the full DFS license PAK, if that PAK is not already loaded.

To change a DECdfs system from client-only to server (or server to client-only), edit the following lines in the SYS$STARTUP:DFS$STARTUP.COM file:

```
$! Installation specific parameters:
$!
$ START_CLIENT_FLAG = "TRUE"
$ START_SERVER_FLAG = "FALSE"
$!
$!
$! Title = DFS$STARTUP.COM
```

The START_CLIENT_FLAG = "TRUE" flag indicates that the DECdfs client software can be started on this system. When you convert from a client-only system to a server system, you must change the value of the flag START_SERVER_FLAG from "FALSE" to "TRUE." When you convert from a server system to a client-only system, you must change the value of the flag START_SERVER_FLAG from "TRUE" to "FALSE."

Note

The two flags, START_CLIENT_FLAG and START_SERVER_FLAG, are the only two lines that you should edit in the DFS$STARTUP.COM file.

3.8 Deleting Server Software from Client-Only Systems

The DECdfs installation procedure always copies all of the DECdfs software to your disk, whether you are installing server software or client-only software. If you do not want to install the server software, VMSINSTAL changes SYS$STARTUP:DFS$STARTUP.COM to prevent it from starting the server. To free disk space, delete the following server software from client-only systems:

- DFS$SERVER_ACP.EXE (in the SYS$SYSTEM directory)
- DFSSDRIVER.EXE (in the SYS$LOADABLE_IMAGES directory)

You can also save these files so that a client-only system can regain its server capability in the future. See Section 3.7 if you want to convert a client-only system to a server system.

3.9 Checking OpenVMS Cluster Systems After Installing DECdfs

If you are installing DECdfs on a system in a cluster that uses a system-specific system disk, you must install DECdfs on each system disk on the cluster before you can run DECdfs in the cluster. See Section 1.10.3 for more information about OpenVMS Cluster systems.

If you install DECdfs on an OpenVMS Cluster system that uses a common system disk, you do not need to install DECdfs on any other cluster members. However, you must install the appropriate licenses before running the IVP or running DECdfs in your cluster.

3.10 Error Handling

When you encounter a problem while installing or using the DECdfs for OpenVMS, running the installation and verification procedure (IVP), or installing the DECdfs or DECnet license Product Authorization Keys (PAKs), an error message appears on the screen. Appendix A in the *DECdfs for OpenVMS Management Guide* lists the DECdfs error messages.

When you encounter problems while using the license PAK or the License Management Utility (LMF), see the *OpenVMS License Management Utility Manual* for a list of error messages. Determine which software issued the error message by its standard format (%facility-l-ident, text). For example, all DECdfs error messages begin with the *%DFS*-facility prefix.

For additional problem-solving information, see Appendix B in the *DECdfs for OpenVMS Management Guide*.

3.11 Problem Reporting

If you encounter an error while using DECdfs and you cannot determine the cause, or if you believe that an error is caused by a problem in the DECdfs software, report the problem to Compaq Computer Corporation according to the terms of your product support contract.

You can report a problem if an operation gives unexpected results or when you get undocumented or unknown failures using DECdfs commands. Gather all information possible about a problem and submit it with your report.

Note

Many problem reports do not contain enough information to duplicate or identify the problem. Complete and concise information will help Compaq provide accurate service and a timely response to software problems.

When you prepare to report a problem, please use the following guidelines:

1. To ensure a timely response, describe one problem only in each report.
2. Describe as accurately as possible the state of the system (such as specifying whether the system failed) and the situation when the problem occurred. In this description, include the version numbers of OpenVMS and DECdfs software for both the client and the server. Indicate the version number for each client and server in a cluster. To determine these numbers, enter the DFS$CONTROL command SHOW VERSION. If you cannot gain access to the DFS$CONTROL program, enter the following command at the DCL prompt to determine the DECdfs version number for clients:

```
$ ANALYZE/IMAGE SYS$LOADABLE_IMAGES:DFSCDRIVER.EXE
```

To determine the DECdfs version number for servers, enter the following command:

```
$ ANALYZE/IMAGE SYS$LOADABLE_IMAGES:DFSSDRIVER.EXE
```

The version numbers appear in the Image Identification Information section, in the same line as the text "Image File Identification."

3. Pinpoint or narrow down the problem, if possible. Use examples.
4. Make suggestions that can help to isolate your problem.
5. Remember to include listings of any command files and other relevant data files.
6. If possible, provide a listing of the user programs that were running when the problem occurred.
7. Send the following files from the SYS$MANAGER directory if possible:
   - DFS$CONFIG.COM
   - DFS$ERROR.LOG
   - DFS$SYSTARTUP.COM
8. Include source files or data files on machine-readable media (floppy diskette or magnetic tape) if possible. All media will be returned to you when your report is answered.
9. If you have questions, state them as simply as possible and include all pertinent information so that a clear and correct answer can be provided.
10. If you report a severe error (the system hangs or fails), include a description of the events that led to the problem, any messages received at the console, or other specific information.
11. When a system fails, include a copy of the crash dump file (SYS$SYSTEM:SYSDUMP.DMP).

A

Files Affected by DECdfs Installation

This appendix lists the files produced or changed after installing DECdfs on an OpenVMS system.

SYS$SYSTEM Files	Function
DECDFSDEF.STB	Symbol table file
DFS$CONTROL.EXE	DECdfs control program
DFS$COM_ACP.EXE	Ancillary control process for the DECdfs communication driver
DFS$SERVER_ACP.EXE	DECdfs server ancillary control process
DFS$COM_LOGGER.EXE	DECdfs maintenance file for logging communication transactions

SYS$HELP Files	Function
DECDFS023.RELEASE_NOTES	DECdfs release notes
DFS$HELP.HLB	Help library for DECdfs control program
HELPLIB.HLB	DCL DECdfs help text is modified by DECdfs installation
SYS$HELP:DFS.MSGHLP$DATA	DECdfs Help Message database (on OpenVMS Version 6.2 and later)

SYS$LIBRARY Files	Function
DFS$MOUNT_SHR.EXE	DECdfs mount library
DFS$MNGT_SHR.EXE	DECdfs management system services

SYS$LOADABLE_IMAGES Files	Function
DFSCDRIVER.EXE	DECdfs client device driver
DFSRRDRIVER.EXE	DECdfs communication driver
DFSSDRIVER.EXE	DECdfs server driver

SYS$STARTUP Files	Function
DFS$STARTUP.COM	DECdfs startup command file

Files Affected by DECdfs Installation

SYS$MANAGER Files	Function
DFS$CONFIG.COM	DECdfs command file to set configuration parameters
DFS$CONFIG.TEMPLATE	DECdfs command file template with default configuration parameters
DFS$SYSTARTUP.COM	DECdfs setup command file to mount and add access points
DFS$SYSTARTUP.TEMPLATE	DECdfs setup command file template with default settings

SYS$MESSAGE File	Function
DFS$MESSAGE.EXE	DECdfs error message file

SYS$TEST File	Function
DFS$IVP.COM	Installation Verification Procedure command file

B

Sample Installations for OpenVMS Systems

This appendix shows sample installations of DECdfs client and server software on the following systems:

- Client-only installation on OpenVMS VAX Version 5.5-2 with DECnet-VAX
- Server installation on OpenVMS Alpha Version 7.1-1H2 with DECnet-Plus

B.1 Client-Only Installation on OpenVMS VAX Version 5.5-2 with DECnet-VAX

The following sample dialogue shows a typical installation of DECdfs client software on OpenVMS VAX Version 5.5-2 with DECnet-VAX.

```
$ @sys$update:vmsinstal

        VAX/VMS Software Product Installation Procedure V5.5-2

It is 27-OCT-1998 at 11:23.

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

* Are you satisfied with the backup of your system disk [YES]?
* Where will the distribution volumes be mounted: dua0:[kit]

Enter the products to be processed from the first distribution volume set.
* Products: DECDFS01023
* Enter installation options you wish to use (none):

The following products will be processed:

  DECDFS01 V2.3

        Beginning installation of DECDFS01 V2.3 at 11:24

%VMSINSTAL-I-RESTORE, Restoring product save set A ...
%VMSINSTAL-I-RELMOVED, Product's release notes have been moved to SYS$HELP.
* Do you want to run the IVP after the installation [YES]?
* Do you want to purge files replaced by this installation [YES]?

 Current configuration:    OpenVMS VAX V5.5-2 - DECnet Phase IV

* Install the DFS files that support this configuration? [YES]?
* Do you want to install the DECDFS01 V2.3 SERVER software on this node [YES]?
 no

        Product:      DFS-CLIENT
        Producer:     DEC
        Version:      2.0
        Release Date: 20-JUN-1994

* Does this product have an authorization key registered and loaded? yes

         Installation will be complete in approximately 1 - 5 minutes
         depending upon your configuration.
```

```
        There are no more questions unless you chose to run the IVP.
        Installing DECdfs software . . .

%VMSINSTAL-I-RESTORE, Restoring product save set B ...

       The following line should be added to your SYSTARTUP command
       file to automatically start DFS at system startup time:
               "@SYS$STARTUP:DFS$STARTUP.COM"

       Put DFS$STARTUP after the statement that invokes the DECnet
       start-up command file (STARTNET.COM). The DECnet software
       must be started before the DECdfs software.


       Before starting DECdfs . . .

       * You must execute SYS$STARTUP:DNS$CHANGE_DEF_FILE.COM.


       Since DECdfs is not being started, we cannot
       run the Installation Verification Procedure (IVP).
       A copy of DFS$IVP.COM is in the SYS$TEST directory,
       so you can run the IVP after you start DECdfs.


%VMSINSTAL-I-MOVEFILES, Files will now be moved to their target directories...

       Installation of DECDFS01 V2.3 completed at 11:28

Enter the products to be processed from the next distribution volume set.
* Products:  Exit

       VMSINSTAL procedure done at 11:28


$ @SYS$STARTUP:DNS$CHANGE_DEF_FILE.COM
Name of DNS server node? MURZIM
%COPY-S-COPIED, MURZIM::SYS$SYSROOT:[SYSLIB]DNS$NS_DEF_FILE.DAT;3 copied to SYS$
COMMON:[SYSEXE]DNS$DEFAULT_FILE.DAT;1 (1 block)
%SYSTEM-W-NONEXPR, nonexistent process
%INSTALL-W-FAIL, failed to REMOVE entry for DISK$VAXVMSV055:<SYS0.SYSCOMMON.SYSL
IB>DNS$CLIENT.EXE
-INSTALL-E-NOKFEFND, Known File Entry not found
%INSTALL-W-FAIL, failed to REMOVE entry for DISK$VAXVMSV055:<SYS0.SYSCOMMON.SYSL
IB>DNS$RTL.EXE
-INSTALL-E-NOKFEFND, Known File Entry not found
%RUN-S-PROC_ID, identification of created process is 00000052
$
$
$ @SYS$STARTUP:DFS$STARTUP
% DECdfs starting up...
% DECdfs startup completed.
$
$
$ @SYS$TEST:DFS$IVP


   ************************************************************************
   ***                                                                  ***
   ***                            DECdfs V2.3-1                          ***
   ***                                                                  ***
   ***                     Distributed  File  Service                   ***
   ***                                                                  ***
   ***                  Installation Verification Procedure             ***
   ***                                                                  ***
   ************************************************************************

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```

B.1 Client-Only Installation on OpenVMS VAX Version 5.5-2 with DECnet-VAX

```
   Compaq registered in U.S. Patent and Trademark Office. Confidential computer
   software. Valid License from Compaq required for possession, use or copying.
   Consistent with FAR 12.211 and 12.212. Commerical Computer Software,
   Computer Software Documentation, and Technical Data for Commercial Items are
   licensed to the U.S. Government under vendor's standard commercial license.

   ****************************************************************************

  This system will run as a DECdfs Client. To verify the installation,
  you must supply the name of an access point now being served by a
  DFS server node.  This node and username should have proxy access
  to the file service named by the access point.

 * Enter an Access Point name [] ? DFSTEST:.MURZIM_SYS

 * Enter the node which serves this access point [] : MURZIM
$ DFSCP MOUNT DFSTEST:.MURZIM_SYS DFS$IVP_DISK
%MOUNT-I-MOUNTED, DFSTEST:.MURZIM_SYS mounted on _DFSC1001:

    If available, enter the specification for an accessible directory within
    the filesystem identified by this access point, e.g. [JONES].  A read
    access on the directory will be tested.  If a valid proxy does not
    exist on the server for this node and user, a protection violation will
    be reported, but that will not terminate the IVP. If you enter a null
    specification, the read access will not be attempted.

 * Enter directory specification: [000000]

Directory DFS$IVP_DISK:[000000]

000000.DIR;1        BACKUP.SYS;1        BADBLK.SYS;1        BADLOG.SYS;1
BITMAP.SYS;1        CONTIN.SYS;1        CORIMG.SYS;1        DFSTEST.DIR;1
DNS$SERVER.DIR;1    INDEXF.SYS;1        SECURITY.SYS;1      SYS0.DIR;1
SYSEXE.DIR;1        UCX$FTP.DIR;1       UCX$REXEC.DIR;1     UCX$RSH.DIR;1
USER.DIR;1          VMS$COMMON.DIR;1    VOLSET.SYS;1

Total of 31 files.
% Directory access was successful.
$ DFSCP DISMOUNT DFS$IVP_DISK
%DFS-S-DISMNT_SUCCESS, Dismount was successfully performed

******************************************************************************
                            DECdfs V2.3-1 IVP Successful
******************************************************************************

$
```

B.2 Server Installation on OpenVMS Alpha Version 7.1-1H2 with DECnet-Plus

The following sample dialogue shows a typical installation of DECdfs server software on OpenVMS Alpha Version 7.1-1H2 with DECnet-Plus.

```
$ @sys$update:vmsinstal.com

        OpenVMS AXP Software Product Installation Procedure V7.1-1H2

It is 29-OCT-1998 at 08:47.

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

* Are you satisfied with the backup of your system disk [YES]?
* Where will the distribution volumes be mounted: dka0:[kit]

Enter the products to be processed from the first distribution volume set.
* Products: DECDFS01023
* Enter installation options you wish to use (none):

The following products will be processed:

  DECDFS01 V2.3

        Beginning installation of DECDFS01 V2.3 at 08:47

%VMSINSTAL-I-RESTORE, Restoring product save set A ...
%VMSINSTAL-I-RELMOVED, Product's release notes have been moved to SYS$HELP.
* Do you want to run the IVP after the installation [YES]?
* Do you want to purge files replaced by this installation [YES]?

 Current configuration:    OpenVMS Alpha V7.1-1H2 - DECnet-Plus

* Install the DFS files that support this configuration? [YES]?
* Install DFS Help Message file [YES]?

    Add SYS$HELP:DFS.MSGHLP$DATA to the searchlist defined by
    MSGHLP$LIBRARY in order to include the DFS messages in your
    HELP/MESSAGE search. Please refer to the OpenVMS SYSTEM
    MANAGER'S MANUAL: ESSENTIALS for more information.

* Do you want to install the DECDFS01 V2.3 SERVER software on this node [YES]?

        Product:      DFS
        Producer:     DEC
        Version:      2.0
        Release Date: 20-JUN-1994

* Does this product have an authorization key registered and loaded? YES

         Installation will be complete in approximately 1 - 5 minutes
         depending upon your configuration.

         There are no more questions unless you chose to run the IVP.
         Installing DECdfs software . . .

%VMSINSTAL-I-RESTORE, Restoring product save set G ...

        The following line should be added to your SYSTARTUP command
        file to automatically start DFS at system startup time:
                 "@SYS$STARTUP:DFS$STARTUP.COM"
%VMSINSTAL-I-MOVEFILES, Files will now be moved to their target directories...
% DECdfs starting up...

Node 0 Session Control Application DFS$COM_ACP
at 1998-10-29-08:49:09.654-07:00I9.254

Characteristics

    Node Synonym                      = True
```

```
% DECdfs startup completed.

    The Installation Verification Procedure will now be run.  Please
    review preceeding messages and take note of post-installation actions
    that may be required (such as editing the SYSTARTUP procedure).

Begin the DECdfs IVP? [YES]

   ****************************************************************************
   ***                                                                      ***
   ***                            DECdfs V2.3-1                              ***
   ***                                                                      ***
   ***                      Distributed  File  Service                      ***
   ***                                                                      ***
   ***                   Installation Verification Procedure                ***
   ***                                                                      ***
   ****************************************************************************

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   with FAR 12.211 and 12.212. Commercial Computer Software, Computer Software
   Documentation, and Technical Commercial Items are licensed to the U.S.
   Government under vendor's standard commercial license.

   ****************************************************************************


   This system will run as a DECdfs Server. To verify the
   installation, an Access Point must be ADDed on the Server.
   This procedure creates an Access Point for its own use. You must
   supply a name for this Access Point that does not already exist
   and is consistent with the DECdns naming policy used in your network.

 * Enter an Access Point name [] ? DFSTEST:.IVP_TEST

$ DFSCP ADD ACCESS_POINT DFSTEST:.IVP_TEST SYS$SYSDEVICE:[000000]
$ DFSCP MOUNT DFSTEST:.IVP_TEST DFS$IVP_DISK
%MOUNT-I-MOUNTED, DFSTEST:.IVP_TEST mounted on _DFSC1001:

Directory DFS$IVP_DISK:[000000]

000000.DIR;1        BACKUP.SYS;1        BADBLK.SYS;1        BADLOG.SYS;1
BITMAP.SYS;1        CONTIN.SYS;1        CORIMG.SYS;1        DFSTEST.DIR;1
INDEXF.SYS;1        KIT.DIR;1           SECURITY.SYS;1      SYS0.DIR;1
VMS$COMMON.DIR;1    VOLSET.SYS;1

Total of 16 files.
% Directory access was successful.
$ DFSCP DISMOUNT DFS$IVP_DISK
%DFS-S-DISMNT_SUCCESS, Dismount was successfully performed
$ DFSCP REMOVE ACCESS_POINT DFSTEST:.IVP_TEST

*******************************************************************************
                            DECdfs V2.3-1 IVP Successful
*******************************************************************************

        Installation of DECDFS01 V2.3 completed at 08:49

    Adding history entry in VMI$ROOT:[SYSUPD]VMSINSTAL.HISTORY

    Creating installation data file: VMI$ROOT:[SYSUPD]DECDFS01023.VMI_DATA

Enter the products to be processed from the next distribution volume set.
* Products:  Exit

        VMSINSTAL procedure done at 08:50
```

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