# VAX Distributed File Service Installation Guide

Order Number: AA-KM47B-TE

**November 1988**

This manual describes how to install the VAX Distributed File Service software on a VAX/VMS or a MicroVMS system. It also explains how to access the on-line release notes before or after installing the product.

| | |
|---|---|
| **Revision/Update Information:** | This is a new manual. |
| **Operating System and Version:** | VAX/VMS V4.6 or later<br>MicroVMS V4.6 or later |
| **Software Version:** | VAX Distributed File Service V1.1 |

**Digital Equipment Corporation**

**November 1988**

The information in this document is subject to change without notice and should not be construed as a commitment by Digital Equipment Corporation. Digital Equipment Corporation assumes no responsibility for any errors that may appear in this document.

The software described in this document is furnished under a license and may be used or copied only in accordance with the terms of such license.

No responsibility is assumed for the use or reliability of software on equipment that is not supplied by Digital Equipment Corporation or its affiliated companies.

Copyright ©1988 by Digital Equipment Corporation

All Rights Reserved.
Printed in U.S.A.

The postpaid READER'S COMMENTS form on the last page of this document requests the user's critical evaluation to assist in preparing future documentation.

The following are trademarks of Digital Equipment Corporation:

| | | |
|---|---|---|
| DEC | DIBOL | UNIBUS |
| DEC/CMS | EduSystem | VAX |
| DEC/MMS | IAS | VAXcluster |
| DECnet | MASSBUS | VMS |
| DECsystem–10 | PDP | VT |
| DECSYSTEM–20 | PDT | |
| DECUS | RSTS | |
| DECwriter | RSX | digital™ |

This document was prepared using VAX DOCUMENT, Version 1.1

# Contents


PREFACE vii

CHAPTER 1 INSTALLATION PREREQUISITES 1–1

1.1 CONTENTS OF THE KIT 1–1

1.2 REQUIRED HARDWARE 1–2

1.3 REQUIRED SOFTWARE 1–2

1.4 PRODUCT AUTHORIZATION KEY (PAK) 1–2

1.5 REQUIRED DISK SPACE 1–3

1.6 SYSGEN PARAMETERS 1–3
1.6.1 Increasing the Nonpaged Pool Size 1–4
1.6.2 Increasing the System Interrupt Stack Size 1–5
1.6.3 Increasing Global Pages and Global Sections 1–5
1.6.4 Increasing the SCS Buffer Count 1–6
1.6.5 Increasing the Channel Count 1–7

1.7 ACCOUNT AND QUOTA REQUIREMENTS 1–8

1.8 INSTALLATION TIME 1–8

1.9 CONFIGURATION PLANNING 1–9
1.9.1 Configuration Questions 1–9
1.9.2 VAX Distributed Name Service (DNS) 1–10
1.9.3 Installing DFS on VAXclusters 1–10

1.10 REVIEWING THE DFS INSTALLATION PROCEDURE 1–12

1.11 MAINTENANCE UPDATES 1–12

CHAPTER 2 INSTALLATION AND VERIFICATION 2–1

2.1 PRELIMINARY INFORMATION 2–1

2.2 INSTALLATION PROCEDURE 2–2

2.3 ADDITIONAL MESSAGES 2–11
2.3.1 DNS Messages 2–11
2.3.2 DFS Messages 2–11
2.3.2.1 Purge Files Message • 2–12
2.3.2.2 DFS License PAK Message • 2–12
2.3.2.3 DFS Patch Messages • 2–13
2.3.2.4 DFS Start-Up Messages • 2–13

CHAPTER 3 POSTINSTALLATION PROCEDURES 3–1

3.1 RUNNING THE INSTALLATION VERIFICATION PROCEDURE 3–1

3.2 EDITING THE LOCAL SYSTEM START-UP COMMAND FILE 3–3

3.3 USING DFS COMMAND FILES 3–4

3.4 INCREASING NCP PARAMETERS 3–4
3.4.1 Increasing Line Receive Buffers 3–4
3.4.2 Increasing the DECnet Pipeline Quota 3–5

3.5 USING DFS SECURITY (VMS PROXY) 3–6

3.6 REINSTALLING DFS 3–8

3.7 CHANGING DFS CONFIGURATIONS 3–8

3.8 DELETING SERVER SOFTWARE FROM CLIENT-ONLY NODES 3–9

3.9 USING THE CHECKSUM QUALIFIER 3–9

3.10 CHECKING VAXCLUSTERS AFTER INSTALLING 3–10

CHAPTER 4 ERROR HANDLING AND PROBLEM REPORTING 4–1

4.1 ERROR HANDLING 4–1

4.2 PROBLEM REPORTING 4–1
4.2.1 Software Performance Reports 4–2
4.2.2 Documentation 4–3

APPENDIX A FILES AFFECTED BY DFS INSTALLATION A–1

APPENDIX B SAMPLE INSTALLATION FOR VMS V5.0 SYSTEMS B–1

B.1 CLIENT-ONLY INSTALLATION B–1

B.2 SERVER INSTALLATION B–4

APPENDIX C SAMPLE INSTALLATION FOR VMS V4.6 AND V4.7 SYSTEMS C–1

C.1 CLIENT-ONLY INSTALLATION C–1

C.2 SERVER INSTALLATION C–4

# Preface

The VAX Distributed File Service (DFS) is a VMS layered product that enables users on a node to access remote VMS files on your network. This manual describes the procedure for installing DFS software on a DECnet-VAX node in a network. For conceptual information, refer to the *VAX Distributed File Service Management Guide*.

## Intended Audience

The *VAX Distributed File Service Installation Guide* is intended for DECnet-VAX network or system managers who are responsible for installing and configuring DFS on a network.

## Structure of This Document

This manual contains the following chapters and appendixes:

Chapter 1 lists prerequisites for installation.

Chapter 2 provides the information you need to install DFS. It describes the installation procedure, including appropriate responses to the VMSINSTAL prompts, informational messages, possible error messages, and suggested recovery procedures. It also describes how you can access the DFS release notes before performing the installation.

Chapter 3 discusses the Installation Verification Procedure (IVP) and the procedures you need to perform after installation.

Chapter 4 describes how to handle errors and report problems with software and documentation.

Appendix A lists files created or modified by the DFS installation.

Appendix B displays client and server installation scripts for VMS V5.0 systems.

Appendix C displays client and server installation scripts for VMS V4.6 and V4.7 systems.

## Associated Documents

The VAX Distributed File Service documentation set consists of this installation guide and the *VAX Distributed File Service Management Guide*. You can find additional information in the following documents:

- *Guide to VAX/VMS Software Installation*
- *VAX/VMS System Manager's Reference Manual*
- *VAX/VMS Networking Manual*
- *Guide to VAX/VMS System Security*
- *VMS License Management Utility Manual*
- *VAX/VMS System Services Reference Manual*

## Conventions Used in This Document

The following graphic conventions are used in this document.

| | |
|---|---|
| *Special type* | Special type in examples indicates system output or user input. |
| Red type | Red type in examples indicates user input. |
| 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 first three characters or the minimum unique abbreviation. |
| *lowercase italics* | Lowercase italics in command syntax or examples indicate variables for which either the user or the system supplies a value. |

| | |
|---|---|
| [ ] | Square brackets in command lines indicate that the enclosed values are optional. (Do not type the brackets.) |
| RET | Press the RETURN key. |
| CTRL/*x* | Hold down the CONTROL key and then press the key specified by *x*. |

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

All numbers are decimal unless otherwise noted.

Chapter 1

# Installation Prerequisites

This chapter describes the preparation necessary for installing the VAX Distributed File Service (DFS) software on a system. It contains information about:

- Contents of the kit
- Hardware and software requirements
- License Product Authorization Key (PAK)
- Disk space requirements
- System Generation (SYSGEN) parameters
- Account and quota requirements
- Installation time
- Configuration planning
- Review of installation procedure
- Maintenance updates

## 1.1 Contents of the Kit

DFS software is available on RX33 diskette, TK50 tape cartridge, or 1600-bpi magnetic tape. Contact your Digital representative if any components of the software distribution kit are missing.

The DFS documentation set consists of this installation guide and the *VAX Distributed File Service Management Guide*. Keep the installation guide with your distribution kit for future reference. You can use this guide to install maintenance updates or reinstall the DFS software.

The DFS release notes are available on-line. Read Chapter 2 for instructions on how to access the on-line release notes. After you install DFS, the release notes file (DFS011.RELEASE_NOTES) will be located in the SYS$HELP directory.

## 1.2 Required Hardware

The Software Support Addendum (SSA) lists the supported processors for DFS V1.1 software. Other than the hardware required to support the DECnet network, no special hardware is required.

## 1.3 Required Software

The Software Support Addendum (SSA) lists the prerequisite software for DFS V1.1.

## 1.4 Product Authorization Key (PAK)

On systems running VMS V5.0, you must register and install the DECnet and DFS license Product Authorization Keys (PAKs) before you can run the DFS software and the Installation Verification Procedure (IVP).

You register and load the license PAK using the License Management Facility (LMF) utility. You must register and load a product license in the License database for any system running VMS V5.*x*. You use the LMF utility to register and load the license PAK in the License database.

You can register and load the DFS license PAK in the LMF database before or after installing the DFS software on systems running VMS V5.0.

The following occurs when you register the license PAK before you install DFS:

- DFS starts automatically at the end of the installation procedure.
- The IVP runs automatically (if selected) at the end of the installation procedure.

The following occurs when you register the license PAK after you install DFS:

- DFS does not start automatically at the end of the installation procedure.
- The IVP does not run automatically (if selected) at the end of the installation procedure.

Refer to the *VMS License Management Utility Manual* for more information about registering and loading licenses on VMS layered products.

## 1.5 Required Disk Space

To install DFS, there must be at least 1800 blocks of free disk space (peak block count) on the system disk (SYS$SYSDEVICE:). After DFS is installed, the DFS files require only 1600 blocks of free disk space (net block count). To display the number of free blocks, enter the following DCL command:

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

The number of free blocks is displayed on your screen under the Free Blocks heading.

```
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 at least 1800 free blocks, you must purge files, remove unused files (log files, for example), or remove some applications or user files until the system contains at least 1800 free blocks. You can then install the DFS software.

## 1.6 SYSGEN Parameters

The following sections describe how to check and modify the System Generation (SYSGEN) parameters that are needed to run DFS. After modifying any SYSGEN parameters, run the Autogen utility (AUTOGEN) 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 *VAX/VMS System Manager's Reference Manual.*

The Autogen utility automatically sets:

- Values of system parameters
- Sizes of the primary page, swap, and dump files
- Contents of the default installed image list

The following SYSGEN parameters may need to be modified to run DFS:

- Nonpaged pool size
- System interrupt stack size
- Global pages and global sections
- SCS buffer count
- Channel count

### 1.6.1 Increasing the Nonpaged Pool Size

To use DFS, 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, Digital recommends an additional 250,000 bytes of nonpaged pool. The additional bytes are usually sufficient for the normal use of approximately 10 to 20 DFS 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 this comment and statement at the end of the file:

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

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

```
! Add some nonpaged pool for DFS 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 *VAX Distributed File Service Management Guide*).

### 1.6.2 Increasing the System Interrupt Stack Size

To use DFS, increase the size of the system interrupt stack two pages more than your current use. To increase the size of the interrupt stack, edit the MODPARAMS.DAT file in the SYS$SYSTEM directory and 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 SYS$SYSTEM:MODPARAMS.DAT file:

```
! Increase the size of the interrupt stack for the DFS server.
ADD_INTSTKPAGES=2
```

By increasing the size of the system interrupt stack, you can prevent the DFS 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.

### 1.6.3 Increasing Global Pages and Global Sections

To use DFS, 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 DFS after installation.

For a client-only node, DFS needs 382 global pages and 15 global sections. For a server node, DFS needs 650 global pages and 16 global sections. (These figures include installation of the DNS client, which requires 300 global pages and 9 global sections. If a DNS client interface already exists on your system from a previously installed product, deduct the DNS figures from the total DFS requirements.) To check the number of available global pages and global sections, use the Install utility (INSTALL) as follows:

```
$ INSTALL:==$SYS$SYSTEM:INSTALL/COMMAND_MODE RET
$ INSTALL RET
INSTALL>  LIST/GLOBAL/SUMMARY RET
```

After executing this sequence of commands, the number of used and unused global pages and used global sections is displayed.

```
                Summary of Local Memory Global Sections

   59 Global Sections Used,    1708/3102 Global Pages Used/Unused
INSTALL>
```

To determine the total number of global sections, exit INSTALL (by typing EXIT) and invoke SYSGEN as follows:

```
$ RUN SYS$SYSTEM:SYSGEN  RET
SYSGEN>  USE CURRENT  RET
SYSGEN>  SHOW GBLSECTIONS  RET
```

After executing these commands, the SYSGEN settings for global sections are displayed. Note the value under the Current heading. Subtract the used global sections value obtained with INSTALL from the current SYSGEN value to determine the unused global sections.

```
Parameter Name  Current  Default  Minimum  Maximum   Units  Dynamic
--------------  -------  -------  -------  -------   -----  -------
GBLSECTIONS         155      128       20     4095 Sections
```

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

To increment the values for GBLPAGES and GBLSECTIONS, insert 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
```

### 1.6.4 Increasing the SCS Buffer Count

Change the System Communication Services (SCS) buffer count parameter on VMS V4.6 and V4.7 systems only. Increase the size of the SCS buffer count (the SYSGEN parameter SCSBUFFCNT) when installing DFS on:

- A member of a VAXcluster
- A member of a Local Area VAXcluster
- A node that uses an Ethernet (DEBNT) adapter

- A node that uses an Ethernet (DEBNA) adapter

The default value for SCSBUFFCNT is 50 buffers. Increase this parameter to 512 buffers for any member of a VAXcluster or Local Area VAXcluster. Increase SCSBUFFCNT to 100 bytes for a system that uses either Ethernet adapter.

**NOTE**

Do not modify the SCSBUFFCNT parameter if you are using a VMS V5.0 system. Leave the default value for this SYSGEN parameter.

When you do not change this parameter on VAXcluster members running VMS V4.6 or V4.7, VAXcluster hang conditions or CNXMGRERR bugchecks can occur. Do not increase this parameter on nonclustered systems with other Ethernet adapters or without Ethernet adapters.

To show the current value for the SCSBUFFCNT parameter, invoke SYSGEN as follows:

```
$ RUN SYS$SYSTEM:SYSGEN RET
SYSGEN>  USE CURRENT RET
SYSGEN>  SHOW SCSBUFFCNT RET
```

After executing these commands, the SYSGEN settings for SCSBUFFCNT are displayed. Note the value under the Current heading.

```
Parameter Name  Current  Default  Minimum  Maximum   Units  Dynamic
--------------  -------  -------  -------  -------   -----  -------
SCSBUFFCNT           50       50        0    32767 Entries
```

Edit or insert the following line to the MODPARAMS.DAT file in the SYS$SYSTEM directory:

```
SCSBUFFCNT  = 512
```

## 1.6.5 Increasing the Channel Count

Increase the channel count (CHANNELCNT) parameter only before you install DFS on a server; you do not need to increase it on a client-only system.

The CHANNELCNT parameter specifies the maximum number of I/O channels to allow for a process. Set the CHANNELCNT parameter to 300 channels before running DFS. To show the current value for the CHANNELCNT parameter, invoke SYSGEN as follows:

```
$ RUN SYS$SYSTEM:SYSGEN RET
SYSGEN>  USE CURRENT RET
SYSGEN>  SHOW CHANNELCNT RET
```

After executing these commands, the SYSGEN settings for CHANNELCNT are displayed. Note the value under the Current heading.

```
Parameter Name  Current  Default  Minimum   Maximum  Units  Dynamic
--------------  -------  -------  -------   -------  -----  -------
CHANNELCNT          202      127       31      2047 Channels
```

Edit or insert the following line to the MODPARAMS.DAT file in the SYS$SYSTEM directory:

```
CHANNELCNT  = 300
```

Refer to Chapter 2 in the *VAX Distributed File Service Management Guide* for more information about the CHANNELCNT parameter. You can also read the on-line help information available in SYSGEN by entering:

- HELP PARAMETERS CHANNELCNT on V4.6 or V4.7 systems
- HELP PARAMETERS SPECIAL_PARAMS CHANNELCNT on V5.0 systems.

## 1.7 Account and Quota Requirements

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

The default values for the system quotas are sufficient to install DFS. Refer to the *VAX/VMS System Services Reference Manual* for more information about system quotas.

## 1.8 Installation Time

The DFS software installation takes approximately 20 minutes for a TK50 on a MicroVAX II system. The time that it takes to install a DFS client or server software is similar, but can vary depending on the processor, distribution media, and system load. It takes approximately 1 to 3 minutes for the IVP to complete.

## 1.9 Configuration Planning

Before you install any DFS software, you need to plan your configuration. Decide which nodes will be DFS server nodes (those with active DFS server and client software) and which will be DFS client-only nodes (those with active DFS client software only). You must consider how many servers and client-only nodes there are in your network, as well as their location. This information is important for organizing server resource locations. Additionally, find the VAX Distributed Name Service (DNS) server node and contact the DNS manager for help or information.

A DFS server allows users at DFS clients to access server disks and directories. These disks and directories appear to be local to the DFS client system. For information on DFS server and client functions, refer to the *VAX Distributed File Service Management Guide*.

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

See Section 1.9.3 or Section 3.7 for information on changing the configuration of client systems and server systems.

### 1.9.1 Configuration Questions

As you plan your configuration, consider the following criteria:

- On what nodes will you install DFS client-only software?
- On what nodes will you install DFS server software?
- Is the VAX DNS installed and available on your network?
  - — If yes, ask the DNS manager for a DNS server node name and a description of how DNS is used on your network.
  - — If no, who will manage DNS in your network? On what nodes will that person install the DNS server software?
- For V5.0 or later systems: Are the DFS and DECnet license PAKs registered and loaded on systems that will be clients and servers?

- For V5.0 or later systems in a VAXcluster: Does each node on a VAXcluster have a license?

Before you install DFS, make sure that all node names used by both DFS and DNS are defined in the DECnet database on each node.

### 1.9.2 VAX Distributed Name Service (DNS)

The prerequisite software, VAX DNS, provides a systematic method for storing and managing names of resources distributed throughout a network. DNS creates a single, networkwide facility, called a *namespace*, for storing and retrieving names of resources. DNS permits users and applications throughout the network to use the same name to access the same resource, regardless of its location. DFS servers register the access point names with DNS. DFS clients access DNS to locate these access points.

An *access point* represents the registered file resources that a server makes available to a client.

Check with the DNS manager to find a node that has the DNS server software. The DNS server must be installed, running, and accessible before you can install the DFS software.

### 1.9.3 Installing DFS on VAXclusters

In a VAXcluster environment with only one system disk, you need to install DFS server software on only one cluster member. VMSINSTAL places all DFS files in the SYS$COMMON directory. This provides identical DFS environments for each cluster member; for example, mounting the same access points and serving the same access points ADDed with the /CLUSTER qualifier.

**NOTE**

All nodes running VMS V5.0 or later need a registered and loaded DFS license PAK before DFS can be started.

You can create a different DFS environment on each node in a cluster by copying the DFS$SYSTARTUP.COM file to each node's SYS$SPECIFIC:[SYSMGR] directory and modifying it for that specific situation.

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

- The DFS$CONFIG.COM file to each member's SYS$SPECIFIC: [SYSMGR] directory and modify it for that specific situation.
- The DFS$SYSTARTUP.COM file to each member's SYS$SPECIFIC: [SYSMGR] directory and modify it for that specific situation.
- The DFS$STARTUP.COM file to each member's SYS$SPECIFIC: [SYSMGR] 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 DFS server software can be started on this node. Edit the DFS$STARTUP.COM file only when you change the configuration of the node. Do one of the following:

- 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".

If you want to run DFS on cluster members that use multiple system disks, install DFS on each of those system disks. All nodes and system disks running VMS V5.0 need a registered and loaded license PAK before DFS can be started.

When you install DFS on a VAXcluster running different versions of VMS, you must install DFS on the VMS V4.7 member and on the VMS V5.0 member, since the members do not share system files. When different nodes on a VAXcluster are running VMS V4.6 and V4.7, you must also install DFS on the VMS V4.6 member and on the VMS V4.7 member because these members also do not share system files.

If you install the DFS server on two or more nodes in a cluster, you can serve the same disk using different access point names from different nodes. Consequently, you can have many access point names for the same VMS file directory tree. See Section 2.7 in the *VAX Distributed File Service Management Guide* for information.

## 1.10 Reviewing the DFS Installation Procedure

Before installing DFS, 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 Chapter 2).

Read the DFS release notes before continuing the installation procedure. Use the OPTIONS N parameter in the command line to access the release notes. After you complete the installation, the release notes are available in SYS$HELP:DFS011.RELEASE_NOTES. See Chapter 2 for more information about the installation procedure.

**NOTE**

If you are running DFS on a *VMS V5.0 system* or on a *VAXcluster*, the installation checks if any DFS*.EXE files are in either the SYS$SPECIFIC:[SYSEXE] or [SYSLIB] directories. If you moved the files to either directory, VMSINSTAL sends an informational message (see Section 2.3.2.1). The installation procedure cannot continue and an error message is then displayed (see Section 2.3.2.1). Remember to delete all the previous versions of the DFS*.EXE files from the SYS$SPECIFIC:[SYSLIB] and [SYSEXE] directories before you install DFS.

## 1.11 Maintenance Updates

Digital may periodically issue a maintenance update release of the DFS software. Each update contains an installation kit. Install this kit as described in this guide or in any documentation that accompanies the maintenance update.

The version number of the software changes with the release of any software maintenance update. For example, if the current version is V1.0, the version of the first maintenance update is V1.1. For maintenance updates or any software release, the release notes indicate any changes to the software.

For each release of the software, you receive on-line release notes. You can read the release notes before or after you install the software. 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 Chapter 2. You can stop the installation procedure during Step 6 by answering the "Do you want to continue the installation [N]?" prompt with NO. You can read, display, or print the release notes after the installation by accessing the SYS$HELP:DFS011.RELEASE_NOTES file.

Chapter 2

# Installation and Verification

This chapter contains general information about VMSINSTAL, a detailed step-by-step procedure, and additional DNS and DFS installation messages. Additional steps or information are provided for systems that are running VMS V5.*x*.

## 2.1 Preliminary Information

Please read this section before you install DFS.

Use the VMSINSTAL installation procedure to install the VAX Distributed File Service (DFS) software on a VMS system. The following sample procedure installs both client and server software on a node. If you are establishing a client-only node, you can delete the files used by only the server after the DFS installation is complete. See Section 3.8 for more information about reclaiming disk space.

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

To abort the installation procedure, press CTRL/Y. When you press CTRL/Y, the installation procedure deletes all DFS files that it has created up to that point and exits. If you want to retry the installation procedure after you press CTRL/Y, you must invoke VMSINSTAL again. See 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 for VMS V5.0 systems and Appendix C for sample installations for VMS V4.6 and V4.7 systems.

Before you install DFS, be sure that:

- Your system is running VMS V4.6 or later or MicroVMS V4.6 or later.
- Your system has at least 1800 blocks of free disk space on the system disk (see Section 1.5 for additional information).
- You have modified the SYSGEN parameters as described in Section 1.6.
- VAX DNS is running on the network and is accessible (see Section 1.9.2 for additional information).
- Your DECnet-VAX software is installed and running.
- If you want to create a DFS client-only configuration and run the Installation Verification Procedure (IVP), make sure that at least one DFS server is installed, running, and accessible and that there is at least one registered and available access point.

## 2.2 Installation Procedure

To install the DFS 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 this command line:

```
$ @SYS$UPDATE:VMSINSTAL DFS011 ddcu: OPTIONS N RET
```

The value *ddcu*: represents the name of the device where you mounted the distribution media. 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 is displayed on the screen:

```
        VAX/VMS Software Product Installation Procedure Vx.x

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

### Step 3. Check the system environment.

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

```
%VMSINSTAL-W-DECNET, Your DECnet network is up and running.
%VMSINSTAL-W-ACTIVE, The following processes are still active:
        MAIL_38503

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

This message is informational only. Answer NO (or press RET) to end the installation and return to the DCL prompt. Answer YES to continue installing DFS.

**NOTE**

The DECnet network must be up and running for the DFS installation to succeed and for the Installation Verification Procedure (IVP) to function.

### 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]? YES RET
```

Answer YES to continue installing DFS. Answer NO to end the installation and return to the system command level.

### Step 5. Mount the installation kit volume.

You are now prompted to mount the installation kit volume. Mount the volume and ensure that the device is in the READY state. Answer YES and press RET when you are ready. A confirmation message says that the medium is mounted and ready.

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

* Are you ready? YES RET
%MOUNT-I-MOUNTED, DFS011 mounted on _ddcu:.
```

### Step 6. Start the installation.

After mounting the installation kit volume, the following messages are displayed:

```
The following products will be processed:

  DFS V1.1


        Beginning installation of DFS V1.1 at hh:mm

%VMSINSTAL-I-RESTORE, Restoring product saveset A...
```

If you included OPTIONS N in the command line in Step 2, the Release Notes Options menu is displayed. You can select one of the following options:

```
Release Notes Options:

        1.  Display release notes
        2.  Print release notes
        3.  Both 1 and 2
        4.  Copy release notes to SYS$HELP
        5.  Do not display, print or copy release notes
* Select option [2]: 2 RET
```

You should read the release notes before you install DFS.

Only Options 1 to 3 are displayed on VMS V4.6 and V4.7 systems. Options 1 to 5 are displayed on VMS V5.0 systems. The default changes from Option 3 on VMS V4.*x* systems to Option 2 on VMS V5.*x* systems.

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 RET. VMSINSTAL queues a copy of the release notes to print and displays a message such as the following:

```
Job DFS011 (queue queue, entry nnn) started on device
```

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

If you select Option 4, the message about the release notes moving to SYS$HELP is displayed.

If you select Option 5, the release notes are not copied, displayed, or printed at any time during the installation procedure.

After selecting any of the options, this message is displayed:

```
* Do you want to continue the installation [N]? YES RET
```

Enter YES or NO, as appropriate. If you enter YES, the procedure continues with this 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 IVP as part of the installation procedure. If you answer YES, you need to supply an access point name in Step 14. If you answer NO, VMSINSTAL skips Steps 14 and 15.

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

### 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, answer NO; otherwise, answer YES (or press RET):

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

If DNS is installed and running on your network, the file DNS$CLIENT.EXE already exists on your system. When you install DFS, another version of the DNS$CLIENT.EXE is installed. If you try to purge the files after you install DFS, you receive an error message because DNS had the original version of the DNS$CLIENT.EXE file open. The DFS installation procedure is not affected and you can purge DNS$CLIENT.EXE when you shut down DNS.

### Step 9. Check for Product Authorization Key (PAK).

The following information is only displayed when installing DFS on a system running VMS V5.0. VMSINSTAL checks for a registered and loaded DFS license PAK:

```
        Product:       DFS
        Producer:      DEC
        Version:       1.1
        Release Date:  03-OCT-1988

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

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

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

### Step 10. Install client or server software.

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

```
* Do you want to install the DFS SERVER software on this node [YES]? YES RET
```

After you answer these questions, VMSINSTAL displays two of the following messages:

```
%VMSINSTAL-I-RESTORE, Restoring product saveset B...
%VMSINSTAL-I-RESTORE, Restoring product saveset C...
%VMSINSTAL-I-RESTORE, Restoring product saveset D...
```

Product savesets B and D are restored when installing on systems running VMS V5.0. Product savesets C and D are restored when installing on systems running VMS V4.6 or V4.7.

### Step 11. Install the DNS client.

When installing the DFS software on a server or a client, you also install the DNS client software. In this step, VMSINSTAL installs the DNS client software and you indicate the name of an existing DNS server node. See the DNS manager for the name of the node with installed DNS server software.

If the DNS client software is already installed by this or another product, the procedure displays additional DNS messages. See Section 2.3.1 for the messages.

```
    Installing the VAX Distributed Name Service Client

* Enter the DNS server node name: node_name RET
```

The following message indicates that installation of the DNS client software is complete:

```
%COPY-S-COPIED, node_name::SYS$SYSROOT:[SYSLIB]DNS$NS_DEF_FILE.DAT;1 copied
to VMI$ROOT:[SYSUPD.DFS011]DNS$DEFAULT_FILE.DAT;1 (1 block)
```

If the DNS client software is already running on this system, an additional message indicates that the DNS$DEFAULT_FILE.DAT is appended.

### Step 12. Read informational messages.

VMSINSTAL now verifies that it is installing the DFS software.

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

The following message indicates that a rights identifier is added for the DFS software. The rights identifier is added to the RIGHTSLIST.DAT file by the VMS Authorize (AUTHORIZE) utility.

```
%DFS-I-ADDED, Added rights identifier DFS$SERVICE
```

VMSINSTAL now displays a list of the installed files.

```
******************************************************************
       This installation has added the following files. . .
******************************************************************

        SYS$COMMON:[SYSHLP]DFS$HELP.HLB
        SYS$COMMON:[SYSHLP]DFS011.RELEASE_NOTES

        SYS$COMMON:[SYSLIB]DFS$MNGT_SHR.EXE
        SYS$COMMON:[SYSLIB]DFS$MOUNT_SHR.EXE
        SYS$COMMON:[SYSLIB]DNS$CLIENT.EXE

        SYS$COMMON:[SYSMGR]DFS$CONFIG.COM
        SYS$COMMON:[SYSMGR]DFS$STARTUP.COM
        SYS$COMMON:[SYSMGR]DNS$CHANGE_DEF_FILE.COM
        SYS$COMMON:[SYSMGR]DNS$CLIENT_STARTUP.COM
        SYS$COMMON:[SYSMGR]DNS$CLIENT_STOP.COM
        SYS$COMMON:[SYSMGR]DFS$SYSTARTUP.COM

        SYS$COMMON:[SYSMSG]DFS$MESSAGE.EXE
        SYS$COMMON:[SYSMSG]DNS$MSG.EXE
```

```
SYS$COMMON:[SYSEXE]DFSCDRIVER.EXE
SYS$COMMON:[SYSEXE]DFSRRDRIVER.EXE
SYS$COMMON:[SYSEXE]DFSSDRIVER.EXE
SYS$COMMON:[SYSEXE]DFS$COM_ACP.EXE
SYS$COMMON:[SYSEXE]DFS$COM_LOGGER.EXE
SYS$COMMON:[SYSEXE]DFS$CONTROL.EXE
SYS$COMMON:[SYSEXE]DNS$ADVER.EXE
SYS$COMMON:[SYSEXE]DNS$DEFAULT_FILE.DAT
SYS$COMMON:[SYSEXE]DFS$SERVER_ACP.EXE
SYS$COMMON:[SYSEXE]DNS$SOLICIT.EXE

SYS$COMMON:[SYSTEST]DFS$IVP.COM
```

### Step 13. Complete the DFS installation.

VMSINSTAL now displays the following instructions for completing the DFS installation:

```
VMSINSTAL starts the VAX DFS software by executing the
DFS$STARTUP command procedure in your SYS$MANAGER directory.

To automatically start DFS on your system, edit your
local system start-up command file so that it invokes
the DFS start-up command file.  Add:
      "@SYS$MANAGER:DFS$STARTUP.COM"
after the statement that invokes the DECnet start-up
command file (STARTNET.COM). The DECnet software must
be started before the DFS software.

Remember that checksumming is enabled by default in the
DFS$CONFIG.COM file. If you do not experience any
checksum problems within the first 2 weeks of using DFS,
we suggest that you disable checksumming. To disable,
modify the DFS$CONFIG.COM file by inserting the
/NOCHECKSUM qualifier in the SET COMMUNICATION command.

See the VAX DFS Installation Guide for more information
on the DFS$STARTUP command procedure.

%VMSINSTAL-I-MOVEFILES, Files will now be moved to their target directories...
%RUN-S-PROC_ID, identification of created process is nnn
%RUN-S-PROC_ID, identification of created process is nnn
```

### Step 14. Run the Installation Verification Procedure (IVP).

If you answered NO to the question in Step 7, proceed to Step 16.

If you previously specified that you want to run the IVP after the installation, VMSINSTAL now indicates that the IVP has begun. A specific message is displayed for either a client-only (Step 14a) or a server (Step 14b) installation. You are prompted for an access point name.

You cannot run the IVP when DFS is already running on your system. When DFS is already running, you must reboot the system and run the IVP separately. Section 3.1 describes how to run the IVP.

```
*****************************************************************
       Beginning VAX DFS Installation Verification Procedure . . .
*****************************************************************
```

### Step 14a. Client-Only IVP.

If you are verifying a client-only software installation, the following message is displayed. You are prompted for an existing access point name (a DNS name that you can get from the system manager of a DFS server node). The IVP uses an access point name to test a DFS mount and dismount operation. The IVP then verifies that the DFS client can communicate with the DFS and DNS servers. The following message varies according to the version of VMS running on your system.

```
 This system will run as a DFS 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
```

The IVP now runs while the following messages are displayed:

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

### Step 14b. Server IVP.

If you are verifying a server software installation, the following message is displayed. You are prompted for a unique name that is used as a temporary access point. This name must follow the DNS naming conventions in use at your site. 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 DFS clients and the DFS and DNS servers. The following message varies depending on the version of VMS running on your system:

```
 This system will run as a DFS 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 your Name Service use in your network.

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

The IVP now executes while the following messages are displayed:

```
$ 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:  (node_name)
$ DFSCP DISMOUNT DFS$IVP_DISK
%DFS-S-DISMNT_SUCCESS, Dismount was successfully performed
$ DFSCP REMOVE ACCESS access_point_name
```

### Step 15. End the IVP.

After the specific client or server IVP, VMSINSTAL displays a message verifying that either the DFS software was installed successfully or the IVP failed. If you receive any error messages during the IVP, refer to the explanations in the *VAX Distributed File Service Management Guide*.

```
**********************************************************************
      VAX Distributed File Service V1.1 IVP Successful
**********************************************************************
```

You can run the IVP at any time to check the DFS software. See Section 3.1 for more information and for a description of how to run the IVP after installing DFS.

### Step 16. End the installation procedure.

After the installation of the DFS software is complete, the following message is displayed:

```
 Installation of DFS V1.1 completed at hh:mm.
```

The following message then indicates that VMSINSTAL has successfully completed installation and verification of the DFS software. If VMSINSTAL reports a failure, review the installation prerequisites.

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

If you removed console media before you installed the software, replace the media in the console drive.

## 2.3 Additional Messages

In specific situations, you can receive additional messages during a DFS installation. The following sections describe those DFS and DNS messages and the conditions that can cause them.

### 2.3.1 DNS Messages

This information is displayed in addition to the existing information in Step 11. It is displayed before the DNS server node name prompt. The messages indicate that there is already a DNS client on the system, which file is appended, and which DNS servers exist in your network. Carefully select an existing DNS server and then specify a DNS server node name after consulting with the DNS manager.

```
A VAX Distributed Name Service Client exists on this system
from a previously installed product.

The existing DNS client setup file, SYS$SYSTEM:DNS$DEFAULT_FILE.DAT,
will be appended to the new SYS$SYSTEM:DNS$DEFAULT_FILE.DAT.

The following DNS server nodes have been found.  Select a node name
from this list or the name of another DNS server node.

Node_A
Node_B
Node_C
Node_D
```

The following message is displayed after Step 11. It indicates that you cannot install the DNS client because two versions of the DNS client software cannot run on the same node at the same time. If you are currently running applications that require the DNS client software, you must stop those applications from processing. After you stop the applications, you can successfully install the DNS client software.

```
* You must stop those applications that are now running
  that have an older version of the DNS client still mapped.
```

### 2.3.2 DFS Messages

The following sections contain messages that may be displayed during the DFS installation procedure.

### 2.3.2.1 Purge Files Message

The following message may be displayed after Step 8 in the installation procedure if VMSINSTAL cannot purge files from the previously installed version of DFS. The specific files that cannot be purged are listed in the message.

```
Previous versions of the following files were found in SYS$SPECIFIC.

If you are part of a cluster, please issue the following commands to
delete the relevant files on ALL members of the cluster before
continuing with the installation.

If you are running VMS V5.0 or later, issue these commands before
continuing with the installation.

DELETE SYS$SPECIFIC:[SYSEXE]DFSCDRIVER.EXE;*
DELETE SYS$SPECIFIC:[SYSEXE]DFSRRDRIVER.EXE;*
DELETE SYS$SPECIFIC:[SYSEXE]DFS$COM_ACP.EXE;*
DELETE SYS$SPECIFIC:[SYSEXE]DFSSDRIVER.EXE;*
DELETE SYS$SPECIFIC:[SYSEXE]DFS$SERVER_ACP.EXE;*
DELETE SYS$SPECIFIC:[SYSLIB]DFS$MNGT_SHR.EXE;*
DELETE SYS$SPECIFIC:[SYSLIB]DFS$MOUNT_SHR.EXE;*
```

This sample message includes all the files that are checked by the installation procedure. The list of files that must be deleted before installing DFS may vary. Delete all the DFS*.EXE files from the SYS$SPECIFIC:[SYSEXE] and [SYSLIB] directories before you try to install DFS again.

After the previous message is displayed, the installation is aborted and the following VMSINSTAL error message is displayed:

```
%VMSINSTAL-E-INSFAIL, The installation of DFS V1.1 has failed.
```

### 2.3.2.2 DFS License PAK Message

The following message is displayed after Step 9 in the installation procedure when the DFS license PAK is not installed.

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

### 2.3.2.3 DFS Patch Messages

The following messages are displayed after Step 10 when DFS attempts to patch several files during the installation procedure.

```
You are running VMS V4.6. DFS uses a feature of the
NETDRIVER.EXE file that requires a patch to some code that
only DFS uses. VMSINSTAL will attempt to patch the NETDRIVER
image. An unpatched version of the file will be left in
the SYS$SYSTEM directory.

You are running a version of VMS that uses an IO_ROUTINES
image that requires a patch to some code that only DFS
uses.  VMSINSTAL will attempt to patch the IO_ROUTINES
image.  An unpatched version of the image will be left in
the SYS$SYSTEM directory.

You are running a version of VMS that uses an F11BXQP
image that requires a patch to some code that only DFS
uses.  VMSINSTAL will attempt to patch the F11BXQP
image. An unpatched version of the image will be left in
the SYS$SYSTEM directory.
```

If any of the previous files cannot be patched, the following messages are displayed immediately:

```
The NETDRIVER patch procedure has failed. This may be because
the patch has already been installed on this system.
The DFS installation will continue.

The attempt to patch the VMI$ROOT:[SYS$LDR]IO_ROUTINES.EXE;
image has failed.  Do not start the DFS server software.

The attempt to patch the VMI$ROOT:[SYSEXE]F11BXQP.EXE;
image has failed.  Do not start the DFS server software.
```

If any of the patch procedures fail, submit an Software Performance Report (SPR). Indicate the version of VMS and the output of the DCL command ANALYZE/IMAGE/OUTPUT of the image that DFS did not patch.

### 2.3.2.4 DFS Start-Up Messages

The following is a list of all the possible messages that can be displayed before Step 13 in the installation procedure if VMSINSTAL cannot start DFS or run the IVP:

```
Before starting DFS . . .

* You must install the DFS license PAK.

* You must increase your GLOBAL PAGES.

* You must increase your GLOBAL SECTIONS.

* You must reboot your system because you
  are running VMS V4.6 and VMSINSTAL patched
  the NETDRIVER image.

* You must start DECnet.

* You must increase the size of your nonpaged pool.
  (see Installation Guide)

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

* You must reboot your system because VMSINSTAL patched
  the IO_ROUTINES image or the F11BXQP image or both.

Since VAX DFS is not being started, we 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 VAX DFS.
```

The following message is displayed after Step 13 in the installation procedure if you need to increase the size of your interrupt stack:

```
You should also increase the size of your Interrupt Stack
before starting the DFS server software. See the VAX DFS
Installation Guide for more information about this.
```

Chapter 3

# Postinstallation Procedures

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

- Running the Installation Verification Procedure
- Editing the local system start-up command file
- Using DFS command files
- Increasing the line receive buffers
- Increasing the DECnet pipeline quota
- Using DFS security (VMS proxy)
- Reinstalling DFS
- Changing clients to servers
- Changing servers to clients
- Deleting server software from client-only nodes
- Using the CHECKSUM qualifier
- Checking VAXclusters after installing

## 3.1 Running the Installation Verification Procedure

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

You can run the IVP when you install the DFS software (as shown in Chapter 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 DFS 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. If you run the IVP independent of the installation procedure, you need to supply the same information.

If you are verifying a *client-only* software installation, you must supply the name of an access point that was previously added on an accessible DFS server. The IVP uses this access point name to test a DFS mount and dismount operation. The IVP can then verify that the DFS client can communicate successfully with the DFS and DNS servers.

If you are verifying a *server* software installation, you must supply a unique, temporary access point name (a DNS name, as discussed with the DNS manager). The IVP uses this name to add the access point, mount and dismount the access point, and remove the access point from the DNS namespace. This verifies successful communication among the DFS clients and the DFS and DNS servers.

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 DFS client, READ access to the DNS namespace directory is sufficient to run the IVP. You need READ and WRITE access rights in the DNS namespace directory to run the IVP on a DFS server. Your DNS manager grants these access rights. The IVP fails if you do not have the appropriate access rights.

If your network uses a single-directory DNS namespace, WORLD WRITE access provides the appropriate access to run the IVP on a server. With a hierarchical namespace, you need the READ and WRITE access rights for your user name on a specific DECnet node for the namespace directory you will use. You need access to at least one DNS directory to perform an IVP on a DFS server. For example, if the DNS 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 DFS operations. You should keep this file so that you can run the IVP later, to check for file corruption or any other problems.

## 3.2 Editing the Local System Start-Up Command File

Edit your local system start-up command file if you want to start DFS automatically. The local system start-up command file for VMS V5.0 is SYS$STARTUP:SYSTARTUP_V5.COM. The local system start-up command file for VMS or MicroVMS V4.6 or V4.7 is SYS$MANAGER:SYSTARTUP.COM. Edit the appropriate file so that it invokes the DFS start-up command file (DFS$STARTUP.COM) in the SYS$MANAGER directory by adding the following line:

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

Insert this line after the statement that invokes the DECnet start-up command file (STARTNET.COM). The DECnet software must be started before the DFS software. If you use a batch job to start the DECnet software, start the DFS software later in the same batch stream to ensure that the DFS software starts after the DECnet software.

The following sample portion of a local system start-up file shows the statement that invokes the DFS start-up command file. This statement executes the DFS$STARTUP command procedure in your SYS$MANAGER directory.

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

## 3.3 Using DFS Command Files

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

When DFS starts, the DFS$STARTUP.COM file invokes SYS$MANAGER:DFS$CONFIG.COM. This configuration file sets configuration parameters. To change the static DFS parameters, you must change the values for the parameters in the DFS$CONFIG.COM file.

After DFS starts, the DFS$STARTUP.COM file invokes SYS$MANAGER:DFS$SYSTARTUP.COM. This file adds access points to the DFS server and mounts DFS client devices that are shared throughout the system.

The DFS$CONFIG.COM file contains the default settings for each parameter. When you change a parameter in this file, leave a copy of the default settings in the file in case you need to change the values later.

If your system is on a VAXcluster, see Section 1.9.3 before you edit any start-up command files.

For more information, see the *VAX Distributed File Service Management Guide*.

## 3.4 Increasing NCP Parameters

The following sections describe how to modify the Network Control Program (NCP) parameters that you need to run DFS. For information about NCP, see the *VMS Network Control Program Manual.*

### 3.4.1 Increasing Line Receive Buffers

Before you start DFS, you must modify the NCP parameter LINE RECEIVE BUFFERS. Set the NCP parameter equal to 26. You must set the line receive buffers in a node's volatile database and in its permanent database.

To change this parameter in the volatile database, first invoke the NCP utility:

```
$ RUN SYS$SYSTEM:NCP [RET]
NCP>
```

Then, enter the following NCP commands:

```
NCP> SET LINE line-id STATE OFF [RET]
NCP> SET LINE line-id RECEIVE BUFFERS 26 [RET]
NCP> SET LINE line-id STATE ON [RET]
```

To change this parameter in the permanent database, enter the following NCP command:

```
NCP> DEFINE LINE line-id RECEIVE BUFFERS 26 [RET]
```

### 3.4.2 Increasing the DECnet Pipeline Quota

For DFS to operate more efficiently, set the DECnet pipeline quota to its maximum value in the databases of client-only and server nodes. The maximum value is 32,767 bytes. For more information about pipeline quota, see the *VAX/VMS Network Control Program Reference Manual.*

Set the pipeline quota in a node's volatile database and in its permanent database. To change this parameter in the volatile database, first invoke the NCP utility:

```
$ RUN SYS$SYSTEM:NCP [RET]
```

Then, enter the following NCP command:

```
NCP>  SET EXECUTOR PIPELINE QUOTA 32767 [RET]
```

To change this parameter in the permanent database, enter the following NCP command:

```
NCP>  DEFINE EXECUTOR PIPELINE QUOTA 32767 [RET]
```

## 3.5 Using DFS Security (VMS Proxy)

You must create VMS proxy accounts on DFS server nodes so users at client systems can access a DFS server. To create these proxy accounts, use the VMS AUTHORIZE utility on the server node. Modify the network user authorization file so the end user on a DFS client node has the necessary rights and privileges on the server node. The network user authorization file is different, depending on which version of VMS your system is running. VMS V5.0 uses the NETPROXY.DAT file and V4.6 and V4.7 use the NETUAF.DAT file.

The following example assumes that the client end user already has an account (WPINE) on the server and an account on node WRKSTN. It also allows the client end user to print accessed files by adding a proxy for the SYSTEM account that provides rights for DFS printing. Do not use the /DEFAULT qualifier with the ADD/PROXY command on systems running VMS V4.6 or V4.7.

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

If you want to provide access to your DFS server to users on client systems without explicit proxy, create a default DFS account (DFS$DEFAULT). To make this account available for use by DFS only (and not for logging in), create DFS$DEFAULT as a captive account following the example in Section 2.2 of the *VAX/VMS System Manager's Reference Manual*. You can use the DFS$DEFAULT account as an example of how to create proxy accounts that can only be used for DFS access. Make sure you choose the UIC for the DFS$DEFAULT account that does not match the UIC of an existing user.

**NOTE**

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

For more information about the DFS$DEFAULT account, see the *VAX Distributed File Service Management Guide*. For detailed information about creating proxy accounts, see the *Guide to VAX/VMS Security* and the *VAX/VMS Networking Manual*.

**NOTE**

Make sure you set up the proxy accounts so that DFS users have the necessary rights and privileges they need to access files. If there is a DFS$DEFAULT account (and its DISUSER flag is not set), all the users who do not have explicit proxy in the NETUAF.DAT or the NETPROXY.DAT file have only the rights and privileges of the DFS$DEFAULT account.

## 3.6 Reinstalling DFS

You can reinstall the DFS software on your system at any time. For example, you need to reinstall when you upgrade your version of the VMS operating system from V4.x to V5.x. After you reinstall the DFS software, you need to reboot the system to use the DFS software if DFS drivers were previously loaded. You also need to reinstall DFS when you upgrade your system from VMS V5.0 to V5.0-1.

When you reinstall DFS software, the installation procedure creates new DFS$CONFIG.COM and DFS$SYSTARTUP.COM command files. The files with those names from the previous installation are automatically renamed to DFS$CONFIG.OLD and DFS$SYSTARTUP.OLD. If you want to use information in the renamed files, you can copy it from the renamed files into the newly installed files.

## 3.7 Changing DFS Configurations

To change a DFS client-only node to a server (or vice versa), edit the following lines in the SYS$MANAGER:DFS$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 DFS client software can be started on this node. When you change from a client-only to a server system, you must change the value of the START_SERVER_FLAG from "FALSE" to "TRUE". When you change from a server to a client-only system, you must change the value of the START_SERVER_FLAG from "TRUE" to "FALSE".

**NOTE**

The two flags, START_CLIENT_FLAG and START_ SERVER_FLAG, are the only two lines that should be edited in the DFS$STARTUP.COM file.

## 3.8 Deleting Server Software from Client-Only Nodes

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

- DFS$SERVER_ACP.EXE
- DFSSDRIVER.EXE

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

## 3.9 Using the CHECKSUM Qualifier

The DFS start-up procedure executes the SET COMMUNICATION /CHECKSUM command by default. This command is a conservative measure that guards against data corruption on the network.

When you initially use DFS, watch for OPCOM messages that indicate checksum failures or use the SHOW COMMUNICATIONS/COUNTER command to check for a non-zero checksum error counter. If no checksum errors occur, disable the CHECKSUM qualifier in the SYS$MANAGER:DFS$CONFIG.COM file to save CPU overhead on both the client and the server. Whenever there is a change in the configuration of your network (such as adding a section of Ethernet), enable the CHECKSUM qualifier to check for any failures caused by the reconfiguration.

## 3.10 Checking VAXclusters After Installing

If you are installing DFS on a VAXcluster system that uses a node-specific system disk, you must install DFS on each system disk on the VAXcluster before you can run DFS in the cluster. See Section 1.9.3 for more information about VAXclusters.

If you install DFS on a VAXcluster system that uses a single common system disk, you do not need to install DFS on any other cluster members. You must, however, install the appropriate licenses before running the IVP or running DFS in your VMS V5.0 cluster. You also must copy the DFS$STARTUP.COM file to each node's SYS$MANAGER directory.

Chapter 4

# Error Handling and Problem Reporting

This chapter provides information about handling errors and submitting Software Performance Reports (SPRs) when you encounter problems.

## 4.1 Error Handling

When you encounter a problem installing DFS, using DFS, running the IVP, or installing the DFS or DECnet license PAKs, an error message is displayed on the screen. Appendix C in the *VAX Distributed File Service Management Guide* lists the DFS and DNS error messages. When you encounter problems with the license PAK or LMF, refer to the *VMS 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 DFS error messages begin with the *%DFS*-facility prefix and all DNS error messages begin with the *%DNS*-facility prefix.

## 4.2 Problem Reporting

If an error occurs while using DFS and the cause cannot be determined, or you believe that the error is caused by a problem in the DFS software, take one of the following actions:

- If you are eligible through a software support contract, telephone support is provided by a Customer Support Center (CSC). For more

information on the different software support contracts, contact your Digital representative.

- Another support contract allows you to submit a Software Performance Report (SPR).
- If you purchased DFS within the last 90 days, and you believe that the problem is caused by the software, submit a Software Performance Report.

### 4.2.1 Software Performance Reports

Use a Software Performance Report if an operation gives unexpected results. You can also submit an SPR when you get undocumented or unknown failures using DFS commands. Any information that can be gathered about a problem can be submitted as an SPR or, if you are eligible, by contacting a CSC. When you prepare to submit an SPR, please follow these guidelines:

1. Report only one problem per SPR. This provides a faster response to your problems.
2. Describe as accurately as possible the state of the system and the situation when the problem occurred. In this description, include the version numbers of VMS and DFS software. Indicate the version number for each client and server in a cluster. Use the DFS$CONTROL command SHOW VERSION. If you cannot access the DFS$CONTROL program, you can determine the DFS version number for clients by entering:

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

   You can determine the DFS version number for servers by entering:

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

   The version numbers are displayed on the same line as the text "Image File Identification" in the Image Identification Information section.
3. Reduce 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. 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. Submit source files or data files on machine-readable media (floppy diskette or magnetic tape) if possible. All media will be returned to you after the SPR is answered.
9. If you have questions, state them simply but include all pertinent information so a clear and correct answer can be provided.
10. For severe errors (system hangs or crashes), send a description of the events that led up to the problem, any console messages, or other specific information.
11. Send a copy of the crash dump file (SYS$SYSTEM:SYSDUMP.DMP) when a system crashes.
12. Mail the SPR package to the address indicated on the printed SPR form.

**NOTE**

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

### 4.2.2 Documentation

If you find an error in the VAX Distributed File Service documentation, submit the Reader's Comments form or an SPR for the specific manual. Fill out the SPR as previously described. You can find at least one Reader's Comments form at the back of each manual. If you cannot find the form, specify the title of the manual, the section, and the page number where the error occurs. You can list any general problems or suggestions for improvement on these forms also. Send these completed forms to:

Digital Equipment Corporation
Networks and Communications Publications
550 King Street
Littleton, MA 01460-1289

# Appendix A
# Files Affected by DFS Installation

This appendix describes the files produced or changed after installing DFS on a VMS V4.6 or later system.

| SYS$SYSTEM Files | Function |
|---|---|
| DFSCDRIVER.EXE | DFS client device driver |
| DFSRRDRIVER.EXE | DFS communication driver |
| DFSSDRIVER.EXE | DFS server driver |
| DFS$CONTROL.EXE | DFS control program |
| DFS$COM_ACP.EXE | Ancillary control process for the DFS communication driver |
| DFS$SERVER_ACP.EXE | DFS server ancillary control process |
| DFS$COM_LOGGER.EXE | DFS maintenance file for logging communication transactions |
| DNS$ADVER.EXE | DNS advertisement process |
| DNS$DEFAULT_FILE.DAT | Read by DNS advertisement process and loads cache for DNS client |
| DNS$SOLICIT.EXE | DNS client solicitation process |

| SYS$HELP Files | Function |
|---|---|
| DFS011.RELEASE_NOTES | DFS release notes |
| DFS$HELP.HLB | Help library for DFS control program |

| SYS$HELP Files | Function |
|---|---|
| HELPLIB.HLB | DCL DFS help text is modified by DFS installation |

| SYS$LIBRARY Files | Function |
|---|---|
| DFS$MOUNT_SHR.EXE | DFS mount library |
| DFS$MNGT_SHR.EXE | DFS management system services |
| DNS$CLIENT.EXE | DNS client shared library |

| SYS$MANAGER Files | Function |
|---|---|
| DFS$CONFIG.COM | DFS command file to set configuration parameters |
| DFS$STARTUP.COM | DFS start-up command file |
| DFS$SYSTARTUP.COM | DFS set-up command file to mount and add access points |
| DNS$CLIENT_STARTUP.COM | DNS client/advertisement start-up procedure |
| DNS$CLIENT_STOP.COM | DNS client/advertisement stop procedure |
| DNS$CHANGE_DEF_FILE.COM | DNS file for changing the default DNS server node |

| SYS$MESSAGE Files | Function |
|---|---|
| DFS$MESSAGE.EXE | DFS error message file |
| DNS$MSG.EXE | DNS error message file |

| SYS$TEST Files | Function |
|---|---|
| DFS$IVP.COM | Installation Verification Procedure command file |

Appendix B

# Sample Installation for VMS V5.0 Systems

This appendix shows sample installations of DFS client-only and server software on VMS V5.0 systems. The actual dates, times, entry numbers, and version numbers vary for each installation. Also, the responses to several prompts vary depending on whether you are installing the DFS software for a client-only node or a server node.

## B.1 Client-Only Installation

```
Username: SYSTEM [RET]
Password: password [RET]

        Welcome to VAX/VMS V5.0 on node BEECH

    Last interactive login on Thursday, 13-OCT-1988 14:24
    Last non-interactive login on Thursday, 13-OCT-1988 10:24

$ @SYS$UPDATE:VMSINSTAL DFS011 SYS$UPDATE: OPTIONS N [RET]


        VAX/VMS Software Product Installation Procedure V5.0

It is 13-OCT-1988 at 14:26.
Enter a question mark (?) at any time for help.

%VMSINSTAL-W-DECNET, Your DECnet network is up and running.
%VMSINSTAL-W-ACTIVE, The following processes are still active:
        MAIL_58032
* Do you want to continue anyway [NO]? YES [RET]
* Are you satisfied with the backup of your system disk [YES]? YES [RET]

The following products will be processed:

  DFS V1.1
```

```
        Beginning installation of DFS V1.1 at 14:26

%VMSINSTAL-I-RESTORE, Restoring product saveset A...

  Release Notes Options:

        1.   Display release notes
        2.   Print release notes
        3.   Both 1 and 2
        4.   Copy release notes to SYS$HELP
        5.   Do not display, print or copy release notes

* Select option [2]:  2 RET
* Queue name [SYS$PRINT]: RET
Job DFS011 (queue SYS$PRINT, entry 1024) started on LPAO
* Do you want to continue the installation [N]? YES RET

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

        Product:       DFS
        Producer:      DEC
        Version:       1.1
        Release Date:  03-OCT-1988

* Does this product have an authorization key registered and loaded? YES RET
* Do you want to install the DFS SERVER software on this node [YES]? NO RET
%VMSINSTAL-I-RESTORE, Restoring product saveset B...
%VMSINSTAL-I-RESTORE, Restoring product saveset D...

        Installing VAX Distributed Name Service Client

* Enter the name of an existing DNS server node: MARK RET
%COPY-S-COPIED, MARK::SYS$SYSROOT:[SYSLIB]DNS$NS_DEF_FILE.DAT;3 copied to
VMI$ROOT:[SYSUPD.DFS011]DNS$DEFAULT_FILE.DAT;1 (1 block)

******************************************************************************
         There are no more questions unless you chose to run the IVP.
         Installing VAX DFS software . . .
******************************************************************************

%DFS-I-ADDED, Added rights identifier DFS$SERVICE

******************************************************************************
 This installation has added the following files. . .
******************************************************************************

        SYS$COMMON:[SYSHLP]DFS$HELP.HLB
        SYS$COMMON:[SYSHLP]DFS011.RELEASE_NOTES

        SYS$COMMON:[SYSLIB]DFS$MNGT_SHR.EXE
        SYS$COMMON:[SYSLIB]DFS$MOUNT_SHR.EXE
        SYS$COMMON:[SYSLIB]DNS$CLIENT.EXE

        SYS$COMMON:[SYSMGR]DFS$CONFIG.COM
        SYS$COMMON:[SYSMGR]DFS$STARTUP.COM
        SYS$COMMON:[SYSMGR]DNS$CHANGE_DEF_FILE.COM
        SYS$COMMON:[SYSMGR]DNS$CLIENT_STARTUP.COM
        SYS$COMMON:[SYSMGR]DNS$CLIENT_STOP.COM
        SYS$COMMON:[SYSMGR]DFS$SYSTARTUP.COM

        SYS$COMMON:[SYSMSG]DFS$MESSAGE.EXE
        SYS$COMMON:[SYSMSG]DNS$MSG.EXE
```

```
        SYS$COMMON:[SYSEXE]DFSCDRIVER.EXE
        SYS$COMMON:[SYSEXE]DFSRRDRIVER.EXE
        SYS$COMMON:[SYSEXE]DFSSDRIVER.EXE
        SYS$COMMON:[SYSEXE]DFS$COM_ACP.EXE
        SYS$COMMON:[SYSEXE]DFS$COM_LOGGER.EXE
        SYS$COMMON:[SYSEXE]DFS$CONTROL.EXE
        SYS$COMMON:[SYSEXE]DNS$ADVER.EXE
        SYS$COMMON:[SYSEXE]DNS$DEFAULT_FILE.DAT
        SYS$COMMON:[SYSEXE]DFS$SERVER_ACP.EXE
        SYS$COMMON:[SYSEXE]DNS$SOLICIT.EXE

        SYS$COMMON:[SYSTEST]DFS$IVP.COM


        VMSINSTAL starts the VAX DFS software by executing the
        DFS$STARTUP command procedure in your SYS$MANAGER directory.


        To automatically start DFS on your system, edit your
        local system start-up command file so that it invokes
        the DFS start-up command file.  Add:
                "@SYS$MANAGER:DFS$STARTUP.COM"
        after the statement that invokes the DECnet start-up
        command file (STARTNET.COM). The DECnet software must
        be started before the DFS software.

        Remember that checksumming is enabled by default in the
        DFS$CONFIG.COM file.  If you do not experience any
        checksum problems within the first two weeks of using DFS,
        we suggest that you disable checksumming.  To disable,
        modify the DFS$CONFIG.COM file by inserting the
        /NOCHECKSUM qualifier in the SET COMMUNICATION command.

        See the VAX DFS Installation Guide for more information
        on the DFS$STARTUP command procedure.

%VMSINSTAL-I-MOVEFILES, Files will now be moved to their target directories...
%RUN-S-PROC_ID, identification of created process is 00000055
%RUN-S-PROC_ID, identification of created process is 00000056

******************************************************************************
        Beginning VAX DFS Installation Verification Procedure . . .
******************************************************************************


  This system will run as a DFS 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 [] ? DEPARTMENT_FINANCE RET

$ DFSCP MOUNT DEPARTMENT_FINANCE DFS$IVP_DISK
%MOUNT-I-MOUNTED, DEPARTMENT_FINANCE mounted on _DFSC1001: (MAPLE)
$ DFSCP DISMOUNT DFS$IVP_DISK
%DFS-S-DISMNT_SUCCESS, Dismount was successfully performed

******************************************************************************
        VAX Distributed File Service V1.1 IVP Successful
******************************************************************************


        Installation of DFS V1.1 completed at 14:40

        VMSINSTAL procedure done at 14:41
```

## B.2 Server Installation

```
Username: SYSTEM RET
Password: password RET

        Welcome to VAX/VMS V5.0 on node FILSVR

    Last interactive login on Thursday, 13-OCT-1988 14:24
    Last non-interactive login on Thursday, 13-OCT-1988 10:24

$ @SYS$UPDATE:VMSINSTAL DFS011 SYS$UPDATE: OPTIONS N RET


        VAX/VMS Software Product Installation Procedure V5.0

It is 13-OCT-1988 at 14:26.
Enter a question mark (?) at any time for help.

%VMSINSTAL-W-DECNET, Your DECnet network is up and running.
%VMSINSTAL-W-ACTIVE, The following processes are still active:
        MAIL_56794
* Do you want to continue anyway [NO]? YES RET
* Are you satisfied with the backup of your system disk [YES]? YES RET

The following products will be processed:
  DFS V1.1

        Beginning installation of DFS V1.1 at 14:26

%VMSINSTAL-I-RESTORE, Restoring product saveset A...

  Release Notes Options:

        1.   Display release notes
        2.   Print release notes
        3.   Both 1 and 2
        4.   Copy release notes to SYS$HELP
        5.   Do not display, print or copy release notes

* Select option [2]:  2 RET
* Queue name [SYS$PRINT]: RET
Job DFS011 (queue SYS$PRINT, entry 1024) started on LPAO
* Do you want to continue the installation [N]? YES RET

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

        Product:       DFS
        Producer:      DEC
        Version:       1.1
        Release Date:  03-OCT-1988

* Does this product have an authorization key registered and loaded? YES RET
* Do you want to install the DFS SERVER software on this node [YES]? YES RET
%VMSINSTAL-I-RESTORE, Restoring product saveset B...
%VMSINSTAL-I-RESTORE, Restoring product saveset D...

        Installing VAX Distributed Name Service Client
```

```
* Enter the name of an existing DNS server node: MARK RET
%COPY-S-COPIED, MARK::SYS$SYSROOT:[SYSLIB]DNS$NS_DEF_FILE.DAT;3 copied to
VMI$ROOT:[SYSUPD.DFS011]DNS$DEFAULT_FILE.DAT;1 (1 block)

******************************************************************************
        There are no more questions unless you chose to run the IVP.
        Installing VAX DFS software . . .
******************************************************************************

% DFS-I-ADDED, Added rights identifier DFS$SERVICE

******************************************************************************
        This installation has added the following files. . .
******************************************************************************

        SYS$COMMON:[SYSHLP]DFS$HELP.HLB
        SYS$COMMON:[SYSHLP]DFS011.RELEASE_NOTES

        SYS$COMMON:[SYSLIB]DFS$MNGT_SHR.EXE
        SYS$COMMON:[SYSLIB]DFS$MOUNT_SHR.EXE
        SYS$COMMON:[SYSLIB]DNS$CLIENT.EXE

        SYS$COMMON:[SYSMGR]DFS$CONFIG.COM
        SYS$COMMON:[SYSMGR]DFS$STARTUP.COM
        SYS$COMMON:[SYSMGR]DNS$CHANGE_DEF_FILE.COM
        SYS$COMMON:[SYSMGR]DNS$CLIENT_STARTUP.COM
        SYS$COMMON:[SYSMGR]DNS$CLIENT_STOP.COM
        SYS$COMMON:[SYSMGR]DFS$SYSTARTUP.COM

        SYS$COMMON:[SYSMSG]DFS$MESSAGE.EXE
        SYS$COMMON:[SYSMSG]DNS$MSG.EXE

        SYS$COMMON:[SYSEXE]DFSCDRIVER.EXE
        SYS$COMMON:[SYSEXE]DFSRRDRIVER.EXE
        SYS$COMMON:[SYSEXE]DFSSDRIVER.EXE
        SYS$COMMON:[SYSEXE]DFS$COM_ACP.EXE
        SYS$COMMON:[SYSEXE]DFS$COM_LOGGER.EXE
        SYS$COMMON:[SYSEXE]DFS$CONTROL.EXE
        SYS$COMMON:[SYSEXE]DNS$ADVER.EXE
        SYS$COMMON:[SYSEXE]DNS$DEFAULT_FILE.DAT
        SYS$COMMON:[SYSEXE]DFS$SERVER_ACP.EXE
        SYS$COMMON:[SYSEXE]DNS$SOLICIT.EXE

        SYS$COMMON:[SYSTEST]DFS$IVP.COM


        VMSINSTAL starts the VAX DFS software by executing the
        DFS$STARTUP command procedure in your SYS$MANAGER directory.


        To automatically start DFS on your system, edit your
        local system start-up command file so that it invokes
        the DFS start-up command file.  Add:
                "@SYS$MANAGER:DFS$STARTUP.COM"
        after the statement that invokes the DECnet start-up
        command file (STARTNET.COM). The DECnet software must
        be started before the DFS software.

        Remember that checksumming is enabled by default in the
        DFS$CONFIG.COM file.  If you do not experience any
        checksum problems within the first two weeks of using DFS,
        we suggest that you disable checksumming.  To disable,
        modify the DFS$CONFIG.COM file by inserting the
        /NOCHECKSUM qualifier in the SET COMMUNICATION command.
```

```
        See the VAX DFS Installation Guide for more information
        on the DFS$STARTUP command procedure.

%VMSINSTAL-I-MOVEFILES, Files will now be moved to their target directories...
%RUN-S-PROC_ID, identification of created process is 00000055
%RUN-S-PROC_ID, identification of created process is 00000056


******************************************************************************
        Beginning VAX DFS Installation Verification Procedure . . .
******************************************************************************


  This system will run as a DFS 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 Name Service use in your network.

 * Enter an Access Point name [] ? DEPARTMENT_FINANCE  RET

$ DFSCP ADD ACCESS_POINT DEPARTMENT_FINANCE SYS$SYSDEVICE:[000000]
$ DFSCP MOUNT DEPARTMENT_FINANCE DFS$IVP_DISK
%MOUNT-I-MOUNTED, DEPARTMENT_FINANCE mounted on _DFSC1001: (FILSVR)
$ DFSCP DISMOUNT DFS$IVP_DISK
%DFS-S-DISMNT_SUCCESS, Dismount was successfully performed
$ DFSCP REMOVE ACCESS DEPARTMENT_FINANCE
******************************************************************************
        VAX Distributed File Service V1.1 IVP Successful
******************************************************************************


        Installation of DFS V1.1 completed at 14:40

        VMSINSTAL procedure done at 14:41
```

Appendix C

# Sample Installation for VMS V4.6 and V4.7 Systems

This appendix shows sample installations of DFS client-only and server software on a VMS V4.7 system. The installation procedure is the same for V4.6 systems. The actual dates, times, entry numbers, and version numbers vary for each installation. Also, the responses to several prompts vary depending on whether you are installing the DFS software on a client-only node or a server.

## C.1 Client-Only Installation

```
Username: SYSTEM [RET]
Password: password [RET]

        Welcome to VMS V4.7

    Last interactive login on Thursday, 13-OCT-1988 14:24
    Last non-interactive login on Thursday, 13-OCT-1988 10:24

$ @SYS$UPDATE:VMSINSTAL DFS011 SYS$UPDATE: OPTIONS N [RET]


        VAX/VMS Software Product Installation Procedure V4.7

It is 13-OCT-1988 at 14:26.
Enter a question mark (?) at any time for help.

%VMSINSTAL-W-DECNET, Your DECnet network is up and running.
%VMSINSTAL-W-ACTIVE, The following processes are still active:
        MAIL_56402
* Do you want to continue anyway [NO]? YES [RET]
* Are you satisfied with the backup of your system disk [YES]? YES [RET]

The following products will be processed:
```

```
  DFS V1.1

        Beginning installation of DFS V1.1 at 14:26

%VMSINSTAL-I-RESTORE, Restoring product saveset A...

  Release Notes Options:

        1.   Display release notes
        2.   Print release notes
        3.   Both 1 and 2

* Select option [3]:  2 RET
* Queue name [SYS$PRINT]: RET
Job DFS011 (queue SYS$PRINT, entry 1024) started on LPAO
* Do you want to continue the installation [N]? YES RET

%VMSINSTAL-I-RELMOVED, The products release notes have been successfully moved
to SYS$HELP.
* Do you want to run the IVP after the installation [YES]? YES RET
* Do you want to purge files replaced by this installation [YES]? YES RET
* Do you want to install the DFS SERVER software on this node [YES]? NO RET
%VMSINSTAL-I-RESTORE, Restoring product saveset C...
%VMSINSTAL-I-RESTORE, Restoring product saveset D...

        Installing VAX Distributed Name Service Client

* Enter the name of an existing DNS server node: MARK RET
%COPY-S-COPIED, MARK::SYS$SYSROOT:[SYSLIB]DNS$NS_DEF_FILE.DAT;3 copied to
VMI$ROOT:[SYSUPD.DFS011]DNS$DEFAULT_FILE.DAT;1 (1 block)

******************************************************************************
        There are no more questions unless you chose to run the IVP.
        Installing VAX DFS software . . .
******************************************************************************

%DFS-I-ADDED, Added rights identifier DFS$SERVICE

******************************************************************************
        This installation has added the following files. . .
******************************************************************************

        SYS$COMMON:[SYSHLP]DFS$HELP.HLB
        SYS$COMMON:[SYSHLP]DFS011.RELEASE_NOTES

        SYS$COMMON:[SYSLIB]DFS$MNGT_SHR.EXE
        SYS$COMMON:[SYSLIB]DFS$MOUNT_SHR.EXE
        SYS$COMMON:[SYSLIB]DNS$CLIENT.EXE

        SYS$COMMON:[SYSMGR]DFS$CONFIG.COM
        SYS$COMMON:[SYSMGR]DFS$STARTUP.COM
        SYS$COMMON:[SYSMGR]DNS$CHANGE_DEF_FILE.COM
        SYS$COMMON:[SYSMGR]DNS$CLIENT_STARTUP.COM
        SYS$COMMON:[SYSMGR]DNS$CLIENT_STOP.COM
        SYS$COMMON:[SYSMGR]DFS$SYSTARTUP.COM

        SYS$COMMON:[SYSMSG]DFS$MESSAGE.EXE
        SYS$COMMON:[SYSMSG]DNS$MSG.EXE
```

```
        SYS$COMMON:[SYSEXE]DFSCDRIVER.EXE
        SYS$COMMON:[SYSEXE]DFSRRDRIVER.EXE
        SYS$COMMON:[SYSEXE]DFSSDRIVER.EXE
        SYS$COMMON:[SYSEXE]DFS$COM_ACP.EXE
        SYS$COMMON:[SYSEXE]DFS$COM_LOGGER.EXE
        SYS$COMMON:[SYSEXE]DFS$CONTROL.EXE
        SYS$COMMON:[SYSEXE]DNS$ADVER.EXE
        SYS$COMMON:[SYSEXE]DNS$DEFAULT_FILE.DAT
        SYS$COMMON:[SYSEXE]DFS$SERVER_ACP.EXE
        SYS$COMMON:[SYSEXE]DNS$SOLICIT.EXE

        SYS$COMMON:[SYSTEST]DFS$IVP.COM


        VMSINSTAL starts the VAX DFS software by executing the
        DFS$STARTUP command procedure in your SYS$MANAGER directory.


        To automatically start DFS on your system, edit your
        local system start-up command file so that it invokes
        the DFS start-up command file. Add:
                "@SYS$MANAGER:DFS$STARTUP.COM"
        after the statement that invokes the DECnet start-up
        command file (STARTNET.COM). The DECnet software must
        be started before the DFS software.

        Remember that checksumming is enabled by default in the
        DFS$CONFIG.COM file. If you do not experience any
        checksum problems within the first 2 weeks of using DFS,
        we suggest that you disable checksumming. To disable,
        modify the DFS$CONFIG.COM file by inserting the
        /NOCHECKSUM qualifier in the SET COMMUNICATION command.

        See the VAX DFS Installation Guide for more information
        on the DFS$STARTUP command procedure.

%VMSINSTAL-I-MOVEFILES, Files will now be moved to their target directories...
%RUN-S-PROC_ID, identification of created process is 0000002C
%RUN-S-PROC_ID, identification of created process is 0000002D

******************************************************************************
        Beginning VAX DFS Installation Verification Procedure . . .
******************************************************************************


  This system will run as a DFS 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 [] ? DEPARTMENT_FINANCE RET

$ DFSCP MOUNT DEPARTMENT_FINANCE DFS$IVP_DISK
%MOUNT-I-MOUNTED, DEPARTMENT_FINANCE mounted on _DFSC1001: (MAPLE)
$ DFSCP DISMOUNT DFS$IVP_DISK
%DFS-S-DISMNT_SUCCESS, Dismount was successfully performed

******************************************************************************
        VAX Distributed File Service V1.1 IVP Successful
******************************************************************************


        Installation of DFS V1.1 completed at 14:40

        VMSINSTAL procedure done at 14:41
```

## C.2 Server Installation

```
Username: SYSTEM  RET
Password: password  RET

        Welcome to VMS V4.7

    Last interactive login on Thursday, 13-OCT-1988 14:24
    Last non-interactive login on Thursday, 13-OCT-1988 10:24

$ @SYS$UPDATE:VMSINSTAL DFS011 SYS$UPDATE: OPTIONS N  RET


        VAX/VMS Software Product Installation Procedure V4.7

It is 13-OCT-1988 at 14:26.
Enter a question mark (?) at any time for help.

%VMSINSTAL-W-DECNET, Your DECnet network is up and running.
%VMSINSTAL-W-ACTIVE, The following processes are still active:
        MAIL_34587
* Do you want to continue anyway [NO]? YES  RET
* Are you satisfied with the backup of your system disk [YES]? YES  RET

The following products will be processed:

  DFS V1.1

        Beginning installation of DFS V1.1 at 14:26

%VMSINSTAL-I-RESTORE, Restoring product saveset A...

  Release Notes Options:

        1.   Display release notes
        2.   Print release notes
        3.   Both 1 and 2

* Select option [3]:  2  RET
* Queue name [SYS$PRINT]:  RET
Job DFS011 (queue SYS$PRINT, entry 1024) started on LPA0
* Do you want to continue the installation [N]? YES  RET

%VMSINSTAL-I-RELMOVED, The products release notes have been successfully moved
to SYS$HELP.
* Do you want to run the IVP after the installation [YES]? YES  RET
* Do you want to purge files replaced by this installation [YES]? YES  RET
* Do you want to install the DFS SERVER software on this node [YES]? YES  RET
%VMSINSTAL-I-RESTORE, Restoring product saveset C...
%VMSINSTAL-I-RESTORE, Restoring product saveset D...

        Installing VAX Distributed Name Service Client

* Enter the name of an existing DNS server node: MARK  RET
%COPY-S-COPIED, MARK::SYS$SYSROOT:[SYSLIB]DNS$NS_DEF_FILE.DAT;3 copied to
VMI$ROOT:[SYSUPD.DFS011]DNS$DEFAULT_FILE.DAT;1 (1 block)

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

```
%DFS-I-ADDED, Added rights identifier DFS$SERVICE

*******************************************************************************
        This installation has added the following files. . .
*******************************************************************************

        SYS$COMMON:[SYSHLP]DFS$HELP.HLB
        SYS$COMMON:[SYSHLP]DFS011.RELEASE_NOTES

        SYS$COMMON:[SYSLIB]DFS$MNGT_SHR.EXE
        SYS$COMMON:[SYSLIB]DFS$MOUNT_SHR.EXE
        SYS$COMMON:[SYSLIB]DNS$CLIENT.EXE

        SYS$COMMON:[SYSMGR]DFS$CONFIG.COM
        SYS$COMMON:[SYSMGR]DFS$STARTUP.COM
        SYS$COMMON:[SYSMGR]DNS$CHANGE_DEF_FILE.COM
        SYS$COMMON:[SYSMGR]DNS$CLIENT_STARTUP.COM
        SYS$COMMON:[SYSMGR]DNS$CLIENT_STOP.COM
        SYS$COMMON:[SYSMGR]DFS$SYSTARTUP.COM

        SYS$COMMON:[SYSMSG]DFS$MESSAGE.EXE
        SYS$COMMON:[SYSMSG]DNS$MSG.EXE

        SYS$COMMON:[SYSEXE]DFSCDRIVER.EXE
        SYS$COMMON:[SYSEXE]DFSRRDRIVER.EXE
        SYS$COMMON:[SYSEXE]DFSSDRIVER.EXE
        SYS$COMMON:[SYSEXE]DFS$COM_ACP.EXE
        SYS$COMMON:[SYSEXE]DFS$COM_LOGGER.EXE
        SYS$COMMON:[SYSEXE]DFS$CONTROL.EXE
        SYS$COMMON:[SYSEXE]DNS$ADVER.EXE
        SYS$COMMON:[SYSEXE]DNS$DEFAULT_FILE.DAT
        SYS$COMMON:[SYSEXE]DFS$SERVER_ACP.EXE
        SYS$COMMON:[SYSEXE]DNS$SOLICIT.EXE

        SYS$COMMON:[SYSTEST]DFS$IVP.COM


        VMSINSTAL starts the VAX DFS software by executing the
        DFS$STARTUP command procedure in your SYS$MANAGER directory.


        To automatically start DFS on your system, edit your
        local system start-up command file so that it invokes
        the DFS start-up command file. Add:
                "@SYS$MANAGER:DFS$STARTUP.COM"
        after the statement that invokes the DECnet start-up
        command file (STARTNET.COM). The DECnet software must
        be started before the DFS software.

        Remember that checksumming is enabled by default in the
        DFS$CONFIG.COM file. If you do not experience any
        checksum problems within the first 2 weeks of using DFS,
        we suggest that you disable checksumming.  To disable,
        modify the DFS$CONFIG.COM file by inserting the
        /NOCHECKSUM qualifier in the SET COMMUNICATION command.

        See the VAX DFS Installation Guide for more information
        on the DFS$STARTUP command procedure.

%VMSINSTAL-I-MOVEFILES, Files will now be moved to their target directories...
%RUN-S-PROC_ID, identification of created process is 0000002C
%RUN-S-PROC_ID, identification of created process is 0000002D
```

```
******************************************************************************
        Beginning VAX DFS Installation Verification Procedure . . .
******************************************************************************

  This system will run as a DFS 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 Name Service use in your network.

 * Enter an Access Point name [] ? DEPARTMENT_FINANCE RET

$ DFSCP ADD ACCESS_POINT DEPARTMENT_FINANCE SYS$SYSDEVICE:[000000]
$ DFSCP MOUNT DEPARTMENT_FINANCE DFS$IVP_DISK
%MOUNT-I-MOUNTED, DEPARTMENT_FINANCE mounted on _DFSC1001: (PINE)
$ DFSCP DISMOUNT DFS$IVP_DISK
%DFS-S-DISMNT_SUCCESS, Dismount was successfully performed
$ DFSCP REMOVE ACCESS DEPARTMENT_FINANCE

******************************************************************************
        VAX Distributed File Service V1.1 IVP Successful
******************************************************************************

        Installation of DFS V1.1 completed at 14:40

        VMSINSTAL procedure done at 14:41
```