Compaq PATHWORKS for OpenVMS

Server Installation and Configuration Guide

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This guide explains how to install and configure the PATHWORKS for OpenVMS (Advanced Server) software, including the standalone License Server and external authentication software, and the Upgrade utility.

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Software Version:	PATHWORKS V6.1 for OpenVMS (Advanced Server)

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The PATHWORKS for OpenVMS (Advanced Server) documentation set is available on CD-ROM.

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Preface

This guide explains how to install and configure the following PATHWORKS servers:

- PATHWORKS for OpenVMS (Advanced Server) file and print server
- PATHWORKS standalone License Server
- Upgrade utility only
- External authentication software only

Intended Audience

This guide is written for OpenVMS system managers and network server administrators. It assumes you are familiar with the following aspects of the Compaq *OpenVMS* operating system:

- Digital Command Language (DCL)
- A text editor, such as EDT or EVE
- VMSINSTAL command procedure

This guide also assumes that you are familiar with basic Advanced Server and networking concepts.

Document Structure

The following list can help you find information in this guide:

Chapter	Description
Chapter 1	Describes prerequisites for the installation procedure
Chapter 2	Describes the installation procedure

Chapter	Description
Chapter 3	Describes the configuration procedure for the PATHWORKS Advanced Server
Chapter 4	Describes the configuration procedure for the standalone License Server
Chapter 5	Describes postinstallation tasks, such as running the Installation Verification Procedure and starting the server independent of the installation and configuration procedures
Chapter 6	Describes how to set up Wide Area Networks
Chapter 7	Describes how to remove the PATHWORKS Advanced Server from your system
Appendix A	Provides a checklist of installation and configuration tasks; you can photocopy Appendix A, Installation and Upgrade Checklist, and use it as a checklist as you read this guide
Appendix B	Shows a sample installation and configuration procedure for the PATHWORKS Advanced Server
Appendix C	Shows a sample installation and configuration procedure for the standalone License Server
Appendix D	Shows a sample installation procedure for the Upgrade utility
Appendix E	Shows a sample installation procedure for external authentication software only
Appendix F	Lists the files that are installed with PATHWORKS Advanced Server and shows the on-disk structure
Appendix G	Lists the logical names created for the PATHWORKS Advanced Server

Related Documents

The following manuals provide more information about topics discussed in this guide:

Document	Description
Compaq PATHWORKS for OpenVMS (Advanced Server) Server Migration Guide	Explains how to upgrade a PATHWORKS (LAN Manager) server to PATHWORKS V6 for OpenVMS (Advanced Server)
Compaq Advanced Server for OpenVMS Concepts and Planning Guide	Provides an overview of and introduction to the PATHWORKS Advanced Server software and associated networking concepts for system administrators and operators
Compaq PATHWORKS for OpenVMS (Advanced Server) Server Administrator's Guide	Explains how to manage and customize the PATHWORKS Advanced Server software
Compaq Advanced Server for OpenVMS Commands Reference Manual	Provides command syntax descriptions for all ADMINISTER commands and NET command equivalents
Compaq Advanced Server for OpenVMS Guide to Managing Advanced Server Licenses	Describes the License Server software and how to manage PATHWORKS for OpenVMS (Advanced Server) licenses

The following table lists related OpenVMS documents.

OpenVMS Document	Description
OpenVMS Version 7.x New Features and Documentation Overview Manual	Describes the new features of the OpenVMS software and provides an overview of the documentation that supports it
OpenVMS Alpha Version 7.x Upgrade and Installation Manual	Describes how to install the OpenVMS Alpha system software
OpenVMS VAX Version 7.x Upgrade and Installation Manual	Describes how to install the OpenVMS VAX system software
OpenVMS System Manager's Manual	A task-oriented guide (in two volumes) to managing an OpenVMS system; describes how to set up the required system services
OpenVMS System Management Utilities Reference Manual	A reference guide (in two volumes) to the utilities and tools used in managing an OpenVMS system
OpenVMS License Management Utility Manual	Explains how to load and manage license Product Authorization Keys (PAKs)
OpenVMS Guide to System Security	Describes the system security features of OpenVMS, including procedures for enabling external authentication

For additional information about the OpenVMS products and services, access the following OpenVMS World Wide Web address:

http://www.openvms.compaq.com/

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Conventions

The term PATHWORKS Advanced Server is used in this guide to refer to the PATHWORKS for OpenVMS (Advanced Server) file and print server. Mentions of Compaq OpenVMS file and print servers refers to the PATHWORKS family of file and print servers, including PATHWORKS (LAN Manager), PATHWORKS for OpenVMS (NetWare), PATHWORKS for OpenVMS (Advanced Server), and the Advanced Server for OpenVMS.

The following conventions are used in the PATHWORKS Advanced Server documentation:

Convention	Meaning
DECnet	Applies to both DECnet Phase IV and DECnet-Plus, unless otherwise specified.

Convention	Meaning
Italic	The use of italic text indicates a placeholder for information or parameters that you must provide. For example, if the procedure asks you to type *file name*, you must type the actual name of a file. Italic text also indicates new terms and the titles of other documentation referenced.
`monospace`	The use of monospace text indicates actual commands and characters that you enter, and the system display.
Note	The use of **Note** provides information of special importance.
Caution	The use of **Caution** provides information to avoid damaging software or hardware.
Warning	The use of **Warning** provides information that is essential to people's safety.
. . .	A horizontal ellipsis following an entry in a command line indicates that the entry or a similar entry can be repeated any number of times. An ellipsis following a file name indicates that additional parameters, values, or information can be entered.
. . .	A vertical ellipsis in an example indicates that not all the data is shown.
Ctrl/*x*	While you hold down the Ctrl key, press another key or a pointing device button.
Return or Enter	Return or Enter in text indicates where you should press the Return or Enter key to execute a command or terminate a sequence. This key is labeled Return or Enter, depending on your keyboard.
Tab	In examples, a key name enclosed in a box indicates that you press a key on the keyboard. (In text, a key name is not enclosed in a box.) In the HTML version of this document, this convention appears as brackets, rather than a box.
PF1 *x*	A sequence such as PF1 *x* indicates that you must first press and release the key labeled PF1 and then press and release another key or a pointing device button.

1

Before You Install PATHWORKS Advanced Server

This chapter describes the hardware and software you must have and the tasks you need to complete before you install PATHWORKS Advanced Server software.

This chapter consists of the following sections:

- Section 1.1, About the PATHWORKS for OpenVMS Software Kit
- Section 1.2, If You Are Upgrading from PATHWORKS (LAN Manager)
- Section 1.3, Installing DECprint Software
- Section 1.4, About Licensing
- Section 1.5, About External Authentication
- Section 1.6, Reading the Release Notes
- Section 1.7, Using the Installation Checklist
- Section 1.8, Requirements for Installing PATHWORKS Advanced Server Software
- Section 1.9, Preinstallation Tasks
- Section 1.10, Next Step

1.1 About the PATHWORKS for OpenVMS Software Kit

The PATHWORKS for OpenVMS (Advanced Server) kit contains the software required to run the following software installation options:

- The complete PATHWORKS Advanced Server file and print server software, including the License Server, external authentication software, and Upgrade utility.
- The standalone License Server

- The standalone external authentication software
- The Upgrade utility

The Upgrade utility helps you migrate from PATHWORKS (LAN Manager) to PATHWORKS V6 for OpenVMS (Advanced Server).

1.1.1 About the PATHWORKS for OpenVMS (NetWare) Server

The PATHWORKS for OpenVMS (NetWare) server is no longer supported. PATHWORKS for OpenVMS (Advanced Server) cannot be installed on a system where the PATHWORKS for OpenVMS (NetWare) server is installed. If the installation procedure finds the PATHWORKS for OpenVMS (NetWare) server, it optionally invokes the PATHWORKS for OpenVMS (NetWare) removal procedure (PWVN$DEINSTAL), to remove the NetWare server software before installing the PATHWORKS Advanced Server software. For more information about the NetWare server removal procedure, refer to Section 7.2, Removing the PATHWORKS NetWare Server.

If your clients continue to depend on NetWare software to connect to the system, or if you need the IPX/SPX transport for any reason, you should designate a system to run the PATHWORKS for OpenVMS (NetWare) server.

1.2 If You Are Upgrading from PATHWORKS (LAN Manager)

If you have PATHWORKS (LAN Manager) installed, you must install the new PATHWORKS Advanced Server. You can choose to install just the Upgrade utility initially, and install the PATHWORKS Advanced Server later. Refer to the *Compaq PATHWORKS for OpenVMS (Advanced Server) Server Migration Guide* for more information.

1.3 Installing DECprint Software

DECprint Supervisor for OpenVMS (DCPS) is a printing system that provides queue management and printing features for PostScript printers. To share a PostScript printer, selected PostScript printers might require use of the DECprint Supervisor for OpenVMS (DCPS) software for communication with the printers over DECnet or TCP/IP.

If you plan to use DECprint Supervisor for OpenVMS on your system, Compaq recommends that you install it before installing the Advanced Server. You must reboot the system after installing the DECprint software. You can perform the reboot as part of the DECprint Supervisor installation procedure, or after you install the Advanced Server but before you configure it.

1.4 About Licensing

The following sections describe the way the PATHWORKS Advanced Server software is licensed, and how to ensure clients accessing the server are properly licensed.

1.4.1 License Requirements

The PATHWORKS Advanced Server requires that clients accessing file and print services be appropriately licensed. To conform to this requirement, one of the following must be true:

- The client must present a client-based license before each attempt to connect to a PATHWORKS Advanced Server.
- The PATHWORKS Advanced Server must have a server-based license available to assign to an unlicensed client attempting to use services of the PATHWORKS Advanced Server.

In either case, the license required to access PATHWORKS V6.1 for OpenVMS (Advanced Server) services is the PATHWORKS Client Access license: PWLMXXXCA07.03 or higher, or an equivalent client virtual license.

If you are upgrading from PATHWORKS LAN Manager, refer to the *Compaq PATHWORKS for OpenVMS (Advanced Server) Server Migration Guide* for information about upgrading client license requests.

1.4.2 About the License Server

The PATHWORKS License Server is an optional software program that you can run on your OpenVMS system to grant licenses to clients.

The License Server can be installed:

- With the file and print server (automatically included with your file and print server installation)
- Separately from the file and print server (called the ‘‘standalone License Server’’)

In either case, you can configure the License Server to support clients using any of the following network protocols:

- DECnet
- LAN Manager (NetBEUI)
- TCP/IP

Compaq recommends that you install the License Server on a designated OpenVMS system without the PATHWORKS file server. (The PATHWORKS Advanced Server installation procedure allows you to install the License Server separately from the file server.) Alternatively, you can run the License Server on an OpenVMS Cluster with PATHWORKS file and print servers, where cluster failover provides reliability.

Each LAN needs only one active PATHWORKS License Server. (The same License Server can support both PATHWORKS LAN Manager and PATHWORKS Advanced Server clients.) The license product authorization keys (PAKs) must be loaded on the system that runs the PATHWORKS License Server. In an OpenVMS Cluster, the PAKs must be loaded into a shared license database.

Information Required	Source
Loading licenses	*OpenVMS License Management Utility Manual*
Configuring the License Server	Chapter 4, Configuring and Starting the Standalone License Server
Managing PATHWORKS Advanced Server licenses	*Compaq Advanced Server for OpenVMS Guide to Managing Advanced Server Licenses*

1.5 About External Authentication

External authentication is an optional feature of OpenVMS systems that allows system managers to set up user accounts for which login authentication is based on a security mechanism other than OpenVMS security.

The PATHWORKS Advanced Server takes advantage of this feature by providing the ability to use the PATHWORKS Advanced Server or Windows NT-compatible user authentication mechanisms to authenticate OpenVMS user logins. This allows users to log in at the OpenVMS login prompt using the PATHWORKS Advanced Server user name and password. In addition, it provides automatic password synchronization for user accounts.

When you install the complete PATHWORKS Advanced Server, the files required to support external authentication are automatically included in the installation process.

When you install the Advanced Server in an OpenVMS Cluster, if you want to enable external authentication on OpenVMS Cluster member nodes on which the server is not running and which share the same system disk, you can install the standalone external authentication software on that disk (without installing the Advanced Server software). On OpenVMS Version 7.1 Alpha and

VAX cluster members, you must copy the external authentication files from a system on which the Advanced Server is installed to the OpenVMS Version 7.1 systems.

For more information about enabling external authentication, refer to Section 5.6, Setting Up External Authentication.

1.6 Reading the Release Notes

The PATHWORKS Advanced Server installation kit includes the *Compaq PATHWORKS for OpenVMS (Advanced Server) Release Notes*. Compaq recommends that you read the release notes before starting the installation.

Note

The installation procedure copies the release notes into the SYS$HELP: area, where they are available after server installation.

1.6.1 How to Access the Release Notes

Use the following table to decide how to print the release notes:

Desired Result	Required Steps
Print the release notes before the installation	Do the following: 1. Load the installation kit on a drive. 2. Enter the following commands, replacing *device* with the name of the device (and if the device is a disk, also designate the directory) where you loaded the installation kit:

```
$ MOUNT device: PWRK
$ BACKUP/SELECT=PWRK061.RELEASE_NOTES device:PWRK061.A/SAVE_SET *
$ PRINT PWRK061.RELEASE_NOTES
```

Desired Result	Required Steps
Print the release notes during the installation	Do the following: 1. Load the installation kit on a drive. 2. Enter the following command to start the installation procedure: `$ @VMSINSTAL PWRK061 device_name: OPTIONS N` The installation procedure prompts you to either print or display the release notes. In any case, the release notes are always copied to the SYS$HELP: area.

1.7 Using the Installation Checklist

Appendix A, Installation and Upgrade Checklist, provides an installation and configuration summary checklist. You can photocopy the summary checklist and use it to track the completion of the installation and configuration tasks described in this guide.

1.8 Requirements for Installing PATHWORKS Advanced Server Software

The following sections describe the hardware and software that may be required to install PATHWORKS Advanced Server on the system.

1.8.1 Hardware Requirements

All Alpha and VAX processors supported by the OpenVMS operating system are also supported by the PATHWORKS Advanced Server. For the latest information on the hardware that the server supports, refer to the Software Product Description (SPD).

Make sure that the network (including cables, PCs, servers, and other hardware) is connected. For a list of the hardware that the server supports, refer to the Software Product Description (SPD).

1.8.2 Software Requirements

To install PATHWORKS Advanced Server successfully, you must have the following software properly installed and configured on your system:

- OpenVMS Alpha Version 7.3, 7.2-2, 7.2-1, or 6.2, or OpenVMS VAX Version 7.3, 7.2, or 6.2

- The appropriate transport software to support the network protocols used by other servers and by network clients, including one or more of the following:
  - DECnet or DECnet-Plus (optional)

    DECnet or DECnet-Plus may optionally be installed when you install the OpenVMS operating system.
  - TCP/IP (optional)

    TCP/IP Services for OpenVMS or a supported third-party TCP/IP product can be used to provide IP support. Refer to the PATHWORKS Advanced Server Software Product Description (SPD) for a list of supported TCP/IP products.

1.8.3 Supported Client Software

PATHWORKS Advanced Server supports connections from the following types of clients:

- Windows 2000
- Windows NT 4.0
- Windows 98
- Windows 95
- Windows for Workgroups
- PATHWORKS 32

1.8.4 Memory Requirements

The system must have at least 64 MB of physical memory to run the PATHWORKS Advanced Server.

1.9 Preinstallation Tasks

Use the following checklist to make sure you have completed all the tasks you should perform before you install the software. Each task is described later in this section.

Before You Install PATHWORKS Advanced Server
1.9 Preinstallation Tasks

Table 1–1 Preinstallation Checklist

☐	1.	Check the part listing.
☐	2.	Make sure that the network hardware is installed and connected.
☐	3.	Log in to the SYSTEM account.
☐	4.	Make sure that the required software is installed.
☐	5.	Read the release notes.
☐	6.	Check system parameters.
☐	7.	Back up the system disks.
☐	8.	Make sure that you have adequate disk space for installation.
☐	9.	Check the queue manager.
☐	10.	Check the time zone configuration.
☐	11.	Make sure that DECnet is running, if you are planning to use the DECnet transport.
☐	12.	Make sure that TCP/IP is running, if you are planning to use the TCP/IP transport.
☐	13.	Check for existing Compaq OpenVMS server images and files.
☐	14.	Check the OpenVMS Cluster configuration, if you are installing PATHWORKS Advanced Server on a cluster.

Before you install PATHWORKS Advanced Server, perform the following steps.

Note

All the steps except the last apply to both standalone and cluster Advanced Servers. The last step delineates what needs to be done for installing the Advanced Server on a cluster.

1.9.1 Step 1: Check the Part Listing

The software part listing specifies the contents of the kit you receive. Check the contents of your kit against that information. If parts are missing or your kit is damaged, contact your Compaq Computer Corporation representative.

1.9.2 Step 2: Check the Network Hardware

PATHWORKS Advanced Server runs on OpenVMS systems that meet the software requirements. The PC local area network (LAN) requires:

- A supported network controller board in the server and in each client
- The cables to connect each client and server to the network

1.9.3 Step 3: Log In to the SYSTEM Account

Before you install PATHWORKS Advanced Server, log in to the SYSTEM account, or another account that has all privileges enabled to run the installation procedure.

To log in to the SYSTEM account:

1. At the user name prompt, enter SYSTEM:

   ```
   Username: SYSTEM
   ```

2. At the Password prompt, enter the password to the SYSTEM account. The password you enter is not displayed.

1.9.4 Step 4: Check the Required Software

PATHWORKS Advanced Server requires the following:

- OpenVMS operating system, Alpha Version 7.3, 7.2-2, 7.2-1, or 6.2, or VAX Version 7.3, 7.2, or 6.2
- DECnet or DECnet-Plus, if you are going to use the DECnet transport, the mail server, or the License Server over DECnet.

- A TCP/IP product, if you are going to use the TCP/IP for cluster or network communication. Supported TCP/IP products are described in the *Compaq PATHWORKS for OpenVMS (Advanced Server) Release Notes*.

1.9.5 Step 5: Print and Read the Release Notes

If you have not already read the release notes, you should do so before installing the software. If you choose to back up the system, as recommended in Section 1.9.8, Step 8: Back Up the System, you can read the release notes during the backup. See Section 1.6, Reading the Release Notes, for more information.

1.9.6 Step 6: Check System Parameters

Most systems have adequate system resources readily available to include the PATHWORKS Advanced Server software. However, make sure that the following OpenVMS system parameters are set properly. Make any necessary changes to the MODPARAMS.DAT file, then run AUTOGEN, and reboot your system. You can delay this reboot until the first reboot required for backing up your system disks (a backup is recommended in Section 1.9.8, Step 8: Back Up the System).

Make sure all other software that will be running on your system is indeed running before and while you run AUTOGEN.

Note

If these parameters are not set properly, you cannot configure the server after you complete the installation procedure.

GBLPAGES parameter

The minimum value of this parameter is listed in Table 1–2, GBLPAGES Parameter Minimum Value.

Table 1–2 GBLPAGES Parameter Minimum Value

Minimum Value for a VAX system	Minimum Value for an Alpha system
3500 pages	7500 pages

To ensure that your system has enough free global pages, do the following while the Advanced Server is not running:

1. Enter the following:

   ```
   $ WRITE SYS$OUTPUT F$GETSYI("FREE_GBLPAGES")
   ```

   The value of the GBLPAGES parameter is displayed. For example:

   ```
   143576
   ```

2. If the value is less than required, edit the system parameters file SYS$SYSTEM:MODPARAMS.DAT and add a line similar to the following:

   ```
   MIN_GBLPAGES = 7500
   ```

GBLSECTIONS parameter

The minimum value of this parameter differs depending on which server is to be installed, as described in Table 1–3, GBLSECTIONS Parameter Minimum Value.

Table 1–3 GBLSECTIONS Parameter Minimum Value

Minimum Value for the standalone License Server	Minimum Value for the PATHWORKS Advanced Server Installation
50	75

To ensure that your system has enough free global sections, do the following while the Advanced Server is not running:

1. Enter the following:

   ```
   $ WRITE SYS$OUTPUT F$GETSYI("FREE_GBLSECTS")
   ```

   The value of the GBLSECTIONS parameter is displayed. For example:

   ```
   249
   ```

2. If the value is less than required, edit the system parameters file SYS$SYSTEM:MODPARAMS.DAT and add a line similar to the following:

   ```
   MIN_GBLSECTIONS = 75
   ```

PROCSECTCNT parameter

The minimum value of this parameter differs depending on which server is to be installed, as described in Table 1–4, PROCSECTCNT Parameter Minimum Value.

Table 1–4 PROCSECTCNT Parameter Minimum Value

Minimum Value for the Standalone License Server	Minimum Value for the PATHWORKS Advanced Server Installation
32	40

To ensure that the value of the system parameter PROCSECTCNT is adequate:

1. Enter the following:

   ```
   $ WRITE SYS$OUTPUT F$GETSYI("PROCSECTCNT")
   ```

   The value of the PROCSECTCNT parameter is displayed. For example:

   ```
   20
   ```

2. If the value is less than required, edit the system parameters file SYS$SYSTEM:MODPARAMS.DAT and add a line similar to the following:

   ```
   MIN_PROCSECTCNT = 40
   ```

SCSNODE parameter

This parameter must be defined as your system's computer name. If you are running DECnet, the SCSNODE name should be the same as the DECnet node name.

The SCSNODE parameter's preinstallation status affects what happens after you install, as follows:

SCSNODE Status	Your Action	Server Response After Installation
Not defined	Do not define it	Does not start.
Already defined	Do not define it	Starts.
Not defined	Define it	Starts, but the OpenVMS system renames print and batch queues to include the new computer name. Therefore, you must requeue any existing print or batch jobs to the new queues. You may also have to rebuild the queue database. For information on these system management tasks, refer to the *OpenVMS System Manager's Manual*.

To check whether the system parameter SCSNODE is defined as your system's computer name, enter the following commands at the system prompt:

```
$ SCSNODE = F$GETSYI("SCSNODE")
$ SHOW SYMBOL SCSNODE
```

As a result, one of the following occurs:

- If SCSNODE is defined, the computer name is displayed. For example, if your system's computer name is SPEEDY:

  ```
  $ SHOW SYMBOL SCSNODE
     SPEEDY
  ```

- If SCSNODE is not defined, the computer name is not displayed.

  If SCSNODE is not defined, edit the system parameters file SYS$SYSTEM:MODPARAMS.DAT and define the parameter. For example, if your system's computer name is SPEEDY, edit the file so that it contains the following line:

  ```
  SCSNODE = "SPEEDY"
  ```

  If you edit the file SYS$SYSTEM:MODPARAMS.DAT, you must run the OpenVMS command procedure AUTOGEN and reboot the system either now or at some time before configuring the server. For example:

  ```
  $ @SYS$UPDATE:AUTOGEN GETDATA REBOOT NOFEEDBACK
  ```

For information about running AUTOGEN, refer to the *OpenVMS System Management Utilities Reference Manual*.

1.9.7 Step 7: Check ENQLM Process Quota

Make sure that the ENQLM quota for the user account you use for configuring the Advanced Server is set to a value of 500 or greater. If it is not set appropriately, you will not be able to configure the Advanced Server after the installation procedure.

To determine the current setting for this quota, enter the following command while logged in to the user account from which you will run the PWRK$CONFIG.COM configuration procedure:

```
$ WRITE SYS$OUTPUT F$GETJPI("", "ENQLM")
```

The value of the ENQLM parameter is displayed. For example:

```
2000
```

If the value is less than required, follow these steps:

1. Set the process default device and directory to SYS$SYSTEM.
2. At the system prompt, enter the MCR AUTHORIZE command.

3. At the UAF prompt, enter the MODIFY command, as in the following example, where *user-account* is the name of the user account from which you will configure the server, and *value* is a value of 500 or greater:

   ```
   UAF> MODIFY user-account/ENQLM=value
   ```

1.9.8 Step 8: Back Up the System

To safeguard against the loss of valuable data, Compaq recommends that you back up all disks on your system (or at least the system disk) before you install any layered product.

To do a system backup, use the OpenVMS BACKUP command. For information about the BACKUP command, refer to the *OpenVMS System Management Utilities Reference Manual*.

1.9.9 Step 9: Check Disk Space Requirements

To determine the number of disk blocks required for your installation, refer to the PATHWORKS Advanced Server release notes.

To check the number of free blocks on the system disk, enter:

```
$ SHOW DEVICE SYS$SYSDEVICE
```

The OpenVMS system displays information about the system disk, including the number of free blocks. For example:

```
Device     Device     Error    Volume    Free  Trans Mnt
 Name      Status     Count     Label   Blocks Count Cnt
DUA0:      Mounted        0    AXP072   724856   280   1
```

1.9.10 Step 10: Check the Queue Manager

It is not necessary to have the queue manager running during installation and configuration, but Compaq recommends that it be running when you configure the server. You can enter the SHOW QUEUE/MANAGER command to check whether the queue manager is running:

```
$ SHOW QUEUE/MANAGER
```

If the queue manager is running, your OpenVMS system displays a message similar to the following:

```
Queue manager SYS$QUEUE_MANAGER, running, on CPEEDY::
```

If the queue manager is not running, you can use the following command to start it:

```
$ START/QUEUE/MANAGER
```

For more information about the OpenVMS DCL commands, refer to the *OpenVMS DCL Dictionary*.

1.9.11 Step 11: Check Time Zone and TDF

To check the time zone and time differential factor (TDF) settings on the system, run the OpenVMS command procedure SYS$MANAGER:UTC$TIME_SETUP.COM. From the SYSTEM account, enter the following command to begin the procedure:

```
$ @SYS$MANAGER:UTC$TIME_SETUP.COM
```

PATHWORKS Advanced Server's internal time management uses Greenwich Mean Time (GMT). To properly represent the time in the local environment, the time zone information must be set up before the server is started.

To set the time zone on your OpenVMS system, execute the following command procedure:

```
@ SYS$MANAGER:UTC$TIMEZONE_SETUP.COM
```

To set the time zone differential factor for the OpenVMS system, execute the following command procedure:

```
@ SYS$MANAGER:UTC$CONFIGURE_TDF.COM
```

If you change any time zone information, such as the daylight savings time setting, you must restart the server for the time to be properly represented.

Note

For diagnostic purposes, you can check the server log file for the values of the TDF (in seconds) and the daylight saving time flag.

For more information on running the command procedure and resetting time zone and TDF, see the section on setting time zone information in the *OpenVMS System Manager's Manual*.

1.9.12 Step 12: Check DECnet Status

If you plan to use the DECnet transport, it is not necessary to have DECnet or DECnet-Plus running during the installation; however, DECnet or DECnet-Plus must be running on the system before you can configure the server.

To see whether DECnet is running on the system where you are planning to install the server software, enter the appropriate command depending on whether you have installed DECnet (Phase IV), or DECnet-Plus, as described in the following sections.

1.9.12.1 Checking DECnet (Phase IV) Status

To check DECnet status, enter the following command:

```
$ MCR NCP SHOW EXECUTOR
```

- If DECnet is running, the SHOW EXECUTOR display resembles the following:

```
Node Volatile Summary as of  1-JUL-2001 12:16:36

Executor node = 9.000 (BRUTUS)

State           = on
Identification  = DECnet for OpenVMS AXP V7.2
```

- If DECnet is not running, enter the following command to start it:

```
$ @SYS$MANAGER:STARTNET
```

1.9.12.2 Checking DECnet-Plus Status

If you use DECnet-Plus (formerly DECnet/OSI for OpenVMS), enter the following command to see whether it is running on the system where you are planning to install the server software:

```
$ SHOW LOGICAL NET$STARTUP_STATUS
```

- If DECnet-Plus is running, the system displays the following:

```
"NET$STARTUP_STATUS" = "RUNNING-ALL" (LNM$SYSTEM_TABLE)
```

- If DECnet-Plus is not running, enter the following command to start it:

```
$ @SYS$STARTUP:NET$STARTUP
```

For more information, refer to the DECnet product documentation.

1.9.13 Step 13: Check TCP/IP Status

If you are planning to use the TCP/IP transport, make sure that TCP/IP is running and that the PATHWORKS IP (PWIP) driver has been loaded. The procedure for starting the TCP/IP product and the PWIP driver differs depending on the TCP/IP product running on the system. Refer to the documentation for your TCP/IP product for information on how to start TCP/IP and the PWIP driver.

For example, if TCP/IP Services for OpenVMS Version 5 is installed, you can start the PWIP driver manually by entering the following command:

```
$ @SYS$STARTUP:TCPIP$PWIP_STARTUP.COM
```

Alternatively, you can configure TCP/IP Services for OpenVMS to automatically start the PWIP driver when TCP/IP is started, using the configuration procedure TCPIP$CONFIG.COM.

For TCP/IP Services for OpenVMS Version 4.*x*, use the configuration procedure UCX$CONFIG.COM to enable the PWIP driver on TCP/IP startup, or enter the following OpenVMS commands:

```
$ @SYS$STARTUP:UCX$STARTUP
$ @SYS$STARTUP:UCX$PWIP_STARTUP
```

You can add these commands to the system startup procedure.

After the installation is complete, you can use the Configuration Manager to configure the PATHWORKS Advanced Server to use TCP/IP. You can do this during the configuration procedure (PWRK$CONFIG) or after configuring the server. In the former case, PWRK$CONFIG gives you the option of invoking the Configuration Manager. In the latter case, you can invoke the Configuration Manager at the DCL prompt by entering the ADMINISTER/CONFIG command.

1.9.14 Step 14: Check for Existing OpenVMS Server Images and Files

Make sure that:

1. No Compaq OpenVMS file and print server images (current or earlier versions) are running on the local system or on any member of the OpenVMS Cluster (when installing on a cluster).
2. No files from a PATHWORKS for OpenVMS (NetWare) kit are on the system disk. If such files are present, use SYS$UPDATE:PWVN$DEINSTAL.COM (included with the PATHWORKS for OpenVMS (NetWare) kit) to remove those files.
3. No PATHWORKS or Advanced Server for OpenVMS images reside in the SYS$SPECIFIC: directory area of the system disk on which PATHWORKS will be installed. (When PATHWORKS V6.1 for OpenVMS (Advanced Server) is installed, images in the SYS$SPECIFIC: directory area will be used before the corresponding images in the SYS$COMMON: directory area are used.) To remove the PATHWORKS or Advanced Server (V7.2 or V7.2A) for OpenVMS files, use the PWRK$DEINSTAL utility. To remove the Advanced Server V7.3 for OpenVMS files, use the PRODUCT REMOVE command, as documented in the *Compaq Advanced Server for OpenVMS Server Installation and Configuration Guide*.

The server VMSINSTAL installation utility will detect if any of these conditions exist, and if the images or files are found, it will notify you. The VMSINSTAL installation utility automatically deletes, without notification, any files from a PATHWORKS Advanced Server or Advanced Server for OpenVMS kit found in the SYS$SPECIFIC directory tree.

1.9.15 Step 15: Check OpenVMS Cluster Configuration

You can run the Advanced Server on multiple OpenVMS Cluster members. To do so, follow these steps:

1. An OpenVMS Cluster can include both VAX and Alpha member nodes. The PATHWORKS Advanced Server can run on any VAX or Alpha cluster member that is running a supported version of OpenVMS. However, an OpenVMS Cluster cannot support two different versions of the file and print server (for example, PATHWORKS V6 for OpenVMS (Advanced Server) and Advanced Server V7.3 for OpenVMS).

2. Decide which member nodes in the OpenVMS Cluster will run the Advanced Server, then identify all the system disks that will be used by those member nodes. Install the Advanced Server on each of those system disks.

   If the OpenVMS Cluster contains other system disks (for example, to support systems running earlier versions of OpenVMS), these disks might have older versions of Compaq OpenVMS file and print servers installed on them. If so, remove the older versions to prevent them from accidentally starting up while the Advanced Server is running on the current OpenVMS systems. To remove the PATHWORKS for OpenVMS (Advanced Server) product, execute the command procedure SYS$UPDATE:PWRK$DEINSTAL from a cluster member that uses the system disk from which PATHWORKS is to be removed. For more information on using PWRK$DEINSTAL.COM, see Chapter 7, Removing PATHWORKS Advanced Server Software. To remove the Advanced Server V7.3 for OpenVMS product, use the PRODUCT REMOVE command, as documented in the *Compaq Advanced Server for OpenVMS Server Installation and Configuration Guide*. To remove earlier versions of the Advanced Server for OpenVMS, use PWRK$DEINSTAL.COM. To remove a PATHWORKS (LAN Manager) product, use the PWRK$DEINSTAL utility that was installed with the product. The PATHWORKS (LAN Manager) server must be stopped before you can remove it.

3. If you plan to use the TCP/IP transport, ensure that all cluster members on which the Advanced Server will run are in the same TCP/IP subnet.

4. If an earlier version of the PATHWORKS for OpenVMS (Advanced Server) or any other Compaq OpenVMS file and print server is running on any cluster member, stop the server on the cluster member system.
5. On each system on which you want to install the Advanced Server, complete the tasks described in this chapter.

   On each cluster member that you want to use as a file and print server, you will run the Advanced Server configuration command procedure (PWRK$CONFIG.COM), as explained in Chapter 3, Configuring the PATHWORKS Advanced Server. This ensures that each node has its appropriate parameters set and enough resources to run the server.
6. All cluster members that will run the Advanced Server must share a common:
   - System user authorization file (SYSUAF.DAT)
   - Rightlist file (RIGHTSLIST.DAT)
   - Advanced Server data directory location (PWRK$COMMONROOT:)
7. When installing the Advanced Server on an OpenVMS Cluster member, if the following two conditions apply, you are must shut down the server and reboot the systems running the server. (You can avoid the reboot, as noted below.)
   1. Advanced Servers are installed on two or more system disks in the cluster
   2. The Advanced Server is already running on one or more cluster members that are booted from a system disk other than the one on which the installation is occuring

   To avoid having to reboot the systems that are already running the Advanced Server, the system administrator can deassign the logical name (PWRK$REBOOT_REQUIRED) that forces the reboot to occur on each affected node, as follows:

```
$ DEASSIGN/SYSTEM PWRK$REBOOT_REQUIRED
```

1.10 Next Step

To install PATHWORKS Advanced Server, proceed to Chapter 2, Installing the PATHWORKS Advanced Server.

2

Installing the PATHWORKS Advanced Server

This chapter describes how to install the PATHWORKS for OpenVMS (Advanced Server) software. You must follow these procedures regardless of whether you are upgrading from a previous version of the server or installing the server for the first time.

Before you begin the installation procedure, make sure that you have completed the preinstallation tasks listed in Chapter 1, Before You Install PATHWORKS Advanced Server.

This chapter consists of the following sections:

- Section 2.1, About the Installation Procedure
- Section 2.2, Installing the Server
- Section 2.3, Troubleshooting Installation Problems
- Section 2.4, Next Steps

2.1 About the Installation Procedure

The following sections describe the installation procedure and what it does.

2.1.1 What is VMSINSTAL?

VMSINSTAL is the standard command procedure for installing software on the OpenVMS operating system. VMSINSTAL consists of a series of questions (prompts). Your answers to these questions provide VMSINSTAL with the information needed for installing PATHWORKS Advanced Server.

2.1.2 PATHWORKS Advanced Server Installation Kit

The VMSINSTAL installation kit includes several OpenVMS BACKUP save sets. The save set PWRK061.A always contains the file KITINSTAL.COM and the release notes. The savesets included in the software kit are listed in the product release notes.

2.1.3 What VMSINSTAL Does

When you use VMSINSTAL, it:

1. Determines whether the PATHWORKS for OpenVMS (NetWare) server is installed on the system, and if it is, optionally removes the NetWare server software.
2. Creates PATHWORKS Advanced Server accounts on the file and print server, if necessary.
3. Restores the files from the save sets in the installation kit.
4. Creates DECnet objects, if you are running DECnet or DECnet-Plus.
5. Installs the PATHWORKS Advanced Server DCL command definition file.
6. Installs the PATHWORKS Advanced Server logical names definition files.
7. Deletes obsolete files.
8. Installs the PATHWORKS Advanced Server files.
9. Verifies that the software has been installed successfully. (See Section 5.2, Verifying the PATHWORKS for OpenVMS (Advanced Server) Installation, for information on how to run the Installation Verification Procedure after installing the software.)

2.2 Installing the Server

The following sections describe how to prepare information required during the installation procedure, and how to specify the required information during the procedure.

2.2.1 Before You Start VMSINSTAL

Before you start the VMSINSTAL command procedure, be prepared to answer the following questions. The questions that VMSINSTAL asks depend on the software environment and options you select.

1. What is the product identifier?

The product identifier tells VMSINSTAL which save sets to copy from the media to a disk on the system. The product identifier for PATHWORKS Advanced Server is:

PWRK061

2. What is the name of the device on which you want to mount the media?

   The device name depends on the type of media and computer you have. For example, if you want to mount a CD-ROM on the CD-ROM drive of your Alphastation 400, the device name might be DKA400.

3. Do you want to access the online release notes during the installation procedure?

   You can tell VMSINSTAL to ask you whether you want to display or print the online release notes during installation. Because the release notes may describe important changes to the installation procedure, Compaq recommends that you read them. Procedures for obtaining the release notes are described in Section 1.6, Reading the Release Notes.

4. Do you want to install just the Upgrade utility?

   If the PATHWORKS (LAN Manager) server is installed on the system, you are prompted to install the Upgrade utility separately, which allows you to upgrade server database files before you install the PATHWORKS for OpenVMS (Advanced Server). Appendix D, Upgrade Utility Installation, shows a sample installation of the Upgrade utility.

   To install the PATHWORKS Advanced Server, you must upgrade the server databases. If you choose to install just the Upgrade utility, you can install the PATHWORKS Advanced Server later, after you upgrade your databases. If you install the PATHWORKS Advanced Server software, the Upgrade utility is also installed.

5. Do you want to preserve the PATHWORKS (LAN Manager) environment, and if so, where?

   If you are upgrading from PATHWORKS (LAN Manager), you can choose to have the PATHWORKS (LAN Manager) data files copied to the location you specify in the installation procedure. This allows you to roll back to PATHWORKS (LAN Manager) later, after configuring and starting the PATHWORKS Advanced Server. Refer to the *Compaq PATHWORKS for OpenVMS (Advanced Server) Server Migration Guide* for more information about the PATHWORKS Rollback procedure.

If you have V4.*x* of PATHWORKS for OpenVMS, you must upgrade to PATHWORKS (LAN Manager) before installing PATHWORKS V6 for OpenVMS (Advanced Server). For instructions on upgrading from V4.*x* to V5, refer to the *Compaq PATHWORKS for OpenVMS (Advanced Server) Server Migration Guide*.

6. Do you want to install PATHWORKS Advanced Server software?

   This option allows you to install the complete PATHWORKS for OpenVMS (Advanced Server) server, including the Upgrade utility, the integrated License Server, and the external authentication software.

   Appendix B, Sample Complete Server Installation and Configuration, shows a sample installation and configuration of the complete PATHWORKS for OpenVMS (Advanced Server) server.

7. Do you want to install the standalone License Server?

   If the system is designated to run the standalone License Server, you can install the License Server software only. Compaq recommends that you run the standalone License Server on a designated License Server system.

   The installation procedure gives you the option to install the standalone License Server software from the PATHWORKS for OpenVMS (Advanced Server) software kit. In this case, the complete PATHWORKS Advanced Server (including the file and print server) is not installed. If the complete PATHWORKS Advanced Server is installed, you cannot choose the standalone License Server installation option.

   Appendix C, Sample Standalone License Server Installation and Configuration, shows a sample installation and configuration of the standalone License Server.

8. Do you want to install PATHWORKS external authentication software only?

   If you have installed the Advanced Server and enabled external authentication in an OpenVMS Cluster that includes Alpha systems running OpenVMS 7.2-1 or later and VAX systems running OpenVMS 7.2 or later, and if these systems boot from a system disk that will not have the Advanced Server installed, you can install the standalone external authentication software on that system disk. For more information, see Section 1.5, About External Authentication. Appendix E, Sample External Authentication Installation, shows a sample installation of the standalone external authentication software.

9. What is the user identification code (UIC) group number?

The PATHWORKS Advanced Server installation procedure creates the OpenVMS user accounts PWRK$DEFAULT and PWRK$GUEST, if they do not already exist. When an OpenVMS user account is created, it is assigned a UIC group number. The default selection displayed by the installation procedure is determined as follows:

Condition	Default Displayed
You are installing PATHWORKS Advanced Server for the first time	The first available unused UIC group number, starting with 360
PATHWORKS (LAN Manager) is currently installed, an account named PCFS$ACCOUNT already exists	The same group number as that associated with the existing account PCFS$ACCOUNT
The file and print server accounts already exist	The same group number as the existing accounts

2.2.2 How to Respond to Prompts

An asterisk (*) at the beginning of a line in the installation procedure identifies a prompt to which you must respond.

Usually the prompt has a default answer, which the procedure displays in square brackets ([ ]) at the end of the question.

To accept a default, press Return. For example:

```
* Is the selection correct [YES]? Return
```

2.2.3 How to Start VMSINSTAL

When you have completed the recommended preinstallation tasks outlined in Chapter 1, Before You Install PATHWORKS Advanced Server, and have read the release notes, you are ready to use the VMSINSTAL installation procedure to install the PATHWORKS Advanced Server. To start VMSINSTAL:

1. Ensure that you are logged in to the SYSTEM account.
2. Load the installation kit media onto a drive. (It is not necessary to mount the drive, but it must be on line so that the installation procedure can mount it.)
3. Enter the following command to check the status of the device on which you have loaded the installation kit, replacing *device_name* with the name of the applicable device:

   ```
   $ SHOW DEVICE device_name
   ```

For example:

```
$ SHOW DEVICE $1$DUS0:

Device             Device  Error  Volume  Free    Trans  Mnt
 Name              Status  Count  Label   Blocks  Count  Cnt
$1$DUS0: (HSC001)  Mounted     0  HUBSYS  347718    628    4
```

If the device status is `Offline`, enter the following command to place the device online, replacing *device_name* with the name of your device:

```
$ SET DEVICE/AVAILABLE device_name
```

4. Change your default directory to SYS$UPDATE:

   ```
   $ SET DEFAULT SYS$UPDATE
   ```

5. Check to make sure that other users are not logged in to the system.

6. If a previous version of the software is installed on the system, shut it down. In a cluster, shut down the software on all cluster members. For a noncluster server, enter:

   ```
   $ @SYS$STARTUP:PWRK$SHUTDOWN
   ```

   For a cluster server, enter:

   ```
   $ @SYS$STARTUP:PWRK$SHUTDOWN CLUSTER
   ```

7. If you have DECnet configured on your system and you want to create a log of the installation procedure, enter the following command and then log in to the system account again:

   ```
   $ SET HOST 0/LOG=file-name
   ```

   where *file-name* is the name of the file to which you want the log written.

8. Start VMSINSTAL and specify the PWRK061 product identifier, the media device, and whether you want access to the online release notes during the installation procedure:

Access the Release Notes During Installation?	Command Line
Yes	`@VMSINSTAL PWRK061 device_name OPTIONS N`
No	`@VMSINSTAL PWRK061 device_name`

9. The interactive installation procedure begins, and you are prompted for information.

A sample installation script is included section by section, beginning with Example 2–1, Sample Installation Procedure—Part 1, with each section accompanied by additional explanatory information.

The actual installation script that is displayed on your system might include additional questions and information, depending on your current configuration.

Note

To interrupt the installation procedure, press Ctrl/Y at any time. The installation procedure deletes any files that were created, then exits. Then you can restart the installation from the beginning.

Example 2–1 Sample Installation Procedure—Part 1

```
$@SYS$UPDATE:VMSINSTAL PWRK061 SYS$DEVICE:[KITS.PWRK] Return

        OpenVMS AXP Software Product Installation Procedure V7.2-1H1

It is 13-JUL-2001 at 16:59.

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

%VMSINSTAL-W-ACTIVE, The following processes are still active:
       TCPIP$ESNMP
       TCPIP$OS_MIBS
       TCPIP$HR_MIB
* Do you want to continue anyway [NO]? Y Return

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

The following products will be processed:

  PWRK V6.1

       Beginning installation of PWRK V6.1 at 16:59

%VMSINSTAL-I-RESTORE, Restoring product save set A ...
%VMSINSTAL-I-RELMOVED, Product's release notes have been moved to
SYS$HELP.

        PATHWORKS for OpenVMS Installation

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```

(continued on next page)

Example 2–1 (Cont.) Sample Installation Procedure—Part 1

```
   Restricted Rights: Use, duplication, or disclosure by the U.S.
   Government is subject to restrictions as set forth in subparagraph
   (c) (1) (ii) of DFARS 252.227-7013, or in FAR 52.227-19, or in FAR
   52.227-14 Alt. III, as applicable.

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   technology of Compaq Computer Corporation. Possession, use, or
   copying of this software and media is authorized only pursuant to a
   valid written license from Compaq or an authorized sublicensor.
```

In Example 2–1, Sample Installation Procedure—Part 1, the installer specifies the source device SYS$DEVICE:[KITS.PWRK] for the installation kit.

The first part of the installation script indicates that certain processes are already running and gives you the option of continuing or stopping the procedure. In this example, the processes listed are part of the Compaq TCP/IP Services for OpenVMS software running on the system.

If you continue (respond YES to the prompt), the procedure asks if you are satisfied with the backup (backup of the system is recommended prior to installing the server), and then identifies the product being installed.

Example 2–2 Sample Installation Procedure—Part 2

```
    Please select from the following install options:

    PATHWORKS V6.1 for OpenVMS (Advanced Server)
    PATHWORKS V6.1 for OpenVMS (Advanced Server) License Server (only)
    External Authentication images (only)

* Do you want to install the complete PATHWORKS V6.1 for OpenVMS [NO]?
Y Return
%PWRK-I-OLDVERPWRK, PATHWORKS V6.0-400D for OpenVMS (Advanced Server)
-PWRK-I-OLDVERPWRK, was previously installed

The following components will be installed:

        PATHWORKS V6.1 for OpenVMS (Advanced Server)

If the selection is correct, the installation will continue.
If the selection is not correct, you can change your selection.
Press CTRL/Y if you want to terminate the installation.

* Is the selection correct [YES]? Return
```

This part of the script gives you the option of installing the complete PATHWORKS Advanced Server product, installing only the standalone License Server, installing only the standalone external authentication images, or installing only the Upgrade utility.

In Example 2–2, Sample Installation Procedure—Part 2, the complete installation was selected, and the procedure continues. A message indicates a previous version of the Advanced Server has been installed on this system.

Example 2–3 Sample Installation Procedure—Part 3

```
%PWRK-I-VERSION, Checking for OpenVMS version 6.2, or later...

    NOTE
    ----
    Because this kit provides a new streams execlet for NetBEUI and
    TCP/IP, you MUST reboot the system to complete installation of
    PATHWORKS.  If you do not reboot the system at this time, you must
    remember to reboot later before starting PATHWORKS.

    To complete the installation of this product, you should reboot
    the system.  If it is not convenient to reboot at this time, then
    enter NO to the following question.

    If you enter NO, the installation procedure will continue.

* Will you allow a system shutdown after this product is installed
[YES]? Return
* How many minutes for system shutdown [0]: Return
* Do you want to do an automatic system reboot [YES]? Return
* Do you want to run the IVP after the installation is finished [YES]?
Return
* Do you want to purge files replaced by this installation
[YES]? Return
%PWRK-I-FREEBLKS, Checking for 160000 free blocks

  ************************************************************
  * You must shut down the Advanced Server before you continue  *
  * installing PATHWORKS V6 for OpenVMS.    *
  ************************************************************

    If you do not shut down the server, the installation will terminate.

* Do you want to shut down the Advanced Server [YES]? Return
Shutting down the currently running server(s)...
```

In Example 2–3, Sample Installation Procedure—Part 3, the installation procedure checks that the OpenVMS system for installation of the server is OpenVMS Version 6.2 or later. If it is an earlier version, the installation would abort.

The installation procedure then checks for circumstances requiring a system reboot. A reboot might be needed if:

- A previous version of a server driver (PCF or PCI) or of an execlet (PWRK$STREAMSOS_V*n*.EXE), was detected in memory. The previous version could be from either an Advanced Server for OpenVMS or PATHWORKS for OpenVMS product. Reboot is required before starting the Advanced Server.
- System parameters were changed (in MODPARAMS.DAT), or server parameters were changed in a way that affected system parameters. Reboot is required before configuring the Advanced Server, as noted in Chapter 1, Before You Install PATHWORKS Advanced Server.

If a Compaq OpenVMS file and print server has been installed and started previously, certain images remain in system memory even after the product has been stopped or removed. As a result, before the Advanced Server can be started, you need to reboot the system to remove the old image from memory.

To help minimize downtime, the installation procedure requests a reboot only if and when necessary. You are not forced to reboot after installation.

In Example 2–3, Sample Installation Procedure—Part 3, software from an earlier version of PATHWORKS for OpenVMS was detected (such as an earlier version of the PWRK$STREAMSOS_V*n*.EXE execlet; note that the version, *n*, corresponds to the version of OpenVMS, not of PATHWORKS). A reboot is necessary unless you do not plan to run the Advanced Server on this system.

The installation procedure gives you the option of delaying the reboot by continuing the procedure. You might want to delay the reboot so that you can complete installation or configuration processes that would be expedient to finish before rebooting. For example, when installing the server on an OpenVMS Cluster, you might want to delay a reboot until you complete the server installation and configuration on all nodes of the cluster.

To delay the reboot, continuing the installation, enter NO at the prompt asking if you will allow a system shutdown after the product is installed. In this example, the reboot is opted for, and then the procedure prompts the installer for the number of minutes to elapse before the shutdown occurs.

The installer is also prompted whether an automatic system reboot is requested, whether the installation verification procedure should be run after the installation, and whether to purge files replaced by this installation or keep previous versions intact. The installation verification procedure (IVP) can be run automatically, as shown in Example 2–5, Sample Installation Procedure—Part 5, or independently of the installation procedure, as described

in Section 5.2, Verifying the PATHWORKS for OpenVMS (Advanced Server) Installation.

Example 2–4 Sample Installation Procedure—Part 4

```
              User Accounts and User Identification Codes (UICs)
              --------------------------------------------------

  PATHWORKS for OpenVMS creates two OpenVMS accounts: a default account,
  PWRK$DEFAULT, and  a guest account, PWRK$GUEST.  The default UIC group
  number for both these new accounts depends on the following:

  o If you are installing the server for the first time, the default is
    the first unused UIC group number, starting with 360.

  o If there is an existing account PCFS$ACCOUNT, the default is the UIC
    group number associated with PCFS$ACCOUNT.

  o If there is an existing account PWRK$DEFAULT or PWRK$GUEST, the
    default is the UIC group number associated with PWRK$DEFAULT or
    PWRK$GUEST, in preference to PCFS$ACCOUNT.  However, the default
    UIC group number will
    not be used to change the UIC of any existing accounts.

    For more information about UIC group numbers, see the OpenVMS System
    Manager's Manual.

* Enter default UIC group number for PWRK$DEFAULT and PWRK$GUEST [360]:
Return

    All questions have been answered.  The installation of
    PATHWORKS for OpenVMS will continue.

%PWRK-I-ACCOUNTS, Creating OpenVMS accounts for PWRK$DEFAULT and
PWRK$GUEST
%PWRK-I-DEFAULTEXISTS, PWRK$DEFAULT account already exists
%VMSINSTAL-I-RESTORE, Restoring product save set C ...
%VMSINSTAL-I-RESTORE, Restoring product save set E ...
%PWRK-I-DEFOBJS, Defining DECnet objects PCX$SERVER and PCSA$MAIL
%PWRK-I-DCLCMDS, Installing PATHWORKS DCL commands
%PWRK-I-SPECIFY, Specifying target directories for the provided files
%PWRK-I-OBSOLETE, Deleting obsolete files

                              Next Steps
                              ----------

  To continue the installation procedure, enter the following command
  to execute the server configuration command procedure:

  $ @SYS$UPDATE:PWRK$CONFIG
```

(continued on next page)

Example 2–4 (Cont.) Sample Installation Procedure—Part 4

```
  For information about the configuration command procedure, see the
  PATHWORKS (Advanced Server) Installation and Configuration Guide.

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

In Example 2–4, Sample Installation Procedure—Part 4, the script prompts for a default UIC group number. It does so only if you are installing the complete PATHWORKS Advanced Server product. If you do not want to associate the newly created OpenVMS accounts PWRK$DEFAULT and PWRK$GUEST with the default user identification code (UIC) group number, specify another three-digit UIC group number.

At this point, all questions have been answered and the installation process continues. The installation procedure then reminds the installer to continue with the configuration process by invoking the PWRK$CONFIG.COM configuration procedure.

Example 2–5 Sample Installation Procedure—Part 5

```
 Copyright Compaq Computer Corporation 1993, 2001.

 Starting Installation Verification Procedure
 for PATHWORKS V6.1 for OpenVMS (Advanced Server)

%PWRK-I-NORMAL, IVP completed successfully
 Installation of PWRK V6.1 completed at 17:05

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

    Creating installation data file: VMI$ROOT:[SYSUPD]PWRK061.VMI_DATA

%VMSINSTAL-I-SHUTDOWN, This product requires that the system be
rebooted.

 SHUTDOWN -- Perform an Orderly System Shutdown
             on node TINMAN

Do you really want to shutdown node TINMAN [NO]? Y return
 VMSINSTAL procedure done at 17:09
```

In Example 2–5, Sample Installation Procedure—Part 5, the procedure verifies the installation, and then finishes.

Table 2–1, Installation Questions includes details about most of the prompts that VMSINSTAL might display, depending on the environment and options you select. Table 2–1, Installation Questions does not show any informational messages. For a complete sample installation script, see Appendix B, Sample Complete Server Installation and Configuration.

Table 2–1 Installation Questions

Question	Your Desired Result	Action or Response Required
Are you satisfied with the backup of your system disk [YES]?	Continue	Return
	Exit	NO
Select option [2]:[1]	Display the release notes on the screen	1 To stop the display at any time, press Ctrl/C.
	Print the release notes	2 or Return You are prompted for a print queue name, and the release notes file is sent to the specified queue (the default print queue is SYS$PRINT).
	Print the release notes and display them on the screen	3 You are prompted for a print queue name, and the release notes file is sent to the specified queue (the default print queue is SYS$PRINT). To stop the screen display at any time, press Ctrl/C.
	Continue without displaying or printing the release notes	4
Do you want to install the upgrade utility only [NO]?[2]	Install one or more servers	Return
	Install only the Upgrade utility	YES

[1]This question is displayed only if you specify OPTIONS N when you start the VMSINSTAL command procedure or if there are active processes on the system.

[2]The release notes are automatically copied to SYS$HELP.

(continued on next page)

Table 2–1 (Cont.) Installation Questions

Question	Your Desired Result	Action or Response Required
Do you want to continue the installation [NO]?[1]	Continue	YES
	Exit	Return
Do you want to install the complete PATHWORKS V6.1 for OpenVMS [NO]?	Install the PATHWORKS Advanced Server	YES
	Omit the PATHWORKS Advanced Server	Return
Do you want to preserve the V5 (LAN Manager) environment [YES]?[2]	Retain the PATHWORKS V5 for OpenVMS (LAN Manager) environment so that you can use the rollback procedure described in the *Compaq PATHWORKS for OpenVMS (Advanced Server) Server Migration Guide*	Return
	Not retain the V5 environment	NO
Enter the directory to preserve the V5 environment [SYS$SYSDEVICE:[000000]]:[3]	Preserve the V5 environment in the default directory shown	Return
	Preserve the V5 environment on another device or in another directory	A different device or directory.

[1]This question is displayed only if you specify OPTIONS N when you start the VMSINSTAL command procedure or if there are active processes on the system.

[2]The release notes are automatically copied to SYS$HELP.

[3]This question is displayed only if your system is currently running the PATHWORKS (LAN Manager).

(continued on next page)

Table 2–1 (Cont.) Installation Questions

Question	Your Desired Result	Action or Response Required
Do you want to install the PATHWORKS License Server only [NO]?[4]	Install the standalone License Server	YES This option installs the License Server and transport software without the PATHWORKS Advanced Server. Refer to Chapter 4, Configuring and Starting the Standalone License Server for more information.
	Install the PATHWORKS Advanced Server with the License Server	Return This option causes the installation procedure to proceed to the next question.
Do you want to install only the external authentication images [NO]?[4]	Install only the external authentication software	YES This option installs the external authentication software without the PATHWORKS Advanced Server.
	Install the complete PATHWORKS Advanced Server or install the standalone License Server	Return This option causes the installation procedure to repeat previous questions so that you can select the complete PATHWORKS Advanced Server or only the License Server.
Is the selection correct [YES]?	Use the selection	Return
	Change the selection	NO
	Terminate the installation	Ctrl/Y
Will you allow a system shutdown after this product is installed [YES]?	Shut down the system as part of the product installation procedure	Return

[4]This question is displayed only if you chose to preserve the PATHWORKS V5 for OpenVMS (LAN Manager) environment.

(continued on next page)

Table 2–1 (Cont.) Installation Questions

Question	Your Desired Result	Action or Response Required
	Complete the installation procedure without shutting down the system	NO System shutdown is required, to complete the product installation. If you answer NO, you must shut down the system manually after the installation procedure is finished.
Do you want to do an automatic system reboot [YES]?	Reboot the system automatically after system shutdown	Return
	Reboot the system manually	NO
Do you want to run the IVP after the installation is finished [YES]?	Run the Installation Verification Procedure (IVP) automatically after the installation procedure completes	Return
	Not run the IVP	NO You can run the IVP independent of the installation procedure. For detailed information on running the IVP independently, see Section 5.2, Verifying the PATHWORKS for OpenVMS (Advanced Server) Installation.
Do you want to purge files replaced by this installation [YES]?	Purge all files it replaces	Return
	Not purge any files it replaces	NO
Do you want to continue with the installation [YES]?[5]	Delete the files and continue the installation	Return
	Leave the files intact and terminate the installation	NO

[5]This question is displayed only if you chose not to install the PATHWORKS Advanced Server.

(continued on next page)

Table 2–1 (Cont.) Installation Questions

Question	Your Desired Result	Action or Response Required
Do you want to shut down the PATHWORKS License Server [YES]?[6]	Shut down the License Server and continue the installation	Return
	Keep the server running and terminate the installation	NO
Do you want to shut down the PATHWORKS Advanced Server [YES]?[6]	Shut down the server and continue the installation	Return
	Keep the server running and terminate the installation	NO
Enter default UIC group number for PWRK$DEFAULT and PWRK$GUEST[*nnn*]:	Associate the newly created OpenVMS accounts PWRK$DEFAULT and PWRK$GUEST with the default user identification code (UIC) group number (*nnn*)	Return
	Associate the newly created accounts with the UIC group number you specify	A three-digit UIC number. For detailed information about UIC group numbers, see the *OpenVMS System Manager's Manual*.

[6]This question is displayed only if there are PATHWORKS files in system-specific directories.

2.2.4 What To Do After the Installation Completes

If you have installed the external authentication images only, you can proceed to enable external authentication, as explained in Section 5.6, Setting Up External Authentication. For other installations, do the following after the installation completes:

1. If you had a previous version of the Advanced Server running on your system, reboot your system before configuring the newly installed Advanced Server. See the discussion in the explanatory text following Example 2–3, Sample Installation Procedure—Part 3.
2. Proceed to Chapter 3 to configure the PATHWORKS Advanced Server.

Appendix F, PATHWORKS Advanced Server Files and On-Disk Structure, lists and describes files created by the installation procedure.

2.3 Troubleshooting Installation Problems

The following sections describe some problems you can encounter if you install the PATHWORKS Advanced Server in an environment that is not appropriate.

2.3.1 Installing PATHWORKS Advanced Server on a System Running Another Advanced Server Image

If you attempt to install the PATHWORKS Advanced Server on a system, or anywhere in a cluster, on which a PATHWORKS for OpenVMS or Advanced Server for OpenVMS image is running, the installation procedure displays a message such as the following:

```
*****************************************************************
* You must shut down the Advanced Servers on all nodes in the     *
* cluster before you continue installing PATHWORKS V6 for OpenVMS.*
*****************************************************************

If you do not shut down the servers, the installation will
terminate.
```

Shut down the servers on all nodes in the cluster before continuing your installation.

2.3.2 Installing the PATHWORKS Advanced Server on a System with the NetWare Server

The PATHWORKS Advanced Server cannot be installed on a system where the NetWare server is installed. If you attempt to install the PATHWORKS Advanced Server on a system where the NetWare server is installed, the installation procedure optionally invokes the NetWare server software removal procedure (SYS$STARTUP:PWVN$DEINSTAL.COM).

When the installation procedure detects the presence of the NetWare server, it displays the following message and question:

```
%PWRKV60-E-OLDVERPWNV, PATHWORKS V6.0-nnnx for OpenVMS (NetWare)
was previously installed.  This product is no longer supported.
To install the PATHWORKS V6.1 for OpenVMS product, the NetWare
product must be deinstalled.

* Will you allow this installation procedure to deinstall
* the NetWare product [NO]?
```

To remove the NetWare server software, enter YES.

To terminate the installation procedure without removing the NetWare server software, enter NO, or press Return.

You can remove the NetWare server manually using the procedure in Section 7.2, Removing the PATHWORKS NetWare Server. Then start the VMSINSTAL procedure again after the NetWare server has been removed.

2.3.3 Installing PATHWORKS Advanced Server on a System with PATHWORKS (LAN Manager)

You can upgrade PATHWORKS V5 for OpenVMS (Advanced Server) to PATHWORKS V6 for OpenVMS (Advanced Server). If the system has PATHWORKS (LAN Manager) installed, you can use the Upgrade utility, as described in the *Compaq PATHWORKS for OpenVMS (Advanced Server) Server Migration Guide*, to upgrade server information before you configure and start the PATHWORKS Advanced Server.

2.3.4 Installing the Standalone License Server on a System Where the PATHWORKS Advanced Server Has Been Installed

If you install the standalone License Server on a system where the PATHWORKS Advanced Server has been installed, the installation procedure displays the following message:

```
The PATHWORKS Advanced Server was previously installed and you
have selected to install the License Server only.  Because the
PATHWORKS Advanced Server includes the License Server, the
complete PATHWORKS Advanced Server must be installed.
```

The installation procedure will choose to install the PATHWORKS Advanced Server. You have the option of continuing with this installation, or you can terminate the installation procedure by pressing Ctrl/Y. To install the standalone License Server on this system, you must first remove the PATHWORKS Advanced Server software using the PWRK$DEINSTAL.COM command procedure, as described in Chapter 7, Removing PATHWORKS Advanced Server Software. Then start the VMSINSTAL procedure again.

For a sample installation and configuration script for the standalone license server, see Appendix C, Sample Standalone License Server Installation and Configuration.

2.3.5 Installing the External Authentication Software

You cannot install the external authentication software only, if you have previously installed the PATHWORKS Advanced Server. The installation procedure displays the following message if you try to install the external authentication images under these circumstances:

```
The PATHWORKS Advanced Server was previously installed, and you
have selected
to install the external authentication images only. Because the
PATHWORKS Advanced Server includes the external authentication images,
the
complete PATHWORKS Advanced Server must also be installed.
```

You must remove the PATHWORKS Advanced Server software to be able to select this option. To remove PATHWORKS Advanced Server software, run the PWRK$DEINSTAL procedure, as described in Chapter 7, Removing PATHWORKS Advanced Server Software.

For a sample installation script for the external authentication images, see Appendix E, Sample External Authentication Installation.

2.4 Next Steps

To continue, depending on the software you are installing, proceed as indicated in the following table:

Software Installed	Where to Go Next in the Documentation	What Is Described There
PATHWORKS Advanced Server (file and print server)	Chapter 3, Configuring the PATHWORKS Advanced Server	Configure the PATHWORKS Advanced Server.
Standalone license server	Chapter 4, Configuring and Starting the Standalone License Server	Configure the standalone license server.
Upgrade utility only	*Compaq PATHWORKS for OpenVMS (Advanced Server) Server Migration Guide*	Use the Upgrade utility to create and edit upgrade reports.
Standalone external authentication software	Section 5.6, Setting Up External Authentication	Set up PATHWORKS external authentication on the system.

3

Configuring the PATHWORKS Advanced Server

This chapter describes how to configure the PATHWORKS Advanced Server and consists of the following sections:

- Section 3.1, About the Advanced Server Configuration Procedure
- Section 3.2, Before You Start the Advanced Server Configuration Procedure
- Section 3.3, How to Start the Advanced Server Configuration Procedure
- Section 3.4, How to Respond to Advanced Server Configuration Prompts
- Section 3.5, How to Change Default Configuration Settings
- Section 3.6, Configuring the Advanced Server Domain Role
- Section 3.7, Troubleshooting Configuration Procedure Problems
- Section 3.8, The Advanced Server Network Adapter
- Section 3.9, Next Steps

3.1 About the Advanced Server Configuration Procedure

The Advanced Server initial configuration procedure, PWRK$CONFIG.COM, is installed by the PATHWORKS Advanced Server installation procedure. Like the installation procedure, the configuration procedure asks you a series of questions (by displaying prompts). The procedure uses your answers to configure the PATHWORKS Advanced Server.

You can use the PWRK$CONFIG.COM configuration procedure to reconfigure the server at any time later. Note that the script contents change after the first configuration.

3.1.1 What the Configuration Procedure Does

PWRK$CONFIG.COM is a command procedure that:

- Creates the PATHWORKS Advanced Server on-disk structure. (Appendix F, PATHWORKS Advanced Server Files and On-Disk Structure, shows the on-disk structure).
- Upgrades any existing file and print server user account and share databases, such as when upgrading the server from a previous version.
- If configuring a previously configured server, stores the original accounts database in specially-created directories. (For more information, see Section 3.7.2, If Problems Occur When Reconfiguring the Advanced Server.)
- Allows you to enter the Configuration Manager to modify system configuration parameters and to verify the configuration setting against the available system resources. For example, you can specify the transports the server will run and the maximum number of clients that can connect to the server simultaneously.

  For more information about the Configuration Manager, refer to the *Compaq PATHWORKS for OpenVMS (Advanced Server) Server Administrator's Guide*.
- Creates the PATHWORKS Advanced Server user account and share databases.
- Allows you to modify server configuration default settings such as server role, domain name, and the services that are enabled.
- On a server that will run as a primary domain controller or member server, allows you to specify the Administrator account password.
- Gives you the option of starting the server.

After you install the server, you must run PWRK$CONFIG.COM before you can start the server. In an OpenVMS Cluster, before you start the server on any node, you must run PWRK$CONFIG.COM on each node where you plan to run the server. Although the nodes in an OpenVMS Cluster function as a single unit in a domain, treat them as individual units for purposes of configuration.

3.2 Before You Start the Advanced Server Configuration Procedure

Before you start the PWRK$CONFIG.COM command procedure, check that the ENQLM quota system process parameter for the user account from which you will run the PWRK$CONFIG.COM procedure is set to a value of 500 or greater. For information on how to determine the current setting and how to increase the value, see Section 1.9.7, Step 7: Check ENQLM Process Quota. In addition, check the system parameters discussed in Section 1.9.6, Step 6: Check System Parameters.

Be prepared to answer the questions discussed in the following sections. The questions asked by PWRK$CONFIG.COM depend on the options you select and on such factors as server role and whether you are configuring the server to join a new or existing domain.

3.2.1 On What OpenVMS Disk Device Do You Want to Store the Advanced Server Data Files?

The data files include:

- Configuration parameter files
- License Server data files
- Log files
- Printer spool files
- Server data files
- Security Account Manager (SAM) database files
- Client-based server administration tools and license kits
- Virtual memory section files

By default, the configuration procedure copies the data files to the system device (SYS$SYSDEVICE). However, you can specify any existing OpenVMS disk device that has at least 85,000 free blocks of disk space. The amount needed depends on the components installed.

When you select a disk for the Advanced Server data files, keep the following in mind:

- The Advanced Server frequently accesses the data files copied to the specified disk device, which generates input to and output from the disk. Having these operations occur on the system disk can degrade the performance of both the OpenVMS system and the Advanced Server.

Therefore, Compaq recommends that you specify a disk device other than the system disk.

- On an OpenVMS Cluster with multiple system disks, all nodes on which you plan to run the Advanced Server must use the same disk device to store and access Advanced Server data files. Using separate disks on separate cluster members is strictly prohibited.
- You can run the PWRK$CONFIG.COM command procedure at any time, to change the disk device where Advanced Server data files are stored. PWRK$CONFIG.COM automatically copies the data files to the new location and deletes the data files from the current location.

3.2.2 Do You Want to Change the System Configuration Parameters Now?

If you respond ''YES'' to the prompt to change the system configuration parameters, the Configuration Manager starts. The Configuration Manager is a utility that allows you to modify and verify the system environment configuration parameter settings, such as the maximum number of clients that can connect to the server, the percentage of physical memory the server can use, and which network transports the server uses.

You can change the system configuration parameter settings after starting the Advanced Server by using the Configuration Manager (invoking the Configuration Manager with the ADMINISTER/CONFIGURATION command at the DCL prompt). For more information, refer to the *Compaq PATHWORKS for OpenVMS (Advanced Server) Server Administrator's Guide*. Section B.2, Sample Server Configuration, shows the basic Configuration Manager screen displayed when you opt to change the system configuration parameter settings during use of PWRK$CONFIG.COM.

3.2.2.1 Configuring Transports for a Backup Domain Controller or Member Server

If you are configuring a server as a backup domain controller (BDC) or a member server, you must select at least one transport that is also used by the primary domain controller (PDC). Otherwise, the configuration will fail.

When you select the transports to run on a server that will participate in wide area networking, keep the following in mind:

- In a wide area network, the TCP/IP transport is required. (DECnet also supports wide area networks but the functionality it provides is not as extensive as that provided by TCP/IP.) In a cluster, all Advanced Server members must be in the same subnet.

- If you are configuring a BDC or member server to join an existing domain where the PDC is on a different TCP/IP subnet, both the server you are configuring and the PDC must be configured to use the TCP/IP transport, and you must set up wide area networking using either a WINS (Windows Internet Name Service) Server, a Domain Name System (DNS) server, or an LMHOSTS file for NetBIOS name resolution, as described in Chapter 6, Implementing a Wide Area Network. (You can select one, two, or all three of these methods for name resolution.)

- If you are using WINS for network name resolution, the PDC and any BDCs and member servers should use a WINS Server to provide NetBIOS name resolution.

  If your Advanced Server will run in an OpenVMS Cluster, to gain the benefits of load balancing and failover, clients should connect to the Advanced Server using the Advanced Server cluster alias. However, the Advanced Server does not dynamically register the Advanced Server cluster alias with the WINS server. Therefore, you should define a static multihomed entry for the Advanced Server alias in the WINS database. For more information, see Section 6.3.1, Setting up WINS Support for OpenVMS Clusters. If you plan to use DNS for NetBIOS name resolution, you do not define this static multihomed entry in the WINS database. (If Windows 95, Windows 98, or Windows NT clients are configured to use both WINS and DNS for NetBIOS name resolution, they first query the WINS server to resolve the name.)

- If you are using the LMHOSTS file, it must be set up on the PDC as well as the BDCs and member servers. Before you configure any BDC or member server that is not on the same subnet as the PDC, make sure that a special NetBIOS name entry for the PDC is in the LMHOSTS file on that BDC or member server; otherwise, the BDC or member server will not find the PDC and will fail to join the existing domain. This NetBIOS name entry should be the same as the domain name, space padded to 15 characters, with the hexadecimal control character 1B appended to it. You map the IP address of the PDC to this special name. For example, if the domain name is LANGROUP and the PDC of LANGROUP is DOMPDC with an IP address of 10.20.30.40, the BDCs and member servers would need to add the following lines to their LMHOSTS file:

  ```
  10.20.30.40  DOMPDC  #PRE  #DOM:LANGROUP
  10.20.30.40 "LANGROUP       \0x1B"  #PRE
  ```

  Note that the total number of characters within the quotes should always be 20 characters (the domain name padded to 15 characters, plus the five characters required for the hexadecimal control character (\0x1B)).

For more information, see Chapter 6, Implementing a Wide Area Network.

If your Advanced Server will run in an OpenVMS Cluster, other domain controllers (including the PDC) that are not in the same subnet as the Advanced Server cluster must add an entry for the Advanced Server cluster alias to their LMHOSTS file. This assumes they are not using other methods (WINS or DNS) for resolving NetBIOS names. For domain operations, all the domain controllers in the cluster operate as a single domain controller identified by the Advanced Server cluster alias name, rather than by the specific computer names of the individual cluster members. However, because the LMHOSTS file does not offer any means for mapping multiple IP addresses to a single NetBIOS name, the entry for the Advanced Server cluster alias must be mapped to the IP address of one specific server cluster member. If the Advanced Server is stopped on that cluster member, you must modify the LMHOSTS file on all clients and servers to map the cluster alias name to the IP address of a cluster member on which the Advanced Server is still running. On systems running a Microsoft Windows operating system, the NetBIOS name cache must also be reloaded using the command NBTSTAT -R (capital R required).

Due to the LMHOSTS limitations noted above, it is difficult (and perhaps unmanageable) to gain the benefits of load balancing and failover using an LMHOSTS file.

- If your Advanced Server runs in an OpenVMS Cluster and you have it set up for cluster load balancing using DNS, then enable the use of DNS for NetBIOS name resolution on all servers and clients. Remove any entries for the Advanced Server cluster alias from the LMHOSTS file and WINS database. Compaq strongly recommends that the Advanced Server cluster alias not be the same as the TCP/IP cluster alias (referred to as the TCP/IP cluster impersonator name). For information on setting up load balancing, refer to the *Compaq PATHWORKS for OpenVMS (Advanced Server) Server Administrator's Guide*.

To enable any of the wide area networking implementations, select them using the Configuration Manager, as described in the *Compaq PATHWORKS for OpenVMS (Advanced Server) Server Administrator's Guide*.

3.2.3 Do You Want to Change Any of the Server Configuration Settings?

The server configuration settings determine:

- Whether the License Server runs

  The License Server is a software program that you can run on your OpenVMS system to grant client-based licenses. Any client that wants to use server resources must have a valid license. Each local area network (LAN) needs only one License Server. The client license product authorization keys (PAKs) must be loaded on the system that runs the License Server.

  In an OpenVMS Cluster, the PAKs must be loaded in a shared license database available to all cluster members.

  The License Server runs only if you enable it with the configuration procedure.

  - If you are using client-based licensing, you must run the License Server. Compaq recommends that you run the License Server on a different system than the Advanced Server. See Section 1.4, About Licensing, for more information.
  - If you are using server-based licenses, you do not need to run the License Server.

  By default, the License Server does not run.

- Whether the Timesource service runs

  The Timesource service allows your server to act as a time server. Other servers on the network can synchronize with the time server to coordinate network events (for example, running batch programs on all computers the same time each day). Each LAN needs only one time server.

  By default, the Timesource service does not run.

- Whether the Alerter service runs

  The Alerter service sends messages called alerts to servers and clients that run the Messenger service.

  By default, the Alerter service runs.

- Names of the users who receive alert messages

  By default, alert messages are sent to the Administrator account.

- Whether the NetLogon service is enabled.

In a domain, the NetLogon service distributes a domain-wide user accounts database to all domain controllers running NetLogon. The service allows for single domain-wide logon that enables users to access resources on any server in the domain. The NetLogon service is required for smooth operation of the domain; Compaq recommends that the NetLogon service always be enabled, even on a member server.

By default, the NetLogon service runs.

- Domain name

  This is the domain in which your server is located. A domain is a subdivision of clients and servers on the network. For more information on domains, refer to the *Compaq Advanced Server for OpenVMS Concepts and Planning Guide* and the *Compaq PATHWORKS for OpenVMS (Advanced Server) Server Administrator's Guide*.

  The default domain name is LANGROUP. You can specify a name that reflects your company or group.

- Role of the server

  This is the role of the server in the domain. You can designate an Advanced Server as either the primary domain controller (PDC), a backup domain controller (BDC), or a member server. When you install the Advanced Server in a new domain, the new server becomes the PDC by default. In an OpenVMS Cluster, all nodes on the cluster have the same role: when you change the role of one, the change applies to all the servers on the cluster.

  For more details on configuring the server domain role, see Section 3.6, Configuring the Advanced Server Domain Role.

- Computer name

  This unique name identifies your server in the domain. You define this name or accept the default value when you run the configuration procedure.

  The PWRK$CONFIG.COM procedure will not prevent you from specifying the same named PDC if another node or cluster has previously been defined and is running in that role. However, on the new (duplicate) PDC, the NetLogon service will not be started. The PDC must be unique in the domain.

  The default computer name is the same as the server's SCSNODE name.

- Advanced Server cluster alias

If your server is a member of an OpenVMS Cluster, this is the name that all servers in the cluster share. The alias lets remote nodes (including clients) treat all server members in the cluster as a single server. For example, a client user can specify the Advanced Server cluster alias to connect to any server in the cluster; the user need not know the specific node in the cluster to which it is connected.

If DECnet has been configured to run in the cluster, the default Advanced Server cluster alias is the same as the DECnet cluster alias. If a DECnet alias is not defined, the default Advanced Server cluster alias is *nodename_* ALIAS, where *nodename* is the SCSNODE name of the cluster member from which you initially run PWRK$CONFIG.COM.

Note

Compaq strongly recommends that the Advanced Server cluster alias and the TCP/IP cluster alias (referred to as the TCP/IP impersonator cluster name) be different.

Do not use the name of the domain as the Advanced Server cluster alias; if they are the same, the NetLogon service will fail to start.

- Server announce comment

  This is the text that the Advanced Server displays when it announces its presence on the network and when you display a list of available servers.

  The default server announce comment is ''PATHWORKS V6.1 for OpenVMS (Advanced Server).''

For more information about changing configuration settings, see Section 3.5, How to Change Default Configuration Settings.

For more information about each server configuration setting, refer to the *Compaq PATHWORKS for OpenVMS (Advanced Server) Server Administrator's Guide*.

3.2.4 What Do You Want the Administrator Account Password to Be?

If you are configuring a PDC, the configuration procedure prompts you to specify the password to be set for the domain Administrator account. If you are configuring a member server, the configuration procedure prompts you for the member server's local Administrator account password to be set. The member server's local Administrator account password gives access to the member server's local security account database. As with Windows NT, there may be situtations where you would like to allow certain people to manage a member

server's local database without giving them the ability to manage the entire domain.

Passwords are case sensitive and can contain up to 14 characters. Valid characters are alphanumeric characters and any of the following special characters:

! # $ % & ( ) - . ^ _ ‘ { } ~

3.2.5 Are You Going to Supply Account/Password Information?

If you are configuring your server to join an existing domain (as a BDC or member server), you can either:

- Have the computer added to the domain manually by the domain administrator
- Have the computer added by supplying an administrator account user name and password during execution of the configuration procedure

The former option is useful if the domain administrator does not wish to give out the user name and password of the Administrator account in the domain to the person configuring this server to join the domain. The domain administrator can use the ADMINISTER ADD COMPUTER command or the Windows NT Server Manager to add the computer to the domain. If this is the case, answer NO to this prompt, and you will not be prompted for account/password information.

With the latter option, the configuration procedure requests the domain's PDC to add the computer to the domain. You will be prompted for a domain administrator account user name and password, as explained in Section 3.2.6, What Is the Domain Administrator Password?.

3.2.6 What Is the Domain Administrator Password?

When you choose to have the computer added automatically by the configuration procedure, you are prompted for a domain administrator account user name and password. As noted in Section 3.2.5, Are You Going to Supply Account/Password Information?, the PDC is requested to add the computer to the domain. The PDC validates the account user name and password on behalf of the configuration procedure. Enter the password, observing the rules specified in Section 3.2.4, What Do You Want the Administrator Account Password to Be?.

3.2.7 Do You Want to Enter a New Administrator Account Password?

In certain cases, you are prompted whether you want to enter a new Administrator password. This gives you the opportunity to change the password.

3.2.8 Do You Want to Start the Server?

The configuration procedure asks you if you want to start the Advanced Server. If you do not want to start the Advanced Server at this time, you can do so later from the command line after the configuration procedure completes.

Before you start the server on any OpenVMS Cluster member, Compaq recommends that you configure the Advanced Server on each cluster member that you want to use as a server. You can then use the SYSMAN utility to start the server on all cluster members. If you choose to start the server individually on each cluster member, make sure that you do so from the SYSTEM account (or a similar account) on each server node. For more information, see Section 5.3.5, How to Start the PATHWORKS Advanced Server in an OpenVMS Cluster.

For detailed information on alternate ways to start the server, see Section 5.3, Starting the PATHWORKS Advanced Server.

3.3 How to Start the Advanced Server Configuration Procedure

After the installation procedure completes, the OpenVMS system prompt ($) is displayed. If the system was rebooted following installation, log in to the SYSTEM account or an equivalent account. If the system was not rebooted, ensure that you are logged in to such an account. Then, start the configuration procedure by entering:

```
$ @SYS$UPDATE:PWRK$CONFIG
```

In an OpenVMS Cluster, PWRK$CONFIG.COM must be run on each member node on which the server is to run. If you first start the server at any node, and then attempt to run the PWRK$CONFIG.COM configuration procedure, the procedure will shut down the server.

3.4 How to Respond to Advanced Server Configuration Prompts

Table 3–1, PATHWORKS Advanced Server Configuration Prompts, tells you how to respond to the prompts that PWRK$CONFIG.COM displays.

Note

Table 3–1 shows only the prompts PWRK$CONFIG.COM displays; it does not show any informational messages. For a complete sample configuration script, see Appendix B, Sample Complete Server Installation and Configuration.

Table 3–1 PATHWORKS Advanced Server Configuration Prompts

Prompt	Desired Result	Your Response
Do you want to continue with configuration [YES]:[1]	Shut down the server or, if your server is part of an OpenVMS Cluster, all servers in the cluster	Press the Return key
	Abort the configuration procedure	NO
Enter disk device name where PATHWORKS data files will be stored [*default_device*]:	Copy the PATHWORKS on-disk structure to the default OpenVMS disk device displayed. If you ran PWRK$CONFIG.COM previously, the default disk device is the one you specified the last time you configured the server.	Press the Return key
	Copy the PATHWORKS on-disk structure to an OpenVMS disk device different from the default displayed	*device_name*
Do you want to change the server configuration parameters now? [YES]:	Access the Configuration Manager tool to change parameters affecting the system environment for the server	Press the Return key For detailed information about using the Configuration Manager, refer to the *Compaq PATHWORKS for OpenVMS (Advanced Server) Server Administrator's Guide*.

[1]This prompt is displayed only if the server is running.

(continued on next page)

Table 3–1 (Cont.) PATHWORKS Advanced Server Configuration Prompts

Prompt	Desired Result	Your Response
	Complete the configuration without entering the Configuration Manager	NO
Enter item number, or RETURN to use these values [DONE]:	Accept the server configuration parameters displayed (these are the ten or so parameters that directly affect or define the server software configuration)	Press the Return key
	Change the configuration settings displayed	The number associated with a setting you want to change. For detailed information on changing these default configuration settings, see Section 3.5, How to Change Default Configuration Settings.
Are you going to supply account/password information? [YES]:[4]	Have the computer added automatically by PWRK$CONFIG.COM, prompting you for a domain administrator account user name and password	Press the Return key
	Have the computer added manually (for example, by the domain administrator) so that the domain administrator's password need not be divulged	NO
Enter the name of the primary domain controller for domain *domain-name*[4]	Enter the name of the primary domain controller (PDC) for the domain your server is joining.	*PDC-name*
Enter Administrator account password:[3]	Associate a password with the Administrator account	*password* Enter the password to be set for the domain's existing Administrator account.

[3]This prompt is displayed if you are configuring a primary domain controller.

[4]This prompt is displayed if you are configuring a BDC or member server (joining an existing domain).

(continued on next page)

Table 3–1 (Cont.) PATHWORKS Advanced Server Configuration Prompts

Prompt	Desired Result	Your Response
Do you want to enter a new Administrator account password [NO]:[2] ,[3]	Keep the existing Administrator account password	Press the Return key
	Prompt you to enter a new Administrator account password	YES
Re-enter to verify password [3,4,5]:		*password*
Enter a password for this member server's local Administrator account:[5]	Associate a password with the member server's local Administrator account	*password* Enter the password to be set for the member server's local Administrator account.
Enter the account password in the required case[4]		*password* Enter the password in the proper case, matching the current domain account password.
Do you want to start PATHWORKS V6.1 for OpenVMS on node *node_name* now [YES]:[6]	Start the server automatically after the installation procedure completes	Press the Return key
	Not start the server	NO

[2]This prompt is displayed if you ran PWRK$CONFIG.COM previously.

[3]This prompt is displayed if you are configuring a primary domain controller.

[4]This prompt is displayed if you are configuring a BDC or member server (joining an existing domain).

[5]This prompt is displayed if you are configuring a member server.

[6]This prompt is displayed only if the Advanced Server can be started without first executing AUTOGEN or rebooting the system.

3.5 How to Change Default Configuration Settings

After you exit the Configuration Manager, the configuration procedure displays a list of server configuration settings and a prompt that lets you change them; for example:

```
  Advanced Server for OpenVMS is presently configured to
  run as follows:

   1.  Run the License Server:                 NO
   2.  Enable Timesource service:              NO
   3.  Enable Alerter service:                 YES
   3a. Alert user names:                       Administrator
   4.  Enable Netlogon service:                YES
   5.  Advanced Server domain:                 LANGROUP
   6.  Advanced Server role:                   PRIMARY
   7.  Advanced Server computer name:          COBRAZ
   7a. Advanced Server OpenVMS Cluster alias:  COBRAZ_ALIAS
   8.  Server announce comment:     PATHWORKS V6.1 for OpenVMS
Enter item number, or RETURN to use these values [DONE]:
```

- To change a server configuration setting, enter the number of the setting you want to change. A prompt is then displayed that lets you change that setting. Table 3–2, Configuration Settings, describes possible values for each setting.
- To save the settings after you complete your changes or to accept the settings displayed, press the Return key to use the default answer DONE. For more information about server configuration, refer to the *Compaq PATHWORKS for OpenVMS (Advanced Server) Server Administrator's Guide*.

Table 3–2 Configuration Settings

Setting	Possible Values
1. Run the License Server:	YES, to run the License Server. NO, to use the default and not run the License Server.
2. Enable Timesource service:	YES, to enable the Timesource service. NO, to use the default and not enable the Timesource service.
3. Enable Alerter service:	YES, to accept the default and enable the Alerter service. NO, to disable the Alerter service.
3a. Alert user names:[1]	A comma-delimited list of user names (each containing up to 20 characters), who can receive alert messages.
4. Enable Netlogon service:[2]	YES, to accept the default and enable the NetLogon service. NO, to disable the NetLogon service.

[1]Displayed only if Alerter service is enabled.

[2]Compaq recommends that the NetLogon service always be enabled, even on a member server.

(continued on next page)

Table 3–2 (Cont.) Configuration Settings

Setting	Possible Values
5. Advanced Server domain:	A domain name of up to 15 characters. Press the Return key to use the default. The default domain name is LANGROUP. You can specify a name that reflects your company or group.
6. Advanced Server role:	PRIMARY, to designate the server as the PDC BACKUP, to designate the server as a BDC MEMBER, to designate the server as a member server. For more information on configuring the domain role, see Section 3.6, Configuring the Advanced Server Domain Role.
7. Advanced Server computer name:	A computer name of up to 15 characters. Press the Return key to use the default. If this is the first time running the configuration procedure, the default is your system's SCSNODE name.
7a. Advanced Server OpenVMS Cluster alias:[3]	The Advanced Server cluster alias for the OpenVMS Cluster to which your server belongs. Press the Return key to use the default. If DECnet is configured to run, the default is the DECnet cluster alias. If DECnet is not configured to run, the default is *nodename*_ALIAS.
8. Server announce comment:	A text string of up to 48 characters that the server uses to announce its presence on the network. Do not use the following characters: " / \ [ ] : ; | = , + * ? < > Enclose any other nonalphanumeric characters in quotation marks. Press the Return key to use the default.

[3]Displayed only in an OpenVMS Cluster.

3.6 Configuring the Advanced Server Domain Role

Depending on the domain type, the Advanced Server can participate in a domain as the PDC, a BDC, or a member server.

The Advanced Server may participate in three kinds of domains:

- Windows NT domains, in which Advanced Servers can participate as a PDC, BDCs, and member servers.

- Windows 2000 mixed-mode domains, which are domains that include both Windows 2000 domain controllers and Windows NT or Compaq Advanced Server domain controllers; Advanced Servers can participate as BDCs and as member servers.
- Windows 2000 native-mode domains (also referred to as pure Windows 2000 domains), which are domains in which all domain controllers are Windows 2000 systems; Advanced Servers can participate as member servers only.

Table 3–3, Advanced Server Roles in Different Domain Types, lists for each type of domain the roles the server can take.

Table 3–3 Advanced Server Roles in Different Domain Types

Domain Type	PDC	BDC	Member Server
Windows NT	X	X	X
Windows 2000 mixed mode		X	X
Windows 2000 native mode			X

Each Windows NT domain must have one PDC. The PDC stores the domain's master copy of the security accounts database.

When you install the Advanced Server to create a new Windows NT domain, the new server becomes the PDC by default. When you install server software and specify an existing domain name, the server can join the existing domain only as a BDC or member server.

A domain does not require BDCs, but one or more are recommended. A BDC keeps a copy of the domain's master security accounts database. The copy of the security accounts database stored on BDCs is synchronized with the PDC's master database. In this way, PDCs and BDCs can validate logon requests in the domain.

A member server does not store a copy of the domain's security accounts database and does not validate logon requests. Member servers rely on domain controllers to validate credentials of users requesting access to member server shares. The advantages of configuring the Advanced Server as a member server are listed in Section 3.6.1, Configuring the Advanced Server as a Member Server.

Configuring the PATHWORKS Advanced Server
3.6 Configuring the Advanced Server Domain Role

In an OpenVMS Cluster, all nodes on the cluster must have the same role. If you change the role of one node, the other nodes are automatically changed to that role.

When you configure the Advanced Server for the first time, you select the role your server will perform in the domain. At times you may need to change the role of your server. The method you use to change the server depends on the current role of the server and the role to which you want to change it. To change the role of the server from a BDC to a PDC, or from a PDC to a BDC, use the ADMINISTER SET COMPUTER/ROLE command. To change a server BDC to a member server, you must use PWRK$CONFIG.COM, as explained in Section 3.6.1, Configuring the Advanced Server as a Member Server. To change a PDC to a member server, you must first promote another BDC to a PDC; then the original PDC is demoted automatically to a BDC, after which you can use PWRK$CONFIG.COM to change it to a member server. Use PWRK$CONFIG.COM also to change a member server to a BDC. (This restriction is similar to but less restrictive than that of Windows NT, which requires the operating system to be reinstalled to change a domain controller to a member server, or vice versa.) For more information on changing the role of the server from a BDC to a PDC, or vice versa, refer to the *Compaq PATHWORKS for OpenVMS (Advanced Server) Server Administrator's Guide*. Table 3–4, Methods for Changing Server Roles, summarizes which role changes are allowed and disallowed by PWRK$CONFIG.COM.

Table 3–4 Methods for Changing Server Roles

From:	To:	Method
BDC	PDC	Use ADMINISTER SET COMPUTER/ROLE command to promote the BDC to a PDC.
BDC	Member	Use PWRK$CONFIG.COM.
Member	PDC	Use PWRK$CONFIG.COM to change this server to a BDC, and then use the ADMINISTER SET COMPUTER/ROLE command to promote the BDC to a PDC.
Member	BDC	Use PWRK$CONFIG.COM.
PDC	BDC	Use ADMINISTER SET COMPUTER/ROLE to promote a BDC in the domain to PDC; this promotion demotes the original PDC to a BDC.
PDC	Member	Use ADMINISTER SET COMPUTER/ROLE to promote an existing BDC to a PDC; this promotion demotes the PDC to a BDC so that you can change it to a member server, using PWRK$CONFIG.COM.

Caution

If you reconfigure a BDC as a member server, PWRK$CONFIG.COM automatically removes the domain controller's domain user account database.

If you reconfigure a member server to a BDC, PWRK$CONFIG.COM automatically removes the member server's local user account database.

In either case, because of loss of local group information, access to some resources might be affected. If resource permissions have been set using local groups, those permissions will have to be reset. If resource permissions have been set using global groups or global user accounts, those permissions will remain in effect after the role change.

3.6.1 Configuring the Advanced Server as a Member Server

Use the PWRK$CONFIG.COM configuration procedure to configure the Advanced Server to participate in a domain as a member server. You cannot use the ADMINISTER SET COMPUTER/ROLE command to change an Advanced Server domain controller to a member server role or to change a member server to a domain controller role.

You can configure the Advanced Server as a member server if it is joining an existing domain that has a PDC in operation.

You may want to configure your Advanced Server as a member server instead of a BDC (or PDC) for any of the following reasons:

- Member servers do not spend time validating logon requests. Thus, this role can be a good choice for servers that have heavy workloads or that perform extremely time-critical tasks.
- More important, configuring one or more servers as member servers rather than as domain controllers can help decrease the network load, thereby eliminating network traffic normally generated by domain controllers for replicating user databases and for authenticating logon requests. When a client attempts to find a logon server to authenticate a request, all domain controllers respond to the request. In some environments, this can generate a significant load on the network.
- Configuring the Advanced Server as a member server allows the Advanced Server to participate in a Windows 2000 native-mode environment without interruption to that environment.

- If in the future your PATHWORKS Advanced Server server is moved to a different domain, it is simpler to move it as a member server from one domain to another than to move it as a BDC.

The next two sections explain how to configure the Advanced Server as a member server: Section 3.6.1.1, Configuring a New PATHWORKS Advanced Server as a Member Server, and Section 3.6.1.2, Configuring an Existing PATHWORKS Advanced Server BDC As a Member Server.

3.6.1.1 Configuring a New PATHWORKS Advanced Server as a Member Server

While installing a new PATHWORKS Advanced Server in an existing domain, you can configure it as a member server during the PWRK$CONFIG.COM configuration procedure. The domain must include one active PDC.

The following PWRK$CONFIG.COM output shows how a new PATHWORKS Advanced Server server might be configured as a member server. As shown, you must first specify an existing domain (in this case, UPTIME). This example assumes the UPTIME domain is a Windows 2000 native-mode domain that already has one or more domain controllers.

```
Reading current configuration parameters ...

  Your Advanced Server for OpenVMS is presently configured to
  run as follows:

   1.  Run the License Server:          NO
   2.  Enable Timesource service:       NO
   3.  Enable Alerter service:          YES
   3a. Alert user names:                Administrator
   4.  Enable Netlogon service:         YES
   5.  Advanced Server domain:          LANGROUP
   6.  Advanced Server role:            PRIMARY
   7.  Advanced Server computer name:   GRATDA
   7a. Advanced Server OpenVMS Cluster alias:   GRATDA_ALIAS
   8.  Server announce comment:    PATHWORKS V6.1 for OpenVMS
Enter item number, or RETURN to use these values [DONE]: 5 Return

************************ W A R N I N G ***************************
You chose item number 5 from the menu.  Changing the domain
name will cause the existing SAM databases to be RE-INITIALIZED
resulting in the loss of any data currently in these databases (for
example, user accounts, group names, etc).
******************************************************************

Do you want to continue with item number 5 (Y/[N]) Y Return

  An Advanced Server domain is a collection of computers that share
  a common security database and policy.  Each domain has a unique
  name.  A network can have many domains.
```

```
  The Advanced Server domain name can be up to 15 characters
  long.  The domain name must be different than the computer name.

Enter Advanced Server domain name for this system [LANGROUP]:
UPTIME [Return]

   .
   .
   .

Enter item number, or RETURN to use these values [DONE]: 6 [Return]

  The Advanced Server role is the part the server will play in its
  domain.

  A primary domain controller maintains the domain's master user
  accounts database and validates logins.

  A backup domain controller receives copies of the master database,
  validates logins, and can be promoted to primary.

  A member server does not receive copies of the master database
  or validate logins.  It relies on domain controllers to validate
  user credentials.

Enter the role of this server (P)rimary/(B)ackup/(M)ember [P]:
M [Return]

  Before joining a domain, the computer must be added to the
  domain.  This can be done in one of two ways:

      - the administrator of the domain uses the administrative
        tools to add this computer to the domain, or

      - the computer is added automatically by this procedure;
        you must supply an administrator account and password

Are you going to supply account/password information [Y]/N YES [Return]

Enter the name of the primary domain controller for domain UPTIME:
SUNDA [Return]
Enter the name of the administrator account: [Administrator] [Return]

Enter the account password in the required case:          [Return]

Re-enter to verify password:          [Return]

Process NETBIOS created with identification 206010B5
Process PWRK$NBDAEMON created with identification 206010B7
Process PWRK$KNBDAEMON created with identification 206010B9
Confirming domain name with SUNDA ...
Successfully retrieved domain name from SUNDA.
Validating user name and password...
Successfully validated user name and password.

  PATHWORKS V6.1 for OpenVM is presently configured to
  run as follows:
```

```
   1.  Run the License Server:          NO
   2.  Enable Timesource service:       NO
   3.  Enable Alerter service:          YES
   3a. Alert user names:                Administrator
   4.  Enable Netlogon service:         YES
   5.  Advanced Server domain:          UPTIME
   6.  Advanced Server role:            MEMBER
   7.  Advanced Server computer name:   GRATDA
   7a. Advanced Server OpenVMS Cluster alias:   GRATDA_ALIAS
   8.  Server announce comment:    PATHWORKS V6.1 for OpenVMS

Enter item number, or RETURN to use these values [DONE]: Return

Saving parameters ...
Creating SAM datafiles...
Creating sharefile PWRK$LMROOT:[LANMAN.DATAFILES]SHAREDB ...

New sharefile has been created.

ADMIN$ added
IPC$ added
PWUTIL added
PWLICENSE added
PWLIC added

   The Advanced Server Administrator account is used to
   administer the server.  The Administrator account
   is mapped by default to the OpenVMS SYSTEM account.

   The Administrator account password can be up to 14 characters long
   and the case of the characters used will be preserved.

Enter a password for this Member Server's local Administrator account:
       Return

Re-enter to verify password:        Return

Changing password for Administrator account...
Checking system resources...
   .
   .
   .
```

3.6.1.2 Configuring an Existing PATHWORKS Advanced Server BDC As a Member Server

When you configure a BDC to become a member server, the script is similar to the one for configuring a new server as a member server. One exception is that the script will display the following lines:

```
Changing from backup domain controller to member server
results in the re-creation of the Advanced Server SAM databases.
If there is any problem with the configuration, your existing SAM
databases will be restored.
```

The BDC's domain-wide account database is removed, and the member server's local database is created. Server-specific data is retained from the BDC's database. The configuration procedure saves the domain-wide account database in case you need to restore it later (for more information, see Section 3.7.2, If Problems Occur When Reconfiguring the Advanced Server).

The following two displays show the role of server LIONHEART before and after reconfiguration to the member server role. The display symbol for a member server is [SV].

```
LANDOFOZ\\TINMAN> SHOW COMPUTERS

Computers in domain "LANDOFOZ":
Computer       Type                       Description
-------        -----------------------    ------------------------------
[PD] TINMAN    OpenVMS (NT 3.51) Primary PATHWORKS V6.1 for OpenVMS
(Advanced Server)

[BD] LIONHEART OpenVMS (NT 3.51) Backup  PATHWORKS V6.1 for OpenVMS
(Advanced Server)

[BD] DOROTHY   OpenVMS (NT 4.0) Backup   Advanced Server V7.3 for
                                         OpenVMS

  Total of 3 computers

[reconfigure server role]
.
.
.
LANDOFOZ\\TINMAN> SHOW COMPUTERS

Computers in domain "LANDOFOZ":
Computer       Type                       Description
-------        -----------------------    ------------------------------
[PD] TINMAN    OpenVMS (NT 3.51) Primary PATHWORKS V6.1 for OpenVMS
(Advanced Server)

[SV] LIONHEART OpenVMS (NT 3.51) Server  PATHWORKS V6.1 for OpenVMS
(Advanced Server)

[BD] DOROTHY   OpenVMS (NT 4.0) Backup   Advanced Server V7.3 for
                                         OpenVMS

  Total of 3 computers
```

3.7 Troubleshooting Configuration Procedure Problems

The following sections describe:

- How to ensure sufficient resources will be available to support clients
- How to recover if problems occur when reconfiguring the Advanced Server

3.7.1 Ensuring Sufficient Resources to Support Clients

PATHWORKS Advanced Server requests the resources that it needs using the OpenVMS AUTOGEN utility. If AUTOGEN underestimates the resources required for use by processes other than PATHWORKS Advanced Server, and these resources have already been consumed when PATHWORKS Advanced Server is started, there may be insufficient resources left for PATHWORKS Advanced Server to support the desired number of clients.

To ensure sufficient resource allocation to support clients, make sure that all software that will run concurrently with PATHWORKS Advanced Server is installed and started before you run the PATHWORKS Advanced Server configuration procedure. If TCP/IP is selected as a transport, make sure that the TCP/IP product is loaded before you run the PWRK$CONFIG.COM procedure.

After you successfully configure the PATHWORKS Advanced Server, it may not start, reporting that there are insufficient resources to support any clients. In this case, examine the following file to determine the system resource that needs to be increased (*nodename* is the name of the server node):

```
PWRK$LOGS:PWRK$CONFIG_ERROR_node.LOG
```

To increase the resource allocation, make the appropriate modifications to the MODPARAMS.DAT file and then run AUTOGEN. Refer to Chapter 1, Before You Install PATHWORKS Advanced Server, for more information about the requirements for system parameter settings.

3.7.2 If Problems Occur When Reconfiguring the Advanced Server

If you reconfigure a previously configured server, the PWRK$CONFIG.COM command procedure creates subdirectories in the PWRK$LMDOMAINS: and PWRK$LMDATAFILES: directories, and stores the original accounts database files there.

The names of the subdirectories are based on the date and time, such as 16JUN20014314818.DIR, indicating that the directory was created on 16-JUN-2000 at approximately 2:32 p.m.

If an error occurs during configuration, the server configuration will be returned to its original state. After you are confident you have a successful reconfiguration, you can manually delete these subdirectories and their contents.

3.8 The Advanced Server Network Adapter

PATHWORKS might need to use the network to communicate with the PDC. If the system has more than one network adapter (also referred to as a network interface card), the default adapter chosen by PATHWORKS might not be the correct interface. Or, on some newer systems, the Advanced Server might not recognize the only network adapter present. In such cases, you can define system logical names to direct the Advanced Server to use a specific interface. If no such logical is defined, PATHWORKS selects the first adapter (alphabetically) defined on your system from a list of known adapters.

If the server has access to more than one network adapter and you do not want to use the adapter selected, or if the system has a network adapter that is not found or recognized by the Advanced Server, you can manually specify the network adapter to use with the transport you specified.

3.8.1 Manually Defining the Network Adapter

To manually define the network adapter to be used for a specific protocol (after restarting the server), follow these steps:

1. Use the DCL command DEFINE/SYSTEM to define a system logical name that specifies the network adapter, as shown in the following examples. Table 3–5, OpenVMS Network Adapter Logicals, lists the OpenVMS logical name that you can use for each transport. You must add the appropriate logicals to SYS$MANAGER:SYLOGICALS.COM to have them available after rebooting.
2. Restart the server:

```
$ @SYS$STARTUP:PWRK$STARTUP
```

Table 3–5 OpenVMS Network Adapter Logicals

Logical Name	Transport
NETBIOS$DEVICE	DECnet
PWRK$KNBDAEMON_DEVICE	TCP/IP
PWRK$NETBEUI_DEVICE	NetBEUI

The following examples show how to define the appropriate network adapter for the DECnet, TCP/IP, and NetBEUI transports, respectively:

- To specify adapter EWA0: for the DECnet transport, enter the following command:

```
$ DEFINE/SYSTEM NETBIOS$DEVICE EWA0:
```

- To specify adapter ESA0: for the TCP/IP transport, enter the following command:

  ```
  $ DEFINE/SYSTEM PWRK$KNBDAEMON_DEVICE ESA0:
  ```

  Note

  If TCP/IP is running on multiple network adapters, and you select one of those adapters for use by the Advanced Server, make sure the adapter you select corresponds to the first adapter listed in the TCP/IP local hosts database.

- To specify adapter ESA1: for the NetBEUI transport, enter the following command:

  ```
  $ DEFINE/SYSTEM PWRK$NETBEUI_DEVICE ESA1:
  ```

Note that you can specify the same adapter for each protocol, as in the following example:

```
$ DEFINE/SYSTEM NETBIOS$DEVICE EWA0:
$ DEFINE/SYSTEM PWRK$KNBDAEMON_DEVICE EWA0:
$ DEFINE/SYSTEM PWRK$NETBEUI_DEVICE EWA0:
```

Note

The names of adapters defined by use of the logical names PWRK$NETBEUI_DEVICE, PWRK$KNBDAEMON_DEVICE, and NETBIOS$DEVICE must not start with an underscore (_); otherwise, the PWRK$KNBDAEMON will not start, and other processes will start, but they will not operate properly.

3.8.2 What to Do If the Network Adapter Is Not Found

The NETBIOS, PWRK$KNBDAEMON (for TCP/IP), and PWRK$NBDAEMON (for NetBEUI) processes require that their associated network adapter is known and available to the server software. It is possible that new network adapters are released that are not known to the current version of the Advanced Server software. If the Advanced Server does not find or recognize the selected network adapter, each of the failing processes (NETBIOS, which is always present, and PWRK$KNBDAEMON and PWRK$NBDAEMON, if present) writes an error message to its log file. Table 3–6, Undefined Adapter Messages, shows each process, the log file that records the error message from

the process, and examples of the text of the error message. In the examples in Table 3–6, the server node name is MYNODE. All three error messages have the same meaning: that no such device was found by the server.

Table 3–6 Undefined Adapter Messages

Process	Log File Name
PWRK$KNBDAEMON	PWRK$LOGS:PWRK$KNBDAEMON_MYNODE.LOG
Message:	
`Tue Mar 24 13:13:50 2000 get_phys_addr: Failed to get Ethernet device characteristics`	
PWRK$NBDAEMON	PWRK$LOGS:PWRK$NBDAEMON_MYNODE.LOG
Message:	
`Tue Mar 24 13:13:50 2000 Failed to open datalink`	
NETBIOS	PWRK$LOGS:NETBIOS_MYNODE.LOG
Message:	
`%NB-W-ERRSIGNAL, exceptional conditional detected at 24-Mar-2000 13:13:50.00 -SYSTEM-W-NOSUCHDEV, no such device available`	

If you find any of the messages listed in Table 3–6, define the network adapter for the appropriate processes, using the procedure outlined in Section 3.8.1, Manually Defining the Network Adapter. For example, if the server reported an unknown device, enter the DEFINE/SYSTEM commands to define the appropriate adapter for each protocol on the server.

3.9 Next Steps

You can start the PATHWORKS Advanced Server automatically as part of the configuration procedure.

- If you are upgrading from PATHWORKS (LAN Manager) perform the upgrade procedures described in the *Compaq PATHWORKS for OpenVMS (Advanced Server) Server Migration Guide*.
- If you are ready to start the server, see Chapter 5, After You Install the PATHWORKS Advanced Server, for instructions.

4

Configuring and Starting the Standalone License Server

The License Server is a software program that you can run on an OpenVMS system to grant licenses to clients.

This chapter describes how to configure and start the standalone License Server, and consists of the following sections:

- Section 4.1, About the License Server
- Section 4.2, Before You Begin to Configure the Standalone License Server
- Section 4.3, Configuring the Standalone License Server
- Section 4.4, Configuring the Transports
- Section 4.5, How to Respond to License Server Configuration Prompts
- Section 4.6, How to Start the Standalone License Server

4.1 About the License Server

The PATHWORKS Advanced Server License Server can provide license verification for clients requiring access to PATHWORKS (LAN Manager) servers, PATHWORKS for OpenVMS (Advanced Server) servers, and Advanced Server for OpenVMS servers.

The License Server is required for client-based licensing. If you are using server-based licensing, you do not have to run the License Server.

Each LAN needs only one License Server to support client-based licenses. The same License Server can manage licenses for client access to any of the following types of file and print servers:

- PATHWORKS V5 for OpenVMS (LAN Manager)
- PATHWORKS V6 for OpenVMS (Advanced Server)

- Advanced Server for OpenVMS

You can install the License Server:

- Separately from the Advanced Server
- In conjunction with the Advanced Server

Compaq recommends that you install the License Server on a designated OpenVMS system without the Advanced Server. The PATHWORKS Advanced Server kit allows you to install the standalone License Server separately from the file and print server. You can run the standalone License Server on an OpenVMS Cluster, where cluster failover provides reliability.

In an OpenVMS Cluster, the PAKs must be loaded into a shared license database. For detailed information on managing licenses, refer to the *Compaq Advanced Server for OpenVMS Guide to Managing Advanced Server Licenses*.

Note

The License Server included with PATHWORKS Advanced Server will not issue or manage PATHWORKS for OpenVMS (NetWare) licenses. If you have clients using NetWare networking software, maintain the existing version of the License Server on a different system from the one that is running PATHWORKS Advanced Server.

4.2 Before You Begin to Configure the Standalone License Server

You install the standalone License Server from the same software kit that you use to install the PATHWORKS Advanced Server. The procedures are described in Chapter 2, Installing the PATHWORKS Advanced Server.

4.3 Configuring the Standalone License Server

You must configure the standalone License Server to provide licenses to clients in the LAN. Therefore, you select the appropriate transports used by the clients. You can configure the License Server to use the following transports:

- DECnet
- NetBEUI
- TCP/IP

Because the License Server supports all these types of transports, the startup and shutdown procedures have been carefully designed to prevent unexpected interruptions in service. You can start and shut down the License Server using the file and print server command procedures PWRK$STARTUP.COM and PWRK$SHUTDOWN.COM. For more information on starting a standalone License Server, see Section 4.6, How to Start the Standalone License Server.

4.4 Configuring the Transports

The following section describes how to use the configuration command procedure to configure the transports for the standalone License Server.

After the installation procedure completes, the OpenVMS system prompt ($) is displayed. If the system was rebooted following installation, ensure that you are logged in to the SYSTEM account, and do the following:

1. Start the configuration procedure by entering:

```
$ @SYS$UPDATE:PWRK$CONFIG
```

2. Respond to the configuration prompts.

4.5 How to Respond to License Server Configuration Prompts

Table 4–1, License Server Configuration Prompts, tells you how to respond to the prompts displayed by PWRK$CONFIG when you configure the standalone License Server.

Note

Table 4–1 shows only the prompts that PWRK$CONFIG displays; it does not show any informational messages. For a complete sample configuration script, see Appendix C, Sample Standalone License Server Installation and Configuration.

Configuring and Starting the Standalone License Server
4.5 How to Respond to License Server Configuration Prompts

Table 4–1 License Server Configuration Prompts

Prompt	Desired Outcome	How to Respond
Enter disk device name where the Advanced Server data files will be stored [*default_device*]:	Copy the server on-disk structure to the default OpenVMS disk device displayed; you need 5,000 free blocks of disk space to store these data files. (If you ran PWRK$CONFIG previously, the default disk device is the one you specified the last time you configured the server.)	Return
	Copy the PATHWORKS Advanced Server on-disk structure to an OpenVMS disk device different from the default displayed	*device_name*
Do you want to serve client-based licenses over DECnet [YES]:[1]	Allow licenses to be served over DECnet	Return
	Not allow licenses to be served over DECnet	NO
Do you want to serve client-based licenses over NetBEUI [NO]:[1]	Allow licenses to be served over NetBEUI	YES
	Not allow licenses to be served over NetBEUI	Return
Do you want to serve client-based licenses over TCP/IP [NO]:[1]	Allow licenses to be served over TCP/IP	YES
	Not allow licenses to be served over TCP/IP	Return
Do you want to start the PATHWORKS License Server now [YES]:	Start the server automatically after the configuration procedure completes	Return
	Complete the configuration procedure without starting the server	NO

[1]Default answers may differ if you ran the PWRK$CONFIG procedure previously.

4.6 How to Start the Standalone License Server

You can start the License Server in any of the following ways:

- During the configuration procedure, as described in Section 4.3, Configuring the Standalone License Server.
- Manually from the command line.
- Automatically each time you reboot.

4.6.1 How to Start the License Server Manually

If you did not start the License Server during the configuration procedure, you can start it manually using the following command:

```
$ @SYS$STARTUP:PWRK$STARTUP Return

The License Server will use DECnet, NetBEUI, TCP/IP.
Process NETBIOS created with identification 0000011E
Process PWRK$NBDAEMON created with identification 00000120
Process PWRK$KNBDAEMON created with identification 00000122
Process PWRK$LICENSE_S created with identification 00000124
$
```

4.6.2 How to Start the License Server Automatically

To make sure that the License Server starts automatically each time you boot your OpenVMS system:

1. Edit the system startup file (SYS$STARTUP:SYSTARTUP_VMS.COM).
2. Add the startup command, as shown in the following example. Add the command to the file *below* all lines that start network transports. The following example shows how to edit the file.

```
$ IF F$SEARCH("SYS$SYSTEM:NETACP.EXE") .NES. ""
$ THEN @SYS$MANAGER:STARTNET
$ ENDIF
.
.
.
$ @SYS$STARTUP:PWRK$STARTUP
```

4.6.3 How to Start the License Server in an OpenVMS Cluster

If you installed and configured the License Server on multiple members of the same OpenVMS Cluster, Compaq suggests that you use the SYSMAN utility to start the License Server manually and simultaneously on all cluster members. To do so:

1. Make sure that you are logged in to the SYSTEM account on one of the server nodes in the OpenVMS Cluster.
2. Start the SYSMAN utility by entering:

   ```
   $ RUN SYS$SYSTEM:SYSMAN
   ```

3. Define all the cluster members on which you want to start the standalone License Server. For example, if you want to start the License Server on nodes HYDRAA, HYDRAB, and HYDRAC:

   ```
   SYSMAN> SET ENVIRONMENT/NODE=(HYDRAA,HYDRAB,HYDRAC)
   ```

4. Start the License Server on the nodes you defined. At the SYSMAN> prompt, enter the following command:

   ```
   SYSMAN> DO @SYS$STARTUP:PWRK$STARTUP
   ```

Only one License Server in the cluster will be active at a time. If that License Server becomes unavailable, cluster failover activates one of the other License Servers to take over.

5

After You Install the PATHWORKS Advanced Server

This chapter describes tasks you can perform after you install the PATHWORKS Advanced Server software and consists of the following sections:

- Section 5.1, Before You Begin Postinstallation Tasks
- Section 5.2, Verifying the PATHWORKS for OpenVMS (Advanced Server) Installation
- Section 5.3, Starting the PATHWORKS Advanced Server
- Section 5.4, Stopping the PATHWORKS Advanced Server
- Section 5.5, How to Define PATHWORKS Advanced Server Commands When You Log In
- Section 5.6, Setting Up External Authentication
- Section 5.7, Installing Optional Server Administration Tools

5.1 Before You Begin Postinstallation Tasks

Before proceeding, make sure you have completed the steps listed in the second column of Table 5–1, depending on the task you are performing, listed in the first column.

Table 5–1 Steps That Must Be Completed Before Postinstallation

Task You Are Performing	Steps Required
Installing the PATHWORKS Advanced Server	1. Completed the installation procedure described in Chapter 2, Installing the PATHWORKS Advanced Server. 2. Completed the configuration procedure described in Chapter 3, Configuring the PATHWORKS Advanced Server.
Upgrading a PATHWORKS (LAN Manager) server to PATHWORKS V6 for OpenVMS (Advanced Server) server	1. Completed the installation procedures described in Chapter 2, Installing the PATHWORKS Advanced Server. 2. Completed the upgrade procedure described in the *Compaq PATHWORKS for OpenVMS (Advanced Server) Server Migration Guide*. 3. Completed the configuration procedure described in Chapter 3, Configuring the PATHWORKS Advanced Server.
Installing the Standalone License Server	1. Completed the installation procedures described in Chapter 2, Installing the PATHWORKS Advanced Server. 2. Completed the configuration procedure described in Chapter 4, Configuring and Starting the Standalone License Server.
Installing external authentication software only	Completed the installation procedure described in Chapter 2, Installing the PATHWORKS Advanced Server.

5.2 Verifying the PATHWORKS for OpenVMS (Advanced Server) Installation

If you did not run the IVP as part of the installation procedure, as described in Chapter 2, Installing the PATHWORKS Advanced Server, you can run it now (or anytime later) to make sure that the server installed successfully.

To run the IVP for PATHWORKS Advanced Server, enter the following command:

```
$ @SYS$TEST:PWRK$IVP
```

Table 5–2, IVP Indications and Steps You Should Take, indicates the steps to take according to the status of the installation indicated by IVP.

Table 5–2 IVP Indications and Steps You Should Take

Installation Status	IVP Indication	Steps to Take
Succeeded	The message `%PWRK-I-NORMAL, IVP completed successfully`	If it is not already running, start the server, as described in Section 5.3, Starting the PATHWORKS Advanced Server.
Failed	An error message, followed by `-PWRK-E-IVPFAIL, IVP has failed`	Reinstall the software, as described in Chapter 2, Installing the PATHWORKS Advanced Server.

5.3 Starting the PATHWORKS Advanced Server

The following sections describe what the startup procedure does, when and how to start the PATHWORKS Advanced Server (manually or automatically), and and how to troubleshoot problems with startup.

You can start the Advanced Server:

- During the configuration procedure, as described in Chapter 3, Configuring the PATHWORKS Advanced Server
- Manually from the command line
- Automatically each time you reboot

5.3.1 When to Start the PATHWORKS Advanced Server

You must configure the server before you can start it for the first time. After running the configuration procedure, you can start and stop the server at any time.

5.3.2 What the Startup Procedure Does

The startup procedure:

1. Checks for the required privileges.
2. Verifies that required configuration files are available.
3. Verifies that the server has been configured, and exits if it was not.
4. If a reboot is required, verifies that it was performed, and exits if it was not.
5. Loads transport drivers.
6. Installs images.
7. Starts transport support processes.
8. Starts each of the components:
   - License Registrar
   - License Server (if configured)
   - File and print server

5.3.3 How to Start the PATHWORKS Advanced Server Manually

If you did not start the PATHWORKS Advanced Server during the configuration procedure, you can start it now by entering:

```
$ @SYS$STARTUP:PWRK$STARTUP
```

The PATHWORKS Advanced Server starts, and messages similar to the following are displayed:

```
PATHWORKS file server will use DECnet, TCP/IP.
PATHWORKS mail notification will use DECnet.
Process NETBIOS created with identification 0000009A
Process PWRK$LICENSE_R created with identification 0000009D
The PATHWORKS V6.1 server is configured to support 20 PC clients.
Process PWRK$MASTER created with identification 000000A2
The master process will now start all other PATHWORKS processes.
```

5.3.4 How to Start the PATHWORKS Advanced Server Automatically

To make sure that the server starts automatically each time you boot your OpenVMS system:

1. Edit the system startup file, SYS$STARTUP:SYSTARTUP_VMS.COM.
2. Add the @SYS$STARTUP:PWRK$STARTUP command to the file below all lines that start network transports. For example:

```
$ START/NETWORK DECNET
.
.
.
$ @SYS$STARTUP:PWRK$STARTUP
```

5.3.5 How to Start the PATHWORKS Advanced Server in an OpenVMS Cluster

Before starting the server in an OpenVMS Cluster, the server software must be installed and configured on each cluster member on which the server is to run. If you installed and configured the PATHWORKS Advanced Server on multiple members of the same OpenVMS Cluster, Compaq recommends that you use the SYSMAN utility to start the server manually and simultaneously on all cluster members.

To start the server on all cluster members at the same time, make sure you are logged in to the SYSTEM account on one of the server nodes, then run SYSMAN as indicated in the second column of Table 5–3, Starting the Server in an OpenVMS Cluster, according to the result you want to achieve, as listed in the first column.

Table 5–3 Starting the Server in an OpenVMS Cluster

Desired Result	Command to Enter
Start the SYSMAN utility	`$ RUN SYS$SYSTEM:SYSMAN`
Define the OpenVMS Cluster members on which to start the server (in this example, SPEEDY, SPIN, and SPAN)	`SYSMAN> SET ENVIRONMENT -` `_SYSMAN> NODE=(SPEEDY,SPIN,SPAN)`

(continued on next page)

Table 5–3 (Cont.) Starting the Server in an OpenVMS Cluster

Desired Result	Command to Enter
Start the PATHWORKS Advanced Server on all the nodes you defined in the previous command	`SYSMAN> DO @SYS$STARTUP:PWRK$STARTUP`
Exit the SYSMAN utility	`SYSMAN> EXIT`

Note

If you are using the STARTUP feature of the SYSMAN utility to start Advanced Server, you must pass a P1 parameter of " " (null or space). For example:

```
SYSMAN> STARTUP ADD FILE PWRK$STARTUP.COM/PARAMETER=P1:" "
```

For more information on using the SYSMAN utility's STARTUP feature, refer to the *OpenVMS System Management Utilities Reference Manual*.

5.3.6 Troubleshooting the Startup

PATHWORKS Advanced Server processes are detached processes. During startup, all detached processes must execute the site-specific system login procedure (by default, SYS$MANAGER:SYLOGIN.COM).

If the PATHWORKS Advanced Server startup does not complete successfully, check the SYLOGIN.COM procedure. Make sure that only commands that should be executed by detached processes are executed during the PATHWORKS Advanced Server startup.

In SYLOGIN.COM, you can use the DCL lexical function F$MODE or F$GETJPI to conditionalize DCL commands, such as $SET TERM/INQUIRE, that should be executed only by nondetached processes, so that they are not executed during the PATHWORKS Advanced Server startup. Refer to the *OpenVMS DCL Dictionary* for more information.

5.4 Stopping the PATHWORKS Advanced Server

The following sections describe when and how to stop the PATHWORKS Advanced Server.

5.4.1 When to Stop the PATHWORKS Advanced Server

You can stop the server at any time for any reason, which can include the following:

- When you want to change server parameters
- As part of an orderly system shutdown
- As needed to troubleshoot server problems

5.4.2 How to Stop the PATHWORKS Advanced Server

To stop the server, enter the following command:

```
$ @SYS$STARTUP:PWRK$SHUTDOWN
```

For a cluster server, enter:

```
$ @SYS$STARTUP:PWRK$SHUTDOWN CLUSTER
```

Before shutting down the OpenVMS operating system, Compaq recommends stopping the server.

5.4.3 How to Stop the PATHWORKS Advanced Server on System Shutdown

To stop the server as part of an orderly system shutdown, add the shutdown command to the site-specific system shutdown procedure. In addition, prior to shutting down the server, announce the planned shutdown to connected users by using the ADMINISTER SEND/USERS command, as in the following example, which alerts all users connected to server WOODMAN:

```
LANDOFOZ\\TINMAN> SEND/USERS/SERVER=WOODMAN "Shutdown @ 1pm today!!!"
```

5.5 How to Define PATHWORKS Advanced Server Commands When You Log In

Compaq provides numerous command procedures that, for example, provide shortcuts for invoking certain server management commands and procedures. You can see a list of these commands by examining the contents of the file SYS$MANAGER:PWRK$DEFINE_COMMANDS.COM.

You can define these Advanced Server management commands automatically when you log in to the account that you use to manage the Advanced Server. To define Advanced Server commands at login, edit the LOGIN.COM file of the privileged account to add the following line:

```
$ @SYS$MANAGER:PWRK$DEFINE_COMMANDS
```

5.6 Setting Up External Authentication

The OpenVMS operating system Versions 7.1 and higher provide support for external authentication. PATHWORKS Advanced Server participates with the OpenVMS operating system to allow PATHWORKS Advanced Server domain users to log in to the OpenVMS operating system using their PATHWORKS Advanced Server domain user names and passwords. The PATHWORKS Advanced Server *externally authenticates* the login request.

External authentication can provide automatic password synchronization between an OpenVMS account and a corresponding Advanced Server domain account. Users who have both OpenVMS and PATHWORKS Advanced Server domain user accounts can avoid maintaining two different passwords. If the domain account password is changed, the OpenVMS LOGINOUT program sets the OpenVMS account password to the domain account password the next time the user logs in to the OpenVMS account. If the user changes the OpenVMS password with the DCL SET PASSWORD command, the the SET PASSWORD command sends the password change to the Advanced Server external authenticator. For synchronization to succeed, an Advanced Server domain controller must be available and the domain account password must meet OpenVMS syntax requirements.

When you start the Advanced Server, external authentication is automatically enabled for user accounts that are flagged for external authentication in the SYSUAF. (To enable external authentication, PWRK$ACME_STARTUP.COM defines bit 0 of the SYS$SINGLE_SIGNON logical to the value 1. You can disable external authentication by changing the default value of this bit. For information on disabling external authentication and about defining the other bits in the SYS$SINGLE_SIGNON logical, see Section 5.6.5, Disabling External Authentication.)

For more information about enabling external authentication on OpenVMS, refer to the *OpenVMS Guide to System Security*.

No additional configuration is necessary on cluster members running the Advanced Server to enable the Advanced Server to participate in the external authentication process. However, to use external authentication in an Advanced Server cluster, all cluster members should be configured to use external authentication, so that externally authenticated users can log on to the cluster through any node in the cluster. A cluster member that is not running the complete Advanced Server can be configured to authenticate logon requests from network users if it has access to external authentication software on a shared cluster system disk. If it does not have access to external authentication software on a shared cluster system disk, you can enable external authentication on that system by copying only the external

authentication images to the system disk, following the steps given in Section 5.6.1, Setting Up External Authentication in OpenVMS Clusters.

To provide external authentication on the system, perform the following steps:

1. Install one of the following:
   - The PATHWORKS Advanced Server
   - The standalone PATHWORKS external authentication software

   Note

   At least one node in the cluster must run the complete Advanced Server software.

   For more information, see Chapter 2, Installing the PATHWORKS Advanced Server.
2. Set the appropriate OpenVMS user accounts to allow external authentication (in SYSUAF). For more information, refer to the *OpenVMS Guide to System Security*.
3. If the PATHWORKS Advanced Server is installed, start the server and external authentication will be enabled for all user accounts allowing external authentication.

   If the standalone PATHWORKS external authentication software is installed, perform the following:

   a. Add the following lines to your SYSTARTUP_VMS.COM file:

   ```
   $ DEFINE/SYSTEM/EXE SYS$SINGLE_SIGNON 1
   $ @SYS$STARTUP:PWRK$ACME_STARTUP.COM
   ```

   In a cluster, add these preceding two lines plus the following in a node-specific system startup file (not clusterwide), or if using a shared system startup file such as SYS$COMMON:[SYSMGR]SYLOGICALS.COM, ensure that you conditionalize the DEFINE command based on the node name (that is, using the lexical function F$GETSYI).

   ```
   $ DEFINE/SYSTEM/EXE PWRK$ACME_SERVER scsnode1_name[,scsnode2_name,...]
   ```

   Each *scsnodex_name* is an equivalence name, which is the SCSNODE name of a cluster member running an Advanced Server that can be used to process external authentication requests. You can include all, or a subset of, the names of the Advanced Server member nodes. This allows you to specify the order in which the requesting host contacts the hosts running the complete Advanced Server software for an

authentication request. If the first node in the list does not respond, the requesting host asks the next host, and so forth.

For more information, refer to the *OpenVMS Guide to System Security* and Section 5.6.1.

4. Establish host mapping between PATHWORKS Advanced Server domain user accounts and the corresponding OpenVMS user accounts, if necessary. For more information, refer to the *Compaq PATHWORKS for OpenVMS (Advanced Server) Server Administrator's Guide*.
5. If your Advanced Server is participating in an OpenVMS Cluster, set up external authentication on all cluster members. For more information, see Section 5.6.1, Setting Up External Authentication in OpenVMS Clusters.
6. If you want to change the default domain used for external authentication, set the system logical PWRK$ACME_DEFAULT_DOMAIN accordingly. (The local server's domain is the default domain for users when external authentication is established: if a user does not specify a domain name at login, the system uses the default domain for authentication.) For more information, refer to the *Compaq PATHWORKS for OpenVMS (Advanced Server) Server Administrator's Guide*.
7. If establishing external authentication for users in trusted domains, add the name of the trusted domain(s) to the LANMAN.INI parameter **HostMapDomains**. For more information, refer to the *Compaq PATHWORKS for OpenVMS (Advanced Server) Server Administrator's Guide*.

For information about enabling Authentication and Credential Management (SYS$ACM) for authenticating users and determining the user security profile for OpenVMS and Windows NT, refer to the *OpenVMS Connectivity Developer's Guide* (included in the OpenVMS Documentation CD-ROM).

5.6.1 Setting Up External Authentication in OpenVMS Clusters

If you are running PATHWORKS Advanced Server in an OpenVMS Cluster, Compaq recommends that all cluster members be configured to be able to process OpenVMS logon requests for network users.

As noted in the preceding section, when the Advanced Server is started on a system, external authentication is enabled automatically for user accounts flagged for external authentication in the SYSUAF. A cluster member that is not running the complete Advanced Server can authenticate logon requests from network users if it has access to external authentication software on a shared cluster disk. Note that external authentication is not supported on OpenVMS systems prior to V7.1. Therefore, to ensure that external

authentication works properly on the cluster, Compaq recommends that you make sure all systems in the cluster are running OpenVMS V7.1 or later.

If the cluster member does not have access to external authentication software on a shared cluster disk, you can enable external authentication on that system by copying just the external authentication images onto that system.

If the cluster member has a shared system disk, skip step 1 below and perform the remaining steps. If the cluster member does not have a shared system disk, perform all steps.

1. If the member node that is not running the PATHWORKS Advanced Server is running OpenVMS Alpha Version 7.2-1 or later or OpenVMS VAX V7.2 or later, install the standalone PATHWORKS external authentication software on that member node from the PATHWORKS for OpenVMS (Advanced Server) software kit, as described in Chapter 2, Installing the PATHWORKS Advanced Server.

   If the member node that is not running the PATHWORKS Advanced Server is running OpenVMS VAX Version 7.1, copy the following external authentication files from any system disk where the complete PATHWORKS Advanced Server is installed to the location indicated on the VAX node:

File	Destination on VAX Node
SYS$LIBRARY:PWRK$ACME_MODULE_VAX.EXE	SYS$COMMON:[SYSLIB]
SYS$STARTUP:PWRK$ACME_STARTUP.COM	SYS$COMMON:[SYS$STARTUP]

   If the member node that is not running the PATHWORKS Advanced Server is running OpenVMS Alpha Version 7.1, then copy the following external authentication files from any system disk where the complete PATHWORKS Advanced Server is installed to the location indicated on the Alpha node:

File	Destination on Alpha V7.1 Node
SYS$LIBRARY:PWRK$ACME_MODULE_ALPHA.EXE	SYS$COMMON:[SYSLIB]
SYS$STARTUP:PWRK$ACME_STARTUP.COM	SYS$COMMON:[SYS$STARTUP]

2. Add the following lines in a node-specific system startup file (not clusterwide), or if using a shared system startup file such as SYS$COMMON:[SYSMGR]SYLOGICALS.COM, ensure that you conditionalize the DEFINE command based on the node name (that is, using the lexical function F$GETSYI).

```
$ DEFINE/SYSTEM/EXE SYS$SINGLE_SIGNON 1
$ DEFINE/SYSTEM/EXE PWRK$ACME_SERVER scsnode1_name[,scsnode2_name,...]
$ @SYS$STARTUP:ACME_STARTUP.COM
```

In the second line, each *scsnodex_name* is an equivalence name, which is the SCSNODE name of a cluster member running an Advanced Server that can be used to process external authentication requests. You can include all, or a subset of, the names of the Advanced Server member nodes. This allows you to specify the order in which the requesting host contacts the hosts running the complete Advanced Server software for an authentication request. If the first node in the list does not respond, the requesting host asks the next host, and so forth.

Note

If you specify a subset of the Advanced Server member nodes, in order for external authentication requests to be processed properly, the Advanced Server should be running (available) on at least one of those specified cluster members. Otherwise, even if another Advanced Server member node not specified in the list is currently running, the requests will not be processed.

3. Invoke the SYS$STARTUP:PWRK$ACME_STARTUP command procedure during system startup.
4. Set appropriate OpenVMS user accounts on all cluster members to allow external authentication, and if necessary, set up host mapping between the OpenVMS user accounts and the Advanced Server user accounts. For more information about enabling OpenVMS user accounts for external authentication, refer to the *OpenVMS Guide to System Security*. For more information about setting up host mapping, refer to the *Compaq PATHWORKS for OpenVMS (Advanced Server) Server Administrator's Guide*. (For OpenVMS V7.1 systems, refer to the *OpenVMS V7.1 New Featuers Manual*.)

5.6.2 Requirement for External Authentication Over DECnet-Plus

To allow users to be externally authenticated over DECnet-Plus for OpenVMS, set the OpenVMS system parameter NET_CALLOUTS to 255. This enables Advanced Server user ID mapping and authentication for network logins.

5.6.3 Configuring the Server Capacity for External Authentication

By default, the Advanced Server can support up to 10 simultaneous external authentication logon requests (signons). You can modify this maximum to suit the Advanced Server requirements, using the Configuration Manager. To start the Configuration Manager, enter the following command:

```
$ ADMINISTER/CONFIGURATION
```

The basic server parameters include the number of simultaneous activations for users with external authentication.

For more information about using the Configuration Manager, refer to the *Compaq PATHWORKS for OpenVMS (Advanced Server) Server Administrator's Guide*.

5.6.4 Bypassing External Authentication When the Network Is Down

External authentication cannot occur if a network connection is required and the network is down. However, as a temporary solution, privileged users can enter the /LOCAL_PASSWORD qualifier after the OpenVMS user name at the login prompt, to specify local authentication. Be sure to specify the OpenVMS user name and password when using the /LOCAL_PASSWORD qualifier.

Because using the /LOCAL_PASSWORD qualifier effectively overrides the security policy established by the system manager, it is allowed only when the user's account has SYSPRV as an authorized privilege. This allows the system manager to gain access to the system when the network is down. When Bit 1 of the equivalence string is set in the SYS$SINGLE_SIGNON logical name, nonprivileged users who are normally externally authenticated can log in locally (the /LOCAL_PASSWORD qualifier need not be specified).

For more information about the /LOCAL_PASSWORD qualifier for the login command line, refer to the *OpenVMS Guide to System Security*. (For OpenVMS Version 7.1 systems, refer to the *OpenVMS System Management Utilities Reference Manual* in the OpenVMS Version 7.1 documentation.

5.6.5 Disabling External Authentication

If you want to disable external authentication, then before starting the Advanced Server, define the SYS$SINGLE_SIGNON logical to a value of 0, as in the following example:

```
$ DEFINE/SYSTEM/EXECUTIVE SYS$SINGLE_SIGNON 0
```

For more information about SYS$SINGLE_SIGNON and disabling external authentication on OpenVMS, refer to the *OpenVMS Guide to System Security*.

5.7 Installing Optional Server Administration Tools

The PATHWORKS Advanced Server provides optional client-based server administration tools that allow you to manage the server from Windows 95, Windows 98, Windows for Workgroups, or Windows NT clients. These tools are available in the PWUTIL share after installing, configuring and starting the server.

The SRVTOOLS directory in the PWUTIL share contains a subdirectory for each type of client computer. Refer to the README.TXT file in the appropriate subdirectory for instructions on installing the software on the client computer.

Refer to the Windows NT Server documentation or use online Help for more information about how to use Windows NT Server administration tools.

6
Implementing a Wide Area Network

This chapter describes how to set up a wide area network (WAN) using one of the TCP/IP transport software products supported by PATHWORKS Advanced Server.

This chapter consists of the following sections:

- Section 6.1, Enabling Wide Area Networking
- Section 6.2, Using the LMHOSTS File for Wide Area Networking
- Section 6.3, Using WINS in a Wide Area Network
- Section 6.4, Using DNS in a Wide Area Network

6.1 Enabling Wide Area Networking

The PATHWORKS Advanced Server allows you to use one or more of the following methods for wide area network name resolution:

- LMHOSTS file for TCP/IP
- Windows Internet Name Servers (WINS)
- Domain Name System (DNS)

To use them, they must be enabled using the Configuration Manager. You can enable them through the PWRK$CONFIG.COM command procedure, which provides access to the Configuration Manager when you answer YES to the question ''Do you want to change server configuration parameters.'' To enable one or more of the wide area networking methods, select the Transports screen and select the appropriate checkbox. Alternatively, you can run the Configuration Manager after the server is configured and started, as described in the *Compaq PATHWORKS for OpenVMS (Advanced Server) Server Administrator's Guide*.

6.2 Using the LMHOSTS File for Wide Area Networking

The PATHWORKS Advanced Server software provides the ability to set up a wide area network with the TCP/IP transport through the use of the LMHOSTS file. This file contains a list of domain controllers and member servers in the same domain and also domain controllers in domains that have trusts established with that domain. The LMHOSTS file allows the Advanced Server to participate in a Windows NT wide area network as well.

Unlike a Windows NT Server, the Advanced Server does not support remote LMHOSTS files (called into the Windows NT LMHOSTS file using #INCLUDE). To include the same host names as an existing LMHOSTS file on a Windows NT Server, copy the LMHOSTS file to the Advanced Server then manually insert the entries into the Advanced Server LMHOSTS file.

Caution

If you plan to use cluster load balancing in WANs (using DNS for NetBIOS resolution of the Advanced Server cluster alias name), you must remove all entries for the cluster alias from the LMHOSTS file on all systems that will access the Advanced Server cluster and that have enabled DNS for name resolution. For more information on cluster load balancing, refer to the *Compaq PATHWORKS for OpenVMS (Advanced Server) Server Administrator's Guide*.

6.2.1 Setting up a TCP/IP Wide Area Network

To set up a TCP/IP wide area network, modify the LMHOSTS file, adding the host names and TCP/IP addresses of the domain controllers and member servers in the wide area network that are in the same domain or in domains that have trust relationships with that domain.

The LMHOSTS file must be set up on all domain controllers and member servers in the domain, unless other methods are used to resolve NetBIOS names. Make sure your Advanced Server LMHOSTS file includes entries for all domain controllers and member servers of the domain and domain controllers in domains that have trusts established with that domain.

Note the following when configuring a server that will be a backup domain controller (BDC) or member server in an existing domain: if the LMHOSTS file does not include entries for a primary domain controller (PDC) that is in a different TCP/IP subnet, your server will not be able to find that PDC. Make sure you include entries for that PDC in the LMHOSTS file before running

PWRK$CONFIG to join the existing domain. Two entries are required for a PDC:

- One standard entry for the computer name of the PDC
- One entry that uniquely identifies the system as the PDC of the domain. This entry contains the domain name (space padded to 15 characters) with a 16th-byte control character of \0x1B. See the example in Section 6.2.3, LMHOSTS File Syntax.

BDCs periodically retrieve changes to the domain-wide security accounts database from the PDC. If you omit a BDC from the LMHOSTS file on the PDC, the PDC will not notify the BDC that database changes need to be retrieved. Or, if a BDC omits the necessary entries for the PDC, the BDC will be unable to locate the PDC when attempting to retrieve database changes. In either case, the BDC's database will become out of date.

You can modify the LMHOSTS file at any time. As long as the LMHOSTS file exists, users can establish TCP/IP connections to any server listed in the file.

6.2.2 The LMHOSTS Directory

You set up a wide area network by supplying the following file on all OpenVMS file and print servers that are in different subnets:

PWRK$LMROOT:[LANMAN]LMHOSTS.

The LMHOSTS file has no file extension; include the final dot, as shown.

6.2.3 LMHOSTS File Syntax

In the LMHOSTS file, create a list of nodes by specifying the following line for each node:

address NetBIOSname #PRE #DOM:*domain_name*

Where:

- *address* is an Internet address of form *x.x.x.x*, where *x* is a decimal number from 0 to 255.
- *NetBIOSname* is a name from 1 to 16 characters long, and may include a control character. (The format of a control character is \0X*nn* or *nn*, where *n* is a hexadecimal digit.)

  To include a nonprinting or control character, enclose the name in double quotation marks. All alphabetic characters are set to uppercase characters before the name is loaded into cache (see the #PRE directive, below) or used for matching.

If you wish to include the 16th-byte control character in the name explicitly, you must

- Pad the name with spaces to control the placement of the control character.
- Enclose the name and control character within double quotes.

The following are some valid NetBIOS names:

```
speedy
"LANDOFOZ       \0x1B"
```

- #PRE is an optional directive that indicates that the entry should be preloaded into the cache. Entries that have the #PRE tag are preloaded into the cache when the Advanced Server first starts up. If you add a #PRE-tagged entry to the LMHOSTS file after the Advanced Server starts up, the name will not be preloaded into the cache until the Advanced Server is restarted. However, the name will be available at the next lookup of the LMHOSTS file.
- #DOM:*domain-name* designates the entry as a domain controller in the domain specified by *domain-name*. It is required when the entry is a domain controller. It should not be included on entries for member servers.

  The #DOM:*domain-name* directive affects how the logon and browser services behave in routed environments. It is also used in user account management and in trust relationships.

For example, the following entries should be included in the LMHOSTS file on a BDC that is not in the same IP subnet as the PDC (if the two systems are in the same IP subnet, they can resolve names using broadcasts). In this example, the PDC name is DOMPDC at IP address 10.20.30.40 in the domain LANGROUP:

```
10.20.30.40  DOMPDC  #PRE  #DOM:LANGROUP
10.20.30.40 "LANGROUP       \0x1B"  #PRE
```

The \0x1B name will be registered only by the PDC for the domain. If a BDC is promoted to PDC, the original PDC will release the \0x1B name, allowing the new PDC to register it; LMHOSTS files on other systems that contain an entry for this \0x1B name must be updated to reflect the IP address of the new PDC.

If the domain PDC is a PATHWORKS or Advanced Server for OpenVMS server running on multiple members of an OpenVMS Cluster, only one cluster member will register the \0x1B name (the first to start the NetLogon service). However, if the server stops on that cluster member, the \0x1B name will be released by that cluster member and will then be registered by another cluster member running the server. In this scenario, LMHOSTS files on other systems that contain an entry for this \0x1B name must be updated to reflect the IP address of the cluster member that has registered, and now holds, the \0x1B name. To determine the cluster member that has registered and currently holds the \0x1B name, execute the NBSHOW KNB command at the OpenVMS DCL prompt on each node of the cluster and look for the \0x1B name in the name table that is displayed. The \0x1B name will show up in the name table of only one of the cluster members. The command NBSHOW is a special Advanced Server management command that is defined in the command file SYS$MANAGER:PWRK$DEFINE_COMMANDS.COM; for more information, see Section 5.5, How to Define PATHWORKS Advanced Server Commands When You Log In.

Caution

If LMHOSTS files are not updated on all systems to reflect a PDC change, these systems might not be able to find the PDC for the domain. This would affect domain operations adversely.

In environments using trust relationships, the domain controllers in trusting domains must establish a secure communications channel with a domain controller in the trusted domain. This allows a user with an account in the trusted domain to access resources provided by a domain that trusts the user's domain (called **pass-through authentication**). Therefore, domain controllers in the trusting domain, as well as those in the trusted domain, should list all domain controllers from the other domain in their respective LMHOSTS file. (This assumes other NetBIOS name resolution methods, such as WINS, are not being used.) Each domain controller should also include a \0x1B entry for the PDC of the other domain. In the following example, the domain LANGROUP trusts the domain CORPDOM. The LANGROUP domain consists of the following domain controllers:

Name	IP Address	Role
LGPPDC	192.20.30.40	PDC

Name	IP Address	Role
LGPBDC	192.20.30.41	BDC

The CORPDOM domain consists of the following domain controllers:

Name	IP Address	Role
CORPPDC	110.5.5.5	PDC
CORPBDC1	110.5.5.20	BDC
CORPBDC2	110.10.1.1	BDC

To enable the domain controllers in domain LANGROUP to locate a domain controller in domain CORPDOM, include the following entries in the LMHOSTS file located on domain controllers in domain LANGROUP:

```
110.5.5.5   CORPPDC #PRE    #DOM:CORPDOM
110.5.5.5  "CORPDOM        \0x1B"  #PRE
110.5.5.20  CORPBDC1 #PRE    #DOM:CORPDOM
110.10.1.1  CORPBDC2   #PRE    #DOM:CORPDOM
```

Similarly, to enable the domain controllers in domain CORPDOM to locate the domain controllers in domain LANGROUP, include the following entries in the LMHOSTS file located on the domain controllers in domain CORPDOM:

```
192.20.30.40 LGPPDC  #PRE  #DOM:LANGROUP
192.20.30.40 "LANGROUP       \0x1B"  #PRE
192.20.30.41 LGPBDC  #PRE  #DOM:LANGROUP
```

The #DOM directive is required in these cases. It explicitly designates the system as a domain controller in the specified domain. Note that if you include member servers in the LMHOSTS file (whether they be Windows NT or Advanced Server member servers), you should omit the #DOM directive. Member servers are not domain controllers.

6.2.4 Managing the LMHOSTS File

To change the list of available nodes, you can edit the file at any time. Domain controller entries (specified by the #DOM directive) and computer name entries without the #PRE directive are resolved by checking the LMHOSTS file dynamically. This check occurs whenever a name needs to be resolved and is not found in the name cache.

To disable LMHOSTS name resolution, rename all versions of the LMHOSTS file to any name other than LMHOSTS. Or, you can use the Configuration Manager to disable LMHOSTS name resolution. Start the Configuration Manager ($ ADMIN/CONFIG), select the Transports option, and clear the check mark next to the Enable LMHOSTS Resolution option. When you use the Configuration Manager to enable or disable LMHOSTS name resolution, the change is not dynamic; that is, the change will not go into effect until the next time the Advanced Server is started.

When you add an entry to the LMHOSTS file while the Advanced Server is running, if the entry includes the #PRE directive, the entry will not be cached permanently (as directed by the #PRE part of the entry) until the next restart of the server; however, the change is effective immedately, as it will be read dynamically when the name next needs to be resolved.

6.2.5 Using the LMHOSTS Log File

If errors occur when the LMHOSTS file is accessed, the errors are recorded in the following file:

PWRK$LMROOT:[LOGS]PWRK$KNBDAEMON_*nodename*.LOG

This file is open and being written to while the PATHWORKS Advanced Server is running. To close the log file, you must stop the PATHWORKS Advanced Server.

To prevent the log file from becoming too large, each error is logged only once — the first time it occurs. If an error is found in the log file, it is not logged again.

6.3 Using WINS in a Wide Area Network

You can configure the PATHWORKS Advanced Server as a WINS client. This allows the Advanced Server to use a WINS Server for NetBIOS name registration, resolution, renewal, and release in a wide area network configuration.

For more information on how to use the Configuration Manager to configure the Advanced Server to use WINS, refer to the *Compaq PATHWORKS for OpenVMS (Advanced Server) Server Administrator's Guide*.

6.3.1 Setting up WINS Support for OpenVMS Clusters

To allow clients that are configured for WINS support to use an Advanced Server alias name to connect to a clustered Advanced Server across a WAN, you must add to the WINS database a static multihomed entry for the Advanced Server alias name.

When adding the static multihomed entry for the Advanced Server alias name, you should enter the TCP/IP address of each node in the OpenVMS Cluster that is running the Advanced Server.

For more information about adding static entries to the WINS database, refer to your WINS product documentation.

Caution

If you plan to use DNS name resolution to provide cluster load balancing in WANs, you might need to remove all static entries for the cluster alias from the WINS database. (If Windows 95, Windows 98, or Windows NT clients are configured to use both WINS and DNS for NetBIOS name resolution, they first query the WINS server to resolve the name.) For more information about enabling cluster load balancing in WANs, refer to the *Compaq PATHWORKS for OpenVMS (Advanced Server) Server Administrator's Guide*.

6.4 Using DNS in a Wide Area Network

You can configure the Advanced Server as a DNS client. This allows the Advanced Server to use a DNS server for NetBIOS name resolution. The Advanced Server uses DNS for name resolution as a last resort if all other methods fail to resolve a NetBIOS name.

Note

DNS name resolution is not provided as a replacement for WINS and/or LMHOSTS but rather as a supplement to them. With DNS, the Advanced Server still uses WINS, LMHOSTS, or broadcast methods for resolving names.

For more information on how to use the Configuration Manager to configure the Advanced Server to use DNS, refer to the *Compaq PATHWORKS for OpenVMS (Advanced Server) Server Administrator's Guide*.

7

Removing PATHWORKS Advanced Server Software

This chapter describes how to remove the PATHWORKS Advanced Server software from your system.

This chapter consists of the following sections:

- Section 7.1, PATHWORKS Advanced Server Deinstallation Command Procedure
- Section 7.2, Removing the PATHWORKS NetWare Server

You may need to remove server software for one of the following reasons:

- If the installation failed

  If the IVP indicates that the software installation procedure failed, you must reinstall the PATHWORKS Advanced Server software.

  If your system has enough free disk space, you can install the server again without deinstalling the PATHWORKS Advanced Server. However, if you do not have enough disk space, you must remove PATHWORKS Advanced Server before reinstalling it.

  For more information about disk space requirements, see Section 1.9.9, Step 9: Check Disk Space Requirements.

- If you are upgrading

  If the system is running the PATHWORKS for OpenVMS (NetWare) server, the NetWare server software must be removed before you can install PATHWORKS Advanced Server. If the NetWare server is installed when you run the PATHWORKS Advanced Server installation procedure, it gives you the option of removing the NetWare server software (Section 2.3.2, Installing the PATHWORKS Advanced Server on a System with the NetWare Server). Alternatively, you can manually remove the NetWare server using the procedure described in Section 7.2, Removing the PATHWORKS NetWare Server.

7.1 PATHWORKS Advanced Server Deinstallation Command Procedure

You remove the PATHWORKS Advanced Server using a command procedure that is included when you install PATHWORKS Advanced Server. The deinstallation command procedure performs the following operations:

- Shuts down the server automatically.
- Prompts you to enter information necessary to complete the deinstallation procedure.
- Removes all PATHWORKS Advanced Server images, support files, and logical names that are created during the installation procedure.
- Prompts you whether to remove all Advanced Server data files from the system.
- Removes the PATHWORKS Advanced Server accounts if you delete the data files.
- If an an older PATHWORKS server (such as PATHWORKS for OpenVMS (Macintosh) or PATHWORKS V4) is detected, prompts you whether you want to delete the NETBIOS image SYS$COMMON:[SYSEXE]NETBIOS.EXE. Normally, you should not delete the NETBIOS image. You might want to delete it if you are installing an older kit, for example. Depending on your response to this prompt, the procedure saves or deletes several other related files. If you delete the NETBIOS image, the PATHWORKS mail server and DOS File Maintenance utility will not operate.

  Saved files include files that might be needed later, such as:

  – PWRK$DELETEACE.EXE and PWRK$FIXACE.EXE, both of which can be used to optimize disk storage — the former by removing unwanted ACEs, the latter by compressing ACEs, removing unnecessary ACEs, and preventing ACEs from being propagated to files created in shares. For more information, refer to the *Compaq PATHWORKS for OpenVMS (Advanced Server) Server Administrator's Guide*.

  – PWRK$DEINSTAL.COM, which you might need for removing data files at a later time, if you opted to save the data files while removing the server software.

- Removes the NETBIOS$ACCESS OpenVMS identifier, unless you choose to save the NETBIOS image.

- Removes PATHWORKS Advanced Server DECnet objects.
- Deassigns all Advanced Server logical names.

7.1.1 Using the PATHWORKS Advanced Server Deinstallation Procedure

To start the deinstallation procedure and remove PATHWORKS Advanced Server software:

1. Ensure that you are logged in to the SYSTEM account.
2. Ensure that no processes are running the Advanced Server ADMINISTER command-line interface.
3. Start the deinstallation command procedure, as follows:

```
$ @SYS$UPDATE:PWRK$DEINSTAL
```

Table 7–1, PWRK$DEINSTAL Prompts, tells you how to respond to the prompts the deinstallation procedure displays.

Table 7–1 PWRK$DEINSTAL Prompts

Prompt	Desired Outcome	Response
Are you sure you want to deinstall PATHWORKS Advanced Server[no]:	Continue	YES
	Exit	Return
Do you want to delete the PATHWORKS Advanced Server data files [no]:	Save the PATHWORKS Advanced Server on-disk structure, including the user accounts and share databases	Return
	Remove the PATHWORKS Advanced Server on-disk structure, including the user accounts and share databases	YES

7.1.2 Sample PATHWORKS Advanced Server Deinstallation Procedure

This is a sample of the deinstallation procedure for PATHWORKS Advanced Server software. In this example, PATHWORKS is not currently running. If PATHWORKS PATHWORKS is running, the deinstallation procedure shuts down PATHWORKS and indicates it is doing so.

```
This procedure deletes all PATHWORKS V6.1 for OpenVMS (Advanced Server)
images.

Are you sure you want to deinstall PATHWORKS V6.1 for OpenVMS
(Advanced Server)? [no]: YES Return
Do you want to delete the Advanced Server data files [no]: YES Return

Deleting PATHWORKS for OpenVMS common images...
Deleting PATHWORKS for OpenVMS NETBIOS component...
Deleting PATHWORKS V6.1 for OpenVMS (Advanced Server) images...
Deleting Advanced Server data files...
Removing PWRK$DEFAULT and PWRK$GUEST VMS accounts...
Removing PATHWORKS V6.1 for OpenVMS identifiers...
Removing PATHWORKS V6.1 for OpenVMS DECnet objects...
Deassigning PATHWORKS V6.1 for OpenVMS logical names...
PATHWORKS V6.1 for OpenVMS (Advanced Server) is now deinstalled.
```

7.2 Removing the PATHWORKS NetWare Server

The PATHWORKS for OpenVMS (NetWare) software is no longer included with the PATHWORKS for OpenVMS software kit. You must run the PATHWORKS for OpenVMS (NetWare) deinstallation procedure *before* you install PATHWORKS for OpenVMS (Advanced Server).

To start the deinstallation procedure and remove the PATHWORKS NetWare server:

1. Be sure you are logged in to the SYSTEM account.
2. Start the NetWare deinstallation procedure, as follows:

   ```
   $ @SYS$UPDATE:PWVN$DEINSTAL
   ```

Table 7–2, PWVN$DEINSTAL Prompts, tells you how to respond to the prompts the NetWare server deinstallation procedure displays.

Table 7–2 PWVN$DEINSTAL Prompts

Prompt	Desired Outcome	Response
Are you sure you want to deinstall Compaq PATHWORKS V1.0H for OpenVMS (NetWare) [no][1]:	Continue	YES
	Exit	Return
Do you want to delete the NetWare data files [no]:	Save the NetWare on-disk structure, including the configuration Files	Return
	Remove the NetWare on-disk structure, including the configuration files	YES
Do you want to delete the NetWare SYS Volume [no]:	Save the NetWare SYS volume	Return
	Remove the NetWare SYS volume	YES

[1]To install PATHWORKS Advanced Server, you must respond to this question with YES.

7.2.1 Sample NetWare Server Deinstallation Procedure

This is a sample of the deinstallation procedure for PATHWORKS for OpenVMS (NetWare).

```
$ @SYS$UPDATE:PWVN$DEINSTAL Return
This procedure shuts down all PATHWORKS V1.0H for OpenVMS servers,
and deletes all PATHWORKS V1.0H for OpenVMS (NetWare) images.

Are you sure you want to deinstall PATHWORKS V1.0H for OpenVMS (NetWare)
[no]: YES Return
Do you want to delete the NetWare SYS Volume [no]: YES Return

Stopping PATHWORKS for OpenVMS (NetWare) Server...

Process NETBIOS stopped
Process PWRK$LICENSE_R stopped
Stopping IPX Daemon (NPSD)...

Deleting PATHWORKS for OpenVMS common images...
Deleting PATHWORKS for OpenVMS NETBIOS component...
Deleting PATHWORKS V1.0H for OpenVMS (NetWare) images...
Deleting NetWare data files...
Deleting NetWare SYS Volume...
Removing PWRK$DEFAULT and PWRK$GUEST VMS accounts...
Removing PATHWORKS V1.0H for OpenVMS identifiers...
Removing PATHWORKS V1.0H for OpenVMS DECnet objects...
Deassigning PATHWORKS V1.0H for OpenVMS logical names...
PATHWORKS V1.0H for OpenVMS (NetWare) is now deinstalled.
```

A

Installation and Upgrade Checklist

Table A–1 summarizes the tasks that you need to perform to install and configure the PATHWORKS Advanced Server. You can photocopy this table and use it as a checklist as you read about and complete the tasks in this book.

Installation and Upgrade Checklist

Table A–1 Installation and Upgrade Checklist

☐ 1. Prepare for the installation by completing all preinstallation tasks on the checklist in Section 1.9, Preinstallation Tasks, including the following:

a. Check the part listing.

b. Make sure that you have the required hardware.

c. Log in to the SYSTEM account (or an equivalent account).

d. Make sure your system has the required software.

e. Read the release notes.

f. Make sure that the system parameters GBLPAGES, GBLSECTIONS, PROCSECTCNT, and SCSNODE are set properly.

g. Make sure the ENQLM quota system process parameter is set properly.

h. Back up the system disks.

i. Make sure that you have enough disk space to install the software.

j. Make sure that the queue manager is running.

k. Check the time zone configuration.

l. Verify that DECnet (or DECnet-Plus) and TCP/IP, if needed, are running.

m. Check for existing Compaq OpenVMS server images and files on the system. The system should be free of PATHWORKS for OpenVMS (NetWare) and PATHWORKS (LAN Manager) files, and no Compaq OpenVMS file and printer server images should be running.

n. Check OpenVMS Cluster configuration, if installing on an OpenVMS Cluster.

(continued on next page)

Table A–1 (Cont.) Installation and Upgrade Checklist

☐ 2. Start the installation procedure and respond to installation prompts. You may choose to install:

- The complete PATHWORKS Advanced Server
- The Upgrade utility only
- The License Server only
- The PATHWORKS external authentication software only

When installing the PATHWORKS Advanced Server in an OpenVMS Cluster, perform these functions in the order indicated:

1. Install the server everywhere appropriate in the OpenVMS Cluster
2. Configure the server everywhere in the cluster
3. Then, start the server everywhere in the cluster

☐ 3. Start the configuration procedure and respond to configuration prompts.

☐ 4. If you are upgrading from PATHWORKS V5 for OpenVMS (LAN Manager), complete the upgrade procedure. Refer to the *Compaq PATHWORKS for OpenVMS (Advanced Server) Server Migration Guide* for information about how to:

a. Determine the role of the server

b. Upgrade the server

c. Upgrade OpenVMS Clusters

d. Create upgrade reports

e. Upgrade users and groups

f. Upgrade shares

g. Upgrade security

h. Upgrade server configuration parameters

☐ 5. Run the Installation Verification Procedure (if you did not do so when you installed the server).

☐ 6. Start the server (if you did not do so when you configured the server).

B

Sample Complete Server Installation and Configuration

This appendix shows sample installation and configuration procedures for the PATHWORKS Advanced Server on an OpenVMS Cluster.

B.1 Sample Server Installation

The following example shows a sample installation dialog for the PATHWORKS Advanced Server.

```
$ @SYS$UPDATE:VMSINSTAL PWRK061 SYS$DEVICE:[KITS.PWRK] Return
  OpenVMS AXP Software Product Installation Procedure V7.2-1H1

It is 16-SEP-2001 at 15:29.
Enter a question mark (?) at any time for help.
* Are you satisfied with the backup of your system disk [YES]? Return

The following products will be processed:
  PWRK V6.1
 Beginning installation of PWRK V6.1 at 15:29

%VMSINSTAL-I-RESTORE, Restoring product save set A ...
%VMSINSTAL-I-RELMOVED, Product's release notes have been moved to
SYS$HELP.

 PATHWORKS for OpenVMS Installation

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```

Sample Complete Server Installation and Configuration
B.1 Sample Server Installation

```
    Please select from the following install options:

    PATHWORKS V6.1 for OpenVMS (Advanced Server)
    PATHWORKS V6.1 for OpenVMS (Advanced Server) License Server (only)
    External Authentication images (only)

* Do you want to install the complete PATHWORKS V6.1 for OpenVMS [NO]?
YES return

The following components will be installed:

 PATHWORKS V6.1 for OpenVMS (Advanced Server)

If the selection is correct, the installation will continue.
If the selection is not correct, you can change your selection.
Press CTRL/Y if you want to terminate the installation.

* Is the selection correct [YES]? Return

                             NOTE
                             ----
 Because this kit provides a new streams execlet for NetBEUI and TCP/IP,
 you MUST reboot all nodes in the cluster that are now
 running or have run PATHWORKS to complete installation of PATHWORKS.
 If you do not reboot the nodes at this time, you must remember to
 reboot them later before starting PATHWORKS.

 To complete the installation of this product, you should reboot
 the system.  If it is not convenient to reboot at this time, then
 enter NO to the following question.

 If you enter NO, the installation procedure will continue.

* Will you allow a system shutdown after this product is installed
[YES]? NO Return
%PWRK-I-VERSION, Checking for OpenVMS version 6.2, or later...
* Do you want to run the IVP after the installation is finished
[YES]? Return
* Do you want to purge files replaced by this installation
[YES]? Return
%PWRK-I-FREEBLKS, Checking for 160000 free blocks

           User Accounts and User Identification Codes (UICs)
           --------------------------------------------------

PATHWORKS for OpenVMS creates two OpenVMS accounts: a default account,
PWRK$DEFAULT, and  a guest account, PWRK$GUEST.  The default UIC group
number for both these new accounts depends on the following:

o If you are installing the server for the first time, the default is
  the first unused UIC group number, starting with 360.

o If there is an existing account PCFS$ACCOUNT, the default is the UIC
  group number associated with PCFS$ACCOUNT.
```

```
o If there is an existing account PWRK$DEFAULT or PWRK$GUEST, the
  default is the UIC group number associated with PWRK$DEFAULT or
  PWRK$GUEST, in preference to PCFS$ACCOUNT.  However, the default
  UIC group number will
  not be used to change the UIC of any existing accounts.

    For more information about UIC group numbers, see the OpenVMS System
    Manager's Manual.

* Enter default UIC group number for PWRK$DEFAULT and PWRK$GUEST
[360]: Return

    All questions have been answered.  The installation of
    PATHWORKS for OpenVMS will continue.

%PWRK-I-ACCOUNTS, Creating OpenVMS accounts for PWRK$DEFAULT and
PWRK$GUEST
%VMSINSTAL-I-ACCOUNT, This installation creates an ACCOUNT named
PWRK$DEFAULT.
%UAF-I-ADDMSG, user record successfully added
%UAF-I-RDBADDMSGU, identifier PWRK$DEFAULT value [000360,000001]
added to rights database
%VMSINSTAL-I-ACCOUNT, This installation creates an ACCOUNT named
PWRK$GUEST.
%UAF-I-ADDMSG, user record successfully added
%UAF-I-RDBADDMSGU, identifier PWRK$GUEST value [000360,000002]
added to rights database
%VMSINSTAL-I-RESTORE, Restoring product save set C ...
%VMSINSTAL-I-RESTORE, Restoring product save set E ...
%PWRK-I-DEFOBJS, Defining DECnet objects PCX$SERVER and PCSA$MAIL
%PWRK-I-DCLCMDS, Installing PATHWORKS DCL commands
%PWRK-I-SPECIFY, Specifying target directories for the provided files
%PWRK-I-OBSOLETE, Deleting obsolete files

                              Next Steps
                              ----------

 To continue the installation procedure, enter the following command to
 execute the server configuration command procedure:

 $ @SYS$UPDATE:PWRK$CONFIG

 For information about the configuration command procedure, see the
 PATHWORKS (Advanced Server) Installation and Configuration Guide.

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

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 Starting Installation Verification Procedure
 for PATHWORKS V6.1 for OpenVMS (Advanced Server)

%PWRK-I-NORMAL, IVP completed successfully
 Installation of PWRK V6.1 completed at 15:36
```

```
    Adding history entry in VMI$ROOT:[SYSUPD]VMSINSTAL.HISTORY
    Creating installation data file: VMI$ROOT:[SYSUPD]PWRK061.VMI_DATA

 VMSINSTAL procedure done at 15:36
```

B.2 Sample Server Configuration

The following example shows a sample configuration dialog for the PATHWORKS Advanced Server.

```
$ @SYS$UPDATE:PWRK$CONFIG Return
PATHWORKS V6.1 for OpenVMS (Advanced Server) Configuration Procedure

  PATHWORKS stores and accesses the following types of data files:

  o Configuration parameter files
  o License Server data files
  o Log files
  o Printer spool files
  o Virtual memory section files

  You can specify any existing OpenVMS disk device that has at least
  5000 free blocks of disk space to store these data files.

  Note: the server frequently accesses the data files stored on the
  disk.  If these files are stored on the system disk, it can degrade
  the performance of both the OpenVMS system and the server. Therefore,
  Compaq recommends that you specify a disk other than the system disk.

Press RETURN to continue: Return

 If this OpenVMS Cluster has multiple system disks, make sure that all
 nodes on which you plan to run PATHWORKS:

 o Use the same disk device to store and access PATHWORKS data files.

 o Share the same SYSUAF.DAT file. In each system disk's startup file,
   define a system logical name that points all nodes to the shared
   SYSUAF.DAT file. For example:

   $ define/system/exec sysuaf pencil$dka300:[sys0.sysexe]sysuaf.dat

   The startup file is called SYS$MANAGER:SYSTARTUP_VMS.COM

Enter disk device name where PATHWORKS data files will be stored
[SYS$SYSDEVICE:]: DISK$PWRK: Return
Creating PATHWORKS directory tree on DISK$PWRK:...
Creating Advanced Server directory tree...
Copying client files to Advanced Server directory tree...
Creating PATHWORKS Monitor user authorization file
PWRK$COMMON:PWMONUAF.DAT ...
```

```
Changing the server configuration parameters will allow you to modify
this server's client capacity and select the transports to be used.

COBRAZ is currently configured to
    + support 20 PC clients
    + use the following transport(s): DECnet

If you want this server to be the primary domain controller, you should
configure it to use all the transports used by any of the backup servers
in the domain.

If you want this server to be a backup domain controller, you should
configure it to have at least one transport in common with the domain's
primary domain controller, otherwise this configuration will fail.

If you do not change the configuration parameters now, you may do so
later by typing ADMIN/CONFIG.

Do you want to change the server configuration parameters now? [YES]:
NO Return

Reading current configuration parameters ...

  PATHWORKS V6.0 for OpenVMS is presently configured to run as follows:

   1.  Run the License Server:              NO
   2.  Enable Timesource service:           NO
   3.  Enable Alerter service:              YES
   3a. Alert user names:                    Administrator
   4.  Enable Netlogon service:             YES
   5.  Advanced Server domain:              LANGROUP
   6.  Advanced Server role:                PRIMARY
   7.  Advanced Server computer name:       COBRAZ
   7a. PATHWORKS OpenVMS Cluster alias:     COBRAZ_ALIAS
   8.  Server announce comment:    PATHWORKS V6.1 for OpenVMS
                                   (Advanced Server)
Enter item number, or RETURN to use these values [DONE]: Return

Saving parameters ...
Checking the access control list file ...
Successfully created new ACL store
Creating sharefile PWRK$LMROOT:[LANMAN.DATAFILES]SHAREDB. ...
New sharefile has been created.
ADMIN$ added
IPC$ added
PWUTIL added
```

```
    The Advanced Server Administrator account is used to
    administer the server.  The Administrator account
    is mapped by default to the OpenVMS SYSTEM account.

    The Administrator account password can be up to 14 characters long
    and the case of the characters used will be preserved.

Enter Administrator account password:       Return

Re-enter to verify password:       Return

Changing password for Administrator account...
Checking system resources...

The current system configuration for COBRAZ will support 20 PC clients.
PATHWORKS is configured to use DECnet.

 To automatically start PATHWORKS V6.1 for OpenVMS at system startup,
 you should add the following line to the SYS$MANAGER:SYSTARTUP_VMS.COM
 file.

   @SYS$STARTUP:PWRK$STARTUP

 Note: Add this line below the lines that start all network transports
 (such as DECnet).

 Before starting PATHWORKS V6.1 for OpenVMS on this system, be sure to
 execute @SYS$UPDATE:PWRK$CONFIG on each node that will run PATHWORKS.

Do you want to start PATHWORKS V6.1 for OpenVMS on node COBRAZ
now [yes]: NO  Return

$
```

C

Sample Standalone License Server Installation and Configuration

This appendix shows sample installation and configuration procedures for a standalone License Server on an OpenVMS Cluster.

C.1 Sample Standalone License Server Installation

The following example shows a sample installation dialog for the standalone License Server.

```
$ @SYS$UPDATE:VMSINSTAL PWRK061 SYS$DEVICE:[KITS.PWRK] Return
  OpenVMS AXP Software Product Installation Procedure V7.2-1H1
It is 16-SEP-2001 at 16:08.
Enter a question mark (?) at any time for help.
* Are you satisfied with the backup of your system disk [YES]? Return

The following products will be processed:
  PWRK V6.1
 Beginning installation of PWRK V6.1 at 16:08

%VMSINSTAL-I-RESTORE, Restoring product save set A ...
%VMSINSTAL-I-RELMOVED, Product's release notes have been moved to
SYS$HELP.

 PATHWORKS for OpenVMS Installation

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```

Sample Standalone License Server Installation and Configuration

C.1 Sample Standalone License Server Installation

```
   Please select from the following install options:

   PATHWORKS V6.1 for OpenVMS (Advanced Server)
   PATHWORKS V6.1 for OpenVMS (Advanced Server) License Server (only)
   External Authentication images (only)

* Do you want to install the complete PATHWORKS V6.1 for OpenVMS [NO]?
NO [Return]
* Do you want to install only the PATHWORKS License Server [NO]?
YES [Return]
* Do you want to install only the External Authentication images [NO]?
NO [Return]

The following components will be installed:

 PATHWORKS V6.1 License Server

If the selection is correct, the installation will continue.
If the selection is not correct, you can change your selection.
Press CTRL/Y if you want to terminate the installation.

* Is the selection correct [YES]? [Return]
%PWRK-I-VERSION, Checking for OpenVMS version 6.2, or later...

                        NOTE
                        ----
  Because this kit provides a new streams execlet for NetBEUI and
  TCP/IP, you MUST reboot the system to complete installation of
  PATHWORKS.  If you do not reboot the system at this time, you must
  remember to reboot later before starting PATHWORKS.

  To complete the installation of this product, you should reboot
  the system.  If it is not convenient to reboot at this time, then
  enter NO to the following question.

  If you enter NO, the installation procedure will continue.
* Will you allow a system shutdown after this product is installed
[YES]? [Return]
* How many minutes for system shutdown [0]: [Return]
* Do you want to do an automatic system reboot [YES]? [Return]
* Do you want to run the IVP after the installation is finished
[YES]? [Return]
* Do you want to purge files replaced by this installation
[YES]? [Return]
%PWRK-I-FREEBLKS, Checking for 160000 free blocks

    All questions have been answered.  The installation of
    PATHWORKS for OpenVMS will continue.

%VMSINSTAL-I-RESTORE, Restoring product save set C ...
%VMSINSTAL-I-RESTORE, Restoring product save set E ...
%PWRK-I-DEFOBJS, Defining DECnet objects PCX$SERVER and PCSA$MAIL
%PWRK-I-DCLCMDS, Installing PATHWORKS DCL commands
%PWRK-I-SPECIFY, Specifying target directories for the provided files
%PWRK-I-OBSOLETE, Deleting obsolete files
```

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

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   Starting Installation Verification Procedure
   for PATHWORKS V6.1 for OpenVMS (Advanced Server)

%PWRK-I-NORMAL, IVP completed successfully
   Installation of PWRK V6.1 completed at 19:33

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

   Creating installation data file: VMI$ROOT:[SYSUPD]PWRK061.VMI_DATA

    VMSINSTAL procedure done at 19:34
```

C.2 Sample Standalone License Server Configuration

The following example shows a sample PATHWORKS Advanced Server configuration procedure for the standalone License Server.

```
$ @SYS$UPDATE:PWRK$CONFIG Return
PATHWORKS V6.1 for OpenVMS (Advanced Server) Configuration Procedure

 PATHWORKS stores and accesses the following types of data files:

 o Configuration parameter files
 o License Server data files
 o Log files
 o Printer spool files
 o Virtual memory section files

 You can specify any existing OpenVMS disk device that has at least
 5000 free blocks of disk space to store these data files.

 Note: the server frequently accesses the data files stored on the
 disk.  If these files are stored on the system disk, it can degrade
 the performance of both the OpenVMS system and the server.  Therefore,
 Compaq recommends that you specify a disk other than the system disk.

 If this OpenVMS Cluster has multiple system disks, make sure that all
 nodes on which you plan to run PATHWORKS:

 o Use the same disk device to store and access PATHWORKS data files.

 o Share the same SYSUAF.DAT file. In each system disk's startup file,
   define a system logical name that points all nodes to the shared
   SYSUAF.DAT file. For example:

   $ define/system/exec sysuaf pencil$dka300:[sys0.sysexe]sysuaf.dat

   The startup file is called SYS$MANAGER:SYSTARTUP_VMS.COM

Enter disk device name where PATHWORKS data files will be stored
[SYS$SYSDEVICE:]: DISK$PWRK: Return

Creating PATHWORKS directory tree on DISK$PWRK:...
```

C.2 Sample Standalone License Server Configuration

```
 The PATHWORKS License Server can serve PATHWORKS licenses for
 Advanced Server clients over DECnet, NetBEUI, and TCP/IP.
 The Advanced Server file server
 does not need to be running for the License Server to operate.

Do you want to serve PATHWORKS licenses over DECnet [yes]: Return
Do you want to serve PATHWORKS licenses over NetBEUI [no]: YES Return
Do you want to serve PATHWORKS licenses over TCP/IP [no]: YES Return

Do you want to start the PATHWORKS License Server now [yes]: NO Return

$
```

D
Upgrade Utility Installation

This appendix shows a sample installation of the Upgrade utility.

D.1 Installing the Upgrade Utility

As a first step in upgrading a system that is running a previously released version of PATHWORKS Advanced Server, you can install the Upgrade utility without installing the server. Doing this allows you to run the PATHWORKS (LAN Manager) server while performing the upgrade procedure, avoiding any interruption of services to your users.

If you install the Upgrade utility only, the on-disk structure and datafile format are not changed, and the PATHWORKS (LAN Manager) executables are not replaced.

When you execute the installation procedure on a system that is running PATHWORKS (LAN Manager), the procedure offers you the option of installing the Upgrade utility only. To install the Upgrade utility only, select this option.

Note

When you install the Upgrade utility only, you cannot run the Installation Verification Procedure (IVP); therefore, the prompt asking whether you want to run the IVP is not displayed during the installation.

D.2 Sample Upgrade Utility Installation

The following example shows a sample procedure for installation of the Upgrade utility only.

D.2 Sample Upgrade Utility Installation

```
$ @SYS$UPDATE:VMSINSTAL PWRK061 SYS$DEVICE:[KITS.PWRK] Return
  OpenVMS VAX Software Product Installation Procedure V6.2
It is 22-AUG-2001 at 15:14.
Enter a question mark (?) at any time for help.
* Are you satisfied with the backup of your system disk
[YES]? Y Return

The following products will be processed:
  PWRK V6.1
 Beginning installation of PWRK V6.1 at 15:14

%VMSINSTAL-I-RESTORE, Restoring product save set A ...
%VMSINSTAL-I-RELMOVED, Product's release notes have been moved to
SYS$HELP.

 PATHWORKS for OpenVMS Installation

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    You have the option to install only the PATHWORKS for OpenVMS
    Advanced Server upgrade utility, which upgrades your server
    environment from V5 to V6.  If you choose to install only the
    upgrade utility, no file server components will be installed.

    The upgrade utility allows you to continue to run your V5 servers
    while you perform the upgrade.  You may install the Advanced Server
    after your server environment has been upgraded.

    However, if you choose not to install the upgrade utility only,
    the installation will proceed with the regular kit installation.
    You may invoke the upgrade utility after the installation by typing
    @SYS$UPDATE:PWRK$V6UPGRADE.

  The following question allows you to install only the upgrade utility:

* Do you want to install the upgrade utility only [NO]? YES Return
%PWRK-I-VERSION, Checking for OpenVMS version 6.1, or later...
* Do you want to purge files replaced by this installation
[YES]? Return
%PWRK-I-FREEBLKS, Checking for 30500 free blocks
%VMSINSTAL-I-RESTORE, Restoring product save set B ...

%PWRK-I-SKIPSET, Skipping product save set C (Alpha Common only) ...
```

```
                              Next Step
                              ---------

    To upgrade the server, enter the following command to invoke
    the server upgrade utility:

    $ @SYS$UPDATE:PWRK$V6UPGRADE

    For information about the upgrade utility, see the PATHWORKS
    (Advanced Server) Server Migration Guide.

$ @SYS$UPDATE:PWRK$V6UPGRAD Return

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

 Installation of PWRK V6.1 completed at 15:15
 VMSINSTAL procedure done at 15:15

    PATHWORKS Advanced Server V60 Upgrade Utility
    ---------------------------------------------
 This procedure is used to invoke the Upgrade utility.
 This command procedure will ask you a few questions
 before starting the Upgrade utility.

 If you're upgrading this server as a backup domain controller it
 needs to communicate with the primary domain controller (PDC).
 In order to communicate with the PDC a transport needs to be
 started.

 Will this server be upgraded as a BDC or Member server?
[NO]: Y Return

 The upgrade procedure uses only one of the transports configured on
 the server. Choose a transport, and make sure that the designated
 primary domain controller is running that transport.

 This PATHWORKS server is configured to use DECnet, NetBEUI, TCP/IP.

 Which transport do you want to use for upgrade? [DECnet]: Return

Process PWRK$KNBDAEMON already created
```

E

Sample External Authentication Installation

This appendix shows a sample procedure for installing the external authentication software only.

E.1 Sample External Authentication Software Installation

The following example shows a sample installation dialog for the external authentication software only.

```
   OpenVMS AXP Software Product Installation Procedure V7.2-1H1

It is 8-SEP-2001 at 19:48.

Enter a question mark (?) at any time for help.
* Are you satisfied with the backup of your system disk [YES]? Return

The following products will be processed:
  PWRK V6.1

 Beginning installation of PWRK V6.1 at 19:48

%VMSINSTAL-I-RESTORE, Restoring product save set A ...
%VMSINSTAL-I-RELMOVED, Product's release notes have been moved
to SYS$HELP.

     PATHWORKS for OpenVMS Installation

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```

Sample External Authentication Installation
E.1 Sample External Authentication Software Installation

```
    Please select from the following install options:

    PATHWORKS V6.1 for OpenVMS (Advanced Server)
    PATHWORKS V6.1 for OpenVMS (Advanced Server) License Server (only)
    External Authentication images (only)

* Do you want to install the complete PATHWORKS V6.1 for OpenVMS
[NO]? Return
* Do you want to install only the PATHWORKS License Server
[NO]? Return
* Do you want to install only the External Authentication images
[NO]? YES

The following components will be installed:

   External Authentication images (only)

If the selection is correct, the installation will continue.
If the selection is not correct, you can change your selection.
Press CTRL/Y if you want to terminate the installation.

* Is the selection correct [YES]? Return
%PWRK-I-VERSION, Checking for OpenVMS version 6.2, or later...
* Do you want to run the IVP after the installation is finished
[YES]? Return
* Do you want to purge files replaced by this installation
[YES]? Return
%PWRK-I-FREEBLKS, Checking for 160000 free blocks

    All questions have been answered.  The installation of
    PATHWORKS for OpenVMS will continue.

%VMSINSTAL-I-RESTORE, Restoring product save set C ...
%VMSINSTAL-I-RESTORE, Restoring product save set E ...
%PWRK-I-DEFOBJS, Defining DECnet objects PCX$SERVER and PCSA$MAIL
%PWRK-I-SPECIFY, Specifying target directories for the provided files
%PWRK-I-OBSOLETE, Deleting obsolete files

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

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    Starting Installation Verification Procedure
    for PATHWORKS V6.1 for OpenVMS (Advanced Server)

%PWRK-I-NORMAL, IVP completed successfully
 Installation of PWRK V6.0 completed at 19:52

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

    Creating installation data file: VMI$ROOT:[SYSUPD]PWRK061.VMI_DATA

 VMSINSTAL procedure done at 19:54
```

F

PATHWORKS Advanced Server Files and On-Disk Structure

This appendix includes the following sections:

- Section F.1, PATHWORKS Advanced Server Files, describes the files that are created during the installation procedure.
- Section F.2, PATHWORKS Advanced Server On-Disk Structure, shows the on-disk structure of the PATHWORKS Advanced Server.

F.1 PATHWORKS Advanced Server Files

Table F–1, Files Installed for the PATHWORKS Advanced Server, describes the files created during the installation of the PATHWORKS Advanced Server.

Table F–1 Files Installed for the PATHWORKS Advanced Server

File	Description
DCPS$EXAMPLES:PWRK$BORDER.LUP	DECprint Supervisor printer layup for borders
DCPS$EXAMPLES:PWRK$NOBORDER.LUP	DECprint Supervisor printer layup for no borders
DCPS$EXAMPLES:PWRK$REV_LANDSCAPE_ BORDER.LUP	DECprint Supervisor printer layup for borders with Windows
DCPS$EXAMPLES:PWRK$REV_LANDSCAPE_ NOBORDER.LUP	DECprint Supervisor printer layup for no borders with Windows

(continued on next page)

Table F–1 (Cont.) Files Installed for the PATHWORKS Advanced Server

File	Description
SYS$HELP:AS$HLP.HLB[1]	System Dump Analyzer (SDA) help library (associated with AS$SDA.EXE and invoked within SDA with the AS HELP command)
SYS$HELP:CS$HLP.HLB[1]	Help file for common services System Dump Analyzer (SDA) (associated with CS$SDA.EXE and invoked within SDA with the CS HELP command)
SYS$HELP:PCDISKHLP.HLB	DOS File Maintenance utility help library
SYS$HELP:PWRK$ADMIN_LIC.HLB	License Manager help library
SYS$HELP:PWRK$ADMIN_CFG.HLB	Configuration Manager help file
SYS$HELP:PWRK$MANAGER.HLB	ADMINISTER commands help library
SYS$HELP:PWRK$SHOWINI.HLB[1]	Help file for PWRK$SHOWINI.EXE
SYS$HELP:PWRK$V6UPGRADE.HLB	Upgrade utility help file
SYS$HELP:PWRK061.RELEASE_NOTES	PATHWORKS Advanced Server release notes
SYS$HELP:SDA.HLP	System Dump Analyzer help library
SYS$HELP:STREAMS$HLP.HLB[1]	Help file for System Dump Analyzer (SDA) for streams (protocol layer) analysis (associated with STREAMS$SDA.EXE and invoked within SDA with the STREAMS HELP command)
SYS$LIBRARY:AS$SDA.EXE[1]	System Dump Analyzer (SDA) extension for analyzing Advanced Server system and dumps
SYS$LIBRARY:CS$SDA.EXE[1]	System Dump Analyzer (SDA) extension for analyzing common services dumps
SYS$LIBRARY:NETBIOSSHR.EXE	NetBIOS for DECnet shareable image

[1]This file is (or is associated with) an unsupported utility or command procedure.

(continued on next page)

Table F–1 (Cont.) Files Installed for the PATHWORKS Advanced Server

File	Description
SYS$LIBRARY:PCDISKSHR.EXE	DOS File Maintenance utility shareable image
SYS$LIBRARY:PCSA_MAILSHR.EXE	Mail notification shareable image
SYS$STARTUP:PCSA$MAIL_STARTUP.COM	PCSAMAIL command for TCP/IP clients invoking the PATHWORKS mail server
SYS$LIBRARY:PWRK$ACME_MODULE_ALPHA.EXE	External authentication Alpha image
SYS$LIBRARY:PWRK$ACME_MODULE_VAX.EXE	External authentication VAX image
SYS$LIBRARY:PWRK$CMT_LM.EXE	User interface to the Configurator, Monitor, and Tuner utility
SYS$LIBRARY:PWRK$CMTLIBSHR.EXE	Configurator, Monitor, and Tuner (CMT) shareable library
SYS$LIBRARY:PWRK$CMTSHR.EXE	Configurator, Monitor, and Tuner (CMT) shareable image
SYS$LIBRARY:PWRK$CSSHR_V7.EXE	Common services shareable image
SYS$LIBRARY:PWRK$CSSHR_V6.EXE	Common services shareable image
SYS$LIBRARY:PWRK$DEVCTL_GENERIC.TLB	Generic device control library
SYS$LIBRARY:PWRK$DEVCTL_LA51.TLB	LA51 device control library
SYS$LIBRARY:PWRK$DEVCTL_LA70.TLB	LA70 device control library
SYS$LIBRARY:PWRK$DEVCTL_LA75P.TLB	LA75P device control library
SYS$LIBRARY:PWRK$DEVCTL_LG01.TLB	LG01 device control library
SYS$LIBRARY:PWRK$DEVCTL_LG02.TLB	LG02 device control library
SYS$LIBRARY:PWRK$DEVCTL_LG06.TLB	LG06 device control library
SYS$LIBRARY:PWRK$DEVCTL_LG31.TLB	LG31 device control library
SYS$LIBRARY:PWRK$DEVCTL_LN03R.TLB	LN03R device control library
SYS$LIBRARY:PWRK$DEVCTL_DL1100.TLB	DEClaser 1100 device control library
SYS$LIBRARY:PWRK$DEVCTL_DL2100.TLB	DEClaser 2100 device control library
SYS$LIBRARY:PWRK$DEVCTL_DL2100P.TLB	DEClaser 2100P device control library
SYS$LIBRARY:PWRK$DEVCTL_DL2200.TLB	DEClaser 2200 device control library
SYS$LIBRARY:PWRK$DEVCTL_DL2200P.TLB	DEClaser 2200P device control library

(continued on next page)

Table F–1 (Cont.) Files Installed for the PATHWORKS Advanced Server

File	Description
SYS$LIBRARY:PWRK$DEVCTL_DL3200.TLB	DEClaser 3200 device control library
SYS$LIBRARY:PWRK$DEVCTL_FX1050.TLB	FX1050 device control library
SYS$LIBRARY:PWRK$DEVCTL_FX850.TLB	FX850 device control library
SYS$LIBRARY:PWRK$DEVCTL_HP_LASERJET.TLB	HP LaserJet device control library
SYS$LIBRARY:PWRK$DEVCTL_LA210.TLB	LA210 device control library
SYS$LIBRARY:PWRK$DEVCTL_LA324.TLB	LA324 device control library
SYS$LIBRARY:PWRK$DEVCTL_LA50.TLB	LA50 device control library
SYS$LIBRARY:PWRK$DEVCTL_LA75.TLB	LA75 device control library
SYS$LIBRARY:PWRK$DEVCTL_LJ250.TLB	LJ250 device control library
SYS$LIBRARY:PWRK$DEVCTL_LN03.TLB	LN03 device control library
SYS$LIBRARY:PWRK$DEVCTL_LN03P.TLB	LN03 PLUS device control library
SYS$LIBRARY:PWRK$DEVCTL_PROPRINTER.TLB	Proprinter device control library
SYS$LIBRARY:PWRK$DEVCTL_SILENTWRITER.TLB	SilentWriter device control library
SYS$LIBRARY:PWRK$FSLIB_ODS2.EXE	ODS2/ODS5 addon library
SYS$LIBRARY:PWRK$LICENSE_LIBSHR.EXE	License shareable library
SYS$LIBRARY:PWRK$LICENSE_MGMTSHR.EXE	License management shareable image
SYS$LIBRARY:PWRK$LMAPISHR.EXE	PATHWORKS Advanced Server shareable image
SYS$LIBRARY:PWRK$LMRPCAPISHR.EXE	PATHWORKS Advanced Server shareable image
SYS$LIBRARY:PWRK$LMRPCSHR.EXE	PATHWORKS Advanced Server shareable image
SYS$LIBRARY:PWRK$LMRPCXNPSHR.EXE	PATHWORKS Advanced Server shareable image
SYS$LIBRARY:PWRK$LMTASKSHR.EXE	PATHWORKS Advanced Server shareable image
SYS$LIBRARY:PWRK$MGTLIBSHR.EXE	PATHWORKS Advanced Server shareable image
SYS$LIBRARY:PWRK$NBLIB_DECNET.EXE	PATHWORKS Advanced Server network interface to DECnet

(continued on next page)

Table F–1 (Cont.) Files Installed for the PATHWORKS Advanced Server

File	Description
SYS$LIBRARY:PWRK$NBLIB_NETBEUI.EXE	PATHWORKS Advanced Server network interface to NetBEUI
SYS$LIBRARY:PWRK$NBLIB_TCPIP.EXE	PATHWORKS Advanced Server network interface to TCP/IP
SYS$LIBRARY:PWRK$PCMSHR.EXE	Cache manager shareable image
SYS$LIBRARY:PWRK$PRINTER_INFORMATION.DAT	Printer information file
SYS$LIBRARY:PWRK$SDA.EXE[1]	Extension for the System Dump Analyzer (SDA) for analyzing systems and dumps, for backward compatibility (replaced by AS$SDA.EXE, CS$SDA.EXE, and STREAMS$SDA.EXE)
SYS$LIBRARY:PWRK$SDA_V1.EXE[1]	Original extension for System Dump Analyzer
SYS$LIBRARY:PWRK$STREAMSSHR_V7.EXE	Streams shareable image
SYS$LIBRARY:PWRK$STREAMSSHR_V6.EXE	Streams shareable image
SYS$LIBRARY:PWRK$WINLIBSHR.EXE	PATHWORKS Advanced Server character-cell user interface shareable image
SYS$LIBRARY:PWRK$XTILIBSHR.EXE	X/Open Transport Interface shareable library
SYS$LIBRARY:PWRK$XTINETBIOSSHR.EXE	X/Open Transport Interface shareable image for NetBIOS
SYS$LIBRARY:PWRK$XTINSPNBSHR.EXE	X/Open Transport Interface shareable image for DECnet
SYS$LIBRARY:SDA.EXE	System Dump Analyzer
SYS$LIBRARY:STREAMS$SDA.EXE[1]	Streams System Dump Analyzer image for analyzing streams (protocol layer) loadable images
SYS$LOADABLE_IMAGES:PCFSDRIVERDEF.STB	Data structure definitions for PCFSDRIVER
SYS$LOADABLE_IMAGES:PWRK$STREAMSOS_V6.EXE	Streams system-loadable image

[1]This file is (or is associated with) an unsupported utility or command procedure.

(continued on next page)

Table F–1 (Cont.) Files Installed for the PATHWORKS Advanced Server

File	Description
SYS$LOADABLE_IMAGES:PWRK$STREAMSOS_V7.EXE	Streams system-loadable image
SYS$LOADABLE_IMAGES:PWRK$STREAMSOS_V6.STB	Symbol table for PWRK$STREAMSOS_V6.EXE
SYS$LOADABLE_IMAGES:PWRK$STREAMSOS_V7.STB	Symbol table for PWRK$STREAMSOS_V7.EXE
SYS$LOADABLE_IMAGES:SYS$PCFSDRIVER_V7.EXE	DECnet I/O and double mapping driver
SYS$LOADABLE_IMAGES:SYS$PCFSDRIVER_V6.STB	Symbol table for SYS$PCFSDRIVER_V6.EXE
SYS$LOADABLE_IMAGES:SYS$PCFSDRIVER_V7.STB	Symbol table for SYS$PCFSDRIVER_V7.EXE
SYS$LOADABLE_IMAGES:SYS$PCIDRIVER_V6.EXE	Cluster Interconnect I/O driver
SYS$LOADABLE_IMAGES:SYS$PCIDRIVER_V7.EXE	Cluster Interconnect I/O driver
SYS$LOADABLE_IMAGES:SYS$PCIDRIVER_V6.STB	Symbol table for SYS$PCIDRIVER_V6.EXE
SYS$LOADABLE_IMAGES:SYS$PCIDRIVER_V7.STB	Symbol table for SYS$PCIDRIVER_V7.EXE
SYS$MANAGER:PWRK$DEFINE_COMMANDS.COM[1]	Command procedure that defines symbols for commands that run PATHWORKS Advanced Server utilities
SYS$MANAGER:PWRK$DEFINE_ROOT.COM	Directory tree logical command file created during PWRK$CONFIG.
SYS$MANAGER:PWRK$SHOWSYS.COM	Command procedure that shows status of file and print server processes
SYS$MESSAGE:PWRK$MSG.EXE	Advanced Server message file
SYS$STARTUP:PCSA$MAIL_STARTUP.COM	PCSAMAIL command for TCP/IP clients invoking the PATHWORKS mail server
SYS$STARTUP:PWRK$ACME_STARTUP.COM	External authentication startup file
SYS$STARTUP:PWRK$CHECK_PARAMS.COM	Command procedure that checks system resources

[1]This file is (or is associated with) an unsupported utility or command procedure.

(continued on next page)

Table F–1 (Cont.) Files Installed for the PATHWORKS Advanced Server

File	Description
SYS$STARTUP:PWRK$COMMON_LOGICALS.COM	Command procedure that defines common logicals
SYS$STARTUP:PWRK$COMMON_SHUTDOWN.COM	Common shutdown command procedure
SYS$STARTUP:PWRK$COMMON_STARTUP.COM	Common startup command procedure
SYS$STARTUP:PWRK$GATHER_INFO.COM	Command procedure that gathers information into a save set for reporting problems
SYS$STARTUP:PWRK$LICENSE_R_START.COM	Startup for the License Registrar
SYS$STARTUP:PWRK$LICENSE_S_START.COM	Startup for the License Server
SYS$STARTUP:PWRK$LICENSE_SHUTDOWN.COM	License Server shutdown command procedure
SYS$STARTUP:PWRK$LICENSE_STARTUP.COM	License Server startup command procedure
SYS$STARTUP:PWRK$LMBROWSER_START.COM	Browser startup file
SYS$STARTUP:PWRK$LMMCP_START.COM	Command procedure that runs the PATHWORKS Advanced Server controller
SYS$STARTUP:PWRK$LMSRV_START.COM	Command procedure that runs the PATHWORKS Advanced Server
SYS$STARTUP:PWRK$LOGICALS.COM	Command procedure that defines logical names
SYS$STARTUP:PWRK$PCSA_SHUTDOWN.COM	PATHWORKS for VMS V4.*x* shutdown command procedure
SYS$STARTUP:PWRK$SHUTDOWN.COM	Shutdown command procedure
SYS$STARTUP:PWRK$STARTUP.COM	Startup command procedure
SYS$SYSTEM:NetBIOS.EXE	NetBIOS for DECnet
SYS$SYSTEM:PCDISK.EXE	DOS File Maintenance utility
SYS$SYSTEM:PCSA$MAIL_SERVER.EXE	PATHWORKS client mail server
SYS$SYSTEM:PCSA_CLAIM_NAME.EXE	PCSA claim name utility
SYS$SYSTEM:PCX$SERVER.COM	Command procedure that starts the PC DECwindows X server (eXcursion)

(continued on next page)

Table F–1 (Cont.) Files Installed for the PATHWORKS Advanced Server

File	Description
SYS$SYSTEM:PWRK$ACLADM.EXE	Server configuration tool
SYS$SYSTEM:PWRK$ADMIN.COM	Remote Net Admin command procedure
SYS$SYSTEM:PWRK$ADMIN_CFG.EXE	Configuration Manager utility
SYS$SYSTEM:PWRK$ADMIN_LIC.EXE	License Manager utility
SYS$SYSTEM:PWRK$BANNER.EXE	Utility that collects system information and inserts it at top of log files
SYS$SYSTEM:PWRK$BLOBADM.EXE	Server configuration tool
SYS$SYSTEM:PWRK$CHACL.EXE	Server configuration tool
SYS$SYSTEM:PWRK$CHDOMAIN.EXE	Server configuration tool
SYS$SYSTEM:PWRK$CHGROUP.EXE[1]	Standalone utility that manages the PATHWORKS Advanced Server groups database
SYS$SYSTEM:PWRK$CHUSER.EXE[1]	Standalone utility that manages the PATHWORKS Advanced Server user accounts database
SYS$SYSTEM:PWRK$CHANGEV5ROLE.EXE	V5 to V6 Upgrade utility
SYS$SYSTEM:PWRK$DELETEACE.EXE	File ACE utility that removes unwanted ACEs
SYS$SYSTEM:PWRK$ELFREAD.EXE	Event log file reader utility
SYS$SYSTEM:PWRK$EVTREPORT.EXE	Event logger report generator
SYS$SYSTEM:PWRK$FIXACE.EXE	File ACE utility that compresses ACEs, removes unnecessary ACEs, and so forth
SYS$SYSTEM:PWRK$GETROLE.EXE	Server configuration tool
SYS$SYSTEM:PWRK$KNBDAEMON.EXE	Kernel NetBIOS daemon process
SYS$SYSTEM:PWRK$LICENSE_REGISTRAR.EXE	License Registrar
SYS$SYSTEM:PWRK$LICENSE_SERVER.EXE	License Server
SYS$SYSTEM:PWRK$LMECHO.EXE	Debugging utility[1]
SYS$SYSTEM:PWRK$LMBROWSER.EXE	PATHWORKS Advanced Server browser image

[1]This file is (or is associated with) an unsupported utility or command procedure.

(continued on next page)

Table F–1 (Cont.) Files Installed for the PATHWORKS Advanced Server

File	Description
SYS$SYSTEM:PWRK$LMMCP.EXE	PATHWORKS Advanced Server controller
SYS$SYSTEM:PWRK$LMSHARE.EXE[1]	Standalone utility that manages the PATHWORKS Advanced Server shares database
SYS$SYSTEM:PWRK$LMSRV.EXE	PATHWORKS Advanced Server
SYS$SYSTEM:PWRK$LMSTAT.EXE	Debugging utility[1]
SYS$SYSTEM:PWRK$LOADSTREAMS_V6.EXE	Loader for streams system-loadable image
SYS$SYSTEM:PWRK$LOADSTREAMS_V7.EXE	Loader for streams system-loadable image
SYS$SYSTEM:PWRK$LR_SHOW_USAGE.EXE[1]	License count units utility
SYS$SYSTEM:PWRK$LSACL.EXE	Debugging utility[1]
SYS$SYSTEM:PWRK$MAKEMACH.EXE	Server configuration tool
SYS$SYSTEM:PWRK$MANAGER.EXE	ADMINISTER command line user interface utility
SYS$SYSTEM:PWRK$MAPUNAME.EXE	Debugging utility[1]
SYS$SYSTEM:PWRK$MASTER.EXE	Master process and event logger
SYS$SYSTEM:PWRK$MODAL.EXE[1]	Standalone utility that manages the PATHWORKS Advanced Server modals database
SYS$SYSTEM:PWRK$MONITOR.EXE	PATHWORKS Monitor utility
SYS$SYSTEM:PWRK$NBDAEMON.EXE	NetBIOS daemon process
SYS$SYSTEM:PWRK$NBSHOW.EXE[1]	NetBEUI show status utility
SYS$SYSTEM:PWRK$NETEVENT.EXE	Debugging utility[1]
SYS$SYSTEM:PWRK$PWMON.EXE[1]	Host-based monitor utility
SYS$SYSTEM:PWRK$RMACL.EXE	Server configuration tool
SYS$SYSTEM:PWRK$SAMCHECK.EXE[1]	Server configuration tool
SYS$SYSTEM:PWRK$SETSHO.EXE	Set/Show Parameters utility
SYS$SYSTEM:PWRK$SHOWINI.EXE[1]	Utility that displays file and print server parameters

[1]This file is (or is associated with) an unsupported utility or command procedure.

(continued on next page)

Table F–1 (Cont.) Files Installed for the PATHWORKS Advanced Server

File	Description
SYS$SYSTEM:PWRK$SHOWQUOTA.EXE	Show Disk Quota utility
SYS$SYSTEM:PWRK$SRVCONFIG.EXE	Debugging utility[1]
SYS$SYSTEM:PWRK$START.EXE	Utility that starts detached master process and other processes
SYS$SYSTEM:PWRK$START_PRINTERS.EXE	Utility that starts printer queues and printer destinations
SYS$SYSTEM:PWRK$STARTSVC.EXE	Debugging utility[1]
SYS$SYSTEM:PWRK$STOP.EXE	Utility that stops server processes
SYS$SYSTEM:PWRK$VAPFADM.EXE	Server configuration tool
SYS$SYSTEM:PWRK$VERIFY.EXE	Utility that verifies configuration parameters
SYS$TEST:PWRK$IVP.COM	Installation Verification Procedure (IVP)
SYS$TEST:PWRK$IVP.DAT	Installation Verification Procedure data file
SYS$UPDATE:PWRK$COMMANDS.CLD	Server command line definitions
SYS$UPDATE:PWRK$COMMON.SAV[2]	Backup saveset for the initial server directory tree
SYS$UPDATE:PWRK$COMMON_CONFIG.COM	Common configuration command procedure
SYS$UPDATE:PWRK$CONFIG.COM	Main configuration command procedure
SYS$UPDATE:PWRK$DEFINE_FORMS.COM[2]	Command procedure that defines printer forms
SYS$UPDATE:PWRK$DEINSTAL.COM	PATHWORKS Advanced Server removal command procedure
SYS$UPDATE:PWRK$GETPARAM.COM	Command procedure that gets a parameter from PWRK.INI
SYS$UPDATE:PWRK$INSTALL_COMMANDS.COM	Command procedure that installs server DCL commands

[1]This file is (or is associated with) an unsupported utility or command procedure.

[2]This file is deleted while you configure the server.

(continued on next page)

Table F–1 (Cont.) Files Installed for the PATHWORKS Advanced Server

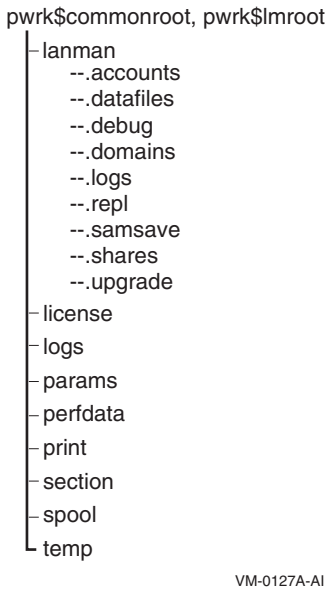
File	Description
SYS$UPDATE:PWRK$LANMAN.SAV[2]	BACKUP saveset for the initial PATHWORKS Advanced Server directory tree
SYS$UPDATE:PWRK$LICENSE_CONFIG.COM	License Server configuration command procedure
SYS$UPDATE:PWRK$LICENSE.SAV	PATHWORKS client license saveset
SYS$UPDATE:PWRK$LMCONFIG.COM	Command procedure that sets up the initial PATHWORKS Advanced Server directory tree
SYS$UPDATE:PWRK$SETINI.COM	Command procedure that updates file and print server parameters
SYS$UPDATE:PWRK$SETPARAM.COM	Command procedure that sets a parameter in PWRK.INI
SYS$UPDATE:PWRK$VERSIONS.COM	Command procedure that shows server image versions
SYS$UPDATE:PWRK$ROLLBACK.COM	Command procedure for restoring the V5 environment
SYS$UPDATE:PWRK$V6UPGRADE.EXE	V5 to V6 Upgrade utility
SYS$UPDATE:PWRK$V6UPGRADE.COM	V5 to V6 upgrade command procedure
SYS$UPDATE:PWRK$V6UPGRADE_V6.EXE	
SYS$UPDATE:PWRK$V6UPGRADE_V7.EXE	
SYS$UPDATE:PWRK$PWUTIL.SAV[2]	BACKUP saveset for PATHWORKS client-based utilities

[2]This file is deleted while you configure the server.

F.2 PATHWORKS Advanced Server On-Disk Structure

Figure F–1, PATHWORKS Advanced Server On-Disk Structure Diagram, shows the PATHWORKS Advanced Server on-disk structure. Note that only a portion of the substructure is shown.

Figure F–1 PATHWORKS Advanced Server On-Disk Structure Diagram



G

PATHWORKS Advanced Server Logical Names

Table G–1, PATHWORKS Advanced Server Logical Names, describes the logical names that are created when you configure or start the PATHWORKS Advanced Server.

Table G–1 PATHWORKS Advanced Server Logical Names

Logical Name	Description
NETBIOS$DEVICE	Used for the DECnet device. This logical name is not defined during installation; it is used to define network adapters under certain circumstances. (For more information, see Section 3.8, The Advanced Server Network Adapter.)
PWRK$ACME_MODULE	System-specific external authentication software (either VAX or Alpha).
PWRK$ACME_SERVER	On an OpenVMS Cluster member that is not running the Advanced Server software and does not have access to external authentication software by means of a shared cluster disk, defines OpenVMS Advanced Server cluster members designated to process external authentication requests for that member. This logical name is not defined during installation. (For more information, see Section 5.6.1, Setting Up External Authentication in OpenVMS Clusters.)

(continued on next page)

PATHWORKS Advanced Server Logical Names

Table G–1 (Cont.) PATHWORKS Advanced Server Logical Names

Logical Name	Description
PWRK$ACME_DEFAULT_DOMAIN	Defines the default domain for users using external authentication. This logical name is not defined during installation. (For more information, refer to the *Compaq PATHWORKS for OpenVMS (Advanced Server) Server Administrator's Guide*.)
PWRK$ADDON_LIBRARY	Location of file system shareable images
PWRK$COMMON	Top-level directory for PATHWORKS Advanced Server
PWRK$COMMONROOT[1]	Root of the PATHWORKS Advanced Server common directory tree
PWRK$CSSHR	Common services module
PWRK$KNBDAEMON_DEVICE	Used for the TCP/IP device, this logical name is not defined during installation; it is used to define network adapters under certain circumstances. (For more information, see Section 3.8, The Advanced Server Network Adapter.)
PWRK$LANMAN	PATHWORKS Advanced Server area
PWRK$LANMAN_STARTED	Indicates whether the PATHWORKS Advanced Server has been started.
PWRK$LICENSE	PATHWORKS Advanced Server license area
PWRK$LMDATAFILES	PATHWORKS Advanced Server data files area
PWRK$LMDEBUG	Area where trace files are written
PWRK$LMDOMAINS	PATHWORKS Advanced Server domain area
PWRK$LMLOGS	PATHWORKS Advanced Server log file area
PWRK$LMMSGFILES	Advanced Server message files
PWRK$LMROOT[1]	Root of the PATHWORKS Advanced Server directory tree
PWRK$LMMSGFILES	Advanced Server message files

[1]This logical name requires that you specify the directory with it.

(continued on next page)

Table G–1 (Cont.) PATHWORKS Advanced Server Logical Names

Logical Name	Description
PWRK$LMUPGRADE	PATHWORKS Advanced Server upgrade area
PWRK$LMREPLEXPORT	Export replication files area
PWRK$LMREPLIMPORT	Import replication files area
PWRK$LMSAMSAVE	SAM database backup area
PWRK$LMSAMSAVEX	SAM database backup area
PWRK$LOADSTREAMS	Logical for LoadStreams image
PWRK$LOGS	Common log file area
PWRK$LR_DISABLE_CLIENT_PING	Defines whether the License Registrar checks for a client-based license or, instead, attempts immediately to assign a server-based license. (For more information, refer to the *Compaq Advanced Server for OpenVMS Guide to Managing Advanced Server Licenses*.)
PWRK$LR_LICENSE_REPORT_ INTERVAL	Determines the interval at which reports about server-based licenses are generated in the License Registrar log file; by default, these reports are not generated.
PWRK$LR_LOG_SERVERBASED_ ACTIVITY	Determines whether events related to server-based licensing are logged.
PWRK$LS_V6_ACCESS_UPGRADE	Included in the License Server startup file to allow upgrades of PATHWORKS V5 for OpenVMS (LAN Manager) client license requests.
PWRK$LS_V7_ACCESS_UPGRADE	Included in the License Server startup file to allow upgrades of PATHWORKS V5 for OpenVMS (LAN Manager) client license requests.
PWRK$NETBEUI_DEVICE	Used for the NetBEUI device, this logical name is not defined during installation; it is used to define network adapters under certain circumstances. (For more information, see Section 3.8, The Advanced Server Network Adapter.)
PWRK$PARAMS	Parameter area

(continued on next page)

PATHWORKS Advanced Server Logical Names

Table G–1 (Cont.) PATHWORKS Advanced Server Logical Names

Logical Name	Description
PWRK$PCFSDRIVER	PCFS driver
PWRK$PCIDRIVER	PCI driver
PWRK$PERFDATA	PATHWORKS monitor performance data directory
PWRK$PRINT	PATHWORKS Advanced Server printer database directory
PWRK$ROOT	Top-level directory for PATHWORKS Advanced Server
PWRK$SAMSAVE	SAMCHECK data area
PWRK$SAMSAVEX	SAMCHECK data area
PWRK$SECTION	Section file area
PWRK$SHARED_IMAGES	Indicates whether shared images have been loaded.
PWRK$SPOOL	Spool area
PWRK$TEMP	Temporary PATHWORKS Advanced Server files
PWRK$VERSION	File and print server version number

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