HP Advanced Server for OpenVMS

Server Installation and Configuration Guide

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This guide explains how to install and configure the Advanced Server for OpenVMS software.

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Preface

This guide explains how to install and configure the HP Advanced Server for OpenVMS software (also referred to as the "Advanced Server"). The installation procedure allows you to install:

- The complete Advanced Server
- The standalone License Server, which may run on a separate system in the local area network
- The standalone external authentication software, which may be used to provide external authentication on OpenVMS Cluster member nodes that are not running the Advanced Server
- Both the standalone License Server and external authentication software

Intended Audience

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

- DIGITAL Command Language (DCL)
- A text editor, such as EDT or EVE
- POLYCENTER Software Installation utility

This guide also assumes that you are familiar with basic Advanced Server 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 3	Describes the configuration procedure for the 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 Advanced Server for OpenVMS software from your system.
Appendix A	Provides a summary of installation and configuration tasks. You can photocopy Appendix A and use it as a checklist as you read this guide.
Appendix B	Shows a sample installation and configuration procedure for the 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 external authentication software only.
Appendix E	Lists the files that are installed with the Advanced Server for OpenVMS software.
Appendix F	Lists the logical names created for the Advanced Server.

Related Documents

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

Document	Description
HP Advanced Server for OpenVMS Concepts and Planning Guide	Provides an overview of and introduction to the Advanced Server software and associated networking concepts for system administrators and operators
HP Advanced Server for OpenVMS Server Administrator's Guide	Explains how to manage and customize the Advanced Server software
HP Advanced Server for OpenVMS Commands Reference Manual	Provides command syntax descriptions for all ADMINISTER commands and NET command equivalents
HP Advanced Server for OpenVMS Guide to Managing Advanced Server Licenses	Describes the License Server software and how to manage Advanced Server licenses

The following table lists related OpenVMS documents:

OpenVMS Document	Description
HP OpenVMS Version 8.3 New Features and Documentation Overview Manual	Describes the new features of the OpenVMS software and provides an overview of the documentation that supports it
HP OpenVMS Version 8.3 Upgrade and Installation Manual	Describes how to install the OpenVMS 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 Extended File Specifications	Describes Extended File Specifications on OpenVMS, including how to set up and enable the ODS-5 file system
OpenVMS Guide to System Security	Describes OpenVMS security features, including procedures for enabling external authentication
COM, Registry, and Events for OpenVMS Developer's Guide	Contains COM for OpenVMS, OpenVMS Registry, and OpenVMS Events information
HP C Run-Time Library Utilities Reference Manual	Describes utilities that help you manage localization and time zone data for international software applications

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

`http://h71000.www7.hp.com/openvms`

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`http://www.hp.com/go/openvms/doc`

If you need help deciding which documentation best meets your needs, call 800-282-6672.

Conventions

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

Convention	Meaning
Advanced Server	Advanced Server refers to the Advanced Server for OpenVMS file server.
Italic	The use of italic text indicates a place holder 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.

Convention	Meaning
. . .	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 Advanced Server for OpenVMS Software

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

This chapter consists of the following sections:

- Section 1.1, About the Advanced Server Software Kit
- Section 1.2, Installing DECprint Software
- Section 1.3, About Licensing
- Section 1.4, About External Authentication
- Section 1.5, About the Release Notes
- Section 1.6, Using the Installation Checklist
- Section 1.7, Requirements for Installing Advanced Server for OpenVMS Software
- Section 1.8, Preinstallation Tasks
- Section 1.9, Next Step

1.1 About the Advanced Server Software Kit

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

- The complete Advanced Server software, including the License Server and external authentication software
- The Advanced Server standalone License Server
- The standalone external authentication software

- Both the standalone License Server and the standalone external authentication software

1.1.1 About VAX Systems

The Advanced Server for OpenVMS product is supported on OpenVMS Alpha systems only. You cannot install the Advanced Server for OpenVMS software on OpenVMS VAX systems. On VAX systems, you should continue to use the current PATHWORKS server software. If you have not already done so, upgrade to PATHWORKS for OpenVMS (Advanced Server), Version 6.0D or later.

In mixed-architecture OpenVMS Clusters with the Advanced Server for OpenVMS running on Alpha members, VAX members can still use external authentication. For more information, see Section 5.7.1, Setting Up External Authentication in OpenVMS Clusters.

Note

You cannot run multiple versions of the Advanced Server for OpenVMS or the PATHWORKS for OpenVMS (Advanced Server) in the same cluster.

1.1.2 Upgrading to Advanced Server for OpenVMS

The Advanced Server for OpenVMS software may be installed and run only on OpenVMS Version 7.3-2 and higher Alpha systems. Therefore, it may be necessary to upgrade the operating system as well as the server software.

If the Advanced Server for OpenVMS Version 7.2 or later is already installed, the installation and upgrade do not require an intermediate upgrade.

If PATHWORKS V6 for OpenVMS (Advanced Server) is currently installed, ensure that it is Version 6.0D or later (try the ADMINISTER SHOW VERSION command at the DCL prompt). Otherwise, upgrade to the current release of PATHWORKS V6 for OpenVMS (Advanced Server) before continuing. The Advanced Server configuration procedure (PWRK$CONFIG.COM) automatically converts the PATHWORKS for OpenVMS (Advanced Server) data files to formats compatible with the Advanced Server for OpenVMS, as described in Chapter 3, Configuring the Advanced Server.

If PATHWORKS V5 for OpenVMS (LAN Manager) is currently installed, there is no direct upgrade to the Advanced Server for OpenVMS. If you want to retain the existing user, group, share, and security objects, you must first migrate to PATHWORKS for OpenVMS (Advanced Server), Version 6.0D or

later. For more information, refer to the *Compaq PATHWORKS for OpenVMS Server Migration Guide*.

For systems running the PATHWORKS V5 for OpenVMS (LAN Manager) file server on OpenVMS Alpha Version 6.2 systems, HP recommends the following migration path:

1. Migrate the Version 5 file server to PATHWORKS V6 for OpenVMS (Advanced Server), Version 6.0D or later.
2. Upgrade the operating system to OpenVMS Version 7.3-2 or higher.
3. Upgrade the Version 6 file server to Advanced Server V7.3B for OpenVMS.

Refer to the appropriate Software Product Description (SPD) for information about the OpenVMS versions supported by each version of PATHWORKS for OpenVMS and Advanced Server for OpenVMS.

1.1.2.1 LANMAN.INI Parameters Migrate to OpenVMS Registry

Previous versions of the server software (for example, PATHWORKS for OpenVMS) use the LANMAN.INI file to store server parameters. The Advanced Server for OpenVMS stores these parameters in the OpenVMS Registry, which is similar to the Windows NT Registry.

If you are upgrading a system from PATHWORKS V6 for OpenVMS (Advanced Server) to Advanced Server V7.3B for OpenVMS, the parameters and settings in the existing LANMAN.INI file are migrated to registry parameters when you run the PWRK$CONFIG.COM configuration procedure for the first time. For more information, see Section 3.2, Migrating LANMAN.INI Parameters to the OpenVMS Registry.

1.1.2.2 Upgrading OpenVMS Clusters

You can install the Advanced Server for OpenVMS on any OpenVMS Cluster member running OpenVMS Alpha Version 7.3-2 or higher. However, if PATHWORKS for OpenVMS (Advanced Server) or Advanced Server for OpenVMS is currently running on any cluster member, it must be stopped prior to installation. If the cluster members that will run the Advanced Server for OpenVMS share a common system disk, the installation can be performed on any cluster member that shares the system disk. If cluster members that will run the Advanced Server for OpenVMS use separate system disks, install the Advanced Server for OpenVMS on each system.

If the OpenVMS Cluster contains other system disks (for example, to support VAX systems in the cluster or systems running earlier versions of OpenVMS Alpha), these disks might have older versions of the PATHWORKS for OpenVMS (Advanced Server) installed on them. If so, remove the older versions to prevent accidental startup while the Advanced Server for OpenVMS

is running on the OpenVMS Alpha Version 7.3-2 or later 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, refer to the *Compaq PATHWORKS for OpenVMS (Advanced Server) Server Installation and Configuration Guide*.

Note, however, if you are using external authentication, HP recommends that you set up external authentication software on all the nodes in the cluster. To set up external authentication support on nodes that do not run HP OpenVMS file servers, see Section 5.7, Setting Up External Authentication.

1.2 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, HP 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.

1.3 About Licensing

The following sections describe the licensing software and the license requirements for the Advanced Server.

1.3.1 License Requirements

The 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 an Advanced Server server.
- The Advanced Server must have a server-based license available to assign to an unlicensed client attempting to use services of the Advanced Server.

In both cases, the license required to access Advanced Server services is a Client Access license: PWLMXXXCA07.03.

If you are upgrading from PATHWORKS V6 for OpenVMS (Advanced Server) or Advanced Server for OpenVMS, Version 7.2, refer to the *HP Advanced Server for OpenVMS Guide to Managing Advanced Server Licenses* for information about upgrading client licenses.

1.3.2 About the License Server

The Advanced Server 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 server (automatically included with your file server installation)
- Separately from the file server (called the "standalone License Server")

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

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

HP recommends that you install the License Server on a designated OpenVMS system without the Advanced Server. The Advanced Server for OpenVMS kit allows you to install the standalone License Server separately from the file server. Alternatively, you can run the License Server on an OpenVMS Cluster with the Advanced Server, where cluster failover provides increased availability. (Cluster failover also provides increased availability for the Advanced Server file server.)

Each LAN needs only one active License Server. The 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 into a shared license database.

For more information about . . .	Refer to . . .
Loading licenses	*OpenVMS License Management Utility Manual*
Configuring the License Server	Chapter 4, Configuring and Starting the Standalone License Server
Managing licenses	*HP Advanced Server for OpenVMS Guide to Managing Advanced Server Licenses*

1.4 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 Advanced Server takes advantage of this feature by providing the ability to use the 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 Advanced Server user name and password, and provides automatic password synchronization for user accounts. External authentication may be required if you are using the COM for OpenVMS product.

When you install the complete 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 VAX member nodes, you must copy the external authentication files from an Alpha system on which the Advanced Server is installed to the VAX node. For more information about enabling external authentication, see Section 5.7, Setting Up External Authentication.

1.5 About the Release Notes

The *HP Advanced Server V7.3B for OpenVMS Release Notes* document contains important information you should know before you install the product. HP recommends that you read the release notes before starting the installation.

1.5.1 How to Access the Release Notes Before Installation

If you want to print the release notes before the installation, do the following to extract the release notes to a text file:

- Load the installation kit on a drive.
- Enter the following POLYCENTER Software Installation utility command, where *file_name.txt* is the name you specify for the text file, and *directory-path* specifies the disk and directory name for the source drive that holds the Advanced Server for OpenVMS kit (for example, /SOURCE=DAD$100:[ASOVMS073B]):

```
$ PRODUCT EXTRACT RELEASE_NOTES ADVANCEDSERVER/FILE=file_name.txt-
_$ /SOURCE=directory-path
```

If you do not specify a file name, the release notes are written to a file called DEFAULT.PCSI$RELEASE_NOTES in the current directory. If you do not specify the source qualifier, the POLYCENTER Software Installation utility searches the location defined by the logical name PCSI$SOURCE. If not defined, the utility searches the current default directory.

1.5.2 How to Access the Release Notes After the Installation

If you want to see the release notes after the installation completes, you can read them on line or print the file from SYS$HELP:ASOVMS073B.RELEASE_NOTES.

1.6 Using the Installation Checklist

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

1.7 Requirements for Installing Advanced Server for OpenVMS Software

The following sections describe the hardware and software you need when you install Advanced Server for OpenVMS software.

1.7.1 Hardware Requirements

All Alpha processors supported by the OpenVMS operating system V7.3-2 are also supported by the Advanced Server for OpenVMS. For the latest information on the hardware that the server supports, refer to the Software Product Description (SPD).

1.7.2 Software Requirements

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

- OpenVMS Alpha Version 7.3-2 or higher.

  The Advanced Server runs on OpenVMS Alpha Version 7.3-2 (or higher) systems only, and requires the OpenVMS registry services. For more information about the OpenVMS Registry, refer to the *OpenVMS System Manager's Manual* or the *COM, Registry, and Events for OpenVMS Developer's Guide* (included on the OpenVMS Documentation CD-ROM).

- 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 Advanced Server for OpenVMS Software Product Description (SPD) for a list of supported TCP/IP products.

1.7.3 Supported Client Software

Advanced Server for OpenVMS supports connections from the following types of clients:

- Windows NT V4.0
- Windows 2000
- Windows 2000 Professional
- Windows 2003
- Windows XP
- PATHWORKS 32

1.7.4 Memory Requirements

The minimum amount of physical memory required to run the Advanced Server on OpenVMS Alpha systems is 64 MB.

1.8 Preinstallation Tasks

Use the checklist in Table 1–1 to complete the preinstallation tasks that are described later in this section.

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 (or another account that has all privileges enabled to run the installation procedure).
☐	4.	Make sure that the required software is installed.
☐	5.	Start the OpenVMS Registry Server.
☐	6.	Read the release notes.
☐	7.	Check system parameters.
☐	8.	Back up the system disks.
☐	9.	Make sure that you have adequate disk space for installation.
☐	10.	Check the queue manager.
☐	11.	Check the time zone configuration.
☐	12.	Make sure that DECnet or DECnet-Plus is running, if you are planning to use the DECnet transport.
☐	13.	Make sure that TCP/IP is running, if you are planning to use the TCP/IP transport.
☐	14.	Check for existing HP OpenVMS server images and files.
☐	15.	Check the OpenVMS Cluster configuration, if you are installing the Advanced Server on a cluster.

Perform the following steps before you install Advanced Server for OpenVMS software.

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.

1.8.1 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 HP representative.

1.8.2 Step 2: Check the Network Hardware

Advanced Server for OpenVMS runs on OpenVMS Alpha 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

1.8.3 Step 3: Log In to the SYSTEM Account

Before you install Advanced Server for OpenVMS software, 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.

1.8.4 Step 4: Check the Required Software

Advanced Server for OpenVMS software requires:

- The OpenVMS Alpha operating system, Version 7.3-2 or higher.
- The DECnet network transport, if you are going to use the DECnet transport, the mail server, or the License Server over DECnet.
- The TCP/IP transport, if you are planning to use TCP/IP for cluster or network communication. If you are going to use the TCP/IP transport, you must have installed and configured a TCP/IP transport product, as described in the *HP Advanced Server V7.3B for OpenVMS Release Notes*.

1.8.5 Step 5: Start the OpenVMS Registry Server

The OpenVMS Registry is installed as part of the OpenVMS installation. To provide registry services, you must complete the following steps:

1. Define the SYS$REGISTRY logical to point to the disk location where the Registry Server files will be stored.

   For example, to store the registry files on device DKA100: in directory [SYS$REGISTRY], enter the following command:

   ```
   $ DEFINE/SYSTEM SYS$REGISTRY DKA100:[SYS$REGISTRY]
   ```

   In an OpenVMS Cluster, be sure to specify a disk and directory that is available to all cluster members.

2. Start the Registry Server.

   HP recommends that you have the Registry Server started automatically with system startup. This ensures proper operation of any Advanced Server utilities that require the registry (such as PWRK$REGUTL and the Configuration Manager). To have the Registry Server started automatically at system startup, run the OpenVMS Registry Configuration utility (SYS$MANAGER:REG$CONFIG) and make sure the REG$TO_BE_ STARTED logical is set to TRUE. For more information about starting the OpenVMS Registry Server, refer to the *OpenVMS System Manager's Manual* or the *COM, Registry, and Events for OpenVMS Developer's Guide* (included in the OpenVMS Documentation CD-ROM).

   If you need to start the Registry Server manually, enter the following command:

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

For complete information about managing the OpenVMS Registry, refer to the *OpenVMS System Manager's Manual* or the *COM, Registry, and Events for OpenVMS Developer's Guide* (included in the OpenVMS Documentation CD-ROM).

1.8.6 Step 6: 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 1.8.8, Step 8: Back Up the System, you can read the release notes during the backup. For more information, see Section 1.5, About the Release Notes.

1.8.7 Step 7: Check System Parameters

Most systems have adequate system resources readily available to include the Advanced Server for OpenVMS 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 1.8.8, 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 that if the PATHWORKS for OpenVMS (Advanced Server) or Advanced Server for OpenVMS is already running, your system is likely to have sufficient resources to support the new version of the Advanced Server for OpenVMS.

Note

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

1.8.7.1 GBLPAGES Parameter

The Advanced Server for OpenVMS requires that the value of the GBLPAGES parameter be at least 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 FREE_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
   ```

1.8.7.2 GBLSECTIONS Parameter

The Advanced Server for OpenVMS requires that the value of the GBLSECTIONS parameter be at least 75.

If you are installing the standalone License Server only, the value must be at least 50.

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
   ```

1.8.7.3 PROCSECTCNT Parameter

If you are going to install the Advanced Server, the value of the PROCSECTCNT parameter should be at least 40.

If you are installing the standalone License Server only, the value must be at least 32.

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
   ```

1.8.7.4 SCSNODE Parameter

The SCSNODE 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:

If SCSNODE is . . .	And you . . .	Then the server . . .
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 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 more information about using the AUTOGEN utility, refer to the *OpenVMS System Management Utilities Reference Manual*.

1.8.8 Step 8: Back Up the System

To safeguard against the loss of valuable data, HP 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*.

1.8.9 Step 9: Check Disk Space Requirements

To determine the number of disk blocks required for your installation, refer to the *HP Advanced Server V7.3B for OpenVMS 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    AXP0732  724856   280   1
```

1.8.10 Step 10: Check the Queue Manager

It is not necessary to have the queue manager running during installation, but HP 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, the OpenVMS system displays a message similar to the following:

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

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*.

1.8.11 Step 11: Check Time Zone and TDF

The Advanced Server's internal time management uses Greenwich Mean Time (GMT). To synchronize with a common time format among computers in different time zones, the OpenVMS Coordinated Universal Time (UTC) system services may be used. The Advanced Server system implements default date/time support using the UTC standard. UTC is similar to GMT. Under the UTC time standard, zero hours occurs when the Greenwich Meridian is at midnight. Unlike local time, which can go backward and forward depending on daylight savings time, UTC always increases.

Local times can be up to 12 hours behind GMT or 13 hours ahead of it.

Because UTC is independent of time zones, you can use UTC around the world; for example, it is 2:00 UTC at the same moment in Paris as well as in Tokyo. You can examine data that is time-stamped with UTC values in Paris and Tokyo without complicated conversions to deal with local time zones.

To properly represent the time in your local server environment:

1. Determine the time differential factor (TDF) for your system, which associates each local time zone with UTC.

   The TDF is the difference between your local system time and the Coordinated Universal Time (UTC). The difference is expressed in hours and minutes. The TDF changes each time your local system time undergoes a change, such as when it changes from daylight savings time to standard time; the UTC, on the other hand, does not change.

The Americas have negative offsets from UTC, while Europe, Africa, Asia, and Australia have positive offsets. For example, the TDF for New York, Eastern Standard Time, is -5:00. The TDF for eastern Australia is +10:00. The TDF for a region that observes daylight savings is typically +1:00 from the standard time for the region. For example, the TDF for New York during daylight savings time is -4:00. To determine the TDF for your system, refer to the map included in the *OpenVMS System Manager's Manual*.

2. Set the time zone and time differential factor (TDF) settings on your system by running the OpenVMS command procedure UTC$TIME_SETUP.COM. (This command procedure defines the time-related logicals needed by the Advanced Server.) From the SYSTEM account, enter the following command to begin the procedure:

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

   The procedure asks you which time parameters you want to configure. If your system resides in an area that observes daylight savings time, the system time and TDF must be modified appropriately when daylight savings starts and ends. To have these modifications done automatically twice a year, you can use the SYS$EXAMPLES:DAYLIGHT_SAVINGS.COM command procedure.

   When you elect to change the time zone or TDF setting, or both, the changes are also made clusterwide if your server participates in an OpenVMS Cluster.

   If you change any time zone information, you must restart the server for the time to be properly represented.

For more information on running the command procedure and resetting the time zone and TDF, refer to the *OpenVMS System Manager's Manual*.

1.8.12 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.

1.8.12.1 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-SEP-2000 12:16:36

Executor node = 9.000 (BRUTUS)

State           = on
Identification  = DECnet-OSI for OpenVMS
```

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

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

1.8.12.2 Checking DECnet-Plus Status

To check DECnet-Plus status, enter the following command:

```
$ 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.

1.8.13 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 PWIP driver has been loaded. The procedure depends on which TCP/IP product you use. For specific information, refer to the documentation for the TCP/IP product installed.

For example, if TCP/IP Services for OpenVMS V5 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.

After the installation is complete, you can use the Configuration Manager to configure the Advanced Server for OpenVMS 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.

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

Make sure that:

1. No Advanced Server (PATHWORKS Advanced Server and Advanced Server for OpenVMS) images, or PATHWORKS V5 for OpenVMS (LAN Manager) images, are running on the local system. No PATHWORKS OpenVMS servers or earlier versions of the Advanced Server for OpenVMS should be running anywhere in the 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 files from any PATHWORKS Advanced Server or Advanced Server for OpenVMS kit are in the SYS$SPECIFIC directory tree.

The POLYCENTER Software installation utility will detect if any of these conditions exist, and if the above-mentioned images or files are found, it will notify you.

1.8.15 Step 15: Check OpenVMS Cluster Configuration

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

1. 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.
2. If a PATHWORKS for OpenVMS, PATHWORKS V5 for OpenVMS (LAN Manager), or earlier version of the Advanced Server for OpenVMS is running on any cluster member, stop that server. For more information about earlier versions of the Advanced Server in clusters, see Section 1.1.2.2, Upgrading OpenVMS Clusters.

   Note that to provide external authentication, HP recommends that you set up external authentication software on all the nodes in the cluster. To set up external authentication support on nodes that do not run HP OpenVMS file servers, see Section 5.7, Setting Up External Authentication.

3. On each system on which you want to install the Advanced Server, complete the tasks described in this chapter.

   In a cluster configuration that uses multiple system disks, the OpenVMS Registry Server must be configured to use a common registry database. See Section 1.8.5, Step 5: Start the OpenVMS Registry Server, for more information.

   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 Advanced Server. This ensures that each node has its appropriate parameters set and enough resources to run the server.

4. All cluster members that will run the Advanced Server must share a common:

   - System user Authorization File (SYSUAF.DAT)
   - Rightlist file (RIGHTSLIST.DAT)
   - OpenVMS Registry datbase location (SYS$REGISTRY:)
   - Advanced Server data directory location (PWRK$COMMONROOT:)

When installing the Advanced Server on an OpenVMS Cluster member, if both the following two conditions apply, you must shut down the server and reboot the systems running the server:

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

1.9 Next Step

To install the Advanced Server, proceed to Chapter 2, Installing Advanced Server for OpenVMS Software.

2

Installing Advanced Server for OpenVMS Software

This chapter describes how to install the Advanced Server for OpenVMS software using the POLYCENTER Software Installation (PCSI) utility. You must follow the procedure outlined here regardless of whether you are upgrading from a previous version of the server or installing the server for the first time.

For information about how to install the product directly from the OpenVMS Alpha CD-ROM menu, refer to the *HP OpenVMS Version 8.3 Upgrade and Installation Manual*.

For information about the POLYCENTER Software Installation utility, refer to the *OpenVMS System Manager's Manual*.

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

This chapter consists of the following sections:

- Section 2.1, The Installation Procedure
- Section 2.2, Troubleshooting Installation Problems
- Section 2.3, Next Steps

2.1 The Installation Procedure

The POLYCENTER Software Installation utility performs the following:

- Determines whether the installation is being done on a VAX system or an Alpha system. If it is a VAX system, the installation terminates. The Advanced Server runs on Alpha systems only.
- Creates Advanced Server accounts on the system, if necessary.
- Copies the Advanced Server files in the installation kit to the target disk.

- Creates DECnet objects, if you are running DECnet or DECnet-Plus.
- Installs the OpenVMS DCL command definition file, which includes ADMINISTER commands and facilitates management of the Advanced Server.
- Installs the Advanced Server logical name definition file.
- Deletes obsolete files.
- Verifies that the software has been installed successfully. See Section 5.2, Verifying the Advanced Server Installation, for information on how to run the POLYCENTER Software Installation utility so that the procedure automatically runs the Installation Verification Procedure after installing the software.
- Detects whether a reboot is necessary, and requests one only if and when necessary. You are given the option of delaying a required reboot; for example, if you want to configure or change more settings before rebooting.

2.1.1 Before You Start the Installation Procedure

Before you start the installation procedure, answer the following questions:

1. What is the product identifier?

   The product identifier tells the POLYCENTER Software Installation utility which product to install. The product identifier for the Advanced Server for OpenVMS software kit is ADVANCEDSERVER.

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 install the:

   - Complete Advanced Server software?
   - The License Server only?
   - The external authentication images only?
   - Both the License Server and the external authentication images only?

   You can install these components on any Alpha system running OpenVMS Version 7.3-2 or higher. If you install the complete Advanced Server software or the License Server software, and PATHWORKS for OpenVMS (Advanced Server) was previously installed, the server data files are automatically upgraded during server configuration, as described in Chapter 3, Configuring the Advanced Server.

If you choose not to install the complete Advanced Server software, you can choose one of the other options. If you choose to install the complete Advanced Server, you will not be given the other options.

If the system is designated to run the standalone License Server, you can install the License Server software instead of the complete Advanced Server software. HP recommends that you run the standalone License Server on a designated License Server system. You can decide later (during configuration) whether to run the License Server. The License Server and the external authentication images are installed with the complete Advanced Server installation.

If you have installed the Advanced Server and enabled external authentication in an OpenVMS Cluster that includes Alpha systems running OpenVMS 7.3-2 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 on setting up external authentication, see Section 5.7, Setting Up External Authentication.

4. What is the User Identification Code (UIC) group number?

   The Advanced Server installation procedure creates the OpenVMS user accounts PWRK$DEFAULT and PWRK$GUEST, if they do not already exist. The default selection displayed in the installation dialog is determined as follows:

Condition	Default Displayed
You are installing the file server for the first time	The first available unused UIC group number, starting with 360
An account named PCFS$ACCOUNT already exists	The same group number as that associated with the existing account PCFS$ACCOUNT
The file server accounts already exist	The same group number as the existing accounts

2.1.2 Installing the Server

When you have completed the recommended preinstallation tasks outlined in Chapter 1, Before You Install Advanced Server for OpenVMS Software, and have read the release notes, you are ready to use the POLYCENTER Software Installation utility to install the Advanced Server for OpenVMS. (For additional details for using the utility to install, manage, and remove software products on your system, refer to the *OpenVMS System Manager's Manual*.)

During a product upgrade, existing configuration files are preserved in case you want to use them when you configure this version of the software.

To install the Advanced Server for OpenVMS software, proceed as follows:

1. Load the installation kit media onto an available drive.
2. Log in to the SYSTEM account, or an account with equivalent privileges.
3. Check to make sure that other users are not logged in to the system.
4. 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
   ```

5. 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.

6. Start the POLYCENTER Software Installation utility by entering the PRODUCT INSTALL command with the source directory path appropriate for your system. For example:

   ```
   $ PRODUCT INSTALL ADVANCEDSERVER /SOURCE=directory-path
   ```

   where *directory-path* specifies the disk and directory name for the source drive that holds the Advanced Server for OpenVMS kit. For example, /SOURCE=DAD$100:[ASOVMS073B].

   If you do not specify the source qualifier, the POLYCENTER Software Installation utility searches the location defined by the logical name PCSI$SOURCE. If not defined, the utility searches the current default directory.

   The utility installs your software at the location defined by the PCSI$DESTINATION logical. If that logical is not defined, then it installs the software in SYS$COMMON:[VMS$COMMON] and directories under it.

Caution

HP recommends that you do not redefine the PCSI$DESTINATION logical and do not use the /DESTINATION qualifier when installing the Advanced Server for OpenVMS with PCSI. If the destination is anything other than the default, the installation will probably fail and the installed kit will not work correctly.

Note that by default, the installation procedure displays a minimum of text. To get supplementary information for each of the prompts, specify the /HELP qualifier with the PRODUCT INSTALL command, such as in the following example:

```
$ PRODUCT INSTALL ADVANCEDSERVER /SOURCE=directory-path-
_$ /HELP
```

7. 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 stop the installation at any time, press Ctrl/Y. The installation procedure deletes any files that were created, then exits.

Example 2–1 Sample Installation Procedure—Part 1

```
$ PRODUCT INSTALL ADVANCEDSERVER/SOURCE=DKA100:[000000]

The following product has been selected:
    CPQ AXPVMS ADVANCEDSERVER V7.3B         Layered Product

Do you want to continue? [YES] Y Return

Configuration phase starting ...
```

(continued on next page)

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

```
You will be asked to choose options, if any, for each selected product and for
any products that may be installed to satisfy software dependency requirements.

CPQ AXPVMS ADVANCEDSERVER V7.3B: Advanced Server for OpenVMS

    © Copyright 2006 Hewlett-Packard Development Company, L.P.

     Advanced Server is sold by Hewlett-Packard Development Company

    Advanced Server requires PAK PWLMXXXCA07.03 for each client.
        This installation procedure requires that all the following
        conditions are satisfied:
        1.  This procedure is running on an Alpha processor.
        2.  The system is running OpenVMS 7.3-2 or later.
        3.  All required privileges are currently enabled.
        4.  No PATHWORKS or Advanced Server images are running
            on this node or anywhere in the cluster.
        5.  No files from a PATHWORKS (NetWare) kit are present
            on this system disk.
        6.  No files from any Pathworks or Advanced Server kit
            are in SYS$SPECIFIC on this system disk.

        This procedure checks if the conditions are satisfied.
        If they are satisfied, the procedure continues.
        If not, the procedure stops.

Do you want to continue? [YES] Return
```

In Example 2–1, Sample Installation Procedure—Part 1, the installer specifies the source for the installation. The "Configuration phase starting ..." message refers to the configuration of the POLYCENTER Software Installation utility database, not to the configuration of the Advanced Server for OpenVMS itself.

The first part of the installation script identifies the product being installed and lists the conditions that the procedure checks before continuing the installation. If you know that one or more of these conditions have not been met, enter NO to stop the procedure, and then do what is required to satisfy the conditions.

If you know these conditions have been met, press Return to continue with the installation procedure. If you continue, and the procedure finds that any one of these conditions was not met, then you will see a message such as the one documented in Section 2.2.1, Installing Advanced Server for OpenVMS Software on a VAX System, or Section 2.2.2, Installing Advanced Server for OpenVMS on a System Running Another Advanced Server Image. Satisfy the required conditions that were not met, and then restart the procedure.

When you continue the procedure (answering YES to the "Do you want to continue?" prompt), you are prompted to select one of the following choices for the installation.

Example 2–2 Sample Installation Procedure—Part 2

```
        Select one of the numbered options:
        1  Install the complete Advanced Server         [default]
        2  Install only the License Server
        3  Install only the external authentication images
        4  Install both the License Server and the
           external authentication images
Option: [1] Return
```

This part of the script gives you the option of installing the complete Advanced Server for OpenVMS product, or installing only the standalone License Server, only the standalone external authentication images, or installing both the standalone License Server and the standalone external authentication images.

In Example 2–2, Sample Installation Procedure—Part 2, the complete installation was selected, and the procedure continues.

Example 2–3 Sample Installation Procedure—Part 3

```
A PWRK$STREAMSOS_V*.EXE execlet from a previous kit is currently
loaded into memory on this node.
You must reboot this node before starting the product on this node.

Select an option:
1. Delay reboot as long as possible on all nodes. [default]
2. Prevent PWRK$CONFIG configuration on any node using this system
   disk until after reboot.
3. Prevent PWRK$CONFIG configuration on all nodes until after reboot.
4. Prevent startup on any node using this system disk until after
   after reboot.
5. Prevent startup on all nodes until after reboot.

Option: [1] Return
```

In Example 2–3, Sample Installation Procedure—Part 3, the installation procedure 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*.EXE) execlet, 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 Advanced Server for OpenVMS Software.)

If a PATHWORKS for OpenVMS or Advanced Server for OpenVMS product has been installed and started previously, certain images remain on the system even after the product has been stopped or removed. As a result, before the Advanced Server for OpenVMS can be started, you need to reboot the system to remove the old image.

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 a previous product installation was detected (in this case, a PWRK$STREAMSOS_V*.EXE file; for example, either PWRK$STREAMSOS_V6.EXE from PATHWORKS for OpenVMS, or PWRK$STREAMSOS_V7.EXE from Advanced Server for OpenVMS). A reboot is necessary unless you do not plan to run the Advanced Server for OpenVMS on this system.

You have the option of delaying a required 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. Note that it is possible to avoid the reboot by delaying it indefinitely.

You also have the option of preventing the installed server from being:

- Configured on any node using this system disk (the disk on which you are installing the server) until after reboot
- Configured on all cluster nodes until after reboot
- Started on any node using this system disk until after reboot
- Started on all cluster nodes until after the reboot

These options enable you to prevent unnecessary reboots such as on a cluster, when installing the server on a common disk. When you install the server on one node, you can use these options so that you can complete the installation and configuration on the other cluster nodes before starting the server. You will only have to reboot the system once.

Example 2–4 Sample Installation Procedure—Part 4

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

    The Advanced Server V7.3B for OpenVMS installation 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 a PCFS$ACCOUNT already exists, the default is
      the UIC group number associated with PCFS$ACCOUNT.

    o If a PWRK$DEFAULT or PWRK$GUEST account already exists,
      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
Group: [360] Return
Creating OpenVMS accounts for PWRK$DEFAULT and PWRK$GUEST
PWRK$DEFAULT account already exists
PWRK$GUEST account already exists
```

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 Advanced Server for OpenVMS 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.

Example 2–5 Sample Installation Procedure—Part 5

```
* This product does not have any configuration options.
```

In Example 2–5, Sample Installation Procedure—Part 5, the script indicates that configuration choices were already made during the procedure.

The procedure continues as follows in Example 2–6, Sample Installation Procedure—Part 6.

Example 2–6 Sample Installation Procedure—Part 6

```
Execution phase starting ...

The following product will be installed to destination:
    CPQ AXPVMS ADVANCEDSERVER V7.3B        DISK$ALPHAV82:[VMS$COMMON.]

Portion done: 0%...10%...20%...30%...40%...70%...90%
    To automatically start Advanced Server V7.3B 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 after the lines that start all the network
    transports, such as TCP/IP.

    Before starting Advanced Server V7.3B for OpenVMS on this node,
    be sure to configure the product (@SYS$UPDATE:PWRK$CONFIG) on
    each node in the cluster where the product will run.

...100%

The following product has been installed:
    CPQ AXPVMS ADVANCEDSERVER V7.3B        Layered Product
```

As shown in Example 2–6, Sample Installation Procedure—Part 6, during the executive phase of the installation, the script informs you as each portion completes (a percentage indicating how much has completed). It then explains how to have the server start automatically at system startup and reminds you to run the configuration procedure before starting the server. (Note that with the installation of the external authentication images only, start up and configuration are not options.)

Example 2–7 Sample Installation Procedure—Part 7

```
%PCSI-I-IVPEXECUTE, executing test procedure for CPQ AXPVMS
ADVANCEDSERVER V7.3B ...

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        Starting Installation Verification Procedure
        for Advanced Server V7.3B for OpenVMS

%PWRK-I-NORMAL, IVP completed successfully
%PCSI-I-IVPSUCCESS, test procedure completed successfully
$
```

In Example 2–7, Sample Installation Procedure—Part 7, the procedure verifies the installation, and then finishes.

2.1.3 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 5.7, Setting Up External Authentication. For other installations, do the following after the installation completes:

1. If you had a previous version of Advanced Server for OpenVMS running on your system, reboot your system before starting the Advanced Server, if necessary. See the discussion of circumstances when reboots are necessary, in the explanatory text following Example 2–3, Sample Installation Procedure—Part 3.
2. Proceed to Chapter 3 to configure the Advanced Server for OpenVMS.

After the installation completes, you can display a list of the Advanced Server for OpenVMS files that were installed by entering the following command:

```
$ PRODUCT LIST ADVANCEDSERVER /SOURCE=directory-path
```

where *directory-path* specifies the disk and directory name for the source drive that holds the Advanced Server for OpenVMS kit. For example, /SOURCE=DAD$100:[ASOVMS073B]. If you do not specify the source qualifier, the POLYCENTER Software Installation utility searches the location defined by the logical name PCSI$SOURCE. If not defined, the utility searches the current default directory.

2.2 Troubleshooting Installation Problems

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

2.2.1 Installing Advanced Server for OpenVMS Software on a VAX System

The Advanced Server does not run on OpenVMS VAX systems. If you attempt to install the Advanced Server on a VAX system, the POLYCENTER Software Installation utility procedure displays the following error message and terminates the installation:

```
Advanced Server V7.3B for OpenVMS does not run on OpenVMS VAX
systems.
You can install this product on OpenVMS Alpha systems only.
```

2.2.2 Installing Advanced Server for OpenVMS on a System Running Another Advanced Server Image

If you attempt to install the Advanced Server for OpenVMS 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:

```
    Advanced Server V7.3B for OpenVMS cannot be installed while
    any Pathworks or Advanced Server processes are running.
    If this node is part of a cluster, no node of the cluster
    can be running any of those images.

At least one of the preconditions for installation have not been met.

See the Installation Guide for more information
%PCSI-E-S_OPFAIL, operation failed
%PCSIUI-E-ABORT, operation terminated due to an unrecoverable error condition
```

Stop these server images from running, and then restart the installation procedure.

2.2.3 System Disk Restrictions

If the installation procedure detects PATHWORKS (NetWare) files, the procedure will notify you and request that you remove those files and restart the installation procedure. The same is true if the installation procedure detects PATHWORKS for OpenVMS files or any Advanced Server files in a SYS$SPECIFIC: directory. If certain images are detected in system memory (such as the PWRK$STREAMSOS_V*.EXE file, as in Example 2–3, Sample Installation Procedure—Part 3), the procedure will continue, notifying you that a reboot is necessary before starting the Advanced Server for OpenVMS.

2.2.4 Installing Advanced Server for OpenVMS on a System with PATHWORKS for OpenVMS (Advanced Server), Version 6.0A or Earlier

If the system has Version 6.0A or earlier of PATHWORKS for OpenVMS (Advanced Server) installed, the installation procedure displays the following message:

```
The migration path from PATHWORKS V6.0 to the Advanced
Server is valid, but not recommended. Do you want to
continue with the installation? [YES]:
```

HP recommends that you upgrade to Advanced Server V7.3B for OpenVMS from PATHWORKS for OpenVMS (Advanced Server), Version 6.0D or later. To upgrade from previous versions of the server, follow the migration path described in Section 1.1.2, Upgrading to Advanced Server for OpenVMS, before you install Advanced Server V7.3B for OpenVMS.

2.3 Next Steps

To continue, depending on which server you are installing, do one of the following:

Software Installed	Where to Go Next in the Documentation
Installing the complete Advanced Server	Chapter 3, Configuring the Advanced Server
Installing the standalone License Server	Chapter 4, Configuring and Starting the Standalone License Server
Installing the standalone external authentication software	Section 5.7, Setting Up External Authentication, and refer to the *OpenVMS Guide to System Security*.

3

Configuring the Advanced Server

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

- Section 3.1, About the Advanced Server Configuration Procedure
- Section 3.2, Migrating LANMAN.INI Parameters to the OpenVMS Registry
- Section 3.3, Before You Start the Advanced Server Configuration Procedure
- Section 3.4, How to Start the Advanced Server Configuration Procedure
- Section 3.5, How to Respond to Advanced Server Configuration Prompts
- Section 3.6, How to Change Server Configuration Settings
- Section 3.7, Configuring the Advanced Server Domain Role
- Section 3.8, Configuring the Server Language
- Section 3.9, Configuring Windows NT Printer Management
- Section 3.10, Troubleshooting Configuration Procedure Problems
- Section 3.11, The Advanced Server Network Adapter
- Section 3.12, Next Steps

3.1 About the Advanced Server Configuration Procedure

The Advanced Server initial configuration procedure, PWRK$CONFIG.COM, is installed by the Advanced Server for OpenVMS 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 Advanced Server.

You can use the PWRK$CONFIG 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 is a command procedure that:

- Creates the Advanced Server on-disk structure (shown in Section E.2, Advanced Server On-Disk Structure).
- Upgrades any existing file server user account and share databases, such as when upgrading the server from a previous version, or when the currently configured language is not compatible with the language used by the existing file server.
- If configuring a previously configured server, stores the original accounts database in specially-created directories. (For more information, see Section 3.10.3, If Problems Occur When Reconfiguring the Advanced Server.)
- Starts the Registry server if it is not already running.
- If you are upgrading from a PATHWORKS for OpenVMS server to Advanced Server for OpenVMS, migrates server configuration parameters from the PATHWORKS for OpenVMS LANMAN.INI file to the OpenVMS Registry. (For more information, see Section 3.2, Migrating LANMAN.INI Parameters to the OpenVMS Registry.)
- Gives you the option to install PC files present in PWUTIL, PWLIC and PWLICENSE shares.
- Gives you the option to disable client license check.
- Allows you to enter the Configuration Manager to modify configuration parameters that affect the system environment 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 *HP Advanced Server for OpenVMS Server Administrator's Guide*.
- 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 the PWRK$CONFIG configuration procedure before you can start the server. In an OpenVMS Cluster, before you start the server on any node, you must run PWRK$CONFIG 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 Migrating LANMAN.INI Parameters to the OpenVMS Registry

The PATHWORKS for OpenVMS and Advanced Server for OpenVMS servers store server parameters in different locations. PATHWORKS for OpenVMS servers use the LANMAN.INI file to store server configuration parameters. The Advanced Server for OpenVMS uses the OpenVMS Registry, which is similar to the Windows NT registry. For information about managing the server configuration parameters in the OpenVMS Registry, refer to the *HP Advanced Server for OpenVMS Server Administrator's Guide*.

If you are upgrading a system from PATHWORKS for OpenVMS to Advanced Server for OpenVMS, the parameters and settings in the existing LANMAN.INI file are migrated to the OpenVMS Registry when you run the PWRK$CONFIG.COM configuration procedure for the first time after installation. (The Advanced Server for OpenVMS does not read parameter settings from the LANMAN.INI file.) After they have been migrated to the OpenVMS Registry, you manage the parameters in the registry. The LANMAN.INI file is retained in case the system will run PATHWORKS for OpenVMS again later.

The PWRK$CONFIG.COM configuration procedure performs a one-time migration of the parameters. At the time the parameters are migrated into the registry, the PWRK$CONFIG procedure sets the data associated with the **LanmanIniMigrated** value in the OpenVMS Registry. If this value exists and has data associated with it, the PWRK$CONFIG procedure will omit the parameter migration process.

You can display the value and its associated data in the OpenVMS Registry using the following commands:

```
$ REGUTL :== $SYS$SYSTEM:PWRK$REGUTL.EXE
$ REGUTL SHOW VALUE * LANMANINIMIGRATED
```

In the following example, the data displayed for the **LanmanIniMigrated** value indicates that the parameters were migrated on October 29, 2000:

```
Key: SYSTEM\CurrentControlSet\Services\AdvancedServer\Parameters
Value: LanmanIniMigrated
Type: String
Current Data: LANMAN.INI migrated on 29-OCT-2000 15:31:48.90
```

The following example shows what data might be displayed for the **LanmanIniMigrated** value if you are configuring your Advanced Server for OpenVMS on a system that has not had PATHWORKS for OpenVMS configured on it (that is, you are not upgrading from PATHWORKS for OpenVMS):

```
REGUTL> SHOW VALUE * LANMANINIMIGRATED

Key: SYSTEM\CurrentControlSet\Services\AdvancedServer\Parameters
Value: LanmanIniMigrated
Type: String
Current Data: No LANMAN.INI to migrate on  29-OCT-2000 15:31:48.90
```

Refer to the *HP Advanced Server for OpenVMS Server Administrator's Guide* for more information about using the PWRK$REGUTL utility to manage server configuration parameters in the OpenVMS Registry.

3.3 Before You Start the Advanced Server Configuration Procedure

Before you start the PWRK$CONFIG.COM command procedure, ensure that the system parameters discussed in Section 1.8.7, Step 7: Check System Parameters, are set properly.

Before you start the PWRK$CONFIG command procedure, answer the questions discussed in the following sections.

3.3.1 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, HP 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$CONFIG command procedure at any time, to change the disk device where Advanced Server data files are stored. PWRK$CONFIG automatically copies the data files to the new location and deletes the data files from the current location.

3.3.2 Do You Want to Install Windows Client Utilities?

Prior to Advanced Server V7.3B, a share named PWUTIL was always created by PWRK$CONFIG and populated with Windows utilities, such as User Manager for Domains and Server Manager, which can be used to manage Advanced Server from a Windows client. Advanced Server V7.3B makes the PWUTIL share optional through the addition of the following prompts:

Do you want to install Windows client utilities, such as User Manager for Domains and Server Manager, which can be used to manage Advanced Server from a Windows client [N]?

Enter Yes if you want to make the Windows utilities available from this server (in the PWUTIL share). If you accept the default option or enter No, the PWUTIL share will not be created. If a PWUTIL share already exists, PWRK$CONFIG allows you to remove the share and associated files by prompting:

The Windows client utilities files currently exist on this server and are accessible from the share named PWUTIL

Do you want to remove this share [Y]?

If you choose to remove the share, the following message is displayed:

If necessary, the Windows client utilities and PWUTIL share may be installed at any time by executing the command procedure:

```
$ @SYS$UPDATE:PWRK$PWUTIL.COM
```

If you choose not to remove the PWUTIL share, the following message is displayed:

If necessary, the Windows client utilities and PWUTIL share may be removed at any time by executing the command procedure:

```
$ @SYS$UPDATE:PWRK$PWUTIL.COM
```

3.3.3 Do You Want this Server to Share the Client-Based License Software?

Prior to Advanced Server V7.3B, the PWLIC and PWLICENSE shares were always created by PWRK$CONFIG. The PWLIC and PWLICENSE shares point to the same directory which contains a copy of the Windows client software necessary to implement client-based licensing. This software is not required if customers opt for server-based licensing only. The client-based licensing software is also available on the PATHWORKS32 for Windows kit.

Since the client-based licensing software is not required in all environments, Advanced Server V7.3B makes them optional. During PWRK$CONFIG, the administrator will be asked:

Do you want this server to share the client-based license software [N]

Enter Yes if you want to make the client-based licensing software available from this server. If you accept the default option or enter No, the PWLIC and PWLICENSE shares will not be created. If the PWLIC and PWLICENSE shares already exist, PWRK$CONFIG allows you to remove the shares and associated files by prompting:

The client-based license software is currently available for download from the server in the shares named PWLIC and PWLICENSE.

Do you want to remove these shares [Y]?

If you choose to remove the share, the following message is displayed:

If necessary, the client-based license software can be shared from this server at any time by executing the command procedure:

```
$ @SYS$UPDATE:PWRK$PWLIC.COM
```

If you choose not to remove the existing shares, the following message is displayed

If necessary, the client-based license software can be removed from this server at any time by executing the command procedure:

```
$ @SYS$UPDATE:PWRK$PWLIC.COM
```

Note

In regards to sections 3.3.2 and 3.3.3, if Advanced Server is running when either PWRK$PWUTIL.COM or PWRK$;PWLIC.COM is executed, the procedure will prompt for a username and password. If Advanced Server is not running, a username and password are not required.

When prompted for a username and password, if Advanced Server is configured as a PDC or BDC, supply the credentials of a privileged domain user in order to successfully add or delete the files and shares.

If Advanced Server is configured as a member server, supply the credentials of the local member server administrator account or any privileged member server local account. Note that if you supply the credentials of a domain user when Advanced Server is configured as a member server, addition or deletion of the shares will fail.

3.3.4 Do You Wish to Disable Client-Based License Checks?

By default, when a client establishes a session to the Advanced Server for the purpose of mapping a drive or printer, the server establishes a separate session to the client to determine if the client has any client-based licenses installed. This license check can cause a significant delay if the client or network employs a firewall which blocks incoming traffic on TCP port 139. The delay can cause the attempt to map a drive to timeout and fail. If your clients do not use client-based licenses (instead relying only on server-based licenses present on this system), you can prevent the server from querying clients for licenses by responding Yes to the following prompt:

Do you have PATHWORKS client license components installed on any client in your network? If not, do you wish to disable client-based license checks (enter ? for more information)? [Y]

3.3.5 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 at the DCL prompt with the ADMINISTER/CONFIGURATION command. (invoking the Configuration Manager at the DCL prompt with the ADMINISTER/CONFIGURATION command.) For more information, refer to the *HP Advanced Server for OpenVMS Server Administrator's Guide*. Section B.2, Sample Advanced Server Configuration Procedure, shows the basic Configuration Manager screen displayed when you opt to change the system configuration parameter settings during PWRK$CONFIG.

3.3.5.1 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 will also be run 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, both 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 for OpenVMS Clusters. If you plan to use DNS for NetBIOS name resolution, you might need to remove this static multihomed entry 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.)
- 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. HP 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 *HP Advanced Server for OpenVMS Server Administrator's Guide*.

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

3.3.6 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. HP recommends that you run the License Server on a different system than the Advanced Server. See Section 1.3, 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; HP 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 *HP Advanced Server for OpenVMS Concepts and Planning Guide* and the *HP Advanced Server for OpenVMS 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), 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 3.7, 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 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.

Note

HP 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 "Advanced Server V7.3B for OpenVMS."

- Advanced Server language

  This determines the language and associated character set (one of several ISO-8859 character sets) that the Advanced Server uses for encoding text, such as file and share names, user names, description strings, and any content of ADMINISTER command displays.

  The default is English (USA). You can configure any one of over 40 languages, many which include support of extended character set characters. For an up-to-date list indicating which of these languages are officially supported, refer to the Software Product Description (SPD).

Note

The same language must be used by all servers in the domain. HP recommends that all clients that will access the server also be configured to use the same language; otherwise, names containing characters that are not supported by the server language might not appear to clients as expected.

If your disk device includes ODS-2 file names (in specific, file names that include escape-encoded characters in the format _*XX*), you must first convert the file names to ODS-5 file names, as explained in Section 5.8, Converting Encoded File Names from ODS-2 to ODS-5. Section 3.8, Configuring the Server Language explains how to configure the Advanced Server language. For more information on languages, character sets, and Unicode, refer to the *HP Advanced Server for OpenVMS Server Administrator's Guide*.

- Enable NT style printing

  This gives you a choice of managing shared printers either from a remote Windows NT computer or locally using the ADMINISTER command interface at the server. When enabled, administrators can store the latest drivers for the printers on the Advanced Server. When new drivers are distributed, administrators have to update a single location only. When client users set up printers to use from their workstations, they are able to download the appropriate printer driver automatically.

  The default is local management of shared printers, using ADMINISTER commands. When you enable Windows NT printer management, only limited functionality is available for managing printers with the ADMINISTER interface. Before configuring Windows NT style printer management, see the considerations and restrictions in Section 3.9.1, Considerations Regarding Windows NT Printer Management. Section 3.9.2, Example of Configuring Windows NT Printer Management, includes a sample configuration script showing how to configure Windows NT style printer management.

  For more information about management of Advanced Server print shares, refer to the *HP Advanced Server for OpenVMS Server Administrator's Guide*.

For more information about changing configuration settings, see Section 3.6, How to Change Server Configuration Settings.

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

3.3.7 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:

! # $ % & ( ) - . ^ _ ‘ { } ~

3.3.8 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 3.3.9, What Is the Domain Administrator Password?.

3.3.9 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 3.3.8, 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 3.3.7, What Do You Want the Administrator Account Password to Be?.

3.3.10 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.

3.3.11 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, HP 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 5.4.3, How to Start the Advanced Server in an OpenVMS Cluster.

3.4 How to Start the Advanced Server Configuration Procedure

After the installation procedure completes, the OpenVMS system prompt ($) is displayed.

1. Ensure that you are logged in to the SYSTEM account.
2. Start the configuration procedure by entering:

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

3.5 How to Respond to Advanced Server Configuration Prompts

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

Note

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

Table 3–1 Advanced Server Configuration Prompts

At this prompt . . .	If you want the configuration procedure to . . .	Enter . . .
Do you want to install Windows client utilities[N]	Not install the Windows client utilities	Press the Return key For detailed information about this option, refer to Section 3.3.2
	Install the Windows client utilities for managing Advanced Server from Windows clients	YES
Do you want this server to share the client-based license software [N]?	Not provide client-based license software from this server	Press the Return key For detailed information about this option, refer to Section 3.3.3
	Share client-based license software from this server	YES
Do you wish to disable client-based license checks (enter ? for more information)? [Y]	Disable client-based license checks by this server	Press the Return key For detailed information about this option, refer to Section 3.3.4
	Enable server to check for client-based licensing	NO
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

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

(continued on next page)

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

At this prompt . . .	If you want the configuration procedure to . . .	Enter . . .
Enter disk device name where Advanced Server data files will be stored [*default_device*]:	Copy the Advanced Server on-disk structure to the default OpenVMS disk device displayed. If you ran PWRK$CONFIG previously, the default disk device is the one you specified the last time you configured the server; otherwise, the default device is SYS$SYSDEVICE.	Press the Return key
	Copy the Advanced Server 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 *HP Advanced Server for OpenVMS Server Administrator's Guide*.
	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

(continued on next page)

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

At this prompt . . .	If you want the configuration procedure to . . .	Enter . . .
	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 3.6, How to Change Server Configuration Settings.
Are you going to supply account/password information? [YES]:[4]	Have the computer added automatically by PWRK$CONFIG, 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 only if you are configuring a PDC.

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

(continued on next page)

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

At this prompt . . .	If you want the configuration procedure to . . .	Enter . . .
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 the Advanced Server V7.3B for OpenVMS on node *node_name* now [YES]:[6]	Start the server automatically after the configuration procedure completes	Press the Return key

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

[3]This prompt is displayed only if you are configuring a PDC.

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

[5]This prompt is displayed only 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.

(continued on next page)

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

At this prompt . . .	If you want the configuration procedure to . . .	Enter . . .
	Not start the server	NO

3.6 How to Change Server 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:     Advanced Server V7.3B for OpenVMS
 9.  Advanced Server language:               English (USA)
 10. Enable NT style printing:               NO
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 *HP Advanced Server for OpenVMS 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.
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 3.7, 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.

[1]Displayed only if Alerter service is enabled.

[2]HP 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
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. Press the Return key to use the default.
9. Advanced Server language:	The option number of the language to be used by the Advanced Server. The default is English (USA). Press the Return key to use the default. For more information on configuring the server language, see Section 3.8, Configuring the Server Language.
10. Enable NT style printing:	YES, to enable remote management of server printers from Windows NT. NO, to use the default, managing server printers locally, using the ADMINISTER command interface. For more information on configuring Windows NT printer management, see Section 3.9, Configuring Windows NT Printer Management.

[3]Displayed only in an OpenVMS Cluster.

3.7 Configuring the Advanced Server Domain Role

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

There are five kinds of domains that the Advanced Server may participate in:

- 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 HP Advanced Server domain controllers; Advanced Servers can participate as BDCs and as member servers.

- Windows 2000 native-mode domains (also referred to as a pure Windows 2000 domains), which are domains in which all domain controllers are Windows 2000 systems; Advanced Servers can participate as member servers only.
- Windows 2003 interim domains, which are domains that include both Windows 2003 domain controllers and Windows NT or HP Advanced Server domain controllers; Advanced Servers can participate as BDCs and as member servers.
- Windows 2003 domains, in which all domain controllers are Windows 2003 systems; Advanced Servers can participate as member servers only. A windows 2003 domain must include at least one domain controller.

Table 3–3, Server Roles in Each Type of Domain, lists for each type of domain the roles the server can take:

Table 3–3 Server Roles in Each Type of Domain

For Domain Type:	The Advanced Server Can Take These Roles:		
	PDC	BDC	Member Server
Windows NT	X	X	X
Windows 2000 Mixed-Mode		X	X
Windows 2000 Native-Mode			X
Windows 2003 Interim		X	X
Windows 2003			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 have to have 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. 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 3.7.1, Configuring the Advanced Server As a Member Server.

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 the same role.

When you configure the Advanced Server for the first time, you select the role your server will perform in the domain. There may be times when you 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 you want to change it to. To change the role of the server from a BDC to a PDC, or vice versa, use the ADMINISTER SET COMPUTER/ROLE command. To change a server BDC to a member server, you must use PWRK$CONFIG, as explained in Section 3.7.1, Configuring the Advanced Server As a Member Server. To change a PDC to a member server, you must first promote another BDC to a PDC; then the original PDC is demoted automatically to a BDC, after which you can use PWRK$CONFIG to change it to a member server. Use PWRK$CONFIG also to change a member server to a BDC. (This restriction is similar [but less restrictive] to that of Windows NT, which requires the operating system to be reinstalled to change a domain controller to a member server, or vice versa.) For more information on changing the role of the server from a BDC to a PDC, or vice versa, refer to the *HP Advanced Server for OpenVMS Server Administrator's Guide*. Table 3–4, Methods for Changing Server Roles, summarizes which role changes are allowed and disallowed by PWRK$CONFIG.

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$CONFIG
Member	PDC	Use PWRK$CONFIG 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$CONFIG
PDC	BDC	Use ADMINISTER SET COMPUTER/ROLE to promote a BDC in the domain to PDC; this promotion demotes the original PDC to a BDC
PDC	Member	Use ADMINISTER SET COMPUTER/ROLE to promote an existing BDC to a PDC; this promotion demotes the PDC to a BDC so that you can change it to a member server, using PWRK$CONFIG

Caution

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

If you reconfigure a member server to a BDC, PWRK$CONFIG 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.

3.7.1 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 for OpenVMS 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. If the domain consists of a native-mode Windows 2000 environment (also referred to as a pure Windows 2000 domain) or Windows 2003 domain, this is a domain in which all domain controllers are Windows 2000 or Windows 2003 systems, the domain must first include at least one domain controller before you can configure an Advanced Server as a member server.

You may want to configure your Advanced Server for OpenVMS 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 domain controllers can help decrease the network load, eliminating network traffic normally generated by domain controllers for replicating user databases and 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 for OpenVMS as a member server allows the Advanced Server for OpenVMS to participate in a native-mode Windows 2000 or Windows 2003 environment without interruption to that environment.
- If in the future your Advanced Server for OpenVMS server is moved to a different domain, it is simpler to move it as a member server from one domain to another.

The following sections explain how to configure the Advanced Server as a member server.

3.7.1.1 Considerations When Configuring Advanced Server as Member Server

When Advanced Server is configured as member server in an Active Directory, the following considerations must be taken into account:

- Determine which computer is functioning as the PDC emulator. If unsure, perform the following steps:
  a. Launch **Active Directory Users and Computers**, right click on the domain name, and select **Operations Masters**.
  b. Select the PDC tab to see which domain controller is the PDC emulator.

c. When the Advanced Server configuration procedure prompts for the name of the PDC, enter the NetBIOS name (sometimes referred to as the pre-Windows 2000 name) of the PDC emulator.

- As long as administrator selects to supply the username and password during configuration, Advanced Server can successfully join the domain. However, it might fail if the administrator chooses to not supply the credentials (i.e., when the computer account already exists). In this case, ensure the following security policy is enabled (the default is disabled) on Windows Server 2003 PDC emulator (this policy does not exist in Windows 2000):

  ```
  Network access: Allow anonymous SID/Name translation
  ```

  If this policy is disabled on the PDC emulator, the Advanced Server may fail to create its SAM database files when joining the domain. The error seen during configuration is:

  ```
  Creating SAM datafiles...
  %PWRK-F-SAMCHECK, error creating SAM databases
  PWRK-I-RESTORE, restoring original settings

  @SYS$UPDATE:PWRK$CONFIG must be executed again.
  The Advanced Server configuration is incomplete and cannot continue.
  ```

- Determine the current setting of the security policy "Network security: LAN Manager authentication level" on the PDC emulator.

  This policy controls the setting of the Registry value LmCompatibilityLevel (under key HKEY_LOCAL_MACHINE\System\CurrentControlSet\Control\Lsa).

  The setting of LmCompatibilityLevel should be the same on all systems (when possible). The Windows security policy setting "Network security: LAN Manager authentication level" maps to the Registry value LmCompatibilityLevel as follows:

  ```
  Network security: LAN Manager authentication level  LmCompatibilityLevel
  Send LM & NTLM responses                                                0
  Send LM & NTLM                                                          1
  Send NTLM response only                                                 2
  Send NTLMv2 response only                                               3
  Send NTLMv2 response only/refuse LM                                     4
  Send NTLMv2 response only/refuse LM & NTLM                              5
  ```

  By default, the LmCompatibilityLevel registry parameter does not exist in the Advanced Server for OpenVMS registry so it defaults to LmCompatibilityLevel = 0 (Send LM & NTLM responses). On Advanced Server, if LmCompatibilityLevel is defined to 0 or 1 or 2, then ensure the security policy "Network security: LAN Manager authentication level" is

not defined to "Send NTLMv2 response only\ Refuse LM and NTLM" on the PDC emulator.

If the PDC emulator has its security policy set to "Send NTLMv2 response only\ Refuse LM and NTLM", on Advanced Server modify the registry parameter LmCompatibilityLevel to 3 or 4 or 5 . This needs to be done prior to joining the Advanced Server for OpenVMS server to the domain.

To initially change the LmCompatibilityLevel setting on Advanced Server, it must first be created:

```
$ regutl :== $sys$system:pwrk$regutl.exe
$ regutl set parameter lsa LmCompatibilityLevel  <desired level> /create
```

Once initially set, the /create qualifier need not be used to modify the setting.

- On all Windows 2000 domain controllers, ensure the security policy "Additional restrictions for anonymous connections" is not set to "No access without explicit anonymous permissions". Any other setting is acceptable. This requirement does not pertain to Windows Server 2003 domain controllers. The system must be rebooted if the setting is changed; however, wait until the policy is refreshed on the domain controller before rebooting, otherwise, a second reboot will be necessary. Domain controllers, by default, will refresh their policies every 5 minutes. The system can be forced to refresh the policy immediately with the following command:

  ```
  SECEDIT /REFRESHPOLICY MACHINE_POLICY /ENFORCE
  ```

  When this policy is set to "No access without explicit anonymous permissions", the Advanced Server configuration procedure fails when attempting to join the domain, if no credentials were supplied. If credentials were provided when joining the domain, the configuration procedure succeeds; however, Advanced Server subsequently fails to start the NETLOGON service and posts the following message to the System event log ($ ADMIN SHOW EVENTS):

  ```
  Events in System Event Log on server "MYSRV":

  T Date     Time        Source    Category Event  User Computer
  --------   ----------- --------- -------- ------ ---- ---------
  E 01/31/06 11:00:57 AM NETLOGON  None     3210   N/A  MYSRV

  Failed to authenticate with W2KDC, a domain controller for domain MYDOM.
  Data:0000: 22 00 00 c0 00 00 00 00 "..?....
  ```

Additionally, if you attempt to start the NETLOGON service, an error is displayed:

```
$ ADMIN START SERVICE NETLOGON
%PWRK-I-SVCOPWAIT, attempting to start the "NETLOGON" service on
"MYSRV"%PWRK-E-SVCOPFAILED, start of service "NETLOGON" on "MYSRV"
failed-LM-E-UIC_INTERNAL, an internal error occurred
```

This error results in the following message in the System event log:

```
T Date     Time        Source   Category  Event User Computer
- -------- ----------- ------   --------- ----- ---- ---------
W 02/02/06 10:31:57 AM NETLOGON  None      5701  N/A  MYSRV

The Netlogon service failed to update the domain trust list.
The following error occurred:
%5 Data:0000: 22 00 00 c0 00 00 00 00 "..?....
```

A network trace shows the Advanced Server attempts to establish an anonymous connection to the IPC$ share and is denied access (0xC0000022).

- Decide on the name for the Advanced Server computer account and how to create the account. As noted earlier, when the Advanced Server runs in an OpenVMS Cluster, a single computer account is used to represent the entire cluster; the name of this computer account must be identical to the Advanced Server cluster alias name. The Advanced Server cluster alias name can be set when configuring the Advanced Server.

  If the Advanced Server system is not a member of an OpenVMS Cluster, the computer account name must be identical to the computer name of the Advanced Server. By default, the computer name is identical to the SYSGEN SCSNODE parameter, but it too may be modified when configuring the Advanced Server. The computer account can be created prior to or during configuration of the Advanced Server:

  – **Prior to configuring the Advanced Server**

    Use Active Directory Users and Computers to create the computer account.

    Note

    The account must be designated for a pre-Windows 2000 computer.

    In Windows 2000 Active Directory Users and Computers, select the option, Allow pre-Windows 2000 computers to use this account. In Windows Server 2003 Active Directory Users and Computers, select the option, Assign this computer account as a pre-Windows 2000 computer.

The account can be created in any Organizational Unit (OU) or in the Computers container.

– **During configuration of the Advanced Server**

  Supply the username and password of an administrator account. The configuration procedure creates the computer account in the Computers container. The account can later be moved to an OU, if desired.

3.7.1.2 Configuring a New Advanced Server for OpenVMS to Be a Member Server

While installing a new Advanced Server for OpenVMS 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; a native-mode Windows 2000 domain or Windows 2003 domain must include at least one domain controller.

The following PWRK$CONFIG.COM output shows how an Advanced Server for OpenVMS server might be configured as a member server. Preceding this part of the procedure, item 5 was selected to specify UPTIME as the domain. This example assumes the UPTIME domain is a native-mode Windows 2000 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:          UPTIME
   6.  Advanced Server role:            PRIMARY
   7.  Advanced Server computer name:   GRATDA
   7a. Advanced Server OpenVMS Cluster alias:   GRATDA_ALIAS
   8.  Server announce comment:    Advanced Server V7.3B for OpenVMS
   9.  Advanced Server language:        English (USA)
   10. Enable NT style printing:        NO
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 verified user name and password.

  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:          UPTIME
   6.  Advanced Server role:            MEMBER
   7.  Advanced Server computer name:   GRATDA
   7a. Advanced Server OpenVMS Cluster alias:   GRATDA_ALIAS
   8.  Server announce comment:    Advanced Server V7.3B for OpenVMS
   9.  Advanced Server language:        English (USA)
   10. Enable NT style printing:        NO
Enter item number, or RETURN to use these values [DONE]: Return

Saving parameters to the OpenVMS Registry...
Creating SAM datafiles...
   .
   .
   .
   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...

Setting character set information in databases as needed ...

   Setting share database character set information ...
   Setting ACL database character set information ...
Checking system resources...
```

3.7.1.3 Configuring an Existing Advanced Server for OpenVMS 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 3.10.3, 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 4.0) Primary  Advanced Server V7.3B for OpenVMS

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

[BD] DOROTHY   OpenVMS (NT 3.51) Backup  Advanced Server V7.2A for OpenVMS

  Total of 3 computers

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

```
Computers in domain "LANDOFOZ":
Computer       Type                       Description
-------        -----------------------    ----------------------------
[PD] TINMAN    OpenVMS (NT 4.0) Primary   Advanced Server V7.3B for OpenVMS
[SV] LIONHEART OpenVMS (NT 4.0) Server    Advanced Server V7.3B for OpenVMS
[BD] DOROTHY   OpenVMS (NT 3.51) Backup   Advanced Server V7.2A for OpenVMS
  Total of 3 computers
```

3.8 Configuring the Server Language

By default, the language of the Advanced Server is “English (USA)”. You can configure any one of over 40 languages for the Advanced Server. For an up-to-date list of the languages officially supported by the Advanced Server, refer to the Software Product Description (SPD).

3.8.1 Considerations Regarding the Server Language

Consider the following when configuring the server language:

- The same language should be used by all servers in a domain. All Advanced Servers in the same cluster automatically share the same language (they share the same registry database where the language is stored).
- Although you can change the server’s language at any time (after stopping the Advanced Server), HP recommends that once a choice is made, you do not alter that choice.

  Certain objects might exist whose names include characters that are not included in the new language that you select. For example, after you select a new language, PWRK$CONFIG might convert (depending on the language) all text strings in the Security Account Manager (SAM), access control list (ACL), and share databases from the old character set (for the previous language) to the new set (for the new language).

  If one or more of these databases are converted, PWRK$CONFIG displays the following message:

  ```
  Setting character set information in databases as needed...
  ```

  In addition, a message will be displayed for each database affected, such as:

  ```
  Setting share database character set information ...
  ```

If any of these databases contain text strings that cannot be converted (that is, object names that contain characters not included in the newly configured Advanced Server language character set), the PWRK$CONFIG procedure reverts to the set of databases that existed prior to conversion attempt. Error messages will indicate the names that could not be converted, and the language is reset to the original language. You must rename (or remove) the objects that cannot be converted, and rerun PWRK$CONFIG to change the language.

Note that for some languages, PWRK$CONFIG does not need to convert the text strings in the databases mentioned above — it changes the client code page value only. (A client code page is an ordered set of 256 characters that extends the limits of ASCII (American Standard Code for Information Interchange) character sets to support the variety of characters used in languages internationally. Each language-specific code page overlays the same set of 8-bit values. For example, a specific 8-bit value in a code page used for the English language can be used for another character used for the Cyrillic language.)

3.8.2 Example of Configuring the Server Language

During the PWRK$CONFIG.COM configuration procedure, you can configure an Advanced Server language other than the default by selecting option 9. The procedure lists the configurable languages. At the prompt, enter the number of the language you want to use.

In the following example, the Hebrew language is configured (character set ISO8859-8).

```
  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:          LANDOFOZ
   6.  Advanced Server role:            MEMBER
   7.  Advanced Server computer name:   LIONHEART
   7a. Advanced Server OpenVMS Cluster alias:   LIONHEART_ALIAS
   8.  Server announce comment:    Advanced Server V7.3B for OpenVMS
   9.  Advanced Server language:        English (USA)
   10. Enable NT style printing:        NO
Enter item number, or RETURN to use these values [DONE]: 9 Return
```

```
******************** W A R N I N G ************************
Although you can change the server's language at any time
(after stopping the Advanced Server), HP recommends
that once a choice is made, you do not alter that choice.
Certain objects might exist whose names include characters
that are not included in the new language that you select.
Error messages will indicate the names that could not be
converted, and the language will be reset to the original
language. If you want to change the language, you must
first rename (or remove) the objects that cannot be
converted, and rerun PWRK$CONFIG to change the language.
************************************************************"
Do you want to continue with item number 9 (Y/[N]) Y Return
 1) Afrikaans           16) French              31) Portuguese
 2) Albanian            17) French (Ca. MS-DOS) 32) Portuguese (MS-DOS)
 3) Basque              18) German              33) Romanian
 4) Belarussian         19) Greek               34) Russian
 5) Bulgarian           20) Greek (IBM)         35) Serbian (Cyrillic)
 6) Catalan             21) Hebrew              36) Serbian (Latin)
 7) Croatian            22) Hungarian           37) Slovak
 8) Czech               23) IBM Cyrillic        38) Slovenian
 9) Danish              24) Icelandic           39) Spanish
10) Dutch               25) Icelandic (MS-DOS)  40) Swedish
11) English (USA)       26) Indonesian          41) Turkish
12) English (USA)+Euro  27) Italian             42) Ukrainian
13) English (Other)     28) Nordic L. (MS-DOS)  43) Western Europe+
14) Faeroese            29) Norwegian               Euro
15) Finnish             30) Polish

  The Advanced Server language specifies the internal character set
  encoding for strings, character casing rules, and the client
  code page.

Enter Advanced Server language by number for this cluster [English(USA)]: 21 Return

  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:          LANDOFOZ
   6.  Advanced Server role:            MEMBER
   7.  Advanced Server computer name:   LIONHEART
   7a. Advanced Server OpenVMS Cluster alias:   LIONHEART_ALIAS
   8.  Server announce comment:    Advanced Server V7.3B for OpenVMS
   9.  Advanced Server language:        Hebrew
   10. Enable NT style printing:        NO
Enter item number, or RETURN to use these values [DONE]: Return
```

3.9 Configuring Windows NT Printer Management

By default, printers shared by the server are managed locally using the ADMINISTER user interface. You can configure the server to support management of the printers from Windows NT. This allows you to take advantage of the Windows NT style of printer management, using the Windows NT print services dialog boxes, such as the Add Printer wizard for adding printers.

Administrators can then store the latest drivers for the printers on the Advanced Server. When new drivers are distributed, administrators have to update a single location only. When client users set up printers to use from their workstations, they are able to download the appropriate printer driver automatically.

Before configuring your sever to support Windows NT printer management, be sure to familiarize yourself with the considerations noted in Section 3.9.1, Considerations Regarding Windows NT Printer Management.

3.9.1 Considerations Regarding Windows NT Printer Management

Consider the following before choosing to configure the Windows NT style of printer management. When you enable Windows NT printer management:

- Only limited functionality is available for managing printers with the ADMINISTER interface. (Similarly, when the default printer management style is enabled (using the ADMINISTER interface), limited functionality is available for managing the printers from Windows NT.)
- Printers or print queues that were already defined on the server are upgraded automatically so that clients can continue to share these printers and their queues. However, management of these upgraded printers from Windows NT is limited. To gain full Windows NT management functionality for these printers, use Windows NT print services to delete the printers and then to add the printers back onto the Advanced Server.

Note

When running PWRK$CONFIG to reconfigure the Advanced Server, printers that have been upgraded previously are not upgraded again.

- Once you configure the Windows NT printer management style, if you decide to reconfigure your server to the default local printer management style, all printers will be unusable. You will have to perform several, time-consuming tasks to make printers functional again.

- Be sure to refer to the *HP Advanced Server V7.3B for OpenVMS Release Notes* for more information on restrictions regarding Windows NT printer management.

3.9.2 Example of Configuring Windows NT Printer Management

During the PWRK$CONFIG.COM configuration procedure, you can configure Windows NT style printer management by selecting option 10. The procedure displays a warning and asks you if you are sure you want to make the change, as shown in the following example:

```
  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:          LANDOFOZ
   6.  Advanced Server role:            MEMBER
   7.  Advanced Server computer name:   LIONHEART
   7a. Advanced Server OpenVMS Cluster alias:   LIONHEART_ALIAS
   8.  Server announce comment:    Advanced Server V7.3B for OpenVMS
   9.  Advanced Server language:        English (USA)
   10. Enable NT style printing:        NO
Enter item number, or RETURN to use these values [DONE]: 10 Return

******************** W A R N I N G ************************
Before enabling this feature, make sure you are familiar with
the Windows NT printer management restrictions documented in the
Release Notes. Note that once you configure the Windows NT printer
management style, if you reconfigure your server to the default
local printer management style, all printers will be unusable. You
will have to perform several time-consuming tasks to make printers
functional again.
***********************************************************"
Are you sure you want to enable
Windows NT printer management? [Y/[N]] Y Return

10. Enable NT style printing: Y Return
```

3.10 Troubleshooting Configuration Procedure Problems

This section describes how to:

- Troubleshoot Registry Server startup problems
- Ensure sufficient resources will be available to support clients
- How to recover if problems occur when reconfiguring the Advanced Server

3.10.1 Registry Server Startup Problems

For proper operation of the PWRK$CONFIG.COM configuration procedure and the file server, registry services must be available on the system running the Advanced Server.

In an OpenVMS Cluster environment, the OpenVMS Registry can be configured so that the Registry Server does not run on the server node but rather on another node in the cluster. However, HP recommends that the OpenVMS Registry be configured to run the Registry Server on every Advanced Server node. This ensures that registry services are available to the file server. For instructions on starting the Registry Server and enabling registry services, see Section 1.8.5, Step 5: Start the OpenVMS Registry Server.

- If registry services are not available, the PWRK$CONFIG.COM procedure attempts to start the OpenVMS Registry Server. If the attempt is successful, the procedure displays the following message:

```
Checking to see if the OpenVMS Registry Services are available
...
%RUN-S-PROC_ID, identification of created process is 0000023B
```

- If the SYS$REGISTRY logical is not defined, the OpenVMS Registry will not start. In this case, the PWRK$CONFIG.COM displays the following messages and terminates:

```
Checking to see if OpenVMS Registry Services are available...

    SYS$REGISTRY must be defined to start the VMS Registry

%PWRK-F-NOREGISTRY, OpenVMS Registry services not configured for this
 system
%PWRK-F-CONFIGERR, severe error encountered during configuration

    OpenVMS Registry Services are not available on this system.

    Some file server parameters are stored in the OpenVMS Registry.
    For the file server or file server utilities to be able to access
    these parameters, OpenVMS Registry Services must be available
    on this system.

    Since the file server requires access to the OpenVMS Registry,
    it is recommended that OpenVMS Registry Services be started
    as part of system start-up, before the file server is started.
    For instructions on how to start OpenVMS Registry Services
    please refer to the file server release notes.

    This configuration is incomplete and cannot continue.
    You must execute @SYS$UPDATE:PWRK$CONFIG again.
    Please configure and start the OpenVMS Registry Services before
    doing so.
```

You must enable registry services and start the Registry Server, then run the PWRK$CONFIG.COM procedure again. For more information about enabling and starting the Registry Server, refer to the *OpenVMS System Manager's Manual* or the *COM, Registry, and Events for OpenVMS Developer's Guide* (included in the OpenVMS Documentation CD-ROM).

3.10.2 Ensuring Sufficient Resources to Support Clients

The 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 the Advanced Server, and these resources have already been consumed when the Advanced Server is started, there may be insufficient resources left for the 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 the Advanced Server is installed and started before you run the the Advanced Server configuration procedure (PWRK$CONFIG.COM). If TCP/IP is selected as a transport, make sure that the TCP/IP product is loaded before you run the PWRK$CONFIG procedure.

After you successfully configure the 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_nodename.LOG
```

To increase the resource, make the appropriate modifications to the MODPARAMS.DAT file and then run AUTOGEN.

3.10.3 If Problems Occur When Reconfiguring the Advanced Server

If you reconfigure a previously configured server, the PWRK$CONFIG command procedure creates subdirectories in the PWRK$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 16JUN200014314818.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.

3.11 The Advanced Server Network Adapter

The PWRK$CONFIG configuration might need to use the network to communicate with the PDC. If the system has more than one network adapter (also referred to as a network interface card), the default adapter chosen by PWRK$CONFIG might not be the correct interface. Or, on some newer systems, the Advanced Server might not recognize the only network adapter present. In cases such as these, you can define system logical names to direct the Advanced Server to use a specific interface. If no such logical is defined, PWRK$CONFIG 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.

3.11.1 Manually Defining the Network Adapter

To manually define the network adapter to be used for a specific protocol, follow these steps:

1. Use the DCL DEFINE/SYSTEM command 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 that the adapter you select for the TCP/IP transport corresponds to the first IP address for the host in the TCP/IP local hosts database (as seen by executing the TCPIP SHOW HOST command). Otherwise, the Advanced Server might use an IP address of a different network interface than that associated with logical PWRK$KNBDAEMON_DEVICE.

  However, you can now ensure that the Advanced Server uses the IP address of the same interface as defined by logical PWRK$KNBDAEMON_DEVICE by defining the IP address of that interface with the logical PWRK$KNBDAEMON_IPADDR. You no longer need to make sure the selected adapter corresponds to the first IP address in the 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.

3.11.2 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 3.11.1, 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.

3.12 Next Steps

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

If you are ready to start the server, see Chapter 5, After You Install the 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 Advanced Server for OpenVMS 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 servers:

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

- Advanced Server for OpenVMS

The License Server included with Advanced Server for OpenVMS 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 the Advanced Server.

You can install the License Server:

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

HP recommends that you install the License Server on a designated OpenVMS system without the Advanced Server. Therefore, the Advanced Server for OpenVMS kit allows you to install the standalone License Server separately from the file server. Alternatively, you can run the License Server on an OpenVMS Cluster with the Advanced Server, where cluster failover provides reliability. (You can also run the License Server on an OpenVMS Cluster without the Advanced Server.)

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

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 Advanced Server. The procedures are described in Chapter 2, Installing Advanced Server for OpenVMS Software.

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 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.

The following table shows details about the PWRK$STARTUP.COM procedure:

If the following is configured	Then the following is started
DECnet	DECnet transport
NetBEUI	NetBEUI transport
TCP/IP	TCP/IP transport
DECnet	DECnet transport for Advanced Server mail notification
License Server	License Server component

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:

1. Ensure that you are logged in to the SYSTEM account.
2. Start the configuration procedure by entering:

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

3. 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.

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 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

[1]Default answers may differ if you ran the License Server configuration procedure previously.

(continued on next page)

Table 4–1 (Cont.) License Server Configuration Prompts

Prompt	Desired Outcome	How to Respond
Do you want to start the Advanced Server License Server now [YES]:	Start the server automatically after the configuration procedure completes	Return
	Complete the configuration procedure without starting the server	NO

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, HP suggests that you use the SYSMAN utility to start the 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 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 SPEEDY, SPIN, and SPAN, enter the following at the SYSMAN> prompt:

   ```
   SYSMAN> SET ENVIRONMENT/NODE=(SPEEDY,SPIN,SPAN)
   ```

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

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

5

After You Install the Advanced Server

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

- Section 5.1, Before You Begin Postinstallation Tasks
- Section 5.2, Verifying the Advanced Server Installation
- Section 5.3, Starting the Advanced Server
- Section 5.4, Ways to Start the Advanced Server
- Section 5.5, Stopping the Advanced Server
- Section 5.6, Special Advanced Server Management Commands
- Section 5.7, Setting Up External Authentication
- Section 5.8, Converting Encoded File Names from ODS-2 to ODS-5
- Section 5.9, Installing Optional Server Administration Tools

5.1 Before You Begin Postinstallation Tasks

Before you start the Advanced Server, make sure you have:

- Installed the Advanced Server, as described in Chapter 2, Installing Advanced Server for OpenVMS Software.
- Completed the configuration procedure, as described in Chapter 3, Configuring the Advanced Server.

5.2 Verifying the Advanced Server Installation

If the installation verification procedure (IVP) did not run when you installed the Advanced Server, you can run it now (or anytime later) to make sure that the server installed successfully. (When you specify the /NOTEST qualifier with the PRODUCT INSTALL command, the IVP procedure does not run.)

To run the IVP, enter the following command:

```
$ @SYS$TEST:PWRK$PCSI_IVP
```

Table 5–1, IVP Indications and Steps You Should Take, indicates the steps to take according to the status of the installation indicated by IVP.

Table 5–1 IVP Indications and Steps You Should Take

Installation Status	IVP Indication	Steps to Take
Succeeded	The message: `%PWRK-I-NORMAL, IVP completed successfully`	Start the server, as described in Section 5.3, Starting the Advanced Server.
Failed	An error message, followed by: `-PWRK-E-IVPFAIL, IVP has failed`	Reinstall the software, as described in Chapter 2, Installing Advanced Server for OpenVMS Software.

5.3 Starting the Advanced Server

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

5.3.1 When to Start the Advanced Server

You must configure the Advanced Server before you can start it for the first time. After running the configuration procedure, you can start and stop the Advanced 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 has 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 the OpenVMS Registry Server, if necessary
9. Starts each of the components:
   - License Registrar
   - License Server (if configured)
   - File server
10. Records a list of all Advanced Server parameters that are set in the OpenVMS Registry (see Section 5.4.5, Determining Initial Advanced Server Parameter Values Stored in the OpenVMS Registry)

5.4 Ways to Start the Advanced Server

You can start the Advanced Server:

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

5.4.1 How to Start the Advanced Server Manually

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

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

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

```
The file server will use DECnet, NetBEUI, TCP/IP.
Advanced Server mail notification will use DECnet.
Process NETBIOS created with identification 00000248
Process PWRK$NBDAEMON created with identification 0000024A
Process PWRK$KNBDAEMON created with identification 0000024C
Process PWRK$LICENSE_R created with identification 0000024E
Checking to see if the OpenVMS Registry Services are available...
The Advanced Server is configured to support 20 PC clients.
Process PWRK$MASTER created with identification 00000251
The master process will now start all other Advanced Server
processes.
```

5.4.2 How to Start the Advanced Server Automatically

To make sure that the Advanced Server starts automatically each time you boot your OpenVMS system, edit the site-specific startup file, SYS$STARTUP:SYSTARTUP_VMS.COM. Add the Advanced Server startup command to the file *below* all lines that start network transports. For example:

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

5.4.3 How to Start the Advanced Server in an OpenVMS Cluster

If you installed and configured the Advanced Server on multiple members of the same OpenVMS Cluster, HP recommends that you use the SYSMAN utility to start the Advanced Server manually and simultaneously on all cluster members.

To start the Advanced Server on all cluster members at the same time, make sure you are logged in to the SYSTEM account on one of the member nodes, then run SYSMAN as follows:

Enter this command...	To...
`$ RUN SYS$SYSTEM:SYSMAN`	Start the SYSMAN utility.
`SYSMAN> SET ENVIRONMENT/NODE=(SPEEDY,SPIN,SPAN)`	Define the OpenVMS Cluster members on which to start the server. For example, SPEEDY, SPIN, and SPAN.
`SYSMAN> DO @SYS$STARTUP:PWRK$STARTUP`	Start the Advanced Server on all the nodes you defined in the previous command.
`SYSMAN> EXIT`	Exit the SYSMAN utility.

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*.

5.4.4 Troubleshooting the Startup

Some of the problems that prevent the Advanced Server from starting are discussed in the following sections:

- Section 5.4.4.1, SYLOGIN.COM Contains Commands Not Suitable for Detached Processes
- Section 5.4.4.2, OpenVMS Registry Services Not Available)

5.4.4.1 SYLOGIN.COM Contains Commands Not Suitable for Detached Processes

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 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 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 Advanced Server startup. Refer to the *OpenVMS DCL Dictionary* for more information.

5.4.4.2 OpenVMS Registry Services Not Available

The Advanced Server will start only if the OpenVMS registry services are available. For information about starting the Registry Server, refer to the *OpenVMS System Manager's Manual* or the *COM, Registry, and Events for OpenVMS Developer's Guide* (included in the OpenVMS Documentation CD-ROM).

If the Registry Server is started as part of Advanced Server startup, a message similar to the following is displayed by the startup procedure:

```
Checking to see if the OpenVMS Registry Services are available...
%RUN-S-PROC-ID, identification of created process is 0000023B
```

If the Registry Server cannot be started, the following message is displayed and the startup procedure is terminated:

```
    SYS$REGISTRY must be defined to start the VMS Registry.

%PWRK-F-NOREGISTRY, OpenVMS Registry services not configured for
this system
%PWRK-F-STARTERR, severe error encountered during start-up

    OpenVMS Registry Services are not available on this system.

    Some file server parameters are stored in the OpenVMS Registry.
    For the file server or file server utilities to be able to access
    these parameters, OpenVMS Registry Services must be available
    on this system.  Without them the file server cannot start.

$
```

5.4.5 Determining Initial Advanced Server Parameter Values Stored in the OpenVMS Registry

The Advanced Server startup procedure records a list of all Advanced Server parameters that are set in the OpenVMS Registry. You can use this list as a reference if you should ever need the latest parameter values. The list is stored in the following location, where *nodename* is the name of your server node:

```
PWRK$PARAMS:PWRK$REGISTRY_PARAMS_nodename.LIS
```

5.5 Stopping the Advanced Server

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

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

To stop the Advanced Server, enter the following command:

```
$ @SYS$STARTUP:PWRK$SHUTDOWN
Shutting down the currently running server(s)...
```

For a cluster server, enter:

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

To stop the Advanced 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!!!"
```

5.6 Special Advanced Server Management Commands

HP 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
```

5.7 Setting Up External Authentication

The OpenVMS operating system Versions 7.1 and higher provide support for external authentication. Advanced Server participates with the operating system to allow Advanced Server domain users to log in to the OpenVMS operating system using their Advanced Server domain user names and passwords. The 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 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, server external authentication is automatically enabled for user accounts tagged for external authentication in the SYSUAF (to enable external authentication, PWRK$ACME_ STARTUP.COM defines bit 0 of the SYS$SINGLE_SIGNON logical in SYSTARTUP_VMS.COM to the value 1. You can disable external authentication by changing the default value of this bit. For information on disabling external authentication and on defining the other bits in the SYS$SINGLE_SIGNON logical, see Section 5.7.5, Disabling External Authentication.)

For more information about enabling external authentication on OpenVMS systems, 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 be able to process OpenVMS logon requests for network users, 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 5.7.1, Setting Up External Authentication in OpenVMS Clusters.

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

1. Install one of the following:
   - The Advanced Server
   - The standalone 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 Advanced Server for OpenVMS Software.
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 complete Advanced Server software is installed, start the server and external authentication will be enabled for all user accounts allowing external authentication.

   If the standalone Advanced Server 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 5.7.1.

4. Establish host mapping between Advanced Server domain user accounts and the corresponding OpenVMS user accounts, if necessary. For more information, refer to the *HP Advanced Server for OpenVMS 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 5.7.1, 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 *HP Advanced Server for OpenVMS Server Administrator's Guide*.
7. If establishing external authentication for users in trusted domains, add the name of the trusted domain(s) to the OpenVMS Registry value HOSTMAPDOMAINS. For more information, refer to the *HP Advanced Server for OpenVMS 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 *COM, Registry, and Events for OpenVMS Developer's Guide* (included in the OpenVMS Documentation CD-ROM).

5.7.1 Setting Up External Authentication in OpenVMS Clusters

If external authentication is being used in an OpenVMS Cluster, make sure the OpenVMS Registry is started somewhere in the cluster. In addition, HP 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 tagged 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, HP recommends that you make sure all systems in the cluster that are not running the Advanced Server 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 cluster member is a VAX node, copy the following external authentication files from any system disk where the complete Advanced Server for OpenVMS 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 cluster member is an OpenVMS Alpha node, Version 7.3-2 or later, run the POLYCENTER Software Installation utility on the system, using the PRODUCT INSTALL ADVANCEDSERVER command, as explained in Section 2.1.2, Installing the Server. Select the External Authentication Images only option to install the External Authentication images without the Advanced Server.

If the Alpha system is Version 7.1, then copy the following external authentication files from any system disk where the complete Advanced Server for OpenVMS 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. Define the following logical names 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,...]
```

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 the 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 *HP Advanced Server for OpenVMS Server Administrator's Guide*.

5.7.2 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.

5.7.3 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 *HP Advanced Server for OpenVMS Server Administrator's Guide*.

5.7.4 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*.

5.7.5 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*.

5.8 Converting Encoded File Names from ODS-2 to ODS-5

Existing Advanced Server shares may be converted from ODS-2 to ODS-5 to take advantage of the OpenVMS support of extended file specifications. The Advanced Server for OpenVMS software provides a conversion utility for converting ODS-2 encoded file names on ODS-5 devices that have been converted from ODS-2. The conversion utility removes escape-encoded characters in file names, changing the file names to ISO Latin-1 characters. For example, if a file name is created on an ODS-2 disk containing the character-encoding sequence _ _E4, to represent the lowercase a-umlaut (ä), the conversion utility removes the encoding and replaces it with the ä character.

You can convert ODS-2 file names to ODS-5 file names after:

- The Advanced Server for OpenVMS has been installed and configured.
- The disk device containing escape-encoded file names has been converted from ODS-2 to ODS-5. Refer to the *OpenVMS Guide to Extended File Specifications* for information about converting disk devices to ODS-5.

Note

If you plan to configure a language other than the default (English (USA)), and your disk device includes ODS-2 file names (names including escape-encoded characters in the format _ _*XX*), you must convert all the file names before configuring the new language.

5.8.1 Using the File Name Conversion Utility

The file name conversion utility that converts file names from the encoding used on ODS-2 file systems to ISO Latin-1 file names is:

```
SYS$SYSTEM:PWRK$CNVTOHFS.EXE
```

When the Advanced Server commands have been defined, you can use the PWCONVERT system management command to invoke the file name conversion utility. For information about defining Advanced Server system management commands, see Section 5.6, Special Advanced Server Management Commands. For example, to define the PWCONVERT command, enter the following DCL command:

```
$ PWCONVERT :== $SYS$SYSTEM:PWRK$CNVTOHFS.EXE
```

The format of the PWCONVERT command is:

```
$ PWCONVERT /qualifiers file-spec
```

Where:

- Qualifiers are optional. They are described in Table 5–2, PWCONVERT Qualifiers. The default setting is used if you omit the qualifier.
- The *file-spec* argument is required, and may include the device name, directory name, and file name.
  - If you specify only a disk device, the conversion utility scans the entire device for file names that are encoded, and converts them if necessary.
  - If you specify a disk device and a directory, all the files in the specified directory are scanned and converted if necessary. You may include wildcard characters in directory names and file names.
  - If you specify a disk device, directory, and a single file name, only that file is converted.
  - If you enter the PWCONVERT command with no file specification, it prompts you for a file specification. For example:

    ```
    $ PWCONVERT
    FILENAME:
    ```

    In response to this prompt, you must supply a device name, and optionally a directory and file name to convert. You may include qualifiers.

Table 5–2 PWCONVERT Qualifiers

Qualifier	Description	Default
/CODE_PAGE=*n*	The code page used to translate encoded characters, where *n* is the code page. For more information about code pages, refer to the *OpenVMS User's Manual*.	None
/DISABLE=*keyword*	Disables the function of the conversion utility specified by the keyword. The keywords are: • ACE, which specifies that the conversion utility will not check for "PATHWORKS" ACEs on the files. • STRUCTURE_LEVEL, which specifies that the conversion utility will not check the file system type (ODS-2 or ODS-5).	/NODISABLE
/LOG=*log-file-specification*	Creates a log file containing the file names converted. You can specify the location and name of the log file using this qualifier.	/NOLOG. Information is displayed and no log file is created.
/VERBOSE	Displays all the file names scanned during the conversion operation.	/NOVERBOSE
/NOLIST	Suppresses the display of all the file names that are converted. Only error messages are displayed.	/LIST

5.8.2 Example of Converting an Encoded File Name

In this example, the file named A FILE.TXT has been created by a Windows 95 client on DISKA, and has been encoded as A_ _20FILE.TXT. The device DISKA has been converted from ODS-2 to ODS-5. As viewed from OpenVMS, the file appears as follows:

```
$ DIRECTORY DISKA:[FILES]
Directory DISKA:[FILES]
   .
   .
   .
A__20FILE.TXT
$
```

Use the PWCONVERT command to convert this file name, as follows:

```
$ PWCONVERT/VERBOSE DISKA:[FILES]A__20FILE.TXT

Scanning file - DISKA:[FILES]A__20FILE.TXT;1
Renamed A__20FILE.TXT to A FILE.TXT

Convert Utility Complete

$
```

5.8.3 Example of Converting All Encoded File Names

To convert all the encoded file names on a disk device and directory, enter the PWCONVERT command, specifying the disk device and directory without a file name. For example, to convert all the encoded file names stored on device DISK$USER1, enter the following:

```
$ PWCONVERT
FILENAME: DISK$USER1:

Renamed A__20FILE.TXT to A FILE.TXT
   .
   .
   .
Convert Utility Complete
```

5.9 Installing Optional Server Administration Tools

The Advanced Server provides optional client-based server administration tools that allow you to manage the server from Windows NT, Windows 2000, or Windows XP clients. These tools are available in the PWUTIL share.

If you had chosen not to install Windows client utilities during Advanced Server configuration, then PWUTIL share would not have been created. If needed, the Windows client utilities and PWUTIL share may be installed at any time by executing the command procedure:

```
$ @SYS$UPDATE:PWRK$PWUTIL.COM
```

Please refer to note under Section 3.3.3, Do You Want this Server to Share the Client-Based License Software? for more information.

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 the Advanced Server for OpenVMS software.

This chapter consists of the following sections:

- Section 6.1, Enabling Wide Area Network Support
- Section 6.2, Using the LMHOSTS File in a Wide Area Network
- 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 Network Support

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

- LMHOSTS file
- Windows Internet Name Service (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 network support 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 *HP Advanced Server for OpenVMS Server Administrator's Guide*.

6.2 Using the LMHOSTS File in a Wide Area Network

The Advanced Server for OpenVMS 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 *HP Advanced Server for OpenVMS 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 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 5.6, Special Advanced Server Management Commands.

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 trusting domain. This allows a user with an account in one 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
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 Advanced Server is running. To close the log file, you must stop the 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 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 *HP Advanced Server for OpenVMS Server Administrator's Guide*.

6.3.1 Setting up WINS 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 on enabling cluster load balancing in WANs, refer to the *HP Advanced Server for OpenVMS 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 *HP Advanced Server for OpenVMS Server Administrator's Guide*.

7

Removing Advanced Server for OpenVMS Software

This chapter describes how to remove Advanced Server for OpenVMS software from your system.

If you have to reinstall the Advanced Server for OpenVMS software, you might first need to remove the Advanced Server for OpenVMS software.

For example, if the Installation Verification Procedure indicated that the software installation procedure failed, you must reinstall the software. But first you might need to remove the Advanced Server software.

- If the system has enough free disk space, you can install the server again without removing the Advanced Server.
- If the system does not have enough disk space, you must remove the Advanced Server before reinstalling it.

For more information about disk space requirements, see Section 1.8.9, Step 9: Check Disk Space Requirements.

This chapter consists of the following sections:

- Section 7.1, Advanced Server Deinstallation
- Section 7.2, Removing Advanced Server Configuration Parameters
- Section 7.3, Removing Advanced Server for OpenVMS Software
- Section 7.4, Sample Advanced Server Removal Procedure

7.1 Advanced Server Deinstallation

You remove the Advanced Server using the PRODUCT REMOVE command. The removal procedure performs the following operations:

- Shuts down the server automatically.
- Prompts you to enter information necessary to complete the removal procedure.
- Attempts to start the OpenVMS Registry Server if registry services are not available.
- Removes all Advanced Server for OpenVMS 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. If you respond YES, it deletes the data files as well as all known Advanced Server keys and values in the OpenVMS Registry. If you respond NO, it creates a file that contains a list of all Advanced Server parameters that were in the OpenVMS Registry before removing the server software.
- Removes the Advanced Server user accounts if you delete the data files.
- Prompts you whether you want to remove clean up tools that are provided with the Advanced Server. These tools include PWRK$FIXACE and PWRK$DELETEACE. For more information about these tools, refer to the *HP Advanced Server for OpenVMS Server Administrator's Guide*.
- Prompts you whether you want to save the NETBIOS image SYS$COMMON:[SYSEXE]NETBIOS.EXE (if it was installed) so that you can restore it if necessary. For example, you might discover later that it is needed by another product. (Older versions of the Advanced Server for OpenVMS and PATHWORKS for OpenVMS require the NETBIOS image.) Depending on your response to this prompt, the procedure saves or deletes several other related files. The saved files are stored in SYS$COMMON:[SYSUPD.PWRK$SAFETY].
- Removes the NETBIOS$ACCESS OpenVMS identifier, unless you choose to save the NETBIOS image.
- Removes Advanced Server DECnet objects, unless you choose to save the NETBIOS image.
- Deassigns all Advanced Server logical names.
- Removes any old Advanced Server files from SYS$SPECIFIC, such as patches, that might have been copied there.

7.2 Removing Advanced Server Configuration Parameters

When you remove the Advanced Server data files, the removal procedure will remove the server configuration parameters that are stored as values, and their keys, from the OpenVMS Registry.

To complete this operation, the removal procedure:

- Requires that registry services be available on the system. The Registry Server must be running on the system or in the cluster, and the registry database must be available on the system. If registry services are not available, the removal procedure will attempt to start the Registry Server. Registry services must be enabled on the system to run the Registry Server. For more information about ensuring that registry services are available, refer to the *OpenVMS System Manager's Manual* or the *COM, Registry, and Events for OpenVMS Developer's Guide* (included in the OpenVMS Documentation CD-ROM).
- Invokes the PWRK$REGUTL parameter management utility (described in the *HP Advanced Server for OpenVMS Server Administrator's Guide*).

7.3 Removing Advanced Server for OpenVMS Software

To start the removal procedure and remove Advanced Server for OpenVMS 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 removal command procedure, as follows:

```
$ PRODUCT REMOVE ADVANCEDSERVER
```

Table 7–1, PRODUCT REMOVE Prompts, tells you how to respond to the prompts that the removal procedure displays.

Table 7–1 PRODUCT REMOVE Prompts

At this prompt . . .	If you want the removal procedure to . . .	Enter . . .
Do you want to continue? [YES]	Continue	Return
	Exit	NO
Information about the use of the Advanced Server may have accumulated in data files. Delete those files? [NO]:	Save the Advanced Server on-disk structure, including the security accounts database (SAM), the share database, and the server configuration parameters in the OpenVMS Registry (see Section 7.3.1, Server Configuration Parameters in the OpenVMS Registry)	Return
	Remove the Advanced Server on-disk structure, including the security accounts database (SAM), the share database, and the server configuration parameters	YES
Save clean up tools? [YES]	Save the PWRK$FIXACE and PWRK$DELETEACE tools	Return
	Delete these tools	NO
Save a copy of NETBIOS.EXE? [YES]	Save the NETBIOS image and related files so you can restore it later, if necessary.	Return
	Delete the NETBIOS image and related files	NO

7.3.1 Server Configuration Parameters in the OpenVMS Registry

When you are prompted whether to delete the Advanced Server data files:

- If you respond YES, in addition to deleting the data files (the Advanced Server directory structure and associated files created during installation), the procedure deletes all known Advanced Server keys and values from the OpenVMS Registry.
- If you respond NO, the procedure creates the following file:
  PWRK$LANMAN:SYS$REGISTRY.LIS
  This file contains a list of all Advanced Server parameters that were in the OpenVMS Registry before removing the Advanced Server. Once the Advanced Server product is removed, PWRK$REGUTL is no longer available for managing Registry parameters. To remove the Advanced Server parameters left in the OpenVMS Registry, use the OpenVMS Registry Control Program (REG$CP.EXE). See the

PWRK$LANMAN:SYS$REGISTRY.LIS file to determine which keys and values are to be removed.

7.4 Sample Advanced Server Removal Procedure

This is a sample of the removal procedure for Advanced Server software.

```
The following product has been selected:
    CPQ AXPVMS ADVANCEDSERVER V7.3B         Layered Product

Do you want to continue? [YES] YES Return

The following product will be removed from destination:
    CPQ AXPVMS ADVANCEDSERVER V7.3B         DISK$ALPHAV82:[VMS$COMMON.]

Portion done: 0%...10%...20%

Information about the use of the Advanced Server may have
accumulated in data files.
Delete those files? [NO] YES Return

Some portions of Advanced Server may be useful even after
Advanced Server is removed.
Save clean up tools? [YES] NO Return

If PCSI provided the image SYS$COMMON:[SYSEXE]NETBIOS.EXE
and does not know of another product also using that image,
then PCSI will remove that image.  It is possible another
program uses that image but PCSI does not know about it.
This procedure can save the image so you can restore it
in case it is needed. Several related files are also saved.
Save a copy of NETBIOS.EXE? [YES] Return

The OpenVMS Registry server is already started on this node.

Removing Advanced Server registry parameter and keys
Removing PWRK$DEFAULT and PWRK$GUEST OpenVMS accounts...

Saving Advanced Server for OpenVMS NETBIOS component...
Deleting Advanced Server data files...
Deassigning Advanced Server for OpenVMS logical names...

...30%...40%...50%...60%...70%...80%...90%...100%

The following product has been removed:
    CPQ AXPVMS ADVANCEDSERVER V7.3B         Layered Product
```

A

Installation and Upgrade Checklist

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

Table A–1 Installation and Upgrade Checklist

☐ 1. Prepare for the installation by completing all preinstallation tasks on the checklist in Section 1.8, 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. Check that OpenVMS registry services are available on the Advanced Server system.

f. Read the release notes.

g. Make sure that the system parameters GBLPAGES, GBLSECTIONS, PROCSECTCNT, and SCSNODE are 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 HP OpenVMS server images and files on the system.

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

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

- The complete Advanced Server
- The standalone License Server (if you chose not to install the Advanced Server)
- The standalone external authentication software (if you chose not to install the Advanced Server)
- Both the standalone License Server and external authentication software (if you chose not to install the Advanced Server)

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

(continued on next page)

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

☐	4.	Run the Installation Verification Procedure (if you did not do so when you installed the Advanced Server).
☐	5.	Start the server (if you did not do so when you configured the Advanced Server).
☐	6.	Install Windows NT server administration tools (optional).

B

Sample Advanced Server Installation and Configuration

This appendix shows sample installation and configuration procedures for the Advanced Server when it is being installed for the first time on the system.

B.1 Sample Advanced Server Installation Procedure

The following example shows a sample installation dialog for the Advanced Server. The installation dialog differs slightly according to circumstances.

```
$ PRODUCT INSTALL ADVANCEDSERVER/SOURCE=DKA100:[000000]

The following product has been selected:
    CPQ AXPVMS ADVANCEDSERVER V7.3B         Layered Product


Configuration phase starting ...

You will be asked to choose options, if any, for each selected product and for
any products that may be installed to satisfy software dependency requirements.

CPQ AXPVMS ADVANCEDSERVER V7.3B: Advanced Server for OpenVMS

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    Advanced Server is sold by Hewlett-Packard Development Company

    Advanced Server requires PAK PWLMXXXCA07.03 for each client.

    This installation procedure requires that all the following
    conditions are satisfied:
        1.  This procedure is running on an Alpha processor.
        2.  The system is running OpenVMS 7.3-2 or later.
        3.  All required privileges are currently enabled.
        4.  No PATHWORKS or Advanced Server images are running
            on this node or anywhere in the cluster.
        5.  No files from a PATHWORKS (NetWare) kit are present
            on this system disk.
        6.  No files from any Pathworks or Advanced Server kit
            are in SYS$SPECIFIC on this system disk.
```

```
        This procedure checks if the conditions are satisfied.
        If they are satisfied, the procedure continues. If not,
        the procedure stops.

Do you want to continue? [YES] Return

        Select one of the numbered options:
        1  Install the complete Advanced Server         [default]
        2  Install only the License Server
        3  Install only the external authentication images
        4  Install both the License Server and the
           external authentication images
Option: [1] Return
A PCFS driver from a previous kit is currently loaded in memory on
this node.
A PCI driver from a previous kit is currently loaded in memory on
this node.
You must reboot this node before starting the product on this node.
Select an option:
    1. Delay reboot as long as possible on all nodes. [default]
    2. Prevent PWRK$CONFIG configuration on any node using this system
       disk until after reboot.
    3. Prevent PWRK$CONFIG configuration on all nodes until after reboot.
    4. Prevent startup on any node using this system disk until
       after reboot.
    5. Prevent startup on all nodes until after reboot.
Option: [1] Return
   User Accounts and User Identification Codes (UICs)
   ------------------------------------------------
    The Advanced Server V7.3B for OpenVMS installation 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 a PCFS$ACCOUNT already exists, the default is
      the UIC group number associated with PCFS$ACCOUNT.
    o If a PWRK$DEFAULT or PWRK$GUEST account already exists,
      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
Group: [360] Return
Creating OpenVMS accounts for PWRK$DEFAULT and PWRK$GUEST

* This product does not have any configuration options.

Execution phase starting ...
```

```
The following product will be installed to destination:
 CPQ AXPVMS ADVANCEDSERVER V7.3B      DISK$ALPHAV82:[VMS$COMMON.]

Portion done: 0%...10%...20%...30%...40%...70%...90%

To automatically start Advanced Server V7.3B 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 after the lines that start all the network
transports, such as TCP/IP.

To automatically stop Advanced Server V7.3B for OpenVMS at system shutdown,
you should add the following line to the SYS$MANAGER:SYSHUTDWN.COM file.

$ @SYS$STARTUP:PWRK$SHUTDOWN

Note: Add this line before the lines that stop any of the network transports,
such as TCP/IP.

Before starting Advanced Server V7.3B for OpenVMS on this node,
be sure to configure the product (@SYS$UPDATE:PWRK$CONFIG) on each node in the
cluster where the product will run....100%

The following product has been installed:
CPQ AXPVMS ADVANCEDSERVER V7.3B      Layered Product

%PCSI-I-IVPEXECUTE, executing test procedure for CPQ AXPVMS ADVANCEDSERVER
V7.3B ...

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Starting Installation Verification Procedure
for Advanced Server V7.3B for OpenVMS

%PWRK-I-NORMAL, IVP completed successfully
%PCSI-I-IVPSUCCESS, test procedure completed successfully
```

B.2 Sample Advanced Server Configuration Procedure

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

```
$ @SYS$UPDATE:PWRK$CONFIG
Advanced Server V7.3B for OpenVMS Configuration Procedure

    The Advanced Server 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 150000 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, HP recommends that you specify a disk
other than the system disk.

Enter disk device name where the Advanced Server data files
will be stored [SYS$SYSDEVICE:]: return

Creating Advanced Server directory tree on SYS$SYSDEVICE:...
Checking to see if OpenVMS Registry Services are available...
The OpenVMS Registry server is already started on this node.
Populating OpenVMS Registry with required Advanced Server & NT
parameters. Please wait. This may take one to two minutes...
Required OpenVMS Registry file keys and values have been created.
Creating Advanced Server directory tree...

Processing optional client files...

Do you want to install Windows client utilities, such as
User Manager for Domains and Server Manager, which can be
used to manage Advanced Server from a Windows client [N]? return

If necessary, the Windows client utilities and PWUTIL share may be
installed at any time by executing the command procedure:

$ @SYS$UPDATE:PWRK$PWUTIL.COM

The Advanced Server includes a copy of the Windows client
software necessary to implement client-based licensing.
If you have or plan to implement server-based licensing only,
this software is not required on the Windows clients.

Do you want this server to share the client-based license software  [N]? return

If necessary, the client-based license software can be shared
from this server at any time by executing the command procedure:
$ @SYS$UPDATE:PWRK$PWLIC.COM

Do you have PATHWORKS client license components installed on any client in
your network. If not, do you wish to disable client-based license checks
(enter ? for more information)? [Y] return

Creating the 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.

GRUNT is currently configured to
   + support 50 PC clients
   + use the following transport(s): TCP/IP
```

```
If you want this server to be the primary domain controller, you should
configure it to use all the transports used by the backup domain
controllers and member servers in the domain.

If you want this server to be a backup domain controller or member server,
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]: return

******** Advanced Server Configuration for node GRUNT ********
* Options  Help                                               *
*                                                             *
* *Server's Client Capacity********************************* *
* *                                                         * *
* * ( ) Maximize Client Capacity Using AUTOGEN/Reboot      * *
* * ( ) Maximize Client Capacity Without AUTOGEN or Reboot * *
* * (*) User Supplied Client Capacity                      * *
* *                                                         * *
* *  Client Capacity: 50                                    * *
* ********************************************************* *
*                                                             *
*   Percent of Physical Memory Used: 80                       *
*   Data Cache Size (Kbytes): 8192                            *
*                                                             *
*   Maximum Concurrent Signons: 10                            *
*   OpenVMS Process Priority: 9                               *
*                                                             *
*  **********  ********  ***************  *****************  *
*  * Verify *  * Quit *  * Advanced... *  * Transports... *  *
*  **********  ********  ***************  *****************  *
*                                                             *
* Test for supportable configuration ************************

The OpenVMS Registry server is already started on this node.

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:           GRUNT
 7a. Advanced Server OpenVMS cluster alias:   GRUNT-ALIAS
 8.  Server announce comment:                 Advanced Server V7.3B for OpenVMS
 9.  Advanced Server language:                English (USA)
 10. Enable NT style printing:                NO

Enter item number, or RETURN to use these values [DONE]: 5 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]: GRUNTDOM

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:                  GRUNTDOM
 6.  Advanced Server role:                    PRIMARY
 7.  Advanced Server computer name:           GRUNT
 7a. Advanced Server OpenVMS cluster alias:  GRUNT-ALIAS
 8.  Server announce comment:                 Advanced Server V7.3B for OpenVMS
 9.  Advanced Server language:                English (USA)
 10. Enable NT style printing:                NO

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

Saving parameters to the OpenVMS Registry...
Creating SAM datafiles...
Creating sharefile PWRK$LMROOT:[LANMAN.DATAFILES]SHAREDB ...
New sharefile has been created.
ADMIN$ added
IPC$ 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:
 Re-enter to verify password:

 Changing password for Administrator account...

 Setting character set information in databases as needed ...

 Setting share database character set information ...
 Setting ACL database character set information ...
 Checking system resources...

 The current system configuration for GRUNT will support 50 PC clients.
 The Advanced Server is configured to use DECnet, NetBEUI, TCP/IP.

 To automatically start the Advanced Server V7.3B 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 TCP/IP).

Do you want to start the Advanced Server V7.3B on node GRUNT now [YES]: return
The file server will use DECnet, NetBEUI, TCP/IP.
Advanced Server mail notification will use DECnet.
Process NETBIOS created with identification 00000248
Process PWRK$NBDAEMON created with identification 0000024A
Process PWRK$KNBDAEMON created with identification 0000024C
Process PWRK$LICENSE_R created with identification 0000024E
Checking to see if the OpenVMS Registry Services are available...
The Advanced Server is configured to support 20 PC clients.
Process PWRK$MASTER created with identification 00000251
The master process will now start all other Advanced
Server processes.
$
```

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 Procedure

The following example shows a sample installation dialog for the standalone License Server.

```
$ PRODUCT INSTALL ADVANCEDSERVER RETURN

The following product has been selected:
    CPQ AXPVMS ADVANCEDSERVER V7.3B         Layered Product

Do you want to continue? [YES] RETURN

Configuration phase starting ...

You will be asked to choose options, if any, for each selected product and for
any products that may be installed to satisfy software dependency requirements.

CPQ AXPVMS ADVANCEDSERVER V7.3B: Advanced Server for OpenVMS

© Copyright 2006 Hewlett-Packard Development Company, L.P.

  Advanced Server is sold by Hewlett-Packard Development Company

  Advanced Server requires PAK PWLMXXXCA07.03 for each client.
 This installation procedure requires that all the following
 conditions are satisfied:
 1.  This procedure is running on an Alpha processor.
 2.  The system is running OpenVMS 7.3-2 or later.
 3.  All required privileges are currently enabled.
 4.  No PATHWORKS or Advanced Server images are running
     on this node or anywhere in the cluster.
 5.  No files from a PATHWORKS (NetWare) kit are present
     on this system disk.
 6.  No files from any PATHWORKS or Advanced Server kit
     are in SYS$SPECIFIC on this system disk.
```

C.1 Sample Standalone License Server Installation Procedure

```
 This procedure checks if the conditions are satisfied.
 If they are satisfied, the procedure continues.
 If not, the procedure stops.

Do you want to continue? [YES] RETURN
 Select one of the numbered options:
 1.  Install the complete Advanced Server         [default]
 2.  Install only the License Server
 3.  Install only the external authentication images
 4.  Install both the License Server and the
  external authentication images
Option: [1] 2 RETURN
This node does not have to be rebooted before starting this product.

Select an option:
1. Delay reboot as long as possible on all nodes. [default]
2. Prevent PWRK$CONFIG configuration on any node using this system
   disk until after reboot.
3. Prevent PWRK$CONFIG configuration on all nodes until after reboot.
4. Prevent startup on any node using this system disk until
   after reboot.
5. Prevent startup on all nodes until after reboot.

Option: [1] 1 RETURN

* This product does not have any configuration options.

Execution phase starting ...

The following product will be installed to destination:
    CPQ AXPVMS ADVANCEDSERVER V7.3B        DISK$ALPHAV82:[VMS$COMMON.]

 Portion done: 0%...10%...20%...30%...40%...50%...60%...70%...80%...90%
...100%

The following product has been installed:
CPQ AXPVMS ADVANCEDSERVER V7.3B         Layered Product

%PCSI-I-IVPEXECUTE, executing test procedure for CPQ AXPVMS
 ADVANCEDSERVER V7.3B ...

© Copyright 2006 Hewlett-Packard Development Company, L.P.

        Starting Installation Verification Procedure
 for Advanced Server V7.3B for OpenVMS

%PWRK-I-NORMAL, IVP completed successfully
%PCSI-I-IVPSUCCESS, test procedure completed successfully
```

C.2 Sample Configuration Dialog for Standalone License Server

The following example shows a sample configuration dialog for the standalone License Server.

```
$ @SYS$UPDATE:PWRK$CONFIG
Advanced Server V7.3B for OpenVMS Configuration Procedure

  The Advanced Server 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,
  HP 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 the Advanced Server:

  o Use the same disk device to store and access Advanced Server
    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 the Advanced Server data files will be
stored [SYS$SYSDEVICE:]: RETURN
Creating Advanced Server directory tree on SYS$SYSDEVICE:...
%CREATE-I-EXISTS, PWRK$COMMONROOT:[000000] already exists

  The License Server can serve client-based licenses for
  Advanced Server clients over DECnet, NetBEUI, and TCP/IP.
  The Advanced Server need not be running for the License
  Server to operate.

Do you want to serve client-based licenses over DECnet [YES]: Return
Do you want to serve client-based licenses over NetBEUI [NO]: Y Return
Do you want to serve client-based licenses over TCP/IP [NO]: Y Return
```

C.2 Sample Configuration Dialog for Standalone License Server

```
Do you want to start the Advanced Server License Server now [YES]: Return

The License Server will use DECnet, NetBEUI, TCP/IP.

Process NETBIOS created with identification 2960012B

Process PWRK$NBDAEMON created with identification 2960012D

Process PWRK$KNBDAEMON created with identification 2960012F

Process PWRK$LICENSE_S created with identification 29600131

 To automatically start the License Server at system startup, you
 should add the following line to the
 SYS$MANAGER:SYSTARTUP_VMS.COM file:

      $ @SYS$STARTUP:PWRK$LICENSE_STARTUP

  Note: Add this line below the lines that start all network
  transports (such as TCP/IP).

$
```

D

Sample External Authentication Software Installation

The following example shows a sample installation dialog when you select to install the External Authentication software only. Note that you cannot use the configuration procedure PWRK$CONFIG after this installation. Attempts to do so result in the message shown.

```
$ PRODUCT INSTALL ADVANCED SERVER Return

The following product has been selected:
 CPQ AXPVMS ADVANCEDSERVER V7.3B         Layered Product [Installed]

Do you want to continue? [YES] Return

Configuration phase starting ...

You will be asked to choose options, if any, for each selected product and for
any products that may be installed to satisfy software dependency requirements.

CPQ AXPVMS ADVANCEDSERVER V7.3B: Advanced Server for OpenVMS

    © Copyright 2006 Hewlett-Packard Development Company, L.P.

    Advanced Server is sold by Hewlett-Packard Development Company

    Advanced Server requires PAK PWLMXXXCA07.03 for each client.
 This installation procedure requires that all the following
 conditions are satisfied:
 1.  This procedure is running on an Alpha processor.
 2.  The system is running OpenVMS 7.3-2 or later.
 3.  All required privileges are currently enabled.
 4.  No PATHWORKS or Advanced Server images are running
     on this node or anywhere in the cluster.
 5.  No files from a PATHWORKS (NetWare) kit are present
     on this system disk.
 6.  No files from any PATHWORKS or Advanced Server kit
     are in SYS$SPECIFIC on this system disk.

 This procedure checks if the conditions are satisfied.
 If they are satisfied, the procedure continues.
 If not, the procedure stops.
```

Sample External Authentication Software Installation

```
Do you want to continue? [YES]  Return
 Select one of the numbered options:
 1.  Install the complete Advanced Server         [default]
 2.  Install only the License Server
 3.  Install only the external authentication images
 4.  Install both the License Server and the
     external authentication images
Option: [1] 3  Return
A PWRK$STREAMSOS_V*.EXE execlet from a previous kit is currently
loaded in memory on this node.
You must reboot this node before starting the product on this node.

Select an option:
1. Delay reboot as long as possible on all nodes. [default]
2. Prevent PWRK$CONFIG configuration on any node using this system
   disk until after reboot.
3. Prevent PWRK$CONFIG configuration on all nodes until after reboot.
4. Prevent startup on any node using this system disk until
   after reboot.
5. Prevent startup on all nodes until after reboot.

Option: [1] 1  Return

* This product does not have any configuration options.

Execution phase starting ...

The following product will be installed to destination:
    CPQ AXPVMS ADVANCEDSERVER V7.3B       DISK$ALPHAV82:[VMS$COMMON.]

Portion done: 0%...10%...20%...30%...40%...50%...60%...70%...80%...90%
...100%

The following product has been installed:
    CPQ AXPVMS ADVANCEDSERVER V7.3B         Layered Product

%PCSI-I-IVPEXECUTE, executing test procedure for CPQ AXPVMS
 ADVANCEDSERVER V7.3B ...

© Copyright 2006 Hewlett-Packard Development Company, L.P.

        Starting Installation Verification Procedure
 for Advanced Server V7.3B for OpenVMS

%PWRK-I-NORMAL, IVP completed successfully
%PCSI-I-IVPSUCCESS, test procedure completed successfully

$
$ @SYS$UPDATE:PWRK$CONFIG  Return
%DCL-E-OPENIN, error opening SYS$SYSROOT:[SYSUPD]PWRK$CONFIG.COM; as
  input
  -RMS-E-FNF, file not found
```

E

Advanced Server Files and On-Disk Structure

This appendix includes the following sections:

- Section E.1, Advanced Server Files
- Section E.2, Advanced Server On-Disk Structure

E.1 Advanced Server Files

Table E–1 describes the files created during the installation of the Advanced Server.

Table E–1 Files Installed for the Advanced Server

File	Description
DCPS$EXAMPLES:	
PWRK$BORDER.LUP[5]	DECprint Supervisor printer layup for borders
PWRK$NOBORDER.LUP[5]	DECprint Supervisor printer layup for no borders
PWRK$REV_LANDSCAPE_BORDER.LUP[5]	DECprint Supervisor printer layup for borders with Windows
PWRK$REV_LANDSCAPE_NOBORDER.LUP[5]	DECprint Supervisor printer layup for no borders with Windows

[5]This file is installed with the standalone License Server software installations as well as with full server installations.

(continued on next page)

Table E–1 (Cont.) Files Installed for the Advanced Server

File	Description
SYS$HELP:	
ASOVMS073B.RELEASE_NOTES	Release notes for Advanced Server V7.3B for OpenVMS
AS$HLP.HLB[1],[5]	Help file for Advanced Server System Dump Analyzer (SDA) (associated with AS$SDA.EXE and invoked within SDA with the AS HELP command)
CS$HLP.HLB[1],[5]	Help file for common services System Dump Analyzer (SDA) (associated with CS$SDA.EXE and invoked within SDA with the CS HELP command)
PCDISKHLP.HLB[5]	DOS File Maintenance utility help library
PWRK$ADMIN_CFG.HLB	Configuration Manager help library
PWRK$ADMIN_LIC.HLB[5]	License Manager help library
PWRK$MANAGER.HLB	ADMINISTER commands help library
PWRK$PWMONITOR.HLB[1], [5]	Help file for PWRK$PWMON, the host-based monitor utility (invoked within PWRK$PWMON with the PWMON HELP command)
PWRK$SHOWINI.HLB[1]	Help file for PWRK$SHOWINI.EXE
STREAMS$HLP.HLB[1],[5]	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:	

[1]This file is (or is associated with) an unsupported utility or command procedure.

[5]This file is installed with the standalone License Server software installations as well as with full server installations.

(continued on next page)

Table E–1 (Cont.) Files Installed for the Advanced Server

File	Description
SYS$LIBRARY:	
AS$SDA.EXE[1,5]	System Dump Analyzer (SDA) extension for analyzing Advanced Server system and dumps
CS$SDA.EXE[1,5]	System Dump Analyzer (SDA) extension for analyzing common services dumps
NETBIOSSHR.EXE[5]	NetBIOS for DECnet shareable image
PCDISKSHR.EXE[5]	DOS File Maintenance utility shareable image
PCSA_MAILSHR.EXE[5]	Mail notification shareable image
PWRK$ACME_MODULE_ALPHA.EXE[4]	External authentication Alpha image
PWRK$ACME_MODULE_VAX.EXE[4]	External authentication VAX image
PWRK$CMTLIBSHR.EXE[1,3,5]	Configurator, Monitor, and Tuner shareable library (note that monitoring data is now gathered and displayed by PWRK$PWMON)
PWRK$CMT_LM.EXE[1,3]	Advanced Server interface to the Configurator, Monitor, and Tuner (note that monitoring data is now gathered and displayed by PWRK$PWMON)
PWRK$CMTSHR.EXE[1,3,5]	Configurator, Monitor, and Tuner shareable image (note that monitoring data is now gathered and displayed by PWRK$PWMON)
PWRK$CSSHR_V7.EXE	Common services shareable image
PWRK$DEVCTL_DL1100.TLB[5]	DEClaser 1100 device control library
PWRK$DEVCTL_DL2100.TLB[5]	DEClaser 2100 device control library

[1]This file is (or is associated with) an unsupported utility or command procedure.

[3]This file is an unsupported utility and is no longer compatible with the Advanced Server for OpenVMS.

[4]This file is installed with standalone external authentication software installations as well as with full server installations.

[5]This file is installed with the standalone License Server software installations as well as with full server installations.

(continued on next page)

Table E–1 (Cont.) Files Installed for the Advanced Server

File	Description
SYS$LIBRARY:	
PWRK$DEVCTL_DL2100P.TLB[5]	DEClaser 2100P device control library
PWRK$DEVCTL_DL2200.TLB[5]	DEClaser 2200 device control library
PWRK$DEVCTL_DL2200P.TLB[5]	DEClaser 2200P device control library
PWRK$DEVCTL_DL3200.TLB[5]	DEClaser 3200 device control library
PWRK$DEVCTL_FX1050.TLB[5]	FX1050 device control library
PWRK$DEVCTL_FX850.TLB[5]	FX850 device control library
PWRK$DEVCTL_GENERIC.TLB[5]	Generic device control library
PWRK$DEVCTL_HP_LASERJET.TLB[5]	HP LaserJet device control library
PWRK$DEVCTL_LA50.TLB[5]	LA50 device control library
PWRK$DEVCTL_LA51.TLB[5]	LA51 device control library
PWRK$DEVCTL_LA70.TLB[5]	LA70 device control library
PWRK$DEVCTL_LA75.TLB[5]	LA75 device control library
PWRK$DEVCTL_LA75P.TLB[5]	LA75P device control library
PWRK$DEVCTL_LA210.TLB[5]	LA210 device control library
PWRK$DEVCTL_LA324.TLB[5]	LA324 device control library
PWRK$DEVCTL_LG01.TLB[5]	LG01 device control library
PWRK$DEVCTL_LG02.TLB[5]	LG02 device control library
PWRK$DEVCTL_LG06.TLB[5]	LG06 device control library
PWRK$DEVCTL_LG31.TLB[5]	LG31 device control library
PWRK$DEVCTL_LJ250.TLB[5]	LJ250 device control library
PWRK$DEVCTL_LN03.TLB[5]	LN03 device control library
PWRK$DEVCTL_LN03P.TLB[5]	LN03 PLUS device control library
PWRK$DEVCTL_LN03R.TLB[5]	LN03R device control library
PWRK$DEVCTL_PROPRINTER.TLB[5]	Proprinter device control library
PWRK$DEVCTL_SILENTWRITER.TLB[5]	SilentWriter device control library

[5]This file is installed with the standalone License Server software installations as well as with full server installations.

(continued on next page)

Table E–1 (Cont.) Files Installed for the Advanced Server

File	Description
SYS$LIBRARY:	
PWRK$FSLIB_ODS2.EXE[5]	ODS2/ODS5 addon library
PWRK$LICENSE_LIBSHR.EXE[5]	License shareable library
PWRK$LICENSE_MGMTSHR.EXE[5]	License management shareable image
PWRK$LMAPISHR.EXE[5]	Advanced Server shareable image
PWRK$LMRPCAPISHR.EXE[5]	Advanced Server shareable image
PWRK$LMRPCSHR.EXE[5]	Advanced Server shareable image
PWRK$LMRPCXNPSHR.EXE	Advanced Server shareable image
PWRK$LMTASKSHR.EXE[5]	Advanced Server shareable image
PWRK$MGTLIBSHR.EXE[5]	Advanced Server shareable image
PWRK$MSV1_0_ACMESHR.EXE[4]	External authentication support library
PWRK$NBLIB_DECNET.EXE	Advanced Server network interface to DECnet
PWRK$NBLIB_NETBEUI.EXE	Advanced Server network interface to NetBEUI
PWRK$NBLIB_TCPIP.EXE	Advanced Server network interface to TCP/IP
PWRK$PCMSHR.EXE[5]	Cache manager shareable image
PWRK$PRINTER_INFORMATION.DAT[5]	Printer information file
PWRK$SDA.EXE[1],[5]	Extension for the System Dump Analyzer (SDA) for analyzing systems and dumps, for backward compatibility (replaced by AS$SDA.EXE, CS$SDA.EXE, and STREAMS$SDA.EXE)
PWRK$SDA_V1.EXE[1],[5]	Original extension for the System Dump Analyzer

[1]This file is (or is associated with) an unsupported utility or command procedure.

[4]This file is installed with standalone external authentication software installations as well as with full server installations.

[5]This file is installed with the standalone License Server software installations as well as with full server installations.

(continued on next page)

Table E–1 (Cont.) Files Installed for the Advanced Server

File	Description
SYS$LIBRARY:	
PWRK$STREAMSSHR_V7.EXE[5]	Streams (protocol layer) shareable image
PWRK$WHAT_TO_INSTALL.TXT	Text file used by the installation procedure to display menu of installation options
PWRK$WINLIBSHR.EXE[5]	Advanced Server character-cell user interface shareable image
PWRK$XTILIBSHR.EXE[5]	X/Open Transport Interface shareable library
PWRK$XTINETBIOSSHR.EXE[5]	X/Open Transport Interface shareable image for NetBIOS
PWRK$XTINSPNBSHR.EXE[5]	X/Open Transport Interface shareable image for DECnet
STREAMS$SDA.EXE[1,5]	System Dump Analyzer for analyzing streams (protocol layer) loadable images
SYS$LOADABLE_IMAGES:	
PCFSDRIVERDEF.STB[5]	Data structure definitions for PCFSDRIVER
PWRK$STREAMSOS_V7.EXE[5]	Streams (protocol layer) system loadable image
PWRK$STREAMSOS_V7.STB[5]	Symbol table for PWRK$STREAMSOS_V7.EXE (protocol layer)
SYS$PCFSDRIVER_V7.EXE[5]	DECnet I/O and double mapping driver
SYS$PCFSDRIVER_V7.STB[5]	Symbol table for SYS$PCFSDRIVER_V7.EXE
SYS$PCIDRIVER_V7.EXE[5]	Cluster Interconnect I/O driver

[1]This file is (or is associated with) an unsupported utility or command procedure.

[5]This file is installed with the standalone License Server software installations as well as with full server installations.

(continued on next page)

Table E–1 (Cont.) Files Installed for the Advanced Server

File	Description
SYS$LOADABLE_IMAGES:	
SYS$PCIDRIVER_V7.STB[5]	Symbol table for SYS$PCIDRIVER_V7.EXE
SYS$MANAGER:	
PWRK$DEFINE_COMMANDS.COM[1,5]	Command procedure that defines symbols for commands that run Advanced Server utilities
PWRK$SHOWSYS.COM[5]	Command procedure that shows status of file server processes
SYS$MESSAGE:	
PWRK$MSG.EXE[5]	Advanced Server for OpenVMS message file
SYS$STARTUP:	
PCSA$MAIL_STARTUP.COM[5]	PCSAMAIL command for TCP/IP clients invoking the PATHWORKS mail server
PWRK$ACME_STARTUP.COM[4]	External authentication startup file
PWRK$CHECK_PARAMS.COM[5]	Command procedure that checks system resources
PWRK$COMMON_LOGICALS.COM[5]	Command procedure that defines common logicals
PWRK$COMMON_SHUTDOWN.COM[5]	Common shutdown command procedure
PWRK$COMMON_STARTUP.COM[5]	Common startup command procedure

[1]This file is (or is associated with) an unsupported utility or command procedure.

[4]This file is installed with standalone external authentication software installations as well as with full server installations.

[5]This file is installed with the standalone License Server software installations as well as with full server installations.

(continued on next page)

Table E–1 (Cont.) Files Installed for the Advanced Server

File	Description
SYS$STARTUP:	
PWRK$GATHER_INFO.COM	Command procedure that gathers information into a save set for reporting problems
PWRK$IS_REBOOT_NEEDED.COM	Command procedure called during installation that determines whether a reboot is needed
PWRK$LICENSE_R_START.COM[5]	Startup for the License Registrar
PWRK$LICENSE_S_START.COM[5]	Startup for the License Server
PWRK$LICENSE_SHUTDOWN.COM[5]	License Server shutdown command procedure
PWRK$LICENSE_STARTUP.COM[5]	License Server startup command procedure
PWRK$LMBROWSER_START.COM	Browser startup file
PWRK$LMMCP_START.COM	Command procedure that runs the Advanced Server controller
PWRK$LMSRV_START.COM	Command procedure that runs the Advanced Server
PWRK$LOGICALS.COM[5]	Command procedure that defines logical names
PWRK$PCSA_SHUTDOWN.COM	PATHWORKS for VMS V4.*x* shutdown command procedure
PWRK$SHUTDOWN.COM[5]	Shutdown command procedure
PWRK$STARTUP.COM[5]	Startup command procedure
SYS$I18n.LOCALES.SYSTEM	
PWRK$ISO8859-1-EURO.LOCALE	Locale file for the ISO8859-1-EURO character set
PWRK$ISO8859-1.LOCALE	Locale file for the ISO8859-1 character set (the default)
PWRK$ISO8859-2.LOCALE	Locale file for the ISO8859-2 character set

[5]This file is installed with the standalone License Server software installations as well as with full server installations.

(continued on next page)

Table E–1 (Cont.) Files Installed for the Advanced Server

File	Description
SYS$I18n.LOCALES.SYSTEM	
PWRK$ISO8859-5.LOCALE	Locale file for the ISO8859-5 character set
PWRK$ISO8859-7.LOCALE	Locale file for the ISO8859-7 character set
PWRK$ISO8859-8.LOCALE	Locale file for the ISO8859-8 character set
PWRK$ISO8859-9.LOCALE	Locale file for the ISO8859-9 character set
SYS$SYSTEM:	
PWRK$FIXMEMSRV.EXE	Support image for member server role
NETBIOS.EXE[5]	NetBIOS for DECnet
PCDISK.EXE[5]	DOS File Maintenance utility
PCSA$MAIL_SERVER.EXE[5]	PATHWORKS client mail server
PCSA_CLAIM_NAME.EXE[5]	PCSA claim name utility
PCX$SERVER.COM	Command procedure that starts the PC DECwindows X server (eXcursion)
PWRK$ACLADM.EXE	Server configuration tool
PWRK$ADMIN.COM	Remote Net Admin command procedure
PWRK$ADMIN_CFG.EXE	Configuration Manager utility
PWRK$ADMIN_LIC.EXE[5]	License Manager utility
PWRK$BANNER.EXE	Utility that collects system information and inserts it at top of log files
PWRK$BLOBADM.EXE	Server configuration tool
PWRK$CHACL.EXE	Server configuration tool
PWRK$CHDOMAIN.EXE	Server configuration tool

[5]This file is installed with the standalone License Server software installations as well as with full server installations.

(continued on next page)

Table E–1 (Cont.) Files Installed for the Advanced Server

File	Description
SYS$SYSTEM:	
PWRK$CHGROUP.EXE[1]	Standalone utility that manages the Advanced Server groups database
PWRK$CHUSER.EXE[1]	Standalone utility that manages the Advanced Server user accounts database
PWRK$CNVTOHFS.EXE[5]	ODS-5 filename conversion utility
PWRK$DELETEACE.EXE[5]	File ACE removal utility
PWRK$FIXACE.EXE[5]	File ACE repair utility
PWRK$ELFREAD.EXE	Event log file reader utility
PWRK$EVTREPORT.EXE[5]	Event logger report generator
PWRK$GETROLE.EXE	Server configuration tool
PWRK$KNBDAEMON.EXE[5]	Kernel NETBIOS daemon process for TCP/IP
PWRK$LICENSE_REGISTRAR.EXE[5]	License Registrar
PWRK$LICENSE_SERVER.EXE[5]	License Server
PWRK$LMBROWSER.EXE	Advanced Server browser image
PWRK$LMECHO.EXE[1]	Debugging utility
PWRK$LMMCP.EXE	Advanced Server controller
PWRK$LMSHARE.EXE[1]	Standalone utility that manages the Advanced Server shares database
PWRK$LMSRV.EXE	Advanced Server executable
PWRK$LMSTAT.EXE[1]	Debugging utility
PWRK$LOADSTREAMS_V7.EXE[5]	Loader for streams (protocol layer) system loadable image
PWRK$LR_SHOW_USAGE.EXE[1,5]	License count units utility
PWRK$LSACL.EXE[1]	Debugging utility
PWRK$MAKEMACH.EXE	Server configuration tool
PWRK$MANAGER.EXE[5]	ADMIN utility

[1]This file is (or is associated with) an unsupported utility or command procedure.

[5]This file is installed with the standalone License Server software installations as well as with full server installations.

(continued on next page)

Table E–1 (Cont.) Files Installed for the Advanced Server

File	Description
SYS$SYSTEM:	
PWRK$MAPUNAME.EXE[1]	Debugging utility
PWRK$MASTER.EXE[1]	Master process and event logger
PWRK$MODAL.EXE[1]	Standalone utility that manages the Advanced Server modals database
PWRK$MONITOR.EXE[1,3,5]	PATHWORKS Monitor utility (not usable with the latest version of the Advanced Server for OpenVMS; replaced by PWRK$PWMON)
PWRK$NBDAEMON.EXE[5]	NetBIOS daemon process for NetBEUI
PWRK$NBSHOW.EXE[1,5]	NetBEUI show status utility
PWRK$NETEVENT.EXE[1]	Debugging utility
PWRK$PWMON.EXE[1,5]	Host-based monitor utility
PWRK$REGUTL.EXE[5]	Registry parameter management utility
PWRK$RMACL.EXE	Server configuration tool
PWRK$SAMCHECK.EXE	Server configuration tool
PWRK$SETSHO.EXE[5]	Set/Show Parameters utility
PWRK$SHOWINI.EXE[1]	Utility that displays server configuration parameters
PWRK$SHOWQUOTA.EXE[5]	Show Disk Quota utility
PWRK$SRVCONFIG.EXE[1]	Debugging utility
PWRK$START.EXE[5]	Utility that starts detached master process and other processes
PWRK$START_PRINTERS.EXE	Utility that starts printer queues and printer destinations
PWRK$STARTSVC.EXE[1]	Debugging utility
PWRK$STOP.EXE[5]	Utility that stops server processes

[1]This file is (or is associated with) an unsupported utility or command procedure.

[3]This file is an unsupported utility and is no longer compatible with the Advanced Server for OpenVMS.

[5]This file is installed with the standalone License Server software installations as well as with full server installations.

(continued on next page)

Table E–1 (Cont.) Files Installed for the Advanced Server

File	Description
SYS$SYSTEM:	
PWRK$VAPFADM.EXE	Server configuration tool
PWRK$VERIFY.EXE[5]	Utility that verifies configuration parameters
SYS$TEST:	
PWRK$PCSI_IVP.COM	Installation Verification Procedure (IVP)
PWRK$PCSI_IVP.DAT	Installation Verification Procedure data file
SYS$UPDATE:	
PWRK$COMMANDS.CLD[5]	Server command line definitions
PWRK$COMMON.SAV[2,5]	Backup saveset for the initial server directory tree
PWRK$COMMON_CONFIG.COM[5]	Common configuration command procedure
PWRK$CONFIG.COM[5]	One-time configuration command procedure
PWRK$DEFINE_FORMS.COM[2,5]	Command procedure that defines printer forms
PWRK$DEINSTAL.COM	Advanced Server removal command procedure (if server is installed by PCSI, use the PRODUCT REMOVE command to deinstall server)
PWRK$GETPARAM.COM[5]	Command procedure that gets a parameter from PWRK.INI
PWRK$INSTALL_COMMANDS.COM[5]	Command procedure that installs Advanced Server DCL commands
PWRK$LANMAN.SAV[2,5]	BACKUP saveset for the initial Advanced Server directory tree

[2]This file is deleted after you configure the server.

[5]This file is installed with the standalone License Server software installations as well as with full server installations.

(continued on next page)

Table E–1 (Cont.) Files Installed for the Advanced Server

File	Description
SYS$UPDATE:	
PWRK$LICENSE_CONFIG.COM[5]	License Server configuration command procedure
PWRK$LICENSE.SAV	PATHWORKS client licensing software BACKUP saveset
PWRK$LMCONFIG.COM	Command procedure that sets up the initial Advanced Server directory tree
PWRK$MIGRATE_INI.COM[5]	Command procedure that migrates LANMAN.INI parameters to the OpenVMS Registry
PWRK$PCSI_CHECK_SYS$SPECIFIC.COM	Command procedure that detects whether SYS$SPECIFIC has any files or images that must be removed before installation
PWRK$PCSI_CLEANUP_SYS$SPECIFIC.COM	Command procedure called by the installation and deinstallation procedures to remove old server images in SYS$SPECIFIC
PWRK$PCSI_REMOVE_MASTER.COM	Deinstallation command procedure for removing Advanced Server files and images
PWRK$PWUTIL.SAV[2]	BACKUP saveset for PATHWORKS client-based utilities
PWRK$RESTORE_NETBIOS.COM	Command procedure that stores the NETBIOS image after the server is deinstalled
PWRK$SETINI.COM[5]	Command procedure that updates server configuration parameters
PWRK$SETPARAM.COM[5]	Command procedure that sets a parameter in PWRK.INI
PWRK$VERSIONS.COM[5]	Command procedure that shows server image versions

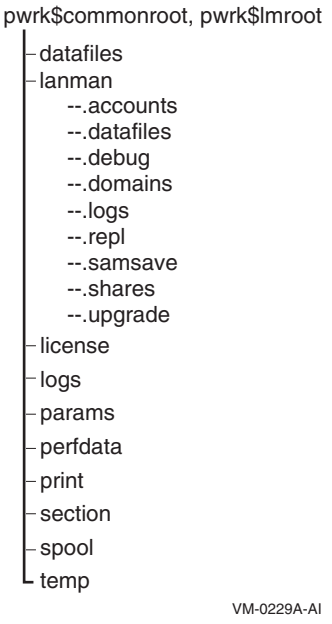
[2]This file is deleted after you configure the server.

[5]This file is installed with the standalone License Server software installations as well as with full server installations.

E.2 Advanced Server On-Disk Structure

Figure E–1 shows the Advanced Server on-disk structure. Note that only part of the substructure is shown.

Figure E–1 On-Disk Structure Diagram



F

Advanced Server Logical Names

Table F–1 describes the logical names that are created when you configure and start the Advanced Server.

Table F–1 Advanced Server Logical Names

Logical Name	Description
NETBIOS$DEVICE	Used for the DECnet device — this logical name is not defined during installation; it is used to define network adapters under certain circumstances (for more information, see Section 3.11, The Advanced Server Network Adapter)
PWRK$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 5.7.1, Setting Up External Authentication in OpenVMS Clusters)
PWRK$ACME_DEFAULT_DOMAIN	Defines the default domain for users using external authentication; this logical name is not defined during installation (for more information, refer to the *HP Advanced Server for OpenVMS Server Administrator's Guide*)
PWRK$ADDON_LIBRARY	Location of file system shareable images
PWRK$COMMON	Top-level directory for Advanced Server
PWRK$COMMONROOT[1]	Root of the Advanced Server common directory tree
PWRK$DATAFILES	Character code page translation mapping data

[1]This logical name requires that you specify the directory with it.

(continued on next page)

Table F–1 (Cont.) Advanced Server Logical Names

Logical Name	Description
PWRK$KNBDAEMON_DEVICE	Used for the TCP/IP device, this logical name is not defined during installation; it is used to define network adapters under certain circumstances (for more information, see Section 3.11, The Advanced Server Network Adapter)
PWRK$LANMAN	Advanced Server area
PWRK$LANMAN_STARTED	Indicates whether the PATHWORKS Advanced Server has been started.
PWRK$LICENSE	License area
PWRK$LMDATAFILES	Advanced Server data files area
PWRK$LMDEBUG	Area where trace files are written
PWRK$LMDOMAINS	Advanced Server domain database area
PWRK$LMLOGS	Advanced Server log file area
PWRK$LMROOT[1]	Root of the Advanced Server directory tree
PWRK$LMMSGFILES	Advanced Server message files
PWRK$LMUPGRADE	Advanced Server upgrade area
PWRK$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 *HP 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

[1]This logical name requires that you specify the directory with it.

(continued on next page)

Table F–1 (Cont.) Advanced Server Logical Names

Logical Name	Description
PWRK$LR_LOG_SERVERBASED_ ACTIVITY	Determines whether events related to server-based licensing are logged
PWRK$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$NETBEUI_DEVICE	Used for the NetBEUI device, this logical name is not defined during installation; it is used to define network adapters under certain circumstances (for more information, see Section 3.11, The Advanced Server Network Adapter)
PWRK$PARAMS	Parameter area
PWRK$PCFSDRIVER	PCFS driver
PWRK$PCIDRIVER	PCI driver
PWRK$PERFDATA	Advanced Server monitor performance data directory
PWRK$PRINT	Advanced Server printer database directory
PWRK$SAMSAVE	SAMCHECK data area
PWRK$SAMSAVEX	SAMCHECK data area
PWRK$SHARED_IMAGES	Indicates whether shared images have been loaded
PWRK$SECTION	Section file area
PWRK$SPOOL	Spool area
PWRK$TEMP	Advanced Server temporary area
PWRK$VERSION	Advanced Server version

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