CHAPTER 3

Installing Cisco PVM

This chapter provides information about how to install Cisco PVM. Before you begin the installation process, ensure that both the host and client machines meet the software and hardware requirements described in Chapter 2, "Installation Requirements."

This chapter contains the following topics:

Verification Tasks

Before installing Cisco PVM, complete the following tasks:

- Verify that the Cisco PVM server meets the host component operating system requirements as shown in Table 2-1, "Minimum Software and Hardware Requirements for Host Machine" in Chapter 2, "Installation Requirements."
- Verify that the Cisco PVM server meets the minimum host component hardware requirements as shown in Table 2-1, "Minimum Software and Hardware Requirements for Host Machine" in Chapter 2, "Installation Requirements."
- Verify the network meets the minimum requirements shown in Table 2-3, "Network Requirements" in Chapter 2, "Installation Requirements."
- Verify the Host Machine OS and Third-Party Software Requirements meets the minimum requirements shown in Table 2-4 on page 2-3.

Summary Of Installation Tasks

When installing Cisco PVM, the following tasks are performed:

1. Stops and uninstalls any existing PVM installations.
2. Verifies that enough disk space, cache, and memory are available on the server and client machines.
3. Verifies that the **`ksh/bash/sh`** shell environments are installed and are available for **`root`** (PVM supports only these environments). If `ksh/bash/sh` are not available for `root`, the installation will terminate. (The `pvmadm` user should default to `ksh/bash/sh`.)

4. Logs in as **root** and install Cisco PVM from the DVD.
5. Logs in as the Cisco PVM Administrator and installs the Cisco PVM license file (if you intend to run in Production mode).
6. Starts Cisco PVM.

Note If you are planning to run Cisco PVM in HTTP, you do not need to install the SSL key. Also, if you plan to run Cisco PVM in evaluation mode only, you do not need to install a license file. The evaluation version will run for 90 days without the license file. For more information on licensing, see Chapter 4, "Installing the Cisco PVM License."

Installing Cisco PVM

This section describes how to install Cisco PVM, including all Cisco PVM components except for the license, on a single host machine. Before you begin the installation, you must have the following path names for Cisco PVM components:

- Cisco PVM installation directory—The default path for the Cisco PVM installation directory is **/opt/CSCOpvm**. If desired, choose a different pathname when prompted.
- Oracle installation directory—The default path for the Oracle installation directory is **/opt/CSCOpvm/oracle**. If desired, choose a different pathname when prompted.
- Data storage directory:—he default path for the data storage directory is **/opt/CSCOpvm/oradata**. If desired, choose a different path when prompted.

Installation Prerequisites

Cisco PVM performs prerequisite checks of the system to determine if Cisco PVM is already installed. The installer also performs cleanup of any existing installations, creates the logic for help/usage switches, creates user and group, and asks for user input on installation locations.

Note The minimum hardware requirements are intended to support a maximum of five NAM-2 modules or equivalent.

Table 3-1 shows the actions performed by the pre-installer.

Table 3-1 Pre-Installation

Pre-Installation Actions	Detail
Usage	The following switches are available for additional help during installation: • **-h** : this provides the user with a help message on the usage of the script • **-i** : this will install PVM (-i is the equivalent of the user not specifying any switch) • **-u** : this will uninstall PVM from the system • **-v** : this provides information on the version being installed **Note** Entering installpvm without any option is equivalent to -i When multiple switches are used, the following rules apply: • When -v or -h are used with -i and -u, the -i and -u flags are ignored and only the -v or -h flags are honored. That is, -vi/-vu/-iv/-uv will generate the version and -hi/-hu/-ih/-uh will generate the help message. • When -h and -v are used together, the flag that comes first is honored. That is, -vh will genrate the version, and -hv will generate the help message. • The combinations -iu/-ui are invalid.
Previous Installations	The installer checks for existing installations and performs cleanup. If a previous version of PVM is running, you are asked to stop PVM and to reinstall. If an existing installation is found and PVM is not running, the installer asks if you want to remove the installation and directories. If yes, the installer performs the necessary actions and continues the installation. If no, the installation terminates. **Note** For existing installations, the Cisco PVM application and database should be stopped. The installer will detect and report any running instances of the application or any running database processes and will then abort the installation. **Note** Cisco PVM 1.0.1 and Cisco PVM 1.0 had two system-wide bash environment files located at /etc/profile.d/oracle.sh and /etc/profile.d/shellrc. These files are not used by Cisco PVM 1.0.2, and they can conflict with the Cisco PVM 1.0.2 installation. If you are upgrading to Cisco PVM 1.0.2 from an earlier Cisco PVM version, uninstall the earlier version using that version's uninstall utility, or manually remove the two bash files to avoid problems with the upgrade.
User Input	The installer asks for the following inputs: • PVM Installation Directory—Directory where PVM will be installed. By default, this is **/opt/CSCOpvm** (you can override the default by entering a different installation path). • Oracle Installation Directory—Directory where the Oracle binaries will be installed. By default, this is **/opt/CSCOpvm/oracle** (you can override this default by entering a different installation path). Oracle Data Directory—Directory where the data will reside. By default, this is **/opt/CSCOpvm/oradata** (you can override the default by entering a different installation path), and the installation defaults to a predefined database size.  **Note** Directory names must be an absolute path without an ending forward slash (/)or double forward slash (//) and only with alpha, numeric, and underscore (_) or hyphen/dash (-) characters.

Table 3-1 Pre-Installation (continued)

Pre-Installation Actions	Detail
User Creation	The user **pvmadm** and its group `dba` are needed for PVM. The `pvmadm` user is required to be part of the `dba` group. If the user or group does not exist, the installer will create them. The installer checks for the `pvmadm` user found in the `getent` command and all the data stores. If this user is found, then the script imports its shell environments (`ksh/bash/sh`) and proceeds with the installation. The installer will display a message indicating that the existing user entries will be used with the installation. If the user isn't found, the script creates the user using a default username and password (`pvmadm`). If this user is found and isn't set as thedefault, the installation will terminate. The `pvmadm` user and its corresponding `dba` group may be created via the RedHat GUI under **`Settings/Users and Groups`**. Alternately, the `pvmadm` user and `dba` group may be created via command line: **`groupadd -g 1001 -f dba`** **`mkdir /export/home/pvmadm`** **`useradd -g dba -s /bin/bash -p Pvmadm_2006 -d /export/home/pvmadm -m pvmadm`** **Note** The specified directory names support only two special characters: - and _. All other special characters normally supported by Linux Naming Conventions are not supported.

Table 3-1 Pre-Installation (continued)

Pre-Installation Actions	Detail
Prerequisite Checks	The installer performs the following prerequisite checks on the system. If any of the prerequisite checks fails, the installer warns you of the failure and terminates the installation: • OS Version Check—The installer checks that the OS version falls between the supported range. This range is between Red Hat Enterprise Version 3 (update 8 and higher) and Red Hat Enterprise Version 4 (inclusive). • OS Architecture Check—The installer checks to make sure that the OS architecture is 32-bit. The installer will issue an error message and terminate the installation if it detects a 64-bit architecture on the system. • Package Dependency Check—The installer checks to ensure that the X-window frame buffer (Xvfb) package is installed. This package is available in the X-Windows package bundle of all distributions of Red Hat; however in some versions this package is not automatically selected. • Memory Check—The installer will check that the system has the minimum required RAM (2 GB). • Disk Space Check—The installer checks that the specified installation directories have the recommended amount of free disk space available. Refer to Table 2-4 for a complete listing. • Path Length Check—The installer checks that the specified directories have paths that are less than or equal to 128 characters. If the paths have more than 128 characters, the installer will warn you and terminate. • Host Name and Domain Name Check—The installer checks that non-default (`localhost.localdomain`) host name and domain names are configured. • Boot Switch Check—The installer will check to make sure the appropriate boot switches (**`apic noexec=off`**) are enabled. The installer uses the `/proc/cmdline` file to determine the boot switches. **Note** The installer will verify the existence of the above boot switches but it will not validate the configuration. Any issues with the boot switch configurations (other than the existence of the `apic` and `noexec` switches) will not be validated/verified by the installer. Cisco PVM is a web-based application that uses Java technology, both for the main application and in some of the packaged third-party tolls it uses. For some hardward configurations running the Linux operating system, Java requires that certain boot parameters be set. Specifically, "`apic`" and "`noexec=off`" flags need to be set as boot parameters. The Cisco PVM installer checks to make sure that these boot parameters are set.

Table 3-1 Pre-Installation (continued)

Pre-Installation Actions	Detail
Prerequisite Checks (continued)	• Shell Environments—The installer checks to make sure the appropriate shell environments are available. The installer checks to ensure that `ksh/bash/sh` are set as the default. If not, the installation terminates. The installer uses the `ksh` shell to execute the install actions and `ksh/bash/sh` are required for PVM. • Environment Variables—The installer checks to ensure that the appropriate global and local environment variables are set before proceeding with the installation. **Note** The `$PVM_BASE` environment variable is set to the installation base path, which defaults to `/opt/CSCOpvm`. PVM application and database functions require proper configuration of the Linux shell environment. After PVM installation, there will be a shell environment file created at `$PVM_BASE/bin/shellrc` and registered as part of the PVM RPM package (`ciscopvm1-mc_shared`). This file will be used by the PVM application and database processes automatically at PVM runtime. For PVM maintenance and troubleshooting with Linux command-line operations, it is highly recommended for the OS administrator or the `pvmadm` user to configure their system/user environment profile to source this shell environment file or its equivalent copy to set those required environment variables. It is not recommended to change the original copy of PVM shell environment file at `$PVM_BASE/bin/shellrc` without consulting PVM product documentation and/or PVM technical support. • Permissions—The installer checks file permissions to ensure that the appropriate file permissions are available to the appropriate users before proceeding with the install. Since the installer will run as root, if the appropriate permissions are not available, it will attempt to set the correct permissions where required. • FQDN—Cisco PVM uses the FQDN identified during installation in its processes. Changing the FQDN after install will cause PVM components to fail. It is advisable to configure a correct FQDN on the server prior to installing Cisco PVM.

Installation Procedure

Perform the following steps to install Cisco PVM.

Caution The installation stops if the available disk space is insufficient.

Step 1 Log in as **`root`**.

Step 2 Insert the Cisco PVM Installation DVD into the drive.

Step 3 Ensure that the DVD drive is mounted by entering **`mount /dev/cdrom /mnt/cdrom`**.

Step 4 From the Linux command line, change the directory by entering **`cd /mnt/cdrom`**.

Step 5 Run the script **`./installPVM -i`**.

When the Cisco PVM installation software starts, your system displays "*Welcome to the Cisco PVM Installer*" and other introductory messages on the screen, and prompts you to create an Administrator username and password.

Step 6 At the Cisco PVM installation directory prompt:

- press **Enter** to use the default directory (`/opt/CSCOpvm`) or
- enter the pathname you want to use for the Cisco PVM installation directory and press **Enter**.

Note The Cisco PVM installation process should have full access to the installation directory. Examples of invalid installation directories include directories on the DVD or read-only directories on the network.

Step 7 At the Oracle installation directory prompt:

- press **Enter** to use the default directory (`/opt/CSCOpvm/oracle`) or
- enter the pathname you want to use for the Oracle installation directory and press **Enter**.

Step 8 At the Oracle data storage directory prompt:

- press **Enter** to use the default data storage directory (`/opt/CSCOpvm/oradata`) or
- enter the pathname you want to use for the Cisco PVM data storage directory and press **Enter**.

Note If you are installing either Oracle or the data storage to a directory that is accessed over NFS, use the following mount options, according to the Oracle knowledge base:
rw,bg,hard,nointr,rsize=32768,wsize=32768,tcp,actimeo=0,vers=3,timeo=600

Note If the OLTP database install fails with ORA-01031 and ORA-01017 errors, check that the dba group is not defined with different GIDs in multiple name services. For example, if the group is defined in /etc/groups and NIS where /etc/group has GID 1000 and NIS has GID 1001, this can cause problems. Check that the GID is the same for all name services.

Step 9 At the SSL certificate configuration prompts:

- enter the name of the computer (this would be the hostname)
- enter the name of your organizational unit (this can be your department name)
- enter the name of your organization (this can be your company name)
- enter the name of your city or locality (this can be from your mailing address)
- enter the name of your state or province (this can be from your mailing address)
- enter the two-letter country code for your organizational unit (a listing of ISO country codes can be found at: http://www.iso.org/iso/country_codes/iso_3166_code_lists/english_country_names_and_code_elements.htm)
- when prompted to review the information entered above, verify that the host distinguished name is correct by entering **Y [Yes]** or **N [No]**

Note By default, Cisco PVM installs an SSL certificate and runs in secure HTTPS mode.

Step 10 Allow the installation to run to completion.

Note If an error occurs, remove the failed installation before attempting another install. See Appendix B, "Troubleshooting the Cisco PVM Installation".

Completing the Installation

After the Cisco PVM installation is complete, install the license file and start Cisco PVM. See Chapter 4, "Installing the Cisco PVM License." and Chapter 5, "Starting and Stopping Cisco PVM."

Note If no license file is found, Cisco PVM will run in Evaluation mode for 90 days.

Post-Installation

After the Cisco PVM installation is complete, the installer performs the following actions:

- Creates a 90-day evaluation license.
- Creates auto-scripts to start PVM and Oracle at server start.
- Verifies that the installation of the database, report engine, server-side components, and GUI were performed correctly.
- Cleans up any temporary artifacts created during installation.
- Generates an installation summary with directions on where to locate the log files.
- Starts the Cisco PVM application.

Note