



Cisco Performance Visibility Manager Installation Guide, 1.0.2

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About This Guide

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The *Cisco Performance Visibility Manager Installation Guide* provides system administrators with instructions on how to install and start the application. This guide contains the following chapters and appendices:

- Chapter 1, “Planning the Installation”
- Chapter 2, “Installation Requirements”
- Chapter 3, “Installing Cisco PVM”
- Chapter 4, “Installing the Cisco PVM License”
- Chapter 5, “Starting and Stopping Cisco PVM”
- Appendix A, “Uninstalling Cisco PVM”
- Appendix B, “Troubleshooting the Cisco PVM Installation”

Command Line Convention

The backslash character (\) is used to indicate that the command line information listed in a procedure is actually a *single line*, rather than broken into two lines as they might appear on the pages of this guide. For example, the following command is actually a single line:

```
keytool -genkey -keyalg RSA -storepass changeit -keystore \  
$JBOSS_HOME/server/default/conf/ssl.keystore
```

Related Documentation

The following documents relate specifically to the Cisco PVM system:

- *Cisco Performance Visibility Manager User Guide, 1.0.2*
- *Cisco Performance Visibility Manager Troubleshooting Guide, 1.0.2*
- *Cisco Performance Visibility Manager Quick Start Guide, 1.0.2*
- *Cisco Performance Visibility Manager Release Notes, 1.0.2*

Obtaining Documentation, Obtaining Support, and Security Guidelines

For information on obtaining documentation, obtaining support, providing documentation feedback, security guidelines, and also recommended aliases and general Cisco documents, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>



Planning the Installation

Cisco Performance Visibility Manager (PVM) provides server-side components and processes deployed to a single host within the required operating environment. The client-side application is an HTML-based Graphical User Interface (GUI) accessed through a supported web browser.

**Note**

Details of the Cisco PVM operating environment and system installation are included in Chapter 2, “Installation Requirements”.

This chapter contains the following topics:

- Installation Process, page 1-1
- LDAP Authentication, page 1-2
- Existing Installations, page 1-2
- Installation Location, page 1-2
- Oracle Installation Location, page 1-3
- Data Storage Location, page 1-3
- Required Hardware, page 1-3
- Minimum Disk Space Requirements, page 1-4
- Installation Logs, page 1-4
- Oracle Installation, page 1-4
- Temporary File Cleanup, page 1-5

Installation Process

The installation process is automated using Cisco PVM installation software on a dedicated server. The installation software installs all components and sets the environment to run Cisco PVM with minimum user interaction.

The Cisco PVM installation requires root-level access to a Linux server that has been configured in accordance with the operating environment requirements specified in Chapter 2, “Installation Requirements”. The automated installation process performs the following steps:

1. Performs an initial system check for minimum system requirements, including the hardware platform, system memory, and Linux kernel release version.
2. Checks for an existing Cisco PVM installation.

3. Prompts you for desired installation location.
4. Prompts you for the desired data storage location.
5. Checks for necessary hard drive space.
6. Installs Cisco PVM.
7. Installs the database.
8. Performs post-install operations, including creating log files, generating an evaluation license, cleaning up temporary files, and performing post-install verification.

LDAP Authentication

By default, Cisco PVM relies on its own authentication and authorization repository created during installation. After installation, the system can be configured to use a Lightweight Directory Access Protocol (LDAP) server for user authorizations.

Cisco PVM supports the following LDAP versions:

- LDAP v2
- LDAP v3



Note

To use LDAP authentication, an ACS server is required.

Existing Installations

If the installer finds a previous version of Cisco PVM running, it will ask you to stop Cisco PVM and reinstall. If an existing installation is found and Cisco PVM is not running, Cisco PVM will ask you if you want to remove the installation and directories. If you answer yes, the installer performs the necessary actions and continues with the installation. If you answer no, installation is terminated.



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.



Note

Previously installed versions of Cisco PVM application and database should be stopped prior to installation to avoid termination. The installer will detect and report any running instance of Cisco PVM or running database processes and abort the installation.

Installation Location

The installation software will prompt you to specify the desired location for the Cisco PVM application. The application is, by default, installed to `/opt/CSCOpvm`. You can accept this default location by pressing **Enter**. Alternately, you can override the default by entering a different installation path.

Oracle Installation Location

The installation software will prompt you to specify the desired location for the Oracle application installation. The application is, by default, installed to `/opt/CSCOpvm/oracle`. You can accept this default location by pressing **Enter**. Alternately, you can override the default by entering a different installation path.

Data Storage Location

The installation software prompts you to specify the desired location for the Cisco PVM database files. The database files, by default, will be installed to `/opt/CSCOpvm/oradata`. You can accept this default location by pressing **Enter**. Alternately, you can override the default by entering a different database data path.

Required Hardware

Cisco PVM supports a maximum of 200 NAM-2 blades, which is approximately equivalent to 100 NAM-2s plus 300 NM-NAMs. The hardware requirements for Cisco PVM installations differ depending on the number of NAMs your system is intended to support. The requirements are broken down into three configurations:

- Small—Used in configurations of up to five NAM-2 blades
- Medium—Used in configurations of up to 50 NM-NAM blades plus 50 NAM-2s
- Large—Used in configurations of up to 300 NM-NAM blades plus 100 NAM-2s or 200 NAM-2 blades

Table 1-1 provides a summary of the recommended minimum requirements for large, medium, and small configurations.

Table 1-1 Recommended Configuration Summary

Maximum NAMs Supported	CPUs	RAM	Disk Space
Five NAM-2s	Two 3.4 GHz Intel Xeon	2 GB	70 GB
50 NAM-2s plus 50 NM-NAMs	Four 3.4 GHz Intel Xeon	4 GB	850 GB in high performance array configuration
100 NAM-2s plus 300 NM-NAMs	Four 3.0 GHz Intel Xeon Dual-Core	8 GB	4,600 GB in high performance array configuration



Note

PVM runs on 32-bit OS architecture. The installer will issue an error message and terminate the installation if it detects a 64-bit architecture on the system.

Minimum Disk Space Requirements

The installer will check to ensure that the specified installation directories have the recommended amount of free disk space available. Table 1-2 provides a summary of the recommended minimum requirements for free disk space.

Table 1-2 Minimum Disk Space Requirements

Installation Directories	Recommended Amount of Free Disk Space
PVM Install Directory	4 GB
Oracle Install Directory	4 GB
Temporary Storage (/tmp)	1 GB
Oracle Data Directory	70 GB



Note

Before installing Cisco PVM, ensure that your host machine meets these minimum disk space requirements.

The default database directory is `/opt/CSCOpvm/oradata` (you can override the default by entering a different installation path), and the installation defaults to a predefined database size.

The installation software checks to ensure that the specified installation path contains sufficient space to support the installation. The installation aborts in the event of insufficient disk space availability.

- Cisco PVM will check to ensure that the system has the minimum required RAM (2 GB).
- Depending on the number and type of NAMs to be supported, disk space required for the Cisco PVM database installation can vary. Cisco PVM requires that a minimum of 70 GB of disk space be available in the data storage directory. Table 1-1 provides examples of required storage space based on the number of NAMs you intend to support.

Installation Logs

The installation software provides status messages during the installation. These messages are provided to the console and are also written to a log. Additionally, errors related to the application and database installations are raised to the console and written to the respective log files located at `installation directory]/logs`.



Note

During installation, /tmp will be used for temporary storage of installation files. If the installation fails, an error message appears showing the name of the log file and its location.

Oracle Installation

Cisco PVM runs using 32-bit Oracle. The installation DVD includes Oracle 9i Standard Edition, and the installation software assigns Oracle variable values.

**Caution**

The embedded Oracle installation cannot be used for anything other than Cisco PVM.

Oracle Password Changes

Changes to the Oracle database passwords, normally done by the DBA, are not recommended. Cisco PVM has specific passwords that are required for product support.

Temporary File Cleanup

**Note**

Upon successful installation, Cisco PVM cleans up all temporary files.

If you abort the installation, the installation process will stop but no automatic rollback or cleanup will be performed.



Installation Requirements

This chapter provides an overview of the installation prerequisites and requirements for installing Cisco PVM. This chapter contains the following topics:

- Hardware and Software Prerequisites, page 2-1
- Installation Directory Space Requirement, page 2-3

**Note**

Cisco PVM does *not* support distributed installs nor existing Oracle installations. Additionally, Cisco PVM runs on the 32-bit version of the Linux operating system.

Hardware and Software Prerequisites

Cisco PVM supports a maximum of 200 NAM-2 modules, which is approximately equivalent to 100 NAM-2s plus 300 NM-NAMs. The hardware requirements for Cisco PVM installations differ depending on the number of NAMs your system supports.

**Note**

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

Table 2-1 shows the minimum requirements for servers.

Table 2-1 **Minimum Requirements for the Server**

Component	Requirement
Processor	Dual-core or quad-core processor, or a multi-processor setup with 3.4 GHz clock speed
System Memory	2 GB
Disk space (total)	79 GB (250 GB is recommended)
Hardware	Monitor, Network Card, Ethernet Card, Video Card, CD Drive, Keyboard, Mouse
Network Card	100 MB Ethernet

Table 2-1 Minimum Requirements for the Server (continued)

Component	Requirement
Operating System	Red Hat Enterprise Linux Version 4 (inclusive), Red Hat Enterprise Linux Version 3 (with update 8 or higher), both with 32-bit architecture. The installer will terminate the installation if it detects Red Hat Enterprise Version 3 (update 7 or lower) or Red Hat Enterprise Linux Version 5 or higher. Linux Version 3 is available at: http://www.redhat.com/rhel/details/enterpriselinex3/ . The PVM Report Engine specifically requires that the X-Window Virtual Frame Buffer (Xvfb) package be 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. The Xvfb package itself is available from multiple sources and is frequently distributed by Xorg at: http://www.x.org or XFree86 at: http://www.xfree86.org/ . All other packages required by PVM are installed during the default Red Hat Enterprise Linux installation.
Browser	Internet Explorer 6.0 with Java, JavaScript, and cookies enabled; Recommended: 6.0 SP2
PDF viewer	Adobe Acrobat Reader 6.01 or higher

Table 2-2 shows the minimum client machine requirements.

Table 2-2 Minimum Requirements for Client Machines

Component	Requirement
Operating System	Microsoft Windows 2000 or XP
Processor	Pentium 4
System Memory	256 MB
Display Setting—Color Palette	Microsoft Windows True Color
Browser	Internet Explorer 6.0 with Java, JavaScript, and cookies enabled; Recommended: 6.0 SP2. Note: If you are running Windows 2000 and IE 6.0 SP1, verify that all available Microsoft updates are applied.
PDF viewer	Adobe Reader 6.01 or higher

Table 2-3 shows the minimum network requirements.

Table 2-3 Minimum Network Requirements

Component	Requirement
LAN	<p>100 Mbps Fast Ethernet with the following ports open (open on the firewall) and available (not used by any other application or process):</p> <ul style="list-style-type: none"> • 161 (SNMP) • 162 (SNMP) • 1521 (Oracle) • 8000 (Actuate) • 8100 (Actuate) • 8443 (https) • 8700 (Actuate administration) • 8900 (Actuate) <p>Note Cisco PVM supports LDAP v2 and v3.</p> <p>Note The installer will issue a warning if port 8443 is not open, but will continue. The installation will terminate if any of the required ports are unavailable.</p>
Network Devices	Network devices must be configured for SNMP access. Firewall and access list restrictions must be appropriately configured.

**Note**

If the minimum installation requirements for the server are not met, Cisco PVM will not install properly. For details on storage requirements based on the number of NAMs you intend to support, see Table 1-1 on page 1-3.

Installation Directory Space Requirement

The installation software will check to ensure that the specified installation directories have the recommended amount of free disk space available. Table 2-4 provides a summary of the recommended minimum requirements for free disk space.

Table 2-4 Directory Space Requirements

Installation Directories	Recommended Space
PVM Install Directory	4 GB
Oracle Install Directory	4 GB
Temporary Storage (/tmp)	1 GB
Oracle Data Directory	70 GB



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, page 3-1
- Summary Of Installation Tasks, page 3-1
- Installing Cisco PVM, page 3-2
- Post-Installation, page 3-8

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:—The 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	<p>The following switches are available for additional help during installation:</p> <ul style="list-style-type: none"> • -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 <p>Note Entering <code>installpvm</code> without any option is equivalent to <code>-i</code></p> <p>When multiple switches are used, the following rules apply:</p> <ul style="list-style-type: none"> • When <code>-v</code> or <code>-h</code> are used with <code>-i</code> and <code>-u</code>, the <code>-i</code> and <code>-u</code> flags are ignored and only the <code>-v</code> or <code>-h</code> flags are honored. That is, <code>-vi/-vu/-iv/-uv</code> will generate the version and <code>-hi/-hu/-ih/-uh</code> will generate the help message. • When <code>-h</code> and <code>-v</code> are used together, the flag that comes first is honored. That is, <code>-vh</code> will generate the version, and <code>-hv</code> will generate the help message. • The combinations <code>-iu/-ui</code> are invalid.
Previous Installations	<p>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.</p> <p>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.</p> <p>Note Cisco PVM 1.0.1 and Cisco PVM 1.0 had two system-wide bash environment files located at <code>/etc/profile.d/oracle.sh</code> and <code>/etc/profile.d/shellrc</code>. 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.</p>
User Input	<p>The installer asks for the following inputs:</p> <ul style="list-style-type: none"> • PVM Installation Directory—Directory where PVM will be installed. By default, this is <code>/opt/CSCOpvm</code> (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 <code>/opt/CSCOpvm/oracle</code> (you can override this default by entering a different installation path). <p>Oracle Data Directory—Directory where the data will reside. By default, this is <code>/opt/CSCOpvm/oradata</code> (you can override the default by entering a different installation path), and the installation defaults to a predefined database size.</p> <p> 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.</p>

Table 3-1 Pre-Installation (continued)

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

Table 3-1 Pre-Installation (continued)

Pre-Installation Actions	Detail
Prerequisite Checks	<p>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:</p> <ul style="list-style-type: none"> • 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 (<code>localhost.localdomain</code>) host name and domain names are configured. • Boot Switch Check—The installer will check to make sure the appropriate boot switches (<code>apic noexec=off</code>) are enabled. The installer uses the <code>/proc/cmdline</code> file to determine the boot switches. <p>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 <code>apic</code> and <code>noexec</code> 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 tools it uses. For some hardware configurations running the Linux operating system, Java requires that certain boot parameters be set. Specifically, “<code>apic</code>” and “<code>noexec=off</code>” flags need to be set as boot parameters. The Cisco PVM installer checks to make sure that these boot parameters are set.</p>

Table 3-1 Pre-Installation (continued)

Pre-Installation Actions	Detail
Prerequisite Checks (continued)	<ul style="list-style-type: none"> • Shell Environments—The installer checks to make sure the appropriate shell environments are available. The installer checks to ensure that <code>ksh/bash/sh</code> are set as the default. If not, the installation terminates. The installer uses the <code>ksh</code> shell to execute the install actions and <code>ksh/bash/sh</code> 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. <p>Note The <code>\$PVM_BASE</code> environment variable is set to the installation base path, which defaults to <code>/opt/CSCOpvm</code>.</p> <p>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 <code>\$PVM_BASE/bin/shellrc</code> and registered as part of the PVM RPM package (<code>ciscopvm1-mc_shared</code>). 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 <code>pvmadm</code> 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 <code>\$PVM_BASE/bin/shellrc</code> without consulting PVM product documentation and/or PVM technical support.</p> <ul style="list-style-type: none"> • 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,rsiz=32768,wsiz=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



Installing the Cisco PVM License

Cisco PVM requires a license file to be installed to operate in the non-evaluation mode. The license file is not included in the Cisco PVM distribution; instead, Cisco PVM must first be installed on a host computer and then a license file must be acquired and installed for that particular host. This chapter describes how to install and test the Cisco PVM license file.

This chapter contains the following topics:

- License Install Process, page 4-1
- Evaluation and Production Modes of Operation, page 4-2
- License Administration, page 4-2
- Installing the License File, page 4-2
- Testing the License Manager, page 4-3
- Verifying the License Manager Status, page 4-3

License Install Process

You must install a license file to run Cisco PVM in Production mode. Without a valid license, Cisco PVM will run for 90 days in Evaluation mode and then cease to operate.

The basic sequence of steps for installing a Cisco PVM license is as follows:

1. Cisco PVM is installed on a host computer.
2. Cisco PVM users request a license file from Cisco. The following information is required during registration:
 - **Hostname:** obtained by executing the command `hostname` on the host computer where Cisco PVM is installed.
 - **Host ID:** obtained by executing the command `lmhostid` on the host computer where Cisco PVM is installed.
 - **Product:** Cisco Performance Visibility Manager.
3. Cisco provides the license file and customers install it on the host where Cisco PVM is installed. This involves:
 - copying the license file to the host computer where Cisco PVM is installed and
 - saving the file as `/opt/CSCOpvm/server/etc/sp_license.dat` and restarting the license server by issuing the command `lmreread`.

Evaluation and Production Modes of Operation

Without a valid license file installed, Cisco PVM will operate in Evaluation mode and will cease operating after 90 days. When a valid license file is installed, Cisco PVM will operate in Production mode. The Production license has no expiration date.



Note

Changes to the license file (such as adding NAMs over the number of current supported licenses) do not require reinstallation of Cisco PVM. In this case, replace the current license file on the Cisco PVM host computer with the new license file and issue the command **lmreread**.

License Administration

Cisco PVM includes the following command-line programs, located in `/opt/CSCOpvm/flexlm/bin`, for handling the licenses.

- **lmstat** – indicates the status of the license server and whether it is up or down.
- **lmreread** – re-reads the license file. This is necessary when the license file is replaced as in the case of obtaining new licensed features.
- **lmhostid** – provides the host ID information that is necessary for generating the license file. All license files are node locked to the host computer for which Cisco PVM is installed.

Cisco PVM provides a log file, `/opt/CSCOpvm/flexlm/log/flexlm.log`, which provides detailed information with respect to when licensed features were checked in and checked out.

Installing the License File

After the installation is complete, the product license must be installed before the application can be run in Production mode.

To install the license file, complete the following steps:

-
- Step 1** Log in as the Cisco PVM Administrator by entering `su - pvmadm`.
 - Step 2** Obtain the host name by entering `hostname` at the command prompt
 - Step 3** Obtain the host ID by entering the following at the command prompt:


```
cd /opt/CSCOpvm/flexlm/bin
./lmhostid
```
 - Step 4** Contact Cisco Systems to request a new license file for the specific host where Cisco PVM is installed.
 - Step 5** Copy the license file to the host computer installation directory where Cisco PVM is installed and save it as `/opt/CSCOpvm/server/etc/sp_license.dat`.
 - Step 6** Restart the license server by entering the following at the command prompt:


```
cd /opt/CSCOpvm/flexlm/bin; lmreread
```
-

Testing the License Manager

After installing the license file, verify the license manager status. Ensure that the following Cisco PVM components are up and running:

- License Manager license server daemon (*lmgrd*) is UP.
- Vendor daemon (SP_LM) is UP.
- License server is the current host.

Verifying the License Manager Status

Perform the following steps to check the status of the License Manager.

-
- Step 1** Log in as the Cisco PVM Administrator.
- Step 2** Invoke the status daemon (*lmstat*):
- ```
/opt/CSCOpvm/flexlm/bin/lmstat -c /opt/CSCOpvm/server/etc/sp_license.dat
```
- Step 3** Ensure that the *lmgrd* process is running by entering `ps -ef | grep lmgrd` at the command prompt.
-





## Starting and Stopping Cisco PVM

---

This chapter describes how to start and stop Cisco PVM. After completing the Cisco PVM installation and license file installation (for Production mode only), start Cisco PVM manually from the command prompt. Since the Oracle database is already running after the installation is complete, no preparation steps are necessary. This chapter describes how to start and stop Cisco PVM.

This chapter includes the following topics:

- Starting Cisco PVM, page 5-1
- Stopping Cisco PVM, page 5-2

### Starting Cisco PVM

This section describes how to start the Cisco PVM for the first time after completing the Cisco PVM installation. The Cisco PVM application will be automatically started after successful installation.

### Logging in Using the Host Machine

To start the Cisco PVM application at any time, follow the steps listed below.

- 
- Step 1** At the command prompt, log in as the Cisco PVM Administrator by entering `su - pvmadm`.
- Step 2** Enter `/[install directory]/bin/pvm start`.
- 

### Changing the Default Administrator Password

This section tells you how to change the default Administrator password. As a security precaution, change the default password before you start using Cisco PVM.

- 
- Step 1** Open Internet Explorer and browse to `https://<hostname of Cisco PVM server>:8443/`.



**Note** If you are not running HTTPS, the port should be **8080**.

---

- Step 2** Log in to Cisco PVM using the default Administrator credentials:
- The login ID is **pvmadm**.
  - The password is **Pvmadm\_2006**.
- Step 3** Click **Admin**.
- Step 4** Click **Password**.
- Step 5** Enter **Pvmadm\_2006** in the Old Password field.
- Step 6** Enter a new password in the New Password field.
- Step 7** Re-enter the new password in the Confirm Password field.
- Step 8** Click **OK**.
- Step 9** Click **Logout**. The system displays the login window.
- 

## Logging in to the Client GUI

Follow these steps to log in to the Cisco PVM GUI and begin using the system.

- Step 1** Open Internet Explorer and browse to **https://<hostname of Cisco PVM server>:8443/** (if the login page is not already displayed).
- Step 2** Enter the Administrator username you created during the Cisco PVM installation in the Login ID field.
- Step 3** Enter the Administrator password you created during the Cisco PVM installation in the Password field.
- Step 4** Click **Login**.
- 

## Stopping Cisco PVM

Perform the following steps to stop Cisco PVM.

- Step 1** At the command prompt, log in as the Cisco PVM Administrator by entering **su - pvmadm**.
- Step 2** Stop the application by entering **/[installation directory]/bin/pvm stop**.

If the Oracle database fails to shut down or takes an extended amount of time to shut down, you can use the abort mode shut down all running queries and Oracle immediately.



### Caution

Using the abort mode to shut down an Oracle instance might compromise the data integrity.

---

To shut down Oracle with the abort mode:

- Log in as a dba group user.
- Run sqlplus as a sysdba by issuing the following command:  
**sqlplus '/ as sysdba'**

- c. At the sqlplus prompt, shut down Oracle:  
**SQL> shutdown abort**  
**Exit sqlplus**  
**SQL> exit**
-





## Uninstalling Cisco PVM

---

When you uninstall Cisco PVM, you will remove all of the application's components and data files from the server. The uninstall will stop the Cisco PVM application and remove its components, as well as Oracle and the corresponding data files. Removing Cisco PVM involves executing the uninstall routine, which is a UNIX shell script.

The uninstall routine for Cisco PVM performs the following steps:

- Stops Cisco PVM and Oracle.
- Removes Cisco PVM and Oracle application files.
- Removes the Oracle database.
- Cleans up system files and environment variables.

## Cisco PVM Uninstall

You can uninstall Cisco PVM from either the DVD or the command line. Cisco PVM will need to be stopped prior to the start of the uninstallation process.

### Uninstalling using the DVD

---

- Step 1** Login as `pvmadm`.
  - Step 2** Execute `/[installation directory]/bin/pvm stop` to stop Cisco PVM.
  - Step 3** Log in as `root`.
  - Step 4** Insert the Cisco PVM installation DVD into the drive.
  - Step 5** Change the directory path by entering `cd /mnt/cdrom`.
  - Step 6** Uninstall Cisco PVM by entering `./installpvm -u`.
- 

### Uninstall Log

The installation software provides status messages during the uninstall. These messages are provided to the console and are also written to a log named `pvmInstall[timestamp].log`.

The uninstallation logs are located at `[installation directory]/logs` under the `/tmp` directory.

**Note**

---

Uninstallation information is written to `pvmInstall[timestamp].log` in addition to messages and errors related to the application and database installations and is located in the same directory.

---



# APPENDIX **B**

## Troubleshooting the Cisco PVM Installation

This appendix describes errors you might receive during a Cisco PVM installation. It lists probable causes and troubleshooting you can use to resolve them.



### Note

For more information on specific Cisco PVM error messages and general troubleshooting, see the *Cisco Performance Visibility Manager Troubleshooting Guide*.

## Installation Errors

If you encounter errors during the installation process, any of the following situations might have occurred:

- Your system has not met all of the prerequisites for installation. If errors occur, you should first determine whether your system configuration meets the conditions described in Chapter 2, “Installation Requirements”.
- Your system does not have 32-bit architecture.
- Your system does not have enough RAM.
- Your system has a previous installation of PVM running.
- You do not have proper write permissions for all of the installation directories.
- Your system does not have enough disk space allocated to the installation directory.
- Your system does not have enough disk space allocated to the data directory.

Table B-1 describes the causes and solutions for installation errors.

**Table B-1** Cisco PVM Installation Error Messages

| Error                                                                   | Reason                                                                     | Solution                                                                     |
|-------------------------------------------------------------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------|
| Application server configuration [file location] not found              | Cisco PVM install errors were encountered.                                 | Refer to the installation log for details.                                   |
| Cisco PVM application processes and/or Cisco PVM IPC resources detected | Cisco PVM processes are found to be running or the memory is still in use. | Shut down Cisco PVM, ensure that all processes are shut down, and try again. |
| Cisco PVM database processes detected                                   | Cisco PVM database processes are found to be running during installation.  | Shutdown all Cisco PVM processes and re-try the installation.                |

Table B-1 Cisco PVM Installation Error Messages (continued)

| Error                                                                 | Reason                                                                                                                                                                              | Solution                                                                                                                |
|-----------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| Component [component name] failed, package file [file] not found      | Cisco PVM install errors were encountered.                                                                                                                                          | Refer to the installation log for details.                                                                              |
| Conflicting system environment variable detected for applets          | Unable to complete set-up of Java applets due to a conflict with the system environment variables                                                                                   | A conflicting system environment variable, JAVA_HOME (\$JAVA_HOME) was detected. Unset this variable and try again.     |
| Conflicting system environment variable detected for SOA              | Unable to complete set-up of JBOSS SOA due to a conflict with the system environment variables.                                                                                     | A conflicting system environment variable, JBOSS_HOME (\$JBOSS_HOME) was detected. Unset this variable and try again.   |
| Conflicting system environment variable detected for the database     | Unable to complete set-up of the Oracle database due to a conflict with the system variables.                                                                                       | A conflicting system environment variable, ORACLE_HOME (\$ORACLE_HOME) was detected. Unset the variable and try again.  |
| Could not locate kernel parameters                                    | Could not locate /proc/cmdline on system.                                                                                                                                           | Verify the OS installation and try again.                                                                               |
| Could not locate memory usage information                             | Unable to locate /proc/meminfo on system.                                                                                                                                           | Verify the OS installation and try again.                                                                               |
| Database environment file [directory] /DBenv not found                | Cisco PVM install errors were encountered.                                                                                                                                          | Refer to the installation log for details.                                                                              |
| Database environment file [list file] not found                       | Cisco PVM install errors were encountered.                                                                                                                                          | Refer to the installation log for details.                                                                              |
| Failed to configure report server script                              | Cisco PVM install errors were encountered.                                                                                                                                          | Refer to the installation log for details.                                                                              |
| Failed to configure the management console                            | Cisco PVM install errors were encountered.                                                                                                                                          | Refer to the installation log for details.                                                                              |
| Failed to create directory                                            | Unable to create needed directories.                                                                                                                                                | Check the file system configuration and the path and try again.                                                         |
| Failed to create directory [directory]                                | Cisco PVM supports two special characters in specified directory names: "-" and "_". All other special characters normally supported by Linux Naming Conventions are not supported. | Confirm that the specified directory name is valid, check that the file system configuration is correct, and try again. |
| Failed to extract report package(s) under [directory] /Actuate        | Cisco PVM install errors were encountered.                                                                                                                                          | Verify directory access permission/space and try again. Refer to the installation log for details.                      |
| Failed to extract the report package [package]                        | Cisco PVM install errors were encountered.                                                                                                                                          | Refer to the installation log for details.                                                                              |
| Failed to extract the report package; [list package] not found        | Cisco PVM install errors were encountered.                                                                                                                                          | Refer to the installation log for details.                                                                              |
| Failed to get a valid host/domain name in both short and FQDN formats | An invalid host or domain name was detected.                                                                                                                                        | Configure a valid host/domain name and re-try the installation.                                                         |

Table B-1 Cisco PVM Installation Error Messages (continued)

| Error                                                                  | Reason                                                                                      | Solution                                                                                                                                                    |
|------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Failed to install report active portal components                      | Cisco PVM install errors were encountered                                                   | Refer to the installation log for details.                                                                                                                  |
| Failed to install report integration and/or report server components   | Cisco PVM install errors were encountered                                                   | Refer to the installation log for details.                                                                                                                  |
| Failed to install report server                                        | Cisco PVM install errors were encountered.                                                  | Refer to the installation log for details.                                                                                                                  |
| Failed to install report server as user pvmadm                         | OS user configuration for the pvmadm user may be incorrect.                                 | Verify that the pvmadm user configuration and group assignment are correct and try again.                                                                   |
| Failed to install report server components                             | Cisco PVM install errors were encountered.                                                  | Refer to the installation log for details.                                                                                                                  |
| Failed to run database installation as user pvmadm                     | OS user configuration for the pvmadm user may be incorrect.                                 | Verify that the pvmadm user configuration and group assignment are correct and try again.                                                                   |
| Failed to set [permission] permission                                  | File access permissions or file system configuration is incorrect.                          | Check that the file system access permissions (write access) are correct and try again.                                                                     |
| Failed to set database listener password as user pvmadm                | OS user configuration for the pvmadm user may be incorrect.                                 | Verify that the pvmadm user configuration and group assignment are correct and try again.                                                                   |
| Failed to set directory [directory] ownership                          | Specified installation directory is invalid or configured improperly.                       | Check that the file system configuration is correct and try again.                                                                                          |
| Failed to set directory ownership                                      | Unable to establish directory ownership due to invalid or incorrect permissions.            | Check the file system configuration and the file system access permissions, then try again.                                                                 |
| Failed to verify a consistent host name with /proc/sys/kernel/hostname | An invalid host or domain name was detected.                                                | Configure a valid host/domain name and re-try the installation.                                                                                             |
| Failed to verify report package installation                           | Cisco PVM install errors were encountered.                                                  | Refer to the installation log for details.                                                                                                                  |
| Failure to set system access permissions                               | Write access permissions were not set for the system.                                       | Check the file system configuration and the file system access permissions and try again.                                                                   |
| Inconsistent host name                                                 | Operation failed to verify a consistent host name with /proc/sys/kernel/hostname.           | Configure a valid host name and try again.                                                                                                                  |
| Incorrect or default host name                                         | The configured host name is invalid or set to the default (localhost.localdomain) value.    | Configure a valid host name and try again.                                                                                                                  |
| Incorrect OS Version                                                   | An attempt to install Cisco PVM on an unsupported OS or OS version.                         | Install Cisco PVM on a server that is running Red Hat Linux Enterprise Version 3 (update 8 or higher) up to Red Hat Linux Enterprise Version 4 (inclusive). |
| Installation archive directory [directory] not found                   | Cisco PVM install errors were encountered.                                                  | Refer to the installation log for details.                                                                                                                  |
| Installation archive directory [list directory] not found              | Cisco PVM install errors were encountered.                                                  | Refer to the installation log for details.                                                                                                                  |
| Installation cannot proceed due to existing artifacts                  | Existing Cisco PVM artifacts on the system are preventing the installation from continuing. | Uninstall/clean-up the existing installation and try again.                                                                                                 |

Table B-1 Cisco PVM Installation Error Messages (continued)

| Error                                                                                                           | Reason                                                                                                                                                                                 | Solution                                                                                                                                |
|-----------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Installation log file [log location] not found                                                                  | Cisco PVM install errors were encountered.                                                                                                                                             | Consider reinstalling PVM                                                                                                               |
| Insufficient memory                                                                                             | Cisco PVM requires at least 2 GB of system memory for installation.                                                                                                                    | Upgrade the memory capacity and try again.                                                                                              |
| Invalid data storage directory                                                                                  | An invalid Cisco PVM data storage directory was specified.                                                                                                                             | Use the default /opt/CSCOpvm/oradata directory or enter the correct directory path at the data storage directory prompt.                |
| Invalid default shell                                                                                           | Application user and/or database user should have bash/ksh/sh as its default shell.                                                                                                    | Configure the user's default shell and try again.                                                                                       |
| Invalid host name [host name]                                                                                   | An invalid host or domain name was detected.                                                                                                                                           | Configure a valid host/domain name and re-try the installation.                                                                         |
| Invalid host/domain name                                                                                        | The operation failed to get a valid host/domain name in both short and FQDN formats.                                                                                                   | Configure a valid host/domain name and try again.                                                                                       |
| Invalid installation directory                                                                                  | An invalid Cisco PVM installation directory (such as a directory on the DVD or on the network with no write permission) was specified.                                                 | Use the default /opt/CSCOpvm or /opt/CSCOpvm/oracle directory or enter the correct directory path at the installation directory prompt. |
| Invalid installation directory (symbolic link)                                                                  | The installation directory [list directory name] is a symbolic link that refers to a nonexistent directory/file.                                                                       | Specify a valid directory/link by correcting the installation target and try again.                                                     |
| Invalid installation directory [directory]                                                                      | Specified installation directory is invalid. Directory names may include alphanumeric characters, underscores, and dashes. Spaces and other special characters are considered invalid. | Ensure that the installation target is correct and re-try the installation.                                                             |
| Invalid OS                                                                                                      | An attempt to install Cisco PVM on an unsupported system architecture.                                                                                                                 | Ensure that the server is installed with the 32-bit version of the Linux operating system and try again.                                |
| Invalid path name and/or invalid directory path name                                                            | Path naming schema [installation path name]and/or directory path name [installation path name] is invalid for installation.                                                            | Verify that the path name is an absolute path and that the path name has no trailing slashes and try again.                             |
| Invalid path naming [referenced directory path] that the symbolic link [directory path] refers for installation | Specified installation directory is an invalid path.                                                                                                                                   | Verify that the installation path is correct and try again.                                                                             |

**Table B-1** Cisco PVM Installation Error Messages (continued)

| Error                                                                                              | Reason                                                                            | Solution                                                                                                                                                                                                                                                                                                                                                          |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Invalid symbolic link [directory path] refers to another symbolic link [referenced directory path] | Specified installation directory is an invalid path.                              | Verify that the installation path is correct and try again. The installer supports one level of symbolic links in the directory specifications. For example, installing in /opt/CSCOpvm where /opt/CSCOpvm links to /net/pvm and /net/pvm links to /mount/san1/pvm is not allowed. However, linking to /net/pvm where /net/pvm is an actual directory is allowed. |
| Java 2 SDK keytool not found                                                                       | The installer could not find the SSL keytool.                                     | Check the system configuration and install the necessary packages.                                                                                                                                                                                                                                                                                                |
| Linux rpm tool is not installed                                                                    | The Linux rpm tool is not installed on the system.                                | Install the required OS packages and try again.                                                                                                                                                                                                                                                                                                                   |
| More than one Cisco PVM installation/uninstallation process [process name] exists                  | Cisco PVM processes are found to be running or memory is still in use.            | Ensure that all installation/uninstallation processes are completed or terminated and try again.                                                                                                                                                                                                                                                                  |
| Not enough free disk space                                                                         | Insufficient disk space in the Cisco PVM installation directory.                  | Free up 4 GB in the PVM installation directory, 4 GB in the Oracle installation directory, 70 GB in the Oracle data installation directory, and 1 GB in the /tmp directory and repeat the installation process.                                                                                                                                                   |
| OLAP Database installation failed.                                                                 | The installer encountered database installation errors.                           | Refer to the installation log for details.                                                                                                                                                                                                                                                                                                                        |
| OLTP installation failed.                                                                          | The installer encountered database installation errors.                           | Refer to the installation log for details.                                                                                                                                                                                                                                                                                                                        |
| Other RPM packages (ciscopvm-*) detected                                                           | Existing Cisco PVM RPM packages were found by the installer.                      | Uninstall the existing RPM packages and re-try the installation.                                                                                                                                                                                                                                                                                                  |
| Path name length is invalid                                                                        | The path name exceeds the 128 character maximum.                                  | Verify that the path name consists of 128 characters or less and try again.                                                                                                                                                                                                                                                                                       |
| Report server has not started                                                                      | Cisco PVM install errors were encountered.                                        | Refer to the installation log for details.                                                                                                                                                                                                                                                                                                                        |
| System boot switches not detected                                                                  | The \“noexec=off”\ and \“apic”\ boot switches were not detected in /proc/cmdline. | Configure the boot switches, reboot, and try again.                                                                                                                                                                                                                                                                                                               |
| The following Cisco PVM application processes are still running                                    | Cisco PVM application processes are found to be running.                          | Shut down all processes and re-try the installation.                                                                                                                                                                                                                                                                                                              |
| The following Cisco PVM database processes are still running                                       | Cisco PVM database processes are found to be running.                             | Shut down all processes and re-try the installation.                                                                                                                                                                                                                                                                                                              |
| The following Cisco PVM message queues are still in use by the user pvmadm                         | Cisco PVM processes are found to be running or the memory is still in use.        | Shut down all processes and re-try the installation.                                                                                                                                                                                                                                                                                                              |
| The following Cisco PVM semaphore arrays are still in use by user pvmadm                           | Cisco PVM processes are found to be running or memory is still in use.            | Shut down all processes and re-try the installation.                                                                                                                                                                                                                                                                                                              |

Table B-1 Cisco PVM Installation Error Messages (continued)

| Error                                                                                                                               | Reason                                                                                                                                                     | Solution                                                                                                                                                                                                                                  |
|-------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The following shared memory segments are still in use by pvmadm                                                                     | Cisco PVM processes are found to be running or memory is still in use.                                                                                     | Shut down all processes and re-try the installation.                                                                                                                                                                                      |
| The kernel version is not supported                                                                                                 | Cisco PVM supports kernel versions 2.4.21-20 and higher.                                                                                                   | Ensure that kernel versions 2.4.21-20 or higher are on the system and try again.                                                                                                                                                          |
| The specified installation locations for the Cisco PVM application and its database server and/or database data overlap or conflict | The specified installation directory is an invalid path.                                                                                                   | Correct the installation target and try again.<br><br>Cisco PVM supports two special characters in specified directory names: "-" and "_". All other special characters normally supported by Linux Naming Conventions are not supported. |
| The UDP and TCP ports are closed                                                                                                    | Cisco PVM requires that UDP ports 161 and 162, and TCP ports 1521, 800, 8100, 8443, 8700, and 8900 are available and open for proper application function. | Verify that UDP ports 161 and 162 and TCP ports 1521, 8000, 8100, 8443, 8700, and 8900 are available and open and try again.                                                                                                              |
| Unable to create user                                                                                                               | Unable to create OS user .                                                                                                                                 | Be sure to create the user first, then try again.                                                                                                                                                                                         |
| Unable to install report server as user pvmadm                                                                                      | OS user configuration for the pvmadm user may be incorrect.                                                                                                | Verify that the pvmadm user configuration and group assignment are correct and try again.                                                                                                                                                 |
| Unable to install the report packages                                                                                               | Cisco PVM install errors were encountered.                                                                                                                 | Refer to the installation log for details.                                                                                                                                                                                                |
| Unable to locate database query tool                                                                                                | Unable to locate the administrative database query tool (getent).                                                                                          | Install the requires OS packages and try again.                                                                                                                                                                                           |
| Unable to locate file archive program                                                                                               | Operation unable to locate the file archiving program (tar).                                                                                               | Install the required OS packages and try again.                                                                                                                                                                                           |
| Unable to locate Korn shell                                                                                                         | Operation failed to locate the Korn (ksh) shell environment on the system.                                                                                 | Install the required OS packages and try again.                                                                                                                                                                                           |
| Unable to perform uninstall under login                                                                                             | Only \“root”\ user can perform a Cisco PVM uninstall/install.                                                                                              | Login as root and try again.                                                                                                                                                                                                              |
| Unable to run database installation as user pvmadm                                                                                  | OS user configuration for the pvmadm user may be incorrect.                                                                                                | Verify that the pvmadm user configuration and group assignment are correct and try again.                                                                                                                                                 |
| Unable to ser database listener password as user pvmadm                                                                             | OS user configuration for the pvmadm user may be incorrect.                                                                                                | Verify taht the pvmadm user configuration and group assignment are correct and try again.                                                                                                                                                 |
| Unable to set /tmp directory permissions and/or the /tmp directory is missing                                                       | Operation was unable to set permissions on the /tmp directory or was unable to locate the /tmp directory.                                                  | Configure the /tmp directory permissions or verify that the /tmp directory is configured properly and try again.                                                                                                                          |
| WARNING: [home directory location] does not exist for creating pvmadm’s home directory                                              | The default home directory location does not exist.                                                                                                        | Create pvmadm’s directory manually.                                                                                                                                                                                                       |

Table B-1 Cisco PVM Installation Error Messages (continued)

| Error                                                                                                         | Reason                                                                                                                                                                                                                    | Solution                                                                                        |
|---------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| WARNING: Existing Oracle database client and/or server installation detected                                  | An existing Oracle installation was detected on the target PVM server. Cisco PVM will install an embedded Oracle database server that might conflict with the existing Oracle installation and fail to function properly. | Consider remove the existing Oracle installation and re-trying the installation.                |
| WARNING: Failed to add Cisco PVM system runlevel configuration for applications                               | Unable to add runlevel configuration for Cisco PVM.                                                                                                                                                                       | Check your system configuration and try again.                                                  |
| WARNING: Failed to verify report server installation                                                          | Deployed PVM RPM packages could not be verified.                                                                                                                                                                          | Check the report installation logs [directory] /logs for details and consider reinstalling PVM. |
| WARNING: Failed to add Cisco PVM system runlevel configuration for Oracle database server and/or applications | Install script was unable to configure autostart properties.                                                                                                                                                              | Consider reinstalling PVM.                                                                      |
| WARNING: Failed to add Cisco PVM system runlevel configuration for the Oracle database server                 | Unable to add runlevel configuration for Oracle.                                                                                                                                                                          | Check your system configuration and try again.                                                  |
| WARNING: Failed to create pvmdm's home directory at [home directory/pvmdm]                                    | Unable to create the pvmdm user's home directory. This will not affect Cisco PVM installation and product functions, but will need to be configured post-installation.                                                    | Create pvmdm's home directory manually after the installation.                                  |
| WARNING: Failed to generate the default security key and certificate                                          | Install script was unable to generate SSL certificate.                                                                                                                                                                    | Consider generating the key manually or reinstalling PVM.                                       |
| WARNING: Failed to remove cron jobs                                                                           | Install script was unable to remove scheduled PVM cron jobs.                                                                                                                                                              | Consider removing the jobs manually.                                                            |
| WARNING: Failed to remove runlevel configuration /etc/init.d/pvmd and/or /etc/init.d/dbora                    | Install script was unable to deconfigure autostart properties.                                                                                                                                                            | Consider removing the configuration manually.                                                   |
| WARNING: Failed to remove the old installation registry file [installation status file]                       | Unable to update PVM's RPM installation.                                                                                                                                                                                  | Check the file system configuration and RPM database.                                           |
| WARNING: Failed to set ownership of pvmdm's home directory at [home directory/pvmdm]                          | Unable to set the ownership for the pvmdm user's home directory. This will not affect Cisco PVM installation and product functions, but will need to be configured post-installation.                                     | Configure pvmdm's home directory manually after the installation.                               |
| WARNING: Failed to verify report integration components                                                       | Deployed PVM RPM packages could not be verified.                                                                                                                                                                          | Check the report installation logs [directory] /logs for details and consider reinstalling PVM. |

**Table B-1** Cisco PVM Installation Error Messages (continued)

| Error                                                                          | Reason                                                                            | Solution                                                                                        |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| WARNING: Failed to verify report server active portal installation             | Deployed PVM RPM packages could not be verified.                                  | Check the report installation logs [directory] /logs for details and consider reinstalling PVM. |
| WARNING: Failed to verify runlevel configuration for pvmd                      | Unable to verify runlevel configuration.                                          | Check your system configuration and try again.                                                  |
| WARNING: Failed to write Ciscp PVM registry file at [installation status file] | Unable to register PVM's RPM installation.                                        | Check the file system configuration and RPM database. Consider reinstalling PVM.                |
| WARNING: Report server or active portal startup timeout.                       | Install script was unable to start the report server to deploy report templates.  | Consider reinstalling PVM.                                                                      |
| WARNING: Some of Cisco PVM's processes are still running...                    | Indicates that Cisco PVM is still running (from a previous installation).         | Stop Cisco PVM, stop the processes, and repeat the installation.                                |
| WARNING: Unable to kill [list process ids] - this may cause problems           | Existing Cisco PVM processes were found running.                                  | Manually stop these processes and re-try the installation.                                      |
| Xvfb is not installed                                                          | The X -Window Virtual Frame Buffer (Xvfb) package is not installed on the system. | Install the required OS packages and try again.                                                 |

Table B-2 describes the progress/informational messages shown during installation.

**Table B-2** Installation Progress Messages

| Message/Detail                                               |
|--------------------------------------------------------------|
| ...no Cisco PVM installation found.                          |
| Check system information and configuration...                |
| Cisco PVM installation log is available at [log location].   |
| Cisco PVM system sudoers updated.                            |
| Cisco PVM uninstallation log is available at [log location]. |
| Configuring Cisco PVM system runlevel information...         |
| Configuring listener for Oracle database server...           |
| Configuring OLAP jobs...                                     |
| Installation of Cisco PVM aborted at [date].                 |
| Installation of Cisco PVM completed at [date].               |
| Installation Report Active Portal...                         |
| Installing [component]...                                    |
| Installing Ciscp PVM RPM packages...                         |
| Installing Management Console Configuration...               |
| Installing OLAP database...                                  |

**Table B-2** *Installation Progress Messages*

| Message/Detail                                                                                                                                                                                                                                  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Installing OLTP database...                                                                                                                                                                                                                     |
| Installing Report Encyclopedia...                                                                                                                                                                                                               |
| Installing Report Integration Technology...                                                                                                                                                                                                     |
| Installing Report IServer...                                                                                                                                                                                                                    |
| Installing Report Server...                                                                                                                                                                                                                     |
| Installing Report Templates and Configurations...                                                                                                                                                                                               |
| NOTE: \$PRODUCT registry file is relocated from /var/adm/PVM/install.info to XXX                                                                                                                                                                |
| NOTE: Cisco PVM is a time/time-zone sensitive application and all clients should be time synchronized with the Cisco PVM server. The network elements monitored should also be time synchronized with each other and with the Cisco PVM server. |
| NOTE: Please change the default password of the OS user(s) [user] created by the installation of Cisco PVM.                                                                                                                                     |
| OLAP database creation completed.                                                                                                                                                                                                               |
| OLTP database creation completed.                                                                                                                                                                                                               |
| Please check cron job configuration and delete loadOLAP.sh and archiveStart.sh.                                                                                                                                                                 |
| Please check the file system configuration and remove it.                                                                                                                                                                                       |
| Please check the installation logs at [log location] for more information.                                                                                                                                                                      |
| Please check your firewall [iptables] filter configuration and ensure that port(s) [list ports] are not blocked.                                                                                                                                |
| Please check your firewall [iptables] filter configuration and ensure that port(s) [list ports] are opened.                                                                                                                                     |
| Please configure the system runlevel properly under /etc/rc.d.                                                                                                                                                                                  |
| Please configure the system sudoers properly at /etc/sudoers.                                                                                                                                                                                   |
| Please shutdown all applications using ports [list ports].                                                                                                                                                                                      |
| Please upgrade the system available disk space and try again.                                                                                                                                                                                   |
| Post-installation configuration...                                                                                                                                                                                                              |
| Removing [files]...                                                                                                                                                                                                                             |
| Removing Cisco PVM system environments and configurations...                                                                                                                                                                                    |
| Removing Cisco PVM system runlevel information...                                                                                                                                                                                               |
| Security key and certificate generated and stored at [list location of keystore].                                                                                                                                                               |
| System configuration not suitable for Cisco PVM installation.                                                                                                                                                                                   |
| The following Cisco shared memory segments should be removed.                                                                                                                                                                                   |
| The following Cisco PVM processes should be stopped.                                                                                                                                                                                            |
| The installation has completed successfully.                                                                                                                                                                                                    |
| Uninstallation of Cisco PVM completed at [date].                                                                                                                                                                                                |
| Uninstalling [component]...                                                                                                                                                                                                                     |
| Verifying [component]...                                                                                                                                                                                                                        |

**Table B-2**      *Installation Progress Messages*

| <b>Message/Detail</b>                   |
|-----------------------------------------|
| Verifying database installation...      |
| Verifying report server installation... |