Cisco Prime Provisioning 6.6 Installation Guide

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Preface

This preface includes the following sections:

Objective

This guide lists the hardware and software recommendations for running this product, and it describes how to install, set up, and log into Cisco Prime Provisioning (Prime Provisioning).

Note Prime Provisioning can be used as a standalone product or as part of the Prime Carrier Management Suite. When installed as part of the suite, you can launch Prime Provisioning from the Prime Central portal. For more information about Prime Central, see the documentation for *Cisco Prime Central*.

Related Documentation

The entire documentation set for Prime Provisioning, can be accessed at:

http://www.cisco.com/en/US/products/ps12199/tsd_products_support_series_home.html

or at:

http://www. cisco.com/go/provisioning

The following documents comprise the Prime Provisioning documentation set:

General Documentation (in suggested reading order)

- *Cisco Prime Provisioning Getting Started and Documentation Guide 6.3*
- *Cisco Prime Provisioning 6.6 Release Notes*
- *Cisco Prime Provisioning 6.6 Installation Guide*
- *Cisco Prime Provisioning 6.6 Supported Devices*

- *Cisco Prime Provisioning 6.6 User Guide*
- *Cisco Prime Provisioning Administrator's Guide 6.3*
- *Open Source Used in Cisco Prime Provisioning 6.6*

API Documentation

- *Cisco Prime Provisioning 6.6 API Programmer Guide*
- *Cisco Prime Provisioning API 6.6 Programmer Reference*

Note All documentation *might* be upgraded over time. All upgraded documentation will be available at the same URLs specified in this document.

Cisco Prime Carrier Managemenet Documentation

If you are deploying Prime Provisioning as part of the Prime Carrier Management suite then see also the documentation for the other suite component:

- *Cisco Prime Central*
- *Cisco Prime Network*
- *Cisco Prime Optical*
- *Cisco Prime Performance Manager*

Audience

This guide is intended primarily for the following audiences:

- System administrators who are familiar with Linux and are responsible for installing software on Linux servers such as Cisco UCS.
- System administrators who are familiar with Cisco devices and their company's network topology.

How This Book is Organized

This guide contains the following chapters:

- Chapter 1, "Installation Requirements," describes the hardware and software recommendations and requirements to run Prime Provisioning.
- Chapter 1, "Installation Requirements,"explains:
  - Setting Up Oracle for Prime Provisioning, page 1 describes how to set up an Oracle Database 11g, Enterprise Edition Release 11.2.0.3.0 - 64 bit Production server that works with Prime Provisioning.
  - Setting up Cisco Configuration Engine with Prime Provisioning, page 9 describes how to set up a Cisco Configuration Engine, configure a TIBCO Rendezvous Routing Daemon (rvrd), and check router configurations for Cisco Configuration Engine software with Prime Provisioning.
- Chapter 3, "Installing Prime Provisioning," explains what is packaged with Prime Provisioning, prerequisites for installing Prime Provisioning, how to install Prime Provisioning, configuring HTTPS, logging in for the first time, how to install license keys, repository migration and upgrading, launching the Topology Tool, and uninstalling Prime Provisioning.

- Chapter 4, "Upgrading Prime Provisioning," explains how you can upgrade to the latest Prime Provisioning release.
- Chapter 5, "Next Steps,"explains the steps that you can follow after installing Prime Provisioning. It also describes the objectives of backup and restore and a standby system and how to set them up for Sybase and for Oracle.
- Chapter A, "Troubleshooting" describes the major areas in the Prime Provisioning installation in which troubleshooting might be necessary.
- Index

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, 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

Subscribe to the *What's New in Cisco Product Documentation* as a Really Simple Syndication (RSS) feed and set content to be delivered directly to your desktop using a reader application. The RSS feeds are a free service and Cisco currently supports RSS Version 2.0.

Installation Requirements

Installation Overview

This chapter describes the system recommendations and requirements for Cisco Prime Provisioning. Prime Provisioning is a web-based application you install on a server, along with a web server and other supporting packages. You access Prime Provisioning using a web browser.

The recommendation is to thoroughly review this list before even planning your installation, to be sure you have all the hardware and software you must successfully install.

This chapter includes the following sections:

Prime Provisioning Server Hardware

You must have a DVD drive to install the Prime Provisioning 6.6 product.

For information on NSA's configuration guidance for operating systems, see

http://www.nsa.gov/ia/mitigation_guidance/security_configuration_guides/operating_systems.shtml

To access the platform hardening guide for RHELv5, click

http://www.redhat.com/promo/summit/2008/downloads/pdf/hardening-rhel5.pdf

To access the Red Hat Enterprise Linux 6 Security Guide, click

https://www.uvm.edu/~fcs/Doc/RedHat/Red_Hat_Enterprise_Linux-6-Security_Guide-en-US.pdf

To access the Red Hat Enterprise Linux 6 Security Guide, latest version, click

https://access.redhat.com/site/documentation/en-US/Red_Hat_Enterprise_Linux/6/pdf/Security_Guide/Red_Hat_Enterprise_Linux-6-Security_Guide-en-US.pdf

For the Linux server, the minimum recommendations are as shown in Table 1-1.

Table 1-1 Minimum Linux Server Recommendations for Prime Provisioning Applications

Class	Applications	Minimum Linux Server	RAM	Swap Space	Disk Space
Entry	L2VPN and L3 MPLS with a total of up to 1500 service endpoints Note: Not recommended for API use.	C200 with 1 CPU (recommending X5550) Standard RAID card (0 and 1)	8 GB (see note below)	8 GB	73 GB hard drive (see note below)
Mid-range	L2VPN and L3 MPLS with a total of up to 10,000 service endpoints	C200 with 2 CPUs (recommending 2 x X5550 for cost perspective) Standard RAID card (0 and 1)	16 GB	16 GB	73 GB hard drive (see note below)
High End	L2VPN and L3 MPLS with a total of more than 10,000 service endpoints	C210 with 2 CPUs (recommending 2 x X5670) PCI RAID card (0, 1, 5, 6...)	24 GB	32 GB	146 GB hard drive 4 disk drives (RAID5) for virtual machines.

Notes:

The recommended servers in this table are examples for typical installations. Relative performance can be impacted by many factors. Please contact your Cisco account representative if you need assistance in selecting the correct server.

The default Oracle and Sybase database layouts are sufficient for Prime Provisioning. Further optimization is your preference.

The two disk drives are required (one for OS/Prime Provisioning and one for swap space). If disk mirroring for better availability is required, then four disk drives is two mirrored pairs.

The minimum memory resources required for a mid-level VmWare image running Prime Provisioning are 4 GB RAM and 8 GB swap space. To determine whether all of the CPU core resources are needed for running Prime Provisioning, it is recommended that you perform benchmark testing of your server under typical load.

In addition to Linux platforms, Prime Provisioning supports UCS/VMware platforms. Specific platforms supported include:

- Red Hat Enterprise Linux, versions 5.5 and 6.2.
- VMware virtualization, including running the embedded database.
- Linux UCS B-series blade servers.
- Linux UCS C-series servers.

Prime Provisioning Client

The following is needed for the Prime Provisioning client:

- A web browser is needed for the client machine on which to run Prime Provisioning. For list of supported browsers, see the Web Browser Support section.
- The screen resolutions that are recommended are 1024x768 pixels and 1280x1024 pixels. To view the fonts and colors correctly, the system display must be set to use a color quality of (at least) 32-bits.

Note Adobe Flash player (version 10.3.183.7) and its plug-in must be installed to support the web browser and to enable the main bar and charts in the Prime Provisioning GUI.

Note In Internet Explorer, we recommend disabling the script debugging feature. To do this, navigate to **Tools > Internet Options** and click the **Advanced** tab. Check the check box **Disable script debugging** and click **OK**.

Note When using Mozilla Firefox and launching Prime Provisioning in a second window, you might lose the latest changes made using the the first Prime Provisioning window. To avoid this, launch the second Prime Provisioning session using a tab or a hyperlink from within the first Prime Provisioning session.

- Java Runtime Environment (JRE) and Java Web Start must be installed on the client machine to run the Inventory Manager. The supported Java vesion is Java 7.

Note Prime Provisioning supports JRE version 7 (update 21) through to JRE version 7 (update 45) without issue. If using JRE version 7 (update 51) or later, the JRE security level must be reduced from ‘High’ to ‘Medium’ in order to launch the TE Topology Tool.

Note When using more than one Prime Provisioning login, ensure each login is using a different HTTP session. To do so, run each session in a separate browser launched from the command line or by clicking on the browser icon on the desktop or **Start** menu. Do not run parallel Prime Provisioning logins in tabs within the same browser window or in browser windows launched from existing browser windows.

For operations that last longer than the amount of time predefined by the browser, you may get a warning message that says

“Warning: Unresponsive script. A script on this page may be busy, or may have stopped....”

Examples of tasks during which this warning message occurs are:

- editing a customer device with many interfaces,
- editing user details when there are many users.

Workaround- Increase the browser timeout value.

- For Mozilla Firefox, see http://kb.mozillazine.org/Unresponsive_Script_Error
- For Internet Explorer 8, see http://support.microsoft.com/kb/175500#LetMeFixItMyselfAlways

Web Browser Support

- Prime Provisioning GUI is supported by the following browsers:
  - Firefox browser version 24 ESR and 24 (standard).
  - Internet Explorer 9.
- The recommended screen resolutions for both browser windows are:
  - 1024 x 768 pixels
  - 1280 x 1024

  To view fonts and colors correctly, the system display must be set to use a color quality of at least 32-bits.
- Prime Provisioning supports JRE version 7 (update 21) through to JRE version 7 (update 45) without issue. If using JRE version 7 (update 51) or later, the JRE security level must be reduced from 'High' to 'Medium' in order to launch the TE Topology Tool.
- The zoom functionality only works properly in the Prime Provisioning GUI if the Firefox browser menu option **View > Zoom > Zoom Text Only** is unchecked.
- Adobe Flash player (version 10.3.183.7) and its plug-in have to be installed to support the web browser and allow viewing of the main bar and charts in the GUI.
- If the Service Request Chart (pie chart) displays both very large and very small numbers, the pie section representing very small numbers is also very small and consequently difficult to access. **Workaround:** Try selecting individual subsections (broken, working, or to be deployed).
- For some operations that last a long time, the browser may issue a message like "Warning: Unresponsive script. A script on the page may be busy...." Two examples of this are when editing a customer device with many interfaces, and when editing user details, if there are many users. **Workaround:** Increase the browser timeout value.

IOS XR Device Setup

The following are the minimum patches for IOS XR, PIEs:

- **mini.pie** - Always required
- **mpls.pie** - Always required for Prime Provisioning
- **mcast.pie** - Required for Prime Provisioning layer 3 multicast functionality
- **k9sec.pie** - Required only if using Secure Shell (SSH)

Supported Cisco Network Devices and Software Versions

The following hardware and software are recommended and required as specified:

- Cisco Prime Provisioning can configure a managed CPE in the case of Laye 3 VPN services. It supports any device running IOS or IOS-XE version 12.1 or newer.
- The Network-facing Provider Edge (NPE) and User-facing Provider Edge (UPE) can be any of the PE devices in the following tables.

The devices and related software supported are listed in the Supported Devices Table for Prime Provisioning 6.6.

Preparing for the Installation

This chapter describes the steps required to set up your Oracle Database 11g server and to set up the Cisco Configuration Engine with Prime Provisioning.

Setting Up Oracle for Prime Provisioning

Prime Provisioning comes with an embedded Sybase DBMS. This section is relevant to you only if you choose to use an external Oracle DBMS. You are responsible for the installation, licensing, and administration of the Oracle DBMS.
This section describes how to set up an Oracle Database 11g, Enterprise Edition Release 11.2.0.3.0 - 64 bit Production server that works with Cisco Prime Provisioning. This section is intended for database administrators who are familiar with Oracle.

Note Prime Provisioning 6.6 was tested with Oracle Database 11g, Enterprise Edition Release 11.2.0.3.0 - 64 bit Production. If you would like to use another version of Oracle, see Oracle's compatibility information.

This chapter does not cover all the details about installing and setting up this Oracle server. For the complete information, see the Oracle Installation Guide. Prime Provisioning provides schema files to be loaded on an Oracle server. The Prime Provisioning customer must decide on the Oracle server configuration.

9. Configuring Oracle RAC, page 2-7
10. Backup of Oracle Database, page 2-8

This section also contains a "Troubleshooting" section on page 2-8.

Prerequisites

Prime Provisioning support for an Oracle database is for Oracle Database 11g, Enterprise Edition Release 11.2.3.1.0 - 64 bit Production. This is the version of Oracle with which Prime Provisioning 6.6 was tested. If you would like to use another version, see Oracle's compatibility information.

The remaining prerequisites are as specified in the following steps:

Step 1 When the Oracle server is set up, the following initialization parameters should be in the database **init** file:

- db_block_size = 8192 or larger
- compatible = "11.2.0.3.0"
- open_cursors = 512 or larger
- processes = 150 or larger

Step 2 Record the following information about the server setup. This information is needed during the Prime Provisioning installation:

- Oracle server name
- Oracle server instance identifier (SID)

Note This is specified in Step 18.

- Database port number for client connections (default: 1521)
- Oracle user ID and password created for Prime Provisioning

Note Create an Oracle database userid and password. This is needed during Prime Provisioning installation. Do not use the **system** or **sys** account for Prime Provisioning data. Use a separate table space other than the system table space.

Step 3 Before loading the Prime Provisioning database schema, make sure the Oracle database has been successfully started and the database user has proper privileges. See the Oracle Administration Guide for detailed instructions about how to set up the database and manage user accounts.

Step 4 Proceed to the section "Installing Oracle."

Installing Oracle

The following information about an Oracle installation is just one example.

You must install Oracle before you install the Cisco PRIME Fulfillment (Prime Provisioning) software (or at least know your Oracle home directory, host machine, and Oracle Server ID), and your database and its listener must be running when you launch the Prime Provisioning servers.

If you intend to use the same Oracle installation with more than one installation of the Prime Provisioning servers, you must create a unique Oracle SID and Oracle tablespace for each Prime Provisioning installation.

init*ORACLE_SID*.ora

This file should already exist in the `/dbs` subdirectory of your Oracle installation. (The filename contains your database's SID in place of *`ORACLE_SID`*. For example, if you named your database Prime Provisioning, this file is named `initISC.ora`.)

oratab

The `oratab` file should be located in the `/var/opt/oracle` directory on the machine on which the database is installed. It is used by Oracle's **dbstart** utility to identify your database.

The `oratab` file must contain the following line:

database_name:*location_of_your_Oracle_executables*:Y

If your Oracle home directory is `/oracle/10.2.0` and your database SID is Prime Provisioning, the oratab entry would be as follows:

Prime Provisioning:/oracle/10.2.0:Y

This file identifies the name and location of your database for the Oracle utility **dbstart** (and its companion **dbshut**). The **dbstart** utility starts Oracle; the "Y" at the end of the `oratab` entry tells the **dbstart** utility to open the database named Prime Provisioning. (Substitute your database name for Prime Provisioning in the sample. List the path to your Oracle installation as an absolute path, not a relative path.)

To make this happen automatically following a reboot (after a power interruption, for example), execute the **dbstart** utility from a script in the `/etc/init.d` directory on the Oracle host machine.

Verifying and Launching Oracle

Your Oracle database must be open before you can install or use the Prime Provisioning software.

First, verify the Oracle processes, as described in the following section. If the processes are running, you can skip the succeeding section.

Verifying Oracle Processes

Log into the Oracle host machine and enter the following on the command line to see if the Oracle processes are running:

ps -ef | grep ora_

ps -ef | grep tnslsnr

If there is no output displayed from the **ps** command, Oracle is not running.

If Oracle is running and the listener process is running, you should see something similar to the following:

```
oracle   328   1   0   14:25:18     0:00 ora_pmon_ISC
oracle   328   1   0   14:25:18     0:00 ora_dbwr_ISC
oracle   328   1   0   14:25:18     0:00 ora_lgwr_ISC
oracle   328   1   0   14:25:18     0:00 ora_ckpt_ISC
oracle   328   1   0   14:25:18     0:00 ora_smon_ISC
oracle   328   1   0   14:25:18     0:00 ora_reco_ISC
oracle   328   1   0   14:25:18     0:00 ora_wmon_ISC
oracle   328   1   0   14:25:18     0:00 tnslsnr LISTENER -inherit
```

These are the Oracle processes currently running (your output might not match this list exactly, depending on which Oracle components are installed).

Launching Oracle and Opening Your Database

Your Oracle database must be open before you can install or use the Prime Provisioning software.

If Oracle is not currently running, you must use the startup utilities located in the `/bin` subdirectory of your Oracle installation.

To open your database, you must be logged into the Oracle host workstation under the Oracle administrator (DBA) user ID; you then locate your `$ORACLE_HOME/bin` subdirectory.

On the command line, enter the following:

dbstart

The `dbstart` script starts the database identified in the `oratab` file. If the database starts successfully, you should see several lines of output, including the following:

```
SQL>   Connected to an idle instance.
SQL>   ORACLE instance started.
```

...and ending with the following:

```
Server Manager Complete.
Database "Prime Provisioning" warm started.
```

If the listener process is not running, you must also start that process. On the command line, enter the following:

lsnrctl start

You should see several lines of output as the process is invoked, then you should see output similar to the following:

```
Services Summary...
   Prime Provisioning    has 1 Service handler(s)
```

The command completed successfully.

Setting Up Your Oracle Files

To configure your database to work with the Prime Provisioning software, you must create a tablespace and configure several files.

You must be logged into the Oracle host using the user ID (such as `oracle`) created during the Oracle installation procedure.

Oracle Tablespace Requirements

You must create an Oracle tablespace for your Prime Provisioning tables.

To create the tablespace, Oracle must be running and your database must be open.

Log into the Oracle host using the `oracle` user ID. Identify (or create) the directory where your Prime Provisioning data should be stored, and grant write permission to the `oracle` user ID. Be sure your `ORACLE_SID` and `ORACLE_HOME` environment variables are set correctly, then launch the Oracle utility `sqlplus`, which is located in the `$ORACLE_HOME/bin` directory.

At the SQL prompt, enter the following on the command line:

connect / as sysdba;

CREATE TABLESPACE ISC_DAT

DATAFILE '/*your_data_directory*/ISC_DAT_01.dbf' size 500M

autoextend on

next 50M

maxsize unlimited;

The data directory you specify must already exist. The `TABLESPACE` and `DATAFILE` names are arbitrary. You can use any names that help you keep track of which files are associated with which database. The only requirement is that the name given to the tablespace at the time of its creation (`ISC_DAT` in the example) must be the same as the default tablespace listed when you create the `prime` user account.

The autoextend option allows ORACLE to automatically extend your data file. The maximum size of the data file is limited only by the available space on the file's disk.

prime Oracle User Account

Before invoking an Oracle installation, you need to grant 'create and view' permissions to an Oracle user. To grant these permissions, execute the SQL query as shown in the following steps:

While `sqlplus` is still running, create a `prime` user account using your `ISC_DAT` tablespace as follows:

CREATE USER prime IDENTIFIED BY cisco

DEFAULT TABLESPACE ISC_DAT;

GRANT CONNECT TO prime;

GRANT RESOURCE TO prime;

GRANT CREATE VIEW TO <<PRIME PROVISIONING DB username>>

GRANT SELECT ON sys.dba_constraints TO <<PRIME PROVISIONING Oracle DB username>>

You should use the username and password created in these steps when entering Oracle information in the script `prime.configure`.

Testing Your Oracle Database Connection for Oracle User Prime

When you have configured your database and listener file, enter the following (for the Oracle user `prime` and for the database named Prime Provisioning) on the command line:

sqlplus <*username*>/<*password*>

<*username*> is a database username (in our previous example, we used **prime**).

<*password*> is a database password (in our previous example, we used **cisco**).

If your system is set up properly (and your Oracle database is running), you should see a message advising you that you are connected to Oracle. Enter `quit` on the command line to exit the database.

Prime Provisioning Software Installation

Note The Prime Provisioning database schema files are loaded during the installation.

Perform the following:

Step 1 Follow the **custom** install instructions in "Installing Prime Provisioning" section on page 3-2 , and log in, as explained in the "Logging In for the First Time" section on page 5-3.

Step 2 Proceed to the section "Verify Prime Provisioning Installation with Oracle".

Verify Prime Provisioning Installation with Oracle

To verify the Prime Provisioning installation with Oracle, do the following:

Step 1 Run **sqlplus** <*oracle_id*>/<*oracle_password*> on the Oracle server.

Step 2 From the **SQL>** prompt, run **select host_name** from **vpnsc_host;**

This command returns the installed Prime Provisioning hostname.

Step 3 Log into the Prime Provisioning server.

Step 4 Check the file /opt/Prime**Provisioning**/etc/vpnsc.properties and make sure that the **<oracle server>** and <*ORACLE_SID*> are correct in the following entry in the file:

repository.persistence.url=jdbc:oracle:thin:@<*oracle server*>:<*ORACLE_SID*>

Step 5 Execute the schema verification script to verify the repository schema version, as follows:

cd $PRIMEP_HOME

cd /bin

./checkSchemaVer.sh <*oracle_id*>/<*oracle_password*>

where: <*oracle_id*> is the Prime Provisioning userid in the Oracle database and <*oracle_password*> is its password.

Step 6 The output from the script should be "Current schema version = 6.0". If that is not the output from the script, Prime Provisioning might not have been installed properly or the Prime Provisioning repository might not have been upgraded successfully.

Importing an Oracle Repository Dump

To import the Oracle repository dump in Prime Provisioning, do the following:

Step 1 Log into the Oracle Webapp.

Step 2 Create the User and Tablespace.

Step 3 Log into the Oracle Server and source the enviornment:

```
rlogin <Oracle Server Name>
```

where:

<*Oracle Server Name*> Specify the Oracle Server Name that is being used.

Step 4 Enter: **su - <user name>**

Step 5 Enter: **cd $ORACLE_HOME/bin**

Step 6 Enter: **source coraenv**

Step 7 Enter: **setenv ORACLE_HOME to $ORACLE_HOME/bin**

Step 8 Enter: **setenv ORACLE_SID to orcl**

Step 9 Copy the .dmp file to a directory on the Oracle Server.

Step 10 Enter: **cd $ORACLE_HOME/bin**

Step 11 Run the command: **imp**

When you run this script, you are asked to enter the values for the following prompts:

a. Import file: <specify the full path to .dmp file>
b. Enter insert buffer size: **30720** (accept the default value)
c. List contents of import file only: **no** (accept the default value)
d. Ignore create error due to object existence: **no** (accept the default value)
e. Import grants: **no** (accept the default value)
f. Improt table data: **yes**
g. Import entire export file: **yes**

Configuring Oracle RAC

In addition to having already installed Prime Provisioning and followed the steps required to configure an Oracle server, you must follow these steps when using Oracle Real Application Clusters (RAC). Prime Provisioning does not support client load balancing with Oracle RAC.

Note A limitation of Oracle RAC is that any uncommitted transactions made during an instance or node failure and recovery period are lost. The recovery of these transactions is not supported. For this reason, the behavior of tasks that are running at the time as an instance or node fail over is undetermined. These tasks should be redeployed.

In case of a failure, for more information see the Oracle RAC documentation for database instance recovery time details.

Step 1 Verify that the new Oracle RAC servers are available and have an Prime Provisioning tablespace with user configured. If you need help setting this up, see the "Verify Prime Provisioning Installation with Oracle" section on page 6.

Step 2 Modify $PRIMEP_HOME/runtime.properties to have the correct values for the following parameters:

- **db_server**
- **db_url—A sample URL** is jdbc:oracle:thin:@//Virtual IP:<*port*>/globalSID, where <*port*> is the port number, which defaults to **1521**.
- **db_driver**
- **db_usr**
- **db_pwd**

Step 3 Prepopulate the database user name and password into the database **./pime.sh execjava.sh com.cisco.vpnsc.common.BootStrapHelper put repository** <*oracle username*> <*oracle password*>

Step 4 If running, use the **./prime.sh stop** command to stop Prime Provisioning.

Step 5 Verify that the value for the DCPL property watchdog/server/dbpoller/connectionextend is still set to the default: 5. See Appendix C, "DCPL Properties," in the *Cisco Prime Provisioning 6.6 User Guide*.

Step 6 To update the database with the changes, enter:

./prime.sh startdb

./prime.sh initdb.sh

Step 7 Use **./prime.sh stop** to stop the database.

Step 8 Then enter **./prime.sh start** to start Prime Provisioning.

Backup of Oracle Database

See the Backup and Restore of Prime Provisioning Repository chapter in the Administration Guide.

Troubleshooting

This section lists Oracle database-related trouble shooting tips based on the following error messages:

- **ORA-01631: max # extents (4096) reached in table xyz**

  If you receive this message, it is typically an Oracle server storage configuration issue. This problem occurs when the tablespace for Prime Provisioning exceeds the limit set by the database configuration. To prevent this, plan proper storage before Prime Provisioning is set up. If this problem occurs, increase the initial or next extent, increase the growth percentage (such as, PCT_INCREASE), or reset the number of max extents (can be unlimited). The Prime Provisioning data must be exported and imported to the tablespace with the new tablespace parameters.

- **Unable to contact Rbac Manager**

  If you receive this message on Prime Provisioning and are unable to log in, this might be because Prime Provisioning cannot connect to the Oracle database. To avoid this situation, increase the number of Oracle server processes.

- **Cannot log into Inventory Manager or Topology Manager**

If you cannot log into the Inventory Manager or Topology Manager, verify that the Oracle hostname is accessible from a client machine, either by DNS or a host file.

- **Resynchronize Prime Provisioning with new or updated Oracle ID and password**

  If the Oracle ID and password change after the Prime Provisioning installation, you must execute the following:

  a. execjava.sh com.cisco.vpnsc.common.BootStrapHelper put repository <*oracle_id*> <*oracle_password*>

  b. update etc/spe/cns.properties and modify these two properties:

     DataAccess.principal.1 `<oracle_id>`

     DataAccess.credentials.1 `<oracle_password>`

Setting up Cisco Configuration Engine with Prime Provisioning

Overview

This section gives information about downloading to a server using Cisco Configuration Engine with Prime Provisioning.

For versions 2.0, 3.0, and 3.5 of the Cisco Configuration Engine software, the server is a server. For version 1.3.x, 1.4, and 1.5 of the Cisco Configuration Engine software, the server is the Cisco CNS Intelligence Engine 2100 (IE2100) appliance.

Prime Provisioning supports the Device Access Protocol (DAP) of CNS for communication with any Cisco IOS device. The DAP includes:

- uploading a configuration file from a device
- downloading a configlet to a device
- executing a command on a device and obtaining the result (all communications).

Prime Provisioning supports CNS Plug-and-Play.

- Set Up Steps, page 2-9
- Checking Router Configurations Overview, page 2-13

Set Up Steps

To enable a server running the Cisco Configuration Engine functionality on Prime Provisioning, set up in the following order:

1. Set up the servers for Cisco Configuration Engine, as shown in "Set Up to Download to a Server Using Cisco Configuration Engine."
2. Configure a TIBCO Rendezvous Routing Daemon (**rvrd**), as shown in "Configure a TIBCO Rendezvous Routing Daemon."

Set Up to Download to a Server Using Cisco Configuration Engine

Prime Provisioning supports the integration with servers running the Cisco Configuration Engine 1.3.x, 1.4, 1.5, 2.0, 3.0, and 3.5 software.

For the Cisco Configuration Engine 1.3.x, 1.4, 1.5, 2.0, 3.0, and 3.5 software installation and setup, see the Cisco Configuration Engine 1.3.x documentation set at:

http://www.cisco.com/en/US/products/sw/netmgtsw/ps4617/tsd_products_support_series_home.html

On a freshly set up Cisco Configuration Engine server, remove Pluto protection, as follows.

Step 1 Log in as **root**.

Step 2 Enter:

plutosetup.

Step 3 A warning appears:

"plutosetup will open some class files to public access. It is a security risk."

Continue (y/n):

Answer **y** for yes to the above warning.

Note Because the Cisco Configuration Engine server and the Prime Provisioning Master server are behind a secure barrier, we can safely answer **y** for yes to the security risk warning message above. This removal of Pluto protection exposes some files in the Cisco Configuration Engine server that allow Prime Provisioning to create, delete, and edit servers in the Cisco Configuration Engine repository. This is needed for proper Prime Provisioning to Cisco Configuration Engine 1.3.x, 1.4, 1.5, 2.0, 3.0, and 3.5 integration. Removal of Pluto protection only needs to occur when a particular Cisco Configuration Engine server is first used and every time the file **/opt/CSCOcnsie/bin/pluto** is deleted for any reason.

Configure a TIBCO Rendezvous Routing Daemon

In this section, do the following:

1. Configuring the rvrd Daemon on the Prime Provisioning Master Machine, page 2-10.
2. Configuring the rvrd Daemon on a Cisco Configuration Engine Server, page 2-11.

Configuring the rvrd Daemon on the Prime Provisioning Master Machine

The TIBCO Rendezvous Routing Daemon (**rvrd**) is the default daemon on the Prime Provisioning Master server.

To configure an **rvrd** daemon on an Prime Provisioning Master server:

Step 1 Go to **Administration** > **Hosts**.
The Hosts page displays the list of hostnames available.

Step 2 Select your hostname and click **Config**.
The Host Configuration page is displayed.

Step 3 Go to **CNS > tibco.**

Step 4 Set the Tibco properties as follows:

- **ConnectInterval** value- 60
- **logLevel** value - INFO.
- **Hostname New Value** - 7500.
- **Network -** enter the local network name created in CNS Server. For example: prime.
- **Service** - enter the value for the service created in CNS Server. For example: 7530.

Configuring the rvrd Daemon on a Cisco Configuration Engine Server

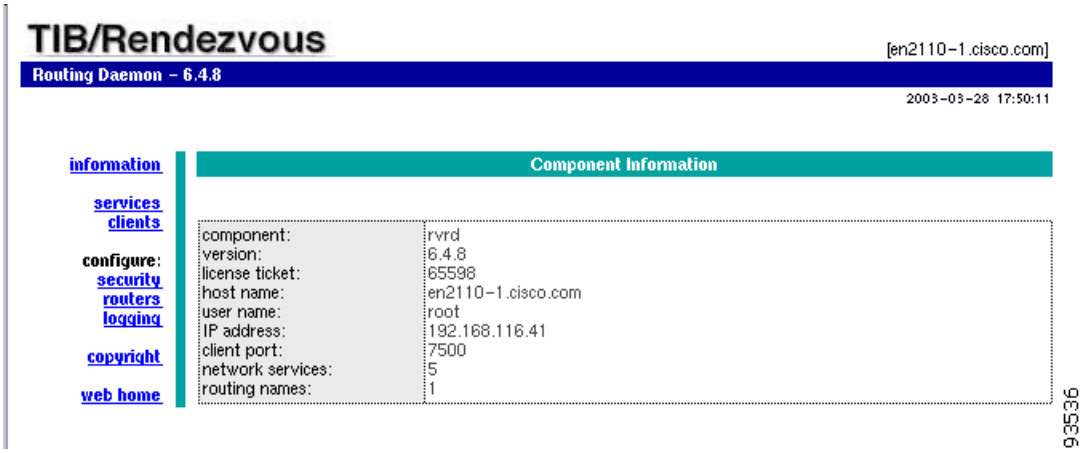
To configure an **rvrd** daemon on a Cisco Configuration Engine server, do the following:

Step 1 The TIBCO Rendezvous Routing Daemon (**rvrd**) is the default daemon on the Cisco Configuration Engine server.

To configure an **rvrd** daemon on a Cisco Configuration Engine server, start a Prime Provisioning-supported browser and go to the following URL: **http://**<*ciscoconfigurationengine_hostname*>**:7580** or **http://**<*ciscoconfigurationengine_ip_address*>**:7580**.

Step 2 Look at the **component** field under the **information** link to verify that **rvrd** is running. It should say **rvrd**, as shown in Figure 2-1.

Figure 2-1 Cisco Configuration Engine rvrd Verification



Step 3 Click on the **routers** link in the left column.

Step 4 In the **Add Router Name** field in the upper part of the window, enter the name of the Cisco Configuration Engine server.

Step 5 Click **Add** to create an entry with the new router name.

The chosen name appears in the **Router Name** column in the lower part of the window.

Step 6 In the **Local Networks** column, click the current entry in the field (this number indicates the number of local networks currently defined).

Step 7 Specify the local Cisco Configuration Engine server network with the following values:

a. In the **Network Name** field, enter the unique name as shown in "Configuring the rvrd Daemon on the Prime Provisioning Master Machine" section on page 2-10.

b. In the **Service** field, add the TIBCO port number for the Prime Provisioning installation (default: 7530).

c. The **Network Specification** field is optional. You can enter a description.

Step 8 Click **Add Local Network**. The entered values appear in the corresponding columns in the lower section of the page.

Step 9 Click on the entry just created. In this example, it is **prime**.

Step 10 In the **Add Subject** field, enter **cisco.cns.>**.

Step 11 Click **Add for Import and Export**. The entered values appear in the **Imported Subjects** and **Exported Subjects** columns in the lower part of the window.

Step 12 If you are using Cisco Configuration Engine 1.3.2, 1.4, 1.5, 2.0, 3.0, or 3.5 in the **Subject** field in the lower part of the window, enter **cisco.mgmt.cns.>**, repeat Step 11, and then proceed to Step 13. If you are using Cisco Configuration Engine 1.3 or 1.3.1, then proceed to Step 13.

Step 13 Click the **routers** link in the left column.

Step 14 In the **Local Networks** column, click the current entry in the field (this is at least **1** now, because you already added one local network).

Step 15 Specify the local Cisco Configuration Engine network with the following values:

a. In the **Local Network Name** field, add a unique name. For example: **ciscoconfigurationengine-eventBus**.

b. In the **Service** field, add the **CNS Event Bus Service Parameter** value defined in the setup of Cisco Configuration Engine server (default: 7500).

c. In the **Network Specification** field, leave it blank or enter the name of the Cisco Configuration Engine server.

Note If you encountered *any* error, check the check box for the row of information you want to remove, then click **Remove Marked Items**.

Step 16 Click on the entry just created in the **Local Network Name** column.

Step 17 In the **Add Subject** field in the upper part of the window, enter **cisco.cns.>**.

Step 18 Click **Add for Import and Export**. The entered values appear in the **Imported Subjects** and **Exported Subjects** columns in the upper part of the window.

Step 19 If you are using Cisco Configuration Engine 1.3.2, 1.4, 1.5, 2.0, 3.0, or 3.5 in the **Subject** field in the lower part of the window, enter **cisco.mgmt.cns.>**, repeat Step 18, and then proceed to Step 20. If you are using Cisco Configuration Engine 1.3 or 1.3.1, just proceed to Step 20.

Step 20 Click the **routers** link in the left column.

Step 21 In the **Neighbors** column, click the current entry in the field (this number indicates the number of neighbors currently defined).

Step 22 Add the following in the **Neighbors Configuration** window:

a. In the **Neighbor Name** column, add the router name as automatically configured on the Prime Provisioning Master server, and verified in section "Configuring the rvrd Daemon on the Prime Provisioning Master Machine." This router name is <*isc_hostname*>.

Note It is very important that the **Neighbor Name** is the same as the **router** name configured on the Prime Provisioning Master server.

b. In the **Hostname or IP addr** column, add the hostname or IP address of the Prime Provisioning Master server.

c. In the **Remote** column, add the **Port** number for the **Local Endpoint** defined on the Prime Provisioning Master server as shown in the section "Configuring the rvrd Daemon on the Prime Provisioning Master Machine."

d. In the **Local** column, add the **Port** number for **Remote Endpoint** defined on the Prime Provisioning Master server, as shown in section "Configuring the rvrd Daemon on the Prime Provisioning Master Machine."

Step 23 Click **Add Active [all]**.

A good indication that the connection is established is when the new name in the **Neighbor Name** column appears as a hyperlink in the bottom of the window. It takes a few seconds for this to occur. Also, it is recommended to click **Refresh** a few times to see the hyperlink.

Note If you encountered *any* error, check the check box for the row of information you want to remove, then click **Remove Marked Items**.

Checking Router Configurations Overview

The Cisco IOS image is needed for the routers used with the Cisco Configuration Engine functionality (that is, the CNS transport mechanism and/or the CNS Plug-and-Play feature). For Cisco Configuration Engine Release 1.3, the recommended Cisco IOS release is 12.2(8)T or later; for Cisco Configuration Engine Release 1.3.1, 1.3.2, 1.4, 1.5, 2.0, 3.0, or 3.5, the recommended Cisco IOS release is 12.2(11)T or later. Cisco IOS releases 12.3(1)T or later are supported only by Cisco Configuration Engine Releases 1.3.2, 1.4, 1.5, 2.0, 3.0, and 3.5.

Additionally, the router running a configuration must contain the following CNS commands:

1. **cns config partial** <*cisco configuration engine server IP address*> **80**
2. **cns event** <*cisco configuration engine server IP address*> **11011**

   or

   cns event <*cisco configuration engine server IP address*> **11011 keepalive** <*num. of seconds*> <*num. of trials*>

Note The **keepalive** option makes sure the TCP connection between Cisco Configuration Engine and the router is alive at all times. It sends keepalive messages at <*num. of seconds*> intervals with <*num. of trials*> retries.

3. For IOS versions 12.3(1)T or later (12.0(27)S2 or later for Cisco 12000 (GSR) Series): **cns exec 80**

Also, the router startup configuration must contain the following two CNS commands:

1. **cns config initial** <*cisco configuration engine server IP address*> **event**

The **cns config initial** command should be configured in the startup configuration of the Cisco IOS device or router. It triggers the router to pick up and apply any initial configuration that might be waiting for it on the Cisco Configuration Engine server. After the **cns config initial** command is executed, this command is automatically removed. The recommendation is to include the **cns config partial** command in the initial configuration that is waiting on Cisco Configuration Engine. If a **no persist** option is used, the router does not perform a **write-mem**, thus keeping the startup configuration from being overwritten.

2. **cns event** <*cisco configuration engine server IP address*> **11011**

   or

   cns event <*cisco configuration engine server IP address*> **11011 keepalive** <*num. of seconds*> <*num. of trials*>

Note The **keepalive** option makes sure the TCP connection between Cisco Configuration Engine and the router is alive at all times. It sends keepalive messages at <*num. of seconds*> intervals with <*num. of trials*> retries.

Different IOS versions can support additional CNS commands or different formats of the same CNS command. See the Cisco Configuration Engine software documentation for more details on the other possible CNS commands and their options.

Installing Prime Provisioning

Use the information described in this chapter in the following order:

Note See Chapter 1, "Installation Requirements,"before installing Cisco Prime Provisioning.

Note If you are planning to use an Oracle Database with Prime Provisioning instead of the default embedded database, see Setting Up Oracle for Prime Provisioning, page 2-1 before continuing with the installation.

Initial Configuration—Creating the Prime Provisioning Owner

The first time you install Prime Provisioning, create a user to own the software. This user is the default username when you log into Prime Provisioning. Create the user and group using Linux commands or the Linux Admin tool. This user must have a valid group ID and read and write permissions to the **install** directory.

To add a user to your server using the standard Linux commands, follow these steps:

Step 1 At the Linux prompt, log in as **root**.

Step 2 To create the user, enter:

```
useradd -d /users/<username> -m -s /bin/<shell_type> <username>
passwd <username>
```

where:

-m creates the directory specified in **-d**

<shell_type> is **sh** for the Bourne shell. The Bourne shell is the only supported shell.

iscadm is recommended as the *<username>*.

Step 3 At the prompt, enter a password.

Installing Prime Provisioning

Before installing Prime Provisioning, configure the server to be able to perform hostname to IP address translations. Ensure that Domain Naming System (DNS) or an alternative is configured.

Prime Provisioning accesses its database using a connection based on the hostname of the server. Ensure that you can reach the host via its hostname. For example, if the hostname is 'pollux', set up hostname resolution such that you do not get an error response when entering 'ping pollux'.

To add Prime Provisioning to your system, either as a new Prime Provisioning customer or a customer upgrading from an existing Prime Provisioning release, you can choose one of the following two ways to install:

- Installing Prime Provisioning Using the GUI Installer, page 3-2
- Installing Prime Provisioning Using the CLI Installer, page 3-9

Note After installing Prime Provisioning, the installation log can be found in <*PRIMEP_HOME*>**/tmp, where** <*PRIMEP_HOME*> **is the directory specified for Prime Provisioning to be installed to. By default** the PRIMEP_HOME directory is **/opt/PrimeProvisioning and the installation log can be found at /opt/PrimeProvisioning/tmp/PrimeInstallationLog.txt.**

Note The CLI installer does not support the use of Oracle database with Prime Provisioning. To use the Oracle database, use the GUI installer as explained in the "Installing Prime Provisioning Using the GUI Installer" section on page 3-2.

We recommend that you install Prime Provisioning using the Graphical User Interface (GUI) installer. This enables more configuration options than the CLI installer.

The installer checks for two kinds of disk space:

- In the intended install location, you need 1.2 GB free for the binaries plus an extra 250 MB for log file growth and the optional installation of the Cisco Configuration Engine software.
- In the database directory, you need 1 GB free. For large systems, you should have 4 to 5 GB of space. If the directory has less than 1.2 GB free, you can still install Prime Provisioning, but you might run out of space.

By default the database and installation files are all placed in a single directory. See Chapter 1, "Installation Requirements" for more information about disk space and planning.

Installing Prime Provisioning Using the GUI Installer

This section describes both a general installation procedure that applies to all upgrade path and specific details regarding individual upgrade paths.

After reviewing the information in the "Installing Prime Provisioning" section on page 3-2, you can follow these steps to install the Prime Provisioning software using the Graphical User Interface (GUI):

Step 1 If an existing Prime Provisioning installation is running, enter the **./prime.sh** command in the PRIME_HOME directory.
If an existing Prime Provisioning installation is running, enter the **Stop All** command.
See the *Cisco Prime Provisioning 6.6 User Guide* for information about WatchDog commands.

Step 2 To install using the Prime Provisioning DVD, insert the Prime Provisioning installation DVD in the drive.

Caution When you insert the DVD, the File Manager is invoked automatically. Do *not* use the File Manager to install the Prime Provisioning product. Run the installation script from a terminal window.

Note You should install as root even though Prime Provsioning will be owned by a specific user, the 'Prime Provsioning Owner'. If you do not install as root, the install will not have permission to enable automatic restart of Prime Provsioning on reboot.

Step 3 To install from a downloaded version of the product, download the Prime Provisioning software from the Software Download page.

Step 4 Open a terminal window and log in as the **root** user.

Step 5 Change to the CD ROM directory:

```
$ cd /cdrom/cdrom0
```

Step 6 If you have an existing Prime Provisioning installation with a database, you *must* back up your current database. See the instructions to back up and restore an Prime Provisioning repository or create a standby system, as explained in *Backup and Restore of Prime Provisioning Repository*.

Step 7 Change to the path in the cdrom where the Linux installation files are available, as follows:

```
cdrom> cd <path name>
```

where:

<path name> Specify the location of the directory where the Linux installation files are available.

```
The path for the Linux installation files in cdrom is: /prime_provisioning_6_6_FCS/
```

Step 8 Start the installation by executing the Prime Provisioning product installation script as follows:

```
./install.sh
```

The Prime Provisioning Graphical User Interface is initiated.

The Prime Provisioning software is installed by default in the **/opt/PrimeProvisioning-6.6** directory.

Step 9 If you are upgrading an existing Prime Provisioning installation, ensure that the existing Prime Provisioning application is completely shut down, and use *one* of the following methods to specify the target directory:

a. Install the new version of Prime Provisioning into the same directory as the existing Prime Provisioning application.

For example, if you are upgrading from Prime Provisioning 6.4 to Prime Provisioning 6.6 and the existing Prime Provisioning 6.4 installation is under the directory /opt/PrimeProvisioning-6.4, then install Prime Provisioning 6.6 in the same directory using the following steps:

– Invoke the Prime Provisioning GUI using the command:

./install.sh

- Choose the installation directory as:

  /opt/PrimeProvisioning-6.4

- Choose the option **Upgrade Existing Repository**
- Choose the path to the **isc-upgrade.zip** script
- Complete the remaining steps using the default values.

-or-

b. Install Prime Provisioning 6.6 in the same directory with a new name.

For example, if you are upgrading from Prime Provisioning 6.4 to Prime Provisioning 6.6 and the existing Prime Provisioning 6.4 installation is under the directory /opt/PrimeProvisioning-6.4, rename this directory to **/opt/PrimeProvisioning** and then install Prime Provisioning 6.6 in the same directory using the following steps:

- Invoke the Prime Provisioning GUI installation using the command:

  ./install.sh

- Choose the installation directory as:

  /opt/PrimeProvisioning

- Choose the option **Upgrade Existing Repository**
- Choose the path to the **isc-upgrade.zip** script
- Complete the remaining steps using the default values.

-or-

c. (Using the CLI) Install Prime Provisioning in a new directory.

For example, if you are upgrading from Prime Provisioning 6.4 to Prime Provisioning 6.6 and the existing Prime Provisioning 6.4 installation is under the directory /opt/PrimeProvisioning-6.4, then install Prime Provisioning 6.6 in a new directory /opt/PrimeProvisioning, with steps like the following:

- Save the Prime Provisioning 6.4 installation for possible uninstall purposes, as follows:

  tar cvf isc-6.4.tar /opt/isc-6.4

- Copy the /opt/isc-6.4/Repository to /opt/PrimeProvisioning directory.

  cp –R /opt/isc-6.4/Repository /opt/PrimeProvisioning

- Go to

  <cd /cdrom/cdrom0 directory>/upgradeTool/

- Execute the command:

  ./upgradeIscSchema.sh /opt/PrimeProvisioning

- Provide the default Prime Provisioning admin username and password.

Step 10 Click **Next**.

The Choose Installation Type dialog box is displayed.

Step 11 Choose one of the following types of installation and click **Next**.

- **Express**- enables standard set of options.
  Express installation type does not support the Oracle database and takes Embedded Sybase as the default database for Prime Provisioning. To use the Oracle database, choose Custom installation type.
- **Custom**- enables you to specify various ports and locations, and change the watermark level for available disk space.

The Server Operation Mode dialog box is displayed.

The following steps are common to both Express and Custom installation types. Steps that are specific to custom installation type are marked **(Installation type- Custom)**.

Step 12 Choose one of the following operating modes and click **Next**.

- Integrate with Cisco Prime Central- Cisco Prime Provisioning registers and interacts with the Prime Central server, portal, and other common components. You will need to provide Prime Central server details during installation. When installed as part of the suite, you can launch Prime Provisioning from the Prime Central portal. For more information about Prime Central, see the documentation for Cisco Prime Central 1.3.
  Prime Provisioning 6.6 is only compatible with Prime Central 1.3. For installing
  Prime Provisioning 6.6 in Suite mode, it is a pre-requisite that you upgrade Prime Central from its earlier versions to Prime Central 1.3.

Note After you integrate Prime Provisioning with Prime Central, you cannot modify Prime Provisioning to work as a Standalone application. However, if you install Prime Provisioning as a Standalone application, you can later integrate it with Prime Central.

- Standalone- Cisco Prime Provisioning installs as a standalone application.

The Cisco Prime Provisioning Owner dialog box is displayed.

Step 13 Enter the username you created in Step 2 of the "Initial Configuration—Creating the Prime Provisioning Owner" section on page 3-1 and click **Next**.

Note If you leave the field blank the Prime Provisioning owner will be the user you are using to run the installation. It is not recommended to make the root user the Prime Provisioning owner.

The Choose Installation Folder dialog box is displayed.

Step 14 Specify the location of the directory where you want to install Prime Provisioning, and click **Next**. To find an appropriate directory, click **Choose..**. By default location is **/opt/PrimeProvisioning-6.6**.

Note If you are not installing as **root**, you must have write permission for this directory.

Note In the intended install location, you need 1.2 GB free for the binaries plus an extra 250 MB for log file growth and the installation of the Cisco Configuration Engine software.

In the database directory, you need 1 GB free. For large systems, you should have 4 to 5 GB of space. If the directory has less than 1.2 GB free, you can still install Prime Provisioning, but you might run out of space.

Step 15 If you chose **Custom** installation type (in Step 11), proceed to the next step.

If you chose **Express** installation type (in Step 11), proceed to Step 22.

Step 16 (Installation type- Custom) In the Choose a Temporary Folder dialog box, enter the location where you want temporary files stored and click **Next**. By default, this folder is **/opt/PrimeProvisioning-6.6-1/tmp**

The Choose a Repository Folder dialog box is displayed.

Note In the intended install location, you need 1.2 GB free for the binaries plus an extra 250 MB for log file growth and the installation of the Cisco Configuration Engine software.

In the database directory, you need 1 GB free. For large systems, you should have 4 to 5 GB of space. If the directory has less than 1.2 GB free, you can still install Prime Provisioning, but you might run out of space.

Step 17 (Installation type- Custom) Enter the location where you want database files to be stored and click **Next**.

The **Select Database** dialog box is displayed.

Step 18 (Installation type- Custom) Choose one of the following database types and click **Next**.

- **Embedded Sybase**- You will need to specify the Sybase database server and port.
- **External Oracle**- You will need to specify the Oracle database server, port, SID, DB version (required during integration with the Prime Carrier Management Suite), and username and password for this database.

a. If you chose Embedded Sybase (Sybase ASA, 11.0.1 is embedded):

- 1. Enter the Database server hostname and port number.
- 2. Click **Next**.

  The Configuring Naming Port dialog box is displayed.
- 3. Proceed to Step 23.

b. If you chose External Oracle:

- 1. Enter the database server hostname, database port number, SID (Server Instance Identifier), and DB version (required for integration with the Prime Carrier Management Suite).
  Your input for the DB Version in this step is only used to display the DB version in Prime Central. There is no validation performed to compare your input with the correct DB version.
  To obtain the DB version:
  1) Log into the server where Oracle is installed.
  2) From the SQL prompt, execute the command:
  select * from v$version where banner like 'Oracle%';
  3) The output displayed is the DB version.
  For example, ‘Oracle Database 10g Enterprise Edition Release 10.2.0.1.0 - 64bi”. You can use this output in the DB version field.
- 2. Click **Next**.
- 3. Set the Oracle database User and Password values.
- 4. Click **Next**.

  The Configuring Naming Port dialog box is displayed.

Testing of Prime Provisioning 6.6 has been done with Oracle Database 11g, Enterprise Edition Release 11.2.0.3.0 - 64 bit Production.) If you would like to use another version of Oracle 10g, see Oracle's compatibility information.

Note The embedded Sybase database is used for service-level agreement (SLA), independent of whether you are using Oracle as your database.

Note If you want to use the same Sybase repository from an original server on this new server you are now installing, see the "Restoring Your Sybase Repository to a New Server" section on page 5-1.

Note If you are upgrading from a version of ISC before Prime Provisioning 6.0, make sure your Prime Provisioning Repository has been imported to the Oracle Database 11g, Enterprise Edition Release 11.2.0.3.0 - 64 bit Production, as indicated in the "Initial Configuration—Creating the Prime Provisioning Owner" section on page 3-1.

Step 19 (Installation type- Custom) Specify the port used by the Naming Server and click **Next**.

The Configure Http Port dialog box is displayed.

If you change the default port value (1030) of the naming server, ensure that you specify the same port for all servers in your system.

Note We do not recommend to use ports under 1024. Ports under 1024 are accessed only by the root user, and we do not recommend that the root user be the Prime Provisioning owner.

Step 20 (Installation type- Custom) Specify the port used by the HTTP server and click **Next**.

The Configure Https Port dialog box is displayed.

Step 21 (For installation in Stanadalone mode only) Specify the port used by the HTTP Over Secure Socket Layer (SSL) (HTTPS) server and click **Next**.

The Hi/Low Watermark dialog box is displayed.

When you click **Next**, the system checks whether any of the ports entered are duplicate port numbers. If duplicate port numbers are found, an error message indicates the two ports that have duplicate entries.

Note To configure the web access to Prime Provisioning, you must set up the HTTPS port as explained in the "Configuring HTTPS" section on page 5-2.

Step 22 Reset the High and Low watermarks for available disk space if required, and click **Next**.

The default values are 20% and 10% for High and Low respectively. Ensure that the percentage of High watermark is a larger than that of the Low watermark. Every time the High and Low watermarks are reached, you are notified via e-mail (notification is sent to the e-mail address that you specify in Step 24).

For Standalone installation- The E-mail Notifications dialog box is displayed.
Proceed to Step 24.

For integration with the Prime Carrier Management Suite - The Prime Central Database Information dialog box is displayed.

Proceed to the next step.

Step 23 (For integration with PPrime Carrier Management Suite) Enter the following details about the Prime Central database and click **Next**:

- Server IP Address- IP Address of the Prime Central server
- SID- Server instance identifier of the Prime Central server
- Port- Port number of the Prime Central Database server
- DB User- Database username of the Prime Central server
- DB Password- Database password associated with the above username.

Step 24 Enter the following information to receive e-mail notifications from Prime Provisioning every time the server restarts, and hi/low disk usage watermarks are reached.

- Hostname of the Simple Mail Transfer Protocol (SMTP) host.
- Username to display in the "From" field of the e-mail.
- E-mail address to be notified when High and Low watermarks are reached (indicates that the specified disk space availability has been reached).
- E-mail address to be notified when the Prime Provisioning server restarts.

Step 25 Click **Next**.

The Pre-Installation Summary dialog box displays the product name, installation folder, and the required/available disk space infomation.

Step 26 Click **Install**.

The Installing Cisco Prime Provisioning 6.6 dialog box displays the sequence of processes that are run and the status of installation.

Prime Provisioning is installed in the folder you specified in Step 14.

Step 27 If the installation failed, you receive a failed message.

To review the log message, go to PRIMEP_HOME/tmp and view the PrimeInstallationLog.txt log file.

Step 28 If the installation was successful, you receive an Install Complete message. Even if you have a successful install, to be sure there were no exceptions or failures, you can go to PRIMEP_HOME/tmp and view the PrimeInstallationLog.txt log file.

Step 29 The Prime Provisioning server is started automatically after the installation is successful.

Note If Prime Provisioning is installed in the Suite mode, you must restart the integration layer in Prime Central. To do this, log into the Prime Central integration layer and enter the command **itgctl restart** that is available in $PRIMEF_HOME/bin directory.

Step 30 To verify that Prime Provisioning is properly installed:

a. Before logging in, repeat the following command until the servers are in the **started** mode. If any server is reported as **disabled**, Prime Provisioning is not installed or configured correctly:

./prime.sh status

For more information about WatchDog commands, see the *Cisco Prime Provisioning 6.6 User Guide*.

Step 31 Before you can use any of the licensed services, proceed to the "Installing License Keys" section on page 5-3.

Step 32 If you have a Prime Provisioning repository, you *must* upgrade your repository to have access to it, as explained in Chapter 4, "Upgrading Prime Provisioning".

Step 33 If you want to eventually use the Inventory Manager or the Topology Tool, your client machine *must* be set up properly. Proceed to the "Launching Topology Tool" section on page 5-6. This section explains what occurs and leads you to the launching explanations in the *Cisco Prime Provisioning 6.6 User Guide*.

Installing Prime Provisioning Using the CLI Installer

Note The CLI installer does not support the use of Oracle database with Prime Provisioning. To use the Oracle database, use the GUI installer as explained in the "Installing Prime Provisioning Using the GUI Installer" section on page 3-2.

After reviewing the information in the "Installing Prime Provisioning" section on page 3-2, you can follow these steps to install the Prime Provisioning software using the Command Line Installer:

Note The command line installer only allows you to configure the installation directory and Prime Provisioning owner. All other configuration options use default values. For more configuration options, use the GUI installer, explained in the "Installing Prime Provisioning Using the GUI Installer" section on page 3-2.

Step 1 Insert the Prime Provisioning product DVD.

Note When you insert the DVD, the File Manager is automatically invoked. Do *not* use the File Manager to install the Prime Provisioning product. Run the installation script from a terminal window.

Step 2 Open a terminal window and log in as the identified UNIX user.

Step 3 Change to the DVD directory, as follows:

$ cd /cdrom/cdrom0

Step 4 If you are upgrading Prime Provisioning from an existing version, use the **./prime.sh stop** command to be sure the existing Prime Provisioning is shut down completely. See the *Cisco Prime Provisioning 6.6 User Guide* for information about all WatchDog commands.

Step 5 If you have an existing Prime Provisioning installation with a database, you *must* back up your current database. See the instructions to back up and restore an Prime Provisioning repository or create a standby system, as explained in *Backup and Restore of Prime Provisioning Repository*.

Caution If you use the command line installer to install Prime Provisioning in a directory containing an existing installation of Prime Provisioning, the installer replaces the existing repository with a new empty repository. You are not asked to confirm this operation and no alternative option is given. The directory containing the existing repository is renamed to **Repository.save.**<*timestamp*>.

Step 6 Change to the path in the cdrom where the Linux installation files are available, as follows:

`cdrom> cd <path name>`
where:<*path name*> Specify the location of the directory where the Linux installation files are available.

```
Path for the Linux installation files in cdrom is:
/prime_provisioning_6_6_FCS/Linux
```

Step 7 Execute the Prime Provisioning product installation script as follows:

./install.sh <*directory*> <*user*>

where:

<*directory*> Specify the location of the directory where you want to install Prime Provisioning. If you are upgrading an existing Prime Provisioning installation, see the options in this step.

<*user*> Enter the username you created in Step 2 of the "Initial Configuration—Creating the Prime Provisioning Owner" section on page 3-1.

For example, ./install.sh /opt/Prime**Provisioning**-6-6-cli pkarkera

You are asked to choose one of the following:

- **Integrate Prime Provisioning with the Prime Carrier Management Suite**- Prime Provisioning registers and interacts with the Prime Central server, portal, and other common components.

  You will need to provide Prime Central server details during installation.

- **Install Prime Provisioning as a Standalone application**- Prime Provisioning installs as a standalone application.

Step 8 To integrate with the Prime Carrier Management Suite, enter **yes** and press **Enter**.

To install Prime Provisioning as a standalone application, enter **no** and press **Enter**.

The Prime Provisioning installation process is initiated

Step 9 If you upgraded from an existing Prime Provisioning installation and want to retain the database from that installation, manually copy the database directory to the new installation before running the upgrade tool.

a. The directory in which you installed this release contains a directory named Repository that contains an empty repository. Temporarily rename this directory before copying the old repository. For example, you might wish to rename this directory to **Repository.empty, as follows:**

mv $PRIMEP_HOME/Repository $PRIMEP_HOME/Repository.empty

b. If you installed Prime Provisioning in a directory that contains an existing version of Prime Provisioning, then the existing repository has been renamed to **$PRIMEP_HOME/Repository.save.**<*timestamp*>. To restore the original database, enter the following:

mv $PRIMEP_HOME/Repository.save.**<*timestamp*> **$PRIMEP_HOME.Repository

c. If you installed Prime Provisioning in a new directory, copy the Repository directory and its contents from the old Prime Provisioning installation directory to the new Prime Provisioning installation directory. For example, if you are upgrading from Prime Fulfillment 6.1 to Prime Provisioning 6.6, where the old installation directory is **/opt/isc-6.1** and the new installation directory is **opt/PrimeProvisioning**, enter the following:

cp -R /opt/isc-6.1/Repository /opt/PrimeProvisioning/Repository

Step 10 If you have upgraded a previous Prime Provisioning installation and want to retain the database from this installation, you *must* run the upgrade tool. Run the upgrade tool as explained in Using the Repository Upgrade Tool, page 4-2.

Integrating Prime Provisioning (Standalone) with Prime Carrier Management Suite

To install Prime Provisioning 6.6 in Suite mode, you must first upgrade to Prime Carrier Management 1.3.

To integrate Prime Provisioning (standalone installation) with the Prime Carrier Management Suite:

Step 1 Stop Prime Provisioning.
./prime.sh stop

Step 2 Set the Prime Provisioning environment by executing the following command from the installation directory:
./prime.sh shell

Step 3 (Optional) If you are logged in as the installation owner, to ensure that the script has executable permissions, you can execute the following commands:

- chmod +x DMIntegrator.sh
- chmod 755 DMIntegrator.tar

Step 4 Execute the **DMIntegrator.sh** script in one of the following modes:

- **For Non-Interactive Mode**
  /DMIntegrator.sh [-] <prop_file> <server> <sid> <dbuser> <dbpassword> <port>
- **For Interactive Mode**
  ./DMIntegrator.sh [-i] <prop_file>
  In this mode, you will be prompted for the above inputs in a sequential manner.

Table 3-1 describes the inputs required when you execute the DMIntegrator.sh script.

Table 3-1 DMIntegrator.sh Script Argument Descriptions

Argument	Definition	Sample Input
<prop_file>	Location of the DMIntegrator.prop file. On the Prime Provisioning server this file will be present in INSTALL_DIR/prime_integrator	INSTALL_DIR/prime_integrator/DMIntetgrator.prop
<server>	Hostname of the Prime Central database server.	centralserver.mydomain.com
<sid>	System ID of the Prime Central database server.	orcl
<dbuser>	Username of the Prime Central database server.	primedba
<dbpassword>	Password of the Prime Central database server.	N/A
<dbport>	Port number of the Prime Central database server.	1521

Step 5 To complete the integration process with Prime Carrier Management Suite, configure Prime Network in Prime Provisioning. See Configuring Prime Network(s) in Prime Provisioning.

Configuring Prime Network(s) in Prime Provisioning

In the **Host Configuration** screen, you can configure Prime Network in Prime Provisioning by choosing **Properties > Inventory Import > Prime Network** and modifying the below values:

- **enablePrompts** - Prompts are present on the server so that the Prime Provisioning can execute the web services at the backend.
- **Gateway** - Multiple gateways can be configured by separating the values with a comma. The order in which the Prime Networks are configured has an impact on the inventory import.

For example, if there is a device D1 available in two instances of Prime Network configured in the order PN1 and PN2, inventory import will always import the device from the first instance PN1 and will ignore the other.

- **loginPrompts** - General configuration for the login prompts on the server.
- **logLevel** - Log level for the inventory import log.
- **Password and UserName**
  - Prime Provisioning can interface with Prime Network in both the installation modes: Standalone mode and Suite mode integrated with Prime Central.
  - When Multiple Prime Networks are configured either in Standalone or Suite mode, the login credentials provided should be able to access all the instances of Prime Network.

For example, consider a user *admin* is created in Prime Central. In Suite mode, for all the features to work as expected, *admin* should have access to Prime Provisioning with appropriate role and access to Prime Network as **Administrator**. The user should be assigned with the scope of all the Network elements in Prime Network.

In case of Standalone mode, the user should have access to Prime Network as **Administrator** and should be assigned with the scope of all the Network elements in Prime Network. For more information about Prime Network configuration, refer to *Prime Network User Guide*.

  - Password provided here is encrypted both at the screen level and also in the database. Be sure to configure a valid value for the Inventory Import, Device Commission and Device Decommission features to function as expected

Upgrading Prime Provisioning

If you want to migrate from an existing installation to Prime Provisioning 6.6, your upgrade path depends on which release you are upgrading from. This process is described in the following sections.

Upgrade Matrix

The various possible upgrade paths are described in Table 4-1.

Table 4-1 Upgrade Path to Prime Provisioning 6.6

Current Prime Provisioning Version	Procedure	Steps to Upgrade to Prime Provisioning 6.6 (run in order stated)	Supported Oracle Database	Supported OS
• 6.3.0.4 • 6.4.1.4 • 6.5.0.3	Direct	<Prime Provisioning installation directory>/upgradeTool	Enterprise Oracle 11G Release 2 (11.2)	Linux (Red Hat)
• 6.5	Upgrade to 6.5.0.3 and then to 6.6	<Prime Provisioning installation directory>/upgradeTool	Enterprise Oracle 11G Release 2 (11.2)	Linux (Red Hat)
• 6.3.0.110 • 6.4 • 6.4.1	Upgrade to 6.4.1.4 and then to 6.6	<Prime Provisioning installation directory>/upgradeTool	Enterprise Oracle 11G Release 2 (11.2)	Linux (Red Hat)
• 6.3 • 6.3.0.2	Upgrade to 6.3.0.4 and then to 6.6	<Prime Provisioning installation directory>/upgradeTool	Enterprise Oracle 11G Release 2 (11.2)	Linux (Red Hat)

Table 4-1 Upgrade Path to Prime Provisioning 6.6 (continued)

Current Prime Provisioning Version	Procedure	Steps to Upgrade to Prime Provisioning 6.6 (run in order stated)	Supported Oracle Database	Supported OS
• Prior to 6.3	—	Upgrade to 6.3 and then to 6.3.0.4, and then follow steps below to upgrade to 6.6 via direct mechanism.	—	—
• Prior to 4.2.5	—	E-mail isc-mktg@cisco.com for upgrade instructions	—	—

If you have an existing Prime Provisioning repository, you *must* upgrade it to be able to use it with Prime Provisioning 6.6, using the upgrade tool as stated in Table 4-1.

Note Understand that the only Sybase version to which you can upgrade is the embedded Sybase ASA, 11.0.1. Also, understand that Oracle testing of Prime Provisioning 6.6 has been done with Oracle Database 11g Release 2 (11.2) - 64 bit Production. If you would like to use another version of Oracle 11g, see Oracle's compatibility information.

Locating the Cisco Prime Provisioning 6.6 Upgrade Tool

To locate the Cisco Prime Provisioning 6.6 upgrade tool:

1. Go to **cd /cdrom/cdrom0**
2. Copy **isc-upgrade.zip** into the Prime Provisioning master machine.
3. Unzip **isc-upgrade.zip**. This unzips the upgrade tool in **upgradeTool** directory.
4. Go to <cd /cdrom/cdrom0>/upgradeTool/

Using the Repository Upgrade Tool

The upgrade procedure steps for the repository from earlier version to Prime Provisioning 6.6 remains the same for both Sybase and Oracle repositories.

Note Before you upgrade your repository, you *must* have followed the steps in the Installing Prime Provisioning, page 3-2. You *must* have backed up your database, as explained in *Backup and Restore of Prime Provisioning Repository*. A repository can be upgraded only once. If there is any problem during upgrade, a new copy of the backed up repository is needed for subsequent upgrade attempts.

Note See chapter Backup and Restore of Prime Provisioning Repository in the Administration Guide before upgrading your repository.

Upgrade your repository as follows (using the Prime Provisioning 6.3 Upgrade Tool as an example):

Step 1 Get the upgrade package **upgrade package isc-upgrade.zip from the DVD: /cdrom/cdrom0/isc-upgrade.zip**
and place it on the Prime Provisioning Master machine in a directory where you can access the Prime Provisioning environment.

Step 2 Stop Prime Provisioning.
./prime.sh stop

Step 3 Unzip isc-upgrade.zip. This unzips the upgrade tool in upgradeTool directory.

Step 4 Run the upgrade script.
cd upgradeTool
./upgradeISCSchema.sh <*Prime Provisioning home*>
where: <*Prime Provisioning home*> is the full pathname of the Prime Provisioning home directory.

Step 5 Check for a success or error message.

Note After upgrading between Prime Provisioning versions, you should ensure that the cache of the Prime Provisioning client browser has been cleared or that your browser does not use the cache. This will ensure the latest Prime Provisioning images and pages are returned.

Next Steps

The following topics section describes the next steps you might perform to get started with Cisco Prime Provisioning. Procedures are intended to get you up and running quickly. For more information and details, see the *Cisco Prime Provisioning 6.6 User Guide*. Use the information described in this chapter in the following order:

Restoring Your Sybase Repository to a New Server

If you are restoring your Sybase repository from your original server to a new server, you must first do the following:

Step 1 Run the Prime Provisioning command **./prime.sh stop**

Step 2 **cd /var/tmp** and remove (or save, if needed) all the files under these directories.

Step 3 Back up the **$PRIMEP_HOME/Repository** on the new server, using the command: **mv Repository Repository.bkp**

Step 4 Run the Prime Provisioning command **./prime.sh stop**.

Step 5 **cd $PRIMEP_HOME/Repository**

Step 6 Copy the Repository directory from the original server onto the Prime Provisioning repository on the new server. You can tar up the full Repository directory and untar in the same location on the new server.

Step 7 On the new server, run the Prime Provisioning command **./prime.sh startdb as the Prime Provisioning installation owner.**

Step 8 Run the Prime Provisioning command **./prime.sh initdb.sh as the Prime Provisioning installation owner.**

Step 9 Run the Prime Provisioning command **./prime.sh startwd as the Prime Provisioning installation owner.**

Configuring HTTPS

To configure the secure web access to Prime Provisioning, set up the Hypertext Transfer Protocol (HTTP) Over Secure Socket Layer (SSL) (HTTPS) port, as follows:

Note If you configure HTTPS, it does not disable HTTP. If you want to only allow HTTPS, then you need to block HTTP (default port: 8030) by a firewall.

Step 1 Run the command: **configSecurePort.sh** <*PRIMEP_home*> <*https_port*> <*hostname*>

where:

<*PRIMEP_home*> is the home directory for Prime Provisioning, for example: **/opt/PrimeProvisioning**

<*https_port*> is the secure HTTPS port you want to use, for example: **8443**.

<*hostname*> is the name of the machine that Prime Provisioning is installed on, for example: **machinename.cisco.com**

Step 2 If this is the first time you are logging into Prime Provisioning, you will need to accept the self-signed, untrusted security certificates.

Step 3 If you are using Internet Explorer, accepting the security certificates is not sufficient. You need to place them in the Trusted Certificate store to ensure that the security notifications do not pop up during every login.

Step 4 To place certificates in the Trusted Certificate store:

a. Enter the Prime Provisioning URL in your browser. A security warning is displayed with the message "There is a problem with this website's security certificate, choose Continue to this website (not recommended)."

b. Click **Continue**. This redirects you to the Prime Provisioning Login page

c. Click **Certificate Error** displayed next to the address bar.

d. Click **View certificates**.

e. Click **Install Certificate**.

f. Click **Next** in the Certificate Import Wizard.

g. Select **Place all certificates in the following store**.

h. Click **Browse** and then click **Trusted Root Certification Authorities**, and click **OK**.

i. Click **Next** in this wizard until you reach the last screen.

j. Click **Finish**.

k. If you get another Security Warning message box, click **Yes**.

l. Click **OK**.

Note If you specify an IP address instead of a hostname, you must then use this IP address for all HTTPS sessions. If you attempt to use the hostname after configuring with an IP address, you will receive hostname mismatch warnings and might see unexpected behavior while using Prime Provisioning.

Logging In for the First Time

To log into Prime Provisioning for the first time, follow these steps:

Step 1 In the browser, enter the following URL:

`http://`*`server:port`***`/isc/`**

Note If you are using HTTP, the default for *server:port* is <*HOSTNAME*>**:8030**.

If you are using secure HTTPS access, as explained in the "Configuring HTTPS" section on page 5-2, enter **`https://`***`server:port`***`/isc/`** instead. The default for *server:port* in this case is <*HOSTNAME*>**:8443**.

In both of the above cases: <*HOSTNAME*> is the UNIX workstation name (or IP address) of the server to which you installed Prime Provisioning.

See Installing Prime Provisioning, page 3-2 for information about the installation log.

Step 2 Enter the default administrative login name, **admin**, and password, **cisco**, then click **Login**.

This default user provides administrative access to Prime Provisioning. You cannot delete this user.

Step 3 We highly recommend you change the password for **admin** from **cisco** to something secure for you. To do this, click the **Administration** tab, then click **Security**, then click **Users**. Check the **admin** check box and then click **Edit**.

The window appears which allows you to change the password and other details.

Step 4 Enter the **Security** and **Personal Information**, then click **Save**.

Installing License Keys

To obtain your license keys please contact: isc-licensing@cisco.com.
To install license keys, do the following:

Note For detailed instructions, see the Licensing section in the *Cisco Prime Provisioning 6.6 User Guide*.

Step 1 From the **Home** page of the installed Prime Provisioning product, navigate as follows: **Administration** > **Control Center** > **Licensing**.

Step 2 From the **Installed Licenses** table, click **Install**.

Step 3 In the resulting window, enter a **License Key** that you received on your *Right to Use* paperwork with your product.

Step 4 Click **Save**. Your newly installed license appears in an updated version of the Installed Licenses table.

Step 5 Repeat Step 2, Step 3, and Step 4 for each of the *Right to Use* documents shipped with your product.

Note Clear the cache in your browsers to display menus (for example Traffic Engineering or Diagnostics) that might not be displayed after installing license keys.

Importing Device(s) from Prime Network

You will be able to import device(s) from Prime Network to Prime Provisioning using Inventory Manager. When Prime Provisioning is installed in Suite mode, certificate(s) needs to be imported from Prime Network to Prime Provisioning keystore for this feature to work as expected.

A script is available for configuring Prime Network properties and for importing the certificates from Prime Network and this script needs to be executed from the server where Prime Provisioning is installed. You are also able to update the Prime Network properties using DCPL properties. For more information about configuring Prime Netowrk properties using DCPL, refer to *Cisco Prime Provisioning 6.6 Administration Guide*.

When a device is found in multiple instances of Prime Network, Prime Provisioning always imports the device from the first instance of the Prime Network. Connecting to the multiple instances of Prime Network and importing certificates from them is also handled within the script.

Prerequisites

To execute the script successfuly, you need to know the following details:

- Prime Network Gateway details
- UserName, Password and Installation path of the server where the Prime Network is installed

```
For example, if Prime Network is installed on SERVER1, then provide the details of this
server as the input for the script when prompted.
```

To import certificates from Prime Network to the Prime Provisioning trust store:

Step 1 Log into Prime Provisioning server.

Step 2 Run the following configuration script in the directory `<PRIMEP_HOME>/bin`.

Tip PRIMEP_HOME refers to the directory where Prime Provisioning is installed.

- configurePN.sh [-a]
  - To set/reset Prime Network application username and password.

    Prime Provisioning assumes that the application credentials provided here are the same across all the Prime Network instances. The user has the appropriate scope defined in Prime Central and is also assigned with the "Administrator" role on Prime Network.

Please refer to Prime Central and Prime Network documentation for further information.

Note User can alternatively use the DCPL Properties from GUI to update these details.

- To configure additional Prime Network Gateways.

  Prime Provisioning considers the order in which the gateways are configured, consider if PN1 is configured first, followed by PN2. Prime Provisioning first queries PN1 to import the devices and if the device is found in PN1, it will not interface with PN2. Prime Provisioning interfaces with PN2 only in case if the device is not found in PN1.

Note User can alternatively use the DCPL Properties from GUI to update the gateway details as comma separated values.

- To copy and import the certificates from the configured Prime Network instances.

- configurePN.sh [-c]

  To copy and import the certificates for the existing Prime Network Gateway(s). You are prompted to provide the user name, password, and home directory of the server on which Prime Network is installed. For example, the server credentials can be of the format, **pnuser** for the username, **test** for password, and **/export/home/primenetwork** for the directory where Prime Network is installed.

- configurePN.sh [-d]

  When the user tries to delete a configured Prime Network gateway using this option, it deletes the certificate and also updates the gateway details.

Tip Deleting a gateway from the DCPL properties does not remove the certificate from the Prime Provisioning trust store. So, if the complete trace of Prime Network instance needs to be deleted, it is advised to use the script instead of updating the DCPL property.

- configurePN.sh [-p] <prop-file>

  This provides an option for the user to use a property file as an input to the script for copying and importing the certificates from the configured Prime Network Gateways but it doesn't update the gateway details.

  Format of the property file

  pnGatewayConfig=PN-HOSTNAME, PN_INSTALLATION_DIRECTORY, PN_SERVER_USERNAME, PN_SERVER_PASSWORD

```
pnGatewayConfig=pn1,/export/home/ana1,root,test123
pnGatewayConfig=pn2,/export/home/ana2,root,test123
```

Note It is recommended to delete the properties file after executing the script as this exposes the server credentials in plain text.

- configurePN.sh [-r]

  Executing the script with this option provides a report of the gateways configured and whether the certificate from the gateway is configured or not.

Step 3 To import the certificate from Prime Network, enter **Yes** and specify the server details where the Prime Network is installed.

Launching Topology Tool

Prime Provisioning provides a downloadable version of Version 1.6.0_07 of Java Runtime Environment (JRE) for various operating systems when you launch the Topology Tool. Ensure that your client machine is configured to use this version of the JRE for launching Java applications and Applets. This can be done via Java's Control Panel.

Note that the VPN Topology Tool is deprecated as of Prime Provisioning 6.5, and will be removed in the subsequent release. For visualising VPN topologies, please use Cisco Prime Network.

Prime Provisioning supports JRE version 7 (update 21) through to JRE version 7 (update 45) without issue. If using JRE version 7 (update 51) or later, the JRE security level must be reduced from 'High' to 'Medium' in order to launch the TE Topology Tool.

Specific instructions to launch the Topology Tool are explained in the *Cisco Prime Provisioning 6.6 User Guide*.

Uninstalling Prime Provisioning

Note It is advised to uninstall using the same user who performed the installation of Prime Provisioning.

If you attempt to uninstall Prime Provisioning as **root**, but **root** is not the Prime Provisioning owner, if you attempt to use the **./prime.sh stop** command to halt all Prime Provisioning processes, the processes will remain running. If you did not install as **root,** use the **./prime.sh stop** command before following the next steps, but be sure to execute **./prime.sh stop** *only* as the Prime Provisioning owner.

If you installed as **root**, files were created to automatically restart Prime Provisioning when rebooting the server. To remove these files, uninstall Prime Provisioning as **root**.

Next, uninstall the server, as follows:

Step 1 Log into the server.

Step 2 At the Linux prompt, log in as the identified Linux user.

Step 3 Go to the Prime Provisioning installation directory.

Step 4 Remove Prime Provisioning by entering the following command from a location outside the <*PRIMEP_HOME directory*>:

```
<PRIMEP_HOME directory>/bin/uninstall.sh
```

This command removes all files from the installation directory. This command also removes the database and its contents. Database backups are not removed if they reside in a different directory from the installation directory.

Troubleshooting

The following sections describe the major areas in the Prime Provisioning installation in which troubleshooting might be necessary:

Unable to Find the Hostname

Symptom

Cannot find hostname.

Recommended Action

Step 1 If you cannot find the hostname, check the **/etc/nsswitch.conf** file to determine how the hostname is resolved.

Step 2 Check the /etc/resolv.conf file to determine whether you have a DNS Server IP Address.

Step 3 If you have a DNS Server IP Address, enter **ping** <*IP Address*> to check whether it is reachable.

Step 4 If the DNS Server is reachable, use **nslookup** <*machine name*> to check if it is resolving the name properly.

Step 5 If it is not working properly, you need a system administrator to fix the DNS entry.

Step 6 If you are not using DNS, be sure there is an entry for your machine in the **hosts** file in the **/etc** directory.

Moving a Repository or Renaming an Prime Provisioning Server

If you want to move an existing Repository to a new server with a new Prime Provisioning installation or rename an existing Prime Provisioning installation, your existing configuration *must* be updated. When renaming the Prime Provisioning installation, the local configuration file needs to be modified. When moving an existing Repository to a new server, the server from which you are moving the Repository and the server to which you are moving the Repository *must* both be at the same version and patch levels. Otherwise, your Repository needs to be upgraded, as explained in "Using the Repository Upgrade Tool" section on page 4-2. Both when moving an existing Repository and renaming an existing Prime Provisioning installation, the changes must be inserted into the Repository.

Use the following steps:

Step 1 Stop Prime Provisioning, using the following command:

./prime.sh stop

Step 2 **Update the $PRIMEF_HOME/runtime.properties file with the new values.**

Step 3 **Execute the command:**

$PRIMEF_HOME/thirdparty/ant/bin/ant -f $PRIMEF_HOME/install.xml

Step 4 Start the database, using the following command:

./prime.sh startdb

Step 5 Incorporate the changes into the Repository by initializing the database, using the following command:

./prime.sh initdb.sh

Memory Shortage on Large Networks

When running Discovery on a large network (250+ devices or 5000+ tunnels, for example) or an OutOfMemoryException is encountered, it is recommended that the memory setting be changed.

To do this, use the following steps:

Step 1 Choose **Administration > Hosts**.

Step 2 Select a host and click the **Config** button.

Step 3 Select **watchdog > server > worker > java > flags**.

Step 4 Change the first part of the property string, for example to **-Xmx1024m** instead of the default value **-Xmx512m**.

This increases the heap size of the **Discovery** task, which will clear up the OutOfMemoryException problem.

Step 5 Revert the **watchdog.server.worker.java.flags** property back to its original value to reduce the resource usage when no longer needed.

Cross-launch to Prime Provisioning Fails.

Symptom

Cross-launching from the Prime Central Suite to Prime Provisioning redirects you to the Prime Central login page instead of the Prime Provisioning login page.

An error message is displayed, for example:

httpd.0 log shows,java.security.cert.CertificateException: No name matching monza-cen2 found

javax.net.ssl.SSLHandshakeException: java.security.cert.CertificateException: No name matching monza-cen2 found...

Cause

Mismatch between the value you provided as the Prime Central Hostname and the certificate generated on Prime Central.

Recommended Action

If you are using Mozilla Firefox:

Step 1 Click the icon that looks like a lock and is displayed on the bottom right corner of your browser.

A dialog box displays the certificate details.

Step 2 Click **View Certificate**.
A dialog box displays further details about the certificate.

Step 3 Note down the value specified in the **Common Name (CN)** filed.

Step 4 Using this value as the Prime Central hostname, follow the steps outlined in the procedure in "Integrating Prime Provisioning (Standalone) with Prime Carrier Management Suite" section on page 3-11 to re-register Prime Provisioning with the Prime Central server.

If you are using IE:

Step 1 Go to **View > Security Report**.

Step 2 Click **View Certificates**.

Step 3 Note down the value specified in the **Issued to** field.

Step 4 Using this value as the Prime Central hostname, follow the steps outlined in the procedure in "Integrating Prime Provisioning (Standalone) with Prime Carrier Management Suite" section on page 3-11 to re-register Prime Provisioning with the Prime Central server

Known Installation Issues

Known issues and solutions are as follows:

Symptom 1

Out of disk space.

Recommended Action

The error looks something like the following:

```
Prime Provisioning 6.1 will be installed in /var/PrimeProvisioning
>Copying files ...
>Copying sybase...
>tar:./shared/jre_1.3.1_solaris_sun_sparc/lib/rt.jar: HELP - extract
>write error
>Error copying Sybase
```

If you see an error like this, it is likely due to the server running out of disk space.

To verify what space is available, run the command **df -k** <*install directory*>.

See Chapter 1, "Installation Requirements,"for the disk space recommendations.

Symptom 2

The Installation utility GUI never displays.

Recommended Action

This problem should be accompanied with a Java stack dump.

Step 1 Run the following command to check for the $DISPLAY environment variable being set:

echo $DISPLAY.

If you use the secure shell (ssh), then this will be set up and managed for you.

If you manually change the $DISPLAY environment variable in an SSH environment, the easiest recovery method is to log off and reestablish the SSH connection.

Step 2 To set the DISPLAY environment variable, do the following:

a. For the K or Bourne shell:

export DISPLAY=<*machine name*>**:0.0**

b. For the C shell:

setenv DISPLAY=<*machine name*>**:0.0**

Symptom 3

Could not find temporary files.

Recommended Actions

If you receive an error that says the temporary file could not be created or found, it usually means the location used to write the temporary file is write-protected or out of disk space.

The two places that Prime Provisioning uses for temporary files are **/tmp** and **/var/tmp**.

- Make sure both locations have write permission by doing a long list on the directories (**ls -la**). The directory should have wide open permissions: **drwxrwxrwx**.
- There is another temporary file problem that can arise, especially in cases where there have been previous aborted installation attempts—existing temp files might be left by previous installations. If this is the case, it is best to clean out all the files in the temp directories after aborted installation attempts.

Symptom 4

Running **./install.sh** fails.

Recommended Action

Running **./install.sh** can fail due to the following reasons:

1. You are not root.

   Although it is possible to install as non-root if you have appropriate permissions in the target directory, this will still have problems since only root can write to **/etc/init.d** where the startup scripts reside. Therefore, it is easier to install as root.

2. You do not have enough disk space in the target directory. To find out the available disk space, issue the following command:

   df –k <*target directory*>

3. You do not have enough disk space in the **/tmp** directory. Issue the command **df –k /tmp** to determine the available disk space for **/tmp**.

4. You do not have enough disk space in the **/var/tmp** directory. Issue the command **df –k /var/tmp** to determine the available disk space for **/var/tmp**.

5. The PATH and LD_LIBRARY_PATH environment variables are incorrect.

   Make sure your PATH and LD_LIBRARY_PATH environment variables are correct.

   Example:

   ```
   PATH=/usr/bin:/usr/local/bin
   LD_LIBRARY_PATH=/usr/lib:/usr/local/lib
   export PATH LD_LIBRARY_PATH
   ```

   a. Alternatively, start a clean root shell with this command:

      env – ksh

   b. Then issue a command like the following:

      ```
      ./install.sh /opt/PrimeProvisioning iscadm
      ```

Symptom 5

Prime Provisioning does not start on reboot.

Recommended Action

Perform the following steps:

Step 1 Install Prime Provisioning as the root user.

If you install as root, **init.d** has a script to start the Watchdog.

If you do not install as root, you do not get the startup on reboot feature.

Step 2 To become root, enter the following command:

su root

Step 3 Get the **prime.tmpl** file from the installation media.

Step 4 Edit the following fields in **prime.tmpl**:

`OWNER=_owner - replace _owner` with the username whom owns prime

`PRIMEP_HOME=_vpnsc_home - replace _vpnsc_home` with the prime directory

Step 5 Rename prime.tmpl as prime and then enter the following commands:

```
mv prime /etc/init.d
chmod 744 /etc/init.d/prime
```

Step 6 Create the following symbolic links to **prime**:

a. `cd /etc/rc1.d`
   `ln -s /etc/init.d/prime K98ISC`
b. `cd to /etc/rc2.d`
   `ln -s /etc/init.d/prime K98ISC`
c. `cd to /etc/rc3.d`
   `ln -s /etc/init.d/prime S99ISC`

Symptom 6

Unable to create or delete IOS devices in the Cisco CNS IE2100 appliance repository when using Cisco CNS Configuration Engine 1.4 software with Prime Provisioning.

Recommended Action

Log into the Cisco CNS IE2100 appliance as **root** and modify the **web.xml** file located at **/opt/CSCOcnsie/WEB-INF** as follows.

Step 1 Locate the following entry:

```
<servlet>
<servlet-name>ServletLoadComplete</servlet-name>
<servlet-class>com.cisco.cns.cfgsrv.ServletLoadComplete</servlet-class>
<load-on-startup>105</load-on-startup>
</servlet>
```

Step 2 Immediately after the entry found in Step 1, insert the following lines:

```
<servlet>
<servlet-name>ImportDevice</servlet-name>
<servlet-class>com.cisco.cns.cfgsrv.ImportDevice</servlet-class>
<load-on-startup>100</load-on-startup>
</servlet>


<servlet>
<servlet-name>ImportTemplate</servlet-name>
```

```
<servlet-class>com.cisco.cns.cfgsrv.ImportTemplate</servlet-class>
<load-on-startup>100</load-on-startup>
</servlet>
```

```
<servlet>
<servlet-name>RemoveDevice</servlet-name>
<servlet-class>com.cisco.cns.cfgsrv.RemoveDevice</servlet-class>
<load-on-startup>100</load-on-startup>
</servlet>

<servlet>
<servlet-name>RemoveTemplate</servlet-name>
<servlet-class>com.cisco.cns.cfgsrv.RemoveTemplate</servlet-class>
<load-on-startup>100</load-on-startup>
</servlet>
```

Step 3 Locate the following entry:

```
<servlet-mapping>
<servlet-name>ServletLoadComplete</servlet-name>
<url-pattern>/ServletLoadComplete</url-pattern>
</servlet-mapping>
```

Step 4 Immediately after the entry found in Step 3, insert the following lines:

```
<servlet-mapping>
<servlet-name>ImportDevice</servlet-name>
<url-pattern>/ImportDevice</url-pattern>
</servlet-mapping>

<servlet-mapping>
<servlet-name>ImportTemplate</servlet-name>
<url-pattern>/ImportTemplate</url-pattern>
</servlet-mapping>
```

```
<servlet-mapping>
<servlet-name>RemoveDevice</servlet-name>
<url-pattern>/RemoveDevice</url-pattern>
</servlet-mapping>

<servlet-mapping>
<servlet-name>RemoveTemplate</servlet-name>
<url-pattern>/RemoveTemplate</url-pattern>
</servlet-mapping>
```

Step 5 Reboot the Cisco CNS IE2100 appliance.

Symptom 7

Not able to connect to the database.

Recommended Action

Perform the following steps:

Step 1 Check that the following values are substituted correctly in the installation window:

- Oracle database server name
- Oracle port number
- SID

Step 2 If everything is correct, check that the server is reachable by entering:

ping <*Oracle database server name*>

Step 3 Issue the following to determine whether the database is running:

netstat -an | grep <*oracle port number*>

If no responses are found, your database is not running and you must restart, as explained in detail in the section, "Launching Oracle and Opening Your Database".

Symptom 8

Unable to access Prime Provisioning with your web browser.

Recommended Action

Check the server status with the command **./prime.sh status**.

If any server state is other than s**tarted**, attempt to restart by entering the command, **./prime.sh wdclient restart** <*server name*>. If this command does not succeed, enter the commands **./prime.sh stop** and then **./prime.sh startwd**.

Note The most common server not to start is the **httpd** server.

Symptom 9

The web browser does not display certain GUI elements such as the main bar and charts in Prime Provisioning GUI.

Recommended Action

Install Adobe Flash player (version 10.3.183.7) and its plug-in to support the web browser and to enable the main bar and charts in the Prime Provisioning GUI.

Symptom 10

Installation fails due to ANT related errors, such as:

Exception - BUILD FAILED

/opt/Prime**Provisioning**-6.4/install.xml:57: The signjar type doesn't support the "destdir" attribute

followed by

Error running: /opt/Prime**Provisioning**-6.4/thirdparty/ant/bin/ant -f /opt/Prime**Provisioning**-6.4/install.xml jarsigner

Exiting installation.

Cause

Prime Provisioning is unable to use the right version of ANT.

Recommended Action

Update the silent_install.sh file available in the untarred installation folder as follows:

- Locate the command
  ANT_HOME=${vpnsc_home}/thirdparty/ant
- Include the following text in the next line
  export ANT_HOME
- Re-intall Prime Provisioning.

Symptom 11

Prime Provisioning cannot unzip the upgrade tool during installation.

Error: **Cannot create upgradeTool**

Recommended Action

- For a new installation (for new installations, the symptoms of this issue are minor and can be ignored):
  - a) Copy the installation files from cd /cdrom/cdrom0 to a location to which you have Write permissions.
  - b) Initiate the installation procedure:
    /install.sh
- New installation using an existing DB, and the opting to upgrade the DB manually:
  - a) Copy the installation files from the cd /cdrom/cdrom0 to a location to which you have Write permissions.
  - b) Go to the location where you have copied the installation files:
    cd <Hand-off location>
  - c) Unzip the isc-upgrade.zip file:
    unzip isc-upgrade.zip
  - d) Initiate the installation procedure:
    /install.sh
- Upgrade installation and choosing to perform an ‘upgrade in place’:
  - a) Copy the installation files from the cd /cdrom/cdrom0 to a location to which you have Write permissions.
  - b) Go to the location where you have copied the installation files:
    cd <Hand-off location>
  - c) Unzip the isc-upgrade.zip file:
    unzip isc-upgrade.zip

- d) Initiate the installation procedure:
  /install.sh

Warning: Unresponsive Script

Warning message: "**Warning: Unresponsive script. A script on this page may be busy, or may have stopped....**"

Cause: Some operations run longer than the amount of time predefined by the browser. Examples of tasks during which this error message occurs are:

- editing a customer device with many interfaces,
- editing user details when there are many users.

Recommended Action

Increase the browser timeout value.

- For Mozilla Firefox, see http://kb.mozillazine.org/Unresponsive_Script_Error
- For Internet Explorer 8, see http://support.microsoft.com/kb/175500#LetMeFixItMyselfAlways

Daylight Saving Time

If Daylight Saving Time (DST) is not working correctly, perform the following steps:

Step 1 Go to the following URL to determine which patch is needed for your time zone:

http://www.oracle.com/technetwork/java/javase/tzdata-versions-138805.html

Step 2 To download the Java Runtime Environment (JRE) patch, go to:

http://www.oracle.com/technetwork/java/javase/downloads/index-jsp-138363.html#timezone

Step 3 Go to Prime Provisioning home directory:
cd $PRIMEP_HOME

Step 4 Enter: **./prime.sh stop**

Step 5 Follow this link to install the missing DST patch that you downloaded from Step 2:

http://www.oracle.com/technetwork/java/javase/tzupdater-readme-136440.html

Error - DBSPAWN ERROR: -84

The error: **DBSPAWN ERROR: -84** is normally seen when the existing log files are not removed before loading a new **repository.db** file. The **repository.log** and **sla.log** files in the **Repository/** directory must be deleted before initiating the **./prime.sh startdb** command.

Error - No VPNSC Host Entry in the Database, When Starting Prime Provisioning

To correct the error: **No VPNSC Host Entry in the Database**, run **./prime.sh initdb.sh** in the following order:

Step 1 **./prime.sh stop**
Ensure that no other Prime Provisioning processes are running. To do this, you can enter: ps -ef | grep prime

Step 2 **./prime.sh startdb**

Step 3 **./prime.sh** initdb.sh
This step adds the host entry into the repository.

Step 4 **./prime.sh** startwd

Error - Could Not Connect to the Name Server, When Starting Prime Provisioning

The error: **com.cisco.vpnsc.watchdog.WDRuntimeException: WD_108 :: Could not connect to the name server** is normally seen when the domain name cannot be extracted from **resolv.conf**. The result is that the nameserver does not start, because it fools the system into thinking it is not a Master server.

To correct this error, you must have root privileges. As root, add the correct domain statement to the **/etc/resolv.conf** file for your server (not **$PRIMEP_HOME/etc**); for example, **domain cisco.com**.

Error - This Is Not a Database Server

The following error could occur after you install Prime Provisioning:
<*server name*> **./prime.sh startdb Master database server is: This is not a database server. There is no need to start the database**
Adding this host to the database ... com.cisco.cns.security.common.CannotConnectException: Cannot connect to the data store:Cannot connect to the data store. No valid connection to server type: com.cisco.cns.security.dataaccess
at com.cisco.cns.security.dataaccess.ConnectionPool.acquire (ConnectionPool.java:240)

Specifically, this could occur after issuing the command: **./install.bin** <*directory_where_PrimeProvisioning_is_to_be_installed*> **iscadm**.

The error could be Domain Naming System (DNS) related**.** In the **install.cfg** file, <*server name*>**.cisco.com** needs to be changed to <*server name*> only. Then run **applycfg.sh** followed by **./prime.sh initdb.sh** and **./prime.sh startwd**.

Error - Cannot Connect to the Data Store

The primary reason for the error: **Cannot Connect to the Data Store** is DNS related. As **root**, make sure **/etc/resolv.conf** (not the **$PRIMEP_HOME/etc directory**) is correct for your server.

If you need more information, set the Security Policy Engine (SPE) logging to DEBUG and attempt to execute **./prime.sh initdb.sh**. This provides more details. If an unknown host exception is created, double check the **/etc/hosts** file and the **/etc/nsswitch.conf** file. This controls the flow and sequence of the hostname lookup.

If DNS is not enabled or working, add the IP address to the following files: **cns**, **vpnsc**, and **HA properties** files, to use IP addresses instead of hostnames.

The **cns properties** files is located at **$PRIMEP_HOME/etc/spe/cns.properties**.

The **vpnsc properties** file is located at **$PRIMEP_HOME/etc/vpnsc.properties**.

The **HA properties** file is located at **$PRIMEP_HOME/etc/HA.properties.**

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