Installing Prime Performance Manager

The following topics tell you how to install and start Cisco Prime Performance Manager, and also how to verify the installation.

Installing the Prime Performance Manager Gateway and Unit

Install Prime Performance Manager in the following order. Many steps are partially or fully automated.

1. Downloading and Extracting the Prime Performance Manager Software, page 2-2
2. Starting the Installation, page 2-3

Prime Performance Manager uses separate gateway and unit installation scripts. If you install the gateway and unit on the same server, the gateway script runs first, then the unit script.

If you are installing Prime Performance Manager in a gateway HA environment, go to Installing Prime Performance Manager on High Availability Gateways, page 2-15 and following the installation flow in that section.

Before you Begin

Before you install Prime Performance Manager, verify that:

- Your hardware and the software meet the requirements specified in Evolved Programmable Networks Requirements, page 1-7.
- The required ports are available. See Prime Performance Manager Ports, page 1-91.
- If you are installing the Prime Performance Manager gateway and unit(s) in a dual IP address stack, review the permissible IP addresses in Table 1-23 on page 1-92.
- If the Prime Performance Manager gateway and unit are installed on different servers, verify the gateway hostname is resolvable to an IP address on the client using DNS or a local hosts file.

Downloading and Extracting the Prime Performance Manager Software

You can get the Prime Performance Manager 1.7 software in one of two ways. You can either download the evaluation version from Cisco.com or the licensed software version from the DVD. If you downloaded the complete Prime Performance Manager nonevaluation software image it will be named:

ppm170-cd-linux-2015-*mmdd*-k9-full-fcs.zip

Caution The following steps include logging in as the *root* user. As the *root* user, you can adversely affect your operating environment if you are unaware of the effects of the commands that you use. If you are a relatively inexperienced UNIX user, limit your activities as the root user to the tasks described in this guide.

If you are installing Prime Performance Manager 1.7 from the software DVD, go to the "Starting the Installation" procedure on page 2-3. To download and extract the Prime Performance Manager 1.7 zip file:

Step 1 Log into the server as *root*.

If you are already logged in, but not as the root user, use the **su** command to change your login to root:

```
# su
# Password: root-password
```

Step 2 Create (or use an existing) directory where you can unzip the Prime Performance Manager 1.7 zip file. You can extract the file into any disk partition with enough space to contain the downloaded zip file and the extracted image. You will need 900 MB for the full extracted image and the zip file.

Note Do not use the /tmp directory for the temporary unzip location. Using the /tmp directory can cause unexpected results.

```
# mkdir /ppm
# cd /ppm
```

Step 3 To download the Prime Performance Manager upgrade software:

a. Log into the Cisco Prime Performance Manager website:

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

b. At the bottom of the page, click **Try Cisco Prime Performance Manager**.

c. In the Downloads area Find box, enter **Cisco Prime Performance Manager 1.7**.

d. In the Download Software page, click **Download Now** next to the appropriate Release 1.7 upgrade software module:

   – ppm170-cd-linux-upgrade-k9-fcs.zip—1.x upgrade installation for Linux servers.

e. On the Download Cart confirmation page, click **Proceed With Download** and download the file to the directory specified in Step 2.

Step 4 To download the Prime Performance Manager 1.7 evaluation software:

a. Log into the Cisco Prime Performance Manager website:

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

b. Scroll to the bottom of the Cisco Prime Performance Manager page and click **Try Cisco Performance Manager**.

c. In Welcome to Cisco Promotional Store page, click **Cisco Prime Performance Manager (PPM) 1.7. Linux**.

d. Proceed through the checkout cart. At the end, you will download one of the following evaluation zip files to In the Download Software page, click **Download Now** next to the appropriate Release 1.7 upgrade software module:

   – ppm170-cd-linux-2015-*mmdd*-k9-eval-fcs.zip—Evaluation installation for Linux servers.

Step 5 Unzip the Prime Performance Manager 1.7 file:

```
cd ppm170zipfile
# unzip ppm170zipfile
```

Where *ppm170zipfile* is the file you downloaded in Step 3 or Step 4.

Step 6 Continue with the "Starting the Installation" procedure on page 2-3.

Starting the Installation

Complete the following steps to install:

- Gateway and unit on the same server.
- Gateway and unit on the different servers.

Note To install Prime Performance Manager in a high availability configuration, go to Installing Prime Performance Manager on High Availability Gateways, page 2-15.

During the installation, the Prime Performance Manager installer prompts you for a response and displays the default value for each prompt in square brackets [ ]. To accept the default value, press **Enter**.

To install a Prime Performance Manager gateway and/or unit:

Step 1 Enter one of the following:

Software on DVD: insert the DVD, then enter:

```
cd dirname
./setup.sh
```

Downloaded zip file:

```
unzip dirname.zip
cd dirname
./setup.sh
```

```
ppm170-linux-2015-mmdd-k9-eval-fcs

# ./setup.sh
```

Step 2 Enter one of the following:

- Full installation:

  cd ppm170-linux-2015-mmdd-k9-full-fcs

```
./setup.sh
```

- Evaluation installation:

```
cd ppm170-linux-2015-mmdd-k9-eval-fcs:
./setup.sh
```

The installer checks for the gateway and unit installation, then displays the installation menu:

```
34
Please choose an option -> 2
```

Step 3 Enter the installation option.

- Option 1—Displays the Readme file.
- Option 2—Installs the gateway and unit on the same server.
- Option 3—Installs the gateway; does not install the unit.
- Option 4—Installs the unit; does not install the gateway.
- Option 5—Installs the gateway in a Red Hat Cluster Suite local high availability (HA) environment.
- Option 6—Installs the gateway in a geographical HA environment.
- Option 7—Installs the gateway in a geographical and local (RHCS) HA configuration.
- Option 8—Integrates with Cisco Prime Central.
- Option 9—Stops the installation.

Note For Options 5, 6, and 7, see Installing Prime Performance Manager on High Availability Gateways, page 2-15. For option 8, see "Integrating Prime Performance Manager with Prime Central" in the *Cisco Prime Performance Manager 1.7 User Guide*.

Gateway and Unit or Gateway Only Installation

Note If you selected option 4 (unit only), go to Unit Installation, page 2-8.

If you selected Option 2 (gateway and unit) or 3 (gateway only), the installer displays information similar to the following:

```
================================================================================
---------------- Prime Performance Manager Gateway Install Started -------------
Started : Thu May 14 14:15 EDT 2015
Host    : SunOS yourserver 5.10 SUNW,Sun-Fire-V215
Version : 1.7.0
================================================================================
```

The installer checks your system to ensure that all requirements are met. Information similar to the following appears:

```
============================================================
------------------ System Requirements Check ---------------
============================================================
INFO: Checking Operating System Type    : SunOS, OK.
INFO: Checking Operating System Version :   5.10, OK.

Checking for Required patches...
INFO: This product requires:
```

```
        RAM             8192 MB
        SWAP            8192 MB
        CPU             1024 MHz

INFO: Checking RAM...  16778 MB OK

INFO: Checking Swap... 52475 MB OK

INFO: Checking CPU...  2 x 1504 MHz OK
```

If any requirement is missing, a warning message appears. For a list of all system requirements, see Evolved Programmable Networks Requirements, page 1-7.

Next, the installer checks the TCP/IP addresses. Information similar to the following appears:

```
============================================================
==================- TCP/IP Address Check -==================
============================================================

Network Names defined for: yourserver
localhost
yourserver
============================================================

INFO: Machine: "yourserver" resolves to nnn.nnn.nnn.nnn
INFO: Local address resolution -> Primary:files, Secondary:dns
```

If multiple IP addresses are configured on the Linux server, you are prompted to bind the server to a specific IP address during the installation. This prompt appears during the TCP/IP Address Check.

For example, `The Gateway must bind to a specific IP address. Available IP addresses. xx.yy.zz.ww, aa.bb.cc.dd. Enter IP address to bind server to: nnn.nnn.nnn.nnn.`

Next, the installer checks the TCP/IP port usage. Information similar to the following appears:

```
============================================================
=================- TCP/IP Port Usage Check -================
============================================================

INFO: This product uses these port numbers:

INFO: [ 1] Server Name : yourserver
INFO: [ 2] JSP Server : 4470/tcp
INFO: [ 3] Naming Server : 45742/tcp

INFO: Checking system for available ports...

INFO: Checking port   4470 for JSP    Server... Available.
INFO: Checking port  45742 for Naming Server... Available.
```

The installer displays the gateway summary information and prompt:

```
============================================================
==============- Prime Performance Manager Gateway Summary -==========
============================================================

INFO: The following parameters will be used:

INFO: [ 1] Server Name : yourserver
INFO: [ 3] JSP Server : 4470/tcp
INFO: [ 4] Naming Server : 45742/tcp

Press Return to continue ->
```

Step 4 Press **Enter**.

Prime Performance Manager checks the disk space to determine whether adequate space in the .../opt default installation directory to install gateway. Information similar to the following is displayed:

```
============================================================
================- Disk Space Usage Check -==================
============================================================

INFO: For this product the default disk space requirements are:
        /opt                  10240 MB
        /var/sadm                1 MB
        /var/tmp                 1 MB
        /tmp                     1 MB

INFO: Checking default disk space requirements... OK.
============================================================

INFO: Checking your release... All components present.
INFO: Checking for existing product tree... None.
```

If space is available, installation continues. If not, the installer prompts you to specify a different directory, then continues the installation. If your system meets all requirements, the installer displays the following information and prompt:

```
============================================================
================- Express Install Check -===================
============================================================

Express Install takes all defaults and places the product in /opt

Do you want the Express Install (y/n)? [n]
```

Express Install uses all the default settings. It minimizes system prompts and installs Prime Performance Manager in the .../opt directory.

Step 5 Select an installation option:

- Express Install—Press **Enter**.
- Standard Installation—Enter **n**, then press **Enter**.

  The installer prompts you to enter the directory name and TCP port number for the web server, JSP server, and naming server. The installer displays prompts, similar to the following:

  - `Where should the product be installed ? [/opt]`
  - `Which tcp port should JSP Server use [4470] ?`
  - `Which tcp port should Naming Server use [45742] ?`

If you chose the Express installation, the installer displays the following messages and prompt:

```
INFO: Installing product into /opt.

Processing package instance <CSCOppm-gw> from <The path where the user has extracted the
.zip file, for example /ppm/0842AM/ppm170-linux-2015-mmdd-k9-full.zip>

Cisco Prime Manager Performance - Gateway(sparc) 1.7.0
Prime Performance Manager - Gateway
Copyright (c) 2001-2015 by Cisco Systems, Inc.
All rights reserved
Using </opt/CSCOppm-gw> as the package base directory.
## Processing package information.
## Processing system information.

Installing Cisco Prime Manager Performance - Gateway as <CSCOppm-gw>

## Installing part 1 of 1.
```

```
/opt/CSCOppm-gw/apache/LICENSE
------------------------------
------------------------------
/opt/CSCOppm-gw/tomcat/webapps/ppm/res/tree/connectors/plus-TopBottomRight.png
/opt/CSCOppm-gw/tomcat/webapps/ppm/res/tree/connectors/plus-TopRight.png
[ verifying class <ppmGW> ]
## Executing postinstall script.

INFO: Adding cron entries...

============================================================
INFO: *** Install mode: NEW ***
============================================================
Installation of <CSCOppm-gw> was successful.

INFO: Checking Installation.
INFO: Package CSCOppm-gw installed OK. Verifying... OK.
============================================================
Enter default SNMP read community string:  [public ]
```

Step 6 Press **Enter** to accept the default, or enter a different SNMP read community string.

The following messages and prompt appear:

```
Default SNMP read community string set to: public

============================================================

Prime Network Integration Is Available From WebClient.

   Integration Screen Is Default Window At First Login

Press Any Key To Continue...

============================================================

Enabling User Access requires enabling SSL and configuring keys.

Would you like to enable User Access and Logins? [ n ] y
```

Step 7 Enter **y** to add user with the required access role, or n to add user access later. (For information on enabling user access, see the *Cisco Prime Performance Manager 1.7 User Guide*.) If you enter y, the following is displayed:

```
Configuring SSL on gateway...

SSL Support is Enabled

Generating SSL Keys for gateway...

This command generates an SSL key and certificates for the gateway.
The gateway will be stopped before performing this operation
```

If you enter n, the following is displayed:

```
Enable Later With: ppm useraccess enable

============================================================
To use the product CLI, set your Unix path to:
/opt/CSCOppm-gw/bin:$PATH

To access the product via WebClient use the following URL:
http://yourserver:4440
in your web browser.
```

```
Check the documentation for supported browsers and versions.

============================- Error Summary -============================
No Errors were encountered during installation.
================================================================================

Started  : Thu May 21:15 EDT 2015
Finished : Thu May 21:14:25 EDT 2015

================================================================================
=============- Prime Performance Manager Gateway Install Completed -============
================================================================================
Review /var/tmp/cisco_primepm_gw_install.log for detailed results.

================================================================================
```

See Client Requirements, page 1-6 for the supported browsers to launch Prime Performance Manager.

The installer completes gateway installation and displays the following message:

```
Review /var/tmp/cisco_primepm_gw_install.log for detailed results.

================================================================================

 Would you like to view the install log? [ n ] ->
```

Step 8 If you do not want to view the log, press **Enter**. To view the log, enter **y**, press **Enter**, then press the **spacebar** to scroll through the log.

If you chose to install only the gateway in Step 3 (Option 3) continue with .

Unit Installation

If you chose to install both gateway and unit (Option 2), the unit installation begins automatically. If you selected unit only (Option 4), the installer displays information similar to the following:

```
===============- Cisco Prime Performance Manager Unit Install Started -============
Started : Thu May 21 14:26 EDT 2015
Host    : SunOS yourserver 5.10 SUNW,Sun-Fire-V215
Version : 1.7.0

================================================================================
```

The installer checks the system to ensure that all requirements are met. Information similar to the following appears:

```
============================================================
=================- System Requirements Check ---------------
============================================================
INFO: Checking Operating System Type    : SunOS, OK.
INFO: Checking Operating System Version :   5.10, OK.

Checking for Required patches...

INFO: This product requires:

        RAM             8192 MB
        SWAP            8192 MB
        CPU             1024 MHz

INFO: Checking RAM... 16778 MB OK

INFO: Checking Swap... 52475 MB Ok

INFO: Checking CPU... 2 x 1504 MHz OK
```

If any requirement is missing, a warning message appears. For a list of all system requirements, see Evolved Programmable Networks Requirements, page 1-7.

The installer checks the TCP/IP addresses. Information similar to the following appears:

```
============================================================
==================- TCP/IP Address Check -==================
============================================================

Network Names defined for: yourserver
localhost
yourserver

INFO: Machine: "yourserver" resolves to nnn.nnn.nnn.nnn
INFO: Local address resolution -> Primary:files, Secondary:dns
```

If multiple IP addresses are configured on the Linux server, you are prompted to bind the server to a specific IP address. For example:

The Unit must bind to a specific IP address. Available IP addresses. xx.yy.zz.ww, aa.bb.cc.dd. Enter IP address to bind server to: xx.yy.zz.ww.

The installer checks the TCP/IP port usage. Information similar to the following appears:

```
============================================================
=================- TCP/IP Port Usage Check -================
============================================================

INFO: This product uses these port numbers:

INFO: [ 1] Server Name : yourserver
INFO: [ 3] JSP Server : 5470/tcp
INFO: [ 4] Naming Server : 55742/tcp

INFO: Checking system for available ports...

INFO: Checking port   5440 for Web    Server... Available.
INFO: Checking port   5470 for JSP    Server... Available.
INFO: Checking port  55742 for Naming Server... Available.
```

The installer displays the following unit summary information:

```
============================================================
==============- Cisco Prime Performance Manager Unit Summary -==========
============================================================

INFO: The following parameters will be used:

INFO: [ 1] Server Name : yourserver
INFO: [ 3] JSP Server : 5470/tcp
INFO: [ 4] Naming Server : 55742/tcp

Press Return to continue ->
```

Step 9 Press **Enter**.

The installer checks the disk to ensure adequate space in the .../opt default installation directory is available to install the unit. It displays information similar to the following:

```
============================================================
================- Disk Space Usage Check -==================
============================================================

INFO: For this product the default disk space requirements are:
```

```
        /opt                  10240 MB
        /var/sadm                1 MB
        /var/tmp                 1 MB
        /tmp                     1 MB

INFO: Checking default disk space requirements... OK.
============================================================

INFO: Checking your release... All components present.

INFO: Checking for existing product tree... None.
```

If space is adequate, installation continues. If the space is not adequate, the installer prompts you to specify a different directory, then continues the installation.

The Express Install option uses default settings, minimizing system prompts, and places the Cisco Prime Performance Manager in the /opt directory.

If space is available, installation continues. If not, the installer prompts you to specify a different directory, then continues the installation. If your system meets all requirements, the installer displays the following information and prompt:

```
============================================================
----------------- Express Install Check --------------------
============================================================

Express Install takes all defaults and places the product in /opt

Do you want the Express Install (y/n)? [n]
```

Express Install uses all the default settings. It minimizes system prompts, and installs Prime Performance Manager in the .../opt directory.

Step 10 Select an installation option:

- Express Install—Press **Enter**.
- Standard Installation—Enter **n**, then press **Enter**.

The installer prompts you to enter the directory name and TCP port number for the web server, JSP server, and naming server:

- `Where should the product be installed ? [/opt]`
- `Which tcp port should JSP Server use [5470] ?`
- `Which tcp port should Naming Server use [55742] ?`

If you chose the Express installation, the following messages and prompt appear:

```
INFO: Installing product into /opt.

Processing package instance <CSCOppm-unit> from
</ppm/0842AM/ppm170-linux-2015-mmdd-k9-full-fcs.zip>

Cisco Cisco Prime Performance Manager - Unit(sparc) 1.7.0

Prime Performance Manager - Unit
Copyright (c) 2001-2015 by Cisco Systems, Inc.
All rights reserved
Using </opt/CSCOppm-unit> as the package base directory.
## Processing package information.
## Processing system information.
Installing Cisco Cisco Prime Performance Manager - Unit as <CSCOppm-unit>

## Installing part 1 of 1.
/opt/CSCOppm-unit/Prototype
```

```
/opt/CSCOppm-unit/apache/LICENSE
/opt/CSCOppm-unit/apache/LICENSE.SSL
/opt/CSCOppm-unit/apache/LICENSE.tomcatjk
/opt/CSCOppm-unit/apache/bin/ab
/opt/CSCOppm-unit/apache/bin/apachectl
/opt/CSCOppm-unit/apache/bin/apxs...
.../opt/CSCOppm-gw/tomcat/webapps/ppm/res/tree/connectors/plus-TopRight.png

[ verifying class <ppmUnit> ]
## Executing postinstall script.

INFO: Adding cron entries...

============================================================
INFO: *** Install mode: NEW ***
============================================================

Installation of <CSCOppm-unit> was successful.

INFO: Checking Installation.
INFO: Package CSCOppm-unit installed OK. Verifying... OK.

============================================================
To use the product CLI, set your UNIX path to:

   /opt/CSCOppm-unit/bin:$PATH
============================- Error Summary -============================

No Errors were encountered during installation.

================================================================================

Started  : Thu May 21 14:26 EDT 2015
Finished : Thu May 21 14:29 EDT 2015
================================================================================
=============- Cisco Prime Performance Manager Unit Install Completed -=============
```

Note If you installed the unit on a different server than the gateway, you are prompted to enter the IP address or hostname of the gateway server and the RMI port.

After the unit is installed, the following message appears:

```
Review /var/tmp/cisco_primepm_unit_install.log for detailed results.

 Would you like to view the install log? [ n ] ->
```

Step 11 If you do not want to view the log, press **Enter**. To view the log, enter **y**, press **Enter**, then press the **spacebar** to scroll through the log.

Step 12 At the Set Superuser prompt, indicate whether you want to assign a non-root OS user as the Prime Performance Manager superuser. If no, press **Enter** and continue with the next step. To set a non-root user as the superuser, enter **Y**, press **Enter,** and enter the user. You can:

- Enter an existing OS user, or,
- Create new OS user and password.

Note If you plan to integrate Prime Performance Manager with Cisco Prime Central, do not set up the superuser at this time. You must be the root user to run the Prime Central integration. For information about integrating Prime Performance Manager with Prime Central, see the "Integrating Prime Performance Manager with Prime Central" procedure in the *Cisco Prime Performance Manager 1.7 User Guide*.

```
==========================================================================
==============================Set superuser===============================
==========================================================================
Prime Performance Manager by default will be run as the root user
Do you want to run Prime Performance Manager as a non-root user (y/n)? [N]
```

After you respond to the Set Superuser prompt, Prime Performance Manager runs commands and displays the output, after which, the Startup Options appear:

```
Checking status of Prime Performance Manager installation.
Preparing for startup...

************************************************************************
 *              *           *                                         *
 *           *  *  *     *  *  *              Cisco Prime              *
 *        *  *  *  *  *  *  *  *  *                                    *
 *        *  *  *  *  *  *  *  *  *        Performance Manager         *
 *              *           *                                         *
 *            C   I   S   C   O             Startup Options           *
 *                                                                    *
 ************************************************************************

 1) Start Prime Performance Manager Gateway and Unit

 2) Start Prime Performance Manager Gateway

 3) Start Prime Performance Manager Unit

 4) Integrate with Prime Central

 5) Exit Setup

 Please choose an option ->
```

Note The displayed startup options depend on the installation option you chose. For example, if you installed just the gateway, only the Start Prime Performance Manager Gateway, Integrate with Prime Central, and Exit Setup options are displayed. If you installed just the unit, only the Start Prime Performance Manager Unit and Exit Setup options are displayed.

Step 13 Choose a startup option:

- Start Prime Performance Manager Gateway and Unit (Enter **1**).
- Start Prime Performance Manager Gateway (Enter **2**).
- Start Prime Performance Manager Unit (Enter **3**).
- Integrate with Cisco Prime Central (Enter **4**).
- Exit Setup (Enter **5**).

Note If you exit the setup without starting Prime Performance Manager, you can start Prime Performance Manager later. See Starting Prime Performance Manager Using the CLI, page 2-35.

If you chose to start the gateway and unit, the installer starts the gateway and displays messages similar to the following:

```
**************************************************************************
 Starting Prime Performance Manager Gateway and Unit
 Versions 1.7.0 & 1.7.0
**************************************************************************
Starting Prime Performance Manager Gateway App Server...

    -- Prime Performance Manager Gateway Launch         Server  IS  Started.

    -- Prime Performance Manager Gateway Database       Server  IS  Started.

    -- Prime Performance Manager Gateway Naming         Server  IS  Started.

    -- Prime Performance Manager Gateway MessageLog     Server  IS  Started.

    -- Prime Performance Manager Gateway DataServer     Server  IS  Started.

    -- Prime Performance Manager Gateway JSP            Server  IS  Started.

Prime Performance Manager Gateway App Server IS Started.

Starting Prime Performance Manager Gateway Web          Server  On  Port 4440...

    -- Prime Performance Manager Gateway Web            Server  IS  Started.

Connect Web Browser To Gateway:

   http://yourserver:4440

Starting Prime Performance Manager Unit App Server...

    -- Prime Performance Manager Unit Launch         Server  IS  Started.

    -- Prime Performance Manager Unit Database       Server  IS  Started.

    -- Prime Performance Manager Unit Naming         Server  IS  Started.

    -- Prime Performance Manager Unit MessageLog     Server  IS  Started.

    -- Prime Performance Manager Unit DataServer     Server  IS  Started.

    -- Prime Performance Manager Unit JSP            Server  IS  Started.

Prime Performance Manager Unit App Server IS Started.

Report Application Traffic: SNMP enabled
Report Application Traffic: UDP enabled
Report Application Traffic: TCP enabled
Report Availability: ICMP Ping enabled
Report Availability: ICMP Ping Aggregate enabled
Report Availability: SNMP/Hypervisor Ping enabled
Report Availability: SNMP/Hypervisor Ping Aggregate enabled
Report Availability: Interface Status enabled
Report Availability: Interface Status Aggregate enabled
Report Availability: Interfaces enabled
```

```
Report IP Protocols: ICMP enabled
Report PPM System: Data Metrics enabled
Report PPM System: Data Metrics Aggregate enabled
Report PPM System: Poller Metrics enabled
Report PPM System: Server Metrics enabled
Report Resources: CPU enabled
Report Resources: Memory enabled
Report Resources: Disk enabled
Report Transport Statistics: Interface enabled

Connect Web Browser To Gateway:

   http://yourserver:4440
```

After the installation is completed, the following message appears:

```
Thank you for purchasing Cisco Prime Performance Manager!
```

Gateway and Unit Installations Across Firewalls

If you install gateways and units across a firewall, you must change the ports shown in Table 2-1. You can change the ports in properties/ System.properties.

Table 2-1 Firewall Ports

Server	Port	Default	Firewall
Gateway	RMIREGISTRY_PORT	45742	45742
	DATASERVER_PORT	0	45751
	LOGINSERVER_PORT	0	45752
	CLIENT_PORT	0	33459-33479
	WEB_PORT	4440	4440
	JSP_PORT	4440	4440
Unit	RMIREGISTRY_PORT	45742	45742
	DATASERVER_PORT	0	45751
	LOGINSERVER_PORT	0	45752
	CLIENT_PORT	0	33459

Port descriptions:

- RMIREGISTRY_PORT—The port on which the RMI naming server listens. Specify a port number; 0 is not allowed.
- DATASERVER_PORT—The port on which the data service listens. If you specify 0, Prime Performance Manager uses a random available port, 1024 and above. It maintains this port until the next server restart. Ports 45751 and 55751 are good alternate ports for gateways and units respectively.

- LOGINSERVER_PORT—The port on which the login service listens. If you specify 0, Prime Performance Manager uses a random available port, 1024 and above. It maintains this port until the next server restart. 45752 and 55752 are good alternate ports for gateways and units respectively.
- JSP_PORT—The port on which the Prime Performance Manager web server listens. Specify a port number; 0 is not allowed. To change the JSP_PORT number, use the ppm jspport command. This is valid for the gateway server only.

  The Apache web server is no longer used. The Tomcat JSP server works as the web server also. However, if you changes these ports, set WEB_PORT to the same value as JSP_PORT.
- CLIENT_PORT—The port on which the Prime Performance Manager server listens for RMI callbacks (unsolicited notifications).
  - If you specify 0, Prime Performance Manager uses any available port, 1024 and above.
  - If you specify the CLIENT_PORT on a gateway with a single value other than 0, such as 33459, Prime Performance Manager uses that port for the unit to connect to the gateway. You only need to specify one port on a unit because the unit can connect to only one gateway.
  - If you specify the CLIENT_PORT on a gateway with a range of values other than 0, such as 33459-33479, the port can use any of the ports in the range, including the beginning and ending ports, and you can run more than one unit at a time.

If a firewall exists between clients and the gateway, the JSP_PORT is the only port you need to open for client-to-gateway communication. This includes both non-SSL and SSL-based deployments. JSP_PORT is set to 4440 by default. You can change it at installation or by using the ppm jspport command.

Note The ppm webport and ppm jspport commands both change the JSP_PORT and WEB_PORT and set them to the same values.

If units and devices must communicate across a firewall, open SNMP Port 161. If using reports that require SSH or Telnet communication, such as Y.1731, EVC, or other CLI-based reports, open the SSH or Telnet ports between the units and devices as specified in the Telnet/SSH tab under Administration. The default Telnet port is 23, and the default SSH port is 22. You do not need to open the SNMP trap Port 162 between devices and the units because Prime Performance Manager does not process SNMP traps from devices.

Installing Prime Performance Manager on High Availability Gateways

You can install Prime Performance Manager in local and geographical HA environments. Installation procedures are provided in the following topics:

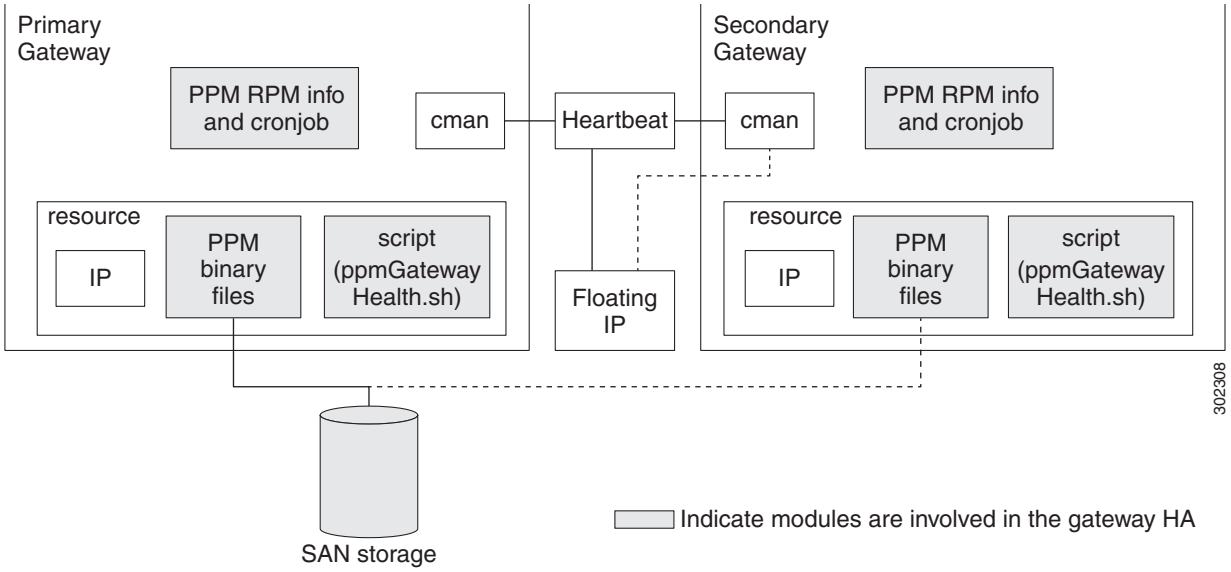
- Installing Prime Performance Manager in a Local HA Configuration, page 2-16
- Installing Prime Performance Manager in a Geographical HA Configuration, page 2-31
- Installing Prime Performance Manager in a Local and Geographical HA Configuration, page 2-33
- Starting Geographical HA Gateways Using the CLI, page 2-34
- Upgrading to Prime Performance Manager 1.7, page 2-38
- Upgrade a Gateway to Local HA, page 2-39

- Upgrading Prime Performance Manager to an HA Environment, page 2-40

Installing Prime Performance Manager in a Local HA Configuration

To install Prime Performance Manager in a gateway local HA environment, Prime Performance Manager binaries are installed in the SAN storage where they are shared by the primary and secondary gateways. Installation is performed at each gateway, but the install packages in the secondary gateway are not used. The installer only installs the files needed by the gateway, such as cron jobs and RPM information, as well as software needed to run, upgrade, or uninstall Prime Performance Manager in the secondary gateway. Figure 2-1 provides an overview of the gateway local HA installation architecture.

Figure 2-1 Local HA Installation Architecture



Local HA Operations Notes

When planning for a Prime Performance Manager gateway local HA installation, keep the following points in mind:

- The storage device should be the ext3 file system type on Fibre Channel.
- The storage device label must be configured correctly, for example LABEL=/ha.
- The storage-mounted volume LUN must only used by Prime Performance Manager and not by any other applications.
- When Prime Performance Manager is running in HA mode, never mount the storage devices manually. If you do, data loss might occur. If you want to mount a storage device manually, stop the Prime Performance Manager gateway HA service first.
- Always mount a storage device to one HA gateway; never mount it to both HA gateways.
- When you configure RHCS, leave the directories and do not remain in the mounting directory points. If the RHCS configuration starts and a user is in the directories, a mount/unmount failure will occur.

- If the Prime Performance Manager HA service is running and you must perform Prime Performance Manager actions such as stop, restart or upgrade, run **ppmGatewayHA.sh freeze** to freeze the RHCS service before you perform the actions. (This file is located in /var/CSCOppm-ha/ppm-ha-bin/ by default.) Otherwise, RHCS will detect the operation as a failure and begin the recovery process, which can include restarting and relocating Prime Performance Manager, or disabling the service, causing Prime Performance Manager to temporally stop working.

  The general process for mount device access is:

  - Run **ppmGatewayHA.sh freeze** to freeze the service.
  - Complete the work, for example, stop or restart Prime Performance Manager.
  - When finished, leave the mount devices directories and run **ppmGatewayHA.sh unfreeze** to unfreeze the service.

  For more information, see the "Freezing and Unfreezing RHCS" in the *Cisco Prime Performance Manager 1.7 User Guide*.
- Interface name should be same in both primary and secondary gateway during RHCS configuration, for example MulticastInterface : eth0.

Install the Local HA Gateway

Before you begin the Prime Performance Manager local HA gateway installation:

- Verify that your primary and secondary gateways meet the RHCS HA requirements described in RHCS Requirements, page 1-88.
- Issue an ssh to each gateway to create ssh folders at each gateway, for example, in gateway 1, run **ssh** to log into gateway 2 and in gateway 2 run **ssh** to log into gateway 1. The gateways must have each other's hostnames and IP addresses in their /etc/hosts directories.

  In some scenarios, for example, if Prime Performance Manager 1.7 DVD image with Prime Performance Manager 1.7.0 SP1are available and you want to deploy Prime Performance Manager 1.7.0 SP1703 Local HA on RHEL 6.8 or RHEL 6.9, perform the following steps to overcome the limitation on earlier Prime Performance Manager installation packages version:

a. Unzip Prime Performance Manager 170 SP1 packages both on the primary gateway and the secondary gateway.

b. Modify the *validateSytem.sh script* under the unzipped folder to add your OS number.

   For example:

   The current Linux OS is RHEL 6.10, search for *checkOSCPU4GWHA()* in *validateSystem.sh* script and add as specified below:

   "5.5"|"5.7"|"5.8"|"5.9"|"5.10"|"6.10"

c. Install Prime Performance Manager 170SP1 Local HA mode on SAN storage on the primary gateway and install Prime Performance Manager 170SP1 on the local storage on the secondary gateway.

Note Do not start Prime Performance Manager during this installation step.

d. Perform SP upgrade only from Prime Performance Manager 1.7.0 SP1 to Prime Performance Manager 1.7.0 SP1703 on the both the Prime Performance Manager gateway servers.

e. Unmount the SAN shared storage from the primary gateway manually.

f. Run the *ppmGatewaySetup.sh* script to create RHCS service configuration and start the Prime Performance Manager on the Local HA mode.

Begin the Prime Performance Manager HA gateway installation:

Step 1 Log into the primary gateway as the root user.

Step 2 Mount the SAN storage to the primary gateway, for example, to an /ha directory. This directory will be used for the installation. Make sure the SAN storage device is configured correctly.

Note Do not use the default /opt directory for installation to avoid overwriting it.

Note For the local HA cluster to operate, configure a label on your partitions or use multipath. If you do not use multipath, that is, your machine has two connections to the storage, configure the label. To configure the label on your partitions use e2label.

Step 3 Complete the "Downloading and Extracting the Prime Performance Manager Software" procedure on page 2-2.

Step 4 Complete the "Starting the Installation" procedure on page 2-3, with the following exceptions:

- At Step 3, choose:
  - **Option 5 Install Prime Performance Manager Gateway with Red Hat Cluster Suite HA Mode** and install Prime Performance Manager in the /ha directory if you are installing only the local HA, or,
  - **Option 7 Install Prime Performance Manager Gateway with Geographical HA and Red Hat Cluster Suite HA** if you are installing both local and geographical HA.
- Follow the steps of the procedure for gateway only.
- When the installer asks you to enter the HA lib installation directory, enter the local directory. The default is /var/CSCOppm-ha.
- When you are asked to enter the gateway IP, enter the floating IP address.

Note Prime Performance Manager allows you to save files outside the installation directories in a standalone directory, for example, you might want to save the report data in a separate directory. If you want to save files in a directory outside the installation directory, you must create the directories in the SAN, then mount them, and run command to specify the respective directories, for example, ppm repdir and ppm reportDir. See the *Cisco Prime Performance Manager 1.7 User Guide* Command Reference for information on using these commands.

Note The primary and secondary gateway installation is identical. Only the install directories differ. The primary gateway is installed in the SAN storage while secondary gateway is installed on the local disk.

Step 5 Log into the second HA gateway and complete Step 4.

- Create the directory with the same name of the mount directory, such as /ha in local. Do not mount the SAN storage in this gateway.

- Edit /etc/hosts so that the primary and secondary gateways know each other's hostname and IP address mapping.
- Install Prime Performance Manager to a local directory (such as /ha) on the secondary gateway. This will install installation binaries into secondary gateway local file system
- When asked to enter the HA lib install dir, enter the same local directory to install HA lib as entered for the primary gateway. The default is /var/CSCOppm-ha.
- When you are asked to enter the gateway IP, enter the same floating IP address that was entered for the primary gateway.

Step 6 After the installation is complete at the secondary gateway and you are asked to choose a startup option enter option **4** (Exit Setup).

Step 7 If you want to enable SSL in HA gateway, log into the primary gateway as the root user, then enter:

```
ppm ssl enable
```

Note If SSL is enabled on the primary gateway, enable it on the secondary one as well.

Step 8 Configure RHCS.

a. To verify that the RHCS cman, rgmanager, ricci and NetworkManager are stopped on the two HA gateways, run the following status check commands at each gateway:

```
service cman status
service rgmanager status
service ricci status
service NetworkManager status
```

b. If needed, run these commands on the two HA gateways to stop the service if necessary:

```
service cman stop
service rgmanager stop
service ricci stop
service NetworkManager stop
```

c. Verify that all the required storage devices are mounted at the primary HA gateway node.

Note

- Only mount storage devices to one HA gateway; never mount a storage device to both gateways.
- From Prime Performance Manager 1.7.0 SP1703 or later release, unmount all the storage devices from both the gateways before running *ppmGatewayHASetup.sh*.

d. Log into the primary gateway as the root user and switch to the HA bin directory. The default location is:

```
/var/CSCOppm-ha/ppm-ha-bin.
```

e. Run **ppmGatewayHASetup.sh** and enter the RHCS configuration parameters:

- When you are asked to enter the storage mount device parameters, the first mounted device should be the location where the Prime Performance Manager is installed.

- You can enter multiple mount device point parameters for different Prime Performance Manager files outside of the installation. For example, in scale deployments, you might need to place Prime Performance Manager backup or report files in different directories. You can assign their mount devices points during RHCS configuration.
- When you are asked to enter the hostname parameters, enter the primary gateway hostname for Node 1 and the secondary gateway hostname for Node 2. Do not enter the gateway IP as the hostname.
- You must configure two fencing methods: IPMI or manual. To use other fencing methods, such VM Fencing, choose the manual fence type to complete the configuration, then use the RHCS Conga to manage the failover domains and change cluster node fencing method.

RHCS configuration takes 5-6 minutes. The configuration phases include ssh validation, ssh configuration, RHCS validation, and RHCS configuration. For each phase, you will see start and finish information.

To see the detailed configuration process information, display the HA lib log, then use tail-f to watch the ppmGatewayHASetupLog.log information. This log is located in the same directory where you ran ppmGatewayHASetup.sh. After the RHCS configuration is completed:

- RHCS is up on the primary gateway.
- The floating IP is reachable.
- The SAN storage volume LUNs are mounted.
- The Prime Performance Manager Gateway is running.

f. Log into the primary gateway, run the following command to get the ppm processes information:

```
ps -ef|grep ppm
```

g. Launch a web browser and enter the following in the URL:

http://*floating ip***:port**

For example, http://10.74.125.114:4440

h. Log into the secondary gateway as the root user (Prime Performance Manager is running on the primary gateway).

i. Change to the Prime Performance Manager local install directory, for example, /ha.

j. Rename the installation directory:

```
mv the CSCOppm-gw to CSCOppm-gw_bk
```

Renaming the directory helps you identify which mount point is currently being used.

Note If you upgrade or uninstall Prime Performance Manager, be sure to change the directory name back to its original name.

Step 9 As the root user on primary gateway, verify the cluster and services are running:

```
clustat
```

Step 10 Verify that the cman and rgmanager services are running on both cluster nodes. This is shown by the following lines:

```
[root@crdc-ucs-106~]# clustat
Cluster Status for PPM_GW_HA @ Sun Jun 7 16:33:11 2015
Member Status: Quorate
```

```
 Member NameID   Status
 ------ ----          ---- ------
crdc-ucs-1061 Online, Local, rgmanager
crdc-ucs-1092 Online, rgmanager

 Service Name  Owner (Last)State
------- ----          ----- ------             -----
service:PPM_GW_HAcrdc-ucs-106          started
```

Step 11 To manage the cluster from the CLI, you have two options:

- Use ppmGatewayHA.sh, which is located by default in /var/CSCOppm-ha/ppm-ha-bin/:

  ```
  [root@crdc-ucs-106 ~]# /var/CSCOppm-ha/ppm-ha-bin/ppmGatewayHA.sh -h
  ```

  ppmGatewayHA.sh options include:

  - switchover—Switches the service to another cluster node.
  - freeze—Freezes the RHCS service.
  - unfreeze—Unfreezes the RHCS service.
  - status—ShowS the RHCS service status.

- Use the RHCS clusvcadm command:

  ```
  [root@crdc-ucs-106 ~]# clusvcadm
  ```

Table 2-2 shows the RHCS clusvcadm command options.

Table 2-2 CLUSVCADM Command Options

clusvcadm Option	Description
-v	Display version and exit
-d <group>	Disable <group>
-e <group>	Enable <group>
-e <group> -F	Enable <group> according to failover domain rules.
-e <group> -m <member>	Enable <group> on <member>.
-r <group> -m <member>	Relocate <group> [to <member>.]
-M <group> -m <member>	Migrate <group> to <member> (e.g. for live migration of VMs).
-q	Quiet operation.
-R <group>	Restart a group in place.
-s <group>	Stop <group>.
-l	Lock local resource group manager.
-S	Show lock state.
-u	Unlock local resource group manager.
-Z	Freeze resource group in place.
-U	Unfreeze/thaw resource group

The cluster log can be found under /var/log/messages.

Step 12 Install Prime Performance Manager on the units by completing the "Starting the Installation" procedure on page 2-3, choosing unit only with the following exceptions:

- When asked for the gateway IP address, enter the floating IP address entered for the primary and secondary gateways.
- Edit /etc/hosts so that the units and the primary and secondary gateways know each other's hostname and IP address mapping.
- If SSL is enabled on the gateways, it should be enabled in the units as well. After enabling the SSL in unit, import the primary gateway SSL certificate to the unit, and copy the unit certificate to the gateway. Also import the unit certificate to the primary gateway.

Gateway RHCS Sample Installation

The following text shows a sample gateway installation using the RHCS HA option:

```
************************************************************************
 *                                                                      *
 *              *           *                Cisco    Prime           *
 *        *  *  *  *  *  *  *  *  *  *        Performance Manager       *
 *              *           *                                         *
 *            C   I   S   C   O                Setup  Program         *
 *                                                                      *
 ************************************************************************

 1) Review README File First (Recommended)
 2) Install Prime Performance Manager Gateway and Unit
 3) Install Prime Performance Manager Gateway Only
 4) Install Prime Performance Manager Unit    Only
 5) Install Prime Performance Manager Gateway with Red Hat Cluster Suite HA Mode
 6) Exit Setup

 Please choose an option -> 5

************************************************************************
 Installing Prime Performance Manager Gateway Version 1.7.0
************************************************************************

========================================================================
==========- Prime Performance Manager Gateway Install Started -==========
Started : Sun Jun 7 16:00 CST 2015
Host    : Linux crdc-ucs-106 2.6.18-274.el5 x86_64
Version : 1.7.0
========================================================================

============================================================
=================- System Requirements Check -===============
============================================================
INFO: Checking Operating System Type    : Linux, OK.
INFO: Checking Hardware Architecture    : OK
INFO: Checking Operating System Version :   5, OK.
INFO: Checking for RHEL Update Number   :   7, OK.
INFO: Checking OS for GW HA : Red Hat Enterprise Linux Server release 5.7 (Tikanga)
INFO: Checking OS is OK!
INFO: Checking CPU for GW HA : x86_64
INFO: Checking CPU is OK!

INFO: This product requires:

        RAM            8192 MB
        SWAP           8192 MB
```

```
        CPU            1024 MHz

INFO: Checking RAM...  98926 MB OK

INFO: Checking Swap... 49999 MB OK

INFO: Checking CPU...  2 x 1596 MHz OK

============================================================
====================- DNS Server Check -====================
============================================================
INFO: Local address resolution -> Primary  : files
                                  Secondary: dns


The DNS response time of querying crdc-ucs-106 is 0.12 seconds.

INFO: Response time of DNS server is ok.

============================================================
==================- TCP/IP Address Check -==================
============================================================

The Gateway must bind to a specific *** floating IP *** address.

-----------------------------------------------------

Enter IP address to bind server to: 10.74.125.114
============================================================
=================- TCP/IP Port Usage Check -=================
============================================================

INFO: This product uses these port numbers:

INFO:   [ 1] Server Name         : 10.74.125.114
INFO:   [ 2] JSP Server          : 4440/tcp
INFO:   [ 3] Naming Server       : 45742/tcp

INFO: Checking system for available ports...

INFO: Checking port   4440 for JSP    Server... Available.
INFO: Checking port  45742 for Naming Server... Available.

============================================================
=======- Prime Performance Manager Gateway Summary -========
============================================================

INFO: The following parameters will be used:

INFO:   [ 1] Server Name         : 10.74.125.114
INFO:   [ 2] JSP Server          : 4440/tcp
INFO:   [ 3] Naming Server       : 45742/tcp

Press Return to continue ->

============================================================
================- Disk Space Usage Check -==================
============================================================

INFO: For this product the default disk space requirements are:
        /opt                10240 MB
        /var/lib/rpm            1 MB
        /var/tmp                1 MB
        /tmp                    1 MB
```

```
INFO: Checking default disk space requirements... OK.

============================================================

INFO: Checking for existing product tree... None.

INFO: Filesystems on this machine with enough space to install:

Filesystem         1024-blocks      Used Available Capacity Mounted on
/dev/sda1             493G   16G  452G   4% /
/dev/sdb1             810G   47G  722G   7% /array1
/dev/sdc1             1.1T   37G  987G   4% /array2
/dev/sde1             917G  200M  871G   1% /ha
/dev/sdf1             917G  200M  871G   1% /ha_array1
/dev/sdg1             917G  200M  871G   1% /ha_array2

Where should the product be installed ? /ha

Where should the HA Lib be installed ? [/var/CSCOppm-ha]
INFO: This product uses these port numbers:

INFO:   [ 1] Server Name         : 10.74.125.114
INFO:   [ 2] JSP Server          : 4440/tcp
INFO:   [ 3] Naming Server       : 45742/tcp

INFO: Checking system for available ports...

INFO: Checking port   4440 for JSP    Server... Available.
INFO: Checking port  45742 for Naming Server... Available.

INFO: Express install disabled.
INFO: You will be prompted for any ports which need to be configured

Which tcp port should JSP Server use [4440] ?
INFO: Checking port   4440 for JSP Server... Available.


Which tcp port should Naming Server use [45742] ?
INFO: Checking port  45742 for Naming Server... Available.

============================================================
========- Prime Performance Manager Gateway Summary -=========
============================================================

INFO: The following parameters will be used:

INFO:   [ 1] Server Name         : 10.74.125.114
INFO:   [ 2] JSP Server          : 4440/tcp
INFO:   [ 3] Naming Server       : 45742/tcp

Press Return to continue ->
Preparing...                ##################################################
CSCOppm-gw-server           ##################################################
Preparing...                ##################################################
CSCOppm-gw-jre              ##################################################
Preparing...                ##################################################
CSCOppm-gw-web              ##################################################
Preparing...                ##################################################
CSCOppm-gw-openssl          ##################################################

INFO: Adding cron entries...

============================================================
```

```
INFO: *** Install mode: NEW ***
============================================================

Enter default SNMP read community string:  [public]

Default SNMP read community string set to: public

============================================================

Prime Network (ANA) Integration Is Available From WebClient.

   Integration Screen Is Default Window At First Login

Press Any Key To Continue...

============================================================

Enabling User Access requires enabling SSL and configuring keys.

Would you like to enable User Access and Logins now? [ n ] y

Configuring SSL on gateway...

SSL Support is Enabled.

Generating SSL Keys for gateway...

This command generates an SSL key and certificate for the gateway.
The gateway will be stopped before performing this operation.

Stopping any remaining processes...

55 semi-random bytes loaded

==========================================
Generate public/private key pair ...
==========================================
Generating RSA private key, 1024 bit long modulus
.......++++++
......++++++
e is 65537 (0x10001)

==========================================
Gather Distinguished Name information ...
==========================================
Using values CN=10.74.125.114
Certificate Validity (number of days)? [min: 30, default: 3650] Defaulting the Certificate
Validity to 3650 days.
Self signing generated key ...

==========================================
Import generated key as PKCS12 format ...
==========================================

==========================================
Add generated key to trust store ...
==========================================
Certificate was added to keystore
==========================================
SSL key/certificate information for gateway :
==========================================

Keystore type: PKCS12
Keystore provider: SunJSSE
```

```
Your keystore contains 1 entry

Alias name: 10.74.125.114-gateway
Creation date: Jun 7, 2015
Entry type: PrivateKeyEntry
Certificate chain length: 1
Certificate[1]:
Owner: CN=10.74.125.114
Issuer: CN=10.74.125.114
Serial number: e7edc29ca0539d32
Valid from: Sun Jun 07 16:01:59 CST 2015 until: Wed Jun 01 16:01:59 CST 2022
Certificate fingerprints:
         MD5:  08:2F:20:F1:D8:87:D1:AB:0C:EA:C7:A9:33:07:1B:3A
         SHA1: 27:CD:72:C1:4E:74:2E:1A:BD:24:05:FC:B9:21:A2:16:AF:21:56:B8
         Signature algorithm name: SHA1withRSA
         Version: 3

Generated SSL key and certificate.

Restart required for changes to take effect:

   /ha/CSCOppm-gw/bin/ppm restart

============================================================

Certificates for gateway/unit running on same machine automatically imported.

Copy gateway server.crt from below to /tmp on any REMOTE units.

    /ha/CSCOppm-gw/etc/ssl/server.crt

then use the following to import the SSL certificate on
any REMOTE units communicating with this gateway.

   ppm certtool import 10.74.125.114-gateway -file /tmp/server.crt

Web browsers will need to accept the certificate using the
appropriate dialogs for each browser type after access.

Reinstall Prime Network Cross-Launches If Enabled!!

Restart required for changes to take effect.

   /ha/CSCOppm-gw/bin/ppm restart

Product provides three types of security authentication, linux local and prime.

Local authentication allows creation of user accounts and
passwords local to PPM.  When using this method,
usernames, passwords, and access levels are all managed within PPM.

linux authentication uses the Pluggable Authentication Module (PAM)
library to authenticate standard linux-based user accounts and passwords.
When using this method, usernames and passwords are managed per the
linux PAM configuration. Acesss levels continue to be defined within PPM.

Prime authentication will use the Prime Suite and the Single Sign On feature
for authentication and user management.  So the first attempt to access a PPM
web page will either redirect the user to the Prime Central login screen for
authentication or it will just work and the user will be the one logged in from
the Prime suite already. This option also requires that SSL be enabled first.

The valid choices for authentication type are: linux local and prime
```

```
Please choose the type of authentication to use:  [local] linux

Authentication Type set to: linux

User Based Access Protection is Enabled.

Restart required for changes to take effect.

   /ha/CSCOppm-gw/bin/ppm restart

Enter information for first user.
 Choose System Administrator Level 5!!

Enter user name: root
New password:
Re-enter new password:
Adding password for user root

Should user be forced to change this password at the next login? [n]

Access Level
============================
 1  - Basic User
 3  - Network Operator
 5  - System  Administrator
 11 - Custom Level 1
 12 - Custom Level 2

Enter access level for user root:  5

User root added with level 5 access.

User Based Access Protection is Enabled.

Clear browser cache and restart browser after changing security settings.

============================================================

To use the product CLI, set your Unix path to:

   /ha/CSCOppm-gw/bin:$PATH

To access the product via WebClient use the following URL:

   http://10.74.125.114:4440

in your web browser.

Check the documentation for supported browsers and versions.

============================- Error Summary -============================

No Errors were encountered during installation.

==========================================================================

Started  : Sun Jun  3 16:00 CST 2015
Finished : Sun Jun  3 16:02 CST 2015

==========================================================================
=============- Prime Performance Manager Gateway Install Completed -============
==========================================================================
```

```
Review /var/tmp/cisco_primepm_gw_install.log for detailed results.

==========================================================================

 Would you like to view the install log? [ n ] ->

Checking status of Prime Performance Manager installation. 1

Preparing for startup...

 ************************************************************************
 *                                                                      *
 *              *           *                Cisco    Prime           *
 *        *  *  *  *  *  *  *  *  *        Performance Manager         *
 *              *           *                                         *
 *            C   I   S   C   O               Setup  Program          *
 *                                                                      *
 ************************************************************************

If you have installed PPM in HA mode on both nodes of the RHCS,

 Please go to directory:/var/CSCOppm-ha/ppm-ha-bin

 And run ppmGatewayHASetup.sh to configure RHCS .

Thank you for purchasing Cisco Prime Performance Manager!!

[root@crdc-ucs-106 ppm140-cd-linux-120602-k9]#
```

Sample RHCS Configuration

The following output provides an example of the gateway HA RHCS configuration:

```
 ************************************************************************
 *                                                                      *
 *              *           *                Cisco  Prime             *
 *              *           *                                         *
 *            C   I   S   C   O           RHCS HA Configure Program   *
 *                                                                      *
 ************************************************************************

Please input the cluster name. ? PPM_GW_HA

Please input the cluster configure version. ? [1]

Please input sshKeyType. ? [rsa]

Please input Luci password. ? password

Please input Luci port. ? [8084]

Please input the multicast interface. ? [eth0]

Please input the multicast IP. ? 225.1.1.1

Please input the floating IP. ? 10.74.125.114

 1) Use one storage device

 2) Use multiple storage devices

 Please choose an option -> 2
```

```
The first mount point should be ppm install dir(such as /ha)

Please input the mount point. ? /ha

Please input the fs Device. ? [LABEL=/ha]

Please input the fs name. ? [PPM_HA_FS_0]

Do you want to add more mount point devices  ? [N] y


Please input the mount point. ? /ha_array1

Please input the fs Device. ? [LABEL=/ha_array1]

Please input the fs name. ? [PPM_HA_FS_1]

Do you want to add more mount point devices  ? [N] y


Please input the mount point. ? /ha_array2

Please input the fs Device. ? [LABEL=/ha_array2]

Please input the fs name. ? [PPM_HA_FS_2]

Do you want to add more mount point devices  ? [N]

============================================================

Before input the RHCS nodes parameters in the following steps,

Please pay attention:

The node 1 will be used as the primary node.

The node 2 will be used as the standby node.

============================================================
Press Return to continue ->

Please input the login user name of the cluster Nodes(both of node 1 and node 2). ? [root]

Please input the node1's host name. ? crdc-ucs-106

Please input the node1's password. ? cisco123

Please input the node1's fence IP. ? 10.74.125.165

Please input the node1's fence device login name. ? admin

Please input the node1's fence password. ? password

Please input the node2's host name. ? crdc-ucs-109

Please input the node2's password. ? cisco123

Please input the node2's fence IP. ? admin
Badly formatted address
Please input the node2's fence IP. ? 10.74.125.170

Please input the node2's fence device login name. ? admin

Please input the node2's fence password. ? password
```

```
Please input the cluster rgmanager log level(0-7), recommend 7. ? [7]

Please input the cluster rgmanager log facility. ? [local4]

Please input the service name. ? [PPM_HA] PPM_GW_HA

Please input the failover domain name. ? [PPM_HA_Failver_Domain] PPM_GW_HA_FD


The recovery policy is the default action rgmanager takes when a service fails on a
particular node.

 1)  Restart the service on the same node(restart)
     If restarting fails, rgmanager falls back to relocate the service

 2)  Try to start the service on other node in the cluster.(relocate)

 3)  Do nothing. Place the service in to the disabled state(disable)

 Please choose an option -> 2

Do you want the service auto start [Y/N]  ? [Y]

============================================================
========- General parameters Summary -=========
============================================================

INFO: The following parameters will be used:
INFO:    [ 1] ClusterName         : PPM_GW_HA
INFO:    [ 2] ConfigVersion       : 1
INFO:    [ 3] SSHKeyType          : rsa
INFO:    [ 4] LuciPassword        : password
INFO:    [ 5] LuciPort            : 8084
INFO:    [ 6] MulticastInterface  : eth0
INFO:    [ 7] MulticastIP         : 225.1.1.1
INFO:    [ 8] FloatingIP          : 10.74.125.114
INFO:    [ 9] RmLoglevel          : 7
INFO:    [10] RmLogfacility       : local4
INFO:    [11] ServiceName         : PPM_GW_HA
INFO:    [12] FailoverdomainName  : PPM_GW_HA_FD
INFO:    [13] RecoveryPolicy      : relocate
INFO:    [14] Autostart           : 1

Press Return to continue ->

============================================================
========- Nodes parameters Summary -=========
============================================================

INFO: The following parameters will be used:

Node 1 info:

INFO:    [ 1] Node1HostName       : crdc-ucs-106
INFO:    [ 2] Node1UserName       : root
INFO:    [ 3] Node1Password       : cisco123
INFO:    [ 4] Node1FenceIP        : 10.74.125.165
INFO:    [ 5] Node1FenceLoginName : admin
INFO:    [ 6] Node1FencePassword  : password

Node 2 info:

INFO:    [ 1] Node2HostName       : crdc-ucs-109
```

```
INFO:    [ 2] Node2UserName       : root
INFO:    [ 3] Node2Password       : cisco123
INFO:    [ 4] Node2FenceIP        : 10.74.125.170
INFO:    [ 5] Node2FenceLoginName : admin
INFO:    [ 6] Node2FencePassword  : password

Press Return to continue ->

============================================================
=======- Storage input parameters Summary -========
============================================================

INFO: The following parameters will be used:

Storage input parameters info:

INFO:    [ 1] Mountpoint: /ha
INFO:    [ 1] FsDeviceLable: LABEL=/ha
INFO:    [ 1] FsDeviceName: PPM_HA_FS_0

INFO:    [ 2] Mountpoint: /ha_array1
INFO:    [ 2] FsDeviceLable: LABEL=/ha_array1
INFO:    [ 2] FsDeviceName: PPM_HA_FS_1

INFO:    [ 3] Mountpoint: /ha_array2
INFO:    [ 3] FsDeviceLable: LABEL=/ha_array2
INFO:    [ 3] FsDeviceName: PPM_HA_FS_2

Press Return to continue ->

Do you want to start the RHCS configuration on Node 1 and Node 2 ? [Y]

Start to configure RHCS...


Start to do SSH validation .....

SSH validation is OK.

Start to do SSH configuration .....

SSH configuration is OK

Start to do RHCS validation .....

RHCS validation is OK.

Start to do RHCS configuration .....

RHCS configuration is OK.

The RHCS configuration process finished.
```

Installing Prime Performance Manager in a Geographical HA Configuration

Before you begin a geographical HA configuration, verify the following:

- The primary and secondary gateways meet the server requirements provided in Evolved Programmable Networks Requirements, page 1-7.
- The primary and secondary gateways have the same server hardware and software.

- Domain Name System (DNS) is configured to ensure IP address and server name connectivity between the primary and secondary gateways. If not, you must install dnsmasq. See Installing dnsmasq, page 2-34, for installation procedures.
- The primary and secondary gateways are installed in the same directory structure.
- No units are installed on either gateway.

Note If you install a unit in a geographical HA environment, and install and reinstall the unit several times and then connect it to the gateway or you refresh the gateway build but do not stop the unit first, duplicate gateway/units will appear on the Gateway/Units page.

To install Prime Performance Manager in a geographical HA configuration:

Step 1 Complete the Downloading and Extracting the Prime Performance Manager Software, page 2-2.

Step 2 Start the "Starting the Installation" procedure on page 2-3. At Step 3, choose **Option 6 Install Prime Performance Manager Gateway with Geographical HA.**

Step 3 Complete Steps 4 through 6 of the "Starting the Installation" procedure on page 2-3.

At the enable User Access prompt, enter the following:

- Primary Gateway—Enter **y** to enable user access.
- Secondary Gateway—Enter **n**. You will not enable users on the secondary gateway until after the installation.

```
Would you like to enable User Access and Logins? [ n ]
```

Step 4 Enter the gateway service role:

- Primary Gateway—Enter **1** to install gateway as the primary gateway.
- Secondary Gateway—Enter **2** to install gateway as the secondary gateway.

Note The service role is predefined. However, the first working gateway one will become the primary gateway.

Step 5 Enter the IP address or hostname of the peer gateway.

Note The gateway IP address format must match the peer one. Mixing address formats is not permitted.

Step 6 Enter the RMI port of the peer gateway.

Note The primary and secondary gateway must use the same RMI port.

Step 7 Enter the HA health check interval. This is the time interval when the secondary gateway checks the primary gateway status.

Step 8 Enter the maximum continuous tolerated fail number. This is the number of times the secondary gateway is unable to communicate with the primary gateway before it initiates a failover. The default is 6. If you are installing local and geographical HA, enter **60**.

Step 9 Enable CSV file synchronization.

Note Enabling CSV file synchronization will generally double the demands on network resources.

Step 10 Enter the primary database age out. This is the amount of time that the secondary gateway is not connected to the primary gateway database, after which the primary gateway is marked Out of Sync.

Step 11 Enter database differences cache records limitation. If the primary database caching is up to the configured number and the secondary gateway is not connected, the primary gateway is marked Out of Sync.

After the unit is installed, the following message is displayed:

```
Review /var/tmp/cisco_primepm_unit_install.log for detailed results.
Would you like to view the install log? [ n ] ->
```

Step 12 If you do not want to view the log, press **Enter**. To view the log, enter **y**, press **Enter**, then press the spacebar to scroll through the log.

At the end of the installation, you are presented with the following options.

```
1) Start Prime Performance Manager Gateway
2) Integrate with Prime Central
3) Exit Setup
 Please choose an option ->
```

Step 13 If user access is not enabled on the primary gateway, choose **1** to start or **3** to exit. If user access is enabled on the primary gateway, continue with the next step.

Step 14 If user access is enabled on the primary gateway, complete the following steps:

Primary gateway:

- Choose **3** to exit, then exchange SSL certificates between the primary and secondary servers. For procedures, see the *Cisco Prime Performance Manager 1.7 User Guide*.

Secondary gateway:

a. Choose **3** to exit, then enable SSL. For information, see the *Cisco Prime Performance Manager 1.7 User Guide*.

b. Restart the gateway to connect to the primary gateway and synchronize the user information.

c. Enable user access and choose the existing user database.

Note Before starting the secondary gateway, verify the primary gateway is up. To check the status of primary gateway, you can run the ppm primeha status command. For information, see "Displaying Geographical HA Status" in the *Cisco Prime Performance Manager 1.7 User Guide.*

Installing Prime Performance Manager in a Local and Geographical HA Configuration

To install Prime Performance Manager in a local and geographical HA configuration:

Step 1 Complete the "Installing Prime Performance Manager in a Local HA Configuration" procedure on page 2-16. When completing the "Starting the Installation" procedure on page 2-3, at Step 3, choose **Option 7 Install Prime Performance Manager Gateway with Geographical HA and Red Hat Cluster Suite.**

Step 2 Complete the "Installing Prime Performance Manager in a Geographical HA Configuration" procedure on page 2-31. At Step 8, enter **60** for the maximum continuous tolerated fail numbers.

Note In local and geographical HA mode, the secondary geographical gateway must keep at least five minutes timeout (recommended) so that it provides sufficient time for the local HA switchover or failover when local HA failure occurs. The local HA sites do not need to change its default timeout value.

Note In local and geographical HA mode, use the RHCS Relocate service instead of Restart service for local HA.

Installing dnsmasq

If DNS is not configured, install dnsmasq on the primary and secondary HA gateways to ensure gateway connectivity following switchovers. (dnsmasq is included with Red Hat Enterprise for Linux.)

To install dnsmasq:

Step 1 At the command prompt, enter:

```
yum install dnsmasq
```

Step 2 Edit /etc/dnsmasq.conf:

a. Uncomment listen-address=.

b. Append 127.0.0.1.

Step 3 Start dnsmasq:

```
service dnsmasq start
```

Note If you install dnsmasq after Prime Performance Manager is running, you must stop the secondary Prime Performance Manager HA gateway, restart the primary HA gateway, then start the secondary HA gateway. For information about starting and topping Prime Performance Manager, see the *Cisco Prime Performance Manager 1.7 User Guide.*

Starting Geographical HA Gateways Using the CLI

After you install the Geographical HA gateways and units, start the gateways in the following orders:

- Start primary gateway

- Start secondary gateway
- Start each unit to connect to the primary gateway

For secondary gateway, if you are trying to connect to an Out of Sync primary gateway, the following exceptions will be raised. Follow the instructions to start it.

2013/08/01 21:44:20: The db is out of sync. Please run following steps:

```
1. Run the ppm primeha backupdb {path} command on the primary gateway.
2. Copy the DB files to the secondary gateway.
3. Stop the secondary gateway.
4. Start the secondary gateway by ppm ppm start restoredb dbpath
2015/08/01 21:44:20: Problem starting service mwtm:service=HaManagerService
java.lang.RuntimeException: Out of sync from Primary Gateway
```

For information on performing these steps, see the "Managing Geographical HA" topic in the *Cisco Prime Performance Manager 1.7 User Guide.*

If you try to connect a unit to the secondary gateway, the following exceptions will be raised. Follow the provided steps to start it.

```
2015/08/01 10:05:03: Unit is trying to connect to the Secondary Gateway.
Please run ppm gatewayname first to connect to the Primary one.
2015/08/01 10:05:03: Problem starting service mwtm:service=HaManagerService
java.lang.RuntimeException: Unit is trying to connect to the Secondary Gateway.
```

Starting Prime Performance Manager Using the CLI

After you install the Prime Performance Manager gateway and/or unit, you can start the gateway and/or unit immediately after the installation or at a later time.

To start the Prime Performance Manager gateway and/or unit from the command line, log in as the *root* user and use the following commands:

Note The following procedures assume that you installed the Prime Performance Manager in the default directory, */opt*. If you installed the Prime Performance Manager in a different directory, use the name of that directory in place of */opt*.

Table 2-3 lists the commands used to start Prime Performance Manager. For detailed instructions on using the commands to start and manage to start Prime Performance Manager, see "Managing Gateways and Units Using the Command Line Interface" in the *Cisco Prime Performance Manager 1.7 User Guide.*

Table 2-3 Starting Prime Performance Manager Using CLI

Gateway and/or Unit	Command
Gateway and collocated unit	**# cd /opt/CSCOppm-gw/bin** # **./ppm start both**
Gateway	# **cd /opt/CSCOppm-gw/bin** # **./ppm start gw**
Unit	**# cd /opt/CSCOppm-unit/bin** # **./ppm start unit**

Verifying Prime Performance Manager Installation

To verify the Prime Performance Manager installation, you can perform tasks in the following topics:

Note These procedures are only needed if problems occur during installation. If Prime Performance Manager installs and starts normally, no verification tasks need to be performed.

Checking the Installation Log

During installation, messages are recorded in a log file to provide diagnostic information about problems that might arise. The location of the installation log file is provided at the end of the installation.

To check for installation error messages:

Step 1 Log into the Prime Performance Manager server as the *root* user

Step 2 Use the following commands to view the installation logs:

- Gateway installation log:

  # more *install_directory***/install/cisco_primepm_gw_install.log**

- Unit installation log:

  # more *install_directory***/install/cisco_primepm_unit_install.log**

- Gateway and unit installation log

  # more *install_directory***/install/cisco_primepm_install.log**

Where *install_directory* is the directory in which the Prime Performance Manager is installed. The default installation directory for the Prime Performance Manager is */opt/CSCOppm-gw or /opt/CSCOppm-unit*

Step 3 Press the **spacebar** to scroll through the log.

You can also display the Prime Performance Manager gateway installation logs using the **ppm installlog** command.

Viewing the Gateway and Unit Package Information

To verify that the Prime Performance Manager gateway and unit software package is installed on a Linux server:

Step 1 Enter the following:

```
rpm -qa | grep CSCOppm
```

Step 2 To view more information about a package, enter one of the following commands:

```
rpm - qi CSCOppm-unit-server-1.4.0-01.i386
rpm - qi CSCOppm-unit-openssl-1.4.0-01.i386
rpm - qi CSCOppm-gw-web-1.4.0-01.i386
rpm - qi CSCOppm-unit-web-1.4.0-01.i386
rpm - qi CSCOppm-gw-jre-1.4.0-01.74bit.i386
rpm - qi CSCOppm-unit-jre-1.4.0-01.74bit.i386
rpm - qi CSCOppm-gw-server-1.4.0-01.i386
rpm - qi CSCOppm-gw-openssl-1.4.0-01.i386
```

Step 3 Verify that you receive output similar to the following:

```
<yourserver> rpm - qi CSCOppm-unit-server-1.4.0-01.i386
Name        : CSCOppm-unit-server          Relocations: /opt/CSCOppm-unit
Version     : 1.4.0                             Vendor: Cisco Systems, Inc.
Release     : 01                           Build Date: Fri May 22 09:01:02 2015
Install Date: Fri Jan 8 01:41:20 2015 Build Host: <yourhost>
Group   : Cisco/Network Management  Source RPM: CSCOppm-unit-server-1.7.
0-01.src.rpm
Size        : 63513374                         License: Copyright (c) 2008-2015
Cisco Systems, Inc.
Signature   : (none)
Summary     : Cisco Prime Performance Manager - Unit - Server
Description :
Cisco Systems Prime Performance Manager - Unit - Server
```

If a package is not found, one of the following messages is displayed:

```
package "CSCOppm-gw-openssl-1.4.0-01.i386" is not installed
package "CSCOppm-gw-server-1.4.0-01.i386" is not installed
package “CSCOppm-gw-jre-1.4.0-01.74bit.i386” is not installed
package "CSCOppm-gw-web-1.4.0-01.i386" is not installed
package "CSCOppm-unit-openssl-1.4.0-01.i386" is not installed
package "CSCOppm-unit-server-1.4.0-01.i386" is not installed
package “CSCOppm-unit-jre-1.4.0-01.74bit.i386” is not installed
package "CSCOppm-unit-web-1.4.0-01.i386" is not installed
```

If the Prime Performance Manager software packages were not installed, install the Prime Performance Manager again.

Verifying the Gateway and Unit Installation

After you install Prime Performance Manager, you can check the gateway status by entering the following command:

```
/opt/CSCOppm-gw/bin/ppm status
```

Information about the gateway is displayed. In the output, you should see the following status:

```
Prime Performance Manager Gateway App   Server  IS  Running.
    -- Prime Performance Manager Gateway Database       Server  IS  Running.
    -- Prime Performance Manager Gateway Naming         Server  IS  Running.
    -- Prime Performance Manager Gateway MessageLog     Server  IS  Running.
    -- Prime Performance Manager Gateway DataServer     Server  IS  Running.
    -- Prime Performance Manager Gateway JSP/Web Server  IS  Running.
    -- Prime Performance Manager Gateway Launch         Server  IS  Running.
```

If a unit is installed on the same server as the gateway, the unit information is provided. In the output, you should see the following status:

```
Prime Performance Manager Unit App   Server  IS  Running.
    -- Prime Performance Manager Unit Database       Server  IS  Running.
    -- Prime Performance Manager Unit Naming         Server  IS  Running.
    -- Prime Performance Manager Unit MessageLog     Server  IS  Running.
    -- Prime Performance Manager Unit DataServer     Server  IS  Running.
    -- Prime Performance Manager Unit JSP/Web Server  IS  Running.
    -- Prime Performance Manager Unit Launch         Server  IS  Running.
```

To check the status of a remote unit, log into the remote server and enter:

```
/opt/CSCOppm-unit/bin/ppm status
```

For additional information, see "Managing Gateways and Units using the Command Line Interface" in the *Cisco Prime Performance Manager 1.7 User Guide*.

Upgrading Prime Performance Manager

The following topics describe how to upgrade Prime Performance Manager to Release 1.7 and how to upgrade from non-HA to HA version:

- Upgrading to Prime Performance Manager 1.7, page 2-38
- Upgrade a Gateway to Local HA, page 2-39
- Upgrading Prime Performance Manager to an HA Environment, page 2-40

Upgrading to Prime Performance Manager 1.7

Complete the following steps to upgrade an existing Prime Performance Manager gateway or unit to Prime Performance Manager 1.7.

Step 1 If the Prime Performance Manager gateway is colocated with the unit, prepare another server and relocate unit to the new server. Gateways in an HA environment must reside on their own server.

Step 2 Enter the following:

```
cd ppm170-linux-2015-mmdd-k9-upgrade-fcs:
./setup.sh
```

Step 3 At the Upgrade Program screen, choose an upgrade option:

- 3—To upgrade a gateway and unit
- 4—To upgrade a gateway only
- 5—To upgrade a unit only

Note For HA upgrade procedures, see Upgrading Prime Performance Manager to an HA Environment, page 2-40

```
**********************************************************************
*              *           *                                         *
*           *  *  *     *  *  *              Cisco Prime             *
*        *  *  *  *  *  *  *  *  *  *                                *
*        *  *  *  *  *  *  *  *  *  *        Performance Manager      *
*              *           *                                         *
*           C   I   S   C   O             Upgrade  Program          *
```

```
*                                                                             *
*******************************************************************************

   1) Review README File (Recommended)
   2) Review CHANGES file
   3) Upgrade Prime Performance Manager Gateway and Unit
   4) Upgrade Prime Performance Manager Gateway Only
   5) Upgrade Prime Performance Manager Unit Only
   9) Exit Setup
```

The upgrade script will upgrade the gateway and unit, gateway only, or unit only, depending on your selection.

Note After the upgrade script finishes, allow Prime Performance Manager to run for **at least one hour** before shutting it back down for any reason, including another upgrade.

Upgrade a Gateway to Local HA

Complete the following steps to upgrade an existing Prime Performance Manager gateway to a local HA gateway.

Step 1 Verify that your primary and secondary gateways meet the RHCS HA requirements described in RHCS Requirements, page 1-88.

Step 2 Verify that Prime Performance Manager 1.7 is installed and functioning normally:

```
ppm status
```

Step 3 If the Prime Performance Manager gateway is colocated with the Prime Performance Manager unit, prepare another server and relocate unit to the new server. Gateways in an HA environment must reside on their own server.

Step 4 If the Prime Performance Manager gateway install directory is not in SAN storage, relocate the directory to the SAN storage following the steps in Change the Prime Performance Manager Installation Directory, page 2-46.

Step 5 Release the primary gateway IP address and use it as the RHCS floating IP address.

Step 6 Change the current gateway IP address to a new one. (Do not start Prime Performance Manager at this point.)

Step 7 Install the HA lib for the primary gateway:

```
ppmGatewayHALibUpgrade.sh upgrade
```

For additional information, enter:

```
ppmGatewayHALibUpgrade help
```

The ppmGatewayHALibUpgrade.sh script is located in the directory where you extracted the Prime Performance Manager installation zip.

Step 8 Complete the "Installing Prime Performance Manager on High Availability Gateways" procedure on page 2-15 to install the Prime Performance Manager gateway with HA in another node local directory. The local directory name should be same as the SAN storage directory. Enter the floating IP address as the gateway IP address which was released as the gateway IP address in Step 5.

Step 9 Configure RHCS following instructions in Step 8 of the "Install the Local HA Gateway" procedure on page 2-17.

Note If you encounter an error during the HA lib installation, use the **ppmGatewayHALibUpgrade.sh clean** command to clean the HA lib and HA installation information.

Upgrading Prime Performance Manager to an HA Environment

The following sections tell you how to upgrade an existing Prime Performance Manager gateway to an HA environment:

- Upgrade an Existing Local HA Gateway, page 2-40
- Upgrade a Gateway to Geographical HA, page 2-42
- Upgrade an Existing Geographical HA Gateway, page 2-43
- Upgrade an Existing Geographical HA Integrated with Local HA, page 2-44
- Upgrade a Gateway to Geographical HA Integrated with Local HA, page 2-44
- Enable Geographical HA in an Upgraded Local HA Gateway, page 2-45
- Change the Prime Performance Manager Installation Directory, page 2-46

Note Prime Performance Manager 1.7 does not support upgrades from Prime Performance Manager 1.2.1 directly to Prime Performance Manager 1.7 in gateway HA mode. You must upgrade from Prime Performance Manager 1.2.1 to Prime Performance Manager 1.7 in non-HA mode using the normal upgrade procedure, then follow the procedures in this section to upgrade from non-HA to HA mode. This also applies to upgrades from Prime Performance Manager 1.7 non-HA mode to Prime Performance Manager 1.7 HA mode.

Upgrade an Existing Local HA Gateway

Complete the following steps to upgrade a Prime Performance Manager gateway in a local HA configuration to a later Prime Performance Manager release gateway in a local HA configuration.

Step 1 Verify that your current primary and secondary gateways are running in Prime Performance Manager gateway HA mode.

Step 2 Freeze the health monitor between primary and secondary gateways following steps in the "Freezing and Unfreezing RHCS" procedure in the *Cisco Prime Performance Manager 1.7 User Guide*.

Step 3 Upgrade the primary gateway that is mounted to a SAN storage, then start the gateway.

Step 4 Unfreeze the health monitor.

Step 5 Switch over to the secondary gateway and let it act as the active gateway.

Step 6 Freeze the health check monitor.

Step 7 Stop the Prime Performance Manager installed on the SAN Storage.

Step 8 Unmount the SAN storage on the secondary gateway.

Step 9 Start the Prime Performance Manager installed on the disk.

Step 10 Upgrade the secondary gateway that has the Prime Performance Manager installed on a local disk. Do not start the gateway.

Step 11 Mount the SAN storage on the secondary gateway, and

Step 12 Start Prime Performance Manager installed on SAN storage.

Step 13 Unfreeze the health check monitor.

Step 14 Switch back to the original active gateway.

Step 15 Upgrade the units and then restart them.

Step 16 Verify that the Prime Performance Manager gateway and units are upgraded and functioning normally.

Example–Upgrade an existing Prime Performance Manager Local HA while upgrading OS from RHEL 5.X to RHEL 6.X

To upgrade Prime Performance Manager 1.6.0 SP4 to 1.7.0 SP1703 while upgrading OS from RHEL 5.8 to 6.8, perform the following steps:

Step 1 Freeze the RHCS service.

Step 2 Upgrade the primary gateway with the SAN shared storage from Prime Performance Manager 1.6.0 SP4 to 1.7.0 SP1703.

Step 3 Add the RHCS Virtual IP Address (VIP) on the secondary gateway manually and upgrade the Secondary gateway with the local storage from Prime Performance Manager 1.6.0 SP4 to 1.7.0 SP1703.

Step 4 Remove the virtual IP address manually after the upgrade.

Step 5 Upgrade the Prime Performance Manager units to SP1703.

Step 6 Unfreeze the RHCS and check if the RHCS works correctly with Prime Performance Manager.

Step 7 Create backup of the primary gateway using the following command:

```
ppm backup gw
```

Step 8 Upload the backup tar to a different backup server which does not impact the OS re-installation.

Step 9 Reinstall both the Local HA Linux server OS to RHEL 6.8 with RHCS packages.

Maintain the same IP address, hostname, and VIP as specified earlier.

Step 10 Perform a fresh installation of Prime Performance Manager Local HA on RHEL 6.8 and start Prime Performance Manager on the primary gateway.

Step 11 Copy the Prime Performance Manager gateway backup tar to the primary gateway using Secure Copy Protocol (SCP).

Step 12 Freeze the RHCS.

Step 13 Restore the Prime Performance Manager on the primary gateway from the backup tar using the following command:

```
ppm restore gw
```

Step 14 Check if the gateway unit connections, device reports, Prime Performance Manager configuration, and CSV reports are restored correctly.

Step 15 Unfreeze the RHCS.

Step 16 Perform a Local HA switchover or switchback, failover or failback, freeze or unfreeze actions to make sure that the RHCS service works correctly.

Upgrade a Gateway to Geographical HA

Complete the following steps to upgrade an existing Prime Performance Manager standalone gateway to a primary and secondary peer gateways in geographical HA mode.

Step 1 Verify the current standalone gateway server meets all requirements in Geographical HA Requirements, page 1-90. If not, do not continue. Address the requirement deficiencies, then begin the installation.

Step 2 Complete the "Upgrading to Prime Performance Manager 1.7" procedure on page 2-38, choosing **Option 4 Upgrade Prime Performance Manager Gateway**.

Step 3 Start the primary gateway.

Step 4 Complete the "Upgrading to Prime Performance Manager 1.7" procedure on page 2-38 to upgrade all units to 1.7, choosing **Option 5 Upgrade Prime Performance Manager Unit**.

Step 5 Start all the units.

Step 6 On the primary gateway, run **/opt/CSCOppm-gw/bin/ppmGeoHA.sh** to change the gateway from non-HA to geographical HA mode and provision the geographical HA parameters.

Step 7 Prepare a new server to install the secondary gateway and configure the new server as its peer gateway name. Sample configuration:

```
Configure Geographical HA Gateway Properties...
========================- Service Role -======================
1 - Primary Gateway
2 - Secondary Gateway
Enter Predefined Service Role : [1]
==================- Peer Gateway Configuration -===============
Enter IP Address or Hostname Of Peer Gateway : 10.74.125.6
Enter RMI Port of Peer Gateway : [45742]
==================- Health Check Configuration -===============
Enter Health Check Interval (Seconds) : [10]
Enter Maximum Continuous Tolerated Fail Numbers : [6]
===========- Gateways Synchronization Configuration -==========
Enable CSV file Synchronization? [n]
Enter Primary Database Age Out (Hours): [24]
```

Step 8 After you configure the geographical HA parameters, restart the gateway. It will operate as the primary gateway.

Step 9 Install the secondary gateway on the new server. For more information on geographical HA configuration parameters, see Steps 4 through 11 in the Installing Prime Performance Manager in a Geographical HA Configuration, page 2-31. Do NOT start the new gateway after setup.

Step 10 Create a database backup file in the upgraded gateway:

```
ppm primeha backupdb {path}
```

Step 11 Remote copy the database backup file to the new installed gateway.

Step 12 On the new gateway, restore the backup file so the two gateways have the same database and files base:

```
ppm primeha restore dbpath
```

Step 13 Run commands ppm primeha status on both Primary gateway and secondary gateway to verify the communication and connection established.

Step 14 (Optional) If SSL is enabled, see "Configuring SSL Between Gateways and Units" in the *Cisco Prime Performance Manager 1.7 User Guide*.

Step 15 Verify that the Prime Performance Manager primary and secondary gateways and units are functioning normally.

Upgrade an Existing Geographical HA Gateway

Complete the following steps to upgrade a Prime Performance Manager gateway in a geographical HA configuration to a later Prime Performance Manager Release gateway in a geographical HA configuration.

Step 1 Verify that your current primary and secondary gateways are running in Prime Performance Manager Gateway Geographical HA mode.

Note In the following steps, the primary gateway is PPM1, and the secondary gateway is PPM2.

Step 2 Upgrade PPM2, then restart it. See Upgrading to Prime Performance Manager 1.7, page 2-38.

Step 3 Upgrade the redundant unit, then restart it.

Step 4 Stop PPM1 using the command, **ppm stop**. The secondary gateway (PPM2) becomes the primary one.

Note When the Actions menu does not appear after stopping the PPM1, ensure to clear the browser cache of PPM2 or reload the browser page from PPM2.

Step 5 Perform a Failover on the primary unit. See "Performing Manual Redundant Unit Failovers" in the Managing Gateways and Units chapter of the*Cisco Prime Performance Manager 1.7 User Guide*. This sets the redundant unit as the active one.

Step 6 Upgrade the primary unit, then restart it.

Step 7 Perform a Fallback on the primary unit. See "Switching Redundant Units Back to Standby" in the Managing Gateways and Units chapter of the *Cisco Prime Performance Manager 1.7 User Guide*.

Step 8 Set PPM 1 as the secondary gateway:

```
ppm setservicerole secondary
```

Step 9 Start PPM1, upgrade it, then restart it.

Step 10 Restart PPM2 using the ppm restart command. This switches PPM1 back to the primary gateway.

Note When the Actions menu does not appear after stopping the PPM2, ensure to clear the browser cache of PPM1 or reload the browser page from PPM1.

Step 11 Verify that the upgrade did not cause the primary and secondary gateway databases to get out of synchronization. If the primary and secondary gateway databases are out of synchronization, as indicated by the primary gateway Out of Sync parameter (see "Displaying Geographical HA Status" in

the Managing Gateways and Units chapter of the *Cisco Prime Performance Manager 1.7 User Guide*), synchronize them (see "Synchronizing the Geographical HA Gateways" in the Managing Gateways and Units chapter of the *Cisco Prime Performance Manager 1.7 User Guide*).

Step 12 Verify that the Prime Performance Manager primary and secondary gateways and units are upgraded and functioning normally.

Upgrade a Gateway to Geographical HA Integrated with Local HA

You cannot upgrade a Prime Performance Manager 1.2.1 gateway directly to Prime Performance Manager 1.7 gateway with an integrated local and geographical HA configuration. To upgrade a gateway to geographical HA integrated with local HA:

Step 1 Complete the "Upgrading to Prime Performance Manager 1.7" procedure on page 2-38 to upgrade the existing Prime Performance Manager to 1.7.

Step 2 Complete the Upgrade a Gateway to Local HA, page 2-39 to upgrade the existing Prime Performance Manager gateway to local HA gateway.

Step 3 Complete the Enable Geographical HA in an Upgraded Local HA Gateway, page 2-45 to enable geographical HA in the upgraded local HA gateway.

Upgrade an Existing Geographical HA Integrated with Local HA

Complete the following steps to upgrade a Prime Performance Manager gateway in a geographical HA integrated with local HA configuration to a later Prime Performance Manager Release gateway in a geographical HA integrated with local HA configuration.

Step 1 Verify that your current primary and secondary gateways are running in Prime Performance Manager Gateway geographical HA integrated with local HA mode.

Step 2 Stop the geographical HA secondary gateway and all of the units.

Step 3 Freeze the health monitor between local HA primary and secondary gateways following steps in Red Hat Cluster Suite documentation.

Step 4 Upgrade the local HA primary gateway that is mounted to a SAN storage.

Step 5 Start the gateway.

Step 6 Unfreeze the health monitor.

Step 7 Switch over to the local HA secondary gateway and let it act as the local HA active gateway.

Step 8 Freeze the health check monitor.

Step 9 Unmount SAN storage, and upgrade the local HA secondary gateway that has the Prime Performance Manager binary installation on a local disk.

Note Do not start the gateway on the local disk.

Enable Geographical HA in an Upgraded Local HA Gateway

Before you begin to enable geographical HA:

- Verify that the primary gateways and the secondary gateway have the same hardware and software.
- Verify that the IP address and server name connectivity exists between primary and secondary gateways.

To enable geographical HA in an upgraded local HA gateway:

Step 1 Freeze the local HA gateway:

```
ppmGatewayHA.sh freeze
```

Step 2 Stop the local HA gateway.

Step 3 From the install_directory/bin directory, enable the geographical HA on the local HA gateway:

```
ppmGeoHA.sh
```

Step 4 Configure the to-be installed geographical gateway IP address (see Step 7) as the peer gateway name. After setup, restart Local HA gateway.

Example:

```
Configure Geographical HA Gateway Properties...
========================- Service Role -======================
    Primary Gateway
==================- Peer Gateway Configuration -===============
Enter IP Address or Hostname Of Peer Gateway : 10.74.125.16
Enter RMI Port of Peer Gateway : [45742]
==================- Health Check Configuration -===============
Enter Health Check Interval (Seconds) : [10]
Enter Maximum Continuous Tolerated Fail Numbers : [6]
===========- Gateways Synchronization Configuration -===========
Enable CSV file Synchronization? [n]
Enter Primary Database Age Out (Hours) : [24]
Enter Database Differences Cache Records Limitation: [50000]
```

Step 5 Unfreeze local HA gateway:

```
ppmGatewayHA.sh unfreeze
```

Step 6 Install one new Prime Performance Manager gateway with **Option 6) Install Prime Performance Manager Gateway with Geographical HA**.

Step 7 Configure the local HA gateway floating IP address as the peer gateway, and configure 60 as the maximum continuous tolerated fail numbers.

Do NOT start the gateway.

For example:

```
========================- Service Role -======================
 1 - Primary Gateway
 2 - Secondary Gateway
Enter Predefined Service Role : [2]
==================- Peer Gateway Configuration -===============
Enter IP Address or Hostname Of Peer Gateway : 10.74.12.113
INFO: Checking Peer Gateways protocol consistent... OK.
Enter RMI Port of Peer Gateway : [45742]
==================- Health Check Configuration -===============
Enter Health Check Interval (Seconds) : [10]
Enter Maximum Continuous Tolerated Fail Numbers : [6] 60
```

```
============- Gateways Synchronization Configuration -==========
Enable CSV file Synchronization? [n]
Enter Primary Database Age Out (Hours): [24]
Enter Database Differences Cache Records Limitation: [50000]
```

Step 8 Before you start the secondary gateway, copy the database files from the primary to the secondary gateway:

a. Back up the primary gateway:

```
ppm primeha backupdb {path}
```

b. Copy the database files to the secondary gateway.

c. Start the secondary gateway:

```
ppm start restoreddbpath
```

Step 9 (Optional) If SSL is enabled, see "Configuring SSL Between Gateways and Units" in the the *Cisco Prime Performance Manager 1.7 User Guide*.

Change the Prime Performance Manager Installation Directory

If you installed the Prime Performance Manager gateway in local directory, you must change the directory because gateway HA requires the gateway installation directory be installed in the SAN storage.

To change directories:

Step 1 Verify that Prime Performance Manager is running.

Step 2 Enable the HA backup flag:

```
ppm localhabackupflag enable
```

Step 3 Verify that HA backup is enabled:

```
ppm localhabackupflag status
```

Step 4 Run the Prime Performance Manager backup:

```
ppm backup gw
```

Note If you want to change the backup directory, run the **ppm backupdir** ***target_dir*** command to specify the target directory. For example: ppm backupdir /root/test/backupdirectory.

Step 5 Make a copy of the backed up gateway files to another directory for future reference. For example:

```
cp ppm13-Gateway-10.74.125.114-backup.tar /root/anotherbackdir
```

Step 6 Uninstall the Prime Performance Manager gateway.

```
uninstall ppm gw
```

Step 7 Change to a new directory mounted on the SAN storage.

Step 8 Install the new gateway; do not start it at this time.

Step 9 Specify the backup directory so that Prime Performance Manager can find the backup tar in Step 5, for example:

```
./ppm backupdir /root/test/ppmbackupDir gw
```

Step 10 Restore the gateway:

```
ppm restore gw
```

Step 11 Disable the HA backup flag:

```
ppm localhabackupflag disable
```

Step 12 Verify that the flag is disabled:

```
ppm localhabackupflag status
```

Note The ppm localhabackupflag is only used for changing a normal gateway installation directory for upgrading to HA. After the directory change is completed, the flag should be disabled.