

HP OpenView Configuration Management OS Manager

for HP Ignite, Solaris JumpStart, SuSE AutoYaST, Red Hat Linux
Kickstart, and AIX NIM

Software Version: 5.00

System Administrator Guide

Document Release Date: April 2007

Software Release Date: April 2007



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Documentation Updates

This guide's title page contains the following identifying information:

- Software Version number, which indicates the software version
- Document release date, which changes each time the document is updated
- Software release date, which indicates the release date of this version of the software

To check for recent updates or to verify that you are using the most recent edition, visit the following URL:

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You will also receive updated or new editions if you subscribe to the appropriate product support service. Contact your HP sales representative for details.

Table 1 lists new features added for the Configuration Management v 5.00 release.

Table 1 New features added for Configuration Management 5.00

Chapter	Version	Changes
All	5.00	Added information and support for AIX NIM.
2	5.00	System requirements updated for 5.00.
2	5.00	Installation updated for 5.00.
2	5.00	Page 47, Solaris Flash Archives : support added.
2	5.00	Page 42, Create the Jumpstart Configuration File : new section including information on how to create configuration file for Jumpstart.
2	5.00	Page 48, VMware ESX 3.0 and Kickstart : support for deploying Vmware ESX systems using Kickstart.
2	5.00	Removed CLIENTPATH and MEDIAPATH configuration information for KickStart, AutoYast, and Jumpstart.
3	5.00	Page 62, Publishing Configuration Information : additional publishing steps added for device architecture and for Solaris installation media path.

Chapter	Version	Changes
3	5.00	Page 40, Using Multiple HP-UX Versions and Platforms : added new section.
3	5.00	Page 56, Deploying 64-bit Versions of Red Hat and SuSE : added new section.
4	5.00	Image Preparation Wizard rebranded for latest release.
4	5.00	Page 60, Publishing Considerations , new section added.

Table 2 indicates changes made to this document for earlier releases.

Table 2 Document changes

Chapter	Version	Changes
All	4.2	The OS Manager for UNIX now supports SuSE YaST.
2	4.2	CM OS Manager Server install includes additional information about Solaris and Linux installations.
2	4.2	Page 40, Using Ignite Images , Ignite imaging is now supported.
2	4.2	Page 62, Configuring DHCP for use with CM OS Manager , includes additional Solaris configuration information.
2	4.2	Page 62, Publishing Configuration Information , added steps to the publishing process.
3	4.2	Page 52, Configuring SuSE AutoYaST , new section that discusses support for SuSE YaST.

Support

Please visit the HP OpenView support web site at:

www.hp.com/managementsoftware/support

This web site provides contact information and details about the products, services, and support that HP OpenView offers.

HP OpenView online software support provides customer self-solve capabilities. It provides a fast and efficient way to access interactive technical support tools needed to manage your business. As a valued support customer, you can benefit by using the support site to:

- Search for knowledge documents of interest
- Submit and track support cases and enhancement requests
- Download software patches
- Manage support contracts
- Look up HP support contacts
- Review information about available services
- Enter into discussions with other software customers
- Research and register for software training

Most of the support areas require that you register as an HP Passport user and log in. Many also require a support contract.

To find more information about access levels, go to:

www.hp.com/managementsoftware/access_level

To register for an HP Passport ID, go to:

www.managementsoftware.hp.com/passport-registration.html

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1 Introduction

At the end of this chapter, you will:

- Understand the purpose and benefits of the HP OpenView Configuration Management OS Manager (CM OS Manager).
- Know what operating systems are supported.
- Be familiar with the CM OS Manager components.
- Be familiar with key terminology.
- Have a high level understanding of the product architecture. Know what the CM OS Manager for UNIX is.

About the CM OS Manager

The HP OpenView Configuration Management OS Manager (CM OS Manager) allows you to use policy-driven, real-time, state-based management to configure and deploy operating systems (OSs). Use the CM OS Manager to install or replace operating systems on a device and maintain the device according to policy. The CM OS Manager ensures the installation of the appropriate operating system based upon the targeted device's capabilities.

The CM OS Manager creates images of operating systems that you have prepared on a reference machine or uses the native install media of the operating system. Policy determines the appropriate operating system for a particular target device based upon:

- An asset tag or other unique identifier imbedded in the device's BIOS
- The network segment the device is connected to
- The manufacturer of the device
- The model of the device
- The role of the device plays in your IT infrastructure

The CM OS Manager for UNIX supports HP Ignite, Red Hat Linux Kickstart, SuSE AutoYaST, AIX NIM, and Solaris JumpStart, providing you with a simple, automated way to install operating systems on your UNIX-related hardware. Using this product, you can build your operating system without having to script configuration files.

Benefits of the OS Manager:

- Fully integrated component of the HP OpenView Configuration Management, which reduces the learning curve for your administrators.
- Improves the speed and reliability of OS deployment using policy-based management.
- Provides increased service levels by maintaining operating system configurations using desired-state management.
- Reduces IT costs by simplifying and streamlining the OS management process across multiple platforms.
- You can generate the configuration files for deployment in real-time, based on policy.

Required Infrastructure

CM OS Manager for UNIX is supported on the CM management infrastructure for Windows only.

Supported Operating Systems

The CM OS Manager for UNIX supports the following operating systems for deployment:

- HP-UX versions as determined by HP Ignite
- Solaris versions as determined by Solaris JumpStart
- Red Hat Linux versions as determined by Red Hat Linux Kickstart
- SuSE versions as determined by SuSE AutoYaST
- AIX versions as determined by AIX Network Install Management (NIM)

Terminology

You should be familiar with the following terms that pertain to OS management.

configuration file

A text file used to define the details of the UNIX installation and its configuration. Definitions in this file include the target machine's network settings (IP address, hostname, DNS settings), the disk layout and partitioning, and system software and drivers to be installed.

service OS

A simple standard operating system installation that is deployed to the target machine during the boot process to collect information.

software lists

A group of software packages, to be assigned to an operating system image, that share the same installation settings.

target machine

A machine on which you want to install a new operating system.

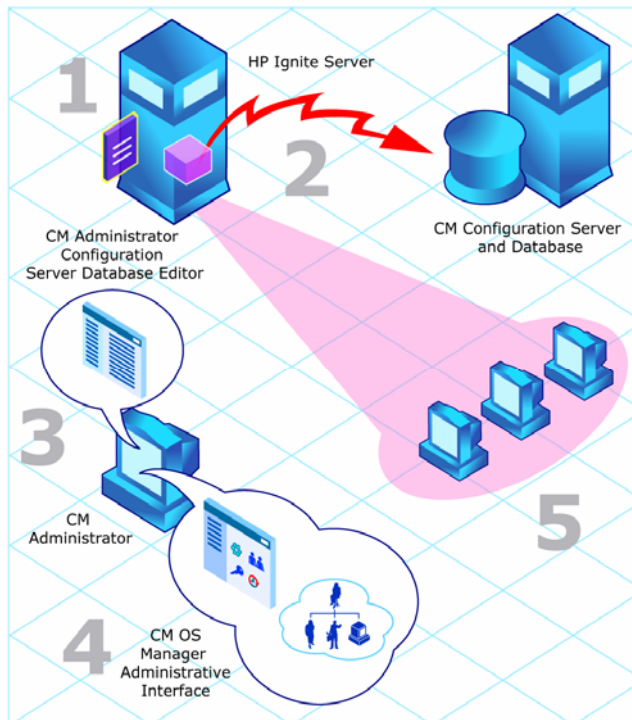
template file

A text file containing a blueprint for a section of a UNIX configuration file. The template is used as a guideline for putting configuration data into the correct structure when the Ignite configuration file is being created.

Using the OS Manager for UNIX

Below is a simple, high-level description of how you will use the OS Manager to configure your UNIX operating system deployment to your target machines.

Figure 1 CM OS Manager for UNIX (HP Ignite example scenario)



- 1 Define the OS configuration files.

- 2 Use the CM OS Manager UNIX Configuration File Publisher to generate package instances for your configuration files in the CM Configuration Server Database.
- 3 Use the CM Admin CSDB Editor to view the newly created instances and to prepare software lists as needed.
- 4 Use the CM OS Manager Administrative Interface to define policy in preparation for deployment to your target machines.
- 5 Follow the usual procedures for deployment to your target machines, and when finished, use the CM OS Manager Administrative Interface to review the results.

CM OS Manager Domains

When the CM Configuration Server is installed with the OS Manager option selected, OS Manager-specific domains are made available. UNIX operating system-specific domains are used to store configuration information populated by CM OS Manager. Within each of these domains, there is a configuration class that contains the general parameters for each operating system image. These are:

- OSIGNITE
 - Ignite Images (IGNITECFG)
- OSJUMP
 - Jumpstart Images (JUMPCFG)
- OSKICK
 - Kickstart Images (KSCFG)
- OSYAST
 - AutoYaST Config (YASTCFG)
- OSNIM
 - NIM Image (NIMCFG)

About the Product Architecture

As you can see in the topic above, several components are involved in preparing and then deploying operating systems to your target machines. This section describes these components as well as the servers necessary for deploying your operating systems to target machines. The architecture can be divided into two areas; preparation and deployment.

About the Preparation Architecture

The preparation architecture consists of several tools used to prepare your configuration files, publish them to the CM Configuration Server Database, prepare them for distribution, and define policy.

CM OS Manager UNIX Configuration File Publisher

Use the UNIX Configuration File Publisher to publish a package to the CM Configuration Server Database (CM-CSDB) that contains information pulled from the original UNIX client configuration file.

CM Admin CSDB Editor

Use the CM Admin CSDB Editor to perform administrative tasks to create and prepare a service for distribution.

CM OS Manager Administrative Tasks

The CM OS Manager server interfaces with the CM Portal to provide a graphical user interface for performing OS administrative tasks.

For general information on how to use the CM Portal, see the *CM Portal Guide*. For information about the CM OS Manager-specific tasks, see the *CM OS Manager Guide for Windows*.

About the Deployment Architecture

The CM OS Manager deployment architecture involves a set of servers designed to manage and deploy operating systems to a set of target machines based on pre-defined criteria. During deployment, the following server components are used:

- **HP-UX Ignite, Linux Kickstart, SuSE AutoYaST, Solaris JumpStart, or AIX NIM server**
 - **CM OS Manager Server for UNIX**
The CM OS Manager Server for UNIX sends requests for desired state information on behalf of the target machines to the CM Configuration Server.
 - **CM Configuration Server**
The CM Configuration Server manages the policy information and configuration files for CM OS Manager. Refer to the *CM Configuration Server Guide* on the HP OpenView support web site for more information. The CM Configuration Server Database must be updated, as described in this document, to accommodate CM OS Manager.
 - **CM Portal**
The CM Portal stores the information about the devices in your environment in a single location that can be shared by all of the components.
- The CM Portal is a component of the CM Integration Server, but it must be run under its own dedicated CM Integration Server. We suggest that you install the CM Portal on a different machine than the one that houses CM OS Manager Server for UNIX.

About the Target Machines

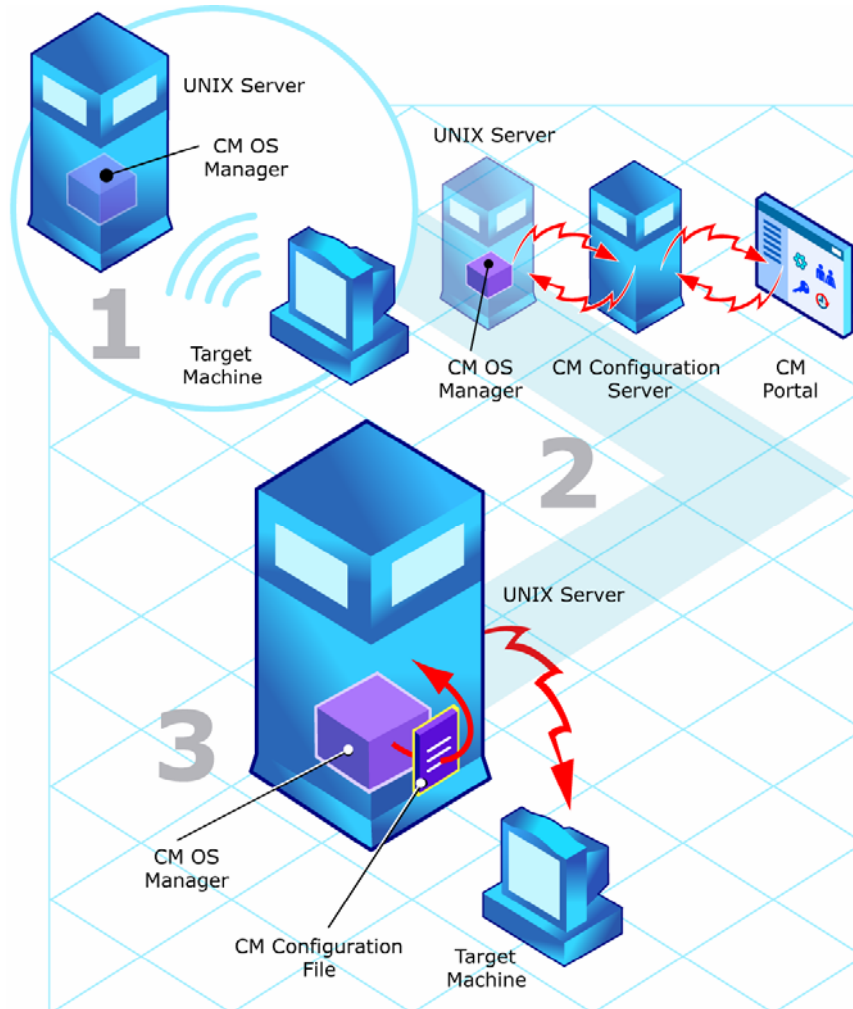
Operating systems are deployed to a set of target machines based on a set of criteria. These target machines should include:

- CM agent 5.00 installation media
- Hardware requirements as required for HP-UX Ignite, Linux Kickstart, SuSE AutoYaST, AIM NIM, or Solaris JumpStart

Flow of an Operating System Installation

An operating system installation consists of the three primary steps shown in [Figure 2](#) on page 18.

Figure 2 Operating system installation process flow



- 1 A network boot is initiated on the target machine.
The UNIX server (Ignite, Kickstart, AutoYaST, NIM or JumpStart) sends pre-installation scripts to the client. These scripts comprise standard functionality to collect basic system and hardware information, as well as a custom CM boot control script.
- 2 The CM boot control script initiates contact with the CM OS Manager Server for UNIX via http and requests generation of the appropriate configuration file.

- The CM OS Manager Server for UNIX then connects to a CM Configuration Server to resolve policy on behalf of the requesting target machine, also sending the system and hardware information collected by the UNIX server.
 - The CM Configuration Server resolves the policy for the target machine based on different parts of the target's system and hardware information (based on collected information from the CM Portal) resulting in a set of persistent objects which, as a whole, define all information necessary to generate a (Ignite, Kickstart, AutoYaST, AIX or Jumpstart) configuration file.
- 3 The script reboots the target machine and the configuration file created by the CM OS Manager server is used.

Related Documents

*HP OpenView Configuration Management OS Manager System
Administrator Guide for Windows*

2 Configuring the CM OS Manager Environment

At the end of this chapter, you will:

- Understand the prerequisites for installing and configuring the CM OS Manager environment.
- Be able to install the CM OS Manager Server for UNIX.
- Be able to configure the CM Portal.
- Be able to configure the CM Proxy Server.
- Be able to prepare CM agent installation media.

Prerequisites

Before Installing the CM OS Manager for UNIX

Before incorporating CM OS Manager into your environment, be sure to test your specific native operating system installation configuration (Ignite, Kickstart, SuSE, AIX, or JumpStart) by creating a configuration file and deploying an operating system into your environment. This will allow you to ensure your configuration and procedures for operating system installation are working properly.

Refer to the specific operating system administration guide for more information about installing and configuring Ignite, Kickstart, AutoYaST, NIM, or JumpStart, respectively.

► Make sure your Ignite server is set up to use `instl_bootd` on port 67/68. See [Configure Ignite Server to run instl_bootd instead of bootpd](#) on page 39 for details.

Infrastructure Prerequisites

- HP-UX Ignite, Solaris JumpStart, SuSE AutoYaST, Red Hat Linux Kickstart, and AIX NIM configured for use with the CM OS Manager for UNIX.
 - **HP OpenView Configuration Management OS Manager Server for UNIX** is supported on HP-UX, Redhat Linux, SuSE Linux, Solaris, and AIX operating systems. See the release note document that accompanies this release for detailed platform support.
 - **HP OpenView Configuration Management Configuration Server for Windows 5.00 or higher.**
 - During the installation, you must have selected the CM OS Manager check box on the Select Products to be installed and supported by CM Configuration Server.
- To check the version of your CM Configuration Server, go to the bin directory and open `version.nvd`.
- **HP OpenView Configuration Management Configuration Server DB** version 5.00 or higher of the.



To check the version of your database, use the CM Admin CSDB Editor to view the PRIMARY.SYSTEM.DBVER class. The DBVER attribute specifies the current version of your database.

- **HP OpenView Configuration Management Portal 5.00** for Windows.
- **HP OpenView Configuration Management Administrator.**
- **HP OpenView Configuration Management OS Manager UNIX Configuration File Publisher.**
- **HP OpenView Configuration Management Proxy Server 5.00** or higher.
- **HP OpenView Configuration Management Portal** for Windows 5.00 or higher.



The security for a Microsoft Internet Explorer browser must be set no higher than medium.

Before installing the CM OS Manager components in a production environment, be sure to backup the configuration files for the entire infrastructure. Backup the files in the following default locations.

- `SystemDrive:\Program Files\Hewlett-Packard\CM\IntegrationServer\etc`

Note that we recommend that you backup the .mk files, which contain operational data, in this directory and its subdirectories on a daily basis.

- `SystemDrive:\Program Files\Hewlett-Packard\CM\ManagementPortal`
- `SystemDrive:\Program Files\Hewlett-Packard\CM\ConfigurationServer\modules`
- `SystemDrive:\Program Files\Hewlett-Packard\CM\ConfigurationServer\bin\edmprof.dat`

You must create the CM OS Manager installation media from the .iso image stored in the \OS_Manager folder on the Configuration Management 5.00 media.

Target Machine Requirements

- Target machines must meet any hardware requirements as per Ignite, Kickstart, AutoYaST, NIM, or JumpStart.

Mounting the CD for HP-UX Environments

The CM OS Manager CD-ROM must be mounted using `pfs_mount` on HP-UX platforms because the CM-ROM is created using the Rock Ridge format. The HP-UX standard mount procedure is incompatible with the Rock Ridge file system type, so HP has made available the Portable File System (PFS) package that allows their workstations to recognize this format. Specific instructions follow.

To mount the CD-ROM (HP-UX only)

- 1 Log on as root, and start the daemons, `pfs_mountd` and `pfsd`. For example:

```
nohup /usr/sbin/pfs_mountd &  
nohup /usr/sbin/pfsd &
```

- 2 Insert the CD-ROM and mount it by typing:

```
/usr/sbin/pfs_mount /dev/cdrom /mnt/cdrom
```

(Where `/dev/cdrom` is your physical CD-ROM device and `/mnt/cdrom` is your mount point)

To unmount the CD-ROM (HP-UX only)

- To un-mount, type:

```
/usr/sbin/pfs_umount /mnt/cdrom
```



For more information, consult your local UNIX systems administrator and UNIX man pages.

Installation Checklist

We suggest that you do the installation in the following order:

- 1 Install the CM OS Manager Server.
- 2 (Optional) Enable Communication between the CM OS Manager and the CM Configuration Server.
- 3 Configure the CM Portal.
- 4 Install the CM OS Manager Configuration File Publisher.

Installing the CM OS Manager Server for UNIX

When you install the CM OS Manager Server for UNIX, the necessary interface for the CM Portal is installed.



The CM OS Manager Server for UNIX must be installed as root.

To install the CM OS Manager Server

- 1 If running, stop the CM Integration Server service.
- 2 On the CM OS Manager media, go to appropriate platform sub-directory and run `./install`.

For example, to install to an HP-UX device, go to `/os_manager_server/hpux`

The Welcome to CM OS Manager Server Setup window opens.

- 3 Click **Next**.

The HP End-User License Agreement window opens.

- 4 Review the HP Software License Terms and click **Accept**.
- 5 The next installation window that opens is determined by the operating system you are installing.

If you are installing to a Solaris machine, you will be prompted to use DHCP for network boot information.

If you are installing to an AIX machine, you are prompted for information to create a SPOT (`rom_spot`). Enter the `lpp_source` name, NIM server

name, and the SPOT location. You will only be prompted for this information if a SPOT does not exist.

▶ Installing the CM OS Manager Server to an AIX device that requires a SPOT may take an extended amount of time.

- 6 Click **Next** to continue.

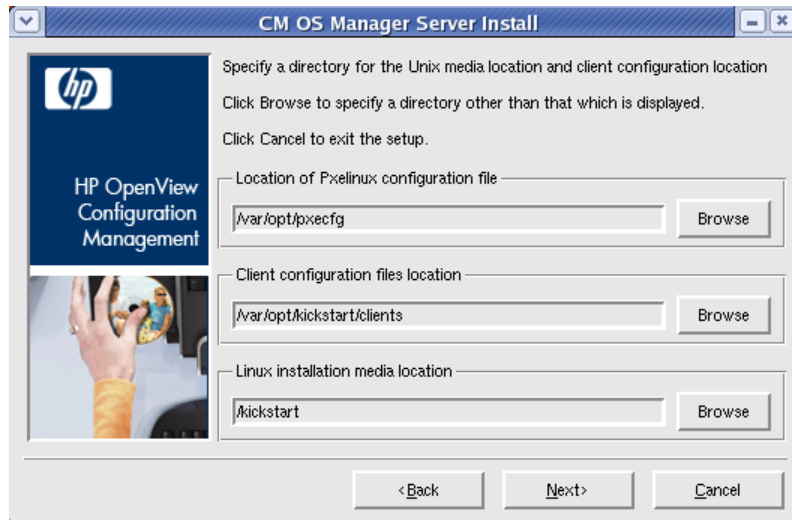
The installation location window opens.

- 7 Select the folder where you want to install the CM OS Manager Server.

- 8 Click **Next**.

The UNIX Media Location and Client Configuration Location window opens.

▶ The fields displayed in the following panel depend upon the platform to which you are installing the CM OS Manager Server. The example used below is for a Linux device. Running the installation on other platforms may display fewer required fields.



- 9 Enter the location for the Client Configuration files and installation media.

— Client configuration files location is the directory where CM OS Manager will create the individual target device configuration directories.

- The client configuration files location must be NFS shared before starting the CM OS Manager for UNIX.
- UNIX installation media location is the directory where an ISO image of a release to be deployed is located.
- The Location of Pxelinux configuration file text box is present only when installing to a Linux machine.

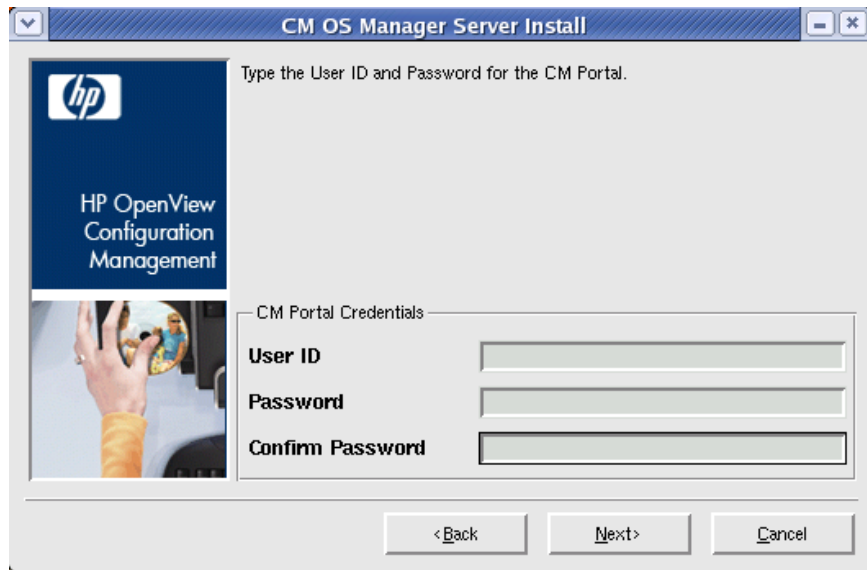
10 Click **Next**.

The License File window opens.

11 Enter the location of your license file (`license.nvd`) or click **Browse** to navigate to your license file.

12 Click **Next**.

The CM Portal Credentials window opens.



The screenshot shows a window titled "CM OS Manager Server Install". On the left is a vertical banner with the HP logo and the text "HP OpenView Configuration Management" above an image of a hand holding a globe. The main area contains the text "Type the User ID and Password for the CM Portal." Below this is a section titled "CM Portal Credentials" with three input fields: "User ID", "Password", and "Confirm Password". At the bottom are three buttons: "< Back", "Next >", and "Cancel".

13 Enter a user ID and password for the CM Portal and click **Next**.

The CM Configuration Server location window opens.

14 Specify an address and port for the CM Configuration Server and click **Next**.

The CM Portal Location window opens.

- 15 Specify the address and port number for the CM Portal. You may include the company name and domain, but it is not required.

This server should be on a separate machine.

- 16 Click **Next**.

The Zone Information window opens.

- 17 Type the name of the CM Portal Zone. Enter a Zone Name up to 64 characters long. Use only letters (a-z and A-Z), numbers (0-9) and the space character. Do not use special characters, such as underscores, commas, or periods. Refer to the *CM Portal Guide* for information about zones.

- 18 Click **Next**.

If you are installing to a Linux machine, you are prompted to enter the Linux distribution on which you are installing the CM OS Manager Server.

- 19 Enter the Linux distribution type (Redhat or SuSE).

- 20 Click **Next**.

The CM OS Manager Server IP address window opens.

- 21 Enter the IP address for the CM OS Manager server and click **Next**.

If you are installing to a Solaris machine, you will be prompted to specify the default router of the network the Jumpstart server belongs to.

- 22 Enter the default router for the Jumpstart server (Solaris installation only) and click **Next**.

- 23 Enter the subnet mask information for the Jumpstart server (Solaris installation only).

- 24 Click **Next**.

The Machine Object Name attribute select window opens.



- 25 Select the attribute from the list to use as the name of the machine object when using the CM OS Manager Administrator Interface. Computer Name is the default.
- 26 Click **Next**.
The Summary window opens.
- 27 Click **Install** to begin the installation.
- 28 Click **Finish** when the installation is complete.

Enabling Communication between the CM OS Manager and the CM Configuration Server

You must perform the following steps to enable communication between the CM OS Manager Server and the CM Configuration Server *if you are using a password to access your CM Configuration Server*.

If you are using a password to access your CM Configuration Server

- 1 Shut down the HP OVCM Integration Server service.

- 2 From a command prompt switch to the CM Integration Server installation directory (typically *SystemDrive:\Program Files\Hewlett-Packard\CM\IntegrationServer*).
- 3 Type `nvdkit` and press **ENTER**.
- 4 Type the following command:
password encrypt *your password*
your password represents your existing password for your CM Configuration Server DB. This is case sensitive.
Your password will be encrypted and will look something like:
`<AES256>kITMqDenvFUpdpBaYt8XBg==`
- 5 Cut the encrypted password from the `nvdkit` command line and paste it into *SystemDrive:\Program Files\Hewlett-Packard\CM\IntegrationServer\etc\roms.cfg* as the value for the ADMINPWD entry.
 The equal signs (==) and the literal string `<AES256>` must be included.
- 6 Restart the HP OVCN Integration Server service.

Configuring the CM Portal

Make the following changes to configure the CM Portal to support the CM OS Manager.



Be sure that you have the CM Portal 5.00 or higher installed on your machine. Note that the following changes have occurred in the CM Portal 5.00:

- The default port has changed from 3466 to 3471.
- The CM Portal's service has changed to HP OVCM Portal.
- The default location of the CM Portal has changed from *SystemDrive:\Program Files\Hewlett-Packard\CM\IntegrationServer* to *C:\Program Files\Hewlett-Packard\CM\ManagementPortal.*
- The service name `httpd` has been changed to `httpd-managementportal..`

To update the modules

- 1 Stop the HP OVCM Portal service.
- 2 From the CM OS Manager media, copy the files in the `\os_administrator` folder to the `\ManagementPortal\modules` directory. The default location is *SystemDrive:\Program Files\Hewlett-Packard\CM\ManagementPortal\modules*.
- 3 Restart the HP OVCM Portal service.

To update the `edmprof.dat` file

- 1 Stop the CM Configuration Server service.
- 2 In the CM Configuration Server `bin` directory, modify the `edmprof.dat` file. In the `[MGR_ROM]` section, update the following:
 - Set the `PORTAL_HOST` to point to the IP address for the CM Portal.
 - Set the `PORTAL_PORT` to point to the port for the CM Portal.
 - The `PORTAL_ZONE` contains the value that you specified when you installed the CM Configuration Server.
 - Set `DISPLAYNAME` to the same value as the `DISPLAYNAME` attribute in *C:\Program Files\Hewlett-Packard\CM\ManagementPortal\etc\roms.cfg*. This ensures that the display name for the device will be updated when the CM OS Manager Server interfaces with CM Portal. If you chose the default during the installation, set this to `compname`.

- Set the `PORTAL_UID` to the ID of a CM Portal user who can update a device or the ROM object.
 - Set the `PORTAL_PASS` to the password for the CM Portal user who can update a device or the ROM object.
- 3 Save and close `edmprof.dat`.

Adding a Directory Service

You must define a CM Configuration Server directory service in the CM Portal before you can use the CM OS Manager administrative tasks. You only need to perform these steps one time.

To add the directory service

- 1 Open your web browser and go to the CM Portal:
(`http://ipaddressORhostname:3471`)
- 2 Login as the Portal Administrator (by default, the user id is admin and the password is secret).
- 3 In the default workspace, click the appropriate Zone. For detailed information about zones and directory services, refer to the *HP OpenView Configuration Management Portal Installation and Configuration Guide (CM Portal Guide)*.
- 4 In the workspace, go to **Configuration** → **Directory Services**.
- 5 From the Model Administration task group, click **Add Directory Service**.
- 6 From the Type list, select **ds-rcs**.
- 7 In the URL text box, change the value of localhost to the IP address of the CM Configuration Server that you want to use for CM OS Manager administration.
- 8 If necessary change the Display Name. For example, CM Database.
- 9 Click **Submit**.

The CM Database is available in Zone, Configuration, Configuration Servers.
- 10 Log out of the CM Portal.



Assigning Views to New Users



You will need to assign additional Views only if you will be creating additional CM Portal user accounts other than ROMADMINU.

If you add a new user to the CM OS Manager, you may want to allow the user to have access to the CM OS Manager administrative tasks. To create new users, see the HP OpenView Configuration Management Portal Installation and Configuration Guide. Once the CM OS Manager Views are assigned, the appropriate classes for the CM OS Manager will appear when the user logs in and connects to the CM Configuration Server.

To assign a view

- 1 Open your web browser and go to the CM Portal (<http://ipaddressORhostname:3471>).
- 2 Log on as the Portal administrator (by default, the user ID is admin and the password is secret).
- 3 Click **Zone**.
- 4 Click **Administrators and Operators**.
- 5 Click on the CM OS Manager user that you want to assign OS Manager Views.
- 6 In the Group of Tasks, click **Assign OS Manager Views**.
The Modify Person window opens.
- 7 Click  to confirm that you want to assign ROM Views to this user.
or
Click  to indicate that you do not want assign ROM Views to this user.
The Properties window opens, showing the modification is complete.

Configuring the Default Behaviors Instance

To configure the default Behaviors instance

- 1 If necessary, log on to the CM Portal as the CM OS Manager Server administrator.
- 2 In the workspace, go to **Configuration** → **Configuration Servers**.
- 3 Select the appropriate CM Configuration Server.

- 4 Then go to **Behavior** → **Defaults**.
- 5 In the CM OS Manager Administration task group, click **Modify Instance**.



OS Overwrite Prompt is the only variable used by UNIX. The other values will be ignored.

- 6 Change the OS Overwrite Prompt value to `_NEVER_`.
- 7 Click **Modify** to save the changes.

Now, the CM OS Manager Server is ready to use the CM Portal.

Installing the CM OS Manager UNIX Configuration File Publisher

The UNIX Configuration File Publisher installation media is located in the `/unix_configuration_file_publisher/` directory of the CM OS Manager CD-ROM. Install the Publisher to your HP-UX Ignite, Linux Kickstart, SuSE AutoYaST, AIX NIM, or Solaris JumpStart server machine.

To install the UNIX Configuration File Publisher

- 1 From the CM OS Manager media, go to:
`/unix_configuration_file_publisher/platform/`.
- 2 Type `./install`. The installation begins.
- 3 Click **Next**.
The HP End User License Agreement Window opens.
- 4 Review the HP Software License Terms and click **Accept**.
The Installation Directory Location Window opens.
- 5 Select the installation folder and click **Next**.
The Summary window opens.
- 6 Click **Install** to begin the installation process.
- 7 When the installation is complete, click **Finish**.
The UNIX Configuration File Publisher is installed to the directory you specified.

To run the Publisher, change to the directory to where you installed the media and type `./publisher`.

Preparing CM Agent Installation Media

CM agent installation media must be prepared and placed on your server for distribution to your target machines.

Use the CM Agent Remote Installation setup option to create the installation package then run `pkg_client.sh` installed with your CM OS Manager, to complete the agent tar file.

The UNIX CM Agent installation is available on the HP OpenView Configuration Management media.

Running the Remote Installation Setup

Run the 5.00 CM agent installation and select a Remote Installation with the following parameters:

- At a minimum, select to install the CM Application Manager and CM OS Manager agents.
- The temporary package location can be any accessible directory.
- Make sure the configuration package is named `remote.cfg`.

Running `pkg_client.sh`

When you have completed the CM Agent installation remote setup, run `pkg_client.sh`, installed by default in the `/opt/HP/CM/IntegrationServer/pkg` directory.

When prompted, enter the following information:

- Directory location where your remote installation package is stored (the temporary package location specified during the remote installation setup as mentioned in [Running the Remote Installation Setup](#) above.
- Directory location where you would like to create the agent tar file (`radia.tar`). Default value is `CLIENTPATH` from `roms.cfg`.



The CM OS Manager requires the tar file be located in CLIENTPATH, but it can be created anywhere first, then moved to the CLIENTPATH location.

3 Configuring the UNIX Server

At the end of this chapter, you will:

- Be able to configure your UNIX server for use with CM OS Manager for UNIX.

After the CM OS Manager for UNIX and the UNIX Configuration File Publisher are installed, some additional files must be manually created and copied onto your UNIX server. In addition, server-specific files must be configured to support the CM OS Manager for UNIX.

The following sections include platform-specific instructions. Continue with the appropriate sections for modifying files on your UNIX server.

- For Ignite, [Configuring HP-UX Ignite](#), on page 38.
- For JumpStart, [Configuring Solaris JumpStart](#) on page 41.
- For Kickstart, [Configuring Linux Kickstart](#) on page 48.
- For AutoYaST, [Configuring SuSE AutoYaST](#) on page 52.
- For NIM, [Configuring AIX NIM](#) on page 53

Configuring HP-UX Ignite

The following sections describe how to configure your Ignite server for use with the CM OS Manager for UNIX.



SSH Notes for HP-UX Ignite:

- The Ignite server where OS Manager is installed must have SSH installed and configured.
- Published configuration files must include SSH for all targets.
- SSH must be configured to allow remote root access from the Ignite/OS Manager Server to the deployed target device.

Modifying the INDEX File

During the install, an INDEX file was copied to the `/var/opt/ignite` directory. If you intend to use multiple releases of an operating system, you will need to modify this file to include the appropriate information.

To modify the INDEX file

- 1 Use a text editor and edit the INDEX file located in the `/var/opt/ignite` directory.

- 2 Add a line to reference `radia_cfg` in the release-specific directory (for example `/var/opt/ignite/data/Rel_B.11.11`) within each INDEX file section necessary. An example reference line follows:

```
"/var/opt/ignite/radia_cfg"
```
- 3 Save and close the file.

Setting HP-UX Ignite for Non-Interactive Installations

Make sure your Ignite server is setup to perform a non-interactive Ignite installation. This includes adjusting the boot kernel of the Ignite server to switch off the interactive user interface in order to install the client automatically when booting from the network. Refer to your Ignite documentation for details.

To set Ignite for a non-interactive installation

- 1 Adjust the boot kernel `/opt/ignite/boot/INSTALLFS` of the Ignite server. Read the current configuration and save this to a defaults file:

```
/opt/ignite/bin/instl_admin -d >/var/opt/ignite/defaults
```

- 2 Add the following lines to the defaults file:

```
run_ui=false  
control_from_server=false  
env_vars+="INST_ALLOW_WARNINGS=1"
```

The interactive user interface is switched off and clients will be installed automatically from the network.

- 3 Check the syntax of the boot image:

```
/usr/bin/cd /opt/ignite/boot  
/opt/ignite/bin/instl_admin -T -f /var/opt/ignite/defaults
```

- 4 If the syntax is correct, change the boot image `INSTALLFS`:

```
/opt/ignite/bin/instl_admin -f /var/opt/ignite/defaults
```

Configure Ignite Server to run `instl_bootd` instead of `bootpd`

Refer to your *Ignite-UX Administration Guide* for additional details (*Ignite-UX B.4.3.x* or *Later PA-RISC/Itanium-Based Server Setup*).

To configure Ignite server to run `instl_bootd`

- 1 Within the `/etc/inetd.conf` file, comment out the following line to ensure `bootpd` is disabled on ports 67/68:

```
bootps dgram udp wait root /usr//lbin/bootpd bootpd
```

- 2 Add the following line to `/etc/inetd.conf` to enable `instl_bootd` on port 67/68:

```
bootps dgram udp wait root /opt/ignite/lbin/instl_bootd \  
instl_bootd
```

- 3 Restart the `inetd` daemon.

Using Ignite Images

If you are using an Ignite image for your operating system installation, modify the INDEX file as mentioned in the section above, by adding the `radia_cfg` reference to the correct image INDEX entry. An example of an updated image entry of an INDEX file follows:

```
cfg "HP-UX B.11.11 Image" {  
    description "Imaged B.11.11 Release Image"  
    "/opt/ignite/data/Rel_B.11.11/config"  
    "/opt/ignite/data/Rel_B.11.11/hw_patches_cfg"  
    "/var/opt/ignite/archives/Rel_B.11.11/b_11_11_image_cfg"  
    "/var/opt/ignite/radia_cfg"  
    "/var/opt/ignite/config.local"  
}
```



If the Ignite image to be used already includes the CM Agent installed, then you do not need to add the line to reference `radia_cfg` in the INDEX file.

Using Multiple HP-UX Versions and Platforms

If Ignite cannot find the requested operating system configuration or operating system image, update both INDEX file sections with any operating system version to be deployed.

Include any HP-UX version that will be deployed in the INDEX file areas labeled "ia64 section" and "pa-risc section." If a specific version is valid only for HPPA, then that version needs to be listed only in the "pa-risc section." If a version is valid only for IA64, then it must be listed in both sections. Although images are valid only for one platform, this change must be made for image-based HP-UX versions as well.

Configuring Solaris JumpStart

The following sections describe how to configure your JumpStart server for use with the CM OS Manager for UNIX.

Before you begin configuring your server, be sure to have the following information available:

- *IP* (JumpStart Server IP address)
- *root_dir* (JumpStart root directory)
- *version* (Solaris version to be installed)
- *platform group* (Run `uname -m` on the client)
- *client_path* (Path specified by `roms.cfg` JUMPSTART_CLIENTPATH parameter)
- agent's IP address and hostname



CLIENTPATH must be NFS shared before ROMS is started.

Modifying JumpStart Files

Task 1 Edit the ethers and hosts files

- Edit both the `/etc/ethers` and `/etc/hosts` files and add the client's IP address and hostname.

Task 2 Add Client Configuration Information

- Log in as `root` and change directory to:
`/root_dir/Solaris_version/Tools`
- Run `add_install_client` to add client configure information to the JumpStart Server.

For example, type:

```
add_install_client -c IP:roms_path -p IP:roms_path client
hostname platform group
```

This will update the `/etc/bootparams` file (see your JumpStart documentation for additional details).



Task 1 and Task 2 above are required for each client before they can boot from JumpStart.

Task 3 Edit the bootparams file



The use of CM OS Manager for UNIX requires only one entry in `bootparams`, the default entry. After running `add_install_client` for one or more clients, Task 3 must always be performed.

- Edit the file `/etc/bootparams` and make sure it has only one line entry:

```
* root=IP:root_dir/Solaris_version/Tools/Boot install=
IP:root_dir boottype=:in sysid_config= IP:roms_path
install_config=IP:roms_path rootopts=:rsize=32768
```

For example, where:

- `IP` (JumpStart Server IP address) = `192.119.229.8`
- `root_dir` (JumpStart root directory) = `/opt/jumpstart_9`
- `version` (Solaris version to be installed) = `9`
- `roms_path` (Path specified by `roms.cfg` `JUMPSTART_CLIENTPATH` parameter) = `/var/opt/jumpstart/clients`

The `/etc/bootparams` would look like:

- `root=192.119.229.8:/opt/jumpstart_9/Solaris_9/Tools/Boot \`
`install=192.119.229.8:/opt/jumpstart_9 boottype=:in \`
`sysid_config=192.119.229.8:/var/opt/jumpstart/clients \`
`install_config=192.119.229.8:/var/opt/jumpstart/clients \`
`rootopts=:rsize=32768`

Create the Jumpstart Configuration File

The Jumpstart configuration file you will publish using the CM OS Manager UNIX Configuration File Publisher is created by combining directives from a Jumpstart PROFILE File and the `SYSIDCFG` file.

We recommend you use a PROFILE file as a base for the configuration file. Make a copy of the PROFILE file on your Jumpstart server then edit the new file and add the following SYSIDCFG directives and appropriate values:

- **root_password:** The encrypted root password as it appears in the `/etc/shadow` file.
- **system_locale:** Specifies the language in which to display the install program and desktop.
- **terminal:** Specifies the terminal type for the system.
- **timezone:** Specifies the time zone for the system.
- **timeserver:** Specifies the system that sets the date and time on the system you want to install.
- **default_route:** See `network_interface` below.
- **netmask:** See `network_interface` below.
- **ipv6:** See `network_interface` below.
- **network_interface:** Supported with the following restrictions:
 - Only pertains to the PRIMARY interface, which is defined as the first up, non-loopback interface that is found on the system. The order is the same as the order that is displayed with the `ifconfig` command. If no interfaces are up, then the first non-loopback interface is used. If no non-loopback interfaces are found, then the system is not networked. If DHCP is not enabled for the system, the individual elements of the interface configuration are defined as independent directives in the published `profile/sysidcfg` file as follows:
 - `default_route`: default route for the interface
 - `netmask`: subnet mask for the interface
 - `ipv6`: yes OR no to enable or disable IPV6

The following table list all supported PROFILE and SYSIDCFG directives that can be used to create the configuration file. Refer to Solaris documentation for additional information.

Table 3 Supported PROFILE and SYSIDCFG directives

PROFILE	SYSIDCFG
archive_location	default_route
boot_device	ipv6

PROFILE	SYSIDCFG
cluster	netmask
filesys	network_interface
geo	root_password
install_type	system_locale
locale	terminal
package	timezone
partitioning	timeserver
patch	
root_device	
system_type	

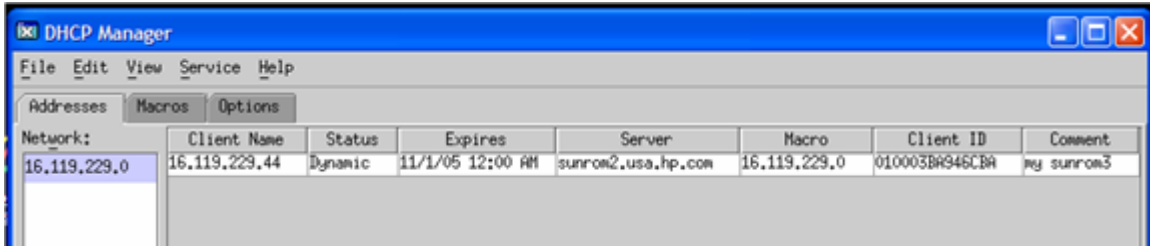
A sample Jumpstart configuration file, is included on the OS Manager CD-ROM in the `samples` directory.

Configuring DHCP for use with CM OS Manager (optional)

CM OS Manager supports the utilization of the DHCP service running on the same server to provide network boot information to agent computers. This functionality is an alternative to using RARP / BOOTP (`/etc/ethers` and `/etc/hosts`) to provide this information.

An entry must exist in the DHCP service for each machine used with ROMS. The hostname of the client must be defined. This is required so that CM OS Manager can update the client's network boot information. The following figure displays the entry for a client machine whose IP address is 16.119.229.44.

Figure 3 DHCP client entry



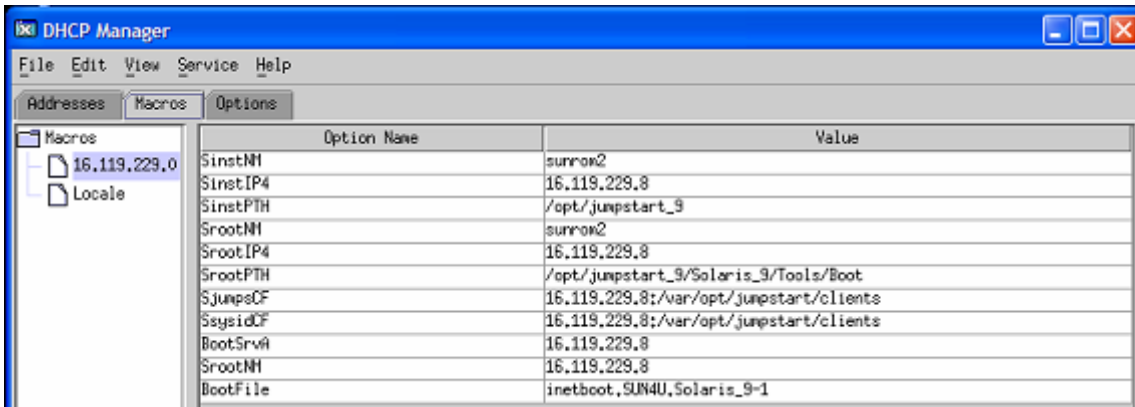
The screenshot shows the DHCP Manager window with the 'Options' tab selected. A table displays a single DHCP client entry for the network 16.119.229.0.

Network:	Client Name	Status	Expires	Server	Macro	Client ID	Comment
16.119.229.0	16.119.229.44	Dynamic	11/1/05 12:00 AM	sunrom2.usa.hp.com	16.119.229.0	010003BA946CBA	my sunrom3

The DHCP server must be configured with a macro (one per network) that is used to provide the default network boot information to all supported clients. The macro's name must be the name of the associated network. As shown in the figure above, the agent has a macro associated named 16.119.229.0. The naming constraint is to allow CM OS Manager the ability to maintain the macro assignments.

The following figure displays the contents of example macro 16.119.229.0.

Figure 4 Contents of an example DHCP macro



The screenshot shows the DHCP Manager window with the 'Macros' tab selected. The left pane shows a tree view with '16.119.229.0' and 'Locale' under 'Macros'. The main pane displays a table of options for the selected macro.

Option Name	Value
SinstNM	sunrom2
SinstIP4	16.119.229.8
SinstPTH	/opt/jumpstart_9
SrootNM	sunrom2
SrootIP4	16.119.229.8
SrootPTH	/opt/jumpstart_9/Solaris_9/Tools/Boot
SjumpsCF	16.119.229.8:/var/opt/jumpstart/clients
SsysidCF	16.119.229.8:/var/opt/jumpstart/clients
BootSrvA	16.119.229.8
SrootNM	16.119.229.8
BootFile	inetboot,SUN4U,Solaris_9-1

This macro can be created either through the Solaris GUI DHCP Manager tool, or the **dhtadm** command line tool. There is also a sample CM OS Manager script (**roms_dhcp**) which can be used to create this macro. Following is a description of the options as relating to CM OS Manager:

- SinstNM: Node name of the DHCP Server, which is also our CM OS Manager Server.

- SinstIP4: IP address of the DHCP Server, which is also our CM OS Manager Server.
- SinstPTH: The parent directory to MEDIAPATH.
- SrootNM: Node name of the server providing the network boot kernel, which is also our CM OS Manager Server.
- SrootIP4: IP address of the server providing the network boot kernel, which is also our CM OS Manager Server.
- SrootPTH: The server directory containing the root file system for the network boot kernel. This directory exists under MEDIAPATH and is created as part of the Jumpstart installation.
- SjumpsCF: CM OS Manager MEDIAPATH
- SsysidCF: ROMS_Server_IP:CLIENTPATH
- BootSrvA: CM OS Manager Server IP address, also acting as our boot server
- SrootNM: CM OS Manager Server IP address or node name
- BootFile: The network boot kernel name, found in /tftpboot

As mentioned, the **roms_dhcp** command can be used to create this macro. The command syntax is:

To enable:

```
roms_dhcp -e
                [-i ROMS_ip_address]
                [-n roms_server_name]
                [-m media_path]
                [-c client_path]
                [-b boot_file]
                [-s subnet]
```

The command will prompt for any missing (i, n, m, c, b or s) parameters, providing default values as possible.

```
roms_dhcp -d (disable)
                [-s subnet]
```

The following example would create the macro as displayed in the figure above:

```
roms_dhcp -e \
```

```
-i 16.119.229.8 \  
-n sunrom2 \  
-m /opt/jumpstart_9/Solaris_9 \  
-c /var/opt/jumpstart/clients \  
-b inetboot.SUN4U.Solaris_9-1 \  
-s 16.119.229.0
```

As part of the Operating System installation process, ROMS will create a client specific macro for each client, assign the new macro to the client in DHCP in place of the default macro and reassign the default macro once the installation completes.

Solaris Flash Archives

Solaris flash archives are supported for use with Jumpstart and the CM OS Manager for UNIX. The following requirements must be met in order to use flash archives:

- `install_type` is required in the profile for all installation types. (`initial_install`, `flash_install`, `upgrade`) Refer to the Jumpstart documentation for additional details on setting these parameters.
- `geo` is required for `initial_install` in the profile. This ensures the CM agent is installed.
- Refer to the Solaris documentation for information about creating the flash archive and how to install it using a Jumpstart server. Then follow the procedures in this guide for deploying a Solaris operating system using Jumpstart.

A sample Jumpstart configuration file is included on the CM OS Manager media in the `\samples` directory.

Configuring Linux Kickstart

Modifying Kickstart Files

Modifying /etc/hosts

The `/etc/hosts` file on the Kickstart server must have an entry for itself with the full host name. For example:

```
12.345.678 28 BL20-3.usa.hp.com BL20-3
```

This is required for the CM OS Manager to self-configure the ROMS Kickstart module with its own IP address.

Modifying the Default PXE Configuration File

The default PXE configuration file must be modified to point to the Kickstart server and Kickstart configuration file specified by keyword `ks`.

Modify the PXE default configuration file to use `CLIENTPATH/ks-default` as the Kickstart configuration file.

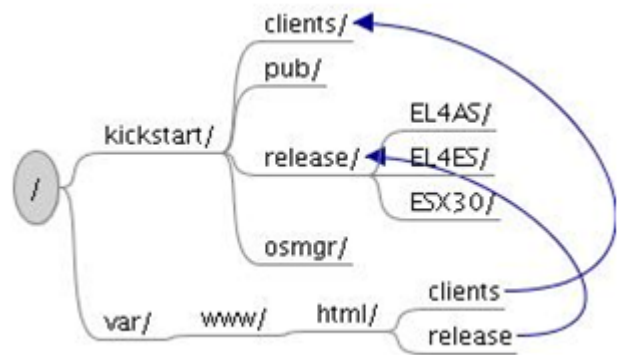
- `CLIENTPATH` must be NFS shared before ROMS is started.
 - Open Source PXE Server and TFTP Server are provided “as is” as defined by the Open Source Licensing model. These components are not maintained by HP; HP is not responsible for any defects related to them.
- Open Source PXE Server and TFTP Server are provided for use in two cases:
- QA\Testing in Pre-Production Environment.
 - Image Capture on isolated Network.
- HP recommends that you work with your network specialists to use the most appropriate PXE and TFTP server based on your network environment constraints.

VMware ESX 3.0 and Kickstart

CM OS Manager provides support for deploying VMware ESX 3.0 systems using Kickstart. The installation media must be available via a web server,

which may or may not be running on the Kickstart server. The following figure displays one possible configuration:

Figure 5 Kickstart server configuration



In the example shown in the figure above, the distribution media for multiple releases (Redhat EL4AS, Redhat EL4ES and VMware ESX 3.0) are stored within the `/kickstart/release` directory.

- Assuming the web server in this example is using `/var/www/html` as the HTML document root, a link is required from this directory to the `/kickstart/release` directory, which contains the distribution media.
- Given this configuration, the URL directive in any published Kickstart configuration file would have the form:

```
url --url http://kickstart_server/release/esx
```

where **kickstart_server** is the name or IP Address of the Kickstart / CM OS Manager Server.

The link, `/kickstart/clients`, is required to allow CM OS Manager access to the generic Kickstart configuration file. This file was installed in `/kickstart/clients` in the example above, by specifying `/kickstart/clients` as the `CLIENT_PATH` during the CM OS Manager installation.

The table below describes the requirements for each Kickstart configuration file directive.

Table 4 Kickstart configuration file directive requirements

Directive	Description
install OR upgrade	Standard Red Hat Kickstart directive

Directive	Description
install OR upgrade	Standard Red Hat Kickstart directive
auth OR authconfig	Standard Red Hat Kickstart directive
bootloader	Standard Red Hat Kickstart directive
keyboard	Standard Red Hat Kickstart directive
lang	Standard Red Hat Kickstart directive
langsupport	Standard Red Hat Kickstart directive
mouse	Standard Red Hat Kickstart directive
vmaccepteula	VMware specific directive indicating the user accepts the ESX Server license agreement
vmserveconmem	VMware specific directive defines the amount of memory reserved for the console operating system. This VMware directive was deprecated in ESX 3.0.
vmlicense	VMware specific directive defines the license information. Only the <code>--mode=server</code> form of the directive is supported at this time, the <code>--mode=file</code> form is not supported
vmserialnum	VMware specific directive defines the serial number to be assigned to the deployed server. This VMware directive was deprecated in ESX 3.0.
vmptcidiv	VMware specific directive defines device allocation. This VMware directive was deprecated in ESX 3.0.
vmswap	VMware specific directive defines the swap file configuration. This VMware directive was deprecated in ESX 3.0.

The following sample Kickstart Configuration file deploys a VMware ESX Server 3.0 system to be licensed from the central VMware License Server at address 192.168.1.2:

```
###
# Sample ESX Server 3.0 Kickstart Configuration File
###
install
text
```

```

url --url http://192.168.1.1/release/esx
lang en_US.UTF-8
langsupport --default en_US.UTF-8 en_US.UTF-8
keyboard us
mouse genericwheelps/2 --device psaux
skipx
network --device eth0 --bootproto dhcp
rootpw --iscrypted $1$h9jmdNXw$ebjHd/Don/xJaPrFV1fIv/
reboot
firewall -disabled
authconfig --enablesshadow --enablemd5
timezone America/New_York
bootloader --location=mbr
zerombr yes
clearpart --all --initlabel --drives=sda
part swap --size 1024 --ondisk sda
part /boot --fstype ext3 --size 100 --ondisk sda
part /var/log --fstype ext3 --size 500 --ondisk sda
part / --fstype ext3 --size 1500 --ondisk sda
part None -fstype vmkore -size=100 -ondisk=sda
part None -fstype=vmfs3 -size=1000 -grow -ondisk=sda
vmaccepteula
vmlicense --mode=server --server=27000@192.168.1.2 --
edition=esxFull --features=vsmp,backup
%packages
@base
%post
%pre

```

Configuring SuSE AutoYaST

Modifying AutoYaST Files

Modifying /etc/hosts

The `/etc/hosts` file on the AutoYaST server must have an entry for itself with the full host name. For example:

```
12.345.678 28 BL20-3.usa.hp.com BL20-3
```

This is required for the CM OS Manager to self-configure the ROMS AutoYaST module with its own IP address.

Modifying the Default PXE Configuration File

The default PXE configuration file must be modified to point to the AutoYaST server and AutoYaST configuration file specified by keyword `ks`.

Modify the PXE default configuration file to use `CLIENTPATH/ay-default.xml` as the AutoYaST configuration file.



`CLIENTPATH` must be NFS shared before ROMS is started.



Open Source PXE Server and TFTP Server are provided “as is” as defined by the Open Source Licensing model. HP does not maintain these components; and is, therefore, not responsible for any defects related to them.

Open Source PXE Server and TFTP Server are provided for use in two cases:

- QA\Testing in Pre-Production Environment.
- Image Capture on isolated Network.

HP recommends that you work with your network specialists to use the most appropriate PXE and TFTP server based on your network environment constraints.

Configuring AIX NIM

Define Devices in NIM

AIX NIM requires that all devices be first defined within NIM before an operating system image can be deployed to that device. Refer to your NIM documentation for details.

Create Configuration File

Use a text editor to create a configuration file to be used by NIM. See [Example NIM Configuration Files](#) on page 54, below. Use the Publisher to publish this file to the CM Configuration Server database.

Configuration files will vary depending on the AIX installation. The following table describes available configuration file parameters and the class attributes in the CM Configuration Server Database that they populate.

Table 5 NIM configuration file parameters

Parameter	Class.Attribute	Description
source	NIMCFG.SOURCE	Required. Identifies the source type for the operating system run-time files. The following are valid values: rte – installs from an OS image in the lpp_source spot – copies the OS runtime files from the SPOT. mksysb – installs from a mksysb image.
spot	NIMCFG.SPOT	Required. Provides the NIM object name of the SPOT resource to be used for the installation.
lpp_source	NIMCFG.LPPSRC	Required for rte and spot SOURCE types. Provides the NIM object name of the lpp_source resource that is used for the installation.

Parameter	Class.Attribute	Description
mksysb	NIMCFG.MKSYSB	Required for the mksysb SOURCE type. Provides the NIM object name of the mksysb resource to be used for the installation.
image_data	NIMCFG.IMGDATA	Optional. Specifies an image_data resource that describes how physical and logical volumes are organized on the client.
bosinst_data	NIMCFG.BIDATA	Required. Specifies a bosinst_data resource that defines configuration values for the installation.
filesets	NIMCFG.FILESETS	Optional. Specifies a list of filesets to install on the client after the OS installation.
installp_bundle	NIMCFG.INSPB	Optional. Specifies an installp_bundle resource that contains filesets to install on the client after OS installation.
installp_flags	NIMCFG.INSPF	Optional. Specifies an installp_bundle resource that contains filesets to install on the client after OS installation.
script n	NIMCFG.SCRIPT n	Optional. Specifies script resources that are to be run on the client after all of the software has been installed. Up to 8 script resources can be specified (1 <= n <= 8). While the scripts are sequenced for identification, the order of their execution is not defined.
net_type	NETWORK.NETTYPE	Optional. The type of network interface: ent, tok, etc.
resolv_conf	NETWORK.RESOLV	Optional. Specifies the NIM resolv_conf resource to use for configuring domain and name resolution on the client.

Example NIM Configuration Files

The following are example configuration files to use with NIM. Note that parameters and values are separated by blank space. Within each

example,*_name refers to the name of the NIM object representing the resource in question.

Example 1

To install from a SPOT (Shared Product Object Tree):

```
source          spot
spot            spot_name
lpp_source      lpp_source_name
bosinst_data    bosinst_data_name
```

Example 2

To install from a mkysyb image:

```
source          mkysyb
spot            spot_name
mkysyb          mkysyb_name
bosinst_data    bosinst_data_name
```

Example 3

To install from a mkysyb image with post-install scripts:

```
source          mkysyb
spot            spot_name
mkysyb          mkysyb_name
bosinst_data    bosinst_data_name
script1         pi_script1_name
script2         pi_script2 name
```

Run rominitboot

When the NIM server and CM OS Manager server are ready, run the rominitboot script to prepare client machines for NIM installation.

The script is located in the CM OS Manager Server /NIM/bin directory (by default, /opt/HP/CM/IntegrationServer/NIM/bin)

Run the script and supply the client device NIM object name:

```
rominitboot <client_NIM_name>
```

For example, if client1 is the NIM object name of the target device, you would run the following command:

```
rominitboot client1
```

Deploying 64-bit Versions of Red Hat and SuSE

To deploy 64-bit versions of Red Hat and SuSE Linux, the Linux kernel and initrd as specified in the default PXE configuration file, must be a 32 bit system.

For example, to deploy a Red Hat EL4AS 64 bit system:

- If `/tftpboot` contains:
 - `initrd_el4as_64.img` (the Red Hat EL4AS 64 bit root file system)
 - `vmlinuz_el4as_64` (the Red hat EL4AS 64 bit boot kernel)
 - `initrd_el4as_32.img` (the Red Hat EL4AS 32 bit root file system)
 - `vmlinuz_el4as_32` (the Red hat EL4AS 32 bit boot kernel)
- The default file in `/tftpboot/pxelinux.cfg` looks as follows:

```
default linux
label linux
kernel vmlinuz_el4as_32
append console=tty0 load_ramdisk=1 initrd=initrd_el4as_32.img
network ks=nfs:192.168.1.1:/opt/HP/CM/clients/ks-default
ksdevice=eth0
```
- The `/opt/HP/CM/clients/ks-default` would reference the Red Hat EL4AS 32 bit distribution

This setup will boot the target machine with the 32-bit Red Hat EL4AS system, which would be used to run the CM OS Manager pre-installation tools. CM OS Manager will then create a target-specific Kickstart configuration file and associated PXE configuration to deploy the desired 64-bit system, as defined in the publish Kickstart configuration file.

During publishing of the Kickstart configuration file, the 64-bit components, `initrd_el4as_64.img` and `vmlinuz_el4ad_64` were supplied as

the root file system and kernel. The generated PXE configuration file will reference these 64-bit components for the installation.

4 Preparing the Configuration Files

At the end of this chapter, you will:

- Be able to publish configuration files to the CM Configuration Server DB.
- Be able to configure CM OS Manager for UNIX services for deployment.

This chapter covers how to prepare and publish existing configuration files in the CM OS Manager environment.

Use the CM OS Manager UNIX Configuration File Publisher to publish a package to the CM Configuration Server Database containing object information that has been pulled from the original Ignite, Kickstart, Auto YaST, NIM, or JumpStart configuration file.

Using the CM OS Manager UNIX Configuration File Publisher

Publishing Considerations

Please refer to the following sections for important information about the configuration files used by CM OS Manager.

Ignite Configuration Files

Conditional and Compound Statements

The publisher does not support conditional or compound statements contained within an Ignite configuration files. The following is an example statement that may be found at the bottom of a configuration file:

```
(_hp_custom_sys=="Current System Parameters (TestConfig1123)") {  
    TIMEZONE="IST-5:30"  
    ROOT_PASSWORD="/af/4dEOdgkpY"  
} # end "Current System Parameters (TestConfig1123)"
```

Conditional or compound statements must be commented out within the configuration file before publishing.

Required Configuration File Information

The following line is required for Ignite configuration files to be published:

```
init "cfg"="HP-UX OS NAME"
```

This line defines the reference into the INDEX file to be used for installation and BASECFG in CM Configuration Server Database. This is required also

for the `bootsys` command to select the correct netboot kernel that is transferred to the target machine.

If the `"init "cfg"="HP_UX OS NAME"` is not present in the configuration file, no error will occur, but the `OSIGNITE.IGNTECFG.BASECFG` attribute will remain empty, which will cause an error during Ignite installation.

Kickstart Configuration Files

Due to a limitation in the Unix Native Install Publisher parsing engine, all Kickstart configuration files must include the `%packages` directive and at least one package. The configuration file will not contain this by default, it must be added after the file is generated.

For example:

```
%packages --resolvedeps
```

```
@ editors
```



When installing to a 64-bit RedHat Linux platform, published Kickstart configurations require the 32-bit compatibility library (`compat-arch-support`). This package is available with the RedHat installation media.

AutoYaST Configuration Files

Configuration File Requirements

- In order to publish a SuSe AutoYaST configuration file using the Unix Configuration File Publisher, the configuration must specify the hard disk and Ethernet configuration. The Ethernet configuration can simply be the inclusion of a network controller set for DHCP.
- The `<users>` section of the AutoYaST configuration file must be contained within the `<configure>` and `<profile>` sections in order for a SUSE operating system installation to reach desired state. Automatic creation of this file may result in the `<users>` section located elsewhere. Be sure to check the configuration file for proper placement of the `<users>` section before it is published. An example configuration file with proper placement of the `<users>` section is included below:

```

<profile . >
<configure>
    <users config:type="list" >
        <user>
            <user_password> &*^(*Lhl%$hfjuho </user_password>
            <username> root </username>
        </user>
    </users>
    ..
</configure>
</profile>

```

Publishing Configuration Information

The Publisher creates object information from an existing configuration file then publishes that file to the CM Configuration Server Database.

To publish configuration files to the CM Configuration Server Database

- 1 Change your directory to where you installed the Configuration File Publisher.
- 2 Run the Publisher by typing: **./publisher.**
- 3 Enter the parameters at each prompt, then press **Enter**.
 - Enter the configuration file name:
(Enter your pre-existing configuration file name).
 - Enter the CM Configuration Server instance name:
(Enter the desired instance name for the CM Configuration Server).
 - Enter the CM Configuration Server instance friendly name:
(Enter a friendly name for the CM Configuration Server instance).
 - Enter the IP address CM Configuration Server:
(Enter your CM Configuration Server IP address).
 - Enter the desired debug level:
(Enter the debug level. **0** for no debugging, **1** for regular debugging or **2** for debugging output with no action taken)

- Enter the configuration type machine type
[IGNITE|JUMPSTART|KS|SUSE|NIM]:
(Enter the type of configuration file to be published)

If you are publishing from a Kickstart or AutoYaST server, you will be presented with the following additional steps:

- Enter the Initial Root Directory:

This is the root file system used by the Initial Boot Kernel, also known as the rootfs. This value is used to create the PXE configuration file for the target machine, specifically the "initrd" element. It is important to note that the root file system used must match the Initial Boot Kernel being used.

- Enter the Initial Boot Kernel:

This is the file name of the Linux Kernel loaded by PXE which is used to run the native OS deployment process. This value is used to create the PXE configuration file for the target machine, specifically the kernel element. It is important to note that the referenced kernel version must match the OS version being deployed.

If you are publishing from an AutoYaST or JumpStart server, you will be presented with the following additional step:

- Enter the Installation Media Path:

This is full path name of the directory containing the Solaris or SuSE release being deployed, for example: /jump/jumpstart9/Solaris_9

If you are publishing from an HP-UX server, you will be presented with the following additional step:

- Enter the device architecture [HPPA|IA64|BOTH]

After you enter the last parameter and press **Enter**, the objects are sent to your CM Configuration Server Database.

The result is an instance in your database in OS.ZSERVICE. The instance will be displayed using the name you assigned as RCS FRIENDLY NAME.

Setting Policy and Deploying Images

Use the CM OS Manager administrative tasks in the CM Portal to set policy and deploy images. Refer to the *CM OS Manager Guide for Windows* for extended information.

Policy can be assigned on different attributes, including role, manufacturer, model and subnet.

Devices

There are two ways a device can be added into the CM Portal:

- Manually add a device.
- Device is created automatically by the CM OS Manager once the device is discovered for the first time.

Manually Adding a Device

To add a device manually

- 1 Open your web browser and go to the CM Portal (**`http://<ipaddressORhostname>:3471`**).
- 2 Log on as the CM OS Manager administrator (by default, the user ID is romadminu and the password is secret).
- 3 Click **Zone**, then click **Groups**.
- 4 Select the group to which you would like to add a device.
- 5 From the Group of Tasks list, select **Add Device**. The Device Properties window opens.



Add Device

Add Device

MAC Address

Computer Name

IP Address

Subnet

Current Subnet Mask

Submit


Cancel

- 6 Enter your device information and click **Submit**.
The device is added to the CM Portal.

Modifying a Device

To modify a device

- 1 Select the device to be modified within the CM Portal and click Modify Device.

 **Modify Device**

Modify Device

Computer Name	TESTHP1
IP Address	10.1.1.1
Subnet	10.1.1.0
Current Subnet Mask	255.255.255.0

- 2 Modify the values for the device and click **Submit**.

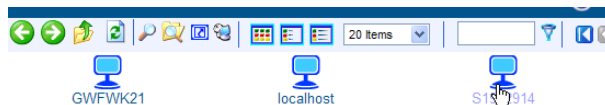
Connecting an OS to a Device, Subnet, Model, or Manufacturer

- If you are unsure of the subnet, model or manufacturer, select the device and click View within the Resultant Policy section next to the Subnet, Model or Manufacturer.

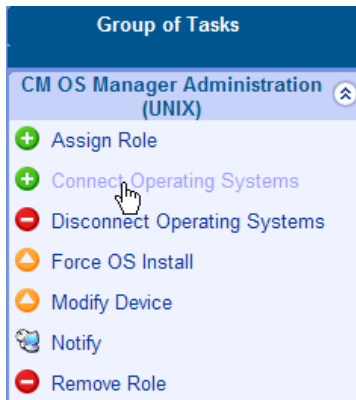
Connecting an Operating System to a Device

To connect an operating system to a device

- 1 Within the device group, select the device.



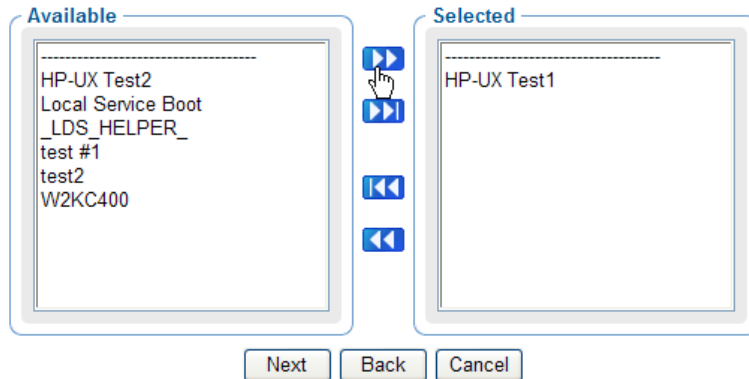
- 2 Click the device ROM object
- 3 In the CM OS Manager Administration (UNIX) task list, click **Connect Operating Systems**.



- 4 Select the operating system to install and click the arrows pointing to the right to add it to the **Selected** box.

Connect Operating Systems Install

1 **Select** — 2 Summary



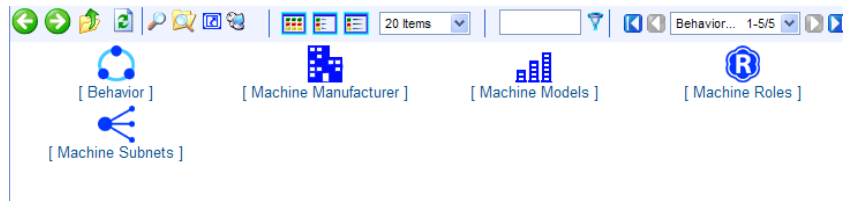
- 5 Click **Next**, then **Submit**.

Connecting an Operating System to a Subnet, Model, or Manufacturer

To connect an operating system to a subnet, model or manufacturer

- 1 Click the appropriate **Zone**.
- 2 Click **Configuration** and then click **Configuration Servers**.
- 3 Click **CM-CS Database**.

- Depending on which object you would like to connect an operating system, click **Machine Subnets**, **Machine Manufacturers**, or **Machine Models**.



- Select the correct subnet, manufacturer or model to which you would like to connect an operating system.
- In the CM OS Manager Administration (UNIX) tasks, click **Connect Operating Systems**.
- Select the operating system from the Available box and use the arrows to move it to the **Selected** box.
- Click **Next** then click **Commit**.

Configuring a Role

First create a Role and then connect an operating system to that Role.

To create a Role

- Click the appropriate **Zone**.
- Click **Configuration** and then click **Configuration Servers**.
- Click **CM-CS Database**.
- Click **Machine Roles**.
- In the CM OS Manager Administration (UNIX) tasks, click **Create Instance**.

 **Create**

* Required fields

New Machine Roles

Instance*	<input type="text"/>
Friendly name*	<input type="text"/>

- Enter an Instance name, for example **WEBSERVER**.

- 7 Enter a Friendly name, for example **Web Server for HP-UX**.
- 8 Click **Create**. The Role properties are displayed.



- 9 In the CM OS Manager Administration (UNIX) tasks, click **Connect Operating Systems**.
- 10 Select the operating system from the Available box and use the arrows to move it to the **Selected** box.
- 11 Click **Next**, then click **Commit**.

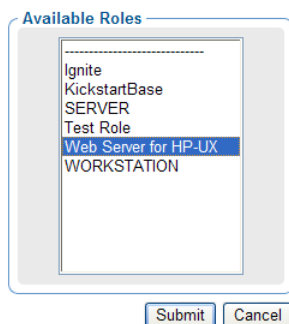
Assigning a Role

Assign a Role to a device within the device ROM object properties workspace.

To assign a Role

- 1 Browse to the device to which you would like to assign a Role.
- 2 Click the ROM object for that device.
- 3 In the CM OS Manager Administration (UNIX) tasks, click **Assign Role**.
- 4 Select the Role to assign and click **Submit**.

Assign Role Install



The Role is displayed within the Resultant Policy section of the device ROM object properties window.

Changing Policy

If you need to reinstall an operating system with a different configuration you can remove the existing Role and assign a new one.



SSH must be configured correctly for a policy-based reinstallation of an operating system to work correctly.

To change policy for a device

- 1 Browse to the device for which you would like to change policy.
- 2 In the CM OS Manager Administration (UNIX) tasks, click **Remove Role**.
- 3 Click the check mark to confirm the Role removal.
- 4 Confirm that the Role was removed by viewing the Resultant Policy section, Role value is set to `_NONE_`.
- 5 Now, assign new role to the device. Refer to the section above, Assigning a Role for instructions on assigning a Role.

Repairing a Device

If you need to repair a device operating system installation, use the Force Os install option within the e ROM Administration (UNIX) tasks.

To repair a device

- 1 Browse to the device you would like to repair.
- 2 Click the ROM object for that device.
- 3 In the CM OS Manager Administration (UNIX) tasks, click **Force OS Install**. The Force OS Install window is displayed.
- 4 Click the check mark to force the operating system install installation for the device.

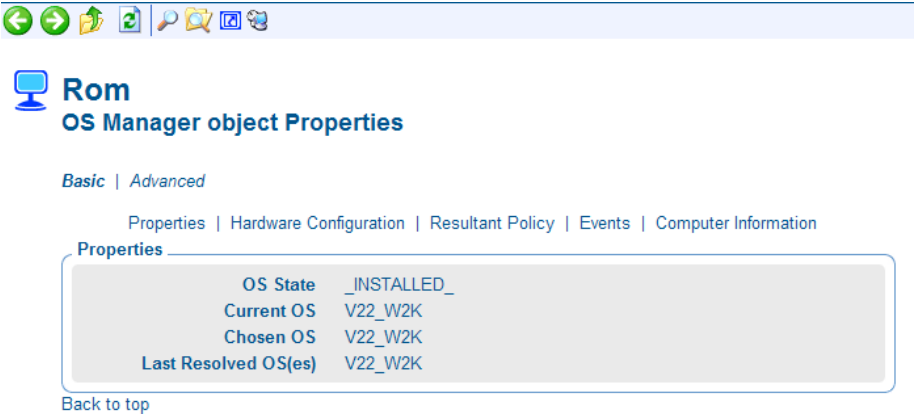
The operating system is reinstalled on the device.

Reviewing OS Status

View the status of the device operating system within the device ROM object properties, Properties section. The OS State variable displays one of three possible values:

- **_U_**
OS Manager is not currently managing this device.
- **_DESIRED_**
Operating system is installed and CM OS Agent has connected to the CM OS infrastructure.
- **_INSTALLED_**
Operating system has been installed but the device still requires additional configuration, possibly including a reboot and an OS Manager agent installation.

Figure 6 ROM Object properties, OS State value



Reviewing Results

After completing the configuration tasks in each section above, the configuration files are ready. Follow the usual HP-UX Ignite, Linux Kickstart, SuSE AutoYaST, AIX NIM, or Solaris JumpStart procedures for deployment to your target devices, and when finished, use the ROM administrative tasks in the CM Portal to review the results.

5 Linux Imaging

At the end of this chapter, you will:

- Understand how to use the CM OS Manager to manage Linux operating system images.

Creating Linux OS Images

Use the CM OS Manager Image Preparation Wizard to prepare a gold image on the reference machine. The reference machine must have the CM agent installed, as well as the operating system, applications, and other CM-managed content. The Wizard collects inventory information associated with the image. The image is sent to the CM OS Manager `\upload` directory and you can use the Publisher on your administrator machine to promote the image to the CM Configuration Server Database.



Images should be sent to a CM OS Manager Server in a non-production lab environment to prevent performance issues.

Supported Linux Operating Systems

- Red Hat Enterprise Linux 3.0 and 4.0 (AS, ES, WS)

Preparing the Reference Machine

Remember, a reference machine is the machine that you will use to create an image of the appropriate operating system. The image created on the reference machine will eventually be deployed to target machines.

Before using the Image Preparation Wizard to create the gold image, do the following:

Task 1 Install the desired Red Hat Linux OS on the reference machine.



Make sure that the installation is done on a single partition. Multiple partitions are not supported.

Task 2 (Recommended) Install the CM Application Manager.

Be sure to update the rc scripts to run the notify and schedule daemons when the Linux OS boots. The installation of these services is not automated on a UNIX workstation within the context of the installation. The starting of services on UNIX workstations is operating system dependent. For information about installing CM daemons as system services at boot time, please see your local UNIX system administrator or refer to your UNIX operating system's manual.

Task 3 Reboot the machine.

Using the CM Image Preparation Wizard

Use the CM OS Manager Image Preparation Wizard to prepare a gold image. The Image Preparation Wizard will perform the following tasks:

- 1 Checks whether there is enough free disk space on the machine. If there is not enough space, the Image Preparation Wizard displays a message and terminates.
- 2 Creates an object that contains information (including hardware and BIOS capabilities) about the reference machine.
- 3 Restarts the reference machine into Linux (booted from the OS Manager CD-ROM). The Linux-based portion of the Image Preparation Wizard runs to collect the image and its associated files.
- 4 Creates and copies the following files to `C:\Program Files\Hewlett-Packard\CM\IntegrationServer\UPLOAD` on the CM Proxy Server or CM Integration Server.



While these files are transferred, network speed will be less than optimal as the OS image is compressed during transfer.

— `ImageName.IMG`

This file contains the gold image. This is a compressed, sector-by-sector copy of the boot partition from the hard drive system that may be very large. The file contains an embedded file system that will be accessible when the image is installed.

— `ImageName.MBR`

This file contains the master boot record file of the reference machine.

— `ImageName.PAR`

The file contains the partition table file of the reference machine.

— `ImageName.EDM`

This file contains the object containing inventory information.



A comprehensive log (*machineID.log*) is also available in this directory after the image is deployed.

To use the Image Preparation Wizard

- 1 Login as root.

- 2 On the CM media, go to the
`/os_manager_image_preparation_wizard/linux` directory and type
`./prep wiz`

The OS Manager Image Preparation Wizard opens.

- 3 Click **Next**.

The End User License Agreement window opens.

- 4 Read the HP Software License Terms and click **Accept**.

The Identify the CM OS Manager Server window opens.

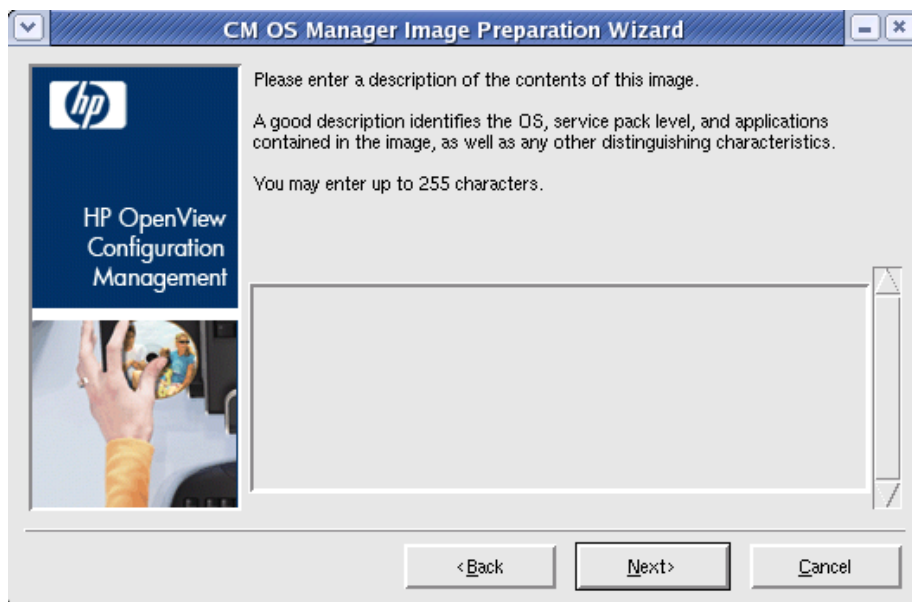
- 5 Type the IP address or host name and port for the CM OS Manager Server where the “gold” image will be stored. This must be specified in the following format: `xxx.xxx.xxx.xxx:<port>`.

- 6 Click **Next**.

The Image Name window opens.

- 7 Type a name for the image file and click **Next**.

The image description window opens.



- 8 Type a description for the image file.

This description appears in the CM Configuration Server Database in the IMAGEDSC attribute in the OS package instance.

- 9 Click **Next**.

The Options window opens.



- 10 Select the appropriate options:

- **Optimize compression of unused disk space.**

Select this check box to optimize compression of unused disk space. This adds zeroes up to the end of the disk. Note that this may take some time depending on the size of the hard drive.

- **Perform client connect after OS install.**

Select this check box to perform an OS Connect after the OS is installed. If this is not selected, the OS Connect will not occur automatically after the OS is installed. This check box allows you more granular control over the migration from unmanaged target machines to managed machines.

- 11 Click **Next**.

The Summary window opens.

- 12 Click **Start**.

- 13 Click **Finish**.

- 14 Click **OK** to restart the reference machine.

After restarting, the machine will boot to the CD-ROM, connect to the network, and store the gold image on the CM OS Manager Server.

- The upload of the gold image may seem to take a long time. However, it is not the upload that is taking a long time, but rather the compression of the image and the optimization for compression of the unused disk space (especially if there is a lot of free disk space). This happens during the transfer of the image and therefore, the network pipe is not a bottleneck. Transfer speeds will be approximately 30-400 Kbps but may vary depending upon processor speeds and your network environment.
- You may want to create copies of the files stored in the `\upload` directory so that you can retrieve them if necessary.

Once you have used the CM OS Manager Image Preparation Wizard to create your gold image, you must publish it to the CM Configuration Server Database, using the CB Admin Publisher.

- Publishing is an administrative task that should be done in a non-production lab environment.
- The Publisher component of the CM Administrator is available for the Windows platform only. A Windows workstation with the CM Administration 5.00 or higher with access to images published to the CM Integration Server is required.

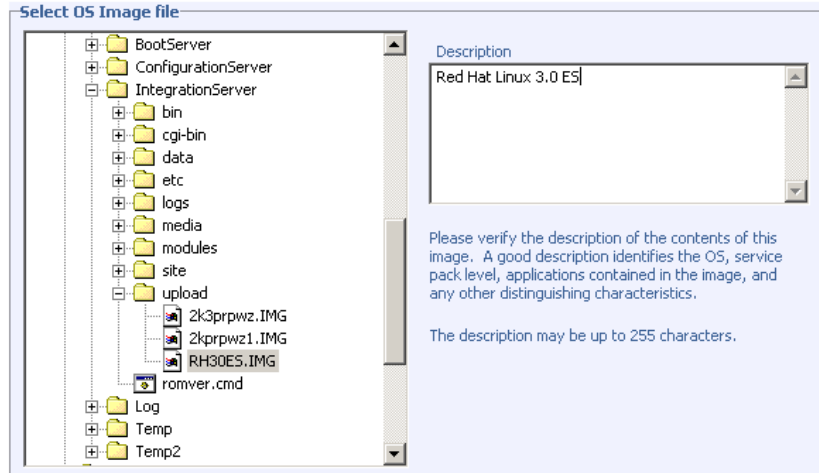
For more information about the CM Admin Publisher, refer to the *CM Admin Publisher Guide*.

Using the CM Admin Publisher

To use the CM Admin Publisher

- 1 On your Windows workstation, double-click the Publisher icon on your desktop.
- 2 In the User ID box, type your Administrator user ID.
- 3 In the Password box, type your Administrator password.
- 4 From the Type of data to publish drop-down list, select **OS Image** to publish an operating system (OS) image.
- 5 Click **OK**.

The Select window opens.



- 6 Use the Select window to find and select the file you want to publish (typically stored in the upload directory on the CM Integration Server). Only supported file types appear in the window.
- 7 Use the information in the Description box to verify that you have selected the correct file before you continue. You can also add information to the description if you choose.
- 8 Click **Next**.

The Configure – Package Information window opens.

1 Select — 2 Edit — 3 **Configure** — 4 Publish

Package Information

Name	Display name	Domain
<input type="text" value="RH30ES"/>	<input type="text" value="RH30ES"/>	<input type="text" value="OS"/>
Description	Release	
<input type="text" value="Red Hat Linux 3.0 ES"/>	<input type="text"/>	

Limit package to systems with

[Operating system](#)

[Hardware](#)

Previous Next Cancel

Ready

- 9 Use the Package Information section to enter the CM package information. Note that the Limit package to systems with section is not available when publishing OS images.

- 10 Click **Next**.

The Configure – Service Information window opens.

1 Select — 2 Edit — 3 **Configure** — 4 Publish

Service Information

☒ Create new ☐ Use existing ☐ No service

Name: REDHAT30ES Display name: Red Hat Linux 3.0 ES

Vendor: Red Hat Web URL:

Description: Red Hat Linux 3.0 ES Author:

Assignment type

☒ Mandatory ☐ Optional

Management type

☒ Automatic ☐ Manual

Report on the following events

☐ Use Base

Install	<input checked="" type="checkbox"/> Success	<input checked="" type="checkbox"/> Failure
Remove	<input checked="" type="checkbox"/> Success	<input checked="" type="checkbox"/> Failure
Update	<input checked="" type="checkbox"/> Success	<input checked="" type="checkbox"/> Failure
Verify	<input type="checkbox"/> Success	<input checked="" type="checkbox"/> Failure
Repair	<input type="checkbox"/> Success	<input checked="" type="checkbox"/> Failure

Previous Next Cancel

Ready

- 11 Select whether you want to create a new service (Create new), use an existing service (Use existing), or skip creating a service (No service) at this time.



If you want to create a package only, select **No service**. This is useful if, for example, you have a single service, but want to create multiple packages and later connect them to the existing service using the CM Admin CSDB Editor.

- 12 Enter the appropriate information in the rest of the fields.
- 13 Click **Next**.
- 14 Review the Summary section to verify the package and service information you provided during the previous steps. When you are satisfied, click **Publish**.
- 15 Click **Finish** to exit the Publisher.

Use the CM Admin CSDB Editor to view your package and service.



There are some default connections to all OS services that come from the BASE INSTANCE. These must not be changed.

After the image is published to the database, you can create policy and manage the published Linux image.



Local Service Boot is not supported for Linux imaging.

Refer to the Windows version of the *CM OS Manager Guide* for administration and policy assignments.

A Product Name Changes

If you have used Radia in the past, and are not yet familiar with the newly rebranded HP terms and product names, Table 6 below will help you identify naming changes that have been applied to the Radia brand.

Table 6 Product Name and Term Changes

New Name/Term	Old Name/Term
CM agents	Radia clients
HP OpenView Configuration Management	Radia
HP OpenView Configuration Management Admin Publisher	Radia Publisher
HP OpenView Configuration Management Application Manager	Radia Application Manager,
HP OpenView Configuration Management Configuration Server	Radia Configuration Server
HP OpenView Configuration Management Configuration Server Database	Configuration Server Database, Radia Database
HP OpenView Configuration Management OS Manager	Radia OS Manager
HP OpenView Configuration Management Solutions for Servers	Server Management
HP OpenView Configuration Management Portal	Radia Management Portal

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