

# HP Client Automation

## OS Manager

for SuSE AutoYaST and Red Hat Kickstart

Software Version: 7.50

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## System Administrator Guide

Manufacturing Part Number: None

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## Documentation Updates

The title page of this document contains the following identifying information:

- Software Version number, which indicates the software version.
  - The number before the period identifies the major release number.
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  - The second number after the period represents the minor-minor release number.
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Table 1 lists new features added for the current release.

**Table 1 New features added for this release**

Chapter	Version	Changes
All	7.20	Configuration Management was renamed to HP Client Automation for the 7.20 release. Note that not all components and products were re-branded.
All	7.20	Platform support for OS Manager was updated. Refer to the release notes for updated platform support information.
All	7.50	The HPCA Portal user interface has been deprecated as of version 7.50. Administrative tasks are now completed using the Enterprise Manager and the CSDB Editor.
2	7.20	Page 26, <a href="#">Starting the OS Manager Server After Install</a> . Added information for starting the OS Manager Server from the command line.

5	7.50	Added caution note about the number of OS services that can be assigned to a target device.
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## Support

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# 1 Introduction

At the end of this chapter, you will:

- Understand the purpose and benefits of the HP Client Automation (HPCA) OS Manager.
- Know what operating systems are supported.
- Be familiar with the OS Manager components.
- Be familiar with key terminology.
- Have a high level understanding of the product architecture.

# About the HPCA OS Manager

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

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 OS Manager for version 7.50 supports Red Hat Linux Kickstart and SuSE AutoYaST, providing you with a simple, automated way to install operating systems on your Linux-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 HP Client Automation, 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.

# Using this Guide with Core and Satellite Servers

If your environment uses Core and Satellite servers, first read the *HP Client Automation Core and Satellite Servers Getting Started and Concepts Guide* as the installation, configuration, troubleshooting and Administrator tools access information in that guide may override the information in this guide.

## Required Infrastructure

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

## Supported Operating Systems

The OS Manager supports the following operating systems for deployment:

<b>AutoYaST:</b>	<b>Kickstart:</b>
<ul style="list-style-type: none"><li>• SuSe EL9 (x86)</li><li>• SuSe EL9 (AMD64)</li><li>• SuSe EL9 (EMT64T)</li><li>• SuSe EL10 (x86)</li><li>• SuSe EL10 (AMD64)</li><li>• SuSe EL10 (EMT64T)</li></ul>	<ul style="list-style-type: none"><li>• Red Hat ES4 (x86)</li><li>• Red Hat ES4 (AMD64)</li><li>• Red Hat ES4 (EMT64T)</li><li>• Red Hat ES5 (x86)</li><li>• Red Hat ES5 (AMD64)</li><li>• Red Hat ES5 (EMT64T)</li><li>• VMware ESX 3.0.0</li><li>• VMware ESX 3.0.1</li></ul>

## 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 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.

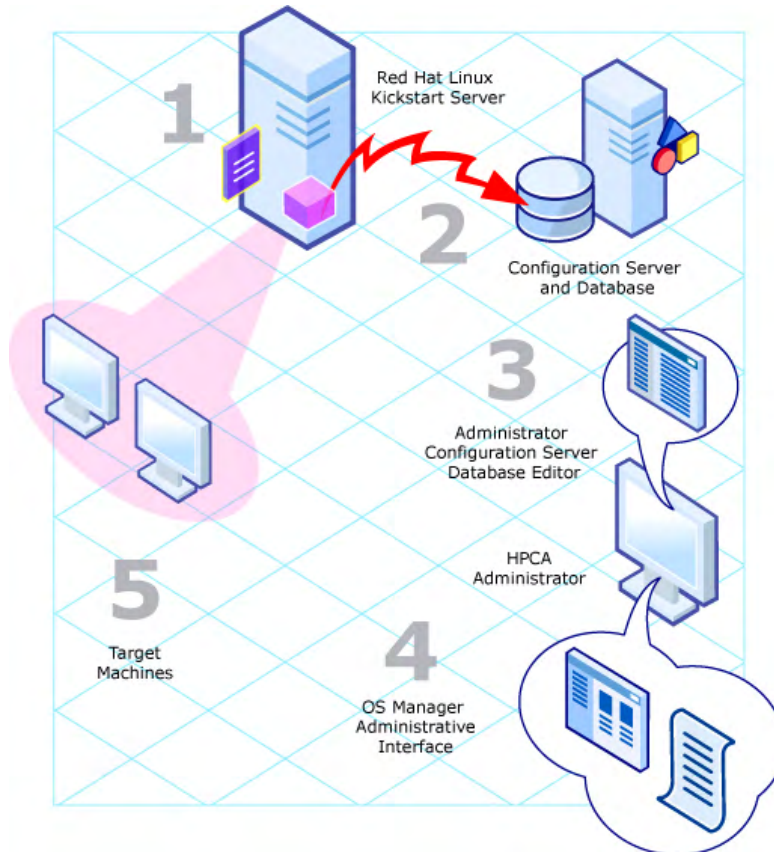
### template file

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

# Using the OS Manager

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

**Figure 1 OS Manager (Red Hat Linux example scenario)**



- 1 Define the OS configuration files.
- 2 Use the OS Manager Configuration File Publisher to generate package instances for your configuration files in the HP Client Automation Configuration Server Database (CSDB).
- 3 Use the HPCA Admin CSDB Editor (CSDB Editor) to view the newly created instances and to prepare software lists as needed.

- 4 Use the OS Manager Administrative Interface (Enterprise Manager) 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 Enterprise Manager to review the results.

## OS Manager Domains

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

- OSKICK
  - Kickstart Images (KSCFG)
- OSYAST
  - AutoYaST Config (YASTCFG)

## 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 CSDB, prepare them for distribution, and define policy.



## OS Manager Configuration File Publisher

Use the Configuration File Publisher to publish a package to the CSDB that contains information pulled from the original Linux client configuration file.

## HPCA Admin CSDB Editor

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

## OS Manager Administrative Tasks


The OS Manager server interfaces with the HP Client Automation Enterprise Manager and the CS DB Editor to provide a graphical user interface for performing OS administrative tasks.

For general information on how to use the Enterprise Manager, see the *HP Client Automation Enterprise Manager Guide*. For information about the OS Manager-specific tasks, see the *OS Manager Guide for Windows*. Information for using the CS DB Editor is contained within the *HP Client Automation Administrator User Guide*.

## About the Deployment Architecture

The 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:

- **Red Hat Linux Kickstart or SuSE AutoYaST server**
- **OS Manager Server**  
The OS Manager Server sends requests for desired state information on behalf of the target machines to the Configuration Server.
- **Configuration Server**  
The Configuration Server manages the policy information and configuration files for OS Manager. Refer to the *HP Client Automation Configuration Server Guide (Configuration Server Guide)* on the HP support web site for more information. The CSDB must be updated, as described in this document, to accommodate OS Manager.

- **Enterprise Manager**  
The Enterprise Manager provides a graphical user interface for performing OS Manager administrator tasks.
- **Portal**  
The Portal stores the information about the devices in your environment in a single location that can be shared by all of the components.  
 The Portal is a component of the Integration Server, but it must be run under its own dedicated Integration Server. We suggest that you install the Portal on a different machine than the one that houses OS Manager Server.

## About the Target Machines

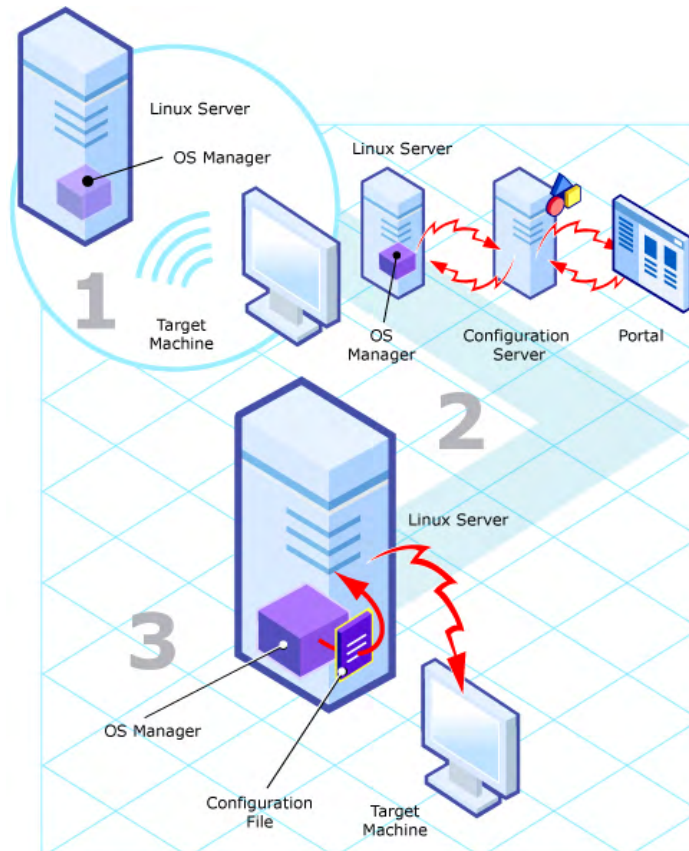
Operating systems are deployed to a set of target machines based on a set of criteria. These target machines should include:

- HP Client Automation Agent version 7.20 installation media.
- Hardware requirements as required for Linux Kickstart or SuSE AutoYaST.

## Flow of an Operating System Installation

An operating system installation consists of the three primary steps shown in Figure 2 below.

**Figure 2** Operating system installation process flow



- 1 A network boot is initiated on the target machine.

The Linux server (Kickstart or AutoYaST) sends pre-installation scripts to the client. These scripts comprise standard functionality to collect basic system and hardware information, as well as a custom HPCA boot control script.

- 2 The HPCA boot control script initiates contact with the OS Manager Server via http and requests generation of the appropriate configuration file.
  - The OS Manager Server then connects to a Configuration Server to resolve policy on behalf of the requesting target machine, also sending the system and hardware information collected by the Linux server.
  - The 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 Portal) resulting in a set of persistent objects which, as a whole, define all information necessary to generate a (Kickstart or AutoYaST) configuration file.
- 3 The script reboots the target machine and the configuration file created by the OS Manager server is used.

## Related Documents

*HP Client Automation OS Manager Administrator Guide for Windows*

*HP Client Automation Enterprise Manager Guide*

*HP Client Automation Administrator User Guide*

## 2 Configuring the OS Manager Environment

At the end of this chapter, you will:

- Understand the prerequisites for installing and configuring the OS Manager environment.
- Be able to install the OS Manager Server.
- Be able to configure the HP Client Automation Portal (Portal).
- Be able to configure the HP Client Automation Proxy Server (Proxy Server).
- Be able to prepare HP Client Automation (HPCA) agent installation media.



If your environment uses Core and Satellite servers, first read the *Core and Satellite Servers Getting Started and Concepts Guide* as the installation, configuration, troubleshooting and Administrator tools access information in that guide may override the information in this guide.

# Prerequisites

The following sections describe prerequisite information for creating your OS Manager environment.

## Before Installing the OS Manager for Linux

Before incorporating OS Manager into your environment, be sure to test your specific native operating system installation configuration (Kickstart or SuSE) 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 Kickstart or AutoYaST, respectively.

## Platform Support

For detailed information about supported platforms, see the release note document that accompanies this release.

## Infrastructure Prerequisites

- SuSE AutoYaST and Red Hat Linux Kickstart configured for use with the OS Manager.
- **HP Client Automation Management OS Manager Server** is supported on Redhat Linux and SuSE Linux operating systems. See the release note document that accompanies this release for detailed platform support.
- **HP Client Automation Configuration Server for Windows 7.50 or higher.**
  - During the installation, you must have selected the OS Manager check box on the Select Products to be installed and supported by Configuration Server.



To check the version of your Configuration Server, go to the bin directory and open `version.nvd`.

- **HP Client Automation Configuration Server DB** version 7.50.



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

- **HP Client Automation Portal 7.50.**
- **HP Client Automation Administrator.**
- **HP Client Automation OS Manager Configuration File Publisher.**
- **HP Client Automation Proxy Server 7.50.**
- **HP Client Automation Enterprise Manager 7.50.**



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

Before installing the 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 OS Manager installation media from the .iso image stored in the \OS\_Manager folder on the latest Client Automation media.

## Target Machine Requirements

- Target machines must meet any hardware requirements as per Kickstart or AutoYaST.

- In order to reach DESIRED state, deployed Linux systems require libX11.so.6. Please refer to your distribution's log file containing the output from init(1) scripts for specific names and information.

## Installation Checklist

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

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

## Installing the OS Manager Server for Linux



The OS Manager Server for Linux must be installed as root.

To install the OS Manager Server

- 1 If running, stop the Integration Server service.
- 2 On the OS Manager media, go to appropriate `os_manager_server` platform sub-directory and run `./setup`.  
  
For example, to install to a Red Hat Linux device, go to `/os_manager_server/linux/redhat`  
  
The Welcome to 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 Select the folder where you want to install the OS Manager Server.
- 6 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 OS Manager Server. The example used below is for a Linux device. Running the installation on other platforms may display fewer required fields.
- 7 Enter the location for the Client Configuration files and installation media.
    - Client configuration files location is the directory where OS Manager will create the individual target device configuration directories.
      - ▶ The client configuration files location must be NFS shared before starting the OS Manager.
    - Linux 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.
  - 8 Click **Next**. The License File window opens.
  - 9 Enter the location of your license file (`license.nvd`) or click **Browse** to navigate to your license file.
  - 10 Click **Next**. The Portal Credentials window opens.
  - 11 Enter a user ID and password for the Portal and click **Next**. The Configuration Server location window opens.
  - 12 Specify an address and port for the Configuration Server and click **Next**. The Portal Location window opens.
  - 13 Specify the address and port number for the Portal. You may include the company name and domain, but it is not required.

This server should be on a separate machine.
  - 14 Click **Next**. The Zone Information window opens.
  - 15 Type the name of the 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 *Portal Guide* for information about zones.
  - 16 Click **Next**.

- 17 Enter the Linux distribution type (Redhat or SuSE).
- 18 Click **Next**. The OS Manager Server IP address window opens.
- 19 Enter the IP address for the OS Manager server and click **Next**. The Machine Object Name attribute select window opens.
- 20 Select the attribute from the list to use as the name of the machine object when using the OS Manager Administrator Interface. Computer Name is the default.
- 21 Click **Next**. The Summary window opens.
- 22 Click **Install** to begin the installation.
- 23 A window opens asking to start the OS Manager Server. If you want to start the server, click **Yes**. If you have updates to install or would like to make additional changes, click **No**. You will then need to start the server when you're finished making any changes. See [Starting the OS Manager Server After Install](#) on page 26 for detailed instructions.
- 24 Click **Finish** when the installation is complete.

## Starting the OS Manager Server After Install

If the OS Manager Server must be started manually, either after installation or if it was stopped for another reason (to install updated modules or if the machine on which it is located is restarted, for instance) you can manually start it from the command line.

- Go to the `/opt/HP/CM/OSManagerServer` directory and run the following command:


```
./nvdkit httpd.tkd -config httpd-osm.rc &
```

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

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

If you are using a password to access your Configuration Server

- 1 Shut down the Integration Server service.

- 2 From a command prompt switch to the 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 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 HPCA Integration Server service.

## Configuring the Portal

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

- 
- Be sure that you have the Portal 7.50 or higher installed on your machine.

To update the modules

- 1 Stop the Portal service.
- 2 From the 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 Portal service.

To update the `edmprof.dat` file

- 1 Stop the Configuration Server service.
- 2 In the 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 Portal.
  - Set the `PORTAL_PORT` to point to the port for the Portal.
  - The `PORTAL_ZONE` contains the value that you specified when you installed the 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 OS Manager Server interfaces with Portal. If you chose the default during the installation, set this to `compname`.
  - Set the `PORTAL_UID` to the ID of a Portal user who can update a device or the ROM object.
  - Set the `PORTAL_PASS` to the password for the Portal user who can update a device or the ROM object.
- 3 Save and close `edmprof.dat`.

## Configuring the Default Behaviors Instance

You must modify the default Run Once parameter string in the Default Behavior instance so that it contains the IP address for your Configuration Server. If you do not modify this parameter, your target device will not be able to run a successful OS connect.

To configure the default Behaviors instance

- 1 Log on to the CSDB Editor.
- 2 Go to `PRIMARY.OS.BEHAVIOR.DEFAULT_BEHAVIOR`.
- 3 In the `RUNPARAM` (RunOnce Parameter String) change `IP=RCSSERVER` to reference the appropriate Configuration Server for your environment.
- 4 Click **OK**.

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

# Installing the OS Manager Configuration File Publisher

The Configuration File Publisher installation media is located in the `/unix_configuration_file_publisher/` directory of the OS Manager media. Install the Publisher to your Linux Kickstart or SuSE AutoYaST server.

To install the Configuration File Publisher

- 1 From the 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 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 Agent Installation Media

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



HPCA agent installation media is not required if you are preparing Kickstart to deploy a VMware ESX Server only.

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

The agent installation is available on the HP Client Automation media.

## Running the Remote Installation Setup

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

- At a minimum, select to install the Application Manager and 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 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 OS Manager requires the tar file be located in `CLIENTPATH`, but it can be created anywhere first, then moved to the `CLIENTPATH` location.
  - After Agent installation, if the home directory of root is moved, the `/.ssh` folder containing the SSH configuration must be moved as well to ensure policy changes occur.

---

# 3 Configuring the Linux Server

At the end of this chapter, you will:

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

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

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

- For Kickstart, [Configuring Red Hat Linux Kickstart](#) on page 32.
- For AutoYaST, [Configuring SuSE AutoYaST](#) on page 36.

## Configuring Red Hat Linux Kickstart

Use the following sections to configure Red Hat Linux Kickstart for use with OS Manager.

### 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 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:

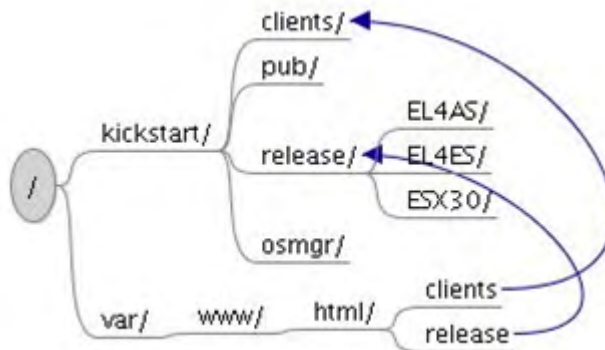
- QA\Testing in Pre-Production Environment.
- Image Capture on isolated Network.

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

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 3 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 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 OS Manager installation.

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

**Table 2 Kickstart configuration file directive requirements**

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.

Directive	Description
install OR upgrade	Standard Red Hat Kickstart directive
vmpcidiv	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 --enableshadow --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

Use the following sections to configure SuSE AutoYaST for use with OS Manager.

### 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 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.

## 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 OS Manager pre-installation

tools. 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 Publishing Configuration Files

At the end of this chapter, you will:

- Be able to prepare and publish configuration files to the HP Client Automation Configuration Server DB (CSDB).

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

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

## Using the OS Manager Configuration File Publisher

Before using the Publisher, review the publishing considerations in the following section.

### Publishing Considerations

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

#### Kickstart Configuration Files

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

- 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.

```
users config:type="list">
  <encrypted config:type="boolean">true</encrypted>
  <fullname>root</fullname>
  <gid>0</gid>
```



```
<home>/root</home>
<shell>/bin/bash</shell>
<uid>0</uid>
<user_password>$2a$05$NgUt4tFtOwQ9OkV2nwCAwe051rniEYZi/H/
Lq9BUwd9wGhbH6xU2O</user_password>
<username>root</username>
</users>
```

## Re-publishing OS services (migrations, updates to existing)

Before re-publishing an updated OS service to the Configuration Server DB, you must first remove previous instance(s) . Use the CSDB Editor for this task.

In case of migration from pre-5.1x versions, you should, at a minimum, delete the OS service instance located in the ZSERVICE class in the OS domain.

For example, if you want to migrate a service called RHEL50\_32BIT, then before publishing you must delete this instance:  
PRIMARY.OS.ZSERVICE.RHEL50\_32BIT.

In case of re-publishing a version 5.1x OS service, you must delete instances from the following classes: ZSERVICE, PACKAGE and UNIXCFG.

For example, if you want to re-publish a service called RHEL50\_32BIT, then before publishing you must delete the following instances:

```
PRIMARY.OS.ZSERVICE.RHEL50_32BIT
PRIMARY.OS.PACKAGE.RHEL50_32BIT
PRIMARY.OS.UNIXCFG.RHEL50_32BIT.
```

## Preparing the Configuration File

Before the configuration file can be published, you must add mandatory substitution parameters. Use a text editor to edit the configuration file and add the mandatory parameters as well as any optional substitutions you want to include.

[Table 3](#) on page 43 lists the mandatory and optional substitutions to be used in each configuration file.



The Publisher will warn if mandatory substitutions are not present in the file you want to publish. If desired, you can publish the configuration file without including the mandatory substitutions, but doing so may produce unexpected results during deployment.

Substitutions can be placed anywhere in the file. You can re-use the same substitution multiple times.

## Simple syntax

```
<<attribute_name>>
```

If the attribute is not found during deployment, the deployment will fail. This will be recorded in the OSM server log.

## NULL syntax

```
<<attribute.null>>
```

If the attribute is not found during deployment, a null value (empty string) will be used in its place. The deployment will not fail.

## Default syntax

```
<<attribute.default_value>>
```

If the attribute is not found during deployment, the default value you provide will be used in its place. The deployment will not fail.

## Examples of substitutions

```
<<COMPNAME>>
```

```
<<COMPNAME.null>>
```

```
<<COMPNAME.myserver1>>
```

**Table 3 Configuration File Substitution Parameters**

<b>Operating System</b>	<b>Parameter (* denotes a mandatory substitution)</b>
RedHat Linux Kickstart	COMPNAME *
	IPADDR
SUSE Linux AutoYaST	COMPNAME *
	IPADDR

## Publishing Configuration Files

The Publisher creates object information from an existing configuration file then publishes that file to the CSDB as a service.

[Table 4](#) below describes the Publisher command-line options.

**Table 4 Publisher Command-Line Options**

<b>Option</b>	<b>Description</b>
-h	Displays the available command-line parameters.
-n	Runs the Publisher in No-Publish mode. Available for testing to display what would have been generated in an actual publishing session.
-x	Launches the graphical Publisher.
-d	Run the Publisher in debug mode.

The publisher can be run in either a text or graphical mode. The following sections describe each publishing mode.

- [Publishing Using Text Mode](#) on page 44
- [Publishing Using Graphical Mode](#) on page 45

## Publishing Using Text Mode

Use the following instructions to publish configuration files to the CS Database.

### To publish configuration files to the Configuration Server Database

- 1 Change your directory to where you installed the Configuration File Publisher.
- 2 Type `./publisher` to run the Publisher.
- 3 Enter the responses at each prompt and then press **Enter**. Default responses are contained within brackets.



The first time you run the Publisher, your responses are stored in a file (`.pub-defaults`). These are used as the default responses the next time the Publisher is run.

- Configuration / machine type [KICKSTART|AUTOYAST]
- Configuration Server Host or IP Address
- Configuration Server Port
- Configuration Server User Name
- Configuration Server Password
- Configuration file name
- Configuration Server Instance Name
- Configuration Server Instance Friendly Name

If you are publishing for Kickstart or AutoYaST, you are presented with the following additional steps:

- 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.

— 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 for AutoYaST, you are presented with the following additional step:

— Installation Media Path:

This is full path name of the directory containing the SuSE release being deployed.

After you enter the last response and press **Enter**, the objects are sent to your CSDB.

The result is an instance in your database in OS.ZSERVICE. The instance is stored in the CSDB using the name you assigned as the Configuration Server Instance Friendly Name

## Publishing Using Graphical Mode

Use the following instructions to publish configuration files using the Publisher's graphical mode.

### To publish configuration files to the Configuration Server Database

- 1 Change your directory to where you installed the Configuration File Publisher.
- 2 Use the command `./publisher -x` to run the Publisher in graphical mode. The Select Type window opens.
- 3 Select the Configuration file type you are publishing and click **Continue**. The Publish information window opens.
- 4 Enter the appropriate Configuration Server and operating system information. Click the help buttons to display information about each parameter. Parameters that are displayed in gray out are not required.
- 5 Click **Publish**.
- 6 Enter a password and click **OK**.

The configuration file is published to the Configuration Server Database.



---

# 5 Setting Policy and Deploying Images

At the end of this chapter, you will:

- Understand how to complete OS Manager Policy tasks.

Use the OS Manager administrative tasks in the Enterprise Manager and CSDB Editor to set policy and deploy images. Refer to the *HP Client Automation OS Manager System Administrator Guide for Windows* and the *HP Client Automation Enterprise Manager Guide* for extended information.

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



You can only assign a single Linux OS service to a given target device. This does not limit using multiple OS services in the policy model, it just means that at the end of the Configuration Server policy resolution only a single Linux OS service may apply to any given target device.

After completing the configuration tasks required for preparing policy, the configuration files are ready for deployment. Follow the usual Red Hat Linux Kickstart or SuSE AutoYaST procedures for deployment to your target devices.



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