

HP Operations Manager for UNIX

Installation Guide

Software Version: 9.00

HP-UX 11i v3 on HP Integrity

Edition 3



Manufacturing Part Number: None

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Printing History

The printing date and part number of the manual indicate the edition of the manual. The printing date will change when a new edition is printed. Minor changes may be made before a reprint without changing the printing date. The part number of the manual will change when extensive changes are made.

Manual updates may be issued between editions to correct errors or to document product changes. To ensure that you receive the latest edition of the manual, you should subscribe to the product-support service. See your HP sales representative for details.

First Edition:	HPOM 9.00	April 2009
Second Edition:	HPOM 9.00	April 2009
Third Edition:	HPOM 9.00	June 2009

Conventions

The following typographical conventions are used in this manual.

Table 1 **Typographical Conventions**

Font	Meaning	Example
<i>Italic</i>	Book or manual titles, and man page names	Refer to the <i>HPOM Administrator's Reference</i> and the <i>opc(1M)</i> manpage for more information.
	Emphasis	You <i>must</i> follow these steps.
	Variable that you must supply when entering a command	At the prompt, enter rlogin <i>username</i> .
	Parameters to a function	The <i>oper_name</i> parameter returns an integer response.
Bold	New terms	The HTTPS agent observes...
Computer	Text and other items on the computer screen	The following system message displays: Are you sure you want to remove current group?
	Command names	Use the <code>grep</code> command ...
	Function names	Use the <code>opc_connect()</code> function to connect ...
	File and directory names	<code>/opt/OV/bin/OpC/</code>
	Process names	Check to see if <code>opcmona</code> is running.
	Window/dialog-box names	In the Add Logfile window ...
	Menu name followed by a colon (:) means that you select the menu, then the item. When the item is followed by an arrow (->), a cascading menu follows.	Select Actions: Filtering -> All Active Messages from the menu bar.

Table 1 **Typographical Conventions (Continued)**

Font	Meaning	Example
Computer Bold	Text that you enter	At the prompt, enter ls -l
Keycap	Keyboard keys	Press Return .
[Button]	Buttons in the user interface	Click [OK].

HPOM Documentation Map

HP Operations Manager (HPOM) provides a set of manuals and online help that help you to use the product and to understand the concepts underlying the product. This section describes what information is available and where you can find it.

Electronic Versions of the Manuals

All the manuals are available as Adobe Portable Document Format (PDF) files in the documentation directory on the HPOM product CD-ROM.

With the exception of the *HPOM Software Release Notes*, all the manuals are also available in the following HPOM web-server directory:

```
http://<management_server>:3443/ITO_DOC/<lang>/manuals/*.pdf
```

In this URL, *<management_server>* is the fully-qualified hostname of your management server, and *<lang>* stands for your system language, for example, C for the English environment.

Alternatively, you can download the manuals from the following website:

```
http://support.openview.hp.com/selfsolve/manuals
```

Watch this website regularly for the latest edition of the *HPOM Software Release Notes*, which gets updated every 2-3 months with the latest news such as additionally supported OS versions, latest patches and so on.

HPOM Manuals

This section provides an overview of the HPOM manuals and their contents.

Table 2 **HPOM Manuals**

Manual	Description	Media
<i>HPOM Installation Guide for the Management Server</i>	<p>Designed for administrators who install HPOM software on the management server and perform the initial configuration.</p> <p>This manual describes:</p> <ul style="list-style-type: none">• Software and hardware requirements• Software installation and de-installation instructions• Configuration defaults	PDF only
<i>HPOM Concepts Guide</i>	<p>Provides you with an understanding of HPOM on two levels. As an operator, you learn about the basic structure of HPOM. As an administrator, you gain an insight into the setup and configuration of HPOM in your own environment.</p>	PDF only
<i>HPOM Administrator's Reference</i>	<p>Designed for administrators who install HPOM on the managed nodes and are responsible for HPOM administration and troubleshooting. Contains conceptual and general information about the HPOM managed nodes.</p>	PDF only
<i>HPOM HTTPS Agent Concepts and Configuration Guide</i>	<p>Provides platform-specific information about each HTTPS-based managed-node platform.</p>	PDF only
<i>HPOM Reporting and Database Schema</i>	<p>Provides a detailed description of the HPOM database tables, as well as examples for generating reports from the HPOM database.</p>	PDF only
<i>HPOM Entity Relationship Diagrams</i>	<p>Provides you with an overview of the relationships between the tables and the HPOM database.</p>	PDF only

Table 2 **HPOM Manuals (Continued)**

Manual	Description	Media
<i>HPOM Java GUI Operator's Guide</i>	Provides you with a detailed description of the HPOM Java-based operator GUI and the Service Navigator. This manual contains detailed information about general HPOM and Service Navigator concepts and tasks for HPOM operators, as well as reference and troubleshooting information.	PDF only
<i>Service Navigator Concepts and Configuration Guide</i>	Provides information for administrators who are responsible for installing, configuring, maintaining, and troubleshooting the HP Operations Service Navigator. This manual also contains a high-level overview of the concepts behind service management.	PDF only
<i>HPOM Software Release Notes</i>	Describes new features and helps you: <ul style="list-style-type: none">• Compare features of the current software with features of previous versions.• Determine system and software compatibility.• Solve known problems.	PDF only
<i>Managing Your Network with HP Network Node Manager</i>	Designed for administrators and operators. This manual describes the basic functionality of the HP Network Node Manager, which is an embedded part of HPOM.	PDF only
<i>HPOM Firewall Concepts and Configuration Guide</i>	Designed for administrators. This manual describes the HPOM firewall concepts and provides instructions for configuring the secure environment.	PDF only
<i>HPOM Web Services Integration Guide</i>	Designed for administrators and operators. This manual describes the HPOM Web Services integration.	PDF only
<i>HPOM Security Advisory</i>	Designed for administrators. This manual describes the the HPOM security concepts and provides instructions for configuring the secure environment.	PDF only
<i>HPOM Server Configuration Variables</i>	Designed for administrators. This manual contains a list of the HPOM server configuration variables.	PDF only

Additional HPOM-Related Products

This section provides an overview of the HPOM-related manuals and their contents.

Table 3 **Additional HPOM-Related Manuals**

Manual	Description	Media
HP Operations Manager for UNIX Developer's Toolkit If you purchase the HP Operations Manager for UNIX Developer's Toolkit, you receive the full HPOM documentation set, as well as the following manuals:		
<i>HPOM Application Integration Guide</i>	Suggests several ways in which external applications can be integrated into HPOM.	PDF
<i>HPOM Developer's Reference</i>	Provides an overview of all the available application programming interfaces (APIs).	PDF
HP Event Correlation Designer for HPOM If you purchase HP Event Correlation Designer for HPOM, you receive the following additional documentation. Note that HP Event Correlation Composer is an integral part of HPOM. HP Composer usage in the HPOM context is described in the OS-SPI documentation.		
<i>HP ECS Configuring Circuits for HPOM</i>	Explains how to use the ECS Designer product in the HPOM environment.	PDF

HPOM Online Information

The following information is available online.

Table 4 **HPOM Online Information**

Online Information	Description
HPOM Java GUI Online Information	HTML-based help system for the HPOM Java-based operator GUI and Service Navigator. This help system contains detailed information about general HPOM and Service Navigator concepts and tasks for HPOM operators, as well as reference and troubleshooting information.
HPOM Man Pages	<p>Manual pages available online for HPOM. These manual pages are also available in HTML format.</p> <p>To access these pages, go to the following location (URL) with your web browser:</p> <p><code>http://<management_server>:3443/ITO_MAN</code></p> <p>In this URL, the variable <code><management_server></code> is the fully-qualified hostname of your management server. Note that the man pages for the HP Operations HTTPS agents are installed on each managed node.</p>

About HPOM Online Help

This preface describes online documentation for the HP Operations Manager (HPOM) Java operator graphical user interface (GUI).

Online Help for the Java GUI and Service Navigator

The online help for the HP Operations Manager (HPOM) Java graphical user interface (GUI), including Service Navigator, helps operators to become familiar with and use the HPOM product.

Types of Online Help

The online help for the HPOM Java GUI includes the following information:

- ❑ **Tasks**

Step-by-step instructions.

- ❑ **Concepts**

Introduction to the key concepts and features.

- ❑ **References**

Detailed information about the product.

- ❑ **Troubleshooting**

Solutions to common problems you might encounter while using the product.

- ❑ **Index**

Alphabetized list of topics to help you find the information you need, quickly and easily.

Viewing a Topic

To view any topic, open a folder in the left frame of the online documentation window, then click the topic title. Hyperlinks provide access to related help topics.

Accessing the Online Help

To access the help system, select `Help: Contents` from the menu bar of the Java GUI. A web browser opens and displays the help contents.

NOTE

To access online help for the Java GUI, you must first configure HPOM to use your preferred browser.

1 Installation Requirements for the Management Server

In This Chapter

This chapter describes how to select the correct management server for HP Operations Manager (HPOM).

Check your system parameters before running the HPOM installation script. This chapter helps you to set the system parameters.

Choosing the Correct Installation and Upgrade Path

Before you start to install HPOM, you need to choose an installation path that best suits your requirements. For example, you *must* decide whether you are installing a new version of HPOM or performing an upgrade from a previous version of HPOM. For a description of the standard HPOM installation and upgrade tasks, see Table 1-1 on page 27.

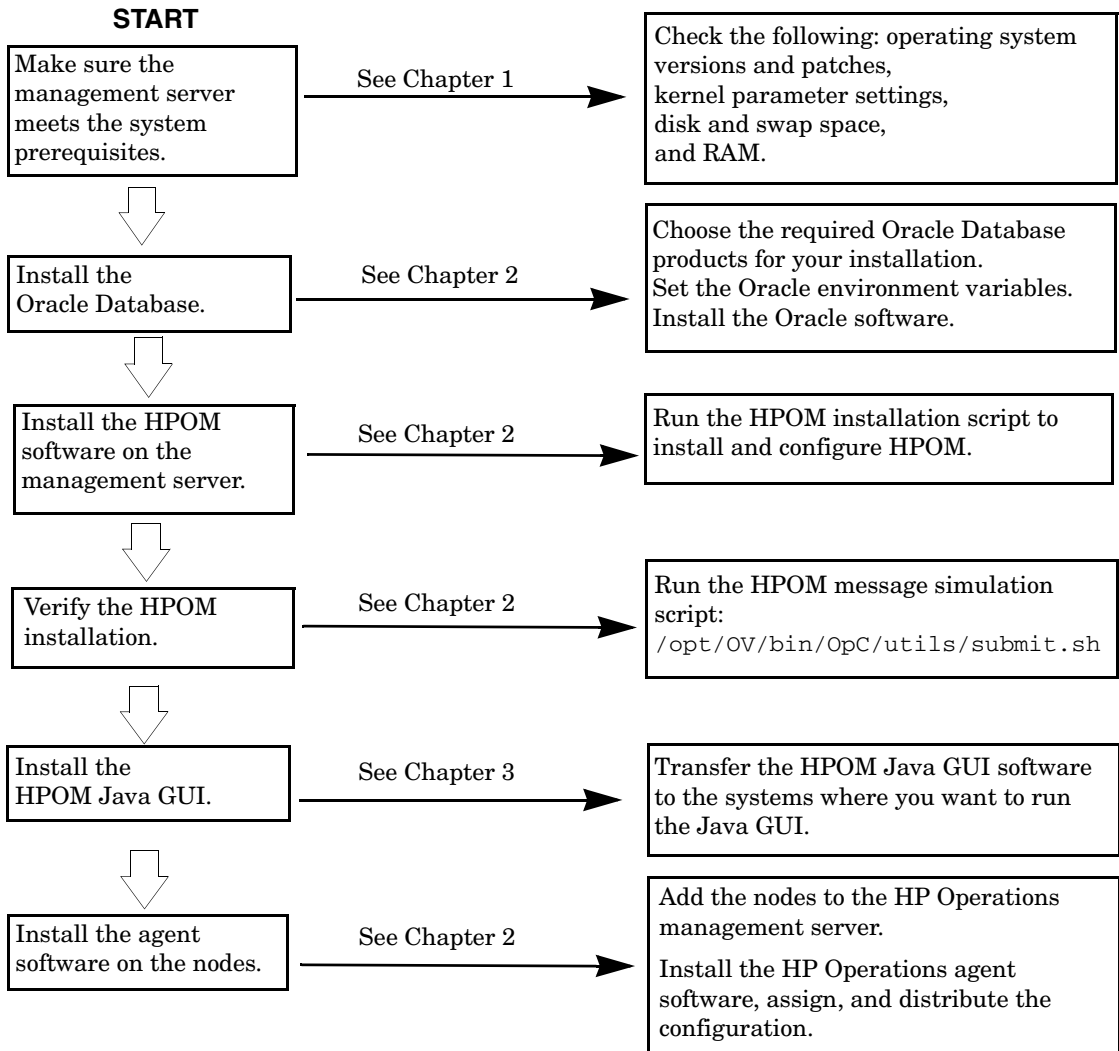
Table 1-1 **Choosing the Correct Installation and Upgrade Path**

Task	Requirement	Reference
1. Install HPOM 9.00 for UNIX on the management server.	1. Have management server hardware that conforms to <i>at least</i> the minimum system requirements for the HP Operations management server.	This Chapter. Chapter 2, “Installing HPOM on the Management Server,” on page 43
2. Install the HPOM Java GUI.	1. Have HPOM 9.00 installed on the management server. 2. Install the HPOM Java GUI software on the systems where the HPOM Java GUI will be running.	Chapter 3, “Installing the Java Operator GUI,” on page 81
3. Install HPOM in an HP ServiceGuard Cluster Environment	1. Install the HPOM filesets on the first HP ServiceGuard Cluster node. 2. Install HPOM on any additional HP ServiceGuard Cluster nodes.	Chapter 9, “Installing HPOM in an HP ServiceGuard Cluster Environment,” on page 211
4. Upgrade HPOM to version 9.00.	1. Have management server hardware and software that conforms to <i>at least</i> the minimum system requirements for the HPOM 9.00 management server. 2. Upgrade to HPOM 9.00.	This Chapter. Chapter 8, “Upgrading HPOM to Version 9.00,” on page 187

Table 1-1 **Choosing the Correct Installation and Upgrade Path (Continued)**

Task	Requirement	Reference
5. Install or update HP Operations agent software on the managed nodes.	<ol style="list-style-type: none">1. Have HPOM installed on the management server.2. Add the nodes to the HP Operations management server.3. Install the HP Operations agent software, assign and distribute the configuration.	<i>HPOM Administrator's Reference</i> <i>HPOM HTTPS Agent Concepts and Configuration Guide</i>

Figure 1-1 Summary of Standard HPOM Installation Tasks



Verifying the Installation Requirements

The HP Operations management server is the controlling element of the entire HPOM system, so you should carefully select the right system to host the management server. Before selecting a system, calculate how many of the following it will have:

- ❑ Concurrent operators
- ❑ Messages processed
- ❑ Monitored nodes

Migrating the management server to a larger system at a later date requires considerable effort, particularly if your configuration is large and includes hundreds or thousands of managed nodes.

Before installing HPOM, see the following topics:

- ❑ “Hardware Requirements” on page 31
- ❑ “Software Requirements” on page 37

Plan your HPOM installation carefully. If you have never used HPOM before, you may want to install and configure it in an isolated test environment before moving it into your production environment. This isolation enables you to gain experience with HPOM and design a configuration that represents a reasonable test of your use of HPOM.

For more information about the HPOM installation script, see Chapter 2, “Installing HPOM on the Management Server.”

Hardware Requirements

The system you select as the management server *must* meet the following hardware requirements:

- ❑ HP Integrity servers
- ❑ Additional disk space
- ❑ Additional RAM
- ❑ Swap space (see Table 1-2 on page 34)
- ❑ DVD-ROM drive (optional and can be mounted remotely)

NOTE

It is strongly recommended that you use a multiple-CPU system for the HP Operations management server, with the possibility to add additional CPUs, RAM, and disk space to the system at a later time if needed.

You can install the Oracle Database on a dedicated system. For further information, see “Setting Up an Independent Database Server System” on page 131.

Required Disk Space

Before selecting a system to host the management server, review the following questions:

1. How much disk space is available on the system?

The total required disk space for the HP Operations management server is approximately 20 GB.

Review the disk requirements of any other applications, such as HP Performance Manager, that you want to install on the management server in the future.

If you do not have enough disk space in the file tree, you can use one of the following methods to solve the problem:

- Mount a dedicated volume for the directory.
- Make the directory a symbolic link to a file system with enough disk space.

NOTE

Do *not* use NFS-mounted file systems. These systems can adversely affect the performance of HPOM. For more information, see the section about agent installation tips in the *HPOM Administrator's Reference*.

For details about the HPOM directory structure, see Chapter 5, “Directory Structure on the Management Server.”

2. How fast is the average disk I/O time?

The disk I/O time affects the application start-up time and the swapping activities. It is recommended that you distribute the database, the HPOM binaries, and the runtime data over several disks. To maintain optimum performance, do not locate swap space on the same disks as the HPOM binaries and the Oracle Database.

Required RAM and Swap Space

The amount of available RAM and swap space determines whether applications can run, and also how fast they can run. The more RAM you make available, the better application performance is achieved. The application performance improves because increased RAM reduces the swapping and paging activities of the system.

Before selecting a system to serve as your management server, review the following question:

1. How much memory (RAM) is installed on the system?

The HP Operations management server requires at least 2 GB of dedicated RAM. In addition, you will need approximately 16–20 MB of RAM, plus 6 MB per 1000 active messages for every HPOM Java GUI session, including Service Navigator.

The actual RAM requirements depend heavily on your production environment and mode of use. The factors that affect the RAM requirements include: the number and frequency of HPOM messages, the number of operators working in parallel, and the number of managed nodes.

Memory consumption of the Java GUI needed on the server and the display station may be approximately computed. For more information, see the *Performance Guide*.

2. Does the system provide enough swap space?

In most cases, you need a total of 4 GB of swap space on the management server system.

NOTE

Use device swap space rather than file system swap space for improved system performance.

Individual requirements are listed in Table 1-2 on page 34.

Table 1-2 Minimum Swap Space Required for HPOM Installation on the Management Server

Product	Required Swap Space (MB)
HP-UX 11i Operating System	1024
Oracle Database	2048 ^a
HP Operations Manager	1024 ^b
Approximate Total	4096

- a. The value recommended by Oracle is equal to the system physical memory (RAM) or 2 GB, whichever is greater.
- b. This value depends on the number of GUIs running in parallel, and on the number of active and acknowledged messages. For each additional operating Java GUI and Service Navigator, about 16-20 MB of RAM or swap space is required, plus 6 MB per 1000 active messages.

To check your currently available swap space, run the command:

```
/usr/sbin/swapinfo
```

To achieve the best performance and to avoid a disk access bottleneck, *do not* locate the database and the swap space on the same physical disk.

3. How many HPOM users will work at the same time?

The number of users influences the number of parallel GUIs running on the management server. For each additional operating Java GUI and Service Navigator, about 16-20 MB of RAM or swap space is required, plus 6 MB per 1000 active messages.

If required, adapt the `maxdsiz` kernel parameter.

4. How many background graphics are integrated into Service Navigator?

Background graphics can also slow down the system by using excessive amounts of RAM.

Reserve enough physical memory to accommodate all the virtual memory needs of HPOM. This extra memory will eliminate the need for process swapping, and will result in the best possible performance. The performance of HPOM can decrease if swapping becomes necessary.

Performance Requirements

The speed with which HPOM processes messages and the Java GUI performance both depend on the available CPU time as well as the overall CPU power. Therefore, consider the demands of other installed applications on CPU time, disk access, and RAM or swap space usage.

NOTE

It is strongly recommended that you use a multiple-CPU system for the management server system, especially if you plan to run multiple Java GUIs.

Because the throughput of LAN packets can affect the management server performance, you *should not* use the management server system for other purposes, such as NFS, NIS (YP), DNS, and so on. However, configuring the HP Operations management server system as a secondary Domain Name Server (DNS) can help to increase the speed of name lookups.

Intersystem Connection Requirements

The connection between the managed nodes and the HP Operations management server affects the time HPOM needs to install the HPOM software, the time it takes to configure the software on the managed nodes, and the time needed to respond to problems.

Before setting up the connection between the managed nodes and the HP Operations management server, review the following questions:

1. Is the system accessible all the time (at least while HPOM operators are working)?

The management server should be accessible at least while the managed nodes are operating.

If it is *not*, the following inconveniences can occur:

- a. Automatic actions that do not run directly on the local managed node cannot be performed while the management server is down.
- b. When the management server is restarted, the managed nodes forward all locally buffered HPOM messages to the management server. If hundreds or thousands of messages need to be processed, this will have a significant effect on the performance of HPOM.

2. Is the system located centrally as regards network connectivity and network speed?

To minimize the HPOM response time, a fast network (LAN) should be available between the management server system and its managed nodes. For example, the management server should not be connected by a serial line or X.25 with all the other systems networked in a LAN.

3. Are the display stations of the HPOM operators and the management server connected by fast lines?

Having fast lines between the management server and the operator workstations is strongly recommended.

Software Requirements

Before you install HPOM, the following software *must* be correctly installed on the management server.

Operating System

Table 1-3 shows on which operating system version the HP Operations management server is supported.

Table 1-3

Supported Operating System Version for the Management Server

Operating System	Platform	Supported Operating System Version
HP-UX 11i	HP Integrity servers	HP-UX 11i v3

NOTE

HPOM 9.00 on HP-UX 11i v3 is a 32-bit application, built to run on HP-UX on HP Integrity systems with a cleaner code and higher performance. HPOM runs on the 64-bit HP-UX 11i v3 operating system, but it *does not* support integrations with 64-bit applications on the API level. Oracle 11g is a 64-bit application and therefore *must* be installed on a system running a 64-bit HP-UX 11i v3 operating system. HPOM connects to the Oracle Database through the 32-bit SQL interface.

Kernel Parameters

Several of the kernel parameters must be increased on the HP Operations management server because the operating system default values are too small. The HPOM installation utility `ovoinstall` checks your current settings.

If you want to familiarize yourself upfront, you can run `ovoinstall`.

Table 1-4 Minimum Kernel Settings Required for HPOM Installation on the Management Server

Kernel Parameter	Value
fs_async	0
ksi_alloc_max	(nproc*8)
executable_stack	0
max_thread_proc	1024
maxdsiz	0x40000000
maxdsiz_64bit	0x80000000
maxfiles	256 ^a
maxssiz	0x8000000
maxssiz_64bit	0x40000000
maxuprc	((nproc*9)/10)
msgmni	(nproc)
msgtql	(nproc)
ncsize	35840
nflocks	(nproc)
ninode	(8*nproc+2048)
nkthread	((nproc*7)/4)+16)
nproc	4096
semnmi	(nproc)
semmns	(semnmi*2)
semnmu	(nproc-4)
semvmx	32767
shmmax	size of memory or 0x40000000 (higher one)
shmmni	4096
shmseg	512
vps_ceiling	64

- a. If your installation includes more than 35 nodes that use HTTPS communication, increase the setting of maxfiles to $3 * \text{Number_of_nodes} + 15$. If your installation includes more than six concurrent users accessing the Java GUI as the same HPOM operator, increase the setting of maxfiles to $14 * \text{Number_of_Users} + 28$.

Operating System and Environment Patches

The HPOM installation script `ovoinstall` checks the operating system patches that are currently installed on the HP Operations management server.

IMPORTANT

Before you install any of the required operating system patches, make sure you have read the `README` file supplied with the patch.

Check the latest edition of the *HPOM Software Release Notes* for last-minute documentation about the required patches.

This document is available at the following location:

<http://support.openview.hp.com/selfsolve/manuals>

At the time of installation, the documented patches may be superseded. Use the latest patches from the following location:

<http://www.itrc.hp.com>

IMPORTANT

The HP Operations management server has been tested with the patch revisions listed either in the latest *HPOM Software Release Notes*, or on the <http://www.itrc.hp.com> website. Patches with higher revisions should also be suitable but *have not* been tested.

Oracle Database

HPOM 9.00 is certified to work with the Oracle Database 11g Release 1 Enterprise or Standard Edition with 11.1.0.7 Patch Set for the Oracle Database Server for HP-UX 11i v3 on HP Integrity.

For information about the support of later versions of Oracle, see the latest edition of the *HPOM Software Release Notes*.

If you have an existing Oracle Database and want to verify which Oracle products are installed, use the Oracle Universal Installer to view the installed Oracle products:

1. Switch to user oracle:

```
su - oracle
```

2. Run the Oracle Universal Installer:

```
$ORACLE_HOME/oui/bin/runInstaller
```

3. In the Oracle Universal Installer Welcome window, click Installed Products... to view the installed Oracle products.

Supported Agent Platforms

For a list of platforms and operating systems supported on HP Operations agents and the HP Performance Agent support on the managed nodes, see the *HPOM Software Release Notes*, which is available at the following location:

<http://support.openview.hp.com/selfsolve/manuals>

NOTE

HP Operations agents and the HP Performance Agent can also be installed on Storage Area Network (SAN) attached disks.

Installation Requirements for the Management Server
Verifying the Installation Requirements

2 **Installing HPOM on the Management Server**

In This Chapter

This chapter explains how to do the following:

- ❑ Install HP Operations Manager (HPOM) for the first time on the management server.
- ❑ Set up the Oracle Database for use with HPOM.
- ❑ Reconfigure the HPOM software.

NOTE

The Operations HTTPS agent software is automatically installed during the installation of the HPOM software on the HP Operations management server.

Before You Install HPOM

Before installing HPOM, make sure that your system meets the following prerequisites:

- ❑ HP-UX 11i operating system *must* be installed.
- ❑ Kernel parameters on the management server *must* be adapted. See “Verifying the Installation Requirements” on page 30.
- ❑ HP-UX 11i operating system patches *must* be installed.
- ❑ The CDE-English.CDE.Runtime.CDE-DTTERM package *must* be installed.
- ❑ Sufficient disk space *must* be available in the right partitions of the file system. For more information, see “Required Disk Space” on page 32.
- ❑ 0803 bundle for HP-UX 11i v3 on HP Integrity or later *must* be installed.
- ❑ Input and output data for multiple language support *must* be configured if you use any non-ASCII character. For more information, see “Configuring Input/Output for Multiple Language Support” on page 46.

After the prerequisites have been met, you can start with the HPOM installation.

Configuring Input/Output for Multiple Language Support

If you consider using any non-ASCII character, you must configure Input/Output for multiple language support to allow the use of UTF-8. However, this configuration is recommended even if you use only English characters.

To configure Input/Output for multiple language support, follow these steps:

1. Depending on the language, set locales on the management server:

- ❑ For an English language environment, the following variables can be used:

```
export LANG=C.utf8
export LC_ALL=C.utf8
```

- ❑ For other languages, make sure that you choose a locale that uses the utf8 character set, for example:

```
en_US.utf8
es_ES.utf8
ja_JP.utf8
sl_SI.utf8
```

NOTE

The LANG variable will determine the language of HPOM messages, templates, and uploaded configuration.

If some of the contents are not available for the chosen locale, HPOM will default to the English contents instead.

2. Set locales on the client system:

- ❑ Windows XP:

Select Control Panel: Date, Time, Language, and Regional Options: Regional and Language Options. The Regional and Language Options window appears.

Click the Advanced tab, and select the 65001 (UTF-8) check box in Code page conversion tables.

NOTE

For a detailed procedure, see the Microsoft documentation.

❑ **Linux:**

Make sure that you set locales to a UTF-8 version in the same way as for the management server. To find the appropriate UTF-8 suffix, use `locale -a`.

3. Set up the console or the terminal program to accept UTF-8.

Use only fonts that conform to the Unicode standard (for example, Lucida Console).

Installing HPOM

Before installing HPOM, make sure that your system meets all the prerequisites detailed in Chapter 1, “Installation Requirements for the Management Server.”

To install HPOM, complete these tasks:

- ❑ Task 1: “Installing and Verifying an Oracle Database” on page 49.
- ❑ Task 2: “Installing the HPOM Software on the Management Server System” on page 60
- ❑ Task 3: “Starting HPOM and Verifying the Installation” on page 74

Installing and Verifying an Oracle Database

For operation with HPOM, install and set up the Oracle Database 11g Release 1 Enterprise or Standard Edition with 11.1.0.7 Patch Set for the Oracle Database Server for HP-UX 11i v3 on HP Integrity.

For more detailed instructions than those provided in this section, or for non-standard installations, see the documentation supplied with the Oracle Database product.

NOTE

Oracle 11g is a product of the Oracle Corporation and *cannot* be purchased directly from Hewlett-Packard.

Required Oracle Products

A standalone HPOM system has the database and all the management server processes, including the user interface processes, running on the same system. However, if the database is installed on a different server than the HP Operations management server, you *must* additionally install the Oracle products on the management server as described in “Setting Up an Independent Database Server System” on page 131. These products enable remote access to the Oracle Database.

Using an Existing Oracle Database

IMPORTANT

HPOM can be installed and configured using the existing database, but it requires its own database instance. Although it is possible to configure HPOM with an existing instance, this is *not* supported.

If you want to use an existing Oracle Database, do the following:

1. See the Oracle product documentation to make sure that the database is compatible with Oracle version 11g (11.1.0).
2. Make sure the Oracle environment variables are set as described in “Before You Install an Oracle Database” on page 51.
3. Continue with “Installing the HPOM Software on the Management Server System” on page 60.

Before You Install an Oracle Database

Before installing an Oracle Database on the management server, follow these steps:

1. Make sure that your system meets the hardware and software requirements listed in Chapter 1, “Installation Requirements for the Management Server.”

NOTE

The dynamically linked Oracle environments are *not* supported.

2. Run `SMH` as the `root` user, and create the `oracle` user with the following attributes:
 - a. Create a UNIX group named `dba`.
The group ID should be greater than 100.
 - b. Create a UNIX group named `oinstall`.
The group ID should be greater than 100.
 - c. Create a UNIX user named `oracle`.
The user ID should be greater than 100.
 - d. Make the `oracle` user a member of the `oinstall` group as the primary group and `dba` as the secondary group.
 - e. As the home directory of the `oracle` user, use:

```
/home/oracle
```

3. Set `umask` to allow users to access the Oracle binaries:

```
umask 022
```

4. Create the directories required by the Oracle installation:

- a. Create the Oracle home directory `ORACLE_HOME`:

```
mkdir -p /opt/oracle/product/<version>
```

In this instance, `<version>` is the Oracle Database version, 11.1.0.

You can also choose a different directory for `ORACLE_HOME`, but you *must* use it consistently in all subsequent steps.

- b. Create a base directory for the Oracle installation files:

```
mkdir -p /opt/oracle/oraInventory
```

You can also choose a different directory. If you do so, use the new directory consistently in all subsequent steps.

Change the ownership and set correct permissions by entering the following commands:

```
chown -R oracle:oinstall /opt/oracle/oraInventory
```

```
chmod -R 770 /opt/oracle/oraInventory
```

5. Change the ownership of the directories to `oracle:oinstall` by entering:

```
chown -R oracle:oinstall /opt/oracle \  
/opt/oracle/product /opt/oracle/product/<version>
```

In this instance, `<version>` is the Oracle Database version, 11.1.0.

6. Set the following Oracle environment variables in `/home/oracle/.profile` of the `oracle` user:

```
 export ORACLE_BASE=/opt/oracle
```

This variable determines the location of the Oracle installation. The `/opt` subdirectory prefix is just an example. Replace it with the installation path you used for Oracle.

```
 export ORACLE_HOME=$ORACLE_BASE/product/<version>
```

In this instance, `<version>` is the Oracle Database version, 11.1.0.

This variable determines the location and the version of the Oracle installation. This is the recommended setting. You can choose a different setting, if needed.

NOTE

The `export ORACLE_BASE=/opt/oracle` and `export ORACLE_HOME=$ORACLE_BASE/product/<version>` Oracle environment variables are no longer mandatory for the operation with HPOM.

```
 export ORACLE_SID=openview
```

This variable defines the name of the database you will create. The default setting is `openview`, but you can use a different setting if required.

❑ **`export ORACLE_TERM=hp`**

This variable specifies the terminal definition resource file for an `hp` terminal setting to be used with the Oracle installer and other Oracle tools.

If you normally use `dtterm`, change the setting to `ORACLE_TERM=ansi`.

❑ **`export PATH=$PATH:$ORACLE_HOME/bin`**

This variable sets the directories through which the system searches to find and execute commands.

7. Install the Oracle Database, as described in the following section.

Installing an Oracle Database

This section describes how to install the Oracle Database 11g Release 1 with 11.1.0.7 Patch Set for the Oracle Database Server for HP-UX 11i v3 on HP Integrity to use with HPOM.

The following procedure installs Oracle without creating the `openview` database. After installing the HPOM software, `ovoinstall` creates the `openview` database and configures the HPOM software as described in “Installing the HPOM Software on the Management Server System” on page 60.

NOTE

Browse through this section before starting the installation. The order of the system prompts can slightly differ from the example described in “Installing and Verifying an Oracle Database Version 11g” on page 55. These slight variations do not indicate any problems with the installation.

Installing and Verifying an Oracle Database Version 11g

NOTE

The Oracle11g Database Release 1 Enterprise Edition (64-bit) for the HP-UX on HP Integrity is available on a DVD-ROM. This product, as well as all required Patch Sets, can also be downloaded from the Oracle web site.

To install Oracle 11g from the DVD-ROM, follow these steps:

1. During the Oracle installation, you will need to perform some steps as user `root` and some as user `oracle`. Open two terminal windows:
 - a. Log on as the `root` user in the first terminal window, and as the `oracle` user in the second.
 - b. Make sure that the `ORACLE_TERM` environment variable is set correctly. If you use `hpterm`, use `hp`. If you use `dtterm`, use `ansi`. To check the setting, enter:

```
echo $ORACLE_TERM
```

- c. Verify, and if necessary, set the `ORACLE_HOME` variable.

For example:

```
ORACLE_HOME=/opt/oracle/product/<version>
```

In this instance, `<version>` is the Oracle Database version, 11.1.0.

```
export ORACLE_HOME
```

- d. Set the `DISPLAY` environment variable:

```
export DISPLAY=<nodename>:0.0
```

In this instance, `<nodename>` is the name of your system.

NOTE

On most HP-UX 11i systems, the disk is mounted automatically when you insert it into the disk drive. If the disk is not mounted automatically, follow step 2 to mount it.

2. As the `root` user, insert the appropriate disk into the disk drive, and enter the following command to mount the disk:

```
/usr/sbin/mount -F cdfs -o rr \  
</dev/dsk/cxydz> </SD_DVD>
```

In this instance, `</SD_DVD>` is the disk mount-point directory, and `</dev/dsk/cxydz>` is the device name for the disk device, for example, `/dev/dsk/c0t2d0`.

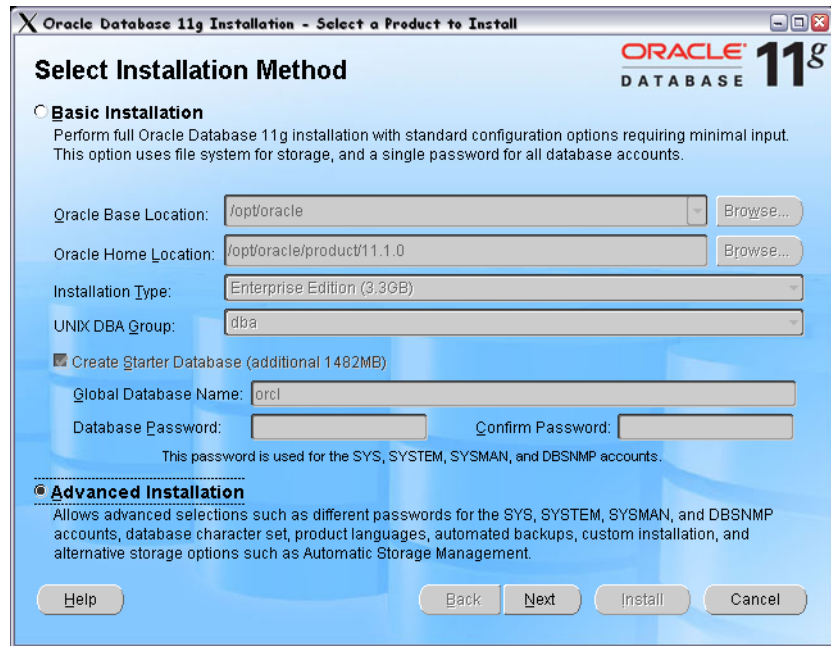
NOTE

It is recommended that you copy the contents of installation media to a hard disk.

3. As the `oracle` user, start the Oracle Universal Installer by entering the full path of the database directory on the installation media, which must be followed by the command:

```
./runInstaller
```


When the Oracle Universal Installer is started, the Select Installation Method window opens.



Select the Advanced Installation check box, and click [Next].

The Specify Inventory directory and credentials window opens.

NOTE

If an error message appears indicating that the inventory location could not be created, you can safely ignore it.

4. Make sure that the `/opt/oracle/oraInventory` path is given in the Specify Inventory directory and credentials window, then click [Next].

The Select Installation Type window appears.

5. In the Select Installation Type window, select Enterprise Edition or Standard Edition check box according to your needs or your Oracle licence agreement, and click [Next].

The `Install Location` window opens.

NOTE

If you will be running a non-English HP Operations management server, you can add languages by clicking the `[Product Languages...]` button and selecting languages from the list. The default language is English.

6. If you have previously set all Oracle variables properly, click `[Next]` in the `Install Location` window.

The `Product-Specific Prerequisite Checks` window appears.

7. In the `Product-Specific Prerequisite Checks` window, the result of checking requirements appears. If there were no problems reported, click `[Next]`.

NOTE

If a problem report message appears, check all the requirements and set them accordingly.

The `Select Configuration Option` window opens.

8. In the `Select Configuration Option` window, select the `Install Software Only` check box, and click `[Next]`.

The `Privileged Operating System Groups` window appears.

9. In the `Privileged Operating System Groups` window, click `[Next]`.

The `Summary` window opens.

10. In the `Summary` window, click `[Install]` to start the installation.
11. When the `Execute Configuration scripts` window appears, follow these steps:
 - a. Open a terminal window.
 - b. Log on as user `root`.
 - c. Run the following two scripts:

```
/opt/oracle/product/11.1.0/root.sh
```

```
/opt/oracle/oraInventory/orainstRoot.sh
```

The following should be displayed for

```
/opt/oracle/product/11.1.0/root.sh:
```

The following environment variables are set as:

```
ORACLE_OWNER= oracle
```

```
ORACLE_HOME= /opt/oracle/product/<version>
```

In this instance, <version> is the Oracle Database version, 11.1.0.

Use the default values.

The following should be displayed for

```
/opt/oracle/oraInventory/orainstRoot.sh:
```

```
Changing permissions of /opt/oracle/oraInventory to 770.
```

```
Changing groupname of /opt/oracle/oraInventory to  
oinstall.
```

```
The execution of the script is complete.
```

- d. Return to the Execute Configuration scripts window, and click [OK] to continue.

The End of Installation window opens.

12. In the End of Installation window, you can verify installed Oracle products.

Click [Exit] when you finish the verification.

13. Install 11.1.0.7 Patch Set or later for the Oracle Database Server for HP-UX 11i v3 on HP Integrity. For detailed information about installing the Patch Set for the Oracle Database Server, see the Oracle product documentation.

Installing the HPOM Software on the Management Server System

This section describes how to install the HPOM software on the management server using the HPOM installation program, `ovoinstall`.

NOTE

HP-UX 11i v3 on HP Integrity is supported with HPOM for UNIX 9.00.

ovoinstall Tool

The `ovoinstall` tool does the following:

- ❑ Collects all information required for the installation and configuration of the HPOM software. For more details, see “Preparing for the Installation of the HPOM Software Using `ovoinstall`” on page 61.
- ❑ Checks for installed operating system patches and lists patches that must still be installed.
- ❑ Checks kernel parameters and disk space requirements.
- ❑ Installs HPOM software on your management server system.
- ❑ Installs HTTPS agent software packages on the HP Operations management server system.
- ❑ Creates the `openview` database and configures the HPOM software.
- ❑ Installs the local agent (if enabled) and deploys the agent configuration to the local agent.
- ❑ Starts the HPOM processes.

IMPORTANT

Do not install HPOM product bundles directly using HP Software Distributor (SD-UX), use `ovoinstall` for the administration of the HPOM software on the HP Operations management server.

Also, it is *not* possible to install HPOM from the software depot server.

Preparing for the Installation of the HPOM Software Using `ovoinstall`

To ensure that the HPOM installation goes smoothly, make sure that all the prerequisites are met.

Before running `ovoinstall`, decide whether you want to do the following:

- Start the database to start automatically every time you restart your system.
- Overwrite the database.

`ovoinstall` also prompts you for the following pieces of information:

- `ORACLE_HOME` value
- `ORACLE_BASE` value
- Destination for Oracle data files and index files
- Database language
- Passwords for the `opc_op` and `opc_report` database users
- Password for the existing database user `system`
- Oracle DBA user
- `ORACLE_SID` value
- Oracle Listener Name
- Oracle Listener Port
- Oracle Net Listener Alias

Running ovoidinstall

Before running `ovoidinstall`, verify whether you are using Network Information Services (NIS) for user or group management. This information is available from the entries for `passwd` and the group in the `/etc/nsswitch.conf` file.

If you are using NIS, keep the following in mind before running the `ovoidinstall` installation script:

- ❑ Make sure that, if the `opc_op` user already exists in the NIS environment, it belongs to the `opcgrp` group. If it does not exist, the `opc_op` user will be created by the `ovoidinstall` script during the HPOM installation.
- ❑ Make sure that the home directories of the `opc_op` and `oracle` users are accessible on the HP Operations management server, and that they are the same as on the NIS server.

If you are not using NIS for user or group management, `ovoidinstall` automatically sets up both groups and users.

You can install the HPOM software on the management server in one of the following ways:

- ❑ **From a DVD-ROM**

See “Preparing for the HPOM Software Installation from a DVD-ROM” on page 63.

- ❑ **Using DVD Images**

See “Preparing for the HPOM Software Installation Using DVD Images” on page 63.

Preparing for the HPOM Software Installation from a DVD-ROM

To prepare for the HPOM software installation from a DVD-ROM, follow these steps:

1. Insert the HPOM server installation DVD into the DVD-ROM drive.
2. Create a directory to mount the DVD-ROM:

```
mkdir /<mount_point>
```

Example:

```
mkdir /dvdrom
```

3. Mount the DVD-ROM:

```
mount -r -F cdfs /dev/<dvdrom_drive_name> /<mount_point>
```

For example, for a local DVD-ROM, you can enter:

```
mount -r -F cdfs /dev/dsk/c0t2d0 /dvdrom
```

You can also run `SMH` and mount the DVD-ROM to a specific path in the `Disks` and `File Systems` window.

Preparing for the HPOM Software Installation Using DVD Images

To prepare for the HPOM software installation using DVD images, follow these steps:

1. Create a master directory to serve as a holder for the disk subdirectory. It can be, for example, the `/tmp` directory.
2. Create the `HPOMDVD` directory as a subdirectory of the master directory.
3. Store the content of the HPOM installation DVD in this directory.

Installing and Configuring the HPOM Software on the Management Server

Installing and configuring the HPOM software on the management server is a simple and fast procedure, partly owing to the list of possible options offered after each installation or each configuration step (see Table 2-1).

Table 2-1 Installation Procedure Options

Options	Description
back	Enables returning to the previous step.
exit	Allows you to stop the procedure.
y n ^a	Offers a possibility to answer in the affirmative or in the negative.
"default value"	Allows you to accept the default value.
?	Allows you to gain more information.

a. This option is not available with all procedure steps.

To install and configure the HPOM software on the management server, complete the following steps:

1. Log on as the root user.
2. Make sure that the `LANG` environment variable is set to a UTF-8 locale. For more information about setting the environment variable, see "Configuring Input/Output for Multiple Language Support" on page 46.

To check the setting, enter:

```
echo $LANG
```


3. Start the HPOM installation:

- If you are installing HPOM from a DVD-ROM, enter the following:

```
/<mount_point>/ovoinstall
```

In this instance, *<mount_point>* is a location where the HPOM installation DVD is mounted.

- If you are installing HPOM using the DVD images, enter the following:

```
/<master_directory>/HPOMDVD/ovoinstall
```

For example, if you have created the `/tmp` directory as a master directory, you can start `ovoinstall` by entering the following:

```
/tmp/HPOMDVD/ovoinstall
```

The following text appears:

```
Welcome to the HP Operations Manager for UNIX (HPOM)
installation
```

Press **Enter** to verify that you want the installation procedure to start.

You are prompted to enter the HPOM software package repository location where all server packages are located.

4. Do one of the following:

- Press **Enter** to accept the default repository location.
- Enter the desired location.

`ovoinstall` checks and installs the server setup package, which contains the server installation infrastructure.

Press **Enter** to continue with checking the system.

5. `ovoinstall` checks the following during the system check:

- root user
- LANG
- NLS_LANG
- umask
- Language
- Kernel parameters

Installing the HPOM Software on the Management Server System

- RAM and swap space
- Free disk space
- Operating system patches
- Installed software

NOTE

If the system check returns a `FAILED` value, you can enter `back` and repeat the whole process of checking the system, `exit` to cancel the installation, or `?` to gain more information.

In case of a minimum deviation from the requirements, you can continue with the software installation.

After the system check has returned all `OK` values, press **Enter** to continue.

`ovoinstall` then checks the core component packages, server packages, and agent packages before starting the package installation.

6. After all packages are checked, press **Enter** to continue with the package installation.

NOTE

If any of the required packages fails to be installed, enter `back` and reinstall it.

After all packages are installed, `ovoinstall` installs all updates, and finishes the server software installation.

`ovoinstall` then asks you whether you want to automatically continue with the server software configuration.

7. If you decide to continue, press **Enter**. The following text appears:

```
Welcome to the HP Operations Manager for UNIX (HPOM)
configuration
```

Press **Enter** to continue with checking the system. For system check details, see step 5.

NOTE

If a specific system check is skipped, it means that it has already been checked and is OK.

`ovoconfigure` continues with detecting special environments.

8. When the detection procedure finishes, you must either accept the default settings or customize the following parameters:

Certificate backup password

Determine the password used for certificate backup as well as for certificate restore.

Configure HP Performance Manager

Accept or decline whether the HP Performance Manager is to be configured during the server configuration. The default is `no`.

NOTE

The HP Performance Manager can also be configured after the server configuration.

HP Performance Manager node

Specify the network node and the port of the HP Performance Manager. The answer format is the following:

`<nodename> : <port>`

If you choose not to configure the HP Performance Manager during the HP Operations server configuration, press **Enter** to continue.

The summary of all provided answers appears. To correct any value, type `back`, and set the value to match the required value. After you have checked the data, press **Enter** to continue.

`ovoconfigure` continues as follows:

- Adds the `opc_op` user.
- Creates the Instant-On license.
- Sets the embedded licensing configuration.

9. If adding the `opc_op` user, creating the Instant-On license, or setting the embedded licensing configuration fails to be executed, you can enter `back` and execute it once again, or `exit` to cancel the configuration.

Press **Enter** to continue.

10. Continue by answering the following questions related to the database configuration:

- Configure the database?

The default value is yes.

- Enable the automatic database startup?

The default value is yes.

- Clear and reinitialize the database tables if they already exist?

The default value is yes.

- Set up the database manually?

The default value is no.

This question allows you to choose how to create the database, locally or remotely.

If your answer is `yes`, `ovoconfigure` pauses instead of creating the database, allowing you to manually create the database and configure it by entering `opcdbsetup -p` in another window.

If your answer is `no`, the following question appears:

Configure the database for remote login?

The default answer to this question is `yes`. If you choose the default answer, the database installation program creates an Oracle password file and gives proper rights to the `SYSTEM` database user so that the Oracle Remote Manager (RMAN) can access the database during the execution of backup or restore scripts.

If you answer `no` to this question, you can grant these permissions manually later on.

For detailed information about backing up data on the management server, see the *HPOM Administrator's Reference*.

After you have answered all the above questions, `ovoconfigure` continues with the Oracle Database-related prompts, which are the following:

Oracle Base

The Oracle Database base directory, which is usually the same as the `ORACLE_BASE` variable. The default is `/opt/oracle`.

Oracle Home

The Oracle Database home directory, which is usually the same as the `ORACLE_HOME` variable. The default is `/opt/oracle/product/11.1.0`.

Oracle User

The Oracle user for the HP Operations server database. The default is `oracle`.

Oracle SID

The Oracle SID of the HP Operations server database. The default is `openview`.

NOTE

`ovoinstall` will use this value also as the database name if it has not been created manually. Therefore, the SID value is limited to a maximum length of 8 characters.

Oracle Data Directory

The directory where the HP Operations server database files are stored.

Oracle Index Directory

The directory where the HP Operations server database index files are stored. By default, it is the same as the Oracle data directory.

Oracle User `opc_op` Password

Oracle User `opc_report` Password

Oracle User `system` Password

Oracle DBA User

Installing the HPOM Software on the Management Server System

The default DBA user is `oracle`.

- ❑ Database Character Set (NLS_LANG)

Enter the desired NLS_LANG value in the `<lang>_<region>.AL32UTF8` form. The default value is `american_america.AL32UTF8`.

- ❑ Oracle Listener Name

The default is `LISTENER`.

- ❑ Oracle Listener Port

The default is `1521`.

- ❑ Oracle Net Listener Alias

The default is `ov_net`.

NOTE

The default value, which is one of the possible options, is displayed after each individual prompt. For more information about installation procedure options, see Table 2-1 on page 64.

When the settings are specified, `ovoconfigure` checks the database configuration data, and the summary of all provided answers appears. To correct any value, enter `back`, and set the value to match the required value.

Check the data, and press **Enter** to continue. The following output should be displayed:

```
Database configuration . . . . .
```

The result of the database configuration, which appears after some time, should be OK. If the database configuration has failed, enter `back`, and repeat the procedure.

NOTE

The whole database configuration procedure is written in the log files, which you can view at any time during the database configuration. For more information, see “Viewing the Installation Log Files” on page 73.

After the database configuration is successfully finished, the server initialization starts.

IMPORTANT

If the database configuration fails, you can reconfigure the database by entering one of the following:

- back** If you enter `back`, you will be asked all the above questions related to the database configuration once again.
- repeat** If you enter `repeat`, the answers you have already provided for the database configuration will be reused.

When you enter `back` or `repeat`, you *may be* asked the following two questions:

- Do you want to clear DB tables?

Answer `y` if you want to clear all the tables, but not to drop the whole database, before repeating the database configuration.

- Do you want to completely drop the DB?

Answer `y` if you want to completely drop the database and reconfigure it again.

If you answer `n` to both the above questions, the database is unaffected, and the manual repair is needed.

It is recommended that you answer `n` to the above questions if the database was configured manually or as a remote database. Make sure that you solve the problems manually before starting the database reconfiguration.

During the server initialization, `ovoconfigure` performs the integration into the start-stop sequence and checks the required disk space.

11. Check whether the server add-on packages are ready to be installed, and then press **Enter** to install them.

After they have been installed, continue with the configuration by pressing **Enter**.

ovoconfigure starts the server final configuration, which consists of the following steps:

- opcmmsg (1|3) policy assignment
 - Java GUI configuration
 - Web Server configuration
 - Backup certificates
 - Starting server
 - Installing local agent
 - Distributing configuration to the local agent
12. After installing the HPOM software on the management server, you can check whether the installation was successful. See “Starting HPOM and Verifying the Installation” on page 74 for more information.
13. When the installation and configuration are completed, unmount the DVD-ROM drive by entering:

```
umount /<mount_point>
```

14. Make the HPOM man pages available for users.

Add the `opt/OV/man` directory to the `MANPATH` environment variable by entering:

```
MANPATH=$MANPATH:/opt/OV/man
```

```
export MANPATH
```

NOTE

The `MANPATH` environment variable *must* be set either for the current user by the user in `.profile`, or for all users by the system administrator in `/etc/profile`.

Viewing the Installation Log Files

When `ovoinstall` has finished installing the HPOM software, verify that the installation has been successful by checking the end of the `/var/opt/OV/log/OpC/mgmt_sv/ovoinstall.log` log file. Either open the log file using a text editor or enter:

```
more /var/opt/OV/log/OpC/mgmt_sv/installation.log
```

```
more /var/opt/OV/log/OpC/mgmt_sv/installation.log.verbose
```

You can also check for any errors by viewing the analysis and installation log files during the installation. Enter the following in a new terminal window:

```
tail -f /var/adm/sw/swagent.log
```

Starting HPOM and Verifying the Installation

To verify the HPOM installation, follow these steps:

1. Verify that all HP Operations server services are running by entering the following:

```
/opt/OV/bin/OpC/opcsv
```

An output similar to the following should be displayed:

```
OM Control Management Server status:
```

```
-----
```

```
OMU Action Manager opcactm (13577) is running
OMU BBC Config Adapter opcbcdist (13960) is running
OMU Cert. Server Adapter opccsad (13944) is running
OMU Display Manager opcdisp (13523) is running
OMU TT & Notify Manager opcttnsm (13908) is running
OMU Forward Manager opcfwrwm (13926) is running
OMU Message Manager opcmsgm (13886) is running
OMU Message Receiver (HTTPS) opcmsgrb (13557) is running
OMU Service Engine opcsvcm (13995) is running
OMU Request Sender ovoareqsdr (13541) is running
OMU Service Discovery Server opcsvdisc (14047) is running
OMU HTTPS Communication Proxy opcuhttps (14063) is running
```

```
OV Control Core components status:
```

```
-----
```

```
OV Control ovcd (13504) is running
OV Communication Broker ovbbccb (13505) is running
OV Certificate Server ovcs (13506) is running
```

If the HP Operations server services are not running, you can start them with the following command:

```
/opt/OV/bin/OpC/opcsv -start
```

IMPORTANT

You *must* have a local agent installed to perform steps 2 and 3.

2. Verify that all the HP Operations agent services are running on the management server system by entering the following command:

```
/opt/OV/bin/OpC/opcagt -status
```

An output similar to the following should be displayed:

OVO Managed Node status:

opcmsga	OVO Message Agent	AGENT, EA	(18525)	Running
opcacta	OVO Action Agent	AGENT, EA	(18526)	Running
opcmsgi	OVO Message Interceptor	AGENT, EA	(18527)	Running
opcple	OVO Logfile Encapsulator	AGENT, EA	(18528)	Running
opcmona	OVO Monitor Agent	AGENT, EA	(18529)	Running
opctrapi	OVO SNMP Trap Interceptor	AGENT, EA	(18530)	Running

NOTE

If the HP Operations agent services are not running, you can start them with the following command:

```
/opt/OV/bin/OpC/opcagt -start
```

3. Submit test messages as user `root` by entering:

```
/opt/OV/bin/OpC/utlils/submit.sh
```

This program sends simulated messages to the Message Browser. The number of messages received depends on the configuration of your system. Under normal conditions, you will usually receive at least two messages.

4. To be able to test and use an application configured as Window (Input/Output) from the HPOM User's Assigned Applications window, you will probably have to complete one of the following tasks:

- ❑ As user `root`, set the UNIX password for the default operator `opc_op` for each managed node where you want to use Input/Output applications.

To do this, enter:

```
passwd opc_op
```

NOTE

By default, the `opc_op` user is not allowed to log on to the system (* entry in the password field of `/etc/passwd`).

- ❑ Make sure the `$HOME/.rhosts` file exists on the managed node (`$HOME` is the home directory of the executing user `opc_op` on the managed node). If it does not exist, create it.

Make an entry in `.rhosts` for the `opc_op` user on the managed node. For example:

```
<management_server>.<domain> opc_op
```

It is *not* recommended to keep the `.rhosts` entry in a production environment, as it can represent a security risk.

- ❑ Make sure the `/etc/hosts.equiv` file exists on the managed node. If it does not exist, create it.

Add the hostname of your management server to this file. For example:

```
<management_server>.<domain>.com
```

It is *not* recommended to keep the `/etc/hosts.equiv` entry in a production environment, as it can represent a security risk.

After You Install HPOM

After you have completed the installation of HPOM, decide whether you need to create additional Oracle Database users.

During the initial configuration setup, Oracle creates the default users `sys`, `system`, `outln`, and `dbsnmp`, and gives them default passwords. Depending on the installed Oracle components and the version, you can create additional database users.

These Oracle users are *not* used by HPOM. You can change the password of these Oracle users with the Oracle tool, SQL*Plus.

Example:

```
su - oracle
sqlplus /nolog
connect / as sysdba
alter user system identified by <new_password>
exit
exit
```

Reconfiguring the HPOM Software

If you want to reconfigure the HPOM software, you *must* run the HPOM configuration utility `ovoconfigure` as the `root` user on the management server.

If you want to use a separate system as the database server, first configure the database server system, as described in “Setting Up an Independent Database Server System” on page 131.

To reconfigure the HPOM software, follow these steps:

1. Make sure that the NLS language variable (`NLS_LANG`) is set correctly by entering:

```
export NLS_LANG=american_america.AL32UTF8
```

2. Make sure that the `LANG` environment variable is set to a UTF-8 locale.

For more information, see “Configuring Input/Output for Multiple Language Support” on page 46.

To check the setting, enter:

```
echo $LANG
```

3. Export all Oracle environment variables.

See “Before You Install an Oracle Database” on page 51 for instructions.

NOTE

Make sure that you have set the same `ORACLE_SID` value as the one you specified before running `ovoinstall`.

4. To start `ovoconfigure`, enter:

```
/opt/OV/bin/OpC/install/ovoconfigure
```

Respond to the questions as they are displayed.

The configuration utility asks whether you want to configure your database automatically:

- Enter **y** (yes) to configure your database automatically. This is the recommended method. You are prompted to enter the Oracle system user password.
- Enter **n** (no) if you have already configured your database on an independent database server.

NOTE

If you want to use an independent system as the database server, first configure the database server system as described in “Setting Up an Independent Database Server System” on page 131.

If you have chosen **y**, the configuration continues with the following prompts:

- a. Enter the password of the Oracle Database user `system`.

Do one of the following:

- If you do not have a configured database, press **Enter** for HPOM to create the database and the user `system`.
 - If you want HPOM to use an existing database, enter the password of the Oracle Database user `system`.
- b. You are asked to enter the password for the Oracle Database user `opc_op`.

NOTE

The `opc_op` database user is independent of the operating system user `opc_op`, and the HPOM user `opc_op`.

Enter a password of your choice.

If you need to change this password at a later date, use the `opcdbpwd` command.

CAUTION

Do not change the password in the database directly. HPOM stores the password in an encrypted file. If the password in the database is different from the password in the encrypted file, HPOM *cannot* connect to the database.

- c. You are asked to enter the password for the Oracle Database user `opc_report`.

NOTE

The database user `opc_report` is required for read-only access to the database for report-writing tools.

Enter a password of your choice. This password is not used by HPOM itself. You can change it directly in Oracle at a later time. When changing this password, you also need to change the password in your reporting solution.

- d. You are asked whether you require the automatic startup of the database at the system boot time.

Accept the default: **Yes**

- e. You are asked to choose a data directory for the system table space, the control files, the redo log files, and the HPOM data table spaces.
- f. You are asked to choose an index directory for the HPOM index table spaces.
- g. The database setup utility uses the answers you give to create and configure the database, which can take some time.

The utility performs the following configuration steps:

- Creates and configures the Oracle Database.
- Creates HPOM table spaces and users.
- Creates HPOM tables.
- Loads the initial HPOM configuration into the database.
- Configures Net and starts the Net listener.

The utility then does the following:

- Configures the agent on the management server.
- Configures the web server.
- Verifies the installed HP Operations platform by starting the HP Operations server processes.

3 **Installing the Java Operator GUI**

In This Chapter

This chapter describes how to do the following:

- ❑ Install the HP Operations Manager (HPOM) Java operator graphical user interface (GUI).
- ❑ Configure a web server to use customized icons and background graphics.
- ❑ Access the online documentation.

This chapter assumes that you have already installed the HPOM software, and have a supported web server, as described by the vendor of the server.

Supported Platforms

The HPOM Java GUI was tested *only* on the operating system platforms listed in Table 3-1, and is therefore supported *only* on these operating system platforms.

NOTE

On all operating system platforms not listed in the following table, you run the HPOM Java GUI at your own risk.

Table 3-1

Supported Platforms of the HPOM Java GUI Client

Supported Platforms	Java Application	Java Applet ^a
HP-UX 11i v3 on HP Integrity	yes	yes
Mac OS 10.4 R6 or higher	yes	yes
Red Hat Linux 9.0	yes	yes
Solaris 10 for Sun SPARC Station	yes	yes
Windows 2000 Windows XP Windows 2003 Windows Vista	yes	yes

a. See “Supported Web Browsers” on page 88 for a list of supported web browsers.

CAUTION

Running the HPOM Java GUI on a UNIX platform is *not* recommended because it can lead to performance problems.

Supported Languages

See Table 3-2 for a list of languages into which the HPOM Java operator GUI has been translated.

Table 3-2 Supported Languages of the HPOM Java GUI Client

Supported Platforms	Language
HP-UX 11i v3 on HP Integrity	English Spanish Japanese Korean Simplified Chinese
Mac OS 10.4 R6 or higher	English Spanish Japanese Korean Simplified Chinese
Red Hat Linux 9.0	English Spanish Japanese Korean Simplified Chinese
Solaris 10 for Sun SPARC Station	English Spanish Japanese Korean Simplified Chinese

Table 3-2 Supported Languages of the HPOM Java GUI Client (Continued)

Supported Platforms	Language
Windows 2000	English
Windows XP	Spanish
Windows 2003	Japanese
Windows Vista	Korean
	Simplified Chinese

NOTE

When starting the HPOM Java operator GUI, select the correct locale. The locale influences the sorting, the text display (fonts), and the representation of date and time. It also selects the localized files for your installation.

For example, to start a Spanish Java GUI, select `Spain (Spanish)` in the logon window.

Installation Requirements

This section describes the hardware and software requirements for installing the HPOM Java Operator GUI. It also describes the recommended patches and web browsers supported by the product.

Hardware Requirements

❑ UNIX or Linux

For more information see Chapter 1, “Installation Requirements for the Management Server.”

❑ Windows

The best performance is achieved with a Pentium-based personal computer (PC) with at least 500 Mhz, a minimum of 256 MB RAM, and additional 30MB RAM per GUI session.

Software Requirements

In general, Java Runtime Environment (JRE), version 1.6.0.12 or higher *must* be installed on the system where the HPOM Java GUI will be installed and running. It is recommended that you use JRE version 1.5.0_14 or higher.

For the platforms listed in Table 3-3, the required versions of JRE are included in the HPOM Java GUI installation directory on the management server:

```
/opt/OV/www/htdocs/ito_op/
```

Table 3-3 Bundled JRE Versions

Platform	JRE Version	File name
Windows 2000/XP/2003/Vista	1.6.0.12	ITO_JAVA.exe

NOTE

HPOM delivers JRE 1.6.0.12 only for Windows as a part of the install shield package.

If you want to use the Java GUI on any other operating system, including the HP Operations management server, you must download JRE 1.6.0.12 by yourself. You must also set the `JAVA_DIR` environment variable before using the following script to start the Java GUI:

```
/opt/OV/bin/OpC/ito_op
```

Supported Web Browsers

If you want to run the HPOM Java GUI as an applet from a web browser, or if you want to use the online documentation supplied with the Java GUI, you should have one of the following web browsers installed:

- ❑ Microsoft Windows:
 - Microsoft Internet Explorer 5.5, 6, or 7
 - Mozilla 1.7
- ❑ HP-UX 11i, Sun Solaris, Red Hat Enterprise Linux, and Mac OS:
 - Mozilla 1.7

NOTE

The external browser is the default browser on UNIX, while the default browser on Windows is ActiveX.

Installing the HPOM Java Operator GUI

You can either run the Java operator GUI directly on your management server system, or use HTTP or FTP to transfer the Java GUI binaries from the management server to the system where the GUI will be running.

The HP Operations management server installation automatically installs the HPOM Java GUI binaries into the `/opt/OV/www/htdocs/ito_op/` directory on the management server.

Installation Requirements

Before installing the HPOM Java operator GUI, make sure the following prerequisites are met:

- ❑ Management server system meets all hardware and software requirements described in Chapter 1, “Installation Requirements for the Management Server.”

Note that the `maxfiles` kernel parameter needs to be adjusted to ensure good performance.

- ❑ HPOM software for the management server is installed.
- ❑ JRE 1.6.0.12 *must* be installed on the system where the HPOM Java GUI will be installed and running. See also Table 3-3 on page 87.

The HPOM installation automatically installs and configures a Tomcat Web server on the management server.

To Install HPOM Java GUI through HTTP

To install HPOM through HyperText Transfer Protocol (HTTP), follow these steps:

1. Make sure that all the prerequisites are met as described in “Installation Requirements” on page 86.
2. Make sure that an HTTP server is installed and running.

If you are using the HPOM Tomcat server, make sure the `ovtomcatB` process is running. To check whether the `ovtomcatB` process is running, enter the following:

```
/opt/OV/bin/ovc -status WEB
```

If the `ovtomcatB` process is not running, you can start it by running the following command:

```
/opt/OV/bin/ovc -start WEB
```

3. On the system where the Java GUI will be running, open the following URL in a web browser:

```
http://<management_server>:3443/ITO_OP
```

In this instance, `<management_server>` is the fully qualified hostname of your management server.

4. Follow the instructions given on the web page:
 - If you are running the Java GUI on a PC running Microsoft Windows, download and execute the `ITO_JAVA.exe` file.
 - If you are running the Java GUI on a UNIX-based system, download and untar the `ito_op_install.tar` file. Make sure that you have JRE for your platform installed. The recommended version of JRE is 1.6.0.12 or higher.

To Install HPOM Java GUI through FTP

To install HPOM through File Transfer Protocol (FTP), follow these steps:

1. Make sure that all the prerequisites are met as described in “Installation Requirements” on page 86.

The HP Operations management server installation automatically installs the GUI client binaries in the following directory on the management server:

```
/opt/OV/www/htdocs/ito_op/
```

2. Transferring the files through FTP:

- a. Start the MS-DOS command prompt or a terminal window on the system where the GUI will be installed.
- b. Open an FTP connection to the HP Operations management server by entering:

```
ftp <management_server>
```

In this instance, *<management_server>* is the hostname of your management server.

- c. Make sure that the binary mode is used by entering:

```
bin
```

- d. Change to the directory where the GUI software is located by entering:

```
cd /opt/OV/www/htdocs/ito_op
```

Retrieve the Java GUI executable.

- For a PC-based system, enter:
- For a UNIX-based system, enter:

```
get ITO_JAVA.exe
```

```
get ito_op_install.tar
```

For UNIX-based systems, you *must* download platform-specific JREs from their websites. The recommended version of JRE is 1.6.0.12 or higher.

Close the FTP connection when the files are transferred successfully.

3. Extract the software from the files, enter:

- PC-based system:

```
<drive_letter>:ITO_JAVA.exe
```

This starts the installation wizard that guides you through the installation.

- UNIX-based system:

```
tar xvf ito_op_install.tar
```

To Install HPOM Java GUI on HP-UX 11i or Sun Solaris Systems Other than HP Operations Management Servers

On HP-UX 11i or Sun Solaris systems other than HP Operations management servers, use the HP SD-UX utility `swinstall` to install the Java GUI client.

IMPORTANT

The Software Distributor (SD-UX) utility is supplied with the HP-UX 11i operating system. However, you must install it prior to installing the Java GUI client on Sun Solaris systems.

To install HPOM Java GUI on HP-UX 11i or Sun Solaris systems with `swinstall`, follow these steps:

1. Ensure that all the prerequisites are met as described in “Installation Requirements” on page 86.
2. Enter the commands as stated below for the following languages:

- *English*

```
swinstall -s \  
/<mount_point>/packages/HPOvOUWwwGui.depot \  
HPOvOUsServer.HPOVOUWWWGUI
```

```
swinstall -s \  
/<mount_point>/packages/HPOvOUWwwEng.depot \  
HPOvOUsServer.HPOVOUWWWENG
```

In this instance, `<mount_point>` is a location where the HPOM installation DVD is mounted.

- *Spanish*

```
swinstall -s \  
/<mount_point>/packages/HPOvOUWwwSpa.depot \  
HPOvOUsServer.HPOVOUWWWSPA
```

- *Japanese*

```
swinstall -s \  
/<mount_point>/packages/HPOvOUWwwJpn.depot \  
HPOvOUsServer.HPOVOUWWWJPN
```

Installing the HPOM Java Operator GUI

- *Korean*

```
swinstall -s \  
/ <mount_point>/packages/HPOvOUWwwKor.depot \  
HPOvOUsServer.HPOVOUWWWKOR
```

- *Simplified Chinese*

```
swinstall -s \  
/ <mount_point>/packages/HPOvOUWwwSch.depot \  
HPOvOUsServer.HPOVOUWWWSch
```

Starting the HPOM Java GUI

This section describes how to start the HPOM Java GUI on a PC, on a UNIX-based system, and from a web browser.

NOTE

To log on to the HPOM GUI for the first time, use default users and passwords. The default logon passwords are the following:

- ❑ For administrators: **OpC_adm**
- ❑ For operators: **OpC_op**

The next time you log on, you should change your default password for security reasons. You can change your password again at a later time, but you will not be allowed to set the password back to the default.

If you want to access web pages that start Java 2 applets in a workspace, the Java GUI itself *must* be running as an applet. See “Starting the Java GUI from a Web Browser” on page 97 for more information about starting the Java GUI as an applet.

Make sure you use the proper `LANG` variable when starting the HPOM Java GUI in languages other than English. Starting the Java GUI by using the English locale `C` and then switching to the other language may result in incorrectly displayed accentuated characters in some dialog boxes and in displaying garbage characters in the window title.

ito_op Startup Script

The `ito_op` startup script first reads the environment variables, then evaluates the command line options, and finally the preferences listed in the `itopr` file.

For more information about the `ito_op` script, see the *ito_op(1M)* man page (UNIX), the *ito_op.bat* script (Windows), and the *HPOM Administrator's Reference*.

Starting the Java GUI on a PC

The install shield of the HPOM Java GUI client software installs a desktop shortcut for the GUI.

To start the HPOM Java operator GUI on a PC, follow these steps:

1. Do one of the following:
 - Use the installed desktop shortcut.
 - Enter the following:

```
<drive_letter>:<install_directory>\ito_op.bat
```

The HPOM Java GUI starts and displays a logon screen.

2. Enter the HPOM username and password.
3. Enter the management server hostname.

Starting the Java GUI on a UNIX-based System

To start the HPOM Java operator GUI on a UNIX system, follow these steps:

1. Export the `DISPLAY` environment variable if needed.
2. Enter the following:

```
/opt/OV/www/htdocs/ito_op/ito_op &
```

The HPOM Java GUI is now started and displays a logon screen.

3. Enter the HPOM username and password.

Starting the Java GUI from a Web Browser

NOTE

You do *not* need to install the GUI if you want to start the HPOM Java GUI from a web browser. Simply download the Java applet provided with the GUI client software.

To start the HPOM Java GUI from a web browser, follow these steps:

1. Make sure that all the prerequisites are met as described in “Installation Requirements” on page 86.
2. On the system where the Java GUI will be running, open the following URL in a web browser:

`http://<management_server>:3443/ITO_OP`

In this instance, *<management_server>* is the fully qualified hostname of your management server.

3. Follow the instructions given on this web page for downloading the Java applet.

Starting the Online Documentation

The HTML-based online documentation supplied with the Java GUI is automatically installed on the HP Operations management server. However, before you can access the online help from within HPOM, you *must* configure the HPOM Java GUI to open a web browser at the corresponding URL of the management server.

NOTE

It is recommended that you view the online documentation with Microsoft Internet Explorer (Windows) or Mozilla (UNIX).

You can change your web browser preferences by selecting Edit: Preferences... from the menu bar, then clicking the Web Browser tab in the Preferences dialog box. For details, see the *HPOM Java GUI Operator's Guide*.

To start the HPOM online documentation, in the HPOM Java GUI, select Help: Contents from the menu bar.

The URL for the online documentation is the following:

```
http://<management_server>:3443/ITO_OP/help/\  
<lang>/ovo/html/index.htm
```

For example, in this URL, <lang> is en for English.

The online documentation for the Java GUI is displayed. Use the navigation tree in the left pane to find the topics that interest you, or use the index to search for a specific term.

NOTE

You can change the URL for the online documentation in the Preferences dialog box of the HPOM Java GUI. Select Preferences from the Edit menu to open this dialog box.

Connecting Through a Firewall

If you want to access the HP Operations management server with the HPOM Java GUI from outside a firewall, open port 35211. Port 35211 is the socket used by the Java GUI to connect to the management server.

Configuring the HTTP Server

Install your web server as described in the vendor's documentation and verify that the web server is running properly.

If you want to install and access the HPOM Java GUI, you need to configure your HTTP server. The configuration varies depending on the type of HTTP server.

The following web servers are supported:

- Apache Tomcat (automatically installed and configured with the HPOM installation)
- Netscape
- W3C Jigsaw

This section describes how to configure these web servers for use with the HPOM Java GUI.

To Configure a Netscape Server

To configure Netscape for installing and accessing the HPOM Java GUI, complete the following steps:

1. Select the Netscape server that you want to configure.
2. From Netscape Enterprise Configuration, do the following:
 - a. Click the [Content mgmt] button at the top of the window.
 - b. Select Additional Document Directories from the left side of the window.
 - c. For URL prefix enter:
ITO_OP/
 - d. For Map To Directory enter:
/opt/OV/www/htdocs/ito_op
 - e. Click [OK].
 - f. Click [Save and Apply].

Restart your web server and open the following URL:

```
http://<server_hostname>:3443/ITO_OP/
```

In this instance, *<server_hostname>* is the hostname of your web server, including the domain.

NOTE

If you set the port to a different value than 3443, change the above URL accordingly.

3. Make sure the .exe extension is defined in the following file:

```
/opt/ns-fasttrack/httpd-<server_hostname>/config/  
mime.types
```
4. Add the following line to the file:

```
type=application/octet-stream exts=exe
```

To Configure a W3C Jigsaw Server

To configure a W3C Jigsaw web server for installing and accessing the HPOM Java GUI, complete the following steps:

1. Add the following line to the `httpd.conf` file:

```
Pass /ITO_OP/* /opt/OV/www/htdocs/ito_op/*
```

2. Restart the web server.

3. Open the following URL:

```
http://<server_hostname>/ITO_OP/
```

In this instance, `<server_hostname>` is the hostname of your web server, including the domain.

In This Chapter

This chapter describes how to do the following:

- ❑ Set up automatic startup and shutdown operations for the HP Operations management server services.
- ❑ Start and stop an Oracle Database automatically.
- ❑ Start and stop an Oracle Database manually.
- ❑ Create and configure a database manually.
- ❑ Install HPOM with an independent database server.

Starting and Stopping HPOM Automatically

When you configure HPOM, the startup of the HPOM processes is automatically integrated into the system boot sequence.

The HP Operations management server services are started automatically by the `opcsv -start` command. This service is integrated so that it is executed during the system boot phase. Similarly, HP Operations management server services are automatically shut down by the command `opcsv -stop`.

The `opcsv` command is located in the `/opt/OV/bin/OpC` directory. The `opcsv` command has the following functions:

- opcsv -start** Starts the HP Operations management server processes.
- opcsv -stop** Stops the HP Operations management server processes.
- opcsv -status** Displays detailed status information on the HP Operations management server processes.

The command `opcsv` *does not* start and stop the subagent processes. Subagent communication processes are handled by the `ovc` command, located at `/opt/OV/bin`. If you want to stop the HPOM agent processes, use `ovc -stop AGENT`. If you want to start the HPOM agent processes, use `ovc -start AGENT`.

For more information about the `opcsv` command, see the `opcsv(1M)` man page.

TIP

If you experience communication problems between the HP Operations server and the agents or if the server processes are not correctly informed about configuration changes, restart both the HP Operations management server and the HP Operations agent processes:

```
/opt/OV/bin/ovc -stop SERVER AGENT  
/opt/OV/bin/ovc -start SERVER AGENT
```

Starting and Stopping an Oracle Database Automatically

You can use the HPOM shell script `/sbin/init.d/ovoracle` to ensure a clean, automatic startup and shutdown of an Oracle Database whenever you start or shut down the HP Operations management server. If you choose to start the HP Operations management server processes automatically at the system startup, the Oracle Database *must* be running before HPOM.

The `ovoracle` script is linked to the following:

❑ Startup

`/sbin/rc3.d/S940ov300`

❑ Shutdown

`/sbin/rc1.d/K060ov900`

The option for the automatic startup and shutdown of the database is set in the file:

`/etc/rc.config.d/ovoracle`

You can enable the automatic startup and shutdown of the database by editing the file:

`/etc/rc.config.d/ovoracle`

Change both the `OVORACLE` and `OVORALISTENER` variable to 1, as shown in the following extract from the file:

```
# configure if oracle database should be started
# 0 - do not start
# 1 - start
# default is 0. This may be changed here manually
#
OVORACLE=1
OVORALISTENER=1
```

Starting and Stopping an Oracle Database Manually

If you choose *not* to incorporate the Oracle `startup` and `shutdown` commands in the system boot sequence, you will need to start and stop the database manually as described below. You *must* start the database before starting HPOM and stop the database after stopping HPOM.

Starting an Oracle Database Manually

To start an Oracle Database manually, follow these steps:

1. Switch to user `oracle`:

```
su - oracle
```

2. Set the `ORACLE_HOME` environment variable.

The default is as follows:

```
export ORACLE_HOME=/opt/oracle/product/<version>
```

In this instance, `<version>` is the Oracle Database version 11g (11.1.0).

3. Set the `ORACLE_SID` environment variable.

The default is as follows:

```
export ORACLE_SID=openview
```

4. Run the SQL*Plus tool to administrate the database:

```
<ORACLE_HOME>/bin/sqlplus /nolog
```

5. Enter the following commands at the prompt to start the Oracle Database:

```
connect / as sysdba  
startup  
exit
```

6. Switch back to user `root`:

```
exit
```

Stopping an Oracle Database Manually

To shut down an Oracle Database manually, follow these steps:

1. Switch to user `oracle`:

```
su - oracle
```

2. Set the `ORACLE_HOME` environment variable.

The default is as follows:

```
export ORACLE_HOME=/opt/oracle/product/<version>
```

In this instance, `<version>` is the Oracle Database version 11g (11.1.0).

3. Set the `ORACLE_SID` environment variable.

The default is as follows:

```
export ORACLE_SID=openview
```

4. Run the SQL*Plus tool:

```
<ORACLE_HOME>/bin/sqlplus /nolog
```

5. Enter the following to stop the Oracle Database:

```
connect / as sysdba  
shutdown  
exit
```

6. Switch back to user `root`:

```
exit
```

Native-Language Support in an Oracle Database

This section summarizes the Native-Language Support (NLS) rules followed by an installed Oracle Database.

NOTE

The same character set *must* be used for both the Oracle Database and the environment of the HPOM user interface and server processes. This helps to avoid unnecessary conversions taking place in the Oracle Database. After you install an Oracle Database, you can no longer change the character set.

The character set of the database is determined by the `CHARACTER SET` option of the `CREATE DATABASE` command. When the `opconfig` script creates the database, it determines the character set by evaluating the `LANG` and `NLS_LANG` environment variables. HPOM uses the `AL32UTF8` character set for all languages.

The NLS parameters are controlled by the Oracle environment variable `NLS_LANG` which has the format:

```
<language>_<territory>.<character_set>
```

HPOM uses the following `NLS_LANG` setting:

English language: `american_america.AL32UTF8`

By default, HPOM uses the value of `NLS_LANG` set in the environment.

If `NLS_LANG` is *not* set in the environment, HPOM uses the value specified in the file:

```
/etc/opt/OV/share/conf/ovdbconf
```

HPOM checks the character set of the Oracle Database, and stores this information as part of its configuration. Oracle provides a dynamic database table `v$nls_parameters` that contains the settings for the language and character set parameters.

Environment Variables in an Oracle Database

When starting the HPOM process with a database connection, the following steps are taken to determine the database variables:

1. *ORACLE_HOME* variable is determined.

If *ORACLE_HOME* is set in the environment, this value is used.

If not, HPOM uses the value from the configuration file:

`/etc/opt/OV/share/conf/ovdbconf`

2. *ORACLE_SID* variable is determined.

If *ORACLE_SID* is set in the environment, this value is used.

If not, HPOM uses the value from the configuration file:

`/etc/opt/OV/share/conf/ovdbconf`

3. *NLS_LANG* variable is determined.

If *NLS_LANG* is set in the environment, this value is used.

If not, HPOM uses the value from the configuration file:

`/etc/opt/OV/share/conf/ovdbconf`

4. It is determined whether the *DATABASE* <database> parameter is set using the `ovconfchg` command line tool.

This parameter is used to establish a connection. If set, the *ORACLE_SID* variable is ignored.

For example, if the *DATABASE* `ov_net` line is set using `ovconfchg`, the `opc_op/<password>@ov_net` string is used to connect to the `ov_net` identifier.

5. Connection to the database is established, as described in “Starting and Stopping an Oracle Database Automatically” on page 106.

If *DATABASE* is not used, the `opc_op/<passwd> connect` string is used.

Alternative Database Locations

The following table shows several alternative database installations, describes the location of associated processes, and lists the entries used in the foundation config component (FCC).

Table 4-1 **Alternative Database Locations**

Database Scenario	Entries used in the FCC	Location of Processes
Local Database	DATABASE ov_net	All database, HP Operations management server, and the GUI processes run on the management server. They connect to the database server.
Independent Database Server (See “Setting Up an Independent Database Server System” on page 131.)	DATABASE ov_net	On the database server: <ul style="list-style-type: none"> • Oracle processes On the HP Operations management server: <ul style="list-style-type: none"> • HP Operations server processes • GUI processes

Installing HPOM with a Remote/Manual Database

This section describes how to install and configure HPOM for UNIX to use a remote/manual Oracle Database. It contains the following information:

- ❑ System requirements for Oracle and HPOM. See “Requirements” on page 113.
- ❑ HPOM system limitations. See “Limitations During the HPOM Runtime” on page 114.
- ❑ Instructions for creating and configuring the database for HPOM. See “Creating and Configuring the HPOM Database” on page 115.
- ❑ Instructions for enabling database access on the HP Operations management server. See “Installing HPOM” on page 129.

Requirements

The system requirements for Oracle and HPOM are the following:

❑ Oracle Requirements

Oracle 11g is supported at this time. Oracle Database server and Oracle Database client (on the HP Operations management server) must be of the same version.

The Oracle Database server can be installed and used with HPOM for UNIX on any platform supported by the HP Operations management server.

❑ HPOM Requirements

The following are HPOM requirements:

- Uses a previously created Oracle Database for HPOM.
- Access to the HPOM database should be configured (Oracle Net Services).

Limitations During the HPOM Runtime

During the HPOM runtime, the following limitations apply:

- ❑ For a previously created Oracle Database setup, the same limitations apply as for an independent database server setup.
- ❑ Removing the database or dropping the tablespaces using `opcdbsetup` is not supported. You can remove the database or drop tablespaces manually.

When removing the database manually, remove also the following files from the HP Operations management server when the database is removed:

- `/etc/opt/OV/share/conf/ovdbconf`
- `/etc/opt/OV/share/conf/OpC/mgmt_sv/.opcdbpwd.sec`
- `/etc/opt/OV/share/conf/OpC/mgmt_sv/.opcdbrem.sec`
- ❑ The `mondbfile` policy can only run on the database server. Unassign the `mondbfile` policy from the HP Operations management server policy group and, if an HP Operations agent is running on the database server system, assign the `mondbfile` policy there.
- ❑ The `opcadddbf` tool is not supported.

Creating and Configuring the HPOM Database

Before approaching the HPOM software installation, perform the following pre-installation tasks to be able to use a manual/remote Oracle Database:

- ❑ Creating the HPOM Database
- ❑ Configuring Access to the HPOM Database

Creating the HPOM Database

Creating the HPOM database on the remote database server involves the following actions:

- ❑ Installing Oracle Database on the database server.
- ❑ Creating and configuring the HPOM database.

Before proceeding, verify that your system meets Oracle 11 g requirements:

- ❑ Oracle 11g 11.1.0.7.0
- ❑ Oracle Net Services 11.1.0.7.0
- ❑ SQL * Plus 11.1.0.7.0
- ❑ Oracle Database Patch Set 11.1.0.7.0 or higher

To create and configure the HPOM database on the database server, follow these steps:

1. Log on to the database server as the `oracle` user and start the Database Configuration Assistant. Enter the following command:

```
$ $ORACLE_HOME/bin/dbca
```

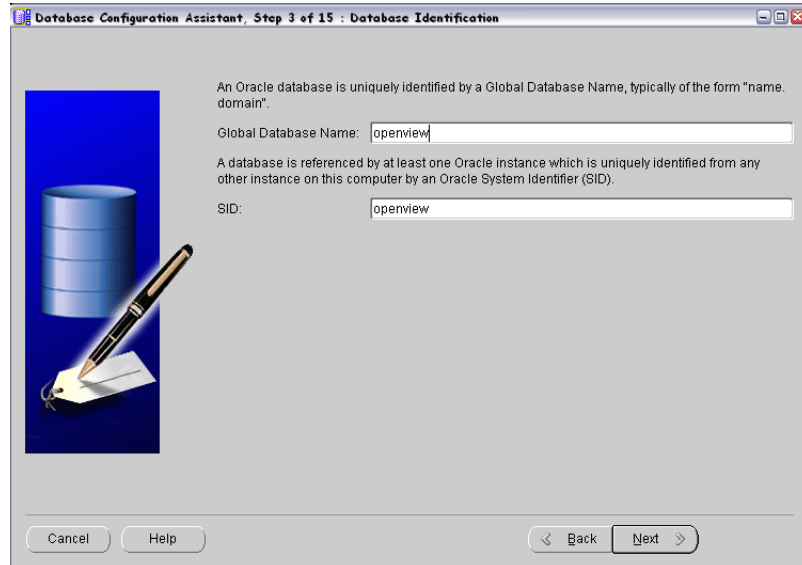
The Welcome dialog box opens.

NOTE

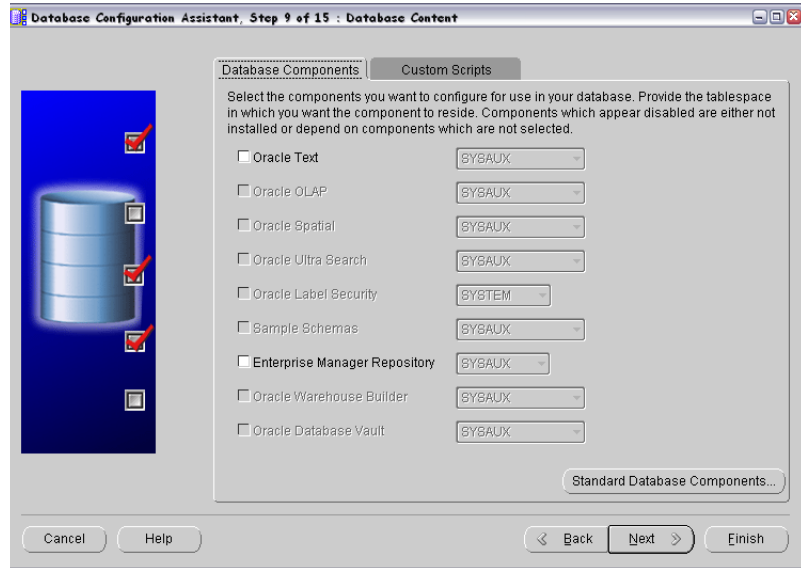
In the process of creating the database using the Oracle Database Creation Assistant, follow the wizard. Not all steps in the wizard are described in this procedure. In all steps, not described below, leave default values or make custom selections that suit your needs.

2. In the Database Templates dialog box select the **Custom Database** template in the list and click [Next].

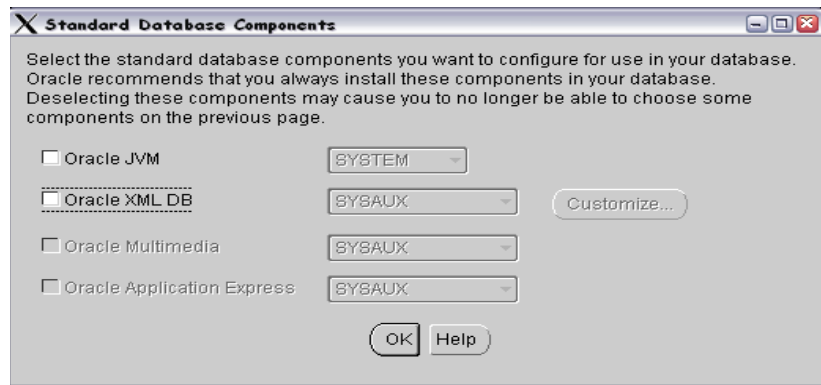
3. In the Database Identification dialog box enter the global database name, and the Oracle System Identifier (global database name, for example: **openview**). Click [Next].



4. In the Database Components dialog box, clear all components.

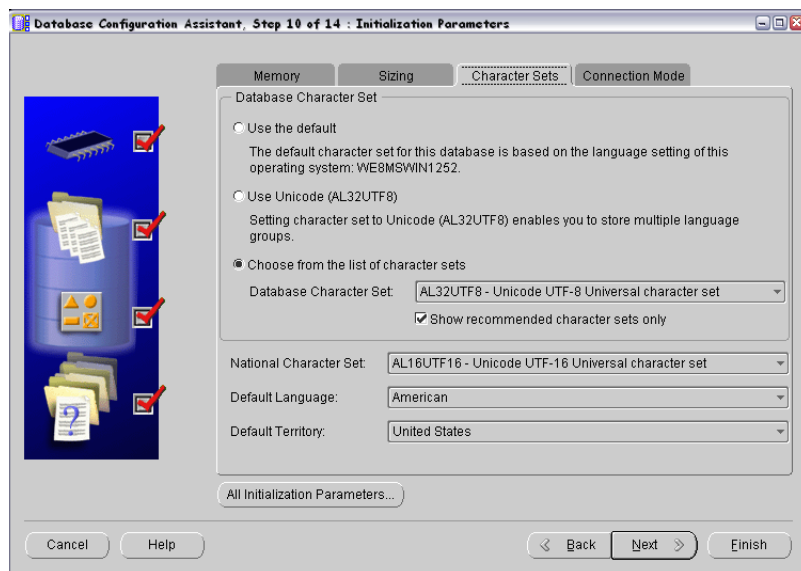


5. Click [Standard Database Components] in the Database Components dialog box and clear all features. Click [OK].



6. In the Connection Mode tab of the Initialization Parameters dialog box, select **Dedicated Server Mode**.

7. In the Character Sets tab of the Initialization Parameters dialog box, select a supported character set and NLS_LANG values. For example, select **AL32UTF8** for the English database.



NOTE

See the *HPOM Administrator's Reference* for more information on supported character sets and NLS_LANG values.

8. Click [All Initialization Parameters] and set initialization parameters according to your needs.

Parameter	Value
db_block_size	16384
diagnostic_dest	/opt/oracle
db_files	80
db_file_multiblock_read_count	16
memory_target ^a	500M

Parameter	Value
log_checkpoint_interval	99999
processes	200
dml_locks	100
log_buffer	1572864
max_dump_file_size	10240
open_cursors	1024
sort_area_size	262144
compatible	11.1.0.0.0

- a. The variable that controls the global memory usage of the HPOM instance. The other variable, `memory_max_target`, allows you to dynamically increase the value of `memory_target`. By default, the `memory_max_target` parameter takes the same value as `memory_target`. If you want to adjust the `memory_target` value without restarting the instance, manually specify a greater value for `memory_max_target`.

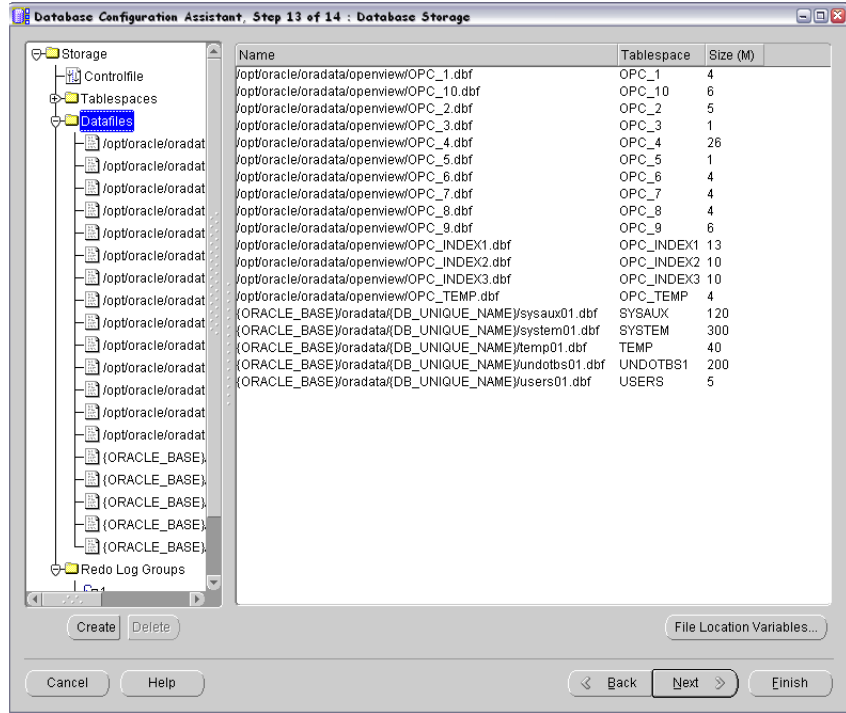
9. Create tablespaces and their datafiles by using the recommended initial sizes. Create the datafiles as autoextend files, so that the datafiles can grow as needed.

Tablespace Name	Tablespace Type	Datafile	
		Size	Next
SYSTEM	Locally managed/permanent	300M	1M
TEMP	Locally managed/permanent (not temporary)	20M	5M
OPC_1	Locally managed/permanent	7M	6M
OPC_2	Locally managed/permanent	7M	6M

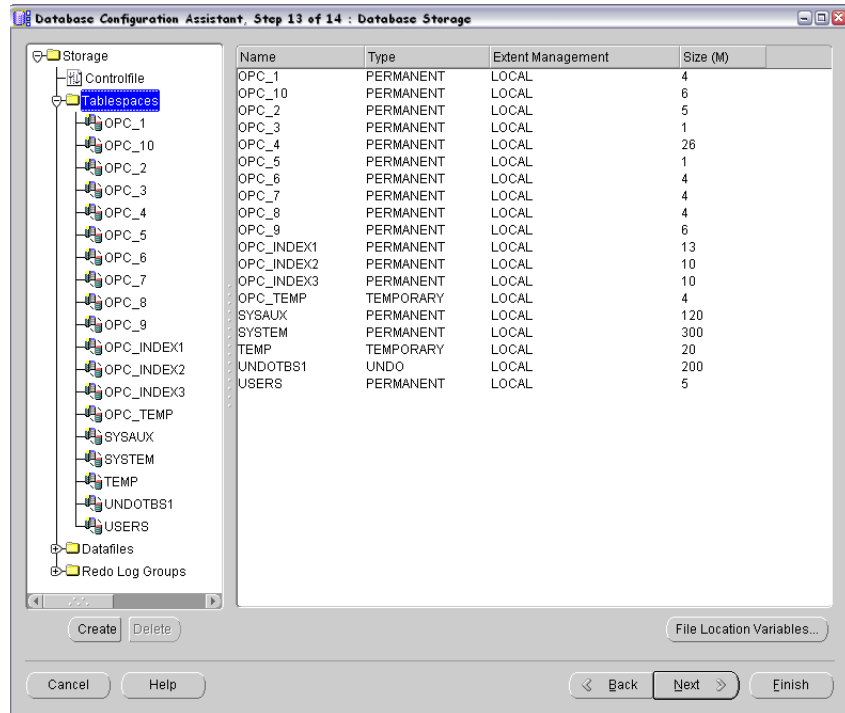
Installing HPOM with a Remote/Manual Database

Tablespace Name	Tablespace Type	Datafile	
		Size	Next
OPC_3	Locally managed/permanent	2M	1M
OPC_4	Locally managed/permanent	26M	2M
OPC_5	Locally managed/permanent	2M	1M
OPC_6	Locally managed/permanent	4M	2M
OPC_7	Locally managed/permanent	4M	2M
OPC_8	Locally managed/permanent	4M	2M
OPC_9	Locally managed/permanent	6M	2M
OPC_10	Locally managed/permanent	7M	6M
OPC_INDEX1	Locally managed/permanent	13M	1M
OPC_INDEX2	Locally managed/permanent	10M	1M
OPC_INDEX3	Locally managed/permanent	10M	1M
OPC_TEMP	Locally managed/temporary	4M	1M

Autoextend can be enabled in the Datafiles list under the Storage tab.



Change the TEMP tablespace type to permanent, and set OPC_TEMP as a default temporary tablespace.



HPOM requires at least 3 redo logs with a size of 20M each. Having more and bigger redo logs may increase the performance. We also recommend that you create mirrored copies of the redo logs on another disk. For more information, see the *HPOM Administrator's Reference*.

10. Click [Next] to create the database. Select the Create Database option and click [Finish].
11. When the database is created, define passwords for users system and sys.

IMPORTANT

Do not forget the passwords you defined. You will need these passwords for HPOM configuration later on for database administration.

Configuring Users, Passwords, and Rights Manually

After you have successfully created the HPOM database using the Database Creation Assistant, manually configure users, passwords, and user rights on the database server. Follow these steps:

1. Log on as the `oracle` user and connect as `sysdba`.
2. Enter the following commands:

```
su - oracle
sqlplus "system as sysdba"
```

3. Enter the password for the `system` user.

This is the password you set when creating the database.

4. Enter the following command to create the `opc_op` user:

```
create user opc_op identified by <password>
default tablespace OPC_5 temporary tablespace OPC_TEMP;
```

For example:

```
create user opc_op identified by pwd123
default tablespace OPC_5 temporary tablespace OPC_TEMP;
```

5. Enter the following command to create the `opc_report` user:

```
create user opc_report identified by <password>
default tablespace OPC_5 temporary tablespace OPC_TEMP;
```

6. Configure user rights for the users you created.

Enter the following commands:

```
create role opc_report_role;

grant create session to opc_report_role;
grant opc_report_role to opc_report;

grant connect,
      resource,
      create public synonym,
      drop public synonym,
      alter tablespace
      to opc_op;

grant create table , create view to opc_op;
```

IMPORTANT

The `opc_report_role` is required and must be created.

7. *Optional:* Configure additional user rights on the database server.

If you want to use the `mondbfile` policy (template) and the `opc_odc` tool, enter the following:

```
create role opc_monitorer;

grant select on v_$datafile to opc_monitorer;
grant select on v_$log to opc_monitorer;
grant select on v_$logfile to opc_monitorer;

grant select on dba_free_space to opc_monitorer;
```

```
grant select on dba_data_files to opc_monitorer;  
grant select on dba_extents to opc_monitorer;  
grant select on dba_tablespaces to opc_monitorer;  
grant select on dba_tables to opc_monitorer;  
  
grant select on dba_indexes to opc_op;  
grant select on dba_ind_columns to opc_op;  
grant select on dba_cons_columns to opc_op;  
grant select on dba_constraints to opc_op;  
  
grant select on v_$parameter to opc_op;  
grant select on v_$sga to opc_op;  
  
grant opc_monitorer to opc_op;
```

IMPORTANT

The `mondbfile` policy can only run on the database server. If the HP Operations agent is running on the database server, you can assign the `mondbfile` policy there.

8. To close `sqlplus`, enter **exit**.

NOTE

During database creation, a window may pop up with the following error displayed:

```
ORA-29807: Specified operator does not exist
```

In that case, click **Ignore** and continue with database configuration.

Configuring Access to the HPOM Database

To configure access to the HPOM database, you need to set up Net Services on the database server. You can either use Oracle tools to configure the Net Services, or create the Net Services manually. You can choose an Oracle Net alias (HPOM default is `ov_net`). You can specify the used Net Services alias when configuring the HP Operations management server.

Creating Net Services Manually

To create the Net Services files manually, follow these steps:

1. Configure Net Services, needed on the database server.

Net files `tnsnames.ora` and `listener.ora` are required. Optionally, you can also configure `tnsnsv.ora` and `sqlnet.ora` files. These files are located in the `$ORACLE_HOME/network/admin` directory. For syntax examples for the `.ora` files, see “Syntax Examples for the `.ora` Files” on page 126.

NOTE

The example files described in “Syntax Examples for the `.ora` Files” on page 126 must be thoroughly followed with new lines, spaces, and tabs.

In all example files, change the hostname and directory path information according to your system settings.

2. Start the listener. As the `oracle` user, enter the following command:

```
lsnrctl start
```

3. After creating the Net Services files, enter the following:

```
su - oracle
sqlplus /nolog
connect /as sysdba
alter system set local_listener = ov_net scope = both;
shutdown immediate
startup
```

Syntax Examples for the `.ora` Files

When configuring Net Services, consider the following example files:

Example 4-1 **Example contents of the tnsnames.ora file**

```
ov_net =
  (DESCRIPTION=
    (ADDRESS_LIST=
      (ADDRESS =
        (COMMUNITY=OPENVIEW_COMMUNITY)
        (PROTOCOL=TCP)
        (HOST=hrabal)
        (PORT=1521)
      )
    )
    (CONNECT_DATA=
      (SID=openview)
    )
  )
```

Example 4-2 **Example contents of the listener.ora file**

```
STARTUP_WAIT_TIME_LISTENER = 0

LOG_DIRECTORY_LISTENER = /opt/oracle/product/11.1.0/network/log

LISTENER =
  (ADDRESS_LIST =
    (ADDRESS = (PROTOCOL = TCP) (HOST = hrabal) (PORT = 1521))
  )

CONNECT_TIMEOUT_LISTENER = 10

TRACE_LEVEL_LISTENER = OFF

LOG_FILE_LISTENER = listener
```

Example 4-3 **Example contents of the tnsnav.ora file**

```
LOCAL_COMMUNITIES =  
    (COMMUNITY_LIST =  
        (COMMUNITY = OPENVIEW_COMMUNITY)  
    )
```

Example 4-4 **Example contents of the sqlnet.ora file**

```
TRACE_LEVEL_CLIENT = OFF  
  
TRACE_DIRECTORY_CLIENT = /opt/oracle/product/11.1.0/network/log  
LOG_DIRECTORY_CLIENT = /opt/oracle/product/11.1.0/network/log
```


Installing HPOM

Before you begin the HPOM installation, verify that your HP Operations management server system meets the following Oracle 11g requirements:

- ❑ Oracle 11g 11.1.0.7.0
- ❑ Oracle Net Services 11.1.0.7.0
- ❑ SQL * Plus 11.1.0.7.0
- ❑ Oracle Database Patch Set 11.1.0.7.0 or higher

To install these products, in the Select Installation Type window, select Custom installation type.

To set up HPOM to use a manual/remote database, follow the HP Operations management server installation procedure, but with exceptions in the procedure as described below.

During the installation procedure, answer the following question:

Do you want to set up the database manually (local/remote) (y|n) :

Answer **y**.

The following text is displayed:

NOTE: Before continuing, perform manual (local/remote) DB configuration

Leave the `ovoconfigure` window open without answering the question. In another window, as the `root` user, install HPOM, as described in “Installing HPOM” on page 129.

IMPORTANT

This procedure replaces the procedure for setting up an independent database server.

1. Install the latest HPOM for UNIX management server patch.
2. Export `ORACLE_HOME`, `ORACLE_SID`, and `LANG` (for an appropriate `LANG` value, see the *HPOM Administrator’s Reference*).
3. Copy the following Net files from the Oracle Database server to the HP Operations management server:

Installing HPOM with a Remote/Manual Database

- `$ORACLE_HOME/network/admin/sqlnet.ora`
- `$ORACLE_HOME/network/admin/tnsnames.ora`
- `$ORACLE_HOME/network/admin/tnsnv.ora`

These files are required on the database server and the HP Operations management server. When you copy the files to the HP Operations management server, check that the directory paths point to the correct locations and modify them if necessary.

NOTE

The `tnsnv.ora` and `sqlnet.ora` files are optional. If you have configured these files on the database server, you should also configure them on the HP Operations management server.

4. Return to the installation window, and press **y** to continue.

NOTE

This step can be done manually by using `opcdbsetup -p`.

5. *Optional:* If you have configured additional user rights on the database server in step 6 while creating the HPOM database, you can run `/opt/OV/contrib/OpC/opc_odc` to verify the database setup (the log file is in `/tmp/opc_odc.log`).

Setting Up an Independent Database Server System

You should set up the Oracle Database and the HP Operations management server on the *same* system. Using the same system reduces the complexity of your computing environment and enables you to use all the HPOM administration tools. However, if the system resources on the HP Operations management server system are *not* sufficient, you may set up an independent database server system. You can use Oracle as the network link between the HPOM system and the database server system.

Before you start to set up an independent database server system, see Chapter 1, “Installation Requirements for the Management Server,” for the *minimum* recommended hardware and software prerequisites.

IMPORTANT

An independent database server system is supported *only* on a system running the same operating system and the same operating system version as used by the system hosting the HP Operations management server. For example, installing the remote Oracle Database on HP-UX 11i v3 on HP Integrity is supported *only* if the HP Operations management server is also on a HP-UX 11i v3 on HP Integrity system.

To set up an independent database server system, follow these steps:

1. Install the following Oracle 11g products on the *database server*:
 - ❑ Oracle11g (11.1.0.7)
 - ❑ Oracle Net Services 11g (11.1.0.7)
2. Install the following Oracle 11.1.0 products on the HP Operations *management server*:
 - ❑ Oracle 11g Client (11.1.0.7)
 - ❑ Oracle Net Services 11g (11.1.0.7)

NOTE

For all Oracle Database versions, all subproducts are required.

To install these products, select Oracle 11g Client 11.1.0.7 in the Available Products window and choose the Custom installation type.

IMPORTANT

Make sure that you install the 11g (11.1.0.7) Patch Set for Oracle Database Server after the Oracle Database installation. For more information on database and patch set installation, see “Installing an Oracle Database” on page 61.

IMPORTANT

Verify that your Oracle Database is properly installed and configured before setting and independent database server system. Ensure you have chosen the correct settings. If not required otherwise, their values should be as recommended. See “Before You Install an Oracle Database” on page 61 for details about the recommended settings.

3. On the database server system and on the HP Operations management server system, create the group `opcgrp` and the user `opc_op`.

The Group ID and the user ID must be same on the database server system and the HP Operations management server system.

You may use `SMH`, the HP-UX system administration tool.

4. Install HPOM on the HP Operations management server system following the installation procedure described in Chapter 2, “Installing HPOM on the Management Server,” on page 43. During the HPOM installation, complete the following additional steps:
 - When `ovoconfigure` asks you whether you want to set up the database manually, enter `yes`.
 - Continue with the installation until the following message is displayed:

NOTE: Before continuing, perform manual (local/remote) DB configuration

When this message is displayed, leave the ovoconfigure window open without answering the question. In a new terminal window, install the latest HPOM for UNIX management server patch. Proceed with configuring the database server system as described in the following procedure.

5. Share the /opt/OV, /etc/opt/OV, and /var/opt/OV directories on the HP Operations management server and assign write access and access for the root user. Perform the following:

- a. Edit the /etc/dfs/dfstab file and enter the following lines:

```
share -F nfs -o rw=<DB server> -d "home dirs" /home  
  
share -F nfs -o ro,rw=<DB server>, \  
root=<DB server> /opt/OV
```

```
share -F nfs -o ro,rw=<DB server>, \  
root=<DB server> /var/opt/OV
```

```
share -F nfs -o ro,rw=<DB server>, \  
root=<DB server> /etc/opt/OV
```

In this instance, <DB server> is the name of the database server machine.

- b. Execute the following command:

```
exportfs -a
```

If the /etc/exports file contains many directories, for performance reasons, run the following command:

```
exportfs /opt/OV /var/opt/OV /etc/opt/OV
```

6. Log on as root on the database server (the system on which you want to run the database).

7. Mount the /opt/OV, /etc/opt/OV, and /var/opt/OV directories from the management server with NFS to the database server.

Make sure that the directory is exported on the management server with write access and access for root:

```
umask 022
```

```
mkdir /opt/OV /etc/opt/OV /var/opt/OV
```

```
mount <mgmt_server>:/opt/OV /opt/OV
```

```
mount <mgmt_server>:/etc/opt/OV /etc/opt/OV
```

```
mount <mgmt_server>:/var/opt/OV /var/opt/OV
```

8. Copy the following scripts that control the automatic database startup from the HP Operations management server to the database server:

```
❑ /etc/rc.config.d/ovoracle
```

```
❑ /sbin/init.d/ovoracle
```

9. On the database server, link the files:

```
❑ ln -s /sbin/init.d/ovoracle /sbin/rc2.d/K060ov900
```

```
❑ ln -s /sbin/init.d/ovoracle /sbin/rc3.d/S940ov300
```

10. Add the values for ORACLE_HOME, ORACLE_SID, and NLS_LANG to /etc/rc.config.d/ovoracle:

```
export ORACLE_HOME=/opt/oracle/product/<version>
```

In this instance, <version> is the Oracle Database version 11g (11.1.0).

```
export ORACLE_SID=openview
```

In this instance, the ORACLE_SID value can be other than openview.

```
export NLS_LANG=american_america.AL32UTF8
```

11. Export the Oracle variables as follows:

```
export ORACLE_HOME=/opt/oracle/product/<version>
```

```
export ORACLE_SID=openview
```

```
export ORACLE_BASE=/opt/oracle
```

```
export NLS_LANG=american_america.AL32UTF8
```

In this instance, <version> is the Oracle Database version 11g (11.1.0).

NOTE

Adding the values for `ORACLE_HOME`, `ORACLE_SID`, and `NLS_LANG` to `/etc/rc.config.d/ovoracle` and exporting the Oracle variables, described in previous two steps, should also be done on the database server.

12. Call `opcdbsetup` on the database server to create and configure the database:

`/opt/OV/bin/OpC/opcdbsetup`

See the `opcdbsetup(1M)` man page for more details.

The program asks whether you want to configure the database. Accept the default values at the prompts. The `opcdbsetup` command automatically configures and starts the listener.

NOTE

When prompted to enter the data and the index directories, accept the recommended value (the same one for both the data and index), for example:

`/opt/oradata/openview`

Do not specify any of the following locations for the data and index directory: `/opt/OV`, `/var/opt/OV`, and `/etc/opt/OV`. Also, the name of the directory must correspond to the `ORACLE_SID` value (`openview` is recommended).

-
13. Copy the following files from the database server to the HP Operations management server:

- `$ORACLE_HOME/network/admin/sqlnet.ora`
- `$ORACLE_HOME/network/admin/tnsnames.ora`
- `$ORACLE_HOME/network/admin/tnsnv.ora`

These files are required on both systems.

14. Wait for the database server system configuration to complete, then press [Enter] in the `ovinstall` window to continue with the HPOM installation.
15. Unmount the `/opt/OV`, `/etc/opt/OV`, and `/var/opt/OV` directories.
16. Exit the database server.

NOTE

If you use a different value for `ORACLE_HOME` on the HP Operations management server and on the database server, edit the value of the `ORACLE_HOME` in the `/etc/opt/OV/share/conf/ovdbconf` shared file on the management server.

17. The command `opcdbsetup` creates symbolic links from the HPOM libraries to the Oracle shared library.

Make sure that the following links exist in the HP Operations management server library directory. If they do not exist, use the following procedure to create them:

```
ln -sf <ORACLE_HOME>/lib32/libclntsh.so \  
/opt/OV/lib/hpux32/libclntsh.so
```

```
ln -sf <ORACLE_HOME>/lib32/libclntsh.so \  
/opt/OV/lib/hpux32/libclntsh.so.1.0
```

```
ln -sf <ORACLE_HOME>/lib32/libclntsh.so \  
/opt/OV/lib/hpux32/libclntsh.so.8.0
```

```
ln -sf <ORACLE_HOME>/lib32/libclntsh.so \  
/opt/OV/lib/hpux32/libclntsh.so.9.0
```

```
ln -sf <ORACLE_HOME>/lib32/libclntsh.so \  
/opt/OV/lib/hpux32/libclntsh.so.10.1
```

```
ln -sf <ORACLE_HOME>/lib32/libclntsh.so \  
/opt/OV/lib/hpux32/libclntsh.so.11.1
```

```
ln -sf <ORACLE_HOME>/lib32/libclntsh.so \  
/opt/OV/lib/hpux32/libopcora.so
```

```
ln -sf <ORACLE_HOME>/lib32/libnnz11.so \  
/opt/OV/lib/hpux32/libnnz11.so
```

18. Reset the name of the HP Operations management server in the database by changing the IP address using the `opc_node_change.pl` script.

Use the following “old name / new name” scheme:

```
/opt/OV/bin/OpC/utlils/opc_node_change.pl -oldname  
OLD_FQDN -oldaddr OLD_IP_ADDR -newname NEW_FQDN -newaddr  
NEW_IP_ADDR
```


Since `opcdbsetup` was run on the database server system, the entry in the database for the HP Operations management server uses the hostname and IP address of the database server system. This is incorrect: the entry needs to be changed to reflect the hostname and IP address of the HP Operations management server itself.

19. Do the following *after* HPOM installation:

- ❑ Change the machine type of the HP Operations management server by using the `opcnode` command line utility if the machine type of the database server and the HP Operations management server are different.
- ❑ Unassign the `mondbfile` policy from the HP Operations management server node, and if an HP Operations agent is running on the database server system, assign the `mondbfile` policy there by using the `opcnode` command line utility.

In This Chapter

This chapter provides file trees showing the hierarchy of the HP Operations Manager (HPOM) directories on the management server.

HPOM File Tree on the Management Server

The layout of the 11.x file system conforms to the standard structure of UNIX system.

The major HPOM directories contain the following:

<code>/opt/OV</code>	All HPOM binaries
<code>/etc/opt/OV</code>	Configuration data
<code>/var/opt/OV</code>	Run-time data

NOTE The file tree can include additional subdirectories if HP Operations agent software or other HP Operations software is installed. For more information on agent file trees, see the *HPOM HTTPS Agent Concepts and Configuration Guide*.

Figure 5-1 File Tree on the Management Server (/opt/OV Branch)

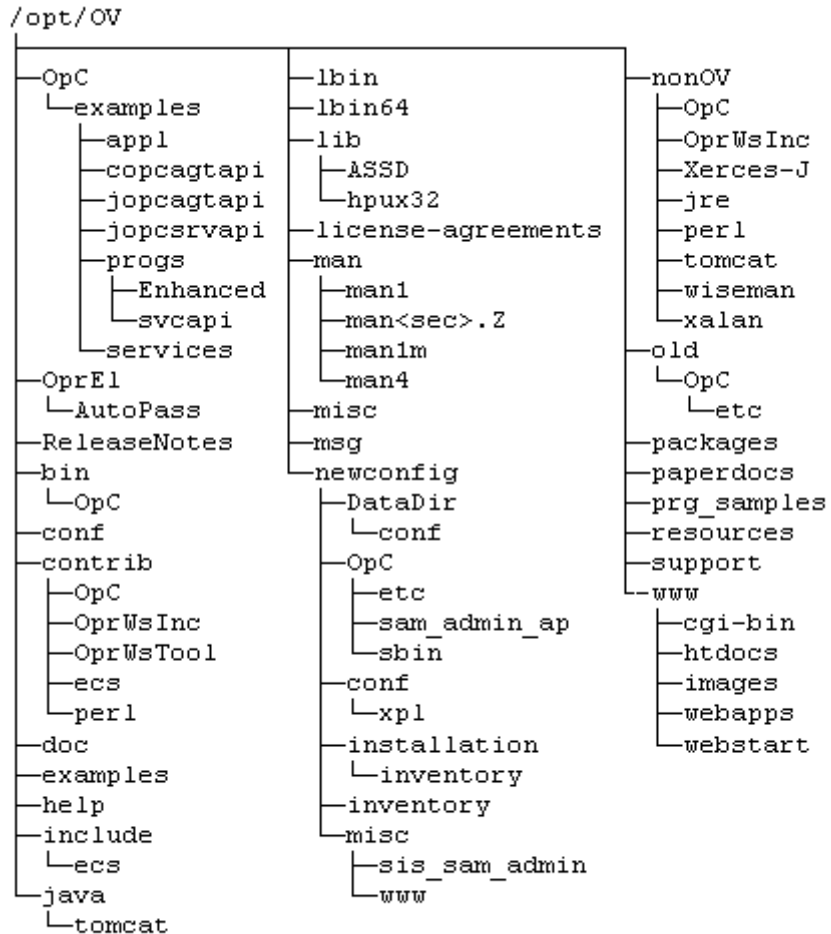
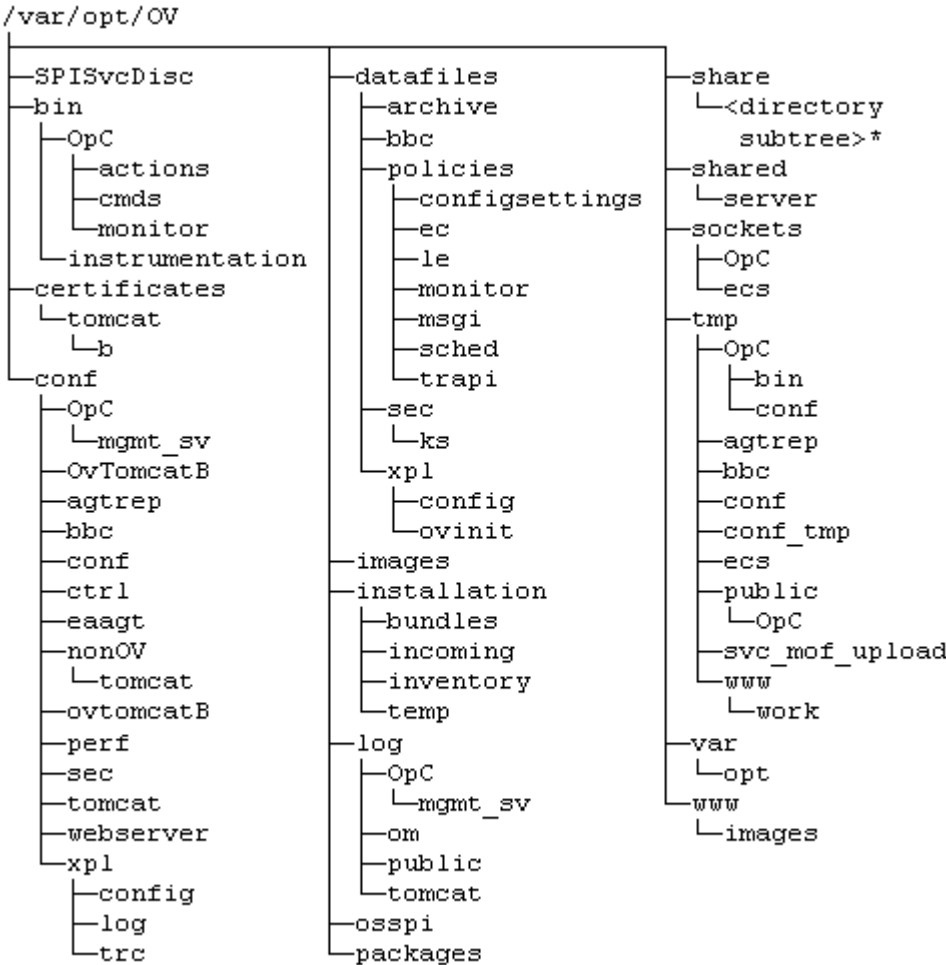
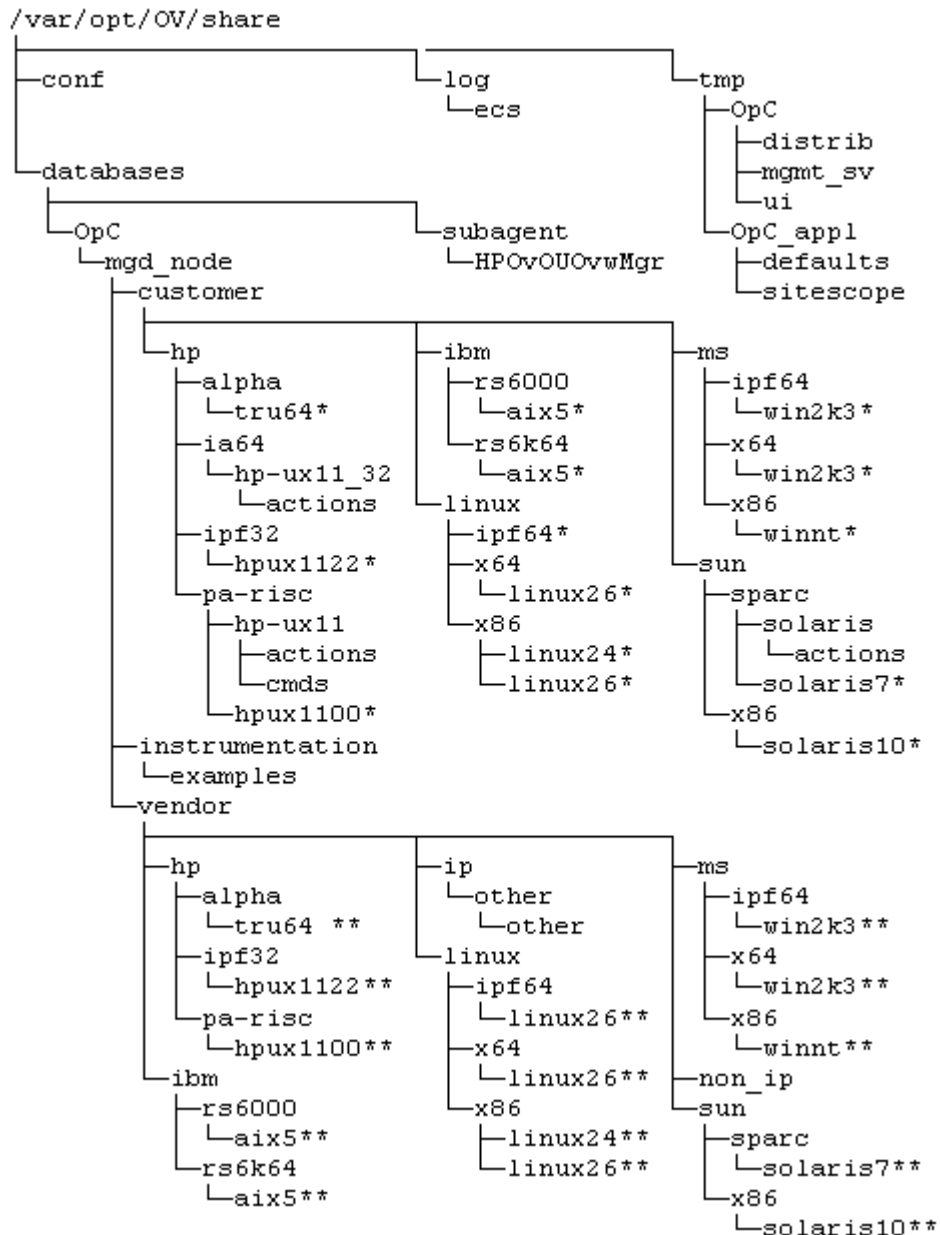


Figure 5-2 File Tree on the Management Server (/var/opt/OV Branch)



* For the directory subtree of the /var/opt/OV/share directory, see Figure 5-3 on page 144.

Figure 5-3 File Tree on the Management Server (/var/opt/OV/share Branch)



* Includes the following customer specific operating system directory subtree:

```
└─<package_type>
  └─actions
  └─cmds
  └─monitor
  └─actions
  └─cmds
  └─monitor
```

** Includes the following vendor specific operating system directory subtree:

```
└─<hpom_version>
  └─<package_type>
    └─actions
    └─cmds
    └─install
    └─monitor
  └─actions
  └─cmds
  └─monitor
```

Where:

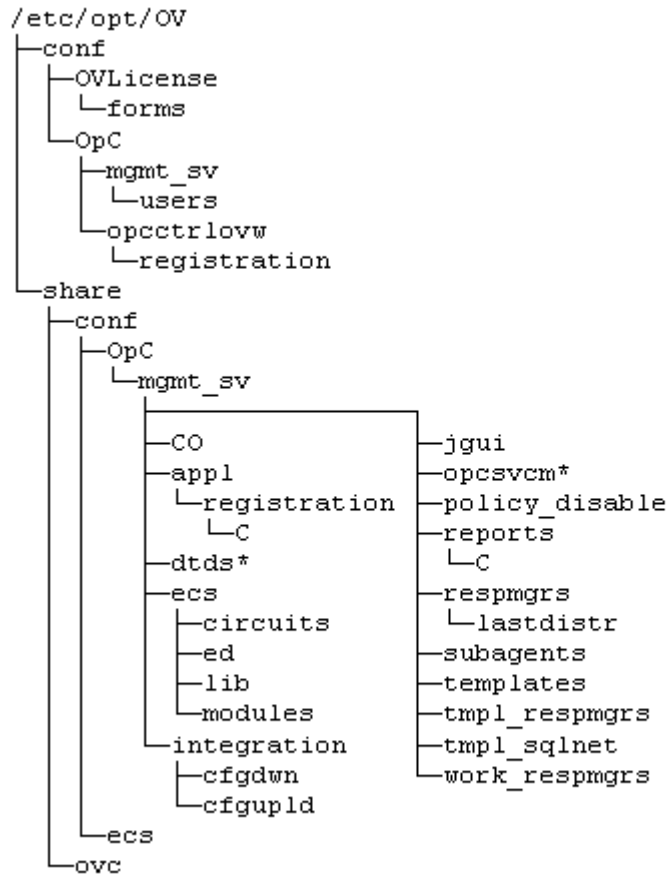
<hpom_version> Version of HPOM that supports a particular agent platform.

HPOM can manage several different HPOM versions for each agent platform.

<package_type> Communication type used by the remote procedure calls (RPC) of a particular agent platform, for example, RPC_BBC.

The customer sub-tree is similar to the vendor subtree, without the HPOM version. You can integrate your additional scripts, including individual scripts and binaries in the **monitor**, **cmds**, and **actions** subdirectories. These files are automatically distributed to the managed node by HPOM.

Figure 5-4 File Tree on the Management Server (/etc/opt/OV Branch)



* Only if Service Navigator is installed.

System Resources Adapted by HPOM

HPOM makes changes in the following system resource files:

- ❑ `/etc/passwd`
Contains the entry for the default HPOM operator.
- ❑ `/etc/group`
Contains the entry for the default HPOM operator.
- ❑ `/etc/services`
Adds the `ito-e-gui` service for the Java-based operator GUI.
- ❑ `/etc/inetd.conf`
Starts the `/opt/OV/bin/OpC/opcuiwww` process when requested.

Directory Structure on the Management Server
HPOM File Tree on the Management Server

In This Chapter

This chapter describes how to do the following:

- ❑ Deinstall HPOM from the management server.
- ❑ Deinstall the HPOM Java-based operator GUI.
- ❑ Reinstall HPOM on the management server.

Deinstalling the Entire HPOM Installation

To deinstall the entire HPOM installation, follow these steps:

1. Log on to the management server as the `root` user.
2. Stop all managed node services by entering the following command:

```
/opt/OV/bin/OpC/opcragt -stop -all
```
3. Deinstall the HPOM software from all the managed nodes, excluding the management server, by using the `inst.sh` script.

Enter the following:

```
/opt/OV/bin/OpC/agtinstall/inst.sh -r
```

4. Check whether any HPOM GUIs are connected to the management server by entering the following command:

```
/opt/OV/contrib/OpC/listguis
```

If there are HPOM GUIs connected to the management server, stop them by selecting [File: Exit]. Alternatively, you can use the `kill(1)` command.

5. To start the HPOM deinstallation, start the `ovoremove` script by entering:

```
/opt/OV/bin/OpC/install/ovoremove
```

NOTE

After you have run the `ovoremove` script, make sure that you refer to the latest edition of the *HPOM Software Release Notes* for the information about the additional steps that you might need to perform.

The following text appears:

Welcome to the HP Operations Manager for UNIX removal
Press **Enter** to verify that you want the removal procedure to start.

NOTE

The whole removal procedure is written in the log files, which you can view at any time during the removal procedure.

Check the following log files for problems you may encounter during the deinstallation:

- /var/opt/OV/log/OpC/mgmt_sv/installation.log
- /var/opt/OV/log/OpC/mgmt_sv/installation.log.error
- /var/opt/OV/log/OpC/mgmt_sv/installation.log.verbose

The `ovoremove` script first detects whether the management server is running as HARG, removes the local agent, stops the management server, and then detects which server add-on packages are installed.

After `ovoremove` has detected which server add-on packages are installed, it asks you whether you want to continue with the removal of server add-on packages.

6. Press **Enter** to accept the default answer (for example, "Y"), or choose one of the answers, which are displayed after each individual removal procedure step.

The `ovoremove` script continues with the removal of the following:

- Server add-on packages
- Web server configuration
- Java GUI configuration
- Database
- Other server configuration
- `opc_op` user
- Deintegration from the start-stop sequence

7. Press **Enter** to continue.

After the `ovoremove` script has detected the installed software (that is, the HP Operations management server), it informs you about the packages and components that will be removed. These are the following:

- ECS composer packages
- Agent packages
- Localization packages
- Server packages
- Core components

The `ovoremove` script then asks you whether you want to continue with the software removal, during which the HP Operations management server is removed.

8. Press **y** to finish the HPOM deinstallation procedure.

To deinstall the Oracle Database, see the documentation supplied by the database vendor.

Deinstalling the HPOM Java-based GUI

If you no longer need the HPOM Java-based operator GUI, you can easily deinstall it.

To Deinstall the Java-based GUI from a PC Client

To deinstall the HPOM Java-based operator GUI from a PC client, follow these steps:

1. Close all running GUIs on the client.
2. Select Start: Settings -> Control Panel. The Windows Control Panel opens.
3. In the Windows Control Panel, double-click the Add/Remove Programs icon.

The Add/Remove Programs Properties dialog box opens.

4. In the Add/Remove Programs Properties dialog box, select HP Operations for UNIX Java Console, and click [Add/Remove...].

To Deinstall the Java-based GUI from an HP-UX 11i Client

To deinstall the HPOM Java-based operator GUI from an HP-UX 11i client, follow these steps:

1. Close all running GUIs on the client.
2. Deinstall the HPOM Java-based GUI interactively by using the `swremove` utility. Enter the following:

```
/usr/sbin/swremove HPOvOUserver.HPOVOUWWWENG
```
3. Check the following log files for problems that may occur during the deinstallation:
 - `/var/adm/sw/swagent.log`
 - `/var/adm/sw/swremove.log`

To Deinstall the Java-based GUI from Other UNIX-based Systems

To deinstall the HPOM Java-based operator GUI from other UNIX-based systems, follow these steps:

1. Close all running GUIs on the client.
2. Remove the `/opt/OV/www/htdocs/ito_op/` directory and its contents.

Reinstalling the HPOM Software

To reinstall the HPOM software, follow these steps:

1. Make a copy of old management server certificates.

Run the following command:

```
/opt/OV/bin/OpC/opcsvcertbackup -backup \  
-passwd <passwd> -file <old_certs>
```

In this instance, *<passwd>* is the user's password and *<old_certs>* is the file with the old management server certificates.

If you have omitted the `-file` option, a `.tar` archive file is created at the following default location:

```
/tmp/opcsvcertbackup.<date_time>.tar
```

2. Make a copy of the old management server OvCoreId.

Run the following command:

```
/opt/OV/bin/ovcoreid -ovrg server > /tmp/mgmtsv_coreid
```

NOTE

Make sure that the old management server OvCoreId and certificates are reused after the HP Operations management server installation. If the old management server certificates and the OvCoreId are not reused, the managed nodes cannot communicate with the management server.

3. Download all configuration data:

- a. Create an empty download specification file:

```
mkdir /tmp/cfgdwn  
echo "*" ;" > /tmp/cfgdwn/download.dsf
```

- b. Download the configuration:

```
/opt/OV/bin/OpC/opccfgdwn /tmp/cfgdwn/download.dsf \  
/tmp/cfgdwn
```

4. *Optional:* To download all messages, follow these steps:
 - a. Perform a history download by entering:

```
/opt/OV/bin/OpC/opchistdwn -older 0s -file \  
/tmp/history
```
 - b. Acknowledge all active messages by running `opcack`:

```
/opt/OV/bin/OpC/opcack -u <user_for_all_msg_grps> \  
-a -f
```
 - c. Perform a second history download by entering:

```
/opt/OV/bin/OpC/opchistdwn -older 0s -file /tmp/active
```
5. Deinstall the current HPOM software by using the `ovoremove` script:

```
/opt/OV/bin/OpC/ovoremove
```

NOTE

After you have run the `ovoremove` script, make sure that you refer to the latest edition of the *HPOM Software Release Notes* for the information about the additional steps that you might need to perform.

6. Install the HPOM software as described in “Installing the HPOM Software on the Management Server System” on page 60.
7. Update the `OvCoreId` and certificates on the new management server:
 - a. Stop all the processes:

```
ovc -kill
```
 - b. Install the certificate backup from the old HP Operations management server:

```
/opt/OV/bin/OpC/opcsvcertbackup -restore \  
-passwd <passwd> -file <old_certs> -force
```

In this instance, `<passwd>` is the user’s password and `<old_certs>` is the file with the old management server certificates.

IMPORTANT

Do not forget to use the `-force` option when installing the certificate backup from the old HP Operations management server.

- c. Update the local agent `OvCoreId` in the database:

```
/opt/OV/bin/OpC/utils/opcnode -chg_id \  
node_name=<local_agent_hostname> \  
id=`cat /tmp/mgmtsv_coreid`
```

To verify that the `OvCoreId` has been correctly updated in the database, run the following command:

```
/opt/OV/bin/OpC/utils/opcnode -list_id \  
node_list=<local_agent_hostname>
```

In this instance, `<local_agent_hostname>` is the hostname of the local agent.

8. Upload configuration data:

```
opccfgupld -replace /tmp/cfgdwn
```

9. If you have downloaded all messages, upload them now:

- a. Upload the active messages from your download:

```
/opt/OV/bin/OpC/opchistupl /tmp/active
```

- b. Unacknowledge the active messages in the History Message Browser and disown them in the Message Browser using the Java GUI.

For detailed information, see the *HPOM Java GUI Operator's Guide*.

- c. Upload the history messages:

```
/opt/OV/bin/OpC/opchistupl /tmp/history
```

10. Restart the HPOM processes:

```
ovc -start
```

11. Check the agent connectivity by entering the following command:

```
opcragt <remote_agent>
```

In this instance, *<remote_agent>* is the hostname of the remote agent.

Reinitializing the HPOM Database and Configuration

If required, you can reinitialize the HPOM database and configuration on the management server after reinstalling the HPOM software.

To reinitialize the database and configuration, follow these steps:

1. If required, deinstall the HPOM software from all the managed nodes as described in the *HPOM Administrator's Reference*.

CAUTION

After you have reinitialized the HPOM database, all the node configuration will be lost. You *must* then reconfigure the nodes.

2. As user `root`, export the Oracle variables as follows:

```
export ORACLE_HOME=/opt/oracle/product/<version>
export ORACLE_BASE=/opt/oracle
```

3. If the software has been deinstalled, reinstall it as described in “Reinstalling the HPOM Software” on page 156.
4. Stop the HP Operations server and agent processes:

```
/opt/OV/bin/OpC/opcsv -stop
/opt/OV/bin/ovc -stop AGENT
```

5. Clean up the database, including the configuration for operators and nodes, and all active and history messages.

Enter:

```
su - root
/opt/OV/bin/OpC/opcdbinit -c [-v]
exit
```

The `opcdbinit` command uses the following modes:

- | | |
|----|---|
| -c | Clean mode. Cleans up tables and loads the default configuration. |
| -v | Verbose mode. Used to show the detailed processing progress. |

- Restart all the HP Operations management server and agent processes by entering:

```
/opt/OV/bin/OpC/opcsv -start
```

```
/opt/OV/bin/ovc -start AGENT
```


In This Chapter

This chapter describes the migration process from one system to another, for example, the migration from HPOM on HP-UX on HP 9000 to HPOM on HP-UX on HP Integrity.

Before starting with the migration, consider the following terms used in this chapter:

- | | |
|-------------------|---|
| Old server | The source management server from which you migrate HPOM. |
| New server | The target management server on which you migrate HPOM. |

Verifying the Installation Requirements for the Management Server

Make sure that the new management server meets at least the minimum system requirements as described in Chapter 1, “Installation Requirements for the Management Server,” on page 25.

As a general rule, you must perform migrations in the following order:

1. Hardware
2. Operating system (including operating system patches)
3. Database
4. HPOM software

HPOM places no restrictions on the number of managed nodes with the 60-day Instant-On license. Ensure that you acquire the correct license for your requirements before the Instant-On license expires.

If you have a product installed that is integrated with the old HP Operations management server (for example, HP Performance Manager), make sure this product is compatible with a newer version of HPOM before starting the HPOM migration process.

See the documentation of the integrated product for information about how to perform the HPOM migration in this situation.

Installing the Oracle Database

To install the Oracle Database on the new management server, follow these steps:

1. Prepare the system for the Oracle Database installation.
For detailed prerequisites and installation steps for the Oracle Database, see “Installing and Verifying an Oracle Database” on page 49.
2. Install and set up the Oracle Database for HP-UX on HP Integrity.
For instructions, see the documentation supplied with the Oracle product.

Migration Scenarios

When migrating from one system to another, you can choose one of the following scenarios:

- ❑ Migration to a System with a Different IP Address and a Hostname
- ❑ Upgrade of the Systems in a MoM Setup by Reusing the IP Addresses and Hostnames

NOTE

You can migrate to a system with the different IP address and the hostname. Alternately, you can upgrade the systems in the MoM setup by reusing the IP addresses and hostnames. Unlike the simple upgrade procedure described in Chapter 8, “Upgrading HPOM to Version 9.00,” these scenarios require almost no operational downtime.

Migration to a System with a Different IP Address and a Hostname

If the hostname and IP address of the new server are different from those of the old server, it is recommended that you configure the new server as a backup server. If you do so, you can migrate to the new server by using the MoM setup. The basics of this scenario are the following:

- ❑ New hardware with a new IP address and a hostname is used for the new server.
- ❑ Can be applied on all HPOM 8.xx setups: the standalone server setup, the MoM setup, and the hardware cluster setup.
- ❑ Depending on the setup, you can switch back to the standalone server setup after the migration process is finished, and shut down the HPOM 8.xx management server.
- ❑ If the old server is to be switched off after the migration process, you can request a new server's permanent license in exchange for the old license (contact the HP Password Delivery Center). In the meantime, you can work on the new server with the 60-day Instant-On license.
- ❑ After setting up the new HPOM 9.00 management server, you can also upgrade the old server to HPOM 9.00 (for example, if a hardware cluster shall be reused).
- ❑ Migration process can almost be performed without operational downtime.
- ❑ Messages can be synchronized in both directions, from the HPOM 8.xx management server to the HPOM 9.00 management server, and vice versa, while the configuration data exchange is only possible from the HPOM 8.xx management server to the HPOM 9.00 management server.
- ❑ Because HPOM 9.00 no longer supports DCE communication, message forwarding between the HPOM 8.xx management server and the HPOM 9.00 management server must be switched to HTTPS.
- ❑ All managed nodes must be updated with the root certificate of the new server.

- ❑ Can also be used for the hardware upgrades of the same HPOM version.

To migrate to the system with the different IP address and hostname, complete these tasks:

- ❑ Task 1: “Downloading the Current HPOM 8.xx Configuration” on page 170
- ❑ Task 2: “Setting Up a New HPOM 9.00 Management Server” on page 172
- ❑ Task 3: “Uploading the Saved HPOM Configuration” on page 174
- ❑ Task 4: “Establishing a Trust Relationship Between the Two Management Servers” on page 176
- ❑ Task 5: “Setting Up Message Forwarding Between the Management Servers” on page 180

NOTE

For detailed information about setting up a backup server, see the *HPOM Concepts Guide*.

Downloading the Current HPOM 8.xx Configuration

NOTE

With HPOM 9.00, templates have been converted to policies. The conversion takes place automatically during the template upload. The version of all newly created policies is set to 1.0, while the version of all HPOM 9.00 delivered default policies is 9.0.

For detailed information about the HPOM policies, see the *HPOM Administrator's Reference* and the *HPOM Concepts Guide*. See also "Converting Templates to Policies" on page 195 for more information about the conversion of templates to policies.

To download the current HPOM 8.xx configuration, follow these steps:

1. Include the service data into the download by entering the following command:

```
/opt/OV/bin/ovconfchg -ovrg server -ns opc -set \  
OPC_OPCCFGDWN_ALL_INCLUDE_SELDIST_SERVICES TRUE
```

2. Create a download specification file for all configuration data:

```
echo "*" ;" > /tmp/download.dsf
```

3. Download the configuration:

```
/opt/OV/bin/OpC/opccfgdwn -force -backup \  
/tmp/download.dsf /tmp/cfgdwn
```

4. If you want to migrate your server configuration settings, store the output of `ovconfget -ovrg server` into a file, and then transfer it to the new server.

The process of downloading the current HPOM 8.xx configuration may be repeated several times during the migration. This is because the configuration changes (for example, adding the new managed nodes) take place in the productive 8.xx environment, and therefore must be synchronized to the new server occasionally.

NOTE

The audit records cannot be migrated from HPOM 8.xx to HPOM 9.00. Download the audit data before migrating HPOM if you want to keep a copy of all audit entries.

NOTE

For detailed information about the message transfer from HPOM 8.xx to HPOM 9.00, see “Setting Up Message Forwarding Between the Management Servers” on page 180.

Setting Up a New HPOM 9.00 Management Server

NOTE

The pure installation of the new server can be done independently of any activities in the productive 8.xx environment.

To set up the new server, follow these steps:

1. Install the HP Operations management server software as described in Chapter 2, “Installing HPOM on the Management Server.”

IMPORTANT

Make sure your system meets the hardware and software requirements for the HPOM 9.00 software installation. For information about the installation requirements, see Chapter 1, “Installation Requirements for the Management Server.”

2. After the new server has been installed, perform the following steps on the old server:
 - a. Add the new server (the backup server) as a managed node on your old server, for example, by using the `opcnode` command line utility:

```
/opt/OV/bin/OpC/Utils/opcnode -add_node \  
node_name=<new_server> group_name=<nodegrp_name> \  
net_type=<network_type> mach_type=<machine_type>
```

For example:

```
opcnode -add_node \  
node_name=omu9server net_type=NETWORK_IP \  
group_name=hp_ux mach_type=MACH_BBC_HPUX_IPF32 \  
node_label=omu9server
```

For more information, see the *opcnode (1M)* man page.

- b. The new server must be added to the node bank of the old server including its `OvCoreID`.

On the new server, enter the following command:

```
/opt/OV/bin/OpC/Utils/opcnode -list_id \  
node_list=<new_server_hostname>
```

On the old server, enter the following command:

```
/opt/OV/bin/OpC/utlils/opcnode -chg_id \  
node_name=<new_server_hostname> \  
id=<new_server_OvCoreId>
```

NOTE

You can verify that the `OvCoreId` has been correctly updated in the database of the HPOM 8.xx management server by running the following command:

```
opt/OV/bin/OpC/utlils/opcnode -list_id \  
node_list=<new_server_hostname>
```

Uploading the Saved HPOM Configuration

To upload the previously saved HPOM 8.xx configuration with `opccfgupld` on the new server, perform as follows:

1. Transfer the saved configuration files to the new server.
2. Stop the HP Operations management server processes:

```
/opt/OV/bin/ovc -stop SERVER
```

In a cluster environment: First disable the HA resource group monitoring by using the following command:

```
/opt/OV/lbin/ovharg -monitor ov-server disable
```

NOTE

Make sure that in the cluster environment the upload is performed on the active node.

3. If you have stored the output of `ovconfget -ovrg server` into a file and transferred it to the new server, perform the following:

- a. Run the following command:

```
/opt/OV/bin/ovconfchg -ovrg server -edit
```

- b. In the editor, merge the configuration.

Make sure that you add only the variables that you have modified, and not all internal HPOM variables. Failing to do so may cause problems with the HP Operations management server installation.

To determine which variables have been modified, enter the following command on the old server:

```
/opt/OV/bin/ovconfchg -ovrg server -edit
```

Then compare this output with the output from the new server.

4. Upload the configuration on the new server:

```
/opt/OV/bin/OpC/opccfgupld -replace -subentity \  
-configured <download_directory>
```

For example:

```
opt/OV/bin/OpC/opccfgupld -replace -subentity \
-configured /tmp/cfgdwn
```

NOTE

With HPOM 9.00, templates have been migrated to policies. The conversion takes place automatically during the template upload. The version of all newly created policies is set to 1.0, while the version of all HPOM 9.00 delivered default policies is 9.0.

5. Verify that the old server is configured on the new server by running the following command:

```
/opt/OV/bin/OpC/Utils/opcnode -list_nodes
```

If the old server is not listed, enter the following:

```
/opt/OV/bin/OpC/Utils/opcnode -add_node \
node_name=<old_server> group_name=<nodegrp_name> \
net_type=<network_type> mach_type=<machine_type> \
id=<old_server_OvCoreId>
```

To get the OvCoreId, enter the following command on the old server:

```
/opt/OV/bin/OpC/Utils/opcnode -list_id \
node_list=<old_server_hostname>
```

6. If the old server is running in an HA cluster and the new server is a standalone server, run the following command on the new server:

```
/opt/OV/bin/OpC/Utils/opcnode -list_virtual \
node_name=<new_server>
```

If a line similar to `cluster_package=ov-server` appears, run the following commands:

```
/opt/OV/bin/OpC/Utils/opcnode \
-set_physical node name=<new_server>
/opt/OV/bin/OpC/Utils/opcnode -list_virtual
```

An output similar to the following should appear:

```
node '<new_server>' is not a virtual one
```

7. Start the HP Operations management server processes:

```
/opt/OV/bin/ovc -start SERVER
```

In a cluster environment: Enable the HA resource group monitoring by using the following command:

```
/opt/OV/sbin/ovharg -monitor ov-server enable
```

Establishing a Trust Relationship Between the Two Management Servers

To establish a trust relationship between the old server and the new server, perform as follows:

1. If the old server has a Certification Authority, which is the default, share the server certificates by exporting the local CA trusted certificates:

```
/opt/OV/bin/ovcert -exporttrusted -file \  
/tmp/<hostname>.cert -ovrg server
```

For detailed information about establishing a shared CA in the MoM environments, see the *HPOM HTTPS Agent Concepts and Configuration Guide*.

2. Copy the file to the new server, and then import certificates:
 - a. Copy the certificate file to the new server.
 - b. Import the certificates from the old server to the new server by entering the following command on the new server:

```
/opt/OV/bin/ovcert -importtrusted -file \  
/tmp/<hostname>.cert -ovrg server
```

NOTE

You can view the current certificates before importing the certificates from the old server to the new server. Enter the following command on the new server:

```
/opt/OV/bin/ovcert -list
```

- c. On the new server, propagate the old server's trusted certificates to the local agent. Enter the following command on the new server:

```
/opt/OV/bin/ovcert -updatetrusted
```


To check whether the additional CA trusted certificate is installed, list the installed certificates by using the following command:

```
/opt/OV/bin/ovcert -list
```

3. Repeat steps 1 and 2 to import the new server's CA trusted certificate to the old server. Perform as follows:

- a. On the new server, enter the following:

```
/opt/OV/bin/ovcert -exporttrusted -file \  
/tmp/<hostname>.cert -ovrg server
```

- b. Copy the file to the old server, and import the certificates there:

```
/opt/OV/bin/ovcert -importtrusted -file \  
/tmp/<hostname>.cert -ovrg server
```

NOTE

Because the file contains all the trusted certificates from the old server, you will receive a warning that the certificate is already installed.

- c. On the old server, propagate the new server's trusted certificates to the local agent. On the old server, enter the following:

```
/opt/OV/bin/ovcert -updatetrusted
```

To check whether the additional CA trusted certificate is installed, list the installed certificates by using the following command:

```
/opt/OV/bin/ovcert -list
```

4. Configure the flexible management policy on the old server:

- ❑ *If you already have the MoM setup:* Add the new server to the `/etc/opt/OV/share/conf/OpC/mgmt_sv/respmgrs/allnodes` file, and then verify the syntax:

```
/opt/OV/bin/OpC/opcmomchk allnodes
```

- ❑ *If you do not have the MoM setup yet:* The system contains several example files, which are located in the following directory:

```
/etc/opt/OV/share/conf/OpC/mgmt_sv/tmpl_respmgrs
```

Create a copy of the backup server example policy, and modify it to reflect your own configuration. To confirm that the file syntax is configured correctly in the new policy file, run the following command:

```
/opt/OV/bin/OpC/opcmomchk policy-filename
```

Name the file `allnodes`, and copy it to the following directory:

```
/etc/opt/OV/share/conf/OpC/mgmt_sv/respmgrs
```

5. Deploy the flexible management policy to all nodes. On the old server, enter the following command:

```
/opt/OV/bin/OpC/opcragt -distrib -templates -all
```

Make sure that you update the trusted certificates on the remote agents. In the Java GUI, mark all the managed nodes, and then start the Update Trusts application in the Certificate Tools application group.

6. On the new server, check whether the agents can be contacted:

```
/opt/OV/bin/OpC/opcragt -status -all
```

Run the command on the old server as well, and then compare its output with the output of the new server.

NOTE

On the old server, you can switch on multiple threading for the `opcragt` command by entering:

```
/opt/OV/bin/ovconfchg -ovrg server -ns opc -set \  
OPCRAGT_USE_THREADS TRUE
```

On the new server, `opcragt` is multiple-threaded by default.

NOTE

The agents, which could not be contacted, are also listed in the following file:

```
/var/opt/OV/share/tmp/OpC/mgmt_sv/opcragt-status-failed
```

7. Copy the `allnodes` file from the old server to the new server. The file location is the following:

```
/etc/opt/OV/share/conf/OpC/mgmt_sv/respmgrs/allnodes
```

8. *Ignore this step at this point.*

Perform this step later if you plan to shut down the old server when the new server is up and running, and the old server is still referenced in the settings.

Change the following configuration variables on all affected agents:

```
sec.core.auth:MANAGER
sec.core.auth:MANAGER_ID
sec.cm.client:CERTIFICATE_SERVER
```

On either of the servers, enter the following:

```
/opt/OV/bin/OpC/opcragt -set_config_var \
sec.cm.client:CERTIFICATE_SERVER= \
<new_server_hostname> <node_list>

/opt/OV/bin/OpC/opcragt -set_config_var \
sec.core.auth:MANAGER= \
<new_server_hostname> <node_list>

/opt/OV/bin/OpC/opcragt -set_config_var \
sec.core.auth:MANAGER_ID= \
<new_server_core_id> <node_list>
```

In this instance, *<node_list>* is usually *-all*.

9. *Ignore this step at this point.*

In the server pooling environments, perform this step when the new server is up and running.

To configure all managed nodes to use the new server as the primary manager, enter the following command on the new server:

```
/opt/OV/bin/OpC/opcragt -primmgr -all
```

10. *Optional:* You can upgrade the managed nodes to the latest version at any time later on. For more information, see “Upgrading Managed Nodes” on page 207.

Setting Up Message Forwarding Between the Management Servers

When the new server is completely functioning, the messages must be synchronized. It is recommended to have a shadow period during which the new server acts as a backup server for the old server. The shadow period can last only several hours, but it can also take days or weeks, depending on the company requirements.

NOTE

Only the new incoming messages are synchronized by using message forwarding. All the messages, which had arrived before the shadow period began, must be handled on the old server.

To set up message forwarding between the servers, perform as follows:

1. Make sure that you prepare the following configuration file on the old server:

```
/etc/opt/OV/share/conf/OpC/mgmt_sv/respmgrs/msgforw
```

- ❑ *If you already have the MoM with message forwarding setup:* Add the new server to the existing `msgforw` file, and then verify the syntax by entering the following command:

```
/opt/OV/bin/OpC/opcmomchk
```

- ❑ *If you do not have the MoM with message forwarding setup yet:* The system contains an example file, which is located in the following directory:

```
/etc/opt/OV/share/conf/OpC/mgmt_sv/tmpl_respmgrs
```

Create a copy of the `msgforw` example policy, and modify it to reflect your own configuration. The following is the excerpt for a two server setup:

```
...
```

```
MSGTARGETRULE
```

```
DESCRIPTION "forward all messages"
```

```
MSGTARGETRULECONDS
```

```
MSGTARGETMANAGERS
```

```
MSGTARGETMANAGER
```

Migration to a System with a Different IP Address and a Hostname

```

TIMETEMPLATE "$OPC_ALWAYS"
OPCMGR IP 0.0.0.0 "<new_server_hostname>"
MSGCONTROLLINGMGR
MSGTARGETMANAGER
TIMETEMPLATE "$OPC_ALWAYS"
OPCMGR IP 0.0.0.0 "<old_server_hostname>"
MSGCONTROLLINGMGR
...

```

IMPORTANT

Both servers must be mentioned in the message target rule, and the MSGCONTROLLINGMGR keyword must be used.

For detailed information, see the *opcmom(4)* man page.

To confirm that the file syntax is configured correctly in the new policy file, run the following command:

```
/opt/OV/bin/OpC/opcmomchk policy-filename
```

Name the file msgforw, and copy it to the following directory:

```
/etc/opt/OV/share/conf/OpC/mgmt_sv/respngrs
```

2. Enable message forwarding on the old server.

Because the new server can only be contacted by using HTTPS communication, enter the following command:

```
/opt/OV/bin/ovconfchg -ovrg server -ns opc -set \
OPC_HTTPS_MSG_FORWARD TRUE
```

For detailed information, see the *HPOM HTTPS Agent Concepts and Configuration Guide*.

3. Activate message forwarding on the old server by restarting the server processes:

```
/opt/OV/bin/ovstop ovoacomm
```

```
/opt/OV/bin/ovstart opc
```

4. Check message forwarding:

- a. Create several messages, and check whether they arrive in the GUI connected to the new server.
 - b. Acknowledge the message on the new server, and check whether it is synchronized to the old server.
5. When the agents send the messages directly to the new server, set up message forwarding on the new server as well.

You can do this by reusing the `msgforw` file from the old server:

- a. Copy the `msgforw` file from the old server to the new server, and then put it into the following directory:

```
/etc/opt/OV/share/conf/OpC/mgmt_sv/respmgrs
```

- b. On the new server, enter the following command:

```
/opt/OV/bin/ovconfchg
```

After the shadow period is over, perform as follows:

1. Make sure that the operators start using the new server. For detailed information, see the *HPOM Administrator's Reference*.
2. *Optional:* To download and upload the history messages from the old server to the new server, do the following:

- a. On the old server, enter the following command:

```
/opt/OV/bin/OpC/opchistdown -until \  
<start_of_shadow_period> -file /tmp/history
```

In this instance, `<start_of_shadow_period>` is a timestamp in the `mm/dd/yy` format.

- b. Copy the file to the new server, and enter the following command:

```
/opt/OV/bin/OpC/opchistupl /tmp/history
```

Upgrade of the Systems in a MoM Setup by Reusing the IP Addresses and Hostnames

This scenario uses the concept of the MoM backup server. Therefore, this scenario can only be applied in the MoM setups. While upgrading to HPOM 9.00, one server is put into the maintenance mode and the other server completely takes over. The basics of this scenario are the following:

- ❑ Server IP addresses, hostnames, and certificates are reused.
- ❑ It is not important whether a new hardware is introduced, or the existing hardware is reused - the IP addresses and the hostnames are taken over.
- ❑ Existing permanent license of the HPOM 8.xx management server, which is upgraded to HPOM 9.00, can be reused.
- ❑ Upgrade process can almost be performed without operational downtime.
- ❑ Messages can be synchronized in both directions, from the HPOM 8.xx management server to the HPOM 9.00 management server, and vice versa, while the configuration data exchange is only possible from the HPOM 8.xx management server to the HPOM 9.00 management server.
- ❑ Because HPOM 9.00 does no longer support DCE communication, message forwarding between the HPOM 8.xx management server and the HPOM 9.00 management server must be switched to HTTPS.
- ❑ Agents do not have to be updated because the server's certificates, the private keys, and the `OvCoreId` are reused.
- ❑ Can also be used for the hardware upgrades of the same HPOM version.

NOTE

Because this scenario basically represents a subcase of the upgrade procedure described in Chapter 8, Upgrading HPOM to Version 9.00, only the specifics of the MoM upgrade are described below.

Upgrading the Systems in the MoM Setup by Reusing the IP Addresses and Hostnames

To upgrade the systems in the MoM setup by reusing the IP addresses and hostnames, assume you have server A and server B, and all agents currently report to server A. Then assume that server A shall be upgraded. Continue with completing the following steps:

1. *Ignore this step in the server pooling environments:*

Switch all agents to report to server B. On server B, enter the following command:

```
/opt/OV/bin/OpC/opcragt -primmgr -all
```

2. Make sure that message forwarding between server A and server B is switched to HTTPS communication.

If required, perform the following steps on both servers:

- a. Because the new server can only be contacted by using HTTPS communication, enter the following command:

```
/opt/OV/bin/ovconfchg -ovrg server -ns opc -set \  
OPC_HTTPS_MSG_FORWARD TRUE
```

- b. Restart the processes on both servers:

```
/opt/OV/bin/ovstop ovoacomm
```

```
/opt/OV/bin/ovstart opc
```

- c. Verify that HTTPS-based message forwarding works correctly: send several test messages, and then acknowledge them. Check that the message synchronization works correctly.

3. Stop server A.

From the moment you stop server A, server B starts buffering all messages and message operations. Enter the following command:

```
/opt/OV/bin/ovstop ovoacomm
```

NOTE

During the upcoming upgrade installation of server A, it can happen that server B sends the buffered messages as soon as server A is up.

Upgrade of the Systems in a MoM Setup by Reusing the IP Addresses and Hostnames

4. If server A is to be replaced by a new hardware, back up its certificates and the `OvCoreId`:

```
/opt/OV/bin/OpC/install/opcsvcertbackup -backup \  
-passwd <password> -file <my_cert_backup>
```

In this instance, `<my_cert_backup>` is the file where you backed up the certificates.

5. To upgrade the management server, complete these tasks:
- Task 1: “Downloading the Current HPOM 8.xx Configuration” on page 195
 - Task 2: “Upgrading the Old Version of HPOM” on page 200
 - Task 3: “Installing and Configuring the HPOM Software on the Management Server” on page 64
 - Task 4: “Uploading the Saved HPOM Configuration” on page 203

6. *Ignore this step if the old hardware of server A has been reused:*

If server A has been replaced by a new hardware, the initial installation has generated a new `OvCoreId` and new certificates. Server B cannot forward messages to server A at this point. Therefore, you must reinstall the saved `OvCoreId` and certificates. Enter the following commands:

```
/opt/OV/bin/ovc -kill  
  
/opt/OV/bin/OpC/install/opcsvcertbackup -restore \  
-passwd <password> -file <my_cert_backup> -force
```

In this instance, `<password>` is the same password as you used for backing up the certificates and the `OvCoreId` of server A in step 4, and `<my_cert_backup>` is the file where you backed up the certificates.

It may happen that in the meantime certain configuration changes have been done on server B.

7. Make sure that you synchronize the servers:
- a. On server B, run the following commands:

```
echo "*" :> /tmp/all.dsf  
mkdir /tmp/all
```

```
/opt/OV/bin/OpC/opccfgdwn -backup /tmp/all.dsf \  
/tmp/all
```

- b. On server A, enter the following command:

```
/opt/OV/bin/OpC/opccfgupld -replace -subentity \  
<data_from_B>
```

In this instance, <data_from_B> is the data downloaded from server B.

8. Start the server processes on server A:

```
/opt/OV/bin/ovc -start
```

NOTE

At this point, server B can forward all messages and message operations that have been buffered.

9. *Ignore this step in the server pooling environments:*

Optional: Switch the agents back to server A. On server A, run the following command:

```
/opt/OV/bin/OpC/opcragt -primmgr -all
```

8 Upgrading HPOM to Version 9.00

In This Chapter

This chapter describes the upgrade procedure from HPOM 8.xx to HPOM 9.00 on the same system.

NOTE

You can either upgrade the software on the same system, as described in the following sections, or migrate your HPOM 8.xx data to a new HPOM 9.00 installation on a different system. For detailed information about migrating HPOM, see Chapter 7, “Migrating HPOM.”

Upgrade Overview

To upgrade from HPOM 8.xx to HPOM 9.00 with database customizations, complete these tasks:

- ❑ Task 1: “HPOM Upgrade Restrictions” on page 191
- ❑ Task 2: “Verifying the Installation Requirements for the Management Server” on page 192
- ❑ Task 3: “Backing Up the Current HPOM 8.xx Installation” on page 193
- ❑ Task 4: “Downloading the Current HPOM 8.xx Configuration” on page 195
- ❑ Task 5: “Installing the New Oracle Version” on page 199
- ❑ Task 6: “Upgrading the Old Version of HPOM” on page 200
- ❑ Task 7: “Installing and Configuring the HPOM Software on the Management Server” on page 64
- ❑ Task 8: “Uploading the Saved HPOM Configuration” on page 203
- ❑ Task 9: “Upgrading the HPOM Java Operator UI” on page 206
- ❑ Task 10: “Upgrading Managed Nodes” on page 207

HPOM Upgrade Considerations

When upgrading from HPOM 8.xx to HPOM 9.00, you must consider that with HPOM 9.00 new concepts are introduced. The following list represents a summary of all configuration changes coming with HPOM 9.00.

NOTE

For detailed information about all the below mentioned configuration changes, see the *HPOM Administrator's Reference* and the *HPOM Concepts Guide*.

- ❑ All the data that is downloaded from the HPOM 8.xx database and uploaded to the HPOM 9.00 database will be converted to UTF-8. All input data for command line tools and APIs should be in UTF-8, and no conversion takes place. For more information, see the *HPOM Administrator's Reference*.
- ❑ HPOM 9.00 uses policies instead of templates. See “Converting Templates to Policies” on page 195 for detailed information.
- ❑ Policy groups are used instead of template groups with HPOM 9.00. See the *HPOM Concepts Guide* for more information about policy groups.

With HPOM 9.00, the following features are no longer supported:

- ❑ 8.xx SPIs
HPOM 8.xx SPIs cannot be installed on HPOM 9.00. To download the configuration on HPOM 8.00 and upload it on HPOM 9.00 is supported. SPI policies and instrumentation can be used as with the previous version.
- ❑ Local HPOM integration with NNM on the management server
- ❑ DCE
- ❑ Motif GUI

During the upgrade, you receive warnings about the obsolete features. For details, see “HPOM Upgrade Restrictions” on page 191.

HPOM Upgrade Restrictions

Make sure that you consider the following restrictions when upgrading to HPOM 9.00:

- ❑ If you upgrade HPOM on the same management server system and you have NNM installed on the old system, consider that NNM cannot coexist on the same system with the HP Operations management server. This means that the NNM data relevant to the HPOM 8.xx cannot be used on the HPOM 9.00 management server.

OV Applications and OV Services

During the upgrade procedure, you receive the warnings for all OV Applications and OV Services that are not loaded to the database. For example:

```
NNM Admin Tools
Warning opccfgupld (Configuration Upload) (27187) :
Application "NNM MIB Appl Builder" of type OV_PLATFORM
obsoleted. (OpC50-255)
Warning opccfgupld (Configuration Upload) (27187) :
Application "NNM MIB Browser" of type OV_PLATFORM
obsoleted. (OpC50-255)
```

The similar warning is printed to the `System.txt` file.

- ❑ All node bank entries for DCE nodes are dropped during the upload on HPOM 9.00 because HPOM 9.00 no longer supports DCE. You receive a warning message for each node during the upload.

For example:

```
"0: INF: Mon Apr 6 13:00:28 2009: opccfgupld (9849/1):
[node_lset.scp:2735]: WARNING -
Platform missing for node "dsx3.deu.hp.com".
Node not added to database!!
```

- ❑ Motif GUI functionality is no longer supported with HPOM 9.00. Because HPOM 9.00 no longer uses the Motif GUI operator, the configuration related to Motif GUI operators is dropped during the upload on HPOM 9.00.

Verifying the Installation Requirements for the Management Server

Make sure that the new management server meets at least the minimum system requirements as described in Chapter 1, “Installation Requirements for the Management Server.”

Note which versions of the operating system and the Oracle Database are required to upgrade the HPOM software. As a general rule, you *must* perform upgrades in the following order:

1. Hardware
2. Operating system (including operating system patches)
3. Database
4. HPOM software

HPOM places no restrictions on the number of managed nodes with the 60-day Instant-On license. Ensure that you acquire the correct license for your requirements before the Instant-On licence expires.

If you have a product installed that is integrated into or certified with HPOM 8.xx (for example, HP Performance Manager), make sure this product is compatible with HPOM 9.00 before starting the HPOM upgrade process.

See the documentation of the integrated product for information about how to perform the HPOM upgrade in this situation.

Backing Up the Current HPOM 8.xx Installation

To back up the current HPOM installation, follow these steps:

1. Exit all GUIs.
2. Stop all other applications on the system.
3. Make a full backup of the current installation:

- a. Enter the following:

```
/opt/OV/bin/OpC/opc_backup
```

The system prompts you with the following:

```
Do you want to use the full or configuration backup?  
(f|c) ==>
```

- b. Enter **f** for a *full* backup, which includes the HPOM binaries and the configuration data.

The system prompts you with the following:

```
Do you want to back up another directory, too?  
(y|n) ==>
```

- c. Enter **y** (yes) or **n** (no) as required.

The system prompts you with the following:

```
Please enter the backup destination:
```

- d. Enter a filename for the backup data, for example, `/tmp/opc_backup_full_hpom`, or enter a tape device.
- e. Store the backup data on backup media or a separate system. For more information, see the *opc_backup(1M)* man page.

NOTE

It is strongly recommended that you save the management server certificates and the `OvCoreId` of the HPOM 8.xx management server.

Backing Up Management Server Certificates

To make a copy of the old management server certificates, run the following command:

```
/opt/OV/bin/OpC/opcsvcertbackup -backup \  
-passwd <passwd> -file <old_certs>
```

In this instance, *<passwd>* is the user's password and *<old_certs>* is the file with the old management server certificates.

If you have omitted the *-file* option, a *.tar* archive file is created at the following default location:

```
/tmp/opcsvcertbackup.<date_time>.tar
```

NOTE

Make sure that the old management server `OvCoreId` and certificates are reused after the HP Operations management server installation. If the old management server certificates and the `OvCoreId` are not reused, the managed nodes cannot communicate with the management server.

Downloading the Current HPOM 8.xx Configuration

This section describes the procedure for downloading the current HPOM 8.xx configuration. With HPOM 9.00, a new concept of policy management is introduced, therefore it is very important that you get acquainted with the basics described in “Converting Templates to Policies” on page 195 before continuing with the procedure for downloading the current HPOM 8.xx configuration.

Converting Templates to Policies

Consider the following basics before you download the current HPOM 8.xx configuration:

- ❑ With HPOM 9.00, templates have been converted to policies. The conversion takes place automatically during the template upload. The version of all newly created policies is set to 1.0, while the version of all HPOM 9.00 delivered default policies is 9.0.
- ❑ All HPOM 8.xx template assignments to nodes, node groups, and template groups will point to 1.0 policy versions after the migration to HPOM 9.00.

All HPOM 8.xx template assignments are converted into fix version policy assignments. During the migration from HPOM 8.xx to HPOM 9.00, the `LATEST` and `MINOR_TO_LATEST` assignments are not created.
- ❑ Managed nodes that are mentioned in policies are no longer resolved to node objects in the HPOM 9.00 database. For example, assume that you have specified an action node with the IP address in the template, and now the IP address has been changed in the database. The HPOM 9.00 policy will point to the old IP address, while the HPOM 8.xx template has been updated automatically. For that reason, it is recommended to use node names in policies. If the IP address is used, make sure that you edit all the policies referencing that IP address if it has been changed.
- ❑ All HPOM 8.xx monitor templates are converted into monitor threshold policies during the migration. Although the policies seem to be different in terms of the syntax, they are in fact semantically identical to the templates.

- ❑ During the migration, the template group names containing a slash character (/) or a backslash character (\) are converted to use an underscore character (_) instead. For example, the `SPI for SAP R/3` template group name is renamed to `SPI for SAP R_3`.
- ❑ All assignments of template groups are migrated as described in the following example:

Example 8-1 Migration of All Assignments of Template Groups

Assume that the `G/C` HPOM 8.xx template group is assigned to the `G/A` and `G/B` groups. Now also assume that the `NG` node group has `G/C` assigned, and that the `T` template is assigned to `G/C`.

The following take place during the migration:

- `G/A` is renamed to `G_A`, `G/B` to `G_B`, and `G/C` to `G_C`.
- The `/G_A`, `/G_A/G_C`, `/G_B`, and `/G_B/G_C` policy groups are created.
- The `T` policy (version 1.0) will be assigned to the `/G_A/G_C` and `/G_B/G_C` policy groups.
- The `NG` node group has an assignment to the `/G_A/G_C` and `/G_B/G_C` policy groups.

NOTE

For detailed information about the HPOM policies, see the *HPOM Administrator's Reference* and the *HPOM Concepts Guide*.

Procedure for Downloading the Current HPOM 8.xx Configuration

To download the current HPOM 8.xx configuration, follow these steps:

1. Create a new user or modify an existing user in the User Bank.

This user *must* have full responsibility for *all* message groups and node groups. You will need this user later on to acknowledge all active messages. You can use `opc_adm` for this purpose.

2. Verify that all running Java-based GUIs are stopped.

Enter the following command:

```
ps -eaf | grep opcu
```

3. Stop the HP Operations server processes by entering the following command:

```
/opt/OV/bin/ovstop
```

4. Stop the local agent on the management server by entering the following command:

```
/opt/OV/bin/OpC/opcagt -kill
```

5. *Optional:* To download the service data, enter the following command:

```
ovconfchg -ovrg server -ns opc -set \  
OPC_OPCCFGDWN_ALL_INCLUDE_SELDIST_SERVICES TRUE
```

6. Download all the configuration data:

- a. Create an empty download specification file:

```
echo "*" ;" > /tmp/download.dsf
```

- b. Download the configuration:

```
/opt/OV/bin/OpC/opccfgdwn /tmp/download.dsf \  
/tmp/cfgdwn
```

7. *Optional:* To migrate your active messages, do as follows:

- a. Perform a history download by entering the following command:

```
/opt/OV/bin/OpC/opchistdwn -older 0s -file /tmp/history
```

Downloading the Current HPOM 8.xx Configuration

- b. Acknowledge all active messages by running `opcack` for the user you have previously set up:

```
/opt/OV/bin/OpC/opcack -u <user_for_all_msg_grps> -a -f
```

- c. Perform a second history download by entering the following command:

```
/opt/OV/bin/OpC/opchistdown -older 0s -file /tmp/active
```

8. *Optional:* To migrate your server configuration settings, store the output of `ovconfget -ovrg server` into a file.

Installing the New Oracle Version

The following table contains the operating system and the Oracle Database version supported by HPOM 9.00.

Table 8-1 Supported Oracle Version

HPOM Version	HP-UX 11i Version	Oracle Version
9.00	HP-UX 11i v3 on HP Integrity	11.1.0.7

If you do not use Oracle 11g with HPOM 8.31 or higher, make sure that both versions of the Oracle Database are installed on the management server before upgrading to HPOM 9.00. During the upgrade, the old database is dropped and the new database for HPOM 9.00 is configured.

NOTE

You can remove the old Oracle version from the system after the upgrade if you do not need it.

Detailed information about installing the Oracle Database version is available in the “Installing and Verifying an Oracle Database” section and Oracle product documentation.

NOTE

If the `.profile` file of the Oracle user contains the `ORACLE_HOME`, the `ORACLE_SID`, or the `ORACLE_BASE` variable, configure these variables according to the correct values for the new Oracle version. Otherwise, problems may occur during the installation of Oracle 11g.

Upgrading the Old Version of HPOM

The standard upgrade procedure can be executed with the `ovoupgrade` script that is provided with HPOM 9.00 and is located on the HPOM 9.00 installation DVD (HPOMDVD).

NOTE

Before starting the upgrade procedure, you must remove server add-on packages¹, which will not be removed by the server remove script.

To upgrade the old version of the HP Operations management server software, follow these steps:

1. Back up server certificates and the `OvCoreId`.

Enter the following command:

```
/opt/OV/bin/OpC/opcsvcertbackup -backup
```

2. Run the `ovoupgrade` script. Enter:

```
ovoupgrade
```

You are prompted to enter the HPOM software package repository location where all server packages are located.

3. Press **Enter** if you want to accept the default repository location, or enter the desired location.

The `ovoupgrade` script checks and installs the server setup package.

4. Press **Enter** to continue.

The following text appears:

```
Welcome to the HP Operations Manager for UNIX (HPOM)  
upgrade
```

5. Press **Enter** to continue.

1. The server add-on packages are different products (for example, SPIs), which have been installed additionally, that is, outside the HPOM 8.xx server installation.

The `ovoupgrade` script continues with the old server removal during which the local agent, SPIs, the database, the documentation, the agent software, the server software, and Core components are removed.

An output similar to the following is displayed:

```
Removing old Server
Removing local Agent . . . . . OK
Removing SPIs . . . . . OK
Stopping Server . . . . . OK
Removing database . . . . . OK
Removing documentation . . . . . OK
Removing Agent software . . . . . OK
Removing Server software . . . . . OK
Removing Core components . . . . . OK
```

If the old server removal returns a `FAILED` value, enter `repeat` to repeat the removal.

6. The `ovoupgrade` script continues with removing NNM.

You can choose among the following options:

- Remove NNM Software only.
- Remove NNM Data and Software.
- Help - reprint the option descriptions.

Choose the `Remove NNM Data and Software` option, which removes Network Node Manager log files, configuration files, and the database from your system.

The `ovoupgrade` script then asks you whether you want to continue with removing NNM data and software.

7. To continue, enter `y`.

If you want to check the progress of the removal, run the following command in a separate terminal window:

```
tail -f /var/adm/sw/swagent.log
```

IMPORTANT

Make sure that you do not use the `kill` command or Control-C to stop the removal process because it could result in a system corruption.

After you get the notification of the successful removal of NNM, the following output should be displayed as well:

```
Old Server removal successfully finished
```

8. You can now automatically continue with the server installation and configuration. For detailed information, see “Installing and Configuring the HPOM Software on the Management Server” on page 64.

NOTE

Before installing the HPOM software on the management server, make sure that your system meets the hardware and software requirements for the HPOM 9.00 software installation. For information about the installation requirements, see Chapter 1, “Installation Requirements for the Management Server.”

NOTE

After installing the HPOM software on the management server, make sure that the management server certificates and the `OvCoreId` are identical before and after the installation. If they are not identical, or if they even do not exist, you can reinstall them by entering the following command:

```
/opt/OV/bin/OpC/opcsvcertbackup -restore \  
-passwd <passwd> -file <old_certs> -force
```

In this instance, `<passwd>` is the user’s password and `<old_certs>` is the file with the old management server certificates.

When the management server installation is finished, the HPOM 8.xx configuration can be uploaded to HPOM 9.00. For detailed information about uploading the saved configuration, see “Uploading the Saved HPOM Configuration” on page 203.

Uploading the Saved HPOM Configuration

To upload the previously saved configuration with `opccfgupld`, follow these steps:

1. *In a cluster environment only:* Disable the HA Resource group monitoring by using the command:

```
/opt/OV/sbin/ovharg -monitor ov-server disable
```

2. If you have stored the output of `ovconfget -ovrg server` into a file, perform the following:

- a. Run the command:

```
ovconfchg -ovrg server -edit
```

- b. In the editor, merge the configuration.

Make sure that you add only the variables that you have modified, and not all internal HPOM variables. Failing to do so may cause problems with the server installation.

To determine which configuration settings have been modified, first call `ovconfget -ovrg server` on the HPOM 9.00 installation, and then compare this output with the `ovconfget -ovrg server` output stored from the HPOM 8.xx installation.

3. Stop the HP Operations server processes by entering:

```
/opt/OV/bin/ovc -stop SERVER
```

4. Upload the configuration data:

```
opccfgupld -add -subentity -configured \  
-upgrade <language_subfolder> <download_directory>
```

For example:

```
opccfgupld -add -subentity -configured \  
-upgrade ja_JP.SJIS /tmp/cfgdwn
```

5. After uploading data with `-add -subentity`, you can upload the data with `-replace -subentity` if you exclude the managed nodes:

- a. Copy the index file of the download:

```
download_directory /$LANG/*.idx
```

Example:

```
cp /tmp/cfgdwn/C/cfgdwn.idx /tmp/cfgdwn/C/nonodes.idx
```

- b. Modify the copied index file.

Remove the node bank section from the index file. This is everything from the line:

```
ENTITY NODE_BANK
```

To the semi colon (';') before the node defaults:

```
;
```

```
ENTITY NODE_DEFAULTS *
```

Remove the following line if it exists:

```
CONTENTS *;
```

- c. Upload your configuration data by using the command:

```
opccfgupld -replace -subentity -configured \
-upgrade <old_locale> -index \
<index_file> <upload_directory>
```

In this instance, *<index_file>* is the copied index file of the download.

For example:

```
opccfgupld -replace -subentity -configured \
-upgrade ja_JP.SJIS -index \
/tmp/cfgdwn/C/nonodes.idx /tmp/cfgdwn
```

HPOM 9.00 requires a UTF-8 locale to be used. Because the downloaded data is stored according to the old HPOM locale, the `opccfgupld` command might not find the data if you do not include the `-upgrade <old_locale>` option.

NOTE

With HPOM 9.00, templates have been converted to policies. The conversion takes place automatically during the template upload. The version of all newly created policies is set to 1.0, while the version of all HPOM 9.00 delivered default policies is 9.0.

6. Start the HP Operations server processes by entering:

```
/opt/OV/bin/ovc -start SERVER
```

7. Upload your active messages.

If you have downloaded your active messages, upload them now:

- a. Upload the active messages from your download:

```
/opt/OV/bin/OpC/opchistupl /tmp/active
```

- b. Unacknowledge the active messages in the History Message Browser and disown them in the Message Browser using the Java GUI.

For detailed information, see the *HPOM Java GUI Operator's Guide*.

- c. Upload the history messages:

```
/opt/OV/bin/OpC/opchistupl /tmp/history
```

8. *In a cluster environment only:* Enable the HA Resource group monitoring by running the command:

```
/opt/OV/lbin/ovharg -monitor ov-server enable
```

NOTE

Before enabling the HA Resource group monitoring, make sure that the HP Operations management server is running.

After the upgrade, specific customized configuration files can be restored from the backup, if needed.

Upgrading the HPOM Java Operator UI

To upgrade the HPOM Java GUI, follow these steps:

1. Deinstall any previous version of the HPOM Java GUI from the client system.

For detailed information about deinstalling the Java GUI, see “Deinstalling the HPOM Java-based GUI” on page 154.

2. Install the new version of the HPOM Java GUI on the client system.

For details, see Chapter 3, “Installing the Java Operator GUI.”

Upgrading Managed Nodes

IMPORTANT

The major version of your HP Operations agent software may not be higher than the version of your HP Operations management server software.

To upgrade the managed nodes to a newer version, run the `inst.sh` script by entering the following:

```
/opt/OV/bin/OpC/agtinstall/inst.sh
```

At the beginning, you must enter the system(s) for which software maintenance should be done and the managed node platform.

For detailed information, see the *inst.sh(1M)* man page.

License Migration to HPOM 9.00

Some HPOM 8.xx license passwords are compatible with HPOM 9.00 license passwords, making it possible to move and reuse the passwords when migrating from one HPOM 9.00 system to another or when upgrading from HPOM 8.xx to HPOM 9.00.

License passwords for the Desktop Agent, Tier 0 Agent to Tier 4 Agent and the Target Connector can be reused when migrating from a HPOM 8.x system to HPOM 9.00. Other licenses passwords are either unavailable for HPOM 9.00 or must be moved via the HP Password Delivery Center.

The HPOM server license passwords are not compatible and cannot be moved from HPOM 8.xx to HPOM 9.00.

Prerequisite for License Migration

The IP address on the source and target systems must be the same. If this is not the case, the license passwords will not work on the target system and must be moved via the HP Password Delivery Center.

NOTE

It is possible to install license passwords from systems with a different IP address. However, this does not mean that they are valid on the target system. Validity will be checked during runtime and license passwords without matching IP addresses will be ignored.

License Migration from HPOM 8.xx to HPOM 9.00

To migrate license passwords from one HPOM 9.00 system to another or from HPOM 8.xx to HPOM 9.00, follow these steps:

1. On the source system, copy the license passwords from the HPOM 8.xx source system to a safe place on the target system.

On an HPOM 8.xx system, the license passwords are located in the following file:

```
/var/opt/OV/HPOvLIC/LicFile.txt
```


On an HPOM 9.00 system, the license passwords are located in the file:

```
/var/opt/OV/shared/server/OprEl/AutoPass/LicFile.txt
```

For example, to copy the file, run the following command:

```
# scp /var/opt/OV/HPOvLIC/LicFile.txt \  
<target_sys>:<directory>/HPOM8-LicFile-Backup.txt
```

2. On the HPOM 9.00 target system, import the license passwords from the saved file selectively using the GUI, or non-selectively using the `ovolicence` tool.

Selectively Using the AutoPass GUI

- a. On the target system, run the following command to open the AutoPass GUI:

```
# ovolicence -gui -a OMU
```
- b. In the GUI, select [Install License Key] then [Install/Restore License Key from file].
- c. Click [Browse] to select the License File copied from the HPOM 8.xx source system.
- d. Click [View file contents].
- e. Select your license passwords from the list and click [Install].

Non-Selectively Using the `ovolicence` Tool

On the HPOM 9.00 target system, call the `ovolicence` tool to import the license passwords from the backup file.

Example:

```
ovolicence -i -a HPOM -f \  
<directory>/HPOM8-LicFile-Backup.txt
```

This imports all passwords from the specified files.

Cluster Environment

Since the uploaded configuration does not overwrite the current management server configuration, the part of server configuration for cluster environment will be preserved. No additional server configuration is required.

In This Chapter

This chapter describes the following:

- ❑ Installation and configuration of the HP Operations management server in an HP ServiceGuard environment
- ❑ Deinstallation of the HP Operations management server from cluster nodes
- ❑ Upgrade of the HP Operations management server in an HP ServiceGuard environment

NOTE

See the *HPOM Administrator's Reference* for detailed information about the administration of the HP Operations management server in a cluster environment.

Before proceeding with the installation and configuration of the HP Operations management server in an HP ServiceGuard cluster environment, consider the following HP ServiceGuard cluster terms used in this chapter:

HA Resource Group

Application running in a cluster environment. A high-availability (HA) resource group can simultaneously be a cluster object that represents an application in a cluster. HA resource group is equivalent to a package in the HP ServiceGuard environment.

Volume Group One or more disk drives that are configured to form a single large storage area.

Logical Volume An arbitrary-size space in a volume group that can be used as a separate file system or as a device swap space.

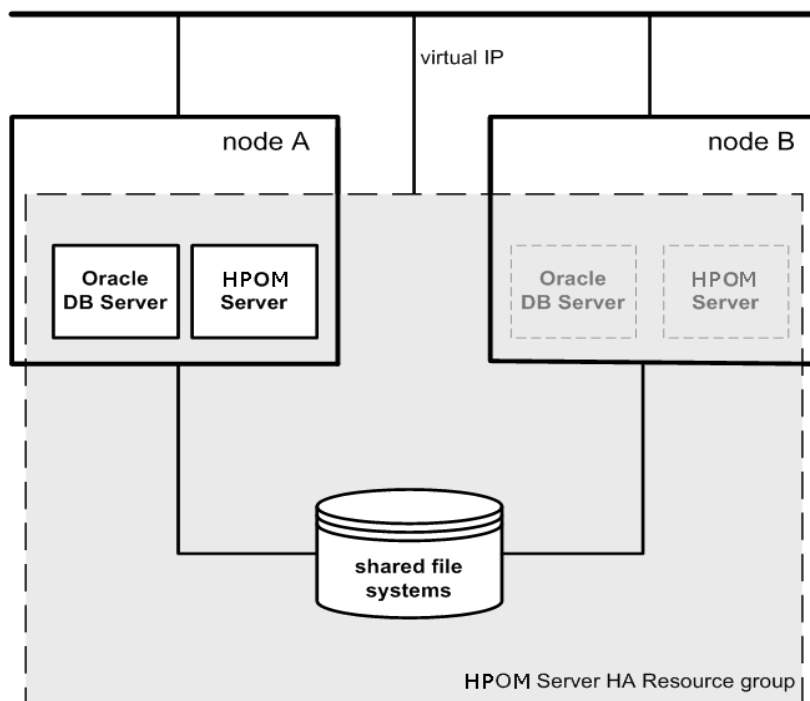
Configuration Scenarios

When installing the HP Operations management server and the Oracle Database server in a cluster environment, you can choose one of the following configuration scenarios:

❑ Basic management server configuration

This is the simplest cluster configuration. You can use all backup and maintenance commands without restrictions.

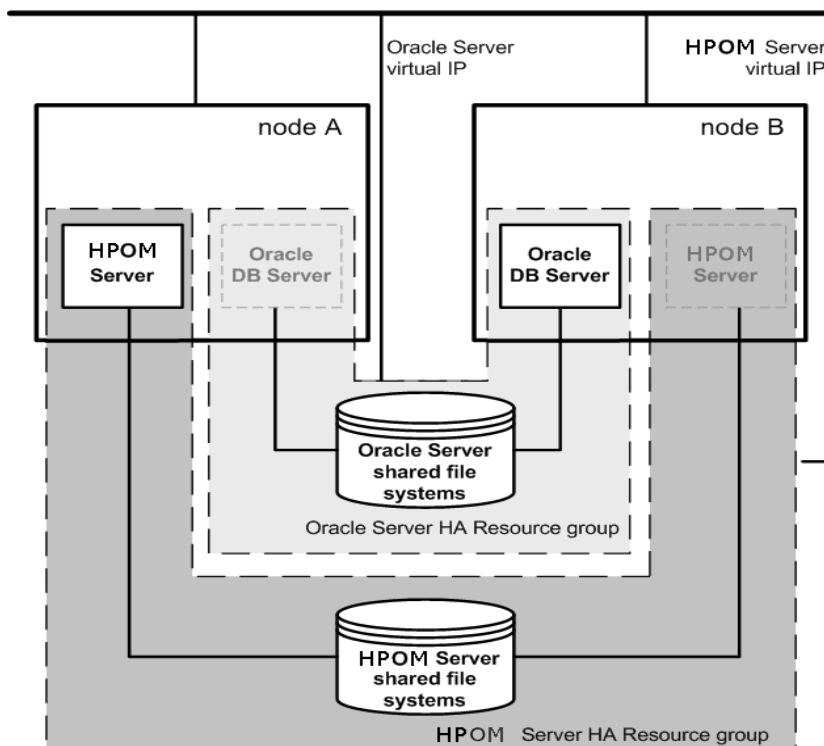
The HP Operations management server and the Oracle Database server are part of the same HA resource group.



❑ **Decoupled management server configuration**

With this setup, you can use both physical nodes with the HPOM HA resource group running on one node and the Oracle Database server resource group on the other node. The HP Operations management server and the Oracle Database server are configured as separate HA resource groups by the HP Operations management server installation scripts. This configuration scenario is also known as 3Tier HP Operations management server configuration in a cluster environment.

The backup scripts have been adapted to work even if the HPOM and Oracle HA resource groups are running on different nodes. But to restore a backup, the HPOM and Oracle HA resource groups must run on the same node.

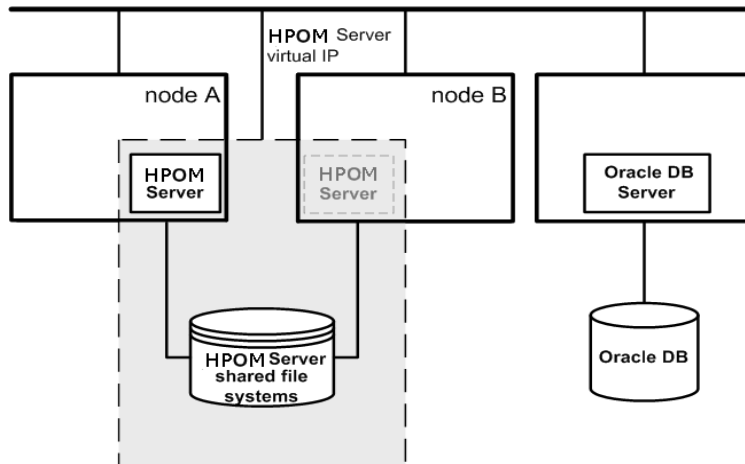


❑ **Independent database server configuration**

Following this scenario, you can use a remote database. The remote database should also run on a cluster. Otherwise the high availability of the HPOM setup is compromised. You may find this scenario useful if you already have a central database server cluster that you also want to use for the HPOM database. With this scenario, on the other hand, you cannot use the HPOM backup scripts.

In exceptional cases, the Oracle Database server can be configured as an independent database server:

Install the Oracle client software on the cluster nodes that are hosting the HP Operations management server. You can install the independent database as a standalone server or as an HA resource group on an independent cluster.



Installation Requirements

To run HPOM in an HP ServiceGuard environment, you *must* meet the following requirements:

- ❑ HP-UX 11i v3 on HP Integrity
- ❑ HP ServiceGuard version 11.18

For additional requirements about installing HPOM, see Chapter 1, “Installation Requirements for the Management Server,” on page 25.

Installation Requirements for an Oracle Database

The Oracle Database (the database binaries) should preferably be installed on a local disk.

In exceptional cases, you can decide to install the Oracle Database server binaries on a shared disk. For the preparation of such an environment, you will need to perform the additional configuration steps that are marked as optional in the configuration procedures.

For more information on installing the Oracle Database server binaries, see “Installing the Oracle Database Server for HPOM in a Cluster Environment” on page 234.

Installing and Configuring the HP Operations Management Server on Cluster Nodes

NOTE

You must complete the following tasks first on the first cluster node, and then on each additional cluster node.

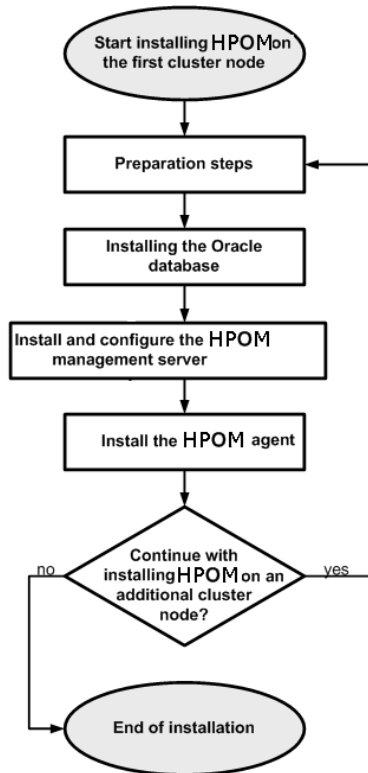
To install and configure the HP Operations management server in a cluster environment, complete these tasks:

- ❑ Task 1: “Before You Install the HP Operations Management Server on the First Cluster Node” on page 220 and
- ❑ Task 2: “Before You Install the HP Operations Management Server on Additional Cluster Nodes” on page 232
- ❑ Task 3: “Installing the Oracle Database Server for HPOM in a Cluster Environment” on page 234
- ❑ Task 4: “To Install and Configure the HP Operations Management Server on Cluster Nodes” on page 242

CAUTION

You cannot install HPOM simultaneously on all cluster nodes. When the installation process is completed on one cluster node, begin the installation on the next node, until HPOM is installed on all the nodes in a cluster environment.

Figure 9-1 **Flow of the HP Operations Management Server Installation and Configuration**



Preparation Steps

Before you start installing and configuring the HP Operations management server on a cluster node, complete these tasks:

- ❑ Task 1: “Before You Install the HP Operations Management Server on the First Cluster Node” on page 220
- ❑ Task 2: “Before You Install the HP Operations Management Server on Additional Cluster Nodes” on page 232

Before You Install the HP Operations Management Server on the First Cluster Node

Before you install the HP Operations management server on the first cluster node, you must perform appropriate preparation procedures depending on the cluster environment you want to configure. Choose one of the following HP Operations management server scenarios:

❑ **Basic environment**

Using this scenario, Oracle and HP Operations server are configured as part of a single HA resource group.

See “Preparation Steps for the First Cluster Node in a Basic Environment” on page 221.

❑ **Decoupled environment**

Using this scenario, Oracle and HP Operations server are separated, Oracle is configured as a separate HA resource group. In this case there are two independent resource groups, one for Oracle and one for the HP Operations management server.

See “Preparation Steps for the First Cluster Node in a Decoupled Environment” on page 225.

❑ **Independent database server**

Using this scenario, the Oracle Database is configured on a node that is not part of the cluster, or on a cluster node independently of the HP Operations management server installation.

See “Preparation Steps for the First Cluster Node in a Cluster Environment Using an Independent Database Server” on page 230.

Preparation Steps for the First Cluster Node in a Basic Environment

I. Installation Prerequisites

Before you install the HP Operations management server in a cluster environment, the following prerequisites must be met:

- ❑ The following must be defined:
 - Define the volume group `ov-vg`, consisting of at least one shared disk for the HA Resource group.
 - Define the following volumes within the `ov-vg` volume group:
 - `ov-volume-etc`
 - `ov-volume-var`
 - `ov-volume-lcore`
 - `ov-volume-ora-data`
 - `ov-volume-ora-index*`
 - `ov-volume-ora-core**`
- * If the Oracle Database index directory is different from the Oracle data directory.
- ** If the Oracle Database server binaries will be installed on a shared disk.

NOTE

When defining the volume group or any of the volumes within the volume group, you can specify an optional name.

- ❑ File systems for the following must be available:
 - `/etc/opt/OV/share`
 - `/var/opt/OV/share`
 - `/var/opt/OV/shared/server`
 - HP Operations server database
 - HP Operations server database index files*
 - Oracle**

Preparation Steps

* If the Oracle Database index directory is different from the Oracle data directory.

** If you choose to install the Oracle Database server binaries on a shared disk.

II. Pre-Installation Steps

You must perform the following preparation steps manually:

1. Prepare mount points for the shared file systems:

- /etc/opt/OV/share
- /var/opt/OV/share
- /var/opt/OV/shared/server
- Mount point for the HP Operations management server database.

You may select an alternative mount point. The default is:

```
/u01/oradata/<ORACLE_SID>
```

In this instance, <ORACLE_SID> is the value of the ORACLE_SID variable used for the configuration of the HP Operations management server database. It is usually set to openview.

- Mount point for the Oracle Database index directory if the Oracle Database index directory is different from the Oracle data directory.
- Mount point for the Oracle Database server binaries if they will be installed on a shared disk. The mount point is equal to the value of the ORACLE_BASE variable.

Table 9-1 Disk Space Required for Shared File Systems

Shared File System	Recommended	Initial
/etc/opt/OV/share	150 MB	2 MB
/var/opt/OV/share	1 GB	600 MB ^a
/var/opt/OV/shared/server	100 MB	30 MB
/u01/oradata/openview	2 GB	900 MB ^b
Oracle Database index directory (<i>optional</i>)	100 MB	50 MB ^b
Oracle Database server binaries (<i>optional</i>)	10 GB	8 GB

- a. Further disk space will be required when SPIs are installed.
- b. For small- to medium-sized installations. Larger installations and high numbers of messages will result in greater space requirements.

2. Start the `ov-vg` volume group by entering:

```
vgchange -a e ov-vg
```

3. Mount the shared file systems on the prepared mount points as follows:

- a. `mount /dev/ov-vg/ov-volume-var \`
`/var/opt/OV/share`
- b. `mount /dev/ov-vg/ov-volume-etc \`
`/etc/opt/OV/share`
- c. `mount /dev/ov-vg/ov-volume-lcore \`
`/var/opt/OV/shared/server`
- d. `mount /dev/ov-vg/ov-volume-ora-data \`
`/<oracle_database_mount_point>`

In this instance, `<oracle_database_mount_point>` is the mount point you have chosen for the HP Operations server database.

- e. *Optional:* If the Oracle Database index directory is different from the Oracle data directory:

Preparation Steps

```
mount /dev/ov-vg/ov-volume-ora-index \  
/<oracle_database_index_mount_point>
```

In this instance, *<oracle_database_index_mount_point>* is the mount point for the Oracle Database index directory.

- f. *Optional:* If you choose to install Oracle Database server binaries on a shared disk:

```
mount /dev/ov-vg/ov-volume-ora-core \  
/<oracle_binaries_mount_point>
```

In this instance, *<oracle_binaries_mount_point>* is the mount point you have chosen for the Oracle Database server binaries installation (equal to the value of the `ORACLE_BASE` variable).

4. Start the Virtual Network IP using the `cmmodnet` command:

```
cmmodnet -a -i <IP> <subnet>
```

In this instance, *<IP>* is the IP address of the virtual host that you have previously selected, and *<subnet>* is the subnet address of the virtual host you have previously selected.

NOTE

To configure the IP address, use decimal notation (for example, 255.255.0.0) instead of hexadecimal notation (for example, ffff0000).

After completing the preparation steps, continue with installing the Oracle Database server. See “Installing the Oracle Database Server for HPOM in a Cluster Environment” on page 234.

Preparation Steps for the First Cluster Node in a Decoupled Environment

I. Installation Prerequisites

Before you install the HP Operations management server in a cluster environment, the following prerequisites must be met:

- ❑ The following must be defined:
 - Define the `ov-vg` volume group, consisting of at least one shared disk for the HA resource group.
 - Define the following volumes within the `ov-vg` volume group:
 - `ov-volume-etc`
 - `ov-volume-var`
 - `ov-volume-lcore`
 - Define the `ovoracle-vg` volume group, consisting of at least one shared disk for the HA resource group.
 - Define the following volumes within the `ovoracle-vg` volume group:
 - `ov-volume-ora-data`
 - `ov-volume-ora-index*`
 - `ov-volume-ora-core**`
- * If the Oracle Database index directory is different from the Oracle data directory.
- ** If you choose to install the Oracle Database server binaries on a shared disk.

NOTE

When defining the volume group or any of the volumes within the volume group, you can specify an optional name.

Preparation Steps

❑ File systems for the following must be available:

- /etc/opt/OV/share
- /var/opt/OV/share
- /var/opt/OV/shared/server
- HP Operations server database
- HP Operations server database index files*
- Oracle Database server binaries**

* If the Oracle Database index directory is different from the Oracle data directory.

** If you choose to install the Oracle Database server binaries on a shared disk (equal to the value of the ORACLE_BASE variable).

II. Pre-Installation Steps

You must perform the following preparation steps manually:

1. Prepare mount points for the shared file systems:

- /etc/opt/OV/share
- /var/opt/OV/share
- /var/opt/OV/shared/server
- Mount point for the HP Operations management server database.

You may select an alternative mount point. The default is:

/u01/oradata/<ORACLE_SID>

In this instance, <ORACLE_SID> is the value of the ORACLE_SID variable used for the configuration of the HP Operations management server database. It is usually set to openview.

- Mount point for the Oracle Database index directory if the Oracle Database index directory is different from the Oracle data directory.
- Mount point for the Oracle Database server binaries if you choose to install the Oracle Database server binaries on a shared disk (equal to the value of the ORACLE_BASE variable).

Table 9-2 Disk Space Required for Shared File Systems

Shared File System	Recommended	Initial
/etc/opt/OV/share	150 MB	2 MB
/var/opt/OV/share	1 GB	600 MB ^a
/var/opt/OV/shared/server	100 MB	30 MB
/u01/oradata/openview	2 GB	900 MB ^b
Oracle Database index directory (<i>optional</i>)	100 MB	50 MB ^b
Oracle Database server binaries (<i>optional</i>)	10 GB	8 GB

- a. Further disk space will be required when SPIs are installed.
- b. For small- to medium-sized installations. Larger installations and high numbers of messages will result in greater space requirements.

2. Start the `ov-vg` volume group by entering:

```
vgchange -a e ov-vg
```

Start the `ovoracle-vg` volume group by entering:

```
vgchange -a e ovoracle-vg
```

3. Mount the shared file systems on the prepared mount points:

- a. `mount /dev/ov-vg/ov-volume-var \`
`/var/opt/OV/share`
- b. `mount /dev/ov-vg/ov-volume-etc \`
`/etc/opt/OV/share`
- c. `mount /dev/ov-vg/ov-volume-lcore \`
`/var/opt/OV/shared/server`
- d. `mount /dev/ovoracle-vg/ov-volume-ora-data \`
`/<oracle_database_mount_point>`

In this instance, *<oracle_database_mount_point>* is the mount point you have chosen for the HP Operations server database.

Preparation Steps

- e. *Optional:* If the Oracle Database index directory is different from the Oracle data directory:

```
mount /dev/ov-vg/ov-volume-ora-index \  
/<oracle_database_index_mount_point>
```

In this instance, *<oracle_database_index_mount_point>* is the mount point for the HP Operations server database index files.

- f. *Optional:* If you choose to install Oracle Database server binaries on a shared disk:

```
mount /dev/ovoracle-vg/ov-volume-ora-core \  
/<oracle_binaries_mount_point>
```

In this instance, *<oracle_binaries_mount_point>* is the mount point you have chosen for the Oracle Database server binaries installation (equal to the value of the `ORACLE_BASE` variable).

- 4. Activate the HP Operations server Virtual Network IP using the `cmmodnet` command:

```
cmmodnet -a -i <IP> <subnet>
```

In this instance, *<IP>* is the IP address of the virtual host that you have previously selected, and *<subnet>* is the subnet address of the virtual host you have previously selected.

NOTE

To configure the IP address, use decimal notation (for example, 255.255.0.0) instead of hexadecimal notation (for example, ffff0000).

- 5. Activate the Oracle Virtual Network IP using the `cmmodnet` command:

```
cmmodnet -a -i <IP> <subnet>
```

In this instance, *<IP>* is the IP address of the virtual host that you have previously selected, and *<subnet>* is the subnet address of the virtual host you have previously selected.

NOTE

To configure the IP address, use decimal notation (for example, 255.255.0.0) instead of hexadecimal notation (for example, ffff0000).

After completing the preparation steps, continue with installing the Oracle Database server. See “Installing the Oracle Database Server for HPOM in a Cluster Environment” on page 234.

Preparation Steps for the First Cluster Node in a Cluster Environment Using an Independent Database Server

I. Installation Prerequisites

Before you install the HP Operations management server in a cluster environment, the following prerequisites must be met:

- ❑ The following must be defined:
 - Define the volume group `ov-vg`, consisting of at least one shared disk for the HA Resource group.
 - Define the following three volumes within the `ov-vg` volume group:
 - `ov-volume-etc`
 - `ov-volume-var`
 - `ov-volume-lcore`

NOTE

When defining the volume group or any of the volumes within the volume group, you can specify an optional name.

- ❑ File systems for the following must be available:
 - `/etc/opt/OV/share`
 - `/var/opt/OV/share`
 - `/var/opt/OV/shared/server`

II. Pre-Installation Steps

You must perform the following preparation steps manually:

1. Prepare mount points for the shared file systems:

- `/etc/opt/OV/share`
- `/var/opt/OV/share`
- `/var/opt/OV/shared/server`

Table 9-3 Disk Space Required for Shared File Systems

Shared File System	Recommended	Initial
/etc/opt/OV/share	150 MB	2 MB
/var/opt/OV/share	1 GB	600 MB ^a
/var/opt/OV/shared/server	100 MB	30 MB

a. Further disk space will be required when SPIs are installed.

2. Start the `ov-vg` volume group by entering:

```
vgchange -a e ov-vg
```

3. Mount the shared file systems on the prepared mount points:

a. **mount /dev/ov-vg/ov-volume-var **
/var/opt/OV/share

b. **mount /dev/ov-vg/ov-volume-etc **
/etc/opt/OV/share

c. **mount /dev/ov-vg/ov-volume-1core **
/var/opt/OV/shared/server

4. Start the Virtual Network IP using the `cmmodnet` command:

```
cmmodnet -a -i <IP> <subnet>
```

In this instance, `<IP>` is the IP address of the virtual host that you previously selected, and `<subnet>` is the subnet address of the virtual host you previously selected.

NOTE

To configure the IP address, use decimal notation (for example, 255.255.0.0) instead of hexadecimal notation (for example, ffff0000).

Before You Install the HP Operations Management Server on Additional Cluster Nodes

Before you install the HP Operations management server on additional cluster nodes, you must perform appropriate preparation procedures. The preparation steps are identical for all HP Operations management server installation scenarios.

Preparation Steps for Additional Cluster Nodes

The following preconditions must be met before installing the HP Operations management server on an additional cluster node:

- ❑ The HP Operations management server must already be installed and running on one of the cluster nodes. This allows you to add a local node to the HP Operations management server configuration and install and start the HP Operations agent software on the local node.
- ❑ On the node where HPOM is running, enable the remote-shell connection for user `root` to the node where you plan to install the HP Operations management server software. You can do this by putting the following line into `/.rhosts`:

```
<node> root
```

You can check if the remote shell is enabled by using the following command:

```
remsh <active_node> -l root -n ls
```

A list of files on the `root` directory from the node where the HP Operations management server is running should be displayed.

In more secure environments, it is possible to set up a secure shell (SSH) connection between the node where you plan to install an HP Operations server and the node where the HP Operations server is running.

For the HP Operations server installation, you must enable passwordless SSH access for user `root` between these two nodes. `ssh` and `scp` are the two commands that are used during the installation. Both commands must be accessible from the main path.

You can check if the secure remote shell is enabled by using the following command:

```
ssh <active node> -l root -n ls
```

The type of connection will be automatically detected. A secure connection has a higher priority if both types of connection are enabled.

- ❑ Shared file systems must *not* be mounted on this cluster node. They are already mounted on the cluster node where the HP Operations management server is running.
- ❑ Virtual IP must *not* be activated on this node because it is already used on the node where the HP Operations management server is running.

Installing the Oracle Database Server for HPOM in a Cluster Environment

The Oracle Database server binaries must be installed on a local disk to enable the high availability of the Oracle Database server and consequently of the HP Operations management server. If the Oracle Database server binaries become corrupt, it is very important that the Oracle Database server can be switched to another cluster node with intact Oracle Database server binaries.

In exceptional cases, you may want to install the Oracle Database server binaries on a shared disk. This way only one set of Oracle Database server binaries is installed but there is a greater risk of losing Oracle availability. If you have chosen the decoupled scenario for installing HPOM, a separate Oracle client installation will be needed also.

Table 9-4 Configuration Scenarios Based on the File System Location

		Oracle Database server location		
		Local File System	Shared File System (Exceptional)	Remote File System
Configuration scenarios	Basic	See “Oracle Database Server on a Local Disk” : “Basic HP Operations management server installation” on page 236.	See “Oracle Database Server on a Shared Disk (Exceptional)” : “Basic HP Operations management server installation” on page 237.	
	Decoupled	See “Oracle Database Server on a Local Disk” : “Decoupled HP Operations management server database installation” on page 236.	See “Oracle Database Server on a Shared Disk (Exceptional)” : “Decoupled HP Operations management server database installation” on page 237.	
	Independent	See “Oracle Database Server on a Local Disk” : “Independent database server installation” on page 236.		See “Oracle Database Server on a Remote File System” : “Independent database server installation” on page 241.

Oracle Database Server on a Local Disk

❑ **Basic HP Operations management server installation**

Install the Oracle Database software as described in “Installing and Verifying an Oracle Database” on page 49.

After installing the Oracle Database server, continue with “To Install and Configure the HP Operations Management Server on Cluster Nodes” on page 242.

❑ **Decoupled HP Operations management server database installation**

Install the Oracle Database software as described in “Installing and Verifying an Oracle Database” on page 49.

After installing the Oracle Database server, continue with “To Install and Configure the HP Operations Management Server on Cluster Nodes” on page 242.

❑ **Independent database server installation**

- *First cluster node*

Install the Oracle Database software as described in “Installing and Verifying an Oracle Database” on page 49.

- *Additional cluster node*

Install the Oracle Net Services and Oracle client software on the local disk, all other Oracle configuration steps will be performed by the HP Operations server installation script.

After installing the Oracle Database server, continue with “To Install and Configure the HP Operations Management Server on Cluster Nodes” on page 242.

Oracle Database Server on a Shared Disk (Exceptional)

The installation script automatically detects if Oracle Database server binaries are located on a shared disk, or if the `ORACLE_BASE` directory is a mount point for an external file system containing the Oracle Database server binaries (the file system must always be mounted on the `ORACLE_BASE` mount point).

The installation procedures for Oracle depend on the type of the HP Operations server installation:

❑ Basic HP Operations management server installation

Install the Oracle Database software as described in “Installing and Verifying an Oracle Database” on page 49.

After installing the Oracle Database server, continue with “To Install and Configure the HP Operations Management Server on Cluster Nodes” on page 242.

❑ Decoupled HP Operations management server database installation

When Oracle is separated from the HP Operations server, and Oracle Database server binaries are installed on a shared disk, install the Oracle client software on the local disk, so that the HP Operations server can connect to the Oracle Database server through the Oracle client. You *must* install the Oracle client software on a location other than `ORACLE_BASE`. The path to the Oracle client must be the same on all HP Operations management server cluster nodes.

- *First cluster node*

Install the Oracle client software on the local disk and then the Oracle server software on a shared disk as described in “Installing and Verifying an Oracle Database” on page 49.

NOTE

When installing and configuring the HP Operations server, the `ORACLE_BASE` and `ORACLE_HOME` variables must be set to the Oracle Database server location.

After installing the HP Operations management server, follow these steps:

1. Copy the following configuration files from the Oracle Database server location on the shared disk (`<Oracle_server_home>/network/admin/`) to the Oracle client location on the local disk (`<Oracle_client_home>/network/admin/`):

- listener.ora
- sqlnet.ora
- tnsnames.ora
- tnsnav.ora

2. Stop the HP Operations management server as an HA resource group using the following command:

```
/opt/OV/bin/ovharg_config ov-server -stop \  
<local_hostname>
```

3. To contain the location of the Oracle client software, modify the ORACLE_HOME variable in the following location:

```
/etc/opt/OV/share/conf/ovdbconf
```

4. Add the following lines to the `/etc/rc.config.d/ovoracle` file:

```
ORACLE_HOME=<Oracle Server Home>  
ORACLE_SID=<ORACLE_SID>  
export ORACLE_HOME ORACLE_SID
```

The `/etc/rc.config.d/ovoracle` file is used as a configuration file by the `/sbin/init.d/ovoracle` script, which is used by the Oracle HARG to start the Oracle Database.

NOTE

Make sure that you use the latest version of the `/sbin/init.d/ovoracle` script. Copy the file from `newconfig` by running the following command:

```
cp /opt/OV/newconfig/OpC/sbin/init.d/ovoracle \  
/sbin/init.d/ovoracle
```

5. Remove the existing links in `/opt/OV/lib` to the libraries located in the Oracle Database server directory, and replace them with links to Oracle client libraries:

```
— ln -sf <ORACLE_HOME>/lib32/libclntsh.so \  
  /opt/OV/lib/hpux32/libclntsh.so  
— ln -sf <ORACLE_HOME>/lib32/libclntsh.so \  
  /opt/OV/lib/hpux32/libclntsh.so.1.0  
— ln -sf <ORACLE_HOME>/lib32/libclntsh.so \  
  /opt/OV/lib/hpux32/libclntsh.so.8.0  
— ln -sf <ORACLE_HOME>/lib32/libclntsh.so \  
  /opt/OV/lib/hpux32/libclntsh.so.9.0  
— ln -sf <ORACLE_HOME>/lib32/libclntsh.so \  
  /opt/OV/lib/hpux32/libclntsh.so.10.1  
— ln -sf <ORACLE_HOME>/lib32/libclntsh.so \  
  /opt/OV/lib/hpux32/libclntsh.so.11.1  
— ln -sf <ORACLE_HOME>/lib32/libclntsh.so \  
  /opt/OV/lib/hpux32/libopcora.so  
— ln -sf <ORACLE_HOME>/lib32/libnnz11.so \  
  /opt/OV/lib/hpux32/libnnz11.so
```

6. Start the HP Operations management server as an HA resource group using the following command:

```
/opt/OV/bin/ovharg_config ov-server -start \  
<local_hostname>
```

The HP Operations management server will now connect to the Oracle Database server through the Oracle client.

- *Additional cluster node*

Install the Oracle client software on a local disk, all other Oracle configuration steps will be performed by the HP Operations management server installation script.

NOTE

When installing and configuring the HP Operations server, the ORACLE_HOME variable must be set to the Oracle client location.

After installing the Oracle Database server, continue with “To Install and Configure the HP Operations Management Server on Cluster Nodes” on page 242.

Oracle Database Server on a Remote File System

□ Independent database server installation

If the Oracle Database server will be running on a remote system that is not part of the local node:

- *First cluster node*

Configure the Oracle Database as described in “Setting Up an Independent Database Server System” on page 131.

- *Additional cluster node*

Install the Oracle Net Services and Oracle client software on the local disk, all other Oracle configuration steps will be performed by the HP Operations server installation script.

After installing the Oracle Database server, continue with “To Install and Configure the HP Operations Management Server on Cluster Nodes” on page 242.

To Install and Configure the HP Operations Management Server on Cluster Nodes

Install the HP Operations management server as described in Chapter 2, “Installing HPOM on the Management Server,” on page 43.

When installing HPOM in a cluster environment, you must provide responses to some questions and specify some values differently than in the standalone HPOM installation. These cluster-specific questions differ depending whether you are installing and configuring the HP Operations management server on the first cluster node or on the additional cluster node:

- ❑ “Installing and Configuring the HP Operations Management Server on the First Cluster Node” on page 243
- ❑ “Installing and Configuring the HP Operations Management Server on the Additional Cluster Node” on page 246

Installing and Configuring the HP Operations Management Server on the First Cluster Node

To install and configure the HP Operations management server on the first cluster node, follow these steps:

1. After the `ovoconfigure` script has detected a special environment, provide answers to the following cluster-specific questions:

- Run HPOM Server as an HA resource group
[exit, back, ?, y|n, "n"]?

Press **y**.

- HA Resource Group name?
[ov-server]

HA Resource Groups (packages) are created during the installation of HPOM. `ovinstall` will build the package control file and the configuration file automatically. Do not create packages manually and do not use your own configuration files. If you have already created the cluster packages manually, remove them before starting the installation of HPOM.

CAUTION

The entered HA resource group name may not be one of the already existing names.

Press **Enter** to accept the default answer, or specify an alternative name for the HA resource group.

- Server virtual hostname?

Enter the short name of the virtual host (for example, `virtip1`).

- Separate Oracle from Server?

If you would like to separate Oracle from the HP Operations server, choose **y** and answer the following questions. Otherwise press **Enter** to continue with the basic HP Operations management server installation.

To Install and Configure the HP Operations Management Server on Cluster Nodes

- Configure Server and Oracle DB running as separate HA resource groups?

If you choose to configure Oracle as a separate HA resource group, press **Enter** and answer the following questions, otherwise select **n** and continue with the HP Operations management server installation where Oracle is an independent database server.

- Oracle HA resource group name?
[ov-oracle]

Press **Enter** to accept the default answer, or specify an alternative name for the Oracle HA resource group.

CAUTION

The entered HA resource group name may not be one of the already existing names.

- Oracle virtual hostname?

Enter the short name of the virtual host (for example, virtip2).

- Oracle Base?

The Oracle Database base directory. The default is /opt/oracle.

- Oracle Data Directory?

The directory where HP Operations server database files are stored. The default is /u01/oradata/openview.

- Oracle Index Directory?

The directory where HP Operations server database index files are stored. By default, it is the same as the Oracle data directory.

The ovoconfigure script continues with the cluster configuration, during which shared file systems and virtual hosts are checked.

2. You can add a shared file system or a new virtual host at this point.

The summary of all shared file systems and virtual hosts appears, and then the ovoconfigure script asks you whether you want to continue.

3. Press **Enter**. The following output should be displayed:

```
Cluster preconfiguration . . . . . OK
```

The ovoconfigure script continues with the database configuration and the server initialization. During the server initialization, ovoconfigure performs the integration into the start-stop sequence, installs the add-on packages, and finishes the cluster configuration. An output similar to the following should be displayed:

```
Cluster configuration on FIRST cluster node
-----
OVHARG configuration . . . . . OK
Configure Server cluster configuration . . . . . OK
Server cluster postconfiguration . . . . . OK
Server HARG creation . . . . . OK
Cluster successfully configured
```

4. Press **Enter** to continue.

The server final configuration starts, which consists of the following steps:

- Management server policy group assignment
- Java GUI configuration
- Web server configuration
- Backup certificates

After the server final configuration has returned all OK values, the following information appears:

```
Server will be started as HARG
If needed, review HARG configuration before starting
```

5. Press **Enter** to continue with the following:

- Installing the local agent
- Distributing configuration to the local agent

NOTE

The agent installation and the policy distribution are performed automatically.

Installing and Configuring the HP Operations Management Server on the Additional Cluster Node

To install and configure the HP Operations management server on the additional cluster node, follow these steps:

1. After the `ovoconfigure` script has detected a special environment, provide answers to the following cluster-specific questions:

- Run HPOM Server as an HA resource group
[exit, back, ?, y|n, "n"]?

Press **y**.

- HA resource group name?
[ov-server]

Press **Enter** to continue, or specify an alternative name for the HA resource group.

CAUTION

The entered HA resource group must be configured and running on the first cluster node.

`ovoconfigure` checks the remote shell (`remsh`) connection and the secure remote shell (`ssh`) connection. An output similar to the following should be displayed:

```
Checking remote shell (remsh) connection . . . . OK
Checking secure remote shell (ssh) connection . OK
```

The following question appears:

```
Would you prefer to use REMSH even though SSH is enabled
[exit, back, ?, y|n, "n"]?
```

2. Press **Enter** to continue. The following output should be displayed:

```
Cluster preconfiguration . . . . . OK
```

`ovoconfigure` continues with the server initialization. During the server initialization, `ovoconfigure` performs the integration into the start-stop sequence, installs the add-on packages, and finishes the cluster configuration.

An output similar to the following should be displayed:

```
Cluster configuration on ADDITIONAL cluster node
-----
OVHARG configuration . . . . . OK
Configure Server cluster configuration . . . . . OK
Configure Oracle cluster configuration . . . . . OK
Server cluster postconfiguration . . . . . OK
Transferring cluster configuration from active node OK
Adding local node to Server HARG . . . . . OK
Cluster successfully configured
```

3. Press **Enter** to continue.

The server final configuration starts, which consists of the following steps:

- Management server policy group assignment
- Java GUI configuration
- Web server configuration
- Installing the local agent
- Distributing configuration to the local agent

NOTE

The agent installation and the policy distribution are performed automatically.

Log Files

For details about the cluster-specific installation, check the following log files:

- ❑ `/var/opt/OV/log/OpC/mgmt_sv/installation.log.verbose`

Contains information about the success and eventual problems during the installation.

- ❑ `/var/opt/OV/hacluster/ov-server/trace.log1`,
`/var/opt/OV/hacluster/ov-server/error.log`, and
`/etc/cmcluster/ov-server/ov-server.cntl.log`

Contain information about managing the HA resource group.

NOTE

The HARG `trace.log` file size is limited. When the maximum file size is reached, `trace.log` is moved into `trace.log.old` and the new information is written into a new `trace.log` file.

The maximum size of the `trace.log` file can be changed by editing the `/var/opt/OV/hacluster/<HARG name>/settings` file, and adding the following line:

```
TRACING_FILE_MAX_SIZE=<maximum size in kBytes>
```

For example:

```
TRACING_FILE_MAX_SIZE=7000
```

-
1. Only if previously enabled by entering the following:

```
/opt/OV/lbin/ovharg -tracing ov-server enable
```

The `trace.log` file is automatically updated with the information about starting the HA resource group during the installation on the first cluster node.

Deinstalling the HPOM Software from Cluster Nodes

The HPOM software can be deinstalled in one of two ways:

❑ From all cluster nodes

When deinstalling the HP Operations management server from a cluster environment, you must perform the deinstallation procedure in the following sequence:

1. Deinstall the HP Operations management server from the **passive cluster nodes**. These are the systems that are installed and configured to run the HP Operations management server, but are currently *not* running.

For details on how to deinstall the HP Operations server from the passive cluster nodes, see “Deinstalling HPOM from Passive Cluster Nodes” on page 250.

2. When the HP Operations management server software has been deinstalled from all passive nodes, deinstall the software from the **active cluster node**. This is the system on which the HP Operations management server is currently up and running as an HA resource group.

For details on how to deinstall the HP Operations management server from the active cluster node, see “Deinstalling HPOM from the Active Cluster Node” on page 250.

❑ From selected cluster nodes

After you deinstall the HP Operations management server software from a cluster node, this node will no longer be able to run the HP Operations management server. The cluster environment running the HP Operations server will be reduced by one node.

To deinstall HP Operations management server software from a cluster node, this node must be in the passive state. For details on how to deinstall HP Operations management server software from passive cluster nodes, see “Deinstalling HPOM from Passive Cluster Nodes” on page 250.

Deinstalling HPOM from Passive Cluster Nodes

Before the HP Operations management server software is deinstalled from a passive cluster node, the following requirements must be met:

1. The HP Operations server HA resource group `ov-server` may not be active on this node.
2. Virtual host must *not* be active.
3. Shared file systems must *not* be mounted.

After ensuring that all these requirements are met, deinstall the HP Operations management server as described in Chapter 6, “Software Administration on the Management Server.”

Deinstalling HPOM from the Active Cluster Node

When the HP Operations management server is deinstalled from all the passive cluster nodes, you can start the deinstallation process from the node on which the HP Operations management server is running.

Deinstall the HP Operations management server software from this node as described in Chapter 6, “Software Administration on the Management Server,” on page 149.

Stopping the HP Operations Management Server in a Cluster Environment for Maintenance

Sometimes, you need to stop the HP Operations management server to install a patch, perform an upgrade, conduct maintenance, and so on.

To stop the HP Operations management server, follow these steps:

1. Disable the HA resource group monitoring using the command:

```
/opt/OV/sbin/ovharg -monitor ov-server disable
```

2. Stop the HP Operations management server.

The HP Operations management server must *not* be stopped by using the cluster-related commands. Only the HPOM commands such as `ovc` and `opcsv` may be used.

CAUTION

Before you run the `opcsv -stop`, `ovc -stop`, or `ovc -kill` command, you must disable the HA resource group monitoring. Failing to do so results in a failover.

3. Perform the intended action (the patch installation, an upgrade, the maintenance, and so on).
4. Start the HP Operations management server.

The HP Operations management server must *not* be started by using the cluster-related commands. Only the HPOM commands such as `ovc` and `opcsv` may be used.

5. Enable the HA resource group monitoring using the command:

```
/opt/OV/sbin/ovharg -monitor ov-server enable
```

NOTE

Before enabling the HA resource group monitoring, make sure that the HP Operations management server is running.

Upgrading HPOM to Version 9.00 in a Cluster Environment

To upgrade the HP Operations management server running in a cluster environment to version 9.00, you must first perform the upgrade procedure on the active node, and then on all passive nodes.

NOTE

Before upgrading the HP Operations management server running in a cluster environment, make sure that you have read the following sections:

- ❑ “Upgrade Overview” on page 189
 - ❑ “HPOM Upgrade Restrictions” on page 191
 - ❑ “Verifying the Installation Requirements for the Management Server” on page 192
-

Upgrading the HP Operations Management Server on the Active Cluster Node

To upgrade the HP Operations management server to version 9.00 on the node where the HP Operations management server is currently running, follow these steps:

1. Put the HP Operations management server represented as an HA Resource Group in the maintenance mode to disable possible failovers when the HP Operations management server is stopped.

Disable the HA resource group monitoring by using the following command:

```
/opt/OV/sbin/ovharg -monitor ov-server disable
```

2. Back up the current installation.

See “Backing Up the Current HPOM 8.xx Installation” on page 193 for detailed information.

3. Download the current HPOM 8.xx configuration.

For detailed information, see “Downloading the Current HPOM 8.xx Configuration” on page 195.

4. Install the new Oracle Database version.

See “Installing and Verifying an Oracle Database” on page 49 for detailed information about installing the new Oracle Database version.

5. Upgrade the old version of HPOM.

For detailed information about upgrading the old version of HPOM, see “Upgrading the Old Version of HPOM” on page 200.

During the upgrade procedure, you must also provide an answer to the following question:

Do you want to reuse existing HA Resource Group configuration?

NOTE

If you answer that you want to reuse the existing HA Resource Group configuration, the new HA Resource Group configuration features cannot be used.

6. Upload the saved HPOM configuration.

See “Uploading the Saved HPOM Configuration” on page 203 for details.

7. Upgrade the Java GUI.

For detailed information, see “Upgrading the HPOM Java Operator UI” on page 206.

Upgrading the HP Operations Management Server on the Passive Cluster Node

To upgrade the HP Operations management server to version 9.00 on the remaining cluster nodes on which the HP Operations management server is not currently running, follow these steps:

1. Install the new Oracle Database version.

See “Installing and Verifying an Oracle Database” on page 49 for detailed information about installing the new Oracle Database version.

2. Upgrade the old version of HPOM.

For detailed information about upgrading the old version of HPOM, see “Upgrading the Old Version of HPOM” on page 200.

During the upgrade, you must also provide answers to the following two questions:

- Is HPOM running as an HA Resource Group?

If the management server has been configured as an HA Resource Group, answer *y*.

- HA Resource Group name?
[ov-server]

Press **Enter** to continue, or specify an alternative name for the HA Resource Group.

The entered HA Resource Group must be configured and running on the first cluster node.

3. Upgrade the Java GUI.

For details, see “Upgrading the HPOM Java Operator UI” on page 206.

Installing HPOM in an HP ServiceGuard Cluster Environment
Upgrading HPOM to Version 9.00 in a Cluster Environment