Oracle® VM

Installation and Upgrade Guide for Release 3.2

ORACLE

Oracle® VM: Installation and Upgrade Guide for Release 3.2

Abstract

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Preface

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The preface contains information on how to use the Oracle VM Installation and Upgrade Guide.

1 Audience

The Oracle VM Installation and Upgrade Guide is intended for system administrators and end users who want to install or upgrade Oracle VM.

2 Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc.

Access to Oracle Support

Oracle customers have access to electronic support through My Oracle Support. For information, visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info or visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs if you are hearing impaired.

3 Related Documents

For more information, see the following documents in the Oracle VM Release 3.2 documentation set:

- *Oracle VM Release Notes*

- *Oracle VM Getting Started Guide*

- *Oracle VM User's Guide*

- *Oracle VM Windows Paravirtual Drivers Installation Guide*

- *Oracle VM Security Guide*

- *Oracle VM Utilities Guide*

- *Oracle VM Command Line Interface User's Guide*

You can also get the latest information on Oracle VM by going to the Oracle virtualization Web site:

http://www.oracle.com/virtualization

4 Command Syntax

Command syntax appears in `monospace` font. The dollar character ($), number sign (#), or percent character (%) are command prompts. Do not enter them as part of the command. The following command syntax conventions are used in this guide:

Convention	Description

backslash \	A backslash is the command continuation character. It is used in command examples that are too long to fit on a single line. Enter the command as displayed (with a backslash) or enter it on a single line without a backslash:
	
	`dd if=/dev/rdsk/c0t1d0s6 of=/dev/rst0 bs=10b \`
	`count=10000`

braces { }	Braces indicate required items: `.DEFINE {macro1}`
brackets [ ]	Brackets indicate optional items: `cvtcrt termname [outfile]`
ellipses ...	Ellipses indicate an arbitrary number of similar items: `CHKVAL fieldname value1 value2 ... valueN`
italics	Italic type indicates a variable. Substitute a value for the variable: `library_name`
vertical line |	A vertical line indicates a choice within braces or brackets: `FILE filesize [K|M]`

5 Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
`monospace`	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

Chapter 1 Installation Overview

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This chapter contains introductory information on Oracle VM installation procedures.

1.1 Installing Oracle VM

To install Oracle VM, you must install at least one Oracle VM Server, and then install one instance of Oracle VM Manager. Your Oracle VM Server can be on either x86 hardware, or on SPARC hardware. Oracle VM Servers in a server pool must be of the same type, either x86 or SPARC. You cannot mix x86 and SPARC servers in the same server pool, however Oracle VM Manager is capable of simultaneously managing server pools of different types.

> **Important**
>
> In a production environment Oracle VM Manager and Oracle VM Server versions must ideally match. While it is supported to use Oracle VM Manager to manage an Oracle VM Server within the same release but at a different patch level, it is recommended that customers maintain the same patch level for both server and manager.

1.1.1 Installing Oracle VM Server on x86

Installing Oracle VM Server on x86 deletes any previous operating system and data on the drive selected for installation. To install Oracle VM Server on an x86 server:

1. Boot the computer on which you want to install Oracle VM Server with your Oracle VM Server CD.

2. At the boot prompt, press **Enter**.

3. Follow the prompts to install Oracle VM Server.

See Chapter 2, *Installing Oracle VM Server on x86* for detailed information on installing Oracle VM Server.

If you want to use more than one Oracle VM Server, repeat the installation process. Oracle VM Servers can be added to a server pool and managed by Oracle VM Manager.

1.1.2 Installing Oracle VM Server on SPARC

Installing Oracle VM Server on a SPARC server requires you install and configure the following on the SPARC server:

1. Oracle Solaris OS in the control domain.

2. Oracle VM Server for SPARC. This is included in Oracle Solaris 11 OS.

3. Oracle VM Agent for SPARC.

Note that installing Oracle Solaris within the control domain will destroy the data on the disk on which it is installed, however if Oracle Solaris 11 is already installed within the control domain then Oracle VM Server for SPARC is already available and there is no need to reinstall. Setting up Oracle VM Server for SPARC in this environment will not result in any data being destroyed.

See Chapter 3, *Installing Oracle VM Server for SPARC* for detailed information on installing Oracle VM Server on SPARC servers.

If you want to use more than one Oracle VM Server, repeat the installation process.

1.1.3 Installing Oracle VM Manager

To install Oracle VM Manager:

1. Start up the operating system on the computer on which you want to install Oracle VM Manager.

2. Insert and mount the Oracle VM Manager CD.

3. As the *root* user, start the Oracle VM Manager installation script:

```
# ./runInstaller.sh
```

4. Follow the prompts to install Oracle VM Manager.

See Chapter 4, *Installing Oracle VM Manager* for detailed information on installing Oracle VM Manager.

1.2 Upgrading Oracle VM

You cannot upgrade Oracle VM 2.x to Oracle VM 3.x. A full reinstall of your Oracle VM environment is required. You can however upgrade an Oracle VM 3.x environment. See Chapter 5, *Upgrading Oracle VM* for information on performing an upgrade.

Note

Since Oracle VM Release 3.2 is the first release available with support for SPARC, upgrade procedures mentioned in this document only apply to environments running on x86 hardware.

Chapter 2 Installing Oracle VM Server on x86

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This chapter is intended for system administrators who want to install Oracle VM Server. This chapter discusses downloading and installing Oracle VM Server.

2.1 Preinstallation Tasks and Requirements

Before you start the Oracle VM Server installation, make sure your computer meets the minimum hardware and software requirements.

2.1.1 Hardware Requirements

This release of Oracle VM Server supports x86_64 host hardware. Oracle VM Server requires a 64-bit processor.

For hardware virtualized (unmodified) guest operating systems (for example, Microsoft Windows), a CPU with hardware virtualization support is required. This feature may also need to be enabled in the BIOS. Please refer to your processor documentation for information on whether your processor supports hardware virtualization and how to enable it in the BIOS.

A dual core CPU or multiple CPUs are recommended to run multiple guests.

The minimum memory requirement is 1GB RAM, although it is recommended you have a computer with at least 2GB RAM. Guest memory requirements vary for each guest operating system. You should perform your own memory sizing for guest operating systems.

2.1.2 Software Requirements

There are no prerequisite software requirements. Oracle VM Server includes a small Linux-based management operating system. All previous operating systems and data on the disk selected for installation are lost during the installation of Oracle VM Server.

Migration from any operating system, or previous alternate virtualization environment, is not supported in this release.

2.1.3 Network Requirements

Oracle VM Server requires at least one stable and static IP address that does not change over server reboots. If you use DHCP within your environment, you should configure your DHCP server to assign static

DHCP addresses to the systems on which you will be installing Oracle VM Server. This ensures that your host always receives the same IP address. The behavior of the Oracle VM Server host is undefined if used in an environment where your IP address may change due to DHCP lease expiry.

If your DHCP server is configured to provide a default gateway, this could impact on the behavior of Oracle VM Server as the gateway provided over DHCP would override any statically defined gateway set on Oracle VM Server. Therefore, Oracle recommends that you ensure that your DHCP server is not configured to provide a default gateway unless you are certain that the default route is the one that you want your Oracle VM Server instances to make use of.

Technically, it is possible to run Oracle VM Server with a single network interface per physical server. During the installation of the Oracle VM Servers the management interface is configured, and during discovery by Oracle VM Manager the server management interfaces are included in the default management network. Since the management network is capable of providing all network functions in Oracle VM, including storage and virtual machine traffic, there is no functional need for additional networks. Even if you wish to separate different types of network traffic, a single interface is enough: the management network can be run on a VLAN and additional network connections can be made via VLAN interfaces configured on top of the single physical network interface.

The main reasons to opt for multiple physical network interfaces are:

- **Security.** You may wish to keep internal and inter-server traffic separated from networks with a route to the internet. Or you may need to guarantee that network traffic from different virtual environments, or different types of network traffic, are physically separated.

- **Redundancy.** You do not want your environment to stop working if one network interface fails. A good way to avoid this is to aggregate two interfaces in a bond interface. A bond port, as it is called in Oracle VM, can work in active-backup mode, but also increases performance when used as an aggregation of two active links with twice the bandwidth and load balancing.

- **Performance.** If you have multiple physical network interfaces, link aggregation is a good way to add bandwidth for a given network function. In addition, or as an alternative, you can create multiple physical networks and use them for dedicated functions; for example a separate storage network or a network for virtual machine traffic only.

> **Note**
>
> Oracle VM Ethernet network functionality can be applied to standard 10/100/1000Mbit Ethernet interfaces as well as 10Gbit Ethernet interfaces.

2.1.4 Oracle VM Server Memory Settings

Installation allocates memory to dom0 using the following algorithm:

(512 + 0.0205 * Physical memory (MB)) round to 8

Oracle does not recommend changing this default value.

2.1.5 Getting the Software

If you do not already have the Oracle VM Server software, download the Oracle VM Server ISO file from the Oracle Software Delivery Cloud:

http://edelivery.oracle.com/oraclevm

Burn the Oracle VM ISO file to a bootable CD. To install Oracle VM Server from a CD, see Section 2.2, "Installing Oracle VM Server From a CD".

2.2 Installing Oracle VM Server From a CD

To install Oracle VM Server from a CD:

1. Make sure that the server BIOS is set to boot from CD.

2. Insert the Oracle VM Server CD into your CD drive.

3. Boot the server with the Oracle VM Server CD.

4. The **Oracle VM Server** screen is displayed.

Press **Enter** to begin the installation. If you do not press a key for one minute, the installer automatically starts. The installer is only available in text mode.

5. The **CD Found** screen is displayed.
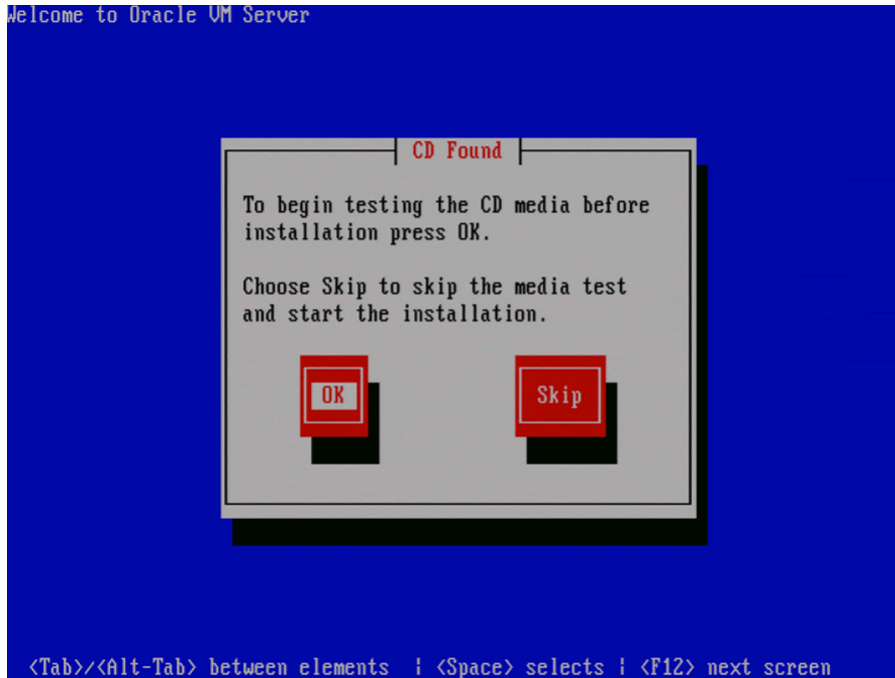
If you want to make sure the CD has been created correctly you can have the installer test it for errors. To test the CD, select **OK** and press **Enter**. The CD is tested and any errors are reported.

> **Warning**
>
> Testing the installation media requires a server reboot to continue the installation. If you do not have physical access to the server itself, it is not recommended that you perform this test.

To skip media testing and continue with the install, select **Skip** and press **Enter**.

6. The **Keyboard Selection** screen is displayed.
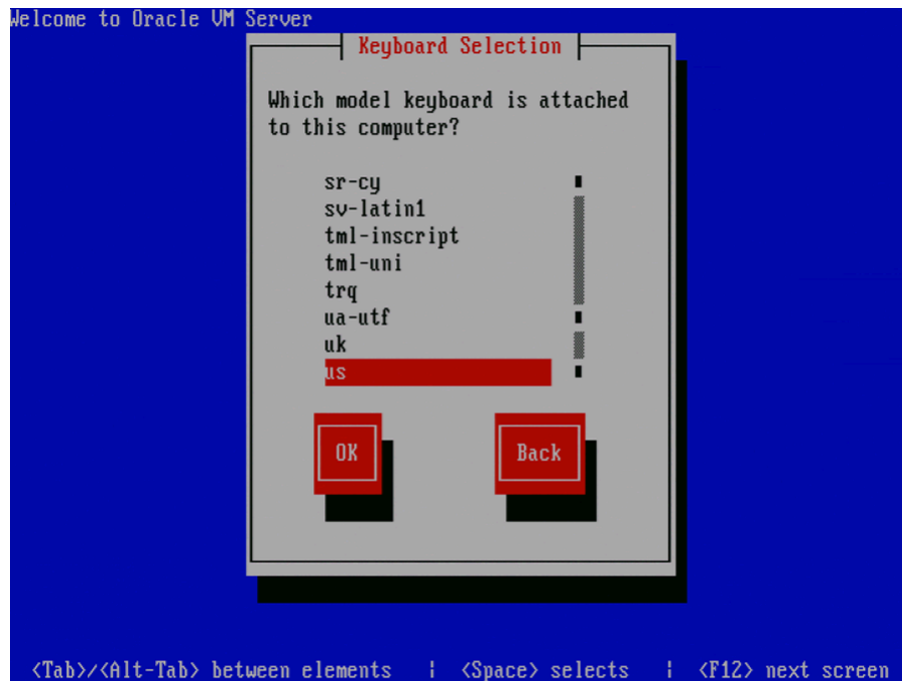
Select the keyboard layout type (for example, **us** for U.S. English) from the list of available options. The keyboard you select becomes the default keyboard for the operating system.

Select **OK** and press **Enter**.

7. The Oracle VM Server 3.*x* **End User License Agreement** screen is displayed.
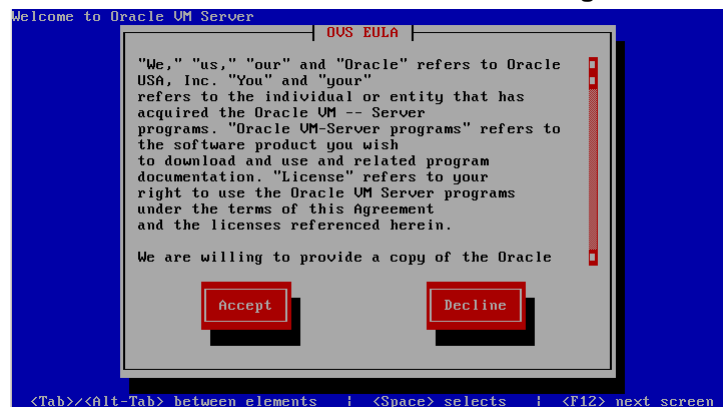
Read the License Agreement text and click **Accept** to accept the terms of the agreement and continue the installation.

8. If an existing Oracle VM Server installation is found on the computer, the **System to Upgrade** screen is displayed.
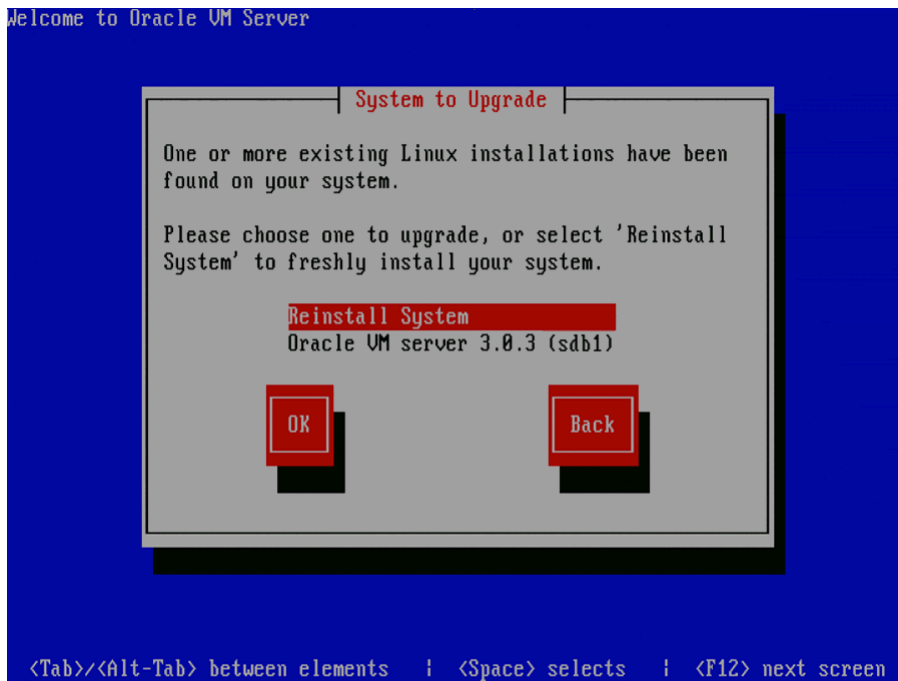
Select **Reinstall System** to overwrite the existing installation.

Select **Oracle VM Server 3.x (***disk***)** to upgrade the existing installation. Upgrade instructions are described in Section 5.3.2, "Upgrading Oracle VM Server Using the CD". Upgrading an Oracle VM Server from Release 2.*x* is not supported; you must perform a fresh install.

Select **OK** and press **Enter**.

9. The **Partitioning Type** screen is displayed.
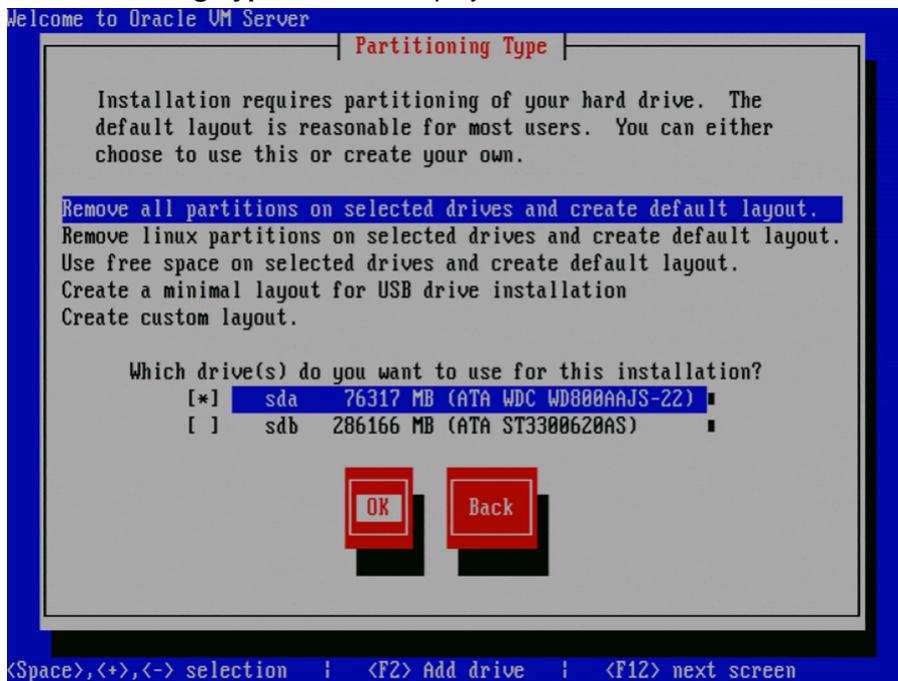
Select whether you want to:

- Remove all partitions and create a new default partition layout

- Remove all Linux partitions and create a new default partition layout

- Use the free space on selected drives to create a new default partition layout

- Create a minimal partition layout for installation to a USB drive

- Create a custom partition layout

Oracle recommends you use a default partition layout.

Select which drive(s) you want to use for the installation.

Select **OK** and press **Enter**.

10. If you selected to remove a partition, a **Warning** screen is displayed to confirm that you want to remove the partition(s), including the data contained on any partitions.
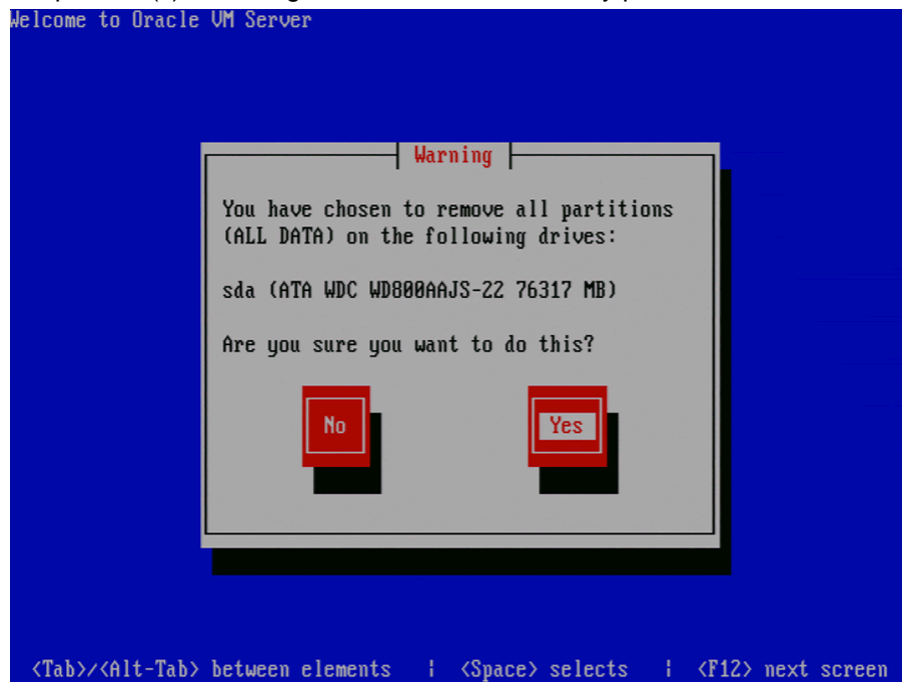
Select **Yes** and press **Enter.**

11. The **Review Partition Layout** screen is displayed.
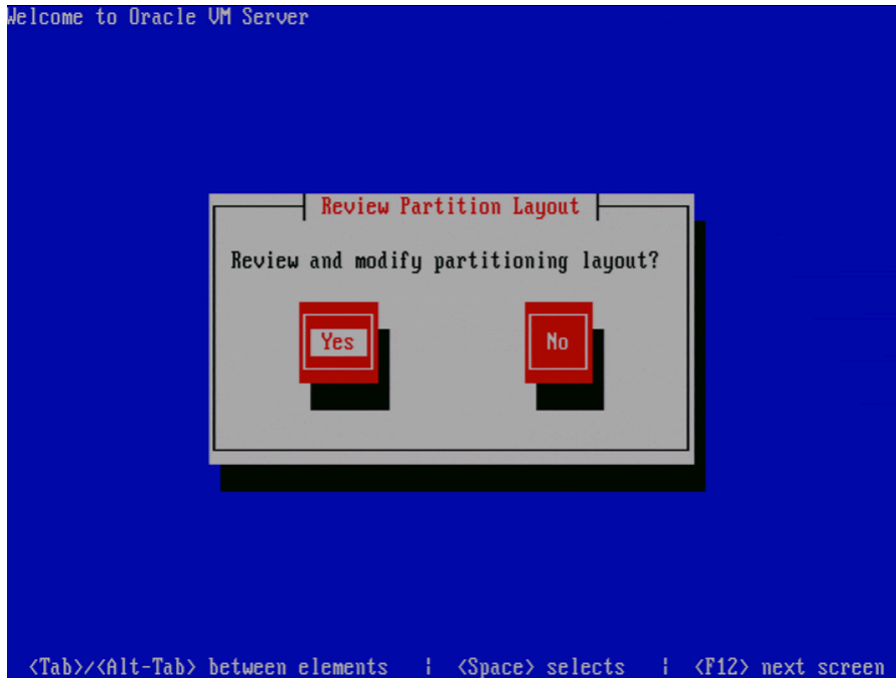
If you do not want to review the partition layout and accept the default partition layout, select **No** and press **Enter**.

If you want to review the partition layout, select **Yes** and press **Enter**.

The **Partitioning** screen is displayed.
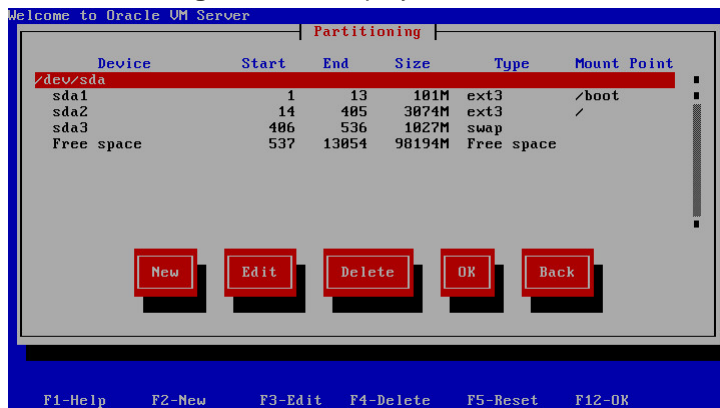
Review the partition layout, and make any changes you want.

Select **OK** and press **Enter** to save any changes.

12. The **Boot Loader Configuration** screen is displayed.
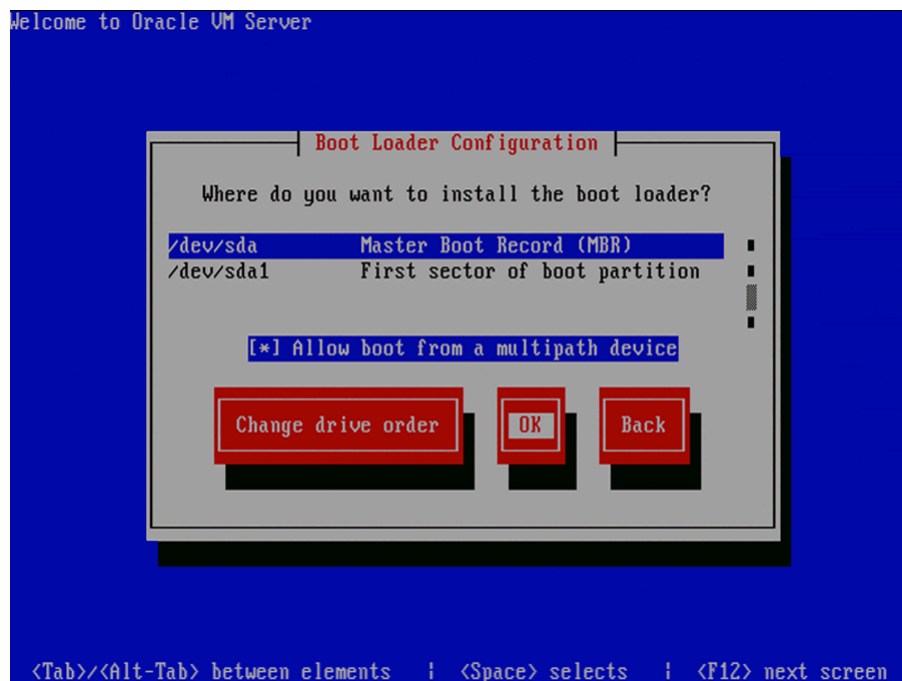
Be sure to select the option to boot from a multipath device if you install Oracle VM Server on a disk subsystem that allows access through multiple physical paths.

Warning

If only a single path is available at the time of installation, you will need to correct the blacklisting configuration afterwards: identify the SCSI device used to boot from (using `mount` or `df`), locate and remove its entry in the file `/etc/blacklisted.wwids`, then reboot the Oracle VM Server. This allows the server to use multipath SAN boot instead of a single SCSI disk.

If necessary, you can change the drive for the master boot record by clicking **Change drive order** and selecting a different drive.
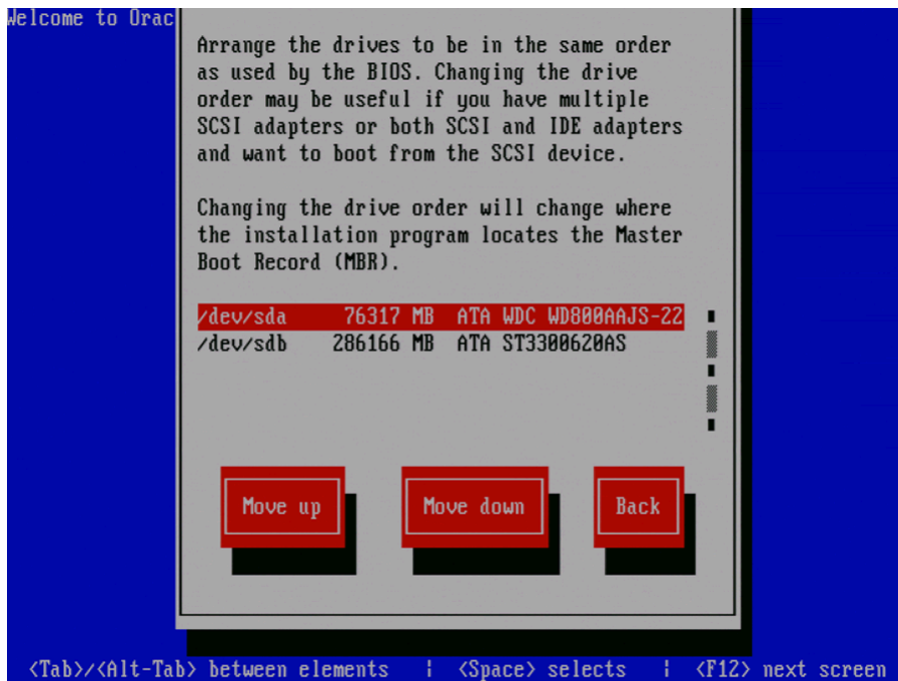
Select a drive in the list and click the **Move up** and **Move down** buttons to change the order, making sure that the drive to locate the Master Boot Record is at the top.

Select **Back** and press **Enter** to return to the **Boot Loader Configuration** screen.

Select **OK** and press **Enter**.

13. The **Oracle VM Management Interface** screen is displayed.
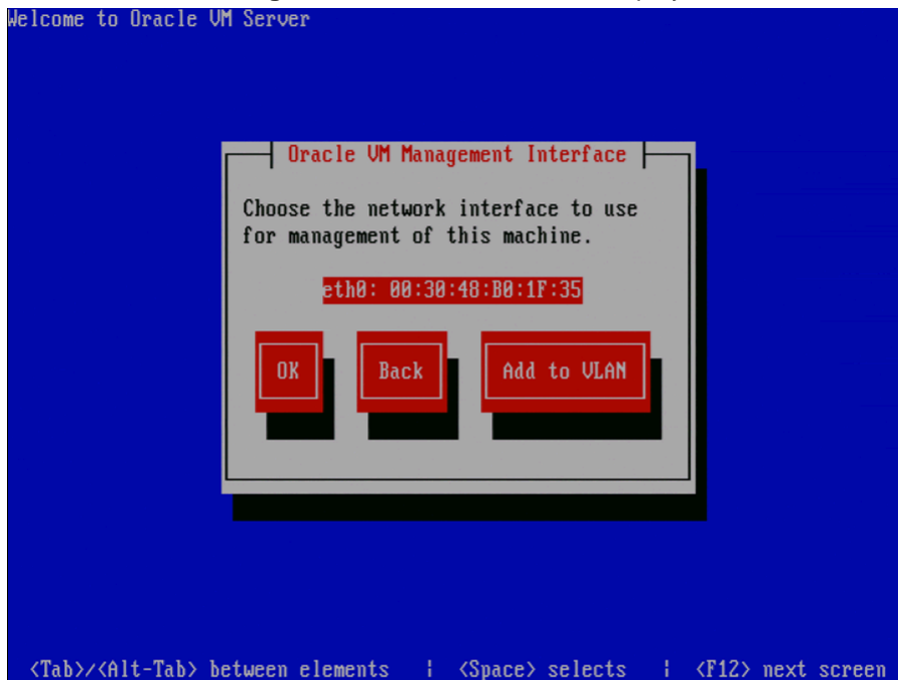
Select the network interface to use for management of the computer.

Choose one of these options:

- Select **OK** to connect the interface to a regular network.

- Select **Add to VLAN** to connect the interface to a VLAN-type network.

Press **Enter**.

14. For non-VLAN installation, proceed to the next step.

If you selected Add to VLAN, the **Oracle VM Management VLAN** screen is displayed.
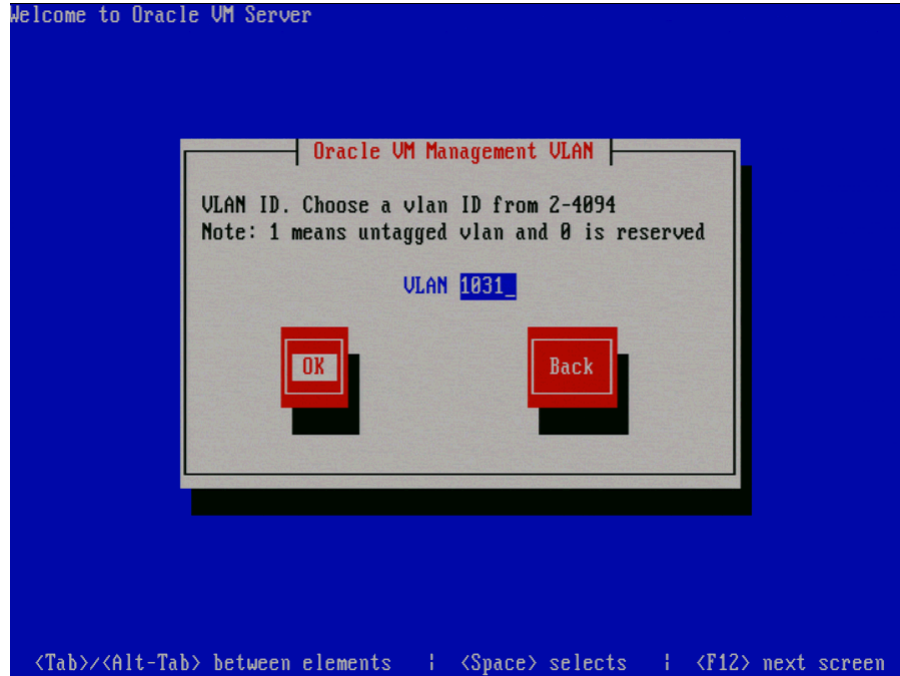
If your Oracle VM Management network is on a VLAN, enter the applicable VLAN tag. Note that 0 is reserved and that 1 corresponds with "untagged".

Select **OK** and press **Enter**.

15. The **Network Interface Configuration** screen is displayed.
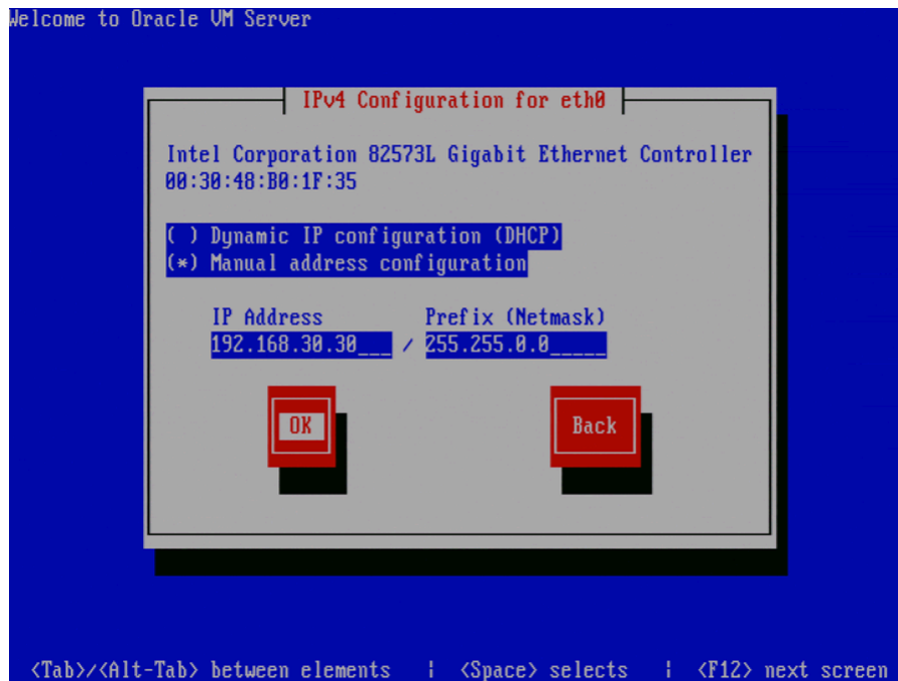
If your computer uses a static IP address, enter the IP address and prefix (netmask) for your computer.

If your computer uses DHCP to assign its IP address, select **Dynamic IP configuration (DHCP)**. See Section 2.1.3, "Network Requirements " for more information on using DHCP with Oracle VM.

Select **OK** and press **Enter**.

16. The **Miscellaneous Network Settings** screen is displayed.
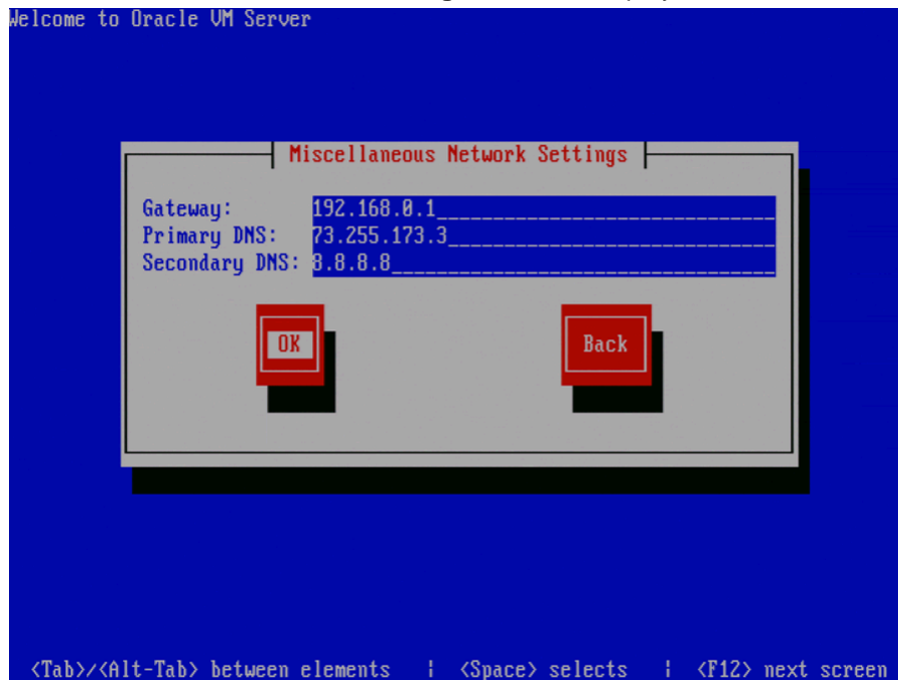
Enter the Gateway, Primary DNS and optional Secondary DNS in the respective fields.

Select **OK** and press **Enter**.

17. The **Hostname Configuration** screen is displayed.
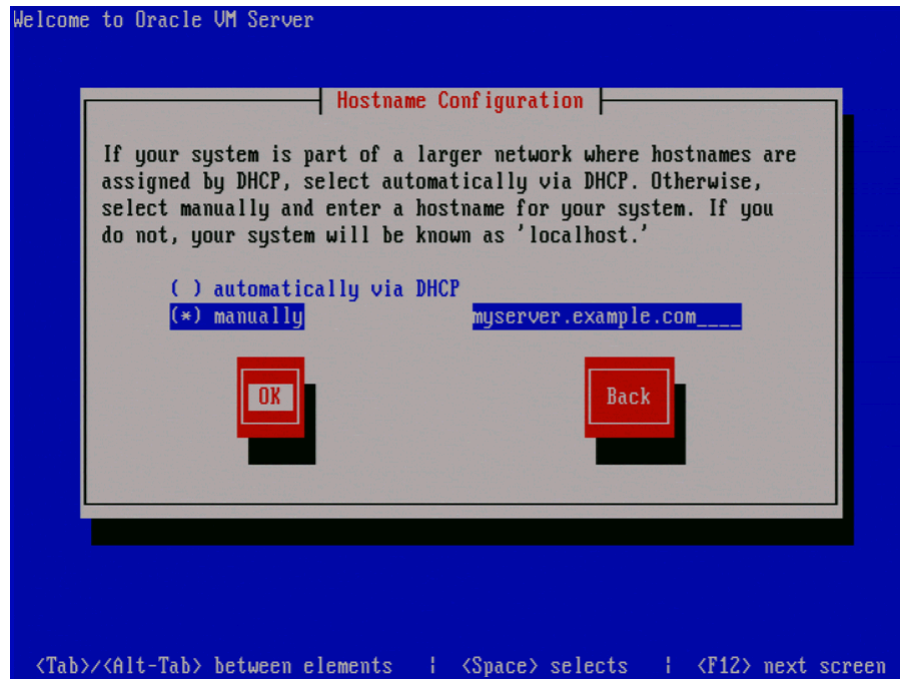
If your machine has its own hostname, select **manually** and enter the hostname or IP address. You should use a fully qualified hostname, for example, myserver.example.com.

If your machine uses DHCP to assign its hostname, select **automatically via DHCP**. See Section 2.1.3, "Network Requirements " for more information on using DHCP with Oracle VM.

Select **OK** and press **Enter**.

18. The **Time Zone Selection** screen is displayed.
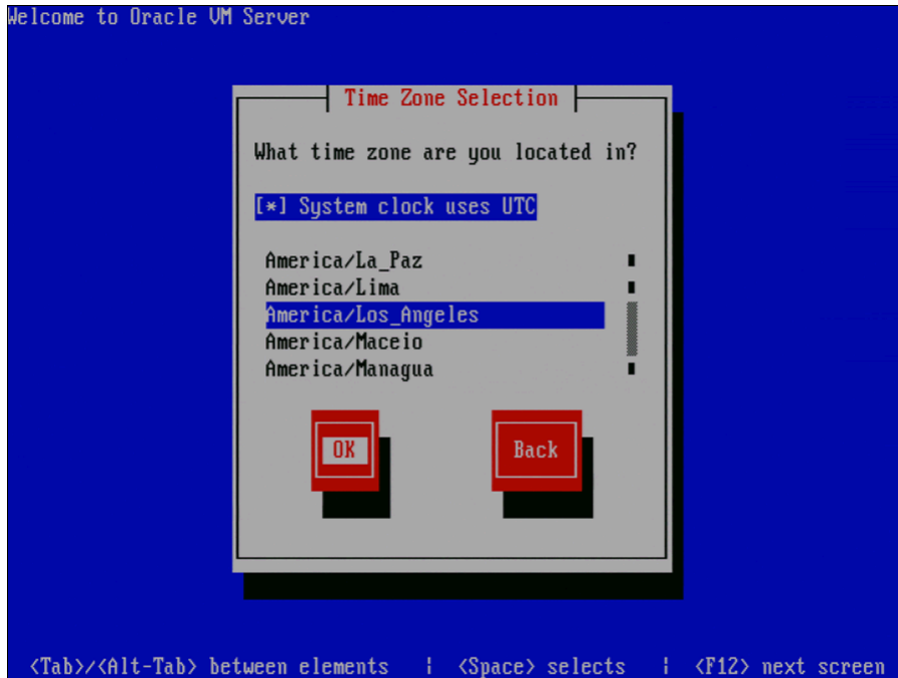
If your operating system uses Coordinated Universal Time (UTC), select **System clock uses UTC**.

Select your time zone by selecting the city closest to your computer's physical location.

Select **OK** and press **Enter**.

19. The **Oracle VM Agent password** screen is displayed.
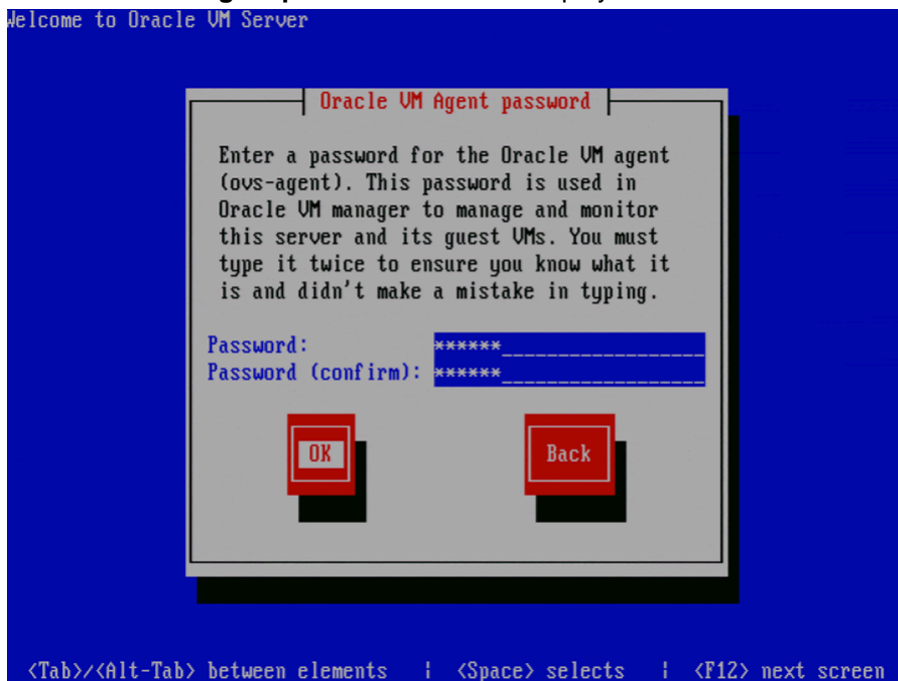
Enter a password to be used for the Oracle VM Agent in the **Password** field. This password is used by Oracle VM Manager to manage and monitor the Oracle VM Server, and the guests created and running within it. This is the password you use when discovering Oracle VM Servers in Oracle VM Manager.

Re-enter the password in the **Password (confirm)** field.

The password characters are not echoed to the screen.

Select **OK** and press **Enter**. If the two passwords do not match, the installer prompts you to enter them again.

> **Note**
>
> If you need to change this password, use the applicable option in the Oracle VM Manager user interface. This will change the Oracle VM Agent password for all Oracle VM Servers in the server pool. See Changing Oracle VM Agent Passwords on Oracle VM Servers in the *Oracle VM User's Guide* for more information.

20. The **Root Password** screen is displayed.
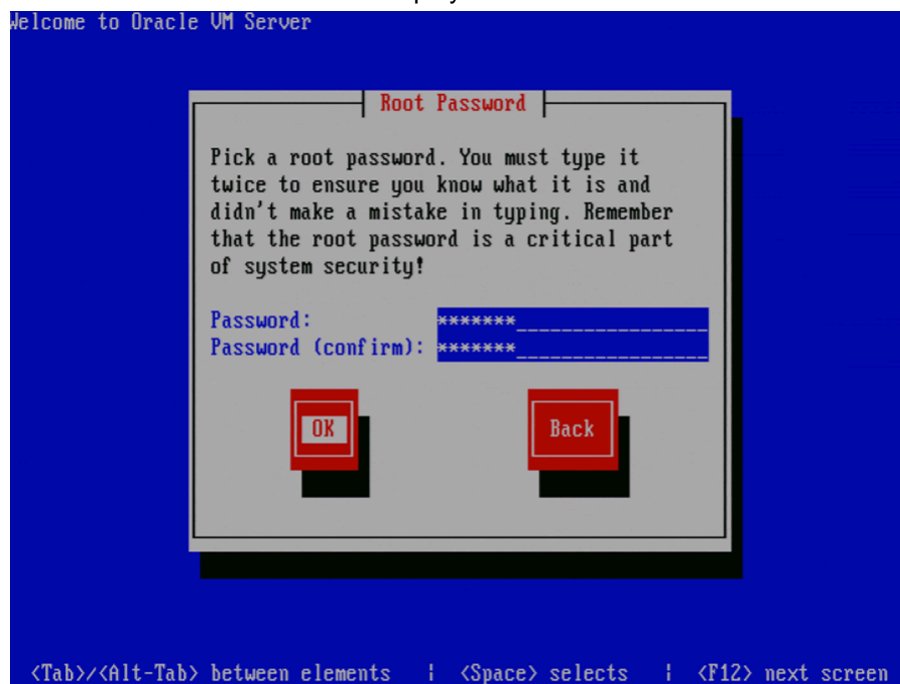
Enter a password for the *root* user in the **Password** field. The *root* password must be at least six characters long.

Re-enter the password in the **Password (confirm)** field.

The password characters are not echoed to the screen.

Select **OK** and press **Enter**. If the two passwords do not match, the installer prompts you to enter them again.

21. The **Installation to begin** screen is displayed.
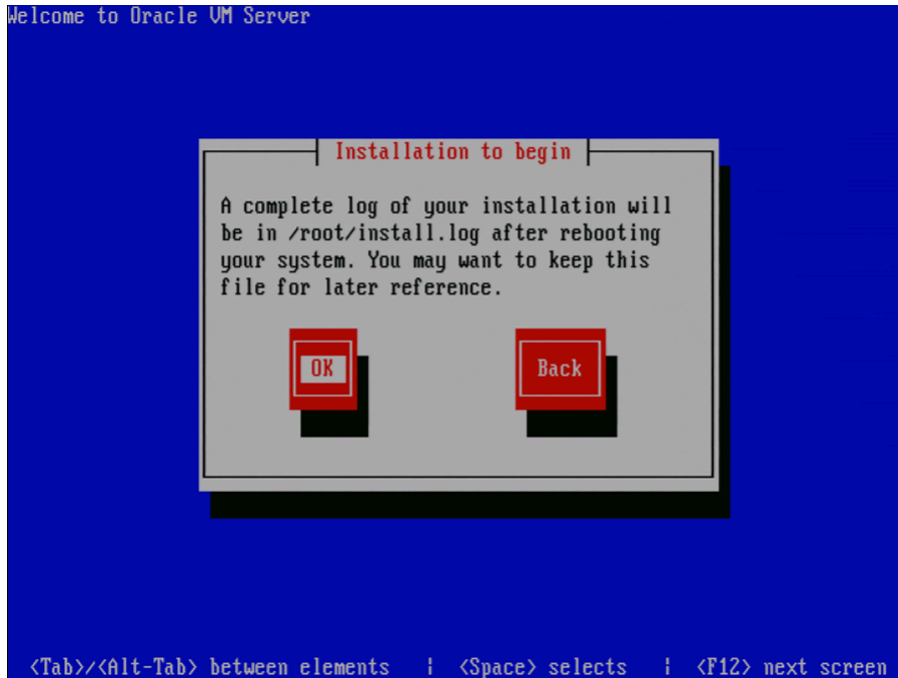
Select **OK** and press **Enter**. The installer installs and configures Oracle VM Server. You can follow the progress of the package installation on-screen.

22. When all files are installed and configuration is complete, the **Complete** screen is displayed.
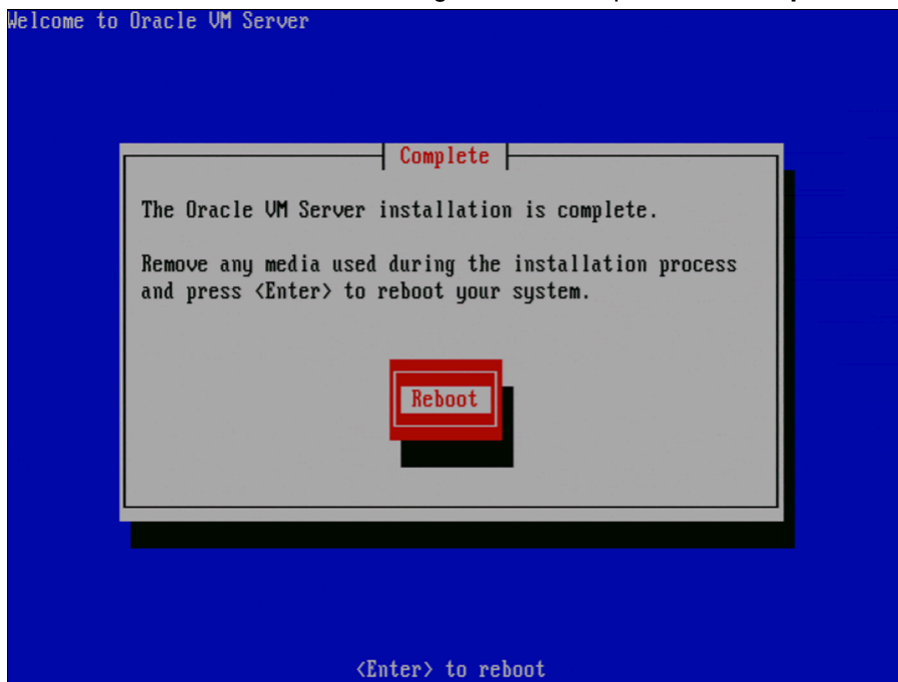
Remove the Oracle VM CD.

Select **Reboot** and press **Enter**. The computer reboots.

23. After reboot, the Oracle VM Server status console is displayed.

```
Oracle VM Server 3.2.1 Console [Alt-F2 for login console]

Local hostname        : ovm3-01
Manager UUID          : Unowned
Hostname              : None
Server IP             : 192.168.30.30
Server Pool           : None
Clustered             : No
Server Pool Virtual IP : None
* Cluster state       : Offline *
Master Server         : No
Cluster type          : None
Cluster storage       : None




OVS Agent     : Running
VMs running   : 0
System memory : 4086
Free memory   : 3455
Uptime        : 0 days, 0 hours, 1 minutes, 32 seconds_
```

The status console displays useful information about the Oracle VM Server's hardware and configuration as well as its cluster and server pool membership. Right after installation there is very little information available, but this screen is populated with more information when the Oracle VM Server is under the control of Oracle VM Manager.

24. To log on to the Oracle VM, press **Alt+F2** to display the login console.

```
Oracle VM server release 3.2.1
Hypervisor running in 64 bit mode with Hardware Virtualization support.

Network :
IF : bond0     MAC : 00:30:48:b0:1f:35 IP : 192.168.30.30
IF : eth0      MAC : 00:30:48:b0:1f:35

CPU :
cpu family    : 6
model         : 15
model name    : Intel(R) Xeon(R) CPU          3040  @ 1.86GHz
ovm3-01 login: _
```

You can log into Oracle VM as *root*, with the password you set during the install. To switch back to the status console, press **Alt+F1**.

The Oracle VM Server installation is complete. The Oracle VM Agent is started automatically and restarts each time the computer is rebooted.

> **Note**
>
> A log of the install is located in `/root/install.log`. If the install fails, review this log file for help identifying the cause.

2.3 Changing the Dom0 Memory Size

When you install Oracle VM Server, the installer sets a default memory size for Dom0. The algorithm used is:

dom0_mem = 502 + int(physical_mem * 0.0205)

Example sizes are set out in table Table 2.1.

Table 2.1 Default Dom0 Memory Size

Physical Memory	Dom0 Memory
2 GB	560 MB
4 GB	600 MB
8 GB	680 MB
16 GB	848 MB
32 GB	1184 MB
64 GB	1856 MB
128 GB	4000 MB
256 GB	5888 MB
512 GB	11264 MB
1024 GB	22008 MB
2048 GB	43504 MB

You may encounter performance issues if the dom0 memory size is not set appropriately for your needs on the Oracle VM Server.

To change the Dom0 memory allocation, edit the /boot/grub/grub.conf file on the Oracle VM Server and change the dom0_mem parameter, for example, to change the memory allocation to 1024 MB, edit the file to be:

```
kernel /xen.gz console=com1,vga com1=38400,8n1 dom0_mem=1024M
```

2.4 SNMP Support for Oracle VM Server

Oracle VM Server includes support for SNMP monitoring, allowing you to take advantage of SNMP monitoring tools like Nagios. By default, the appropriate SNMP packages are installed on Oracle VM Server. Availability of these packages can be checked in the following way:

```
# rpm -qa | grep snmp
net-snmp-utils-5.3.2.2-17.0.1.el5_8.1
net-snmp-libs-5.3.2.2-17.0.1.el5_8.1
net-snmp-5.3.2.2-17.0.1.el5_8.1
```

The SNMP daemons are disabled by default, and should be enabled if you intend to use SNMP to monitor an Oracle VM Server. You can check your configuration to determine whether the service has been enabled in the following way:

```
# chkconfig --list |grep snmp
snmpd           0:off   1:off   2:off   3:off   4:off   5:off   6:off
snmptrapd       0:off   1:off   2:off   3:off   4:off   5:off   6:off
```

To enable the SNMP service, you can start it manually by issuing the following command:

```
# service snmpd start
```

To enable the SNMP service permanently, you can issue the following command:

```
# chkconfig --level 2345 snmpd on
```

Once running, you can use the snmpwalk command line utility to view the available MIBs. The following output shows usage of the snmpwalk command to view the MIBs that are enabled by default:

```
# snmpwalk -v2c -c public localhost
SNMPv2-MIB::sysDescr.0 = STRING: Linux test.us.oracle.com 2.6.39-300.12.0.el5uek #1 SMP
  Thu Oct 4 14:13:28 PDT 2012 x86_64
SNMPv2-MIB::sysObjectID.0 = OID: NET-SNMP-MIB::netSnmpAgentOIDs.10
DISMAN-EVENT-MIB::sysUpTimeInstance = Timeticks: (64612) 0:10:46.12
SNMPv2-MIB::sysContact.0 = STRING: Root >root@localhost> (configure /etc/snmp/snmp.local.conf)
SNMPv2-MIB::sysName.0 = STRING: test.us.oracle.com
SNMPv2-MIB::sysLocation.0 = STRING: Unknown (edit /etc/snmp/snmpd.conf)
SNMPv2-MIB::sysORLastChange.0 = Timeticks: (1) 0:00:00.01
SNMPv2-MIB::sysORID.1 = OID: SNMPv2-MIB::snmpMIB
SNMPv2-MIB::sysORID.2 = OID: TCP-MIB::tcpMIB
SNMPv2-MIB::sysORID.3 = OID: IP-MIB::ip
SNMPv2-MIB::sysORID.4 = OID: UDP-MIB::udpMIB
SNMPv2-MIB::sysORID.5 = OID: SNMP-VIEW-BASED-ACM-MIB::vacmBasicGroup
SNMPv2-MIB::sysORID.6 = OID: SNMP-FRAMEWORK-MIB::snmpFrameworkMIBCompliance
SNMPv2-MIB::sysORID.7 = OID: SNMP-MPD-MIB::snmpMPDCompliance
SNMPv2-MIB::sysORID.8 = OID: SNMP-USER-BASED-SM-MIB::usmMIBCompliance
SNMPv2-MIB::sysORDescr.1 = STRING: The MIB module for SNMPv2 entities
SNMPv2-MIB::sysORDescr.2 = STRING: The MIB module for managing TCP implementations
SNMPv2-MIB::sysORDescr.3 = STRING: The MIB module for managing IP and ICMP implementations
SNMPv2-MIB::sysORDescr.4 = STRING: The MIB module for managing UDP implementations
SNMPv2-MIB::sysORDescr.5 = STRING: View-based Access Control Model for SNMP.
SNMPv2-MIB::sysORDescr.6 = STRING: The SNMP Management Architecture MIB.
SNMPv2-MIB::sysORDescr.7 = STRING: The MIB for Message Processing and Dispatching.
SNMPv2-MIB::sysORDescr.8 = STRING: The management information definitions for the SNMP
  User-based Security Model.
SNMPv2-MIB::sysORUpTime.1 = Timeticks: (0) 0:00:00.00
SNMPv2-MIB::sysORUpTime.2 = Timeticks: (0) 0:00:00.00
SNMPv2-MIB::sysORUpTime.3 = Timeticks: (0) 0:00:00.00
SNMPv2-MIB::sysORUpTime.4 = Timeticks: (0) 0:00:00.00
SNMPv2-MIB::sysORUpTime.5 = Timeticks: (0) 0:00:00.00
SNMPv2-MIB::sysORUpTime.6 = Timeticks: (1) 0:00:00.01
SNMPv2-MIB::sysORUpTime.7 = Timeticks: (1) 0:00:00.01
SNMPv2-MIB::sysORUpTime.8 = Timeticks: (1) 0:00:00.01
HOST-RESOURCES-MIB::hrSystemUptime.0 = Timeticks: (105614) 0:17:36.14
HOST-RESOURCES-MIB::hrSystemUptime.0 = No more variables left in this MIB View (It is past the
  end of the MIB tree)
```

To edit the configuration of the SNMP daemon on your Oracle VM Server you can either edit the configuration file at /etc/snmp/snmpd.conf directly, or you can use the snmpconf command line utility to assist you with any further configuration that you may require.

2.5 Installing Oracle VM Server Support Tools

Additional packages that Oracle VM Server is not dependent on, but which can be useful to resolve support issues are also available within the Oracle VM Server ISO. Depending on your own security policy,

you may or may not choose to install these packages. They are not installed automatically by default. If you choose to install them, you can do so by installing the `ovs-support-tools` meta-package by running the following command on Oracle VM Server as root:

```
# yum install ovs-support-tools
```

This meta-package will install the following dependencies:

- sudo

- bind-utils

- rsync

- sysstat

- traceroute

- iperf

> **Note**
>
> The `sudo` package is installed automatically by default on Oracle VM Server 3.1.1. If you have upgraded from Oracle VM Server 3.1.1, the `sudo` package is already installed. If you do not want this package present on your Oracle VM Server installation, you should manually remove the package by running the following command as root:
>
> ```
> # yum remove sudo
> ```

As an optional post-installation step, Oracle recommends that you also install and configure diagnostics tools on all Oracle VM Servers. These tools can be used to help debug and diagnose issues such as system crashes, hanging, unscheduled reboots, and OCFS2 cluster errors. The output from these tools can be used by Oracle Support and can significantly improve resolution and response times.

Obtaining a system memory dump (vmcore) can be very useful when attempting to diagnose and resolve the root cause of an issue. To be able to get a useful vmcore dump, a proper kdump service configuration is required. See the Oracle Support Document 1351399.1, *How to Configure 'kdump' for Oracle VM 3.0*, for information on how to install kdump.

https://support.oracle.com/epmos/faces/DocumentDisplay?id=1351399.1

In addition, you can install netconsole, a utility allowing system console messages to be redirected across the network to another server. See the Oracle Support Document 1351524.1, *How to Configure "netconsole" for Oracle VM Server 3.0*, for information on how to install netconsole.

https://support.oracle.com/epmos/faces/DocumentDisplay?id=1351524.1

The OSWatcher Black Box (OSWbb) utility may also be useful as it collects and archives operating system and network metrics that you can use to diagnose performance issues. OSWbb operates as a set of background processes on the server and gathers data on a regular basis, invoking utilities like vmstat, netstat, iostat, and top. See the Oracle Support Document 580513.1, *How To Start OSWatcher Black Box Every System Boot*, for information on how to install OSWbb.

https://support.oracle.com/epmos/faces/DocumentDisplay?id=580513.1

Additional information on using diagnostic tools is provided in the Oracle Linux documentation. See the chapter titled *Support Diagnostic Tools* in the *Oracle Linux Administrator's Solutions Guide*.

http://docs.oracle.com/cd/E37670_01/E37355/html/ol_diag.html

Chapter 3 Installing Oracle VM Server for SPARC

Table of Contents

In addition to x86-based hardware, this release of Oracle VM Manager can manage SPARC-based host hardware. This chapter discusses installing and configuring the software required to support management of server pools, Oracle VM Servers, and guest virtual machines on SPARC systems in Oracle VM Manager. This chapter is intended for system administrators who want to install the software required to manage Oracle VM Server for SPARC systems in Oracle VM Manager.

3.1 Preinstallation Tasks and Requirements

Your SPARC server must meet the minimum hardware and software requirements listed in this section.

3.1.1 Hardware Requirements

To install Oracle VM Server for SPARC, you need a SPARC T-Series server, series T2 or later. A full list of the supported hardware is available in the *Oracle VM Server for SPARC 3.0 Release Notes*:

http://docs.oracle.com/cd/E37707_01/index.html

3.1.2 Software Requirements

The software required to configure your SPARC server so that it is discoverable by Oracle VM Manager is listed below.

Oracle Solaris 11.1 OS

A control domain running Oracle Solaris 11.1 OS. Installing Oracle Solaris 11.1 is outside the scope of this guide. For a full list of the Oracle Solaris 11.1 OS requirements see the *Required Software Patches* section in the *Oracle VM Server for SPARC 3.0 Release Notes*:

http://docs.oracle.com/cd/E37707_01

For information on installing or upgrading the Oracle Solaris OS, see the *Installing and Enabling Software* section in the *Oracle VM Server for SPARC 3.0 Administration Guide*:

http://docs.oracle.com/cd/E37707_01

SPARC Firmware

The firmware for your SPARC servers must match the required version to support Oracle VM Server for SPARC. The required firmware version numbers are described in the *Required Software to Enable Oracle VM Server for SPARC 3.0 Features* section in the *Oracle VM Server for SPARC 3.0 Release Notes*:

http://docs.oracle.com/cd/E37707_01

For information on upgrading the system firmware, see the *Upgrading the System Firmware* section in the *Oracle VM Server for SPARC 3.0 Administration Guide*:

http://docs.oracle.com/cd/E37707_01

Oracle VM Server for SPARC Release 3.0

Oracle VM Server for SPARC Release 3.0 or later (the `ldomsmanager` package). Oracle VM Server for SPARC Release 2.1 is included by default with the Oracle Solaris 11 OS, so you do not need to manually install this software. You do, however, need to update it to Release 3.0. Upgrading Oracle VM Server for SPARC is outside the scope of this guide. For information on upgrading Oracle VM Server for SPARC to Release 3.0, see the *Upgrade LDOMs System* section in the *Oracle VM Server for SPARC 3.0 Administration Guide*:

http://docs.oracle.com/cd/E37707_01

Oracle VM Agent for SPARC

Oracle VM Agent for SPARC must be installed in the control domain. Oracle VM Agent for SPARC enables systems running Oracle VM Server for SPARC to be discovered and managed by Oracle VM Manager. See Section 3.1.5, "Getting the Oracle VM Agent for SPARC Software" for information on downloading and installing Oracle VM Agent for SPARC.

3.1.3 Network Requirements

Oracle VM Server for SPARC has the same basic network requirements as specified for x86 hardware in Section 2.1.3, "Network Requirements ".

Oracle VM Server for SPARC has the following additional network requirements:

Network Configuration Profile

The Oracle VM Agent for SPARC requires the control domain to be configured with the DefaultFixed network configuration profile. If this network configuration profile is not enabled on the control domain then, during the installation of the Oracle VM Agent for SPARC software, the Oracle VM Agent for SPARC setup tool offers the opportunity to enable this network configuration profile and to reconfigure the network.

Alternatively, you can manually configure the DefaultFixed network configuration profile and the network on the control domain before installing the Oracle VM Agent for SPARC. For more information about network configuration profiles, see the *Network Configuration Profiles* section in the Introduction to Oracle Solaris 11 Networking guide available at:

http://docs.oracle.com/cd/E26502_01/html/E28986/index.html

Server Hostname

The server hostname should be different from "localhost" and it should resolve to an IP address different from 127.0.0.1.

You can check the hostname of the server with the `hostname` command:

```
# hostname
foo.example.com
```

If the command returns "localhost" then use the `hostname` command to change the hostname.

You can check that the hostname resolves to an IP address with the `getent` command:

```
# getent hosts `hostname`
192.168.1.1
```

If the command does not return an IP address or returns 127.0.0.1 then update the /etc/hosts file or your name service so that the hostname resolves to a valid IP address. For more information about naming services, see the Working With Naming and Directory Services in Oracle Solaris 11.1 documentation at:

http://docs.oracle.com/cd/E26502_01/html/E29002/index.html

3.1.4 LDoms Configuration Requirements

Before installing the Oracle VM Agent for SPARC, the platform must be in factory default configuration. When installing the Oracle VM Agent for SPARC, the Oracle VM Agent for SPARC setup tool creates and stores an initial LDoms configuration appropriate for using the server with Oracle VM Manager.

Use the following procedure to configure the platform with the factory-default configuration:

1. If there are domains other than the primary domain, then stop and unbind all domains except the primary domain.

   ```
   # ldm stop -a
   # ldm unbind <domain>
   ```

2. Select the factory-default configuration and shutdown the primary domain.

   ```
   # ldm set-config factory-default
   # shutdown -i5 -g0 -y
   ```

3. From the service processor, perform a power cycle of the system to load the factory default configuration.

   ```
   -> stop /SYS
   -> start /SYS
   ```

For more information about the factory default configuration, see the *Factory Default Configuration and Disable Logical Domains* section in the Oracle VM Server for SPARC 3.0 Administration Guide available at:

http://docs.oracle.com/cd/E37707_01/html/E29665/index.html

3.1.5 Getting the Oracle VM Agent for SPARC Software

If you do not already have the Oracle VM Agent for SPARC software, download Oracle VM Agent for SPARC from the Oracle Software Delivery Cloud:

https://edelivery.oracle.com/oraclevm

Save the Oracle VM Agent for SPARC archive file in the control domain.

3.2 Installing Oracle VM Agent for SPARC

To install Oracle VM Agent for SPARC:

1. On the control domain, unpack the Oracle VM Agent for SPARC archive file:

   ```
   # tar xzf ovs-ldoms-xx.tar.gz
   ```

2. Run the Oracle VM Agent for SPARC installer:

   ```
   # cd ovs-ldoms-xx
   # ./install
   Oracle VM Agent Release 3.x.x Installer
   ```

3. The installer installs all required packages

   ```
   - Installing Packages


            Packages to install:  6
        Create boot environment: No
   Create backup boot environment: No
            Services to change:  1

   DOWNLOAD                                  PKGS          FILES     XFER (MB)    SPEED
   Completed                                 6/6        226/226      1.6/1.6     0B/s

   PHASE                                          ITEMS
   Installing new actions                       353/353
   Updating package state database                 Done
   Updating image state                            Done
   Creating fast lookup database                   Done
   Reading search index                            Done
   Updating search index                            6/6
   ```

4. The installer runs the Oracle VM Agent setup tool, `ovs-agent-setup`. For more information about the Oracle VM Agent setup tool, see Section 3.3, "Configuring Oracle VM Agent for SPARC".

   ```
   - Configuring the OVS Agent
   ```

5. The installer enables all required SMF services. See Section 3.5, "Using the Oracle VM Agent for SPARC Service" for information on using the Oracle VM Agent for SPARC service.

   ```
   - Enabling Required Services
   Installation Completed.
   ```

The Oracle VM Agent for SPARC is installed in the control domain. Oracle VM Server for SPARC is now configured and ready to be discovered and managed by Oracle VM Manager.

To use the serial console in Oracle VM Manager to connect to your virtual machines, you must first install the prerequisite JTA2 software package. See Section 4.4.4, "Installing and Configuring Virtual Machine Console Utilities" for information on installing the JTA2 software package on the Oracle VM Manager host computer.

3.3 Configuring Oracle VM Agent for SPARC

The Oracle VM Agent for SPARC can be configured using the Oracle VM Agent for SPARC setup command, `ovs-agent-setup`. This command checks that the system is properly configured to run the Oracle VM Agent. If the system is not properly configured then the command attempts to fix the configuration. The `ovs-agent-setup` command is automatically run when installing the Oracle VM Agent.

It is possible to run this command manually to control the configuration of the Oracle VM Agent for SPARC, run the `ovs-agent-setup` command on the control domain:

```
# ovs-agent-setup
```

3.3.1 Configuring the Network

1. If the server is not configured with the DefaultFixed network configuration profile, then the network profile configuration menu is displayed.

```
Network Configuration
*** ERROR: The DefaultFixed network profile is not enabled.

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

Network Profile Configuration

The system must be configured with the DefaultFixed network
profile. You can manually configured the DefaultFixed network
or you can use this tool to do the configuration. This tool
will configure a single network interface, all other network
interfaces will be unconfigured.

Do you want to use this tool to configure the network?

  1) Yes, use this tool to configure the network
  2) No, I will configure the network manually

Choice (1-2) [1]:
```

To use the tool to enable the DefaultFixed network configuration profile and configure the network, select 1.

To skip the configuration of the network, select 2. In which case, you must manually enable the DefaultFixed network configuration profile and configure the network.

2. When configuring the network, if you are not connected to the system console then a warning is displayed.

```
!!! WARNING !!!

You are not connected to the system console. Reconfiguring
the network can disrupt your remote connection to the server
and you can lose the remote access to the server.

!!! WARNING !!!

Are you sure that you want to continue?

  1) Yes, continue and configure the network
  2) No, cancel the configuration of the network

Choice (1-2):
```

To continue the network configuration, select 1.

> **Warning**
>
> Configuring the network can disrupt current network connections to the server
> and you can potentially lose your connection to the server. So it is safer to
> configure the network from the system console.

To cancel the configuration of the network, select 2. Then connect to the system console, and restart
the configuration by running the `ovs-agent-setup` again.

3. The Oracle VM Management Interface menu is displayed.

```
Collecting information about network interfaces...

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

Oracle VM Management Interface

Choose the network interface to use for the management of this
machine.

  1) net0: 00:14:4f:e3:0f:12 (nxge0)
  2) net1: 00:14:4f:e3:0f:13 (nxge1)
  3) net2: 00:14:4f:e3:0f:14 (nxge2)
  4) net3: 00:14:4f:e3:0f:15 (nxge3)

Interface (1-4) [1]:
```

Select the network interface to use for the management of the server.

4. The Network Interface Configuration menu is displayed.

```
IPv4 Configuration for net0

  1) Dynamic IP configuration (DHCP)
  2) Manual address configuration

IPv4 Configuration (1-2) [1]:
```

To configure the network interface with DHCP, select 1. To configure the network interface with a static
IP address, select 2.

Configuring the Network with DHCP

a. If the network interface is to be configured with DHCP, then the Hostname Configuration menu is
displayed.

```
Hostname Configuration

If your system is part of a larger network where hostnames
are assigned by DHCP, select automatically via DHCP.
Otherwise, select manually and enter a hostname for your
system.

  1) automatically via DHCP
  2) manually

Hostname Configuration (1-2) [1]:
```

If the server uses DHCP to assign its hostname, select 1. If the server has its own hostname, select
2. Then, at 'Hostname' prompt, enter the hostname to be used.

b. The Oracle VM management interface configuration is displayed:

```
Oracle VM Management Interface

  Interface: net0
  IP Address: DHCP
  Hostname: DHCP

Are these parameters correct?

  1) Yes, configure the network with these parameters
  2) No, enter new parameters for the network configuration

Choice (1-2):
```

Select 1 to confirm that parameters are correct. The tool then configures the network. Select 2 if you want to enter new parameters, the process to configure the network then restarts from the beginning.

Configuring the Network With a Static IP

a. If the network interface is to be configured with a static IP configuration, then the tool requests to enter IP configuration information.

```
IP Address [192.168.1.10]:
  Prefix (Netmask) [255.255.255.0]:
  Gateway [192.168.1.1]:
  Primary DNS [192.168.168.168]:
  Secondary DNS [192.168.169.169]:
  Hostname [foo.example.com]:
```

b. The Oracle VM management interface configuration is displayed:

```
Oracle VM Management Interface

  Interface: net0
  IP Address: 192.168.1.10
  Prefix (Netmask): 255.255.255.0
  Gateway: 192.168.1.1
  Primary DNS: 192.168.168.168
  Secondary DNS: 192.168.169.169
  Hostname: foo.example.com

Are these parameters correct?

  1) Yes, configure the network with these parameters
  2) No, enter new parameters for the network configuration

Choice (1-2):
```

Select 1 to confirm that parameters are correct. The tool then configures the network. Select 2 if you want to enter new parameters, the process to configure the network then restarts from the beginning.

Configuring the Hostname

The setup tool checks if the server is configured with a valid hostname, that is a hostname different from "localhost" and that resolves to an IP address different from 127.0.0.1.

a. If the hostname of the server is set to localhost, then an error is displayed.

```
*** ERROR: The server has an invalid hostname (localhost).

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

Server Hostname

The server has no hostname or an invalid hostname. Use
the "hostname" command to check and configure the hostname
of the server. You might also want to check the network
configuration of the server.

Press <return> to continue...
*** ERROR: The server has an invalid hostname (localhost).
```

After the setup tool exists, you must use the `hostname` command to configure the hostname of the server.

b. If the hostname resolves to the 127.0.0.1 then an error is displayed and the `/etc/hosts` file is updated to not resolve the hostname to 127.0.0.1.

```
*** ERROR: The server hostname (foo) should not resolve to 127.0.0.1.
Configuring /etc/hosts to not resolve foo to 127.0.0.1
Updating /etc/inet/hosts, the previous file is backed up as /etc/inet/hosts.20121128190648
```

When the setup tool updates the `/etc/hosts` file, the orignal `/etc/hosts` file is backup as `/etc/inet/hosts.<date-and-time>`.

c. If the hostname does not resolve to an IP address then an error is displayed.

```
*** ERROR: The server hostname (foo) does not resolve to an IP address.

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

Server IP Address

The server hostname does not resolve to an IP address.

  hostname: foo

Update the /etc/hosts file or the name service so that the
hostname of the server is resolved to a valid IP address.
You might also want to check the network configuration of
the server.

Press <return> to continue...
*** ERROR: The server hostname (fooxxx) does not resolve to an IP address.
```

After the setup tool exits, you must update the `/etc/hosts` file or your name service so that the hostname resolves to a valid IP address. For more information about naming services, see the Working With Naming and Directory Services in Oracle Solaris 11.1 documentation at:

http://docs.oracle.com/cd/E26502_01/html/E29002/index.html

3.3.2 Oracle VM Agent Configuration

If the Oracle VM Agent password is not defined then the Oracle VM Agent password menu is displayed.

```
*** ERROR: The Oracle VM agent password is not defined.

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

Oracle VM Agent password
```

```
Enter a password for the Oracle VM agent (ovs-agent)
This password is used in Oracle VM manager to manage
and monitor this server and its guest VMs. You must
type it twice to ensure you know what it is and
didn't make a mistake in typing.

Password:
Password (confirm):
```

Enter a password to be used for the Oracle VM Agent. This password is used by Oracle VM Manager to manage and monitor the Oracle VM Server for SPARC, and the guests created and running within it. This is the password you use when discovering Oracle VM Servers in Oracle VM Manager.

Then re-enter the password.

The password characters are not echoed to the screen. If the two passwords do not match, the tool prompts you to enter them again.

3.3.3 Configuring the LDoms Manager

The setup tool checks if the LDoms Manager is correctly configured.

If the LDoms Manager is not correctly configured then its configuration is automatically updated.

```
LDoms Manager Configuration
*** WARNING: The LDoms Manager is not configured for outgoing migration.
Configuring the domain manager
LDoms Manager Configuration OK
```

3.3.4 Configuring LDoms

The setup tools checks if the LDoms configuration is correct.

1. If the LDoms configuration is not correct then it is automatically updated and saved on the Service Processor.

```
LDoms Configuration
*** ERROR: The vcc service is not configured on the primary domain.
*** ERROR: The vds service is not configured on the primary domain.
*** WARNING: The primary domain is configured with too many cpus for creating guest virtual
  machines.
*** WARNING: The primary domain is configured with too much memory for creating guest
  virtual machines.
*** WARNING: The primary domain is not configured with the recommended number of cpus (8).
*** WARNING: The primary domain is not configured with the recommended amount of memory (8GB).
*** WARNING: The system is not using the ovm-initial configuration.
Configuring the vcc service
Configuring the vds service
Configuring the primary domain
Saving the ovm-initial configuration on the service processor
LDoms Configuration OK
```

2. If the LDoms configuration has been updated then the LDoms Configuration menu is displayed.

```
LDoms Configuration

The LDoms configuration has been created and stored on the
service processor. To activate this configuration, you need
to reboot the system.

Do you want to reboot the system now?
```

```
  1) Yes, reboot the system now
  2) No, I will reboot the system later

Choice (1-2):
```

Select 1 to reboot the system now and activate the LDoms configuration. Select 2 to exit the installer, you need to manually reboot the system to activate the LDoms configuration.

3.4 Control Domain CPU and Memory Settings

Installation allocates 8 CPU threads and 8GB of memory to the control domain. Oracle does not recommend changing these default values.

If you encounter performance issues because the control domain does not have enough CPUs or memory, use the following procedure to change the number of CPUs or the amount of memory assigned to the control domain:

1. From the Oracle VM Manager ensure that no virtual machine is running on the server.

2. On the control domain, disable the Oracle VM Agent service.

```
# svcadm disable -s ovs-agent
```

3. Shutdown the control domain.

```
# shutdown -i5 -g0 -y
```

4. From the service process, perform a power cycle of the system.

```
# stop /SYS
# start /SYS
```

5. After the control domain has rebooted, change the number of CPUs and the amount memory assigned to the control domain.

```
# ldm set-vcpu 16 primary
# ldm set-memory 16g primary
```

6. Update the configuration on the service processor.

```
# ldm rm-config ovm-initial
# ldm add-config ovm-initial
```

7. Enable the Oracle VM Agent service.

```
# svcadm enable -s ovs-agent
```

3.5 Using the Oracle VM Agent for SPARC Service

To check the status of the Oracle VM Agent for SPARC service:

```
# svcs ovs-agent
```

To start the Oracle VM Agent for SPARC service:

```
# svcadm enable -r ovs-agent
```

To stop the Oracle VM Agent for SPARC service:

```
# svcadm disable ovs-agent
```

If the Oracle VM Agent service fails to come online, look for errors in the `/var/svc/log/ovm-ovs-agent:default.log` file.

You can also check if the configuration has any error by running the following command:

```
# ovs-agent-setup -c
```

If the command reports any error, then the Oracle VM Agent service is be unable to start.

For more detailed information about managing Oracle Solaris 11 services, see *Oracle Solaris Administration: Common Tasks*:

http://docs.oracle.com/cd/E23824_01/html/821-1451/hbrunlevels-25516.html#scrolltoc

3.6 Oracle VM Agent for SPARC Log File

The Oracle VM Agent for SPARC log file is located at:

```
/var/log/ovs-agent.log
```

The Oracle VM Agent for SPARC service log file is located at:

```
/var/svc/log/ovm-ovs-agent:default.log
```

3.7 Uninstalling Oracle VM Agent for SPARC

To uninstall Oracle VM Agent for SPARC:

1. On the control domain, change directory to the location in which you uncompressed the Oracle VM Agent (see Section 3.2, "Installing Oracle VM Agent for SPARC"), and run the following as the *root* user:

```
# cd ovs-ldoms-xx
# ./uninstall
```

The script uninstalls Oracle VM Agent for SPARC and removes the default Storage Connect plug-ins.

Chapter 4 Installing Oracle VM Manager

Table of Contents

This document is intended for users who want to install Oracle VM Manager. This document provides an overview of the Oracle VM Manager installation process.

4.1 Installation Overview

Oracle VM Manager is installed on a pre-configured Linux operating system, and is comprised of a variety of different components. Oracle VM Manager requires a database that acts as a repository to control the interactions between these different components. The database can either be installed locally, taking advantage of the bundled MySQL database provided with the installer, or can be hosted on an alternate system in the form of an existing Oracle Database. Installing all components, including the bundled database, locally is known as a *Simple* install, and makes use of default configuration parameters. For installations that make use of an existing Oracle Database, the installation is referred to as a *Custom* install, and provides the option to specify particular configuration parameters during the installation process.

> **Note**
>
> As of Oracle VM Release 3.2, the *Simple* installation of Oracle VM Manager is fully
> supported within production environments.

> **Important**
>
> If you intend to make use of an Oracle Database backend by performing a *Custom*
> installation of *Oracle VM Manager* it is imperative that you ensure that an adequate
> database backup regime is adhered to if you intend to make use of Oracle Support
> Services.
>
> As of Oracle VM Release 3.2, the MySQL Database that is included in a *Simple*
> installation is automatically backed up.

Installation of Oracle VM Manager includes the installation of Java, Oracle WebLogic Server and the
Oracle VM Manager application itself. When performing a *Simple* installation, MySQL v5.5 is also installed.

An uninstaller is included with the installation script. The uninstaller gives you options to remove MySQL,
Java, the Oracle VM Manager application, and the Oracle WebLogic Server.

4.2 Oracle VM Manager Components

The applications necessary to run Oracle VM Manager are packaged in the ISO image. Some or all of the
following applications may be installed on the host computer when you install Oracle VM Manager:

Oracle VM Manager	The Oracle VM Manager application provided as a Oracle WebLogic Server domain and container.
Oracle WebLogic Server 11*g*	Oracle WebLogic Server Release 11*g*, including Application Development Framework (ADF) Release 11*g*. For more information about Oracle WebLogic, see the Oracle WebLogic 11*g* documentation:

http://docs.oracle.com/cd/E21764_01/wls.htm

Use of Oracle WebLogic Server with Oracle VM Manager is restricted
to the servlet functionality without clustering for the Oracle VM
Management Server.

Oracle VM Manager
Management Repository

Oracle VM Manager is able to use any of the following database types
to act as a management repository:

- Oracle Database Standard Edition (Oracle SE)

- Oracle Database Enterprise Edition (Oracle EE)

- MySQL Enterprise Edition

If you select to use MySQL as your backend repository, Oracle VM
Manager can be installed using the *Simple* installation which will locally
install the default MySQL database that is packaged with the Oracle VM
Manager installer. Oracle VM Manager makes use of its own version
of MySQL 5.5 Enterprise Edition which is licensed for exclusive use
by Oracle VM (see MySQL Enterprise Edition). MySQL is installed
into the standard location with databases and configuration information
located at `/u01/app/oracle/mysql/data`. The MySQL server that

is installed uses a non-standard TCP Port (49500) for exclusive use by Oracle VM Manager. Do not use the bundled database for other applications.

In order to prevent potential conflicts with existing MySQL installations, The Oracle VM Manager installer will require that you remove any existing MySQL installation prior to installation. If you are running MySQL on the system where you are installing Oracle VM Manager, the installer will exit to allow you to backup any existing databases and remove the existing MySQL instance before proceeding with the installation.

If you select to use an Oracle Database type as your backend repository, you must install and configure it for use according to the documentation packaged with it prior to installing Oracle VM Manager. When running the Oracle VM Manager installer you can select to perform a *Custom* installation, which allows you to specify the parameters that are required in order to connect to the existing database. The Oracle VM Manager installer does not install any Oracle Database itself.

You should not use an Oracle XE database as the Oracle VM Manager repository. Oracle XE is not a supported product and Oracle Support Services cannot provide bug fixes or patches for this product. You should use MySQL or Oracle Database Standard or Enterprise Edition. Oracle VM Manager includes a restricted-use license of the Oracle Database (Standard Edition or Enterprise Edition) for use as the Oracle VM Manager Management Repository only (see Oracle Database).

MySQL Enterprise Edition	MySQL Enterprise Edition is included for use as the Oracle VM Manager Management Repository. Use of MySQL Enterprise Edition, including without limitation MySQL Enterprise Backup, is restricted to use with Oracle VM Manager.
Oracle Database	Your license to Oracle VM Manager includes a restricted-use license of the Oracle Database (Standard Edition or Enterprise Edition) for use as the an external Oracle VM Manager Management Repository only. If you wish to use Oracle Database in this manner you must separately obtain and install it to Oracle VM Manager; Oracle Database SE or EE may be obtained from the Oracle Software Delivery Cloud at:

https://edelivery.oracle.com/

The supported versions of Oracle Database are:

- Oracle Database Release 10.2.0.4 or greater

- Oracle Database Release 11.1.0.7 or greater

- Oracle Database Release 11.2.0.1 or greater

| Oracle Virtual Assembly Builder (OVAB) | If you are subject to a current Oracle support agreement for Oracle VM Server your license to Oracle VM Manager includes a restricted-use license of Oracle Virtual Assembly Builder (OVAB) product to deploy Oracle VM Assemblies. If you wish to use OVAB in this manner you must separately obtain and install it; OVAB may be obtained from the |

Oracle Software Delivery Cloud at: https://edelivery.oracle.com/ under Oracle Fusion Middleware 11g Media Pack for Linux x86.

4.3 Minimum Hardware and Software Requirements

The following minimum system requirements must be met on the computer on which you want to install Oracle VM Manager.

4.3.1 Hardware Requirements

Before you install Oracle VM Manager, make sure that your computer meets the minimum hardware requirements listed in Table 4.1:

Table 4.1 Hardware Requirements for Oracle VM Manager

Items	Minimum Value
Memory	6.0 GB (8.0 GB if using local MySQL)
Processor Type	64 bit
Processor Speed	1.83 GHz*1
Swap Space	2.1 GB
Hard Disk Space	5.5 GB in /u01 2 GB in /tmp 500 MB in /var 500 MB in /usr

4.3.2 Software Requirements

Before you install Oracle VM Manager, make sure that your computer meets the following minimum software and configuration requirements.

4.3.2.1 Operating Systems

Oracle VM Manager is supported on the following operating systems:

- Oracle Linux 5 Update 5 64-bit or later

- Oracle Linux 6 64-bit or later

- Red Hat Enterprise Linux 5 Update 5 64-bit or later

- Red Hat Enterprise Linux 6 64-bit or later

You can download Oracle Linux from:

https://edelivery.oracle.com/linux

Note

For more information about Oracle Linux, see:

http://linux.oracle.com/

| http://www.oracle.com/technetwork/topics/linux/whatsnew/index.html

4.3.2.2 Network

The host computer on which you install Oracle VM Manager must have the host name correctly configured (*ping*able). Make sure the computer's host name matches the host name in the /etc/hosts file. Use the following command to check the host name:

```
# hostname
```

Use a text editor to check the host name in the /etc/hosts file. For example, to use VI enter

```
# vi /etc/hosts
```

For example, if the computer's host name is *hostname1.example.com*, and the IP address is *10.1.1.1*, the corresponding item in the /etc/hosts file should be:

```
10.1.1.1 hostname1.example.com hostname1
```

4.3.2.3 Web Browsers

The Oracle VM Manager user interface is supported in the following Web browsers:

- Microsoft Internet Explorer 7.0 and above

- Mozilla Firefox 3.5 and above

- Apple Safari 5.0 and above

- Google Chrome 1.0 and above

4.3.2.4 Environment Configuration Script

The createOracle.sh is a script that automatically:

- Creates the required operating system users and groups (*oracle*/*dba*) in order for the components to run correctly.

- Creates the /u01 directory if it does not already exist, and corrects permissions on required installation folders.

- Sets the required parameters in the /etc/security/limits.conf file

- Opens the required ports in the /etc/sysconfig/iptables file

To run the createOracle.sh script, you must first mount the Oracle VM Manager installer ISO file or CD. See Section 4.4.1, "Mounting the Oracle VM Manager Installation Media" for information on mounting the installation media. Change directory to the mount point that you created for the CD or ISO, for example, /OVMCD. Then run the createOracle.sh script as the *root* user:

```
# cd /OVMCD
# ./createOracle.sh
```

4.3.2.5 Prerequisite Packages

This section contains the prerequisite operating system packages that may be required prior to installing Oracle VM Manager.

unzip

If you have a minimal installation of Oracle Linux, you may not have unzip installed, which is a required package for the Oracle VM Manager installer. To install unzip, enter:

```
# yum install unzip
```

4.3.2.6 Firewall Configuration

A default Oracle Linux install has the firewall enabled (iptables on). In order to use Oracle VM Manager on a system with iptables enabled you can either open all the ports used by Oracle VM Manager, or open all ports by disabling iptables.

The ports required for the web browser connection to Oracle VM Manager are: 7002 and 15901. TCP 7002 is used by the Oracle VM Servers to connect to Oracle VM Manager. Oracle VM Manager, in turn, connects to the Oracle VM Servers through port 8899 for Oracle VM Agent communication, and port 6900 and up for secure VNC tunneling to virtual machines (one port per VM). Ports 7900 and up are used to allow Oracle VM Manager to open secure serial console tunnels to virtual machines (one port per VM) on the Oracle VM Servers. The Oracle VM Command Line Interface connects to Oracle VM Manager on port 10000. TCP ports 54321 and 54322 can be optionally enabled for remote API access to the Oracle VM Manager core. This must be done if using an external client, such as the Oracle VM Utilities, or UI instance to manage the deployment [1] . In a **Simple** installation, a MySQL database is configured on port 49500. Since the MySQL database is hosted on the same system as Oracle VM Manager it is not necessary to enable access to this port through the firewall, however in a **Custom** installation where the database may be hosted on a separate system, the appropriate port must be accessible to Oracle VM Manager through any firewall configuration. Be sure to open the necessary ports on the different firewalls that may be installed between different parts of your network. Follow the guidelines of in the diagram below:
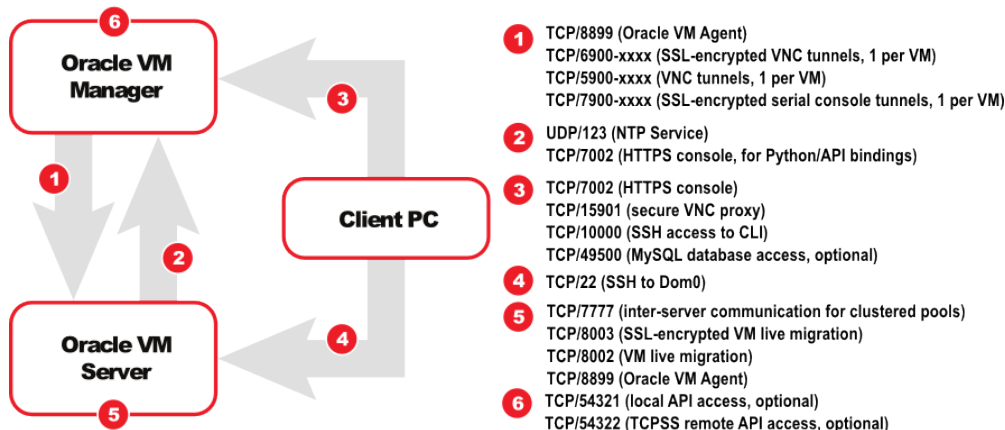
To disable iptables and open all ports, enter the following commands as the *root* user:

```
# service iptables stop
# chkconfig iptables off
```

To configure the firewall to open the required ports automatically, use the environment configuration script provided with the Oracle VM Manager installer. See Section 4.3.2.4, "Environment Configuration Script" for information on using this script.

Alternatively, to open the required ports manually by using the iptables command as the *root* user:

```
# iptables -A INPUT -m state --state NEW -m tcp -p tcp --dport 7002 -j ACCEPT
```

---

[1] See Section 4.9, "Enabling Remote Log Ins" for information on configuring a remote UI instance.

```
# iptables -A INPUT -m state --state NEW -m tcp -p tcp --dport 15901 -j ACCEPT
# iptables -A INPUT -m state --state NEW -m udp -p udp --dport 123 -j ACCEPT
# iptables -A INPUT -m state --state NEW -m udp -p tcp --dport 10000 -j ACCEPT
```

To remotely connect to the Oracle VM Manager core API using an alternate UI instance or an alternate client, also enter the following command:

```
# iptables -A INPUT -m state --state NEW -m tcp -p tcp --dport 54321 -j ACCEPT
```

To enable the Oracle VM Command Line Interface, enter the following command:

```
# iptables -A INPUT -m state --state NEW -m tcp -p tcp --dport 10000 -j ACCEPT
```

When all the ports have been opened, save the iptables configuration:

```
# service iptables save
```

This does not require iptables to be restarted as the commands open the ports while iptables is running and the save ensures they are opened on reboot/restart in future.

4.3.2.7 Installation Ports, Passwords, and Database Information

During the Oracle VM Manager installation, you may be required to set or enter the following ports, passwords and database connection information:

- The database system hostname. This is the IP address or hostname of the host on which the database to use as the Oracle VM Manager database repository is located. The default is `localhost`. This is only required during a *Custom* installation.

- The Oracle Database System ID (SID). This is the database SID to use to connect to the Oracle VM Manager database repository. This is only required during a *Custom* installation.

  For installations using MySQL as the database backend, this can be set to the name of the database to use for the installation. By default, this is `ovs`.

- The Oracle Database HTTP port. The default port number is `8080`. This is only required during a *Custom* installation.

- The database listener port. The default port number for installations using an Oracle Database is `1521`. This is only required during a *Custom* installation.

  The port number that is set for MySQL during a **Simple** installation is set to `49500` by default.

- A system-wide password is required when performing a **Simple** installation. This password is used for all components used by Oracle VM Manager including MySQL, Oracle WebLogic and the Oracle VM Manager application itself. Note that the password should at least adhere to the requirements for an Oracle WebLogic password as set out below.

- The password for the Oracle Database *SYS* and *SYSTEM* accounts. You cannot use special characters for this password. Use only alpha numeric characters. This is only required during a *Custom* installation.

- The password for the Oracle VM Manager OVS database schema. This is only required during a *Custom* installation.

- The password for the Oracle WebLogic *admin* account. This is only required during a *Custom* installation.

  The password you use for the Oracle WebLogic *admin* account must conform to the following rules:

- Be between 8 and 16 characters in length.

- Contain at least 1 lower case and 1 upper case letter.

- Contain at least 1 numeric value or special character.

4.3.2.8 Oracle User

You must have an *oracle* user that is a member of a group named *dba* and which has the correct security limits set.

To configure the oracle user automatically, use the environment configuration script provided with the Oracle VM Manager installer. See Section 4.3.2.4, "Environment Configuration Script" for information on using this script.

Alternatively, you can setup the oracle user by following the commands below:

- If the *oracle* user does not exist on the Oracle VM Manager host, enter the following commands as the *root* user to create the user, create the group, add the user to the group, and set the user's password:

```
# groupadd dba
# useradd -g dba oracle
```

- If the *oracle* user already exists, add it to the *dba* group using the following command:

```
# usermod -g dba oracle
```

- The *oracle* user must also have a `hard nofiles` and `soft nofiles` minimum of at least 8192, as well as some other security limits set. To set these, edit the /etc/security/limits.conf file to include the following:

```
oracle          hard    nofile  8192
oracle          soft    nofile  8192
oracle          soft    nproc   4096
oracle          hard    nproc   4096
oracle          soft    core    unlimited
oracle          hard    core    unlimited
```

4.3.2.9 /u01 Directory

Oracle VM Manager and supporting products are installed into the /u01/app/oracle directory. Before you begin the Oracle VM Manager installation, make sure a /u01 directory exists, and it has at least 2.4 GB of space available.

To create the /u01 directory automatically, use the environment configuration script provided with the Oracle VM Manager installer. See Section 4.3.2.4, "Environment Configuration Script" for information on using this script.

4.4 Installing Oracle VM Manager

It takes approximately 8-15 minutes to complete the installation of Oracle VM Manager, depending on the performance of the Oracle VM Manager host, and the installation type you choose.

Before you begin the installation, download the Oracle VM Manager software from:

http://edelivery.oracle.com/oraclevm

This section describes the Oracle VM Manager installation process.

> **Note**
>
> If you want to install Oracle VM Manager in a virtualized environment, do not install it on Oracle VM Server (dom0) directly; install it into a virtual machine running on an Oracle VM Server. For more information, see Section 4.7, "Running Oracle VM Manager as a Virtual Machine".

4.4.1 Mounting the Oracle VM Manager Installation Media

Before you can run the Oracle VM Manager installer, you must mount the installation media. You can either burn the installation media to a CD and mount the CD, or mount the ISO file directly from the hard drive. Which ever way you choose to mount the installation media, you should perform this as the *root* user on the computer on which you want to install Oracle VM Manager.

- To install Oracle VM Manager from a CD, burn the Oracle VM Manager ISO file to a CD. Insert and mount the Oracle VM Manager CD using the following commands:

```
# mkdir mount-point
# mount /dev/cdrom mount-point
```

Where *mount-point* refers to the directory on which you mount the ISO file.

- To install Oracle VM Manager from a hard drive, locate the folder that contains the ISO file. Mount the ISO file to an existing directory using the following commands:

```
# mkdir mount-point
# mount -o loop OracleVM-Manager-version.iso mount-point
```

Where *mount-point* refers to the directory on which you mount the ISO file. For example:

```
# mkdir /OVMCD
# mount -o loop OracleVM-Manager-3.x.x.iso /OVMCD
```

You can find all the mounted files under the directory /OVMCD.

> **Note**
>
> The location of the mounted Oracle VM Manager ISO file should be accessible by the *oracle* user.

4.4.2 Running the Oracle VM Manager Installer

To install Oracle VM Manager, enter the mount point you created in Section 4.4.1, "Mounting the Oracle VM Manager Installation Media", for example, `/OVMCD` and start the installation with the runInstaller script as the *root* user:

> **Important**
>
> Please ensure that you have met the requirements outlined in Section 4.3, "Minimum Hardware and Software Requirements" before running the runInstaller.sh script.

```
# cd /OVMCD
# ./runInstaller.sh
```

A set of installer options are displayed:

```
Please select an installation type:
```

```
    1: Simple (includes database if necessary)
    2: Custom (using existing Oracle database)
    3: Uninstall
    4: Help
```

At the command prompt, enter **1** to perform a **Simple** installation or **2** to perform a **Custom** installation. If you already have Oracle VM Manager installed and want to uninstall it, select **3** to **Uninstall**.

See Section 4.4.2.1, "Simple Installation (includes database if necessary)" for information on installing Oracle VM Manager using the **Simple** install option.

See Section 4.4.2.2, "Custom Installation (using existing Oracle database)" for information on installing Oracle VM Manager using the **Custom** install option.

See Section 4.14, "Uninstalling Oracle VM Manager" for information on uninstalling Oracle VM Manager, and its components such as MySQL (if applicable), Oracle WebLogic Server, ADF and Java.

You can also perform a silent install using the installer script optional parameters. See Section 4.4.2.3, "Performing a Silent Install"on how to perform a silent install, and Appendix A, *Oracle VM Manager Installation Script (runInstaller)* at the end of this chapter for the full syntax to the installation script.

4.4.2.1 Simple Installation (includes database if necessary)

The **Simple** installation option should be used if you do not have an existing Oracle Database installed or if you would like to keep Oracle VM Manager running independently of any existing Oracle Database.

The **Simple** installation option installs MySQL Enterprise Edition, MySQL Enterprise Edition Backup, Oracle WebLogic Server, Oracle Application Development Framework (ADF), Java, and Oracle VM Manager on the local system. The following example shows the **Simple** installation process.

> **Note**
>
> If you have an existing MySQL installation on the system where you intend to install Oracle VM Manager you should backup your databases and uninstall it. Oracle VM Manager requires exclusive use of MySQL due to the specific tuning parameters that it applies to the configuration. Oracle VM Manager uses MySQL Enterprise Edition on a non-standard port. The licensing of the MySQL Enterprise Edition provided with Oracle VM Manager grants exclusive use to Oracle VM. You must not use the MySQL server provided for any other purpose. If MySQL is installed as a result of a previous installation of Oracle VM Manager the installation prompts you to provide the hostname, root password and port number that was used in the previous installation.

Example 4.1 Simple Installation

```
# ./runInstaller.sh

Oracle VM Manager Release 3.x.x Installer

Oracle VM Manager Installer log file:
  /tmp/filename.log


Please select an installation type:
1: Simple (includes database if necessary)
2: Custom (using existing Oracle database)
3: Uninstall
4: Help

    Select Number (1-4): 1
```

The installation process starts, and the following is displayed:

```
Starting production with local database installation ...

Verifying installation prerequisites ...

One password is used for all users created and used during the installation.
Enter a password for all logins used during the installation:
Enter a password for all logins used during the installation (confirm):
```

Enter a system-wide password that can be used when creating accounts for all of the components within the Oracle VM Manager installation. This password will be used for your MySQL install, WebLogic and Oracle VM Manager itself. Password requirements are outlined in Section 4.3.2.7, "Installation Ports, Passwords, and Database Information". You will need to confirm your password after you have entered it.

```
Verifying configuration ...
```

Warnings may occur if not all recommendations are met.

The installer provides a final option to continue or to abort the installation process. Enter **1** to continue. Progress of the installation is output on your screen step by step, as shown below:

```
Start installing the configured components:
   1: Continue
   2: Abort

   Select Number (1-2): 1

Step 1 of 9 : Database Software...
Installing Database Software...
Retrieving MySQL Database 5.5 ...
Unzipping MySQL RPM File ...
Installing MySQL 5.5 RPM package ...
Configuring MySQL Database 5.5 ....

Step 2 of 9 : Java ...
Installing Java ...

Step 3 of 9 : Database schema ...
Creating database 'ovs' ...
Creating user 'ovs' for database 'ovs'...

Step 4 of 9 : WebLogic ...
Retrieving Oracle WebLogic Server 11g ...
Installing Oracle WebLogic Server 11g ...

Step 5 of 9 : ADF ...
Retrieving Oracle Application Development Framework (ADF) ...
Unzipping Oracle ADF ...
Installing Oracle ADF ...
Installing Oracle ADF Patch...

Step 6 of 9 : Oracle VM  ...
Retrieving Oracle VM Manager Application ...
Extracting Oracle VM Manager Application ...
Installing Oracle VM Manager Core ...

Step 7 of 9 : Domain creation ...
Creating Oracle WebLogic Server domain ...
Starting Oracle WebLogic Server 11g ...
Configuring data source 'OVMDS' ...
Creating Oracle VM Manager user 'admin' ...

Step 8 of 9 : Deploy ...
```

```
Deploying Oracle VM Manager Core container ...
Deploying Oracle VM Manager UI Console ...
Deploying Oracle VM Manager Help ...
Granting ovm-admin role to user 'admin' ...
Set Log Rotation ...
Disabling HTTP and enabling HTTPS...
Configuring Https Identity and Trust...

Step 9 of 9 : Oracle VM Manager Shell ...
Retrieving Oracle VM Manager Shell & API ...
Extracting Oracle VM Manager Shell & API ...
Installing Oracle VM Manager Shell & API ...

Retrieving Oracle VM Manager Upgrade tool ...
Extracting Oracle VM Manager Upgrade tool ...
Installing Oracle VM Manager Upgrade tool ...

Retrieving Oracle VM Manager CLI tool ...
Extracting Oracle VM Manager CLI tool...
Installing Oracle VM Manager CLI tool ...
Copying Oracle VM Manager shell to '/usr/bin/ovm_shell.sh' ...
Installing ovm_admin.sh in '/u01/app/oracle/ovm-manager-3/bin' ...
Installing ovm_upgrade.sh in '/u01/app/oracle/ovm-manager-3/bin' ...
Enabling Oracle VM Manager service ...
Shutting down Oracle VM Manager instance ...
Restarting Oracle VM Manager instance ...
Waiting for the application to initialize ...
Oracle VM Manager is running ...
Oracle VM Manager installed.


Please wait while WebLogic configures the applications... This can take up to 5 minutes.
```

When the installation is complete a summary similar to the following is displayed:

```
Installation Summary
--------------------
Database configuration:
  Database type              : MySQL
  Database host name         : localhost
  Database name              : ovs
  Database listener port     : 49500
  Oracle VM Manager schema   : ovs

Weblogic Server configuration:
  Administration username    : weblogic

Oracle VM Manager configuration:
  Username                   : admin
  Core management port       : 54321
  UUID                       : 0004fb00000100008e2c477634f634c9


Passwords:
There are no default passwords for any users. The passwords to use for Oracle VM Manager,
Database, and Oracle WebLogic Server have been set by you during this installation. In
the case of a default install, all passwords are the same.

Oracle VM Manager UI:
  https://hostname:7002/ovm/console
Log in with the user 'admin', and the password you set during the installation.

Please note that you need to install tightvnc-java on this computer to access a virtual
machine's console.

For more information about Oracle Virtualization, please visit:
  http://www.oracle.com/virtualization/
```

```
Oracle VM Manager installation complete.

Please remove configuration file /tmp/ovm_configid.
```

> **Important**
>
> Make sure you delete the temporary configuration file created during the
> installation:
>
> /tmp/ovm_config*id*
>
> This file is useful for debugging installation issues, but does contain some sensitive
> information that may present a security issue if left in place.

> **Warning**
>
> Some performance degradation may be noted when installing onto an Oracle
> Linux system using an EXT4 formatted filesystem. This is the result of the
> default mount parameters for EXT4 on an Oracle Linux installation. In order to
> ensure that your installation performs optimally, the /etc/fstab must be edited to
> provide alternate mount options for the mount point where Oracle VM Manager
> is installed. Mount options for an EXT4 filesystem should be specified as:
> **rw,noatime,data=writeback,barrier=0,nobh**.

4.4.2.2 Custom Installation (using existing Oracle database)

The **Custom** installation option allows you to use an existing local or remote Oracle Database as the Oracle
VM Manager database repository. During the **Custom** installation process, you need to set the users
and passwords to use in order to connect to the database, the SID that should be used within the Oracle
Database to load the Oracle VM Manager schema, the username and password to be used for the Oracle
WebLogic Server, and the password for the admin user account in Oracle VM Manager. The following
example shows the **Custom** installation process.

Example 4.2 Custom Installation

```
# ./runInstaller.sh

Oracle VM Manager Release 3.x.x Installer

Oracle VM Manager Installer log file:
  /tmp/ovm-manager-3-install-date-id.log


Please select an installation type:
1: Simple (includes database)
2: Custom (using existing Oracle database)
3: Uninstall
4: Help


   Select Number (1-4): 2
```

The installation process starts, and the following is displayed:

```
Starting production installation ...

Verifying installation prerequisites ...

Oracle Database Repository
==========================
```

```
Use an existing Oracle database
```

When prompted, enter the following information as outlined in section Section 4.3.2.7, "Installation Ports, Passwords, and Database Information":

```
Enter the Oracle Database hostname [localhost]:
Enter the Oracle Database System ID (SID) [ORCL]:
Enter the Oracle Database SYSTEM password:
Enter the Oracle Database listener port [1521]:

Enter the Oracle VM Manager database schema [ovs]:
Enter the Oracle VM Manager database schema password:
Enter the Oracle VM Manager database schema password (confirm):

Oracle Weblogic Server 11g
==========================
Enter the Oracle WebLogic Server 11g user [weblogic]:
Enter the Oracle WebLogic Server 11g user password:
Enter the Oracle WebLogic Server 11g user password (confirm):

Oracle VM Manager application
=============================
Enter the username for the Oracle VM Manager administration user [admin]:
Enter the admin user password:
Enter the admin user password (confirm):

Verifying configuration ...

Start installing the configured components:
   1: Continue
   2: Abort

   Select Number (1-2): 1
```

You have the option to continue or abort the installation. Enter **1** to continue. You may be prompted again to either abort or continue the installation in case certain components are already present on your system. Progress of the installation is output on your screen step by step, as shown below:

```
Start installing the configured components:
   1: Continue
   2: Abort

   Select Number (1-2): 1

Step 1 of 9 : Database ...
Installing Database ...
Database installation skipped ...

Step 2 of 9 : Java ...
Installing Java ...
```

If an existing Oracle VM Manager database schema is found in the database, the following is displayed:

```
Step 3 of 9 : Database Schema ...
An existing OVM database was found.  How should the install proceed?
   1: Use the existing OVM database
   2: Remove the existing OVM database and create a new OVM database
   3: Abort

   Select Number (1-3): 1
```

Enter 1 - 3, depending on your requirements. In this example, the existing schema is retained.

Alternatively, if no existing Oracle VM Manager database schema is found in the database, the schema is created.

```
Step 3 of 9 : Database Schema ...
Creating database schema 'ovs' ...

Step 4 of 9 : WebLogic ...
Retrieving Oracle WebLogic Server 11g ...
Installing Oracle WebLogic Server 11g ...

Step 5 of 9 : ADF ...
Retrieving Oracle Application Development Framework (ADF) ...
Unzipping Oracle ADF ...
Installing Oracle ADF ...

Step 6 of 9 : Oracle VM  ...
Retrieving Oracle VM Manager Application ...
Extracting Oracle VM Manager Application ...
Installing Oracle VM Manager Core ...

Step 7 of 9 : Domain creation ...
Creating Oracle WebLogic Server domain ...
Starting Oracle WebLogic Server 11g ...
Configuring data source 'OVMDS' ...
Creating Oracle VM Manager user 'admin' ...

Step 8 of 9 : Deploy ...
Deploying Oracle VM Manager Core container ...
Deploying Oracle VM Manager UI Console ...
Deploying Oracle VM Manager Help ...
Granting ovm-admin role to user 'admin' ...
Set Log Rotation ...
Disabling HTTP and enabling HTTPS...
Configuring Https Identity and Trust...

Step 9 of 9 : Oracle VM Manager Shell ...
Retrieving Oracle VM Manager Shell & API ...
Extracting Oracle VM Manager Shell & API ...
Installing Oracle VM Manager Shell & API ...

Retrieving Oracle VM Manager Upgrade tool ...
Extracting Oracle VM Manager Upgrade tool ...
Installing Oracle VM Manager Upgrade tool ...
Copying Oracle VM Manager shell to '/usr/bin/ovm_shell.sh' ...
Installing ovm_admin.sh in '/u01/app/oracle/ovm-manager-3/bin' ...
Installing ovm_upgrade.sh in '/u01/app/oracle/ovm-manager-3/bin' ...
Enabling Oracle VM Manager service ...
Shutting down Oracle VM Manager instance ...
Restarting Oracle VM Manager instance ...
Waiting 15 seconds for the application to initialize ...
Oracle VM Manager is running ...
Oracle VM Manager installed.

Please wait while WebLogic configures the applications... This can take up to 5 minutes.
```

When the installation is complete a summary similar to the following is displayed:

```
Installation Summary
--------------------
Database configuration:
  Database host name         : localhost
  Database instance name (SID): MYDB
  Database listener port     : 1521
  Application Express port    : 8080
  Oracle VM Manager schema    : ovs

Weblogic Server configuration:
  Administration username     : weblogic

Oracle VM Manager configuration:
```

```
  Username                  : admin
  Core management port       : 54321
  UUID                       : 0004fb0000010000cc1b57e39ff77ea9

Passwords:
There are no default passwords for any users. The passwords to use for Oracle VM
Manager, Database, and Oracle WebLogic Server have been set by you
during this installation. In the case of a demo install, all passwords are the
same.

Oracle VM Manager UI:
  https://myserver.example.com:7002/ovm/console
Log in with the user 'admin', and the password you set during the installation.

Please note that you need to install tightvnc-java on this computer to access a virtual
machine's console.

For more information about Oracle Virtualization, please visit:
  http://www.oracle.com/virtualization/

Oracle VM Manager installation complete.

Please remove configuration file /tmp/ovm_configid.
```

Important

Make sure you delete the temporary configuration file created during the installation:

/tmp/ovm_config*id*

Warning

If performing a custom installation using an existing Oracle Database, when you have completed the installation, ensure that you migrate any LOBs using the Oracle BasicFiles format to use the Oracle SecureFiles format instead. This can lead to improved performance and may help to avoid the possibility of LOB corruption. This issue is described in Oracle DB Corruption Can Occur on Databases Using the BasicFiles LOB in the *Oracle™ VMOracle VM Release Notes* .

4.4.2.3 Performing a Silent Install

The Oracle VM Manager installer can be installed *silently*, without any intervention. An installation configuration script can be used to provide the installation options, and a set of command line options are available for the installation parameters. See Appendix A, *Oracle VM Manager Installation Script (runInstaller)* at the end of this chapter for information on the command line options. The configuration script is written in YAML. Structure is shown through indentation (one or more spaces). Sequence items are denoted by a dash, and key value pairs within a map are separated by a colon. Structure is shown through indentation (one or more spaces) and key value pairs within a map are separated by a colon.

The following example silently performs a **Custom** install.

Warning

Always provide the absolute path to the configuration file. The installer cannot process a relative path and will simply terminate the installation process.

Example 4.3 Silent install using configuration file

The command to run the silent production installation using a configuration file is:

```
./runInstaller.sh --config=/path/config.yml --installtype=Custom --assumeyes
```

The configuration file used in this installation example (config.yml) installs a local MySQL database. Replace the password entry with your own password.

```
db:
      install        : Yes
      host           : localhost
      sys_password   : password
      port           : 49500
      sid            : ovs
      mgmt_port      : 8080
      user           : ovs
      password       : password

webLogic:
      install        : Yes
      user           : weblogic
      password       : password

java:
      install        : Yes

ADF:
      install        : Yes

OVMCore:
      install         : Yes
      user            : admin
      password        : password

OVMConsole:
      install        : Yes

OVMShell:
      install        : Yes

onFailure:
      cleanup        : No

OVMUpgrade:
      install        : Yes
```

4.4.3 Configuring the NTP Service

When an Oracle VM Server is discovered in Oracle VM Manager, NTP (Network Time Protocol) is automatically configured and enabled to ensure time synchronization. Oracle VM automatically configures the Oracle VM Manager host computer as the NTP source for all Oracle VM Servers under its control, unless other NTP servers are configured in the user interface or CLI. See Managing NTP on Oracle VM Servers for information on configuring your own set of NTP servers.

If you do not set up your own list of NTP servers, and want to use the Oracle VM Manager host computer to provide NTP time synchronization services, NTP must first be installed and configured on the Oracle VM Manager host server. Make sure that your Oracle VM Manager host is either registered with the Unbreakable Linux Network (ULN) or configured to use Oracle's public YUM service.

To configure NTP on the Oracle VM Manager host:

1. Install the NTP package.

```
# yum install ntp
```

When NTP is installed, configure it to both synchronize with upstream servers and provide time services to the local network, where the Oracle VM Servers reside.

2. Enable upstream synchronization by defining the upstream time servers in the `ntp.conf` file.

   Oracle Linux uses three public NTP servers as upstream time sources by default. Check with your network administrator if time services are provided on the corporate network and, if necessary, replace the default entries with the names or IP addresses of your NTP servers.

   Use your favorite text editor to modify `/etc/ntp.conf`. Search for these entries:

   ```
   # vi /etc/ntp.conf

   server 0.rhel.pool.ntp.org
   server 1.rhel.pool.ntp.org
   server 2.rhel.pool.ntp.org
   ```

3. Configure downstream access for the Oracle VM Servers in your local network. To do so, disable the default `"noquery"` option for the Oracle VM Server management network.

   Again in the `/etc/ntp.conf` file, search for this entry:

   ```
   #restrict 192.168.1.0 mask 255.255.255.0 nomodify notrap
   ```

   Remove the # character at the start of the line to uncomment this entry. Replace `192.168.1.0` with the network address of your Oracle VM Server management network. You may also need to adjust the netmask (`255.255.255.0`). Once you have finished editing, save the `/etc/ntp.conf` file.

4. Start the NTP service and set it to launch automatically upon boot.

   ```
   # service ntpd start
   # chkconfig ntpd on
   ```

5. When NTP is running, check upstream synchronization. The `ntpq` command should output something similar to this example:

   ```
   # ntpq -p

        remote           refid      st t when poll reach   delay   offset  jitter
   ==============================================================================
    lists2.luv.asn. 203.161.12.165  16 u   25   64    3    3.495  -3043.1   0.678
    ns2.novatelbg.n 130.95.179.80   16 u   27   64    3   26.633  -3016.1   0.797
    sp1.mycdn.fr    130.234.255.83  16 u   24   64    3    4.314  -3036.3   1.039
   ```

   When upstream NTP is working properly, delay and offset values should be non-zero and the jitter value should be below 100.

6. Test downstream synchronization from another server in the management network to ensure that NTP services are working. Note that it may take several minutes before your NTP server is able to provide time services to downstream clients. Begin by checking the *stratum level* of your server:

   ```
   # ntpq -c rv

   assID=0 status=c011 sync_alarm, sync_unspec, 1 event, event_restart,
   version="ntpd 4.2.4p8@1.1612-o Tue Jul  6 21:50:26 UTC 2010 (1)",
   processor="x86_64", system="Linux/2.6.32-200.19.1.el6uek.x86_64",
   leap=11,  stratum=16 , precision=-20, rootdelay=0.000,
   rootdispersion=1.020, peer=0, refid=INIT,
   reftime=00000000.00000000  Thu, Feb  7 2036 17:28:16.000, poll=6,
   clock=d21d4a96.a26c5962  Fri, Sep 16 2011 14:09:58.634, state=0,
   offset=0.000, frequency=0.000, jitter=0.001, noise=0.001,
   stability=0.000, tai=0
   ```

   If the server is showing `stratum=16`, wait a few minutes and try again. It may take up to 15 minutes for an NTP server to stabilize sufficiently to lower its stratum level.

Downstream clients will not synchronize with a server at stratum level 16. Once the stratum level has dropped, log in to an available Linux host in your management network, not running Oracle VM Manager, and issue the following command:

```
# ntpdate -d manager.hostname
[...]
16 Sep 13:58:25 ntpdate[1603]: step time server 192.168.1.1 offset 3.009257 sec
```

This command runs ntpdate in debug mode, in which case the availability of the remote time server is checked. If the debug run ends in a line similar to the one in this example, the test is successful. In case the stratum level is still too high, the error message `"Server dropped: strata too high"` is displayed.

When you have confirmed with these tests that NTP is working properly for your environment, you should not need to check this again.

> **Caution**
>
> NTP communicates over UDP port 123. Ensure that no firewall is blocking this traffic.

4.4.4 Installing and Configuring Virtual Machine Console Utilities

There are two types of virtual machine consoles in Oracle VM Manager: the VNC console used to connect virtual machines in x86-based server pools, and the *serial* console used to connect to virtual machines in both x86-based and SPARC-based server pools. This section discusses installing the prerequisite software and any configuration required to use both console types.

4.4.4.1 Oracle VM Server VNC Console for x86

Oracle VM Manager uses a secure tunnel to protect the virtual machine *console* (remote connection utility) data across the network. Oracle VM Manager does not communicate directly with the VNC client, but rather connects via an SSH-encrypted tunnel on port 69*xx* (where *xx* is based on the guest to which it is connecting).

Any firewall between the client and Oracle VM Manager needs port 15901 to be open. Any firewall between the Oracle VM Manager and the Oracle VM Servers needs ports 6900 and above open; one port for each virtual machine on an Oracle VM Server. For example, if you have 100 virtual machines on an Oracle VM Server, you should open ports 6900-6999 (100 ports) on any firewall between the Oracle VM Server and Oracle VM Manager.

To connect to a virtual machine's VNC console in Oracle VM Manager, you should have a VNC viewer installed somewhere in your environment, either:

- On the Oracle VM Manager host computer

- On the client computer

- On both the Oracle VM Manager host computer and the client computer

The virtual machine VNC console feature uses the client instance of a VNC viewer, if one exists, to connect to a virtual machine's console. If a VNC viewer is not found on the client computer, a request is sent to the Oracle VM Manager host computer to display the VNC viewer.

It is preferred that you install TightVNC on the Oracle VM Manager host computer. You can get the latest TightVNC package from:

http://oss.oracle.com/oraclevm/manager/RPMS/

Install TightVNC with the command:

```
# rpm -ivh tightvnc-java-version.noarch.rpm
```

Packages are also available at Oracle's public YUM repository:

- TightVNC (Oracle Linux 5): http://public-yum.oracle.com/repo/EnterpriseLinux/EL5/addons/x86_64/tightvnc-java-1.3.9-4.noarch.rpm

- TightVNC (Oracle Linux 6): http://public-yum.oracle.com/repo/OracleLinux/OL6/addons/x86_64/tightvnc-java-1.3.9-4.noarch.rpm

On the client computer you use to connect to Oracle VM Manager it is recommended that you install RealVNC. Oracle recommends RealVNC on the client computer as it renders quickly, has better keyboard support, and has less mouse control issues compared to other VNC clients. The RAS proxy applet used to view the screen or console of a virtual machine looks for RealVNC by default. If you have multiple VNC viewers on your client computer, you can configure which one is used from the virtual machine console in Oracle VM Manager. See Connecting to a Virtual Machine for more information on using and configuring the VNC client.

If you are using a Linux-based operating system on your client computer, you can also install TightVNC as above on your client computer and it is automatically discovered when you connect to a virtual machine using the console feature in Oracle VM Manager.

4.4.4.2 Oracle VM Server Serial Console for x86 and SPARC

You cannot use the standard VNC console to connect to virtual machines on a SPARC-based server pool. Instead, use the *serial* console. The serial console can also be used to connect to virtual machines running on x86-based server pools. The serial console behaves differently to the VNC-based x86 console, and the console must be displayed using the Java Telnet Application (JTA2) package installed on the Oracle VM Manager host computer. You can get the latest JTA2 package from:

http://oss.oracle.com/oraclevm/manager/RPMS/

Install JTA2 with the command:

```
# rpm -ivh jta-version.noarch.rpm
```

Packages are also available at Oracle's public yum server:

- JTA (Oracle Linux 5): http://public-yum.oracle.com/repo/EnterpriseLinux/EL5/addons/x86_64/jta-2.6-1.noarch.rpm

- JTA (Oracle Linux 6): http://public-yum.oracle.com/repo/OracleLinux/OL6/addons/x86_64/jta-2.6-1.noarch.rpm

Any firewall between the Oracle VM Manager and the Oracle VM Servers needs ports 7900 and above open; one port for each virtual machine on an Oracle VM Server. For example, if you have 100 virtual machines on an Oracle VM Server, you should open ports 7900-7999 (100 ports) on any firewall between the Oracle VM Server and Oracle VM Manager.

See Connecting to a Virtual Machine for more information on using the serial console to connect to virtual machines in SPARC-based server pools.

4.4.5 Installation Logs

If any errors occur during installation, check the Oracle VM Manager installation log file:

/tmp/ovmm-installer.selfextract_*id*/ovm-manager-3-install-*date*.log

When the installation is complete, the installation log is copied to:

/tmp/ovm-manager-3-install-*date*.log

4.4.6 Installation Directories

The locations of the Oracle VM Manager components are listed in Table 4.2.

Table 4.2 Oracle VM Manager component installation locations

Component	Location
MySQL	/u01/app/oracle/mysql/data
MySQL Enterprise Backup	/opt/mysql/meb-3.8/ Backups stored in: /u01/app/oracle/mysql/dbbackup
Java	/u01/app/oracle/java
Oracle WebLogic Server 11g	/u01/app/oracle/Middleware/
Oracle ADF	/u01/app/oracle/Middleware/
Oracle VM Manager application	/u01/app/oracle/ovm-manager-3/
Oracle WebLogic Server domain	/u01/app/oracle/ovm-manager-3/machine1/base_adf_domain

4.5 Logging in to Oracle VM Manager

To open the Login page of Oracle VM Manager, enter the following address in a Web browser:

https://*hostname*:*port*/ovm/console

Where, *hostname* refers to the host name or IP address of the Oracle VM Manager host, and *port* refers to the port number on which Oracle VM Manager is listening.

Note

In previous version of Oracle VM Manager unencrypted HTTP traffic was allowed by default. This has been disabled to always encrypt traffic using the Secure Sockets Layer (SSL). Therefore, you should always use *https* within the protocol portion of the URL to access the Oracle VM Manager.

To connect to Oracle VM Manager on a host named myserver.example.com, use:

https://myserver.example.com:7002/ovm/console

Important

You should ensure that if you are accessing Oracle VM Manager through a firewall, the firewall should be configured to allow TCP traffic on the port configured in Oracle VM Manager. By default, this is set to 7002.

Enter your Oracle VM Manager administration username (which is *admin* by default) in the **Username** field. This is the administration username you create during the Oracle VM Manager install. Enter the password for the Oracle VM Manager administration username in the **Password** field.

> **Warning**
>
> In addition to the default *admin* user, you can also log into Oracle VM Manager using other default accounts created by the Oracle VM Manager installer, namely:
>
> - *OracleSystemUser*
>
> - *weblogic*
>
>   Make sure the passwords for all accounts are secure. See Other Oracle VM Tools in the *Oracle VM Utilities Guide* for information on managing Oracle VM users and passwords.

To manage the local instance of Oracle VM Manager (installed on localhost), leave the **Management Server URI** field as the default, `tcp://localhost`. If you want to manage a remote instance of Oracle VM Manager, enter the hostname or IP address for that machine, for example:

tcp://myserver.example.com

See Section 4.9, "Enabling Remote Log Ins" for more information on accessing remote instances of Oracle VM Manager.

Now you are logged in, you can create storage repositories, server pools, add Oracle VM Servers, and create virtual machines, import resources, and so on.

The user interface displays context sensitive information, relevant to the selection in the navigator and content panes.

4.6 Starting and Stopping Oracle VM Manager

When Oracle VM Manager is installed, it is set to automatically start when the operating system starts. If you want to disable this, enter:

```
# chkconfig ovmm off
```

To manually start or stop Oracle VM Manager, and to verify its status, log in as the *root* user, and use the syntax:

```
/sbin/service ovmm [start|stop|status|check|restart]
```

For example, to start Oracle VM Manager:

```
# /sbin/service ovmm start
```

To stop Oracle VM Manager:

```
# /sbin/service ovmm stop
```

To restart Oracle VM Manager:

```
# /sbin/service ovmm restart
Stopping Oracle VM Manager
Starting Oracle VM Manager
```

To check the status of Oracle VM Manager:

```
# /sbin/service ovmm status
```

```
-- OR --
# /sbin/service ovmm check

Oracle VM Manager is running...
```

The status and check options return whether the Oracle VM Manager service is running or stopped.

If the Oracle VM Manager host computer runs a full graphical desktop environment, you can also use the Services dialog to start and stop Oracle VM Manager. From the **Applications** menu, select **System Settings** > **Server Settings** > **Services**. Or by running the following command in a terminal to use display Services dialog:

```
# /usr/bin/system-config-services
```

In the Service Configuration dialog, select **ovmm** to check the status, and start or stop it.

4.7 Running Oracle VM Manager as a Virtual Machine

The Oracle VM Manager does not necessarily have to run on a separate physical server in your environment. You can save on your resources by turning theOracle VM Manager into a virtual machine. As a result, it benefits from all the typical advantages of virtualization: hardware consolidation, high availability, live migration and so on. Because the Oracle VM Manager is not tied to one physical server, it leaves more physical resources for other applications, and at the same time it can be hot-cloned, backed up and migrated without downtime to other hardware when server maintenance is required.

> **Important**
>
> If you intend to virtualize Oracle VM Manager, you should ensure that it does not run on top of the same platform that it is managing. This can cause problems if the virtual machine where Oracle VM Manager resides happens to go down, as you are not able to easily restart the virtual machine. Typical deployments where the Oracle VM Manager is virtualized have two distinct Oracle VM environments configured, where Oracle VM Manager runs on a virtual machine in each environment to manage the other.

The procedure to turn Oracle VM Manager into a virtual machine starts with a regular installation, either on a physical server or using a virtualization tool such as Oracle VM VirtualBox. Using this installation you set up the bare minimum to run a virtual machine: one Oracle VM Server, one NFS storage server and the default management network should suffice. Once the environment is up and running, you install a virtual machine on your environment and let it take over the role of the Oracle VM Manager instance that it should replace. This section explains the steps to reach that final result.

> **Note**
>
> This procedure is not intended for the reconfiguration of an Oracle VM environment in use. If you wish to run Oracle VM Manager as a virtual machine, run this procedure as part of the setup, with a minimal install, before any significant configuration has taken place.

To run Oracle VM Manager as a Virtual Machine in the virtualized environment:

1. In environment A, install Oracle VM Manager on a physical server, according to the instructions in Section 4.4, "Installing Oracle VM Manager".

2. Discover at least two Oracle VM Servers for your environment, create a clustered server pool, use the default management network and set up the minimum storage required: a server pool file system and

a storage repository for the VM resources. To do so, follow the instructions in the Oracle VM User's Guide.

3. Create a new virtual machine that complies with the Oracle VM Manager hardware requirements as described in Section 4.3.1, "Hardware Requirements". Make sure that the new virtual machine has HA (high availability) enabled.

4. Install the operating system (Oracle Linux) and make sure that the virtual machine complies with all software requirements for Oracle VM Manager, as described in Section 4.3.2, "Software Requirements".

5. On this new virtual machine, install Oracle VM Manager according to the instructions in Section 4.4, "Installing Oracle VM Manager". Run the installer with the `--uuid` option to install this new Oracle VM Manager instance with the same UUID as one running on a physical server in environment B.

> **Caution**
>
> If you intend to run the Oracle VM Manager database on a separate virtual machine, make sure that the database is up and running before you install the Oracle VM Manager virtual machine.

- Copy the UUID of the Oracle VM Manager instance in environment B from the file `/u01/app/oracle/ovm-manager-3/.config`.

- After mounting the Oracle VM Manager install dvd on the file system of your virtual machine, run the installer as follows: `./runinstaller.sh --uuid <original_manager_uuid>`. Select your preferred installation type, as you would with a regular install.

6. Stop the Oracle VM Manager instance in environment B.

7. From the new Oracle VM Manager virtual machine in environment A, rediscover the Oracle VM Servers and storage from environment B. Refresh the storage repository to make sure that all your VM resources reappear for environment B.

Oracle VM Manager is now running as an HA VM in environment A, to manage Oracle VM deployment running in environment B. If the Oracle VM Server hosting the Oracle VM Manager VM fails, the VM will be brought up automatically on a different Oracle VM Server in environment A, and you will continue to be able to access it to manage environment B.

At this point, the Oracle VM Manager instance responsible for environment A is still running on a physical server. You can just as equally create a virtual machine in environment B, and set up a new Oracle VM Manager instance running with the same UUID to take over this responsibility. In this way, the two Oracle VM Manager instances can take advantage of the HA functionality provided by a clustered server pool. Each Oracle VM Manager instance runs in one environment to manage the other.

4.8 Adding a Trusted CA Certificate and Keystore for SSL Encryption

By default, Oracle VM Manager provides its own SSL certification stored within a custom keystore. The certificate that is provided is not signed by a recognized Certificate Authority. While it serves to provide SSL encryption for all HTTP traffic, it is recommended that you obtain and install a trusted certificate from a well-known and recognized Certificate Authority (CA).

A default installation of Oracle VM Manager does not use the default keystore and certification provided by Oracle WebLogic Server. Instead, it makes use of its own 2048-bit keystore located at `/u01/app/`

`oracle/ovm-manager-3/weblogic/ovmm_wls.jks`. This folder also contains the scripts that are used to set up the keystore during installation, as well as the certificates required for Oracle VM Manager.

Oracle VM Manager runs on Oracle WebLogic Server, and Oracle WebLogic provides the interface for updating the digital certificate and keystore. To add your own trusted CA certificate and keystore, see the procedures set out in the Oracle WebLogic documentation:

http://docs.oracle.com/cd/E17904_01/apirefs.1111/e13952/taskhelp/security/ ConfigureKeystoresAndSSL.html and http://docs.oracle.com/cd/E23943_01/web.1111/e13707/ identity_trust.htm

Two variables are mentioned in this procedure that you need to know when installing the certificate. The values for these variables in Oracle VM Manager are:

```
$JAVA_HOME\jre\lib\security    /u01/app/oracle/java/jre/lib/security
$WL_HOME\server\lib            /u01/app/oracle/Middleware/wlserver_10.3/server/lib
```

To access the Oracle WebLogic Server console, enter:

https://*hostname*:7002/console

Log in with the user *weblogic* and the password you set during the Oracle VM Manager installation.

If you need to revert back to the default keystore and certificates provided with a fresh installation of Oracle VM Manager, this can be easily achieved by running the script at `/u01/app/oracle/ovm-manager-3/ weblogic/configureIdentityTrust.sh`. You will be prompted for the password that you have configured for Weblogic Server during the installation process:

```
# /u01/app/oracle/ovm-manager-3/weblogic/configureIdentityTrust.sh
Configuring OVM Manager Identity and Trust Keystore ...


Please enter the password for weblogic :
Initializing WebLogic Scripting Tool (WLST) ...

Welcome to WebLogic Server Administration Scripting Shell

Type help() for help on available commands

Connecting to t3://localhost:7001 with userid weblogic ...
Successfully connected to Admin Server 'AdminServer' that belongs to domain 'base_adf_domain'.

Warning: An insecure protocol was used to connect to the
server. To ensure on-the-wire security, the SSL port or
Admin port should be used instead.

Location changed to edit tree. This is a writable tree with
DomainMBean as the root. To make changes you will need to start
an edit session via startEdit().

For more help, use help(edit)

Starting an edit session ...
Started edit session, please be sure to save and activate your
changes once you are done.
Saving all your changes ...
Saved all your changes successfully.
Saving all your changes ...
Saved all your changes successfully.
Activating all your changes, this may take a while ...
The edit lock associated with this edit session is released
once the activation is completed.

The following non-dynamic attribute(s) have been changed on MBeans
```

```
that require server re-start:
MBean Changed : com.bea:Name=t3,Type=NetworkAccessPoint,Server=AdminServer
Attributes changed : CustomPrivateKeyPassPhraseEncrypted

Activation completed
Disconnected from weblogic server: AdminServer
Configuring OVM Manager Identity and Trust Keystore succeeded, it needs to restart OVM Manager
  to take effect.
```

Note

Since the script is used to initially configure SSL on the WebLogic Server during the installation process, it connects to WebLogic using the unencrypted HTTP port (7001). You can ignore the warning message that is generated in the output.

4.9 Enabling Remote Log Ins

By default, the Oracle VM Manager UI can only log into the local installation of Oracle VM Manager. In some situations you may want to use Oracle VM Manager UI to log into a remote instance of Oracle VM Manager. To enable this, you must perform some set up on the Oracle VM Manager host to allow remote log ins.

Important

You should not configure remote log ins unless directed to by Oracle Support.

Once secure TCP connectivity has been configured, it cannot be disabled again. There are no remote (regular) TCP connections allowed.

If remote log ins are configured, a remote instance of the Oracle VM Manager UI can log into the local instance of Oracle VM Manager and interact with all the objects the local instance owns and manages. If you want to enable remote instances of Oracle VM Manager UI to log in, you set up remote TCPS authentication. To do this you must first generate a keystore, then use it to enable remote TCPS connections.

To enable TCPS connections from a remote Oracle VM Manager:

1. Enter the following commands on the Oracle VM Manager host to create the keystore:

   ```
   # cd /u01/app/oracle/ovm-manager-3/bin
   # ./secureOvmmTcpGenKeyStore.sh
   ```

   You are prompted to enter the following information:

   ```
   Generate OVMM TCP over SSH key store by following steps:
   Enter keystore password: password
   Re-enter new password: password
   What is your first and last name?
     [Unknown]:  name
   What is the name of your organizational unit?
     [Unknown]:  unit
   What is the name of your organization?
     [Unknown]:  organization
   What is the name of your City or Locality?
     [Unknown]:  City
   What is the name of your State or Province?
     [Unknown]:  State
   What is the two-letter country code for this unit?
     [Unknown]:  country_code
   Is CN=name, OU=unit, O=organization, L=City, ST=State, C=country_code correct?
     [no]:  yes
   ```

```
Enter key password for <ovmm>
        (RETURN if same as keystore password): password
Re-enter new password: password
```

2. Use the keystore to enable the TCPS service using the `secureOvmmTcp.sh` script, which is in the same directory as the keystore script above. On the Oracle VM Manager host, enter:

```
# ./secureOvmmTcp.sh
```

You are prompted to enter the following information:

```
Enabling OVMM TCP over SSH service

Please enter the OVM manager user name: username
        The local Oracle VM Manager
                                                    username to use
Please enter the OVM manager user password: password
        The local Oracle VM Manager
                                                    password to use
Please enter the password for TCPS key store : password
        The keystore password created
                                                in the previous script
The job of enabling OVMM TCPS service is committed, please restart OVMM to take effect.
```

The username and password entered here are the local Oracle VM Manager authentication credentials to use when logging in from the remote Oracle VM Manager UI instance.

3. Restart the local Oracle VM Manager instance:

```
# /sbin/service ovmm stop
# /sbin/service ovmm start
-- OR --
# /sbin/service ovmm restart
```

4. In the Oracle VM Manager UI, check the **Show Management Server URI** checkbox in the **Preferences** sub tab of the **Tools and Resources** tab to display the **Management Server URI** field on the login screen.

5. You can now connect to the Oracle VM Manager, using a remote instance of the Oracle VM Manager UI, using the following syntax in the **Management Server URI** field in the remote Oracle VM Manager UI login screen:

tcps://*hostname*

Using the username and password you enabled with the `secureOvmmTcp.sh` script.

If you perform an upgrade from Oracle VM Manager 3.0.x to Oracle VM Manager 3.1.1, the above scripts are not included. You should download the scripts by searching the patch 14067211 from the My Oracle Support website at: https://updates.oracle.com/ARULink/PatchDetails/process_form?patch_num=14067211.

Alternatively you can use Java keytool and Oracle VM Utilities which provide more configuration options. For information on configuring secure TCP (TCPS) for Oracle VM Manager, see the My Oracle Support website at: https://support.oracle.com/oip/faces/secure/km/DocumentDisplay.jspx?id=1456338.1.

4.10 Configuring UI Session Timeout

You can change the amount of time that an Oracle VM Manager session can remain inactive before it is invalidated. Oracle VM Manager runs on Oracle WebLogic Server, and to configure Oracle VM Manager timeout settings you need to access the Oracle WebLogic Server console.

To configure Oracle VM Manager session timeout:

1. Access the Oracle WebLogic Server console by entering:

   https://*hostname*:7002/console

   Log in with the user *weblogic* and the password you set during the Oracle VM Manager installation.

2. Click **Deployments** in the left pane of the Administration Console.

3. Click **Next** to change the page until **ovm_console** is listed in the Deployments table.

4. Click the "**+**" next to ovm_console to expand the view for the ovm_console deployment.

5. Click **ovm/console** in the Modules list. The settings for ovm_console is displayed.

6. Click on the **Configuration** tab.

7. Click **Lock and Edit** in the **Change Center** pane to modify the settings.

8. Click the **Configuration** tab and then click the **General** subtab. Edit the **Session Timeout** (in seconds) field in the table. The default setting is half an hour (1800 seconds). Click **Save**.

   If you receive a permissions related error, you may need to change the permissions or ownership on the file located at `/u01/app/oracle/ovm-manager-3/weblogic/deploy/ovm_console/plan/plan.xml`. You can do this by running the following command:

   ```
   chown oracle:dba /u01/app/oracle/ovm-manager-3/weblogic/deploy/ovm_console/plan/plan.xml
   ```

   You will need to resave your changes in order for them to take effect.

9. Go back to the Deployments page by clicking **Deployments** in the left pane. In the Deployments table, select the **ovm_console** check box. Click **Update** to redeploy the application.

10. Change the source and deployment plan paths as desired. Click **Finish**.

11. To activate the changes, click **Activate Changes** in the Change Center of the Administration Console.

For more information on updating a Web application, see the Oracle WebLogic documentation:

http://docs.oracle.com/cd/E23549_01/apirefs.1111/e13952/taskhelp/web_applications/
UpdateWebApplication.html

4.11 Changing the Oracle VM Manager *admin* User Password

The Oracle VM Manager `admin` user is used to log in to the Oracle VM Manager user interface. To change the password for the Oracle VM Manager `admin` user account, log in to the Oracle VM Manager host computer as the *root* user and perform the following:

```
# cd /u01/app/oracle/ovm-manager-3/bin
#./ovm_admin --modifyuser
```

```
Oracle VM Manager Release 3.x.x Admin tool
Please enter the username : admin
Please enter the current password :
```

Enter the *current password* for the admin user. The Oracle VM Manager administration tool prompts you for a new password.

```
Please enter a new password for admin :
```

```
Please re-enter the password :
```

Enter the *new password* for the admin user. The password you use for the Oracle WebLogic *admin* account must conform to the following rules:

- Be between 8 and 16 characters in length.

- Contain at least 1 lower case and 1 upper case letter.

- Contain at least 1 numeric value or special character.

The Oracle VM Manager administration tool prompts you to confirm the new password. The Oracle VM Manager administration tool continues.

```
Please enter the password for weblogic :
```

Enter the Oracle WebLogic password. You set this during the installation of Oracle VM Manager. The utility connects to Oracle WebLogic and changes the Oracle VM Manager `admin` password.

```
Initializing WebLogic Scripting Tool (WLST) ...

Welcome to WebLogic Server Administration Scripting Shell

Type help() for help on available commands

Connecting to WebLogic server ...

Connected ...
Modifying user 'admin' ...
Modified user 'admin' successfully ...
Exiting...
```

4.12 Backing Up Oracle VM Manager

To back up Oracle VM Manager, you should back up the Oracle VM Manager configuration file, and the Oracle VM Manager database schema. By default, this schema is named `ovs`, and this is used in the backup example. Replace the schema name with your own.

The Oracle VM Manager configuration file is stored in this location:

`/u01/app/oracle/ovm-manager-3/.config`

This configuration file contains database connection information, ports and the UUID used by Oracle VM Manager. An example of this configuration file follows:

Example 4.4 Oracle VM Manager configuration file

```
DBHOST=<hostname of database server>
SID=<oracle SID>
LSNR=<listener port number defaults 1521>
APEX=<application express port number defaults 8080>
OVSSCHEMA=<database schema name for oracle vm manager defaults ovs>
WLSADMIN=<weblogic server admin defaults weblogic>
OVSADMIN=<oracle vm manager administrator name defaults admin>
COREPORT=<oracle vm manager core port defaults 54321>
UUID=<oracle vm manager uuid>
```

To back up Oracle VM Manager:

1. Back up/copy the Oracle VM Manager configuration file located at

    `/u01/app/oracle/ovm-manager-3/.config`

2. Back up the Oracle VM Manager database OVS schema. Run the Oracle Database `EXP` utility to export the OVS schema if you are using an Oracle Database. For installations of Oracle VM Manager that use a MySQL database, the entire database is backed up automatically every 24 hours using the MySQL Enterprise Backup utility, but it is also possible to perform a manual backup. See Appendix B, *Oracle VM Manager MySQL Backup and Restore* for more information on Oracle VM Manager MySQL database backup and restore facilities.

> **Important**
>
> If you are using an Oracle Database for Oracle VM Manager it is imperative that you ensure that there is a regular backup strategy in place for the database. While Oracle VM Manager is able to automate backups for a locally hosted MySQL database, it is unable to handle backups for an externally hosted Oracle Database. Without an adequate backup of the database, it is very unlikely that you will be able to restore your environment cleanly in the event of database corruption or failure.

4.13 Restoring Oracle VM Manager

To restore Oracle VM Manager, and the Oracle VM Manager database schema from a backup, you must have performed the steps to back up Oracle VM Manager in Section 4.12, "Backing Up Oracle VM Manager".

To restore Oracle VM Manager from a backup:

1. First, if you need to reinstall or upgrade Oracle VM Manager, use the Oracle VM Manager installation media to perform an install or upgrade of the software on your server. See Section 4.4, "Installing Oracle VM Manager" for information on how to perform the installation. See Section 5.2, "Upgrading Oracle VM Manager" for information on how to perform the upgrade.

    You should perform the install using the `runInstaller.sh --uuid` *uuid* option and provide the UUID from the previous manager installation you created a backup from. The UUID can be found in the Oracle VM Manager configuration file.

    > **Note**
    >
    > The Oracle VM Manager UUID is also persisted in the `/etc/sysconfig/ovmm` file. If the system disk of the server on which you are installing or restoring Oracle VM Manager was not wiped entirely, the existing UUID is still present and will be detected when running the installer.
    >
    > *   The `--uuid` option overrides this existing UUID.
    >
    > *   If no UUID is present in `/etc/sysconfig/ovmm`, the `--uuid` option adds the UUID to the file.

    The install command syntax is as shown in this example:

    ```
    # ./runInstaller.sh --uuid 0004FB000000100002CB7F2DFFA8D8
    ```

    When the Oracle VM Manager installer prompts for installation information other than passwords, reuse the same usernames for the Database schema, Oracle WebLogic Server and Oracle VM Manager administration user, as set out in the backup of the Oracle VM Manager configuration file. You must set the passwords again as the passwords are not backed up and cannot be restored.

2. After installation, reinstallation or upgrade, stop Oracle VM Manager and the database before you restore the backup

```
# /sbin/service ovmm stop
# /sbin/service ovmm_mysql stop
```

3. Restore the Oracle VM Manager OVS database schema. If you are using an Oracle Database, follow your usual database restoration procedure. If you are using the bundled MySQL database provided with Oracle VM Manager, refer to Appendix B, *Oracle VM Manager MySQL Backup and Restore* for more information on Oracle VM Manager MySQL database backup and restore facilities.

4. Restart the database and Oracle VM Manager:

```
# /sbin/service ovmm_mysql start
# /sbin/service ovmm start
```

5. Within Oracle VM Manager go to the **Servers and VMs** tab and perform a **Refresh All** on your existing server pools. See *Oracle VM User's Guide* for more information.

4.14 Uninstalling Oracle VM Manager

Before uninstalling Oracle VM Manager, you may want to back up Oracle VM Manager and the Oracle VM Manager database schema. For information on how to back up Oracle VM Manager, see Section 4.12, "Backing Up Oracle VM Manager".

You perform the uninstall using the Oracle VM Manager installation script. You must start the installer from the installation media; you cannot perform an uninstall without the installation media as there is no installer located on the Oracle VM Manager host computer. See Section 4.4.2, "Running the Oracle VM Manager Installer" for information on starting the installer. Follow the prompts to uninstall Oracle VM Manager. See Appendix A, *Oracle VM Manager Installation Script (runInstaller)* at the end of this chapter for the full syntax to the installation script.

An example follows which shows an uninstall of a default Oracle VM Manager installation using a local MySQL database. Before you uninstall Oracle VM Manager, make sure it is shut down:

```
# service ovmm stop
# service ovmmcli stop
```

Example 4.5 Uninstall Oracle VM Manager

```
# ./runInstaller.sh

Oracle VM Manager Release 3.x.x Installer

Oracle VM Manager Installer log file:
  /tmp/filename.log

 Please select an installation type:
1: Simple (includes database if necessary)
2: Custom (using existing Oracle database)
3: Uninstall
4: Help

    Select Number (1-4): 3
```

The uninstallation process starts, and the following is displayed:

```
Uninstall Oracle VM Manager

Uninstall Oracle VM Manager

DB component : MySQL 5.5 rpm
```

```
MySQL 5.5 rpm installed ...
Uninstall options
   1: Uninstall MySQL 5.5 rpm
   2: Skip uninstall of MySQL 5.5 rpm

   Select Number (1-2): 1
Removing MySQL 5 installation ...

Product component : Java in '/u01/app/oracle/java/'
Java is installed ...

Uninstall options
   1: Uninstall Java
   2: Skip uninstall of Java

   Select Number (1-2): 1
Removing Java installation ...

Product component : Oracle VM Manager in '/u01/app/oracle/ovm-manager-3/'
Oracle VM Manager is installed ...
Uninstall options
   1: Uninstall Oracle VM 3.x Manager
   2: Skip uninstall of Oracle VM 3.x Manager

   Select Number (1-2): 1
Removing Oracle VM Manager installation ...

Product component : Oracle WebLogic Server in '/u01/app/oracle/Middleware/'
Oracle WebLogic Server is installed

Uninstall options
   1: Uninstall Oracle WebLogic Server
   2: Skip uninstall of Oracle WebLogic Server

   Select Number (1-2): 1
Removing Oracle WebLogic Server installation ...

Uninstall completed ...
```

4.15 Troubleshooting

The section contains information on known issues you may encounter when installing Oracle VM Manager, and explains how to resolve them. You can find additional information on the following Oracle Support Web sites:

• Oracle MetaLink:

  http://metalink.oracle.com

• Oracle Technology Network virtualization forum: https://forums.oracle.com/forums/forum.jspa?forumID=823

If you contact Oracle Support for assistance with an Oracle VM Manager installation, please include the installation logs. See Section 4.4.5, "Installation Logs" for information on log file names and locations.

4.15.1 General MySQL Debugging

The Oracle VM Manager installer performs a standard install of the MySQL RDBMS RPM or PKG. Database files are located at */u01/app/oracle/mysql/data*. A standard init script is created at: */etc/init.d/ovmm_mysql*. This script can be used to start, stop, restart and obtain the status of the MySQL server:

```
# /etc/init.d/ovmm_mysql restart
```

Configuration for the OVMM MySQL instance is contained in */u01/app/oracle/mysql/data/my.cnf*. Editing this file may break your Oracle VM Manager installation. Do not edit it without instruction from a support representative.

MySQL events are logged in a log file located at */u01/app/oracle/mysql/data/mysqld.err*

4.15.2 libaio Not Installed

The following error is displayed during installation if the prerequisite libaio package is not installed:

```
libaio is not installed...
```

Workaround: Install the libaio package. For information on how to install libaio, see Section 4.3.2.5, "Prerequisite Packages".

4.15.3 Cannot Install MySQL

The Oracle VM Manager installer may fail to install MySQL and displays the message:

```
Failed: The database instance is not available.
```

You can check the log file at /tmp/ovmm-installer.selfextract_*id*/ovm-manager-3-install-*date*.log for more detailed information.

Workaround: There are two workarounds to this issue.

a. Make sure that MySQL is not installed, or has installed correctly. Use the following command to check the status:

```
$ /etc/init.d/ovmm_mysql status
```

If MySQL is running, run the Oracle VM Manager installation script to uninstall it, and reinstall Oracle VM Manager.

b. Make sure the computer's host name matches the host name in the /etc/hosts file. See Section 4.3.2.2, "Network" to configure the host name.

4.15.4 Cannot Create OVS Database Schema

You may encounter the following message:

```
Creating the Oracle VM Manager database schema ... Failed.
```

You can check the log file at /tmp/ovmm-installer.selfextract_*id*/ovm-manager-3-install-*date*.log for more detailed information.

Workaround: Possible workarounds for this issue are:

a. Make sure that MySQL has installed correctly. Use the following command to check the status:

```
$ /etc/init.d/ovmm_mysql status
```

If MySQL is running, run the Oracle VM Manager installation script to uninstall it, and reinstall Oracle VM Manager.

b. If you are installing into an existing Oracle database, make sure that you have entered the correct password for the *SYS* account.

c. Reinstall Oracle VM Manager.

4.15.5 Oracle Database Schema Exists

If the installer fails after creating the Oracle Database OVS schema, but before the end of the installation process is complete, you may end up with a schema that cannot be overwritten when you attempt to perform the install again. To resolve this issue, you should drop the OVS schema, then continue with the reinstall again when you have resolved the install problem.

To drop the OVS schema, log into the Oracle Database as the *sys* or *system* user and perform the following steps:

```
$ sqlplus system/password
SQL> drop user OVS cascade;
SQL> drop profile OVMM_PROFILE cascade;
SQL> exit;
```

The schema name used in this example uses the default schema name, OVS. If you used a custom schema name during the installation, you should replace OVS with the name of your schema. The name of your schema is located in the Oracle VM Manager configuration file located at:

/u01/app/oracle/ovm-manager-3/.config

If you are performing a **Simple** install using a MySQL database, uninstall and reinstall Oracle VM Manager.

4.15.6 Installation Fails on Non-English Character Set

If the operating system is a non-English character set or language, the Oracle VM Manager installer may display the following error:

```
Update default password failed.
```

Oracle VM Manager only supports the English language and character set.

You can check the log file at /tmp/ovmm-installer.selfextract_*id*/ovm-manager-3-install-*date*.log for more detailed information.

Workaround: Set the character set to en_US.UTF-8:

1. Run the following command to check if the value of LANG is `en_US.UTF-8`:

    ```
    # env|grep LANG
    ```

2. If the character set is not `en_US.UTF-8`, change it to `en_US.UTF-8`:

    ```
    # export LC_CTYPE="en_US.UTF-8"
    ```

3. Reinstall Oracle VM Manager.

4.15.7 Installation Fails When Using an NIS-based *oracle* User Account

If the *oracle* user account is created using NIS-based authentication (Network Information Services), the Oracle VM Manager installation fails during the prerequisite check, and the following error is displayed:

```
Verifying installation prerequisites ...
hardnofiles should be set to 8192 but was 0
Configuration verification failed ...
```

Or the installation may pass prerequisite check, but may fail later during the installation of the Application Development Framework:

```
Retrieving Oracle Application Development Framework (ADF) ...
Unzipping Oracle ADF ...
Installing Oracle ADF ...
Installing Oracle ADF Patch...
```

To workaround this issue, disable ypbind service and create a non-NIS-based *oracle* user account using createOracle.sh on the host computer and rerun the installer:

```
# /sbin/service ypbind stop
# service ypbind status
ypbind is stopped
# ./createOracle.sh
# ./runInstaller.sh
```

Chapter 5 Upgrading Oracle VM

Table of Contents

Oracle VM Release 3.x is not backwardly compatible with Oracle VM Release 2.x. If you are using Oracle VM Release 2.x you cannot upgrade to Release 3.x. You must reinstall your Oracle VM Servers and Oracle VM Manager. You can, however, reuse your virtual machine templates from Oracle VM Release 2.x by importing them into Oracle VM 3.x.

For information on repository migration from Oracle VM Release 2 to Oracle VM Release 3, see the My Oracle Support website at: https://support.oracle.com/oip/faces/secure/km/DocumentDisplay.jspx?id=1366216.1

There is no provision for upgrading releases where an Oracle Database XE has been used as a backend repository for Oracle VM Manager. Oracle VM Manager no longer supports Oracle Database XE as a backend repository and there is no way to migrate to the new MySQL database backend supported in Oracle VM 3.2. If you are willing to migrate your Oracle Database XE to a supported Oracle Database such as Oracle Database SE or Oracle Database EE, you will be able to perform an upgrade using the Custom installation process.

The upgrade procedures discussed in this chapter refer to upgrades between Oracle VM 3.x releases, for example, upgrading from Oracle VM Release 3.0.1 to 3.0.3, or from Release 3.0.3 to 3.1.1 This chapter outlines the upgrade process for all the components of Oracle VM when upgrading to minimize down time and make sure the upgrade process is performed in the correct order.

Note

Generally, there is no need to perform incremental upgrades between releases; that is, you can skip releases as long as you upgrade from Oracle VM 3.x to 3.x. For example, you can upgrade from Release 3.0.2 to 3.1.1. The exception to this is if you are running Oracle VM Release 3.0.1, where you must first upgrade to Release 3.0.2 or 3.0.3 before upgrading to Release 3.2. Upgrades from Release 3.0.3 to Release 3.2 and from Release 3.1.1 to Release 3.2 have been successfully tested and are fully supported.

5.1 Upgrading Overview

When upgrading Oracle VM, you must upgrade Oracle VM Manager first, then upgrade the Oracle VM Servers managed by Oracle VM Manager. The Oracle VM Manager upgrade is performed with the Oracle VM Manager ISO file/CD or with the patch zip file. The Oracle VM Server upgrade can be performed using either the Oracle VM Server CD, or using Oracle VM Manager from a Yum repository (which you must create) that retrieves the Oracle VM Server updates from the Unbreakable Linux Network (ULN). To access ULN, you need an Oracle Support contract.

Before you begin the Oracle VM Manager upgrade, download the Oracle VM Manager software from the Oracle Software Delivery Cloud at:

http://edelivery.oracle.com/oraclevm

If you want to use the Oracle VM Server CD upgrade method, also download the Oracle VM Server software from the Oracle Software Delivery Cloud:

If you have an Oracle Support contract, you can also download Oracle VM Manager patch updates from the My Oracle Support web site at:

https://support.oracle.com

The process you should follow when upgrading Oracle VM is described in a high level view below. More detailed information is available in the sections that follow.

To upgrade Oracle VM:

1. Download the Oracle VM software.

2. To upgrade Oracle VM Manager:

    a. If you downloaded the Oracle VM Manager ISO file from the Oracle Software Delivery Cloud, mount the Oracle VM Manager ISO file or burn and load the CD on the Oracle VM Manager host computer. If you downloaded an Oracle VM Manager patch file from My Oracle Support, extract the zip file to a directory on the Oracle VM Manager host computer.

    b. On the Oracle VM Manager host computer, run the runUpgrader.sh script from the mounted Oracle VM Manager ISO file/CD or directory to upgrade Oracle VM Manager.

3. To upgrade Oracle VM Server, either:

    *   Set up a Yum repository which retrieves updates from the Oracle VM 3.x channel on ULN. Then, from Oracle VM Manager: add the Yum repository, place each Oracle VM Server into maintenance mode and update each Oracle VM Server. When the update is complete, take each Oracle VM Server out of maintenance mode. This is the preferred method of upgrading Oracle VM Servers.

    *   Burn the Oracle VM Server ISO file to a bootable CD. Upgrade each Oracle VM Server using the Oracle VM Server CD.

The following sections discuss these steps in more detail.

Caution

When Oracle VM Manager is upgraded, you must upgrade all the Oracle VM Servers managed by that instance of Oracle VM Manager before you can return the Oracle VM environment to normal operation. Rolling upgrades of the Oracle VM Servers is supported, but Oracle VM Manager and all Oracle VM Servers must be at the same software revision level during normal operation of the Oracle VM environment, for example, Oracle VM Manager and all Oracle VM Servers should be running Oracle VM Release 3.2.

5.2 Upgrading Oracle VM Manager

Before you upgrade Oracle VM Manager, you should back up the Oracle VM Manager repository and configuration file. See Section 4.12, "Backing Up Oracle VM Manager" for information on backing up Oracle VM Manager.

The upgrade script is designed to skip the database upgrade for the same revision of Oracle VM Manager, for example when upgrading from 3.2.1.100 to 3.2.1.250. If a database upgrade is needed for the same revision you can force an upgrade by passing an argument to the upgrade script:

```
# ./runUpgrader.sh --dbupgrade
```

If no argument is passed the script does not upgrade the database for the same product version. When the database is not being upgraded, the script prints the message: "Skipping database upgrade for the same product version (3.2.*x* to 3.2.*x*)".

To see the upgrade script usage, enter:

```
# ./runUpgrader.sh --help
```

> **Note**
>
> You may be asked for a password during the upgrade procedure, in which case you should enter the password you set for that component during the original installation.

A log of the upgrade is available in the /temp/ovm-manager-3-upgrade-*date_id*.log file.

To upgrade Oracle VM Manager:

1. Log in to the Oracle VM Manager host computer as the *root* user.

2. Oracle VM Manager must be running to perform the upgrade. If Oracle VM Manager is not running, start it:

```
# service ovmm start
```

3. If you downloaded the Oracle VM Manager ISO file from the Oracle Software Delivery Cloud, mount the Oracle VM Manager ISO file. This example uses the ISO file and mounts it to a directory named OVMCD.

```
# mount -o loop  OracleVM-Manager-3.x.x.iso /OVMCD
```

> **Tip**
>
> Instead of downloading the full Oracle VM Manager installer, you can also choose the *upgrade* ISO file. The procedure is the same as for the installer ISO file, but the download size of the upgrade is much smaller.

Alternatively you can burn the ISO file to a CD or DVD and load the DVD on the Oracle VM Manager host computer. If you downloaded an Oracle VM Manager patch file from My Oracle Support, extract the zip file contents to a directory on the Oracle VM Manager host computer and use that directory for further installation instructions.

4. Start the Oracle VM Manager upgrade script:

```
# cd /OVMCD
# ./runUpgrader.sh
```

The upgrade starts and reminds you to back up Oracle VM Manager.

```
Oracle VM Manager 3.x.x.xx upgrade utility
Upgrade logfile : /tmp/ovm-manager-3-upgrade-date-id.log

It is highly recommended to do a full database repository backup prior to upgrading
Oracle VM Manager ...
```

```
Press any key to continue ...
```

Press **Enter** to continue with the upgrade.

```
Oracle VM Manager is running ...
Verifying installation status ...
Read Oracle VM Manager config file ...
Skipping database upgrade for the same product version (3.x.x to 3.x.x)
Found Oracle VM Manager install files ...
Found Oracle VM Manager upgrader ...
Found Oracle WebLogic Server ...
Found Java ...
Using the following information :
  Database Type        : type
  Database Host        : hostname
  Database SID         : SID
  Database LSNR        : port
  Oracle VM Schema     : ovs
  Oracle VM Manager UUID : UUID
  Current Build ID     : 3.x.x.xx
  Upgrade from version : 3.x.x
  Upgrade to version   : 3.x.x
Using /tmp/directory for backup and export location.
Using /tmp/directory for patching.
Undeploying previous version of Oracle VM Manager application ...
Undeploying Oracle VM Manager help ...
Undeploying Oracle VM Manager console ...
Undeploying Oracle VM Manager core ...
Waiting for Oracle VM Manager core to fully undeploy...
Waiting...
Finished undeploying previous version ...
Upgrading Oracle VM Manager ...
Backing up old files to /tmp/directory
Removing old files ...
Unpacking Oracle VM Manager 3.x.x.xx
Redeploying Oracle VM Manager core container ...
Redeploying Oracle VM Manager console ...
Redeploying Oracle VM Manager help ...
Completed upgrade to 3.x.x.xx ...
Writing updated config in /u01/app/oracle/ovm-manager-3/.config
Restart WebLogic ...
Stopping Oracle VM Manager                              [  OK  ]
Starting Oracle VM Manager                              [  OK  ]

Starting with Oracle VM Manager Release 3.2, HTTPS is required to connect to the Manager.
Please adjust your URL and firewall settings accordingly.
For example:
  In Release 3.1 your URL  may have looked like: http://<managementsystem>:7001/ovm/console
  In Release 3.2 your new URL should look like: https://<managementsystem>:7002/ovm/console
Please change your firewall settings to allow traffic through port 7002 to the management
system.

Oracle VM Manager upgrade finished on date
```

The Oracle VM Manager upgrade is complete.

5.2.1 Post-upgrade Steps

After you have finished an upgrade of Oracle VM Manager from a previous release, it is highly
recommended that you run the following commands on the server where Oracle VM Manager is installed:

```
# cd /u01/app/oracle/ovm-manager-3/weblogic
# sh configureIdentityTrust.sh
# service ovmm stop
# service ovmm start
```

These instructions will update your SSL certificates to enable HTTPS connectivity to Oracle VM Manager for Microsoft Internet Explorer 7, 8 and 9. Note that it is important that Internet Explorer has been updated with the latest security update described at http://support.microsoft.com/kb/2661254.

For more information about updating your SSL certificates, please see Section 4.8, "Adding a Trusted CA Certificate and Keystore for SSL Encryption".

5.3 Upgrading Oracle VM Server for x86

Before you upgrade your Oracle VM Servers, you must upgrade the Oracle VM Manager which manages them. See Section 5.2, "Upgrading Oracle VM Manager" for information on upgrading Oracle VM Manager.

There are two methods you can use to upgrade Oracle VM Servers:

- Section 5.3.1, "Upgrading Oracle VM Server Using a Yum Repository"

- Section 5.3.2, "Upgrading Oracle VM Server Using the CD"

Warning

There are two supported ways to upgrade: you must use either Oracle VM Manager to perform an Oracle VM Server upgrade from a Yum repository, or the Oracle VM Server CD.

5.3.1 Upgrading Oracle VM Server Using a Yum Repository

This section directs you to the location in the Oracle VM documentation which discusses upgrading the Oracle VM Servers in your Oracle VM Release 3.x environment using a Yum Repository. This is the preferred method for upgrading Oracle VM Servers.

To upgrade Oracle VM Server using a Yum repository, you must first set up a Yum repository based on the Oracle VM Release 3.x channel on ULN. When you have created the Yum repository, add the Yum repository to Oracle VM Manager. You then use Oracle VM Manager to perform the upgrades on the Oracle VM Servers. For information on setting up an Oracle VM Server Yum repository and using Oracle VM Manager to perform the upgrade of Oracle VM Servers, see Updating and Upgrading Oracle VM Servers in the *Oracle VM User's Guide*.

5.3.2 Upgrading Oracle VM Server Using the CD

To upgrade the Oracle VM Server using the Oracle VM Server CD:

1. Burn the Oracle VM Server ISO file to a bootable CD.

2. Start the Oracle VM Server installer by following the steps in Section 2.2, "Installing Oracle VM Server From a CD".

3. If an existing Oracle VM Server installation is found on the computer, the **System to Upgrade** screen is displayed.
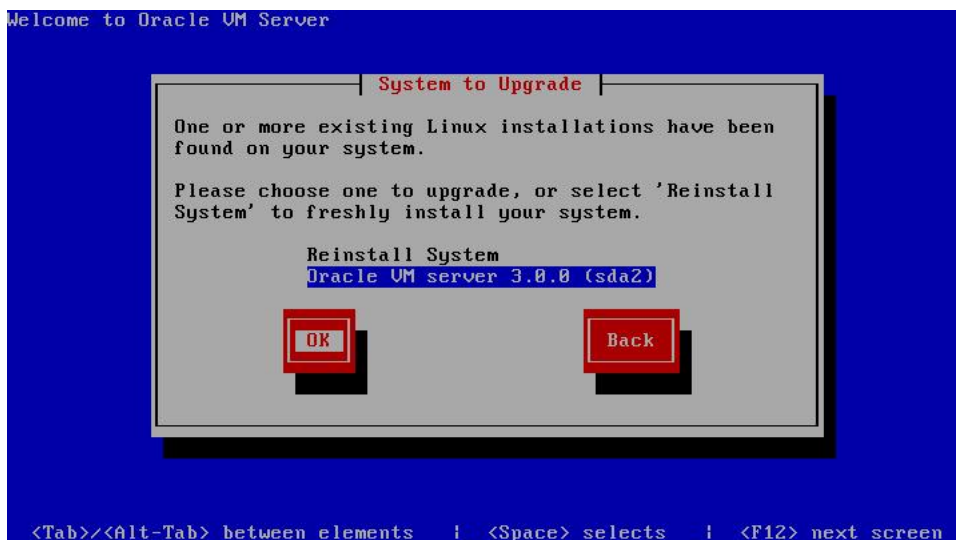
Select **Oracle VM Server 3.x (***disk***)** to upgrade the existing installation.

Select **OK** and press **Enter**.

4. The **Upgrade Boot Loader Configuration** screen is displayed.
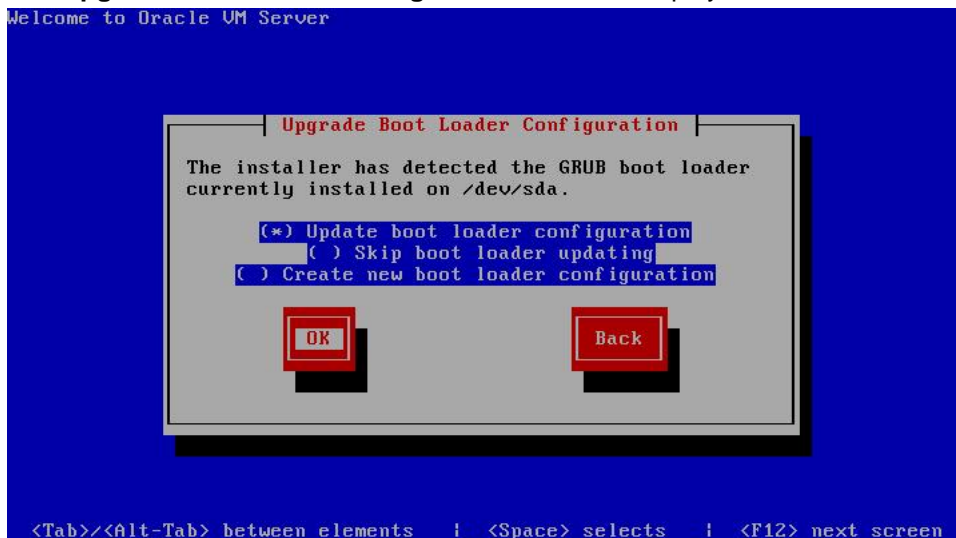

Select **Update boot loader configuration** to update the existing boot loader. Select **Skip boot loader updating** to make no changes to the boot loader. Select **Create new boot loader configuration** to create a new boot loader.

Select **OK** and press **Enter**.

If you selected **Create new boot loader configuration**, the **Boot Loader Configuration** screen is displayed.

The **Boot Loader Configuration** screen is displayed.
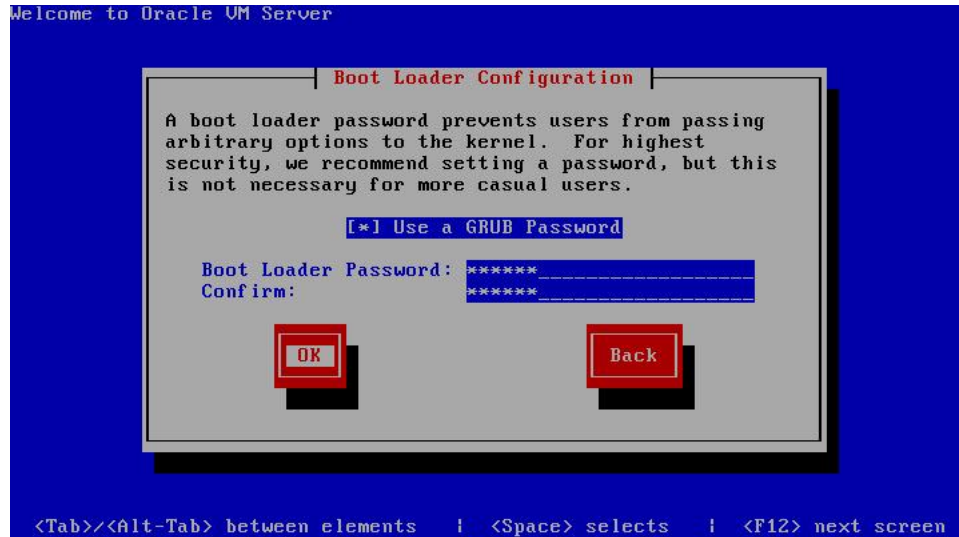
If you want to set a boot loader password to increase security of your machine, select **Use a GRUB Password**, enter a password in the **Boot Loader Password** field, and re-enter the password in the **Confirm** field.

> **Warning**
>
> Do not use boot loader passwords if Distributed Power Management (DPM) is used. A boot loader password has to be entered manually with every boot, which prevents DPM from starting a server successfully. For more information about DPM, see Server Pool Policies in the Oracle VM User's Guide

Select **OK** and press **Enter**.

The **Boot Loader Configuration** screen is displayed.
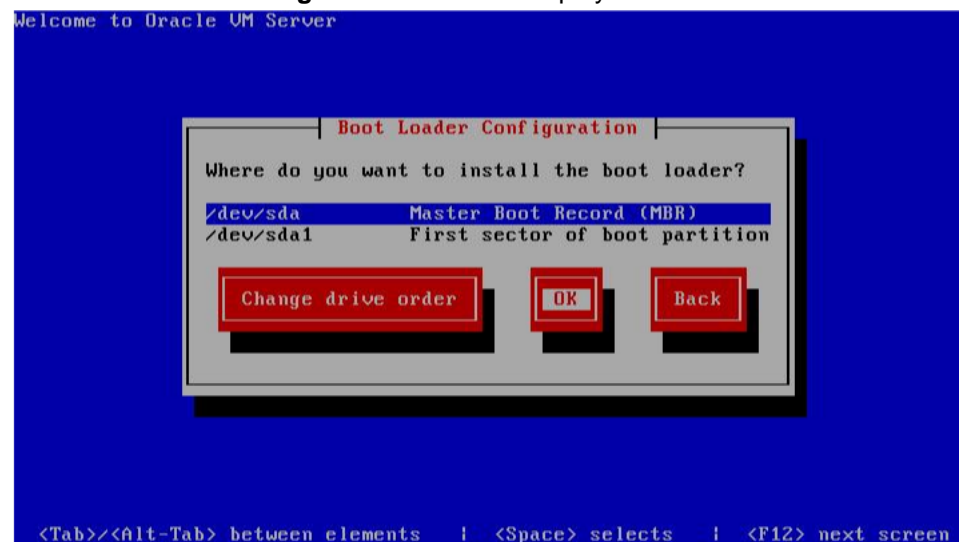
Select **Master Boot Record (MBR)** or **First sector of boot partition** as the location to install the boot loader. If you want to change the drive order, select **Change drive order** and follow the prompts to change the drive order.

Select **OK** and press **Enter**.

5. The **Upgrade to begin** screen is displayed.
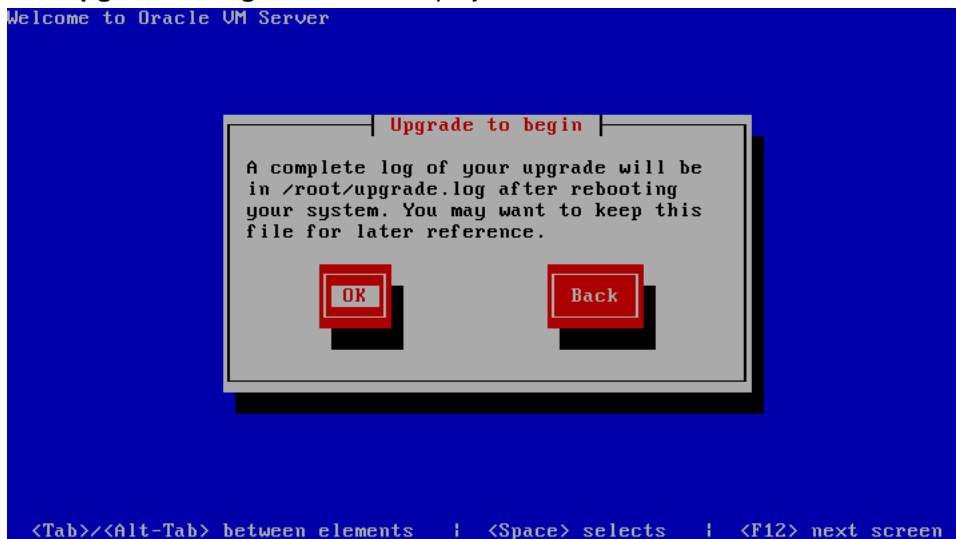
Select **OK** and press **Enter**. The installer installs and configures Oracle VM.

6. When all files are installed and configuration complete, the **Complete** screen is displayed.

If you performed the upgrade from the CDROM drive, remove the Oracle VM CDROM.

Select **Reboot** and press **Enter**. The computer reboots.

The Oracle VM console is displayed.

The Oracle VM Server upgrade is complete.

> **Note**
>
> A log of the install is located in /root/upgrade.log. If the installation fails, review this log file for help identify the cause of any installation problems.

5.3.3 Upgrading Oracle VM Server Using Multipath SANs

Upgrading Oracle VM Server from Release 3.0.3 or 3.1.1 to Release 3.2 using the CD or a YUM repository in a multipath boot from SAN environment is not supported. If this type of upgrade is attempted the Oracle VM Server panics after a reboot. You can, however, upgrade Oracle VM Server using a YUM repository in a *single* path (no multipath) boot from SAN environment.

To upgrade Oracle VM Server from Release 3.0.3 or 3.1.1 to Release 3.2 using multipath boot from SAN, follow which ever instructions below apply to your configuration.

For more information on configuring multipath SANs, see Enabling Multipath I/O Support.

To upgrade Oracle VM Server with multiple paths:

1. Revert the Oracle VM Server to use single path SAN boot by removing all disk paths, leaving only *one* path visible to the Oracle VM Server.

2. Update the Oracle VM Server grub.conf file to use the no multipath support initrd.

3. Add the boot disk wwid to /etc/blacklisted.wwids, for example:

   ```
   wwid "3600805f3000dd9c0000000006745005b"
   ```

4. Restart the Oracle VM Server. Make sure the Oracle VM Server boots and mounts over the single path SAN disk, for example, sdX 3.

5. Now the Oracle VM Server is configured to boot from a single path SAN, follow the steps in the next procedure to upgrade the Oracle VM Server and reconfigure multiple paths.

To upgrade Oracle VM Server with a single path:

1. Upgrade Oracle VM Server using a YUM repository. See Section 5.3.1, "Upgrading Oracle VM Server Using a Yum Repository" for information on upgrading using a YUM repository. Alternatively use a CD to perform the Oracle VM Server upgrade. See Section 5.3.2, "Upgrading Oracle VM Server Using the CD" for more information on upgrading using a CD.

2. Delete the /etc/multipath/bindings file if it exists.

3. Run mkinitrd to include multipath, for example:

   ```
   # mkinitrd --add-multipath -f /boot/initrd-2.6.39-200.0.13.el5uek_mp.img 2.6.39-200.0.13.el5uek
   ```

4. Edit the /etc/fstab file to make sure the entries refer to the /dev/mapper devices of your boot disk:

   ```
   #UUID=363ca8da-b927-4ace-9b24-d06edb0dba5c /          ext3    defaults      1 1
   #UUID=d6be5e20-5946-4ca9-aa88-2e7937461b03 /boot       ext3    defaults      1 2
   /dev/mapper/360060160d3102200dcd34d042424e111p2 /          ext3    defaults      1 1
   /dev/mapper/360060160d3102200dcd34d042424e111p1 /boot       ext3    defaults      1 2
   /dev/mapper/360060160d3102200dcd34d042424e111p3 swap   swap    defaults      0 0
   ```

   > **Note**
   >
   > If you do not know the /dev/mapper device of your boot disk, save the WWID from the /etc/blacklisted.wwids file.

5. Remove the boot disk entry from the /etc/blacklisted.wwids file.

6. Edit the grub.conf file to boot the multipath initrd-xxxx_mp.img.

7. Add additional disk paths.

8. Restart the Oracle VM Server. The upgrade is completed.

Appendix A Oracle VM Manager Installation Script (runInstaller)

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This appendix contains information about the Oracle VM Manager installation script, runInstaller.sh, and includes details on the usage, syntax and parameters. The runInstaller.sh script should always be run as the *root* user.

> **Important**
>
> Please ensure that you have met the requirements outlined in Section 4.3, "Minimum Hardware and Software Requirements" before running the runInstaller.sh script.

A.1 runInstaller

The syntax for the Oracle VM Manager installer script is:

```
runInstaller.sh [-h | --help] [-e | --extract_only] [{-d | --dir=}directory]
            [{-c | --config=}configfile.yml] [{-u | --uuid=}uuid]
            [{-i | --installtype=}{Simple | Custom | Uninstall}] [-y | --assumeyes]
            [-n | --noprereq] [-k | --cleanup]
```

A.1.1 Options

`[-h	--help]`	Displays the installer help.
`[-e	--extract_only]`	Extracts the installer and exits.
`[{-d	--dir=}directory]`	Runs the Oracle VM Manager installer scripts in the directory provided.
`[{-c	--config=}configfile.yml]`	Specifies an install configuration file. This file is used to set install options in a silent install.

```
# ./runInstaller.sh --config=/path/myconfig.yml \
    --installtype=Custom --assumeyes
```

The install configuration file should be in the format shown in Section A.2, "Installer Configuration File".

`[{-u	--uuid=}uuid]`	Sets the UUID for Oracle VM Manager. Use this option when recovering an Oracle VM Manager instance to use the existing UUID. The Oracle VM Manager configuration file contains the UUID and is stored in the location:

/u01/app/oracle/ovm-manager-3/.config

```
# ./runInstaller.sh --uuid=0004FB000000100002CB7F2DFFA8D8
```

`[{-i	--installtype=}{Simple	Custom	Uninstall}]`	Sets the install type to use without being prompted during the install. Use this option during a silent install.

```
# ./runInstaller.sh --config=/path/myconfig.yml \
    --installtype=Custom --assumeyes
```

[-y | --assumeyes]   Sets each prompt during the install to respond as yes. If combined with the `--installtype=Simple` option, performs a *silent* install with the default settings, using a new locally installed MySQL database.

```
# ./runInstaller.sh --assumeyes --installtype=Simple
```

[-n | --noprereq]   Sets the installer to ignore all prerequisite system checks such as memory or operating system requirements.

```
# ./runInstaller.sh --noprereq
```

[-k | --cleanup]   Cleans up all temporary installation configuration files after the install completes.

```
# ./runInstaller.sh --cleanup
```

A.2 Installer Configuration File

This section describes the configuration file you can use during an Oracle VM Manager installation to perform a silent installation. You should use spaces and not tabs when formatting this configuration file. This is because the configuration file is written in YAML and tabs are treated differently across editors. The number of spaces that you use to perform an indent is not important, only that you are consistent in your indentation. To use the configuration file, enter:

```
# ./runInstaller.sh --config=/path/myconfig.yml --installtype=Custom --assumeyes
```

Figure A.1 Oracle VM Manager install configuration file format

```
db:
     type          : [MySQL|ExistingDB]     The database type
     install       : [Yes|No]               Whether to install a database
     host          : hostname               Hostname or IP address where the database resides
     sys_password  : mypassword             Database SYS user password
     port          : port                   Database port, eg 49500
     sid           : mySID                  Database SID, eg ovs
     mgmt_port     : port                   8080 is the default
     user          : myuser                 Database username. ovs is generally used here
     password      : mypassword             Password for the user in the previous field

webLogic:
     install       : [Yes|No]               Whether to install Oracle WebLogic
     user          : myuser                 WebLogic username. weblogic is generally used here
     password      : mypassword             Password for the user in the previous field

java:
     install       : [Yes|No]               Whether to install Oracle Java

ADF:
     install       : [Yes|No]               Whether to install Oracle ADF

OVMCore:
     install       : [Yes|No]               Whether to install Oracle VM Manager core
     user          : myuser                 Username
     password      : mypassword             Password for the user in the previous field

OVMConsole:
     install       : [Yes|No]               Whether to install Oracle VM Manager console

OVMShell:
     install       : [Yes|No]               Whether to install Oracle VM Manager command line

OVMUpgrade:
     install       : [Yes|No]               Whether to upgrade Oracle VM Manager

onFailure:
     cleanup       : [Yes|No]               Whether to clean up installation on failure
```

Example A.1 Oracle VM Manager install configuration file example

```
db:
     install       : No
     host          : localhost
     sys_password  : mypassword
     port          : 49500
     sid           : ovs
     mgmt_port     : 8080
     user          : ovs
     password      : mypassword

webLogic:
     install       : Yes
     user          : weblogic
     password      : mypassword

java:
     install       : Yes

ADF:
     install       : Yes

OVMCore:
     install       : Yes
     user          : myuser
```

```
      password        : mypassword

OVMConsole:
      install         : Yes

OVMShell:
      install         : Yes

OVMUpgrade:
      install         : Yes

onFailure:
      cleanup         : No
```

Appendix B Oracle VM Manager MySQL Backup and Restore

Table of Contents

This appendix contains information about the Oracle VM Manager MySQL Backup facility and the included `RestoreDatabase.sh` script. These tools are intended to be used for installations of Oracle VM Manager that make use of a MySQL database backend.

B.1 Oracle VM Manager MySQL Backup

As of Oracle VM Manager Release 3.2 backups of the local MySQL database is performed automatically every 24 hours. Backups are stored within `/u01/app/oracle/mysql/dbbackup` by default, and are rotated regularly so that only the 21 most recent backups are stored at any point in time. Backups make use of the MySQL Enterprise Backup utility.

The MySQL Enterprise Backup package is installed as a dependency when selecting a Simple install during the installation of Oracle VM Manager. On Oracle Linux systems this is handled by installing `meb-3.8.0-el6.x86_64.rpm`.

The default path for the storage of backups is defined in `/etc/sysconfig/ovmm` on the Oracle VM Manager host, specified in the following line:

```
DBBACKUP=/u01/app/oracle/mysql/dbbackup
```

Note

This path can be changed to an alternate location if you need to cater to disk space requirements.

The default path for the mysqlbackup binary is also defined in `/etc/sysconfig/ovmm` on the Oracle VM Manager host, specified in the following line:

```
DBBACKUP_CMD=/opt/mysql/meb-3.8/bin/mysqlbackup
```

Warning

This path is made explicit for the purposes of handling future updates to the MySQL Enterprise Backup package. It should not be changed.

B.1.1 Backup Directories and Logs

Each backup is stored in a directory within the path defined by **DBBACKUP**. The backup directory is named `AutoFullBackup-`*`MMDDYYYY_hhmmss`*. Within the backup directory is a log file, named `AutoBackup.log`, containing information about the events that took place during the backup process. The backup directory contains a backup of the MySQL configuration file, a `datadir` directory containing the binary log for the database, a `meta` directory containing files specific to the MySQL Enterprise Backup process that was run at the time, and the actual `MBI` image file for the database that is backed up.

Only the 21 most recent backups are maintained within the **DBBACKUP** path. Manual backups, where the backup directory name is not prepended with `AutoFullBackup`, are ignored by the rotation.

Currently, it is not possible to change the frequency of automatic backups, or the number of automatic backups that are retained during a rotation.

B.1.2 Performing a Backup Manually

It is possible to initiate a backup manually. This is usually done when performing an upgrade of Oracle VM Manager. While it is possible to invoke the `mysqlbackup` utility directly, it is recommended that you initiate a backup directly from the Oracle VM Manager core. This can be achieved using the provided backup script at `/u01/app/oracle/ovm-manager-3/bin/createBackup.sh` script:

```
# /u01/app/oracle/ovm-manager-3/bin/createBackup.sh

Backing up the Oracle VM Manager MySQL Database...

Please enter the Oracle VM manager user name: admin

Please enter the Oracle VM manager user password:

INFO: Succesfully backed up database as AutoFullBackup-20121112_111840
```

By default, the backup script will store the backup as an automatic backup, which will be subject to the same rotation rules as any other automatic backup. This means that your manual backup will be stored for 21 backup events, before it is removed automatically. It is possible to store a backup with an alternate name to avoid rotation. This can be achieved by using the **-n** switch along with the a specified backup name:

```
# /u01/app/oracle/ovm-manager-3/bin/createBackup.sh -n ManualBackup1
```

For more information on using MySQL Enterprise Backup, please refer to http://dev.mysql.com/doc/mysql-enterprise-backup/en.

B.2 Restoring the MySQL Database for Oracle VM Manager

To restore the database to one of the available backups, the manager and the database need to shutdown, for example as the **root** user execute the following commands:

```
# service ovmm stop; service ovmm_mysql stop
```

To initiate the restore, as the **oracle** user, use the `RestoreDatabase.sh` command located in the `/u01/app/oracle/ovm-manager-3/ovm_shell/tools`, for example:

```
# su - oracle
$ bash /u01/app/oracle/ovm-manager-3/ovm_shell/tools/RestoreDatabase.sh
  AutoFullBackup-10222012_162543
INFO: Expanding the backup image...
INFO: Applying logs to the backup snapshot...
INFO: Restoring the backup...
INFO: Success - Done!
INFO: Log of operations performed is available at:
      /u01/app/oracle/mysql/dbbackup/AutoFullBackup-10172012_122920/Restore.log


IMPORTANT:

      As 'root', please start the OVM Manager database and application using:
              service ovmm_mysql start; service ovmm start
```

The `RestoreDatabase.sh` script expects the name of the directory for a particular backup directory as described in Section B.1.1, "Backup Directories and Logs". You do not need to specify the full path to the backup directory as this is already specified in the **DBBACKUP** variable.

Once you have restored the database, restart the database and manager as the **root** user:

```
# service ovmm_mysql start; service ovmm start
```

It is important to understand that after restoring from a backup, objects such as servers and repositories must be refreshed within Oracle VM Manager in order to be usable. Use the **Refresh All** option within Oracle VM Manager to achieve this. See Managing Server Pools and Oracle VM Servers in the *Oracle VM User's Guide* for more information on these options.

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