Oracle® VM

Installation and Upgrade Guide for Release 3.1.1

ORACLE

Oracle® VM: Installation and Upgrade Guide for Release 3.1.1

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 3.1.1 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 Utilities 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

Oracle Linux command syntax appears in `monospace` font. The dollar character ($), number sign (#), or percent character (%) are Oracle Linux 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 Oracle Linux 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.

1.1.1. Installing Oracle VM Server

Installing Oracle VM Server deletes any previous operating system and data on the computer. To install Oracle VM 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.

4. Log into Oracle VM Server as the *root* user, with the password you set during the installation.

See Chapter 2, *Installing Oracle VM Server* 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 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 3, *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 4, *Upgrading Oracle VM* for information on performing an upgrade.

Chapter 2. Installing Oracle VM Server

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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 only. 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 are lost during the installation of Oracle VM Server.

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

2.1.3. Network Requirements

It is recommended that you install Oracle VM Server on a machine with a static IP address. If your machines use DHCP, you should configure your DHCP server to assign static DHCP addresses. This

makes sure 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 you use DHCP, you may also encounter problems with the default gateway. Linux systems set the default gateway using the route provided by the DHCP server, regardless of the setting in the computer running Oracle VM Server. This may not be the default route you want. If you use DHCP, you should configure the DHCP server to not provide the default gateway for the machines running Oracle VM Server.

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

Oracle recommends you to leave the dom0 memory to the value by default. It is set by default as 502 + 0.0205 * physical-memory (in MB) during the installation.

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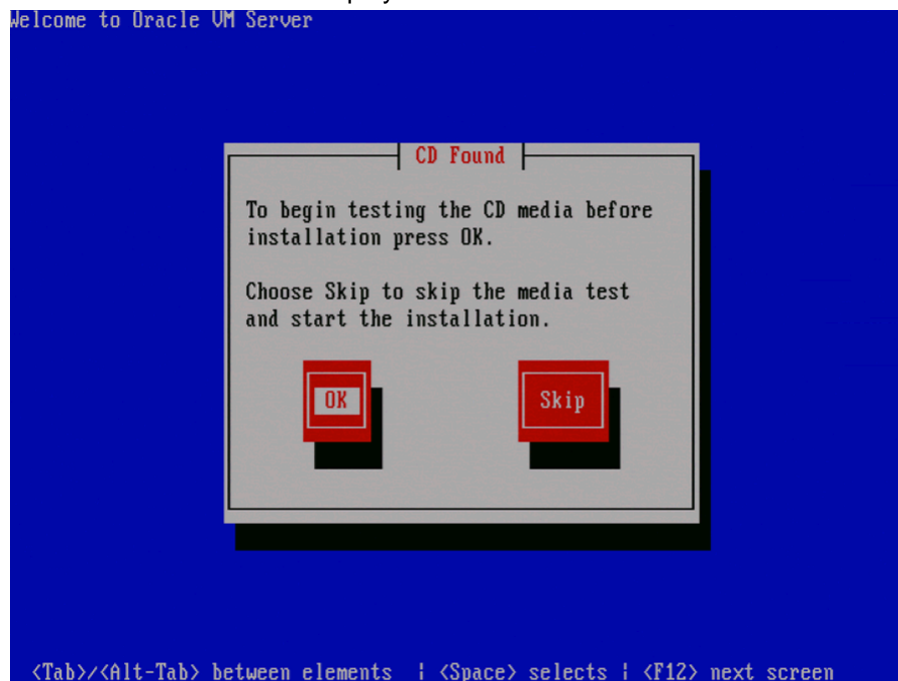
If you want to make sure the CD has been created correctly you can have the installer test it for errors. To test the CD, select **OK** and press **Enter**. The CD is tested and any errors are reported.

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

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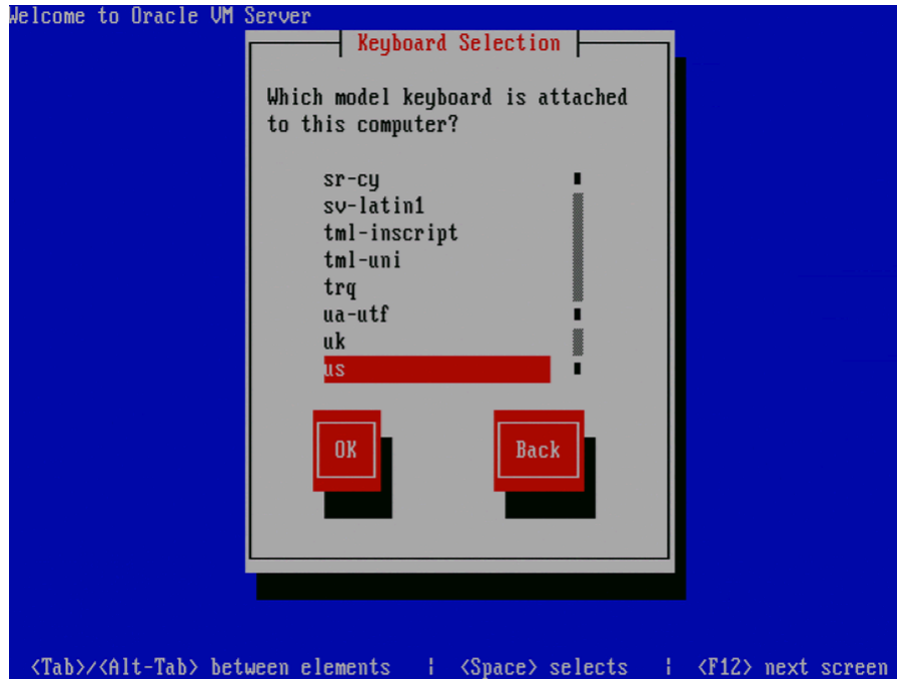
Select the keyboard layout type (for example, **us** for U.S. English) from the list of available options. The keyboard you select becomes the default keyboard for the operating system.

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

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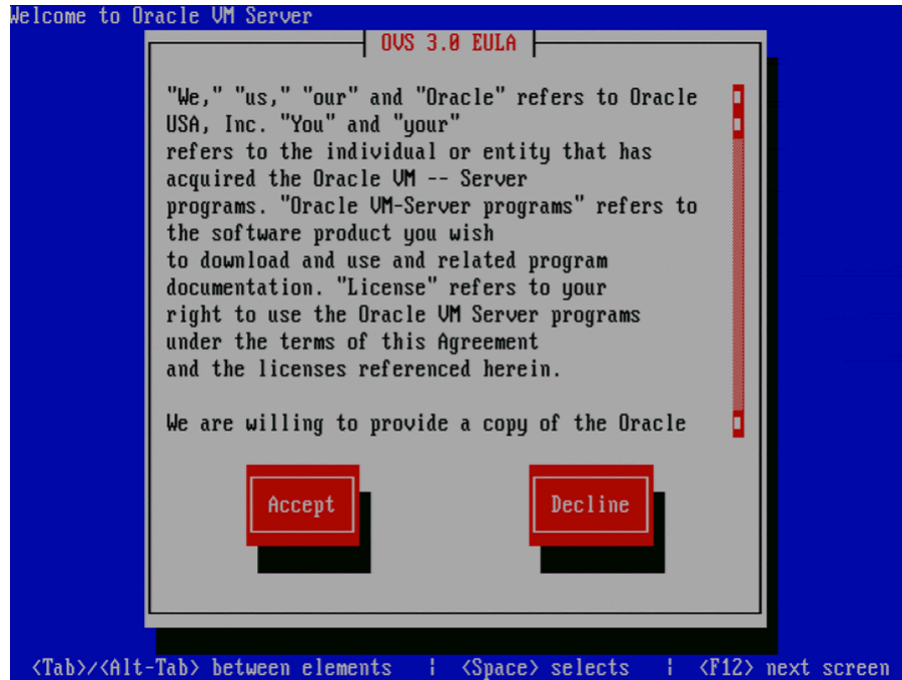
Read the License Agreement text and click **Accept** to accept the terms of the agreement and continue the installation.

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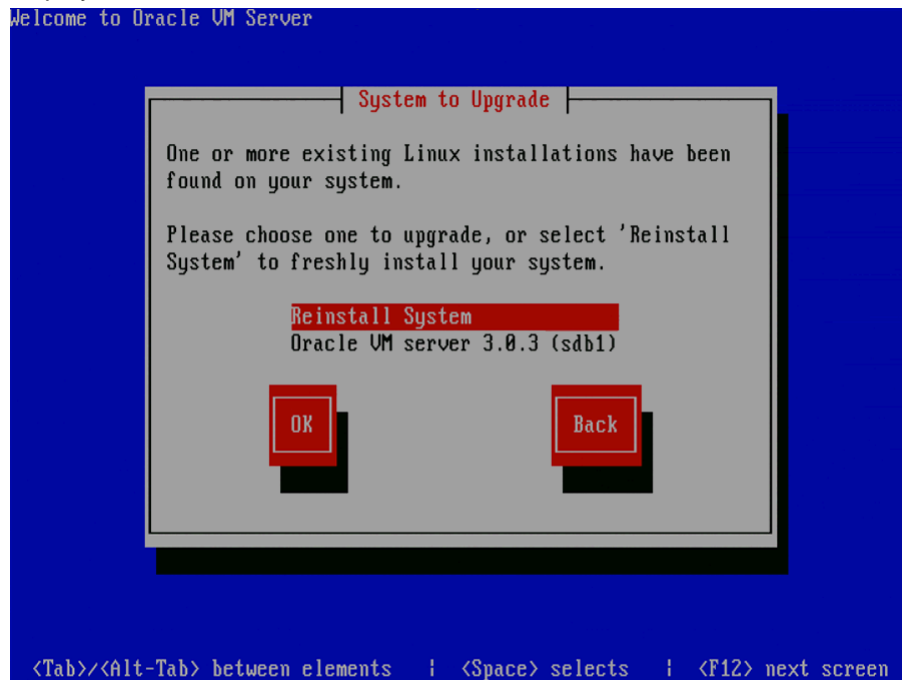
Select **Reinstall System** to overwrite the existing installation.

Select **Oracle VM Server 3.x (***disk***)** to upgrade the existing installation. Upgrade instructions are described in Section 4.3.2, "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.
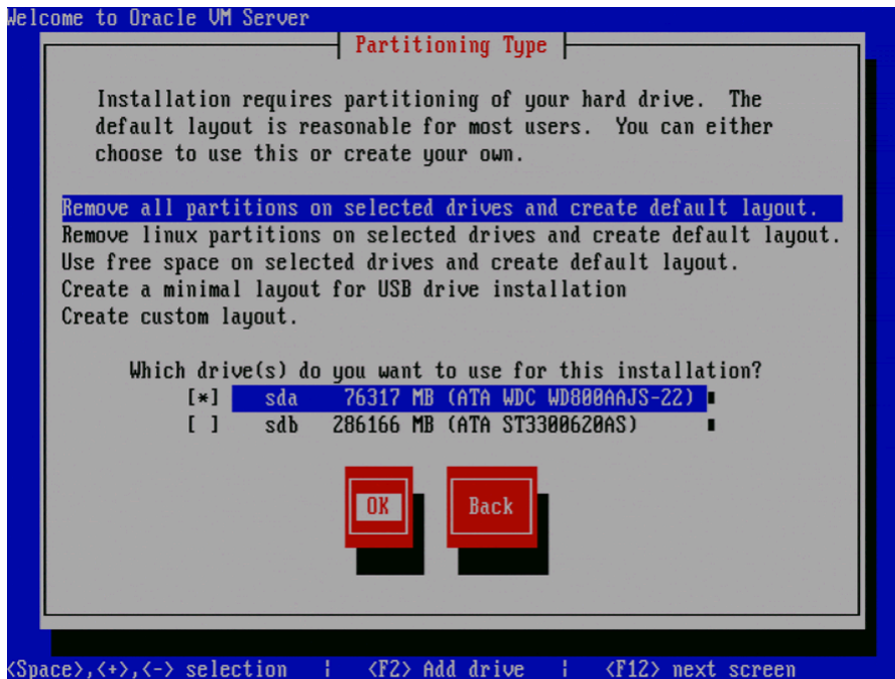
Select whether you want to:

- 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.
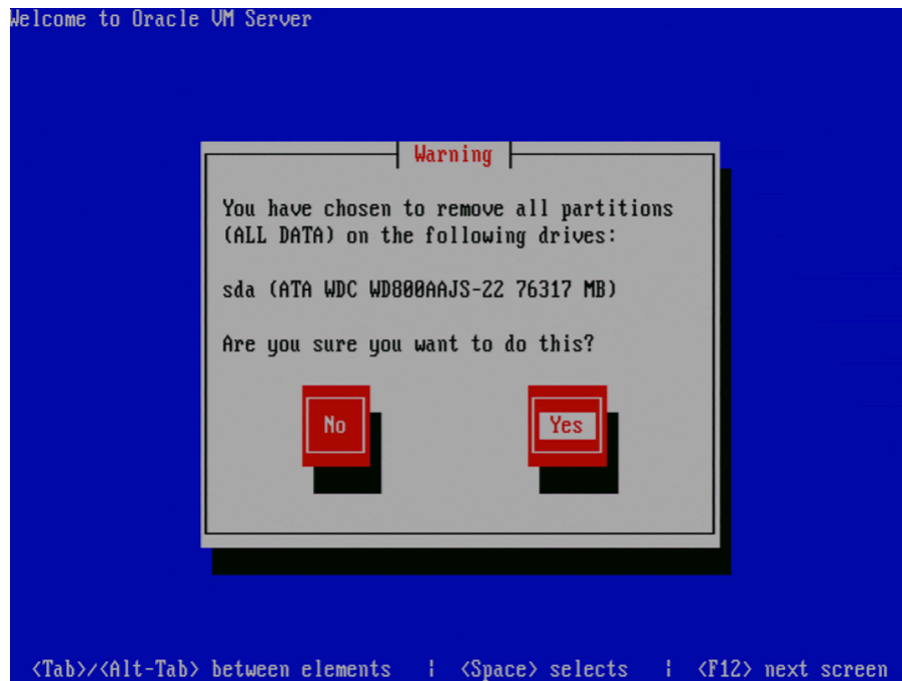
Select **Yes** and press **Enter.**

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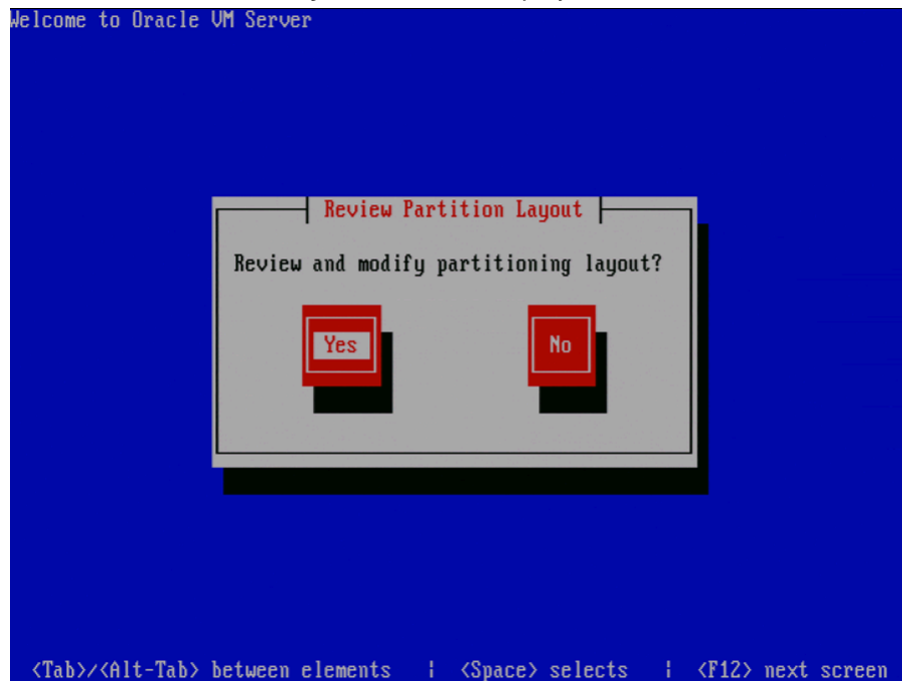
If you do not want to review the partition layout and accept the default partition layout, select **No** and press **Enter**.

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

The **Partitioning** screen is displayed.

```
Welcome to Oracle VM Server
                        ┤ Partitioning ├

        Device         Start   End    Size      Type       Mount Point
/dev/sda
  sda1                    1     13     101M   ext3         /boot
  sda2                   14    405    3074M   ext3         /
  sda3                  406    536    1027M   swap
  Free space            537   9729   72112M   Free space
/dev/sdb
  Free space              1  36482  286168M   Free space


        New      Edit      Delete      RAID      OK      Back



   F1-Help    F2-New     F3-Edit   F4-Delete    F5-Reset    F12-OK
```
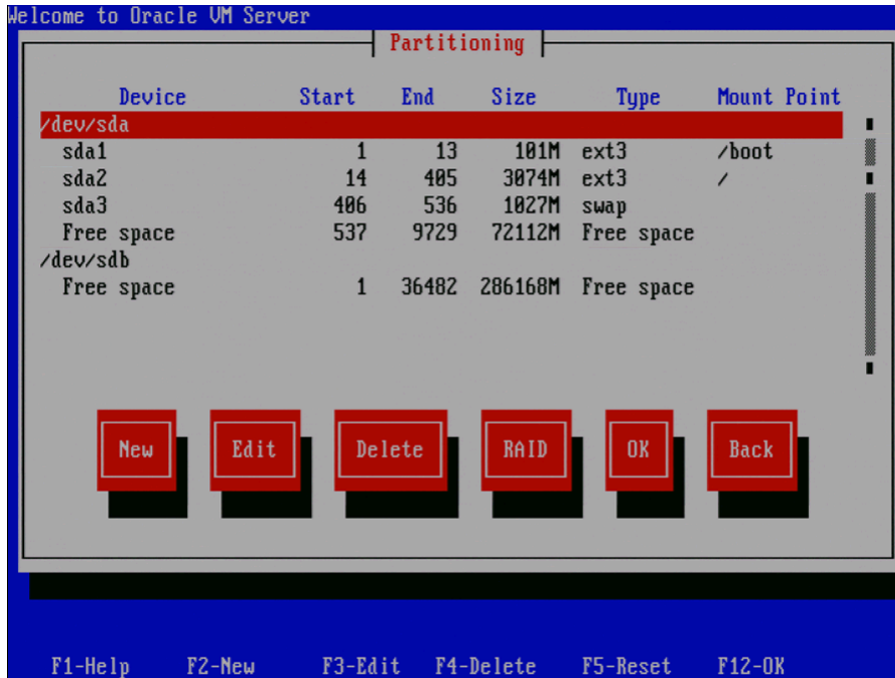
Review the partition layout, and make any changes you want.

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

12. The **Boot Loader Configuration** screen is displayed.

```
Welcome to Oracle VM Server



                ┤ Boot Loader Configuration ├

        Where do you want to install the boot loader?

        /dev/sda          Master Boot Record (MBR)
        /dev/sda1         First sector of boot partition

            Change drive order       OK       Back




   <Tab>/<Alt-Tab> between elements  ¦  <Space> selects  ¦  <F12> next screen
```
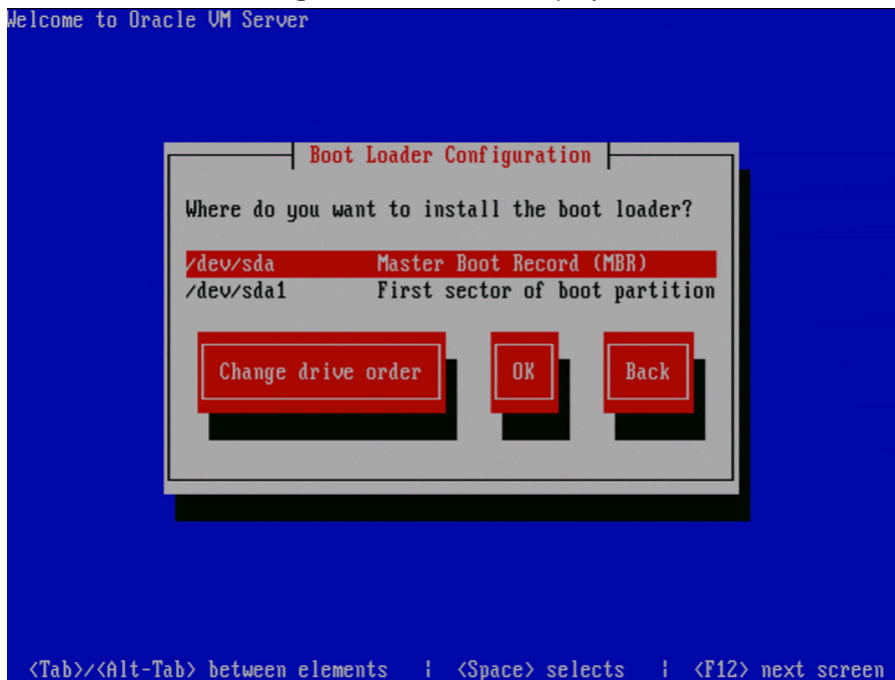
Be sure to select the option to boot from a multipath device if you install Oracle VM Server on a disk subsystem that allows access through multiple physical paths.

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.
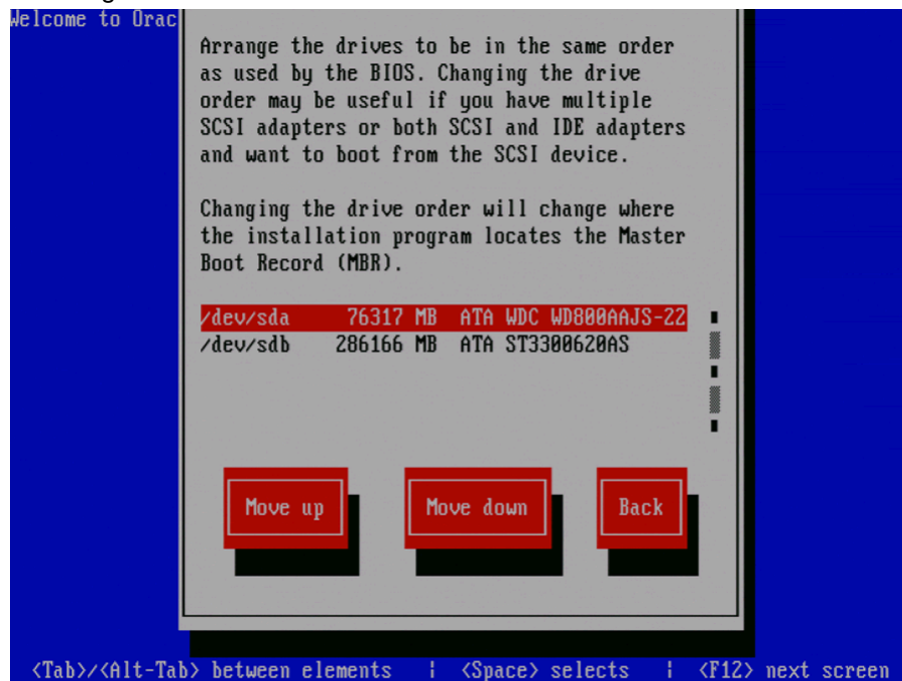
Select a drive in the list and click the **Move up** and **Move down** buttons to change the order, making sure that the drive to locate the Master Boot Record is at the top.

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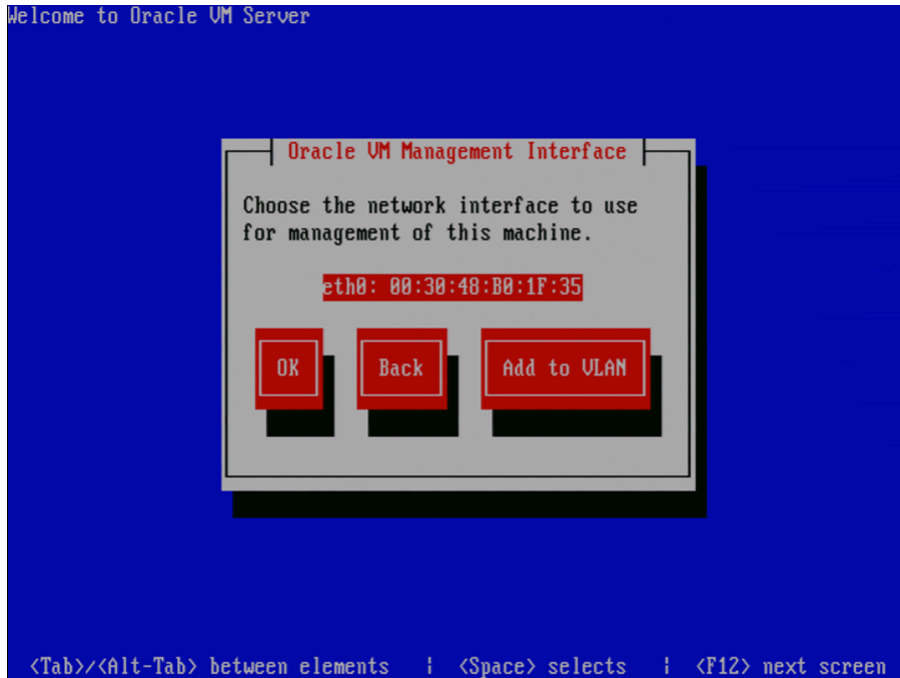
Select the network interface to use for management of the computer.

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.
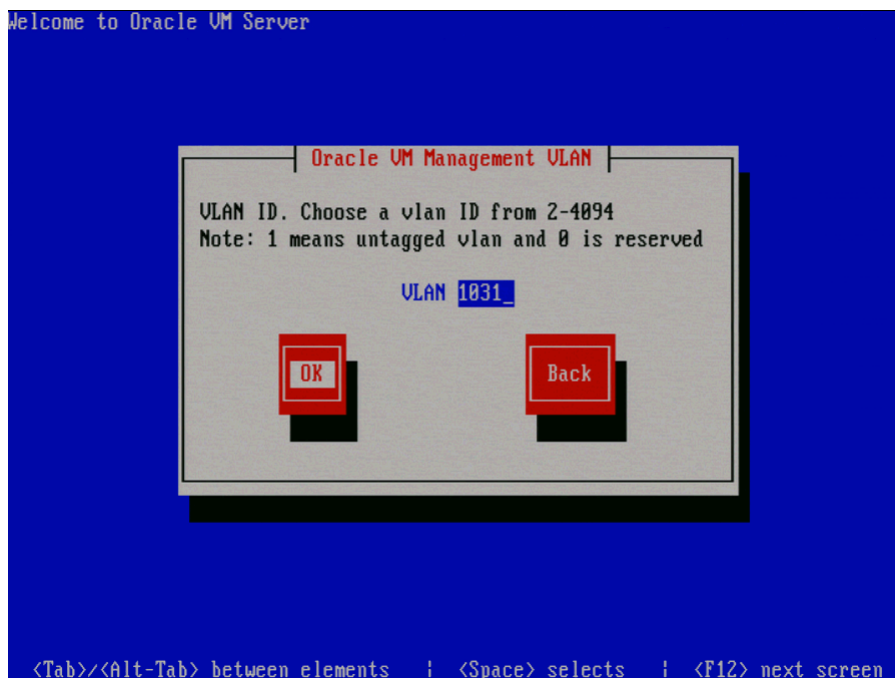
If your Oracle VM Management network is on a VLAN, enter the applicable VLAN tag. Note that 0 is reserved and that 1 corresponds with "untagged".

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

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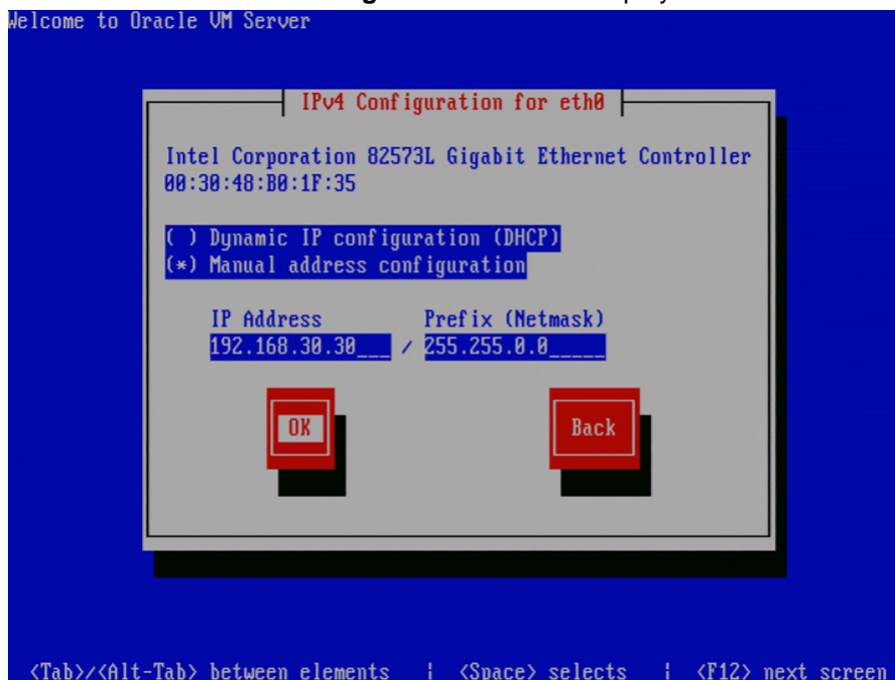
If your computer uses a static IP address, enter the IP address and prefix (netmask) for your computer.

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.
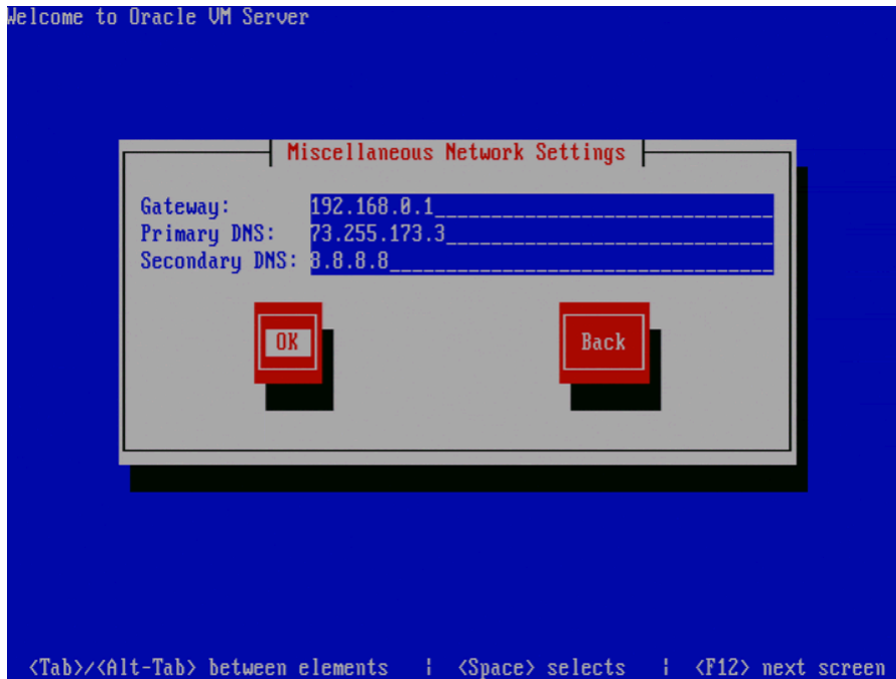
Enter the Gateway, Primary DNS and optional Secondary DNS in the respective fields.

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

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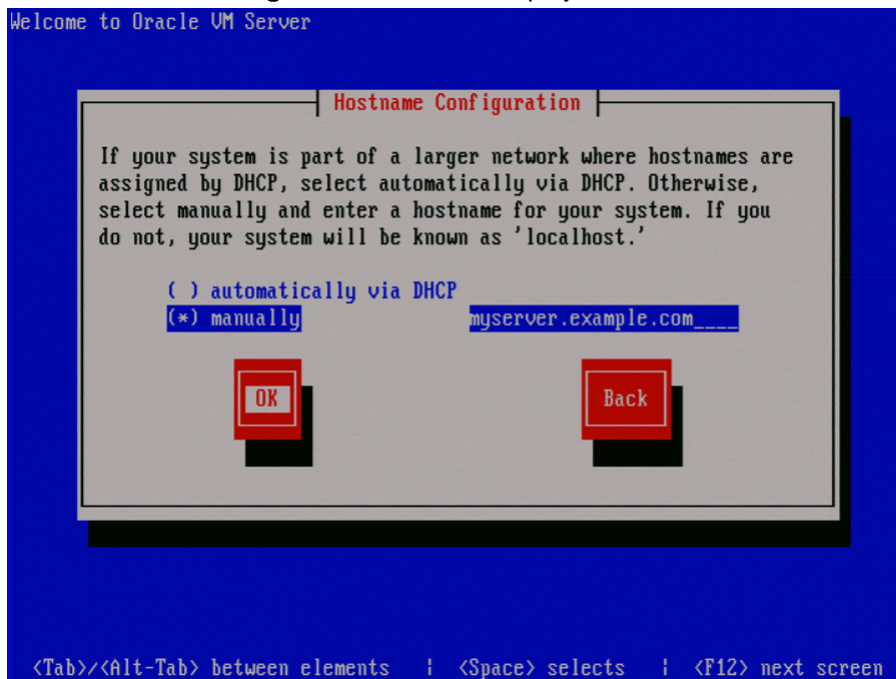
If your machine has its own hostname, select **manually** and enter the hostname or IP address. You should use a fully qualified hostname, for example, myserver.example.com.

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.
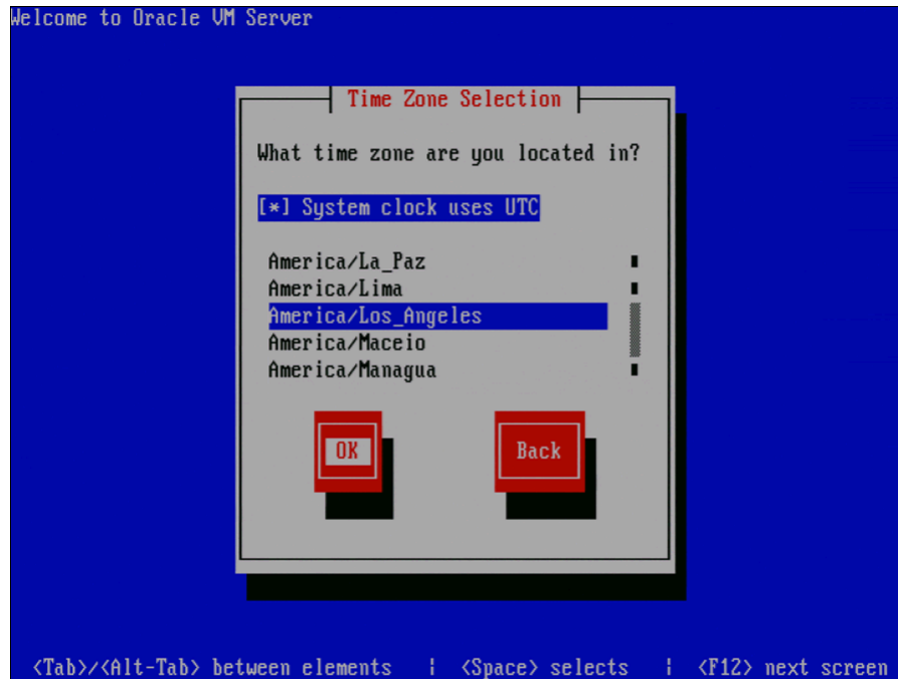
If your operating system uses Coordinated Universal Time (UTC), select **System clock uses UTC**.

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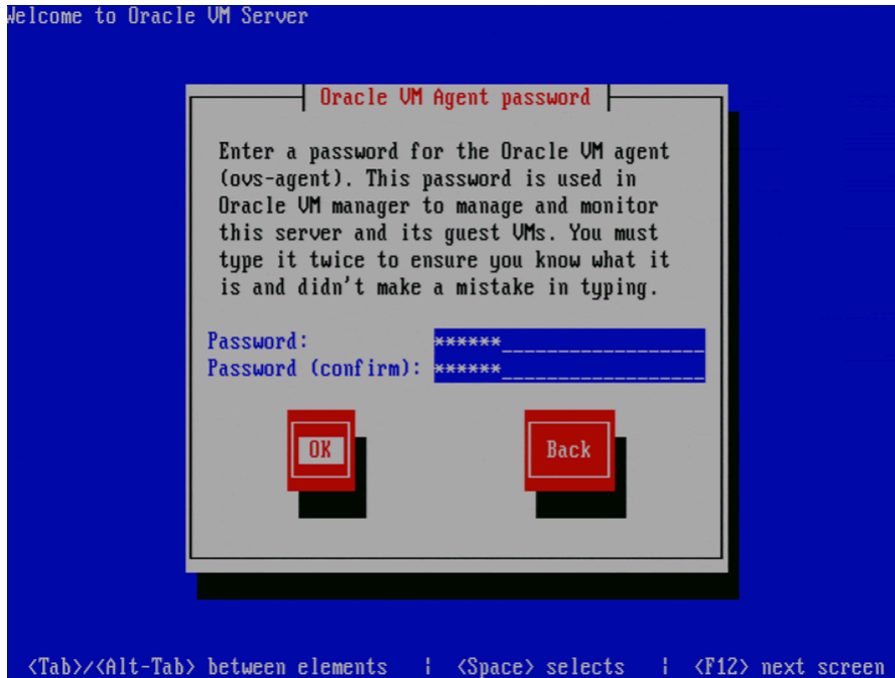
Enter a password to be used for the Oracle VM Agent in the **Password** field. This password is used by Oracle VM Manager to manage and monitor the Oracle VM Server, and the guests created and running within it. This is the password you use when discovering Oracle VM Servers in Oracle VM Manager.

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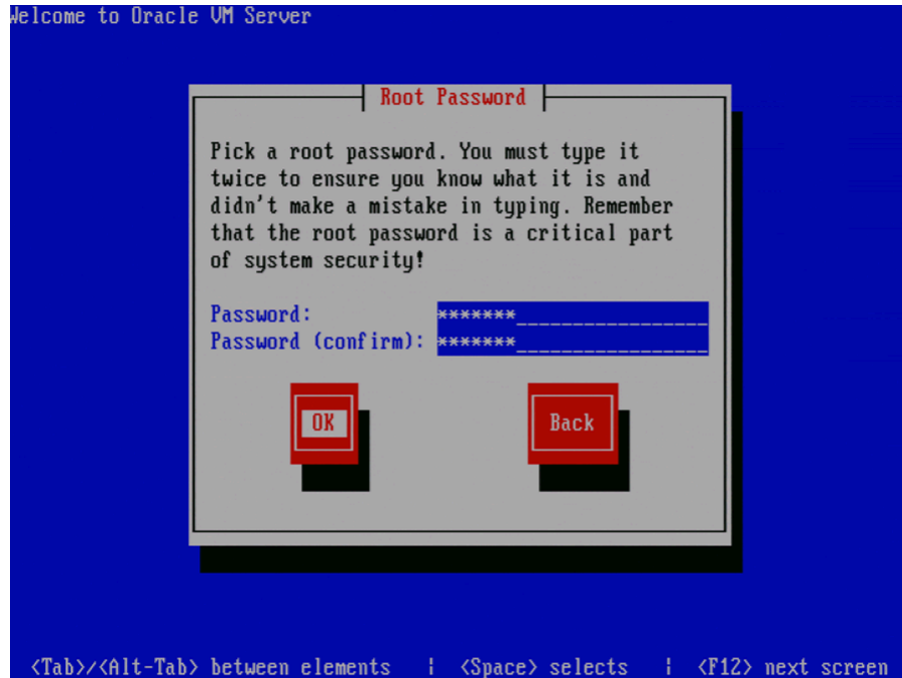
Enter a password for the *root* user in the **Password** field. The *root* password must be at least six characters long.

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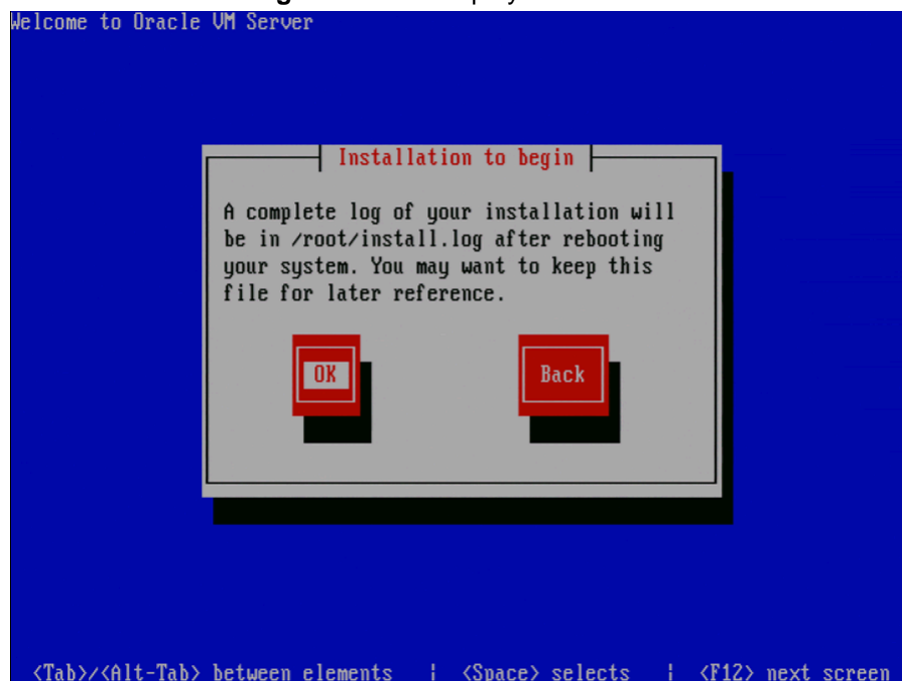
Select **OK** and press **Enter**. The installer installs and configures Oracle VM Server. You can follow the progress of the package installation on-screen.

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

```
Welcome to Oracle VM Server




                        ┤ Complete ├

       The Oracle VM Server installation is complete.

       Remove any media used during the installation process
       and press <Enter> to reboot your system.




                          ┌────────┐
                          │ Reboot │
                          └────────┘






                     <Enter> to reboot
```
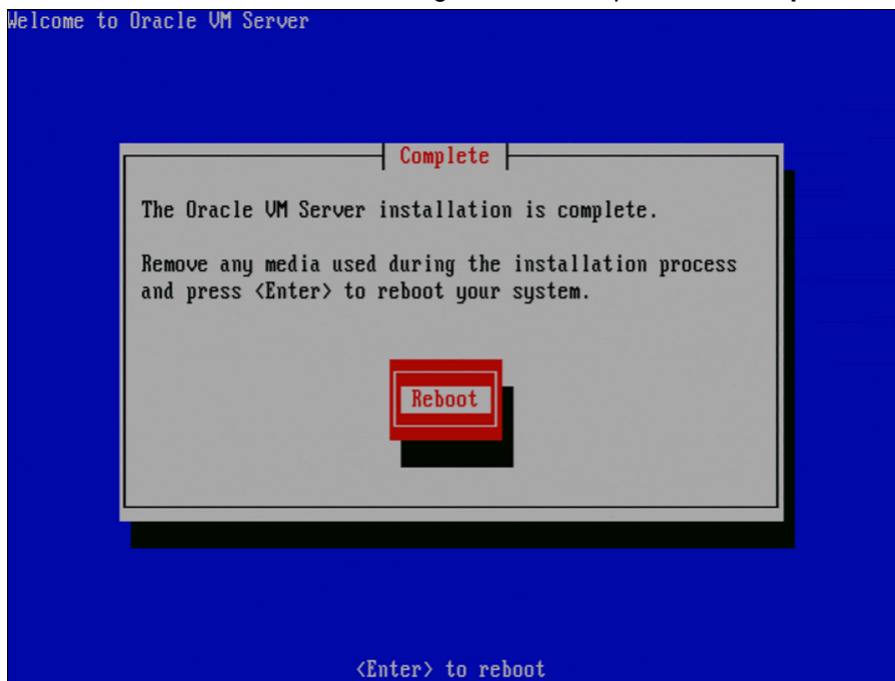
Remove the Oracle VM CD.

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

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

```
Oracle VM Server 3.1.1 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 3.1.1
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	543 MB
4 GB	585 MB

Physical Memory	Dom0 Memory
8 GB	669 MB
16 GB	837 MB
32 GB	1173 MB
64 GB	1845 MB
128 GB	3188 MB
256 GB	5875 MB
512 GB	11249 MB
1024 GB	21997 MB
2048 GB	43493 MB

You may encounter performance issues if the dom0 memory size is not set appropriately for your needs on the Oracle VM Server. For example, you may encounter performance issues when running more than 10 virtual machines on an 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
```

Chapter 3. Installing Oracle VM Manager

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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.

3.1. Installation Overview

Oracle VM uses an Oracle database as a repository. Oracle VM production deployments require Oracle Database Standard Edition (Oracle SE) or Enterprise Edition (Oracle EE). If you are testing Oracle VM and do not require a supported product, you can use Oracle Database Express Edition (Oracle XE). Oracle XE is not a supported product, and Oracle Support Services cannot supply patches for it. If you require full support from Oracle, you should use Oracle SE or EE as the Oracle VM database repository.

Oracle VM Manager can be installed in a *demo* installation using Oracle XE, or as a *production* installation using Oracle SE or EE. The demo installation installs Oracle XE on the local host and configures it to use as the repository. The production option collects information on the pre-installed Oracle Database and uses it as the repository. In both install types, Java, the Oracle VM Manager application, and Oracle WebLogic Server are installed on the local host.

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

3.2. 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 11g documentation.

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

Oracle Database

In a new installation, Oracle Database 11*g* Express Edition (Oracle XE) for Linux 64-bit may be installed. If Oracle XE is already installed, the installer asks whether it should use the existing database, install a new one, or use another database in the local area network (LAN). For more information about Oracle XE, see the Oracle Database Express Edition Documentation for 11g Release 2 (11.2).

You should only use the Oracle XE database as the Oracle VM Manager repository in non-production environments. Oracle XE is not a supported product and Oracle Support Services cannot provide bug fixes or patches for this product. If you are deploying Oracle VM Manager in a production environment, you should use Oracle Database Standard or Enterprise Edition, which you must install separately to Oracle VM. 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. The supported version 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

3.3. 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.

3.3.1. Hardware Requirements

Before you install Oracle VM Manager, make sure that your computer meets the minimum hardware requirements listed in Table 3.1:

Table 3.1. Hardware Requirements for Oracle VM Manager

Items	Minimum Value
Memory	1.5 GB 4 GB with Oracle XE
Processor Type	64 bit
Processor Speed	1.83 GHz*1
Swap Space	2.1 GB
Hard Disk Space	5 GB in /u01 2 GB in /tmp

3.3.2. Software Requirements

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

3.3.2.1. 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

3.3.2.2. 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
```

3.3.2.3. 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

3.3.2.4. Environment Configuration Script

The createOracle.sh is a script that automatically:

- Creates the operating system *dba* group

- Creates the *oracle* user and adds it to the *dba* group

- Creates the /u01 directory

- 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 3.4.1, "Mounting the Oracle VM Manager Installation Media" for information on mounting the installation media. Then enter the following command as the *root* user:

```
# ./createOracle.sh
```

3.3.2.5. Prerequisite Packages

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

3.3.2.5.1. libaio

If you select during the Oracle VM Manager installation to use Oracle Database 11*g* Express Edition (Oracle XE) as the management data repository, you must install the libaio package. You must install libaio release 0.3.104 or above.

If your computer is configured with Oracle Unbreakable Linux Network (ULN) you can run either of the following commands to update or install libaio, whichever is appropriate for your system:

```
# yum install libaio
```

or

```
# up2date libaio
```

You can also find the libaio package on the Oracle Linux DVD or ISO file. To install libaio, go to the directory where the libaio.rpm is located, and enter the command:

```
# rpm -ivh libaio-version.rpm
```

To upgrade libaio, you can use the command:

```
# rpm -Uvh libaio-version.rpm
```

3.3.2.5.2. 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
```

3.3.2.5.3. bc

If you plan to use the Oracle XE database as the management data repository, you must install the bc package (GNU numeric processing language). To install bc, enter:

```
# yum install bc
```

3.3.2.6. 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: 7001, 7002 and 15901. The ports used by the Oracle VM Servers to connect to Oracle VM Manager are: 7001, 7002, and optionally 54321 and 54322 for remote API access. 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). 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:
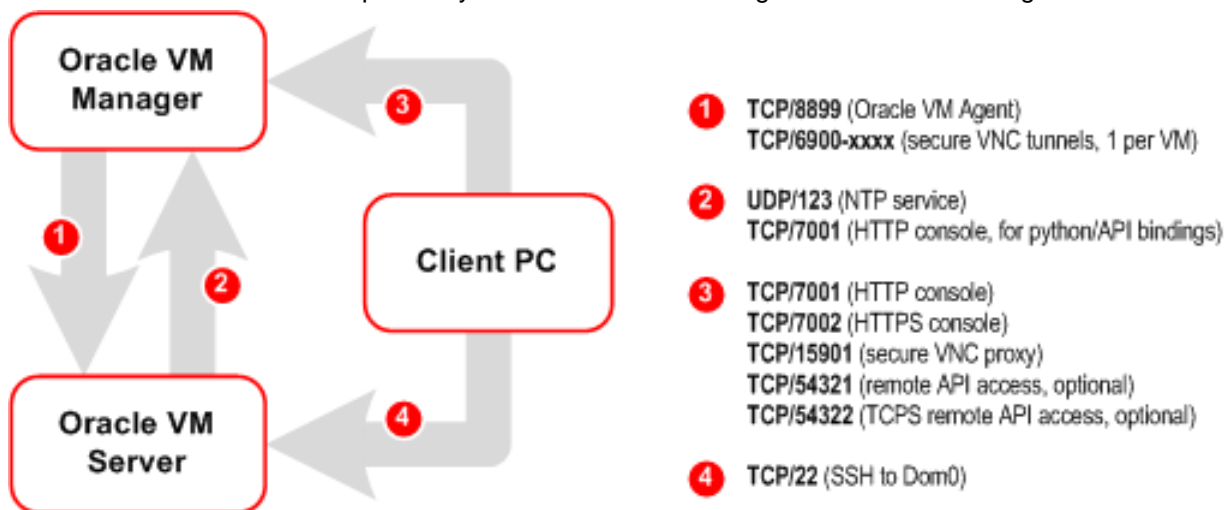
To disable iptables and open all ports, enter the following commands as the *root* user:

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

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

```
# iptables -A INPUT -m state --state NEW -m tcp -p tcp --dport 7001 -j ACCEPT
# iptables -A INPUT -m state --state NEW -m tcp -p tcp --dport 7002 -j ACCEPT
# 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
```

To remotely connect to the Oracle VM Manager core API, also enter the following command:

```
# iptables -A INPUT -m state --state NEW -m tcp -p tcp --dport 54321 -j ACCEPT
# iptables -A INPUT -m state --state NEW -m tcp -p tcp --dport 54322 -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.

To configure the firewall to open the required ports automatically, use the environment configuration script provided with the Oracle VM Manager installer. See Section 3.3.2.4, "Environment Configuration Script" for information on using this script.

3.3.2.7. 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 Oracle Database hostname. This is the IP address or hostname of the host on which the Oracle Database to use as the Oracle VM Manager database repository is located. The default is `localhost`.

- The Oracle Database System ID (SID). This is the database SID to use to connect to the Oracle VM Manager database repository.

- The Oracle Database HTTP port. The default port number is `8080`.

- The Oracle Database listener port. The default port number is `1521`.

- The password for the Oracle Database *SYS* and *SYSTEM* accounts. You cannot use special characters for this password. Use only alpha numeric characters.

- The password for the Oracle VM Manager OVS database schema.

- The password for the Oracle WebLogic *admin* account.

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.

3.3.2.8. Oracle XE User

You must have an *oracle* user that is a member of a group named *dba*. If an *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
```

To configure the oracle user automatically, use the environment configuration script provided with the Oracle VM Manager installer. See Section 3.3.2.4, "Environment Configuration Script" for information on using this script.

3.3.2.9. /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 3.3.2.4, "Environment Configuration Script" for information on using this script.

3.4. 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 can being the install, 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 3.7, "Running Oracle VM Manager as a Virtual Machine".

3.4.1. 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.

3.4.2. Running the Oracle VM Manager Installer

To install Oracle VM Manager, enter the mount point you created in Section 3.4.1, "Mounting the Oracle VM Manager Installation Media", for example, /OVMCD and start the installation with the runInstaller script as the *root* user:

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

A set of installer options are displayed:

```
Please select an installation type:
   1: Demo
   2: Production
   3: Uninstall
   4: Help
```

At the command prompt, enter **1** (a demo install) or **2** (a production install) to install Oracle VM Manager. If you already have Oracle VM Manager installed and want to uninstall it, select **3** (uninstall).

See Section 3.4.2.1, "Demo Install" for information on installing Oracle VM Manager and Oracle XE database, using the same password for all components. This should only be used in non-production environments. Oracle XE is not a supported product and Oracle Support Services cannot provide bug fixes or patches for this product.

See Section 3.4.2.2, "Production Install" for information on installing Oracle VM Manager as a production-level installation. This is the preferred installation type, with options for selecting Oracle SE or EE database as the location for the Oracle VM Manager repository, as well as setting individual passwords for each component.

See Section 3.14, "Uninstalling Oracle VM Manager" for information on uninstalling Oracle VM Manager, and its components such as Oracle XE (if applicable), Oracle WebLogic Server, ADF and Java.

You can also perform a silent install using the installer script optional parameters. See Section 3.4.2.3, "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.

The following sections walk through the following demo, production and silent install options.

3.4.2.1. Demo Install

The demo installation installs Oracle Database XE, Oracle WebLogic Server, Oracle Application Development Framework (ADF), Java, and Oracle VM Manager on the local system. Use this installation option for testing and non-production environments; do not use this installation option in production environments. Oracle XE is not a supported product and Oracle Support Services cannot provide bug fixes or patches for this product. The following example install shows a demo installation, and sample configuration options.

Example 3.1. Demo installation

```
# ./runInstaller.sh

Oracle VM Manager Release 3.x.x Installer

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


Please select an installation type:
   1: Demo
   2: Production
   3: Uninstall
   4: Help

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

The installation process starts, and the following is displayed:

```
Starting demo installation ...

The Demo installation type will use an XE database.
The usage of XE is for *demo purposes only* and is not supported for production.
Please *do not* plan to start with XE and migrate to a supported version of the database as this
may not be possible.
For production environments or any long term usage please use the "Production" option with an SE
or EE database.
   1: Continue
   2: Abort

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

You have the option to continue or abort the installation. Enter **1** to continue.

Enter a password to use for all users created during the demo installation. Password requirements are
outlined in Section 3.3.2.7, "Installation Ports, Passwords, and Database Information".

```
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):

Verifying configuration ...
```

Warnings may occur if not all recommendations are met, as you can see in the screen output above. If one
of the prerequisites is not met, the installation will abort.

You have the option to continue or abort the installation. 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 ...
Installing Database ...
Retrieving Oracle Database 11g XE ...
Installing Oracle Database 11g XE ...
Configuring Oracle Database 11g XE ...

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

```
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 ...
Enabling HTTPS ...
Granting ovm-admin role to user 'admin' ...

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): XE
  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, Oracle Database 11g XE, 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:
  http://myserver.example.com:7001/ovm/console
  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_configid

3.4.2.2. Production Install

The production installation lets you use an existing local or remote Oracle database as the Oracle
VM Manager database repository. You set the users and passwords to use for the Oracle Database,
Oracle VM Manager database repository, Oracle WebLogic Server, and Oracle VM Manager during the
production installation. This is the preferred installation method. Use this installation option in production
environments; do not use an Oracle XE database in a production environment. The following example
describes how to connect to an existing local Oracle database.

Example 3.2. Production installation

```
# ./runInstaller.sh

Oracle VM Manager Release 3.x.x Installer

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


Please select an installation type:
   1: Demo
   2: Production
   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 3.3.2.7, "Installation Ports, Passwords, and Database Information":

```
Enter the Oracle Database hostname [localhost]:
Enter the Oracle Database System ID (SID) [XE]:
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 ...
Enabling HTTPS ...
Granting ovm-admin role to user 'admin' ...

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, Oracle Database 11g XE, 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:
  http://myserver.example.com:7001/ovm/console
  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*

3.4.2.3. 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 following example silently performs a production 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 3.3. 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=production --assumeyes
```

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

```
db:
      install       : Yes
      host          : localhost
      sys_password  : password
      port          : 1521
      sid           : XE
      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
```

3.4.3. Configuring the NTP Service

When an Oracle VM Server is discovered from Oracle VM Manager, NTP (Network Time Protocol) is automatically configured and enabled to ensure time synchronization. Oracle VM automatically configures Oracle VM Manager as the NTP source for all Oracle VM Servers under its control.

However, to provide time services to the Oracle VM Servers, 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
    ```

    Once 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
```

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`). Remove the # character at the start of the line to uncomment this entry. 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 any available Linux host in your management network 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.

Once 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.

3.4.4. Installing and Configuring a VNC Viewer

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 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 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 either 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
```

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.

3.4.5. Installation Logs

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

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

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

/tmp/install-*date*.log

3.4.6. Installation Directories

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

Table 3.2. Oracle VM Manager component installation locations

Component	Location
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

3.5. Logging in to Oracle VM Manager

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

http[s]://*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.

To connect to Oracle VM Manager using Secure Sockets Layer (SSL) on a host named myserver.example.com, use:

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

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

http://myserver.example.com:7001/ovm/console

Enter your Oracle VM Manager administration username 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.

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

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.

3.6. 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
```

Note

If you chose to start Oracle XE manually during the installation, start Oracle XE *before* you start Oracle VM Manager.

To manually start or stop Oracle VM Manager, as the *root* user, use the syntax:

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

For example, to start Oracle VM Manager:

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

To stop Oracle VM Manager:

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

To check the status of Oracle VM Manager:

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

The status option returns either a 0 or a 1. A 0 denotes the Oracle VM Manager application is running, and a 1 denotes the application is 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.

3.7. 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.

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 original Oracle VM Manager. 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. Install Oracle VM Manager on a physical server or in Oracle VM VirtualBox, according to the instructions in Section 3.4, "Installing Oracle VM Manager".

2. Discover an Oracle VM Server 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 3.3.1, "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 3.3.2, "Software Requirements".

5. On this new virtual machine, install Oracle VM Manager according to the instructions in Section 3.4, "Installing Oracle VM Manager". Run the installer with the `--uuid` option to install this new Oracle VM Manager instance with the same UUID as the one you installed first.

   > **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 your original Oracle VM Manager 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 your original Oracle VM Manager.

7. From the new Oracle VM Manager virtual machine, rediscover your Oracle VM Server and storage, and refresh your storage repository to make sure that that all your VM resources reappear.

8. After rediscovering the minimal setup, proceed with the installation and configuration of your full Oracle VM environment.

Oracle VM Manager is now running as an HA VM on top of the environment it is managing. In case an Oracle VM Server fails, the VM will be brought up automatically on a different Oracle VM Server in the environment.

3.8. Adding a Trusted CA Certificate and Keystore for SSL Encryption

To create a secure production environment you need to obtain and install a trusted certificate from a Certificate Authority (CA). Oracle VM Manager runs on Oracle WebLogic Server, and Oracle WebLogic provides the interface for updating the digital certificate and keystore. To add a trusted CA certificate and keystore, see the procedure set out in the Oracle WebLogic documentation:

http://docs.oracle.com/cd/E17904_01/apirefs.1111/e13952/taskhelp/security/ConfigureKeystoresAndSSL.html

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:

http://*hostname*:7001/console

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

3.9. Enabling Remote Log Ins

By default, an instance of the Oracle VM Manager UI can only log into its own *core* (the API layer). In some situations you may want to use Oracle VM Manager UI to log into a remote Oracle VM Manager's core. To enable this, you must perform some set up on the Oracle VM Manager host to allow remote log ins.

Figure 3.1. Oracle VM Manager remote log in
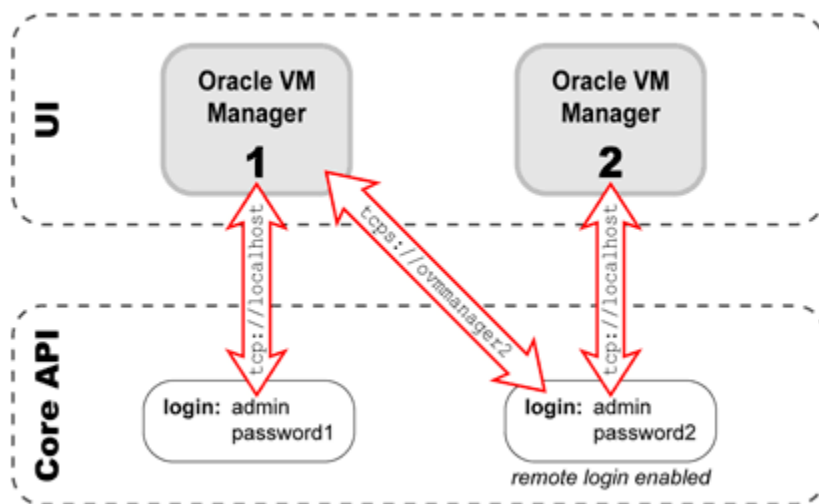
If remote log ins are configured, a remote instance of Oracle VM Manager can log into the local instance and interact with all the objects the local instance owns and manages. If you want to enable remote instances of Oracle VM Manager to log in, you set up remote TCPS authentication. To do this you 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 instance.

3. Restart the local Oracle VM Manager instance:

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

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

tcps://*hostname*

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

If you preform 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.

3.10. 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:

    http://*hostname*:7001/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 **Application** subtab. Edit the **Session Timeout** (in seconds) field in the table. The default setting is half an hour (1800 seconds). Click **Save**.

    > **Note**
    >
    > 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
    > ```
    >
    > 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

3.11. 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 admin password new_password
```

Where *password* is the current password for the admin user and *new_password* is the new password you want to use. The Oracle VM Manager administration tool starts.

```
Oracle VM Manager Release 3.x.x Admin tool
```

```
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 ...
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.

Connected ...
Modifying user 'admin' ...
Modified user 'admin' successfully ...
Disconnected from weblogic server: AdminServer
Exiting...


Exiting WebLogic Scripting Tool.
```

3.12. 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 3.4. 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. As the *root* user, shut down Oracle VM Manager:

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

3. Back up the Oracle VM Manager database OVS schema. Run the Oracle Database `EXP` utility to export the OVS schema. The following example shows how to run this utility on the local install of Oracle XE. If you are using an Oracle Standard or Enterprise Edition on the local host, or on a remote computer, you should consult your Oracle Database documentation for the appropriate method for your environment.

   Log into the operating system as the *oracle* user. You can `su - oracle` as the *root* user if you do not have the password for the *oracle* user.

   Run the following commands:

   ```
   export ORACLE_HOME=/u01/app/oracle/product/11.2.0/xe
   export PATH=$ORACLE_HOME/bin:$PATH
   export ORACLE_SID=XE
   exp ovsschema/password grants=y compress=y file=/location/ovsbackup.dmp
   ```

   The `ovschema` user in the exp command should be replaced with the name of your OVS schema; the default schema name in an Oracle XE install is `ovs`. Store the Oracle VM Manager database schema backup along with the Oracle VM Manager configuration file.

3.13. 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 3.12, "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 3.4, "Installing Oracle VM Manager" for information on how to perform the installation. See Section 4.2, "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 Oracle 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 before you restore the backup:

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

3. Log into the Oracle Database as the `sys` or `system` user to delete the Oracle VM Manager administration user (default: `ovs`):

```
$ sqlplus system/password
SQL> drop user ovs cascade;
```

Then, re-create the Oracle VM Manager administration user, with the necessary grants:

```
SQL> create user ovs identified by password;
SQL> grant connect, resource to ovs;
SQL> exit;
```

4. Restore the Oracle VM Manager OVS database schema. Import the OVS schema from the backup file:

```
# export ORACLE_HOME=/u01/app/oracle/product/11.2.0/xe
# export PATH=$ORACLE_HOME/bin:$PATH
# export ORACLE_SID=XE
# imp ovsschema/password file=/location/ovsbackup.dmp full=y
```

> **Note**
>
> The `ovsschema` user in the `imp` command should be replaced with the name of your OVS schema; the default schema name in an Oracle XE install is `ovs`.

5. Restart Oracle VM Manager:

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

3.14. 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 3.12, "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 3.4.2, "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 Oracle XE database. Before you uninstall Oracle VM Manager, make sure it is shut down:

```
# service ovmm stop
```

Example 3.5. Uninstall Oracle VM Manager

```
# ./runInstaller.sh

Oracle VM Manager Release 3.x.x Installer

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


Please select an installation type:
   1: Demo
   2: Production
```

```
   3: Uninstall
   4: Help

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

The uninstallation process starts, and the following is displayed:

```
Uninstall Oracle VM Manager

Product component : Oracle 11g XE in '/u01/app/oracle/product'
Oracle 11g XE is installed ...
Uninstall options
   1: Uninstall Oracle 11g XE
   2: Skip uninstall of Oracle 11g XE

   Select Number (1-2): 1
Removing Oracle 11g XE 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 ...
```

3.15. 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 3.4.5, "Installation Logs" for information on log file names and locations.

3.15.1. 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 3.3.2.5, "Prerequisite Packages".

3.15.2. bc Not Installed

The following error is displayed during installation of the database if the prerequisite bc package is not installed:

```
Step 1 of 9 : Database ...
Installing Database ...
Retrieving Oracle Database 11g XE ...
Installing Oracle Database 11g XE ...
Configuring Oracle Database 11g XE ...
Failed to configure Oracle Database 11g XE

[...]

Starting Oracle Net Listener...Done
Configuring database...
Database Configuration failed.  Look into /u01/app/oracle/product/11.2.0/xe/config/log for details
```

Workaround: Install the bc package. For information on how to install bc, see Section 3.3.2.5, "Prerequisite Packages".

3.15.3. Cannot Install Oracle XE

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

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

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

Workaround: There are two workarounds to this issue.

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

```
$ /etc/init.d/oracle-xe status
```

If an Oracle XE 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 3.3.2.2, "Network" to configure the host name.

3.15.4. 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*/install-*date*.log for more detailed information.

Workaround: Possible workarounds for this issue are:

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

```
$ /etc/init.d/oracle-xe status
```

If an Oracle XE 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 XE database, make sure that you have entered the correct password for the *SYS* account.

c. Reinstall Oracle VM Manager.

3.15.5. 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 schema OVS;
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

3.15.6. Oracle XE Listener Fails to Start

The Oracle VM Manager installation may fail to start the Oracle XE listener. The Oracle XE listener may fail to start because the host name in the listener.ora file is not mapped to an IP address.

Workaround: Add the IP address and host name to the /etc/hosts file. See Section 3.3.2.2, "Network" to configure the host name. Alternatively, you can specify the IP address in the listener.ora file. The listener.ora file is located in the directory:

/usr/lib/oracle/xe/app/oracle/product/11.2.0/server/network/admin

Manually start the Oracle XE listener with the command:

```
# /usr/lib/oracle/xe/app/oracle/product/11.2.0/server/bin/lsnrctl start
```

3.15.7. 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*/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.

3.15.8. 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 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 ...
```

Workaround: Create a non-NIS-based *oracle* user account on the host computer and rerun the installer.

Chapter 4. Upgrading Oracle VM

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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

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 3.1.1.

4.1. 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 runUpgrade.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 3.1.1.

4.2. Upgrading Oracle VM Manager

Before you upgrade Oracle VM Manager, you should back up the Oracle VM Manager repository and configuration file. See Section 3.12, "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 3.1.1.100 to 3.1.1.250. 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 (3.1.x to 3.1.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/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
```

Note

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
```

Note

You cannot use the absolute path to run the runUpgrader.sh script; you must run it from the directory in which it resides. For example, the following command:

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

Results in the error:

```
sh: upgrade: No such file or directory
```

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

```
Oracle VM Manager 3.x.x.xx upgrade utility
Upgrade logfile : /tmp/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 Host        : hostname
  Database SID         : SID
  Database LSNR        : port
  Oracle VM Schema     : ovs
  Oracle VM Manager UUID : UUID
  Current Build ID     : 3.x.x.xx
Using /temp/directory for backup and export location.
Using /temp/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 /temp/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
Done ...
```

The Oracle VM Manager upgrade is complete.

4.3. Upgrading Oracle VM Server

Before you upgrade your Oracle VM Servers, you must upgrade the Oracle VM Manager which manages them. See Section 4.2, "Upgrading Oracle VM Manager" for information on upgrading Oracle VM Manager.

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

- Section 4.3.1, "Upgrading Oracle VM Server Using a Yum Repository"

- Section 4.3.2, "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.

4.3.1. 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* .

4.3.2. 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.
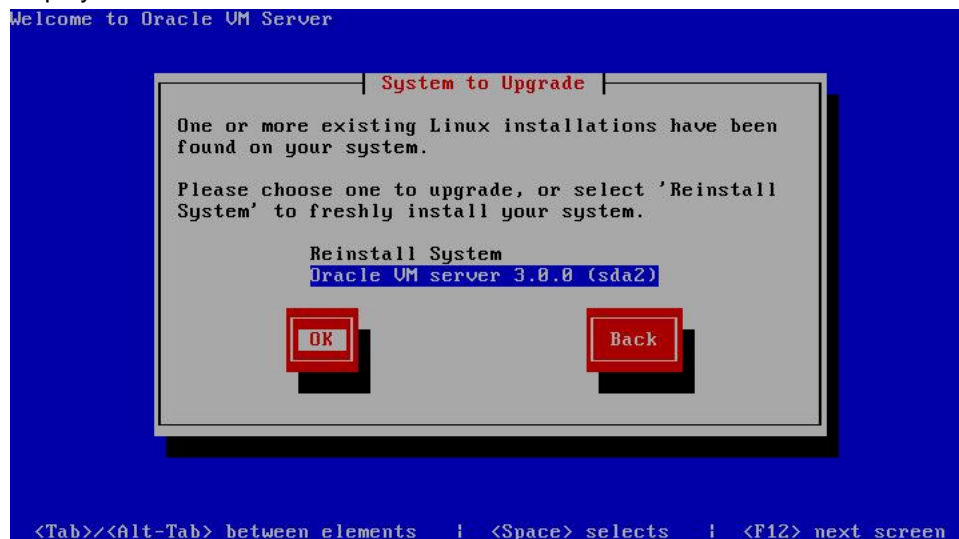
Select **Oracle VM Server 3.x (***disk***)** to upgrade the existing installation.

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

4. The **Upgrade Boot Loader Configuration** screen is displayed.
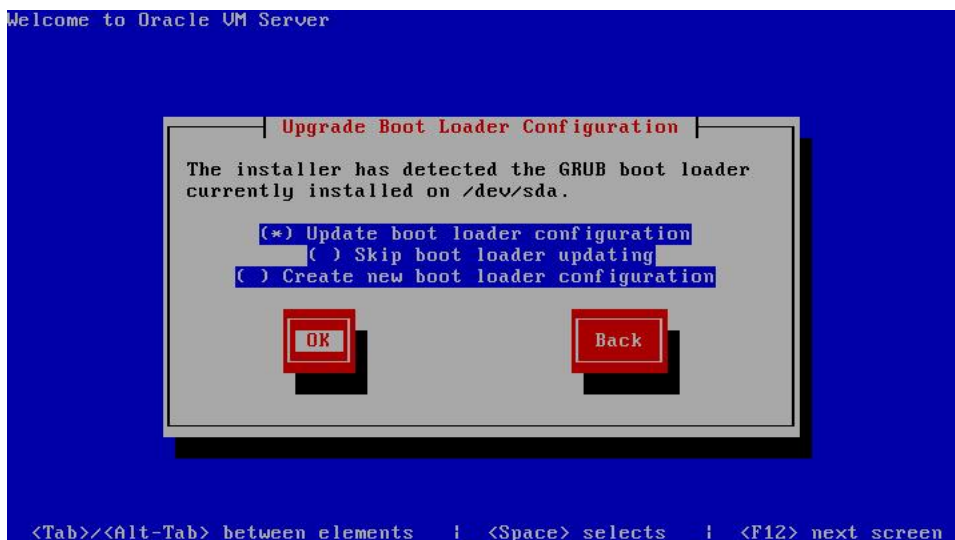
Select **Update boot loader configuration** to update the existing boot loader. Select **Skip boot loader updating** to make no changes to the boot loader. Select **Create new boot loader configuration** to create a new boot loader.

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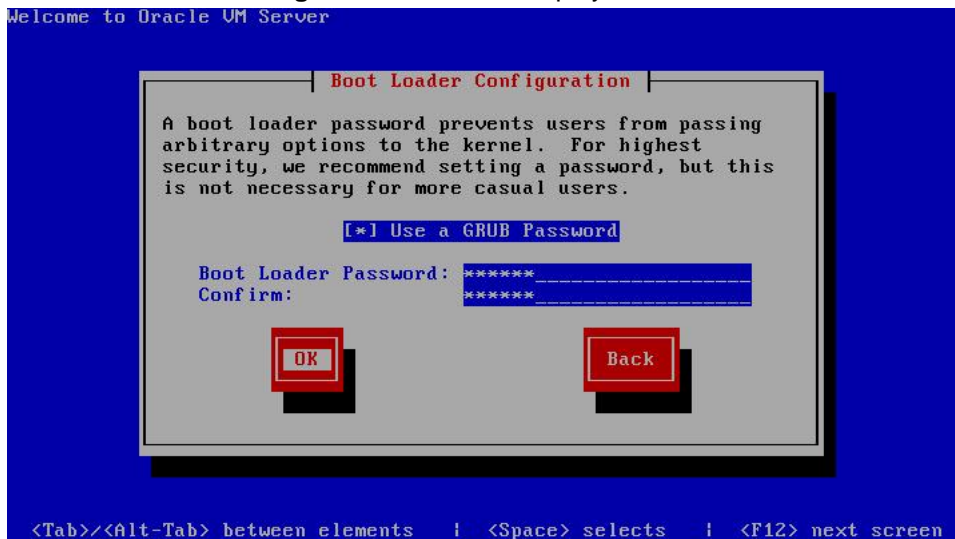
If you want to set a boot loader password to increase security of your machine, select **Use a GRUB Password**, enter a password in the **Boot Loader Password** field, and re-enter the password in the **Confirm** field.

> **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

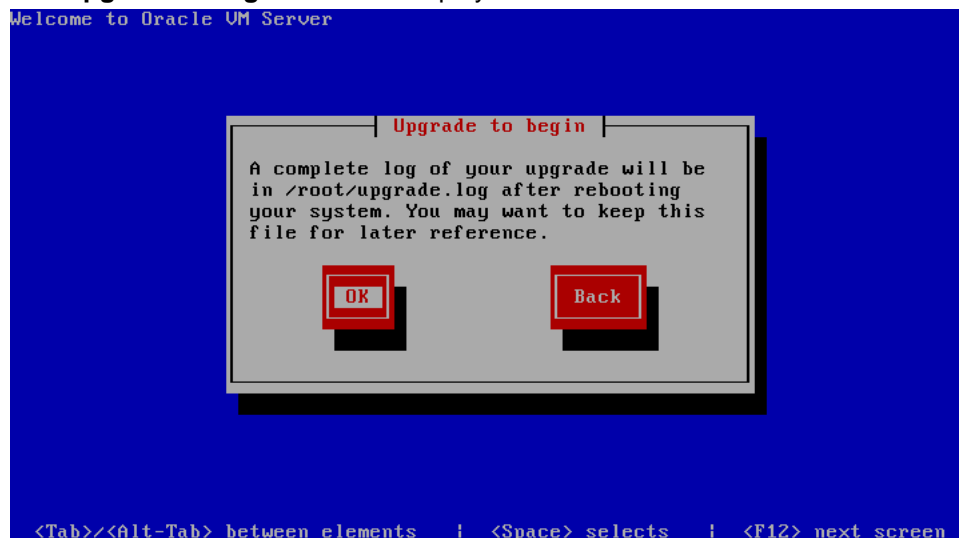Select **OK** and press **Enter**.

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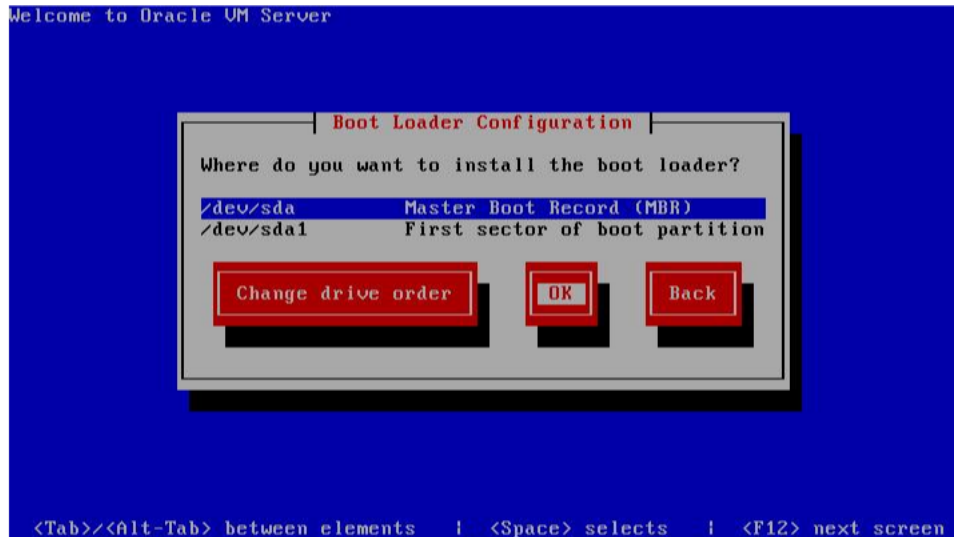
Select **Master Boot Record (MBR)** or **First sector of boot partition** as the location to install the boot loader. If you want to change the drive order, select **Change drive order** and follow the prompts to change the drive order.

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.

4.3.3. Upgrading Oracle VM Server Using Multipath SANs

Upgrading Oracle VM Server from Release 3.0.3 to 3.1.1 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 to 3.1.1 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 4.3.1, "Upgrading Oracle VM Server Using a Yum Repository" for information on upgrading using a YUM repository.

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.

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=}{demo | production | uninstall}] [-y | --assumeyes]
```

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=production --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=}{demo	production	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=production --assumeyes
```

`[-y	--assumeyes]`	Sets each prompt during the install to respond as yes. If combined with the `--installtype=demo` option, performs a *silent* install with the default settings, using a local Oracle XE database.

```
# ./runInstaller.sh --assumeyes --installtype=demo
```

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. To use the configuration file, enter:

```
# ./runInstaller.sh --config=/path/myconfig.yml --installtype=production --assumeyes
```

Figure A.1. Oracle VM Manager install configuration file format

```
db:
      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 1521
      sid          : mySID             Database SID, eg XE
      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         : 1521
      sid          : XE
      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
```

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