

Oracle® VM

Getting Started Guide for Release 3.0.3



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Oracle® VM: Getting Started Guide for Release 3.0.3

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Abstract

This tutorial describes how to get started with Oracle VM, and walks you through discovering Oracle VM Servers, registering storage, setting up networking, setting up a storage repository and importing resources into it, creating a server pool and creating virtual machines.

You should read and follow this tutorial if you are new to Oracle VM and want to quickly get up and running.

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Preface

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The preface contains information on how to use the Oracle VM Getting Started Guide.

1. Audience

The Oracle VM Getting Started Guide is intended for system administrators and end users who want to get started with 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 3.0.3 documentation set:

- [Oracle VM Release Notes](#)
- [Oracle VM Installation and Upgrade 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/rdisk/c0t1d0s6 of=/dev/rst0 bs=10b \ count=10000
braces { }	Braces indicate required items: .DEFINE {macro1}
brackets []	Brackets indicate optional items: cvtcrt <i>termname</i> [<i>outfile</i>]
ellipses ...	Ellipses indicate an arbitrary number of similar items: CHKVAL fieldname value1 value2 ... valueN
<i>italics</i>	Italic type indicates a variable. Substitute a value for the variable: <i>library_name</i>
vertical line	A vertical line indicates a choice within braces or brackets: FILE <i>filesize</i> [K M]

5. Conventions

The following text conventions are used in this document:

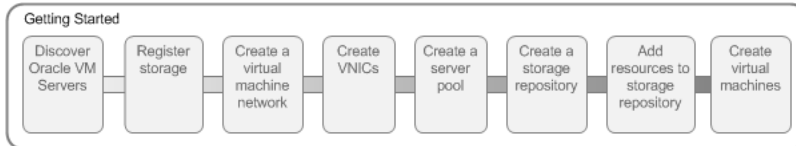
Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
<i>italic</i>	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
<i>monospace</i>	Monospace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

Chapter 1. Getting Started with Oracle VM

This tutorial describes how to get started with Oracle VM, and walks you through discovering Oracle VM Servers, registering storage, setting up networking, setting up a storage repository and importing resources into it, creating a server pool and creating virtual machines.

You should read and follow this tutorial if you are new to Oracle VM and want to quickly get up and running.

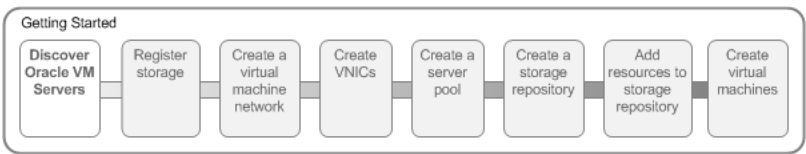
This tutorial includes a visual indicator graphic to show you where you are in relation to the tutorial steps, as shown below.



Chapter 2. Discover Oracle VM Servers

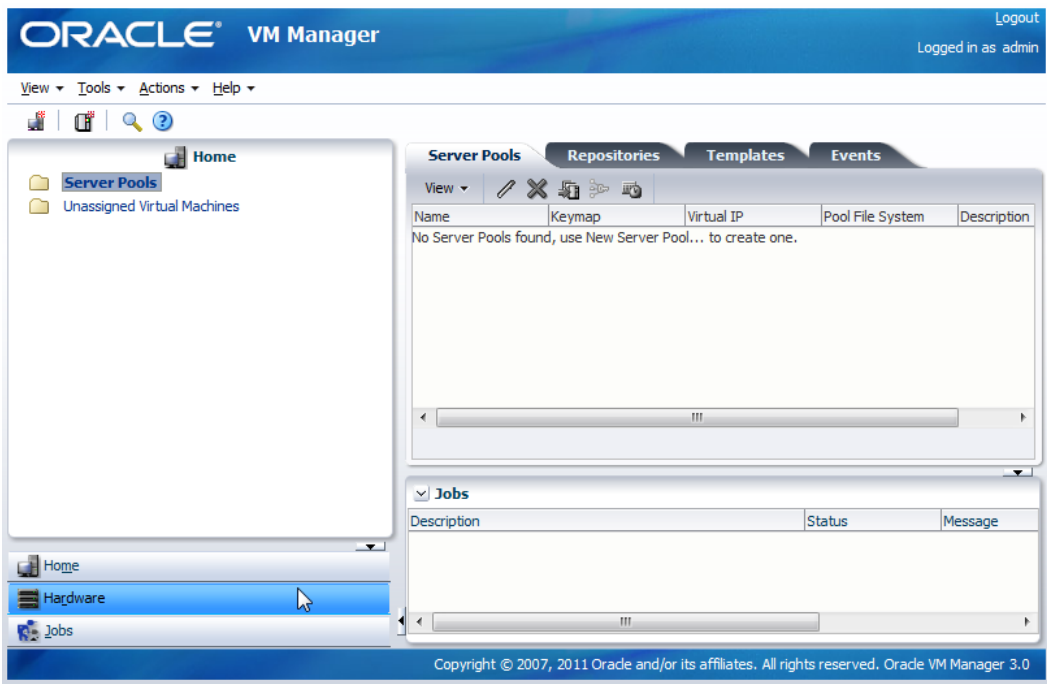
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2.1. Discover Oracle VM Servers 4



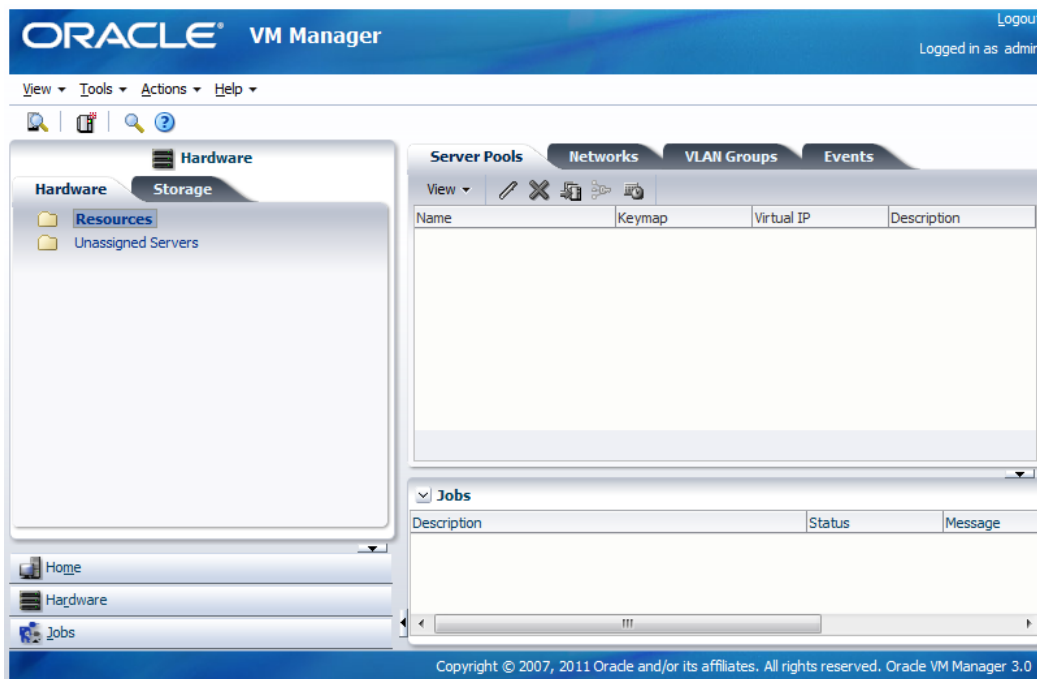
When you log into Oracle VM Manager, the Home view is the first screen displayed.

Figure 2.1. Home view



To set up your Oracle VM environment, you should move to the Hardware view. The Hardware view is where Oracle VM Servers, networking and external storage are added as resources.

Figure 2.2. Hardware view



When you add Oracle VM Servers to your Oracle VM Manager environment, this process is known as *discovering* Oracle VM Servers. This term is used often in this Guide. The first thing you should do to set up your virtualization environment is to *discover* your Oracle VM Servers.

When an Oracle VM Server is discovered, it contains some basic information about itself, and about any immediate connectivity to a shared SAN, but it is considered to be in an unconfigured state. Any storage attached to the Oracle VM Server is also discovered.

For more information on discovering an Oracle VM Server, see [Discovering Oracle VM Servers](#).

Depending on your hardware and networking configuration, external storage may be automatically detected during discovery of the Oracle VM Servers. This is always the case with local OCFS2 storage on an Oracle VM Server.

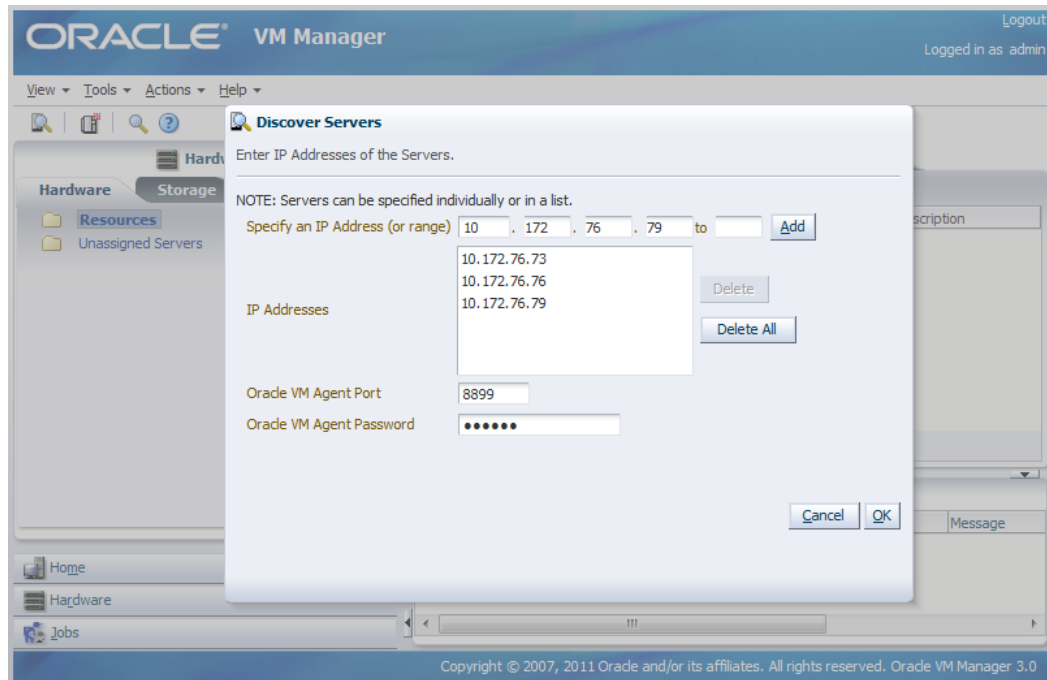
When you have discovered your Oracle VM Servers, you should register your storage.

2.1. Discover Oracle VM Servers

This example walks through discovering three Oracle VM Servers. Replace the IP addresses and the Oracle VM Agent password for that of your own environment.

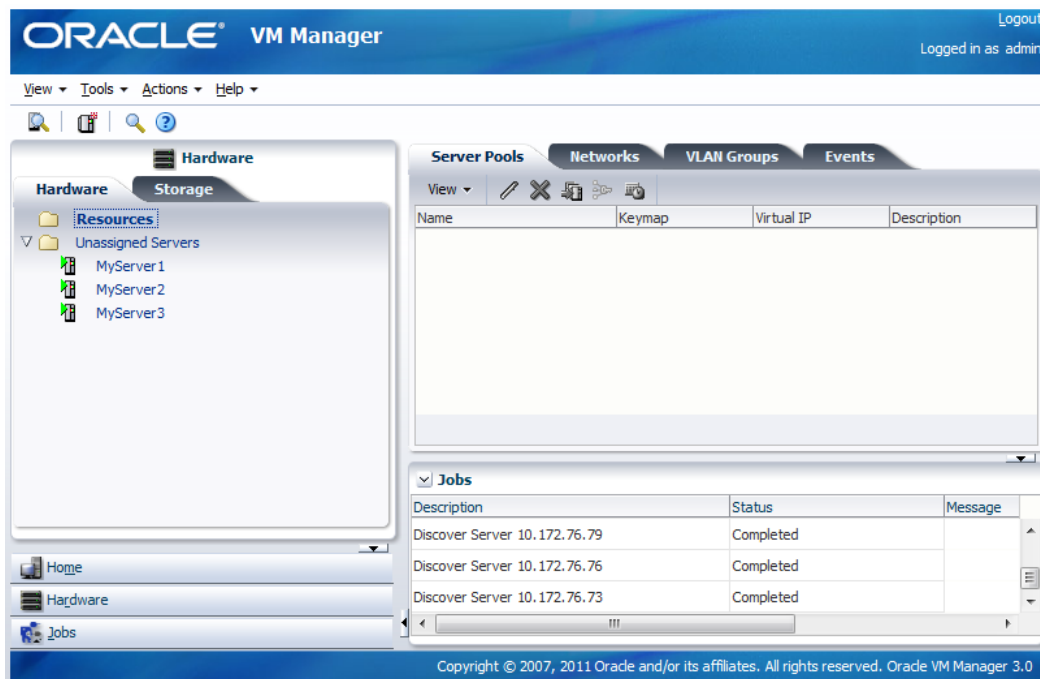
To discover Oracle VM Servers:

1. Select the **Hardware** view.
2. Select **Discover** from the **Actions** menu. The **Discover Servers** dialog box is displayed.
3. Enter information about the Oracle VM Server(s) to be discovered.



Click **OK**.

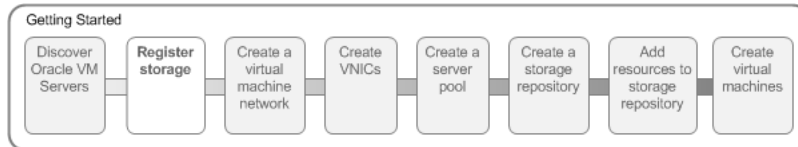
The Oracle VM Servers are discovered and added to the **Unassigned Servers** folder.



Chapter 3. Register Storage

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Storage refers to two different types of disk space: the space available for environment resources such as virtual machine templates and ISO files, and the logical or physical disks used by virtual machines. You can use two types of storage for virtual machines:

- **Virtual disks:** disk image files on a file system.
- **Raw physical disks:** LUNs accessed directly by the virtual machine.

Your storage can be any of the following:

- iSCSI: Abstracted LUNs or raw disks accessible over existing Ethernet infrastructure (SAN)
- FCP: Abstracted LUNs or raw disks accessible over Fibre Channel host bus adapters (SAN)
- NFS: File-based storage over existing Ethernet infrastructure (NAS)

In addition to the storage entities you require for storage repositories, you should make sure you leave at least 12GB of disk space for each server pool file system. The server pool file system is used to hold the server pool and cluster data, and is also used for cluster heartbeating. You create server pool file systems the same way you create storage entities for storage repositories. For more information about the use and management of clusters and server pools, see [Managing Server Pools](#).

Your storage may have been automatically discovered when you discovered your Oracle VM Servers. If not, you must register it. If your storage server exposes a writable file system (through an NFS share or a Sun ZFS storage pool) register the file server using the procedure in [Registering and Configuring File Servers](#) . If your storage server exposes raw disks (SAN volumes, iSCSI targets and LUNs) register the storage array using the procedure in [Registering and Configuring Storage Arrays](#) .

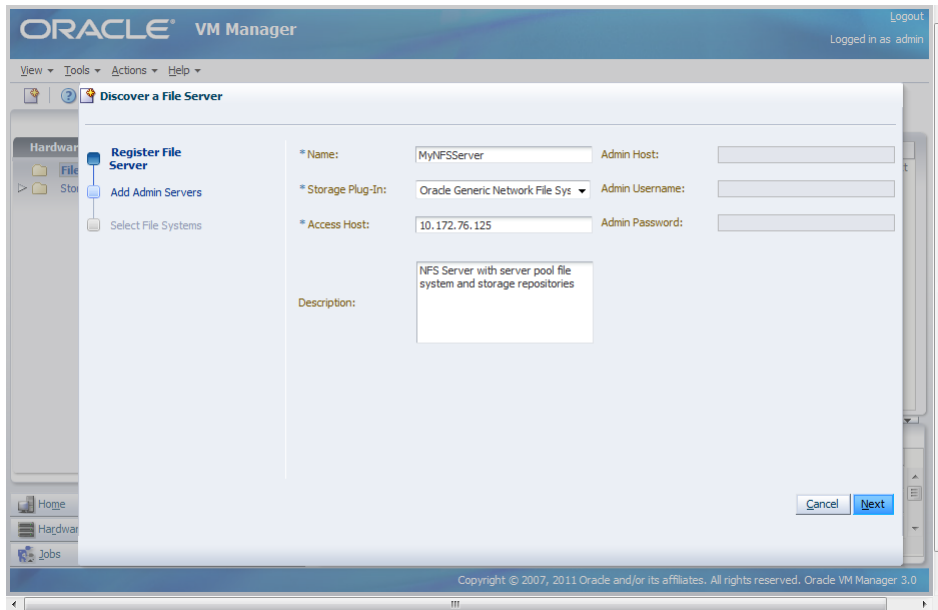
The following examples show how to register a file server . Before you register any storage, you must first perform any storage configuration outside of the Oracle VM environment, such as creating and exporting file system mounts on an NFS server.

3.1. Register NFS file server

This example uses a *file server* storage type (an NFS share). Replace the IP address for that of your own NFS server. On the NFS server you should have at least two file systems, one of at least 12GB for the server pool file system, and one larger file system for the repository.

To register a file server:

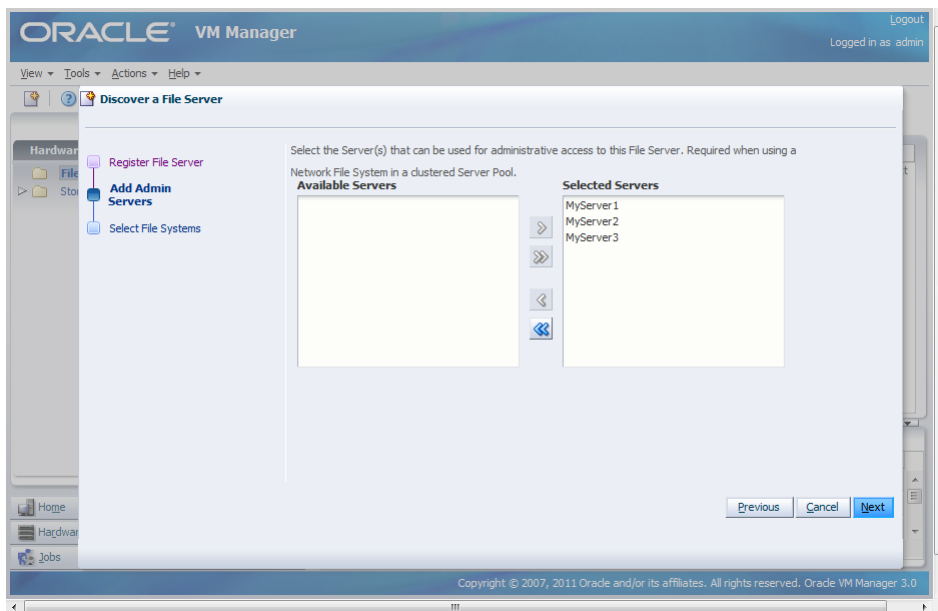
1. Select the **Hardware** view and open the **Storage** tab in the navigation pane.
2. In the navigation pane, select the **File Servers** tab and select **Register File Server** from the **Actions** menu. The **Discover a File Server** wizard is displayed.



The screenshot shows the 'Discover a File Server' dialog box in Oracle VM Manager. The 'Name' field is set to 'MyNFSServer'. The 'Storage Plug-In' is set to 'Oracle Generic Network File Sys'. The 'Access Host' is set to '10.172.76.125'. The 'Description' field contains the text 'NFS Server with server pool file system and storage repositories'. The 'Admin Host', 'Admin Username', and 'Admin Password' fields are empty. The 'Next' button is highlighted in blue.

Enter information about your file server such as the IP address and click **Next**.

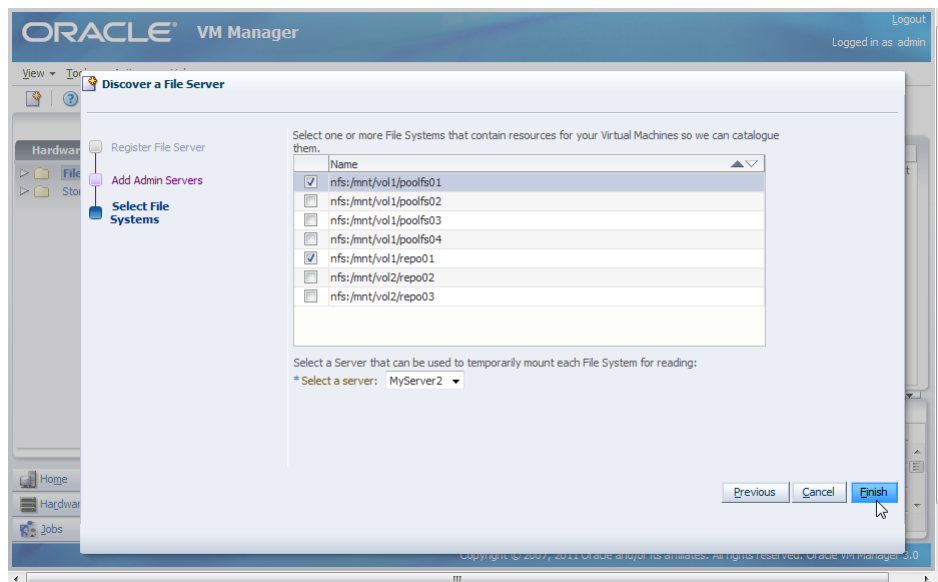
3. Assign one or more Oracle VM Servers to perform any required administration on the file server. Click **Next**.



The screenshot shows the 'Discover a File Server' dialog box in Oracle VM Manager, specifically the 'Select the Server(s) that can be used for administrative access to this File Server' step. The 'Available Servers' list is empty. The 'Selected Servers' list contains 'MyServer1', 'MyServer2', and 'MyServer3'. The 'Next' button is highlighted in blue.

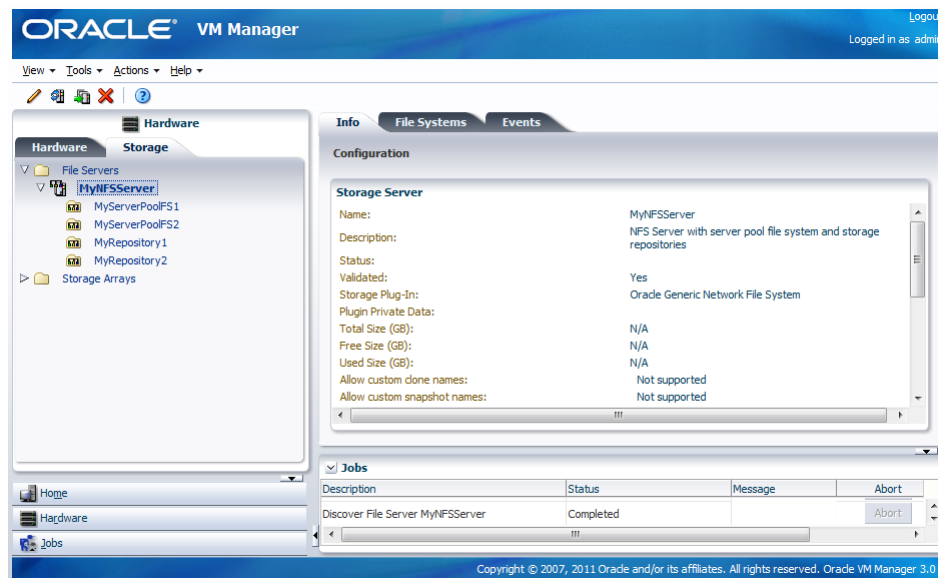
4. If any file systems contain existing virtual machine resources, select the corresponding check box and choose an Oracle VM Server from the **Select a server** drop down list to discover the content of the selected file systems. This allows Oracle VM Manager to add the existing resources to the system. Click **Finish** to complete the file server registration.

Register NFS file server



At the end of the file server registration a refresh operation is triggered to make sure all file systems available on the file server appear in Oracle VM Manager. When the operation is complete, the available file systems appear in the navigation pane, under the file server to which they belong. The file systems also show up to the right of the File Servers overview table, when you select that particular file server.

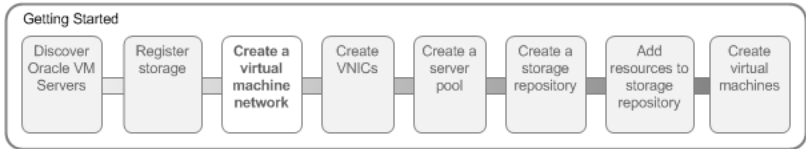
In the following screen shot, the file systems have been renamed after they have been imported. You can do this by selecting the file system in the navigator and selecting **Edit File System** from the **Actions** menu.



Chapter 4. Create a Virtual Machine Network

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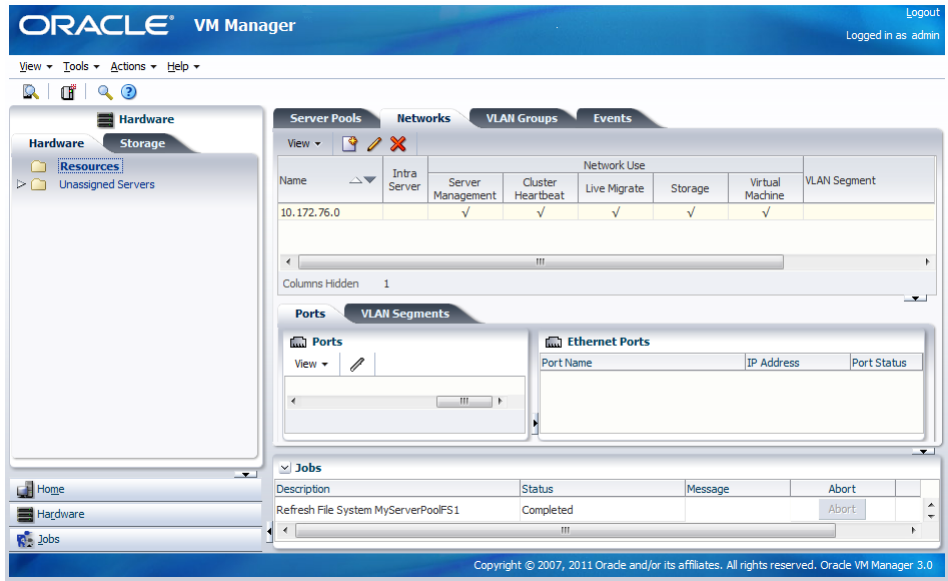
Oracle VM has a number of network functions: Server Management, Live Migrate, Cluster Heartbeat, Virtual Machine, and Storage. The Server Management, Live Migrate and Cluster Heartbeat roles are automatically assigned to the management network when you discover Oracle VM Servers. The Virtual Machine and Storage roles are not automatically created, and you must manually create these. The Storage role is only required for Ethernet-based storage, so for the purposes of the NFS-based storage used in this tutorial, is not required. We do, however, need to create a network with the Virtual Machine role. This can be assigned to the existing management network, or a new network can be created and the Virtual Machine role assigned to it. This tutorial shows you how to create a new network.

4.1. Create a Virtual Machine Network

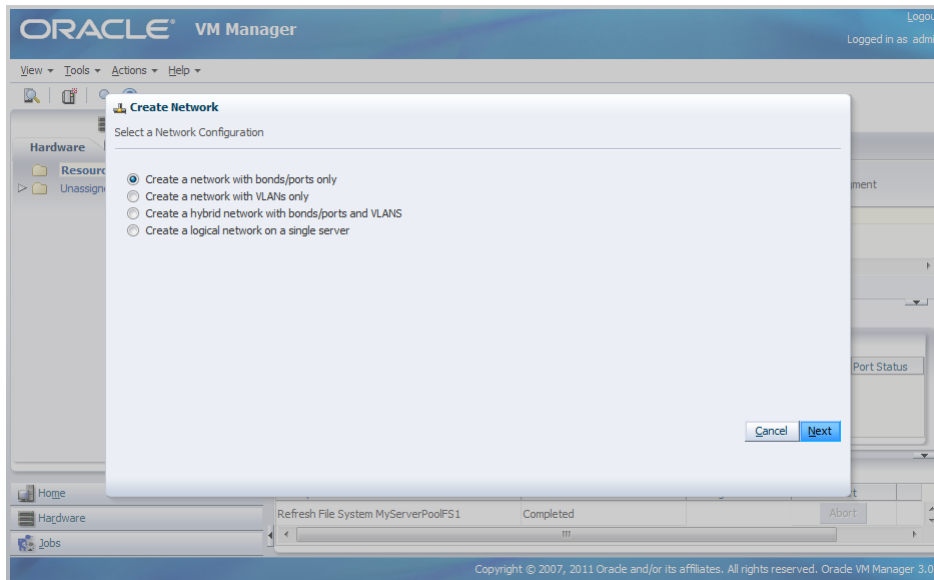
This example creates a virtual machine network using network interface cards (NICs) on the Oracle VM Servers discovered earlier. In this example we are using bonded Ethernet ports. Each Oracle VM Server should have a set of Ethernet ports to use for the virtual machine network. Oracle recommends at least two ports per Oracle VM Server, one for the management network, and one for a network with the Virtual Machine role. Replace the information in this example with that of your Oracle VM Servers and environment.

To create a virtual machine network:

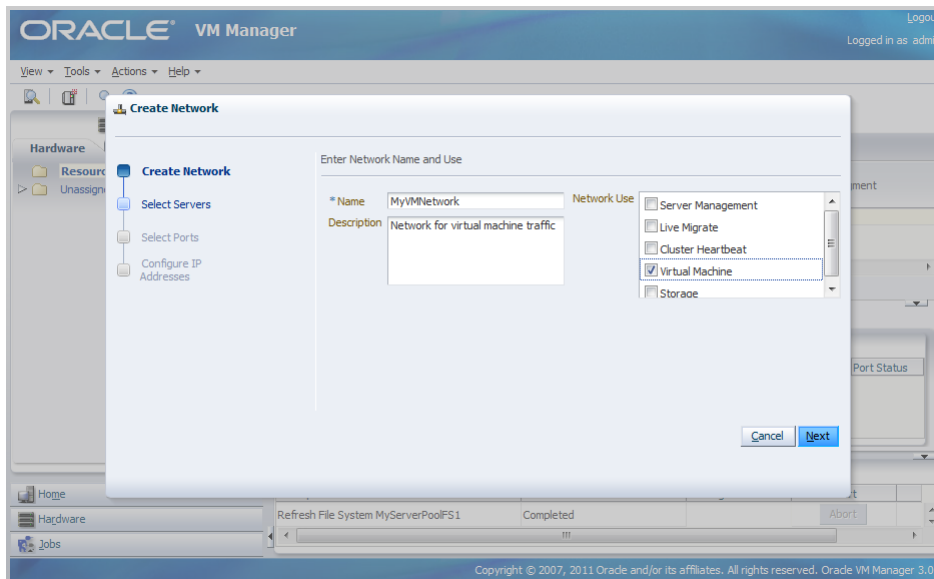
1. Select the **Hardware** view, and select the **Hardware** tab, then the **Resources** folder. Select the **Networks** tab in the management pane.



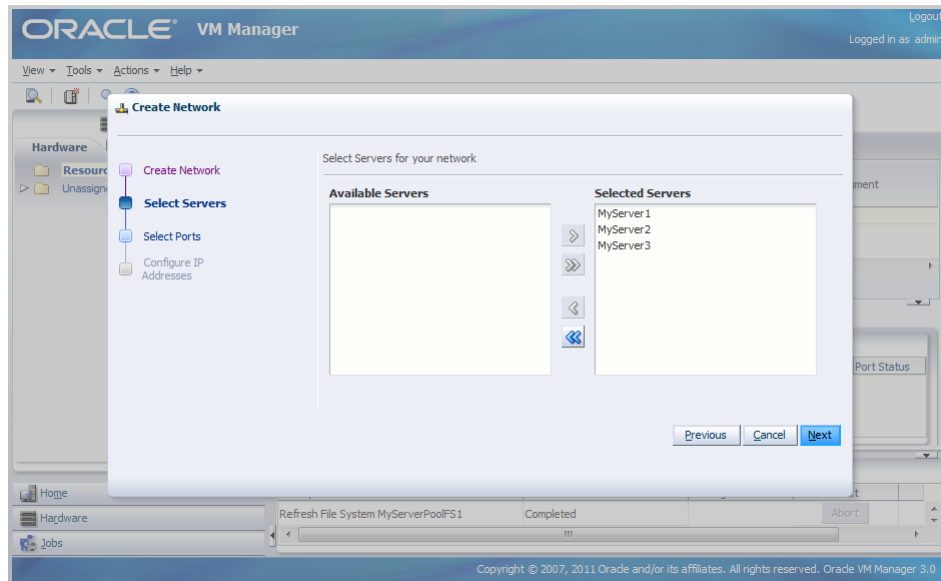
- Click **Create** to start the **Create Network** wizard. Select the type of network to create, based on your network infrastructure. In this example we use the Ethernet ports on each Oracle VM Server to create a network for virtual machine traffic. Click **Next**.



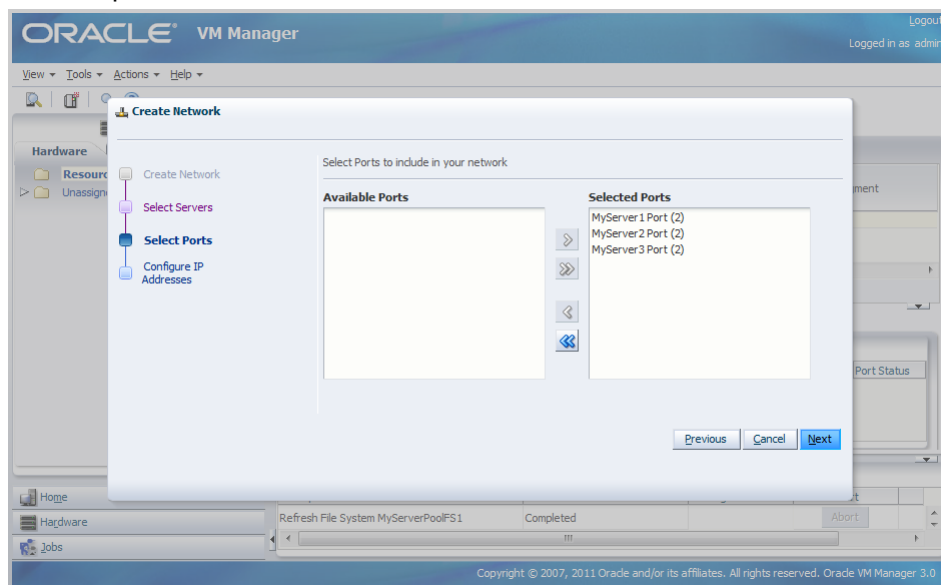
- At the Create Network step, enter information about the network and the network functions. The **Network Usage** fields are where you decide which network functions are to be assigned to the network. Select **Virtual Machine** and click **Next**.



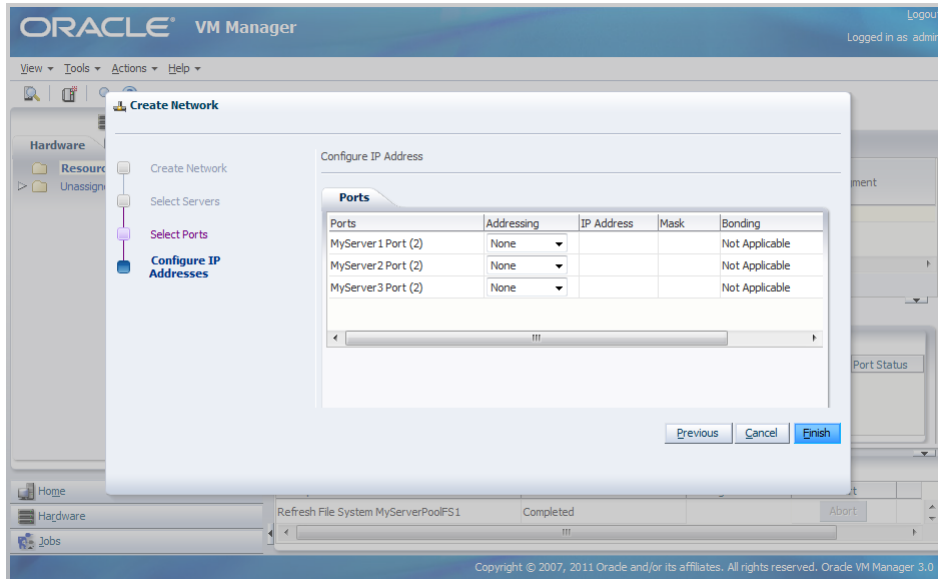
- To discover the Ethernet ports on the Oracle VM Servers, select them and move them to the **Selected Servers** field, and click **Next**.



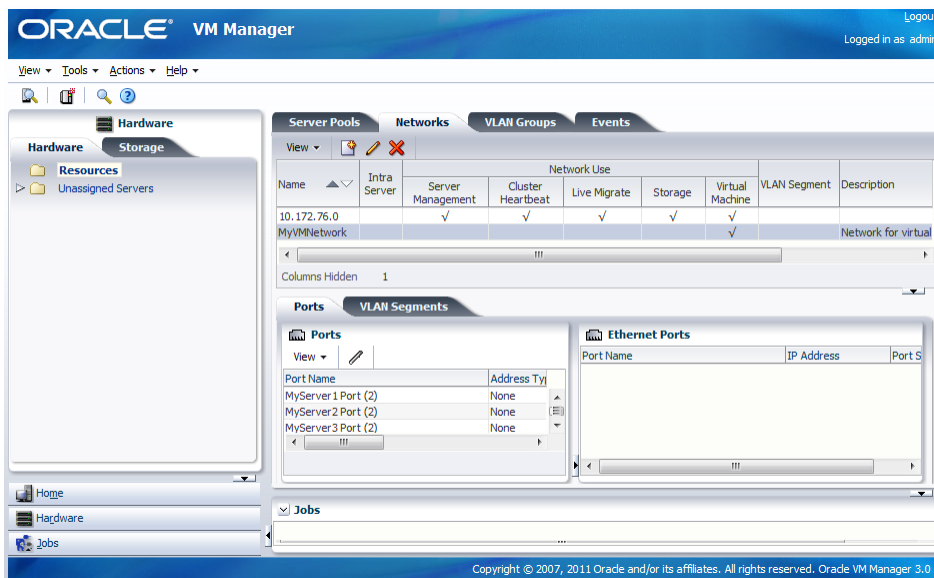
5. Select a port from each Oracle VM Server to use for the virtual machine network and click **Next**.



6. You can use static IP addresses, DHCP or have no IP addresses assigned to the network. In this example we do not need to use IP addresses as we are creating a network for use only by virtual machines, so we set the **Addressing** to **None**. Click **Finish** to create the network.



The newly created virtual machine network is created and listed in the **Networks** tab. This virtual machine network is ready to use when creating virtual machines.



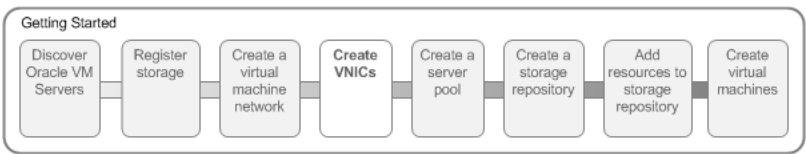
See [Managing Networks](#) for information on creating and configuring networks.

Now you have set up the virtual machine network, you should generate some virtual NICs to use in virtual machines to enable network connectivity.

Chapter 5. Create VNICs

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5.1. Generating VNICs 15



The VNIC Manager creates Virtual Network Interface Cards (VNICs), which can be used by virtual machines as network cards. You create virtual network interfaces by defining a range of MAC addresses to use for each VNIC. Each MAC address corresponds with a single VNIC, which is used by a virtual machine. Before you can create a virtual machine which has the ability to connect to the network, you should generate a set of VNICs with the Vnic Manager. You only need to perform this step when you run out of VNICs, not each time you want to create a virtual machine.

5.1. Generating VNICs

This example generates 10 VNICs to use with virtual machines. The MAC addresses will differ in your environment, but the process is the same as that shown here.

To generate VNICs:

1. Select **Vnic Manager** from the **Tools** menu.

Virtual Network Interface Card Manager

Virtual Network Interface Card Manager

MAC Selector

Specify a unique starting MAC address or collisions may occur if you are running multiple OVM Manager Server applications. Press the Next button to see what starting range is available.

Specify an Initial MAC Address:

00 : 21 : f6 : 00 : 00 : 13

Number of MACs to generate: 10

Manage MAC Addresses

View

MAC Address	Ethernet Network	Virtual Machine
00:21:f6:00:00:00		
00:21:f6:00:00:01		
00:21:f6:00:00:02		
00:21:f6:00:00:03		
00:21:f6:00:00:04		
00:21:f6:00:00:05		
00:21:f6:00:00:06		
00:21:f6:00:00:07		
00:21:f6:00:00:08		
00:21:f6:00:00:09		

- Click **Next** in the **MAC Selector** panel to get the next available MAC address.

Select the number of addresses that you want to create and click **Generate**.

Click **Close** to close the Vnic Manager.

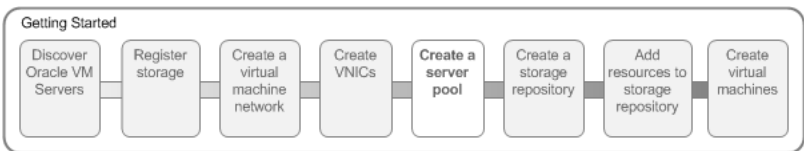
See [Using the VNIC Manager](#) for information on generating VNICs.

When you have generated VNICs, you can use them to add network connectivity to your virtual machines. Next, we create a server pool.

Chapter 6. Create a Server Pool

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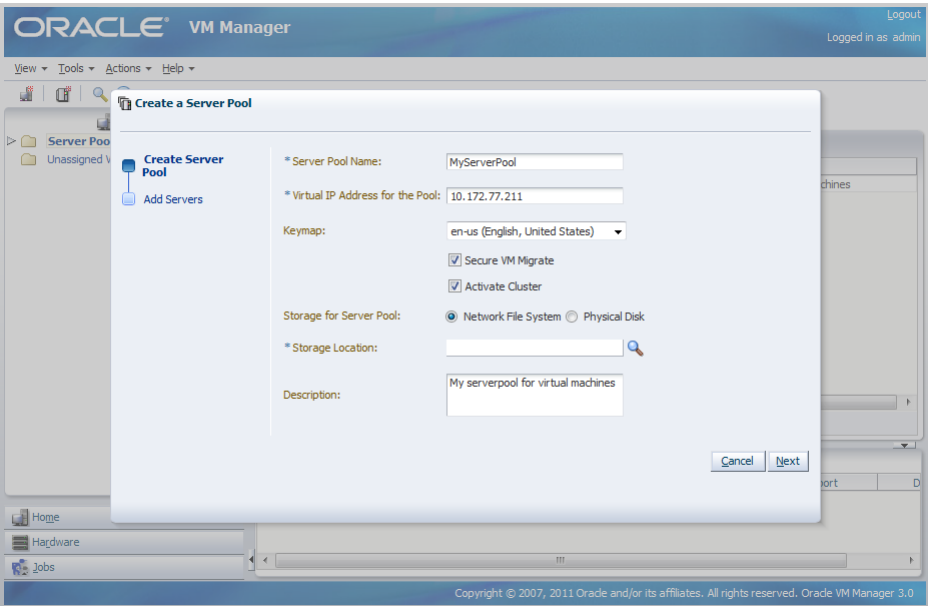
A server pool contains a group of Oracle VM Servers, which as a group perform virtual machine management tasks, such as High Availability (HA), implementation of resource and power management policies, access to networking, storage and repositories.

6.1. Create a server pool

This example creates a server pool using the Oracle VM Servers, and the server pool file system on the file system-based storage (NFS server). You need an IP address to use as the virtual IP address to enable clustering and HA. Replace the server pool information in this example with that of your environment.

To create a server pool:

1. Select the **Home** view.
2. Select **Create Server Pool** from the **Actions** menu.
3. The **Create Server Pool** dialog box is displayed. Enter the server pool information:

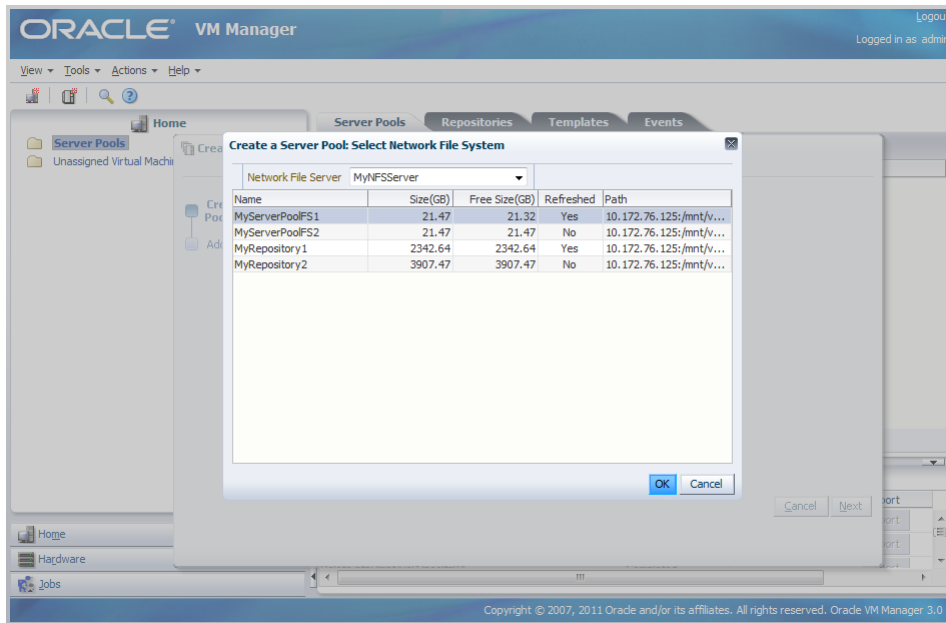


An IP address is required to use as a virtual IP address to identify the master Oracle VM Server, which controls the other Oracle VM Server in the server pool.

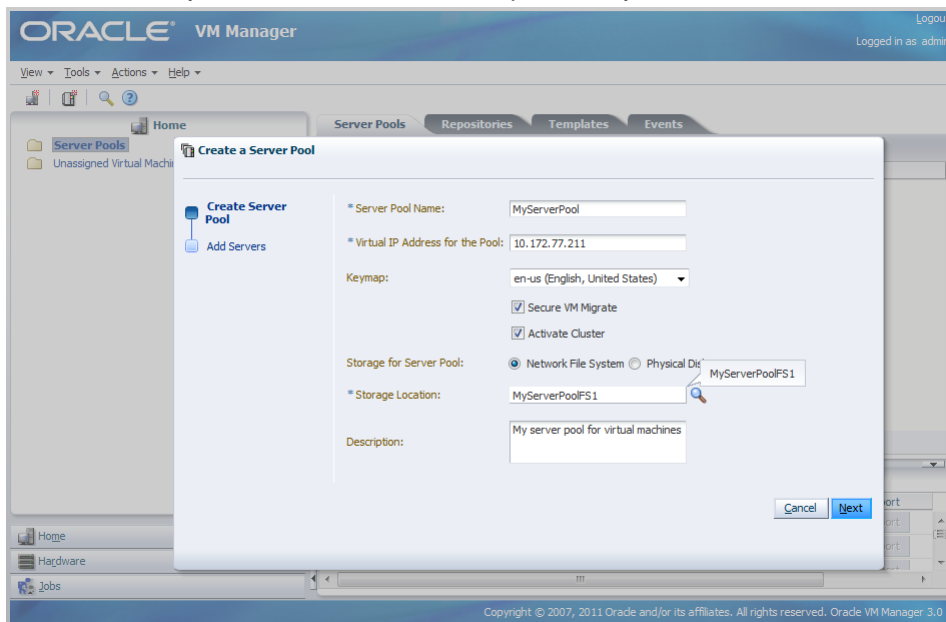
Select **Activate Cluster** to enable clustering of the Oracle VM Servers in the server pool, which is required to enable HA.

Create a server pool

Select **Network File System** as the file system type to use for the server pool. The server pool file system is used to hold the server pool and cluster data, and is also used for cluster heartbeating. Use the **Storage Location** search icon to search for the server pool file system.



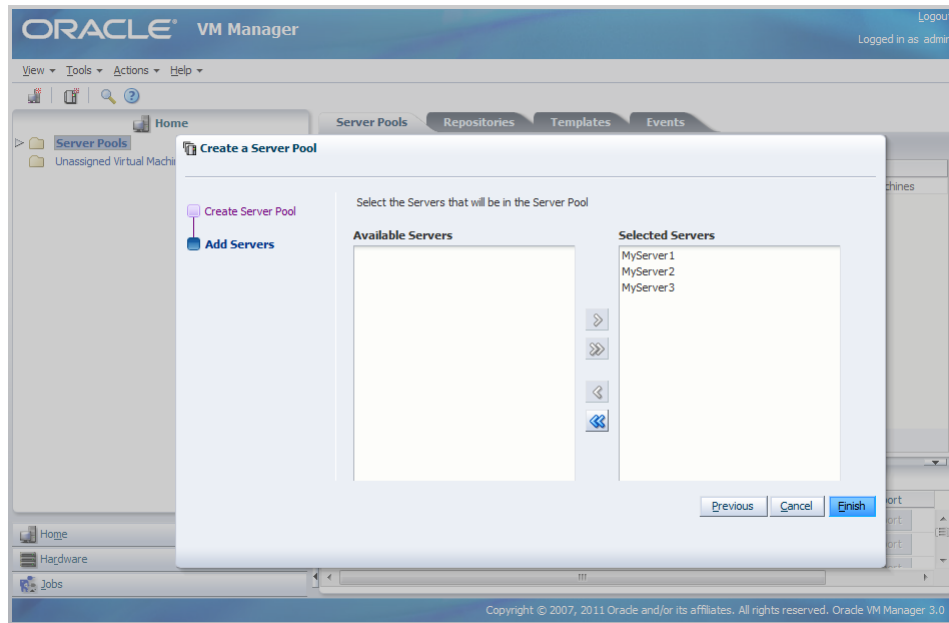
Select the file system to use for the server pool file system and click **OK**.



Click **Next** to add servers to the server pool.

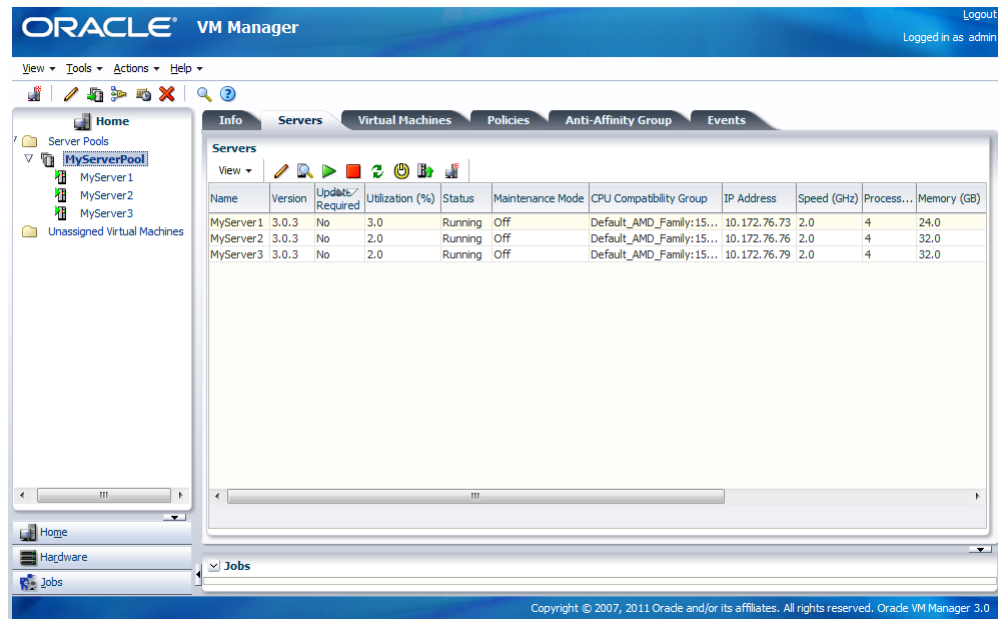
4. Add Oracle VM Servers to the **Selected Servers** field and click **Finish**.

Create a server pool



The Oracle VM Servers are added to the server pool and ready to use to create virtual machines.

5.



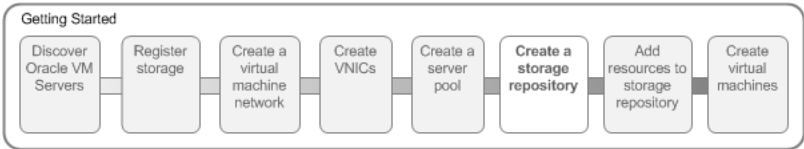
For more information on creating server pools and adding Oracle VM Servers, see [Creating a Server Pool](#) and [Adding an Oracle VM Server to a Server Pool](#).

The next step is to create a storage repository to use for virtual machine resources.

Chapter 7. Create a Storage Repository

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A storage repository is where Oracle VM resources may reside on the storage you registered in [Chapter 3, Register Storage](#). Resources include virtual machines, templates for virtual machine creation, virtual machine assemblies, ISO files (DVD image files), shared virtual disks, and so on.

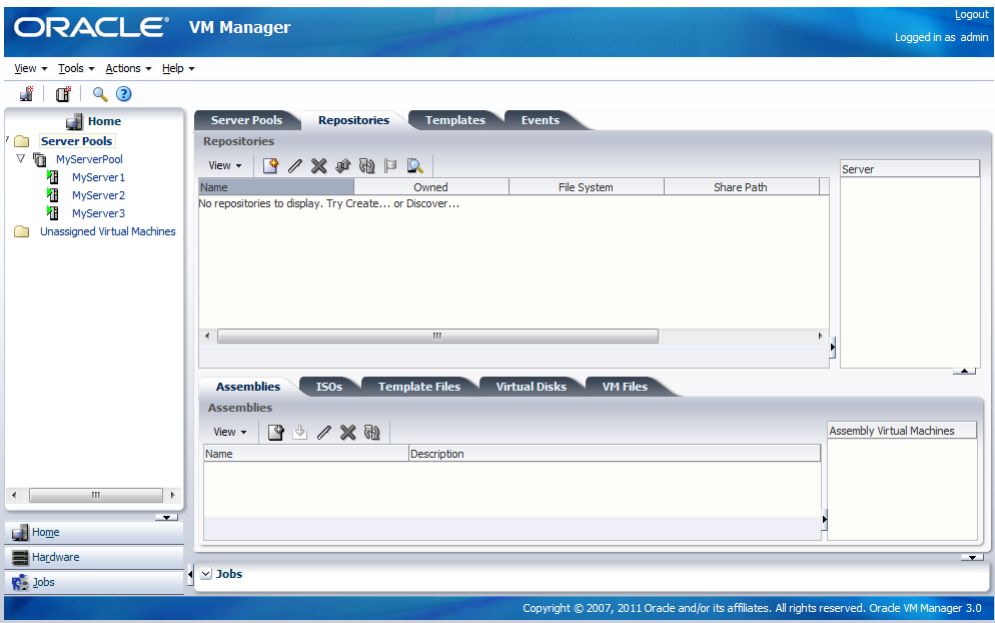
You use Oracle VM Manager to create and configure storage repositories, and to present one or more storage repositories to Oracle VM Servers in a server pool. When the storage repository is accessible, you can start adding storage resources and building virtual machines with those resources.

7.1. Create a storage repository

This example creates a storage repository to store virtual machine resources using an NFS file server. Use the larger of the file systems you refreshed earlier. Replace the file server and other names used in this example with that of your own environment.

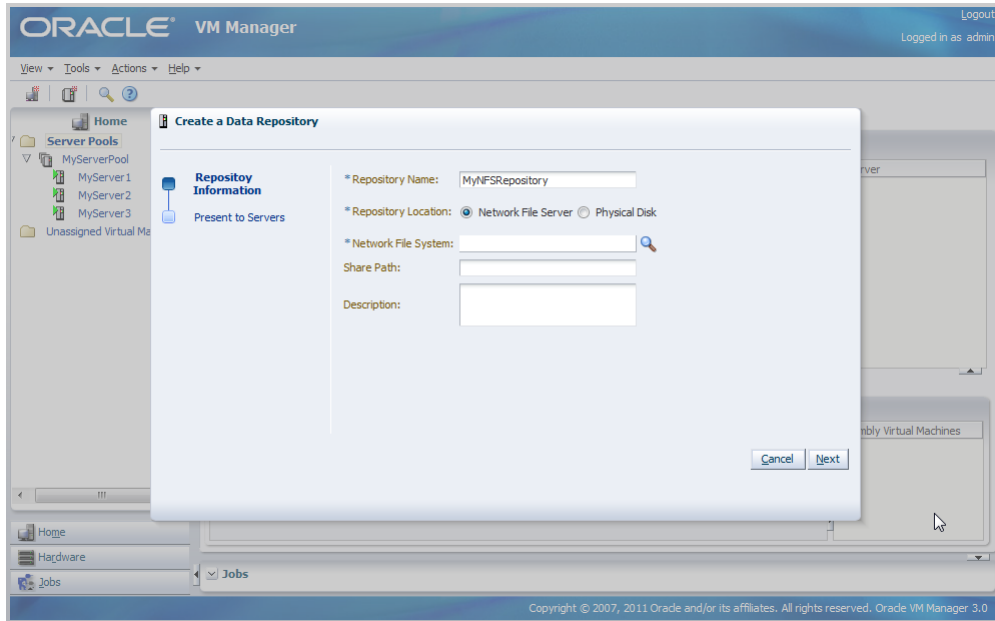
To create a storage repository:

1. Select the **Home** view and select the **Server Pools** folder in the navigator.
2. In the management pane, select the **Repositories** tab.

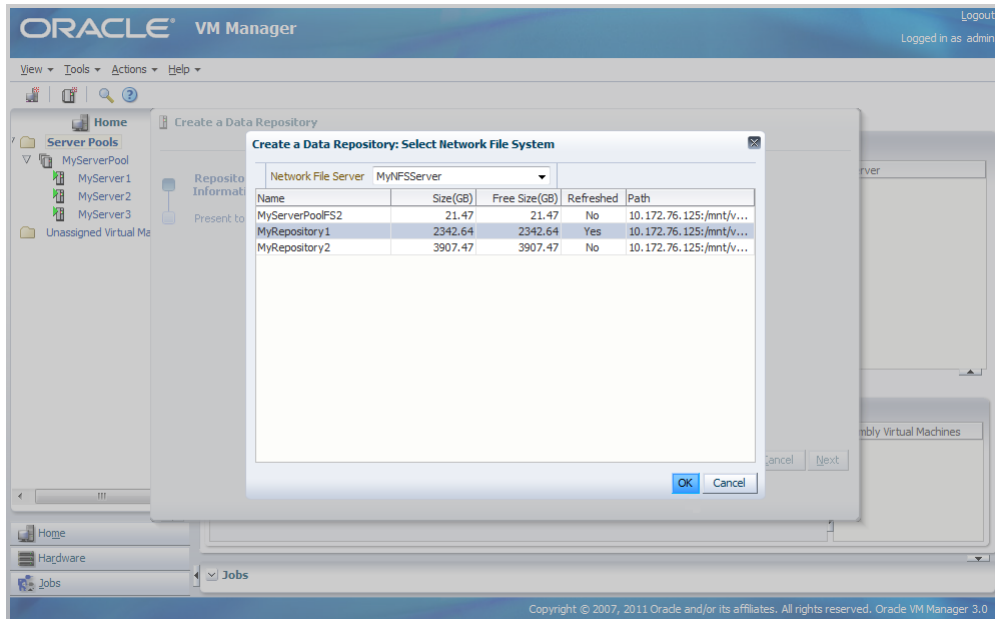


3. Click **Create** to create a new storage repository.
4. In the **Create a Data Repository** dialog box, enter information about the repository.

Create a storage repository

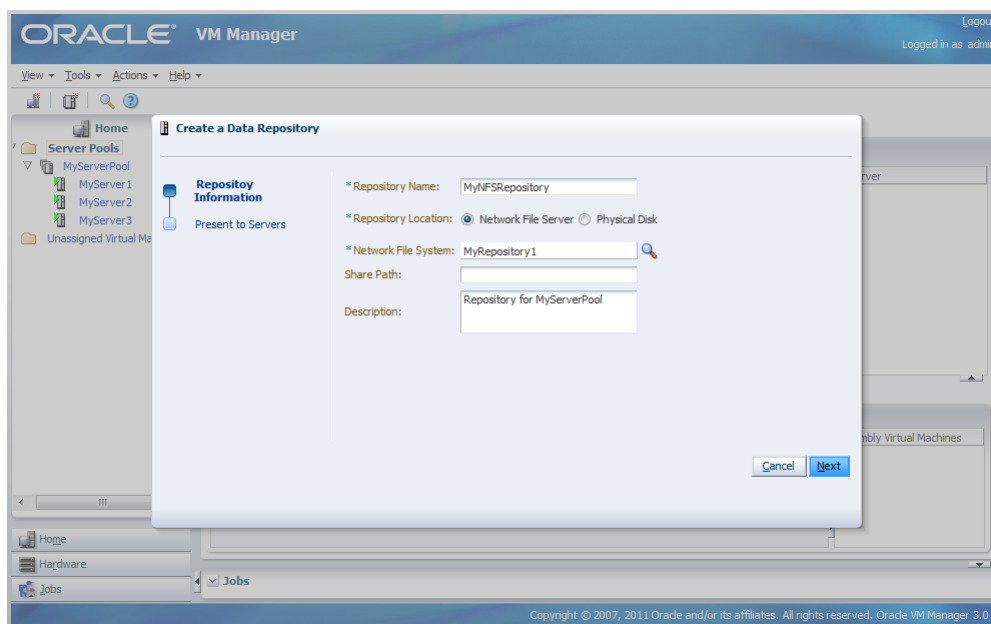


Select **Network File Server** as the **Repository Location** to use the NFS server. Click the **Network File System** search icon to search for the available file systems on the file server.



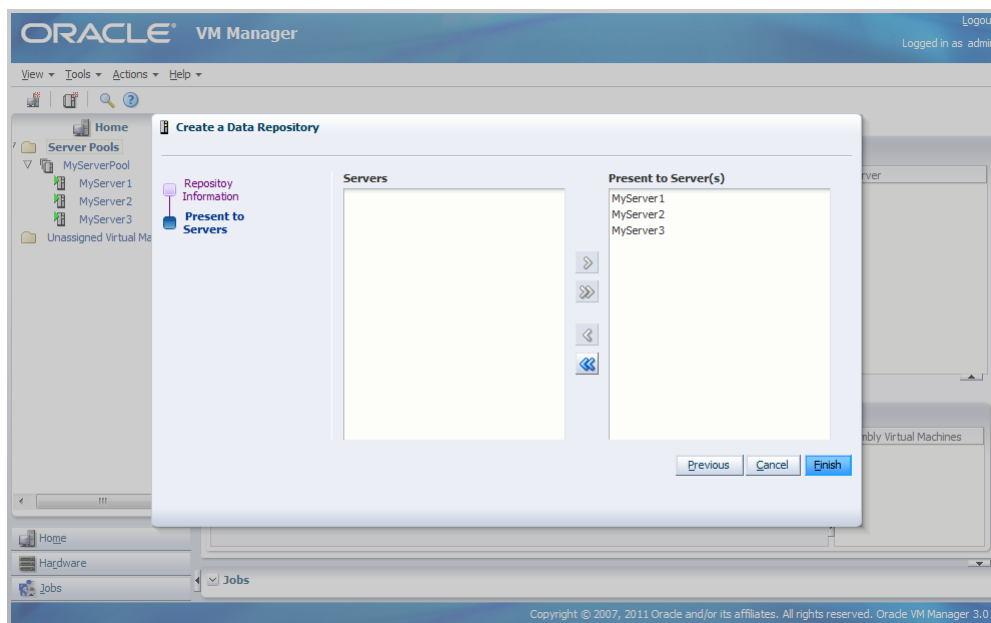
Select a file system and click **OK**.

Create a storage repository

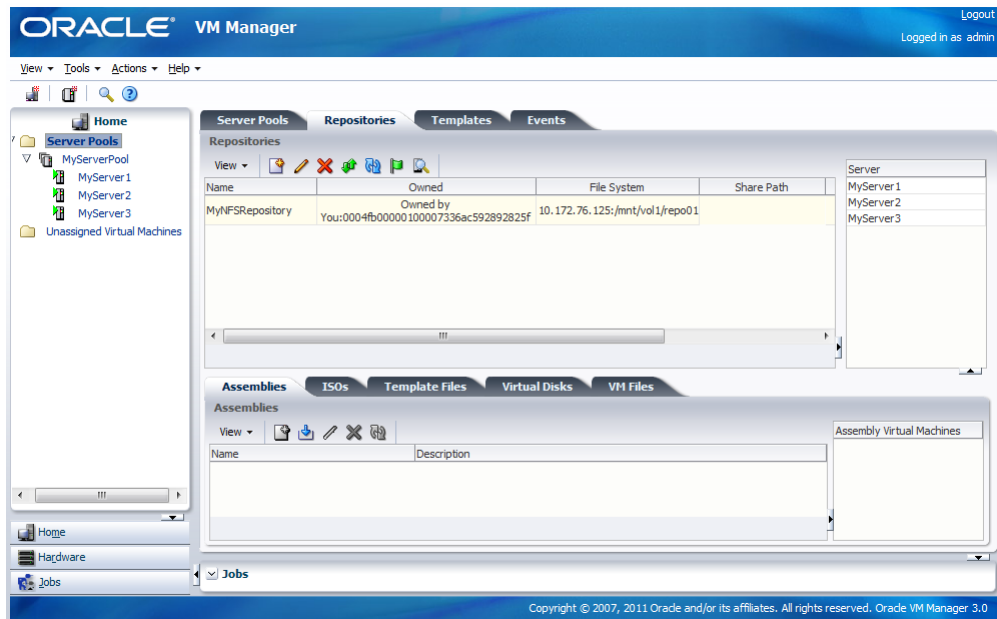


Click **Next** to present the new the new storage repository to servers.

5. To enable your Oracle VM Servers to use the repository, you must *present* it to the Oracle VM Servers in your server pool. Select the Oracle VM Servers and move them to the **Present to Server(s)** field and click **Finish**.



The Oracle VM Servers are now listed in the Server table when you select the repository. This table shows which Oracle VM Servers have access to the repository.

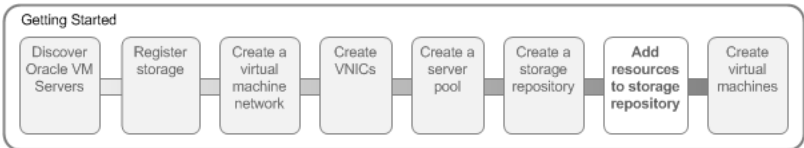


For more information about storage repositories, see [Preparing and Configuring Storage Repositories](#).

Chapter 8. Add Resources to Storage Repository

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Virtual machines require some form of installation media, whether it be a virtual machine template, virtual disk, ISO file, or mounted ISO file. Different domain types may require different installation source files. You can read about the different installation media in [Virtual Machine Installation Media](#) . The following examples show you how to import a virtual machine template, and an ISO file which are used in later steps to create virtual machines. A virtual machine template contains virtual machine configuration information, virtual disks that contain the operating system and any application software, packaged as a template file. An operating system ISO file is an image of the CDROM or DVD used to perform an operating system installation.

In this tutorial we use a virtual machine template and an Oracle Linux ISO file downloaded from the Oracle Software Delivery Cloud:

<https://edelivery.oracle.com/linux>

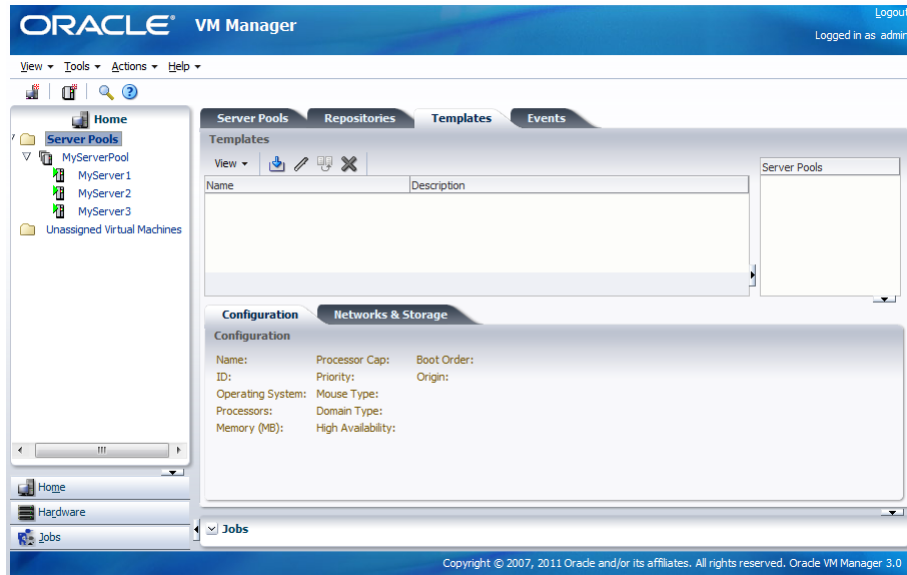
Download an Oracle VM template and an ISO file of the Oracle Linux operating system. Uncompress (unzip) the template file so that it is in the *template.tgz* format, not the downloaded *template.zip* format. Save the template and ISO file on a web server. Templates and other installation media must be available on a web server before being imported into Oracle VM Manager.

8.1. Import a virtual machine template

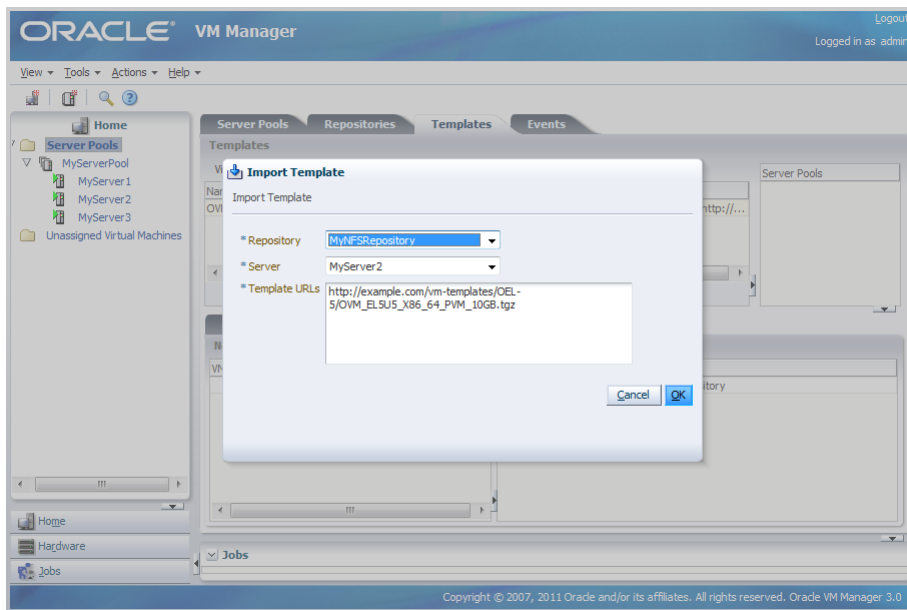
This example shows you how to import the virtual machine template you downloaded from the Oracle Software Delivery Cloud. Replace the name and URL of the template with that of your template.

To import a virtual machine template:

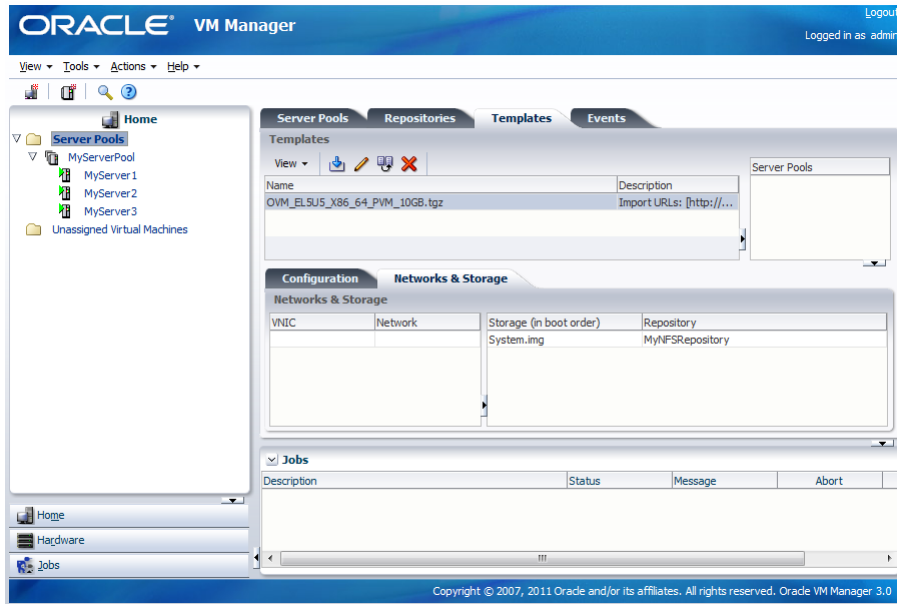
1. In the **Home** view click **Server Pools** in the navigation pane, then open the **Templates** tab in the management pane.



2. Click **Import** to open the **Import Template** dialog box.



Select the repository you created earlier to store the template. Select an Oracle VM Server to use to the perform the template import, and enter the URL to the template you downloaded and stored on a web server. Click **OK** to import the template.



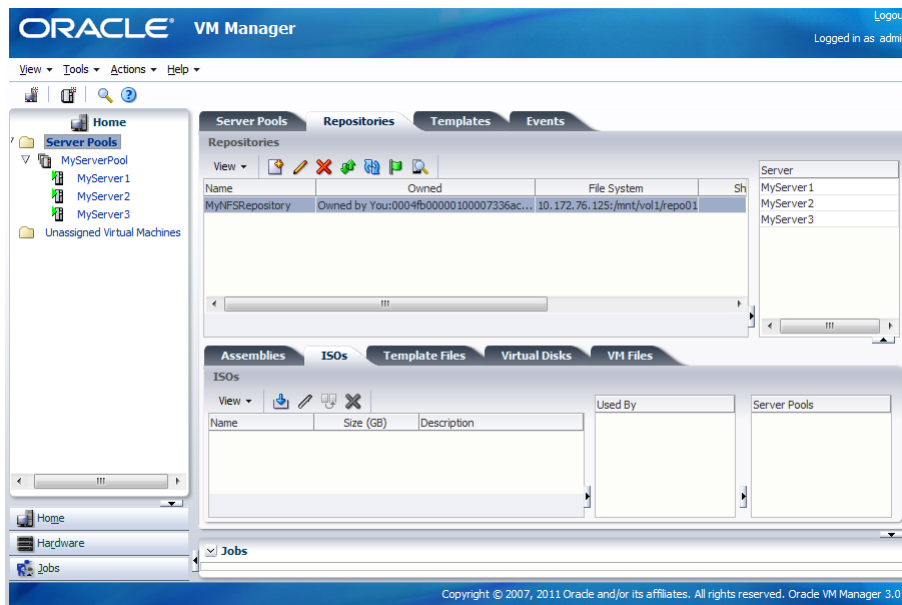
The import job can take some time to complete. When the import is complete, the new template is listed in the **Templates** table.

8.2. Import an ISO file

This example shows you how to import the Oracle Linux ISO file you downloaded from the Oracle Software Delivery Cloud. Replace the name and URL of the ISO file with that of your file.

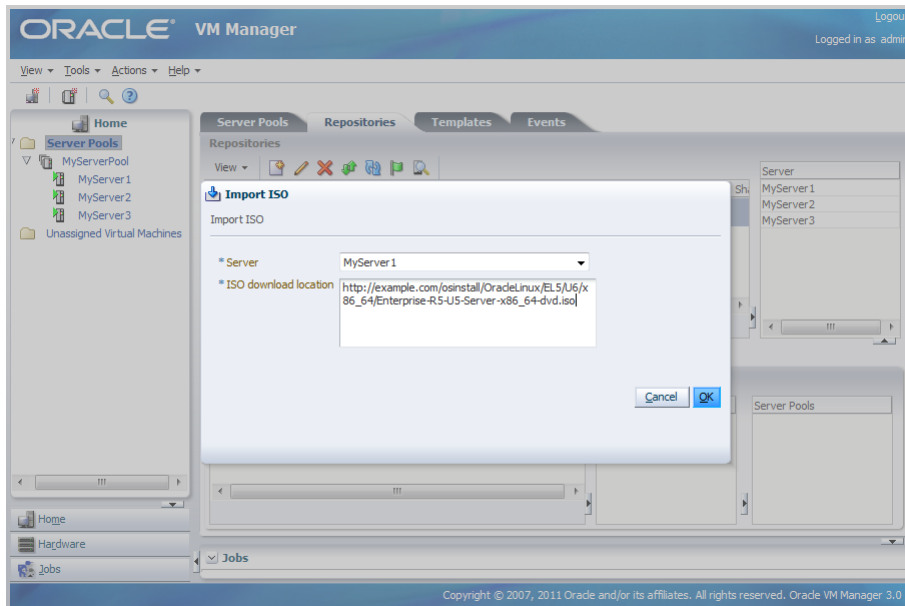
To import an ISO file:

1. In the **Home** view click **Server Pools** in the navigation pane, then open the **Repositories** tab in the management pane.
2. Select the storage repository we created earlier and open the **ISOs** tab below.

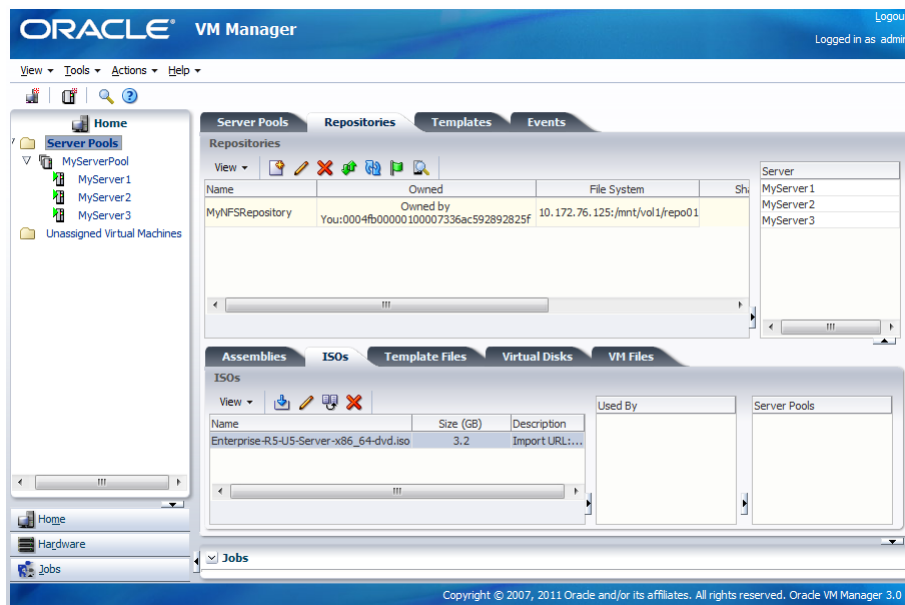


3. Click **Import** to open the **Import ISO** dialog box.

Import an ISO file



Select an Oracle VM Server from the **Server** list to perform the import, and enter the URL to the ISO file you want to import. Click **OK** to import the ISO file.



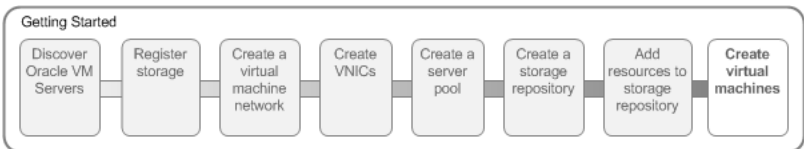
The import job can take some time to complete. When the import is complete, the ISO file appears in the table.

See [Virtual Machine Resources](#) for information on importing, managing and using virtual machine resources.

Chapter 9. Create Virtual Machines

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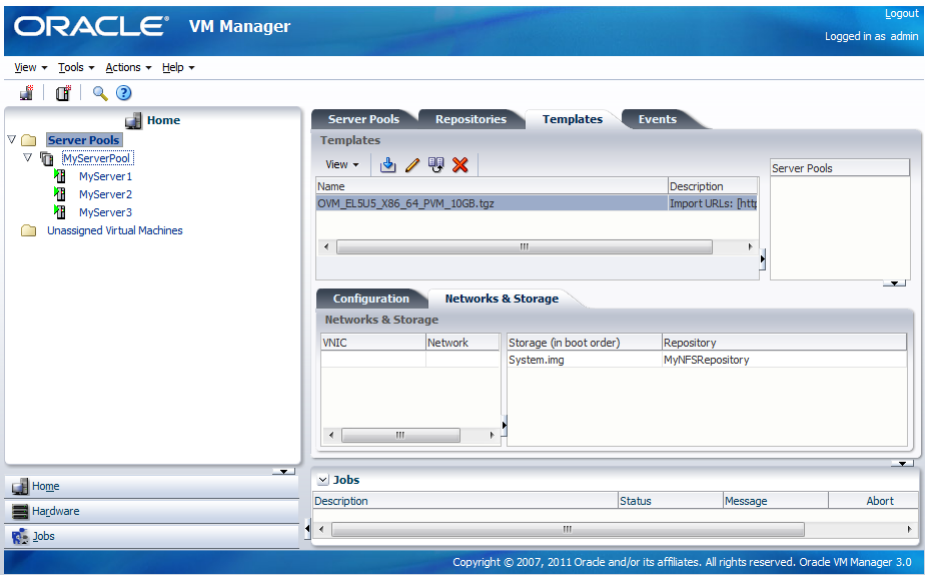
When you have a virtual machine template an/or an ISO file that contains an the installation files for an operating system, you can create a virtual machine. If you use a virtual machine template, you need to clone the template to create a virtual machine. if you use an installation source ISO file, you can create a virtual machine directly from the ISO file. The examples in this tutorial first use a template, then an ISO file to create virtual machines. A final example shows you how to start a virtual machine and connect to the virtual machine's console.

9.1. Create a virtual machine from a template

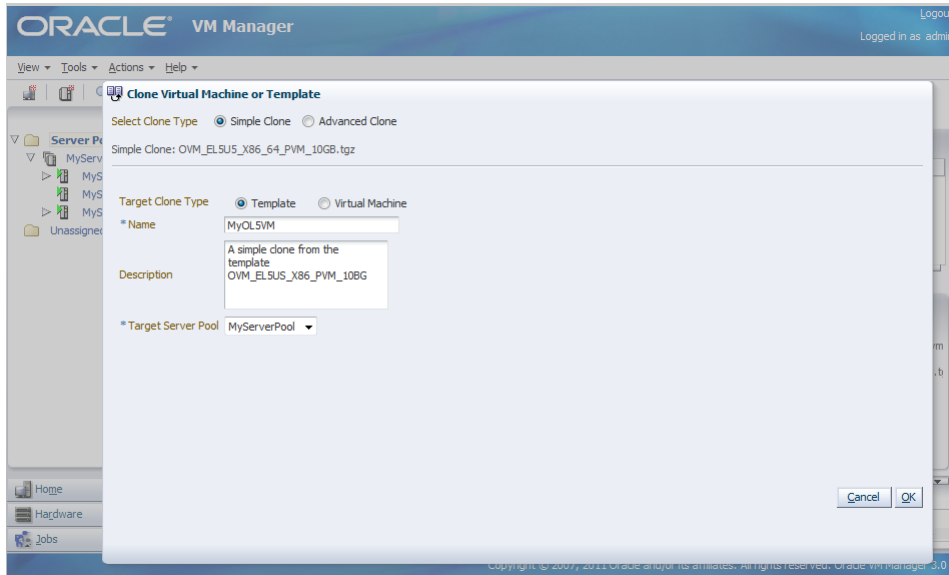
This example uses the virtual machine template you imported in [Section 8.1, "Import a virtual machine template"](#) to create a virtual machine, and deploy it in the server pool.

To create a virtual machine from a template:

1. In the **Home** view click **Server Pools** in the navigation pane, then open the **Templates** tab in the management pane. Select the template to clone and click **Clone**.

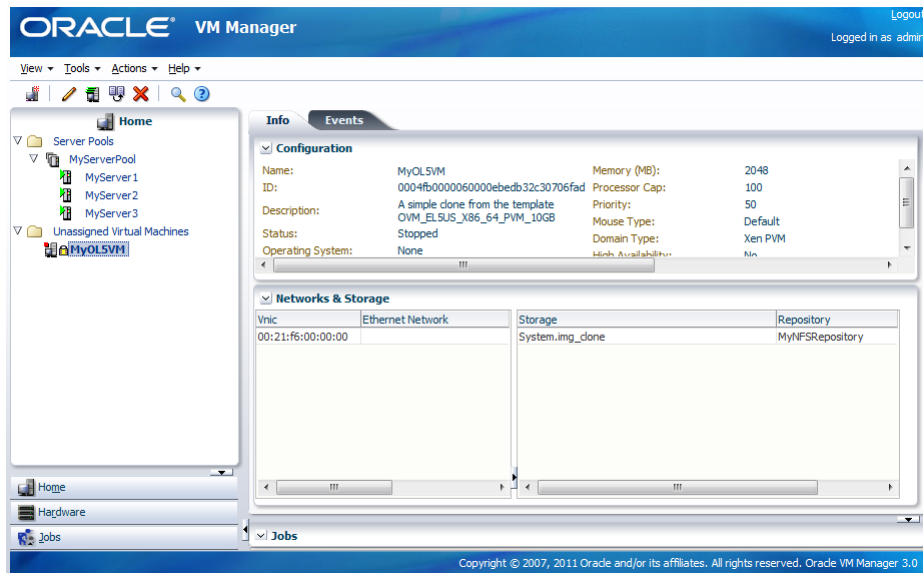


2. The **Clone Virtual Machine or Template** dialog box is displayed.

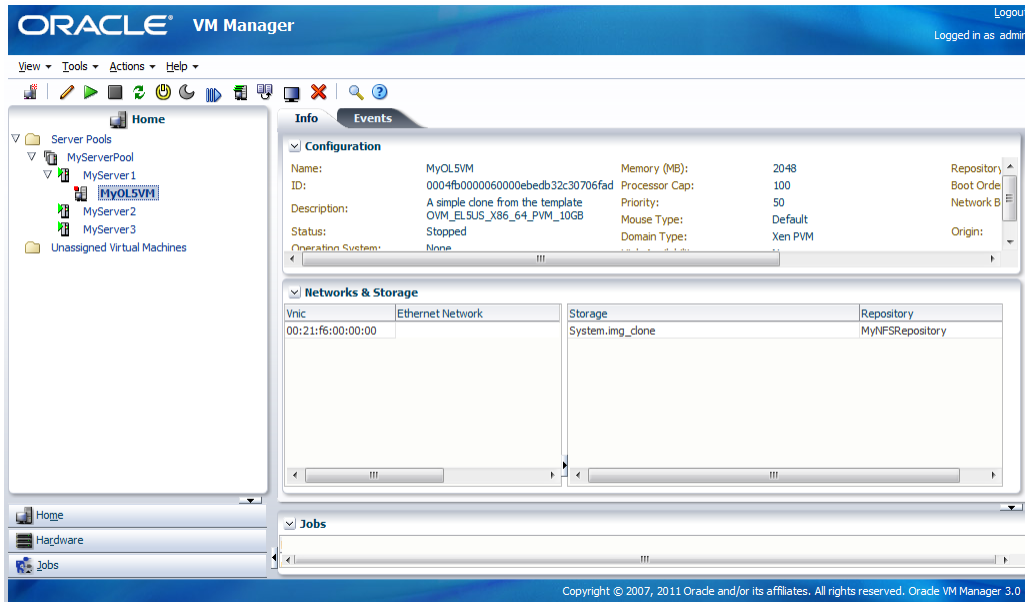


Select the **Simple Clone** radio button, the **Virtual Machine** radio button, and enter a name and optional description of the virtual machine. Select the server pool you created earlier in the **Target Server Pool** drop down. Click **OK**.

The template is cloned to create a virtual machine. The cloning job may take some time. During the clone job, the virtual machine is shown in the **Unassigned Virtual Machines** folder in the navigator.



When the clone job is completed, the virtual machine is deployed to an Oracle VM Server in the server pool.

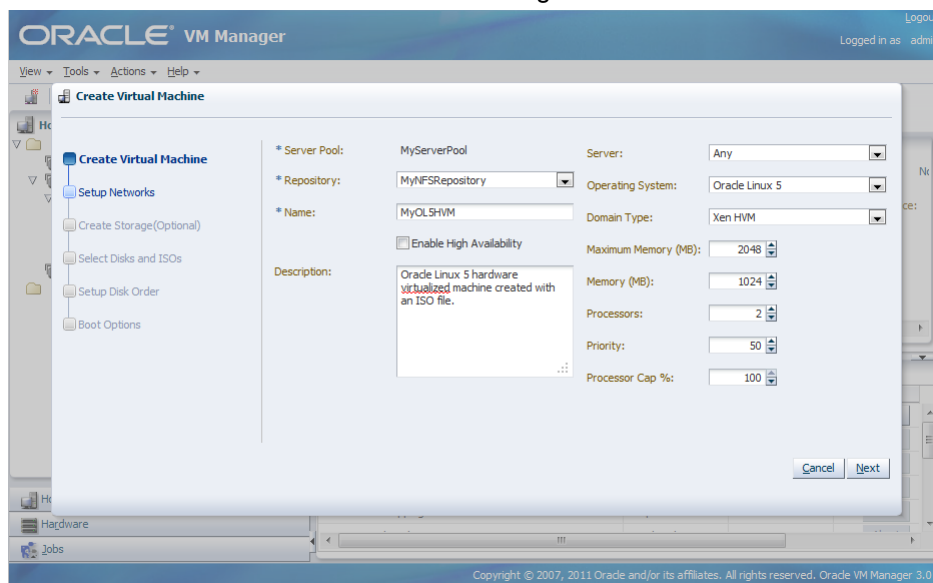


9.2. Create a virtual machine from an ISO file

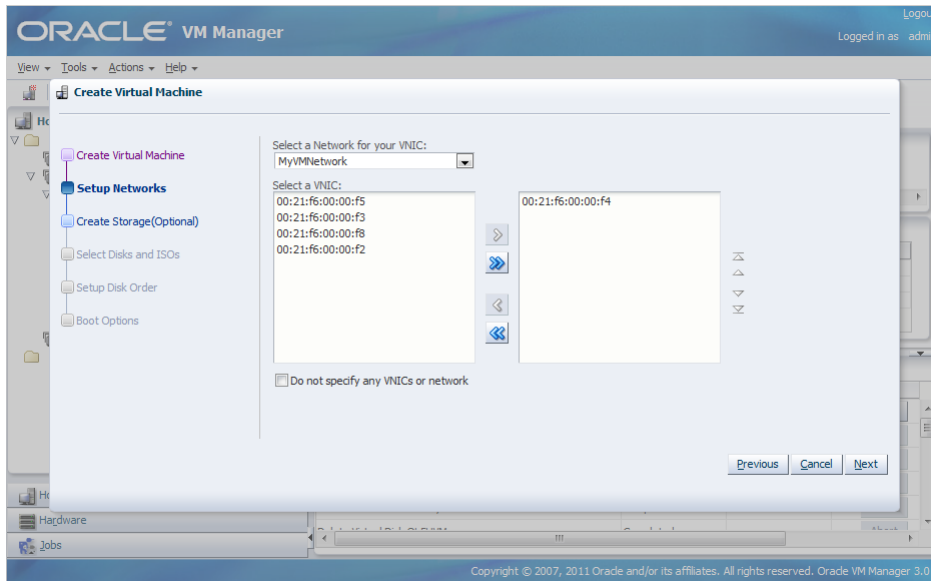
This example uses the ISO file you imported in [Section 8.2, “Import an ISO file”](#) to create a virtual machine, and deploy it in the server pool.

To create a virtual machine from an ISO file:

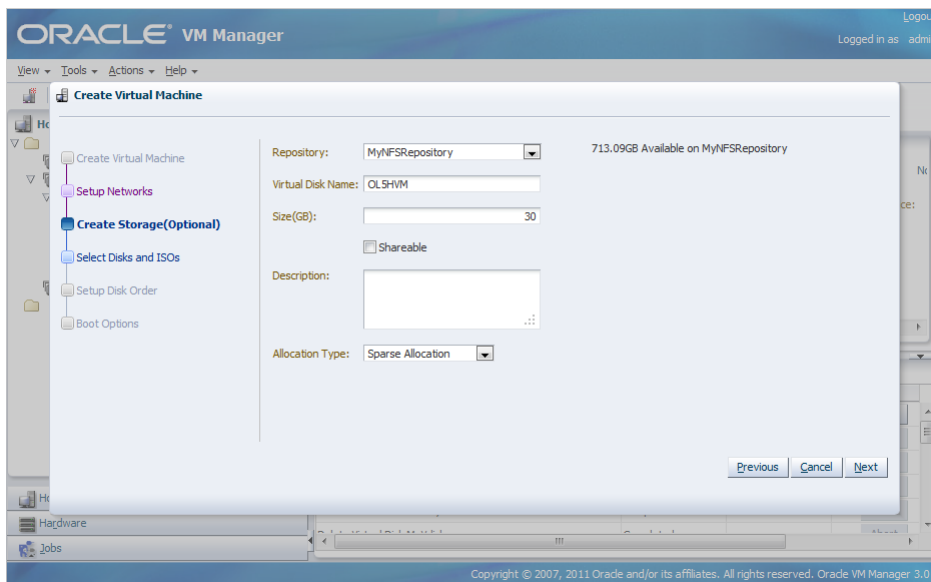
1. Select the **Home** view and **Create Virtual Machine** from the **Actions** menu.
2. The **Create Virtual Machine** wizard is displayed. In the **Create Virtual Machine** step, select the server pool you created earlier, enter a name for the virtual machine, and select the repository you created as the location to store the virtual machine configuration file. Click **Next**.



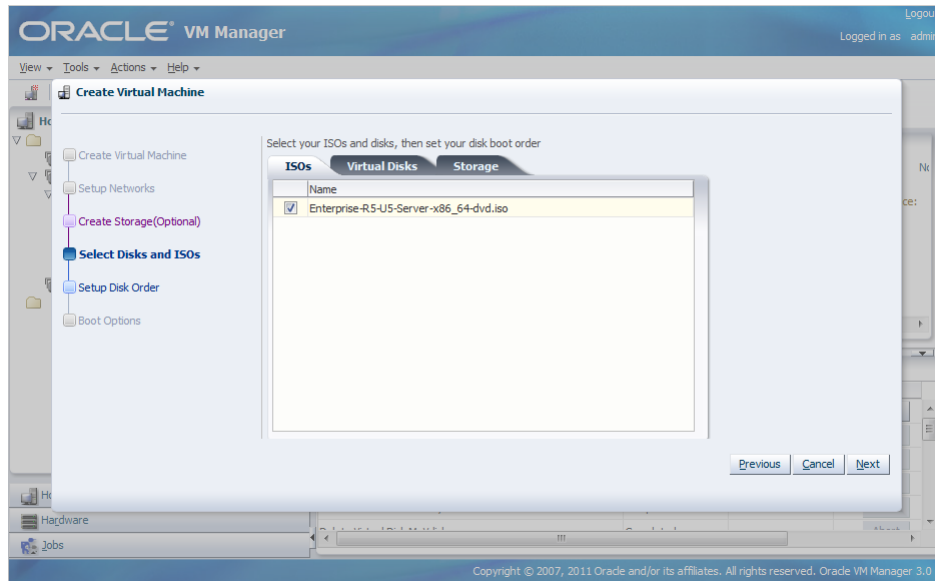
3. In the **Setup Networks** step, select one or more VNICS and move them to the right pane to add them to the virtual machine. Click **Next**.



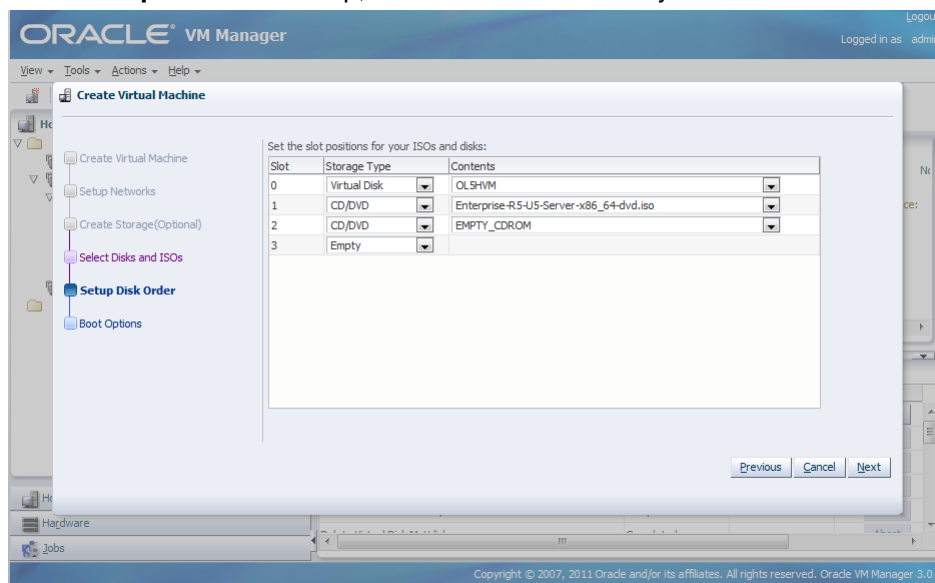
4. In the **Create Storage (Optional)** step, create a virtual disk to use as the virtual machine's hard disk. Click **Next**.



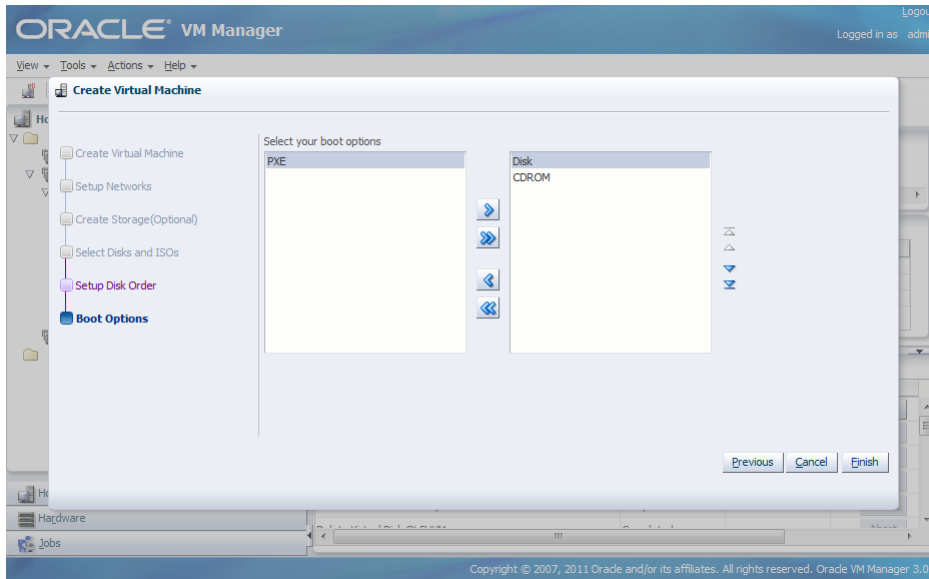
5. In the **Select Disks and ISOs** step, select the Oracle Linux ISO file you imported. Click **Next**.



6. In the **Setup Disk Order** step, select the disk order for your virtual machine. Click **Next**.



7. In the **Boot Options** step, select the boot media and order for your virtual machine. Click **Finish**.

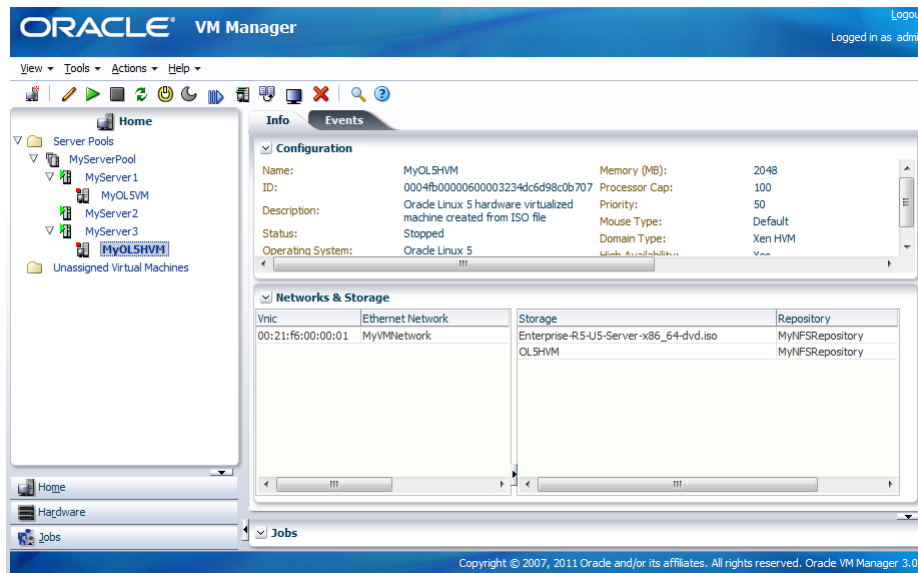


The virtual machine is created and deployed to an Oracle VM Server in the server pool.

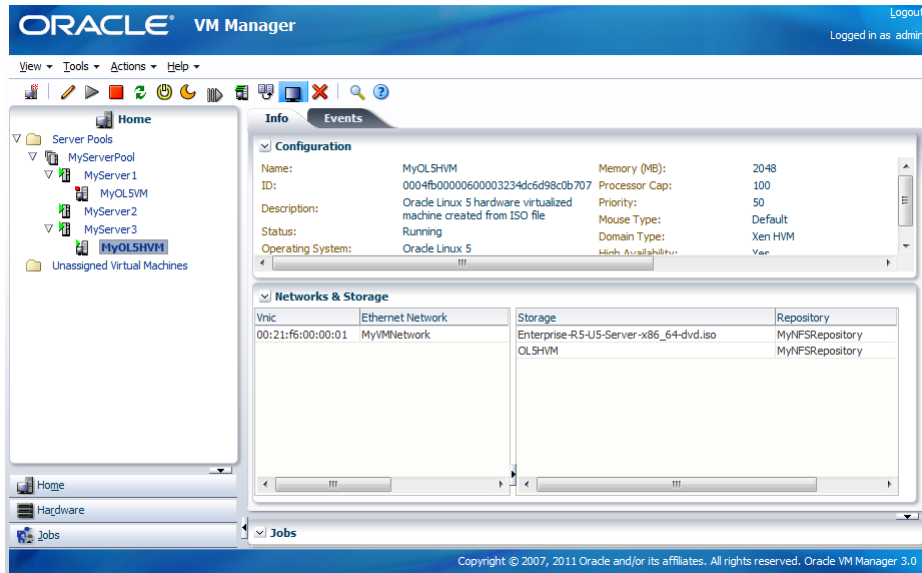
9.3. Starting a virtual machine and connecting to the console

When a virtual machine is created, it is deployed to the server pool in a *stopped* state. This tutorial starts the virtual machine created with an ISO file, and logs into the virtual machine console.

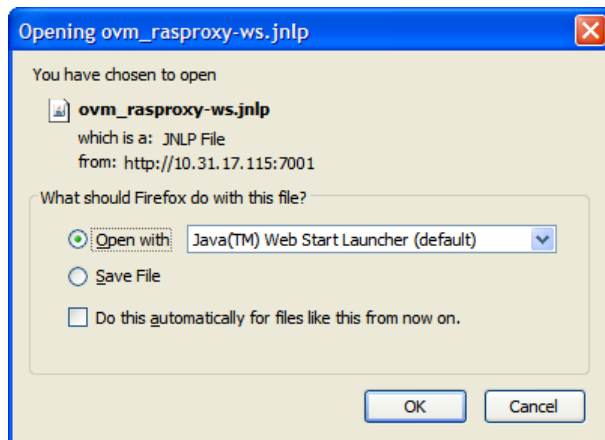
1. To start a virtual machine, select the virtual machine and click **Start**.



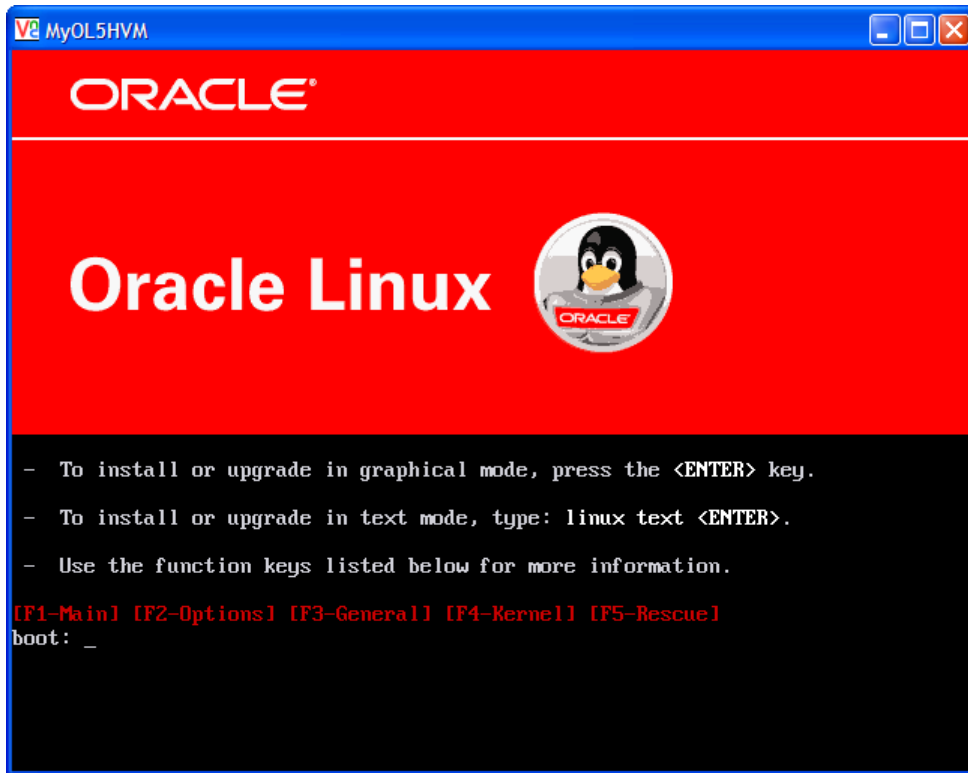
2. When the virtual machine is running, you can connect to the virtual machine's console and log in, if required. To connect to the console, click **Console**.



3. A dialog box, similar to the following, is displayed requesting to start a Java proxy to connect to the virtual machine. Click **OK**.



4. The virtual machine console is displayed. Log in and interact with the virtual machine as you would through any other VNC session. This example shows the initial installation screen for the virtual machine created with the Oracle Linux operating system ISO file.



See [Managing Virtual Machines](#) for more information on creating and managing virtual machines.

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