



VIRTUALIZATION MANAGER™ ENTERPRISE EDITION

GETTING STARTED GUIDE

This manual provides a quick introduction to Virtual Iron® software, and explains how to use Virtual Iron® Virtualization Manager to configure and manage virtual servers.

Product: Virtual Iron® Virtualization Manager

Version: 4.2

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Getting Started with Virtual Iron

About this Guide

This quick start guide takes you through the process of creating a virtual server with Virtual Iron® Enterprise Edition (EE). For a detailed treatment of the topics discussed here, refer to the *Virtual Iron® Virtualization Manager™ Administrator Guide*. This guide contains the following sections:

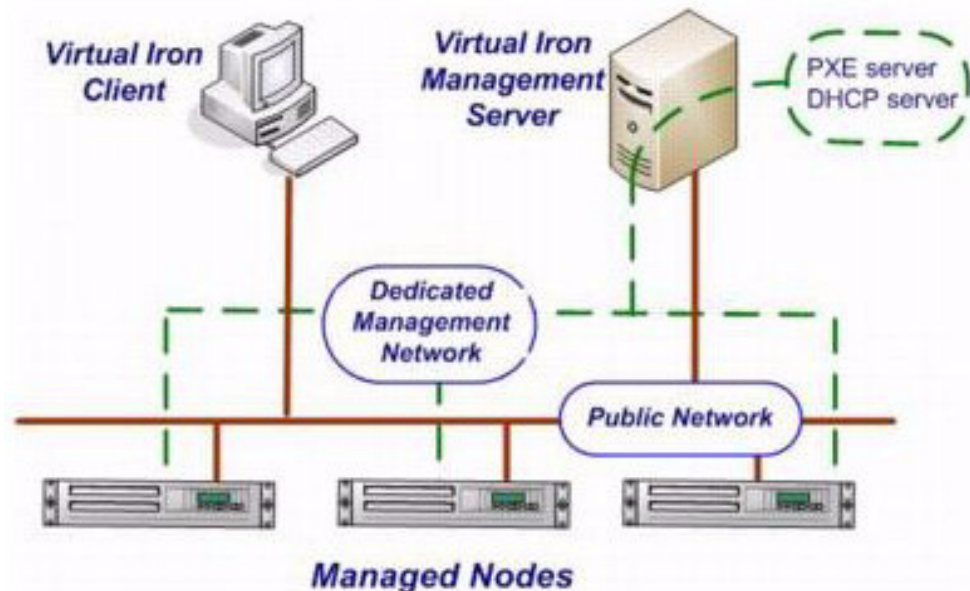
- ▶ *This chapter* describes how to create the physical framework, install the product, and connect to the Virtual Iron® management server.
- ▶ *Chapter Two* takes you through the steps needed to create a virtual server.

Set up the Physical Framework

Virtual Iron® is an enterprise-class virtualization product that allows the resources of one or more nodes to support distinct operating systems. Before you install the product, you need to cable together a set of supported *nodes* in the correct configuration.

This illustration shows a simplified configuration. It consists of at least three nodes: a *management node* (which hosts the Virtualization Manager), at least one *managed node*, and a separate system running the *management client*.

The Virtualization Manager can run on several versions of Windows® or Linux. This management node can be Intel or AMD-based. The *managed nodes* do not run a standard operating system. Instead, they boot and run a Virtual Iron component that enables its hardware to support multiple virtual server operating systems concurrently.



Installing Virtual Iron®

After you've cabled nodes, you are ready to install the software on the system designated as the *management server node*. Virtual Iron® runs on the Linux® and Windows® systems listed in the *Virtualization Manager Administrator Guide*.

1. To install Virtual Iron®, proceed as follows.

For Linux:

Execute the bin file:

```
# sh ./VirtualIronInstall4xx.bin
```

For Windows®:

Double click this file:

[VirtualIronInstall4xx.exe](#)

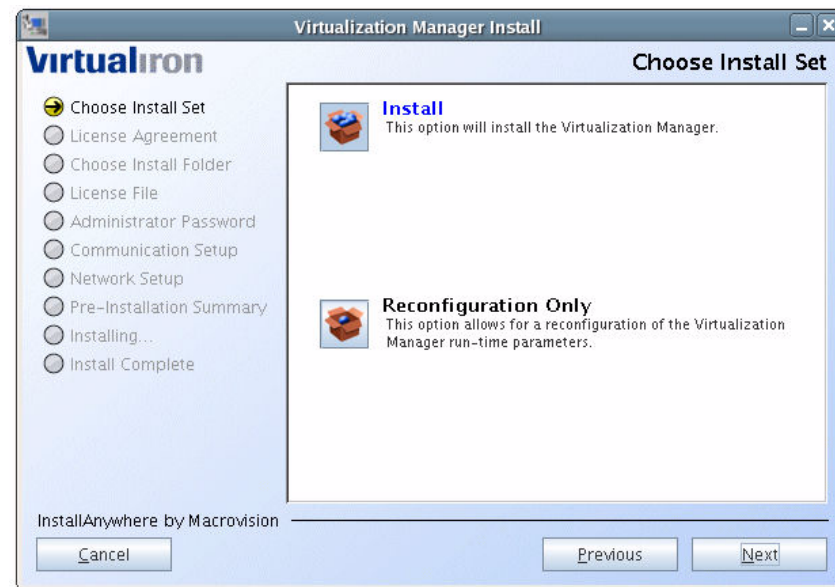
The following screen appears as the installation begins.



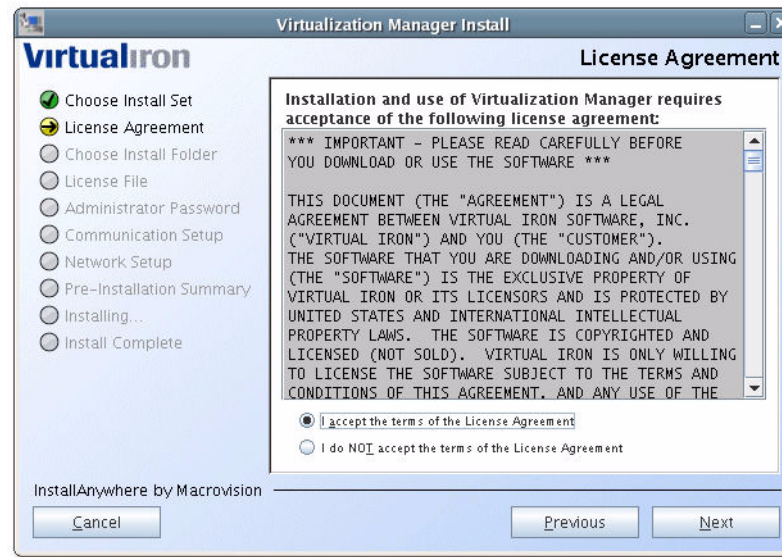
When the download completes, the introductory screen appears. Click **Next** to begin the installation.



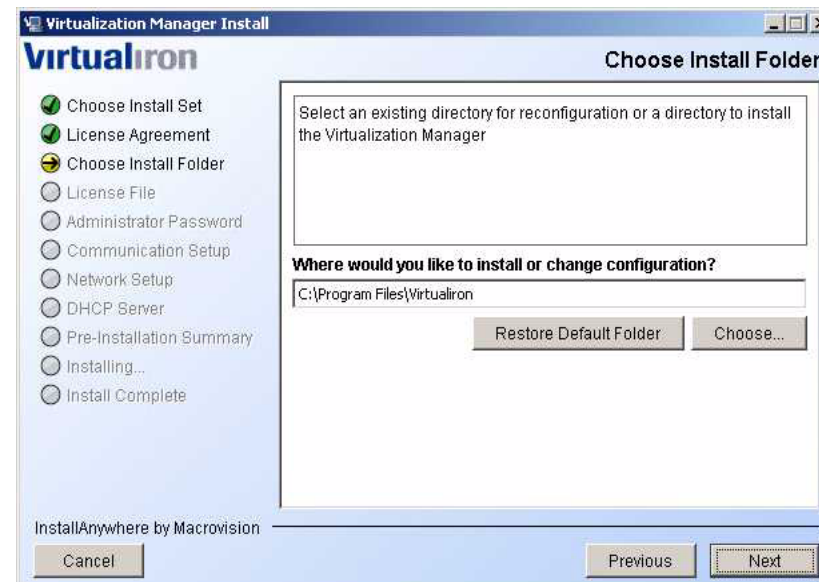
2. At this point, the installation process checks whether standard DHCP port 67 or TFTP port 69 are in use on the installation host. In this screen, choose whether to install or reconfigure the product. Click the appropriate icon, and click **Next**.



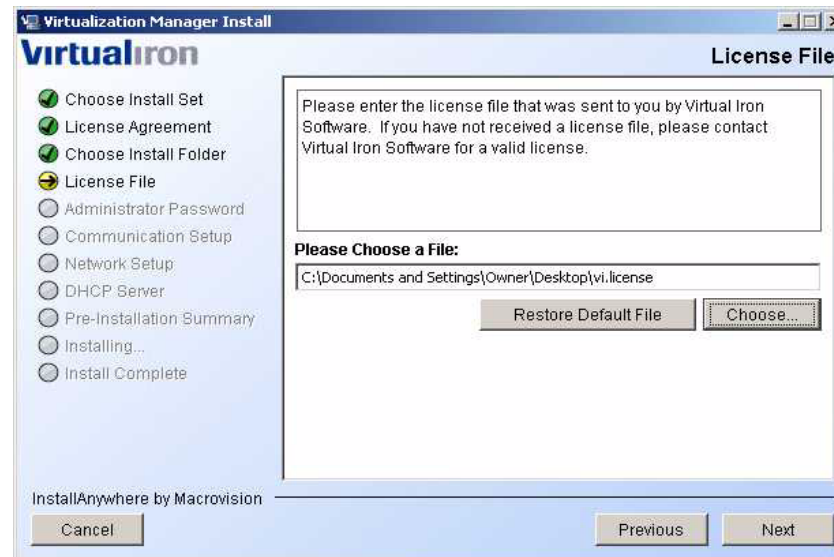
3. If you choose the **install** option, you are prompted to read and accept the Virtual Iron® license agreement. You must accept the agreement to continue the installation.



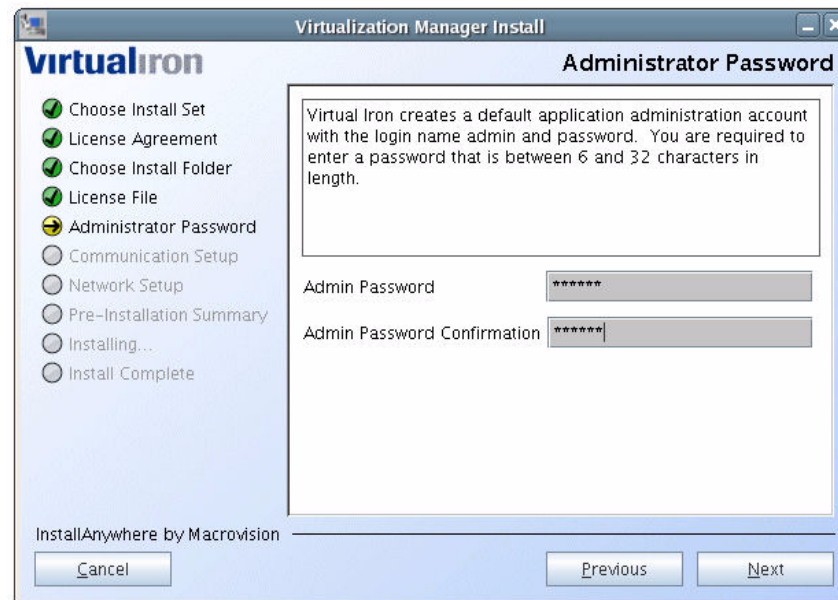
4. Next, choose a location for the installation. Enter a path for the installation, or choose the default folder. For Linux, this is **/opt/Virtualliron/**; for Windows™, **C:\Program Files\VirtualIron**. Select a location and click **Next**.



5. Enter the location of the Virtual Iron license file. This file is not included in the distribution, but is sent to you by Virtual Iron®, Inc. The example shown is from a Windows® installation.



6. Enter an Admin password for the system. The password and confirmation password you choose must match, and must be 6-32 characters long.



7. Choose HTTP or HTTPS as the connection type between the Virtualization Manager client and server.



If you choose HTTP, the window shown below appears. Choose a port or use port 80 (the default).



If you select **HTTPS**, select a port or use port 443 (the default). You can also select your own keystore. If you choose to do this, you must provide passwords for the keystore.

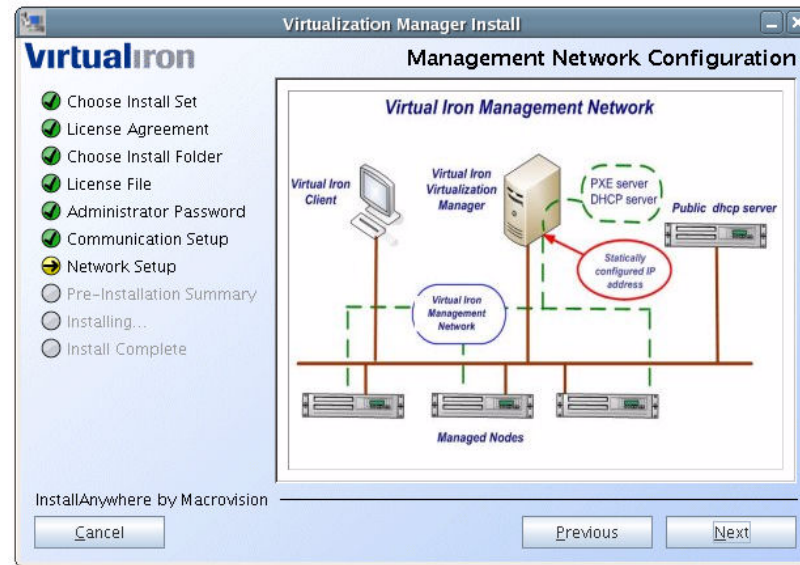
8. If you chose HTTPS (and the port is available), you will see the following window. The screen shown in this example is from a Linux installation.



9. Enter passwords for the keystore and the certificate key. This window appears only if you chose a certificate keystore in the preceding step.



10. The illustration that appears at this point shows a representative configuration of the management network. Note that two networks are present. The Virtual Iron management network is a private network between the management server and all managed nodes. These nodes are also connected to a public network. Click **Next** to continue.

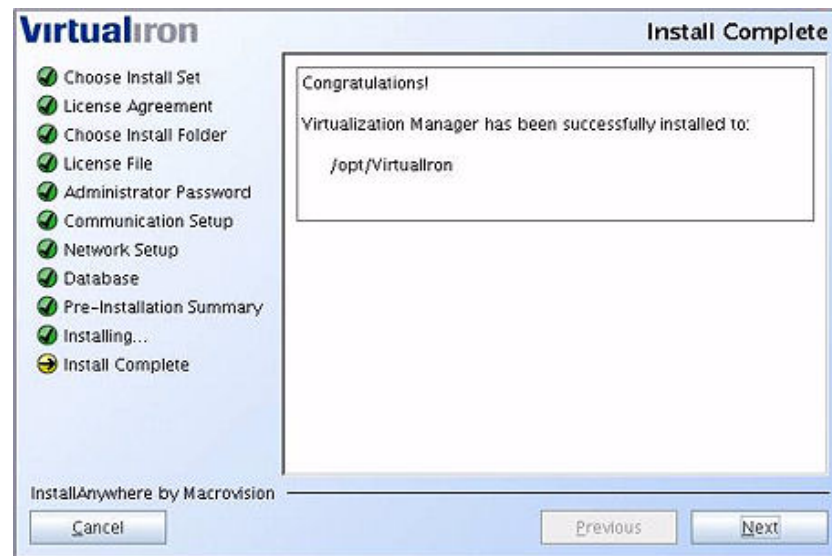


11. Assign the IP addresses the management server uses to connect to the private management network and the public network.

12. At this point, all necessary information has been provided. A pre-installation summary is displayed. To proceed with the installation, click **Install**. The example is for a Windows® installation.



13. A screen appears with the install location. Click **Next**.



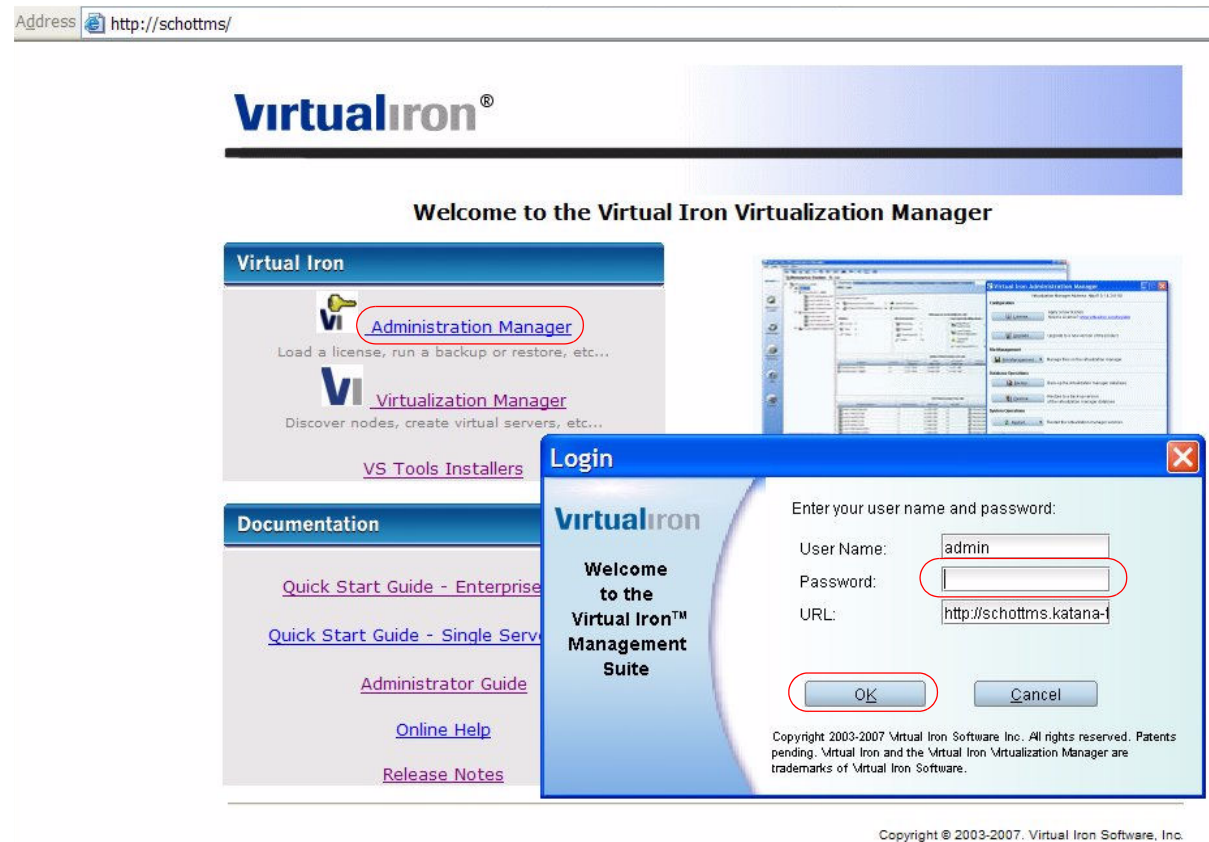
14. When the installation is complete, click **Done** to close the window. (Example: Windows® installation). The Virtualization Manager starts automatically.



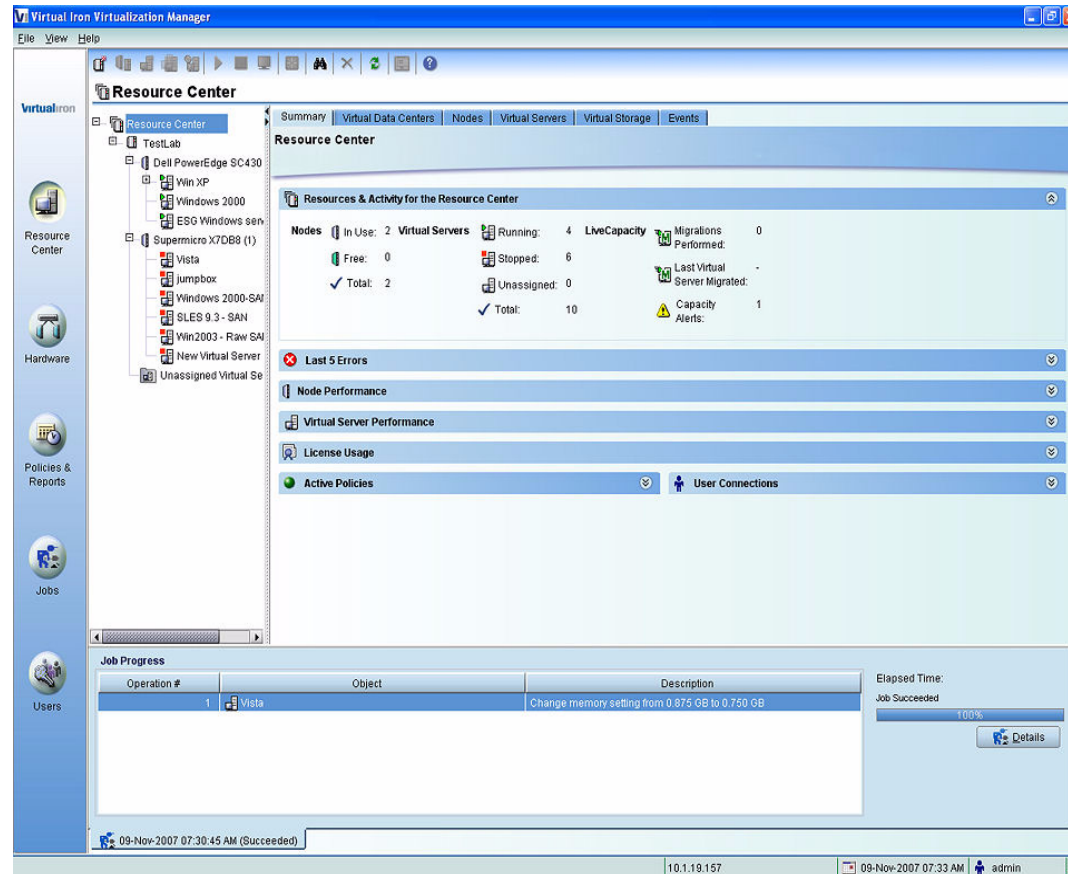
Connecting to the Management Server

After installing the product, use a web browser to connect to the management server node (that is, the node on which you installed the product).

1. For the URL, use the IP address assigned to the management Ethernet interface.
2. On the Virtual Iron® splash screen, click **Virtualization Manager**. The login window appears. Enter the password you chose when installing the product, and click **OK**.



3. Virtualization Manager opens.



Creating and Booting a Virtual Server

Follow these steps to configure and launch a virtual server.

Set the BIOS and Reboot all Managed Nodes

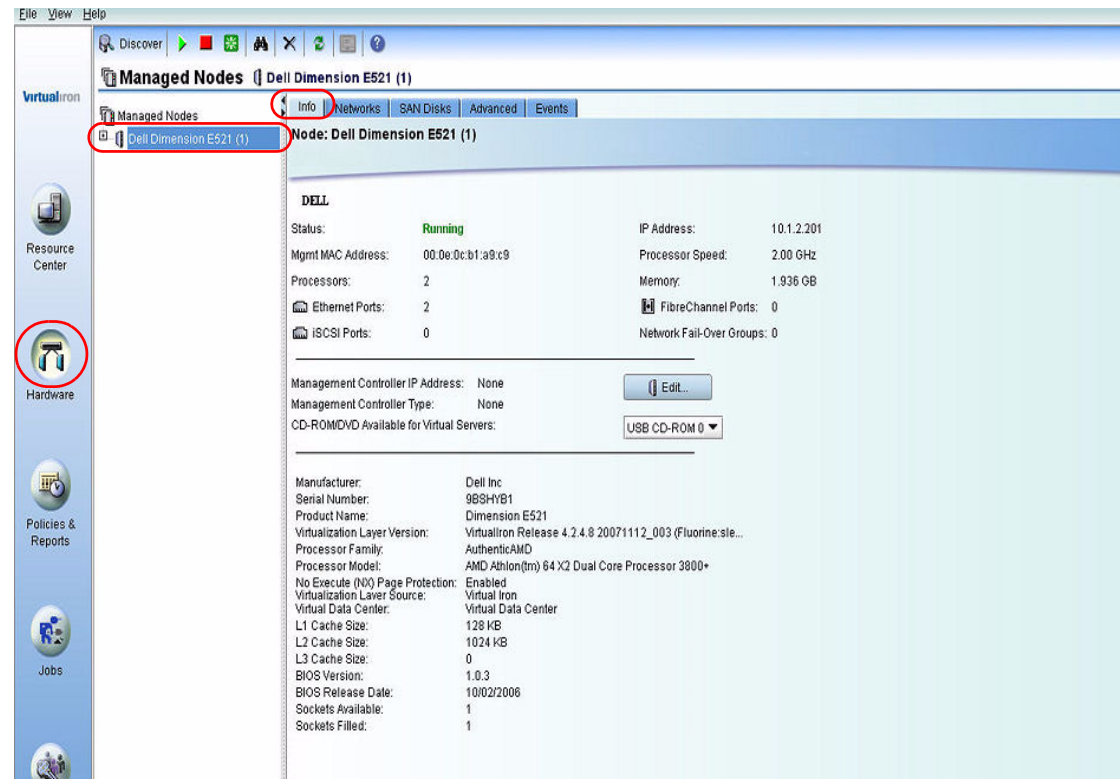
Set the BIOS of each managed node to PXE or Network. Then reboot the nodes.

The nodes may take a few minutes to boot. When they come up, they will PXE-boot the Virtualization Manager software from the management server. This prepares these nodes for virtualization. They appear in the **Hardware** view of the client interface.

Check Hardware Components

When you log in to the product, the Virtualization Manager does an inventory of node components. Before moving on, take a moment to check the components of all nodes

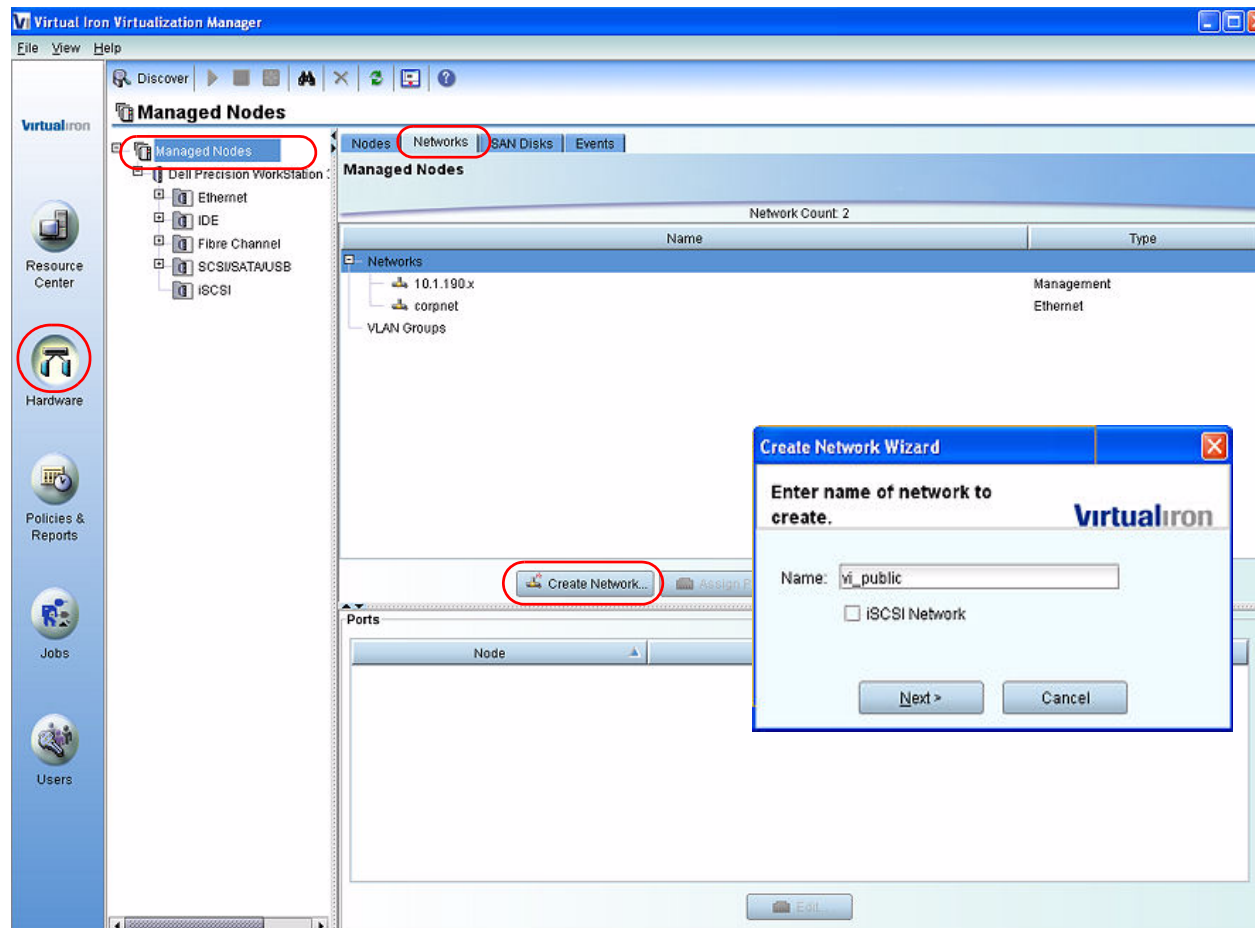
1. Click the **Hardware** button in the application toolbar.
2. Select the managed node and click the **Info** tab to get detailed information that Virtualization Manager has discovered for the node. The components of each node are listed in the following categories:
 - Management MAC address and IP address
 - Number and speed of processors and memory
 - Ethernet ports (for connection to external networks)
 - iSCSI ports (internal SCSI adapters, for SAN connection. See the Networks tab)
 - Fibre Channel ports (for connection to SAN)
 - IDE drive (CD-ROM)



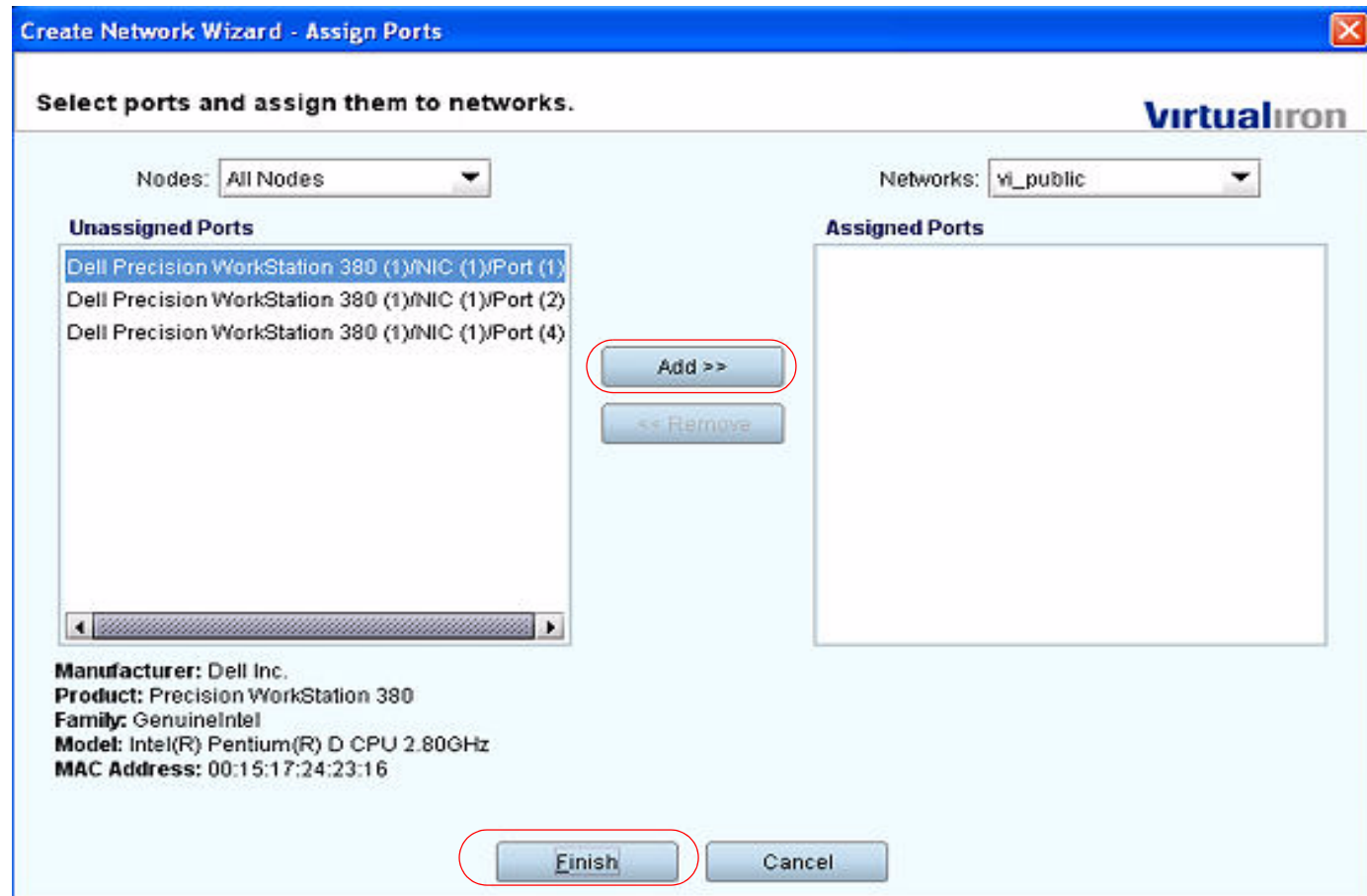
Create Networks

1. In the **Hardware** view, select **Managed Nodes** in the navigation tree, and then select the **Networks** tab. Click **Create Network** and follow the Create Network Wizard windows. Enter a name for the network. In the example shown, we used `vi_public`. Click **Next**.

The networks you create will be available to the virtual servers. (See the *Virtualization Manager Administration Guide* for further information.)



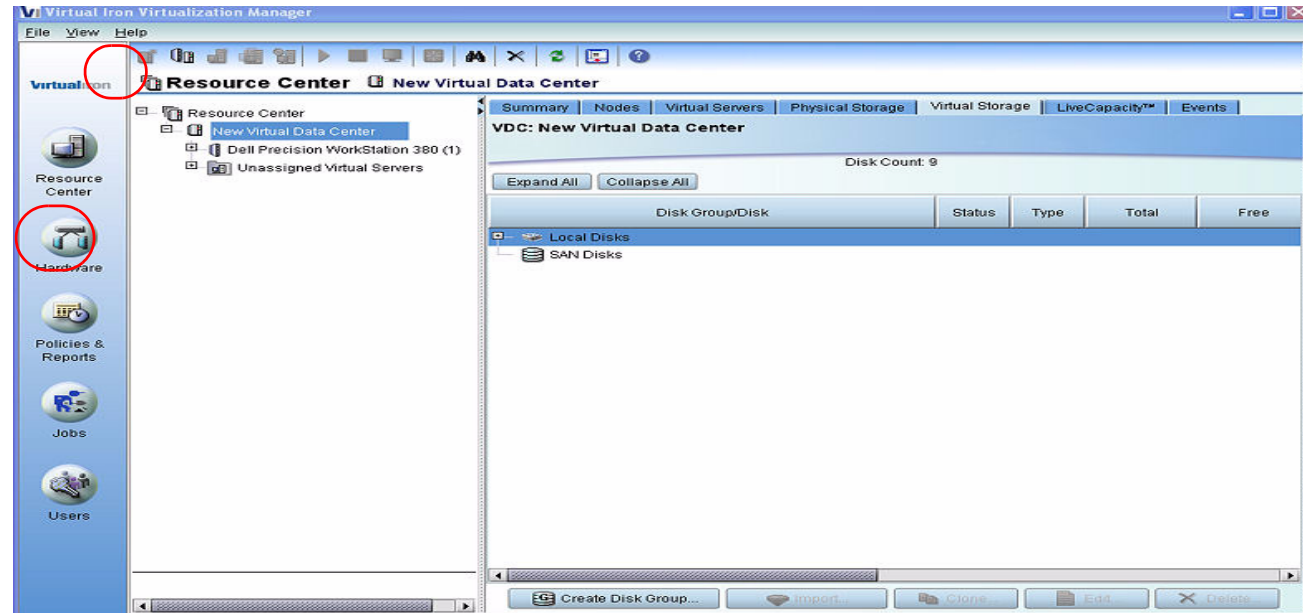
2. In the **Create Network Wizard - Assign Ports** window, select which nodes to assign from the pulldown. Click **Add**, then **Finish**.



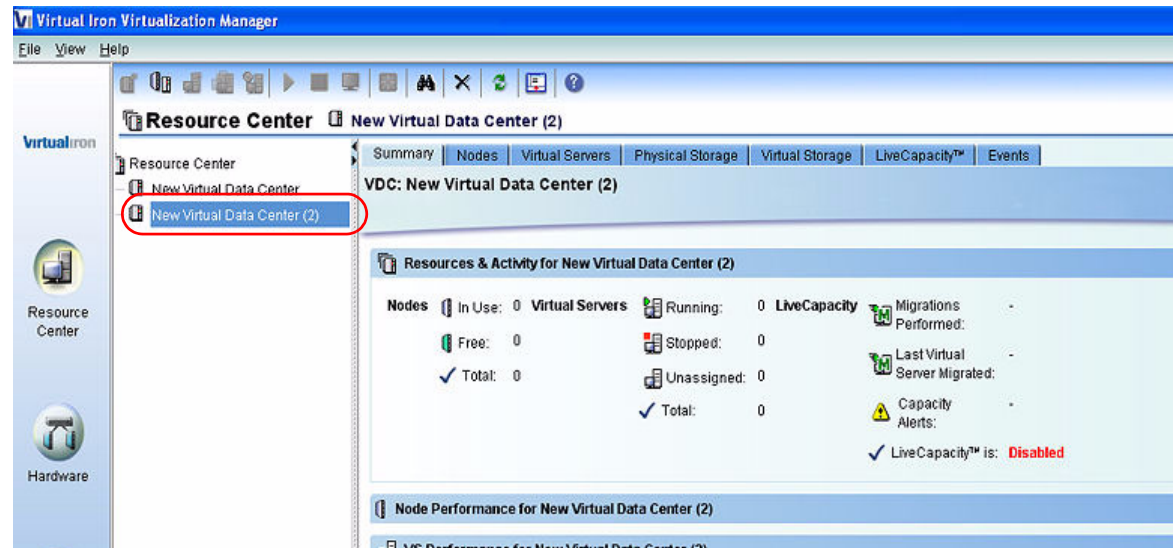
Create a Virtual Data Center (VDC)

A Virtual Data Center (VDC) is a group of one or more nodes and the Virtual Servers (VSs) it supports. The physical resources of a VDC can be shared by multiple VSs.

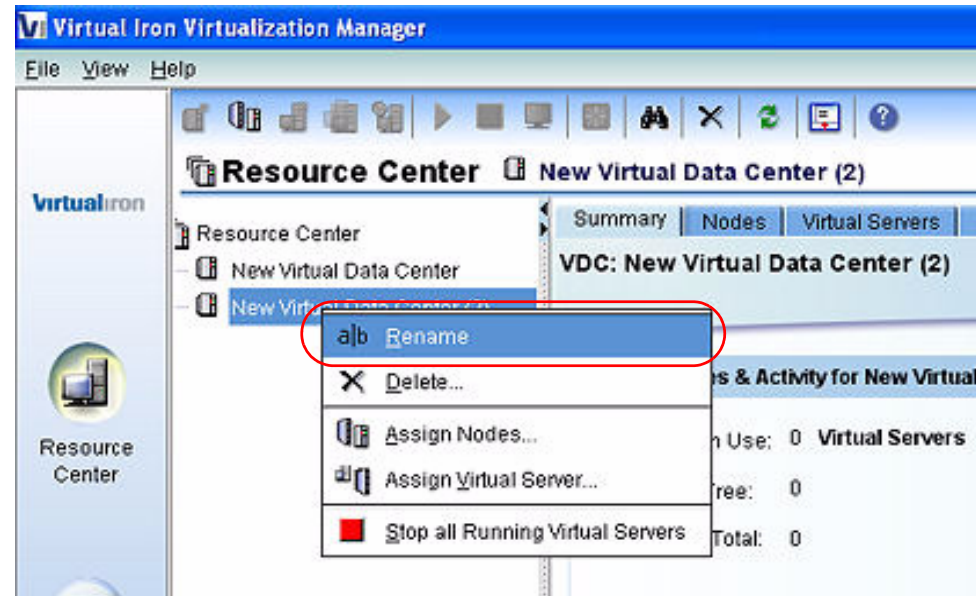
1. Click **Resource Center** in the toolbar. Then click the **Create New Virtual Data Center** icon.



The new VDC appears in the navigation tree. Note that a yellow lock icon briefly show up beside Resource Center and New Virtual Data Center icons. The locks indicate that you are making a change to these objects. While you are performing this operation, the objects cannot be managed by other users. The locks are automatically released when the operation completes.



2. Right click the VDC you just created. Select **Rename** from the submenu, and type in a new name. Press **Enter** to change the name.



Note that you can view the status of each operation at the bottom of the **Job Progress** pane.

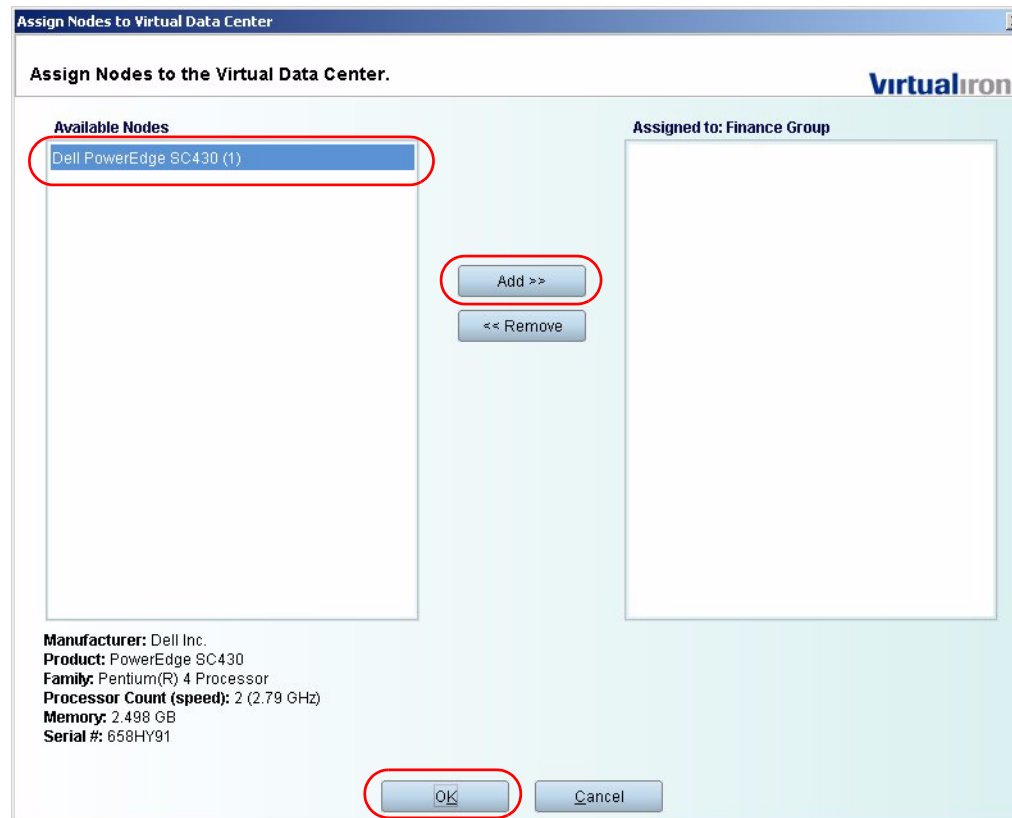
Assign a Node to the VDC

Assigning a node provides the VDC with a pool of processing, memory and I/O resources that can be shared by VSs and their applications. You can assign as many nodes to a VDC as exist in the Hardware view.

1. Select the name of the VDC in the navigation tree, and click the **Assign Nodes** icon as shown here:



2. The **Assign Nodes** window appears, displaying the name and information associated with all nodes that have been discovered by the management server. To move the node to the VDC you have created, select the node and click **Add >>**. Then click **OK**.



Create a Virtual Server

Virtual Servers (VSs) can be configured to access local disks, raw SAN disks, and logical disks. Virtual Iron supports the creation of logical disks that can be cloned and exported for use by virtual servers.

Raw storage refers to all SAN storage visible to the node hosting a VS. Managed storage, whether on a local disk or SAN (over iSCSI or Fibre Channel), refers to disks used to configure and store *logical disks*. Raw storage has certain advantages, but it affords less management flexibility than the managed storage framework.

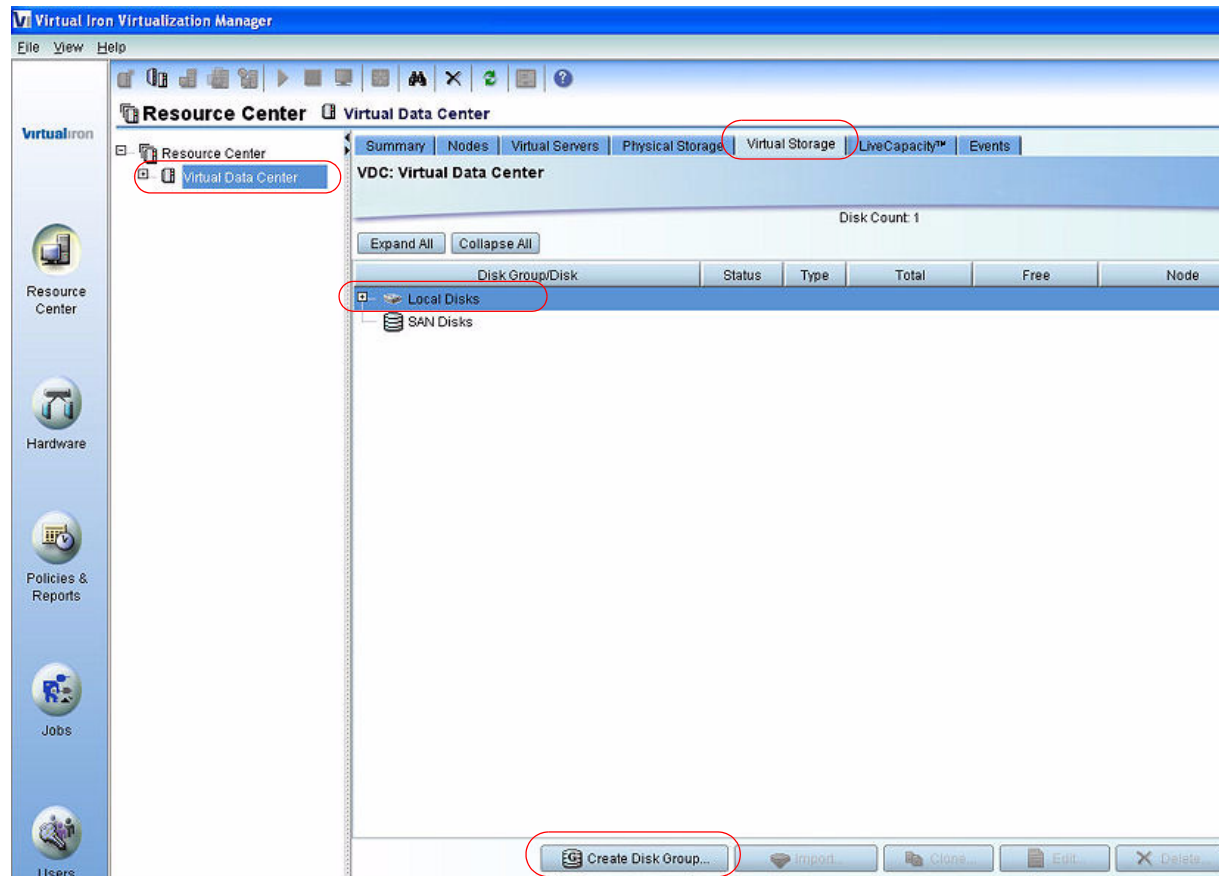
The succeeding example defines how to create a logical disk on a local drive. See the **Virtual Iron® Virtualization Manager™ Administrator Guide** for details on SAN configurations.

To create and run a VS, you need to create the VS, configure the boot and runtime options, assign a network to it, and define its storage. This process is covered in these steps:

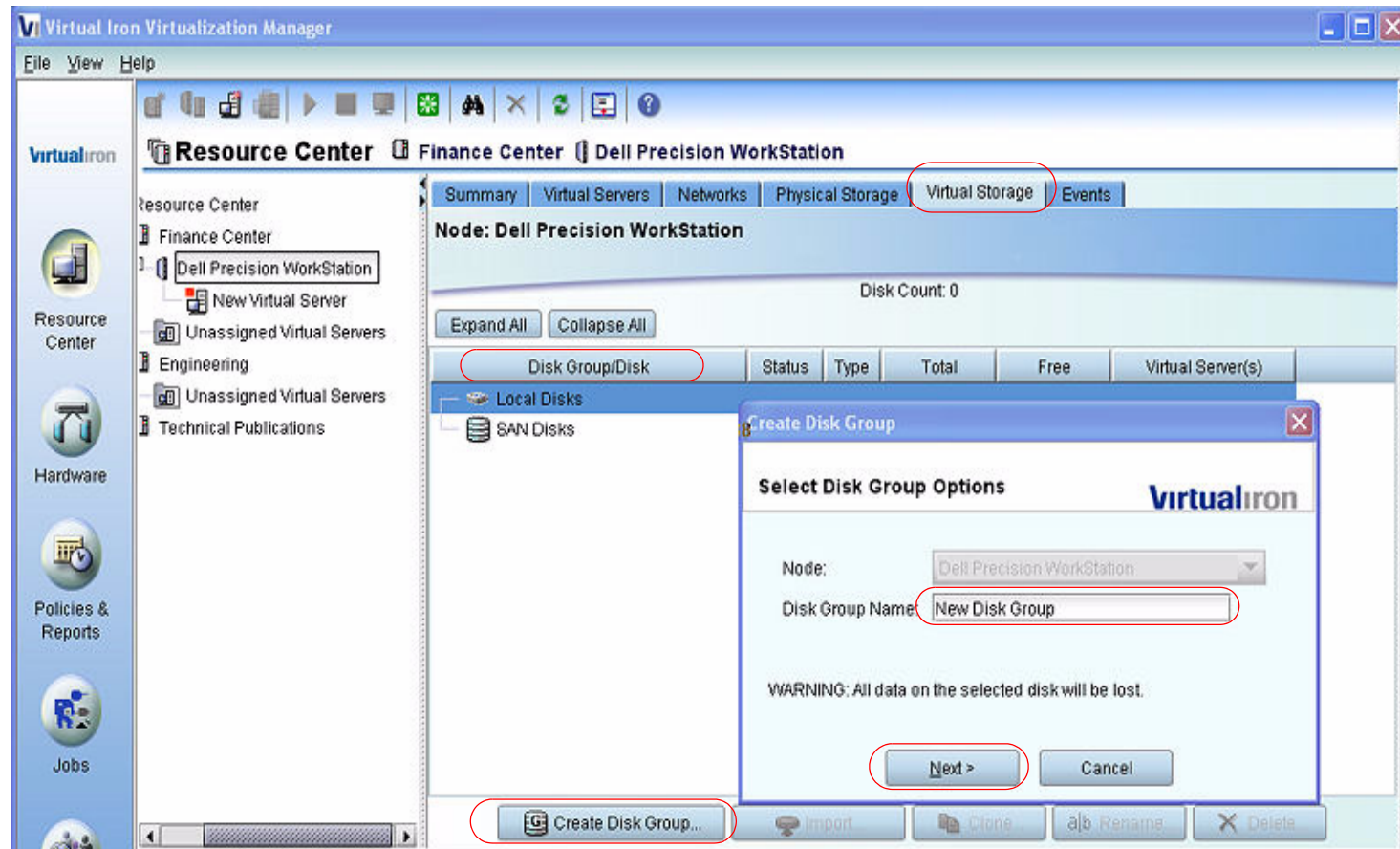
- [*Create a Logical Disk*](#)
- [*Create a Virtual Server Wizard*](#)
- [*Configure the Network Adapters*](#)
- [*Specify Virtual Server Boot Options*](#)
- [*Configure Virtual Server Processors, Memory, and Priority.*](#)
- [*Start the VS Installation*](#)
- [*Install VS Tools on Windows® Virtual Servers*](#)
- [*VS Tools Silent Install*](#)
- [*Special Considerations for Windows 2000 OS*](#)

Create a Logical Disk

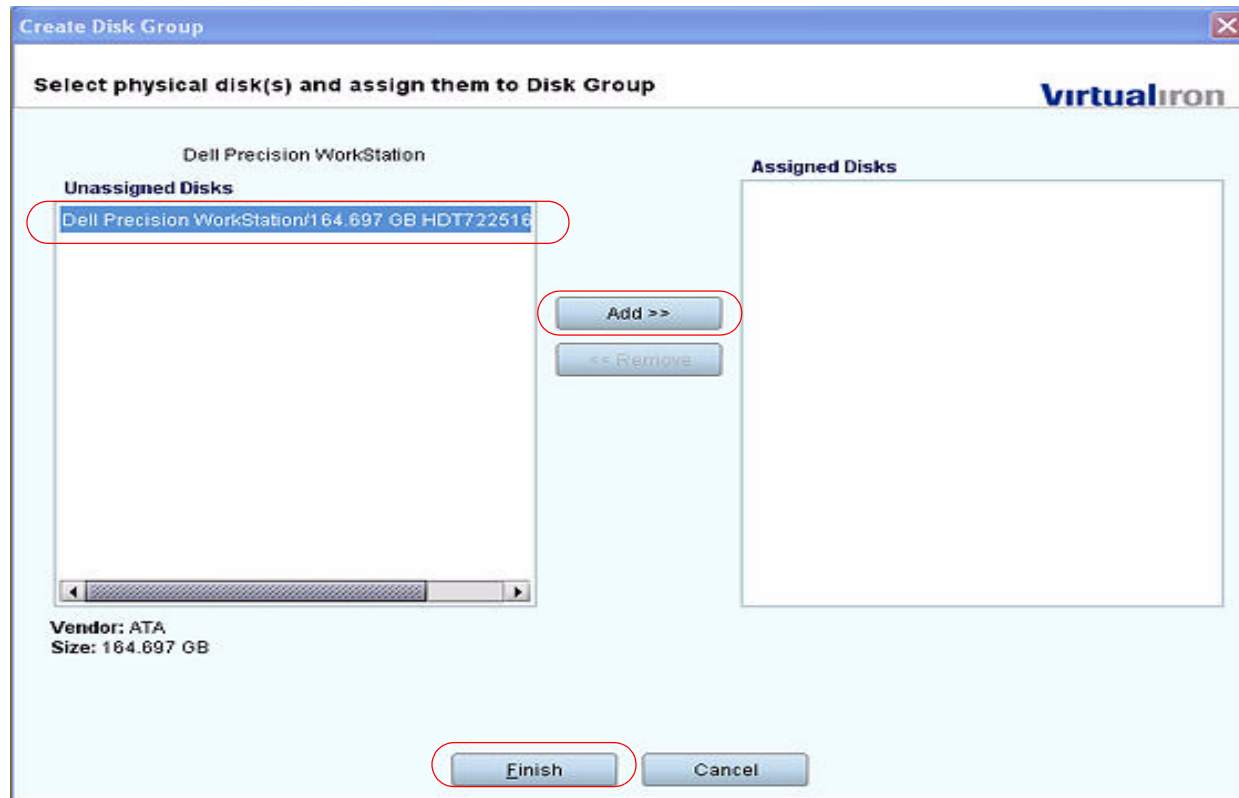
1. Click **Resource Center**, select your node and then select the **Virtual Storage** tab.
2. Select **Local Disks**, and click **Create Disk Group...**



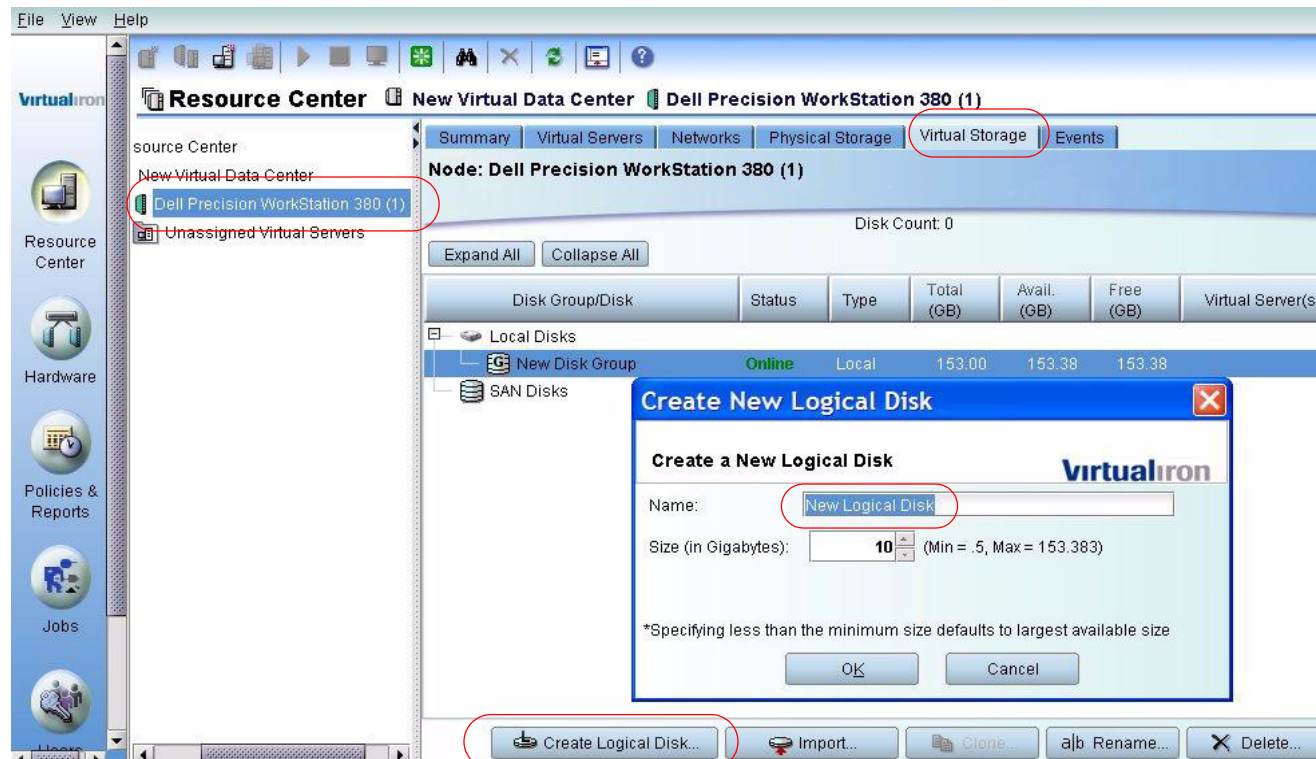
3. In the **Select Disk Group Options** window, rename the Disk Group, or keep the default name. Click **Next>>**.



4. Assign a disk to the Disk Group. In this example, the node hard disk is available for assignment.
5. Click **Add** and **Finish**.

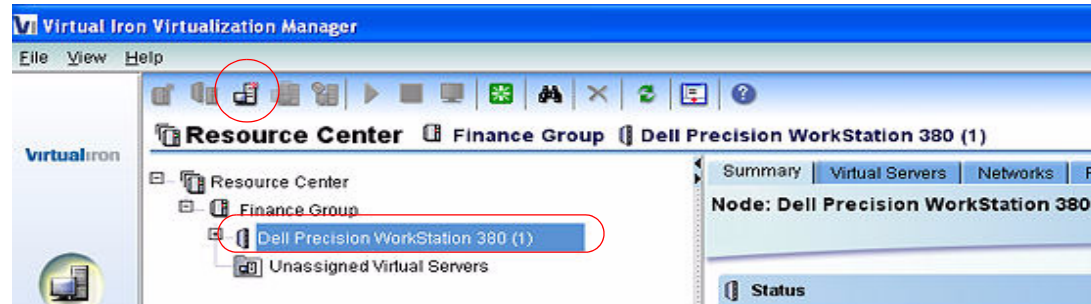


6. Select the Disk Group and click **Create Logical Disk**. In the **Create New Logical Disk** pop-up window, rename the logical disk if desired. Note that a logical disk can only be assigned to a virtual server.
7. Choose a size for the logical disk that is just large enough to accommodate the virtual server. You can use the remaining space for other virtual servers.
8. Click **OK**.

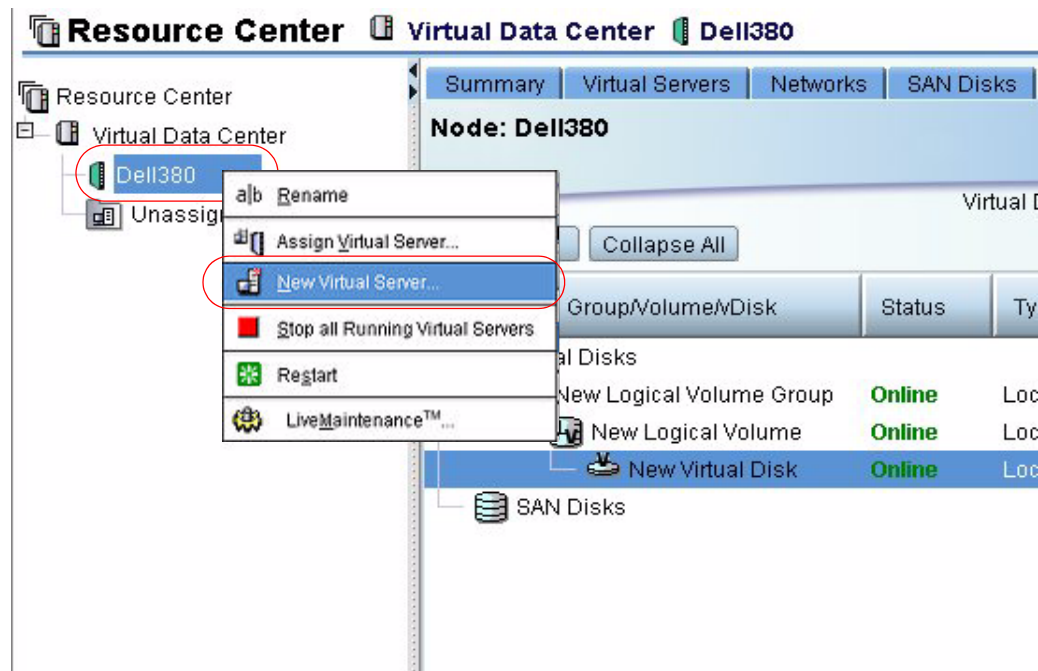


Create a Virtual Server Wizard

1. To access the Virtual Server Wizard, use one of the following methods:
 - Select the node you added earlier, then click the **Create New Virtual Server** icon on the application tool bar.



- Or, right click the node you added earlier, and select **New Virtual Server** from the pop-up list.



2. Name the virtual server. In this example, the virtual server has been named **Options**.

The screenshot shows the 'New Virtual Server Wizard' window. The 'Steps' pane on the left lists six steps, with '1. Select Virtual Server Configuration' highlighted. The main area is titled 'Select Virtual Server Configuration'. It contains a text box for 'New Virtual Server Name:' with the value 'Options' entered. Below this, a section titled 'Please specify how you would like to configure your Virtual Server (VS):' contains two radio button options. The first option is 'Create a basic Virtual Server', which is unselected. The second option is 'Create a fully configured Virtual Server (recommended)', which is selected. At the bottom of the window, there are four buttons: '< Prev', 'Next >', 'Finish', and 'Cancel'. The 'Next >' button is highlighted with a red circle.

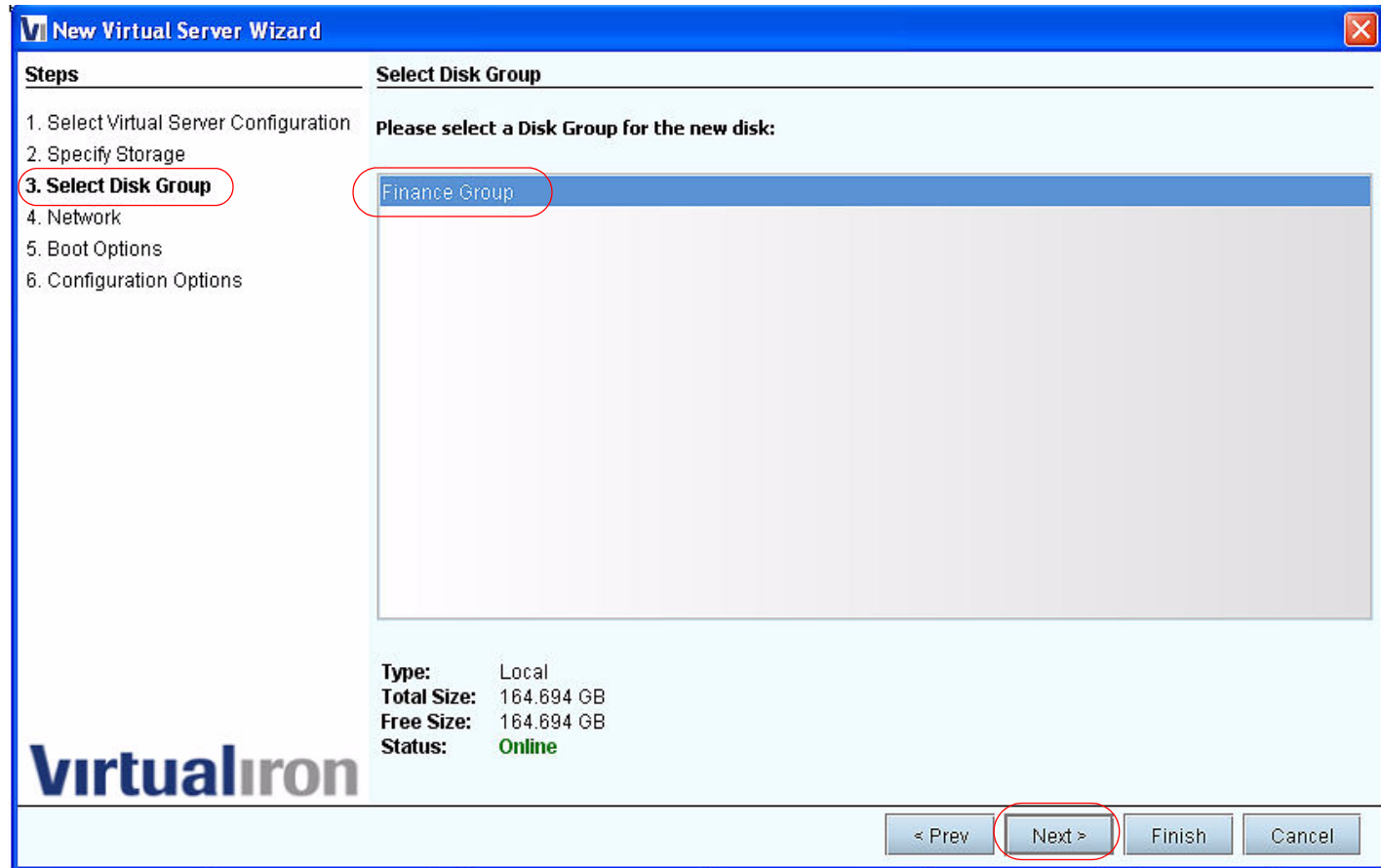
3. Select how you want to configure your virtual server from one of the two options. This example shows the default setting, **Create a fully configured Virtual Server**.
4. Click **Next**.

5. Specify the type of storage you want to use. If you choose **Create New Disk**, as in the example, enter a name for the new logical disk.
6. Select a disk size for the logical disk. **10 Gigabytes** is the default.

The screenshot shows the 'New Virtual Server Wizard' window with the title bar 'New Virtual Server Wizard'. The 'Steps' pane on the left lists six steps: 1. Select Virtual Server Configuration, 2. Specify Storage (highlighted with a red circle), 3. Select Disk Group, 4. Network, 5. Boot Options, and 6. Configuration Options. The main area is titled 'Specify Storage' and contains the text 'Please specify storage:'. There are three radio button options: 'Use existing Disk' (unselected), 'Create New Disk' (selected and highlighted with a red circle), and 'Do not specify storage' (unselected). Below the 'Create New Disk' option, there is a text field for 'Disk Name' containing 'New Logical Disk' and a 'Disk Size' spinner box set to '10' with the unit 'Gigabytes (Max = 164GB)' (the '10' is highlighted with a red circle). At the bottom right, there are four buttons: '< Prev', 'Next >' (highlighted with a red circle), 'Finish', and 'Cancel'. The VirtualIron logo is visible in the bottom left corner of the window.

7. Click **Next**.

8. Select the Disk Group in which the newly created logical disk will be placed.
9. Click **Next**.



Configure the Network Adapters

1. Select an Ethernet network from the pulldown menu.
2. Select a VNIC from the **Network Adapter** pulldown menu to choose a specific VNIC from the drop-down list.
3. Click **Next**.

The screenshot shows the 'New Virtual Server Wizard' window, specifically the 'Network' step. On the left, a 'Steps' pane lists six steps: 1. Select Virtual Server Configuration, 2. Specify Storage, 3. Select Disk Group, 4. Network (highlighted with a red circle), 5. Boot Options, and 6. Configuration Options. The main area is titled 'Network' and contains the instruction 'Please specify a network:'. Below this, there are two radio buttons: 'Specify a network' (selected and circled in red) and 'Do not specify network'. Under the selected option, there are three fields: 'Ethernet Network' with a dropdown menu showing 'FinanceNet', 'Network Adapter:' with a dropdown menu, and 'VNIC:' with a dropdown menu showing '00:0f:4b:00:00:18'. At the bottom right, there are four buttons: '< Prev', 'Next >' (circled in red), 'Finish', and 'Cancel'. The VirtualIron logo is visible in the bottom left corner of the window.

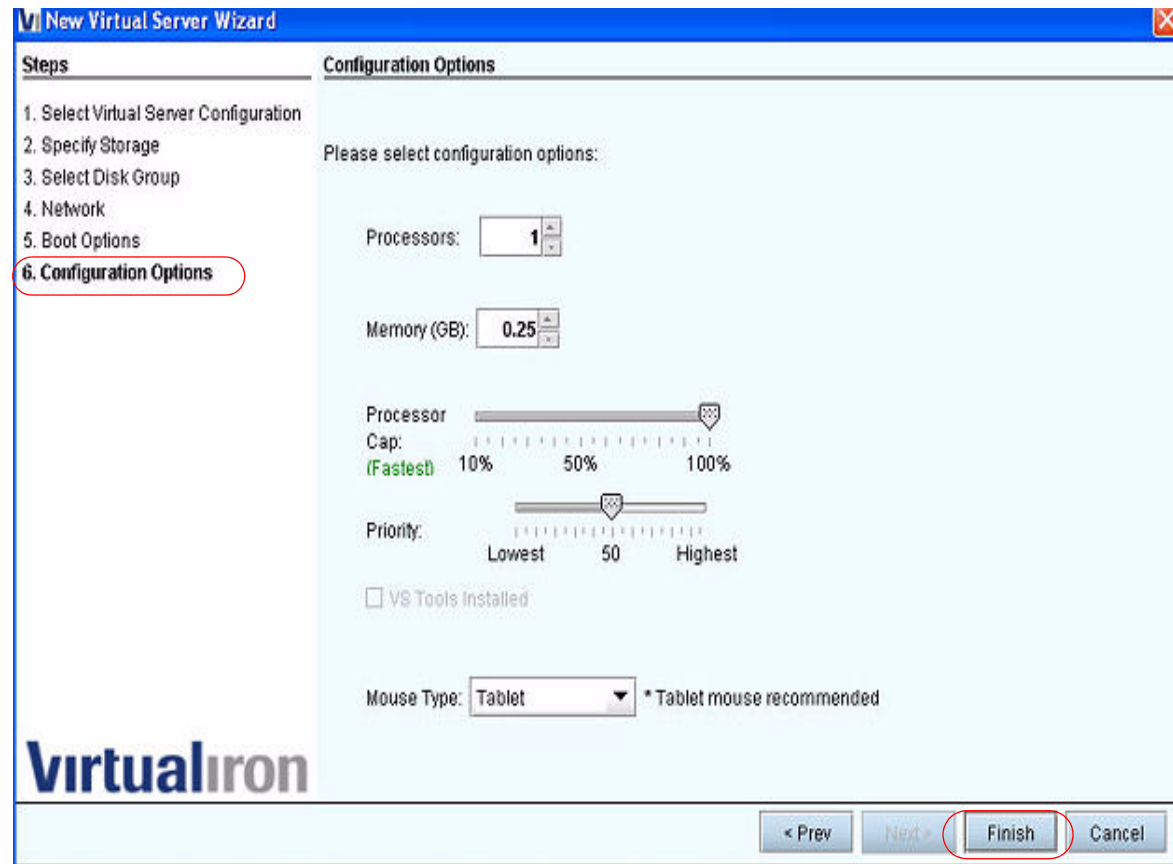
Specify Virtual Server Boot Options

1. In the **Boot Options** pane, select **Microsoft Windows XP** for Operating System. For this example, you will need a Microsoft Windows XP CD and license key later on.
2. Select **CD-ROM/DVD**. This selection tells the VS to boot from the CD ROM device on the node where the VS is located. Later you will install Windows onto a Logical Disk that you specify
3. Place the Windows installation CD into the node on which the virtual server will reside.
4. Click **Next**.

The screenshot shows the 'New Virtual Server Wizard' window, specifically the 'Boot Options' pane. On the left, a 'Steps' list shows six steps: 1. Select Virtual Server Configuration, 2. Specify Storage, 3. Select Disk Group, 4. Network, 5. Boot Options (highlighted with a red circle), and 6. Configuration Options. The main area is titled 'Boot Options' and contains the following fields: 'Operating System:' with a dropdown menu set to 'Microsoft Windows XP'; 'Specify Boot Device:' with three radio buttons: 'CD-ROM/DVD' (selected and circled in red), 'Disk', and 'Network (PXE) Boot'; and three dropdown menus to the right of the radio buttons, set to 'Node Local CD-ROM/DVD', 'New Logical Disk', and '00:0f:4b:00:05:d2'. At the bottom, there is a 'Network Image Mounts' section with two dropdown menus labeled 'CD-ROM:' and 'Floppy:'. The 'VirtualIron' logo is visible in the bottom left corner. At the bottom right, there are four buttons: '< Prev', 'Next >' (circled in red), 'Finish', and 'Cancel'.

Configure Virtual Server Processors, Memory, and Priority.

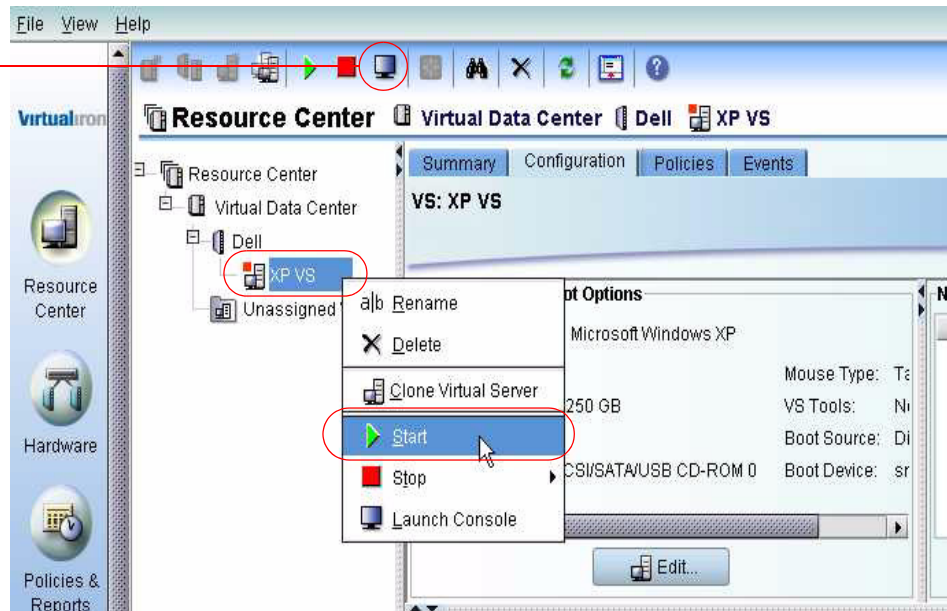
1. Accept the default values or specify new values for the processors, memory, and priority. For information on these settings, see the *Virtualization Manager Administrators Guide*.
2. Depending on the operating system you specified in the previous step, **Tablet**, **PS2**, or **USB** is set as the default **Mouse Type**.
3. Click **Finish** and wait for the operation to complete.



Start the VS Installation

1. Insert the appropriate installation media in the CD-ROM/DVD of your node. Select the virtual server and choose **Start** from the pop-up menu.

Open a
console
window



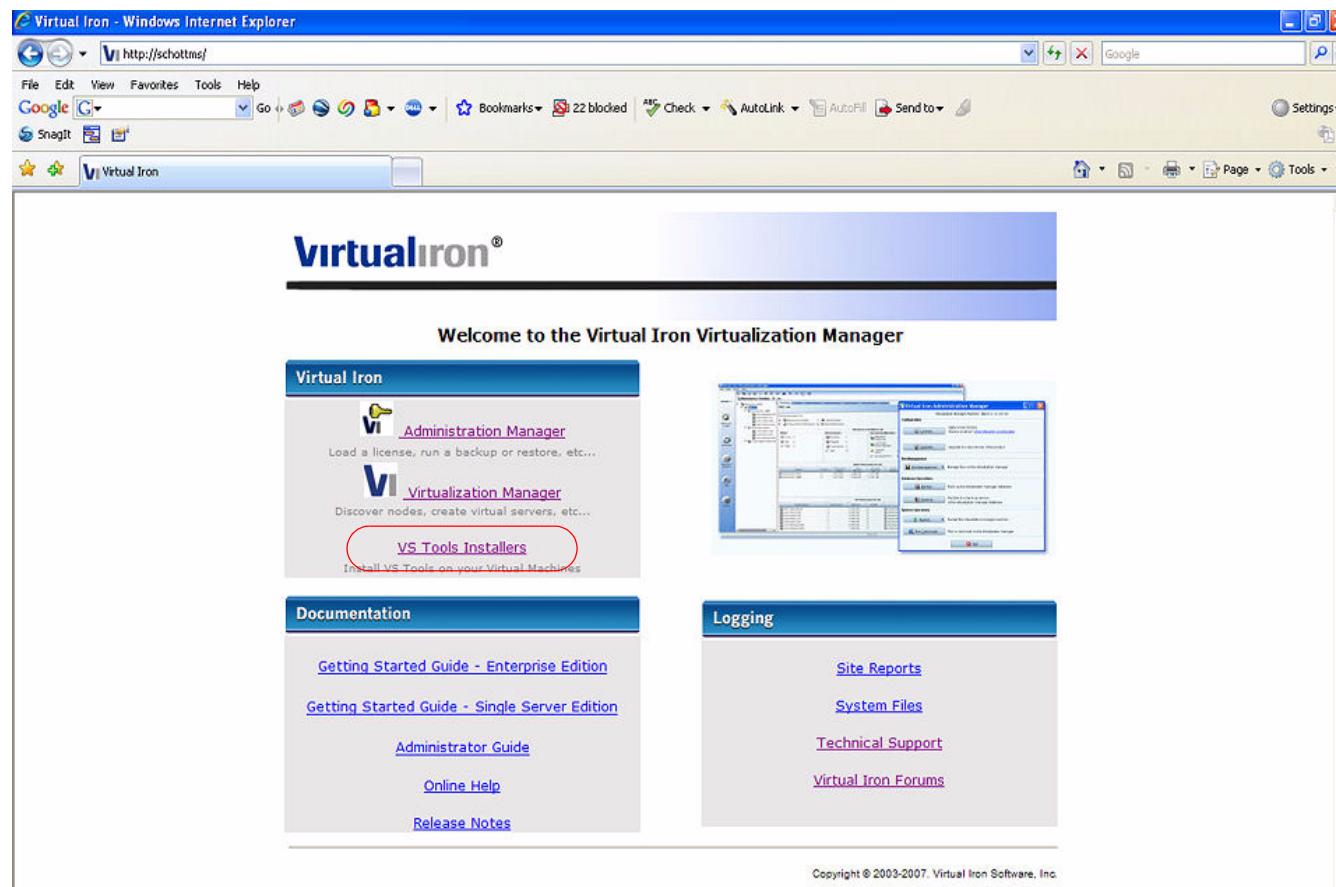
2. Open a console by clicking the console icon on the application toolbar. Windows XP boots in the console window. Follow the instructions to install Windows.



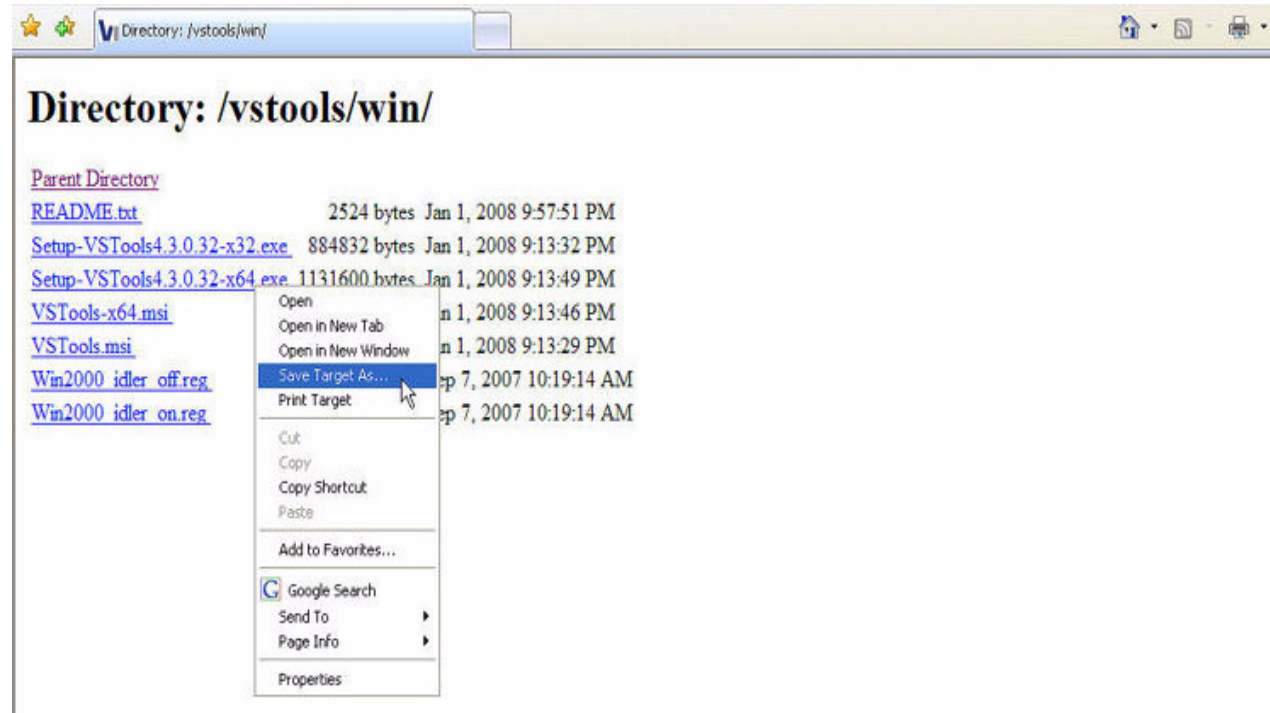
Install VS Tools on Windows® Virtual Servers

Virtual Iron® provides a set of VS Tools designed for use with Windows® OS virtual servers. The steps that follow explain how to install these tools after you have created a VS running Windows®. For automatic installation for Windows 2003 or Windows XP, see [VS Tools Silent Install](#).

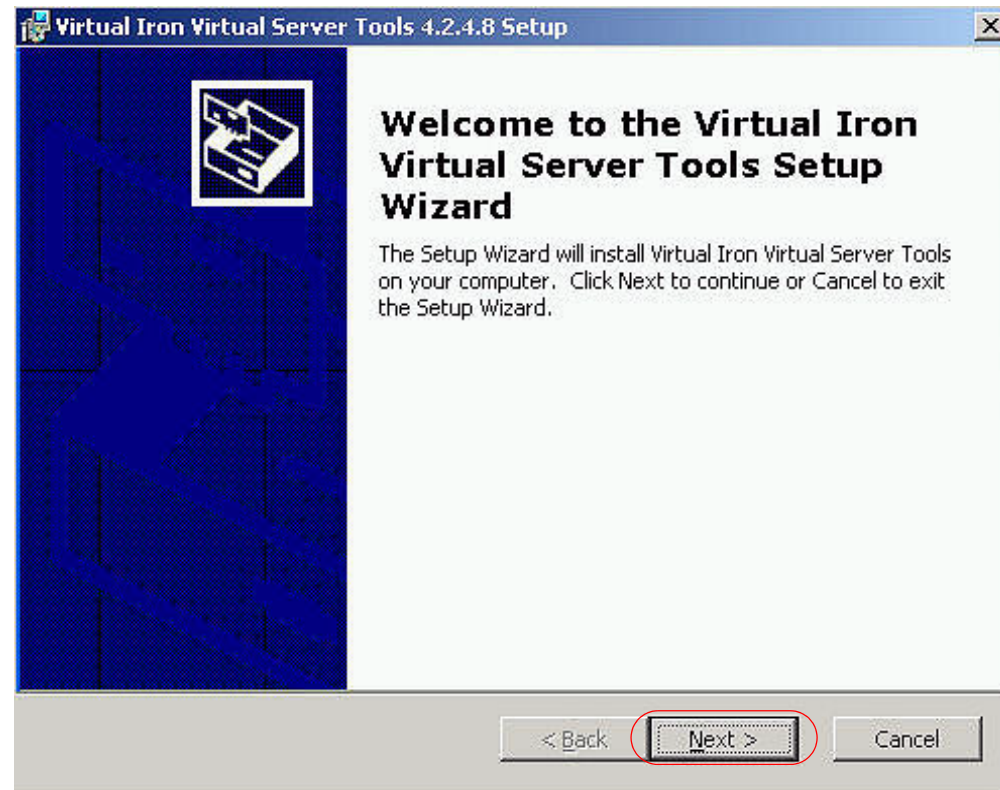
1. Following a successful installation, open a browser within the virtual server console window. Enter the IP address of the Virtualization Manager to open the Virtualization Manager window.
2. Select the **VS Tools Installers** link.



3. Open a browser within the virtual server. Enter the IP address of the Virtual Iron Administration Manager and browse to the [/vstools/win](#) directory.
4. Right-click the 32- or 64-bit **Setup-VSTools-4.x.x-xx.exe** file for your system, and save it to your desktop or some other location with the **Save Target As...** menu option. Double click this file.



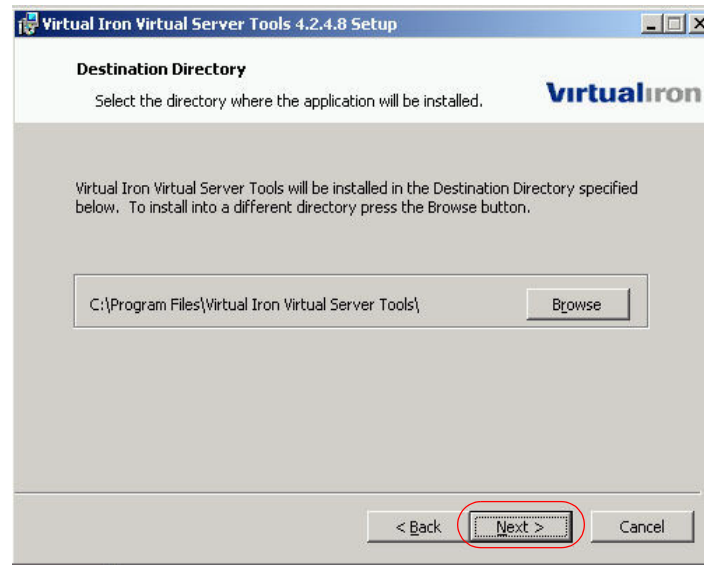
5. Launch the installer that you saved to your local system and follow the prompts in the **Virtual Server Tools Setup Wizard**.



ard.

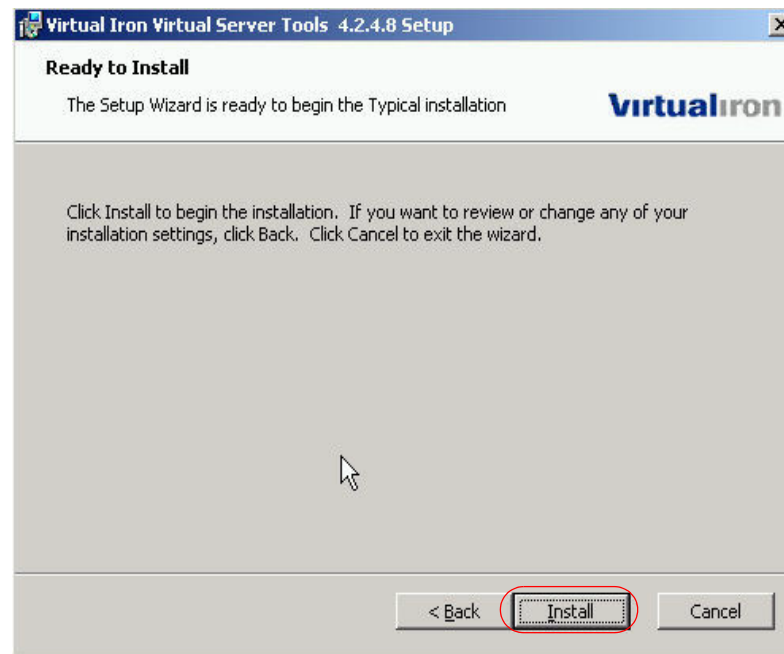
6. Click **Next**.

7. Specify where you want to install the drivers.



8. Click **Next**.

9. Click **Install**. A status bar appears while files are copied.

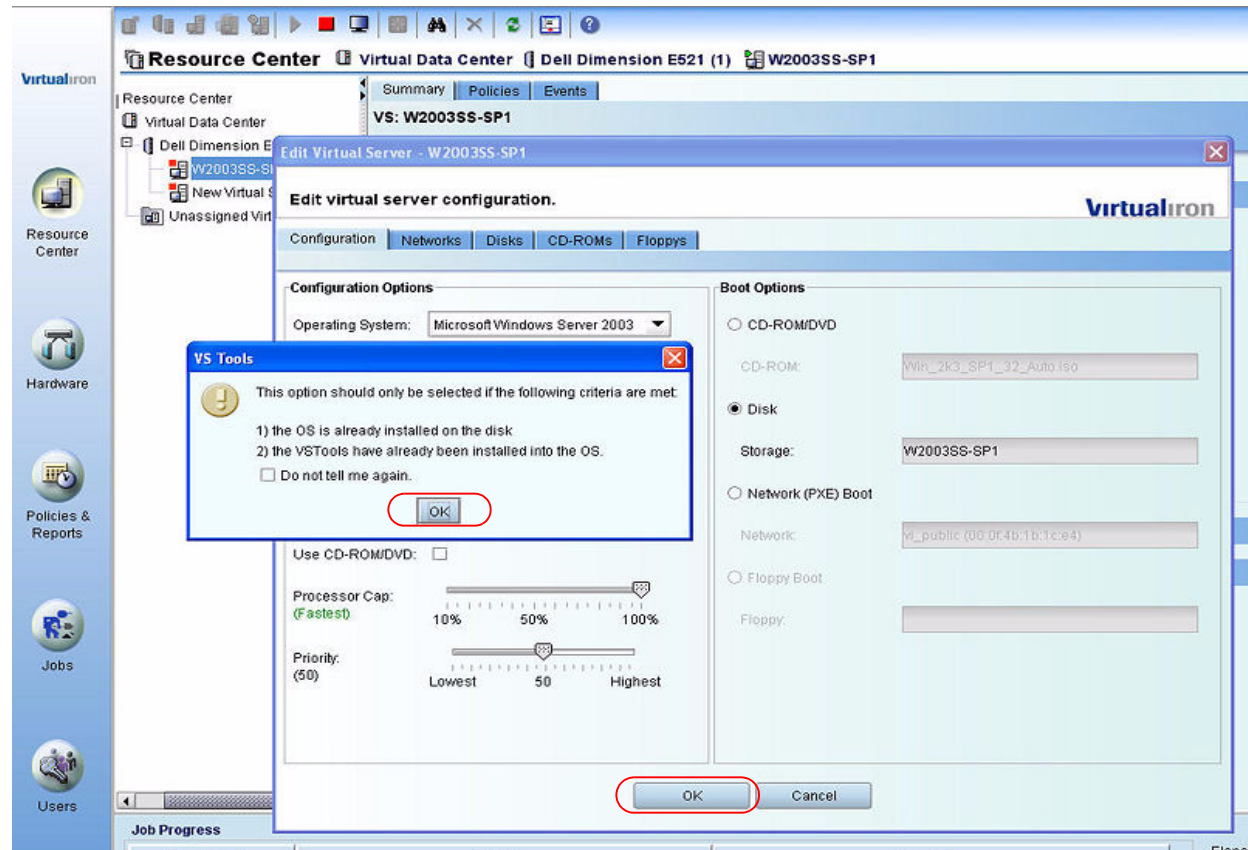


10. When the installer prompts you to shut down your virtual server, click **Yes**.

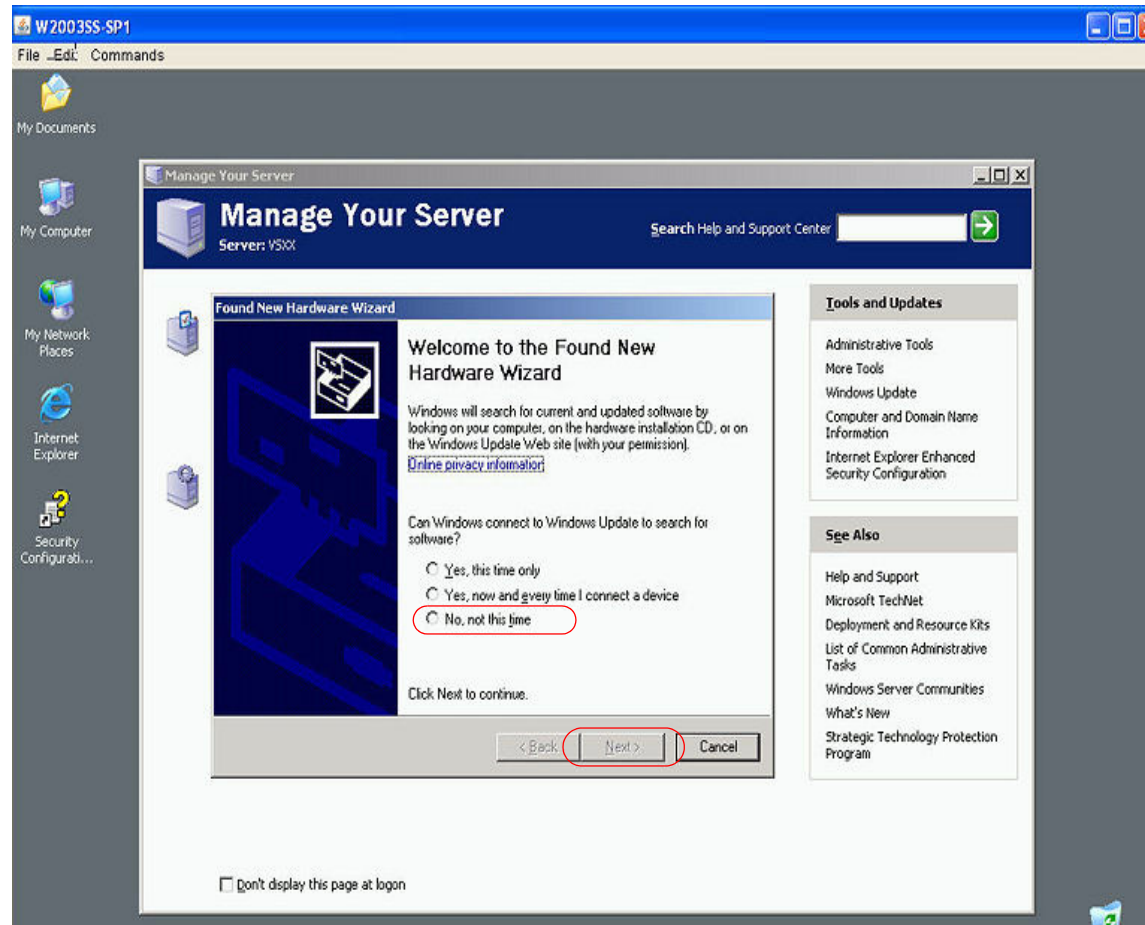
11. Click **Finish**.



12. After the virtual server stops, open the VS Configuration window, and check **VS Tools Installed**. Select **Disk** in the **Boot Options** section of the window. Click **OK**.

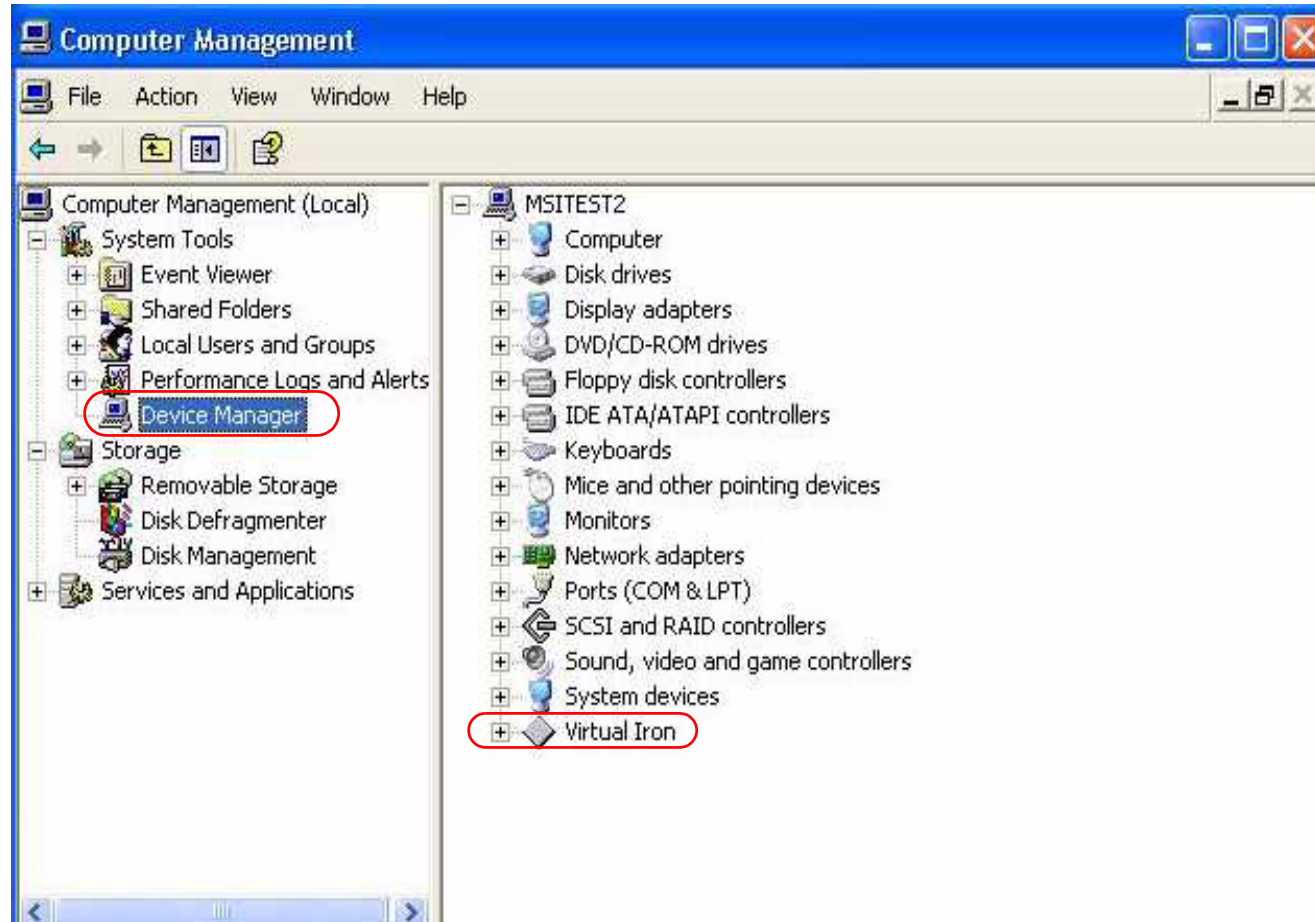


13. **Start** the virtual server. During boot, Windows® discovers the Virtual Iron® Ethernet driver. In the Found New Hardware Wizard, do the following:
- A. Select **No Not this time** when prompted to look for a driver update. Click **Next**.



- B. Check **Install Software Automatically**. Click **Next**.
- C. Windows begins installing the network driver.

4. This completes installation of the Virtual Iron® drivers, which appear under **Device Manager**.



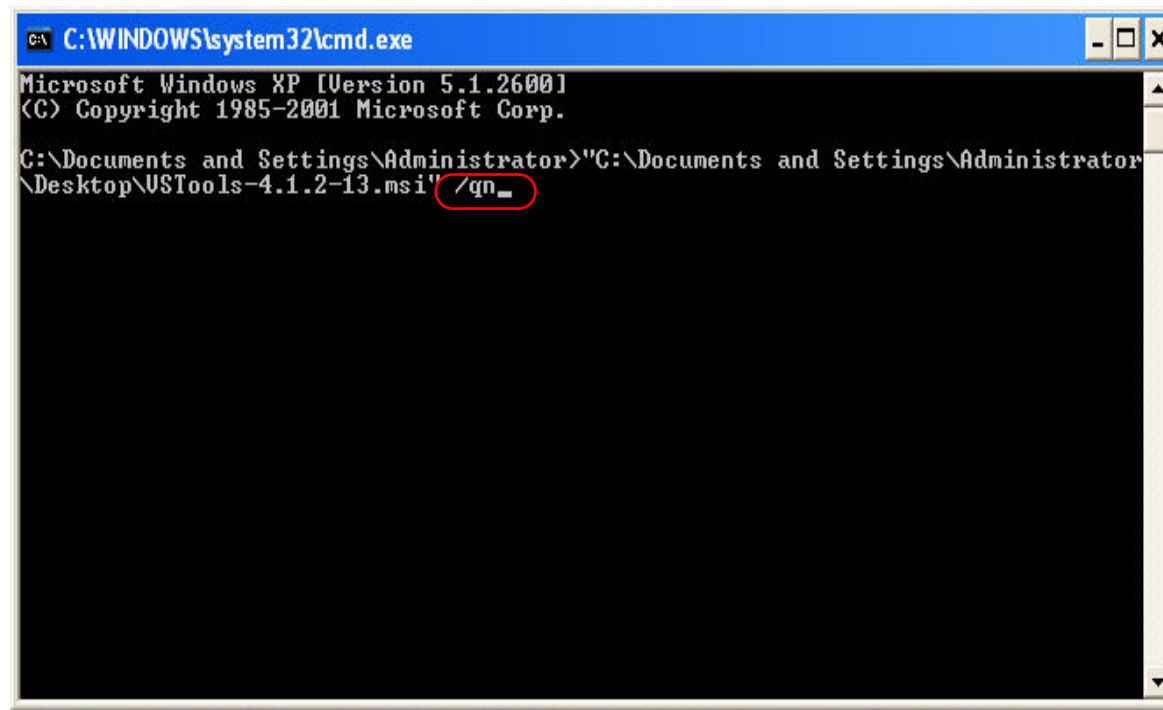
5. Restart the virtual server guest operating system.

VS Tools Silent Install

The following procedure automatically installs VS Tools for Windows XP and Windows 2003.

1. In Windows **Start** menu, select **Run**.
2. In the **Run** window, type **cmd**. Press **Enter**.
3. In the command console, click the **VSTools-4.x.x.x-xx.msi** icon and drag it into the console window.
4. The command string is automatically entered. Press the space bar.
5. In the console window, type **/qn**, as shown. Press **Enter**.

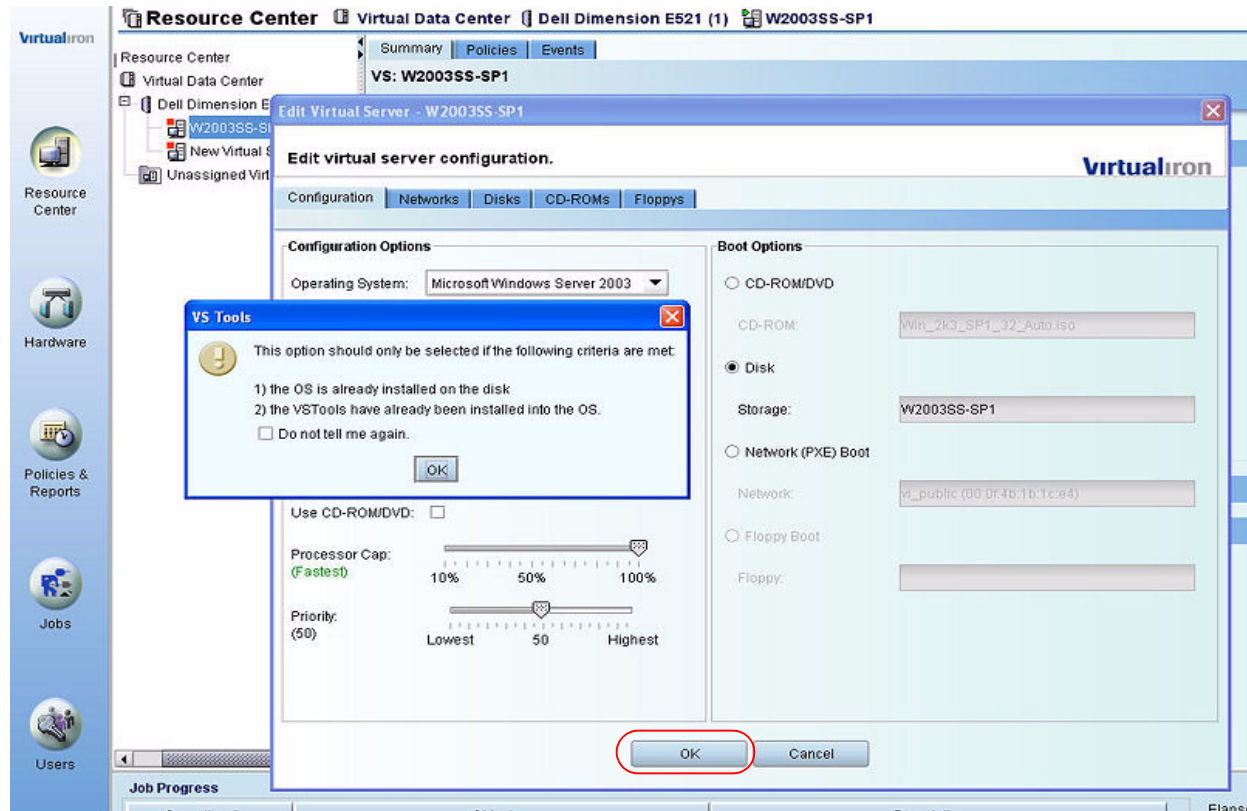
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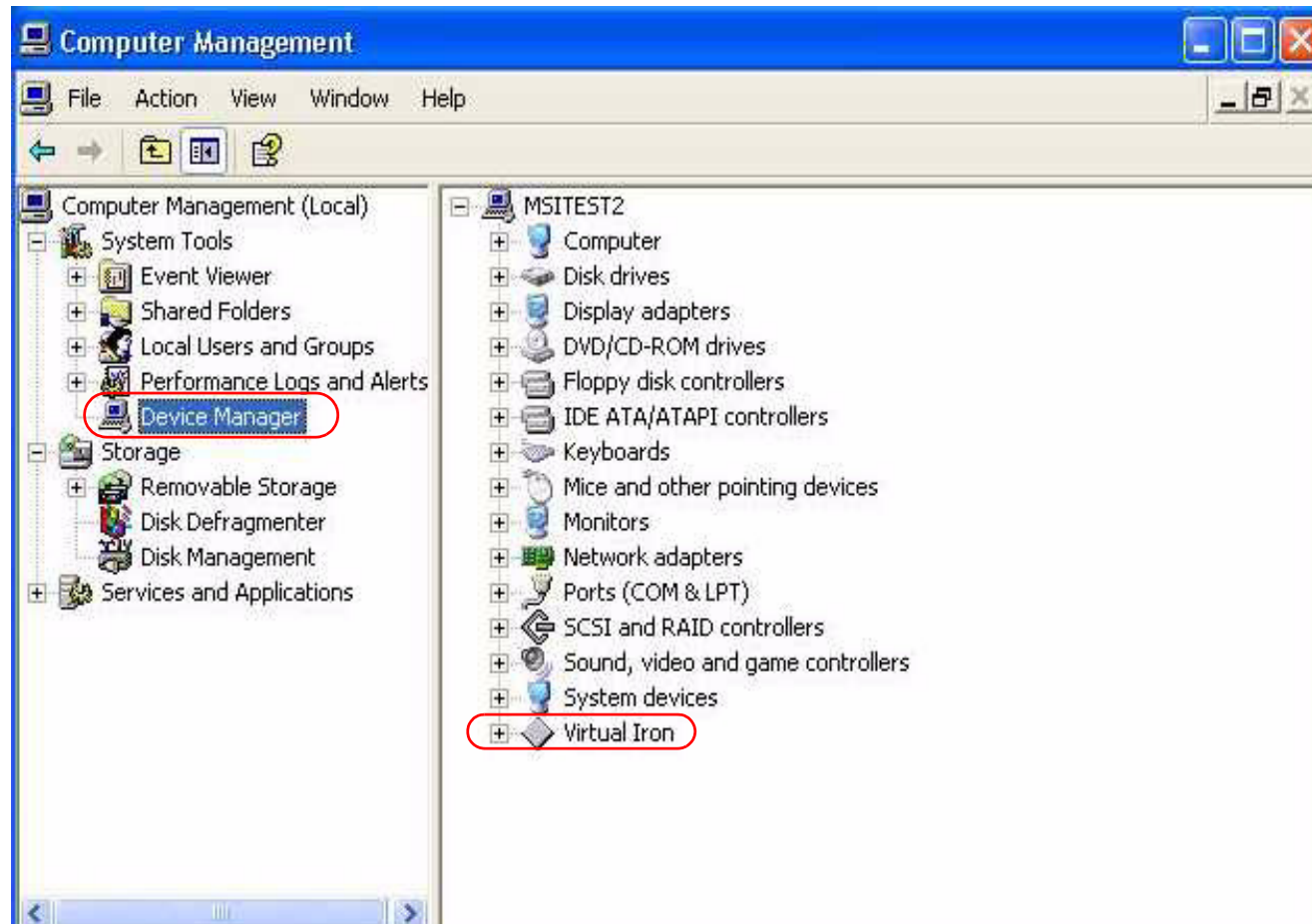
```
C:\WINDOWS\system32\cmd.exe
Microsoft Windows XP [Version 5.1.2600]
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C:\Documents and Settings\Administrator>"C:\Documents and Settings\Administrator\
\Desktop\VSTools-4.1.2-13.msi" /qn_
```

6. In Virtualization Manager, perform a **Hard Reset** on the virtual server. Open the VS Configuration window, and check **VS Tools installed**. Click **OK**.



7. This completes installation of the Virtual Iron® drivers, which appear under **Device Manager**.



Special Considerations for Windows 2000 OS

When a Windows 2000 system is idle, it will appear to be consuming no CPU resources. Task Manager will show that the CPU is idle. However, Windows 2000 is actually executing instructions in its idle loop. These cycles will not be available for use by other virtual servers on the same node. In order to get Windows 2000 to act like the other more recent Windows operating systems and actually relinquish the CPUs when idle, do the following:

1. Make sure VS Tools are loaded and running in the Windows 2000 virtual server.
2. Open a browser within the Windows 2000 virtual server, and navigate to the Virtualization Manager's IP address. You will see the Virtual Iron Virtualization Manager home page.
3. Click the **VS Tools Installers** link. Click the **win /link**.
4. Click the **Win2000_idler_on.reg** link and download that file to the virtual server. Do the same for **Win2000_idler_off.reg**.
5. Double click **Win2000_idler_on.reg** to read the idler information into the Windows Registry.
6. On the Windows 2000 desktop. Right click the **My Computer** icon and select **Manage**.
7. Navigate to **Services** and **Applications > Services**.
8. Find the Virtual Iron Service and right-click **Restart**.

A side-effect of the idler is that it will appear that the **ViStats.exe** process is consuming all idle cycles in the virtual server. In fact, it only appears this way; it is actually releasing control to the underlying virtualization services so that idle cycles can be used by other virtual servers.

Turn the idler off by double-clicking the **Win2000_idler_off.reg** file and then restarting the Virtual Iron Service. Virtual Iron recommends that the idler is turned on.