StarWind Software
Technical Reference Series

StarWind iSCSI Target for Microsoft Windows: Using StarWind with VMware ESX Server

Tuesday, March 31, 2009

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If you have questions about installing or using this software, check this and other documents first - you will find answers to most of your questions here or there. If you need further assistance, please contact us.

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Guide

Introduction

Virtualized hardware reduces the TCO for many applications. Using StarWind iSCSI Target for Windows will further enhance these virtualized resources.
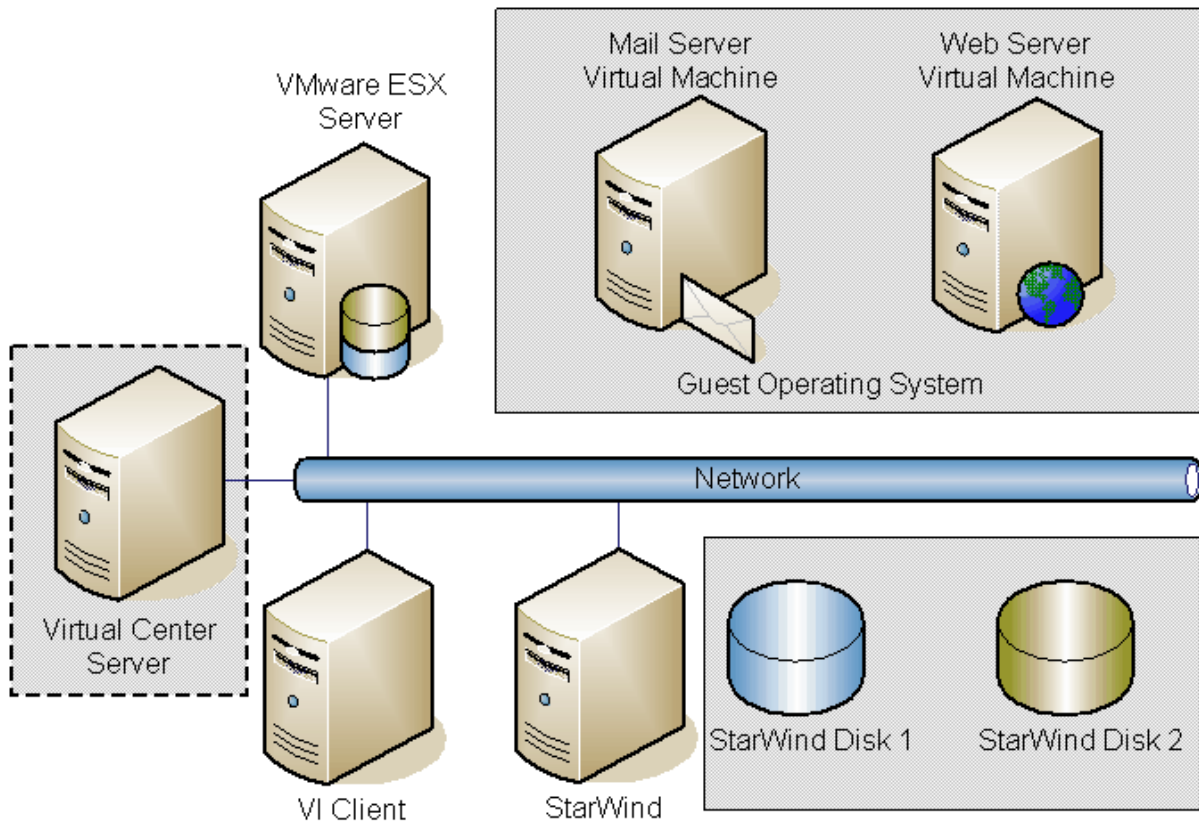
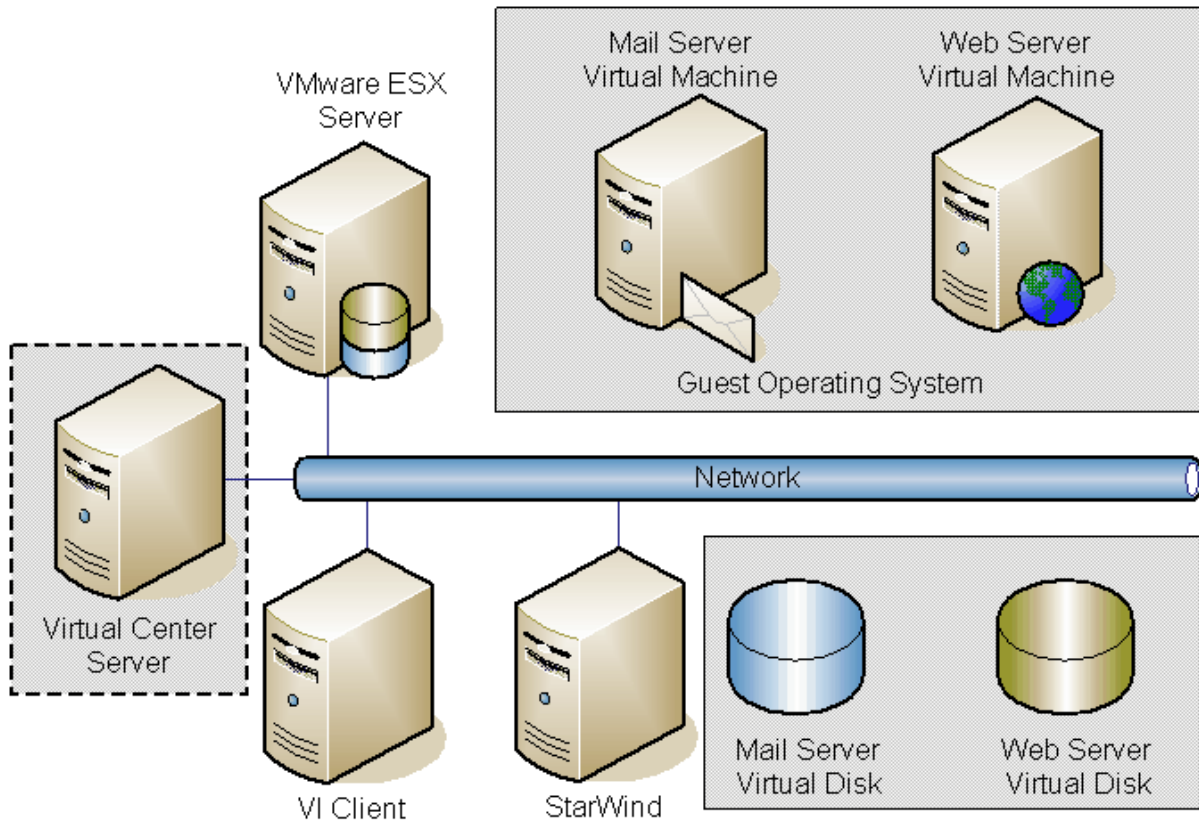Figure 1. Virtual Machines stored on StarWind Disks

Figure 2. StarWind providing iSCSI Storage to Virtual Machines
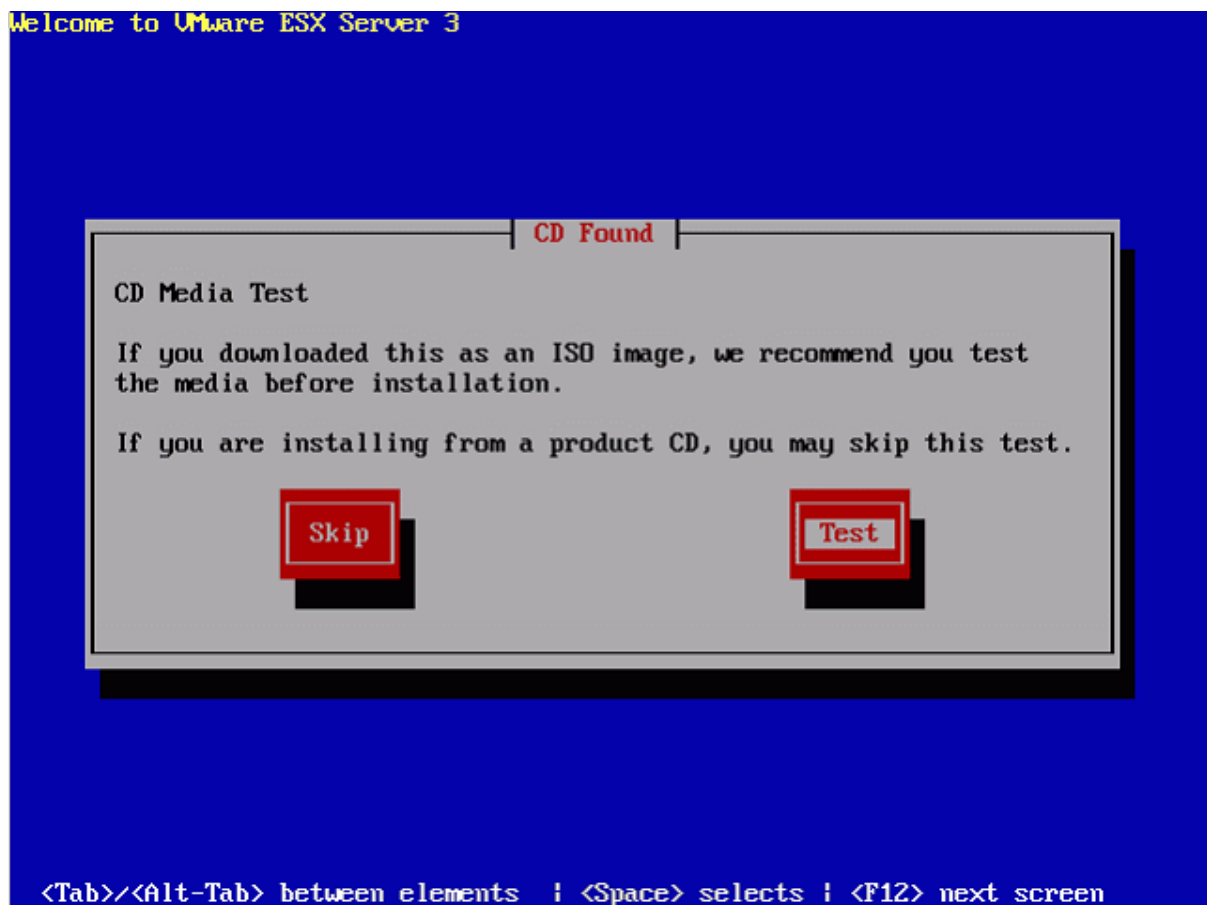
Installing ESX Server

This section provides a brief introduction to installation of VMware's ESX Server. Please note that this does not replace installation instructions provided by VMware and are provided as a guide to using StarWind for Windows with ESX Server.

ESX Server must first be installed on to a suitable machine that will be used to create the virtual environment. Obtain the media from VMware; install it on to the host machine booting the machine with the CD or DVD media.
Follow the instructions on the installation wizard to complete the process.
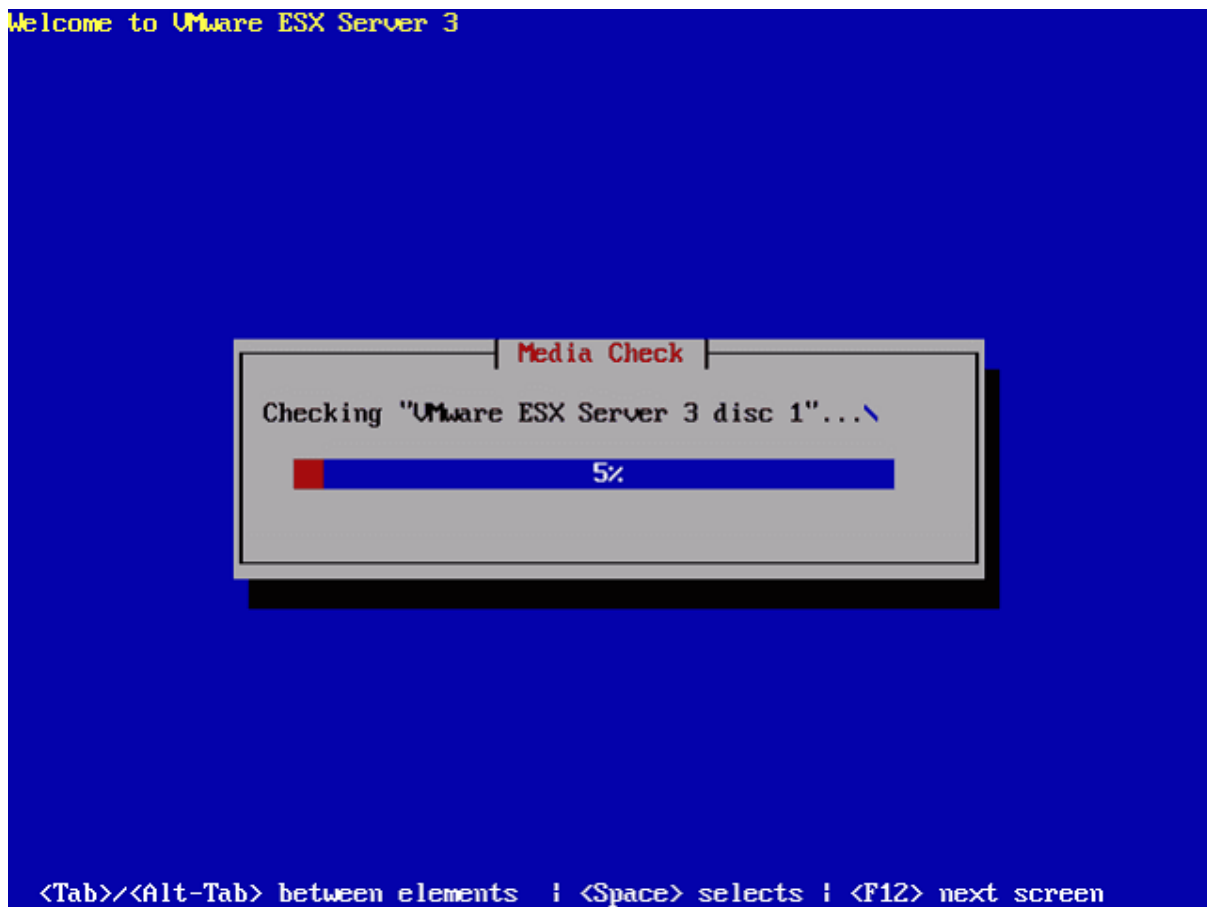

Hit **Enter** to start installation.
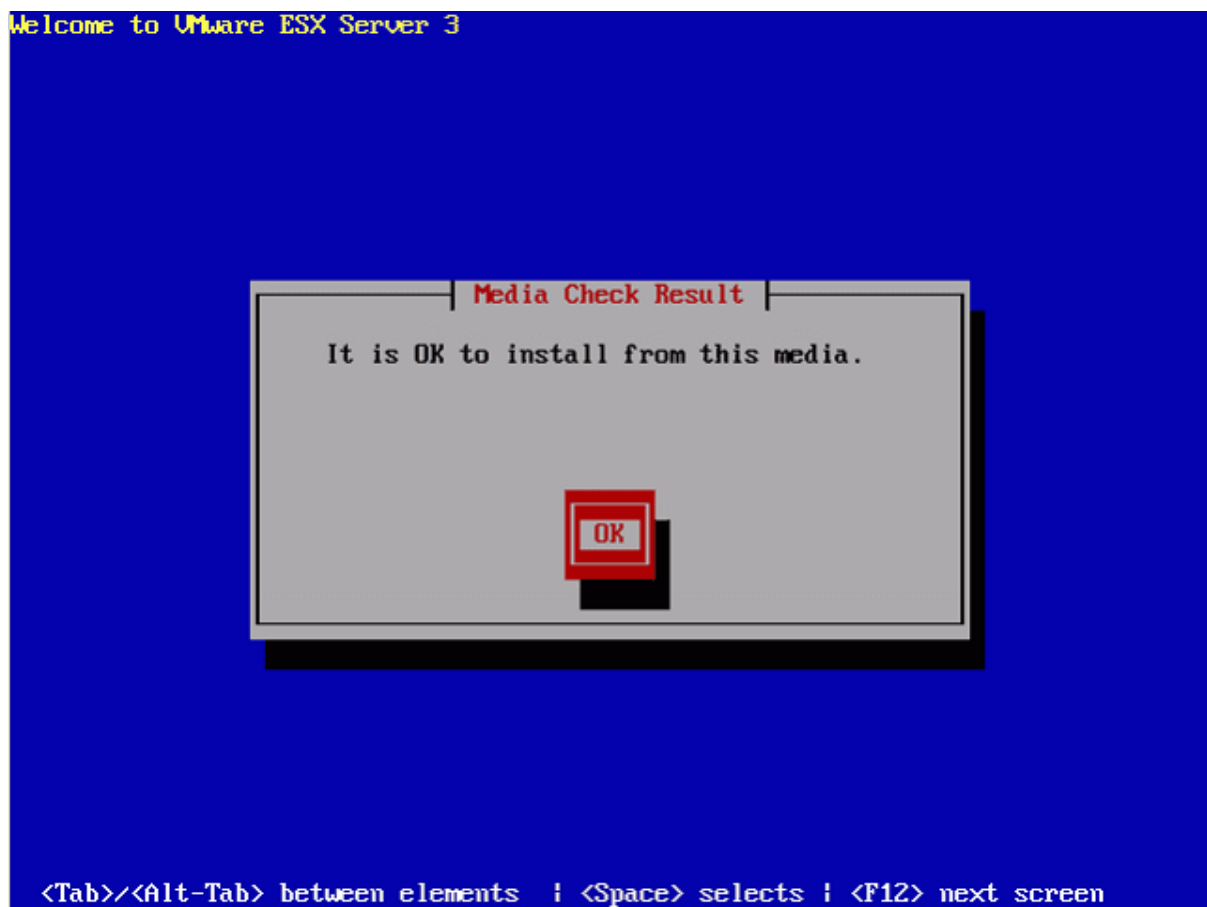
CD Found dialog appears.

Press the **Test** button to start media test or **Skip** button to skip this test.

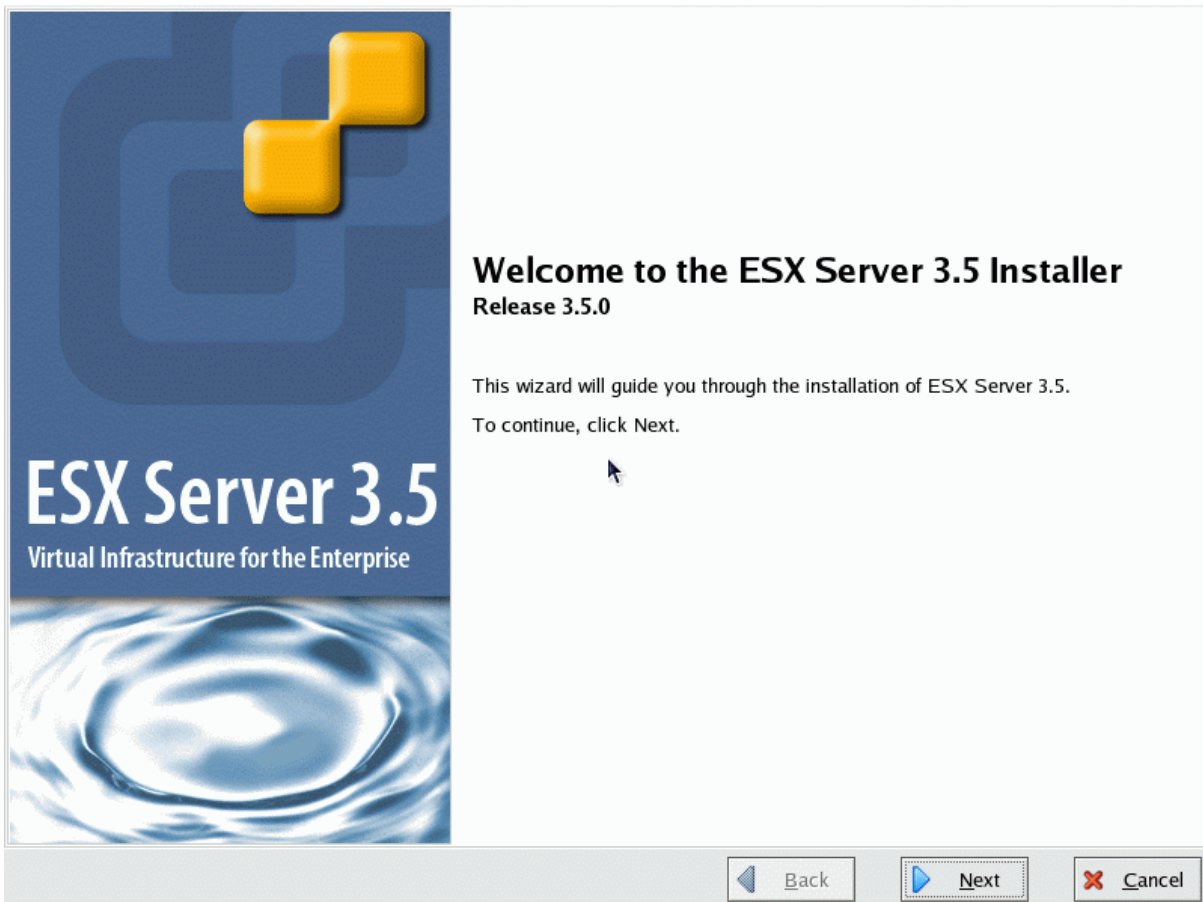The progress of the Media test is shown.

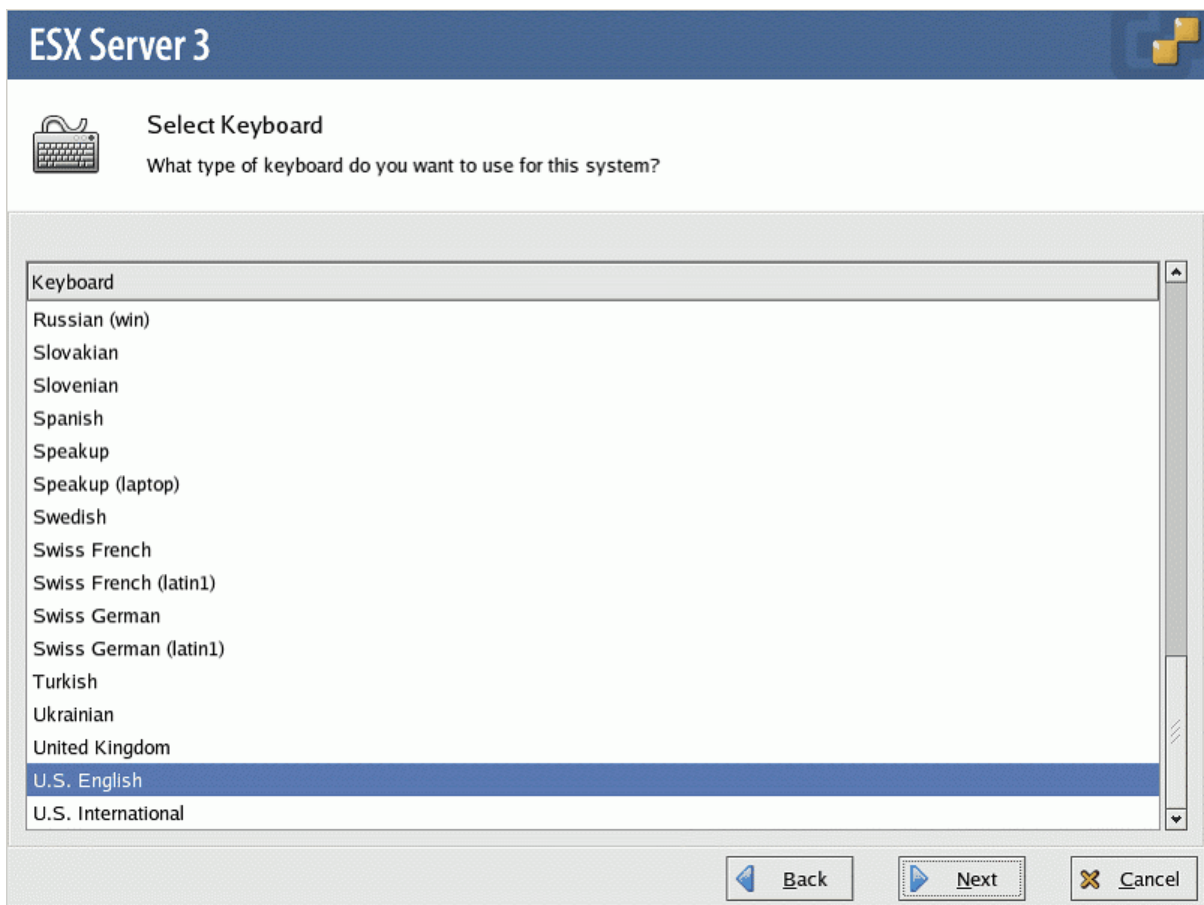Media Check Result dialog appears.

Press the **OK** button to continue.

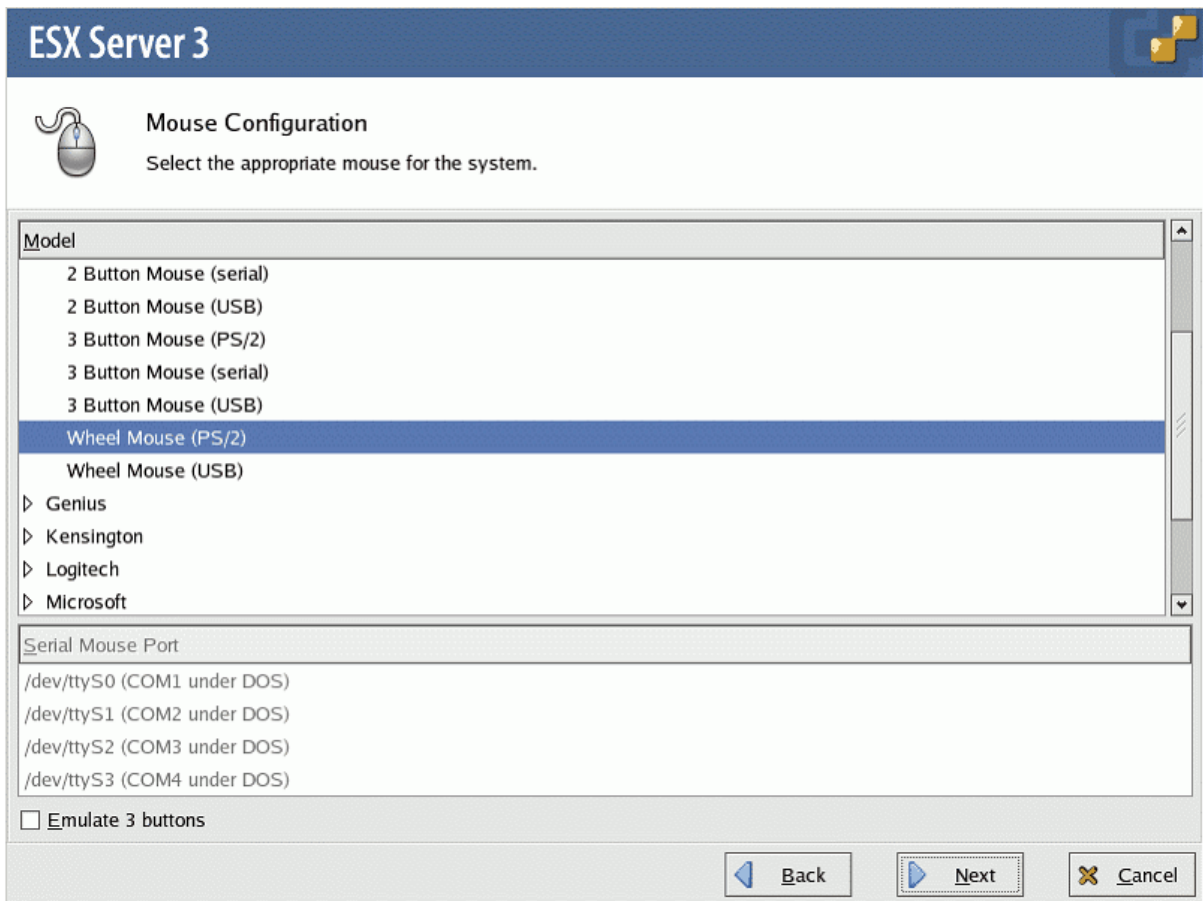The ESX Server 3 Installer Wizard will be shown.

Press the **Next** button to continue.
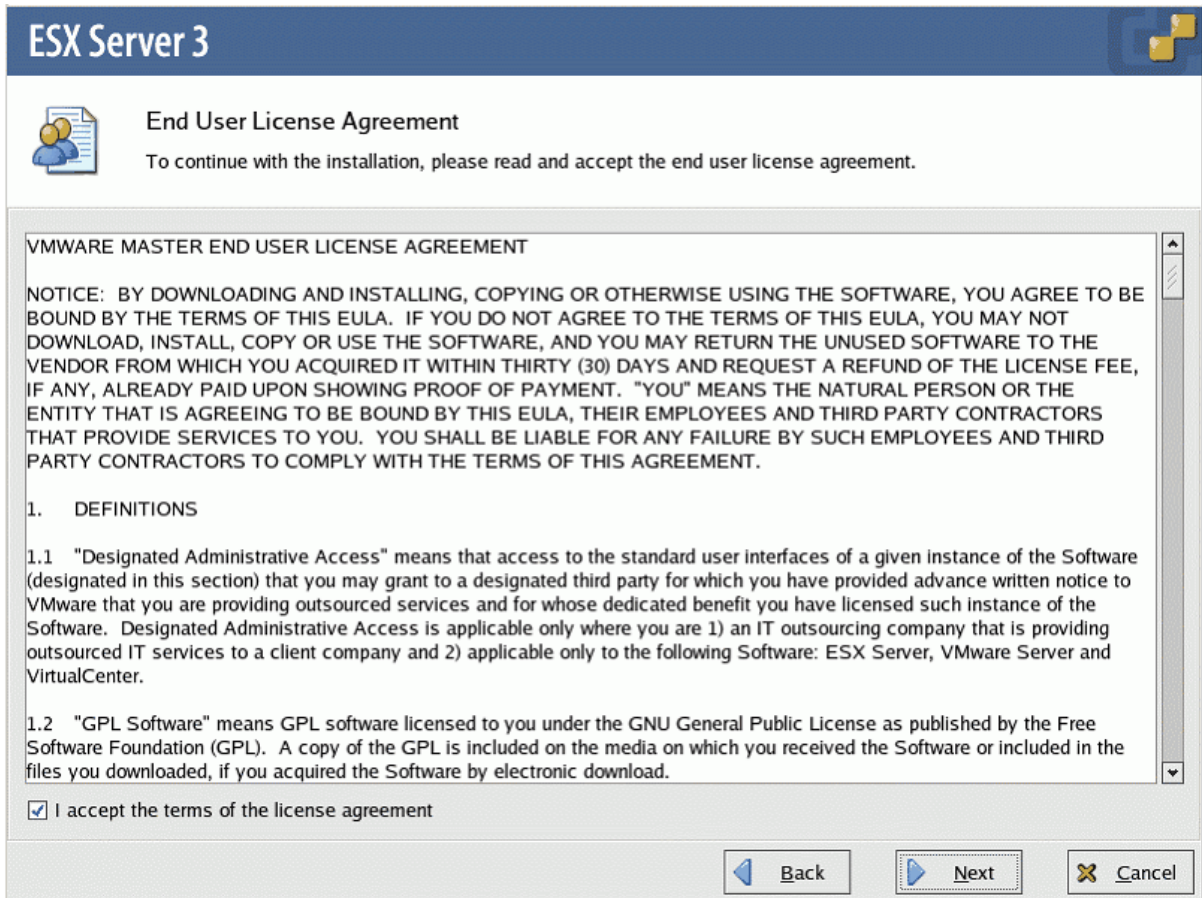
Select the appropriate keyboard.

Press the **Next** button to continue.

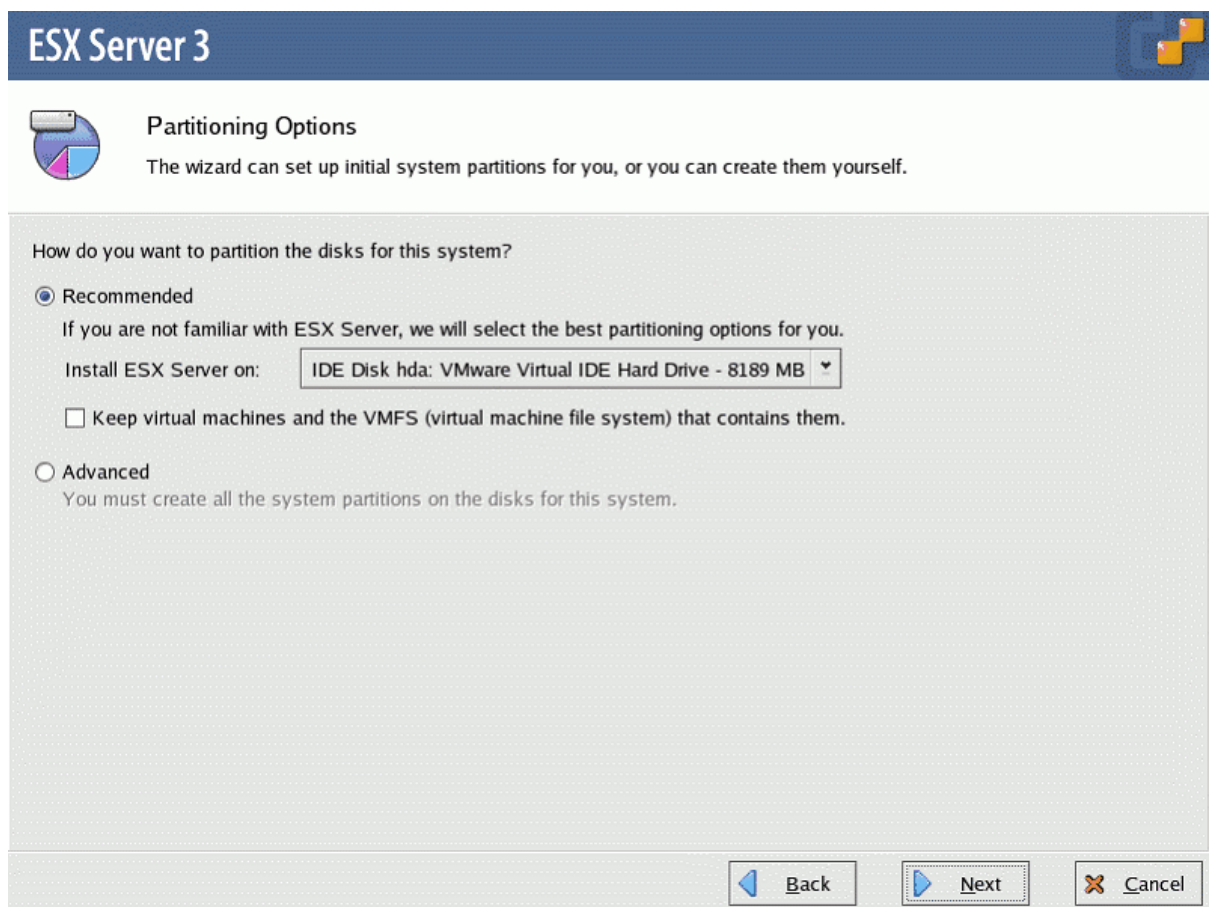Select the appropriate mouse type.

Press the **Next** button to continue.

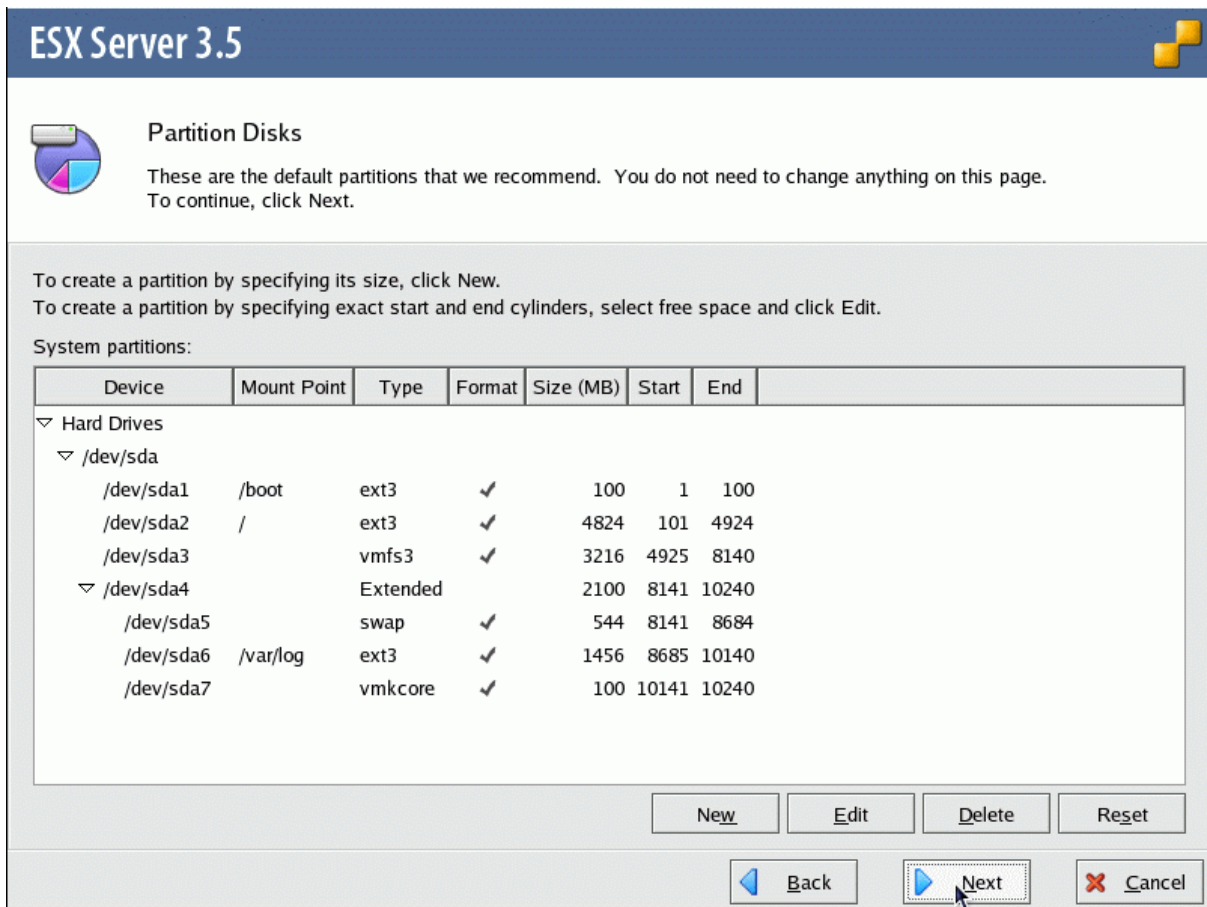End User License Agreement dialog appears.

Accept the terms of the license agreement and press the **Next** button to continue the installation.

Set Partitioning options.

Press the **Next** button to continue.

Optionally you can edit the default partitioning settings.

ESX Server 3.5

Partition Disks

These are the default partitions that we recommend. You do not need to change anything on this page.
To continue, click Next.

To create a partition by specifying its size, click New.
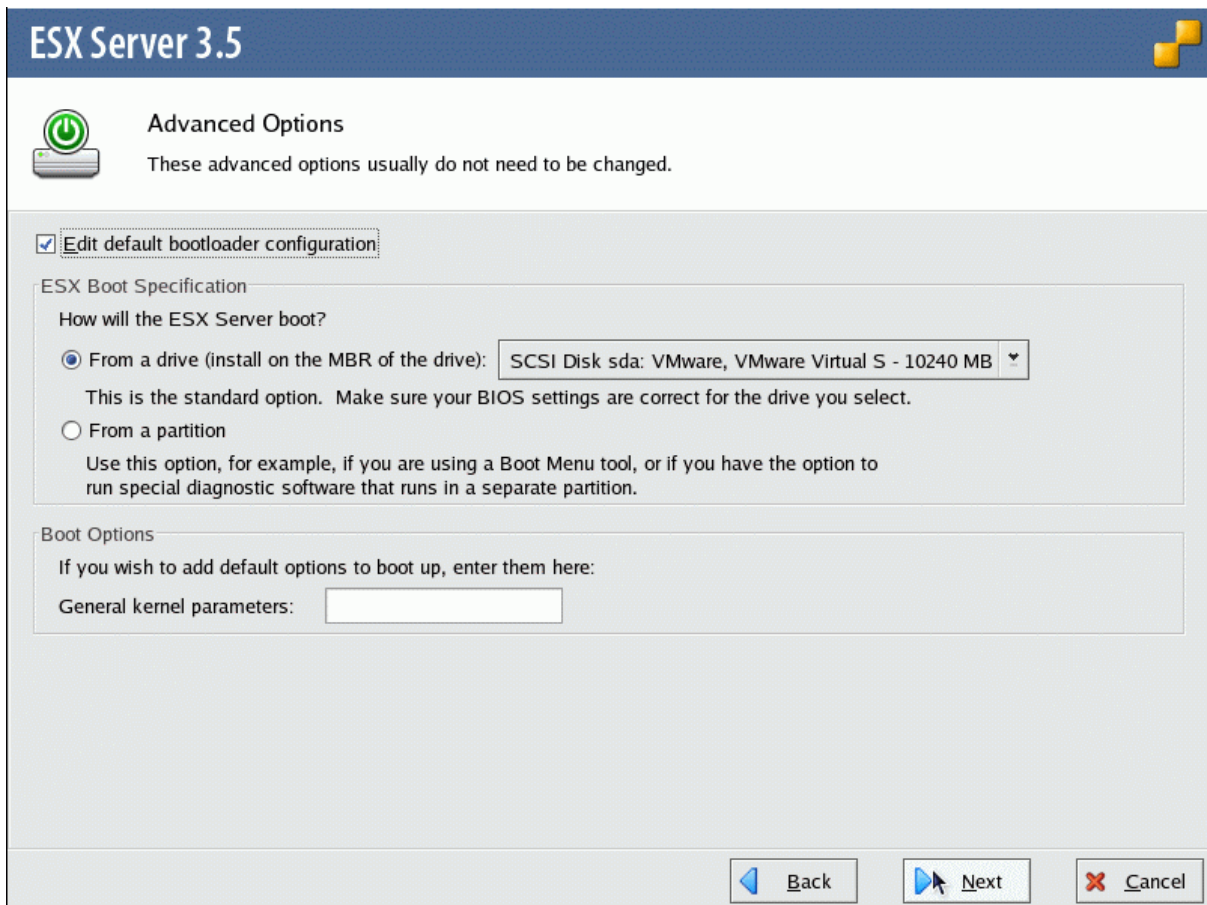To create a partition by specifying exact start and end cylinders, select free space and click Edit.

System partitions:

Device	Mount Point	Type	Format	Size (MB)	Start	End	
▽ Hard Drives							
▽ /dev/sda							
/dev/sda1	/boot	ext3	✓	100	1	100	
/dev/sda2	/	ext3	✓	4824	101	4924	
/dev/sda3		vmfs3	✓	3216	4925	8140	
▽ /dev/sda4		Extended		2100	8141	10240	
/dev/sda5		swap	✓	544	8141	8684	
/dev/sda6	/var/log	ext3	✓	1456	8685	10140	
/dev/sda7		vmkcore	✓	100	10141	10240	

New   Edit   Delete   Reset

◁ Back   ▷ Next   ✖ Cancel

Press the **Next** button to continue.
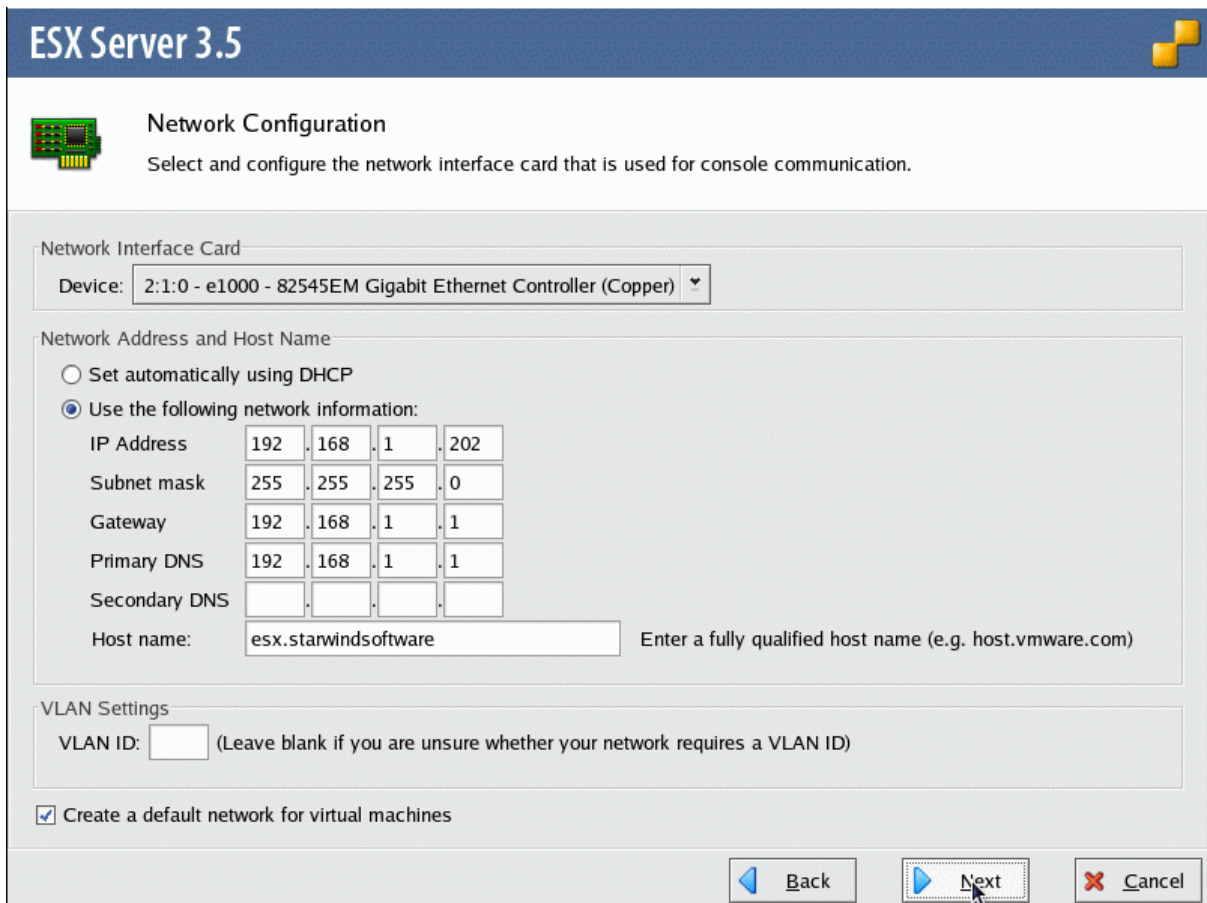
Specify the boot options.

ESX Server 3.5

Advanced Options
These advanced options usually do not need to be changed.

☑ Edit default bootloader configuration

ESX Boot Specification

How will the ESX Server boot?

◉ From a drive (install on the MBR of the drive): SCSI Disk sda: VMware, VMware Virtual S - 10240 MB

This is the standard option. Make sure your BIOS settings are correct for the drive you select.

○ From a partition

Use this option, for example, if you are using a Boot Menu tool, or if you have the option to run special diagnostic software that runs in a separate partition.

Boot Options

If you wish to add default options to boot up, enter them here:

General kernel parameters:

◀ Back   ▶ Next   ✖ Cancel

Press the **Next** button to continue.

On the Network Configuration dialog, specify the network options.

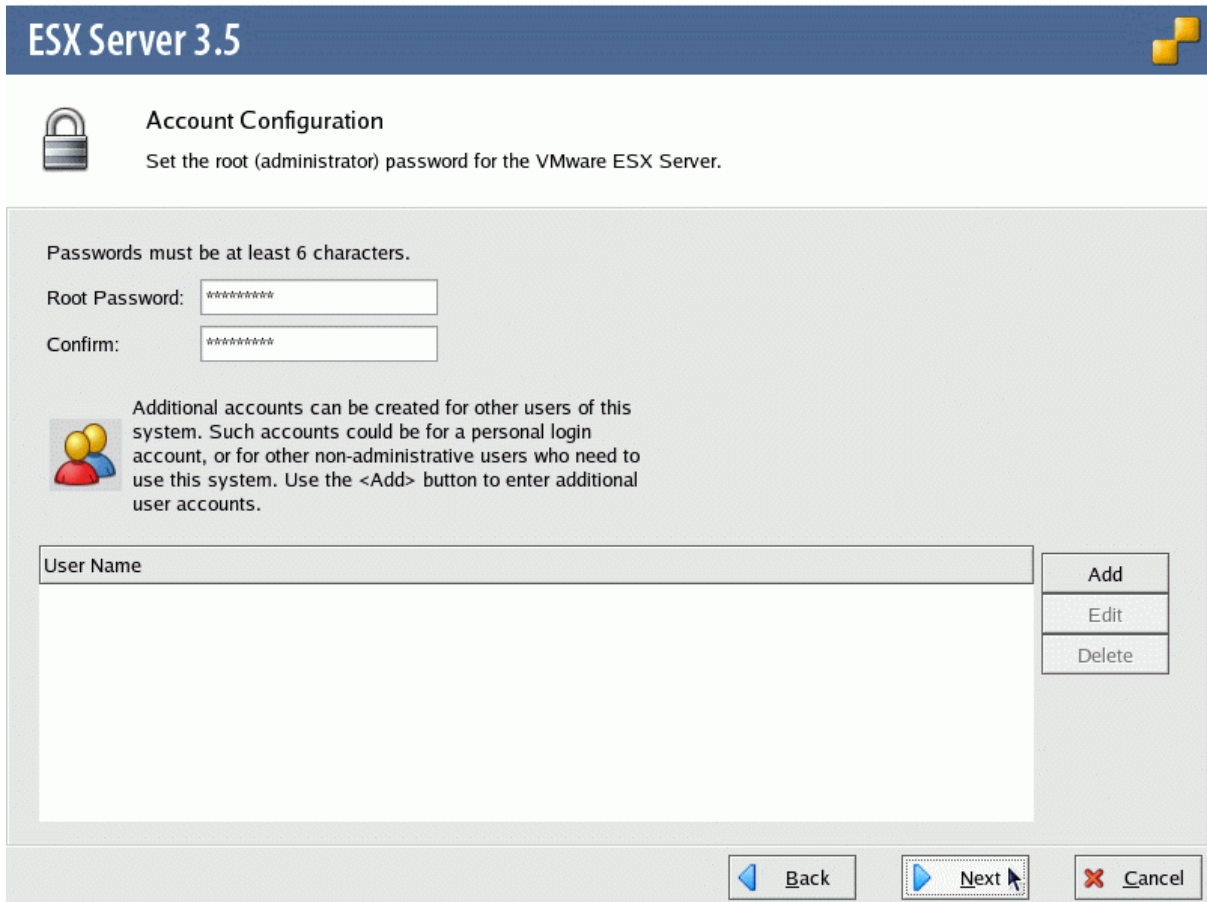Press the **Next** button to continue.

Select the time zone.

Press the **Next** button to continue.

Set the root password for the ESX Server.

Press the **Next** button to continue.

Check that all of the parameters are correct. Press the **Back** button if changes are required.
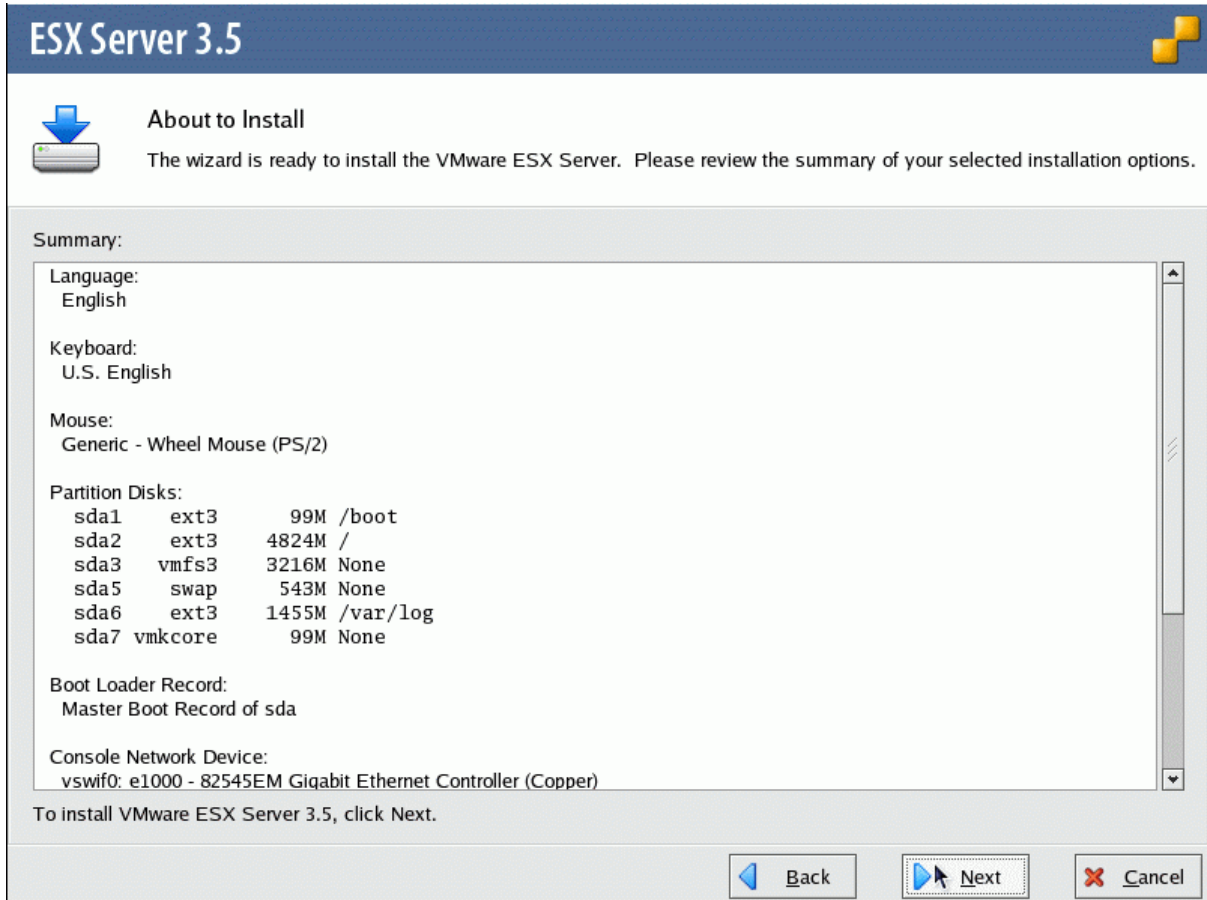
Press the **Next** button to begin installation.

After the installation process you will see a window confirming the installation is finished.

The installation is complete. After rebooting you can download and install Virtual Infrastructure Client and configure the ESX Server.

Configuring StarWind Server

The StarWind configuration is detailed in this section. Before you start please ensure that StarWind is installed on the host that is providing storage services to the VMware ESX Server.

VMware's ESX Server needs a disk to store the settings of the virtual machine and a virtual hard drive to install a guest OS. With StarWind you can share the virtual disk for storing virtual machines.

Storage Info

Image File device

The **Image File** device creates a virtual iSCSI drive using the space of a physical hard disk on the machine where it is created. The resulting iSCSI storage will have the same structure as a physical hard disk.

When the **Image File** device is mounted (using an iSCSI Initiator), it will appear as standard hard disk to the computer on which it is mounted. All standard disk operations such as formatting, using a custom file system, copy data to/ from it and install applications, etc. are fully supported.

There are some limitations for the **Image File** device usage:

As a virtual hard disk uses the space of your physical hard disk, the available volume is limited by the free space on that hard drive. If the size of the image file is close to the remaining free space of the hard disk on which it is store, you will not be able to store additional files on that disk.

You cannot change the volume of the image file whilst it is online (users are connected to it). However, you can extend the volume.

Preparing Storage

Launch the StarWind console **Start -> All Programs -> StarWind Software -> StarWind -> StarWind**. Whenever the **StarWind Console** is running, its icon will appear in the system tray.
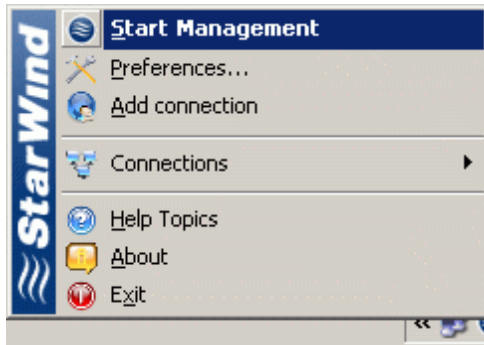

The **StarWind Console** may be accessed by either double clicking the icon using the left mouse button or single click with the right mouse button and selecting the Start Management menu item from the pop-up menu.

From the **Connections** tree select the computer you wish to provision the iSCSI target device on. By default, there is a single item in the tree (localhost) which represents the local computer using a loopback connection.
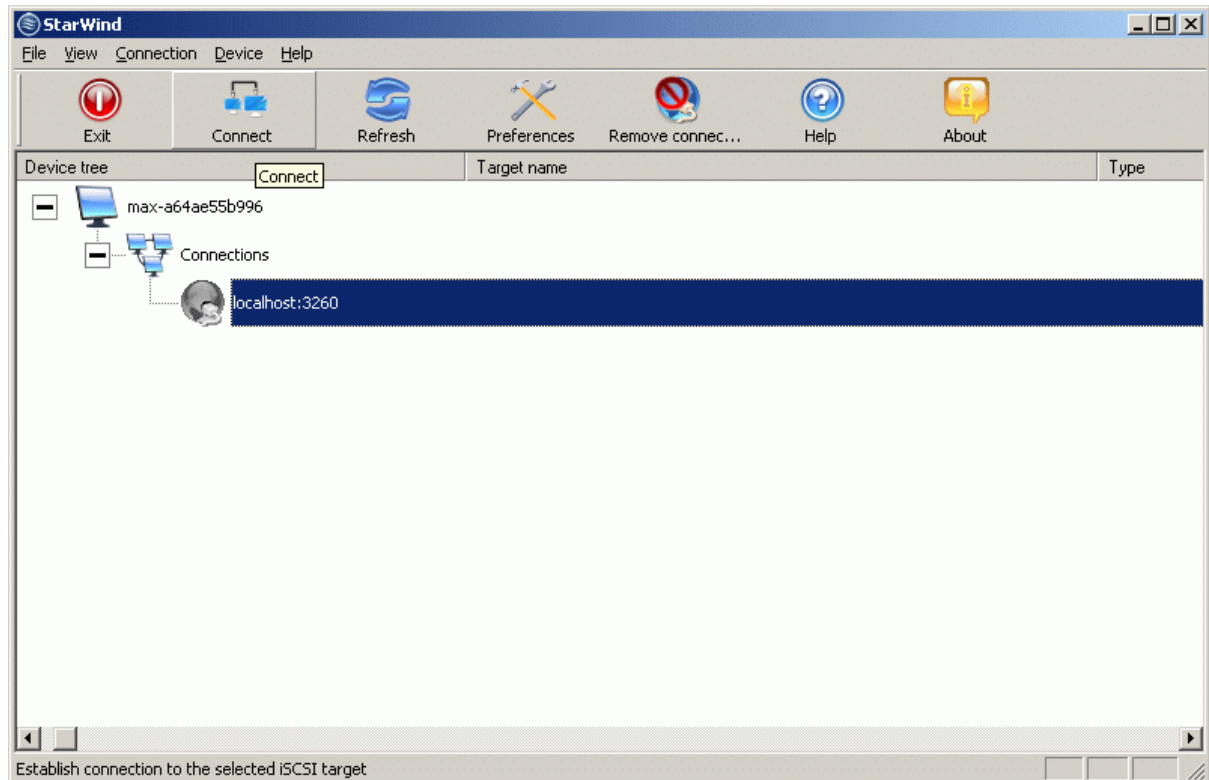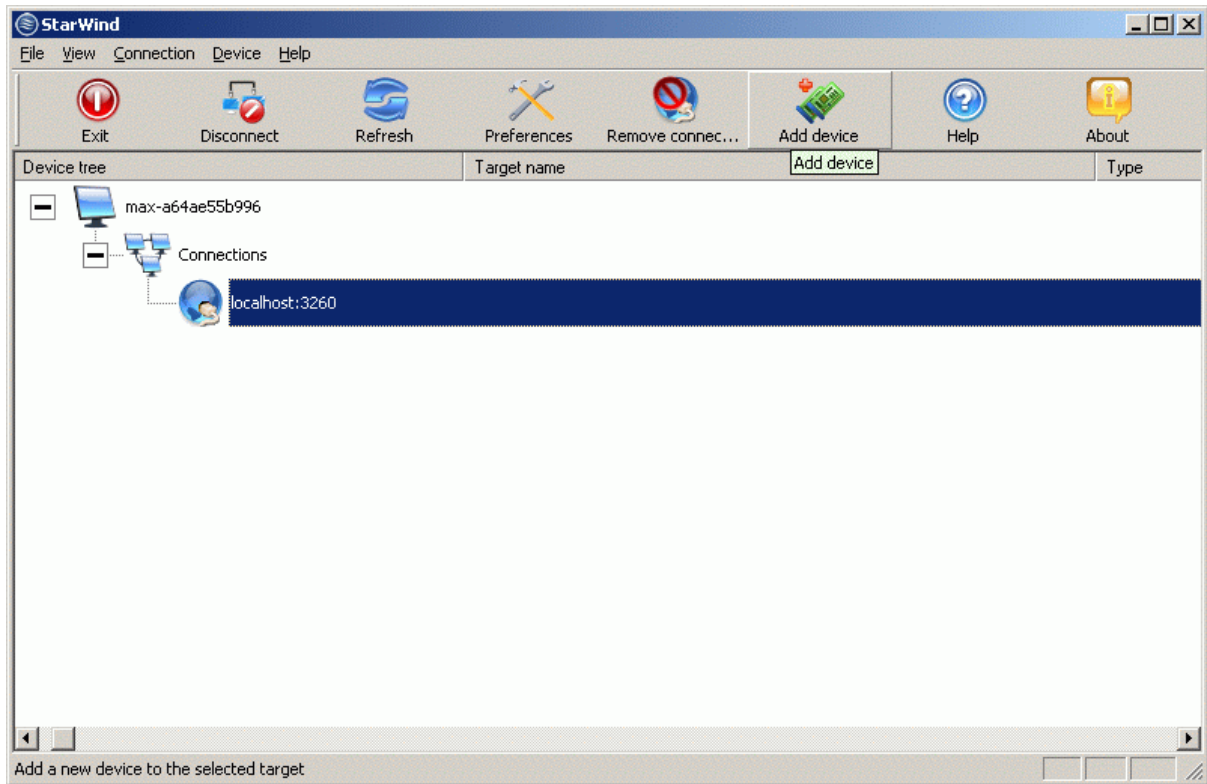

Press **Connect** button to continue.

The Login dialog is presented (shown below) requiring values for user name and password. The default values configured during installation are test, test.
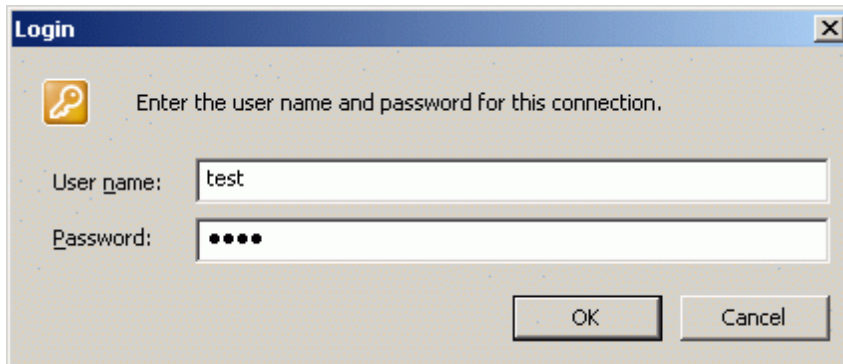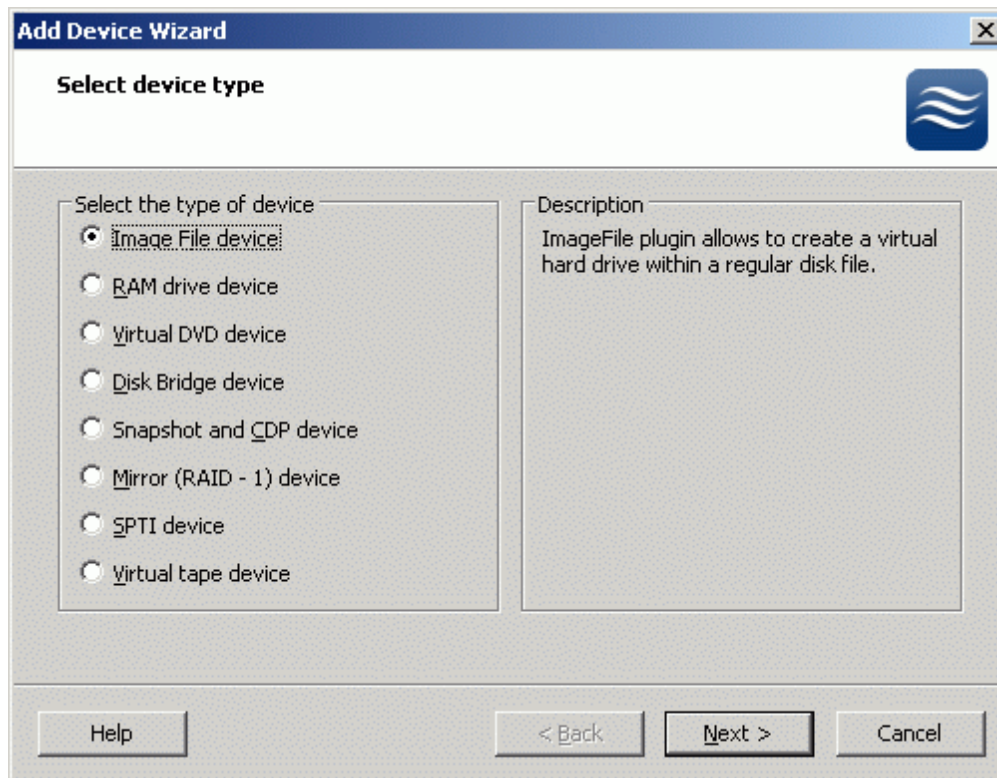

Press the **OK** button to continue.

When the connection is established the window will look like the one below.

Press **Add Device** button to continue.

In the Add Device Wizard that appears, select **Image File device**. A brief description of each option is displayed in the right area of the wizard window and context sensitive help is also available by pressing the **Help** button.
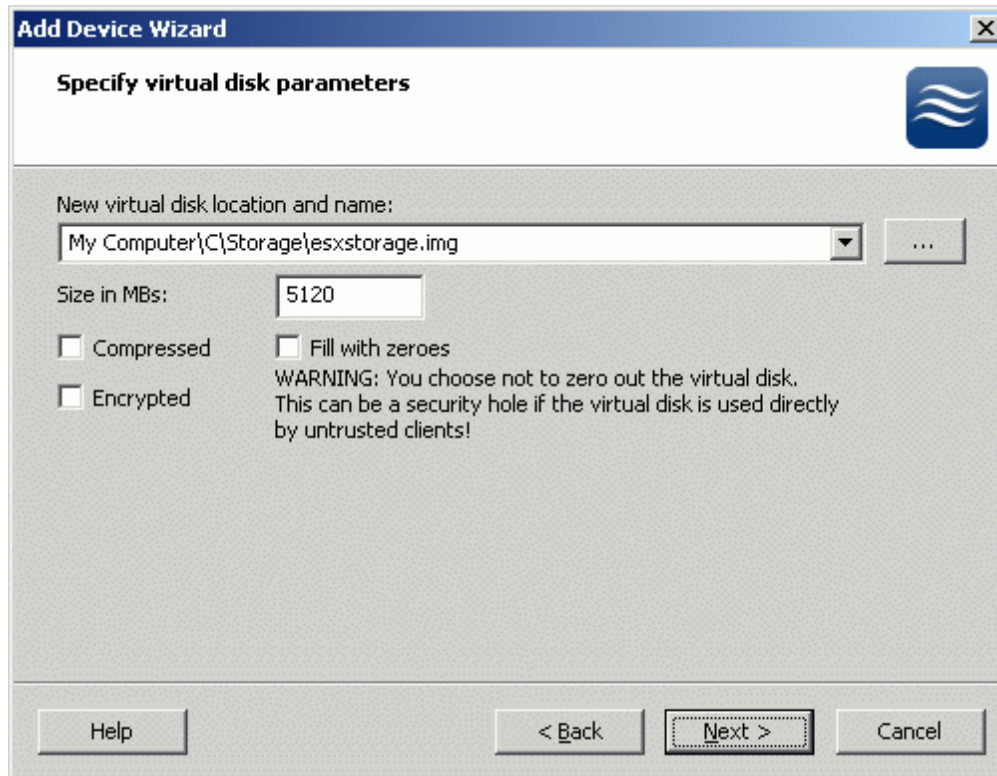

Press the **Next** button to continue.

Select **Create new image** to create a new hard disk image or **Mount existing image** to mount an existing image that you've prepared before.
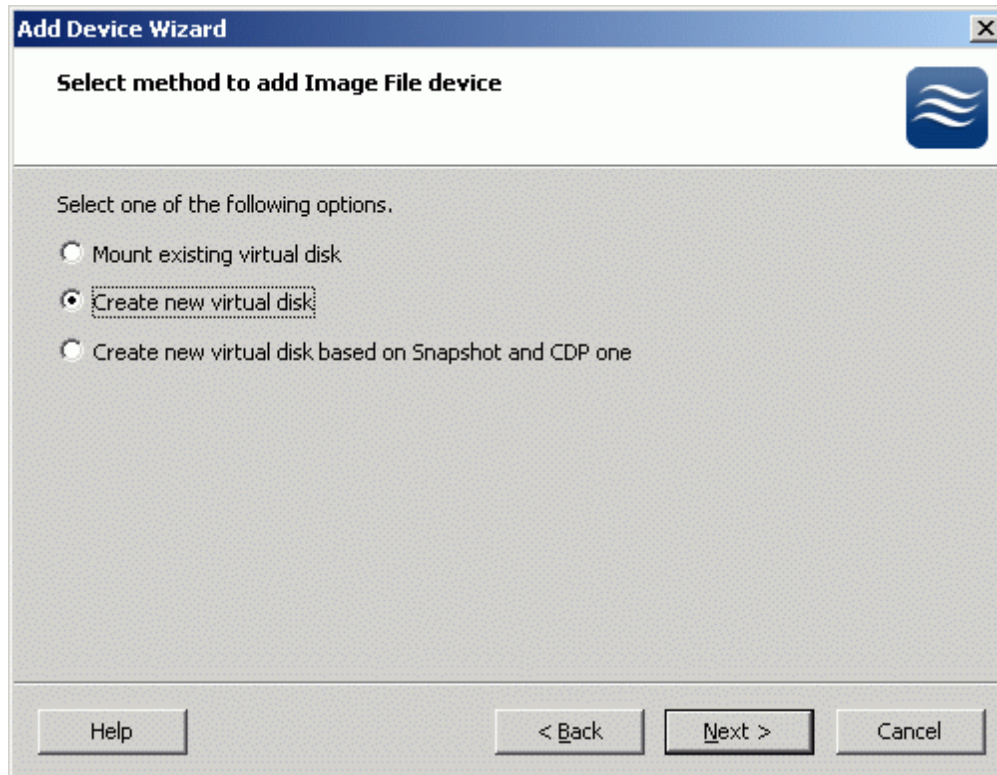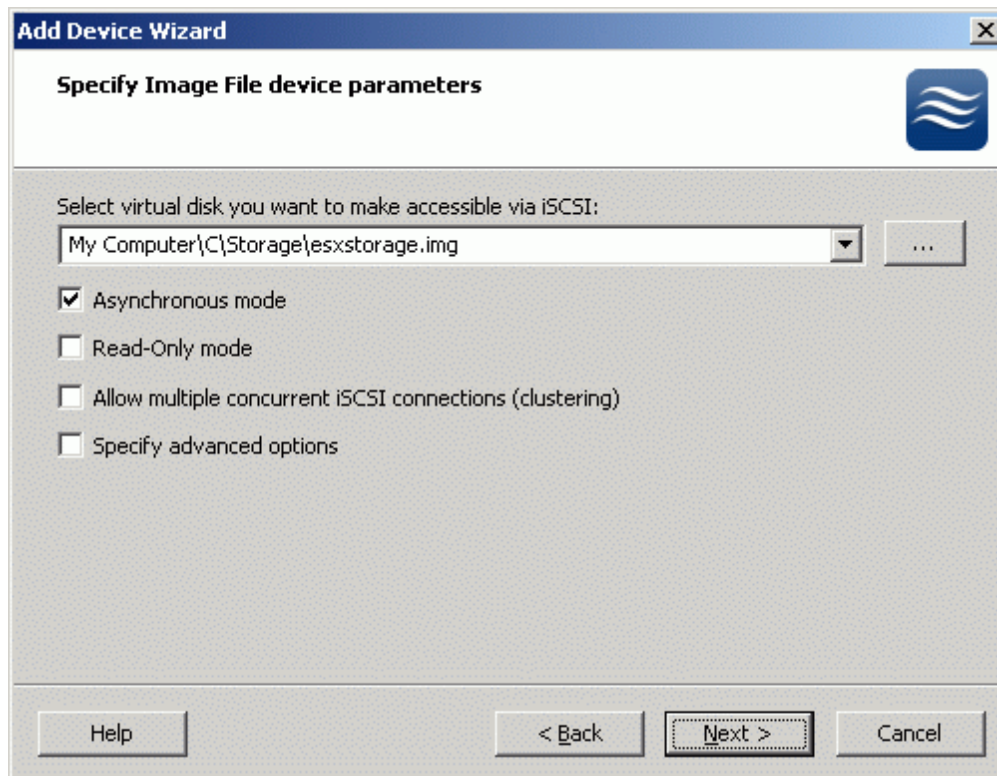

Press the **Next** button to continue.

If you have decided to create a new image file, specify the location and the name of the image you wish to be created. The image size is specified in megabytes. Refer to the online help for details regarding additional parameters (**Fill with zeroes, Compressed** and **Encrypted**).
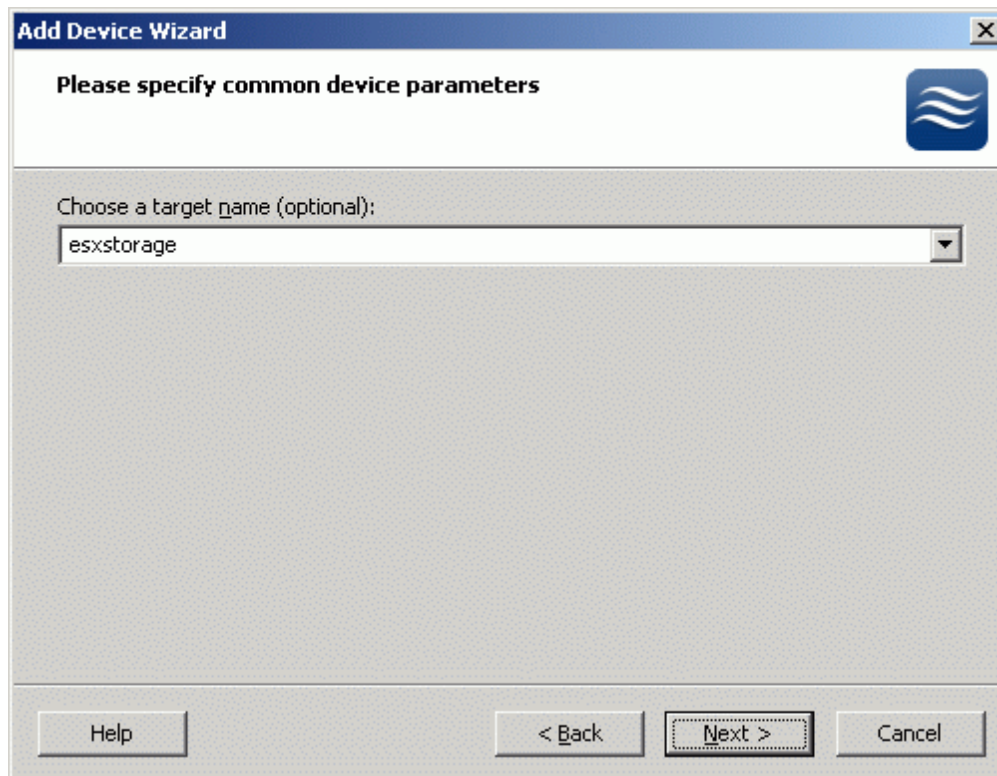

Press the **Next** button to continue.

An Image File device can have additional parameters. Refer to the online help for details regarding the additional parameters (**Asynchronous mode, Allow multiple connections (clustering), Read-only mode** and **Specify advanced options**).

Press the **Next** button to continue.

Select an optional target name. The name must be a unique name by which the device will be declared to the iSCSI initiators connecting to StarWind over an IP network. It is also best practise to name the devices using recognizable sequences such as 'host machine name'.'type of device'.'name of device'.

Press the **Next** button to continue.

Check the device parameters are correct. Press the **Back** button should any changes be required.

Press the **Next** button to continue.

A summary of the created device is displayed on the last wizard page (see image below).

Press the **Finish** button to close the wizard.

Configure Virtual Infrastructure

This section describes the operations you need to complete to create and format the datastore in the way that ESX Servers can create and install virtual machines on it.
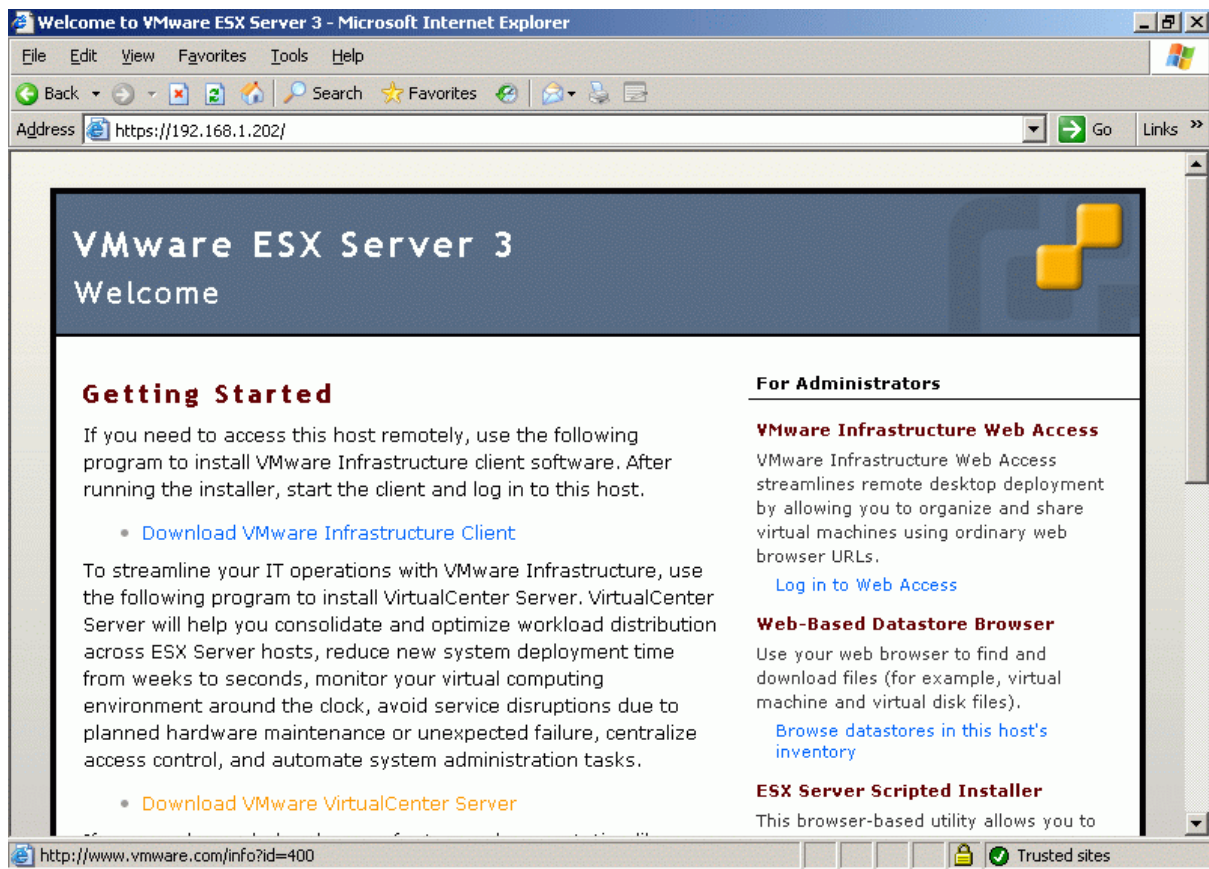
Virtual Infrastructure Client Install

Type the IP address of the ESX Server host in the browser address panel.
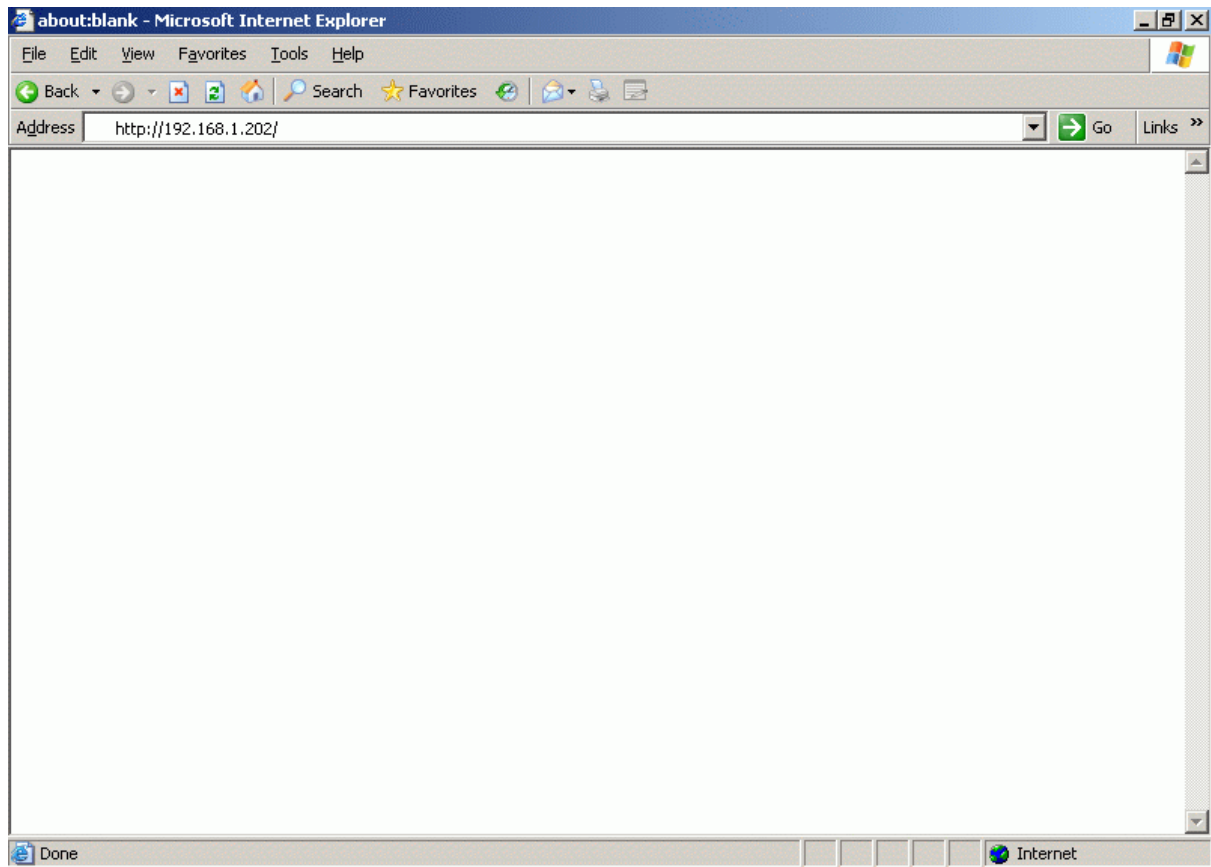
Hit **Enter** to continue.

VMware EXS Server 3 Welcome page appears.

Click the **Download the VMware Infrastructure Client** link and save the executable file to disk. Run the file to install the Virtual Infrastructure Client.

Launch the Virtual Infrastructure Client application. Specify the name of the **ESX Server** to connect to and provide the **Username** and **Password** as configured previously.

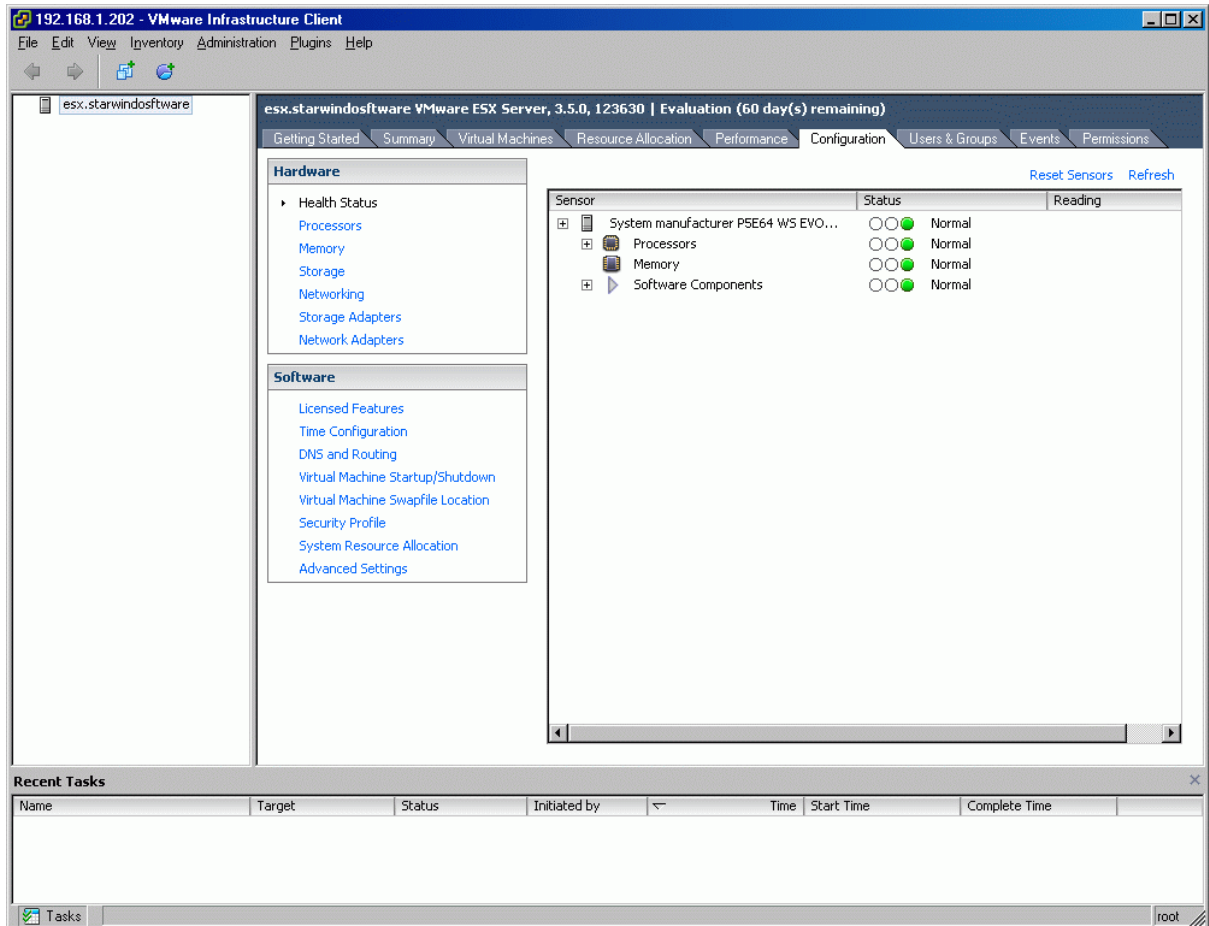
Press the **Log In** button to connect to the ESX Server.

If successful, the **Virtual Infrastructure Client** window should look like the sample picture provided below.
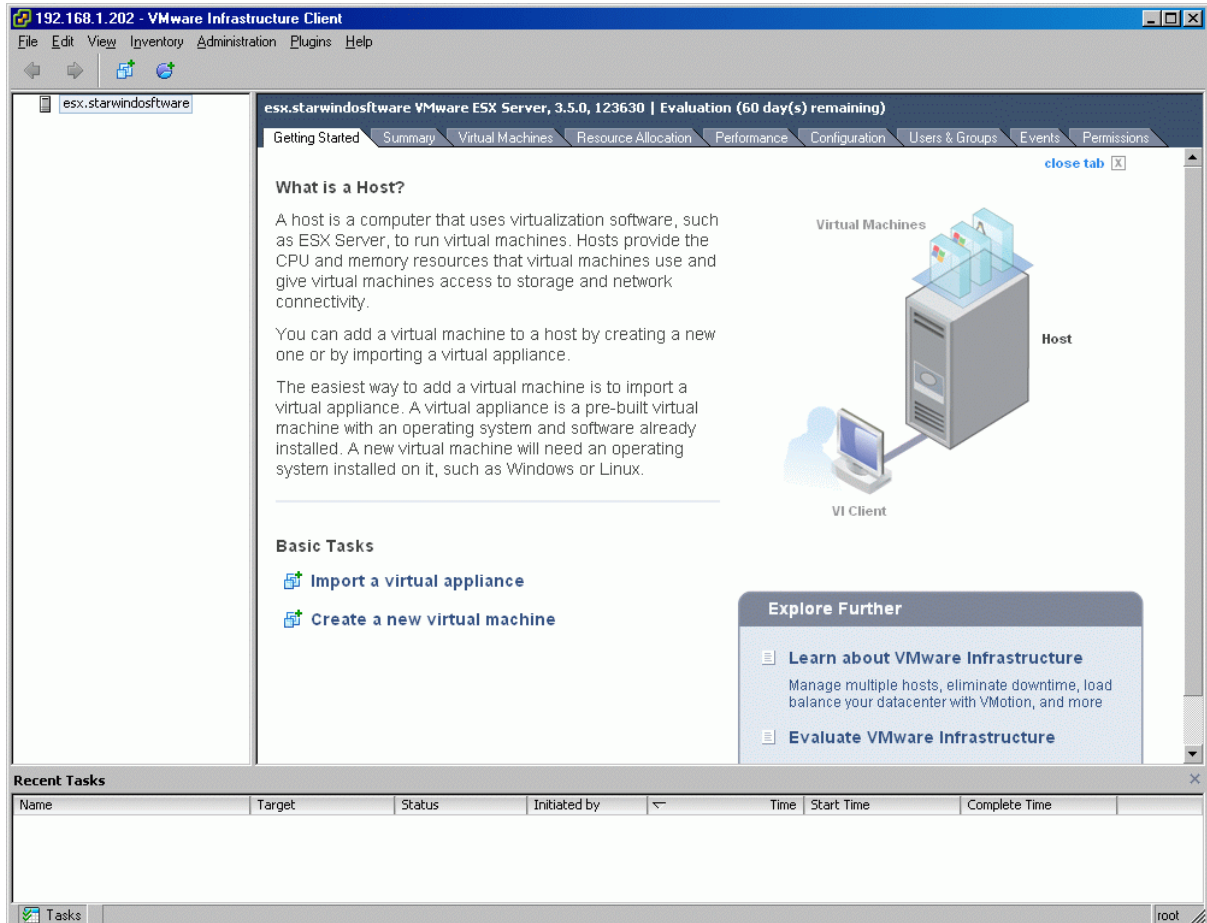
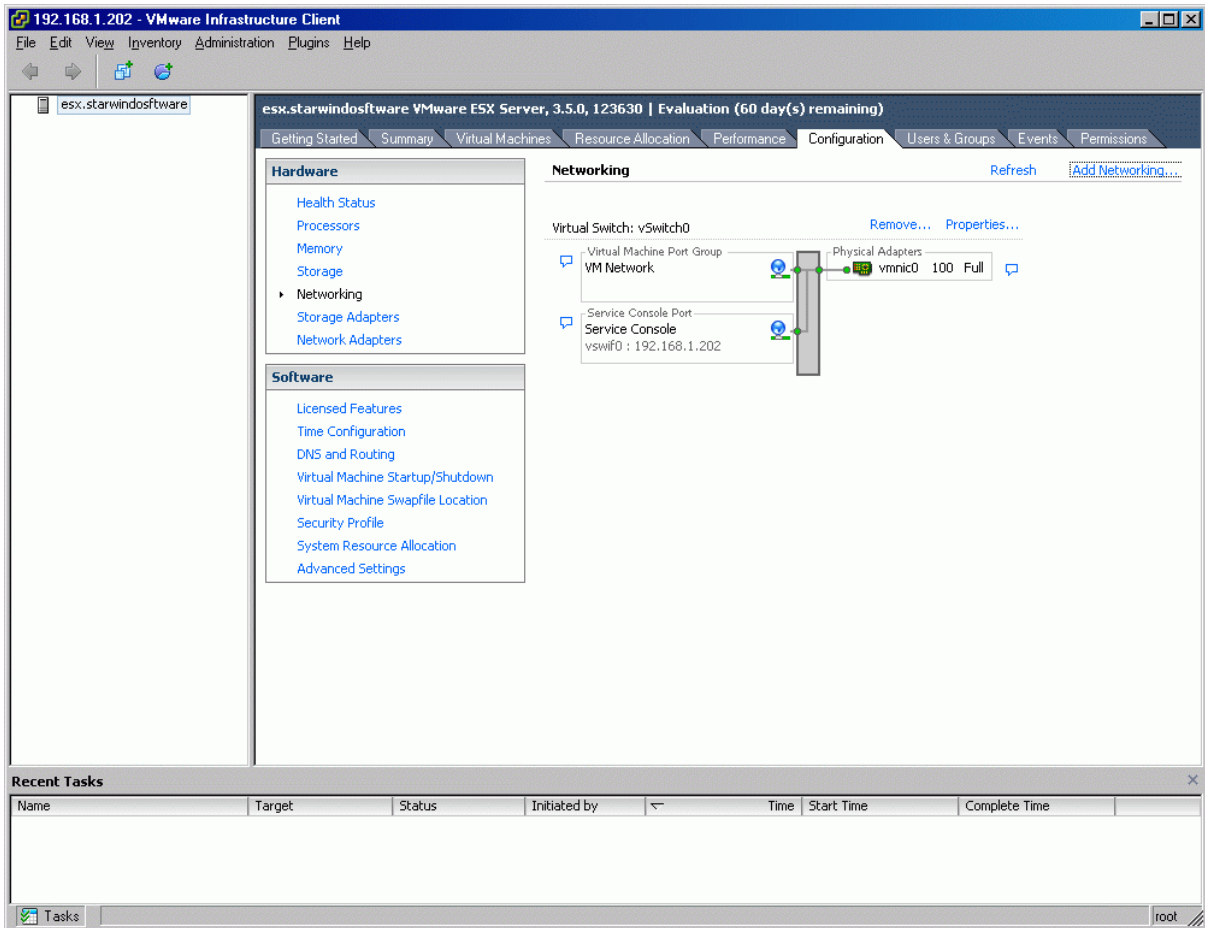## Configuring ESX Server to work with iSCSI connections

Configure the VMkernel TCP/IP Networking Stack

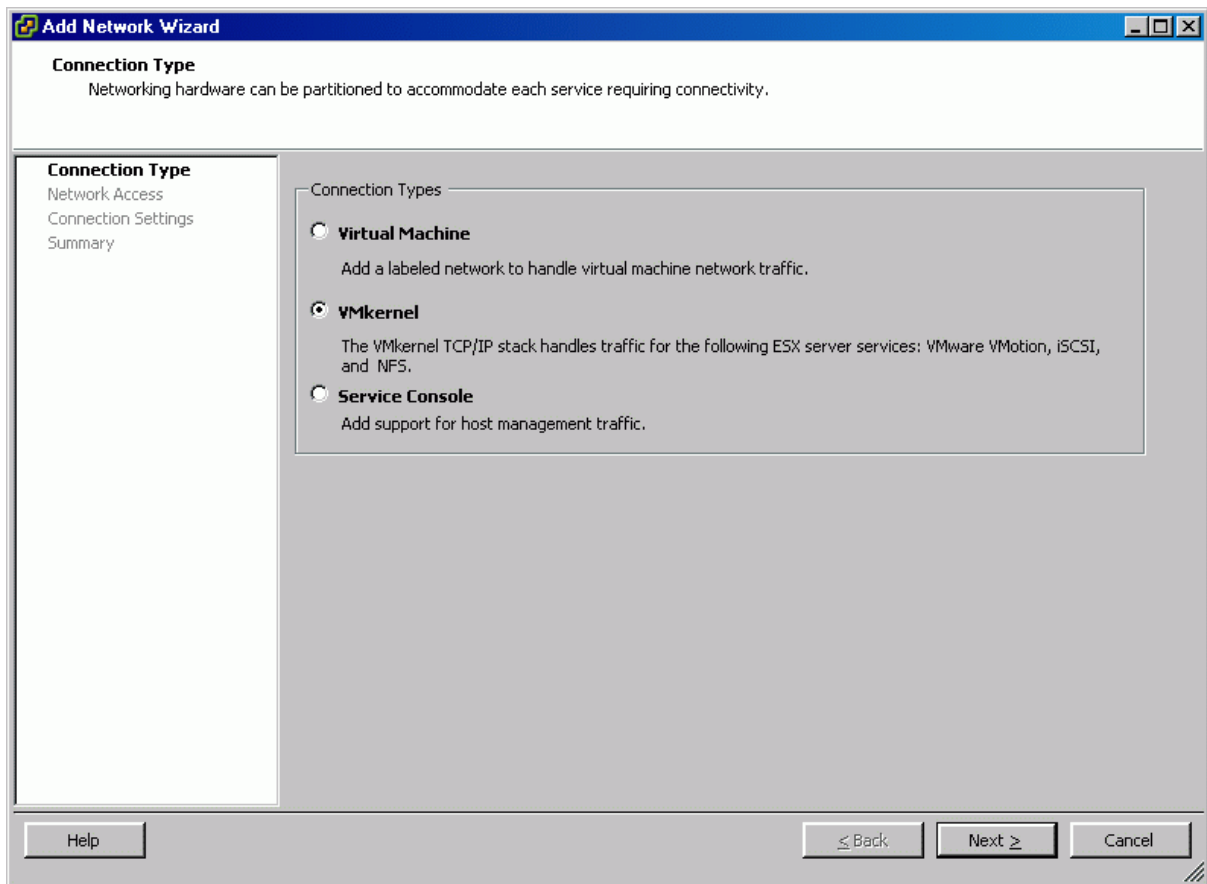Click the **Configuration** tab.

Then click **Networking.**

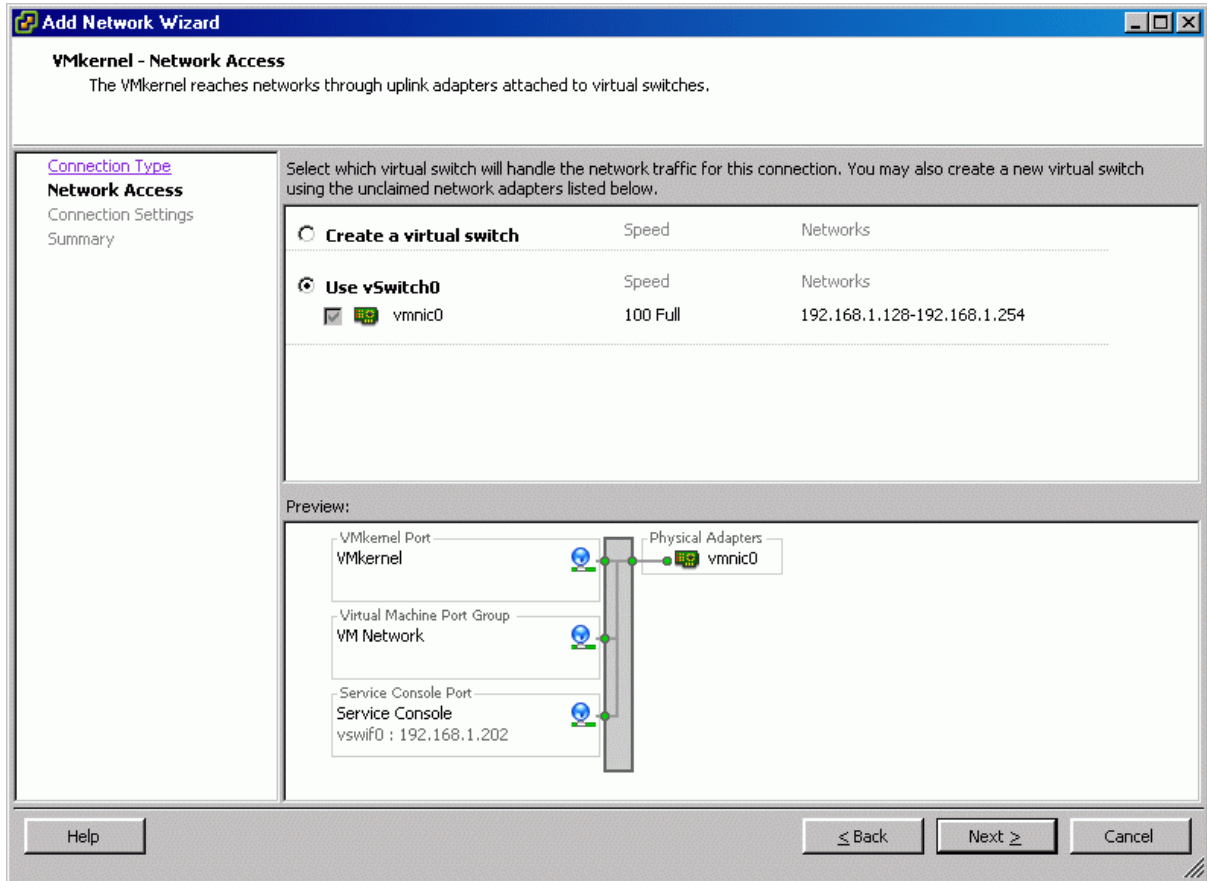The current Network configuration appears.

Click the **Add Networking** link.
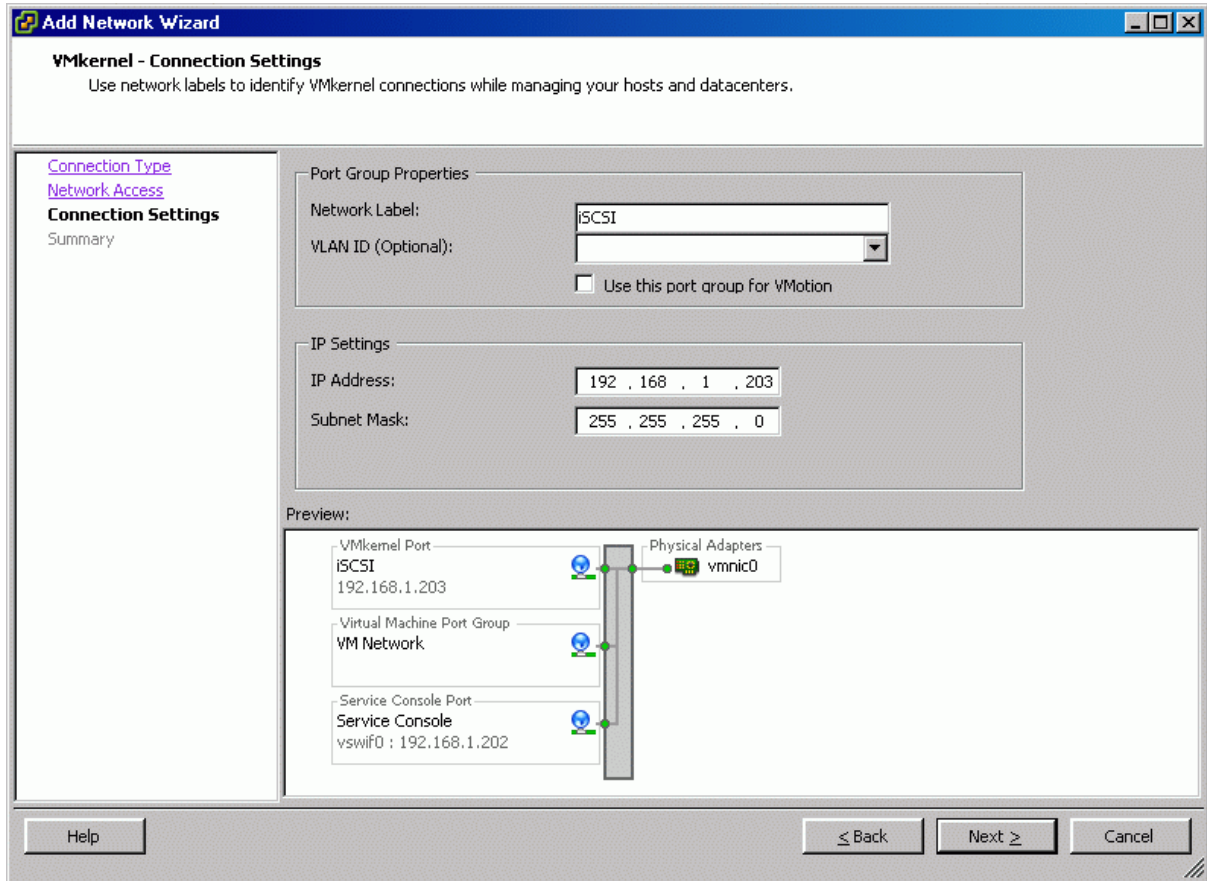
Select the **VMkernel** option.

Press the **Next** button to continue.

Select the vSwitch you to use or select the **Create a virtual switch** option to create new virtual switch.
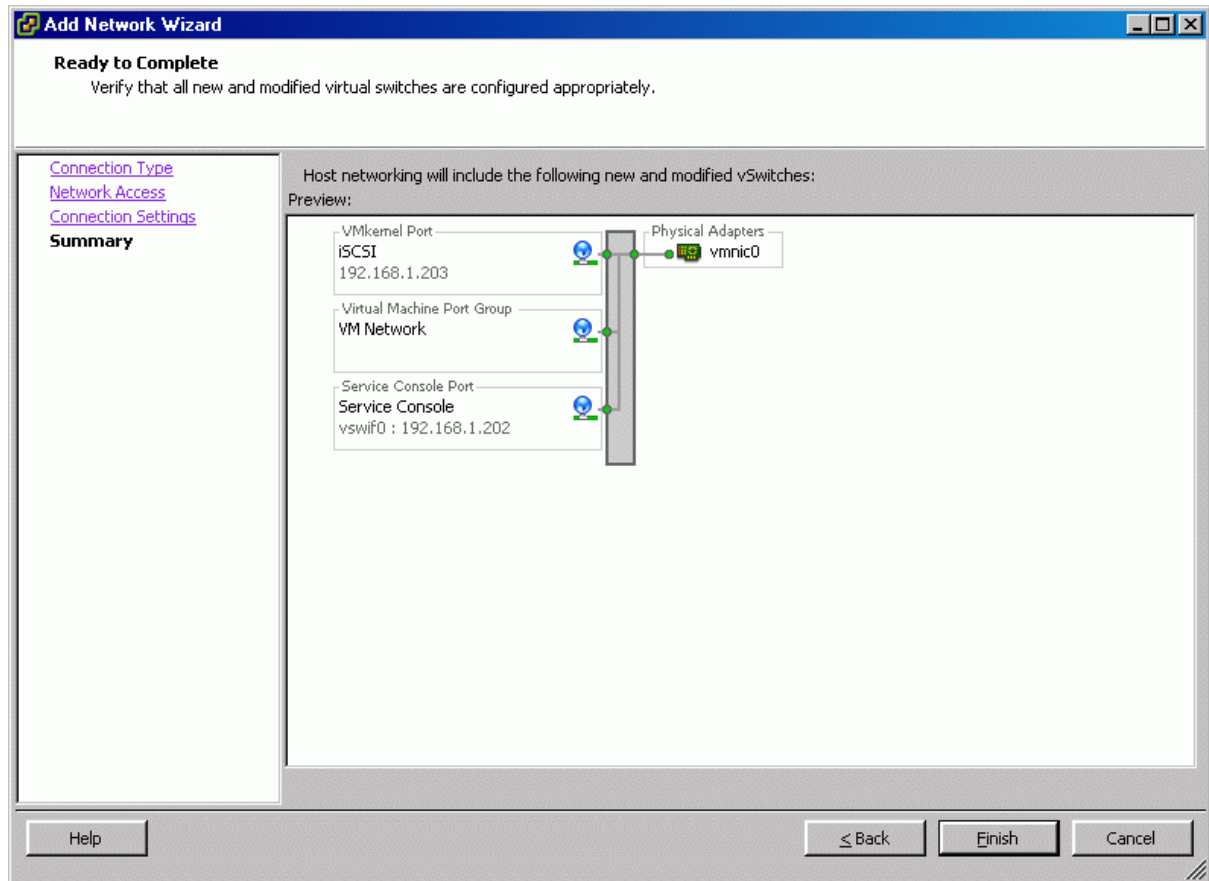

Press the **Next** button to continue.

Specify the Network label. Also type the IP address and subnet mask. Optionally check **Use this port for VMotion** item.
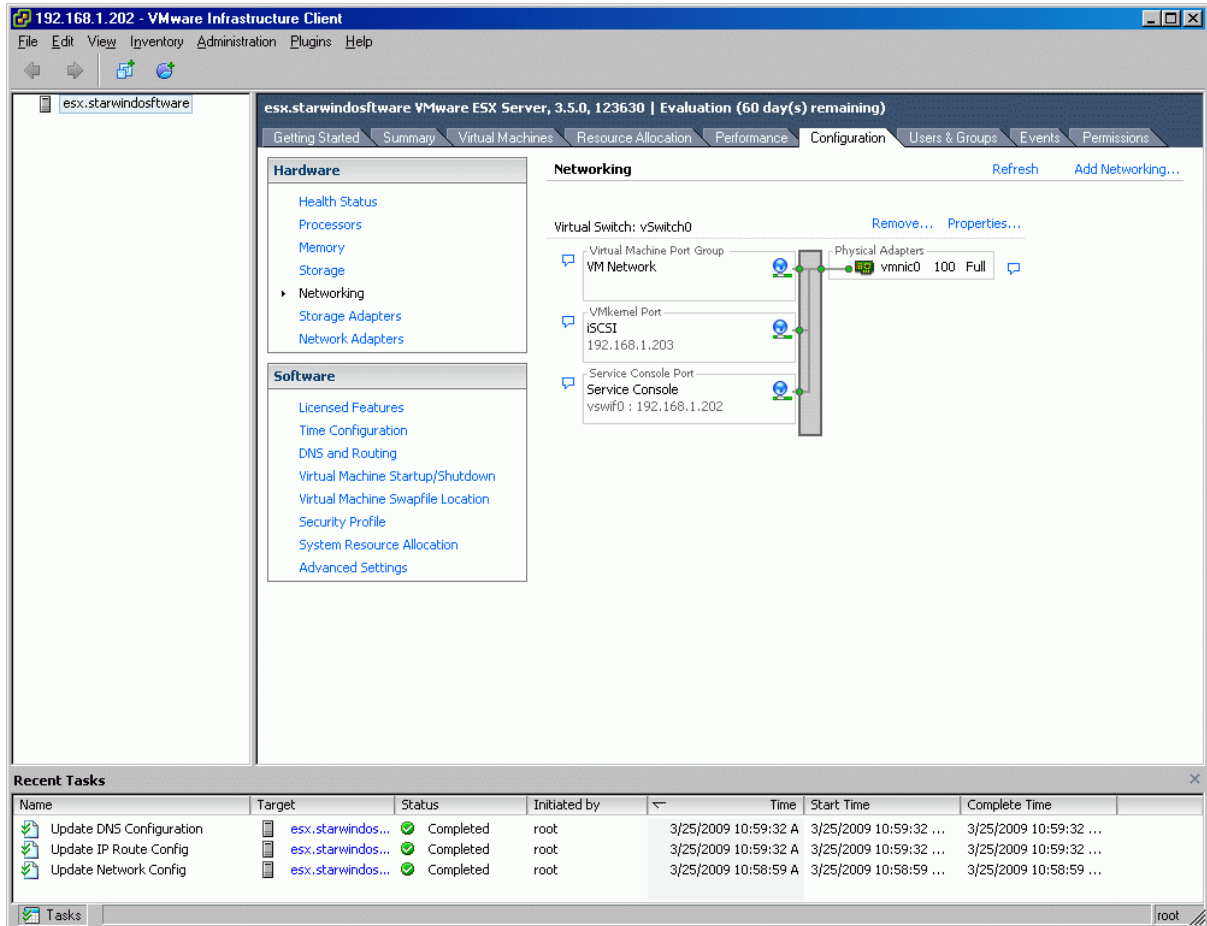

Press the **Next** button to continue.

Check if all of the parameters are correct. Press the **Back** button should any changes be required.

Press the **Finish** button to close the wizard.

If successful, the **VI Client** window should look like the sample picture provided below.
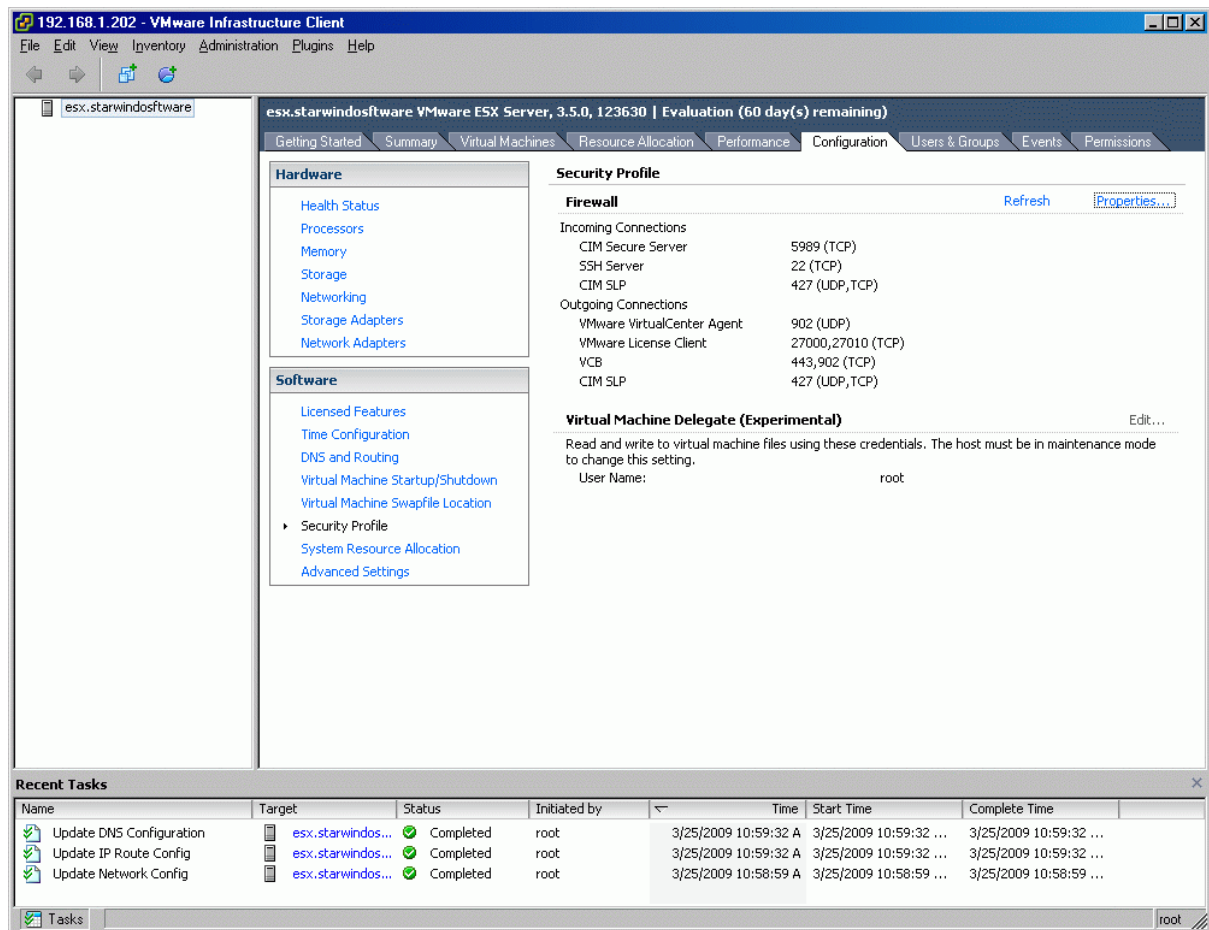
Configuring Firewall

For working with iSCSI connectios you need to permit them in the firewall settings.
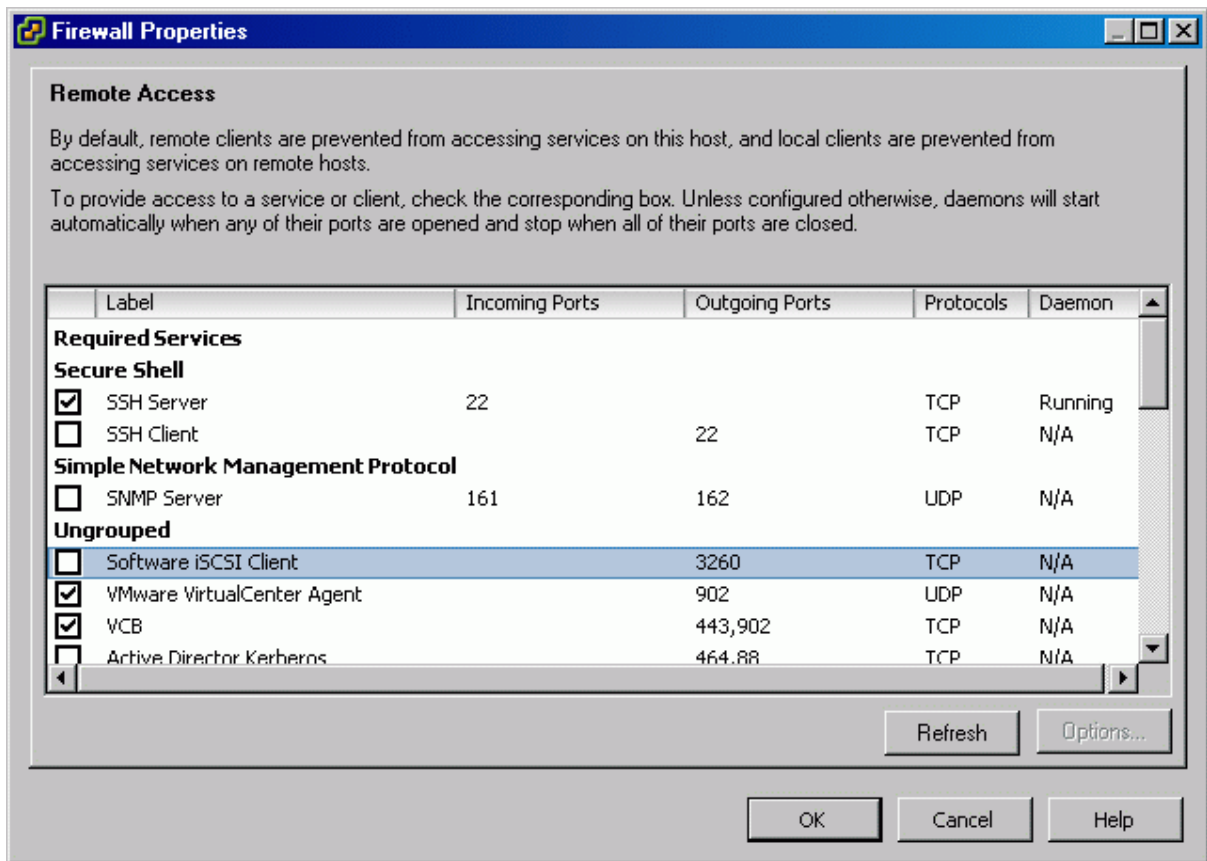
Click the **Configuration** tab. Then click **Security Profile**.
The **Virtual Infrastructure Client** displays a list of currently active incoming and outgoing connections with the corresponding firewall ports.
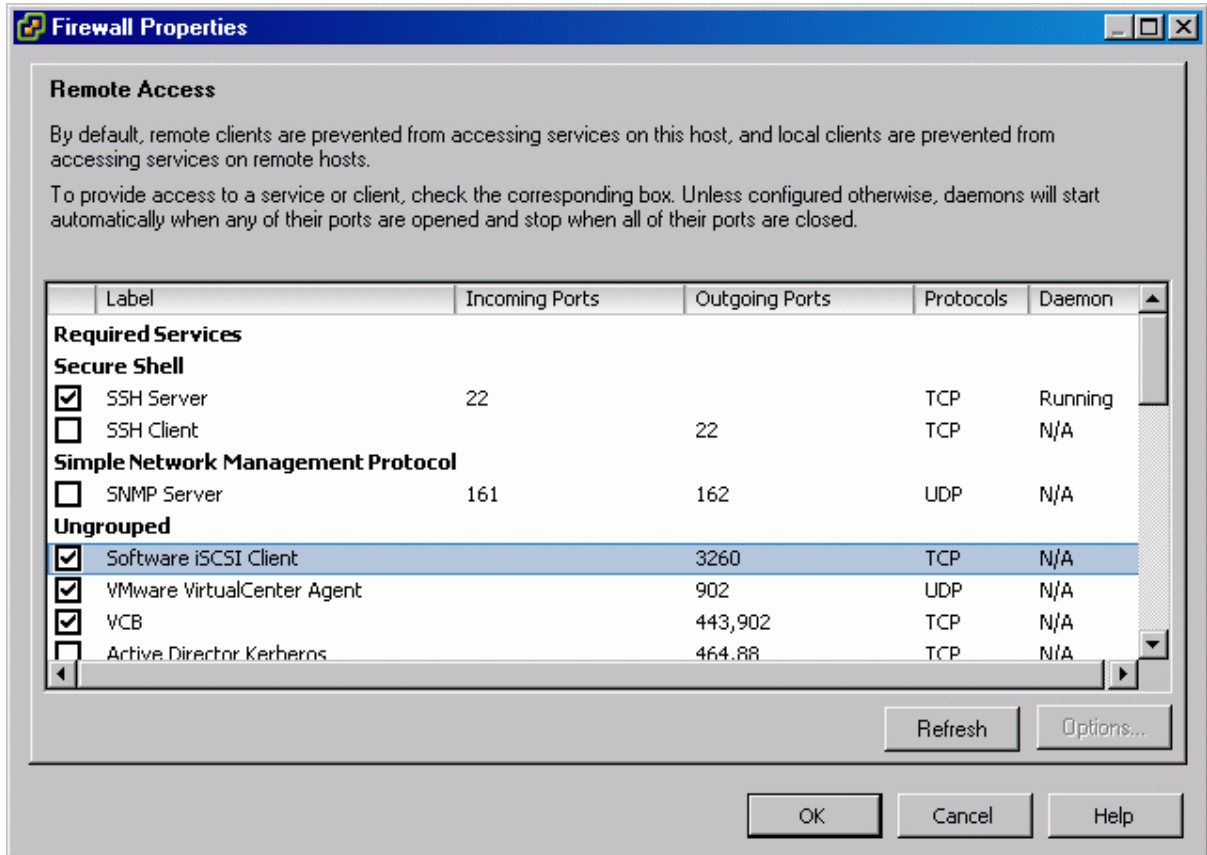

Click the **Properties** link.

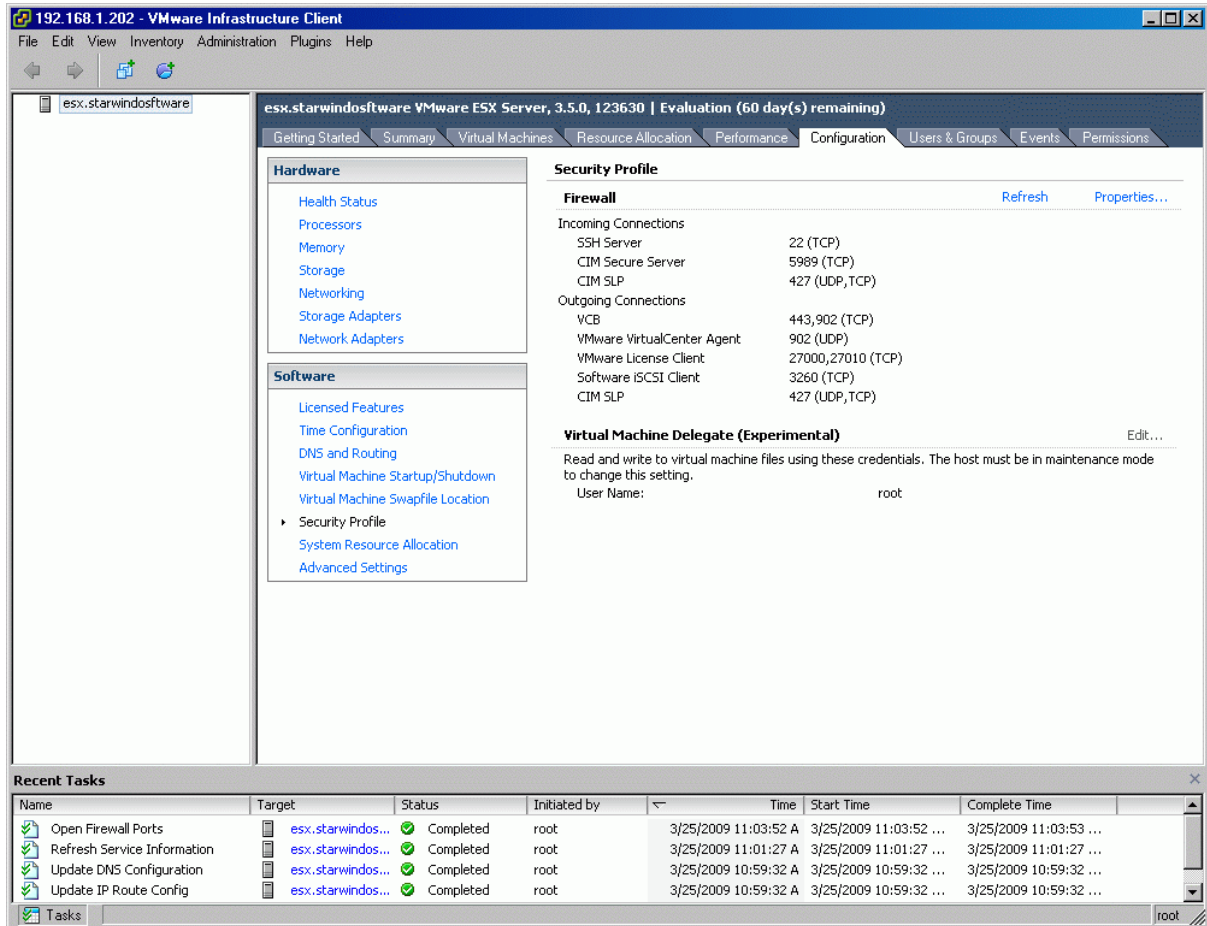The **Firewall Properties** dialog box will appear.

Find **Software iSCSI Client** in the list

Tick the option (set checkbox) to allow outgoing connection on the port shown (3260).
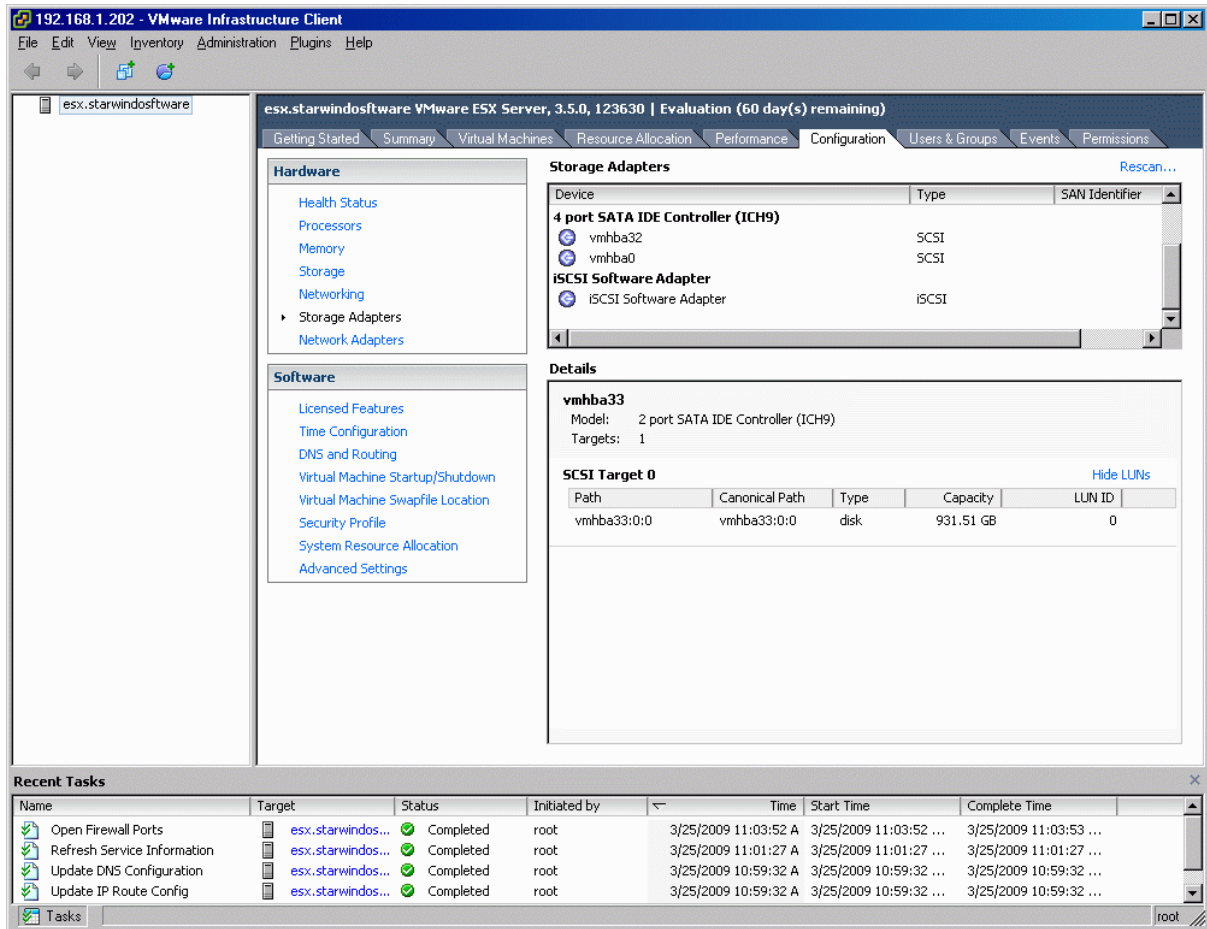

Press the **OK** button to continue.

If successful, the **Virtual Infrastructure Client** window should look like the sample picture provided below.
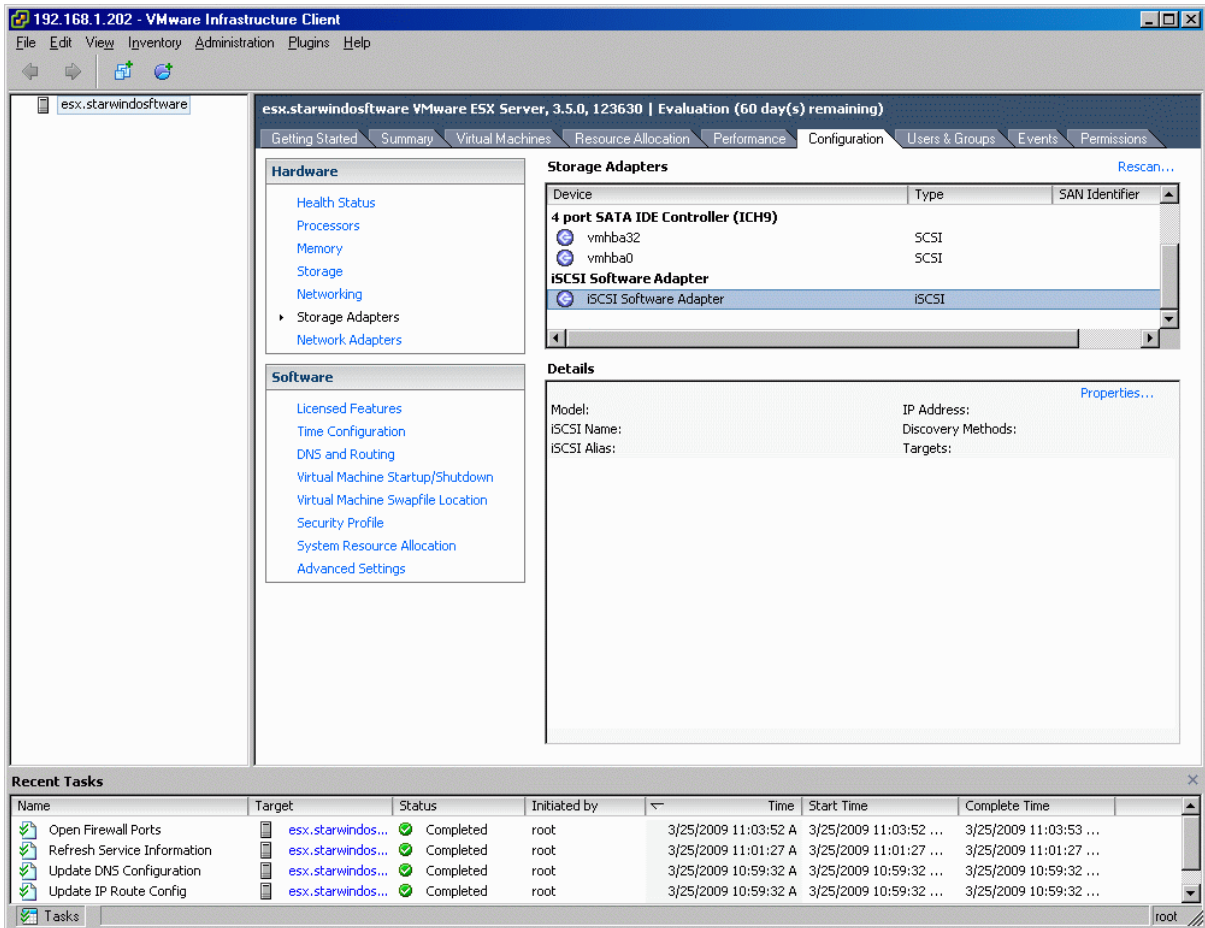
Configure the iSCSI Software Initiator

Enabling iSCSI Software Initiator.

Click the **Configuration** tab. Then click **Storage Adapters.** The list of available storage adapters appears.
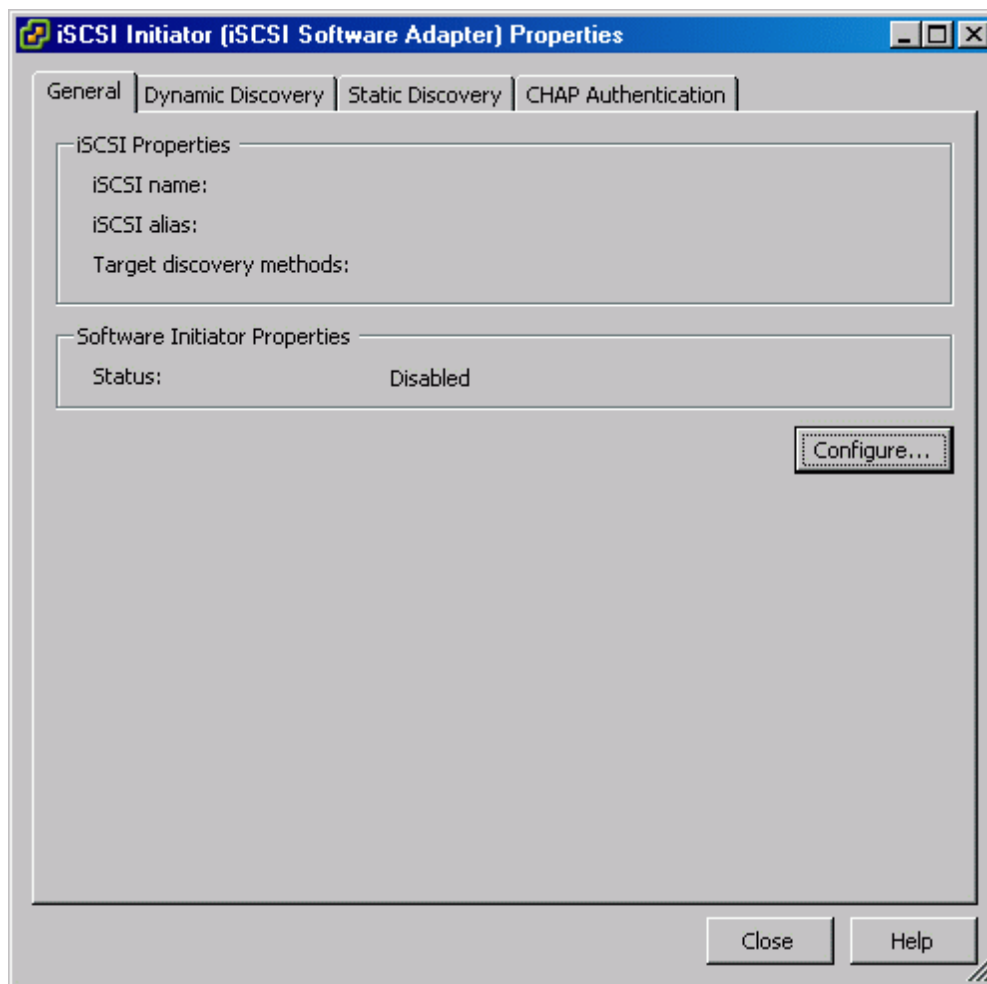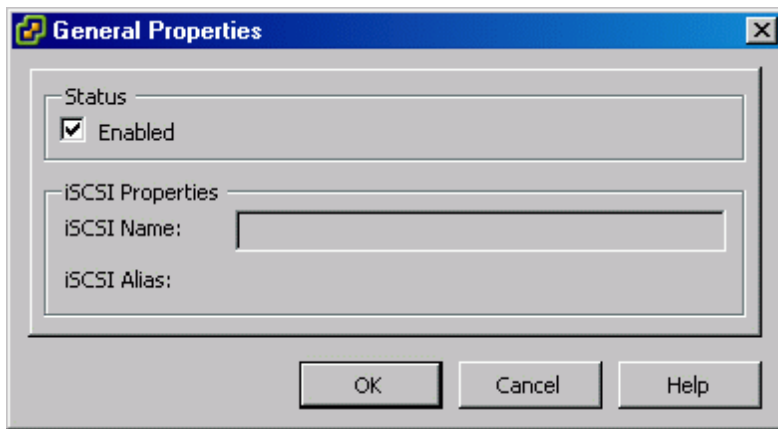
Select iSCSI Software Adapter.

Click **Properties**.

iSCSI Initiator Properties dialog appears.
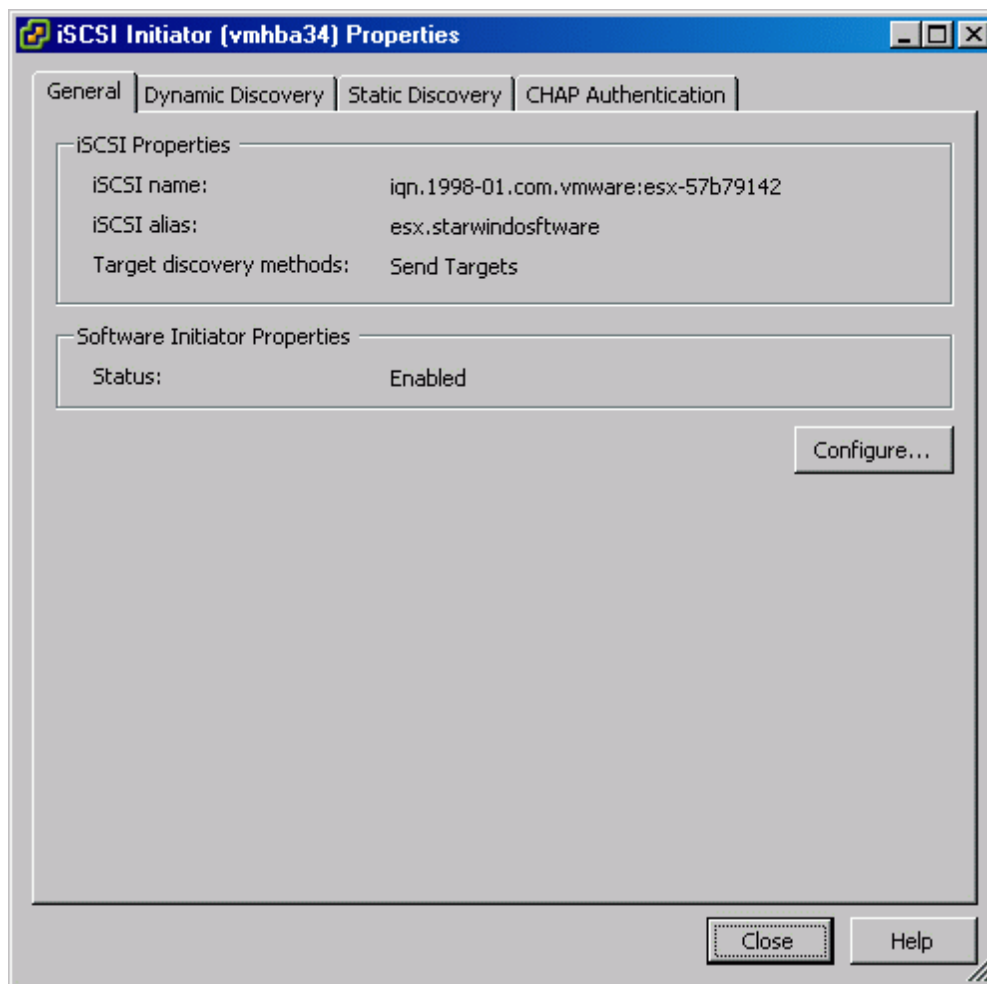

Press the **Configure** button.

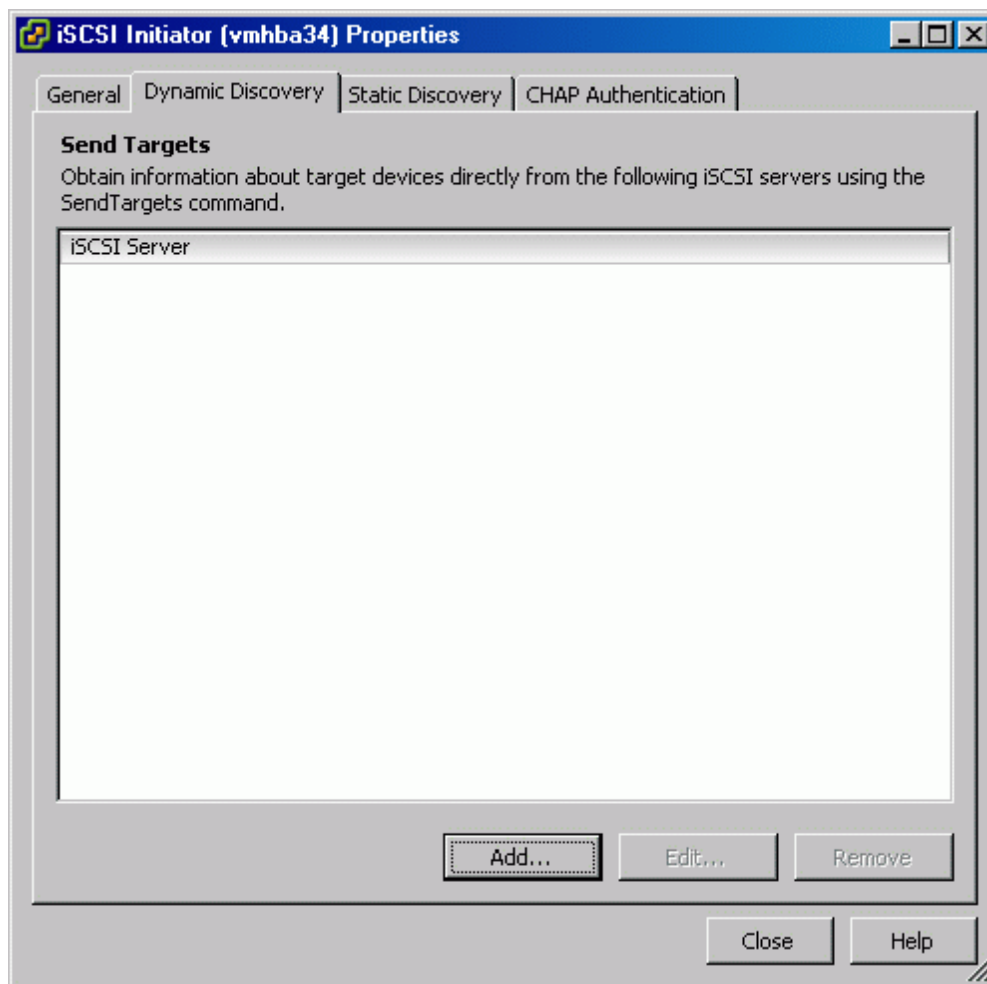To enable the initiator check the **Enabled** check box.

Press the **OK** button to close the **General Properties** dialog and return to the **iSCSI Initiator** properties dialog.

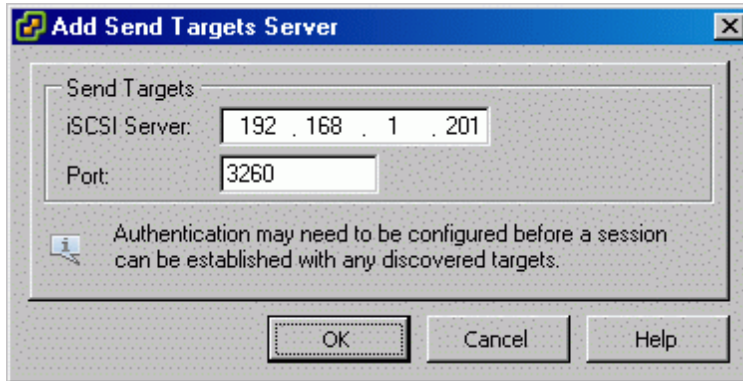The dialog will now show the initiator's status, default name, and alias.
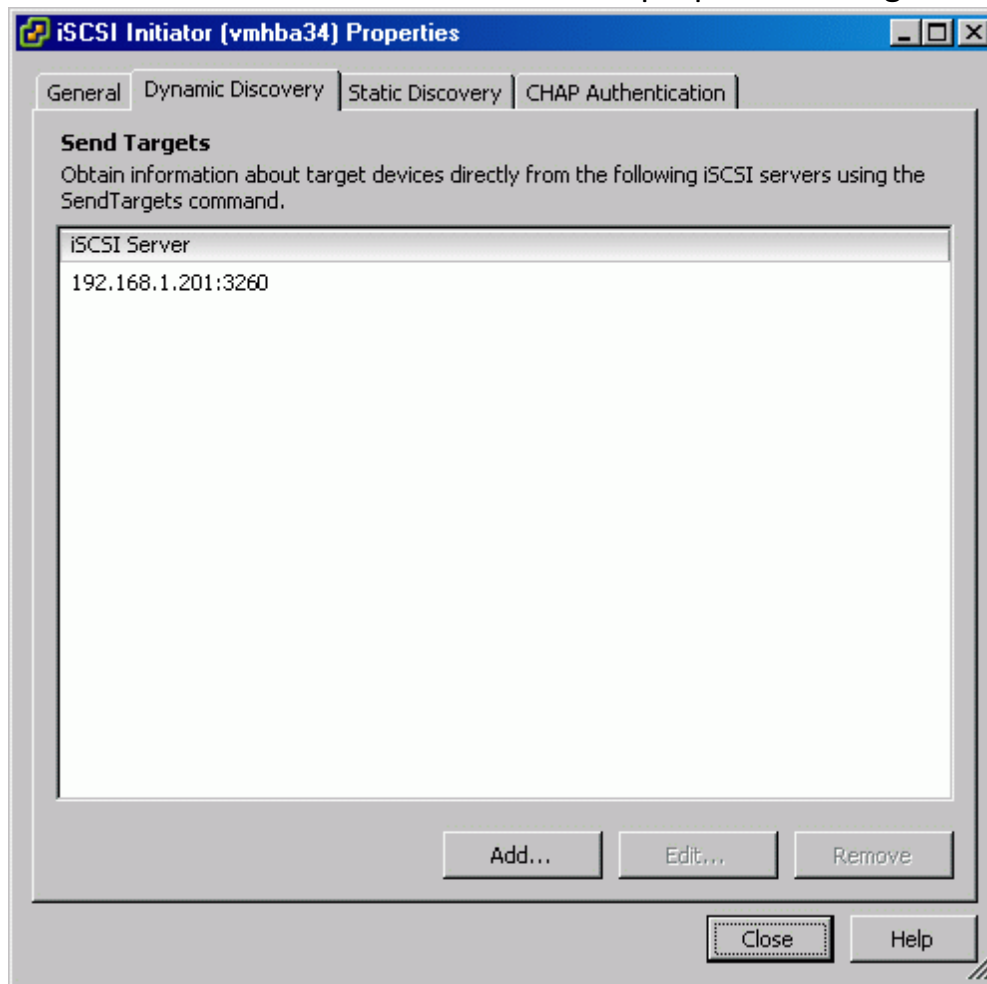
Switch to the **Dynamic Discovery** tab.

Press the **Add...** button

The **Add Send Targets Server** dialog is shown. Specify the IP address of the **StarWind** iSCSI target server.
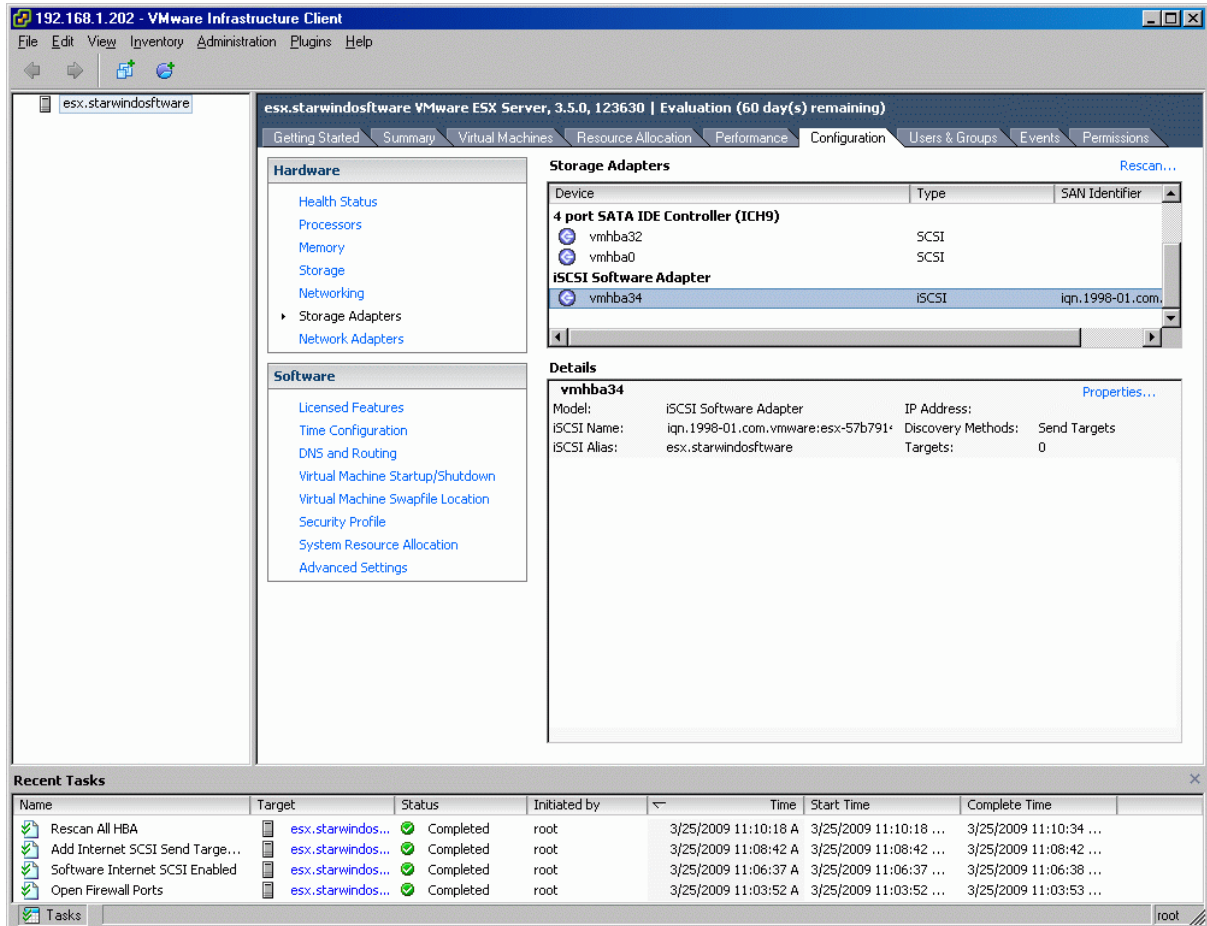

Press the **OK** button.

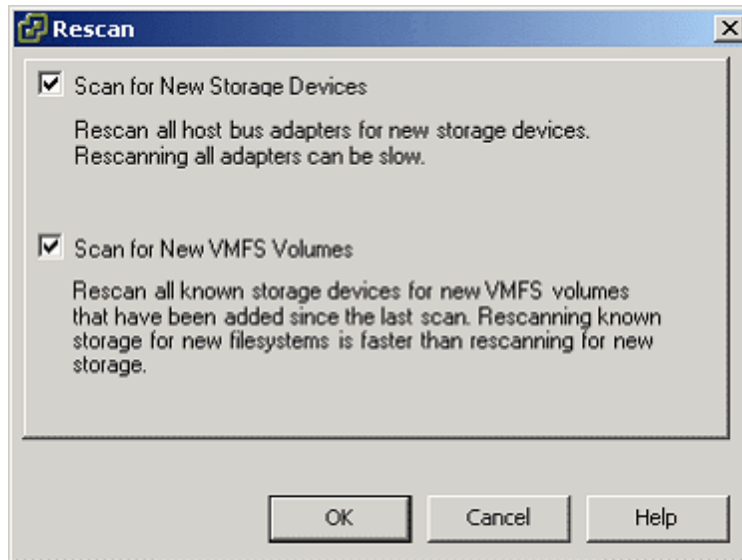You will be returned to the **iSCSI Initiator** properties dialog.

Press the **Close** button.

The **Virtual Infrastructure Client** window should look like the sample picture provided below.

Infrastructure client will prompt you to rescan for new iSCSI LUNs.
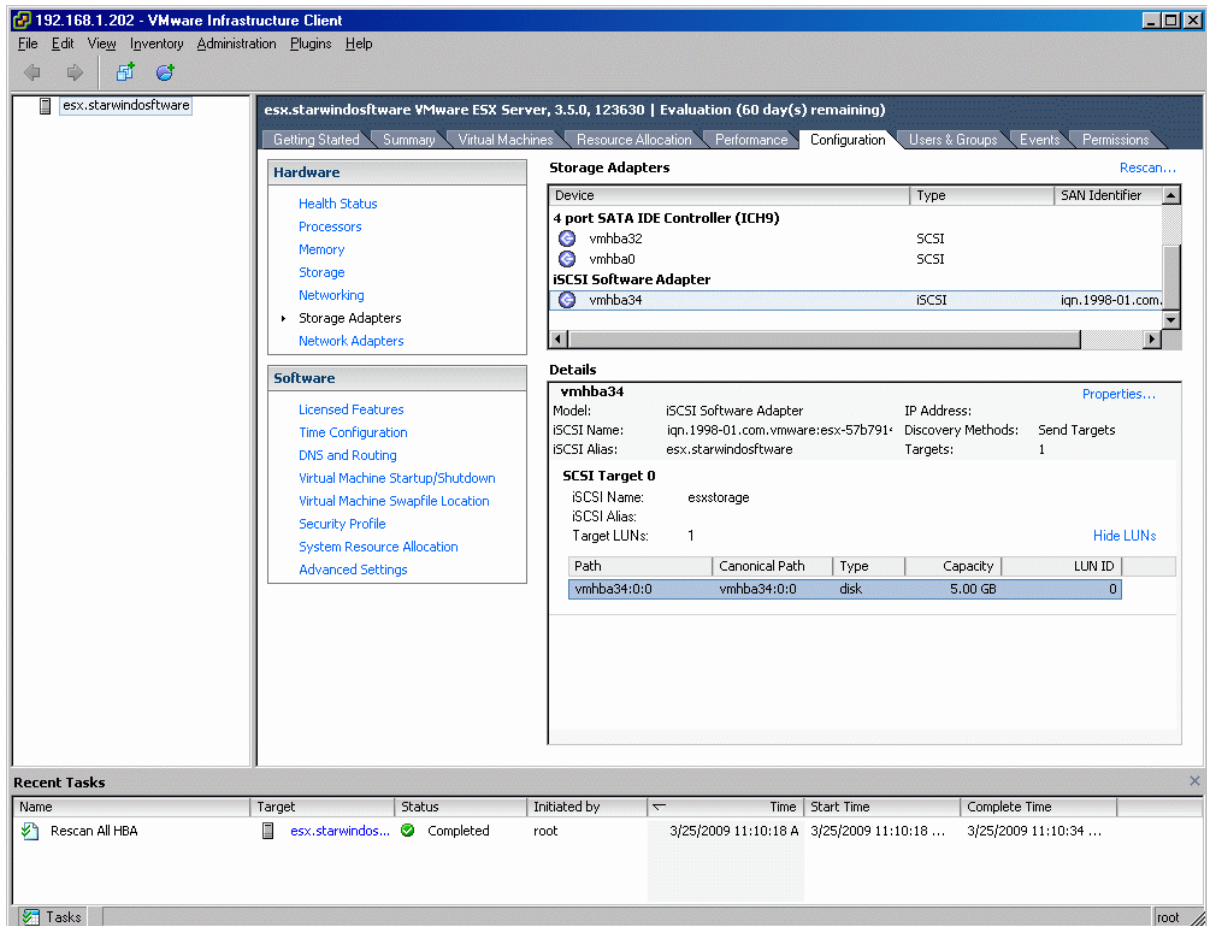If not - press **Rescan...** button.

Rescan dialog appears.

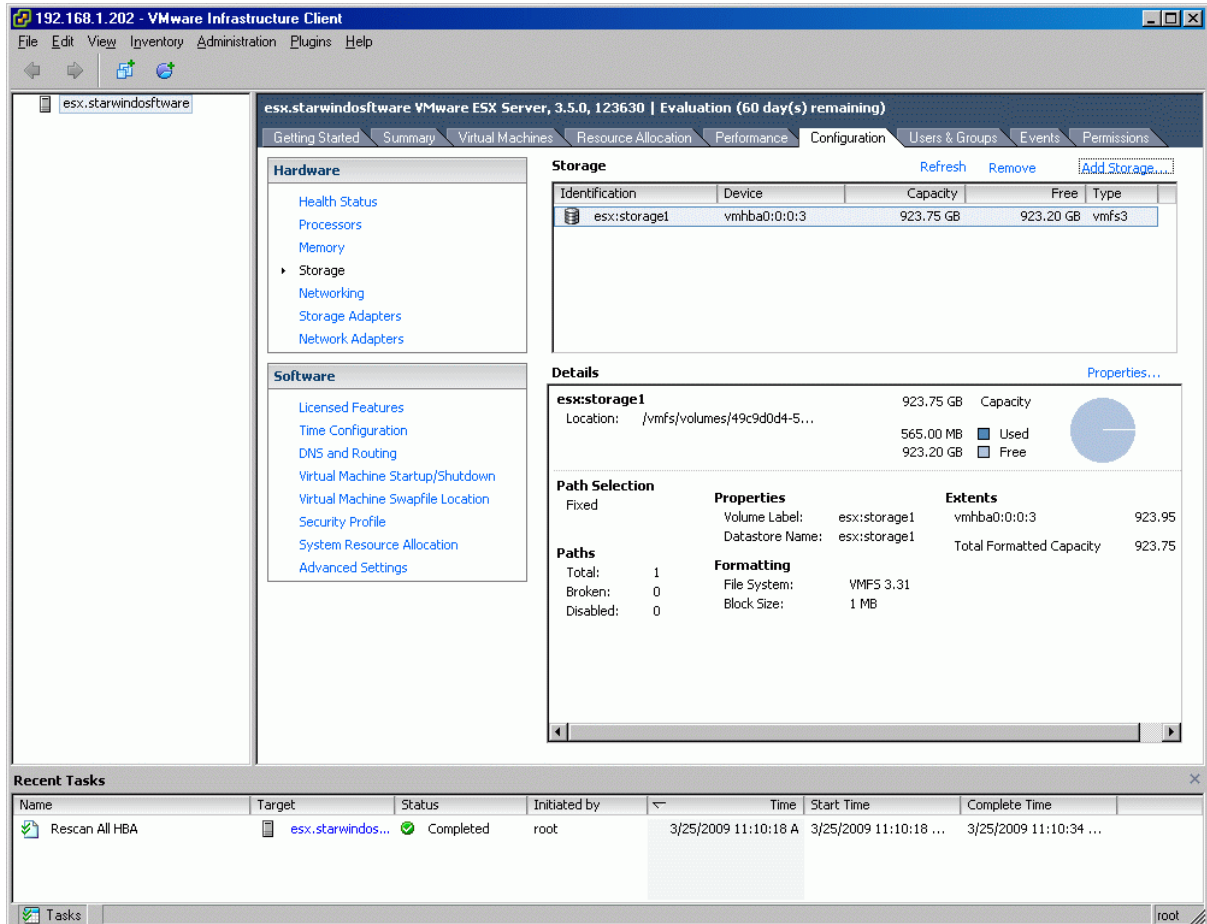Leave the default values and press the **OK** button.

If successful, the **Virtual Infrastructure Client** window should look like the sample picture provided below.

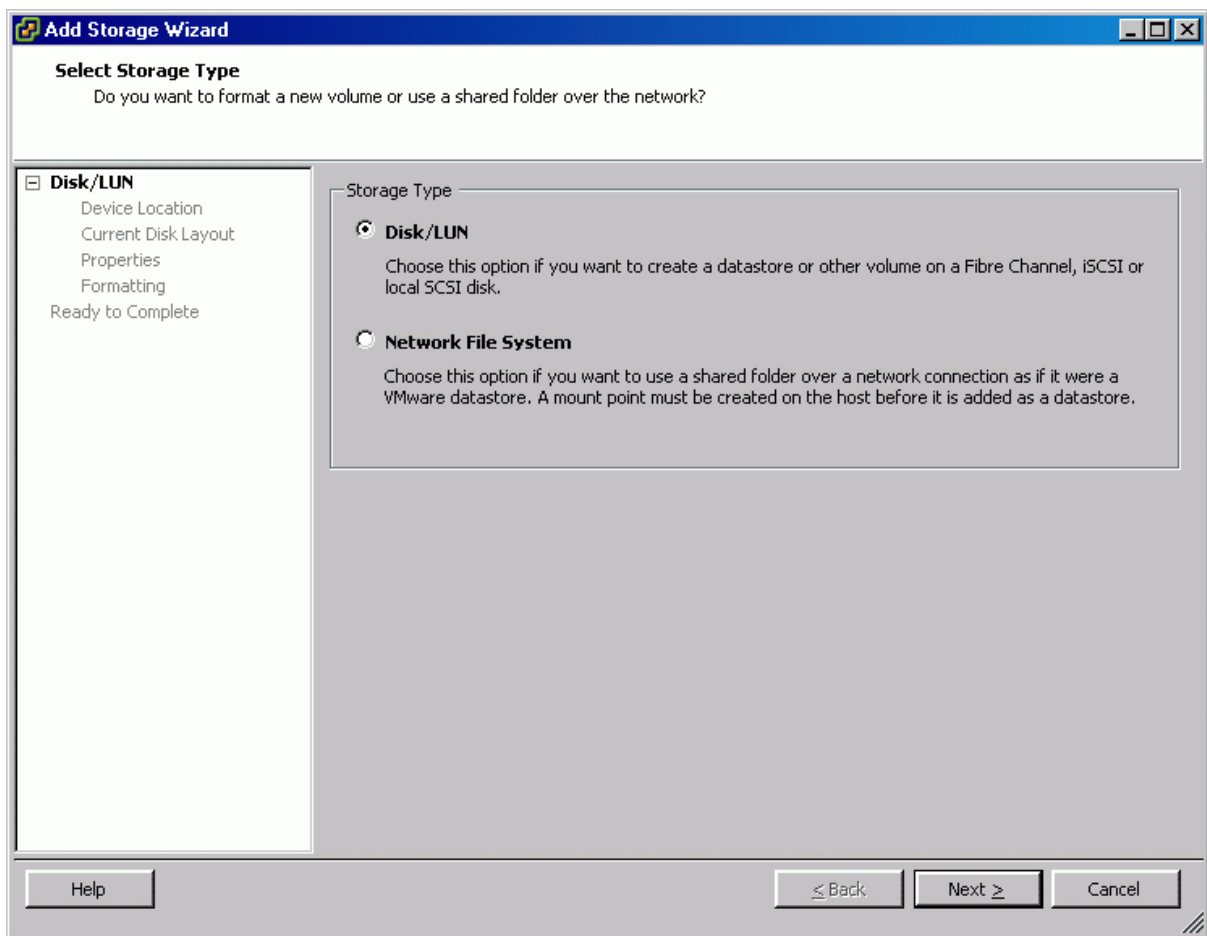Note that the **StarWind** target **"SCSI Target 0"** is now shown.

Set Up the Datastore

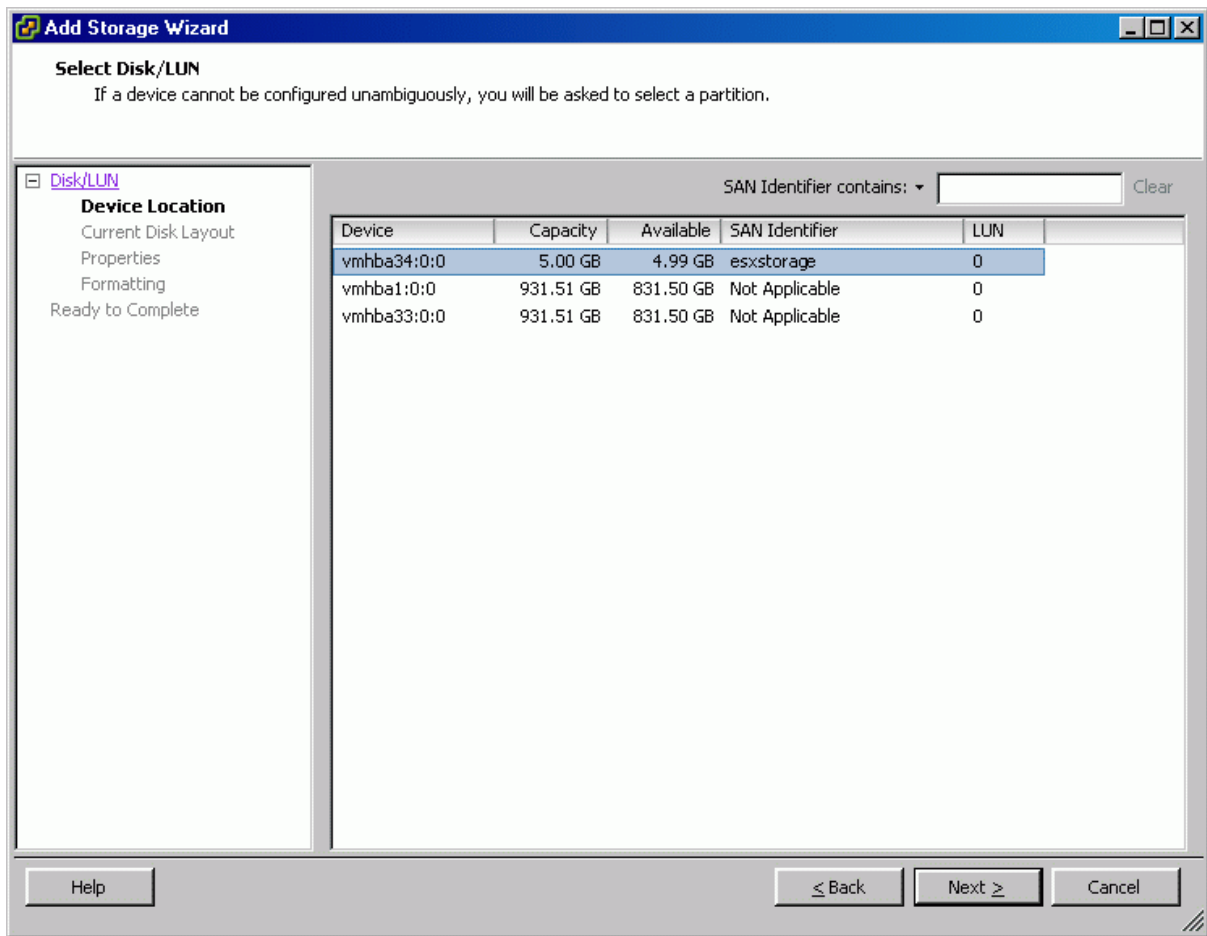Click the Configuration tab. Then click Storage (SCSI, SAN, and NFS).

Press the **Add Storage...** link.

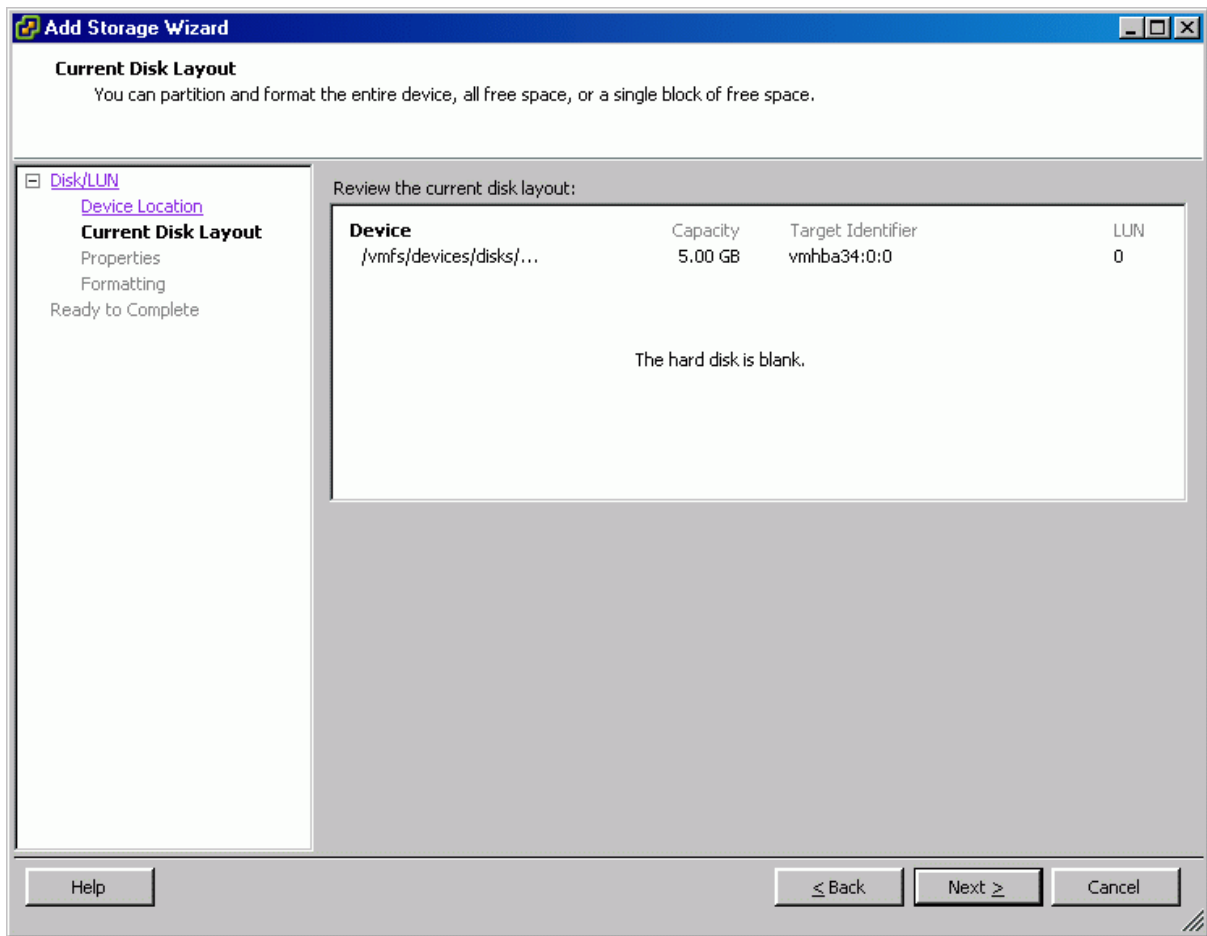Add Storage dialog appears. Select **Disk/LUN** storage type.

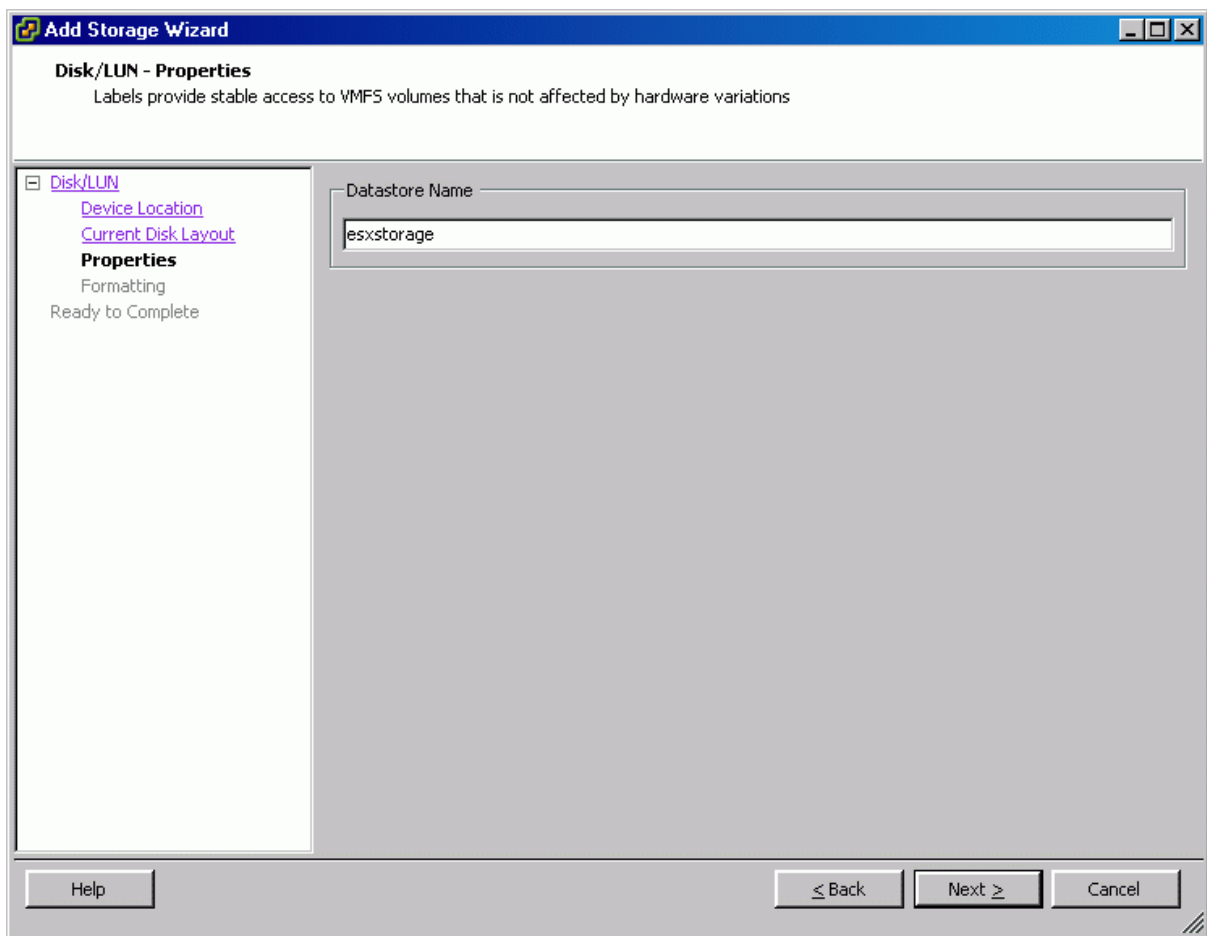Press the **Next** button to continue.

Select the device.

Press the **Next** button to continue.

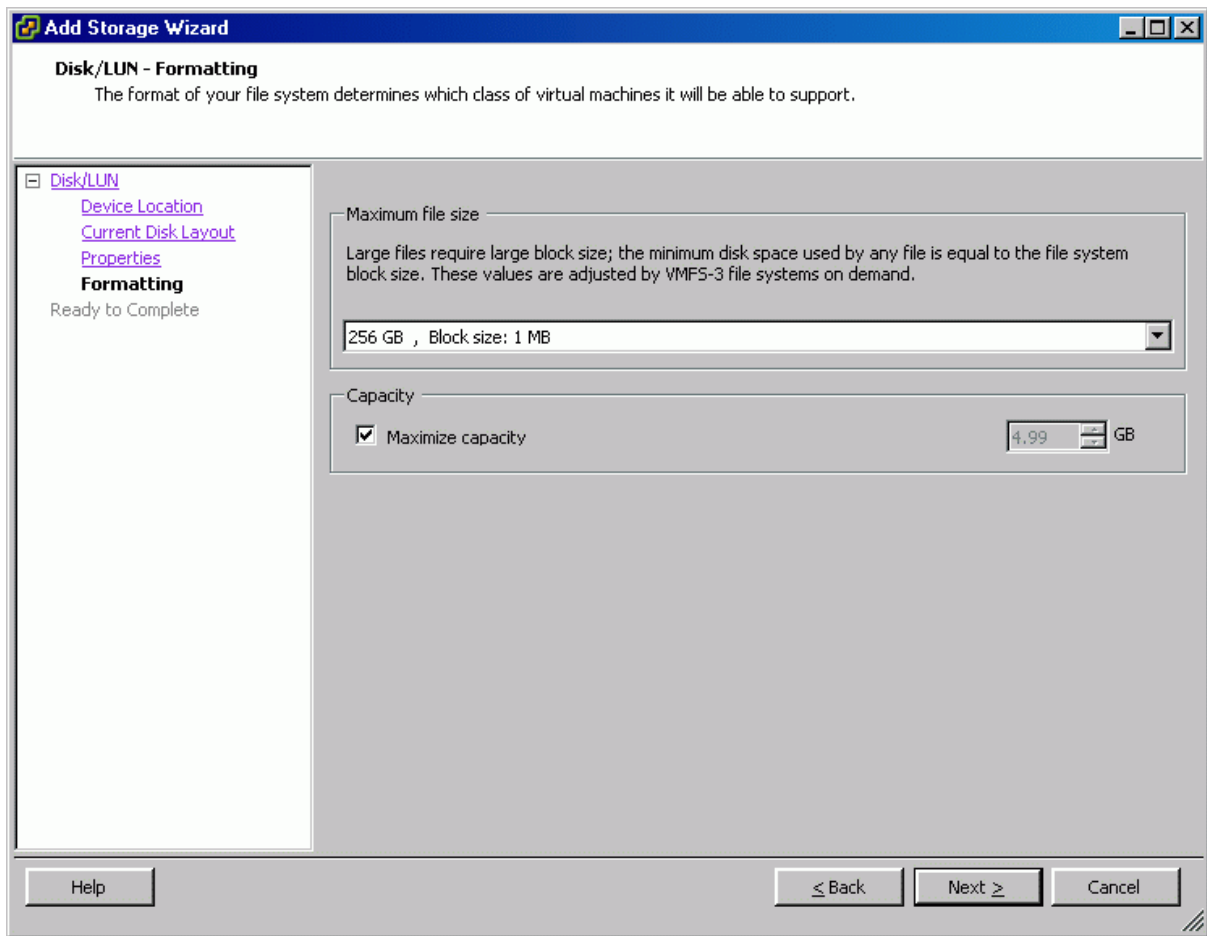Review the disk layout.

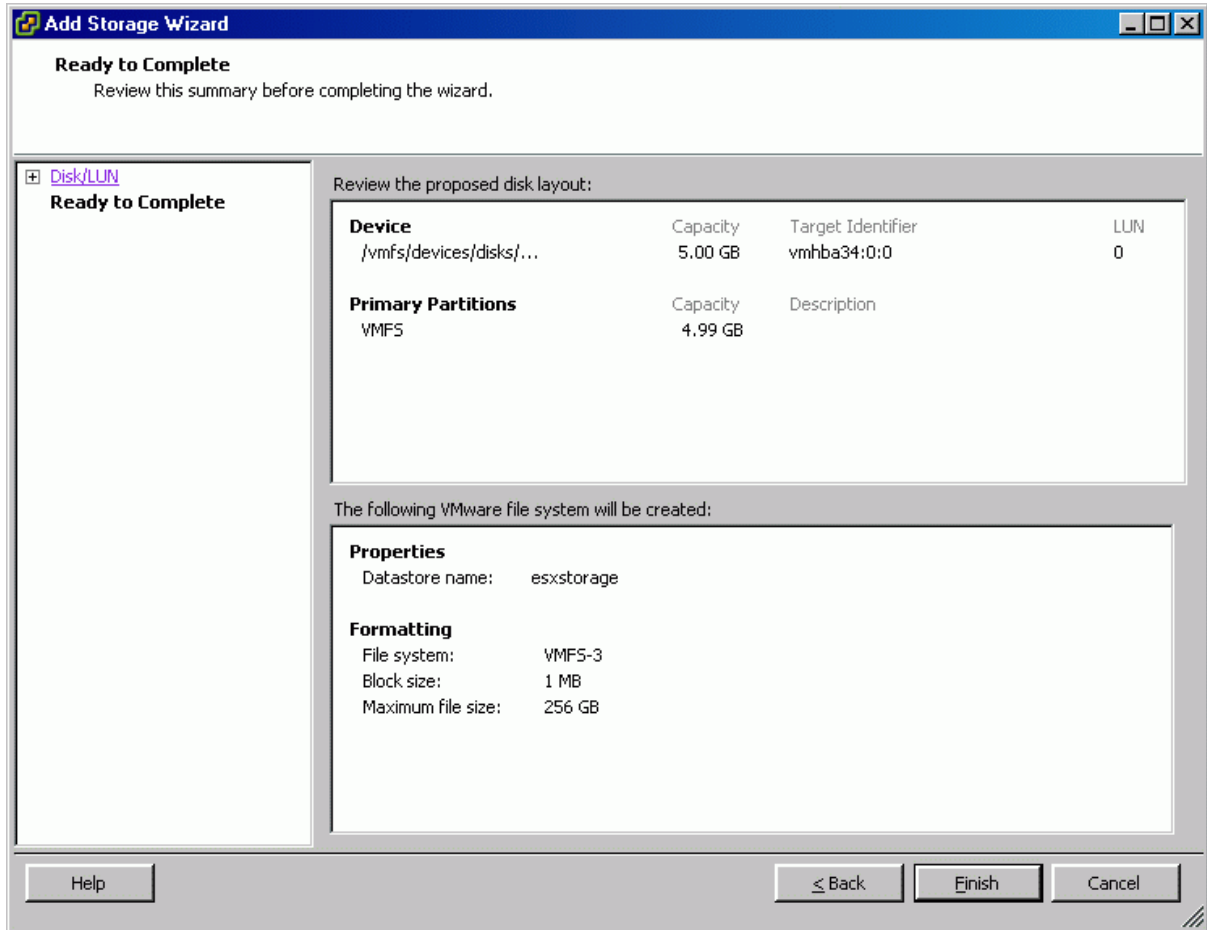Press the **Next** button to continue.

Specify the Datastore Name.

Press the **Next** button to continue.

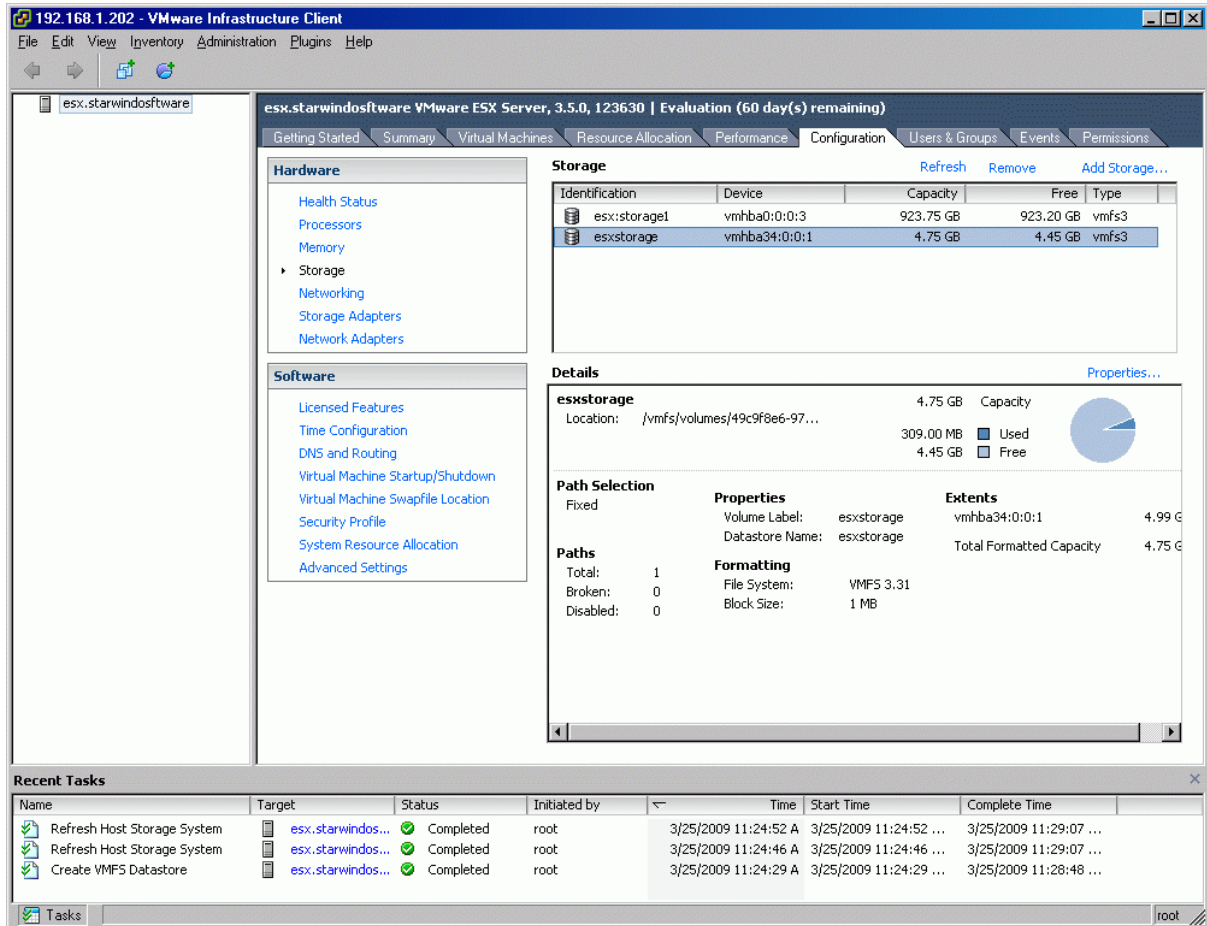Specify the Disk/LUN formatting options.

Press the **Next** button to continue.

Confirm that the device parameters are correct and press the **Back** button should any changes be required.

Press the **Finish** button to close the wizard.

If everything went fine, the **Virtual Infrastructure Client** window should look like the sample picture provided below.

Create a New Virtual Machine

Press the right mouse button over the server and select **New Virtual Machine.**
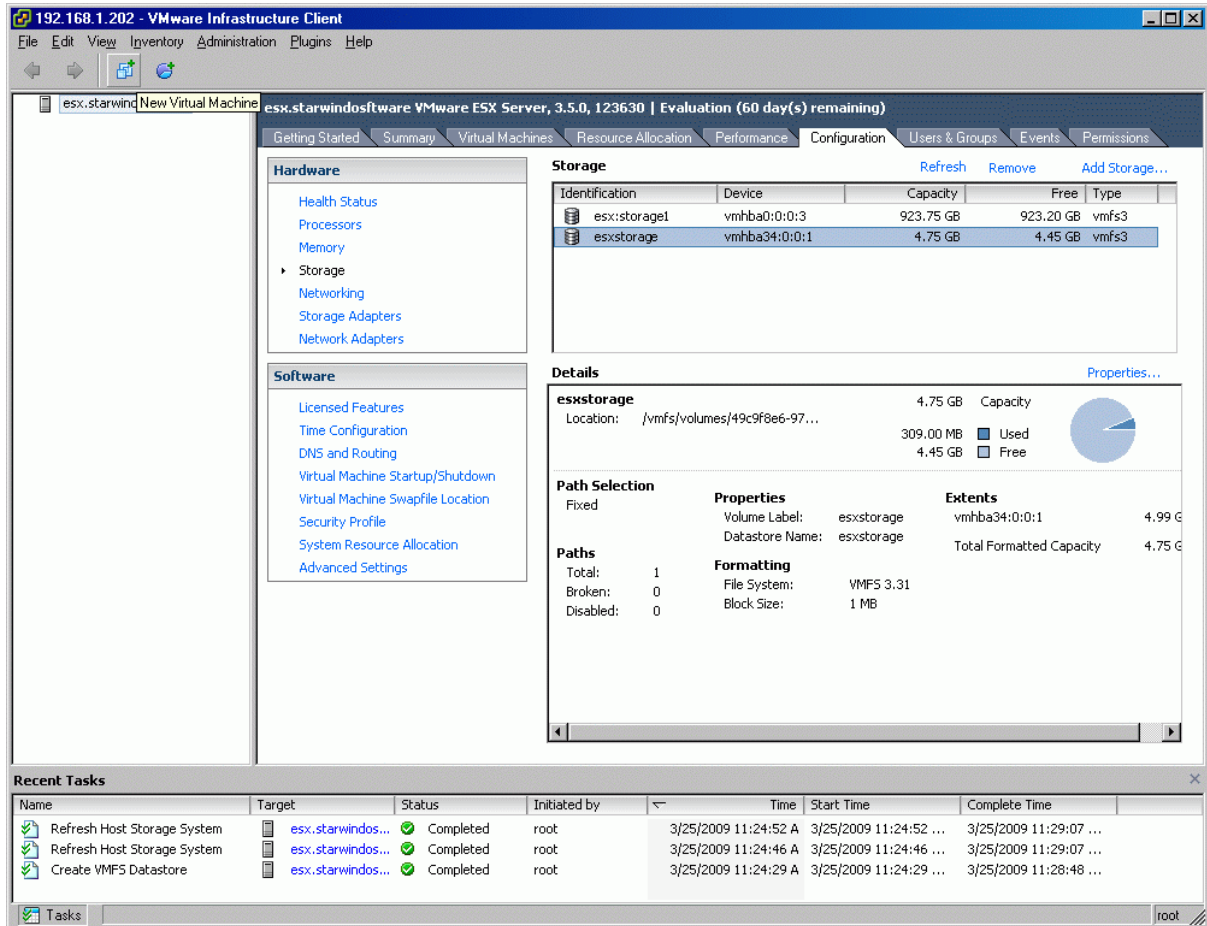
Alternatively you can press **Ctrl+N** combination.

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New Virtual Machine Wizard appears.

Press the **Next** button to continue.

Press the **Next** button to continue.

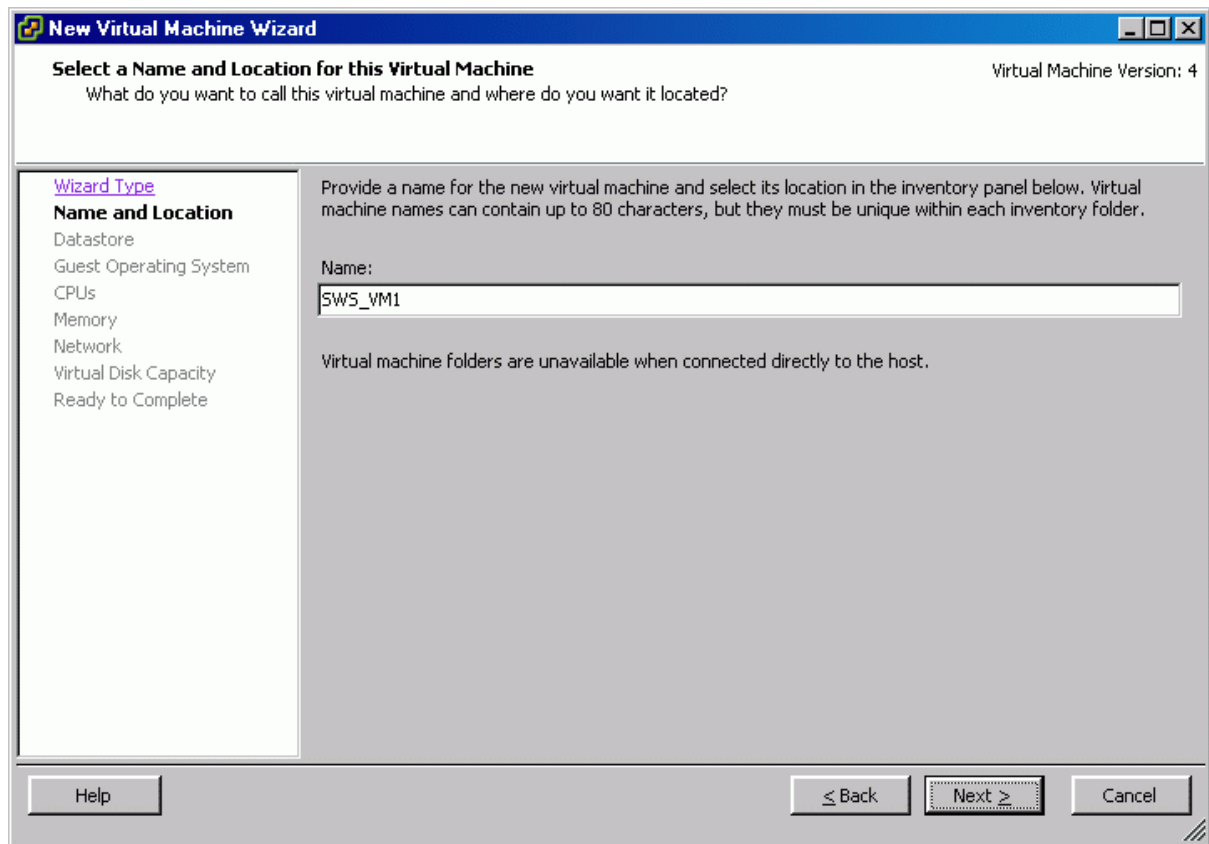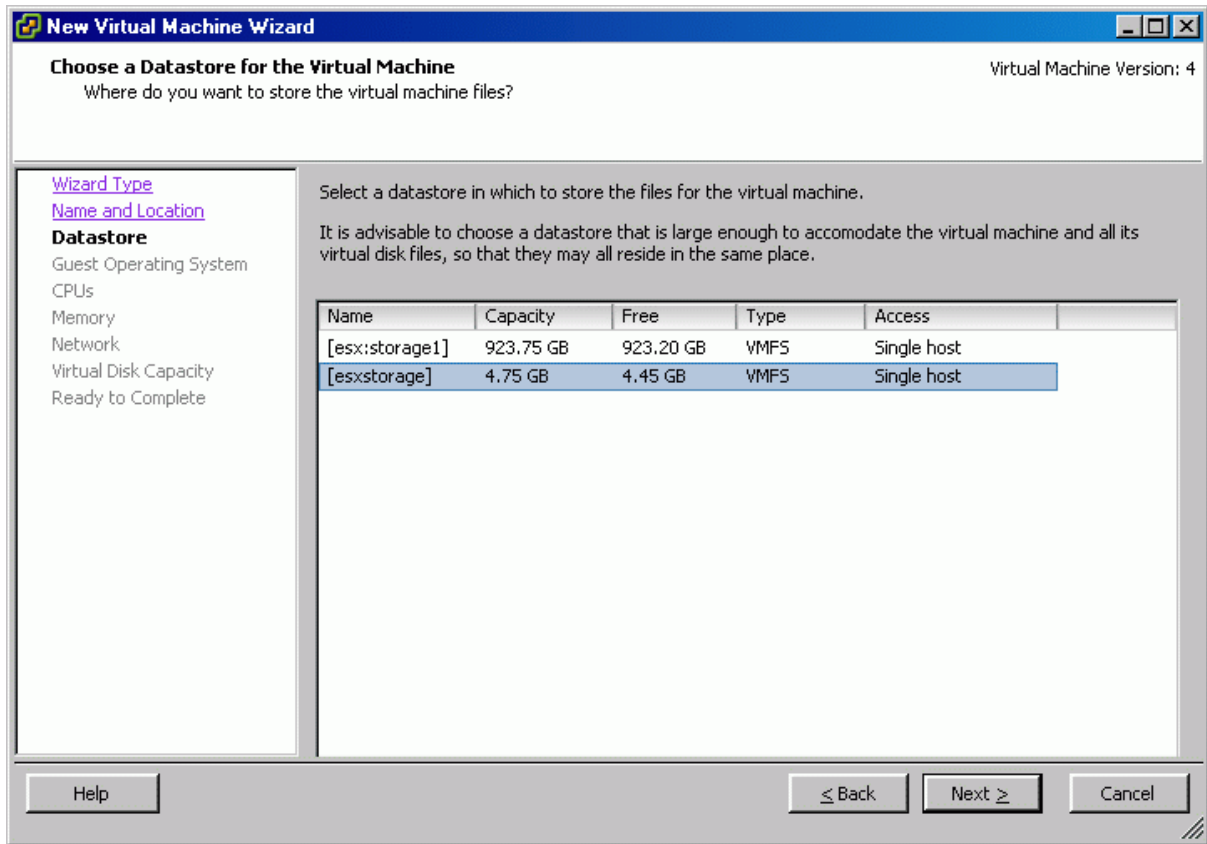Press the **Next** button to continue.

Press the **Next** button to continue.

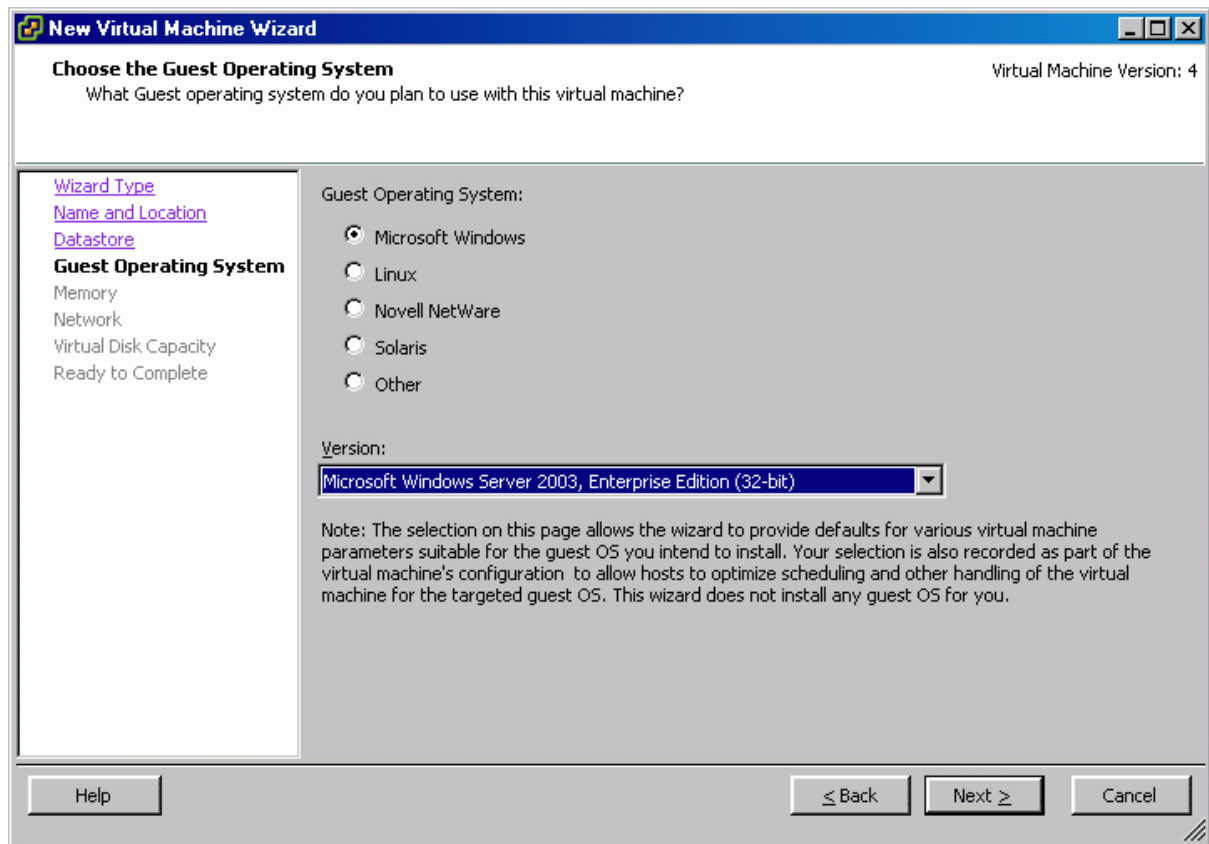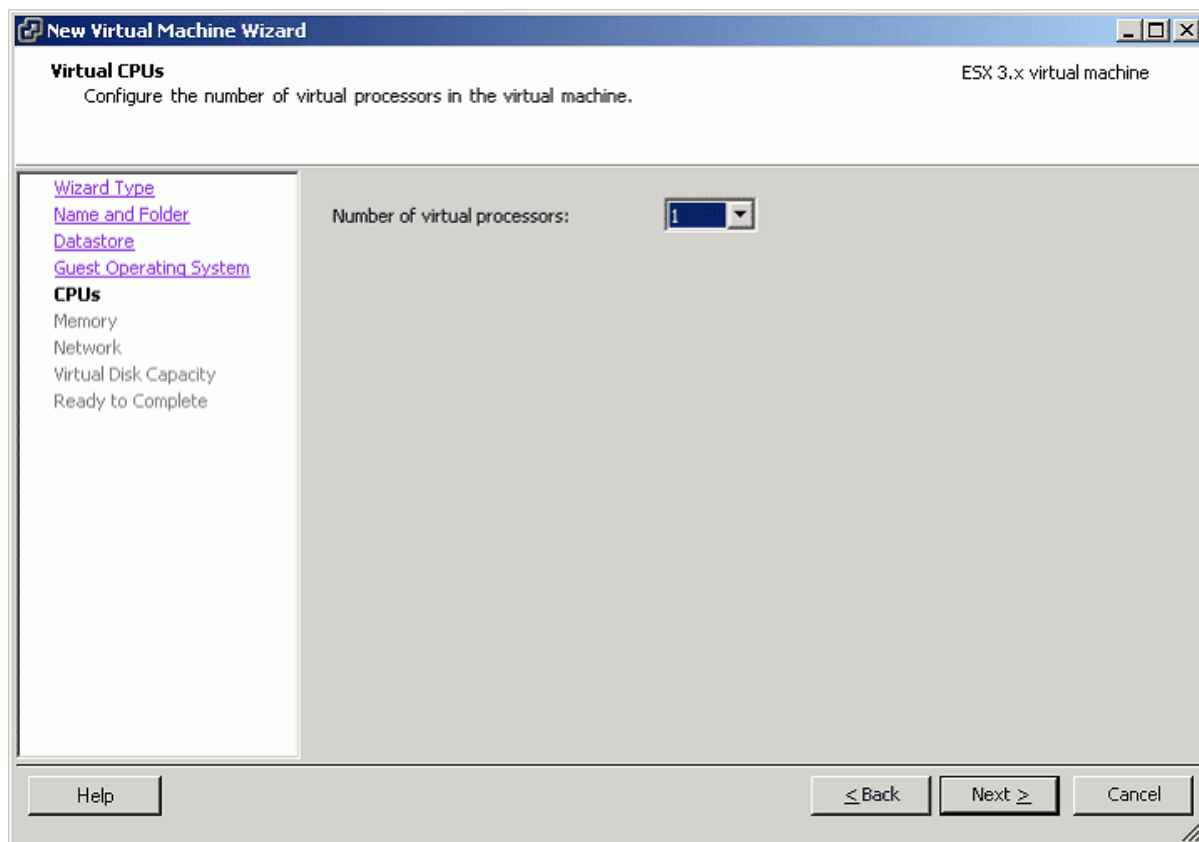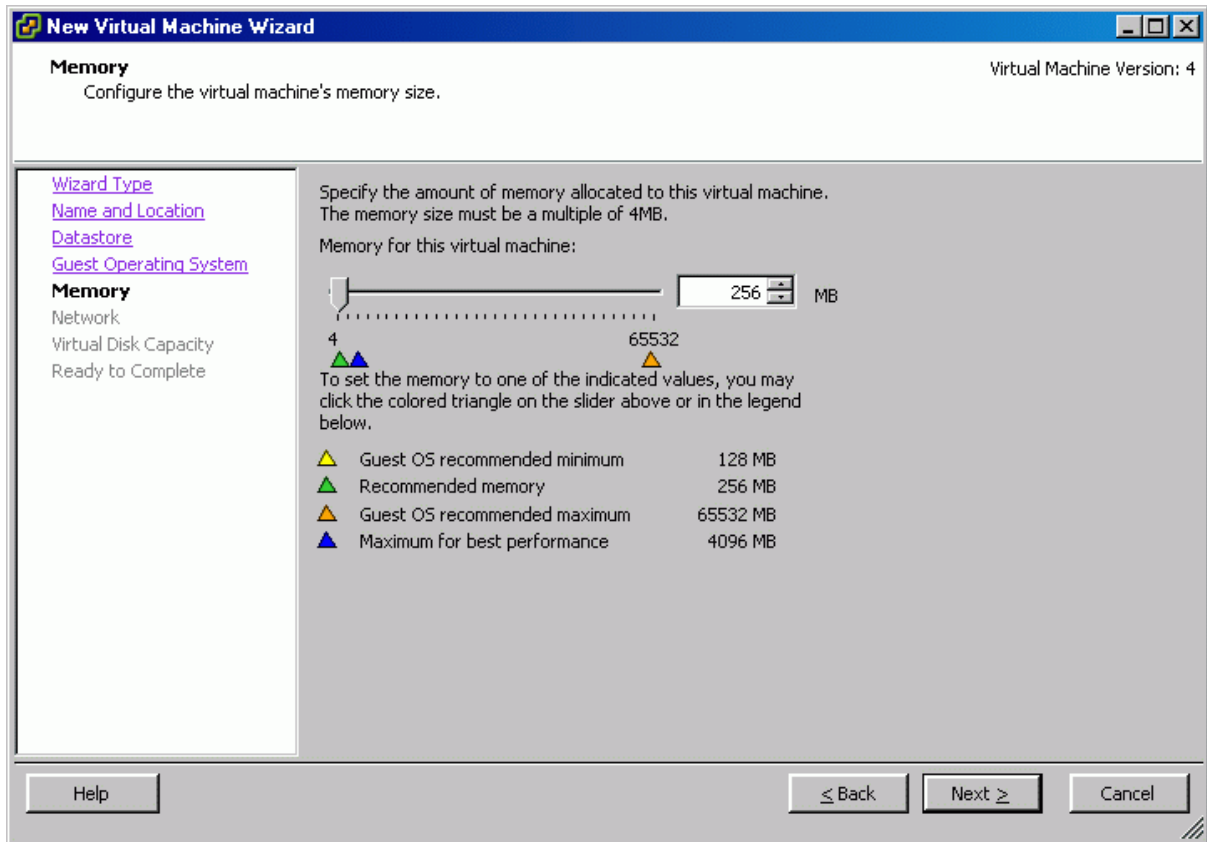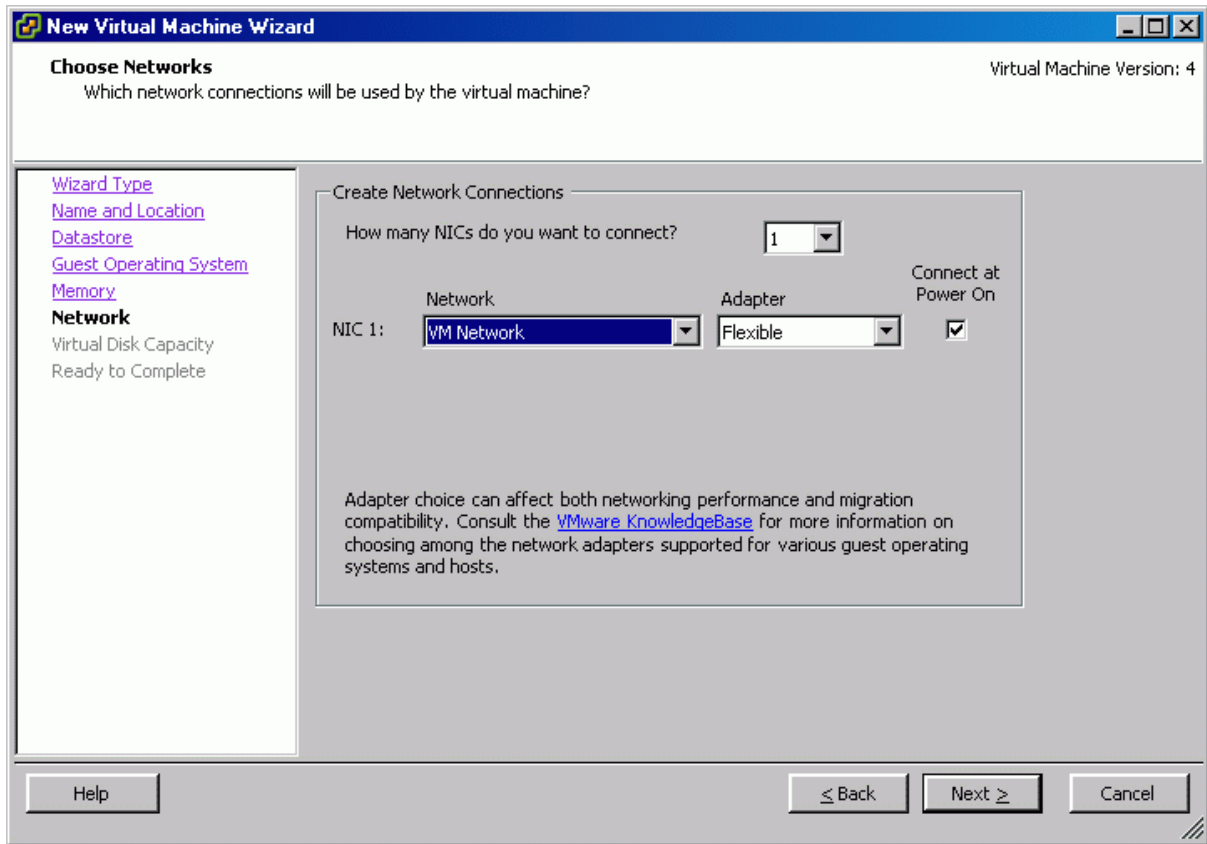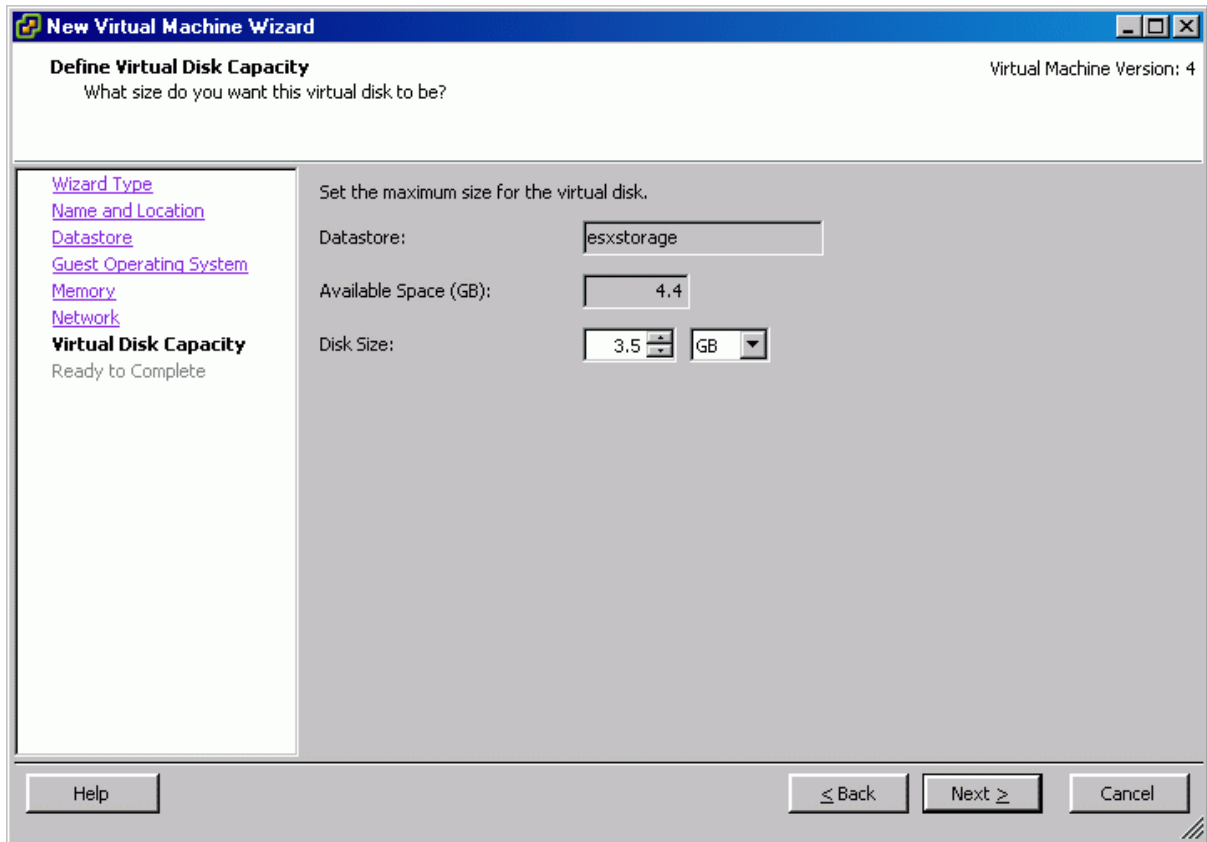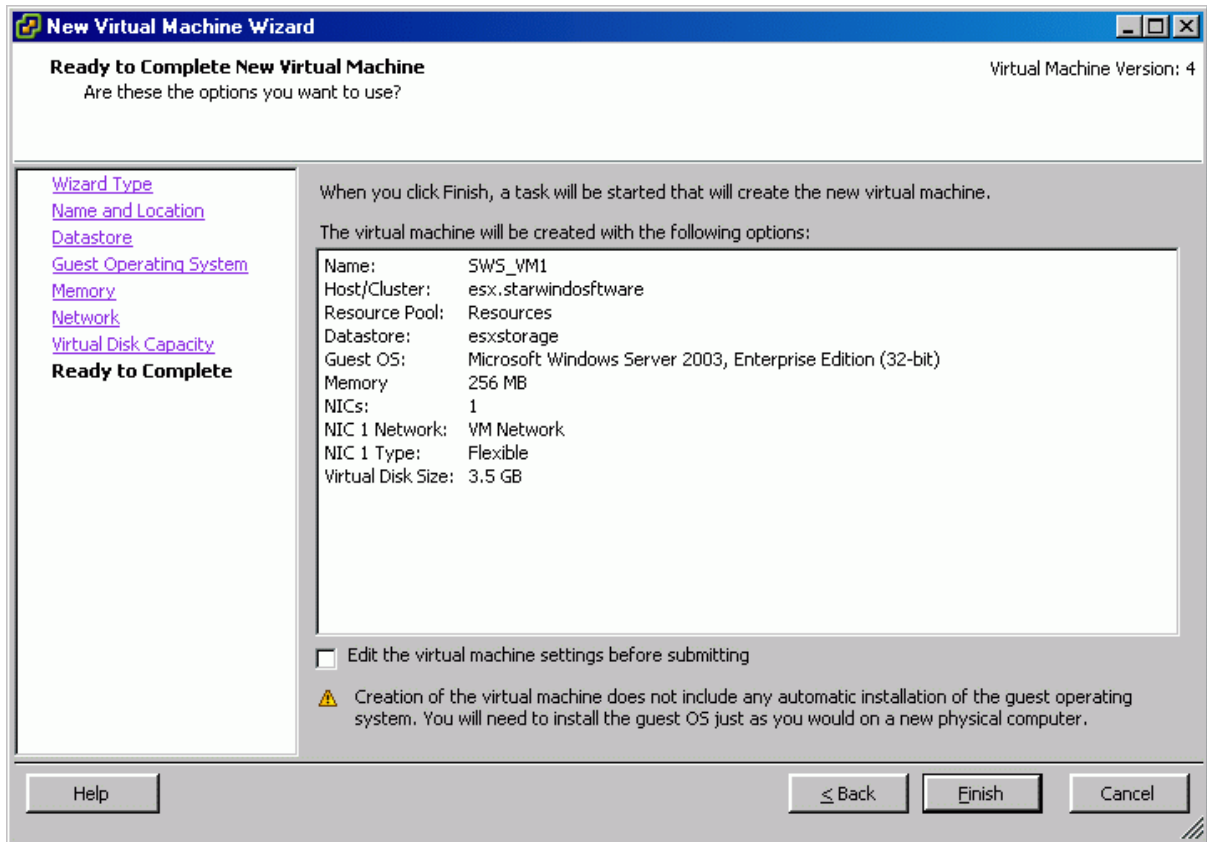Press the **Next** button to continue.

Press the **Next** button to continue.

Press the **Next** button to continue.

Press the **Next** button to continue.
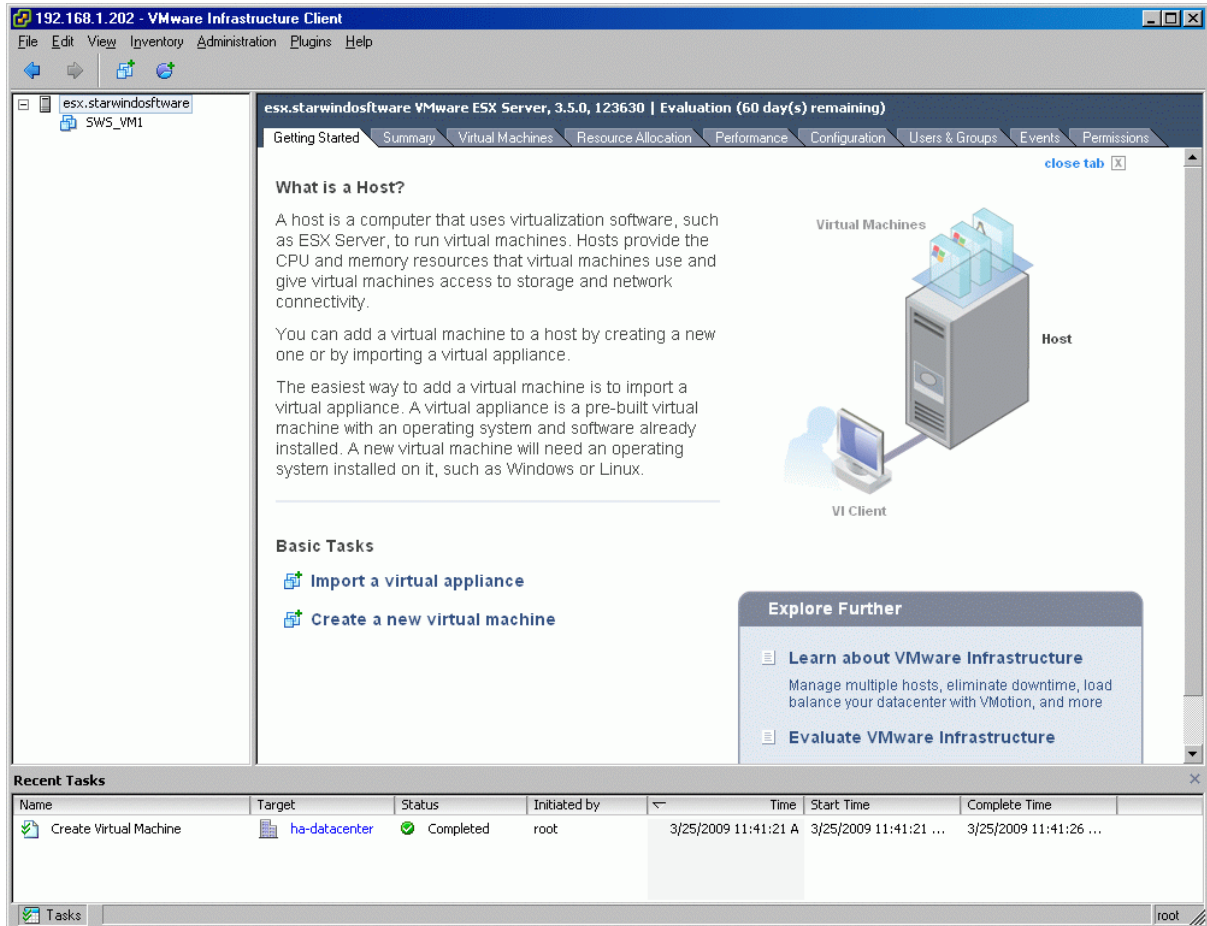
New Virtual Machine Wizard

Ready to Complete New Virtual Machine
Are these the options you want to use?

Virtual Machine Version: 4

Wizard Type
Name and Location
Datastore
Guest Operating System
Memory
Network
Virtual Disk Capacity
Ready to Complete

When you click Finish, a task will be started that will create the new virtual machine.

The virtual machine will be created with the following options:

Name:	SWS_VM1
Host/Cluster:	esx.starwindosftware
Resource Pool:	Resources
Datastore:	esxstorage
Guest OS:	Microsoft Windows Server 2003, Enterprise Edition (32-bit)
Memory:	256 MB
NICs:	1
NIC 1 Network:	VM Network
NIC 1 Type:	Flexible
Virtual Disk Size:	3.5 GB

☐ Edit the virtual machine settings before submitting

⚠ Creation of the virtual machine does not include any automatic installation of the guest operating system. You will need to install the guest OS just as you would on a new physical computer.
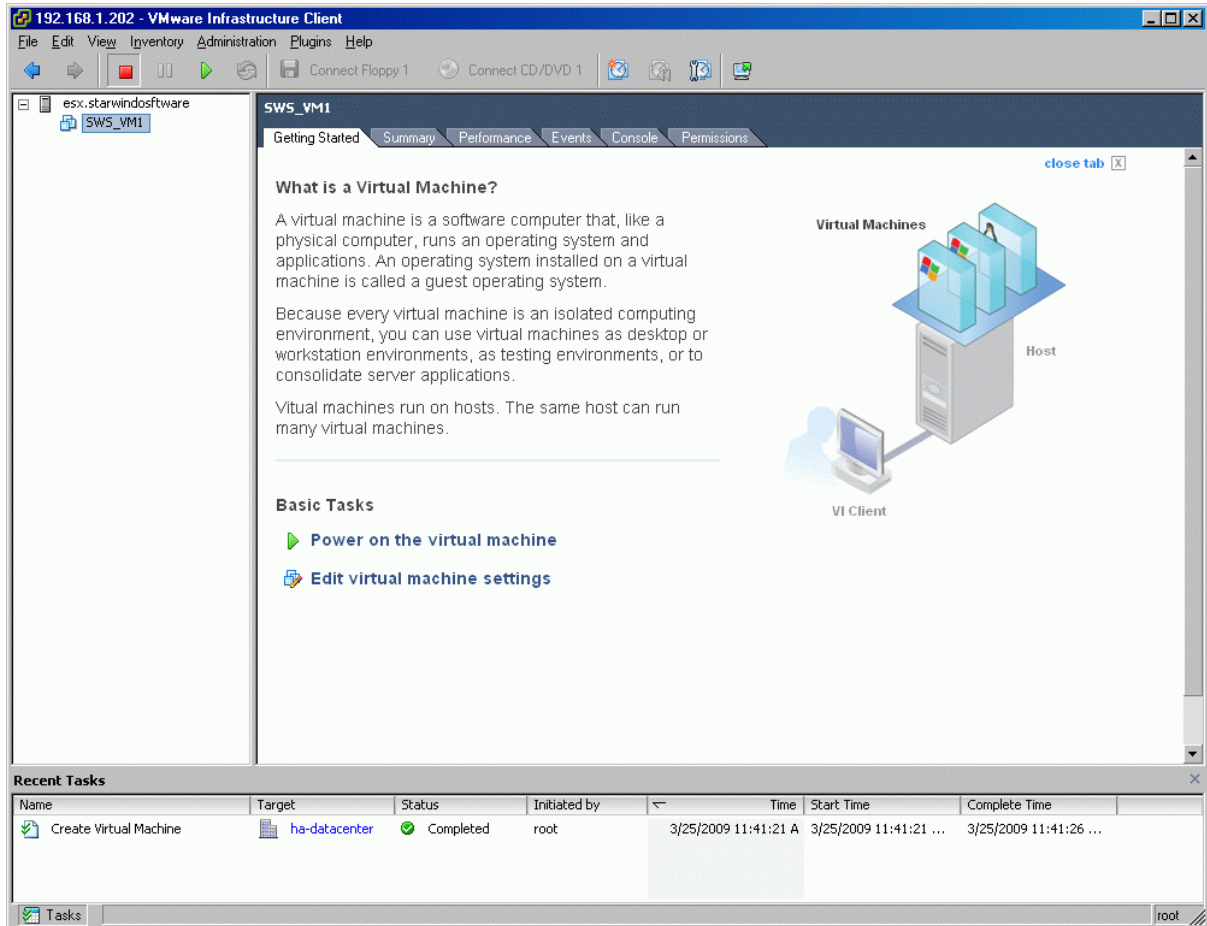
Help   ≤ Back   Finish   Cancel

Press the **Finish** button to close the wizard.

If successful, the **Virtual Infrastructure Client** window should look like the sample picture provided below.
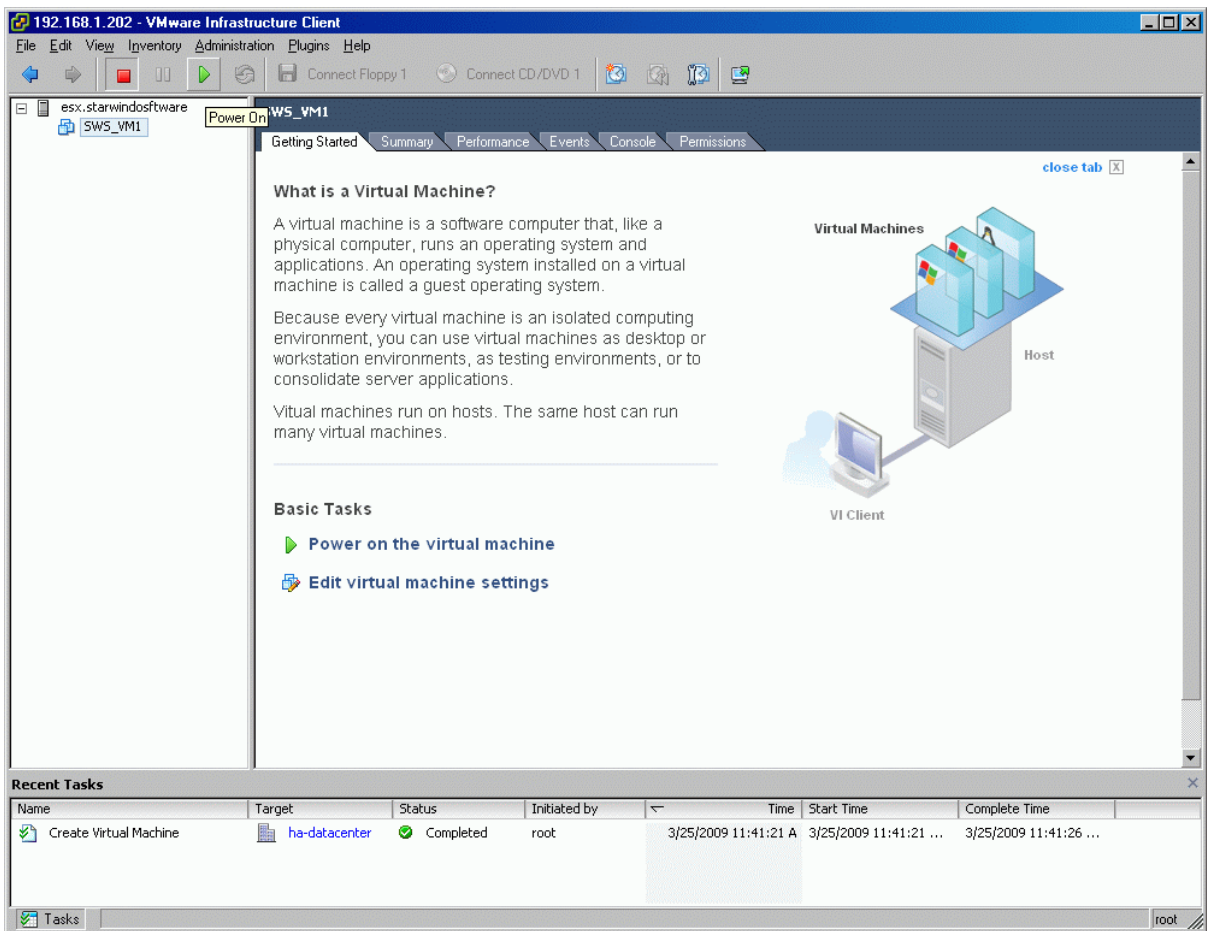
Click over the recently created virtual machine name in the inventory panel to view the information (see picture below).


Before the virtual machine is powered on, check the **Licensed Features** on **Configuration** tab. You should specify **License Server** or provide **Host License File**.

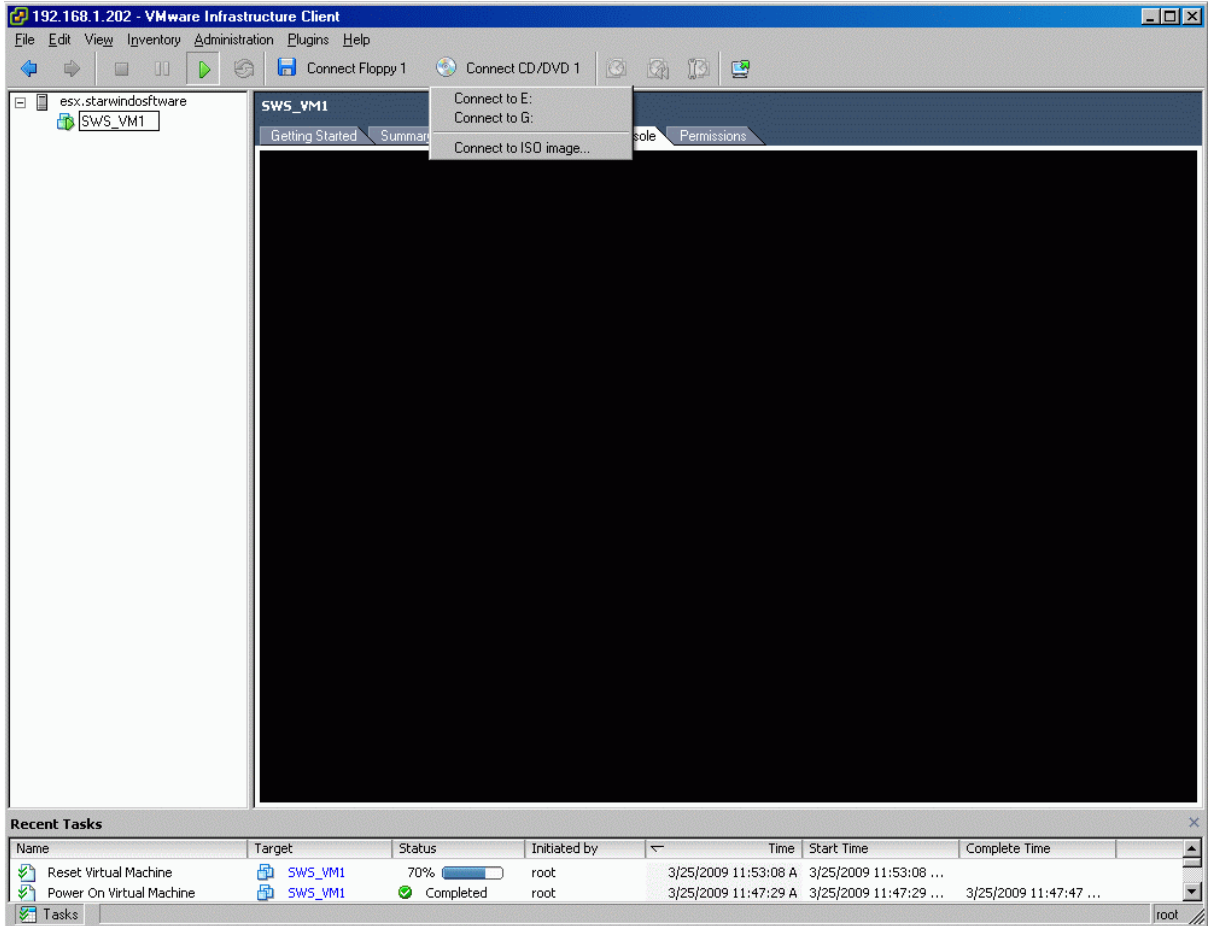Press the **Power On** button to start the virtual machine.

Optionally the virtual machine configuration may be editing by pressing the **Edit Settings** link.
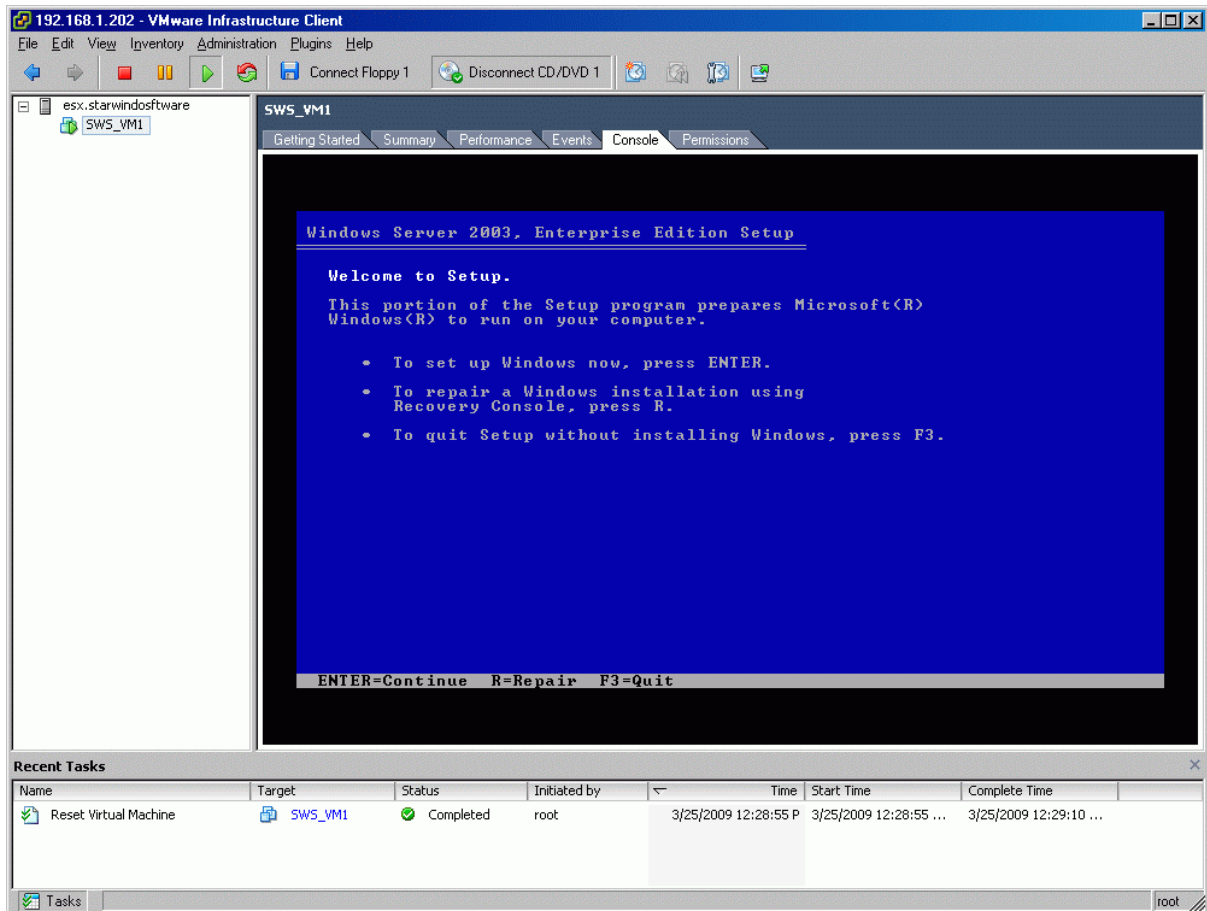
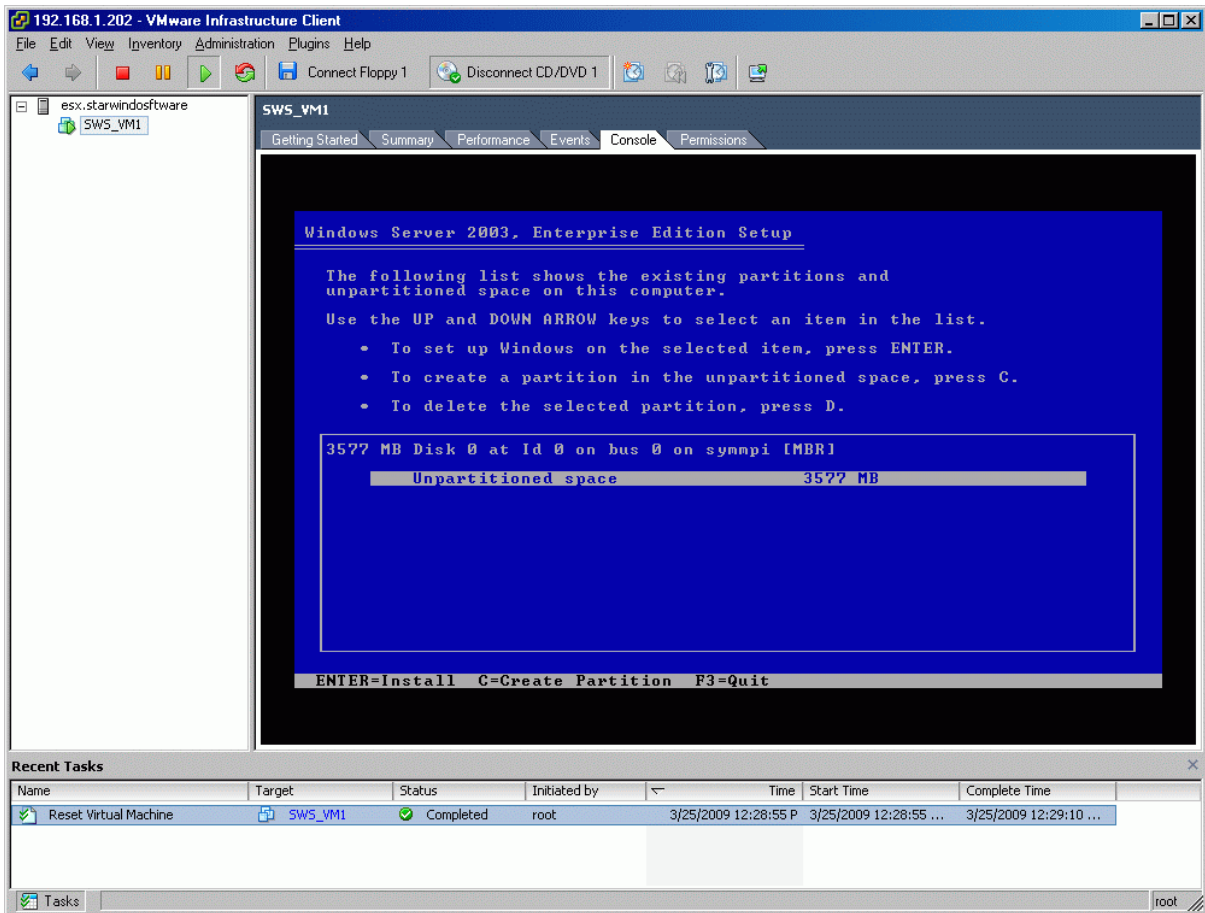Launch the console by pressing the **Open Console** button.
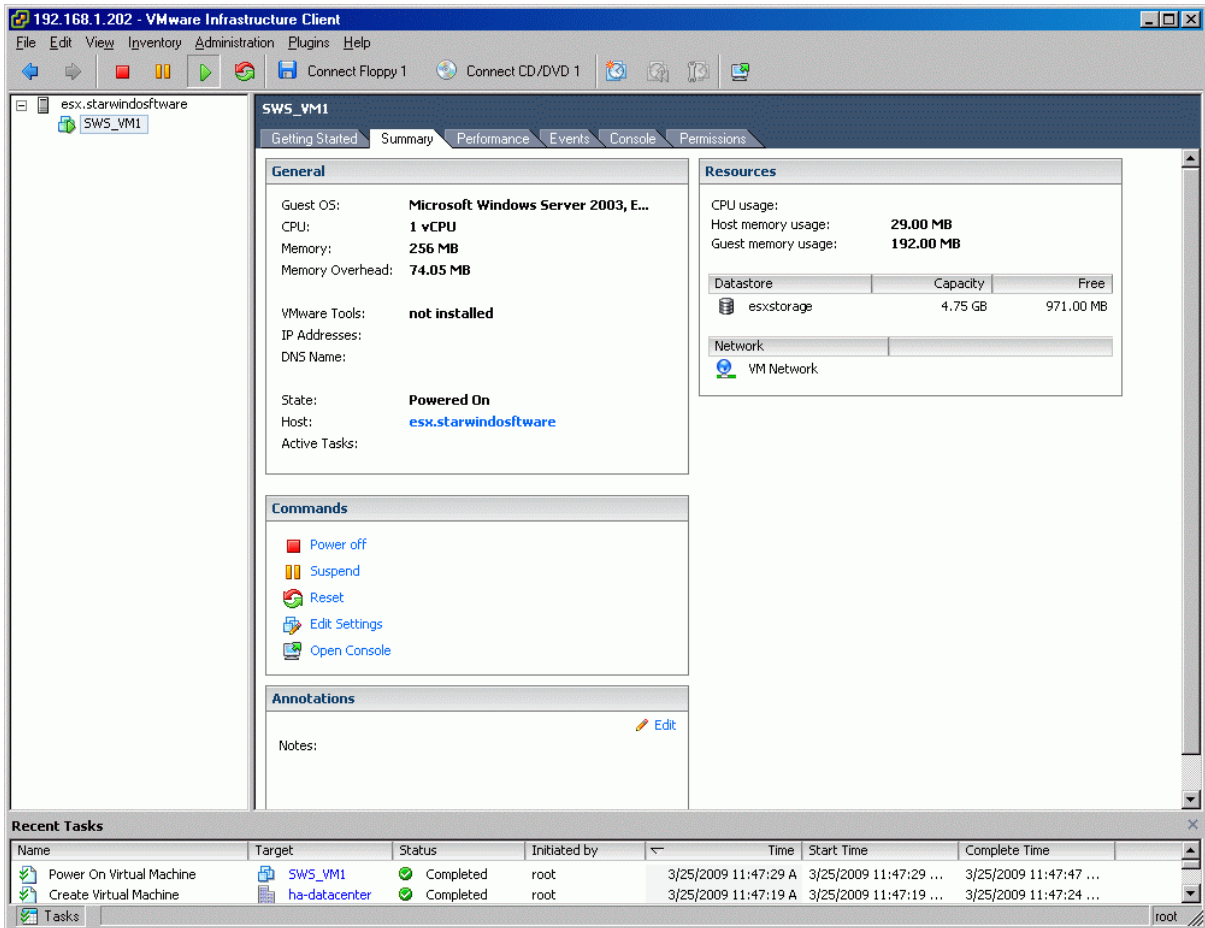
Specify path to the OS installation media or ISO.

The following screen captures show the installation of Microsoft's Windows 2003 Server operating system to an ESX Server managed through Virtual Infrastructure client using iSCSI for storage.

Install the OS in the usual way.

Conclusion

Contacts

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