

How to Create a Virtual Machine using VMware ESXi and the vSphere Client

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Introduction

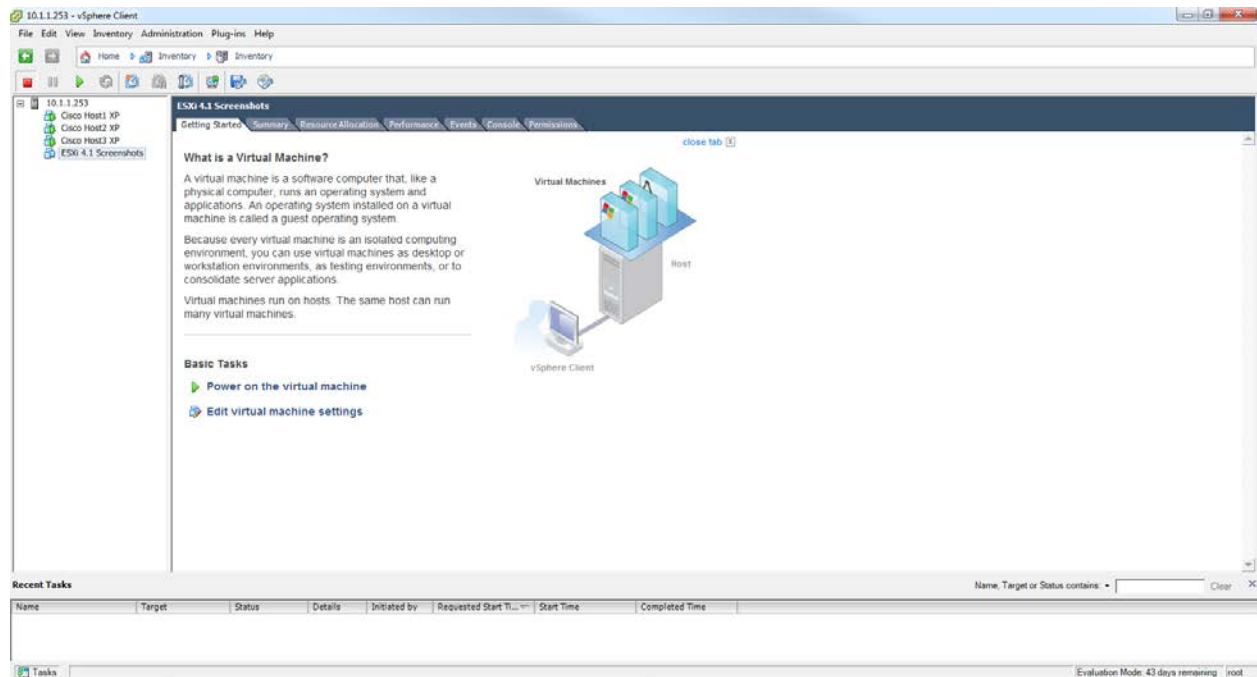
Creating virtual machines is the most basic task in VMware ESXi. It is also one of the easiest tasks. A few things need to be known before you begin creating a virtual machine:

- What operating system will your virtual machine employ
- Is that operating system 32bit or 64bit
- How much storage space needs to be provisioned
- How many virtual network cards will be needed and how will those virtual network cards connect to the vSwitches (and/or VLANs) in ESXi, and how are those vSwitches (and/or VLANs) connected to the physical network.
- Where will the virtual machine be stored in the storage solution you have implemented in ESXi

Knowing these things will simplify the virtual machine process and ensure that the virtual machine successfully fulfills the role it was designed for.

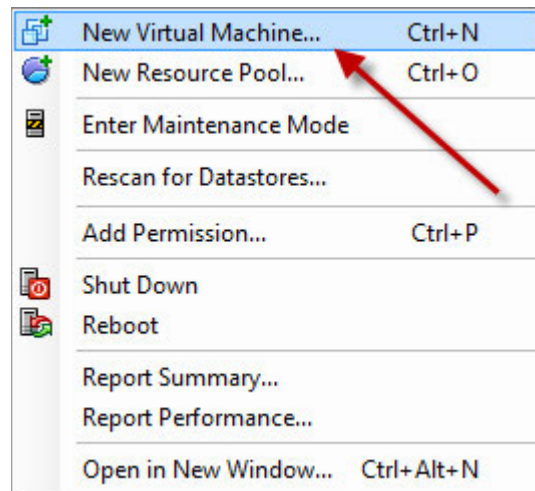
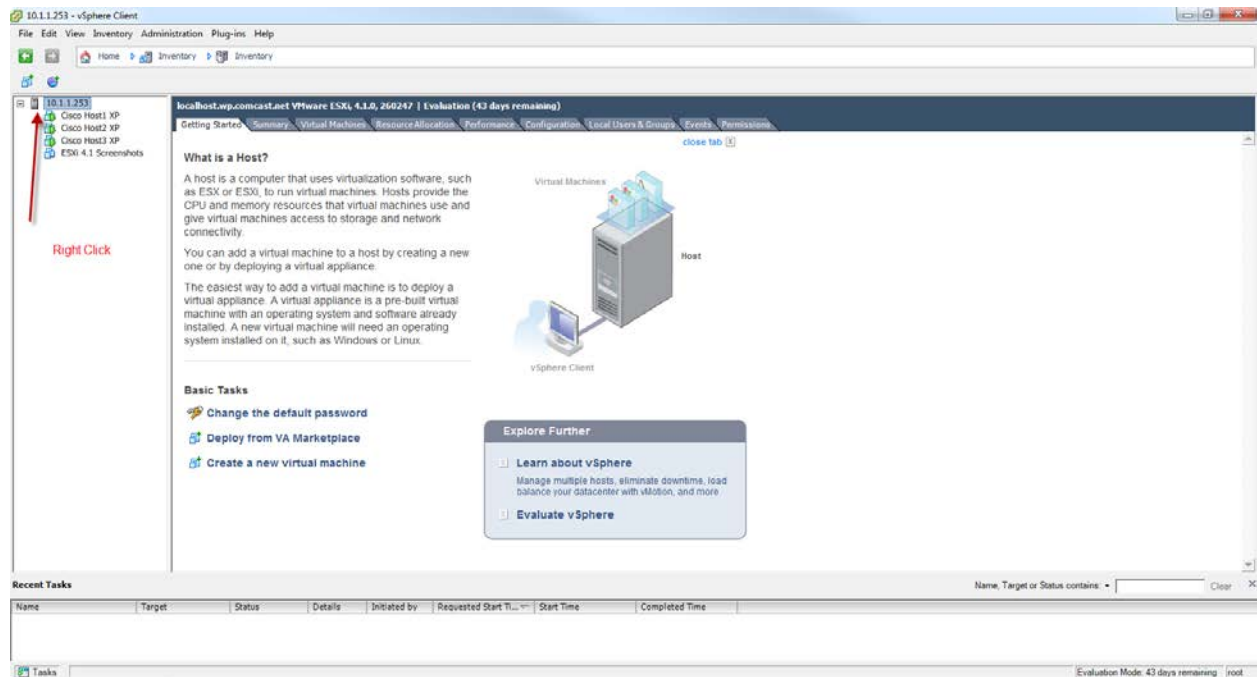
Steps

1. Open the vSphere client and login. Begin at the ESXi Inventory Screen.



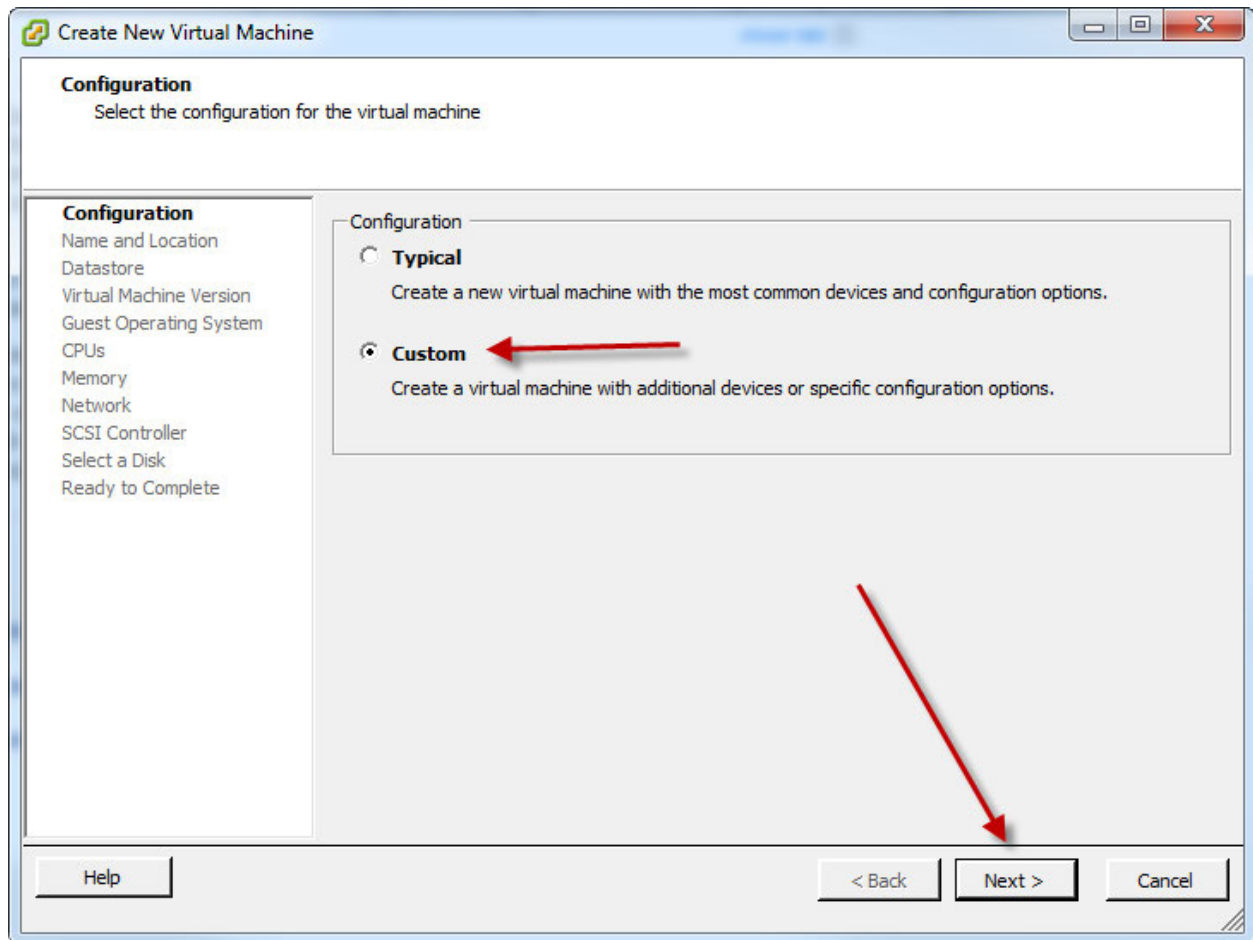
NOTES:

2. Right click the IP Address of the ESXi hypervisor and select New Virtual Machine.



NOTES:

3. Select the, "Custom", radio button and click the Next button.



NOTES:

4. Create a Name for the virtual machine and click the Next button.

The screenshot shows the 'Create New Virtual Machine' wizard window. The title bar reads 'Create New Virtual Machine'. The main heading is 'Name and Location' with the instruction 'Specify a name and location for this virtual machine'. On the left, a 'Configuration' sidebar lists steps: 'Name and Location' (selected), 'Datastore', 'Virtual Machine Version', 'Guest Operating System', 'CPUs', 'Memory', 'Network', 'SCSI Controller', 'Select a Disk', and 'Ready to Complete'. The main area has a 'Name:' label and a text box containing 'DC rustyhann.internal'. Below the text box, explanatory text states: 'Virtual machine (VM) names may contain up to 80 characters and they must be unique within each vCenter Server VM folder. VM folders are not viewable when connected directly to a host. To view VM folders and specify a location for this VM, connect to the vCenter Server.' At the bottom, there are three buttons: 'Help', '< Back', 'Next >', and 'Cancel'. Two red arrows are overlaid on the image: one points from the 'Next >' button to the 'Name' text box, and another points from the 'Name' text box to the 'Next >' button, indicating the flow of the wizard.

Create New Virtual Machine

Name and Location
Specify a name and location for this virtual machine

Configuration
Name and Location
Datastore
Virtual Machine Version
Guest Operating System
CPUs
Memory
Network
SCSI Controller
Select a Disk
Ready to Complete

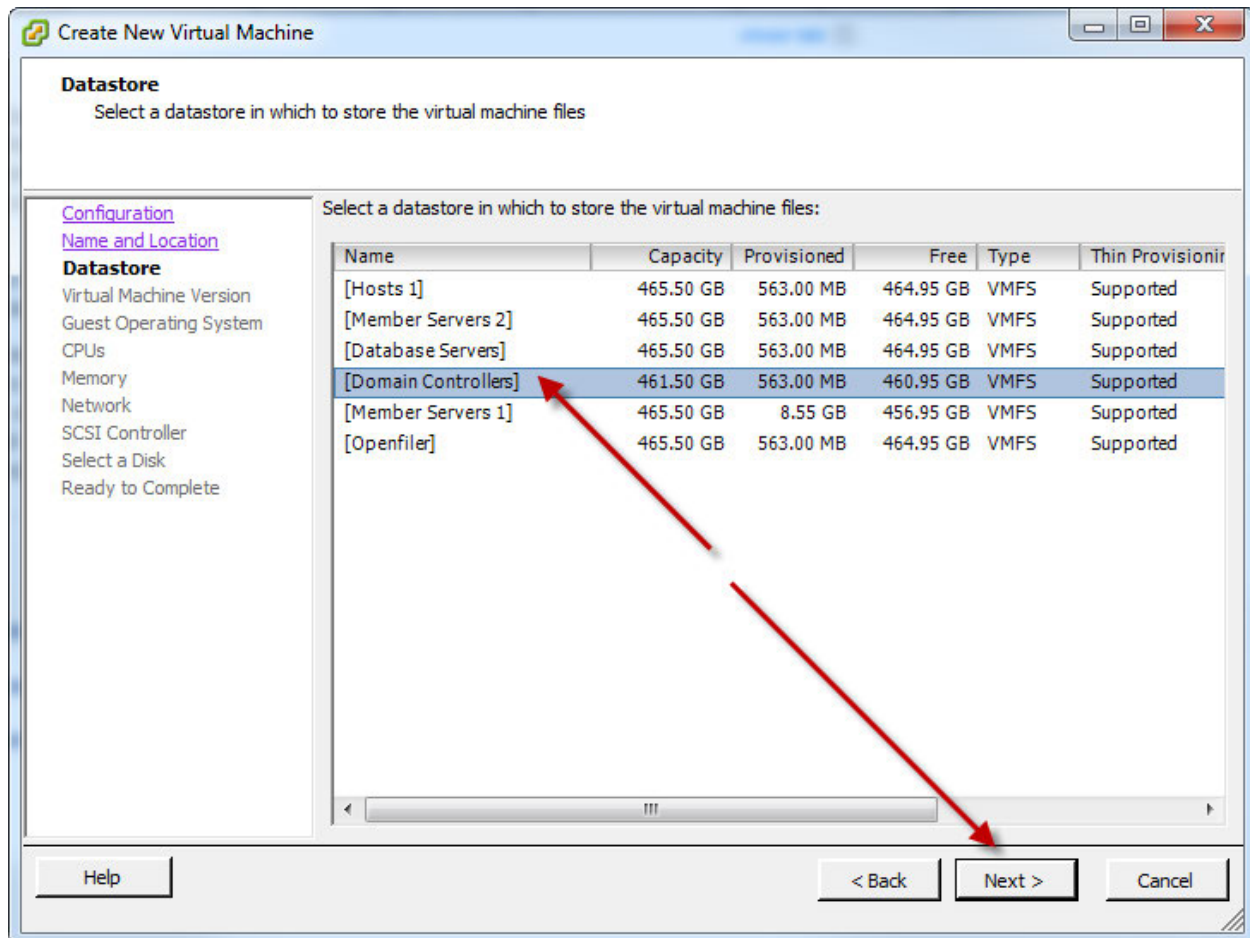
Name:
DC rustyhann.internal

Virtual machine (VM) names may contain up to 80 characters and they must be unique within each vCenter Server VM folder.
VM folders are not viewable when connected directly to a host. To view VM folders and specify a location for this VM, connect to the vCenter Server.

Help < Back Next > Cancel

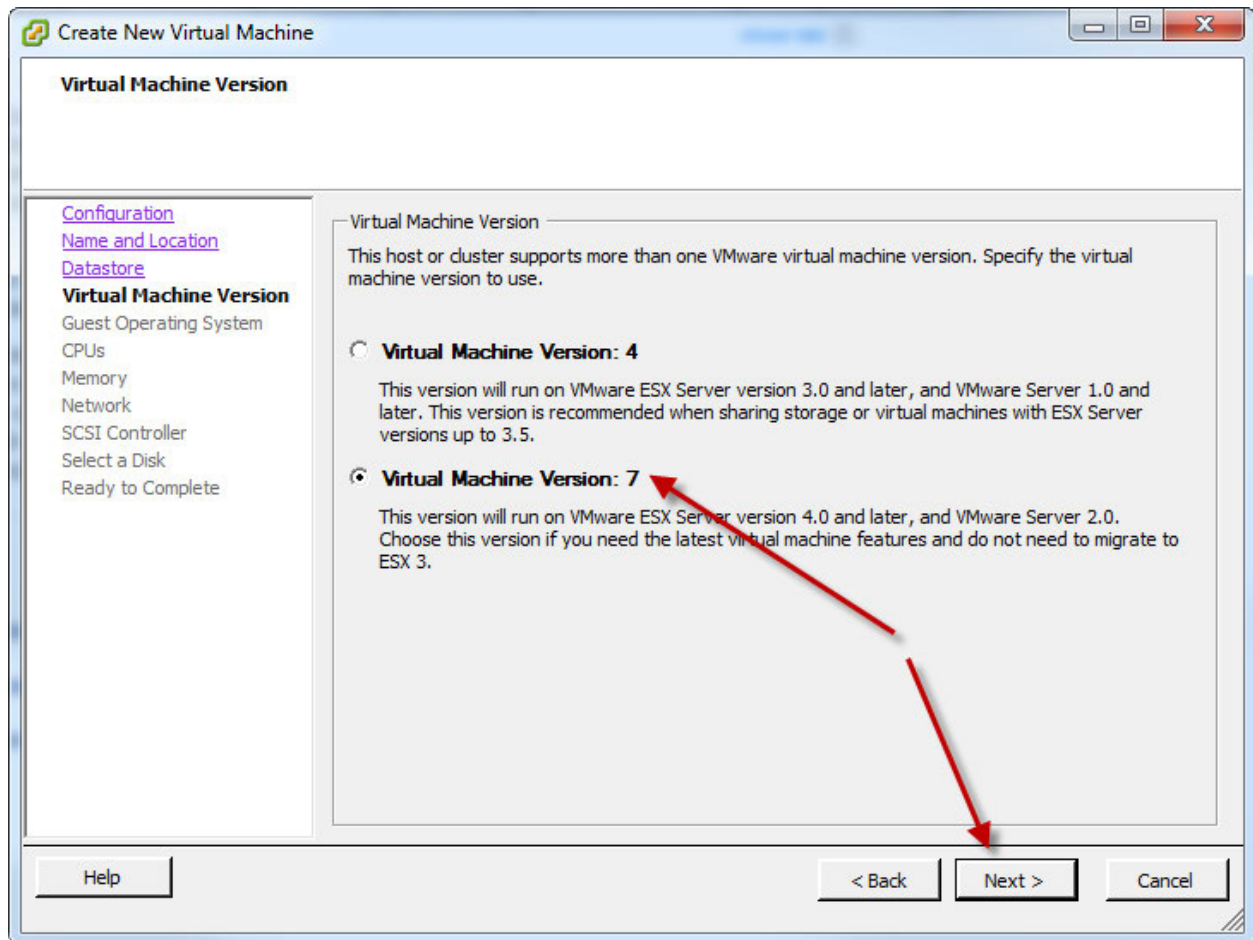
NOTES:

5. Select a datastore to store the virtual machine files on and click the Next button.



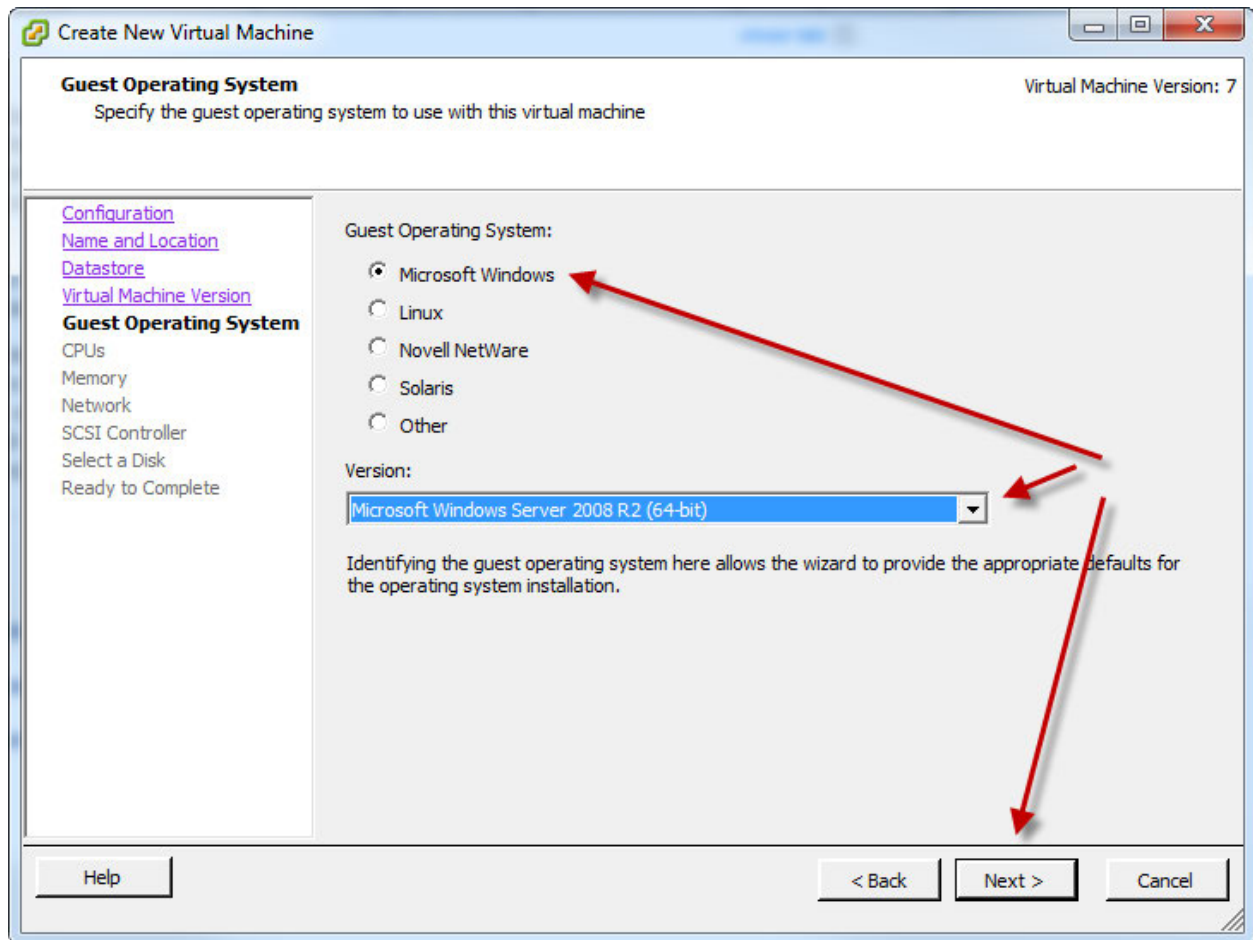
NOTES: A datastore is the hard drives which are physically installed in the server running ESXi, or the network accessible storage (NAS, iSCSI, fibre channel) the ESXi hypervisor is connected to. If you have multiple hard drives configured in a RAID array, you will only see one datastore which represents the RAID array, not the hard drives themselves. In the above screenshot, I have 6 hard drives installed in the server running ESXi. They are not configured in a RAID array.

6. Select the radio button next to, "Virtual Machine Version: 7", and click the Next button.



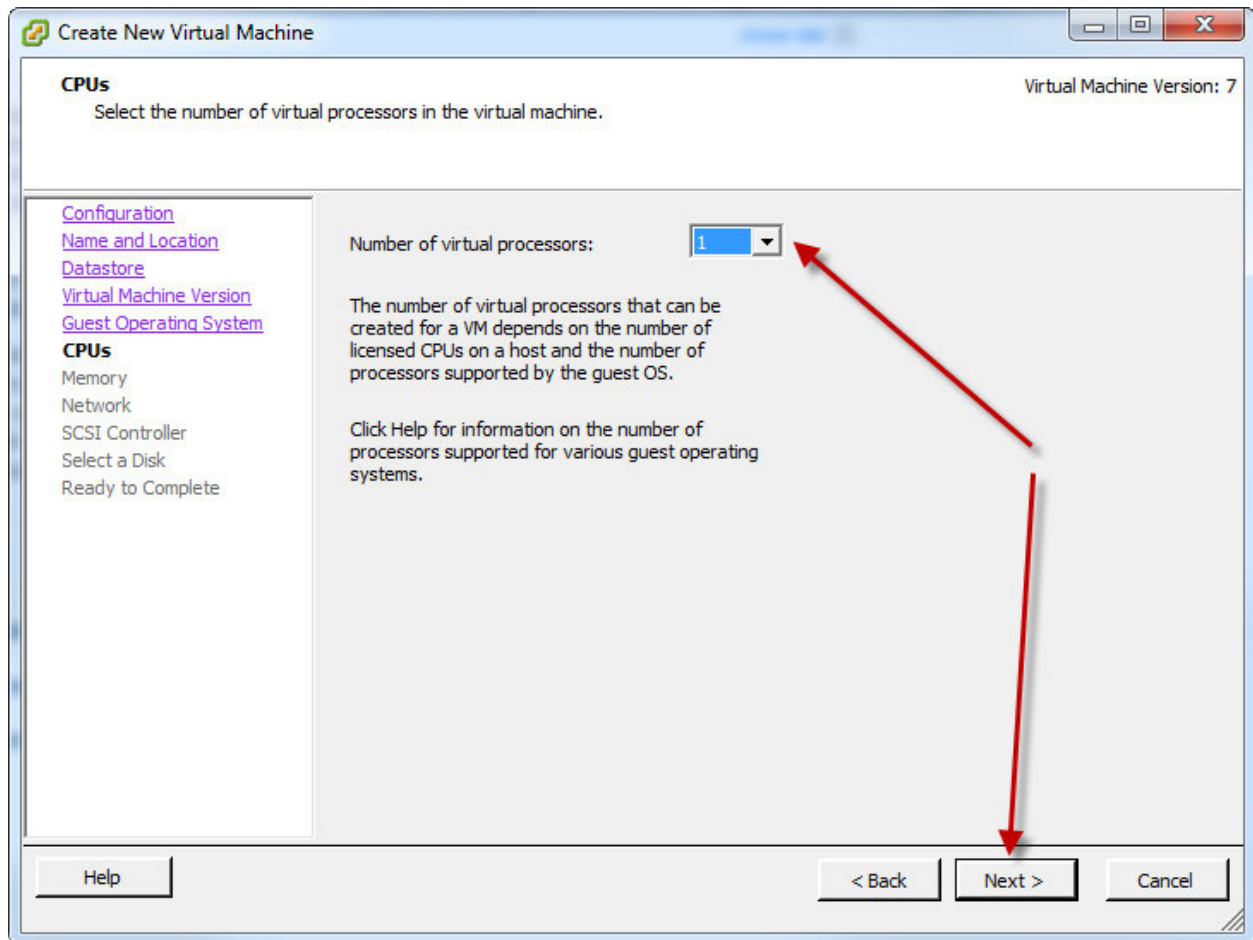
NOTES:

7. Select your Guest Operating System and Version. Click the Next button.



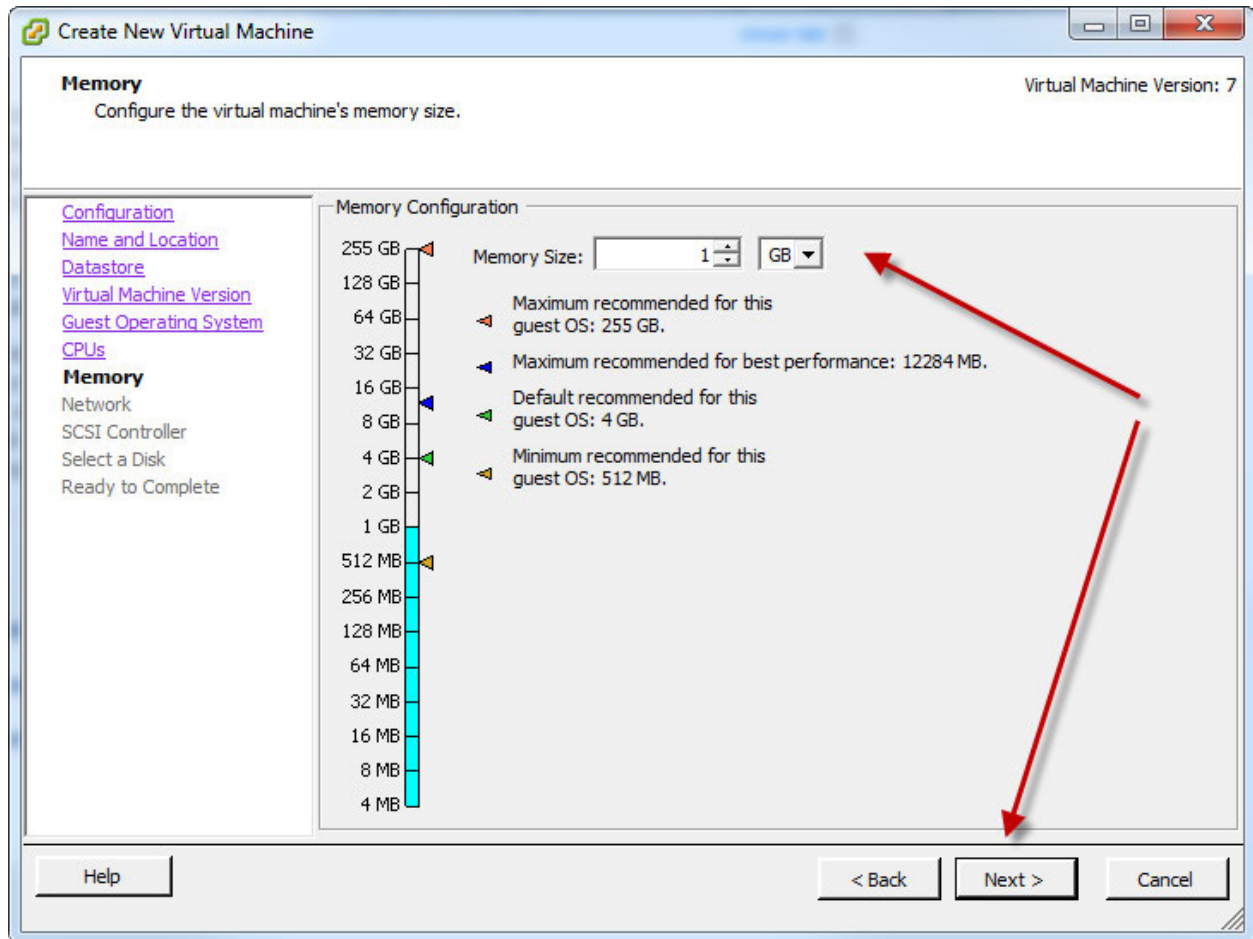
NOTES:

8. Select the Number of virtual processors and click the Next button.



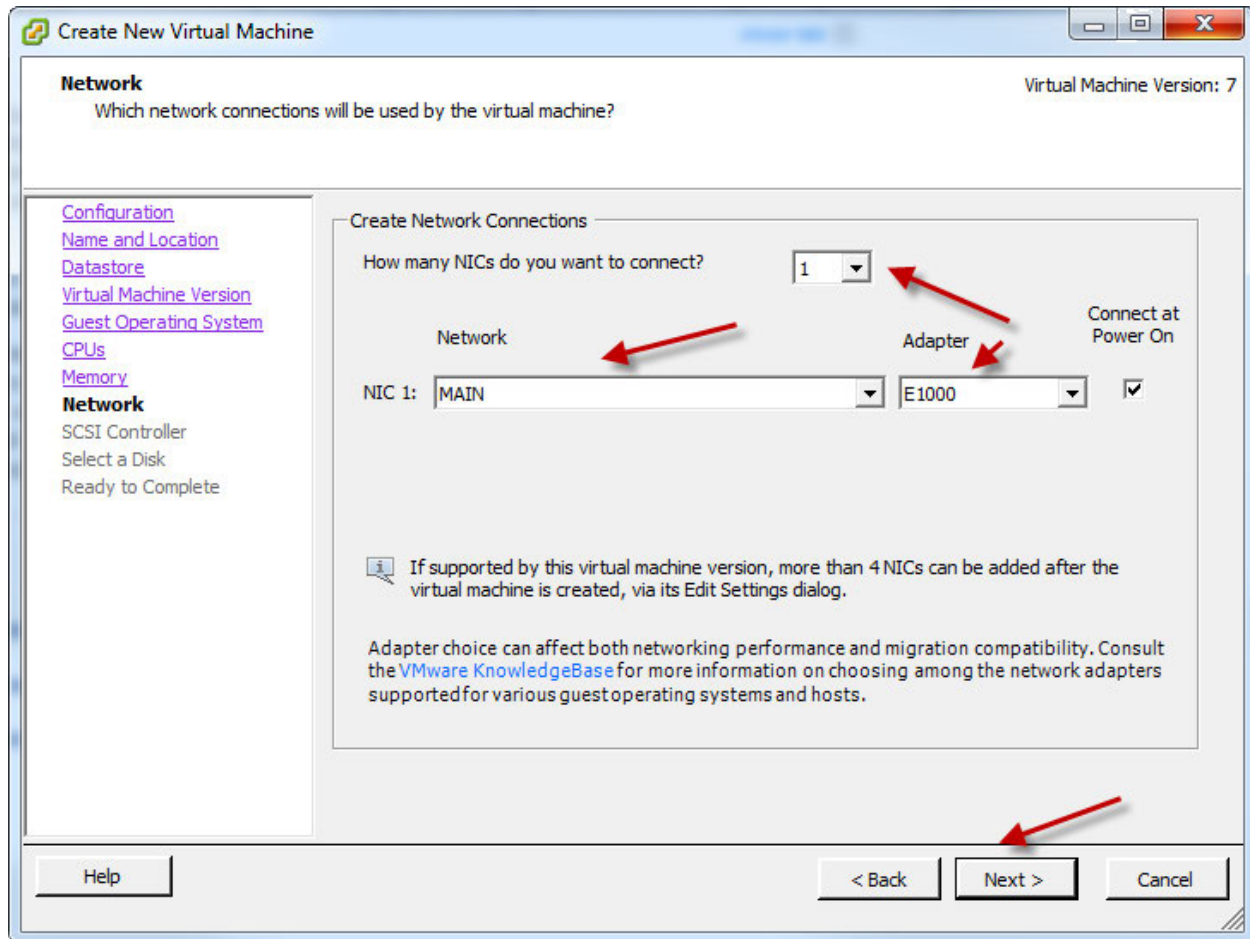
NOTES: When you choose the number of processors to dedicate to a virtual machine, remember that you are choosing processor cores. If you have a quad core processor, you will see four processors to choose from in this menu. In most circumstances, 1 processor is enough for a virtual machine. If a machine needs more processing power, the ESXi hypervisor will dynamically allocate the required resources. When you reserve more than 1 processor core, you are preventing those cores from being dynamically allocated to other virtual machines.

9. Select the Memory size for your virtual machine and click the Next button. You must allocate at least the minimum amount of RAM required by your operating system.



NOTES: Just as with processors, it is better to allocate as little RAM as is necessary to an operating system and let the ESXi hypervisor dynamically assign memory as needed.

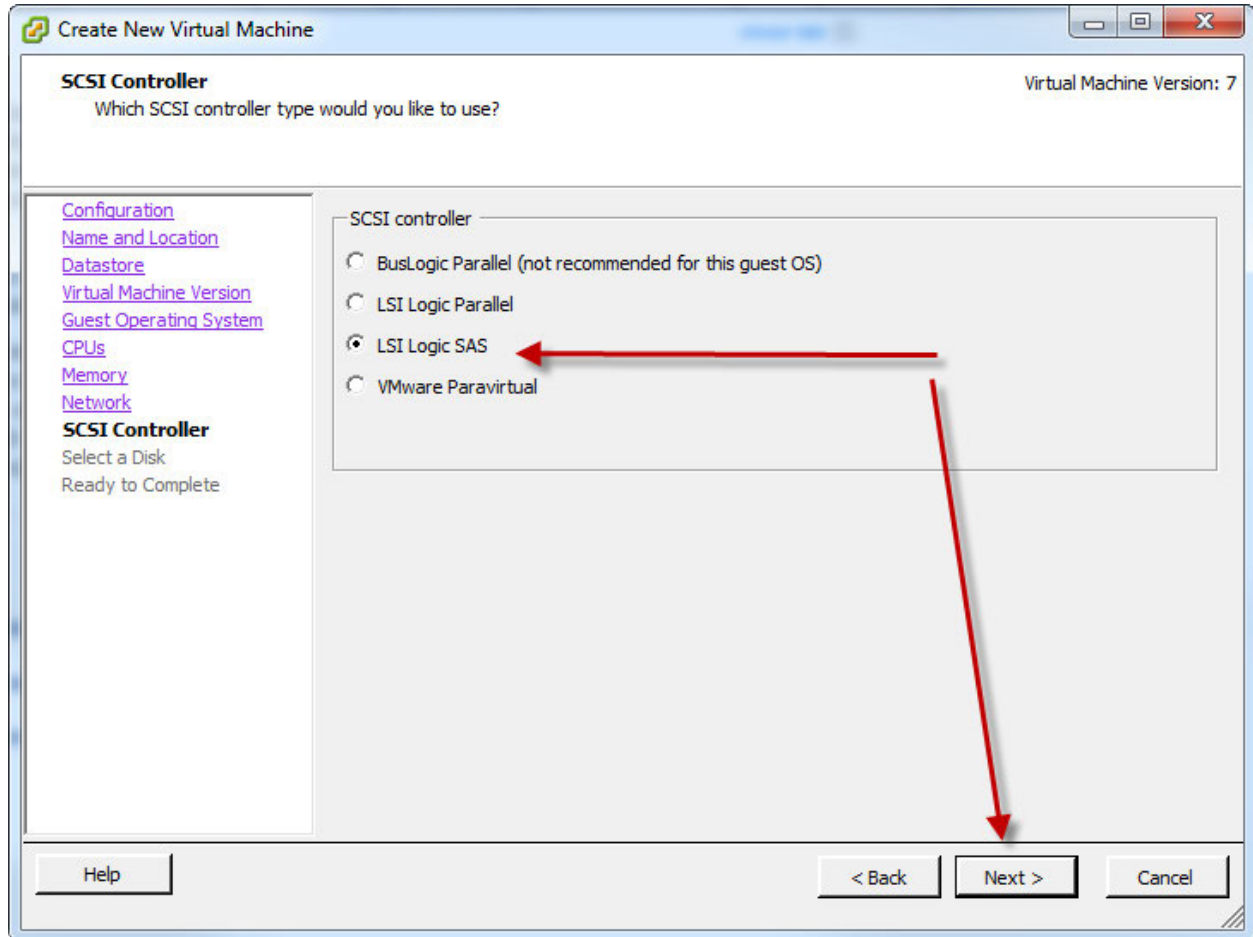
10. Select the number of NICs you want to connect, the network(s) to connect them to, the type of NIC, and click the Next button.



NOTES: When you choose the network to connect a NIC to, you are making a connection to a virtual switch which has a physical NIC assigned to it. That physical NIC provides network connectivity to networks outside the ESXi hypervisor. When a physical switch is connected to a virtual switch, they behave as if two physical switches have been 'stacked'.

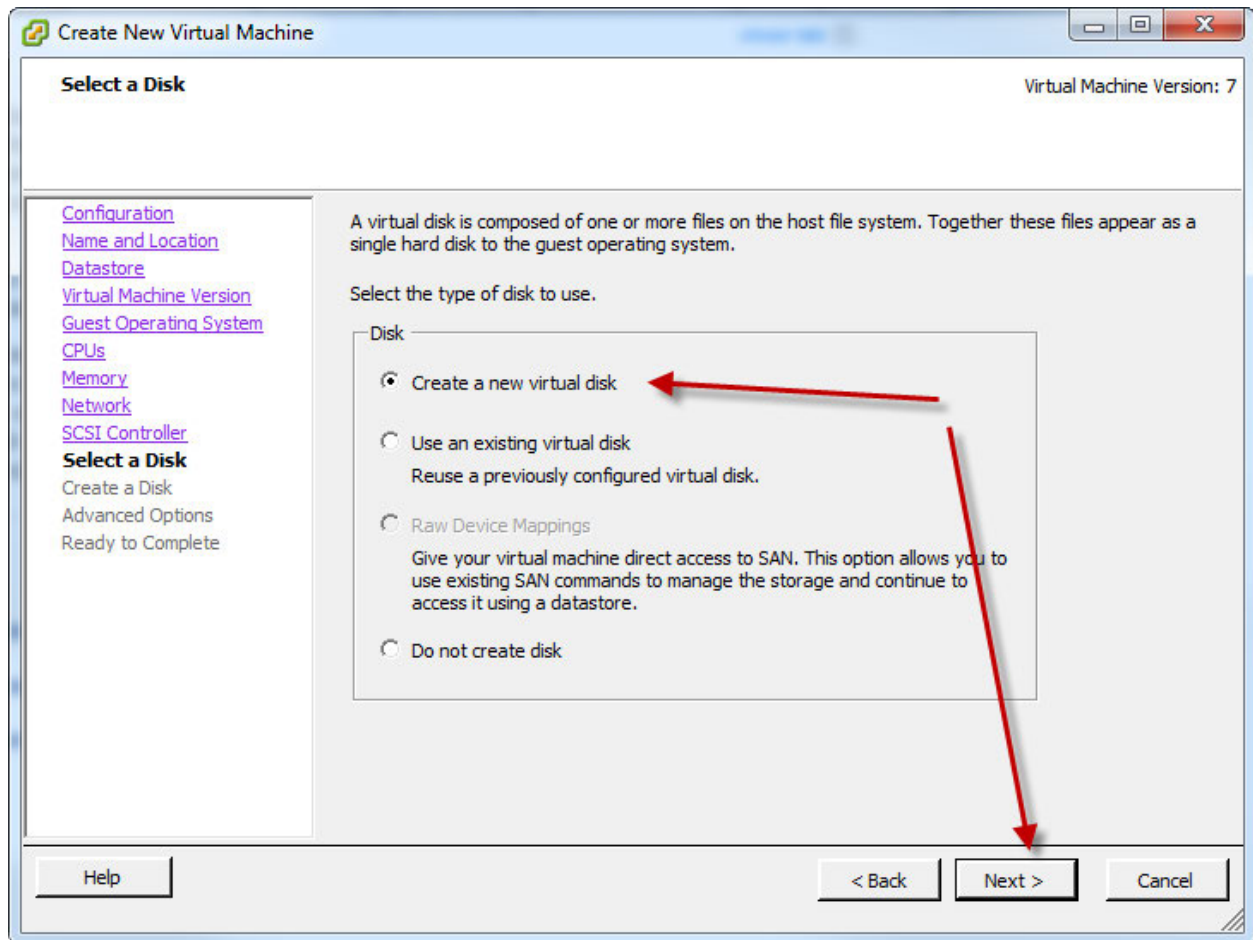
If you are running a 64bit operating system, always select Intel E1000 as the adapter type.

11. Select the radio button next to the type of SCSI controller required for your operating system and click the Next button. The default value is correct in most instances.



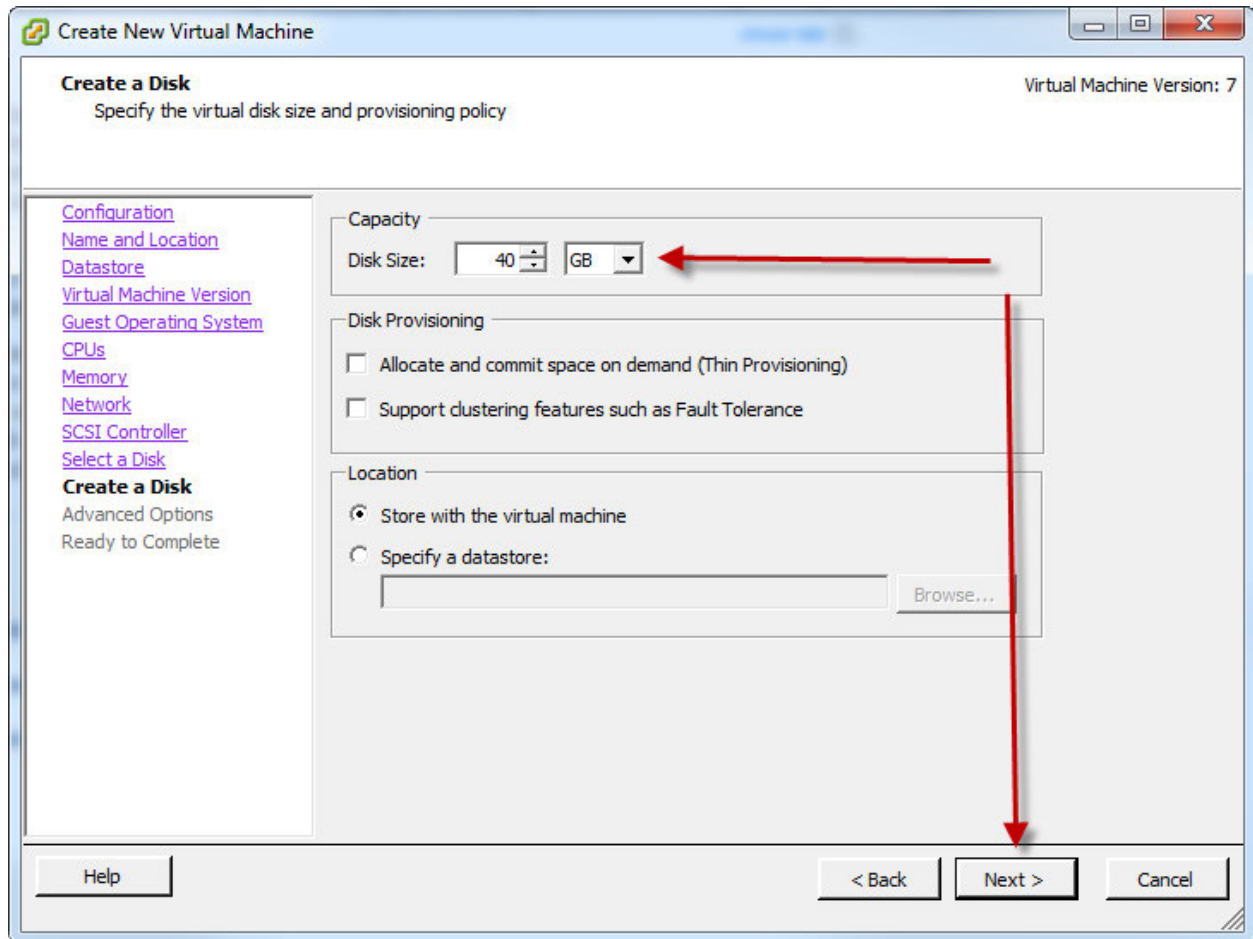
NOTES:

12. Select the radio button next to, "Create a new virtual disk", and click the Next button.



NOTES:

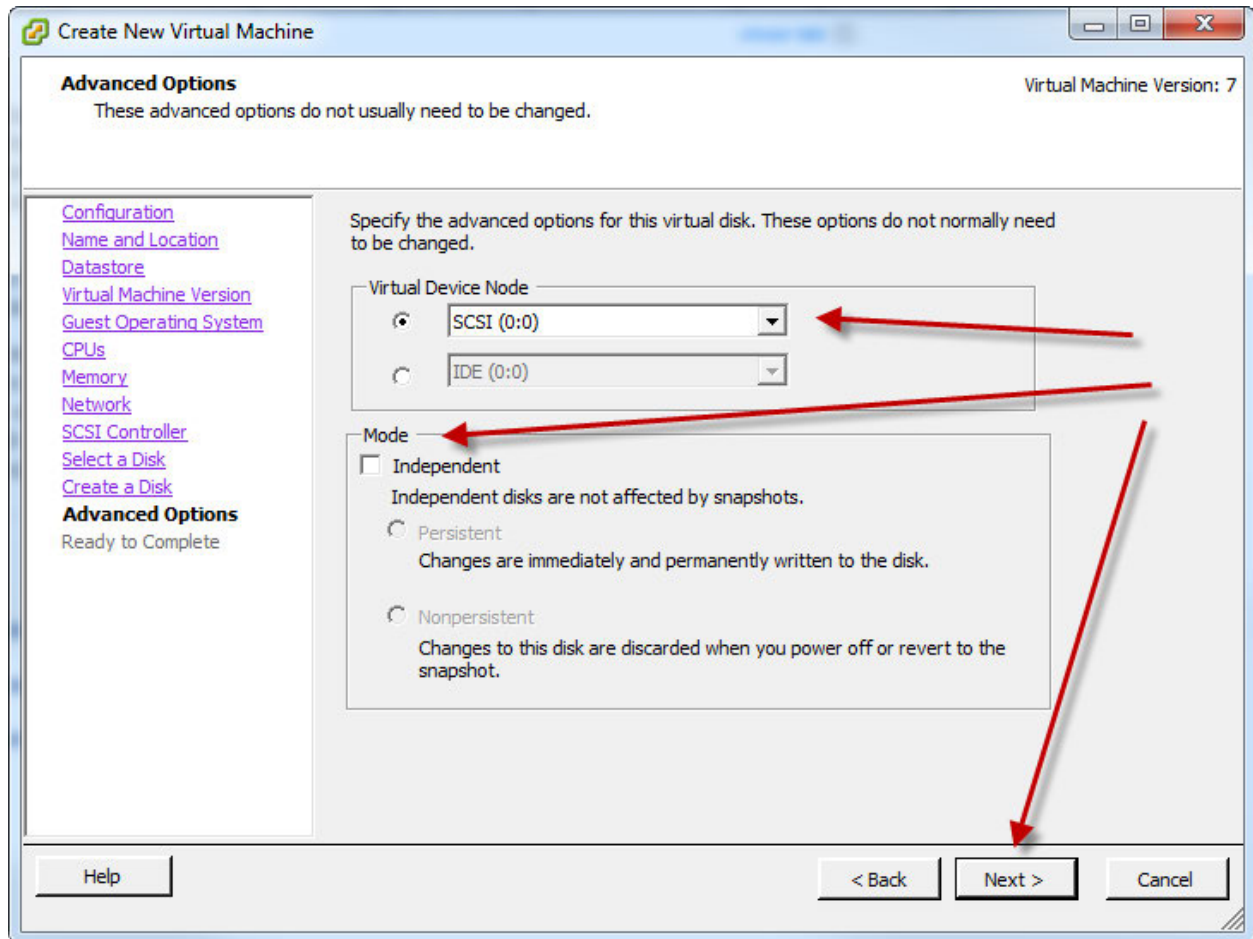
13. Select a Disk Size and Location. Click the Next button.



NOTES: Storing the disk with the virtual machine is the best option if you are not accessing a shared storage device such as an iSCSI SAN.

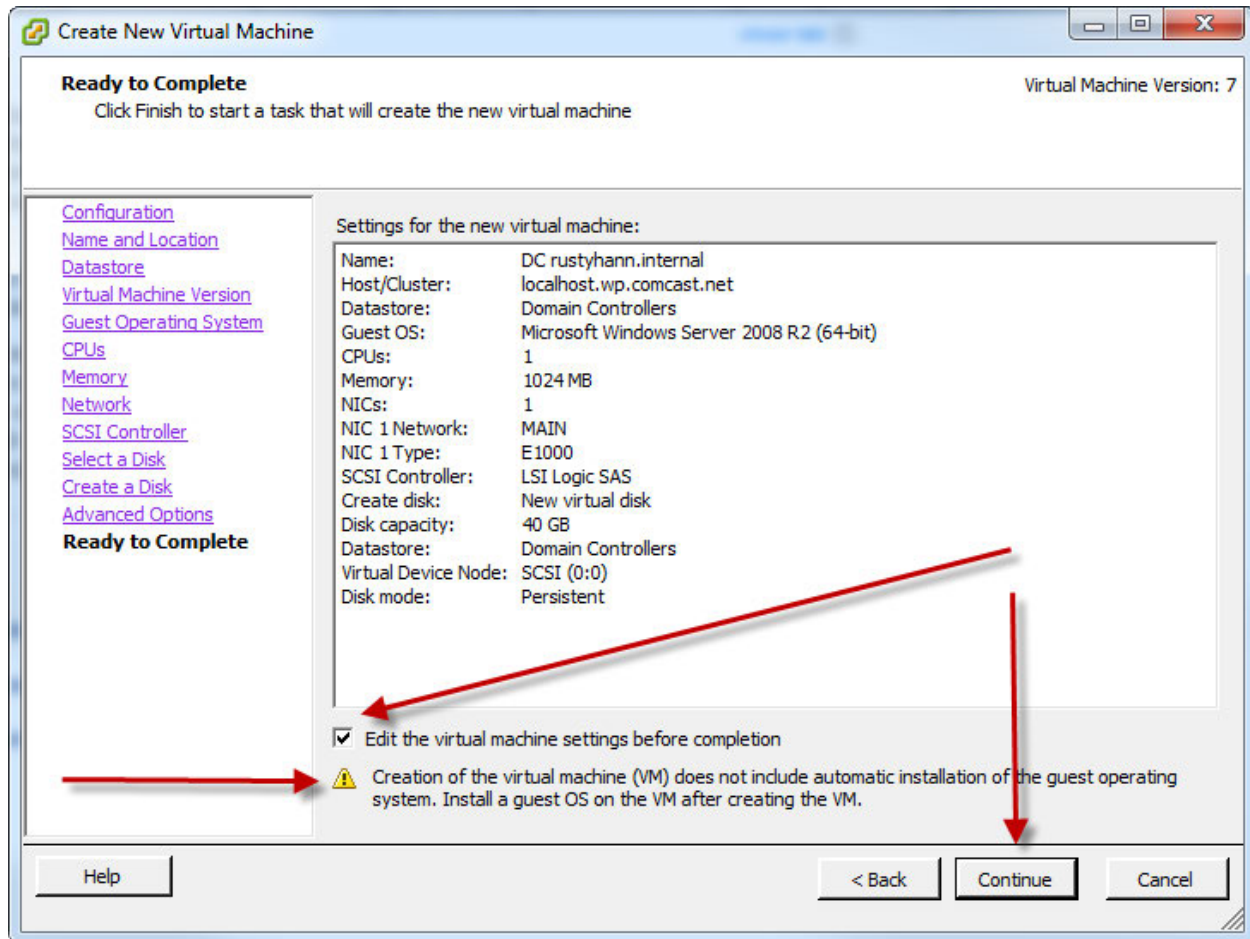
Thin Provisioning will reduce disk usage but can create problems if not managed correctly. The virtual disk file will grow as the disk usage of the virtual machine grows when Thin Provisioning is used. The total file size of the virtual machine hard disk will not grow beyond the Disk Size selected. If multiple virtual machines have not reached their allocated disk size, and the capacity of the physical disk has been exceeded, disk errors within the operating system may occur as the virtual disk has no more physical space to write to (meaning the virtual disk file may not continue to grow as the physical disk limit has been exceeded).

14. Select the Virtual Device Node and Mode. The default is most likely the correct setting for your virtual machine. **Click the Next button.**



NOTES:

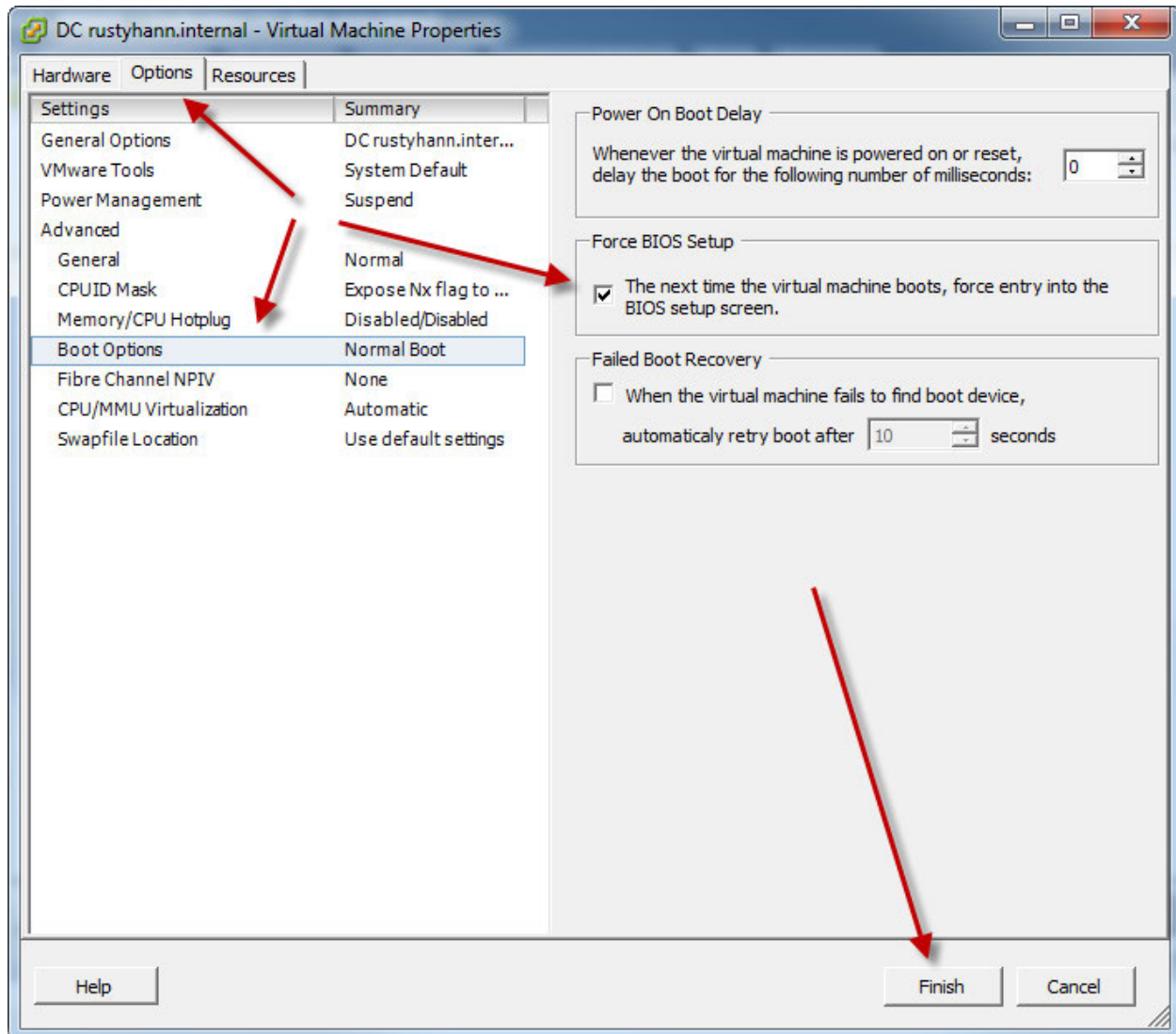
15. **Make sure to place a check mark next to, "Edit the virtual machine settings before completion", and click the Continue button.**



NOTES: Make sure to read the caution note at the bottom of the screen. This tutorial does not cover the installation of the guest operating system.

Editing the virtual machine settings before completion will allow you to force the virtual machine to boot into the virtual BIOS. This can also be done by pressing, "F2". Once in the virtual BIOS, you will be able to set the boot order of your new virtual machine, set the time and date of the virtual bios, and allow yourself time to mount an ISO file before the boot process executes.

16. Select the Options tab and highlight Boot Options. Place a checkmark next to, "The next time the virtual machine boots, force entry into the BIOS setup screen", and click the Finish button.



NOTES: This will allow you to force the virtual machine to boot into the virtual BIOS. This can also be done by pressing, "F2". Once in the virtual BIOS, you will be able to set the boot order of your new virtual machine, set the time and date of the virtual bios, and allow yourself time to mount an ISO file before the boot process executes.

Troubleshooting

- Ensure you have selected the right operating system type and version.
- Think ahead when creating hard drive space. It is always easier to provision too much space than to provision too little.
- Make sure your NICs are connected to the right networks and physical hardware.
- When in doubt, accept the default values for any virtual hardware.

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