

Creating a Windows Server 2003 Virtual Machine

Using VMware Workstation

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Introduction

Hello, my name is Andrew Bertino and I am a senior at Florida State University, majoring in Information Technology. This documentation is a supplement to my video tutorial, which can be found here <http://www.andrewbertino.com/how-to-video>. This video tutorial, and this manual, teaches you how to create and configure a virtual machine using VMware Workstation on a Windows host machine. It also shows you how to interact with the virtual machine. This tutorial **does not** show you how to install Windows Server 2003. It merely demonstrates how to prepare the virtual machine for the install. Also, the tutorial does not show you how to install VMware. Please see the Additional Resources section of this manual for links that will help you install VMware and Windows Server 2003.

This tutorial is mostly for web developers, system administrators, and tech-enthusiasts. As such, I have written the tutorial with this audience in mind. I use some highly technical terms and other industry jargon. However, I realize that some users viewing this tutorial may not be familiar with all of the terminology. Therefore, I have made sure to define all terms I feel may be new to the target audience. I also assume that users following this tutorial will have basic knowledge of computers. However, I will do my best to explain more advanced computer terminology. If you have any questions or comments, please see the Contact Information section.

Materials Needed for this Tutorial

1. VMware Workstation (I am using version 6.0) (For more information regarding how to install VMware, please see the Additional Resources section).
2. A 32-bit or 64-bit copy of Windows Server 2003, including a product key. This copy can be a CD or an ISO image (which is a compiled copy of the CD stored on a hard drive).
3. At least 8.0 GBs of free hard drive space.
4. The computer you are using (the host machine) must be running a Microsoft Windows operating system.

Creating the Virtual Machine in VMware Workstation

1. First, open up VMware Workstation. If this is your first time using VMware, you may get a variety of messages regarding registering, tips and other information about VMware.
2. When you open it up, it should start off in the **Home Tab**. If it is not on the home tab, select the tab at the top. On the Home screen, select the icon that says **New Virtual Machine** (Figure 1).



Figure 1 – The home tab with the New Virtual Machine icon highlighted.

3. A window will then pop up for the Virtual Machine Wizard. Click **Next** to continue.
4. The next screen that will show up is labeled Selecting an Appropriate Configuration. You will have two choices: Typical and custom. You will only use custom in special cases where you need extra devices. However, for this tutorial, all you need is the typical devices. Just select **Typical** and click **Next**.
5. Next, another screen will come up, with this one labeled Select a Guest Operating System. In this screen, you will choose which Guest OS you will be using. Under the Guest operating system list, select **Microsoft Windows** (Figure 2). Under the Version drop-down list, you need to select the version of Windows you are going to use for your Guest OS. If you are using a 32-bit copy of Windows Server 2003, you can choose from Web, Standard, Enterprise, or Small Business Editions. If you have a 64-bit copy, you can choose from either Standard or Enterprise (Figure 2). Once you have chosen which version you are going to use, click **Next**.

Note: If you are using a 64-bit edition, you will need to download the **Processor Check for 64-bit Compatibility** from VMware's website. This will check to see if your processor can run a 64-bit Guest OS. For more information on how to download the processor check, please see **Appendix A**.

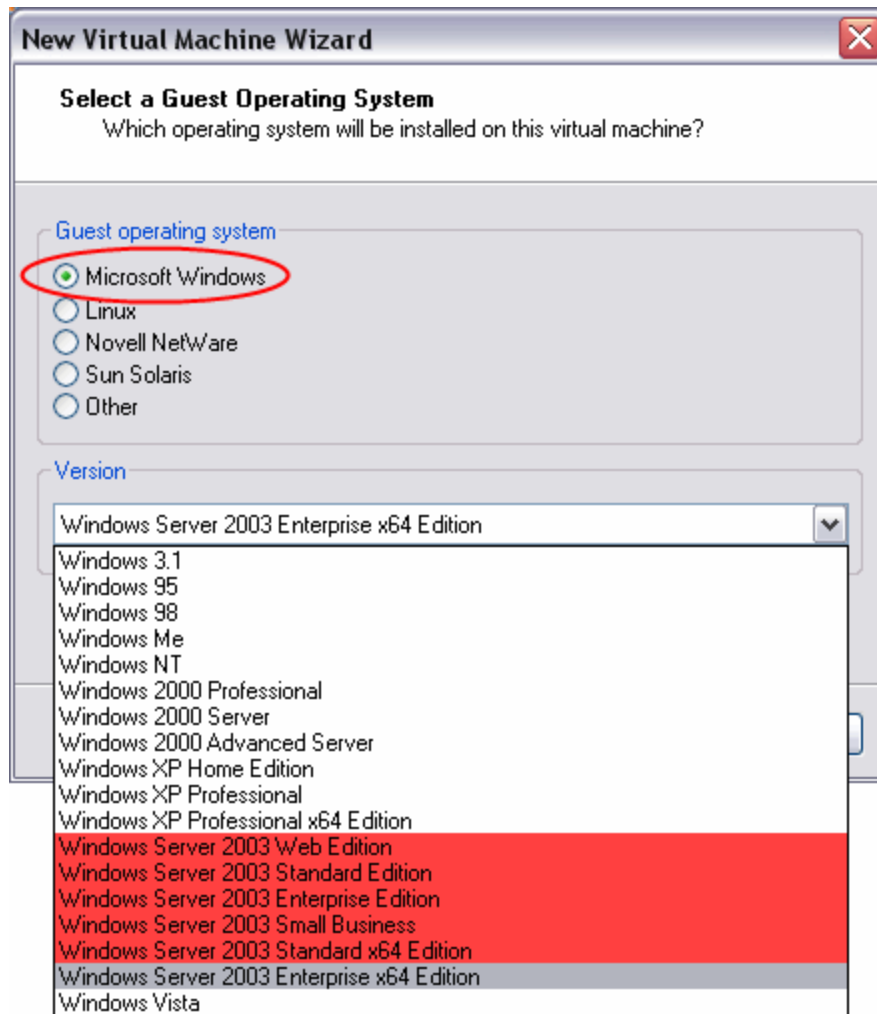


Figure 2 – Shows version drop-down list. All Windows Server 2003 (32 and 64-bit) options are highlighted.

6. After selecting your Guest OS, you need to give it a name. By default, it will put the name of the Guest OS you chose from the previous screen. You can keep this, or you can change it to whatever you like.
7. Next you have to choose a location for your Virtual Machine. By default, it will store the Virtual Machine in the My Virtual Machine folder that is created by VMware in your Documents & Settings folder (or your Documents folder in Windows Vista). You can choose to leave it in that location or you can choose a new location. Choose your name and your location and click **Next**.

Note: For best performance, try to put the virtual machine on a separate physical hard drive (separate partitions do not count). If the virtual machine is on the same drive as your OS, the virtual machine fights with your OS for disk access. (*VMware How*, n.d.).

8. After choosing your location, another window will come up, asking you about the Network Type. There are a few options to choose from. I usually select **Use bridged networking**. However, it all depends on what you would like to do. If the host machine is not connected to a network, then you should select **Use network address translation (NAT)**. If you need the guest operating

system to have its own Internet connection, select **Use host-only networking**. However, you will have to install modem or Ethernet drivers yourself (Barnett, n.d). Choose the networking type you want and click **Next**.

- Now we have to choose the size of the virtual hard drive. By default, it is set to 8.0 GB. Go ahead and choose your disk size. I recommend keeping it at or above 8.0 GBs. Now you have to choose if you want to **Allocate all disk space now** (Figure 3). If you choose to allocate the size now, it will take longer to setup the virtual hard drive and you will need to have the free space on your real hard drive to fit the disk size that you set above. If you choose to allocate it now, it will enhance the performance of the virtual machine. If you leave it unchecked, the virtual hard drive image will resize as you install the operating system and other software. Ignore the check box for **Split the disk into 2 GB files**. Once you complete this window, click **Finish**.

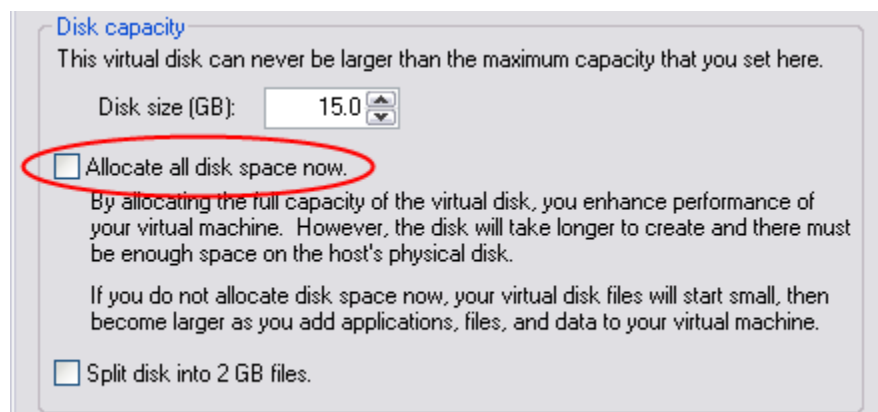


Figure 3 – The disk capacity window.

- After completing all the steps, you should get a final window saying that the Virtual Machine was created successfully. Click **Close** to exit that window.

Configuring the Virtual Machine

Before we can run the virtual machine, we need to change a few of the configuration options.

- Now that you have created a virtual machine, you will have a new tab for that virtual machine, based on the name you gave it earlier. You should already be on that tab, but if you are not, select it from the top.
- Now we have to edit some of the configuration settings for the devices. On that virtual machine's page, under Commands, click the **Edit virtual machine settings** link. (Figure 4).

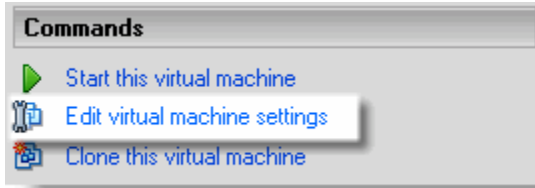


Figure 4 – Commands section of the virtual machine's home page.

3. This will bring up the settings panel. First we have to set the amount of Memory you want the virtual machine to have. Memory will be selected by default when you load the settings window. On the right is the panel that will let you change the amount of Memory (Figure 5). You have a few choices here. It is automatically set to the recommended memory setting (which should be 384 MB). The Guest OS recommends at least 128 MB. You can set it to whatever you like, but I recommend at least using 384 MB, if you have the memory space available.

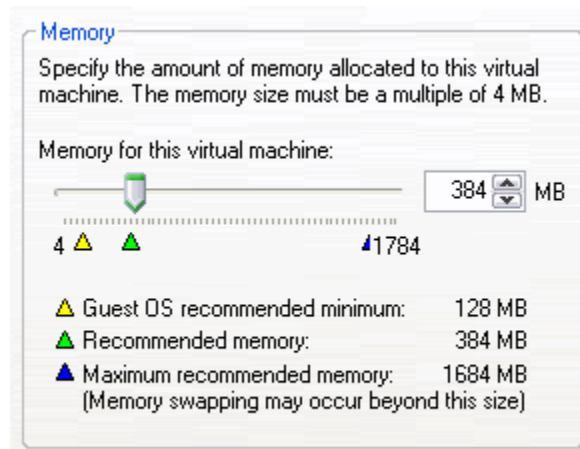


Figure 5 – The memory setting window

4. Now that you have selected the amount of memory, select CD-ROM from the device list on the left (Figure 6). Make sure **Connect at power on** is checked on. Now under the Connect label, you have a few options. If you are using a physical CD copy of Windows Server 2003, I recommend setting your physical drive letter. If you have a CD copy, under the **Use physical drive**, select the drive letter for your CD-Rom drive (Figure 6). If you are using an ISO image of the Windows Server 2003, select the **Use ISO image** button, and then **browse** your computer for the ISO image.

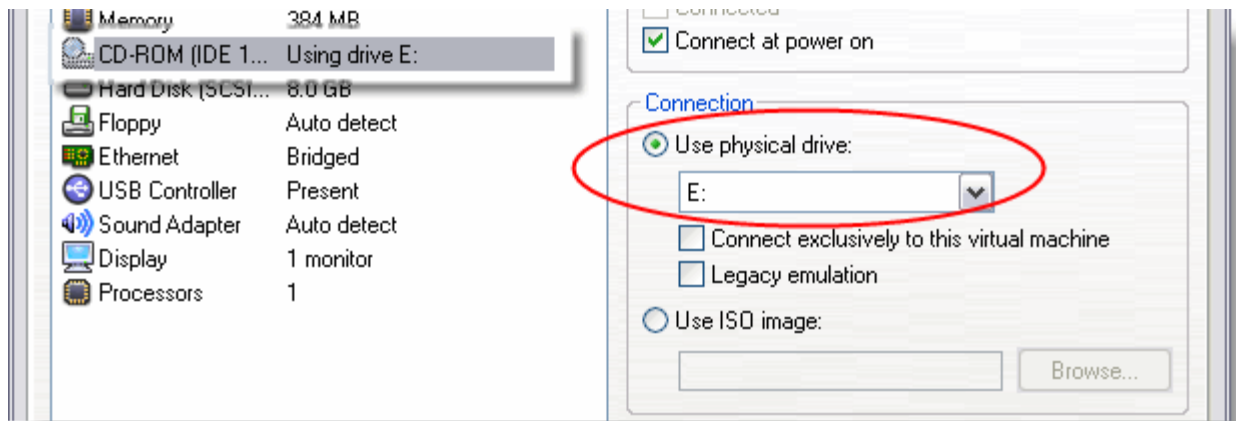


Figure 6 – CD-Rom settings window, with physical drive option circled.

5. Feel free to browse the rest of the settings, but they do not have to be changed. Once you have completed all changes to the settings, click the **OK** button.

Running and Interacting with the Virtual Machine

Now that we have created and configured the virtual machine, you can install Windows Server 2003. As mentioned earlier, I will not actually walk you through the installation.

1. Select the Virtual machine's tab at top, if it is not already. On that page, under the Commands section, click on **Start this virtual machine** (Figure 7).

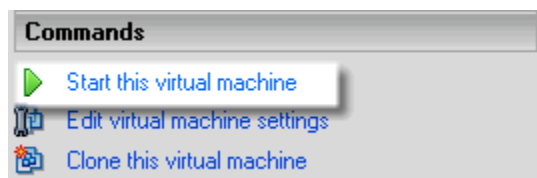


Figure 7 – Link that starts the virtual machine.

2. Once you start it, you may get a message about your host not having synchronized TSCs (timestamp counters). You can follow the fix it recommends if you want to, but it is not required. Also, if you do not have a floppy drive, you may get a message about the floppy drive not being detected. If the message comes up, just select **No**.
3. The virtual machine will then start up. Depending on what you chose, it should begin reading the CD or the ISO image. After it boots, the Windows installation will begin. First you must activate the virtual machine. To do so, click anywhere on the virtual machine's window. Now you can interact with the virtual machine. If you need to get back to VMware or your host machine, click Ctrl and then the Alt key.

4. This completes the tutorial as I will not walk you through the install. However, installing the OS to the virtual machine is no different than if you were installing to an actual physical host machine. As such, if you need help with the installation process, see the Additional Resources section for a few links to some online tutorials.

Conclusion

Hopefully, everything went as planned and you were able to successfully create the virtual machine. In this tutorial, I showed you how to create and configure a Windows Server 2003 virtual machine. I also demonstrated how to start and interact with the virtual machine. I hope that you were able to pick up many helpful tips along the way.

Thank you for reading my tutorial!

Contact Information

Thank you for reading my tutorial. Should you have any questions or comments, please feel free to email me at abertino@andrewbertino.com or visit <http://www.andrewbertino.com>.

Additional Resources

Below is a list of web resources. There are resources that will help you install VMware Workstation. There are also resources regarding how to install Windows Server 2003 as a Guest OS. Finally, there are some miscellaneous resources on creating partitions during the install, and some other helpful links.

64-Bit Guest Operating Systems Requirements

http://kb.vmware.com/selfservice/microsites/search.do?language=en_US&cmd=displayKC&externalId=1901

This page is from VMware that details the hardware requirements for installing a 64-bit operating system. It details which processors can or cannot install 64-bit guest operating systems.

Creating Partitions

http://www.theeldergeek.com/hard_drives_03.htm

This page details some information about creating separate partitions. Although it was written for creating partitions with Windows XP, Server 2003's installation uses the same partition tool. This page will help you create partitions on the virtual hard drive should you want to create multiple partitions.

Installing Windows Server 2003

<http://www.informit.com/articles/article.aspx?p=483801&seqNum=2>

This web site details how to install Windows Server 2003. This was written for a normal installation, so it does not discuss installing it on a virtual machine. However, it does go into detail about how to install Server 2003. If you are stuck on the installation part, this resource may help you through the installation of Server 2003 for the virtual machine.

Intel VT VMM Information

<http://www.hardwaresecrets.com/article/263/1>

This page will describe the Intel VT VMM setting that you may need to enable in your BIOS so that you can install 64-bit Guest operating systems using VMware.

Licensing Mode

<http://www.lockergnome.com/windows/2005/04/15/which-licensing-mode-should-i-select-when-installing-windows-server-2003/>

This page describes the Licensing mode section of the Windows Server 2003 installation in more detail.

VMware Documentation

http://www.vmware.com/support/pubs/ws_pubs.html

This is the Workstation Documentation directly from the VMware website. This should have information that will help you install VMware if you are having trouble setting it up.

Appendix A

If you are using a 64-bit edition, you will need to download the **Processor Check for 64-bit Compatibility** from VMware's website. This will check to see if your processor can run a 64-bit Guest OS.

1. First, open up your web browser and go to <http://www.vmware.com>.
2. Once the page loads, locate and click the **Downloads** link on the top right side of the page (Figure 8).



Figure 8 – The Downloads link (circled).

3. On the Downloads page, scroll down until you find **VMware Workstation**. Next to the arrow, there will be a link for Downloads. Click the **Downloads** link next to the arrow.
4. On that page, click the link that is in the middle of the screen labeled **Drivers & Tools** (Figure 9). This will display some other downloading options. Under Processor Check for 64-Bit Compatibility, click on the **Download for Windows** link (Figure 9).

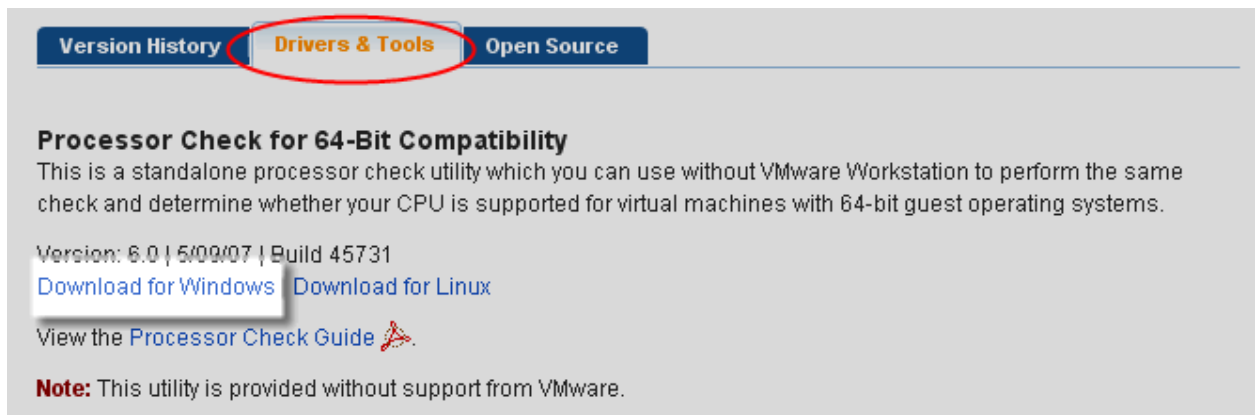


Figure 9- Shows the Drivers & Tools tab link and highlights the link to the download.

5. Either save the file to a location on your hard drive or just run it from the browser.
6. The executable will then pop up a message notifying you if your processor is either capable or not capable of running a 64-bit Guest OS. If it is not capable, you can still follow along with the tutorial, but you will have to obtain a 32-bit copy of Windows Server 2003.

Note: Even if the processor check says your processor is capable, you still may need to turn on **Intel VT VMM** in your BIOS if you are running an Intel processor (Davis, 2007). Please see the Additional Resources section for more information.

References

Barnett, J. (n.d.). *Creating a Virtual Machine with VMware Workstation Software*. Retrieved January 31, 2008, from John Barnett Computer Journalist:

http://vistasupport.mvps.org/creating_a_virtual_machine_with_vmware.htm

Davis, D. (2007, November 16). *What you need to run a 64-bit Guest Operating System in VMware*. Retrieved January 31, 2008, from Petri IT Knowledgebase:

http://www.petri.co.il/virtual_run_a_64_bit_guest_operating_system_in_vmware.htm

VMware. (n.d.). *Drivers & Tools - VMware*. Retrieved January 31, 2008, from VMware:

http://www.vmware.com/download/ws/drivers_tools.html

VMware How to - OSx86. (n.d.). Retrieved March 6, 2008, from OSx86 Project:

http://wiki.osx86project.org/wiki/index.php/VMware_how_to#Step_4_-_Create_a_New_Virtual_Machine