

Install multiple operating systems on virtual machines

This article looks forward to presenting a brief overview of the virtual machine concept and how to install VMware Workstation 3.0 virtual machine creation software in Windows XP and Linux Red Hat 7.1 operating systems. The article also looks forward to sharing experiences on how to install Windows XP and Red Hat 7.1 in a virtual machine environment

(According to PC World Vietnam - June 2002) This article aims to present a brief description of the virtual machine concept and how to install VMware Workstation 3.0 virtual machine software in Windows XP and Linux operating systems. Red Hat 7.1. The article also looks forward to sharing experiences on how to install Windows XP and Red Hat 7.1 in a virtual machine environment.

WHAT IS A VIRTUAL MACHINE?

You are a love to explore and learn. You want to test a new operating system that you don't want to do that affects the operating system you are using. You have an interesting software but don't run on the current OS. You want to install multiple operating systems on one PC in the simplest way. You are a programmer and are looking forward to trying the program you write on different platforms. You want to run network applications on your non-networked PC. You can do all of this through creating virtual machines on a single computer.

The question is what is a Virtual Machine (VM)? The VM is a software environment that allows one or more operating systems and their applications to operate in parallel on a single computer. Interestingly, we can switch between running operating systems with just one or two operations without having to restart the PC. For operating systems, there is no difference between the real VM and the real PC. In short, the VM is a copy of the real PC. Almost anything you can do on a real machine, you can do it on the VM.

When using VMs for different operating systems, you need to understand some of the following key concepts:

1. Virtual machine (VM): is a PC emulated by the virtual machine software.
2. Server (host machine): is the PC on which you install the software to create the VM * Host operating system: the operating system running on the server.
3. Guest operating system: is the operating system running on a VM Figure 1: RH 7.1 (Ctrl-Alt-F1 window) in XP

Figure 2: XP in RH

INSTALL THE CAMERA CREATE SOFTWARE

The VM creation software I introduced in this article is VMware Workstation 3.0 from VMware (<http://www.vmware.com/>). All of the examples below proceed with the installation file downloaded from the

address above. You can find this address to find out more information and download this software.

However, there are 3 notes before you want to do anything: VMware Workstation 3.0 has 2 versions: version for Windows (12 MB); version for Linux (9.23 MB) This software is not free. You must provide an e-mail address to receive a temporary registration number to use this software for 30 days. Your PC must be strong enough and the hard disk must have enough room to install the OS.

According to VMware, the minimum configuration for VMware Workstation 3.0 to work in Windows XP (XP) and Red Hat 7.1 (RH) is:

1. CPU: 266 MHz (Intel Pentium II, III, 4 and ADM Athlon only)
2. RAM: 128 MB (must have enough RAM to run the server plus the amount of RAM divided by each guest OS)
3. Video card: 256 colors (8 bits). Linux servers require video cards to be supported by XFree86
4. Hard disk: 20 MB for VMware Workstation and 500 MB for each guest OS
5. CD-ROM Installation VMware Workstation 3.0 in XP

Note that the version of VMware Workstation 3.0 for Windows can be installed on most Microsoft operating systems. In this section, I would like to guide the installation of this virtual machine software in Windows XP environment. After downloading the VMwareWorkstation-3.0.0-1455.exe file, you log in to have administrative rights and then proceed with the normal installation as for other software. You can select OK with most notifications appear on the screen because you can reconfigure VMwareWorkstation after the installation is complete. The only thing you should keep in mind is that when you see a dialog box asking if you want to rename the extension of the virtual disk files on the server to * .vdmk, you should select the Search command to find the files. This and if found, should make changes as suggested. If you have installed the VMware Workstation 2.0, you may not only have to make the above changes but also have to rename the * .std file (the file that holds the paused state of the VM) to * .vmss. These changes are especially necessary to avoid conflicts with XP's System Restore feature.

Figure 3: VMware Workstation in XP

Unlike many other software that can complete the installation process without having to restart XP, VMwareWorkstation 3.0 requires the server operating system to be restarted before the installation process succeeds.

Install VMware Workstation 3.0 in RH 7.1

Before installing VMwareWorkstation 3.0 in RH 7.1, you should note that this software has 2 versions installed for Linux. The first version is VMwareWorkstation-3.0.0-1455.tar.gz and the second version is VMwareWorkstation-3.0.0-1455.rpm. In essence, these two versions are not different. They only require a little installation of each other. In this section, I would like to show you how to install with both versions above on RH 7.1 server. The installation process can be performed in the Terminal window (Text Mode) or graphic (Graphic Mode) window. In my opinion, you should install VMware Workstation in Xwindow graphics environment of GNOME or KDE.

If you are not familiar with directory transfer in RH's Terminal, type [mc] to run Midnight Commander - a utility similar to the DOS's NC. Here are the steps to proceed. The statements are not []:

Figure 4: Terminal window

From the prompt in the Terminal window, **type [su]** to log into Root for system administration rights.

Go to the directory where the installation file is located. In case this file is on the CD, you must use **the [mount] command** to open the CD-ROM drive (in Xwindow, just click on the CD-ROM drive icon).

If you are installing from the RPM version, just type the following command: **[rpm -Uhv VMwareWorkstation-3.0.0-1455.rpm]** .

If you use the TAR.GZ version, you should copy this installation file to a temporary folder on your hard drive, assuming **[/ tmp]** for the installation process to be more convenient. To copy the file from the mail containing the installation file, type the command **[cp VMwareWorkstation-3.0.0-1455.tar.gz / tmp]** . Then go to the **[/ tmp]** directory with the **[cd / tmp]** command to proceed to extract the file. To unzip, type the command **[tar xzf VMwareWorkstation-3.0.0-1455.tar.gz]**. In Xwindow, you can use the Achiver utility (similar to Winzip). Continue typing **[cd vmware-distrib]** to go to the unzipped folder. To start the installation, type **[./vmware-install.pl]**.

Figure 5: Installation process starts

After this process, if you install from the RPM version, you must run the **[vmware-config.pl]** file to set up the required configuration. If you use the TAR.GZ version, you don't have to do this, because the installer did this for you when you answered YES from the prompt on the screen. From this point forward you can get a lot of installer questions. In my opinion, you should accept the default values ??suggested by the program because most of them can be reconfigured after a successful installation.

Note that you can skip the settings for the DHCP server by pressing the Spacebar then Q. When the installation process is complete, a successful message will appear on the screen. If you do not receive this message, you need to repeat the installation steps as mentioned above.

Figure 6: Installation successful

CREATE A CAMERA AND RH REVOLUTION ON XP SERVER

Create a virtual machine You just need to select Next with most of the messages on the screen. The steps for creating a VM are as follows: Start VMware Workstation and select New Virtual Machine. If this is your first time running VMware Workstation, you will be asked to enter the license number that VMware provides to you via e-mail or on a CD. In the New Virtual Machine dialog box you will have 3 Typical options: Create VM with the most common configuration and device options Custom: Create virtual machine with specific VMware Guest OS Kit options: Create virtual machine Microsoft OS with special support features preinstalled. Choose Typical or Custom.

Figure 7: Select the configuration

Select the client OS as Linux. Select a name for the VM and the location to store the required files of the VM. Distribute RAM to the client. If the amount of RAM is not missing, you should accept the suggestion of VMware Workstation 6. Set up the network configuration for the virtual machine.

There will be 4 options.

1. Use Bridged Networking: allows the client OS to directly access the Ethernet network

2. Use Network Address Translation: allows the client operating system to access the network as well as other computers on the network to access the client, through the server (using the server's IP address)
3. Use host-only networking: not allowed to do things that Use network Address Translation allows. Virtual machines are connected to the server via a virtual private network.
4. Do not use a network: allow to separate the VM completely from the server and the network Select the 'hard' disk for the VM. The program introduces 3 options
5. Create New Virtual Disk: VMWare Workstation will create a virtual disk file on the server and use this file as a hard disk for the virtual machine. The information stored on the hard disk of the virtual machine will actually be saved in this file.
6. Use An Existing Virtual Disk: Select this mode if you want to reuse an existing virtual disk
7. Use a Physical Disk: Select this mode to use a hard disk partition on the server as the VM hard disk. If your PC has two or more operating systems installed on different partitions, this mode allows you to no longer dual boot. Select Create New Virtual Disk.
8. Select the hard disk capacity for the VM. The recommended size here is the maximum possible capacity of the VM hard disk. When newly created, this disk is very small (only a few hundred KB) but it will expand gradually when the client operating system and applications are installed.

Select Finish to complete the process of creating a 7.1 Red Hat Installation VM on a Windows XP server. The RH installation process on the VM in an XP environment should be done from the OS installation CD. In general, the steps take place normally as when installing RH on a real PC.

Here, I just mention the differences: 1. After creating the VM successfully, you put the RH 7.1 installation disc into the CD-ROM drive and press the Power on button on the toolbar in the VMware Workstation program window. to start the VM.

Figure 8: Starting the VM

Like a real PC, the VM will scan all bootable devices, then initialize the RH installation from the CD. You should install RH in Text Mode. If you simply press Enter, the installer will automatically switch to Text Mode. Perform a normal installation based on the instructions on the screen.

Figure 9: RH is being installed on the VM in XP

When you get a message about a broken Partition Table (Bad Partition Table) and suggest fixing it with scary warnings about data loss, you should stay calm. There are really no serious problems like when installing on a real PC. Simply, the virtual disk needs to be formatted and partitioned. You should select automatic partition creation mode when the Automatic Partitioning screen appears.

Figure 10: Notice of broken partition table

Select Default for Video Card. The configuration steps for Xwindows (Xserver) should be quickly followed by the default values, and there is no need to try the settings for Xwindows. You do not have to worry about the graphics mode of GNOME and KDE. VMware Workstation will provide a utility called VMware Tools to help you do this later. After the installation finishes successfully, the VM will restart and download the Linux RH OS (otherwise press the Power on button). The job now is to install the monitor driver for the VM. The steps are as follows (the commands are not marked with []):

Figure 11: RH starts on VM

- Choose Settings - VMware Tools Install in the VMware Workstation program window on XP - Log in to the system with the name and password you created during the installation of RH. From the prompt in the VM Terminal window, type [su] to get system administrator rights.

Figure 12: Log in to the system

- By default this installation file is compressed and located on the virtual CD-ROM drive of the VM. You should copy it to the directory [/ tmp]. Specifically, you type the following commands:

1. [mount -t iso9660 / dev / cdrom / mnt]: for the virtual CD-ROM drive to work.
2. [cp /mnt/vmware-linux-tools.tar.gz / tmp]: to copy the file to the directory [/ tmp].
3. [umount / dev / cdrom]: let the virtual CD-ROM drive stop working.

- Proceed to extract and install. The statements are as follows:

1. [cd / tmp]: to move to the directory [/ tmp].
2. [tar xzf vmware-linux-tools.tar.gz]: to extract the installation file.
3. [cd vmware-linux-tools]: to go to the directory where the newly extracted files are stored.
4. [./install.pl]: to run the VMware Tool installation file

- At this point, you can safely start Xwindow from the [startx] command to enter GNOME or KDE. The VMware Tool also has some other interesting features. You can find out by typing [vmware-toolbox &] from the prompt in the Terminal window

CREATE A CAMERA AND INSTALL XP ON THE RH SERVER

Creating a virtual machine As above, VM is presented with the same mechanism as a real PC. To proceed to create the VM, do the following: Type the command [vmware &] from the prompt in the Terminal window (You do not need to log into Root).

Figure 13: Creating VM in RH

If this is the first time running VMware Workstation, you will be asked to do two things:

1. First: enter the license code that VMware provides to you via e-mail or on a CD.
2. Second: rename the virtual disk file extensions to * .vmdk and files that keep the pause status of the virtual machine * .std to * .vmss. Although these files only exist if your computer has previously installed VMware Workstation 2.0. However, you should agree to the program requirements. Select Run the configuration wizard in the Configuration Wizard dialog box.

The remaining steps are similar to the steps for creating a VM in the server running the Windows XP operating system (shown above). The only caveat is that you have to choose to allow the CD-ROM drive and floppy drive to work. Install Windows XP on Red Hat 7.1 server. The process of installing XP on a VM in an RH environment should be done from the OS installation CD. In general, the steps take place normally as when installing XP on a real PC.

Below, I only mention the remarkable points:

1. Start RH OS, type [startx] to enter the GNOME or KDE graphical environment
2. Open Terminal and type the command [vmware &] to start VMware Workstation

3. Insert the XP installation disc into the CD-ROM drive, and then click the Power on button on VMware Workstation's toolbar
4. The steps to install XP on a VM from the CD-ROM drive are as normal as on a real PC. You don't have to worry about formatting the virtual disk, and answer 'No' when the installer asks if you want to automatically set the resolution and the number of colors.

Figure 14: Install XP on VM in RH

1. After XP has restarted, select Settings - VMware Tools Install on VMware Workstation's toolbar to install the screen driver (driver) for this guest. The remaining steps are carried out on the virtual machine. Usually the VMware Tool installer automatically displays a message asking for installation, and follow the instructions on the screen. It is likely that XP will announce software incompatibilities. You don't have to worry, just choose to continue. If for some reason the installer doesn't run automatically, you can open it from the VM's virtual CD-ROM drive by selecting [Start - Run - typing D: VmwareTools.exe].

Figure 15: Successful XP installation

Nguyen Viet Khoa - Faculty of Foreign Languages - Hanoi University of Technology - E-mail: vietkhoabk@hotmail.com

You finished reading the article "**Install multiple operating systems on virtual machines**" edited by the [TipsMake](#) team. We hope this article has provided you with many useful tech tips and tricks. You can search for similar articles on tips and guides. Thank you for reading and for following us regularly.