

Installing VirtualBox and a Windows XP Virtual Machine in Ubuntu 8.10

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Anthony Hopkins
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Introduction

Virtual desktops are great tools to help bridge the gap for users nervous about transitioning to open source operating systems away from their native Windows Operating systems. This tutorial is meant for beginner to novice Linux users, who are not ready to give up their Windows Operating Systems just yet. This tutorial will cover the installation of Sun MicroSystem's software VirtualBox, current version 2.1.4. Sun MicroSystem develops two editions of VirtualBox, a free and non-free edition. The free and non-free distinctions relate to the source code for the software. The free version is open source and the non-free version is closed source. This tutorial is going to explain how to set up the more powerful non-free edition, because of its advanced network settings.

I am creating this tutorial to share my knowledge and experience in working with Virtual Machines. I have configured hundreds of Virtual Machines before and each one follows a similar setup. By the end of this tutorial users will have gained the knowledge of how to install and fully configure a Windows XP virtual machine on their host Ubuntu desktops or servers. Key milestones include the following:

Milestones

1. Ability to download and install VirtualBox non-free edition on their host machines.
2. Configure VirtualBox for USB support, so users can setup peripherals such as printers and cameras.
3. Configure a Virtual Hard drive image to install Windows XP on.
4. Install Windows XP with VirtualBox guest add-ons on the virtual disk image (VDI).

Checking Requirements

Your processor must support hardware virtualization to install VirtualBox. Intel processors that support virtualization are aptly named VT-x, and AMD processors are notated AMD-V.

Memory is another important thing to check before installing VirtualBox. Since both the host and guest operating system require a minimum allotment of memory your system must meet these minimum requirements. Since the minimum system requirements for my host operating system (Ubuntu 8.10) and my Virtual XP system only add up to approximately 512mb, the 2 gigs available will be ample.

Finally you must have ample storage space on your host's hard drive to supply your new Virtual Machine.

MILESTONE ONE

Now that you have double checked your computers requirements you are ready start milestone one, download and install VirtualBox. The following steps will walk you though the process:

1. The first step was to add VirtualBox to your systems sources list. To edit your sources open a new terminal window (Applications/Accessories/Terminal) and enter the following command:

```
sudo gedit /etc/apt/sources.list
```

2. To add VirtualBox to the source list you must append the following code to the end of your sources.list file.

```
deb http://download.virtualbox.org/virtualbox/debian intrepid non-free
```

3. The last thing you need to prepare before letting your system download and install VirtualBox is to get the software's public key. You can accomplish this back in the terminal window by entering the following command:

```
wget -q http://download.virtualbox.org/virtualbox/debian/sun_vbox.asc -O- |  
sudo apt-key add -
```

4. Now that your system is configured to find and download VirtualBox the last step before installation is for you to update your software sources. This is accomplished with the following command.

```
sudo apt-get update
```

5. As long as you are connected to the Internet this command should cause your terminal to display your system updating the source list file with the fields you just created. Once the update has completed, you can to install VirtualBox. Enter the following command in the terminal window to begin installation.

```
sudo apt-get install virtualbox-2.1
```

6. During the installation you will be prompted to answer two questions. The first asks you to create the VirtualBox users folder (we will add ourselves as users in the next step) and then if you want to compile the necessary VirtualBox kernel. Agreeing to both of these questions will complete the VirtualBox installation process.

7. Now that you have VirtualBox installed on your host system it is necessary for you must add yourself as a user to the VirtualBox group. Open the terminal and enter the following command (customize 'yourusername' to your own username).

```
sudo usermod -G vboxusers -a yourusername
```

8. Since this is another sudo (or root) command, it is necessary to enter your sudo password. Now that you have added yourself to the vboxusers group it is now time to configure your system

9. **Congratulations**, you have just completed the first milestone.

MILESTONE TWO:

The second milestone is to configure VirtualBox for USB support. This will allow us to setup and access peripheral devices such as printers and cameras.

1. The first step requires us heading back to the terminal and running the following command

```
sudo addgroup usbfs
```

2. On my machine running that command produced the following results:

```
anthony@dv4217-ubuntu:~$ sudo addgroup usbfs
```

```
Adding group `usbfs' (GID 1001) ...
```

```
Done.
```

3. Make note of your dev group id (GID), in my instance 1001. This information is necessary for editing the /etc/fstab file. To edit this file, enter the following command into the terminal:

```
sudo gedit /etc/fstab
```

4. Once the file is open, append the following line and save the file. (Make note the devgid you enter must be the same one you discovered in the previous step.

```
none /proc/bus/usb usbfs devgid=1001,devmode=644 0 0
```

5. It is now necessary to add yourself to the group you just created usbfs. This can be accomplished by heading back to the terminal and entering the following command (where 'yourusername' is replaced with your user name.)

```
sudo usermod -G usbfs -a yourusername
```

6. This final step is necessary to make sure everything was configured correctly. Run the following command in the terminal to make sure everything was configured correctly. As long as no errors appear everything is perfect.

7. **Congratulations**, you just completed the second milestone.

MILESTONE THREE:

The third milestone is to configure a Virtual Hard drive image.

1. Before moving onto the next milestone it is necessary to restart your host computer before starting up VirtualBox for the first time. Once the host machine is powered on, you must log back into the user account we just configured VirtualBox for.
2. Once logged back in, find the shortcut to VirtualBox (Applications/System Tools/ Sun xVM VirtualBox) and open it for the first time. After “reading” the Terms of Service you can click accept and then enter your registration information.
3. After providing your registration information the VirtualBox configuration window will appear. To begin configuring a new virtual hard drive image (VDI) you must select the “New” to bring up the “Create New Virtual Machine Wizard”.
4. The first step is to name the new virtual machine, and set it's operating system type. Since this was our first VM there's no need to worry about duplicate names, but in the future make sure to give unique names to each Virtual Machine (VM) you create.
5. The next page asks you to set the amount of your host's RAM you want to allot to your VM. Depending on the operating system you selected earlier VirtualBox recommends you the minimum system requirements. Since I will be sharing 2 Gigabytes between my host and VM I decided to bump up from the recommend 128mb to 512mb. Once the RAM is set it's time to set the Virtual Disks Hard drive.
6. At this step you will have to make a decision. You can choose to use an existing virtual hard drive, or create a new one. If you have a previously configured VDI image file you must add it to VirtualBox's Virtual Media Manager. If this is your first time using VirtualBox you must create a new hard drive. By selecting the “new” button you will open the “Create New Virtual Disk Wizard”.
7. The first choice in the Disk Wizard is to select which type of hard drive storage you'd like to create. Selecting fixed size storage automatically sets the size of the VDI to whatever you'd like. I usually use the Dynamically Expanding Option to save room on my host's hard drive. One thing you have to monitor when selecting the Dynamically Expanding Option is the remaining disk space on your host machine. If the Virtual Disk tries to write to a full drive you'll end up with errors.
8. The next window allows you to choose the location you'd like to save your new VDI. The default location is in the users home folder/.virtualbox (the “.” prefix means the folder is hidden).
9. After setting the name, size, and location of the VDI you wish to create select next to get to the finish page. Here you will review all of the settings you just selected before going ahead and creating your new Virtual Machine. After selecting “finish” you will be able to access the Virtual Machine in the VirtualBox Window.
10. **Congratulations**, you have just completed your third milestone.

MILESTONE FOUR:

Install Windows XP with VirtualBox guest add-ons on the virtual disk image (VDI).

Depending on whether or not you selected an existing VDI, or created a new VDI, this step may be optional. The following steps are necessary for anyone that needs to install Windows XP.

1. Back in the VirtualBox window, select your newly created Virtual Machine and then click the “Settings” button. This will open up your Virtual Machines setting window.
2. In the Settings menu you must select the “CD/DVD-ROM” and tell it to mount wherever your Windows XP installation media is. If you'd like to use an ISO file you must add it to the VirtualBox Virtual Media Manager and then select the file. For anyone whose installation media is a CD/DVD-ROM set the Virtual Machine to use the host's device.
3. Once you have the installation media setup you can power on the Virtual Machine for the first time. The Virtual Machine will start up and then begin the operating system's installation. For anyone who needs help installing Windows XP please refer to this tutorial.
4. Once the Windows installation is complete, it's time to install the VirtualBox guest add-ons. The first time you start your Virtual Machine you will be prompted with a number of windows containing information about hot keys used during your Virtual Box session. On most American layout keyboards the “Host” key which they refer to is the left CTRL button.
5. Now that Windows is booted up release your mouse from the Window by hitting your “Host Key”. Now that you're back to working with your host operating system, select Devices in the Virtual Machines Window, and then “Install Guest Add-ons”. After selecting “install guest add-on an ISO is downloaded to your host machine and is loaded as a virtual disk in your Virtual Machine.
6. When the Guest Add-ons ISO completes downloading it will Auto play in your Virtual Machine and the Guest Add-ons Wizard will appear. To install just select ok and let the wizard go to work. You may get prompted during the installation that Windows is trying to install a driver that isn't compatible, however you should disregard these messages and let the installation complete. Once the installation completes you must reboot your Virtual Machine to use the Guest Add-ons.
7. After you're Windows XP Virtual Machine restarts the guest add-ons will be available to use. Some of the additions include the ability to dynamically expand the Virtual Machines Window size, mouse integration with host operating system, and the ability to run the Virtual Machine in “Seamless mode”.
8. Setting up shared folders between your host and virtual are done in the Shared Folders window. You can access this window by clicking Devices/Shared Folders on the Virtual Machine's window. In the shared folders window select the “Add Share” button which brings up the Add Share window. In the Add Share window you can “choose” the folder path which you wish to share. I always use the /media directory of my host computer so I can access everything available to my host. Remember the path of the folder you decide to share because you'll need to use it to map a network drive to it on your Windows XP Virtual Machine.
9. On the Windows XP Virtual Machine open up Windows Explorer and select Tools/Map Network Drive...
10. In the Map Network Drive Window you can select the letter you want to append to the new drive and set its location. For all VirtualBox shared folders the folder begins with [\\voxsrv\](#) from there you enter the path of the shared folder.
11. **Congratulations**, you just completed the fourth and final milestone. Now whenever you find the urge to use Windows you can do so without having to give up all of the benefits of running Ubuntu as your host operating system.