

Lab – Install Linux in a Virtual Machine and Explore the GUI

Objectives

Part 1: Preparing a Computer for Virtualization

Part 2: Installing a Linux OS on the Virtual Machine

Part 3: Exploring the GUI

Background / Scenario

Computing power and resources have increased tremendously over the last 10 years. A benefit of multi-core processors and large amounts of RAM is the ability to install multiple operating systems or use virtualization on a computer. With more than one operating systems installed, the user can switch between operating systems by restarting the computer and choosing the operating system to boot.

With virtualization, one or more virtual computers can operate inside one physical computer. Virtual computers that run within physical computers are called virtual machines. Virtual machines are often called guests, and physical computers are often called hosts. Anyone with a modern computer and operating system can run virtual machines.

In this lab, you will install a Linux OS in a virtual machine using a desktop virtualization application, such as VirtualBox. After completing the installation, you will explore the GUI interface. You will also explore the command line interface using this virtual machine in a later lab in this course.

Required Resources

- Computer with a minimum of 2 GB of RAM and 10 GB of free disk space
- High speed Internet access to download Oracle VirtualBox and Linux OS image, such as Ubuntu Desktop 14.04.

Part 1: Preparing a Computer for Virtualization

In Part 1, you will download and install desktop virtualization software and a Linux OS image. Your instructor may provide you with a Linux OS image.

Step 1: Download and install VirtualBox.

VMware Player and Oracle VirtualBox are two virtualization programs that you can download and install to support the OS image file. In this lab, you will use the VirtualBox application. To download and install VirtualBox:

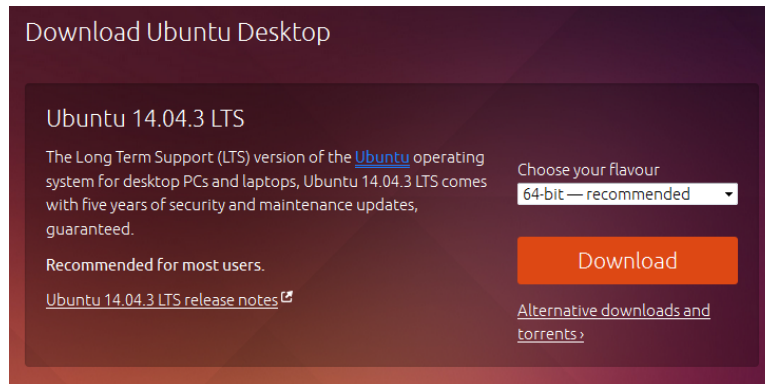
- Navigate to <http://www.oracle.com/technetwork/server-storage/virtualbox/downloads/index.html>.
- Choose and download the appropriate installation file based on your operating system. If you are running a Windows OS, click the **Windows Installer** to download the file.
- After the VirtualBox installation file is downloaded, run the installer and accept the default installation settings.

Step 2: Download a Linux Image.

- Navigate to the Ubuntu website at <http://www.ubuntu.com/download/desktop> to download and save a Ubuntu Desktop image.

- b. Select the 64-bit or 32-bit version of the OS. Click **Download** to start downloading the image. Scroll down the web page and click **Not now, take me to the download** if necessary to bypass the donation prompt. Then select **Save File** and click **OK** to save the file.

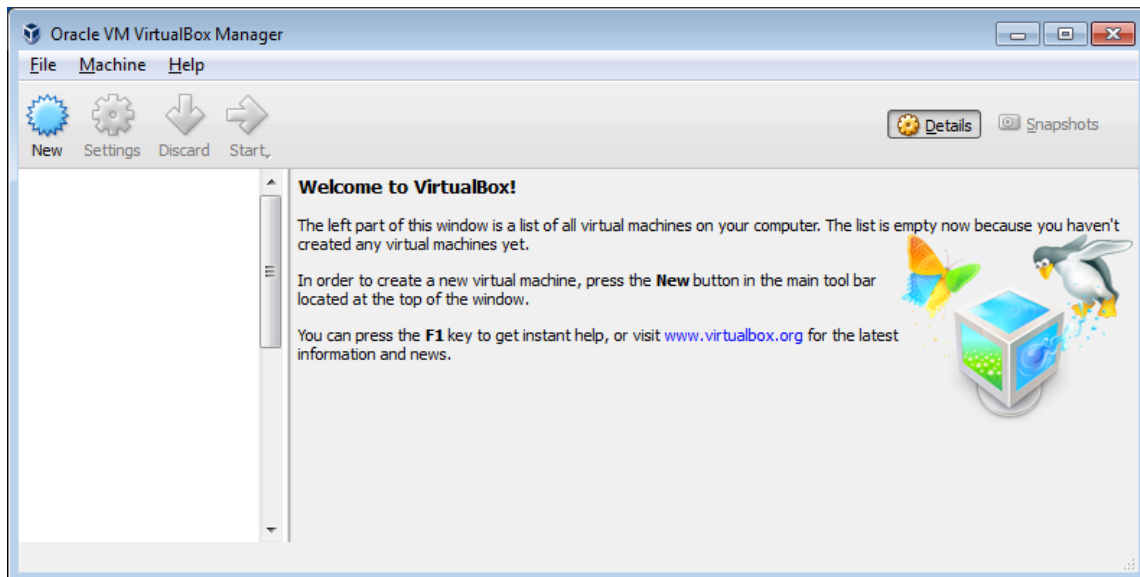
Note: The 64-bit version is recommended.



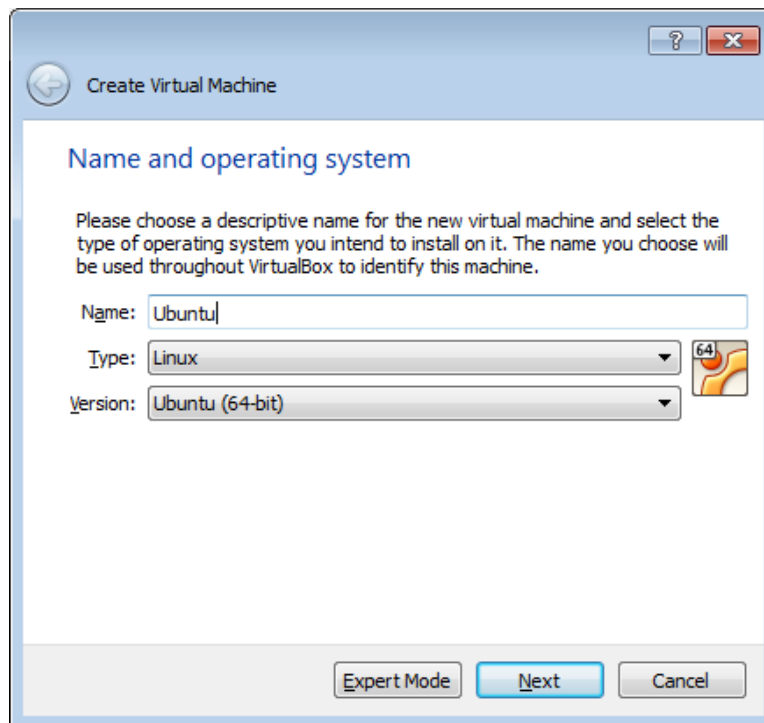
Part 2: Installing a Linux OS on the Virtual Machine

Step 1: Create a New Virtual Machine.

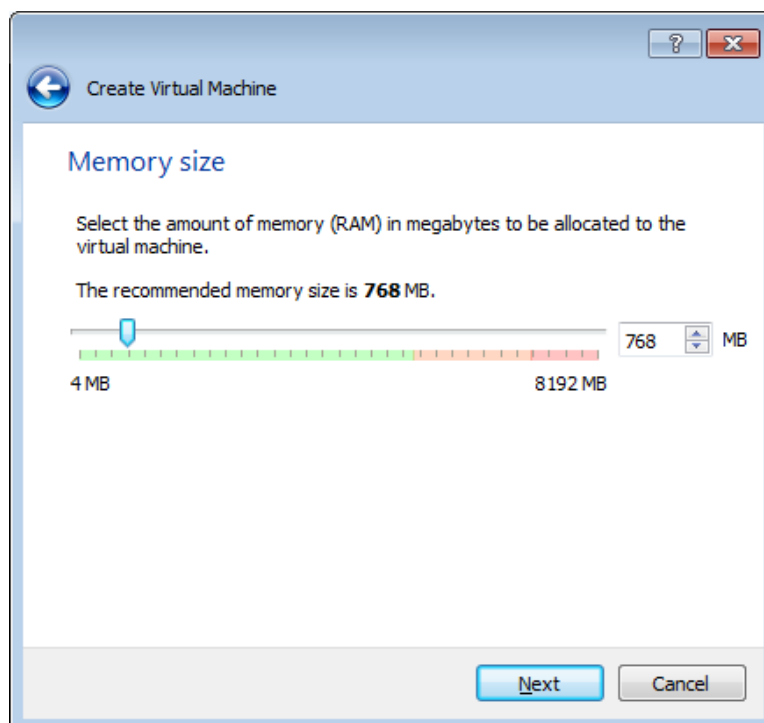
- a. Click **Start** and search for **Virtualbox**. Click **Oracle VM VirtualBox** to open the manager. When the manager opens, click **New** to start the Ubuntu installation.



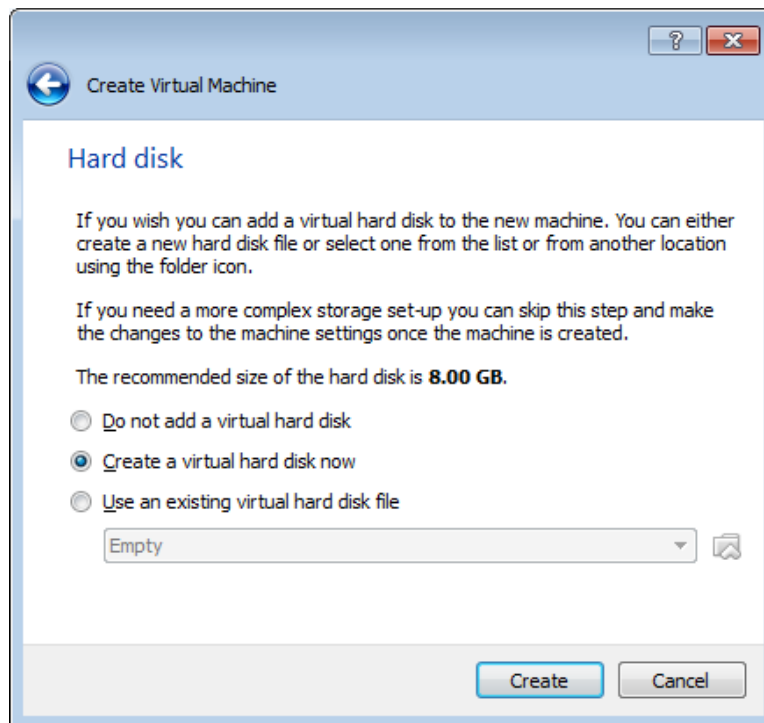
- b. In the **Name and operating system** screen, type **Ubuntu** in the **Name** field. For the **Type** field, select **Linux**. In the **Version** field, select **Ubuntu (64-bit)** if that is the version downloaded from the Ubuntu website. Otherwise, select the corresponding downloaded version. Click **Next** to continue.



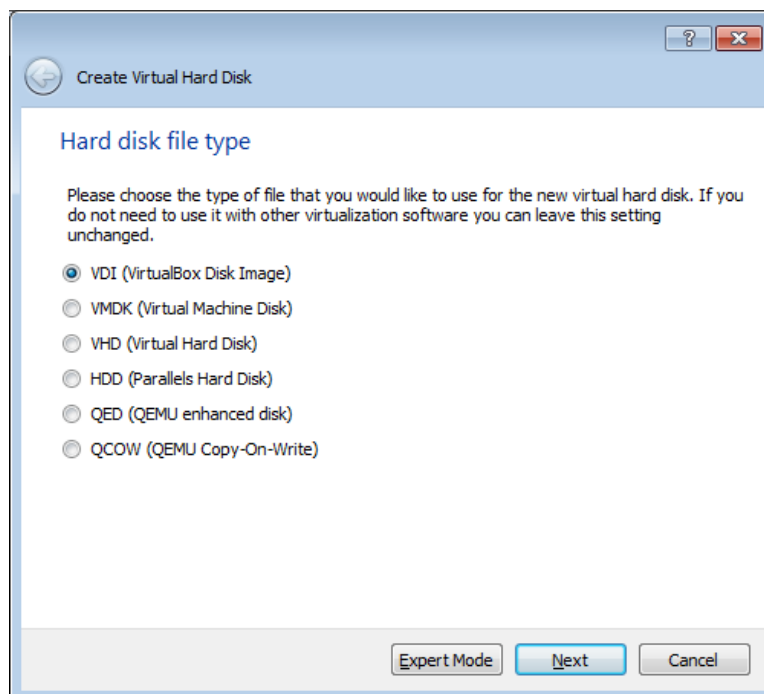
- c. In the **Memory size** screen, increase the amount of RAM if desired as long as the amount of RAM for the virtual machine is in the green area. Going beyond the green area would adversely affect the performance of the host. Click **Next** to continue.



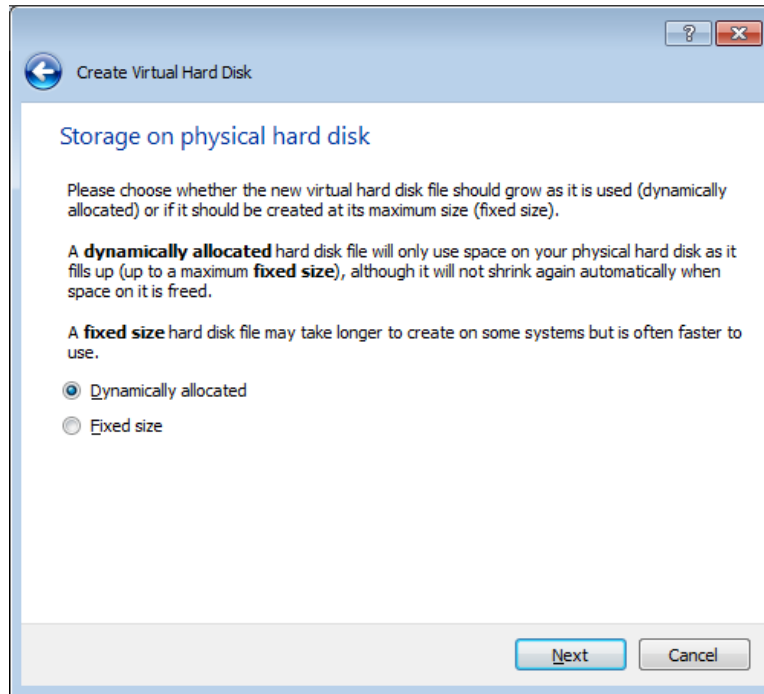
- d. In the **Hard disk** screen, click **Create** to create a virtual hard disk now.



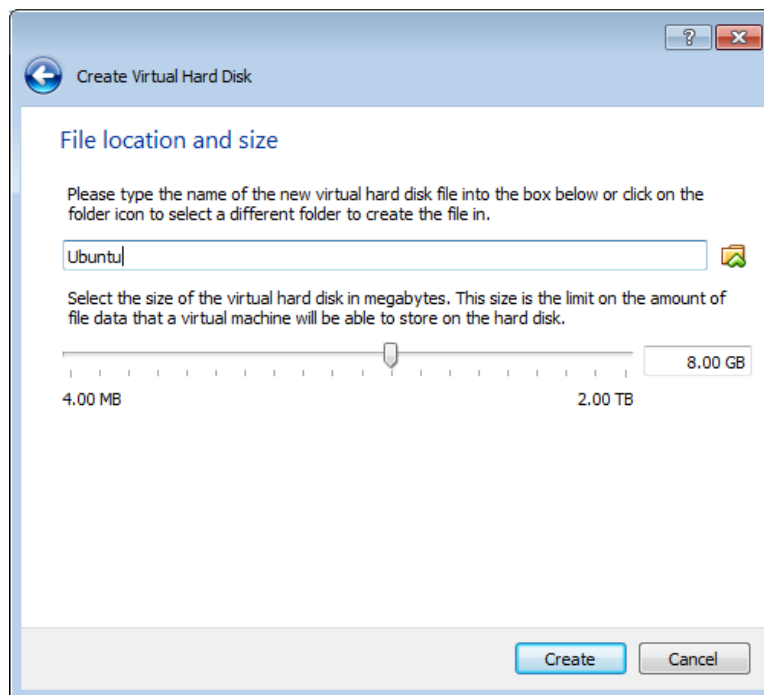
- e. In the **Hard disk file type** screen, use the default file type settings of VDI (VirtualBox Disk Image). Click **Next** to continue.



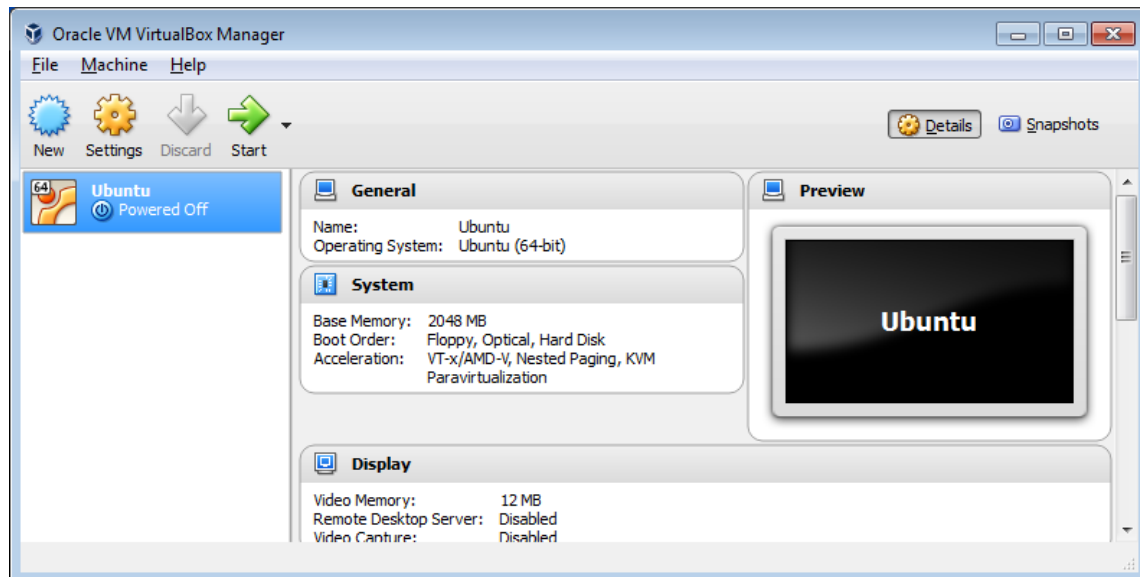
- f. In the **Storage on physical hard disk** screen, use the default storage settings of dynamically allocated. Click **Next** to continue.



- g. In the **File location and size** screen, you can adjust the hard drive and change the name and location of the virtual hard drive. Click **Create** to use the default settings.



- h. When the hard drive creation is done, the new virtual machine is listed in the **Oracle VM VirtualBox Manager** window. Select **Ubuntu** and click **Start** (👉) in the top menu.



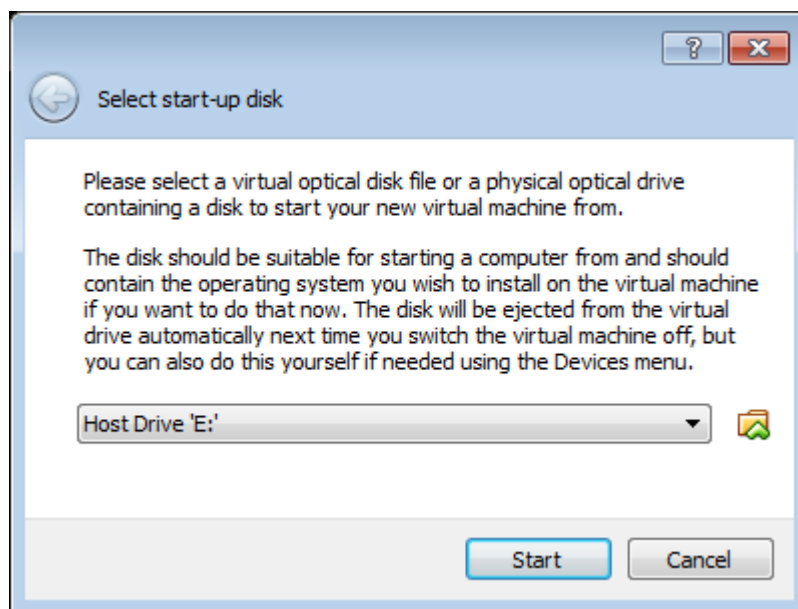
Step 2: Install Ubuntu on the virtual machine.

- a. When the virtual machine starts the first time without an installed OS, you are prompted to provide a location where an image of the OS can be found.

If you downloaded the operating system, click the file manager icon (📁) to browse the OS image location in the file system. Select the file with .iso extension and click **Open** to start the installation.

If the operating system is on an optical disk, select the location of the optical driver that contains the optical disk.

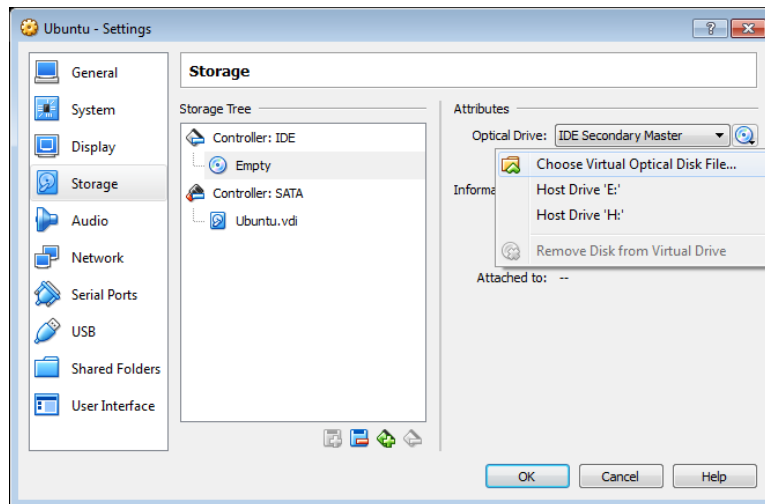
Click **Start** to continue. Only complete the next step if you were not prompted for an operating system.



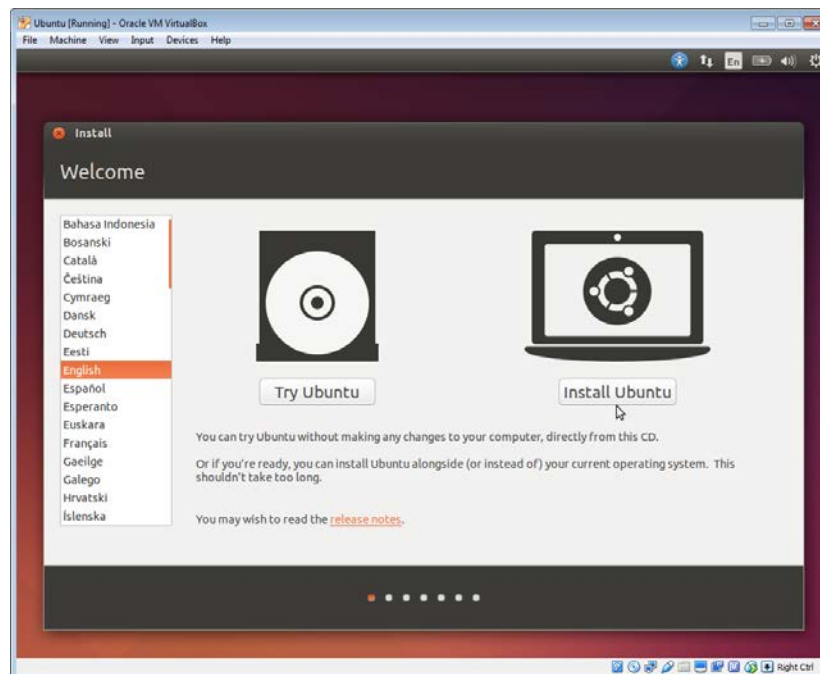
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- b. If you were able to locate the .iso and press **Start** in the previous step, skip this step. If you were not prompted an OS image, return to the **Oracle VM Virtualbox Manager** window. Right-click **Ubuntu** and select **Settings**. In the **Ubuntu – Settings** window, click **Storage** in the left panel. Click **Empty** in the middle panel. In the right panel, click the CD symbol () and select the file location of the OS. Click **OK** to continue.

In the **Oracle VM VirtualBox Manager** window. Select **Ubuntu** and click **Start** () in the top menu.



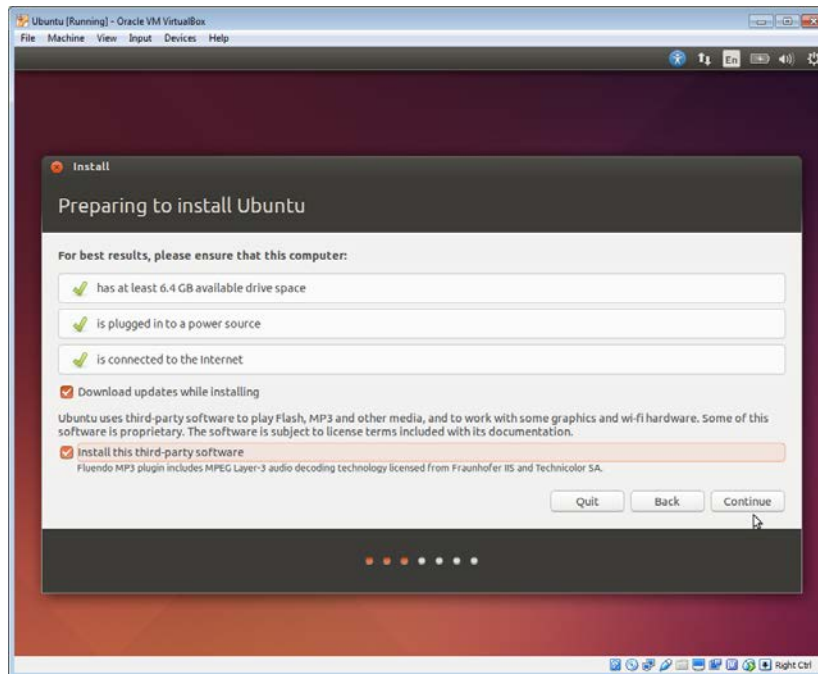
- c. In the **Welcome** screen, you are prompted to try or install Ubuntu. In this lab, you will install the Ubuntu OS in this virtual machine. Click **Install Ubuntu**.



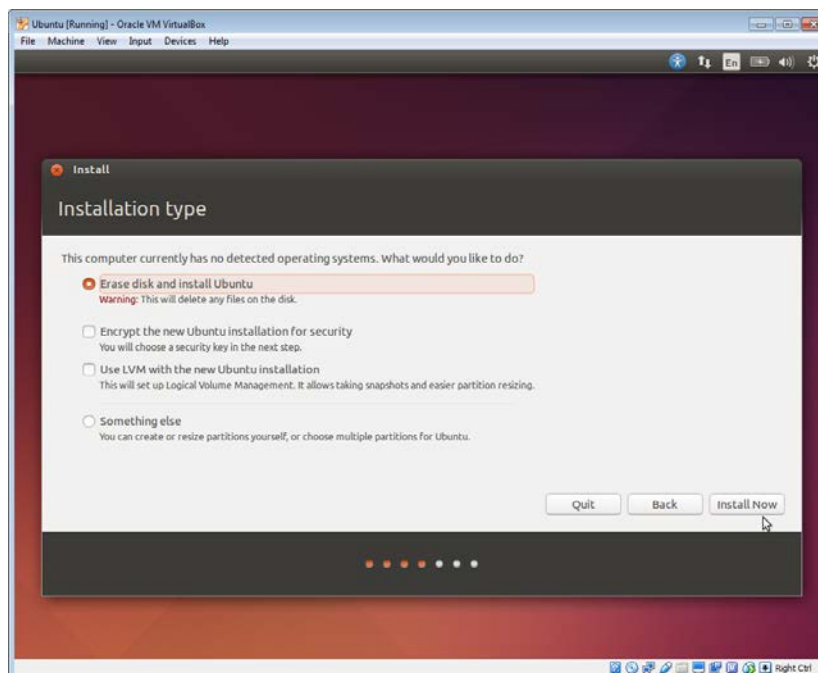
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- d. In the **Preparing to install Ubuntu** screen, verify that the computer meets the installation requirements represented by the green check marks. Select **Download updates while installing** and **Install this third-party software** if desired. Click **Continue**.

Note: If you are not connected to the Internet, you can continue to install and enable the network later.

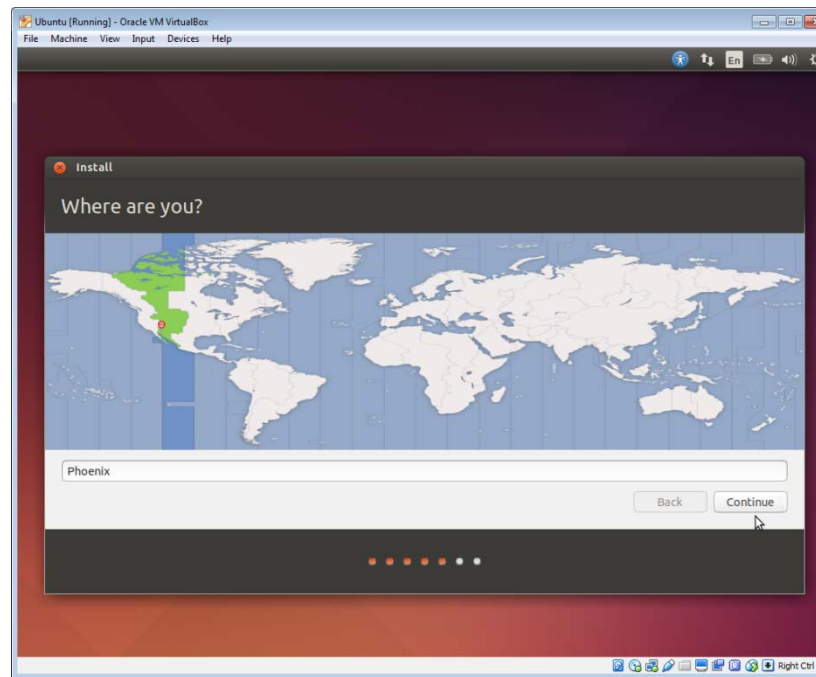


- e. Because this Ubuntu installation is in a virtual machine, it is safe to erase the disk and install Ubuntu without affecting the host computer. Select **Erase disk and install Ubuntu**. Otherwise installing Ubuntu on a physical computer would erase all data in the disk and replace the existing operating system with Ubuntu. Click **Install Now** to start the installation.

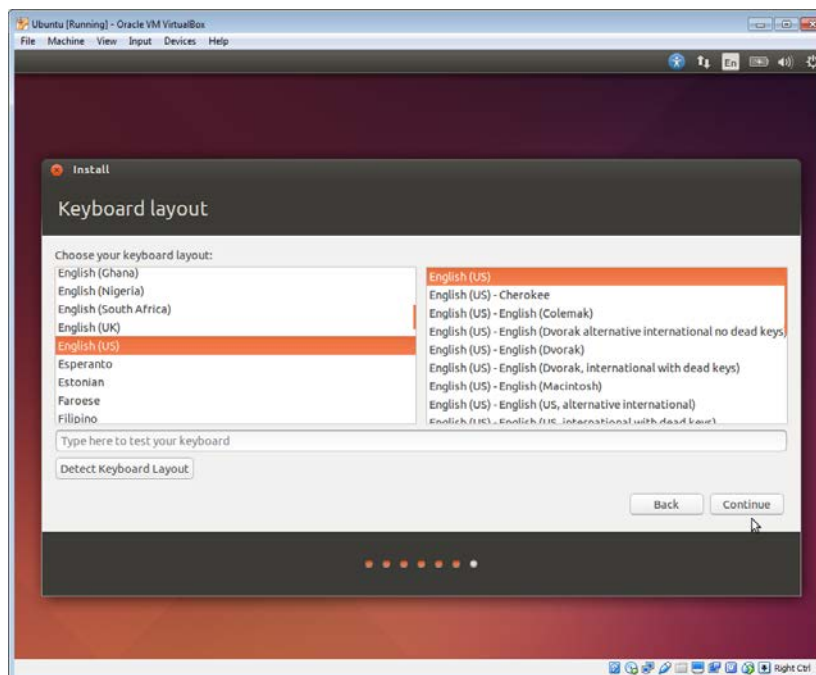


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- f. Click **Continue** to erase the disk and install Ubuntu.
- g. In the **Where are you?** screen, verify that the location listed is correct. Otherwise, type your location in the field and select the desired location in the provide list. Then click **Continue**.

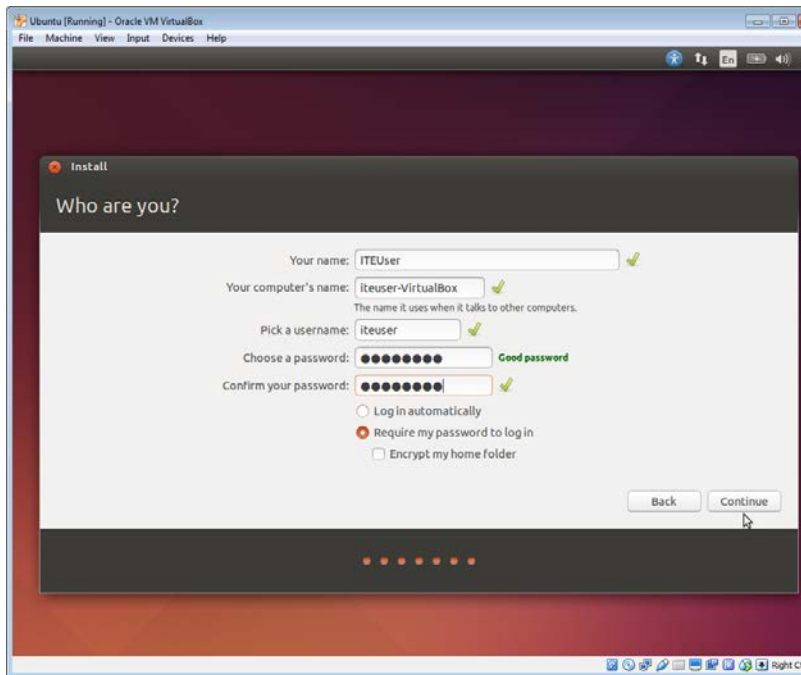


- h. In the **Keyboard layout** screen, verify that the correct keyboard layout is selected. If desired, type some text in the **Type here to test your keyboard** field to verify the keyboard layout. Click **Continue**.



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- i. In the **Who are you?** screen, provide your name and choose a password. Use **ITEUser** for **Your Name** and **ITEpass!** for the password. You can use the username generated or enter a different username. If desired, you can change the other settings. Click **Continue**.



- j. The Ubuntu OS is now installing in the virtual machine. This will take several minutes. When the Installation Complete window displays, click **Restart Now** to use the new installation. If there is an installation disk in the optical drive, remove the media and close the tray and press **Enter** to continue.

Part 3: Exploring the GUI

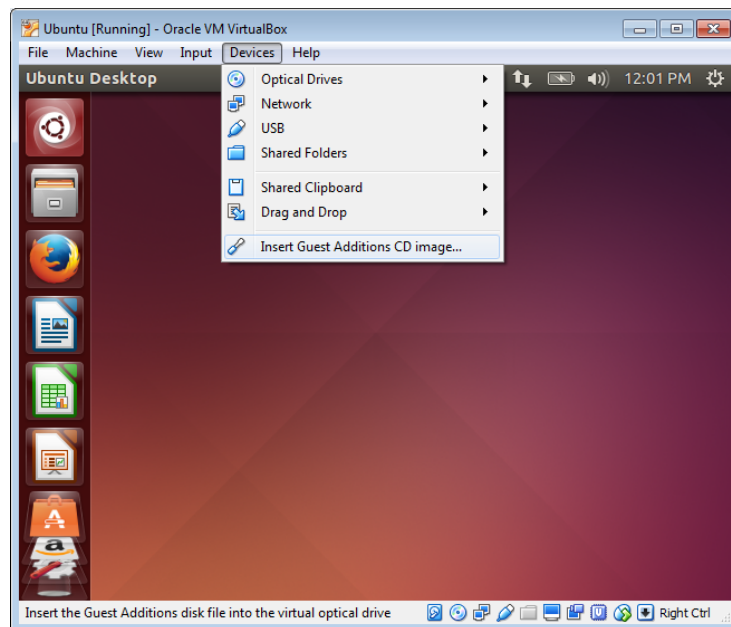
In this part, you will install the VirtualBox guest additions and explore the Ubuntu GUI.

Step 1: Install Guest Additions.

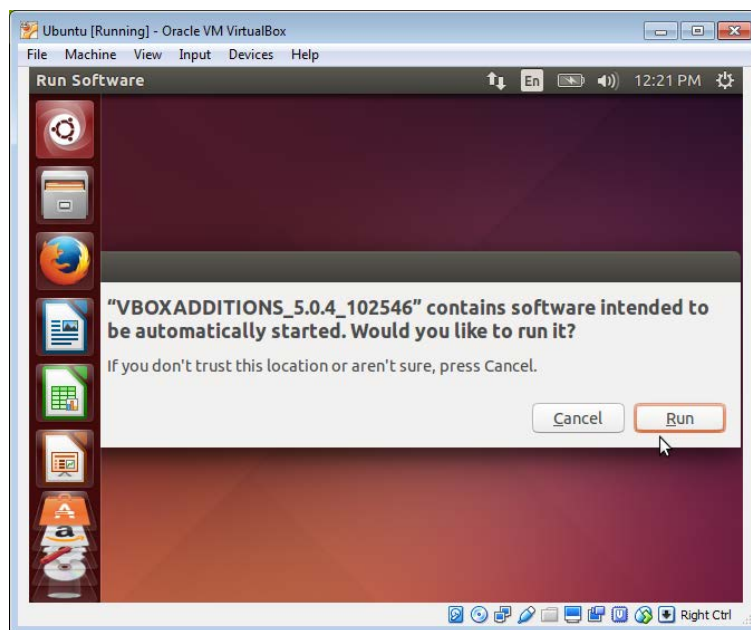
- a. Log into your Ubuntu virtual machine using the user credentials created in the previous part.

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- b. Your Ubuntu Desktop window may be smaller than expected. This is especially true on high resolution displays. Click **Device > Insert Guest Additions CD image...** to install the Guest Additions. This allows more functions, such as changing the screen resolution in the virtual machine.

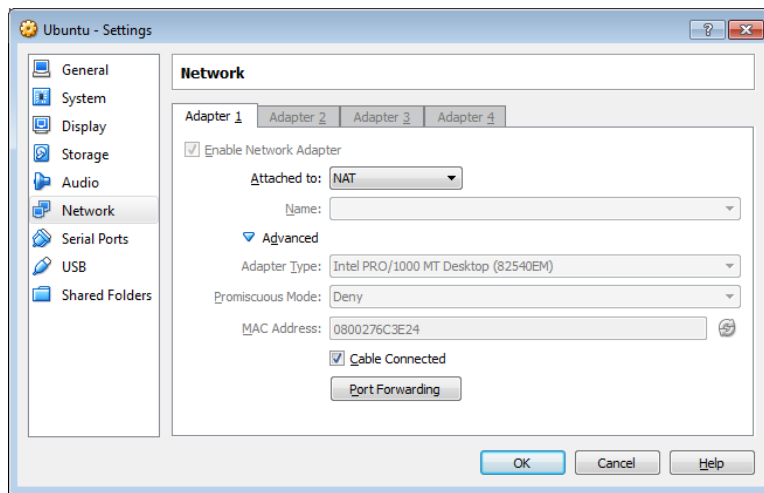


- c. Click **Run** to install the additions. When prompted for a password, use the same password that you used to log in. Click **Authenticate** to continue.

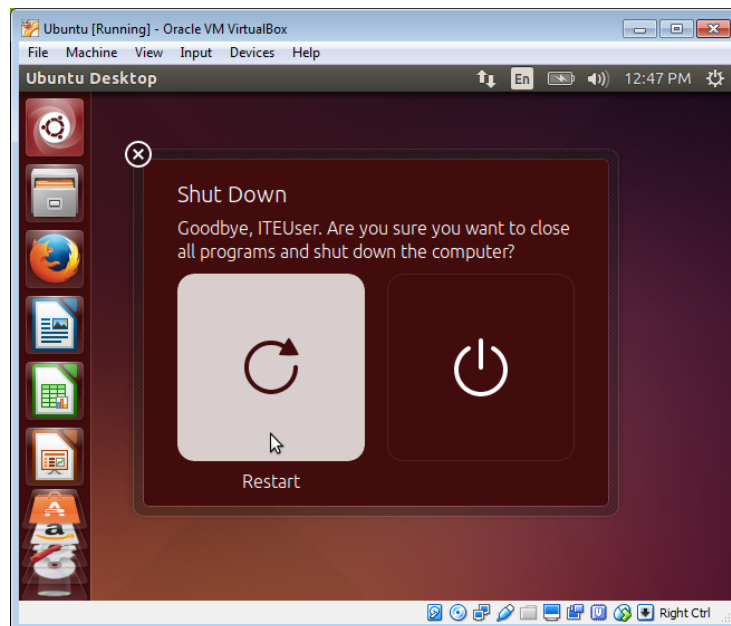


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- d. If the computer was not connected to the Internet during the installation, click **Devices > Network Settings** in the Oracle VirtualBox menu. Enable network adapters and configure the proper setting for network connections as necessary. Click **OK**.




- e. When the installation of the additions is done, restart the virtual machine again. Click **Settings** (⚙️) in the upper right corner and click **Shut down**. Click **Restart** to restart Ubuntu.

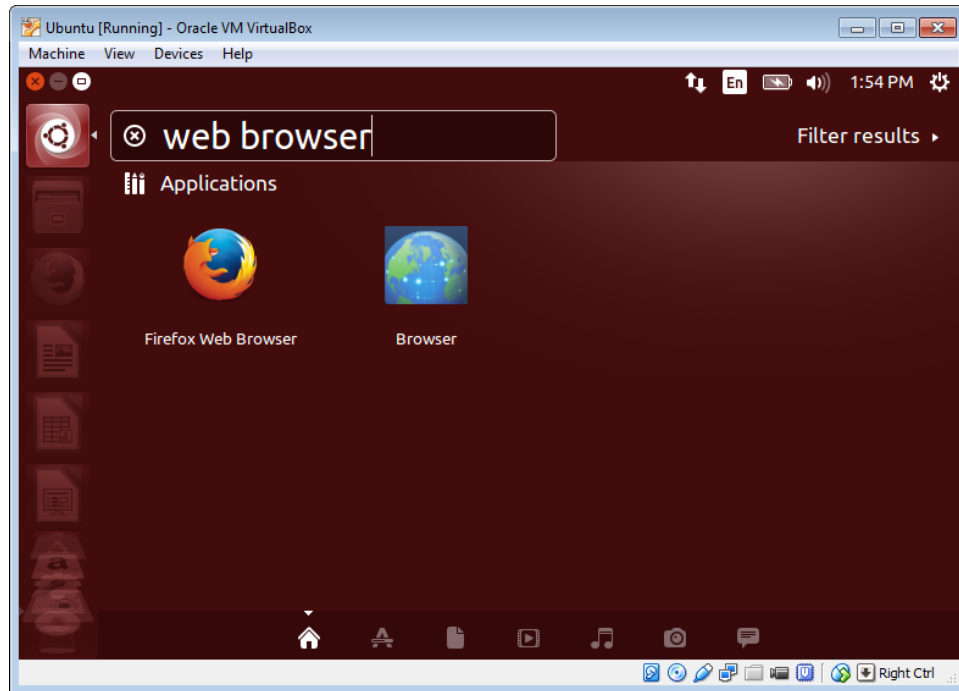


Step 2: Open a web browser.

- a. Log into Ubuntu again. After you are log in again, you can resize the virtual machine window.

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- b. Click **Dash** () to search your computer and online resources. Type **web browser** and click your desired web browser under the Applications heading and navigate to different web sites.



- c. To access the command line interface, click **Dash** and type **terminal** to display a list of terminal emulators are listed under the Applications header.

How many are available to you and what are their names?

Reflection

What are the advantages and disadvantages of using a virtual machine?