Answers: <u>10.4.1.4 Lab – Install Linux in a Virtual Machine and</u> 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 virual 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:

- a. Navigate to http://www.oracle.com/technetwork/server-storage/virtualbox/downloads/index.html.
- b. 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.
- c. After the VirtualBox installation file is downloaded, run the installer and accept the default installation settings.

Step 2: Download a Linux Image.

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

 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.

Download Ubuntu Desktop	1
Ubuntu 14.04.3 LTS The Long Term Support (LTS) version of the <u>Ubuntu</u> operating system for desktop PCs and laptops, Ubuntu 14.04.3 LTS comes with five years of security and maintenance updates, guaranteed. Recommended for most users. <u>Ubuntu 14.04.3 LTS release notes</u>	Choose your flavour 64-bit — recommended → Download Alternative downloads and torrents 2

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.

Create	Virtual Machine		
Name and operating system Please choose a descriptive name for the new virtual machine and select the type of operating system you intend to install on it. The name you choose will			
N <u>a</u> me: <u>T</u> ype: <u>V</u> ersion:	sed throughout virtualisox to identity this machine. ne: Ubuntu pe: Linux Ubuntu (64-bit)		
	Expert Mode Cancel		

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.

? 💌			
Create Virtual Machine			
Hard disk			
If you wish you can add a virtual hard disk to the new machine. You can either create a new hard disk file or select one from the list or from another location using the folder icon.			
If you need a more complex storage set-up you can skip this step and make the changes to the machine settings once the machine is created.			
The recommended size of the hard disk is 8.00 GB .			
Do not add a virtual hard disk			
Oreate a virtual hard disk now			
Use an existing virtual hard disk file			
Empty 🔻			
Create Cancel			

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

? <mark>×</mark>
Create Virtual Hard Disk
Hard disk file type
Please choose the type of file that you would like to use for the new virtual hard disk. If you do not need to use it with other virtualization software you can leave this setting unchanged.
 VDI (VirtualBox Disk Image)
VMDK (Virtual Machine Disk)
VHD (Virtual Hard Disk)
HDD (Parallels Hard Disk)
QED (QEMU enhanced disk)
QCOW (QEMU Copy-On-Write)
Expert Mode Next Cancel

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

? 🔀			
Create Virtual Hard Disk			
Storage on physical hard disk			
Please choose whether the new virtual hard disk file should grow as it is used (dynamically allocated) or if it should be created at its maximum size (fixed size).			
A dynamically allocated hard disk file will only use space on your physical hard disk as it fills up (up to a maximum fixed size), although it will not shrink again automatically when space on it is freed.			
A fixed size hard disk file may take longer to create on some systems but is often faster to use.			
Dynamically allocated			
Eixed size Eixed size			
Next Cancel			

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.

Create Virtual Hard Disk
File location and size
Please type the name of the new virtual hard disk file into the box below or click on the folder icon to select a different folder to create the file in.
Ubuntu
Select the size of the virtual hard disk in megabytes. This size is the limit on the amount of file data that a virtual machine will be able to store on the hard disk.
4.00 MB 2.00 TB
Create Cancel

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.

Oracle VM VirtualBox Manager			×
<u>F</u> ile <u>M</u> achine <u>H</u> elp			
New Settings Discard Start		Details 💿 Snapsho	ots
	🧧 General 📃 Previe	w	A
Powered Off	Name: Ubuntu Operating System: Ubuntu (64-bit)		
	System		
	Base Memory: 2048 MB Boot Order: Floppy, Optical, Hard Disk Acceleration: VT-x/AMD-V, Nested Paging, KVM Paravirtualization	Ubuntu	
	Display		\leq
	Video Memory: 12 MB Remote Desktop Server: Disabled Video Canture: Disabled		+

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.

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 (i) 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**.



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.

	🛞 ti En 📧
Install	
Preparing to install Ubuntu	
or best results, please ensure that this computer:	
🞻 has at least 6.4 GB available drive space	
🖋 is plugged in to a power source	
🧳 is connected to the Internet	
2 Download updates while installing ibuntu uses third-party software to play Flash, MP3 and other in oftware is proprietary. The software is subject to license terms	redia, and to work with some graphics and wi-fi hardware. Some of this included with its documentation.
Install this third-party software	and from French for W and Yachalanka ##
Fillendo MP3 plugin includes MPEG Layer-3 audio decoding technology of	sensed from Fraunnorer its and rechnicolor sa.
	Quit Back Continue
••	
••	

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.



- 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**.



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**.

Ubuntu (Running) - Oracle VM VirtualBox		
rile Machine View input Devices Help		🛞 🛊 💼 💷 🐗 k
🙁 Install		
Who are you?		
Your name:	TEUser	4
Your computer's name:	Iteuser-VirtualBox definition of the name it uses when it talks to other computers.	
Pick a username:	iteuser 🥑	
Choose a password:	Good password	
Confirm your password:		
	O Log in automatically	
	O Require my password to log in	
	Encrypt my home folder	
		Back Continue
	the second s	
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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.

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.



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.

🥝 Ubuntu - Settings		8
📃 General	Network	
System	Adapter <u>1</u> Adapter <u>2</u>	Adapter <u>3</u> Adapter <u>4</u>
Storage	🖉 Enable Network Adapt	er
Þ Audio	<u>A</u> ttached to:	NAT
Network	<u>N</u> ame:	
🔊 Serial Ports	✓ Advanced	
🖉 USB	Adapter Type:	Intel PRO/1000 MT Desktop (82540EM)
G Shared Folders	Promiscuous Mode:	Deny
	MAC Address:	0800276C3E24
		Cable Connected
		Port Forwarding
		OK Cancel <u>H</u> elp

e. When the installation of the additions is done, restart the virtual machine again. Click **Settings** (¹¹) in the upper right corner and click **Shut down**. Click **Restart** to restart Ubuntu.

🧏 Ubuntu [Running] - Oracle VM Virtu	alBox		- • •
File Machine View Input Devi	ces Help		
Ubuntu Desktop		🄃 🖬 📧	🜒) 12:47 PM 🔱
Shut Do Goodbye, all program	wn ITEUser. Are you : ns and shut down	sure you want to close the computer?	
R	estart		
		0 🕫 🌽 📃 💾	🛄 🚫 🛃 Right Ctrl 🔡

Step 2: Open a web browser.

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

b. Click **Dash** (22) 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.

🐕 Ubuntu [Running] - Oracle VM VirtualBox		
Machine View Devices Help		
8 🖨 🖻		🄃 🖪 💽 🜒 1:54 PM 🔱
 Image: Second secon		Filter results 🔸
Applications		
()		
Firefox Web Browser	Browser	
興		
	a 6 D	
		🛛 💿 🖉 🗗 🧰 🛄 🐼 💽 Right Ctrl 🛒

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?