

UBUNTU LINUX VM INSTALLATION GUIDE

by Kamran Khan

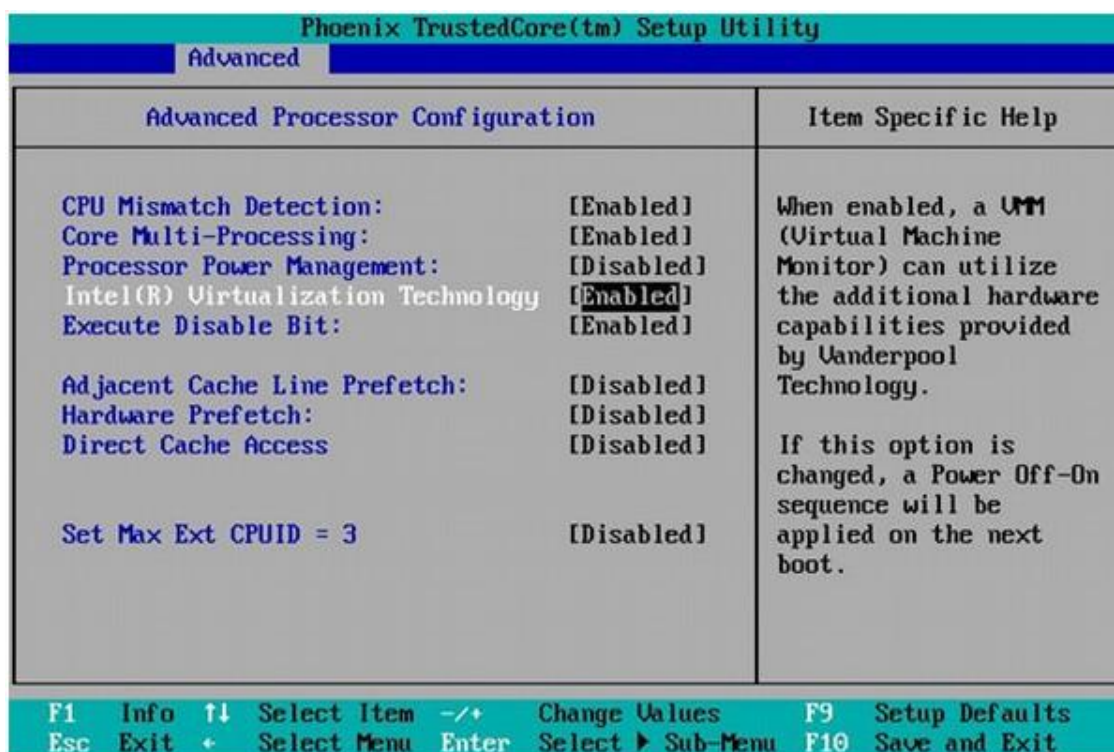
The Computer Organization course at Northeastern introduces the students to Assembly Language programming of latest Intel x86 64bit processors. There are two popular Assembler tools with their own syntax. Microsoft provides one under Visual Studio. It uses Intel command syntax. The other one is provided free with all Linux Operating Systems. Its command set uses AT&T (Bell Labs) syntax. The textbook examples are created using the second one. I have, therefore, made this guide to help you install a popular Linux Operating System i.e. **Ubuntu Desktop** version 16.04.2 LTR (Long Term Release i.e. it is supported for 5 years). The next version 17 is not recommended as it is a short term release.

INSTALLATION OF UBUNTU LINUX ON VIRTUAL BOX**Step - 1:**

I'd highly recommend that you check the system **BIOS** (Basic Input Output System) of your computer to see if virtualization is enabled. Mostly, it is not enabled on low end laptops. It is the resident software that loads your Windows or other operating system into memory.

1) Shutdown the computer. *Windows 10 normally does fast hybrid shutdown.* Press and hold **Shift** Key then choose **Start Menu -> Power -> Shutdown** to completely turn off the machine.

2) Start the computer and press the key suggested by manufacturer of your brand to open the BIOS screen before the OS starts after self-test. Mostly, keys like **Del**, **Esc**, **F2**, **F10** are used. You get few moments. If you miss it, try again. Search it on the web before starting your process. You will see a screen showing options similar to the following picture under one of the menu tabs:



Step - 2

Oracle VirtualBox is a free virtualization software. Type the following URL in the browser address bar and download the software.

1) Enter `https://www.virtualbox.org` and click to download, as shown:



2) Run the downloaded executable program to install this software.

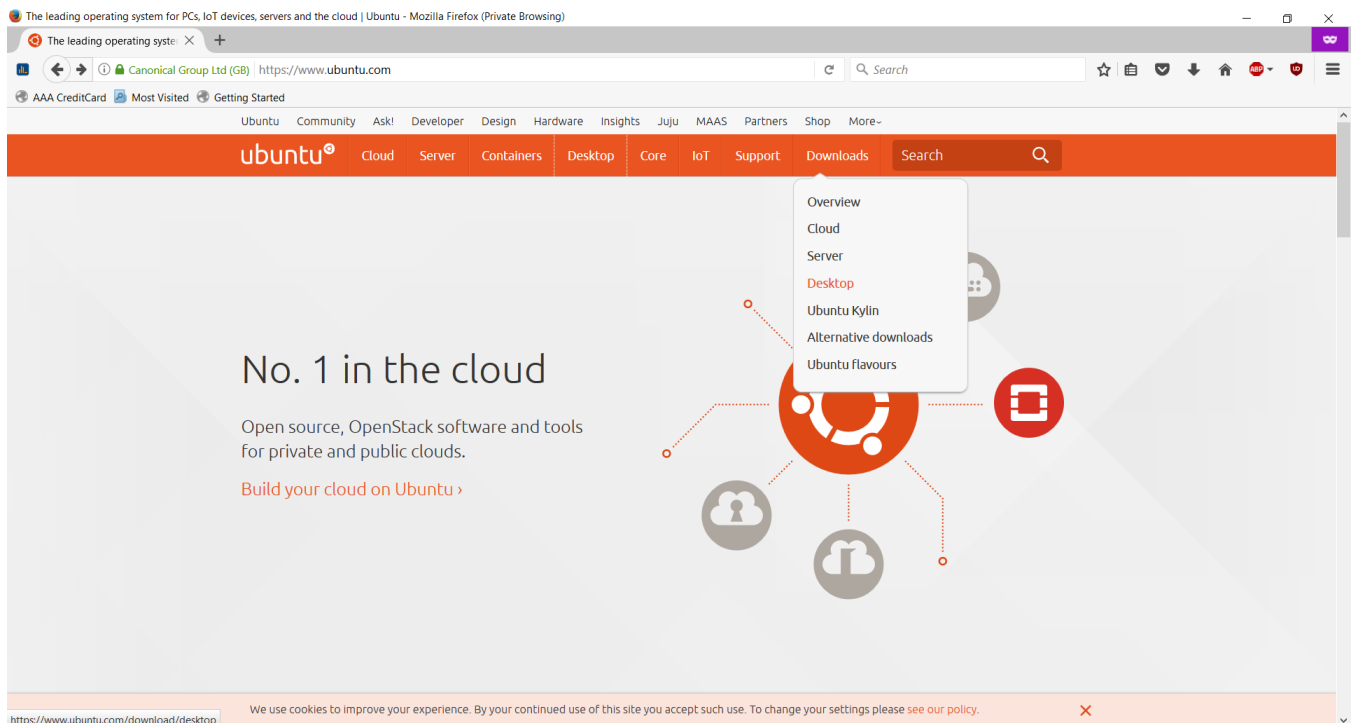
Step - 3:

Ubuntu is a very popular Linux operating system. You will have to download the DVD image (.iso) file of the installation media from the official website. It is approximately 1.4 GB in size. Please follow the steps:

1) Enter `https://www.ubuntu.com` in the address bar of your browser.

2) Choose Downloads on orange Menu bar and select Desktop (see picture below).

3) There are two Ubuntu Desktop versions available. We will choose the first one as shown.

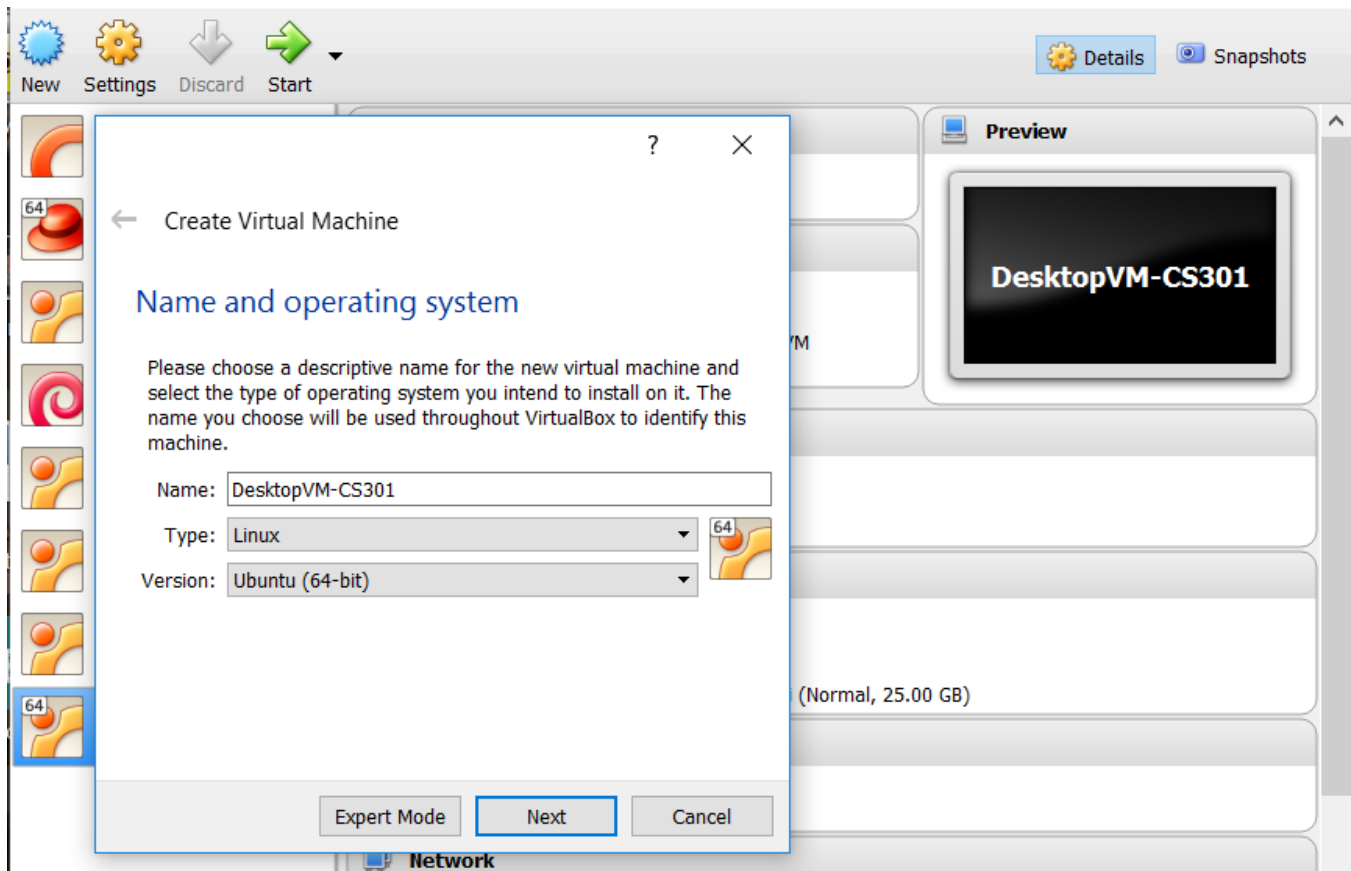


4) The downloaded file name is: ubuntu-16.04.2-desktop-amd64.iso

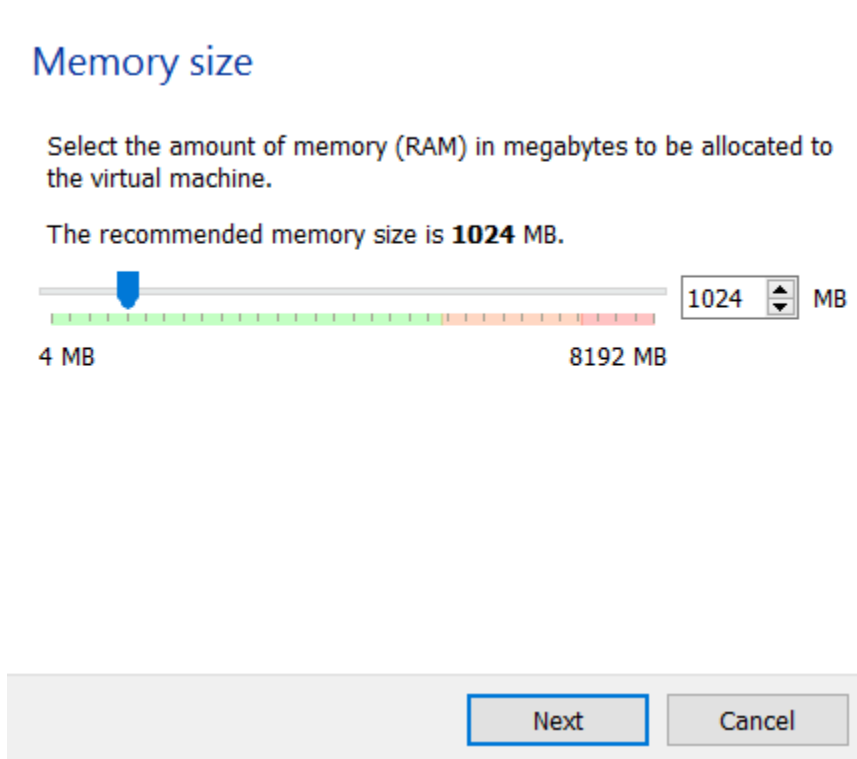
Step - 4:

Now you are ready to install the Linux Operating System on a virtual machine. First of all we will create a machine. Please follow the steps:

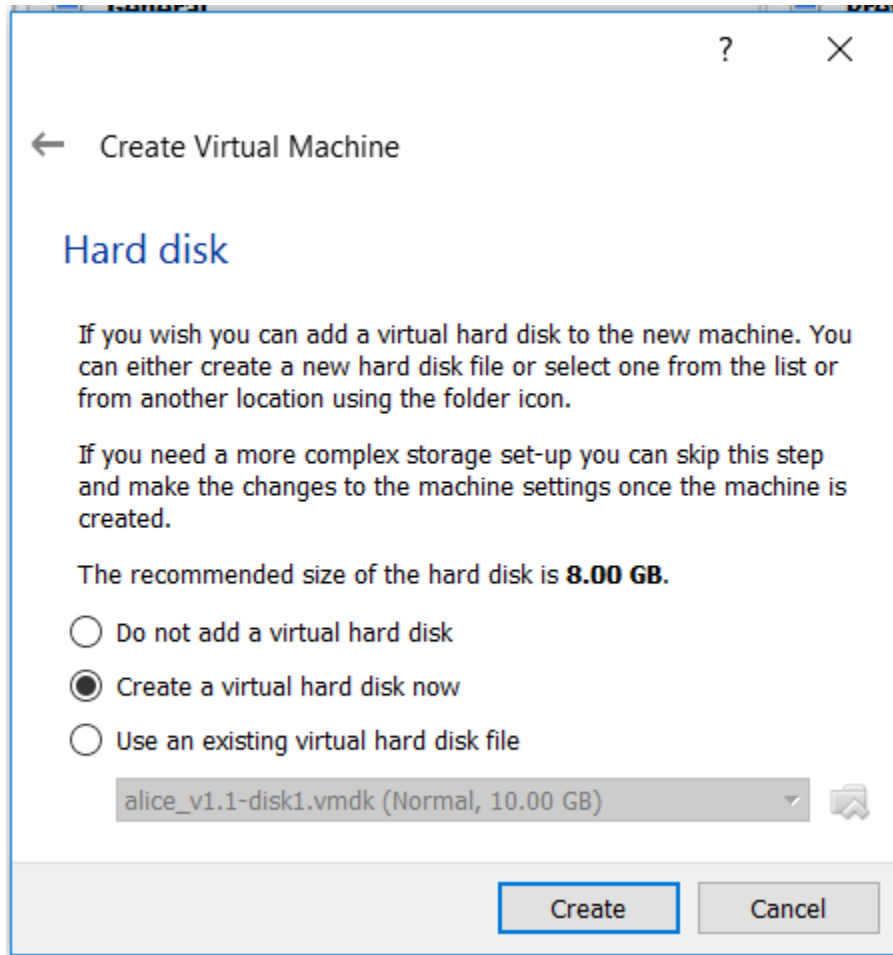
- 1) Double click on Oracle VM VirtualBox icon on your desktop to start the software.
- 2) Click on blue "New" button on the top toolbar to start the wizard. The following screen will be shown. Enter the Name of VM like DesktopVM-CS301, Type Linux, Version Ubuntu (64-bit).



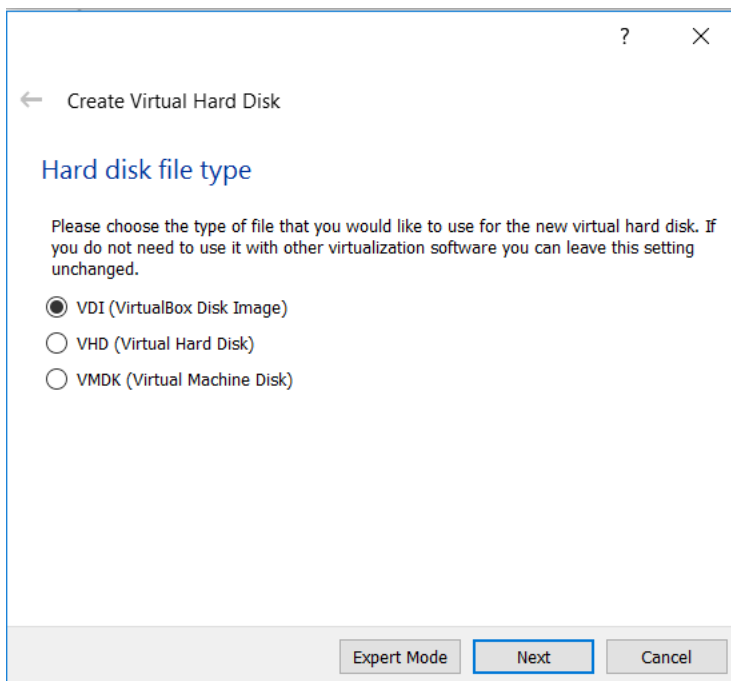
3) Push **Next**. You will see the following screen. You may choose 2 GB memory for this VM if your computer has got 4 GB or more RAM, else you can keep it to 1 GB (1024 MB) if your RAM is 2 Gig.



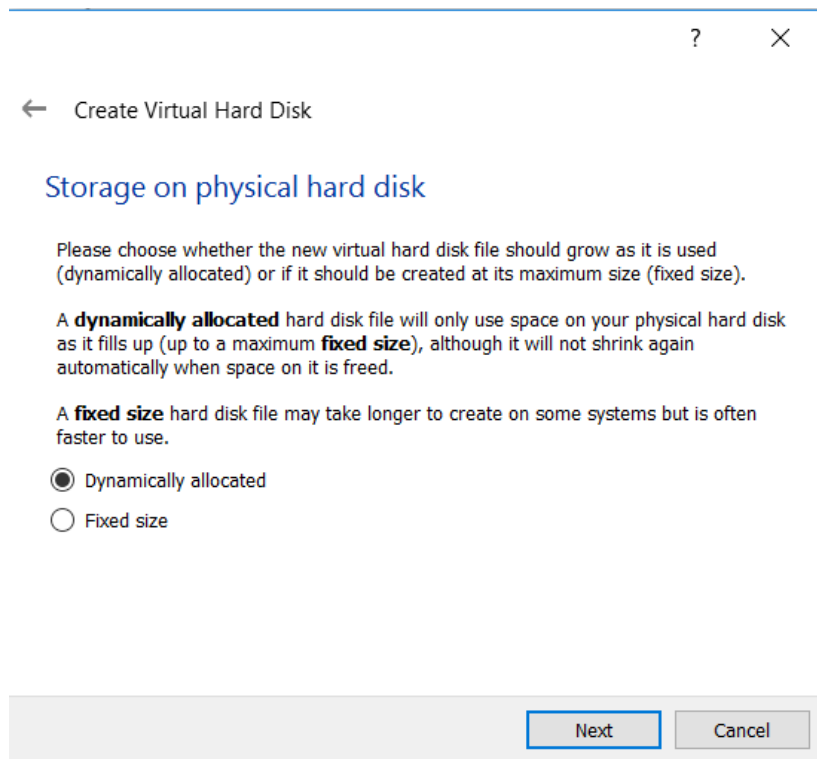
4) Next screen asks to create Hard Disk. Push the **Create** button.



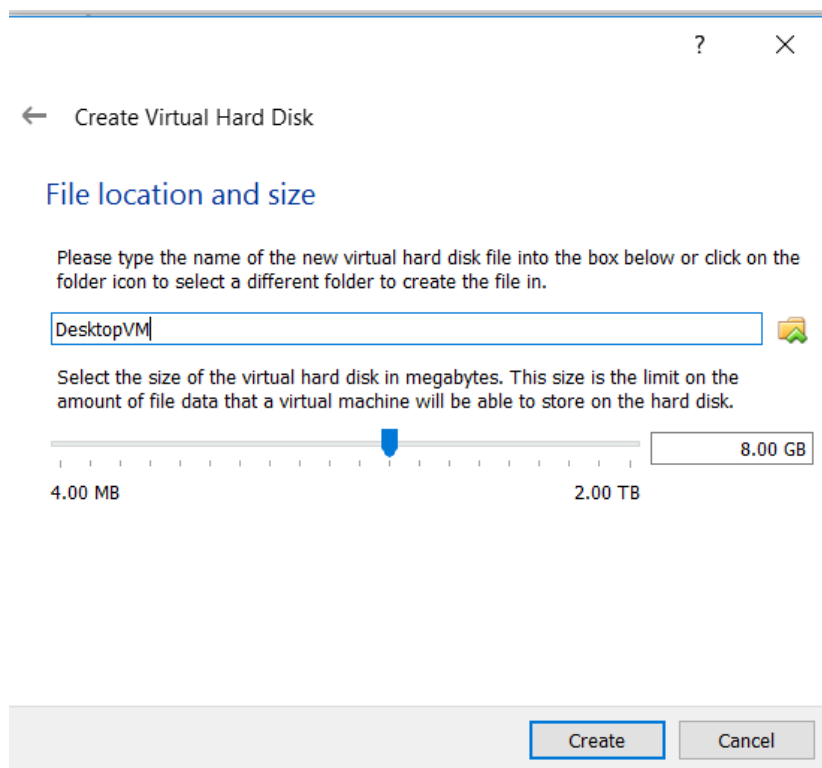
5) Choose default Disk type. Push **Next** Button on the following screen.



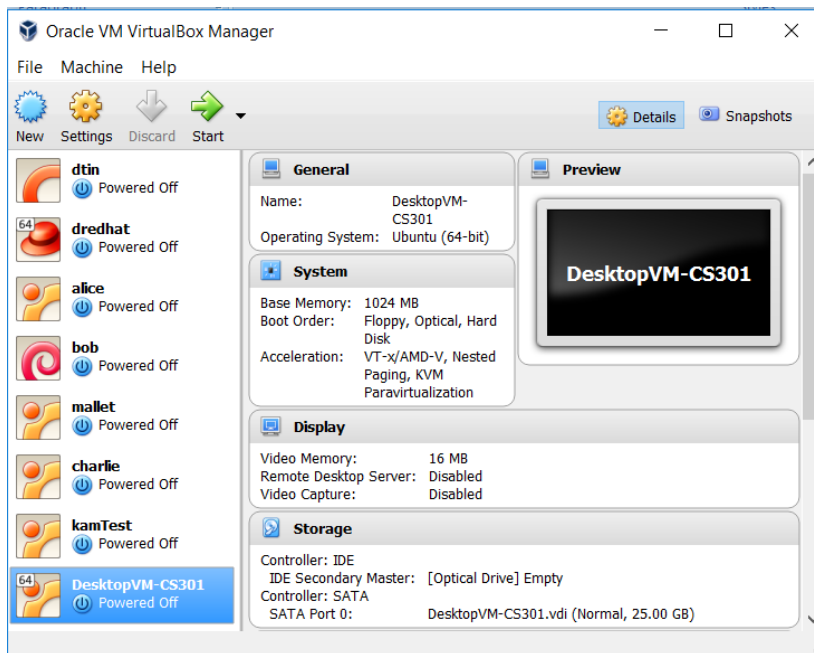
6) Again choose default. Push **Next** Button on the following screen.



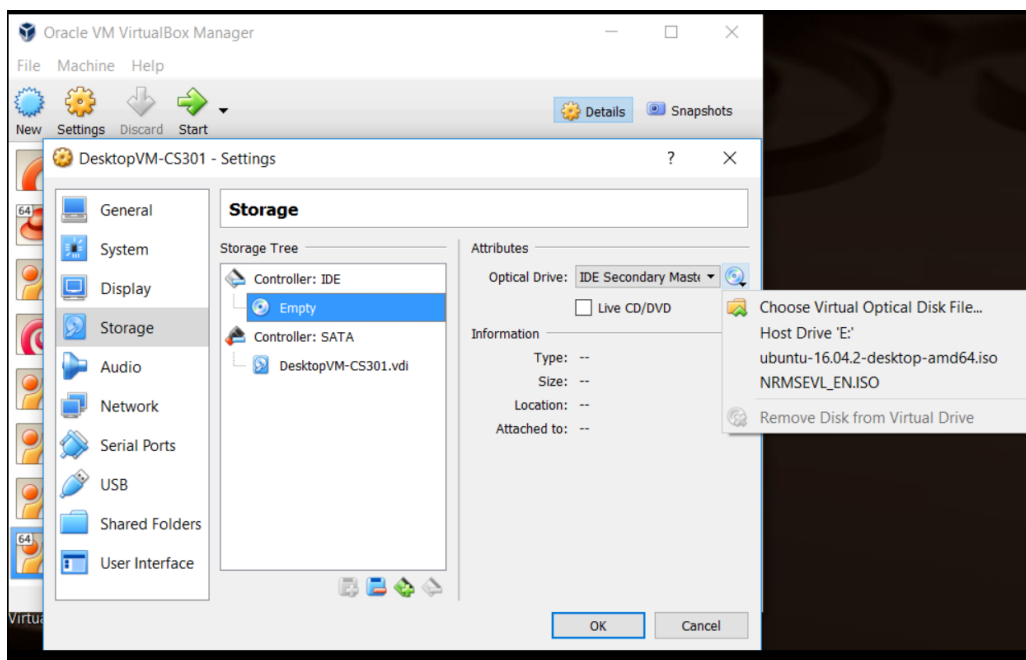
7) The recommended Disk size is 25 GB. Move the slider to at least 20 GB, if limited space on your system, and push **Next** button. This will create a virtual hard disk image file of VDI type.



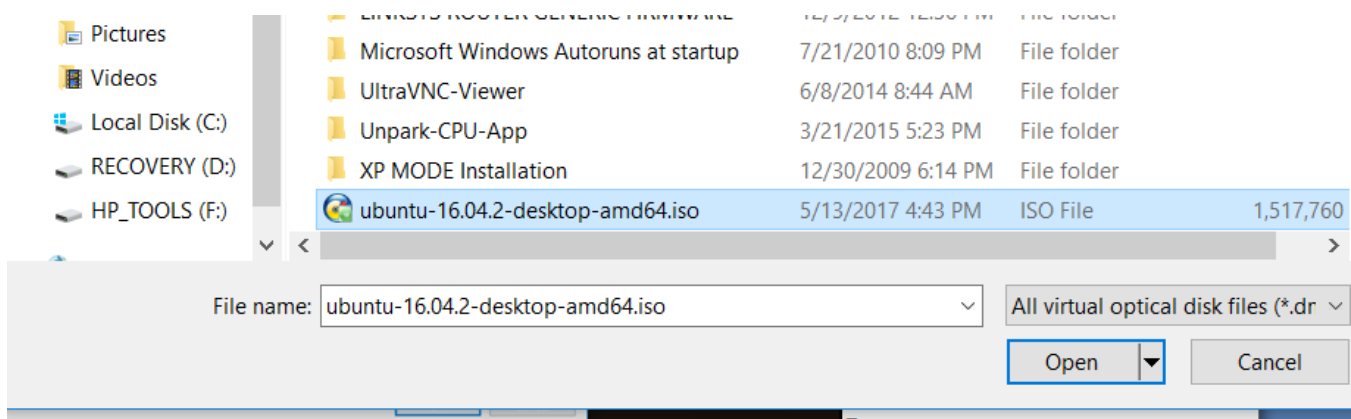
8) The newly created Virtual Machine will be shown on left side of VirtualBox window. It is shown highlighted in the following picture.



9) Now, we will attach the downloaded Ubuntu Linux installation media DVD (.iso file) to the virtual optical drive of this machine. Click on **Settings** button on top toolbar when machine is highlighted as shown above. Then click on **Storage**. The optical drive icon shows **Empty**. On the right edge, a dropdown is attached to another optical disk icon. Click to show menu and select "Choose Virtual Optical Disk File."



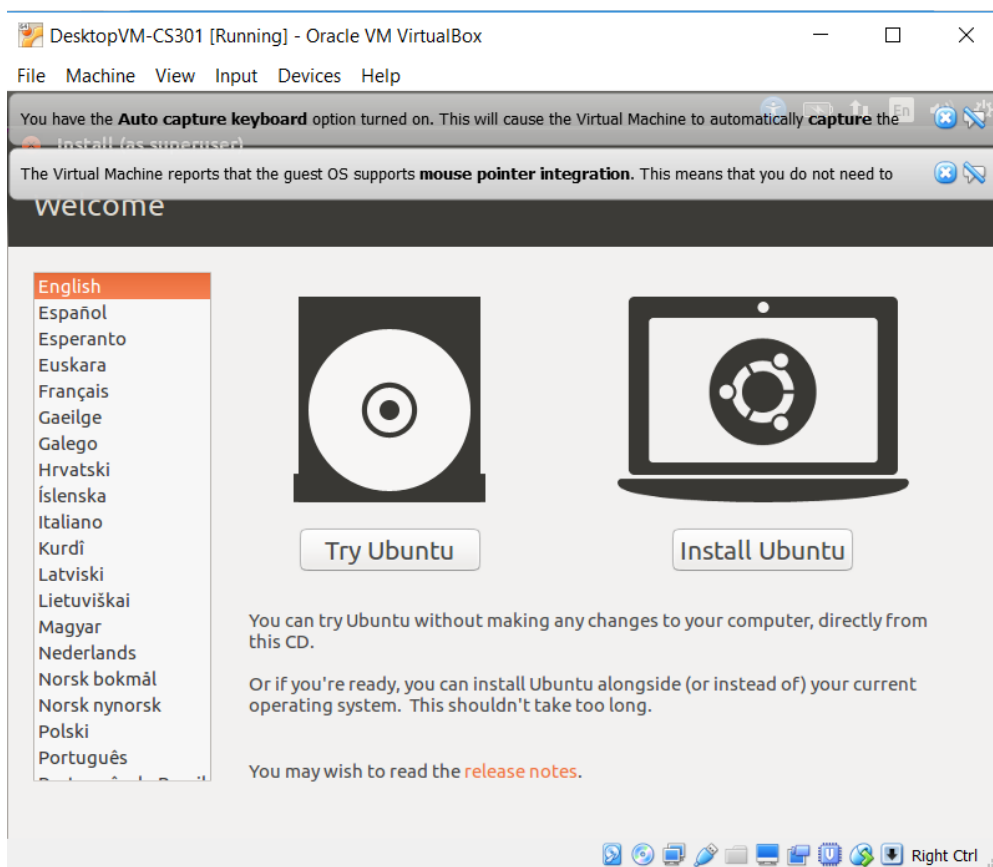
10) File selection dialogue box will open. Navigate to the folder where .iso file is located. If you downloaded using Firefox browser, it should be located in `Downloads` folder, as shown below:



Select the file and click **Open**. Then push **OK** button on the dialogue box to complete the attachment.

Step -5:

1) Now, we are ready to install the Ubuntu Operating System on our newly created Virtual Machine. Push the **Start** button on top Toolbar when machine name is highlighted in the window.



After few minutes of boot up process you will see the above screen. There are two tool tips on the top, that may be closed by clicking on "x" buttons. Drag the right and bottom edges of the window to make it wider and longer as some buttons may not be visible in small screen. Then click on "Install Ubuntu". This will start installation dialogues, as shown in the following picture:

Preparing to install Ubuntu

☒ Download updates while installing Ubuntu

This saves time after installation.

☒ Install third-party software for graphics and Wi-Fi hardware, Flash, MP3 and other media

This software is subject to license terms included with its documentation. Some is proprietary.

Fluendo MP3 plugin includes MPEG Layer-3 audio decoding technology licensed from Fraunhofer IIS and Technicolor SA.

Quit

Back

Continue

Select both check boxes and click `Continue`. The following screen will be displayed.

Install (as superuser)

Installation type

This computer currently has no detected operating systems. What would you like to do?

☒ Erase disk and install Ubuntu

Warning: This will delete all your programs, documents, photos, music, and any other files in all operating systems.

☐ Encrypt the new Ubuntu installation for security

You will choose a security key in the next step.

☐ Use LVM with the new Ubuntu installation

This will set up Logical Volume Management. It allows taking snapshots and easier partition resizing.

☐ Something else

You can create or resize partitions yourself, or choose multiple partitions for Ubuntu.

Quit

Back

Install Now

Let the first option remain selected and push "Install Now". A dialogue will appear to warn you that all contents of the "virtual" Disk will be erased. Just click `Continue`.

Write the changes to disks?

If you continue, the changes listed below will be written to the disks. Otherwise, you will be able to make further changes manually.

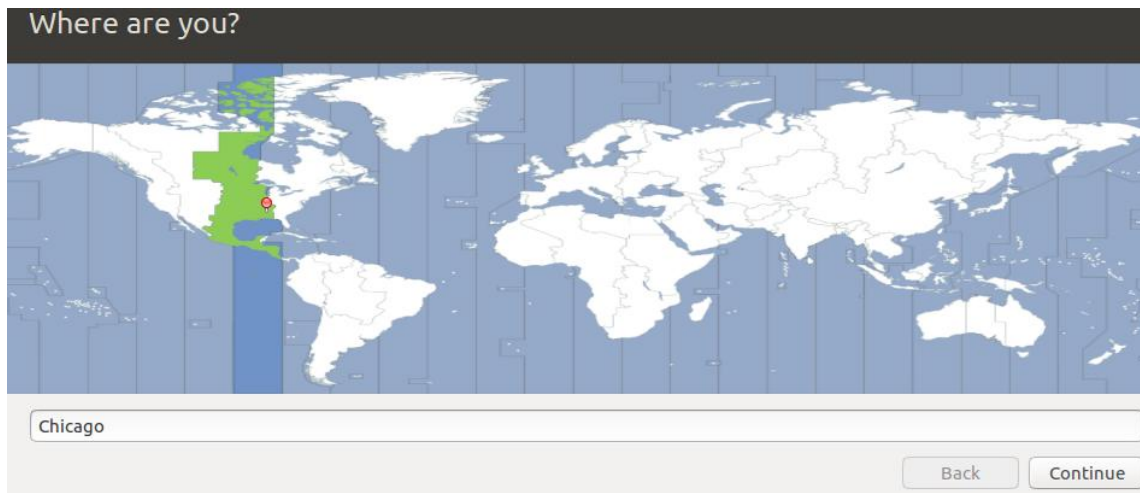
The partition tables of the following devices are changed:
SCSI3 (0,0,0) (sda)

The following partitions are going to be formatted:
partition #1 of SCSI3 (0,0,0) (sda) as ext4
partition #5 of SCSI3 (0,0,0) (sda) as swap

Go Back

Continue

Choose your location on the next screen and push Continue, as follows:

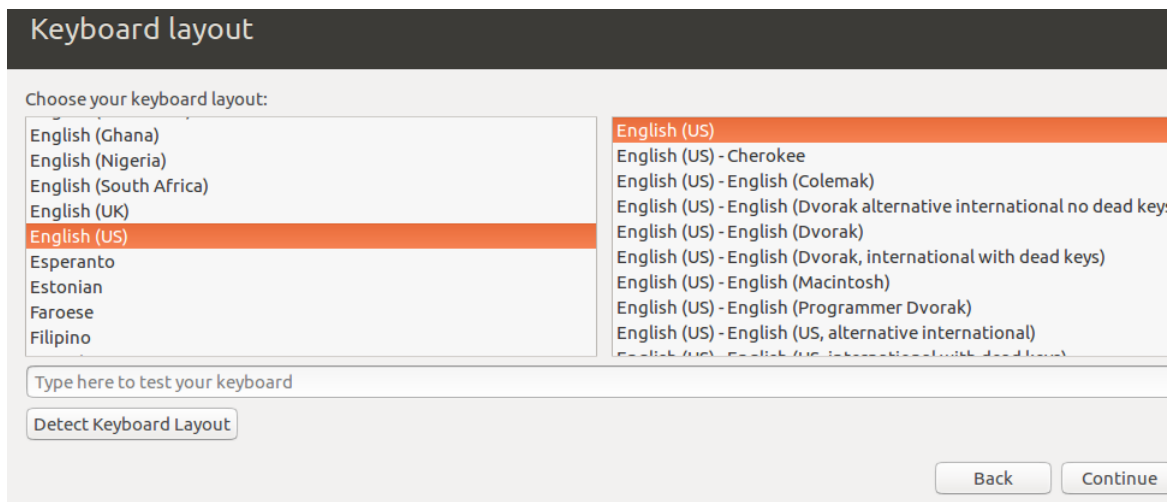


Where are you?

Chicago

Back Continue

Choose default Keyboard layout and push Continue, as shown below:



Keyboard layout

Choose your keyboard layout:

English (Ghana)
English (Nigeria)
English (South Africa)
English (UK)
English (US)
Esperanto
Estonian
Faroese
Filipino

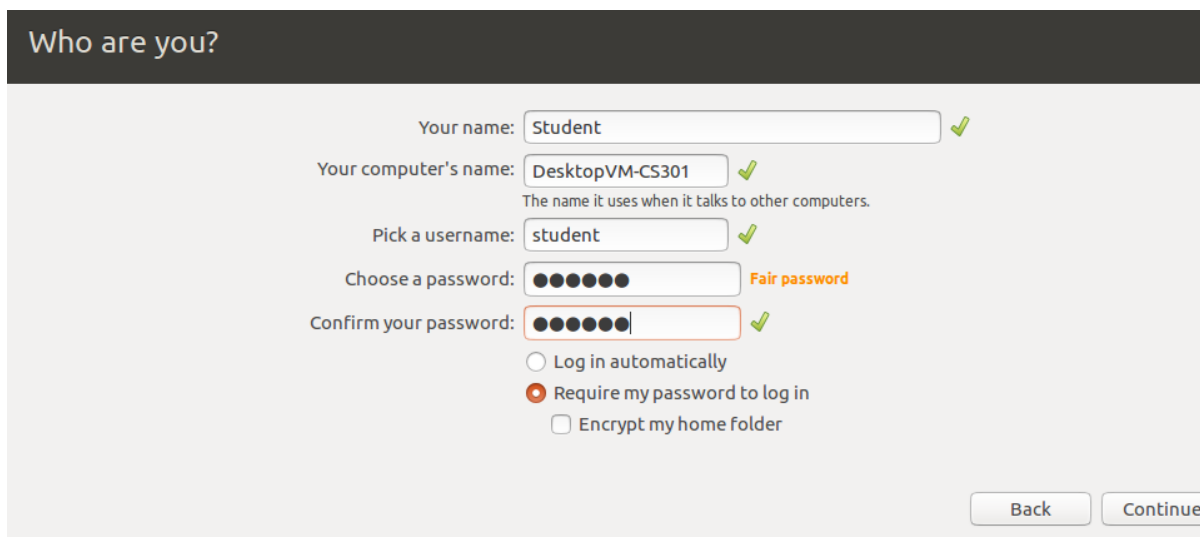
English (US)
English (US) - Cherokee
English (US) - English (Colemak)
English (US) - English (Dvorak alternative international no dead key)
English (US) - English (Dvorak)
English (US) - English (Dvorak, international with dead keys)
English (US) - English (Macintosh)
English (US) - English (Programmer Dvorak)
English (US) - English (US, alternative international)
English (US) - English (US, international with dead keys)

Type here to test your keyboard

Detect Keyboard Layout

Back Continue

Now, enter your name and desired machine name, etc. and push Continue.



Who are you?

Your name: Student ✓

Your computer's name: DesktopVM-CS301 ✓
The name it uses when it talks to other computers.

Pick a username: student ✓

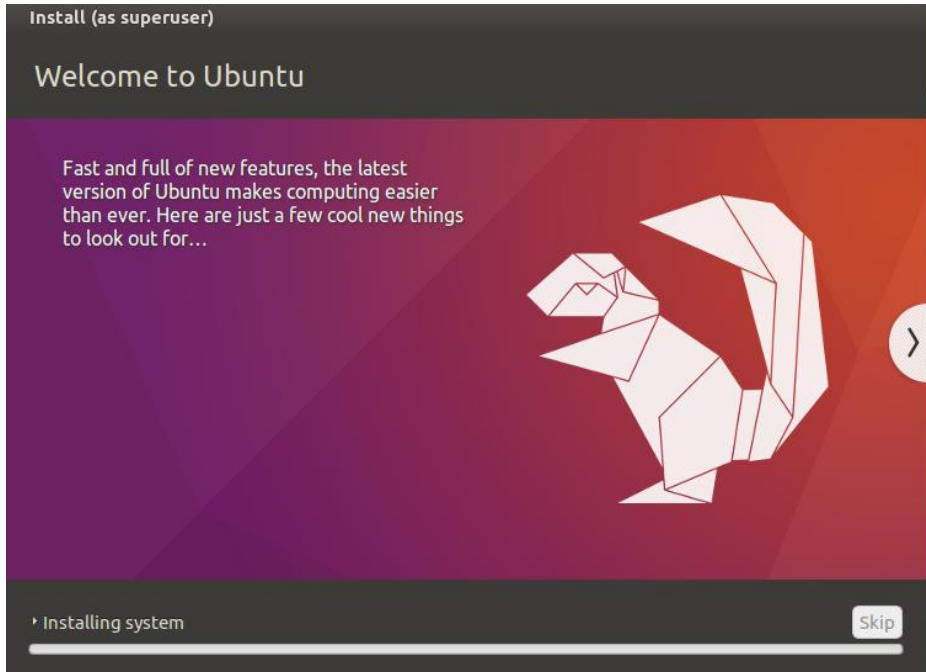
Choose a password: Fair password

Confirm your password: ✓

☐ Log in automatically
☒ Require my password to log in
☐ Encrypt my home folder

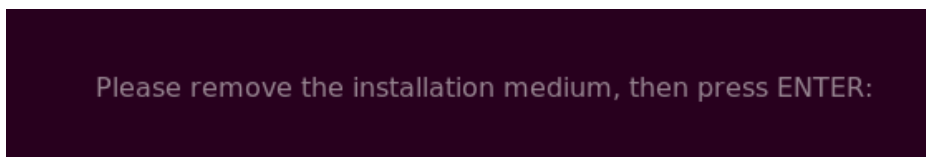
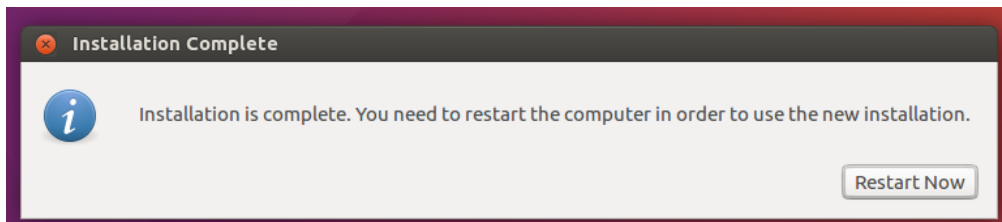
Back Continue

Now, sit back and relax. The installation of Ubuntu OS will take 15-30 minutes.

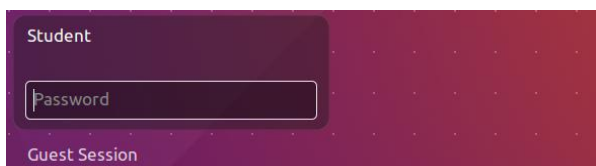


NOTE: Make sure your **computer's sleep settings are "Never" when plugged in**, before you leave the computer un-attended to grab a cup of coffee. It is recommended to run any virtual machine while the power is on, to avoid any un-intended consequences.

The following dialogues appears at the end of installation. Push "Restart Now".



DVD is already ejected. Just press `Enter` button on keyboard.



Enter your password and login to the OS.
