Ubuntu installation steps in VM

Although newer versions of Hadoop work on computers with Windows OS, I decided to use a Linux based system because of the proved stability of Hadoop on the Linux. I chose Ubuntu, which is a free Linux operating system. To be able to create an Ubuntu machine, *I created a virtual machine using Oracle VirtualBox to be able to use the Ubuntu on my desktop computer*.

1- Installation of Oracle VirtualBox

Software	**VirtualBox**
Version*	5.1.6 for windows host
Download link(s)	https://www.virtualbox.org/ https://www.virtualbox.org/wiki/Downloads
File size	116 MB
Install size	236 MB
Requirements	• VirtualBox runs on Windows, Linux, Macintosh, and Solaris hosts. • Intel and AMD processors • At least 1GB of RAM to run the software in addition to what is needed to support the host computer's processes

* This version is used in this tutorial

To start the installation process, double click on the installation file. You will see the startup window that is shown in Fig 1.

In Fig 2, select the location of the installation as well as the features required. I chose the default features for installation. There are two other windows for setup.
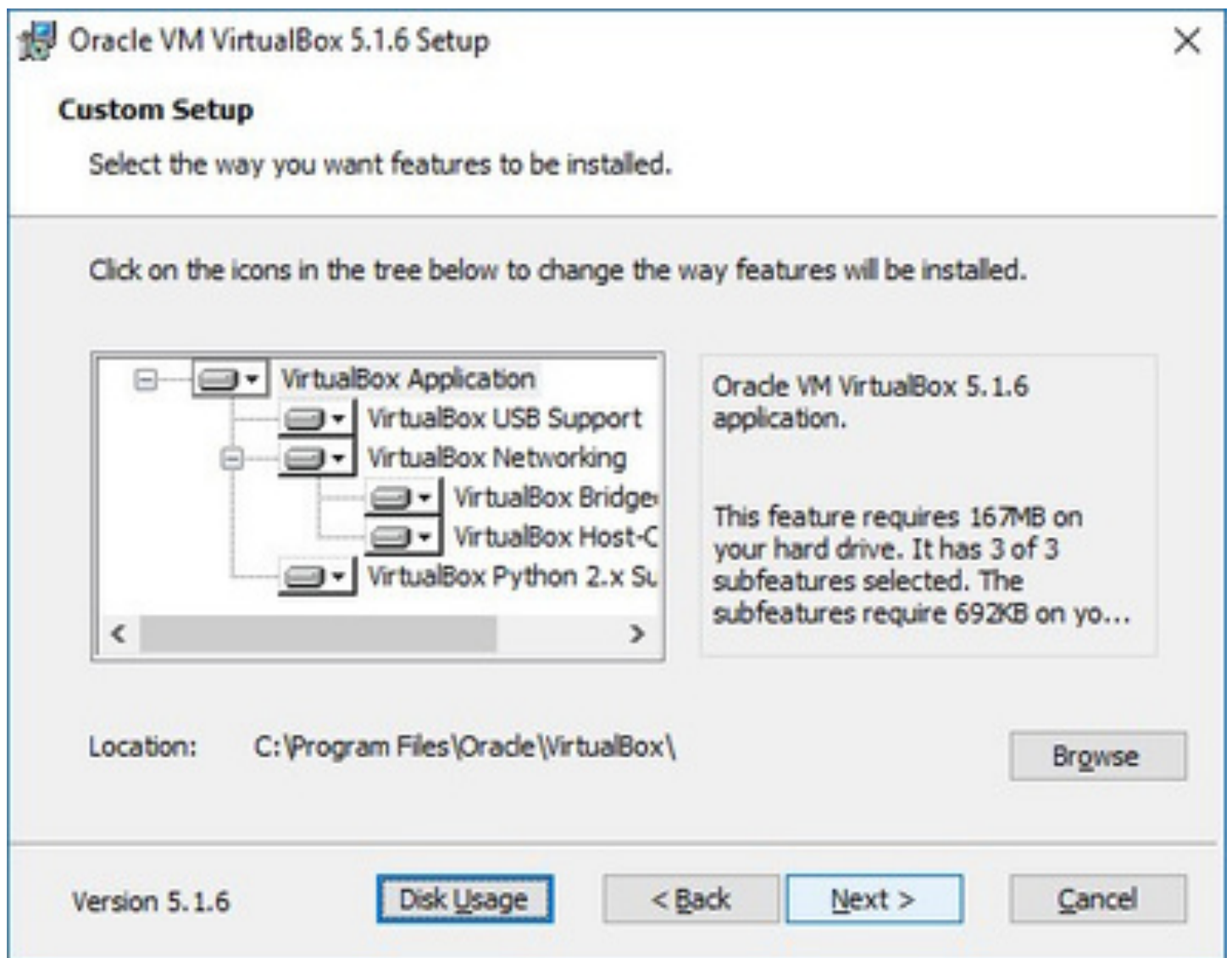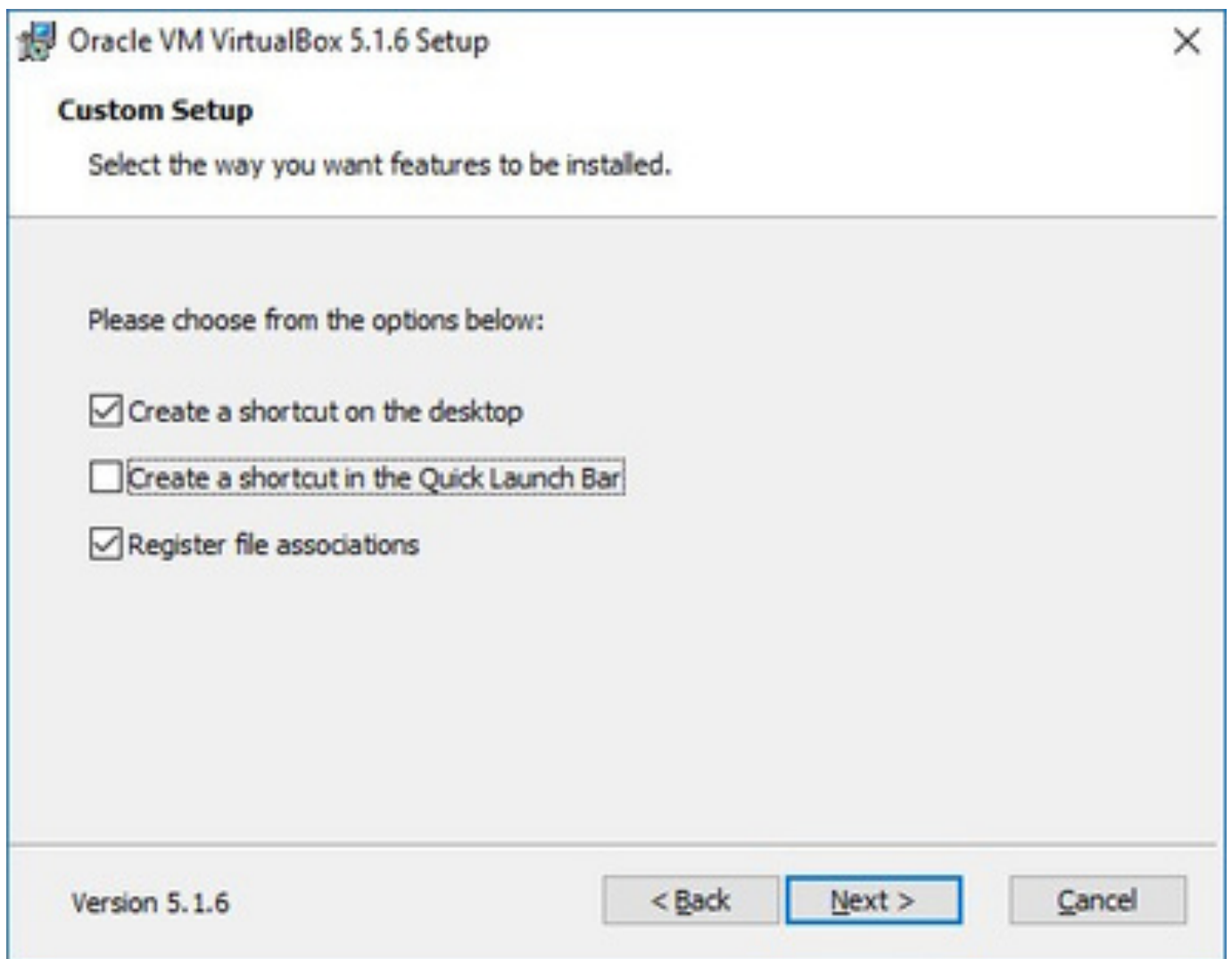
Fig 2. Customizing setup

Fig 3. Customizing setup

Now, be prepared for a reset in your network connection and a short period of disconnection.

Fig 4. Customizing setup

The initial setup, which is really simple, is done and you can proceed with the installation of the VirtualBox (Fig 5).
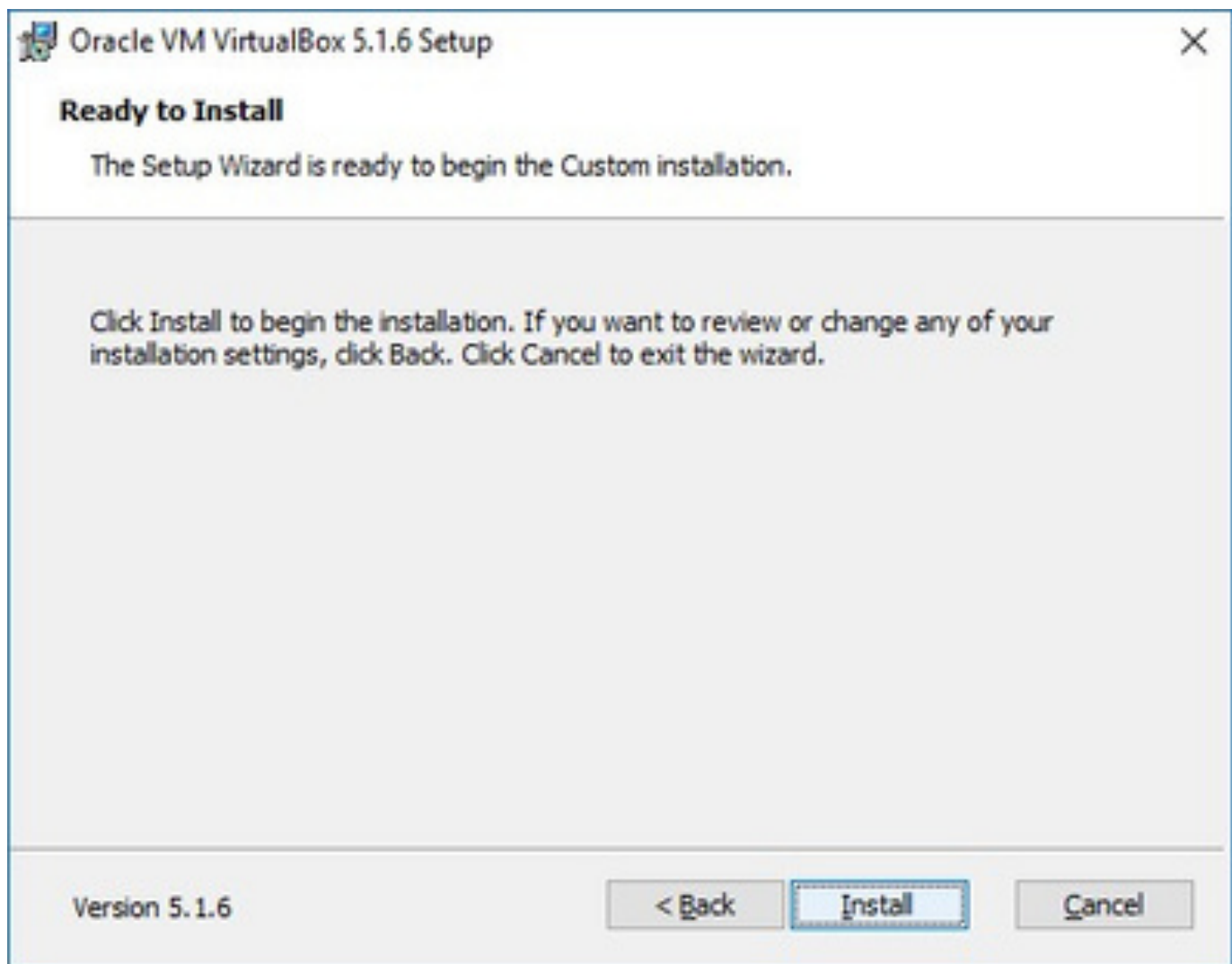
Fig 5. Initiating setup

Accept windows warning message(s) and proceed with the installation by clicking on the Install button.
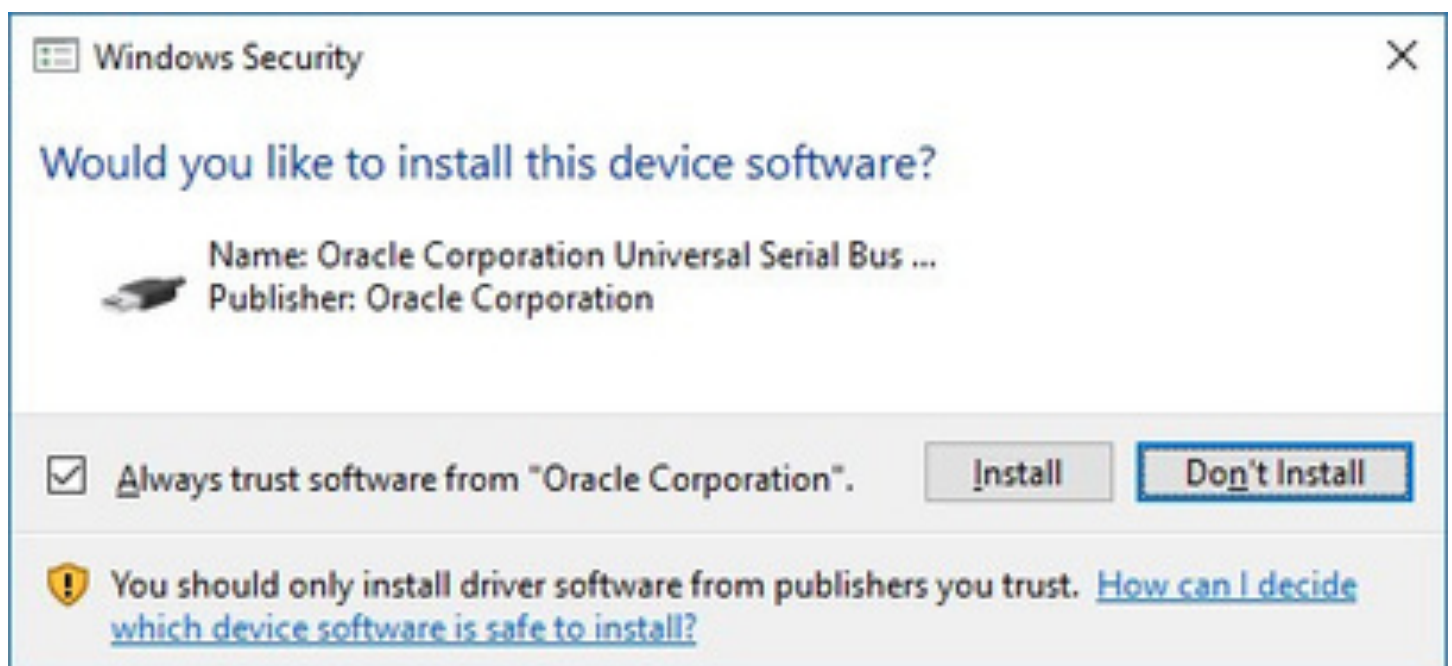
Fig 6. Accept the warning and proceed to installation You can choose to start the VirtualBox after your setup is completed.

Fig 7. Customizing setup

Following the successful installation, you should be able to see the following environment.
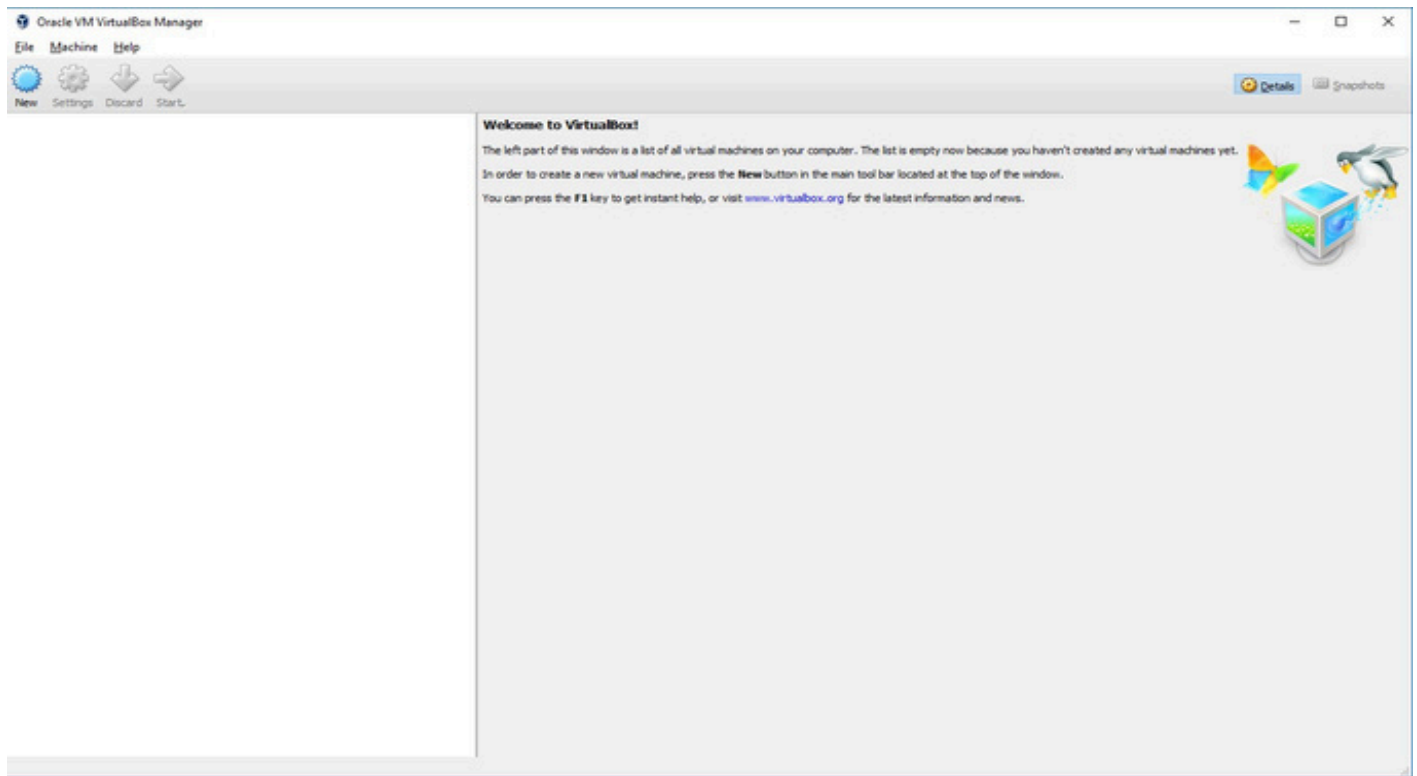
Fig 8. Customizing setup

Now that the VirtualBox is ready, the next step is to create a virtual machine in your virtual box. Since the virtual machine (VM) requires an operating system, I explain creation of the VM and Ubuntu OM together.

2- Installation of Ubuntu Virtual Machine

Software	**Ubuntu**
Version*	16.04.1 LTS
Download link(s)	https://www.ubuntu.com/download
File size	1.40 GB
Install size	20 GB based on the current guidelines
Requirements	• 2 GHz dual core processor or better • 2 GB system memory • 25 GB of free hard drive space • Either a DVD drive or a USB port for the installer media ⬝ Internet access is helpful

* This version is used in this tutorial

As explained earlier, a Linux system is the most reliable option for running Hadoop. Therefore, I used Ubuntu that is a free Linux operating system as a base for my Hadoop installation. This part of the tutorial, shows how one can create an Ubuntu VM on VirtualBox.

In the first step, we need to download the Ubuntu (Fig 9- 11).

Fig 9. Select the right Ubuntu for download from the website

Fig 10. Select Ubuntu Desktop for download

Fig 11. Check the system requirement before proceeding with download

The software is free, but you are very welcome to support the open source software development activities. If you wish to support, you can pay with PayPal. If you change the settings and consider 0 for all the fields, or if you contribute with PayPal, you will see a "Download Ubuntu Desktop" button. Click on the download button.
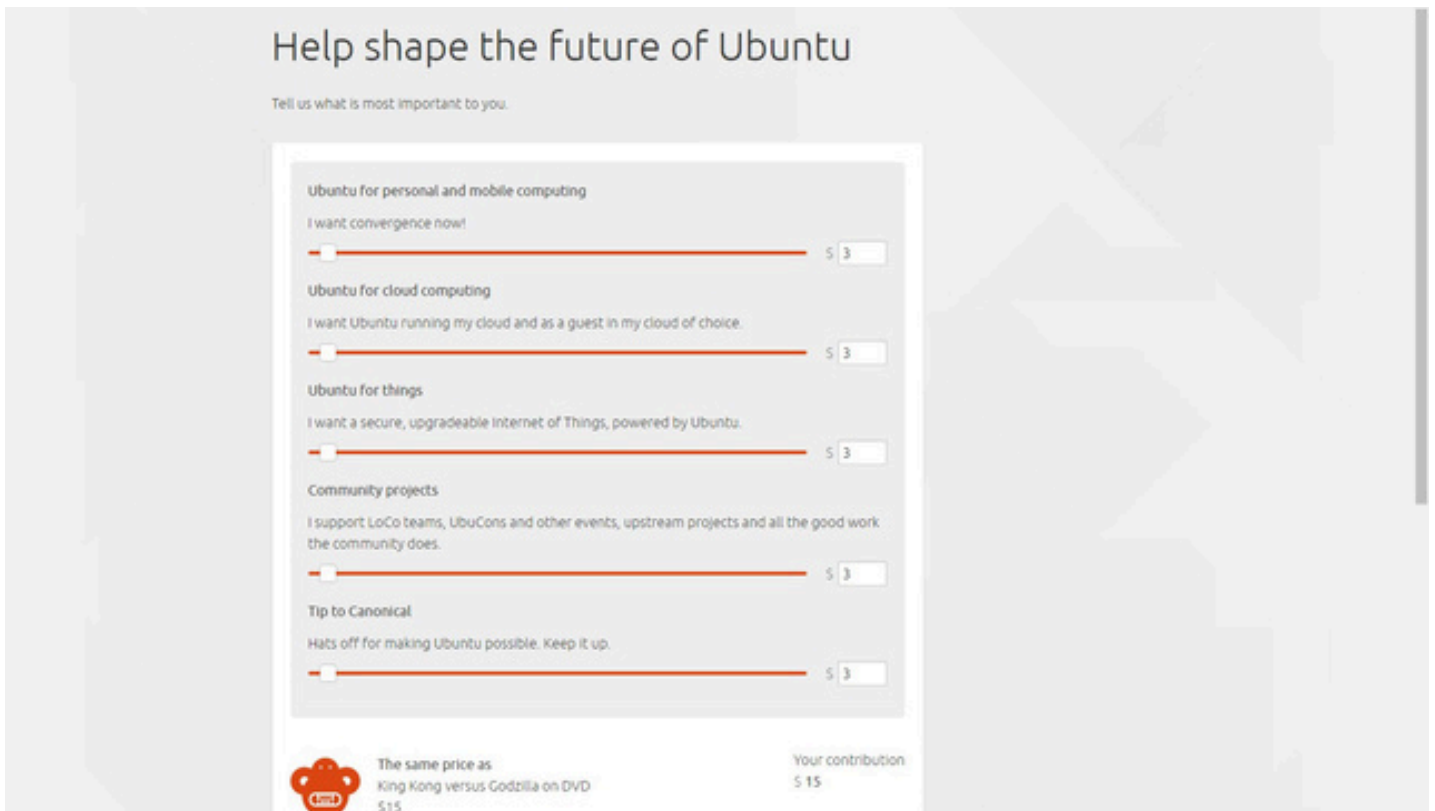
Fig 12. Select these options if you wish to donate to the Ubuntu team

Once the download is complete, you can proceed with setting up the VM on VirtualBox. The first step for creation of a VM is to click on the New button in VirtualBox (Fig 13).

Fig 13. Click on New to create a VirtualBox

Identify a name for the machine and set type and version according to Fig 14.

Fig 14 Select Linux and Ubuntu (64 bit for my computer) and identify a name for the VM

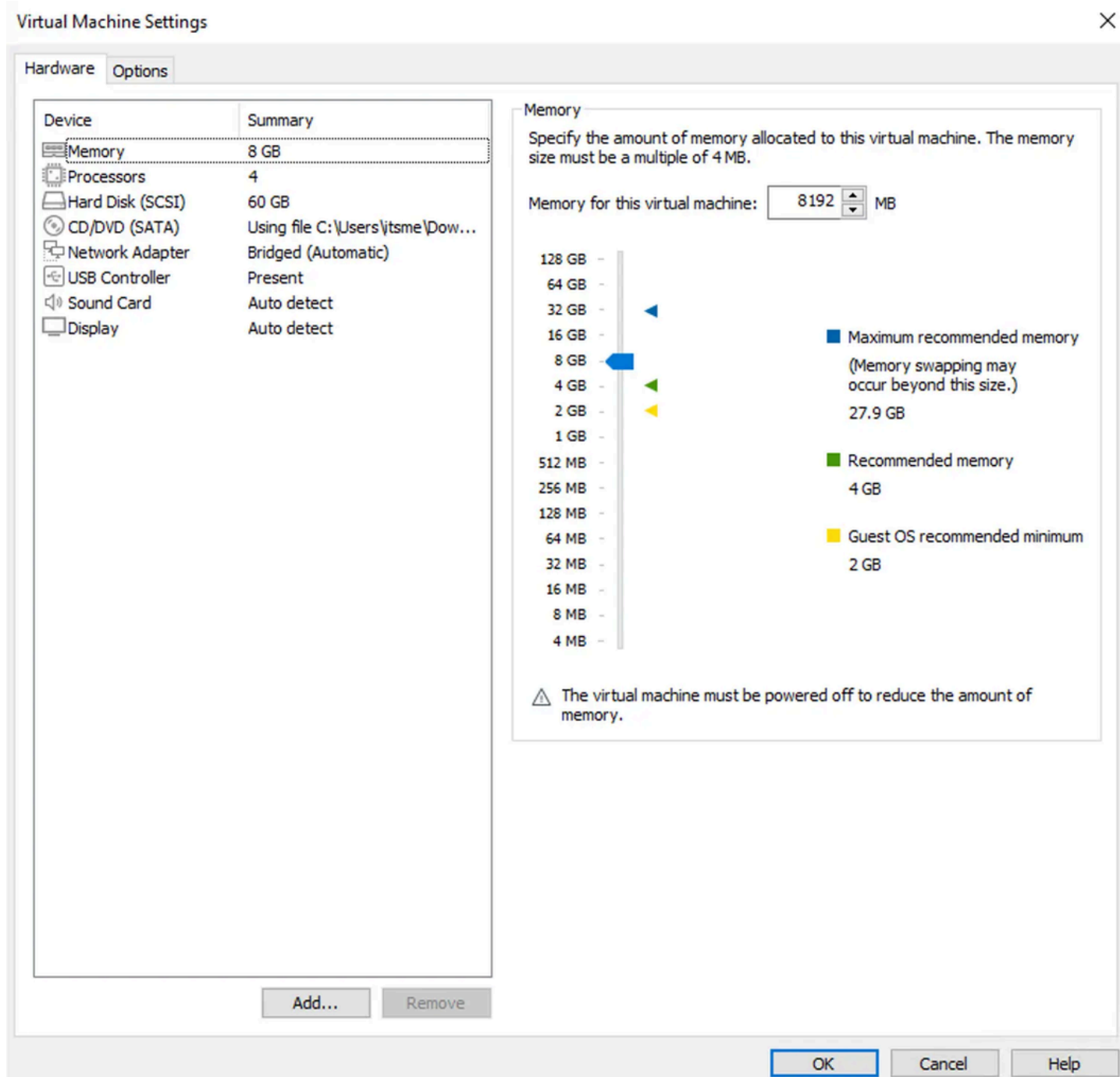My recommendation is assignment of at least 2GB of ram for a 64bit based operating system (Fig 15).

Fig 17. Setup for creation of virtual hard disc

Finally, I recommend the "Dynamically allocated" option for management of the storage on your computer. Although the speed will be less, the VM do not take the entire space unless it needs it.

Fig 18. Selection of the mechanism for management of the storage Now, assign 20GB of disc space to the VM.

Fig 19. Assign 20GB of disc space to the VM

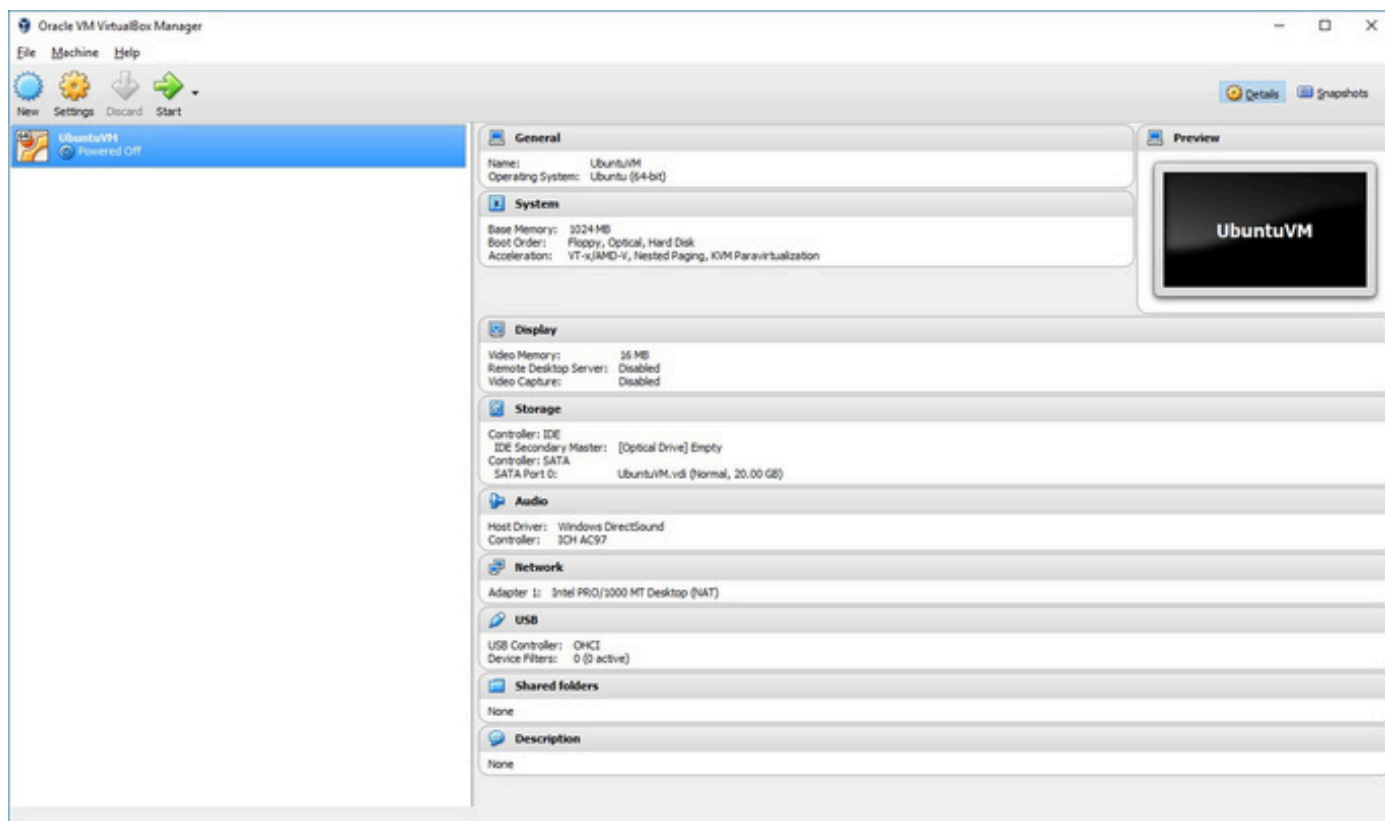By clicking on create, the system creates a VM (Fig 20). Now that we have a machine, we can install Ubuntu on it.

Fig 20. VM is ready and Ubuntu could be installed on it

Now that the Vm is ready, we need to install Ubuntu on it. For this purpose, click on the VM and select setting from the left hand pannel (Fig 20). You will se a box for setting (Fig 21).
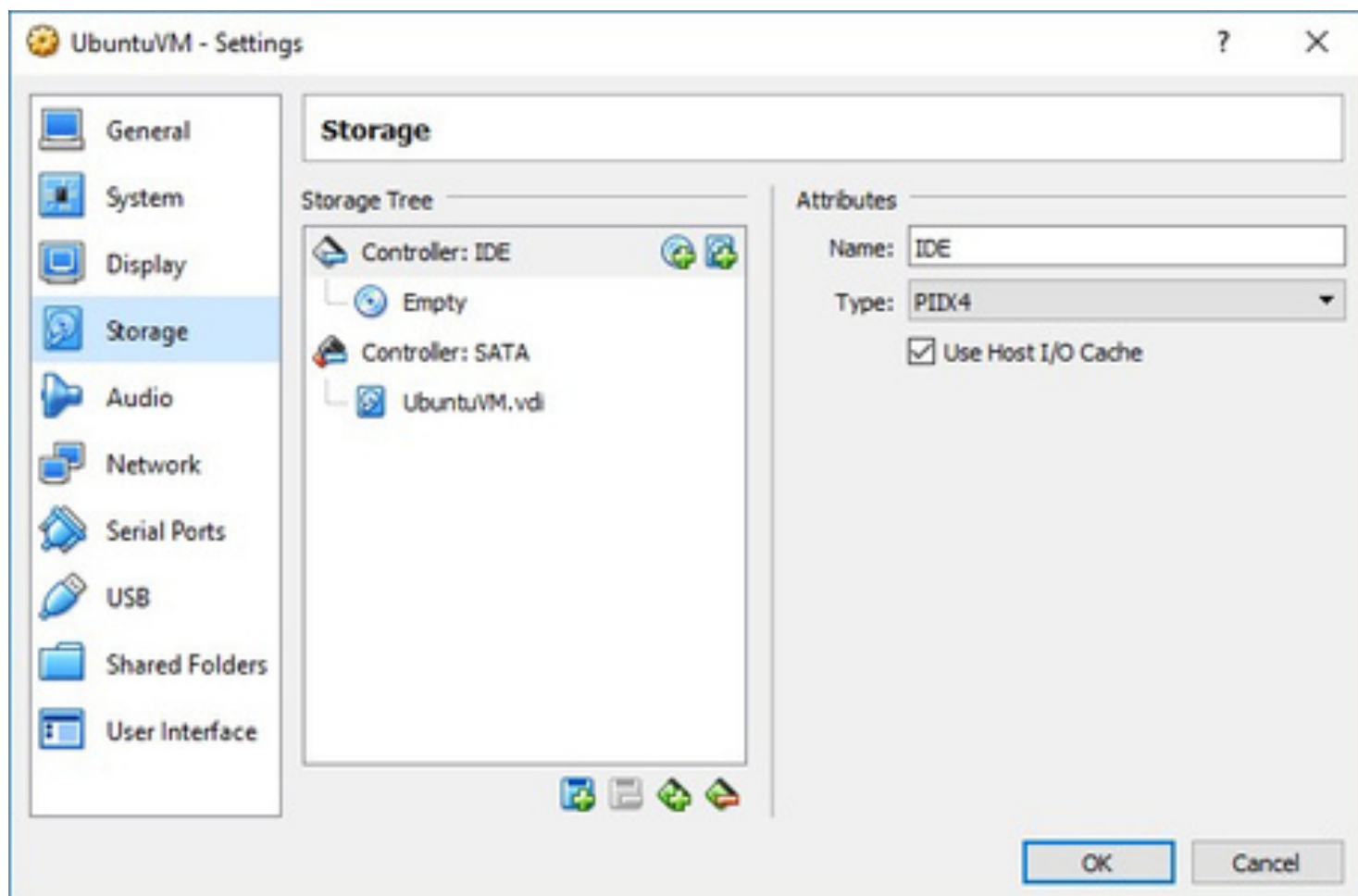
Fig 21. Adjust the setting for installation of Ubuntu

Now, it is time to use downloaded Ubunto as a startup disck for the VM. To do so, we need to identify the location of download file in the Optical Drive attributes.
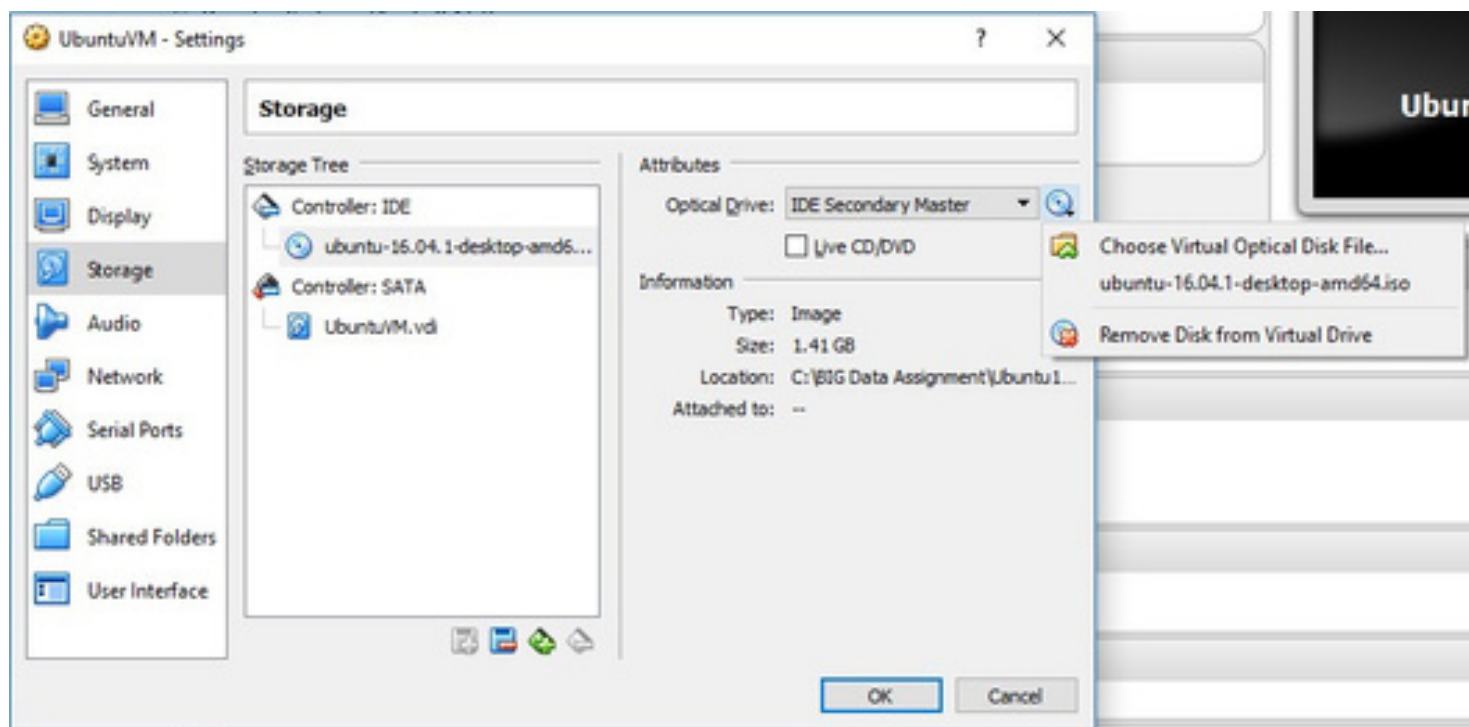

Fig 22. Select your Ubuntu downloaded file as start-up for VM

Click on OK. In the main interface of VirtualBox, you can select to start the created VM. Select your VM and then click on the start button (green arrow) (Figure 20). This starts the setup process for Ubuntu. In the first step, select the language and then click on the

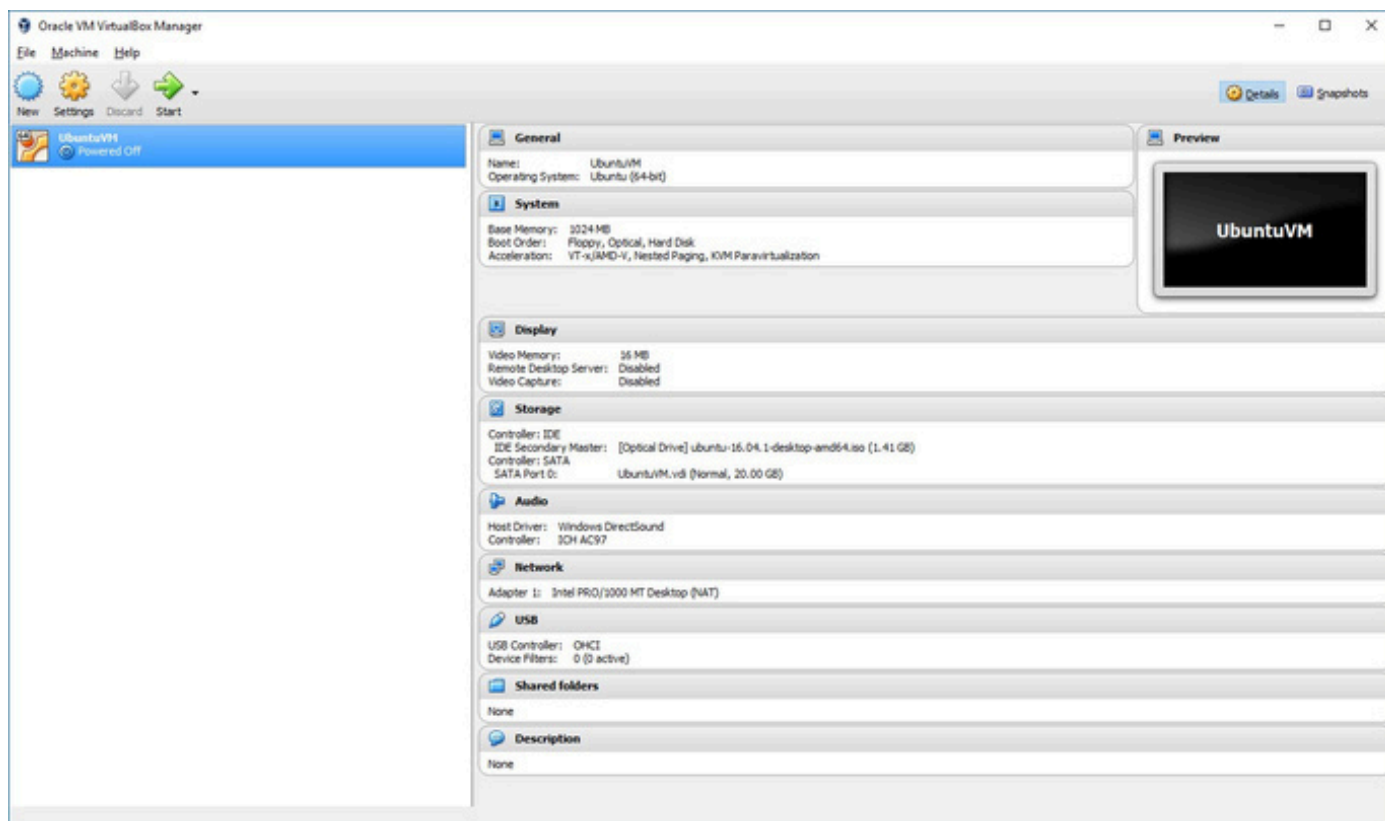"Install Ubuntu" button (Fig 23).

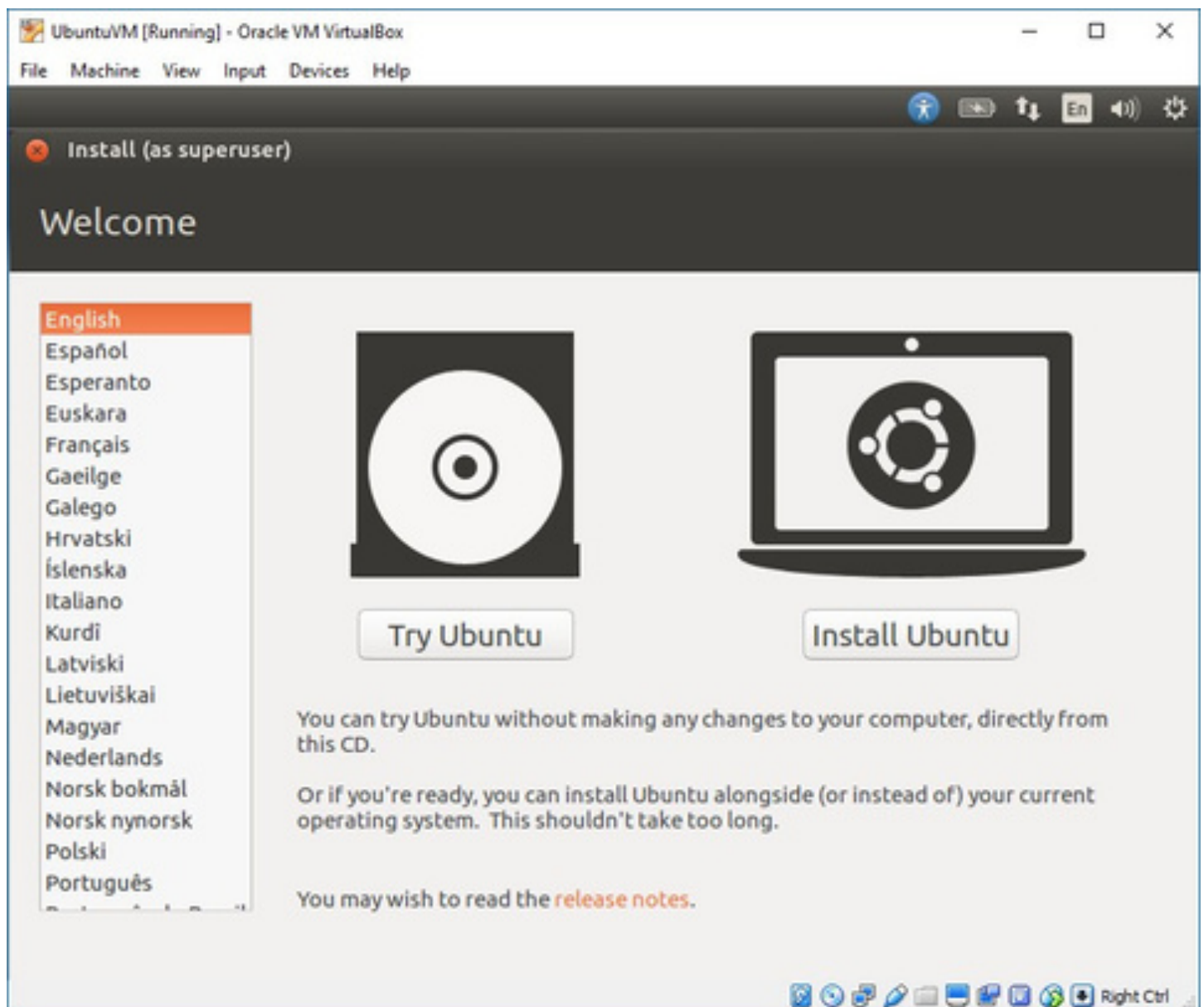Fig 23. Select your VM and then click on the start button Now the virtual machine starts with Ubuntu.

Fig 24. Selection of language and start installation of Ubuntu

Now, you have the ooprtunity to install updates and thirdparty software on your Ubuntu VM during the installation. I recommend choosing the two options.

Fig 25. Customizing setup by selecting to update and download utilities

You wil see a warning from system saying that installation will remove prior installed files on the dist. Select the first option and click on "Install Now" button.
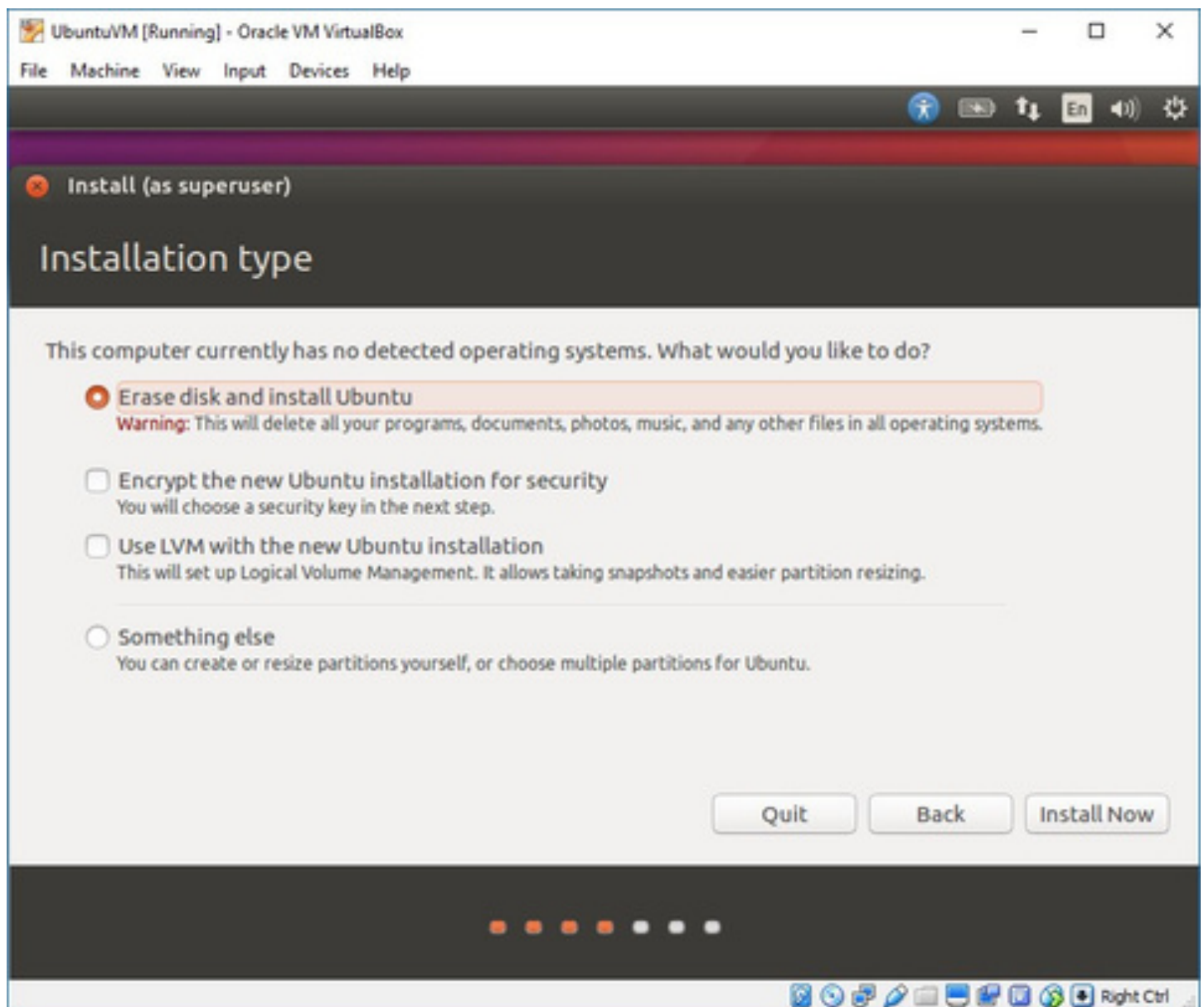
Fig 26: Select the default option and click on Install Now

Your selection in Fig 26 results in a warning message saying that do you want to remove files. Select continue. Once the system is formatted, then you can proceed with setup, select the timing zone, identify your keyboard language and layout, and creation of user and password for your VM (Fig 27-28).
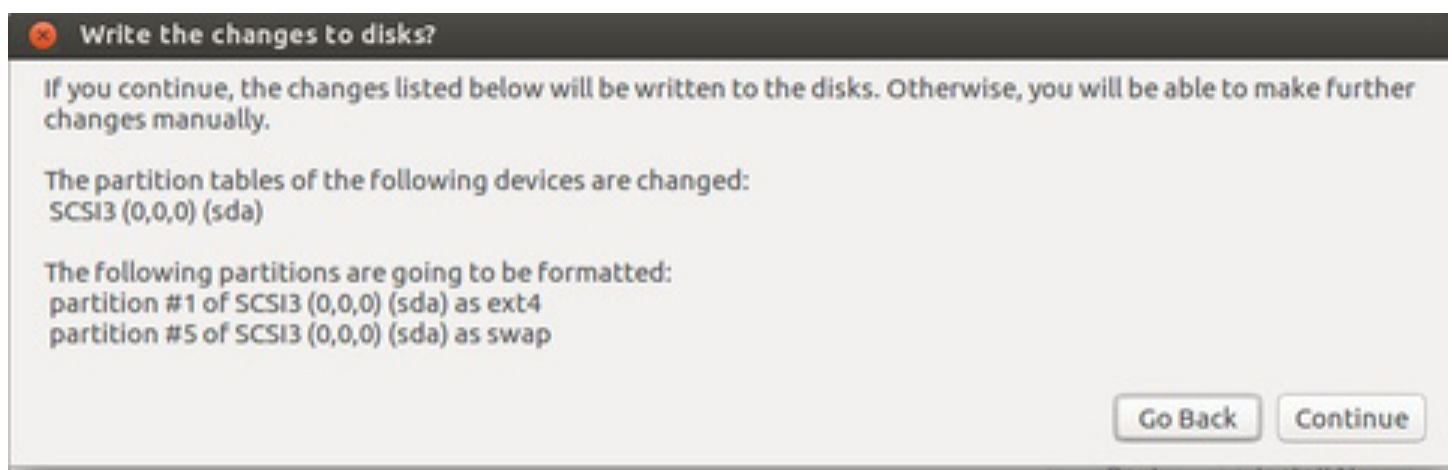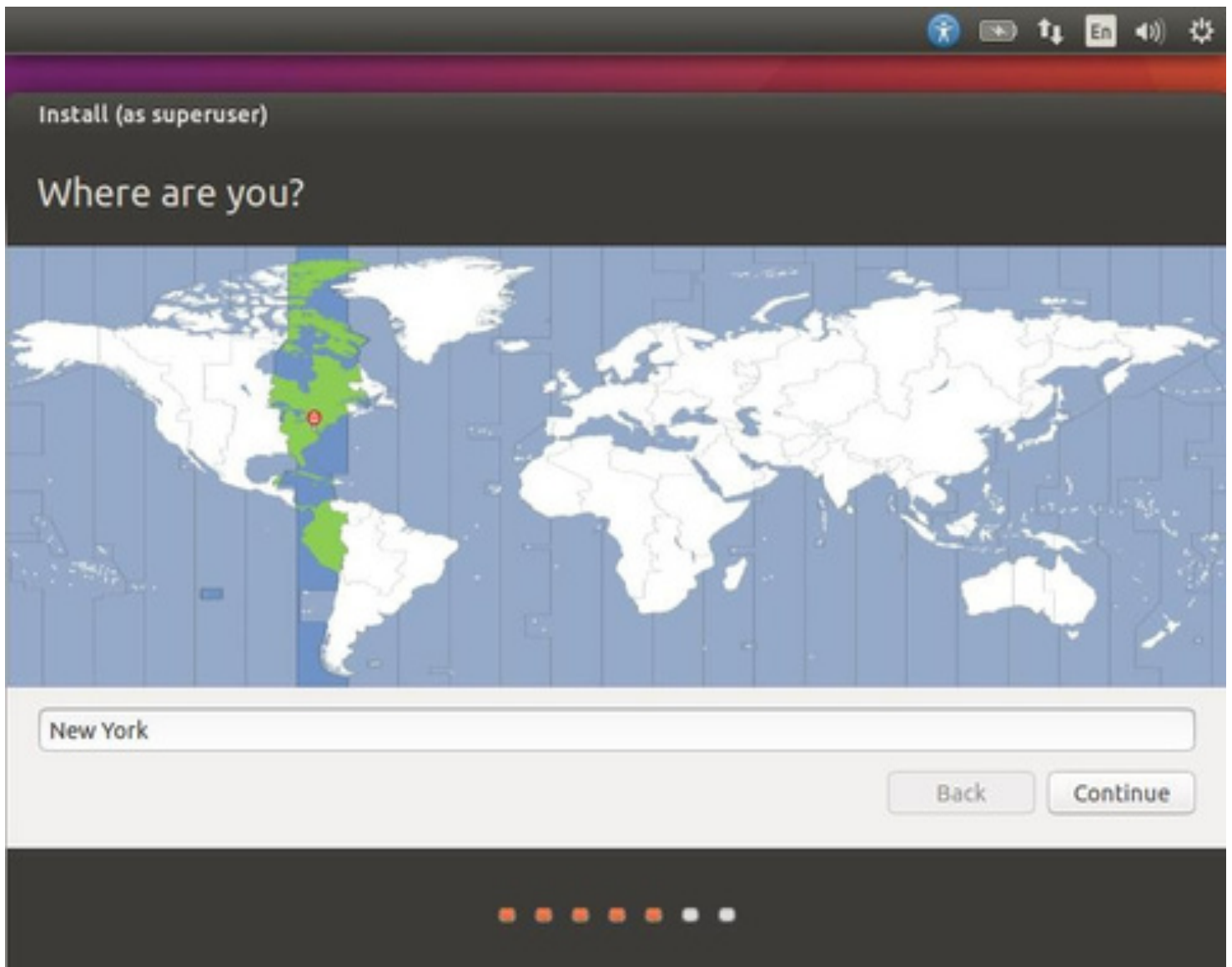
Fig 27. Warning message. Click continue

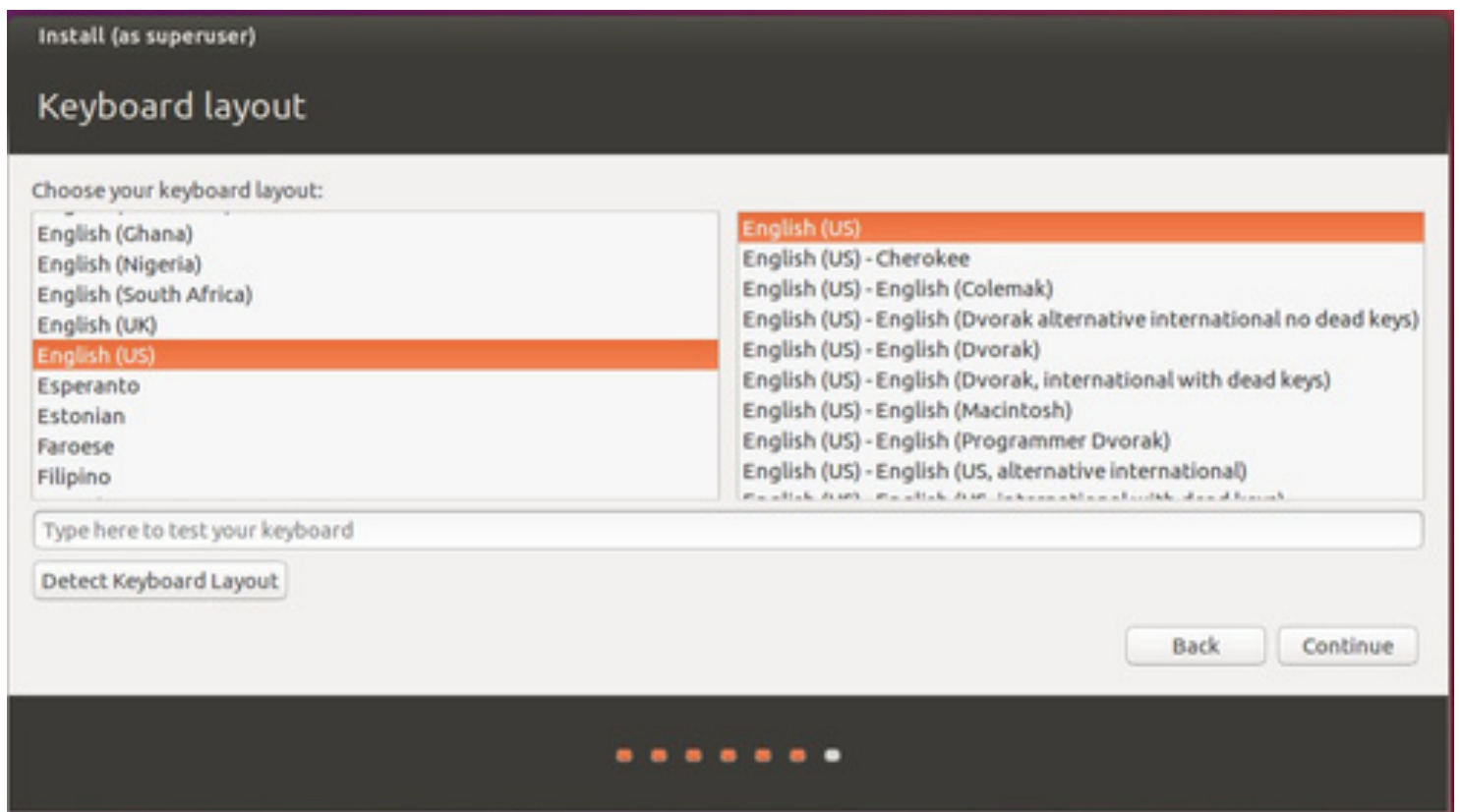Fig 28. Identify the time zone

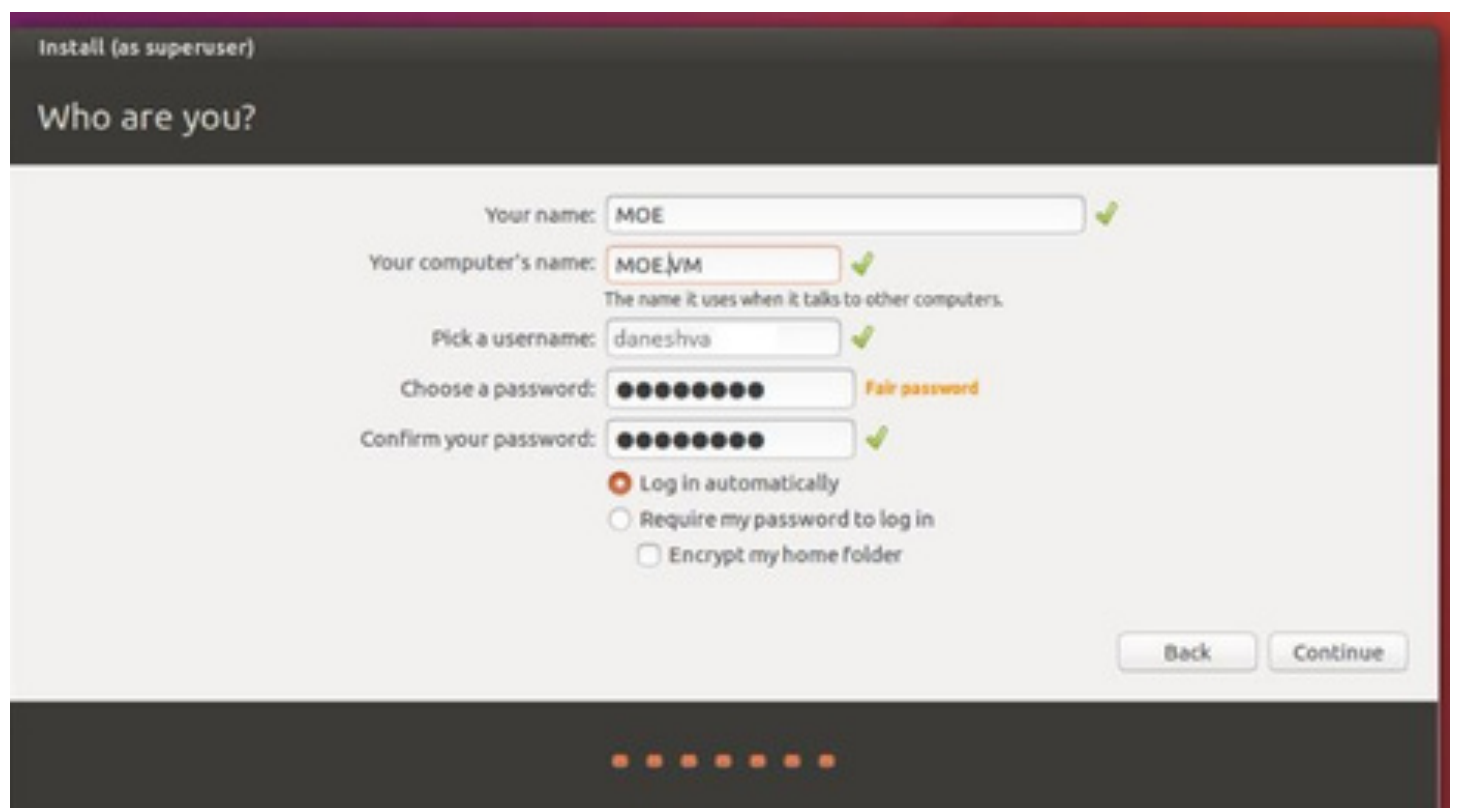Fig 29. Identify keyboard layout

Fig 30. Identify your username and password. After this initial setting, installation starts (Fig 31).

Fig 31. Proceeding with the setup

While setup proceeds, you can read and learn about the Ubuntu package and its latest updates in different screens that appear during the setup process. Setup takes a relatively long time. Once the setup is complete, the system wants a restart.
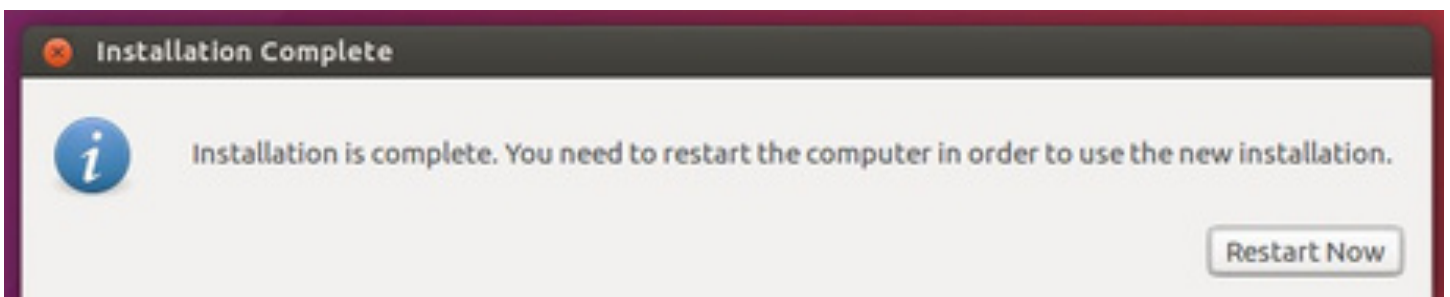

Fig 32. System wants a restart after the installation process

After the restart, the Ubuntu starts up (Fig 33). During the loadig, you need to remove the startup disc you created for Ubuntu (described in Fig 22). Once you removed it, Ubuntu to finish its setup.
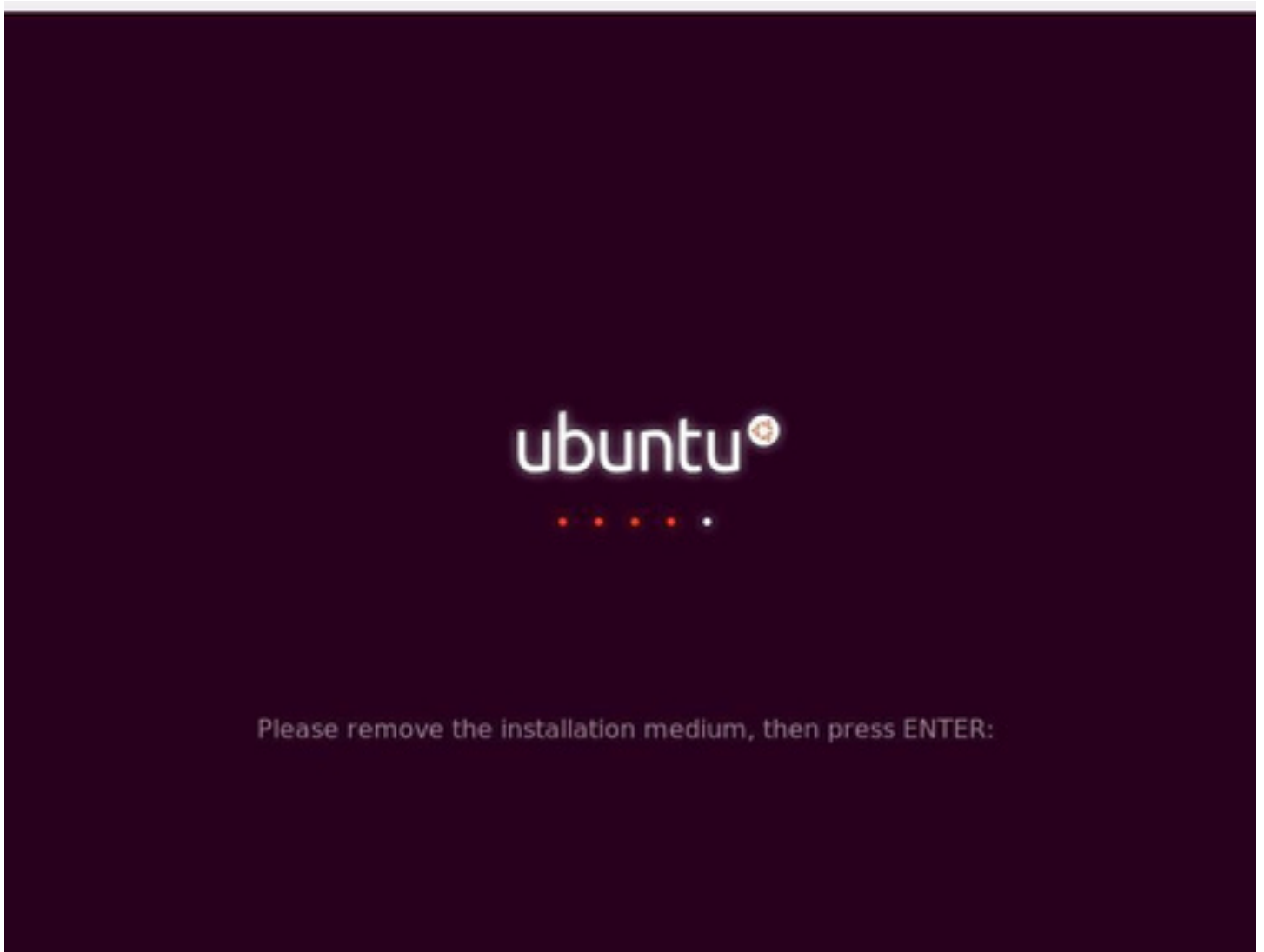
Fig 33. Loading Ubuntu. Remove the startup before proceeding Uncheck the source file that is used in your startup process.
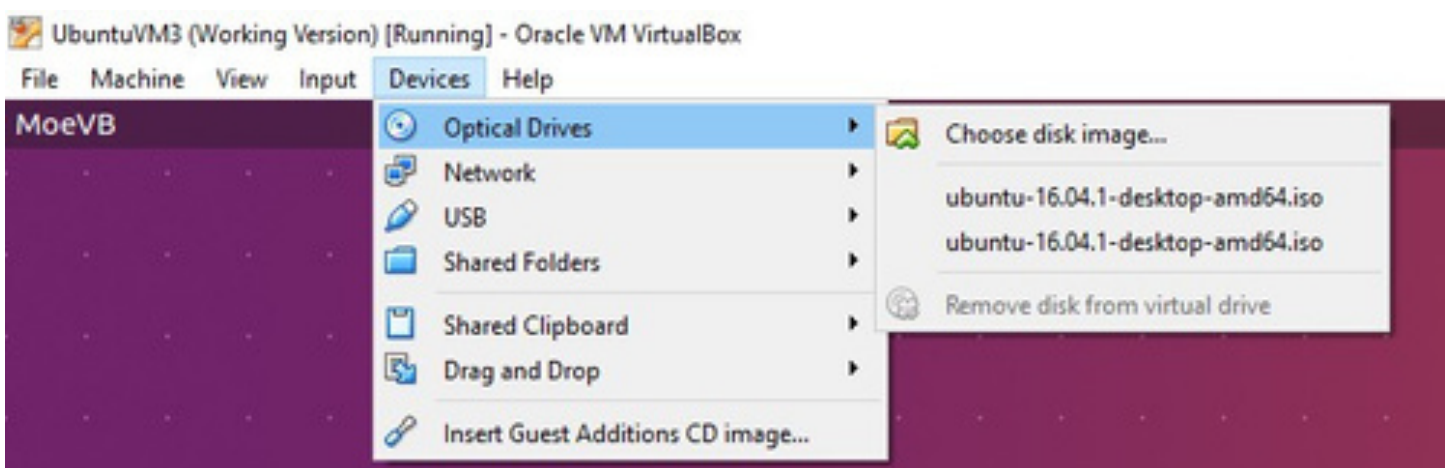

Fig 34. Uncheck the installation startup disc

Also, you can update software packages pre-installed on Ubuntu. Now that the system is running, it is time to update (type update manager and click on software updater). Then click on update manager, and install the available updates on your computer (Fig 38). Ubuntu starts downloading and installs updates.
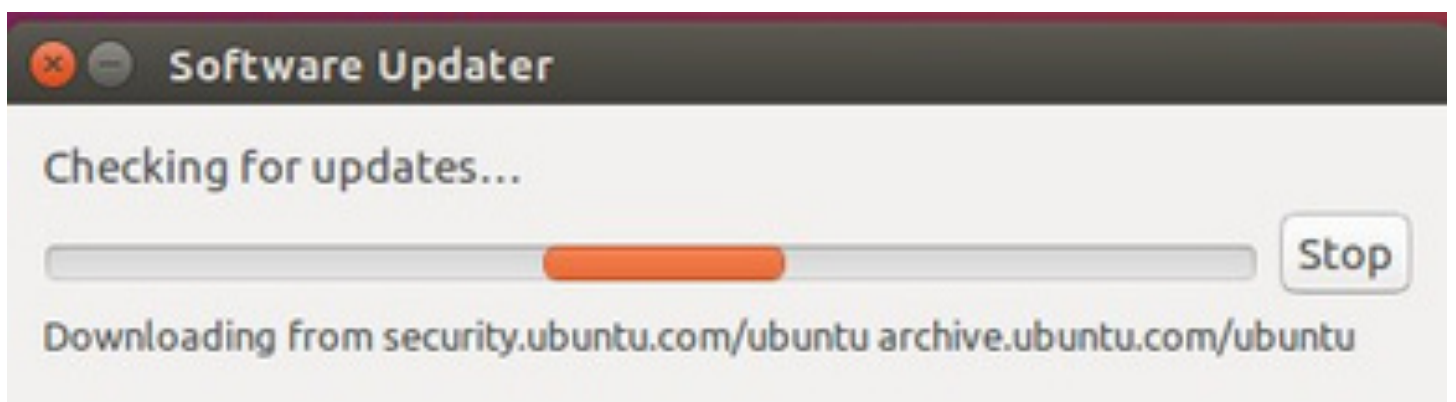
Fig 35. Search and find a program to run

Fig 36. Installation of updates on progress

Once you finish the installation staps for Ubuntu on the VM, you should be able to see the specifications of your ysstem (Fig 37). To see this window, simply search the term "details" in the search box of Ubuntu.

Fig 37. Control your setup specifications

The graphical user interface of Ubuntu is called Unity. While Unity makes it simple to browse files and use applications, it is easier to use terminal for tasks like installation of new programs, management of files, and control of permissions. To run the terminal, click on the search button (Fig 38) and type terminal. Also, pressing CTRL+ALT+t opens the terminal window.
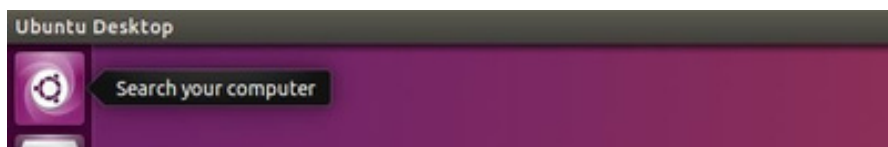

Fig 38. Find and open applications from search button You can test the terminal by inputing a command in it:

~$ lsb_release -a

This command shows the version of the Ubuntu that is being used. The outcome is shown in Fig 39.