ROS is a Meta-operating system that can be useful in certain application. We will show you how to install it on your Computer. Like mentioned earlier Ros is an operating system that can't be directly downloaded over another operating system. The way to have ROS installed on your computer which already has an operating system on it (Windows, Mac ... etc.) is by having a "Virtual Computer" installed. In this Virtual computer you can have another operating system like ROS installed.

Let's begin by downloading this Virtual computer or Virtual box:
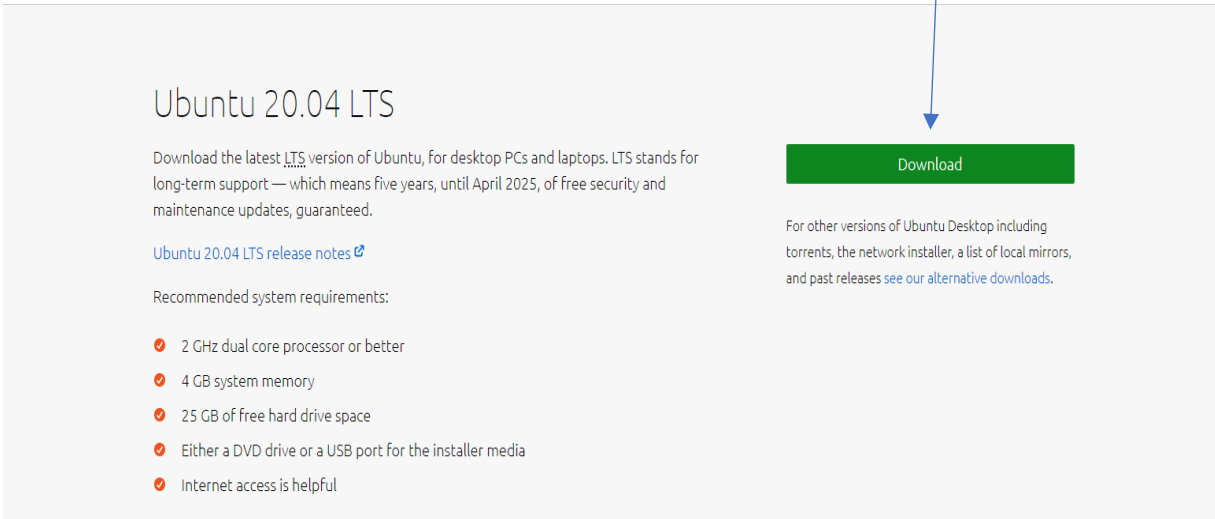
From this link (https://www.virtualbox.org/wiki/Downloads) you can download the virtual box .

Choose your operating system and download it. After downloading you need to install it like any other application.

After that you need to download Ubuntu from this link
(https://ubuntu.com/download/desktop)

Download the Ubuntu (no need to install it or open it just download it)

Now open the Virtual box that you installed; it should look like this:

Since it's your first time downloading the virtual box. nothing should appear here.
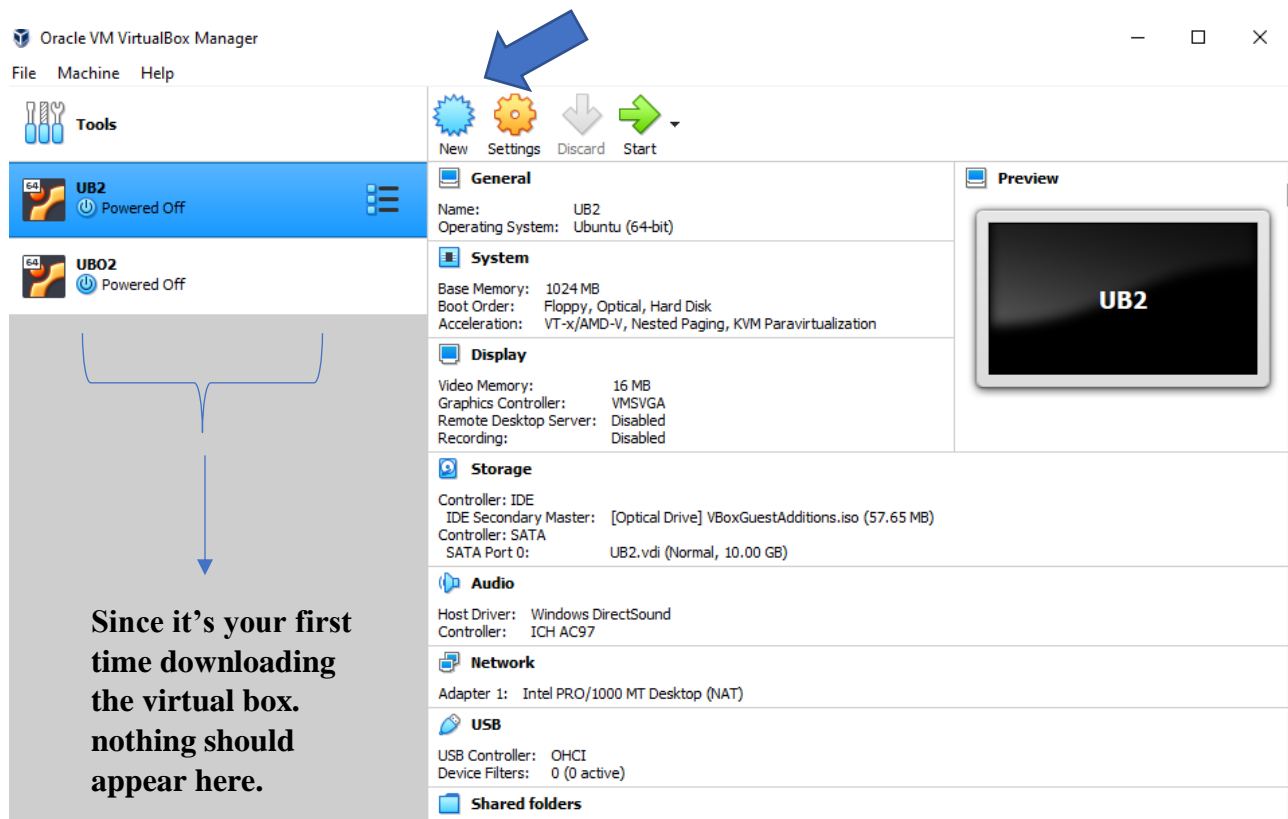
Now click New as pointed by the arrow. The following screen should appear:

If you choose the name UB2 it will recognize the type and version, but if not choose Linux and Ubuntu 64. Next:

Choose the memory size, note that the recommended is 1024 MB. Next:
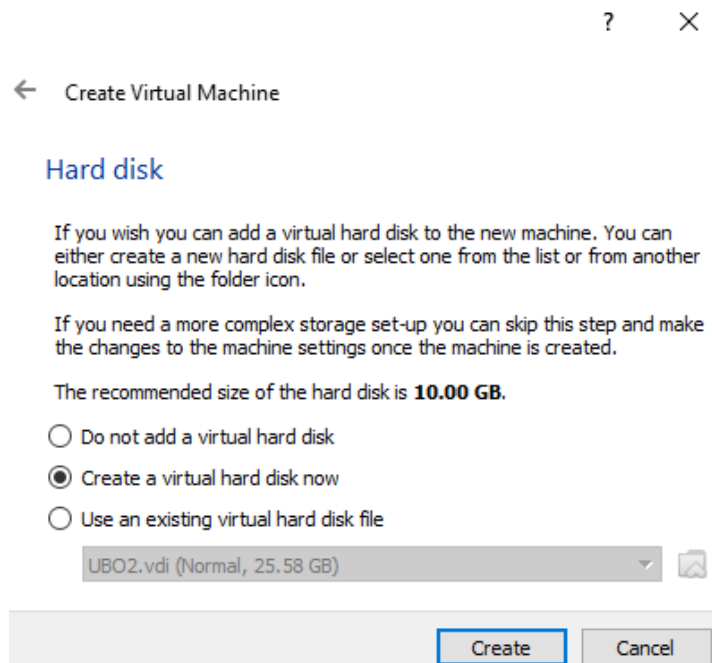
Choose the second options. Create:

Choose the first option, Next:

? ✕

← 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
○ Fixed size

Next   Cancel

Choose the first option again, Next:
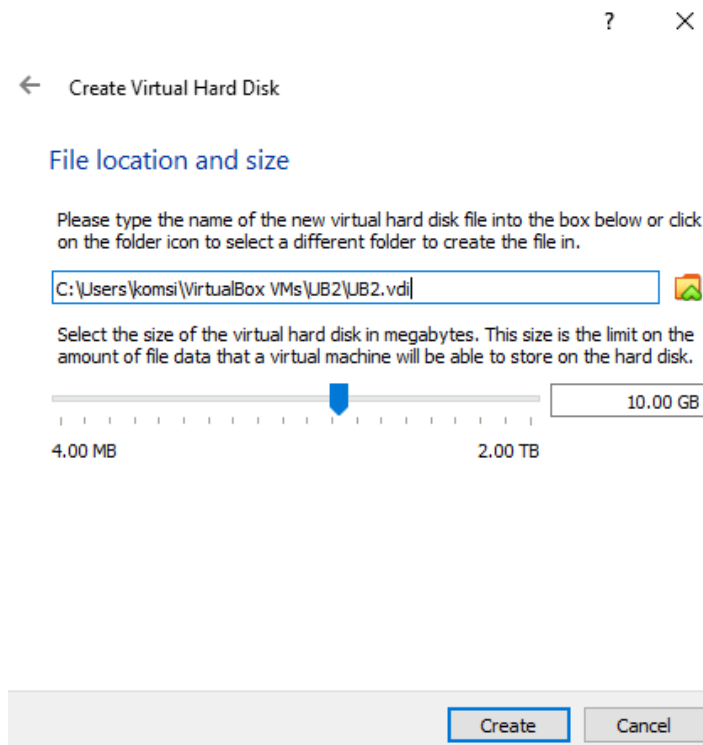
Here it will show you the location and size, you can change the size. The recommended size is 10 GB but to be in the safe side you can make it 15 or 20 GB, then press create.

Now you will see what you just create in left, under tools. Double click on it to and the following screen should appear:

? ✕

← Select start-up disk

Please select a virtual optical disk file or a physical optical
drive containing a disk to start your new virtual machine
from.

The disk should be suitable for starting a computer from and
should contain the operating system you wish to install on
the virtual machine if you want to do that now. The disk will
be ejected from the virtual drive automatically next time you
switch the virtual machine off, but you can also do this
yourself if needed using the Devices menu.

VBoxGuestAdditions.iso (57.65 MB) ▼ 🖿

Start   Cancel

Press the folder icon to locate where you download the Ubuntu:

Optical Disk Selector   ?   ✕

Medium

Add   Create   Refresh

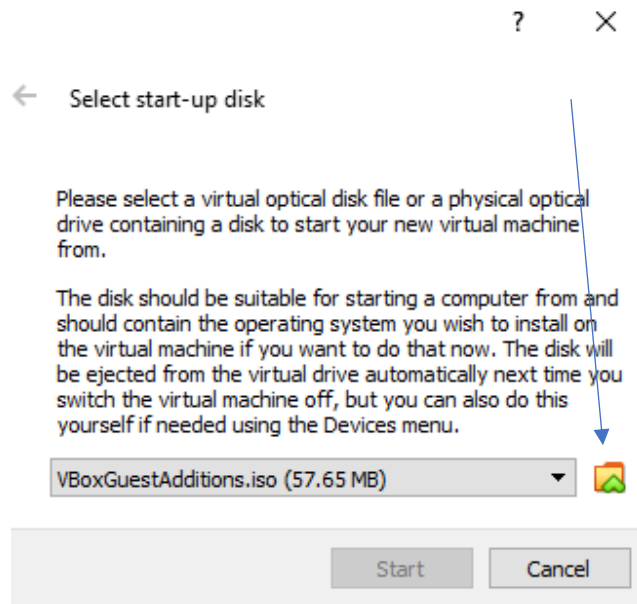| Name	Virtual Size
∨ Not Attached	
ubuntu-20.04-desktop-amd64.iso	2.53 GB
VBoxGuestAdditions.iso	57.65 MB

Search By Name ▼ [   ]

Choose   Leave Empty   Cancel
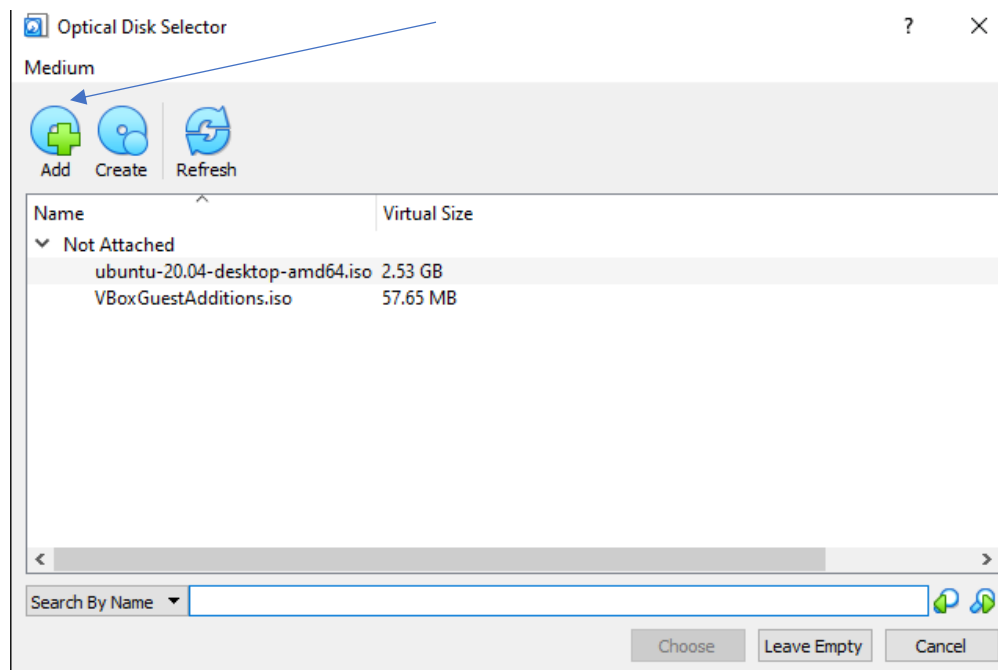
Press Add and locate the Ubuntu you downloaded, after locating and adding the
Ubuntu it will appear on your screen, choose it and then press (Choose). And then
press start. (it might take a while)

The following screen should appear :
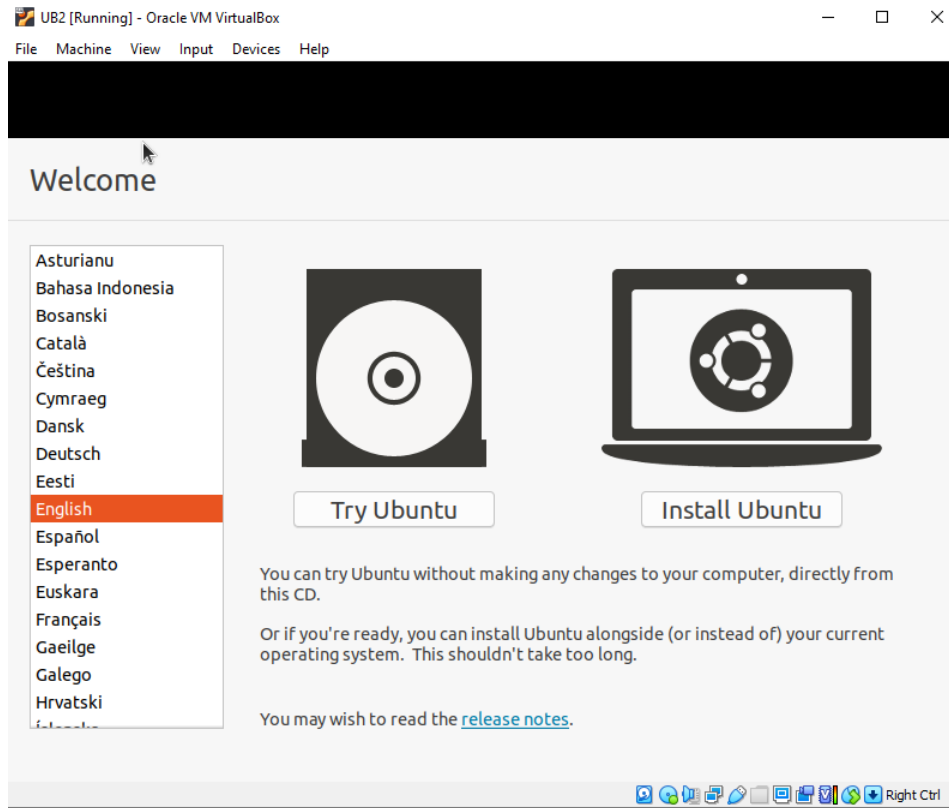
Choose install Ubuntu. If you can't click it then exit this window (Power off the machine) and open it again. After choosing install ubuntu the following screen appear :
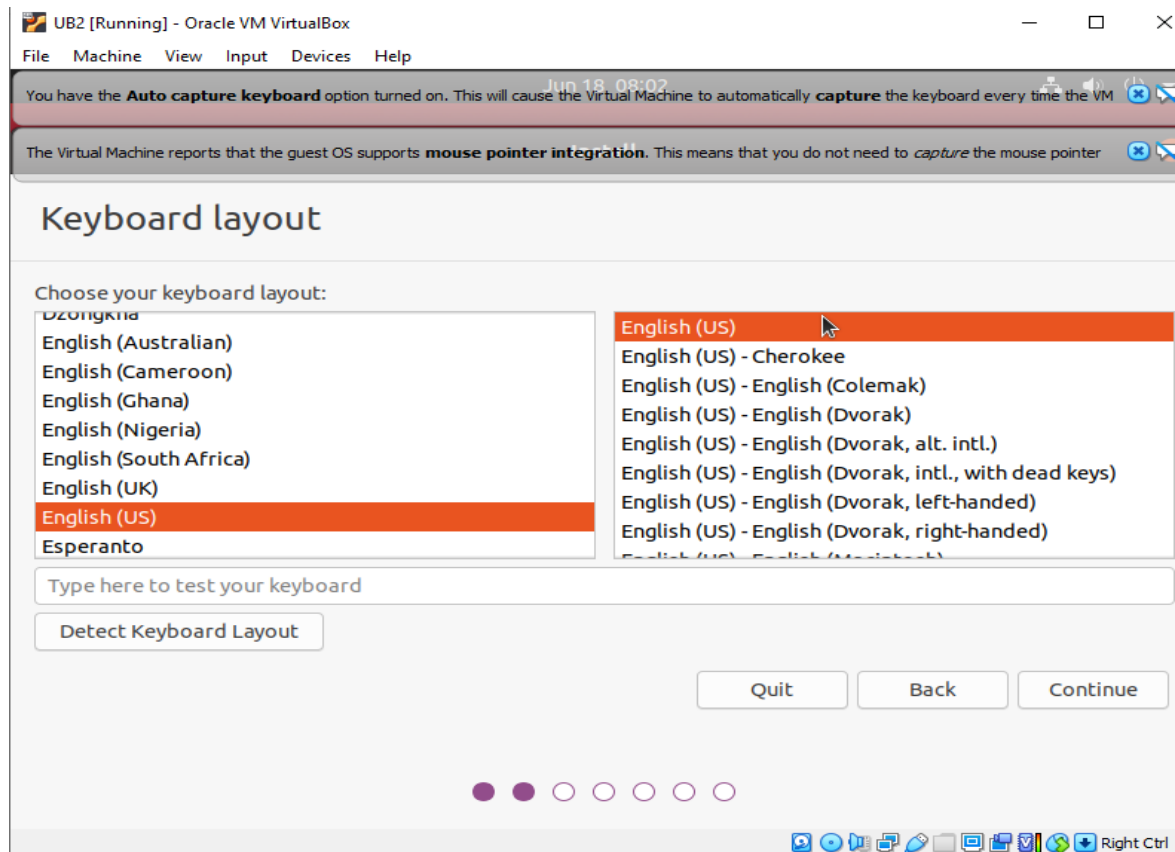
Choose English in both, press continue:

Updates and other software

What apps would you like to install to start with?

● Normal installation

  Web browser, utilities, office software, games, and media players.
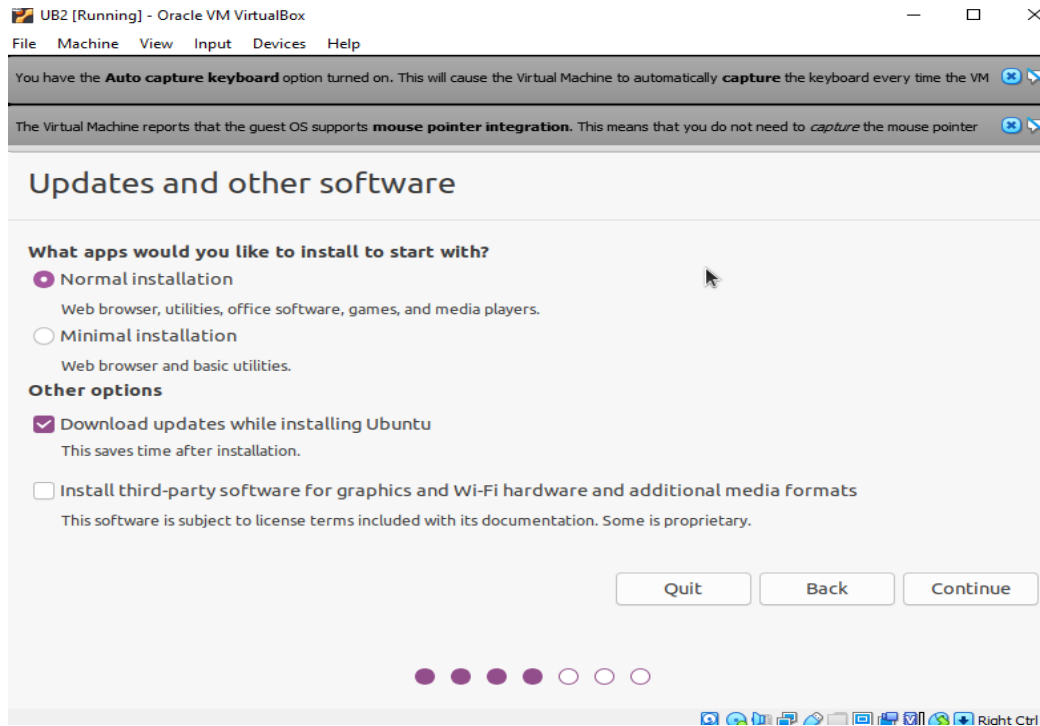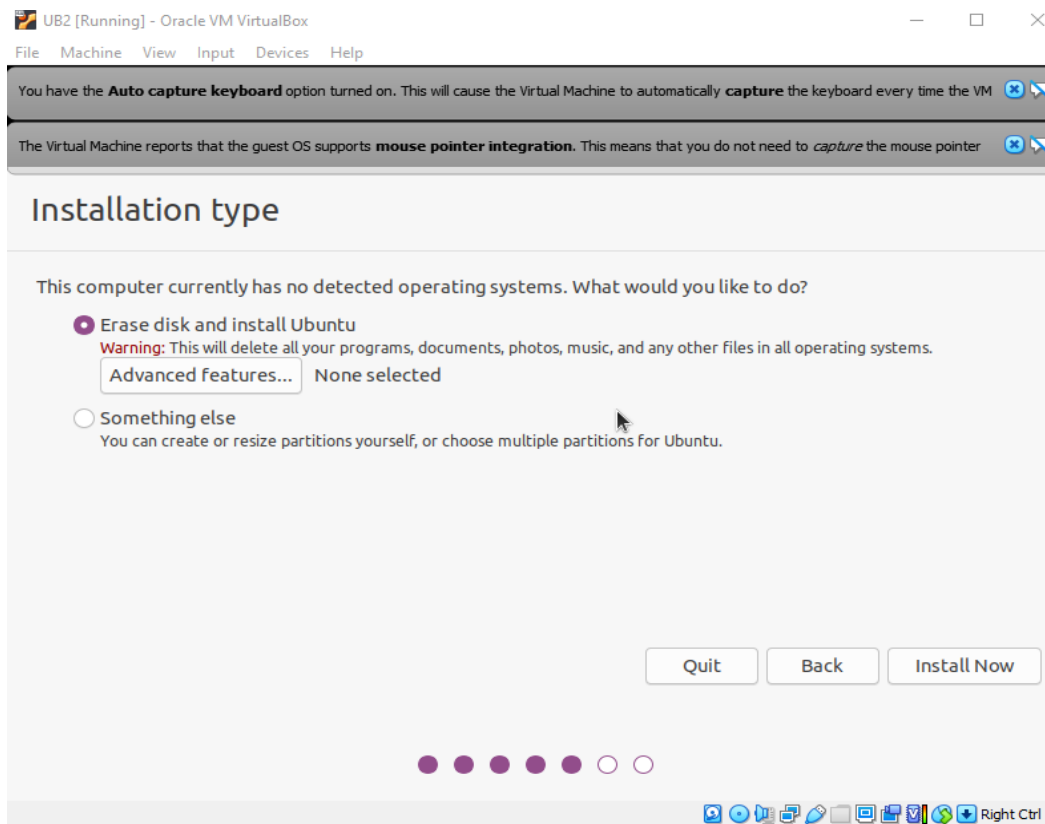
○ Minimal installation

  Web browser and basic utilities.

Other options

☑ Download updates while installing Ubuntu

  This saves time after installation.

☐ Install third-party software for graphics and Wi-Fi hardware and additional media formats

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

Quit   Back   Continue

Choose these settings and press continue:

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.

  [Advanced features...]   None selected

○ Something else

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

Quit   Back   Install Now

Choose (Erase disk and install Ubuntu), note that this will **<u>NOT</u>** erase anything in your computer, since this is a "dependent software" it will erase things on your new software, and you have nothing on it yet. You can choose it safely and press install now:
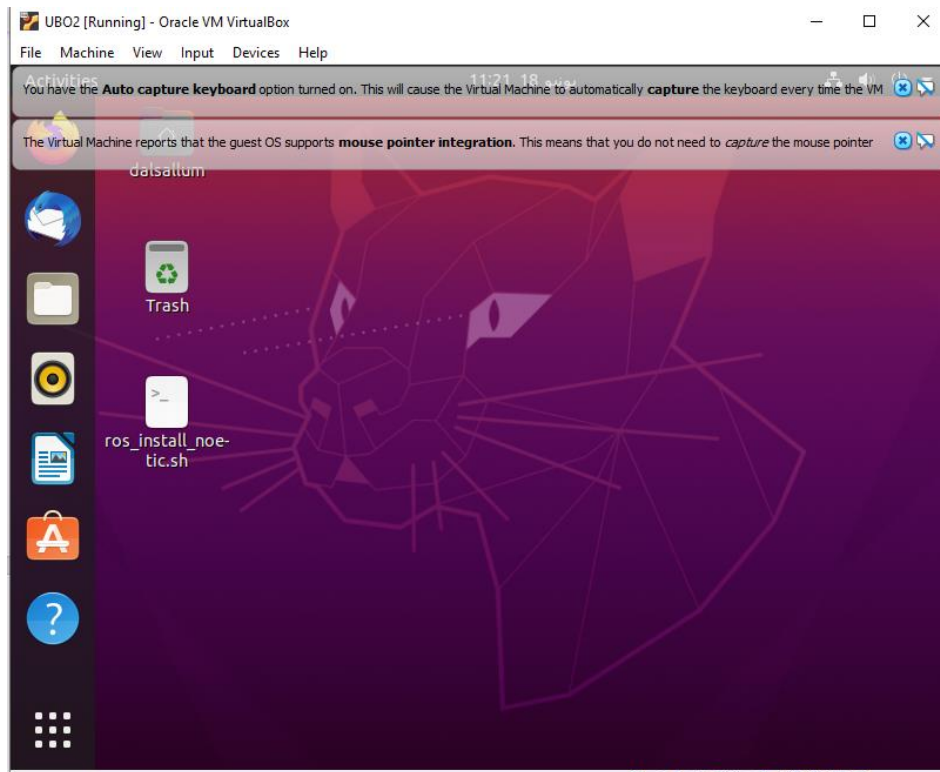

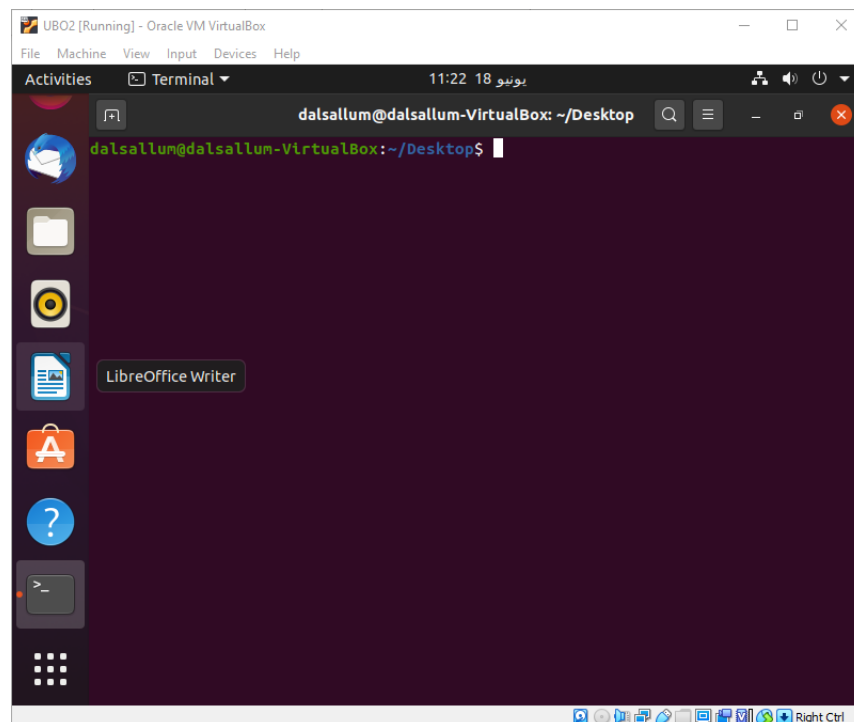Fill it with your information and press continue:

After it's done you can restart the machine and you should have installed it.

Now you need you have ROS installed inside it.

Open it and the following screen should appear:

You can right click anywhere and then press open in Terminal; the following screen should appear:

After that you should copy and paste the following command

(wget -c
https://raw.githubusercontent.com/qboticslabs/ros_install_noetic/master/ros_install
_noetic.sh && chmod +x ./ros_install_noetic.sh && ./ros_install_noetic.sh)

Or you can see it from here (https://github.com/qboticslabs/ros_install_noetic)

After that press enter, it might ask you to write your password (note while writing your password nothing will appear, but it still writes).

When it ask for (Enter your install) : write 1 .

After finishing it should look like this:

```
Setting up ros-noetic-desktop-full (1.5.0-1focal.20200522.213438) ...
Processing triggers for libc-bin (2.31-0ubuntu9) ...


##############################################################################
###################################
>>> {Step 6: Setting ROS Environment, This will add ROS environment to .bashrc.}
>>> { After adding this, you can able to access ROS commands in terminal}


##############################################################################
###################################
>>> {Step 7: Testing ROS installation, checking ROS version.}

>>> {Type [ rosversion -d ] to get the current ROS installed version}

##############################################################################
###################################
robot@robot-virtual-machine:~$
```

To check if it was installed correctly write the following command:(rosversion -d)

It should appear it (noetic). If it say it's (unknown) then close the terminal and open it again and write the command again. it should work now.

Congratulation you have installed ROS successfully now.