



King Abdulaziz University

Smart Methods

Task Week 2

Steps Install Virtual Box, Ubuntu and ROS

Summer Training 2020

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## Steps to Install Virtual Box:

**Step 1:** Go to the Virtual Box site and choose Windows hosts as in the following image:



The screenshot shows the VirtualBox website. On the left is a sidebar with links: About, Screenshots, Downloads, Documentation, End-user docs, Technical docs, Contribute, and Community. The main content area has the VirtualBox logo and the text 'Download VirtualBox'. Below this, it says 'Here you will find links to VirtualBox binaries and its source code.' There is a section for 'VirtualBox binaries' with a paragraph about version 6.0 support. Below that is a section for 'VirtualBox 6.1.10 platform packages' with a list of links: Windows hosts, OS X hosts, Linux distributions, and Solaris hosts. The 'Windows hosts' link is highlighted with a red box.

**VirtualBox binaries**

By downloading, you agree to the terms and conditions of the respective operating system.

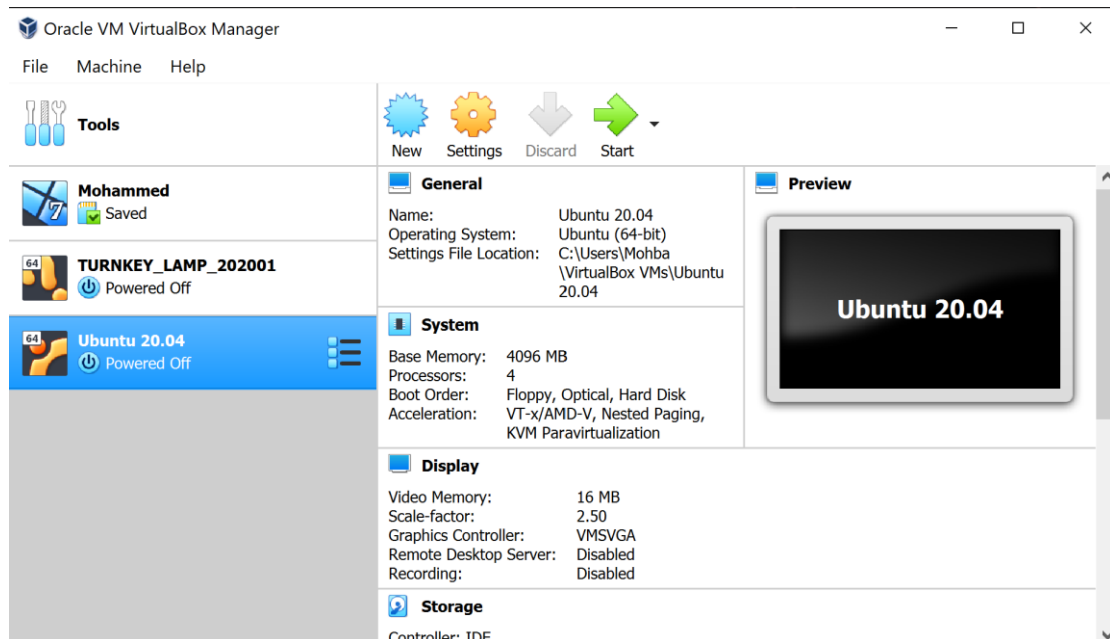
If you're looking for the latest VirtualBox 6.0 packages, see [VirtualBox 6.1](#). Version 6.0 will remain supported until July 2020.

If you're looking for the latest VirtualBox 5.2 packages, see [VirtualBox 5.2](#). Version 5.2 will remain supported until July 2020.

**VirtualBox 6.1.10 platform packages**

- [Windows hosts](#)
- [OS X hosts](#)
- [Linux distributions](#)
- [Solaris hosts](#)

After installing the Virtual Box interface:



The screenshot shows the Oracle VM VirtualBox Manager window. The left sidebar lists three virtual machines: 'Mohammed' (Saved), 'TURNKEY\_LAMP\_202001' (Powered Off), and 'Ubuntu 20.04' (Powered Off). The main area shows the settings for the 'Ubuntu 20.04' VM. The 'General' tab is selected, showing the name 'Ubuntu 20.04', operating system 'Ubuntu (64-bit)', and settings file location. The 'System' tab shows base memory of 4096 MB, 4 processors, and boot order. The 'Display' tab shows video memory of 16 MB, scale factor of 2.50, and graphics controller of VMSVGA. The 'Storage' tab shows the controller as IDE. A preview window on the right shows the Ubuntu 20.04 desktop.

Oracle VM VirtualBox Manager

File Machine Help

Tools

New Settings Discard Start

**Mohammed** Saved

**TURNKEY\_LAMP\_202001** Powered Off

**Ubuntu 20.04** Powered Off

**General**

Name: Ubuntu 20.04  
Operating System: Ubuntu (64-bit)  
Settings File Location: C:\Users\Mohba\VirtualBox VMs\Ubuntu 20.04

**System**

Base Memory: 4096 MB  
Processors: 4  
Boot Order: Floppy, Optical, Hard Disk  
Acceleration: VT-x/AMD-V, Nested Paging, KVM Paravirtualization

**Display**

Video Memory: 16 MB  
Scale-factor: 2.50  
Graphics Controller: VMSVGA  
Remote Desktop Server: Disabled  
Recording: Disabled

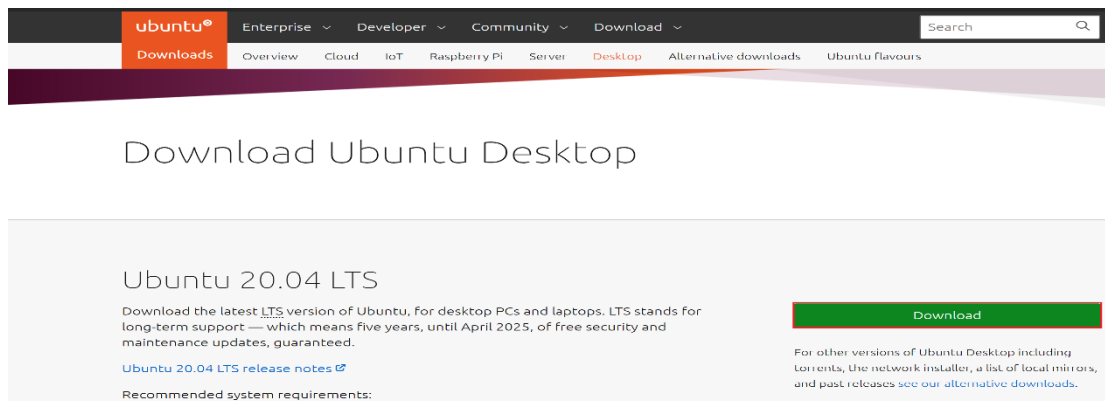
**Storage**

Controller: IDE

**Preview**

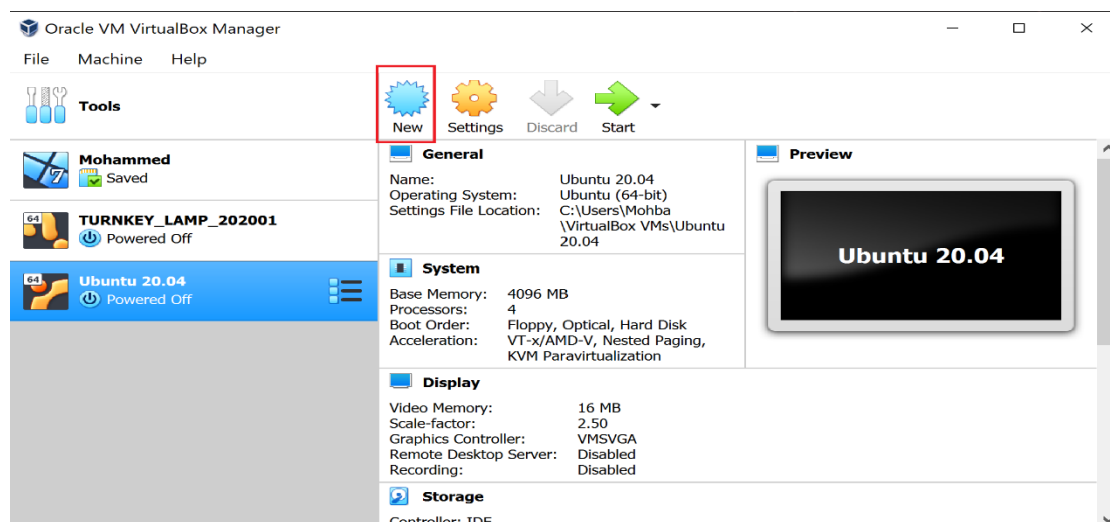
Ubuntu 20.04

**Step 2:** Go to Ubuntu website and download the 20.04 version as in the following image:

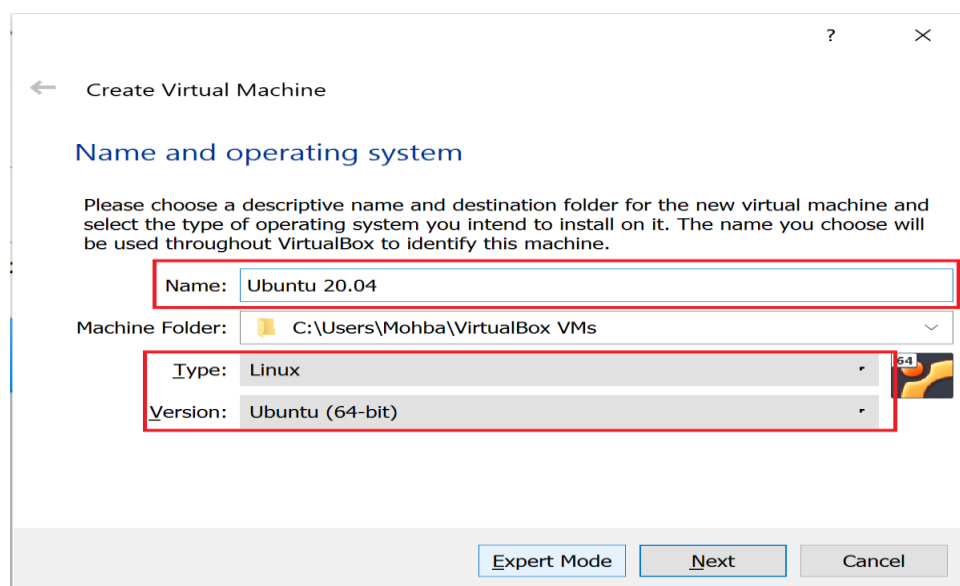


## **Steps to install Ubuntu on Virtual Box:**

A / Click New:



- Set the system name, choose the **Linux** system type, and **Ubuntu version (64 bits)**.



- Click on Expert Mode.
- Change Memory Size to **4096 MB**.
- choose **Create a virtual hard disk now**.
- Click Create.

← Create Virtual Machine

Name and operating system

Name: Ubuntu 20.04

Machine Folder: C:\Users\Mohba\VirtualBox VMs

Type: Linux

Version: Ubuntu (64-bit)

Memory size

4 MB 16384 MB 4096 MB

Hard disk

☐ Do not add a virtual hard disk

☒ Create a virtual hard disk now

☐ Use an existing virtual hard disk file

TURNKEY LAMP-disk001.vdi (Normal, 20.00 GB)

Guided Mode Create Cancel

- Change File Size to **100 GB**.
- Choose **VDI (VirtualBox Disk Image)**.
- Choose **Dynamically allocated**.
- Click Create.

← Create Virtual Hard Disk

File location

C:\Users\Mohba\VirtualBox VMs\Ubuntu\_\Ubuntu\_.vdi

File size

4.00 MB 2.00 TB 100 GB

Hard disk file type

☒ VDI (VirtualBox Disk Image)

☐ VHD (Virtual Hard Disk)

☐ VMDK (Virtual Machine Disk)

☐ HDD (Parallels Hard Disk)

☐ QCOW (QEMU Copy-On-Write)

☐ QED (QEMU enhanced disk)

Storage on physical hard disk

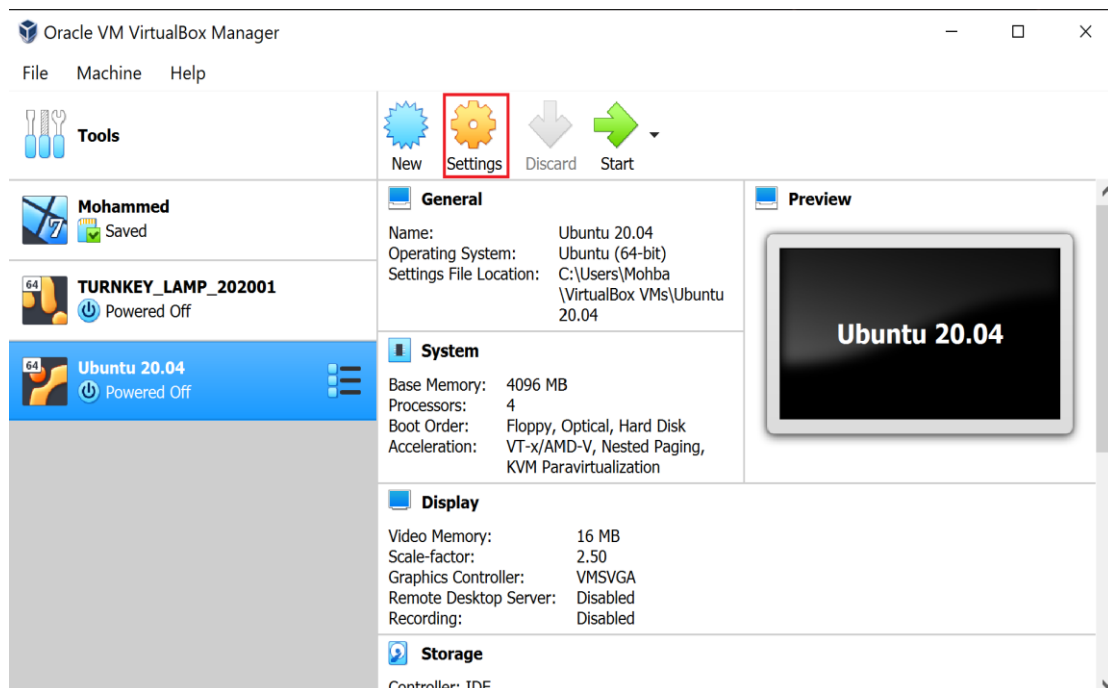
☒ Dynamically allocated

☐ Fixed size

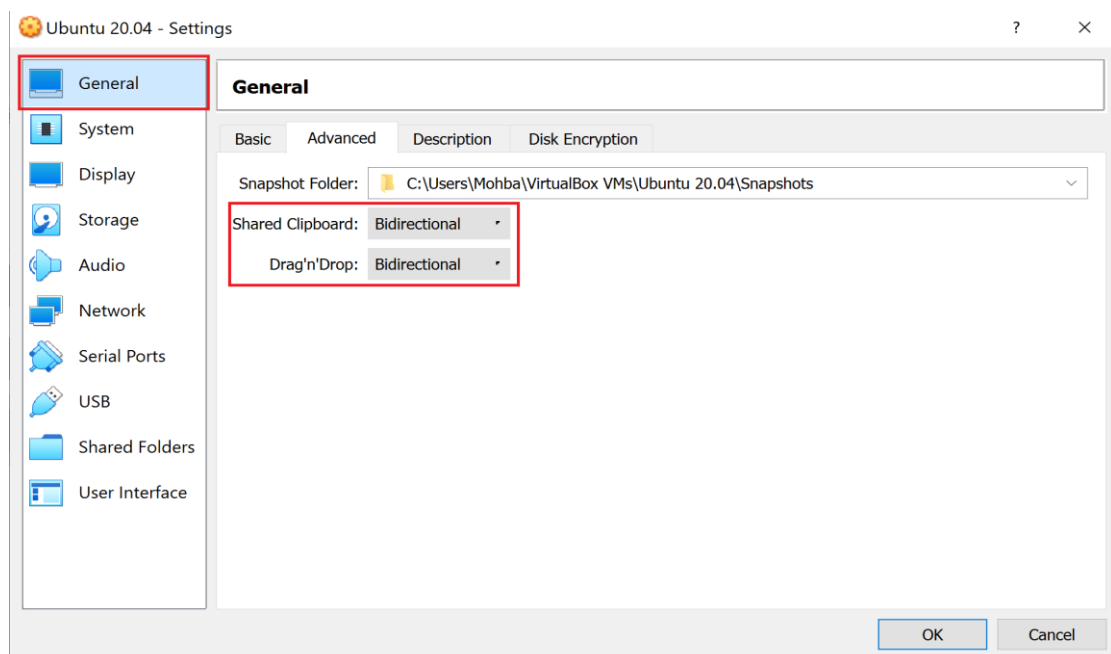
☐ Split into files of less than 2GB

Guided Mode Create Cancel

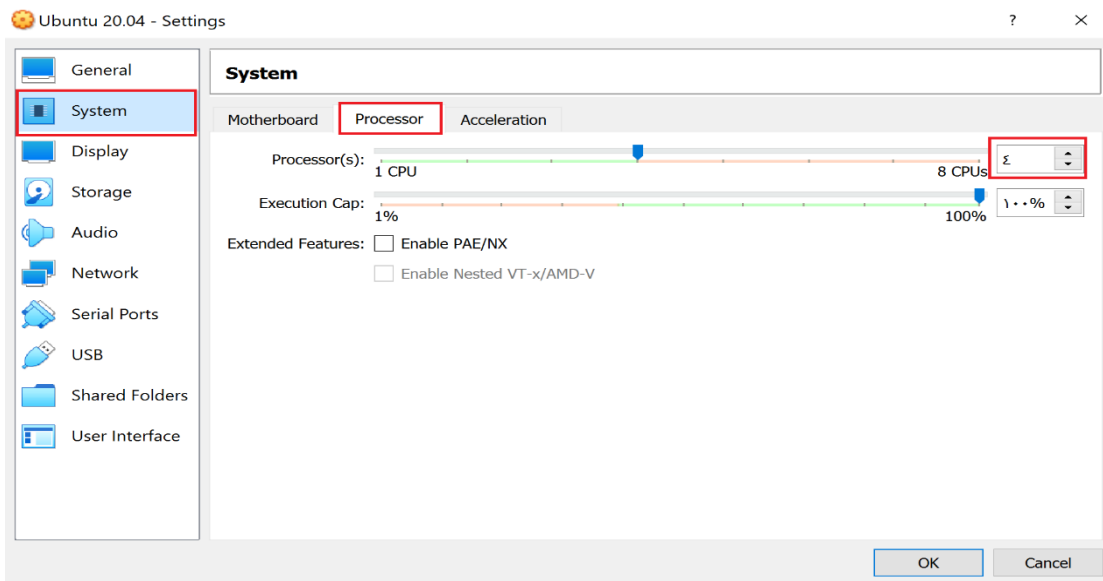
## B / Click Ubuntu 20.04 Settings:



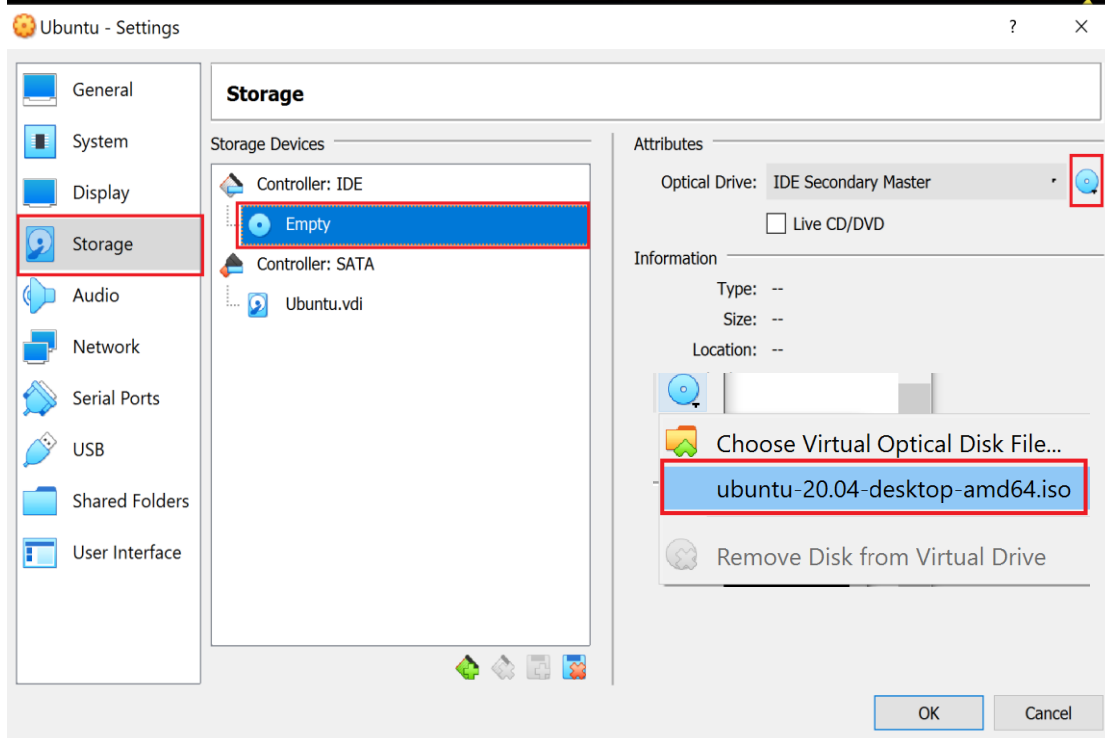
- Click on General.
- Press Advanced.
- Change Shared Clipboard to **Bidirectional**.
- Change Drag'n Drop to **Bidirectional**.



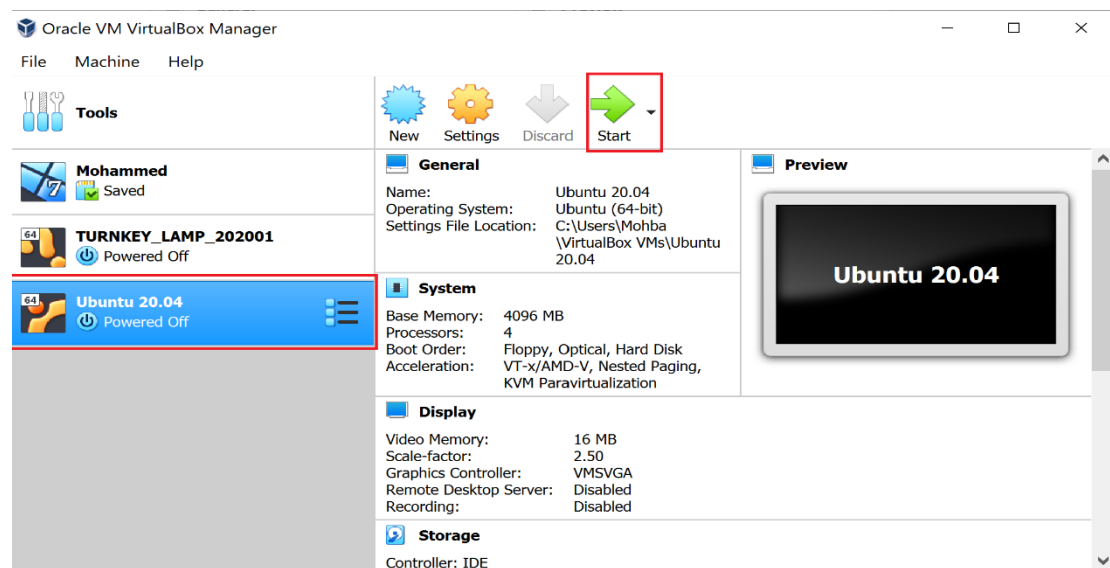
- Click on System.
- Click on Processor.
- Change Processor (s) to **4 CPU**.



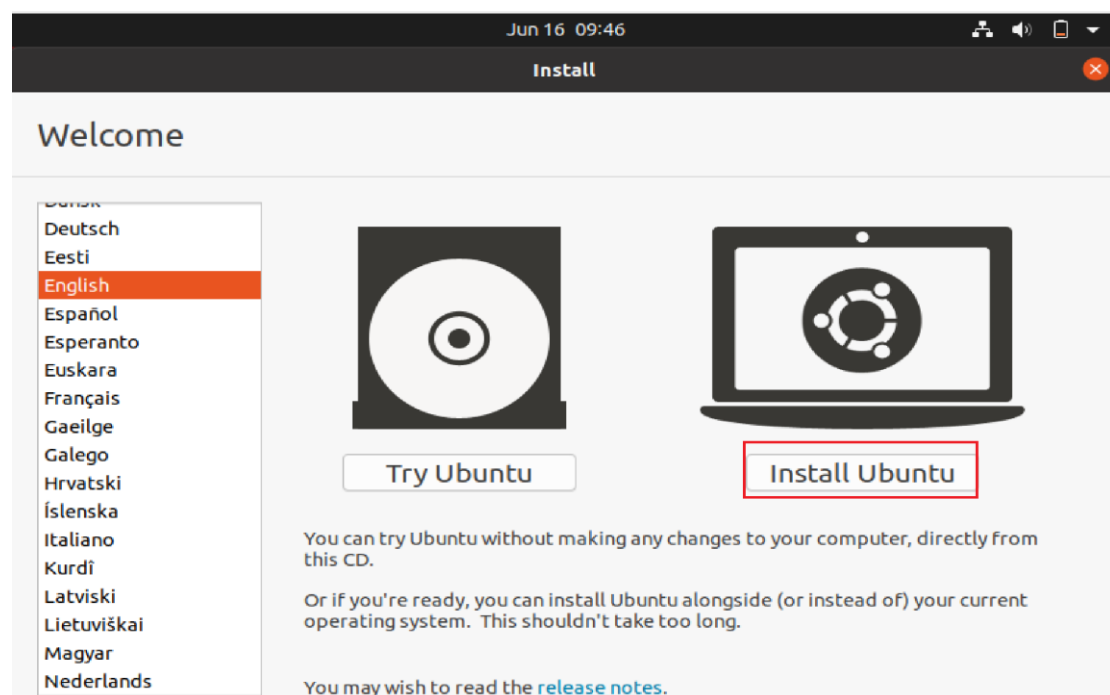
- Click on Storage
- Click on Empty
- Select the previously loaded ISO file from Ubuntu as shown in the image:
- Press OK and exit settings.



C / Press Start to start and install Ubuntu 20.04.

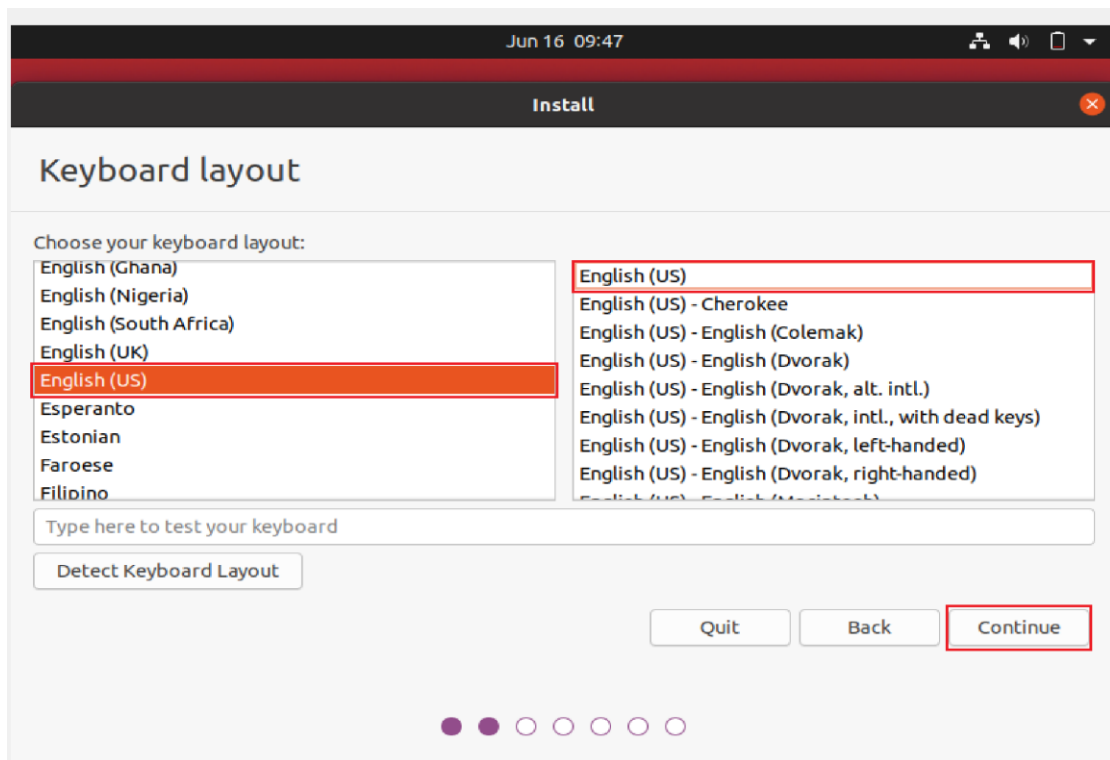


- After Ubuntu is started.
- Choose the appropriate language for the system.
- Click on **Install Ubuntu**.

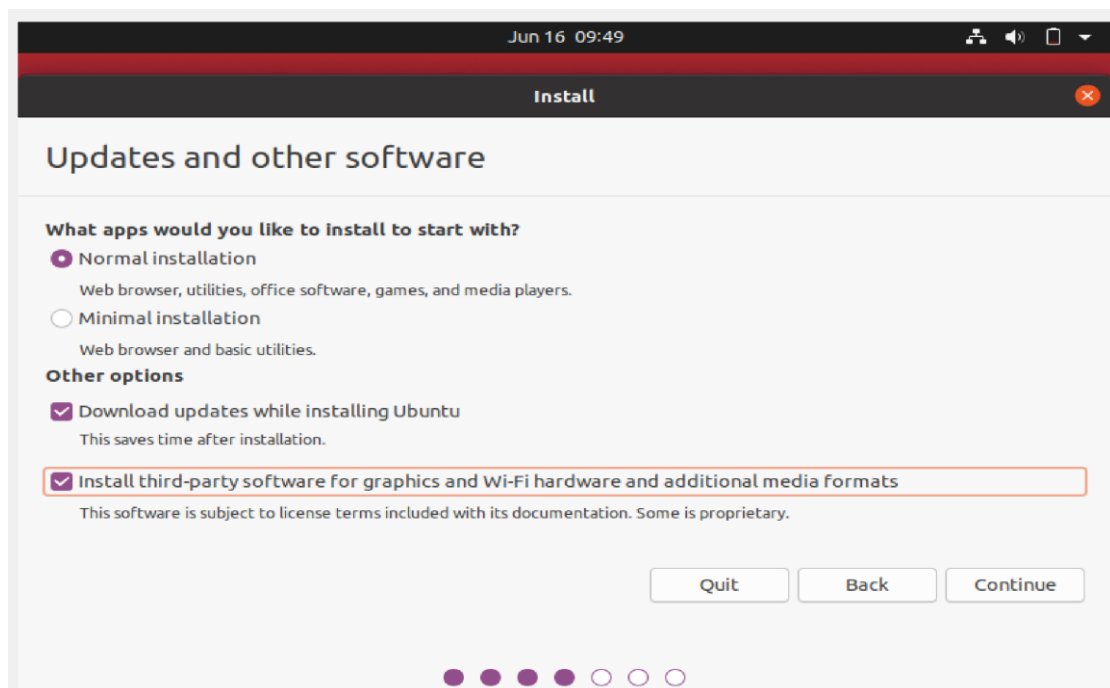




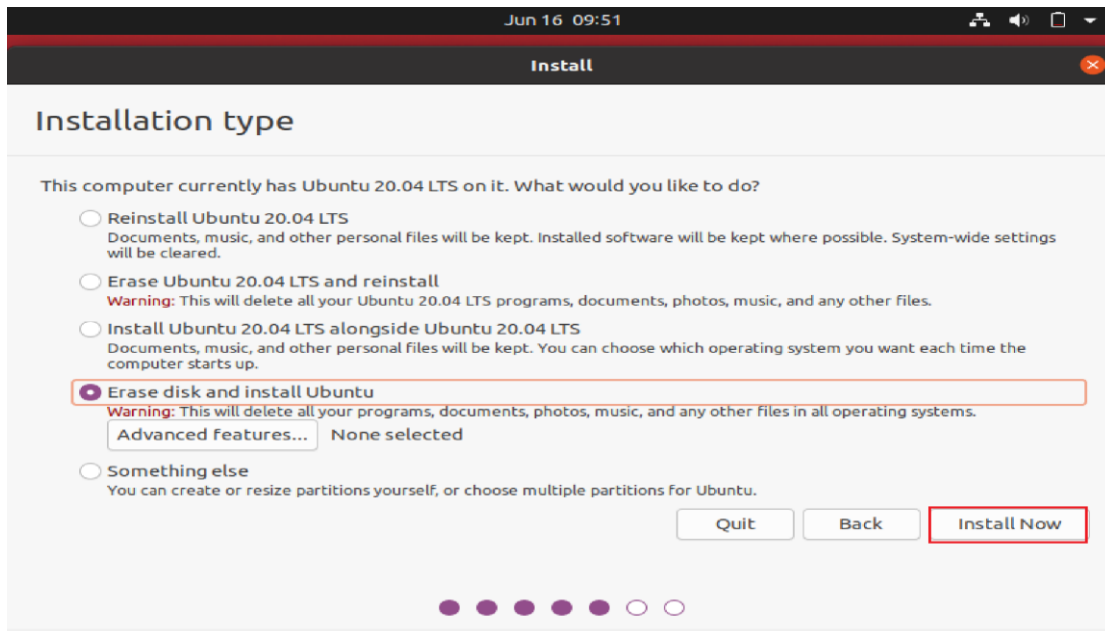
- Choose keyboard language.
- Press Continue.



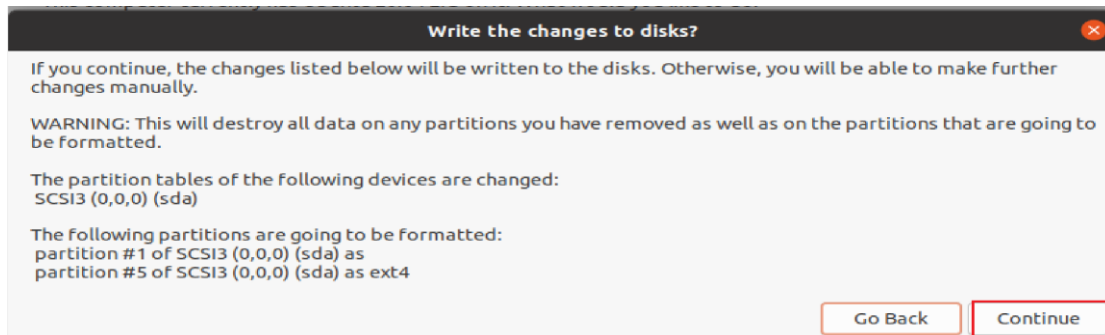
- Click on the last selection as shown in the image:
- Press Continue.



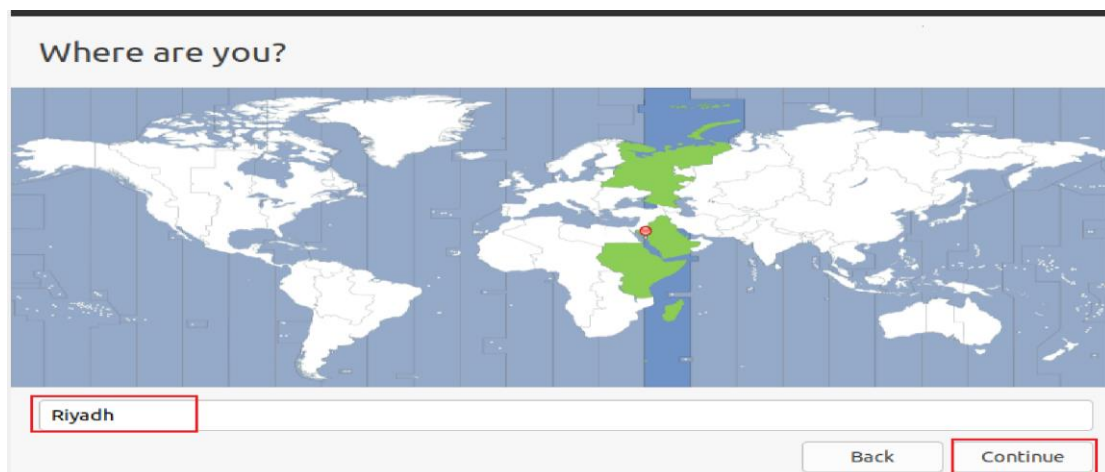
- Choose Erase disk and install Ubuntu.
- Click on Install Now.



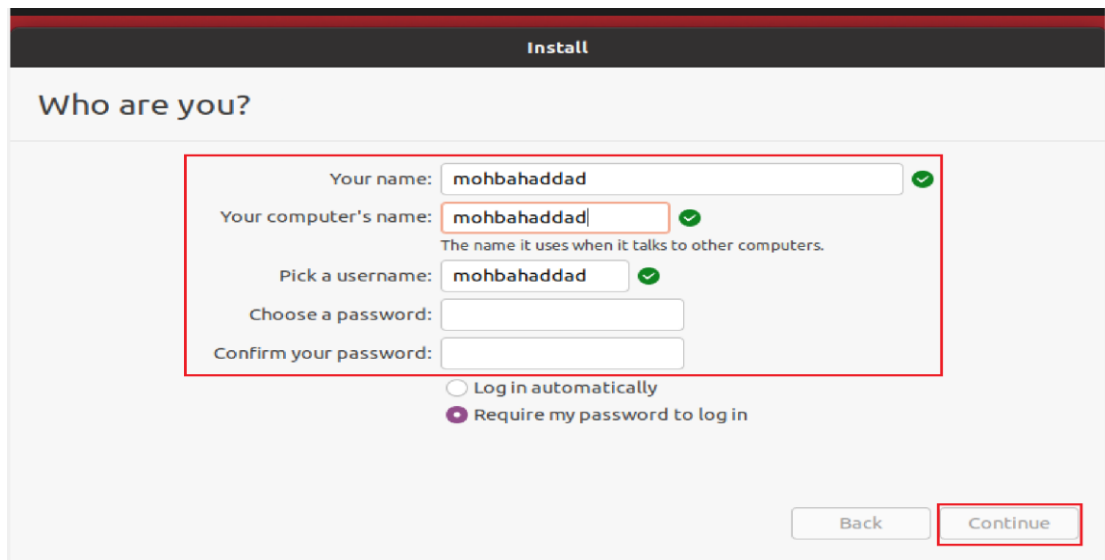
- After clicking Install Now, this message will appear:
- Click Continue.



- Select a region from the map and press Continue.



- Set the system username and password.
- Press Continue.

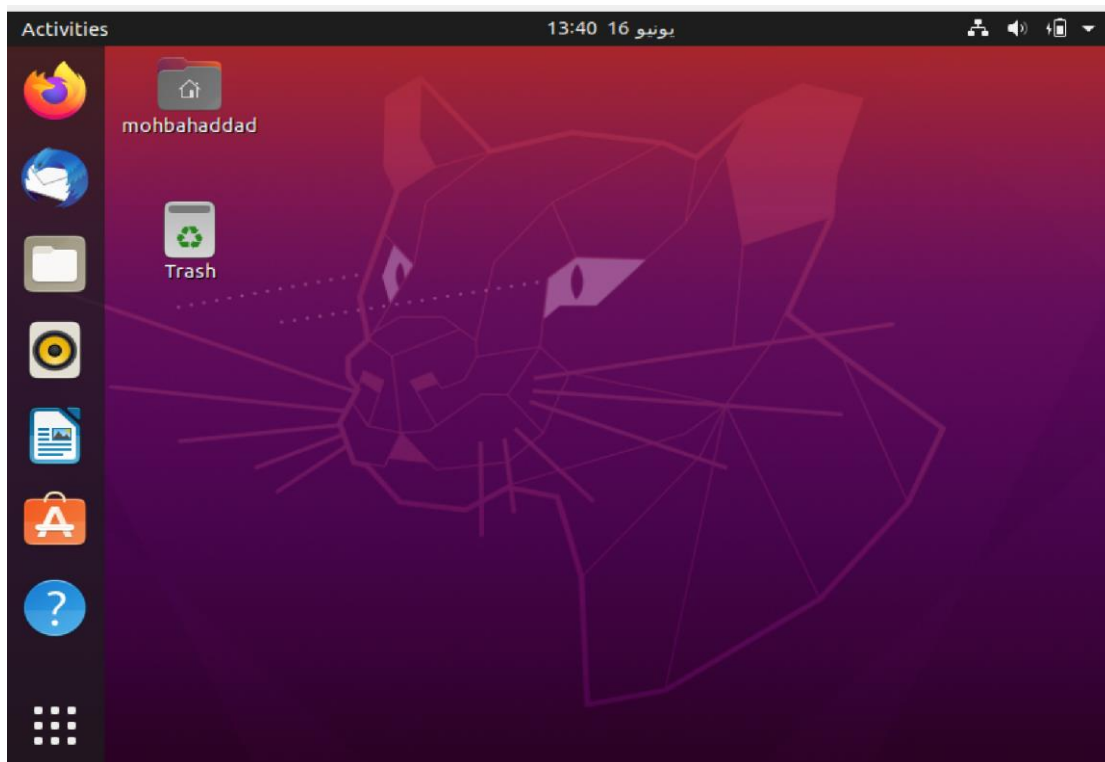


The image shows the 'Who are you?' screen from the Ubuntu installer. The title bar says 'Install'. The main heading is 'Who are you?'. The form contains the following fields and options:

- 'Your name:' field with 'mohbahaddad' entered and a green checkmark.
- 'Your computer's name:' field with 'mohbahaddad' entered and a green checkmark. Below it, a note says 'The name it uses when it talks to other computers.'
- 'Pick a username:' field with 'mohbahaddad' entered and a green checkmark.
- 'Choose a password:' empty text field.
- 'Confirm your password:' empty text field.
- Radio buttons for login options: 'Log in automatically' (unselected) and 'Require my password to log in' (selected).
- 'Back' and 'Continue' buttons at the bottom right.

D / After installing the Ubuntu system:

System interface as in the following image:



## Steps to install ROS:

**(Note: These are the steps to install ROS for Ubuntu 20.04).**

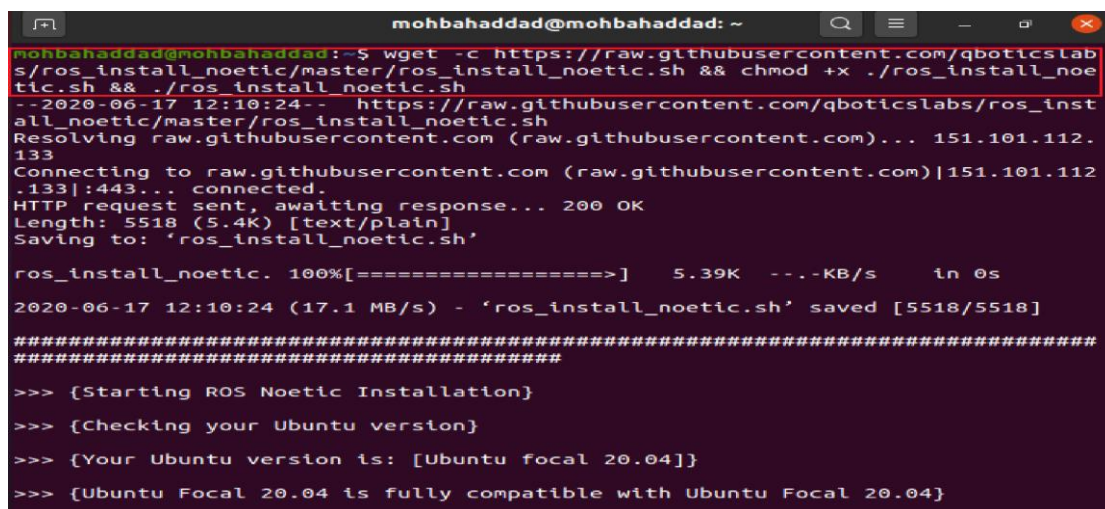
- Go to Terminal.
- Copy the following command from the link in the references at the end of the page.

### Usage

You can just copy-paste the command below in your terminal for installing and uninstalling ROS Noetic. You have to enter your password while running the script. Execute the script as a normal user.

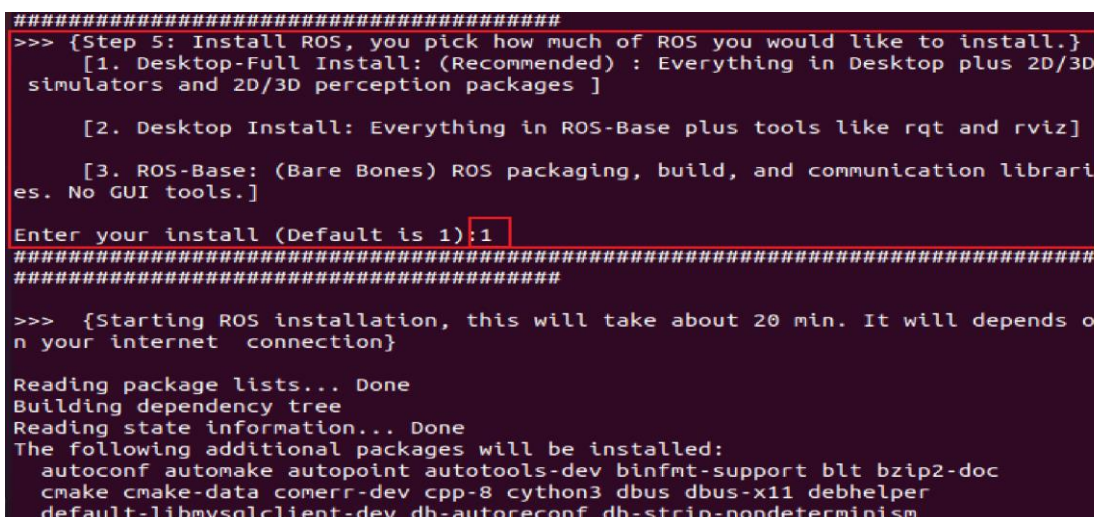
Single line ROS Noetic Install

```
wget -c https://raw.githubusercontent.com/qboticslabs/ros_install_noetic/master/ros_install_noetic.sh && chmod +x ./ros_
```



```
mohbahaddad@mohbahaddad: ~  
mohbahaddad@mohbahaddad:~$ 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  
--2020-06-17 12:10:24-- https://raw.githubusercontent.com/qboticslabs/ros_install_noetic/master/ros_install_noetic.sh  
Resolving raw.githubusercontent.com (raw.githubusercontent.com)... 151.101.112.133  
Connecting to raw.githubusercontent.com (raw.githubusercontent.com)|151.101.112.133|:443... connected.  
HTTP request sent, awaiting response... 200 OK  
Length: 5518 (5.4K) [text/plain]  
Saving to: 'ros_install_noetic.sh'  
  
ros_install_noetic. 100%[=====] 5.39K --.-KB/s in 0s  
2020-06-17 12:10:24 (17.1 MB/s) - 'ros_install_noetic.sh' saved [5518/5518]  
  
#####  
>>> {Starting ROS Noetic Installation}  
>>> {Checking your Ubuntu version}  
>>> {Your Ubuntu version is: [Ubuntu focal 20.04]}  
>>> {Ubuntu Focal 20.04 is fully compatible with Ubuntu Focal 20.04}
```

- Choose ROS Package to install and choose No. 1.



```
#####  
>>> {Step 5: Install ROS, you pick how much of ROS you would like to install.}  
[1. Desktop-Full Install: (Recommended) : Everything in Desktop plus 2D/3D  
simulators and 2D/3D perception packages ]  
  
[2. Desktop Install: Everything in ROS-Base plus tools like rqt and rviz]  
  
[3. ROS-Base: (Bare Bones) ROS packaging, build, and communication libraries. No GUI tools.]  
  
Enter your install (Default is 1):1  
#####  
>>> {Starting ROS installation, this will take about 20 min. It will depends on your internet connection}  
  
Reading package lists... Done  
Building dependency tree  
Reading state information... Done  
The following additional packages will be installed:  
autoconf automake autopoint autotools-dev binfmt-support blt bzip2-doc  
cmake cmake-data comerr-dev cpp-8 cython3 dbus dbus-x11 debhelper  
default-libmysqlclient-dev dh-autoreconf dh-strip-nondeterminism
```

- After the ROS installation is completed.
- Write the command (**rosversion -d**) in Terminal to confirm the installed version.

```
mohbahaddad@mohbahaddad:~$ rosversion -d  
noetic
```

## **References:**

- Virtual Box download link:  
<https://www.virtualbox.org/wiki/Downloads>
- Ubuntu download link for version 20.04:  
<https://ubuntu.com/download/desktop>
- Video tutorial on how to install Ubuntu 20.04 on Virtual Box:  
<https://www.youtube.com/watch?v=x5MhydiJWmc&feature=youtu.be>
- Video tutorial on how to install ROS for Ubuntu 20.04:  
<https://www.youtube.com/watch?v=IqrpSi2Xueg&feature=youtu.be>
- Command link to install ROS for Ubuntu 20.04::  
[https://github.com/qboticslabs/ros\\_install\\_noetic](https://github.com/qboticslabs/ros_install_noetic)