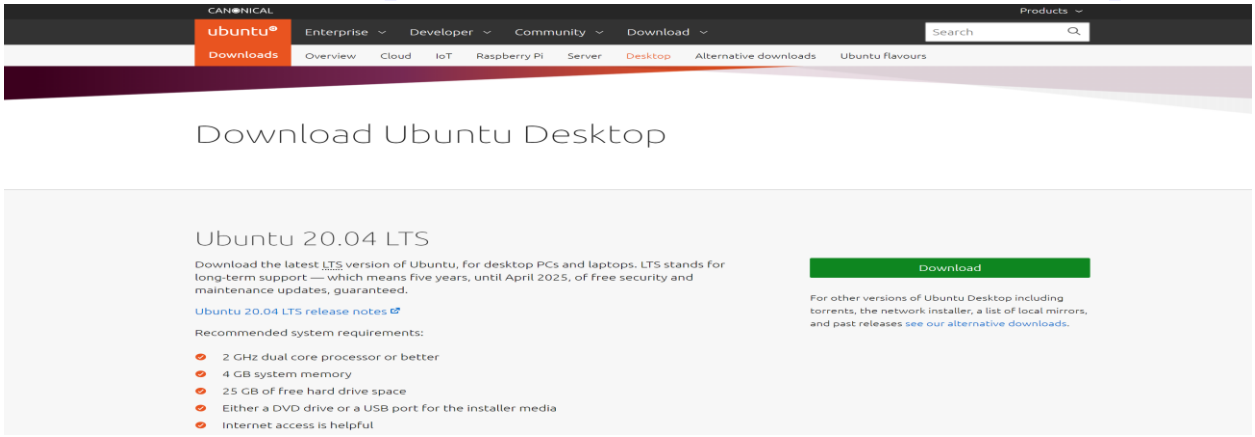
How to install a (ROS) robot control system with a virtual system

Initially, we will need a Linux system to be able to install a ROS system on it, For the topic to be more practical for those whose original system is not Linux; We will install a virtual system first for the device and then install

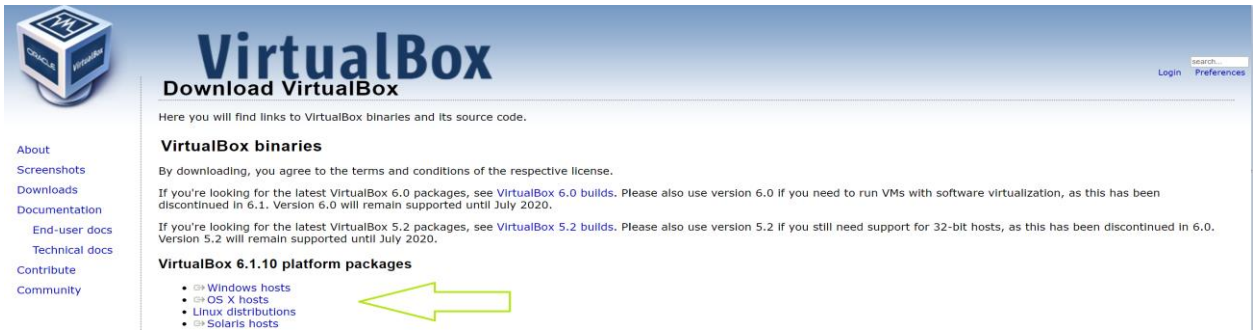
For those who already have a Linux distribution, you can click here on the line to move to the install part (ROS)

- Download (Ubuntu), It is one of the distributions of the Linux
  - Go to website https://ubuntu.com/download/desktop



  - We download the most recent version at the time of writing this guide for download. ***(Information: Meaning of LTS after version number means Long-term support)***
  - Waiting for the download to complete and it is approximately the size 2.5 GB

- Download (Oracle VM VirtualBox) program, which is one of the free open-source programs for running virtual systems inside your system
  - Go to website https://www.virtualbox.org/wiki/Downloads

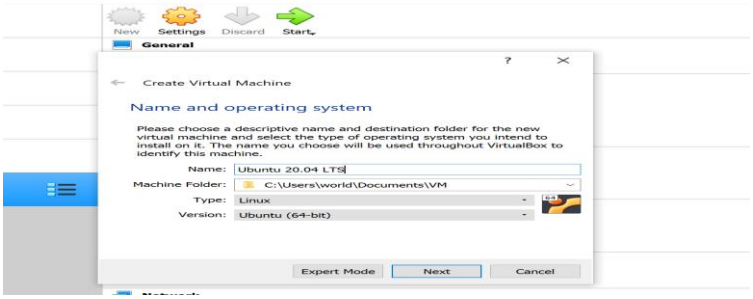
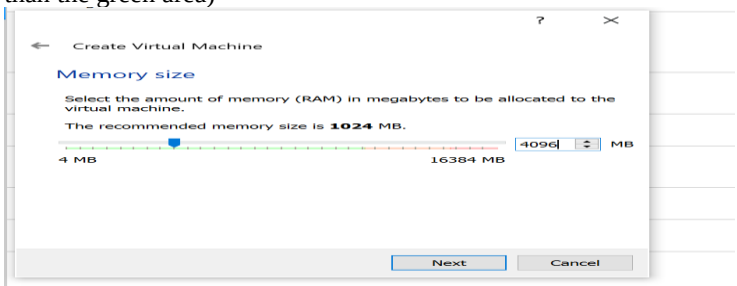
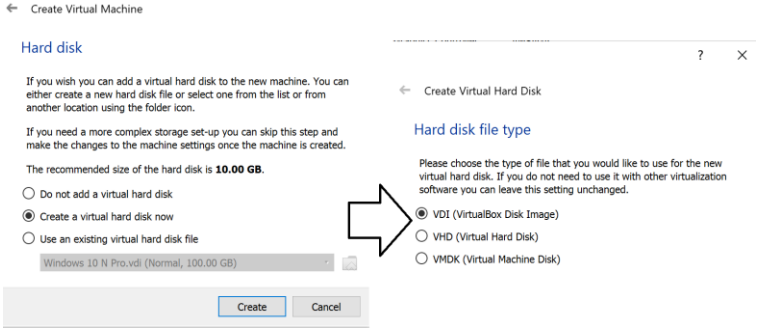
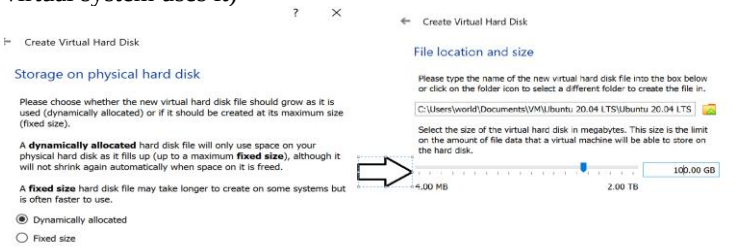


- We install it in steps like any other program

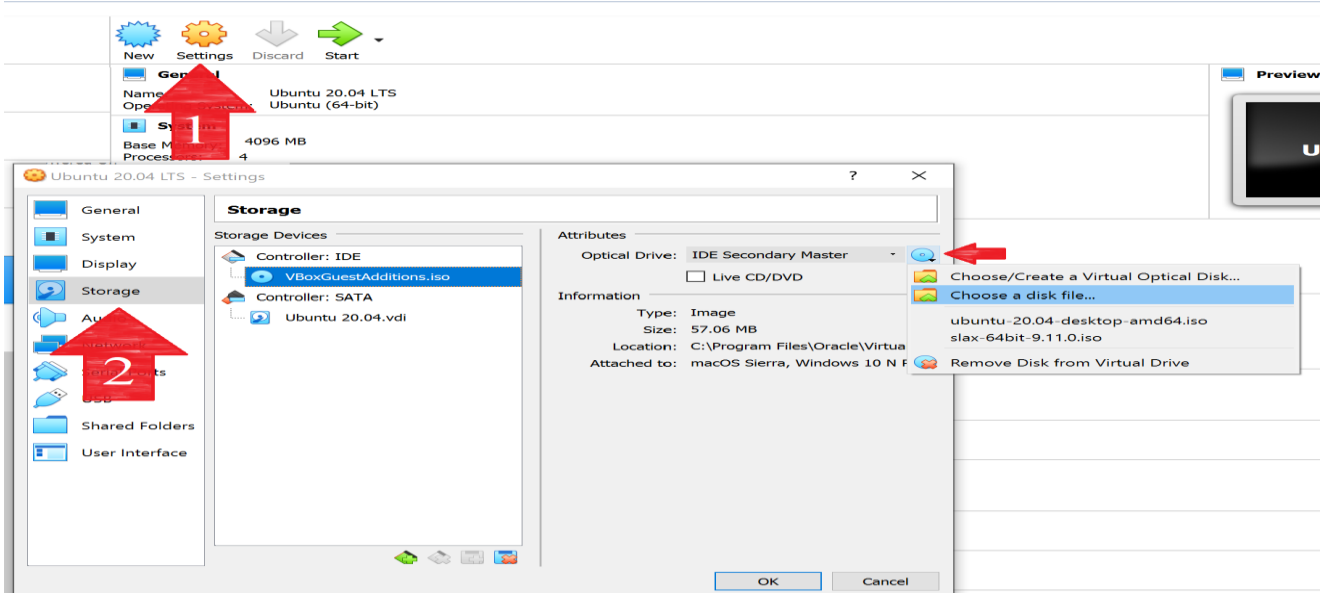
Preparing to install a system (Ubuntu)

- We open the (VirtualBox) program and then go to (New)

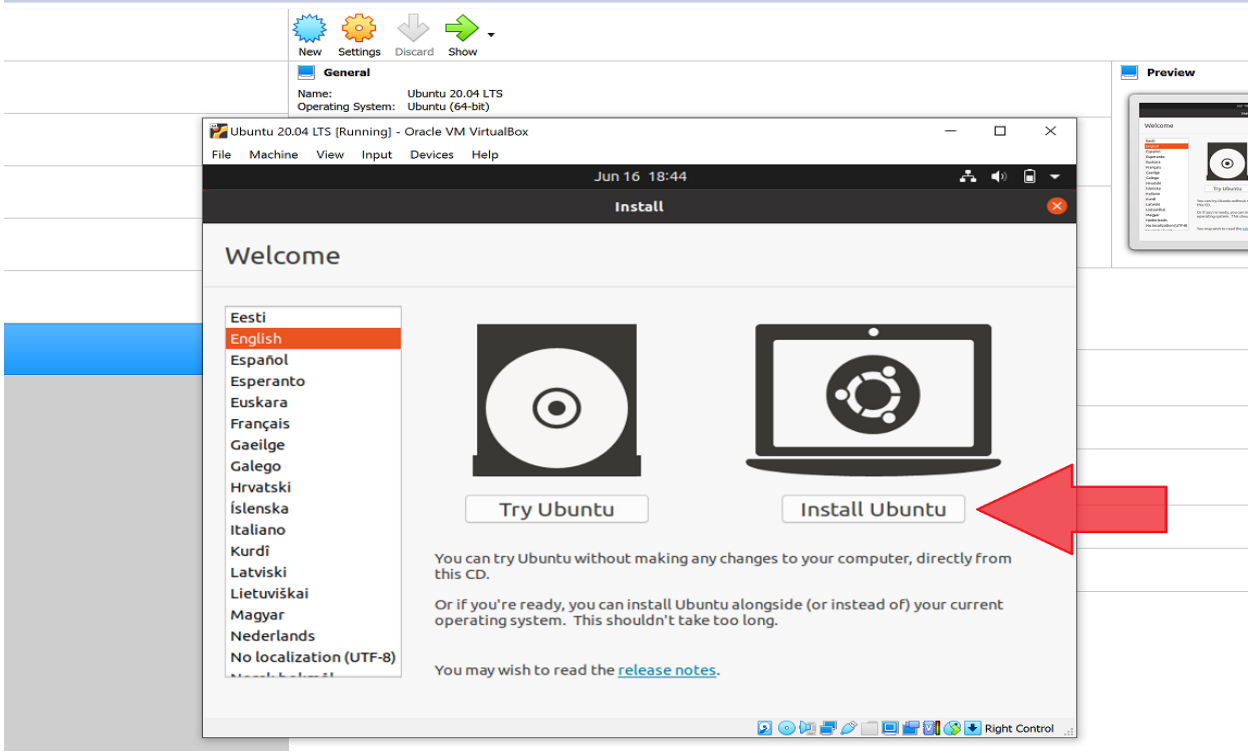
- Begin naming the system automatically and it will recognize it * and define it and then complete it as in the pictures and explanation are shown. * If the systems do not show you the 64-bit architecture, you will need to activate (Virtualization) from the BIOS. You can search the internet for a way to do this for your device.

1 - Name and define the system 	2- Specifies an amount of RAM used by the system (preferably more than the green area) 
3 - Create a new VDI storage disk 	4 – It is preferable to choose the dynamic type to extend or decrease in size of 100 GB (knowing that space, in this case, does not detract from the storage of the device itself except to the extent that the virtual system uses it) 

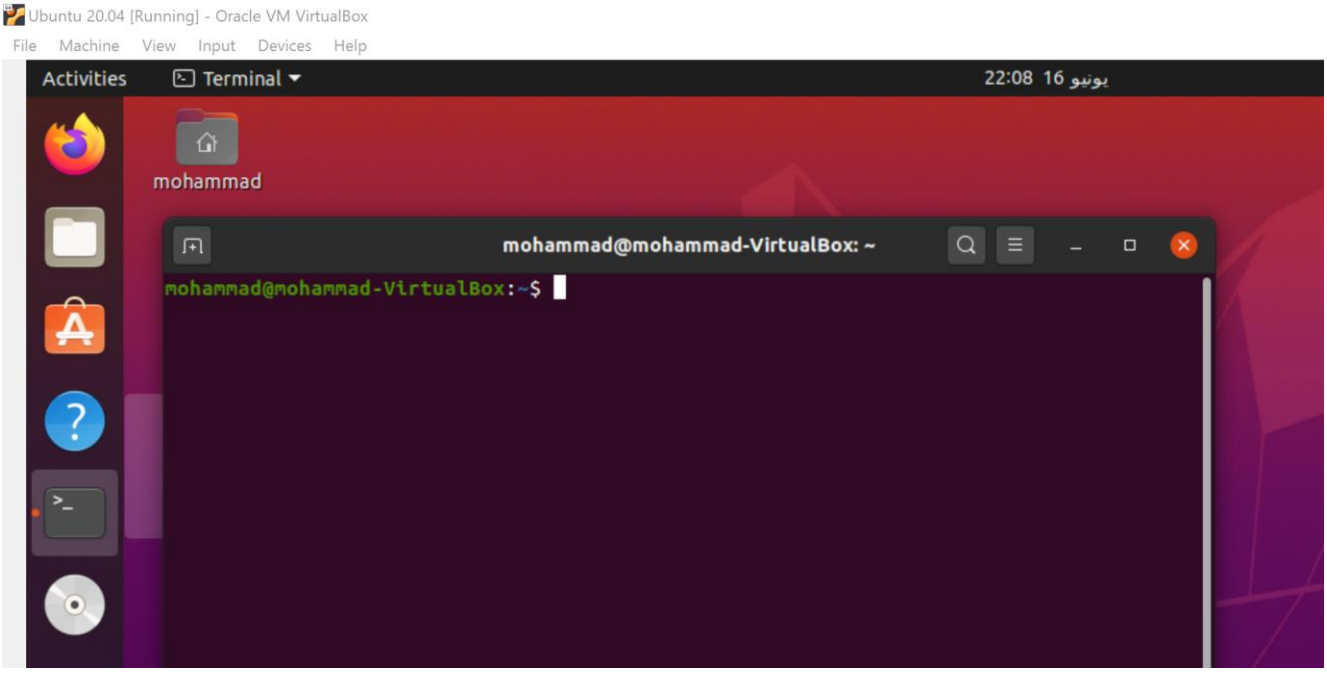
- Now the basic procedures have been completed but the entry for the settings and adding the (Ubuntu) system file that we have downloaded remains



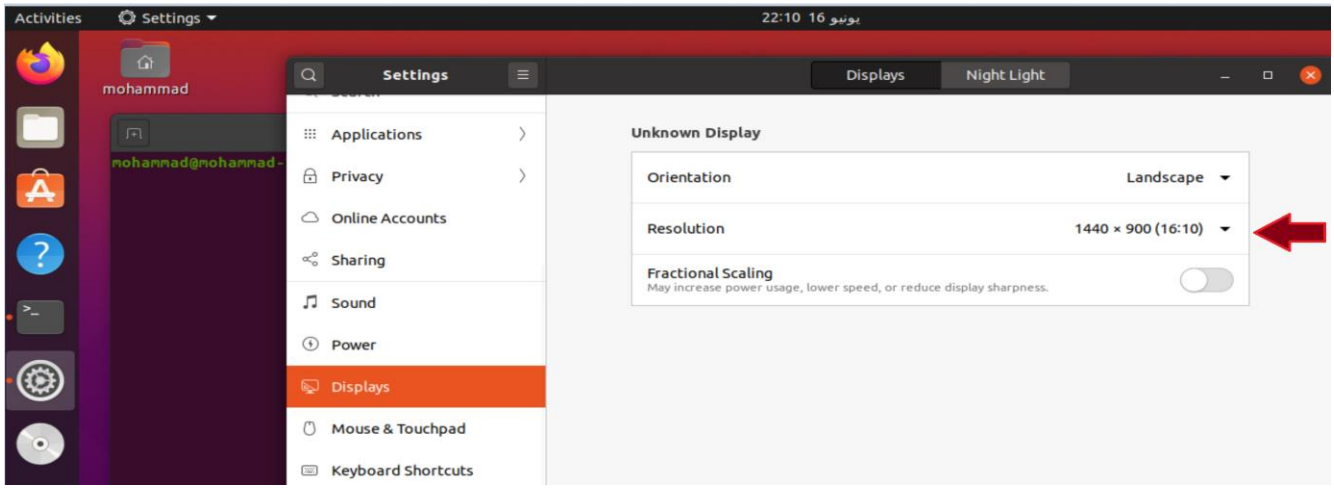
- It is possible to start the system from (start), install the system, and steps. You can progress toward default matters by choosing the region and language, setting a password, and options by installing the basic programs or all of them.



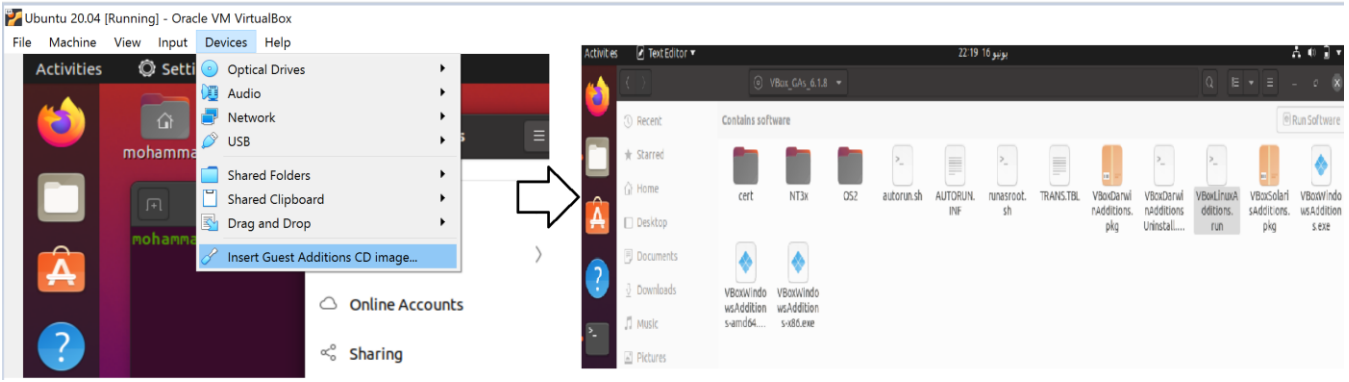
- After completing the installation, you will see that you take a tour of options for the first use, it will look like a normal system with programs and others, but what we care about to install (ROS) is (Terminal)



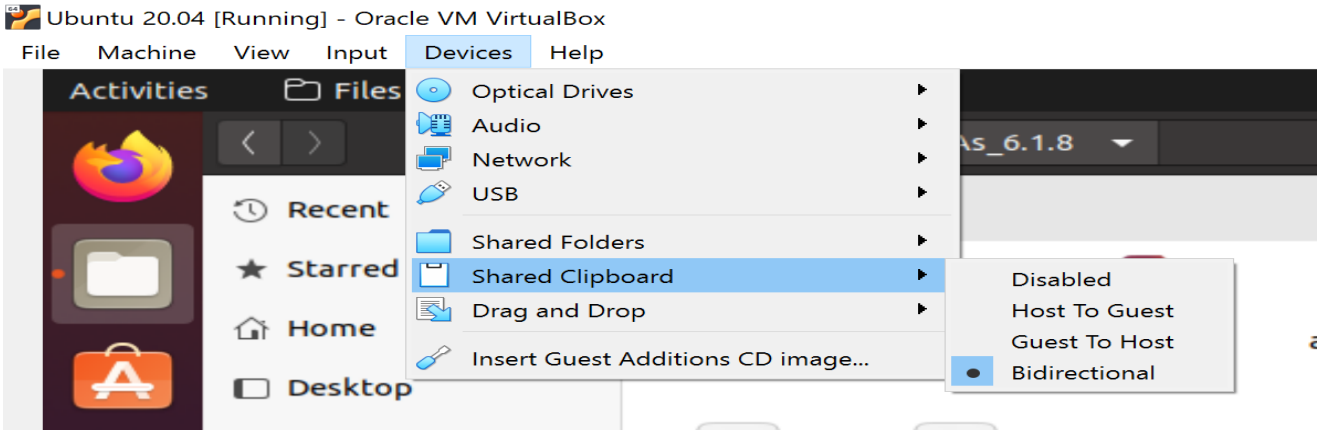
- Also, if you need to enlarge the screen size, via the system settings



- Generally, if not, to get more compatibility options, you should install Add-ons (VirtualBox) with this option and run the file for Linux.

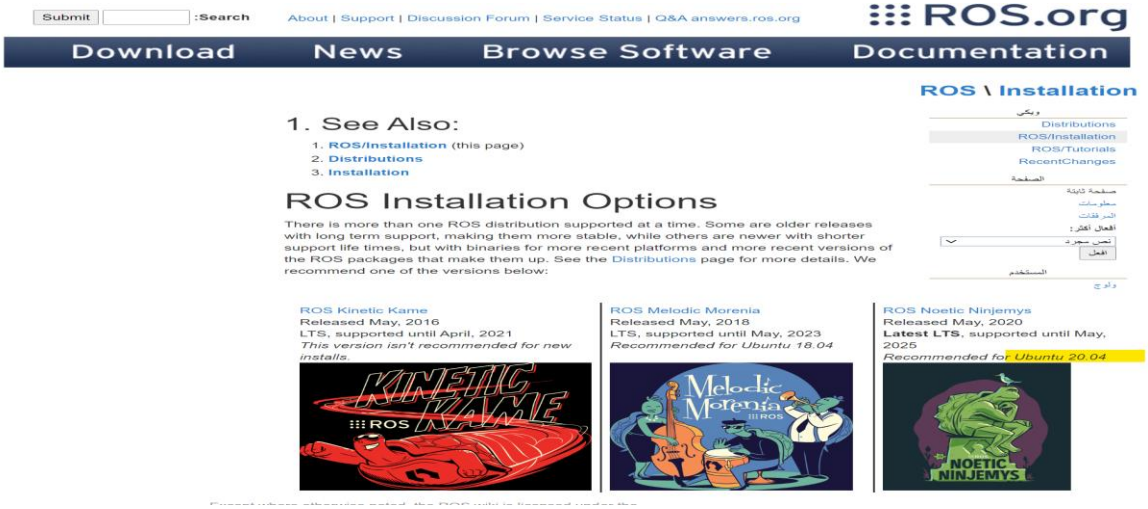


- Also an option to facilitate copying the next commands for installation and copying and pasting across the two systems, which is as in the image and also the same way for files, you may need to restart the system to activate that

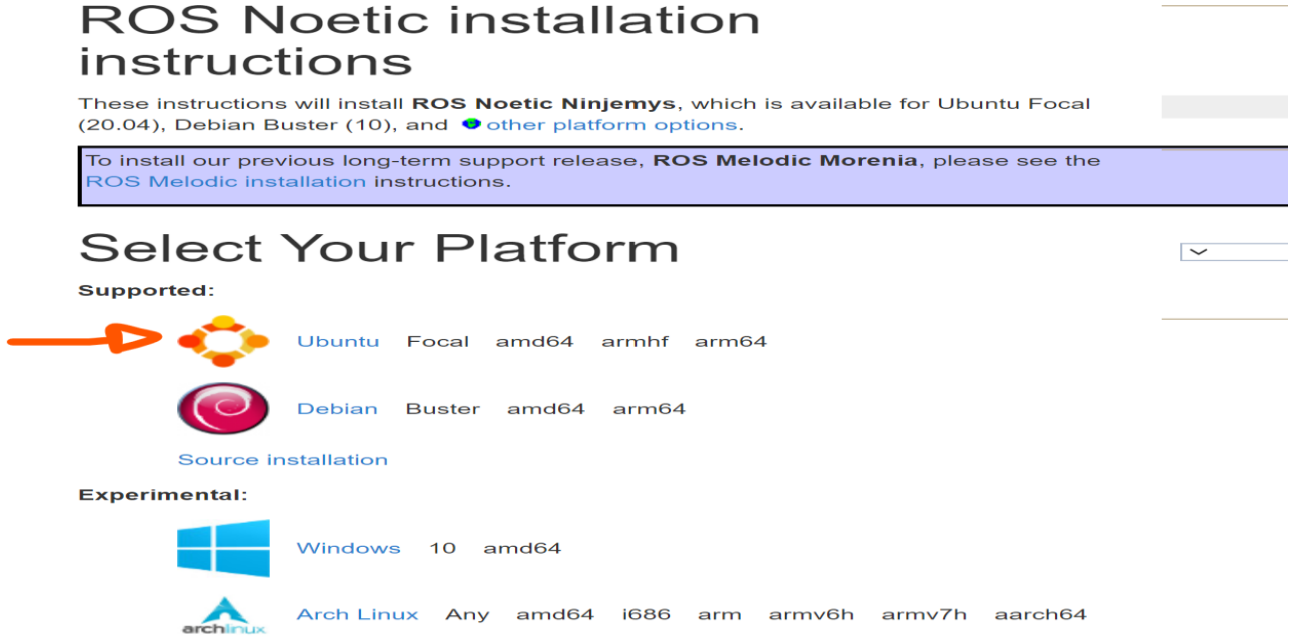


(ROS) system-installation method

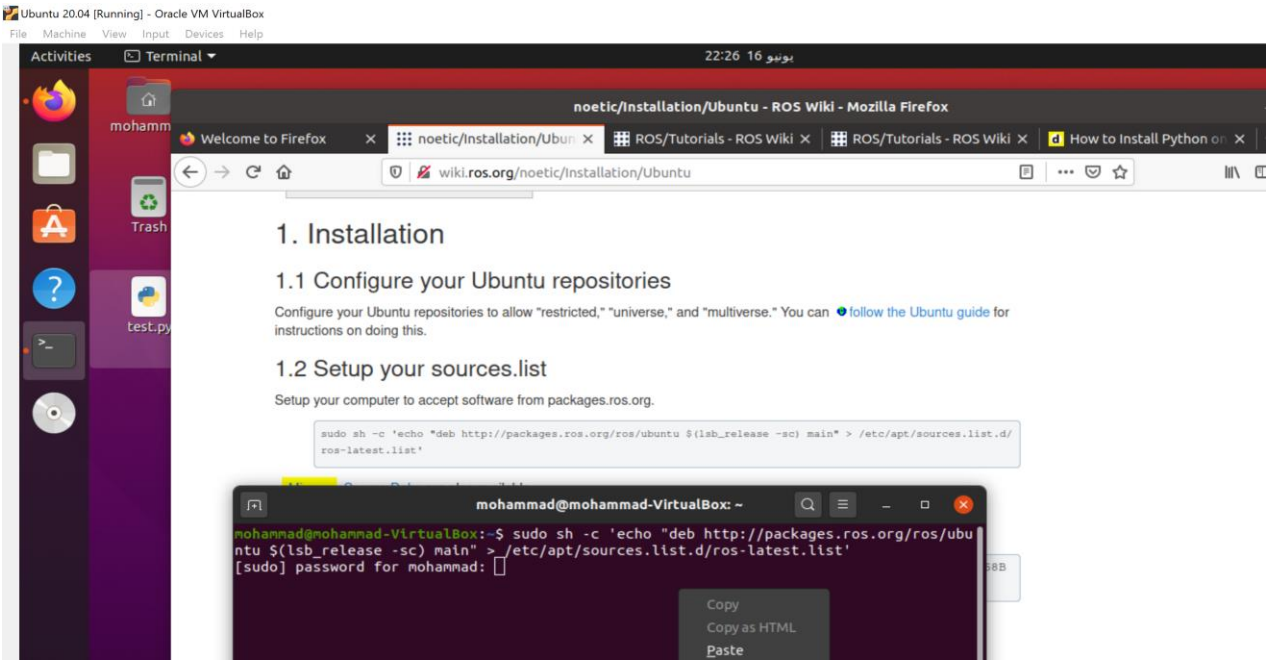
- The method of installation mainly depends on the version of the Ubuntu version that we have installed, in our case it is 20.4.
- Go to website http://wiki.ros.org/ROS/Installation



- It shows us several versions of what we care about (ROS Noetic Ninjemys); Because it is compatible with the version of Ubuntu that we have, after clicking on it shows us options



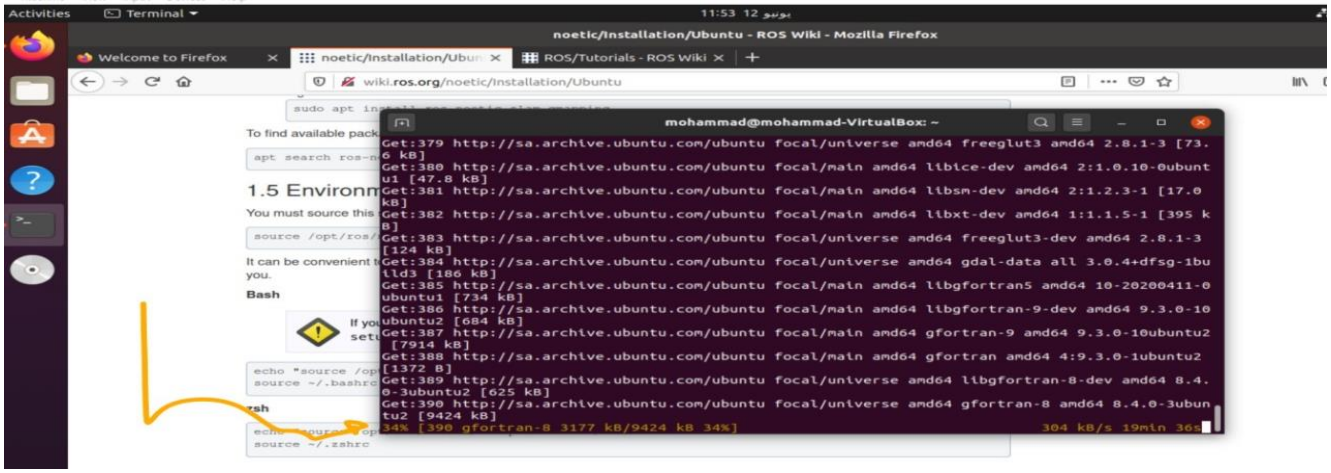
- We choose the (Ubuntu) system and the steps will appear to us, all you have to do is open the Terminal and next to it the browser (you can open the web page inside the Ubuntu system as follows and in order from the first box with copy and paste commands:



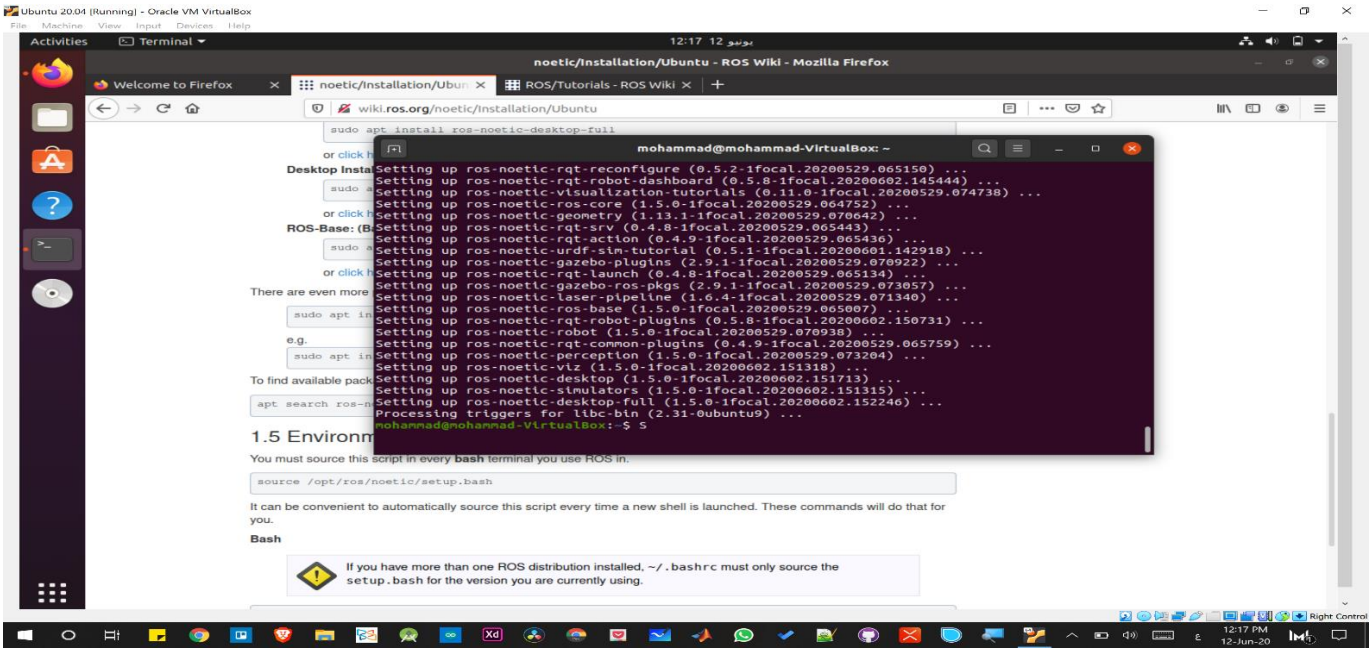
- We note for the reason that there is a command (sudo) and it gives you higher powers (called root in Linux). You have been asked for a password that you have previously entered. It is important here that the word you are writing will not appear, do not worry ... write it and then the Enter button; Thus the system is its way to increase safety.
- Complete all the following lines which I will put in a box to collect the important for you, because of them you choose from several things. Note: If you are asked to complete or accept y operations or type y or yes, some will take time because they are downloaded from the internet

sudo sh -c 'echo "deb http://packages.ros.org/ros/ubuntu $(lsb_release -sc) main" > /etc/apt/sources.list.d/ros-latest.list'
sudo apt-key adv --keyserver 'hkp://keyserver.ubuntu.com:80' --recv-key C1CF6E31E6BADE8868B172B4F42ED6FBAB17C654
curl -sSL 'http://keyserver.ubuntu.com/pks/lookup?op=get&search=0xC1CF6E31E6BADE8868B172B4F42ED6FBAB17C654' | sudo apt-key add -
sudo apt update
sudo apt install ros-noetic-desktop-full
source /opt/ros/noetic/setup.bash

- Image while downloading from the internet and the percentage displayed



- Image when the installation is complete



Good luck on your journey to program robots 😊

By:

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