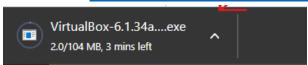
First Task: ROS Installation

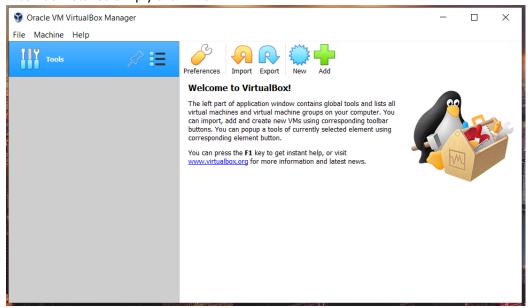
Part 1, installing on the VirtualBos – Ubuntu and then jetson nano

Step 1. Install VirtualBox

1. Go to the link https://www.virtualbox.org/wiki/Downloads and click on Windows hosts

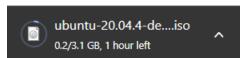


- 2. After the .exe file installed, click on it, and press next >> next >> next >> yes >> install
- 3. After it's installed simply click finish

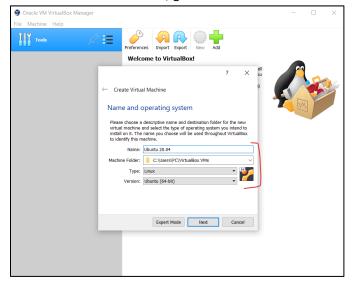


Step 2. Install Ubuntu

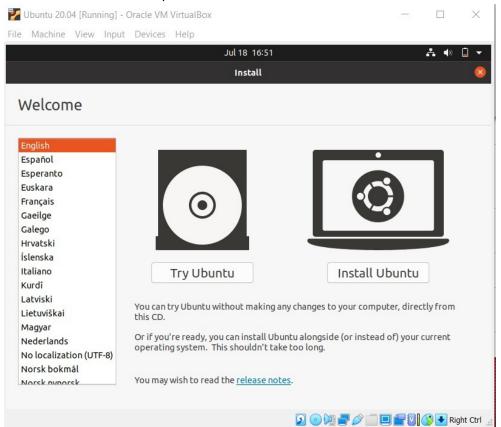
1. Go to the link https://releases.ubuntu.com/20.04/ and click on "64-bit PC (AMD64) desktop image" to install the version 20.04



2. After the .exe file installed, go to the VB and click new and fill on the following information



3. Then when this widow is open click install ubuntu



4. Then chose the English language and continue pressing next until the system installed

Step 3. Install ROS2 in Ubuntu

1. Open the terminal do the following

Set Locale

```
zainab@zainab: ~
 Ħ
zainab@zainab:~$ locale
LANG=en US.UTF-8
LANGUAGE=
LC_CTYPE="en_US.UTF-8"
LC NUMERIC=ar SA.UTF-8
LC TIME=ar SA.UTF-8
LC_COLLATE="en_US.UTF-8"
LC_MONETARY=ar_SA.UTF-8
LC MESSAGES="en US.UTF-8"
LC_PAPER=ar_SA.UTF-8
LC NAME=ar SA.UTF-8
LC_ADDRESS=ar_SA.UTF-8
LC_TELEPHONE=ar_SA.UTF-8
LC MEASUREMENT=ar SA.UTF-8
LC_IDENTIFICATION=ar_SA.UTF-8
LC ALL=
zainab@zainab:~$
```

```
Setup Sources
zainab@zainab:~$ sudo apt update && sudo apt install curl gnupg2 lsb-release
zainab@zainab:~$ sudo curl -sSL https://raw.githubusercontent.com/ros/rosdistro/
master/ros.key -<u>o</u> /usr/share/keyrings/ros-archive-keyring.gpg
 zainab@zainab:~$ echo "deb [arch=$(dpkg --print-architecture) signed-by=/usr/sha
re/keyrings/ros-archive-keyring.gpg] http://packages.ros.org/ros2/ubuntu $(sourc
e /etc/os-release && echo $UBUNTU_CODENAME) main" | sudo tee /etc/apt/sources.li
st.d/ros2.list > /dev/null
Install ROS2 packages
 zainab@zainab:~$ sudo apt update
zainab@zainab:~$ sudo apt upgrade
zainab@zainab:~$ sudo apt install ros-foxy-desktop
Environment setup
zainab@zainab:~$ source /opt/ros/foxy/setup.bash
 zainab@zainab:~$ ros2 run
zainab@zainab:~$ gedit ~/.bashrc
120 source /opt/ros/foxy/setup.bash
 zainab@zainab:~$ ros2 run
zainab@zainab:~$ sudo apt install -y python3-pip
 zainab@zainab:~$ pip3 install -U argcomplete
```

Part 2, installing on Jetson nano

Rewrite the same above commands but on jetson nano and after test it using the following command

ros2 topic list

```
zainab@zainab:~$ ros2 topic list
/parameter_events
/rosout
```

and finally, ROS2 has been installed Successfully