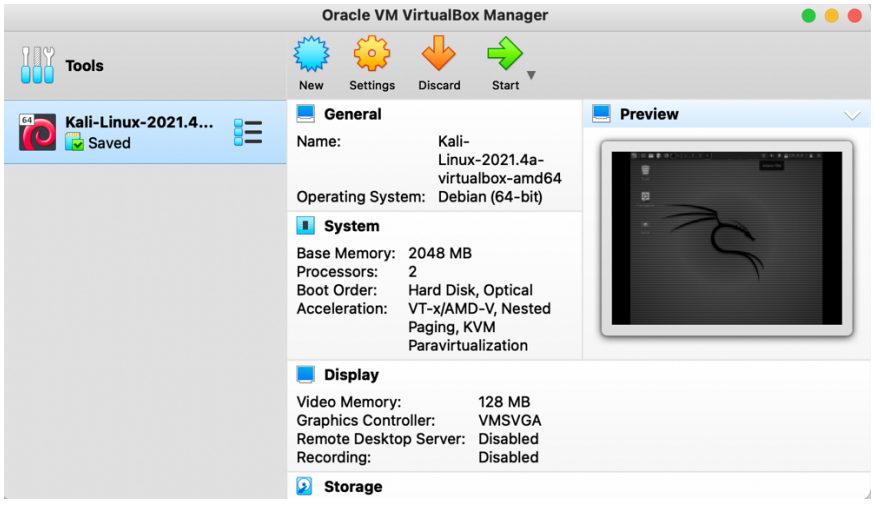
# AI

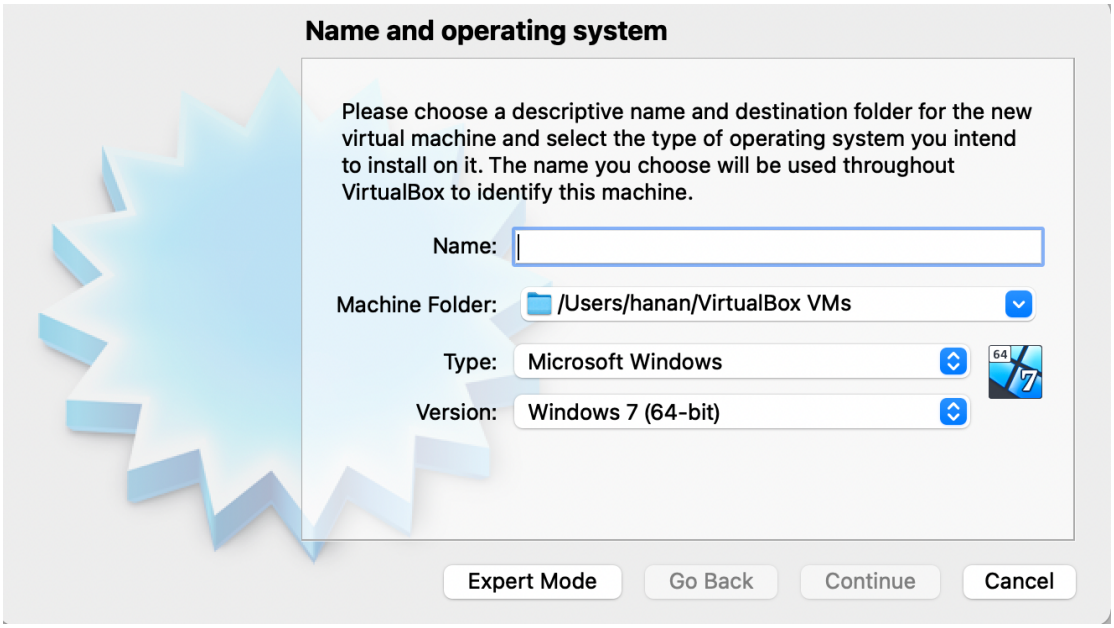
## Installations Virtual Box:


1- Click on new to create a new device

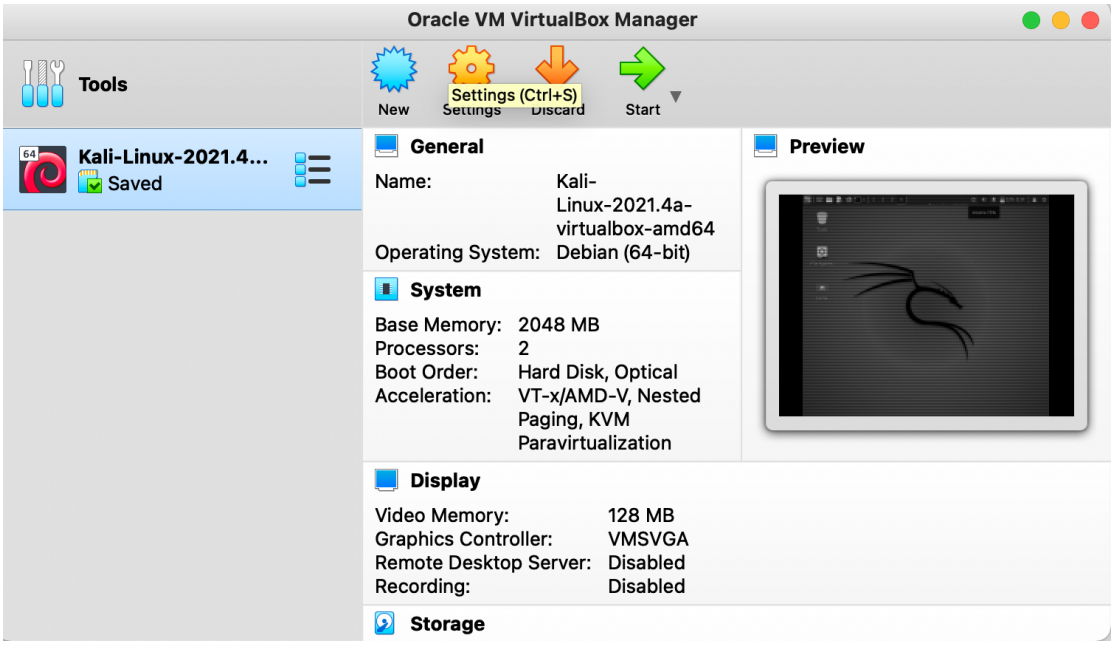



2-.We name the device by any name
3-.Determine the appropriate space

4-After that we work next



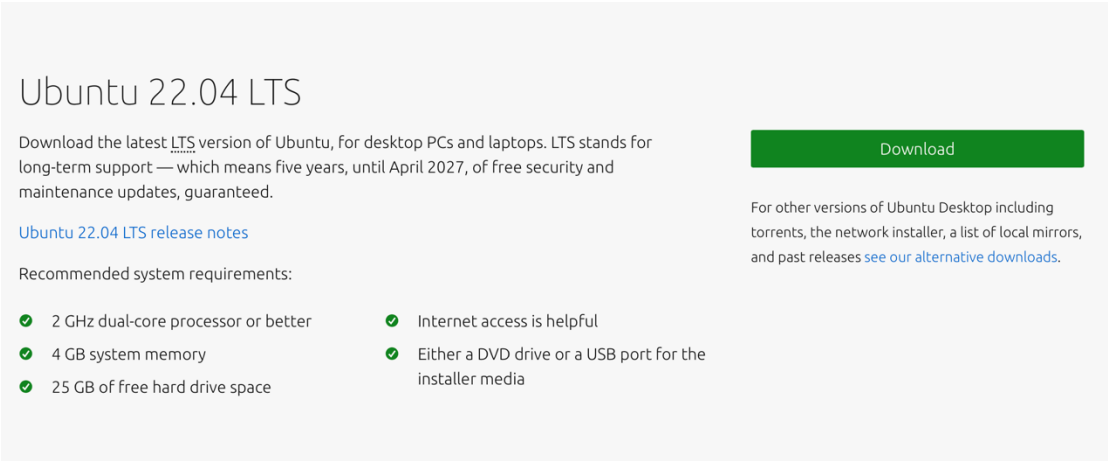

5- The device will be install
6- We click on the start button at the top of the menu




7- The new virtual machine is launched
8- Select the downloaded file by clicking on add
9- Then we choose the ubuntu file that was downloaded
10- Clicking on the start icon, then ubuntu will be launched

# Install Ubuntu:

1- Click on Install Ubuntu




2-.Leave the settings as come on and move using next

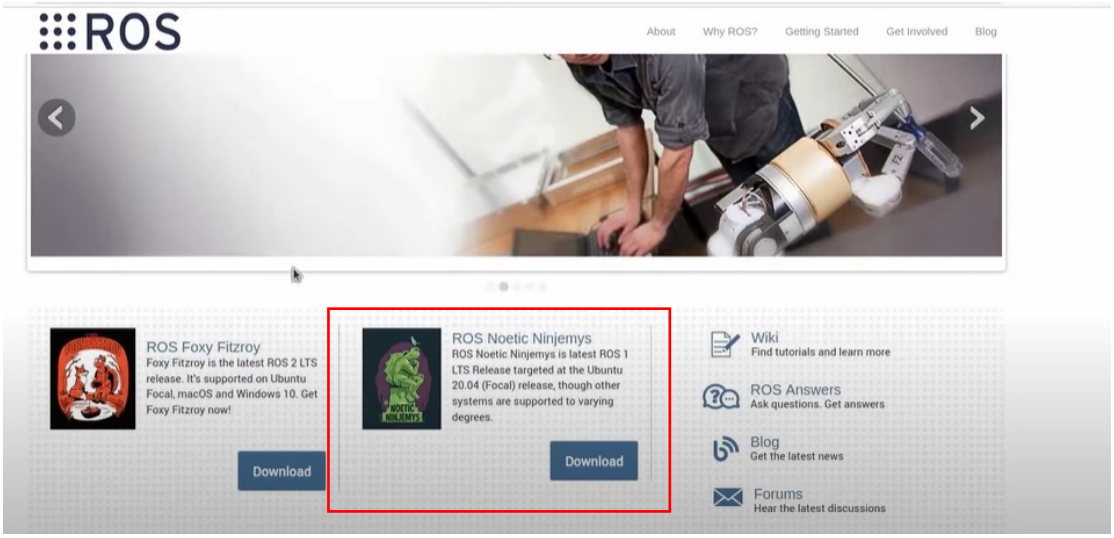
3-.Select the region and then click on next

4- Enter the required information and click next.

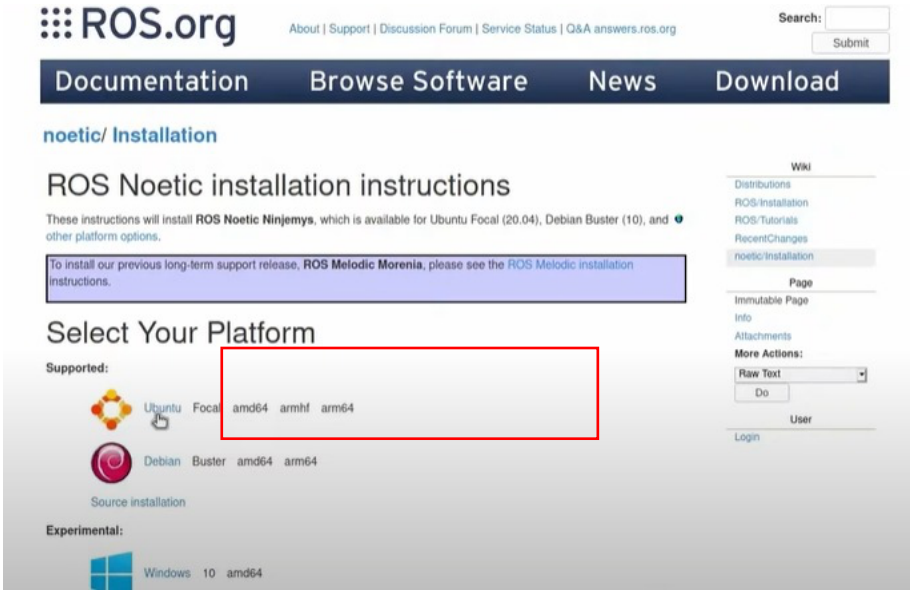
5- Finally, the system is installed.

# Ros installation steps on Ubuntu

http://wiki.ros.org/noetic/Installation/Ubuntu




1. We choose the version compatible with your device's operating system and then download it.




2. We choose the operating system Ubuntu،And we download it.

# Installation

After downloading the Ubuntu, we open the terminal and type the following commands step by step..

## 1.2 Setup your sources.list

Setup your computer to accept software from packages.ros.org.

```
sudo sh -c 'echo "deb http://packages.ros.org/ros/ubuntu $(lsb_release -sc) main" > /etc/apt/sources.list.d/ros-latest.list'
```

Mirrors Source Debs are also available

## 1.3 Set up your keys

```
sudo apt install curl # if you haven't already installed curl
curl -s https://raw.githubusercontent.com/ros/rosdistro/master/ros.asc | sudo apt-key add -
```

## 1.4 Installation

First, make sure your Debian package index is up-to-date:

```
sudo apt update
```

Now pick how much of ROS you would like to install.

**Desktop-Full Install: (Recommended)** : Everything in **Desktop** plus 2D/3D simulators and 2D/3D perception packages

```
sudo apt install ros-noetic-desktop-full
```

or click here

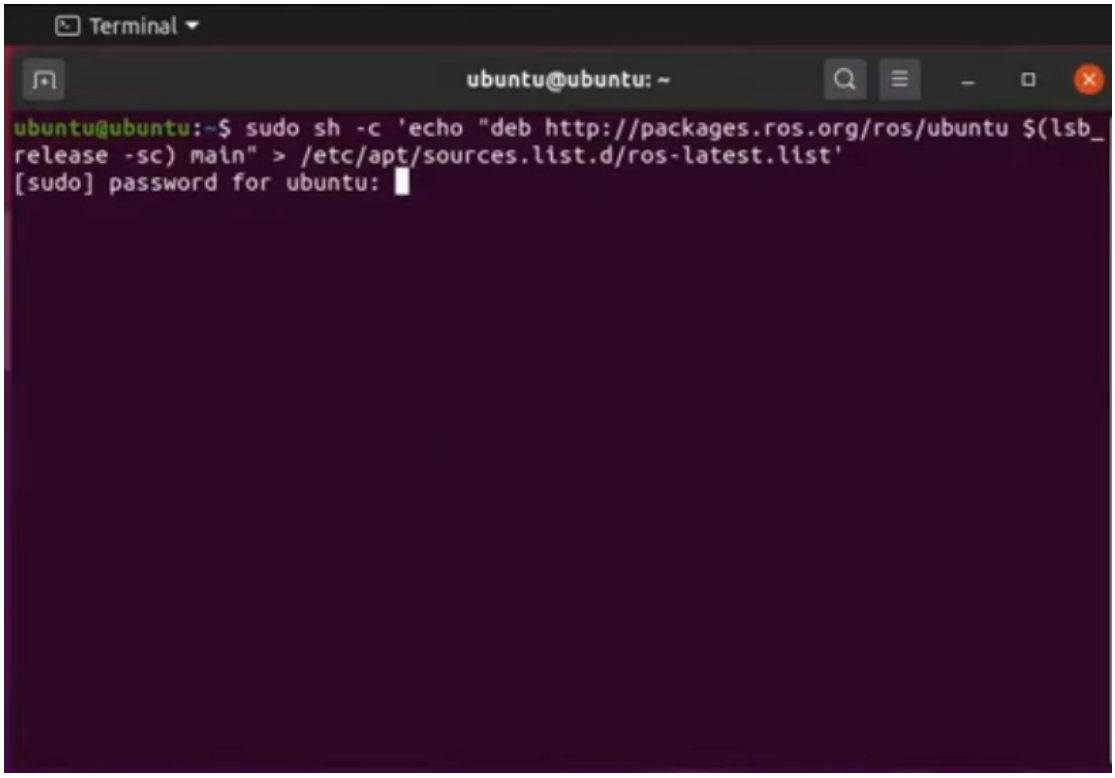
**Desktop Install:** Everything in **ROS-Base** plus tools like rqt and rviz

```
sudo apt install ros-noetic-desktop
```

or click here

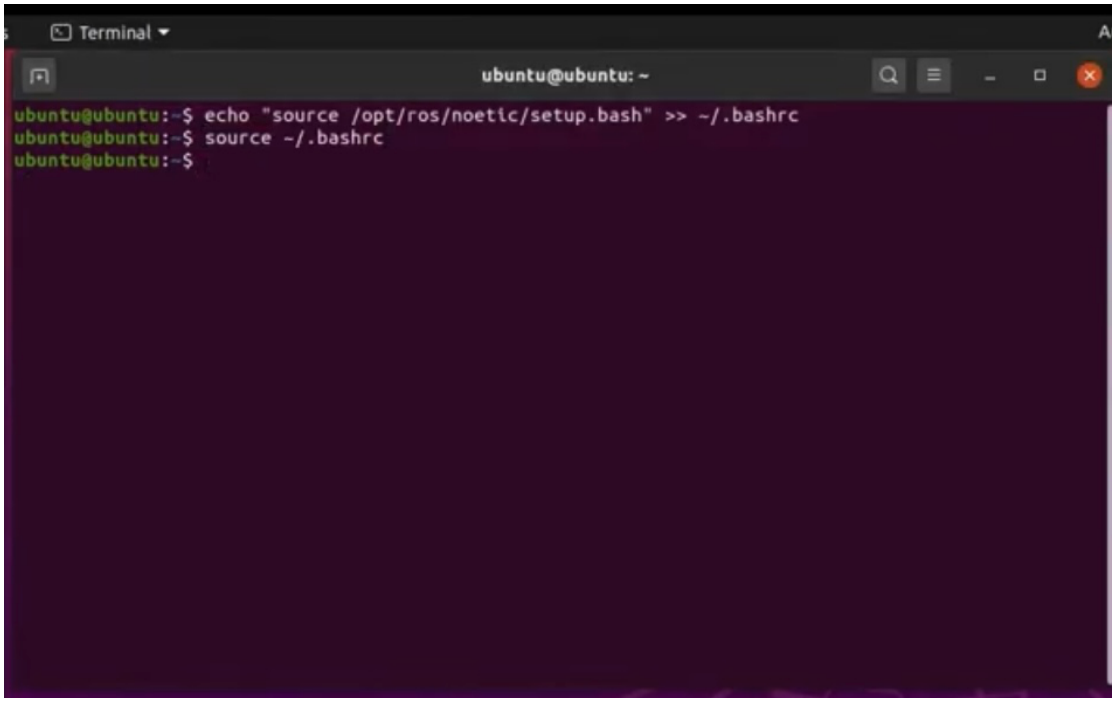
**ROS-Base: (Bare Bones)** ROS packaging, build, and communication libraries. No GUI tools.

```
sudo apt install ros-noetic-ros-base
```




In the bashrc, we add the following command so that not every time we go back to the same previous commands when opening the terminal:

```
source ~/.bashrc
```



# XUbuntu installation steps on Jetson Nano

## download balena

https://www.balena.io/etcher/

after we download both Should be write xubuntu to flash or card useing balena

## ros2 install

Set locale

Make sure you have a locale which supports UTF-8. If you are in a minimal environment (such as a docker container), the locale may be something minimal like POSIX. We test with the following settings. However, it should be fine if you're using a different UTF-8 supported locale.

```
locale  # check for UTF-8

sudo apt update && sudo apt install locales
sudo locale-gen en_US en_US.UTF-8
sudo update-locale LC_ALL=en_US.UTF-8 LANG=en_US.UTF-8
export LANG=en_US.UTF-8

locale  # verify settings
```

### Setup Sources

```
apt-cache policy | grep universe
```

This should output a line like the one below:

```
500 http://us.archive.ubuntu.com/ubuntu focal/universe amd64 Packages
    release v=20.04,o=Ubuntu,a=focal,n=focal,l=Ubuntu,c=universe,b=amd64
```

If you don't see an output line like the one above, then enable the Universe repository with these instructions.

```
sudo apt install software-properties-common
sudo add-apt-repository universe
```

-Now add the ROS 2 apt repository to your system.

sudo apt update && sudo apt install curl gnupg2 lsb-release

sudo curl -sSL https://raw.githubusercontent.com/ros/rosdistro/master/ros.key  -o /usr/share/keyrings/ros-archive-keyring.gpg

-Then add the repository to your sources list.
echo "deb [arch=$(dpkg --print-architecture) signed-by=/usr/share/keyrings/ros-archive-keyring.gpg] http://packages.ros.org/ros2/ubuntu $(source /etc/os-release && echo $UBUNTU_CODENAME) main" | sudo tee /etc/apt/sources.list.d/ros2.list > /dev/null

### Install ROS 2 packages

Update your apt repository caches after setting up the repositories.

```
sudo apt update
```

ROS 2 packages are built on frequently updated Ubuntu systems. It is always recommended that you ensure your system is up to date before installing new packages.

```
sudo apt upgrade
```

Desktop Install (Recommended): ROS, RViz, demos, tutorials.

```
sudo apt install ros-foxy-desktop
```

ROS-Base Install (Bare Bones): Communication libraries, message packages, command line tools. No GUI tools.

```
sudo apt install ros-foxy-ros-base
```

## Environment setup

```
echo "source /opt/ros/foxy/setup.bash" >> ~/.bashrc
source ~/.bashrc
```

if you use zsh

```
echo "source /opt/ros/foxy/setup.zsh" >> ~/.zshrc
source ~/.zshrc
```

## Try some examples

In one terminal, source the setup file and then run a C++ talker:

```
ros2 run demo_nodes_cpp talker
```

In another terminal source the setup file and then run a Python listener:

```
ros2 run demo_nodes_py listener
```