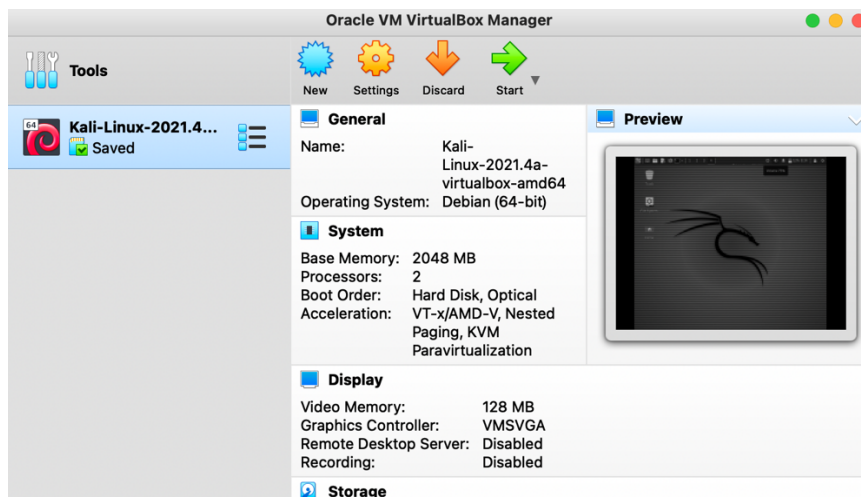


AI

Installations Virtual Box:



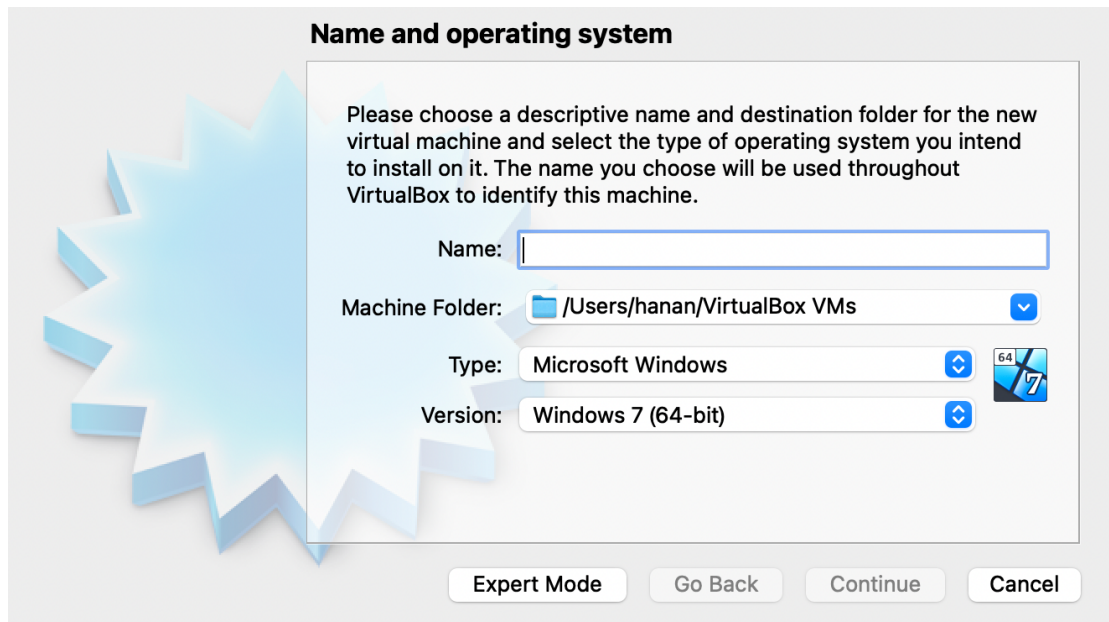
1- Click on new to create a new device



2-.We name the device by any name

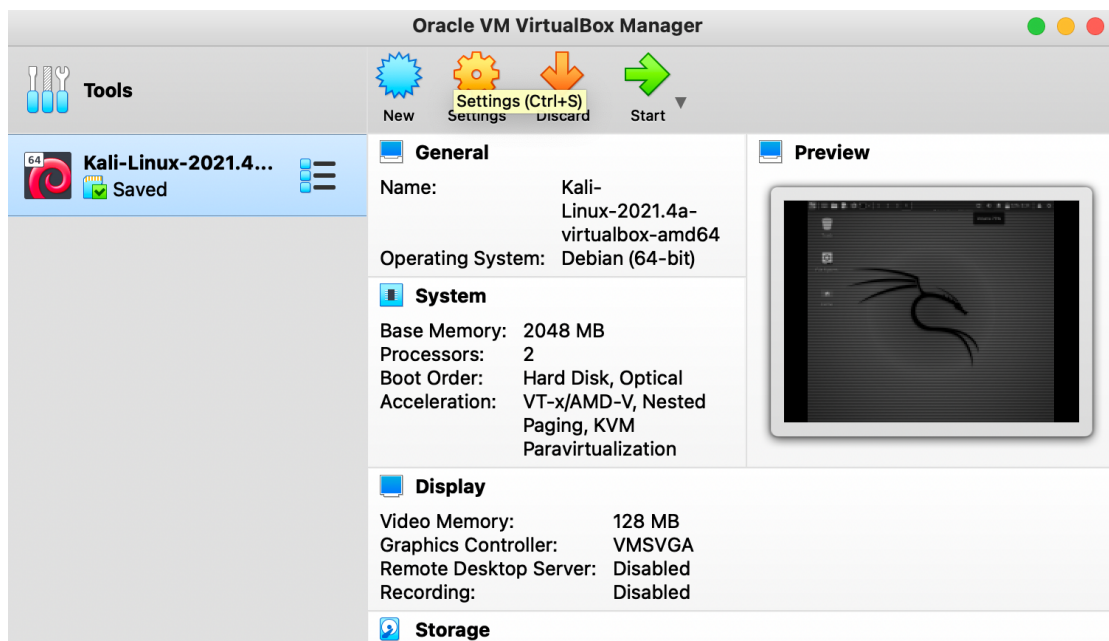
3-.Determine the appropriate space

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

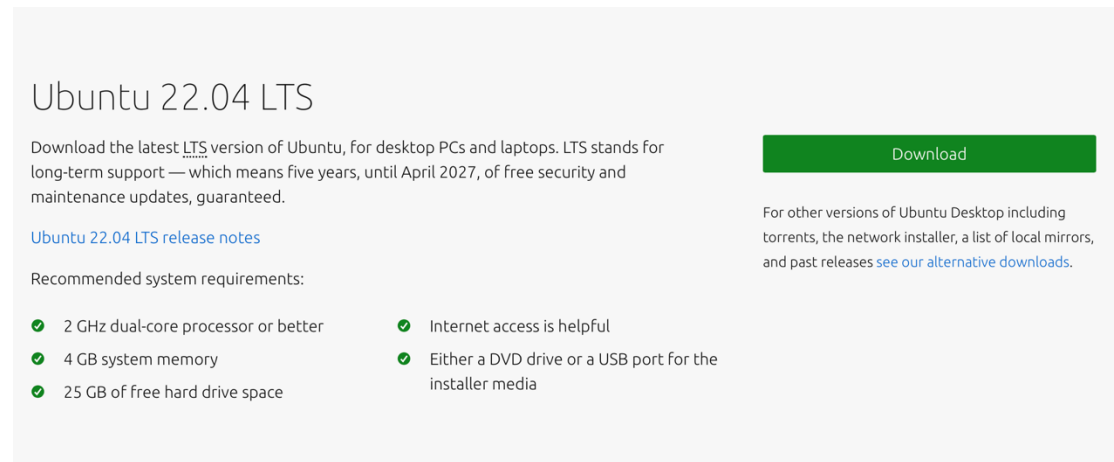
8- Select the downloaded file by clicking on add

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

A screenshot of the Ubuntu 22.04 LTS download page. The page has a light gray background. At the top left, it says "Ubuntu 22.04 LTS". Below that, a paragraph explains that it's the latest LTS version for desktop PCs and laptops, with long-term support until April 2027. To the right of this text is a green "Download" button. Below the paragraph is a link to "Ubuntu 22.04 LTS release notes". Further down, under the heading "Recommended system requirements:", there are two columns of requirements, each preceded by a green checkmark. On the right side of the page, there is additional text about other versions of Ubuntu Desktop and a link to "see our alternative downloads".

Ubuntu 22.04 LTS

Download the latest [LTS](#) version of Ubuntu, for desktop PCs and laptops. LTS stands for long-term support — which means five years, until April 2027, of free security and maintenance updates, guaranteed.

[Ubuntu 22.04 LTS release notes](#)

Recommended system requirements:

- ✓ 2 GHz dual-core processor or better
- ✓ 4 GB system memory
- ✓ 25 GB of free hard drive space
- ✓ Internet access is helpful
- ✓ Either a DVD drive or a USB port for the installer media

[Download](#)

For other versions of Ubuntu Desktop including torrents, the network installer, a list of local mirrors, and past releases [see our alternative downloads](#).

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

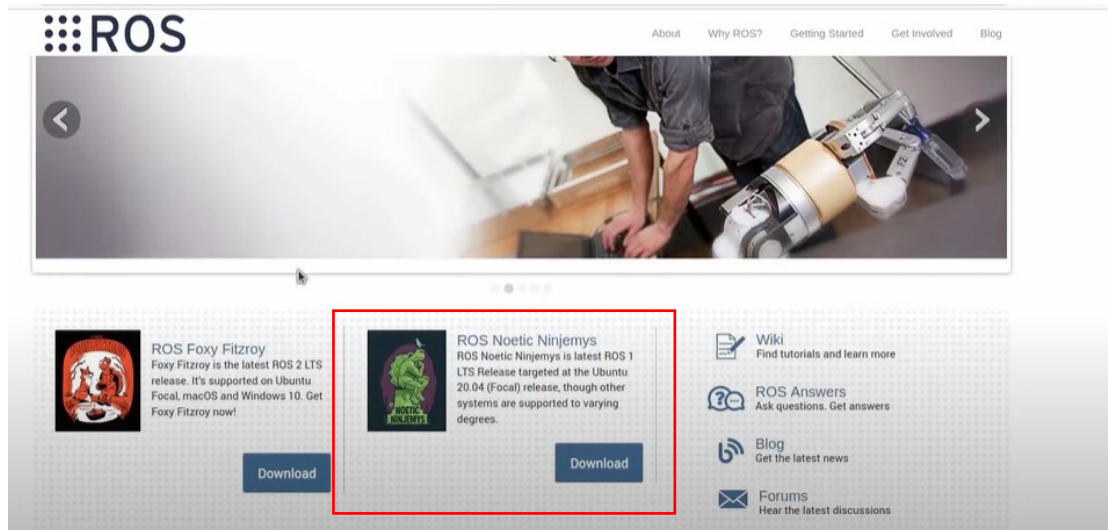
3-.Select the region and then click on next

4- Enter the required information and click next.

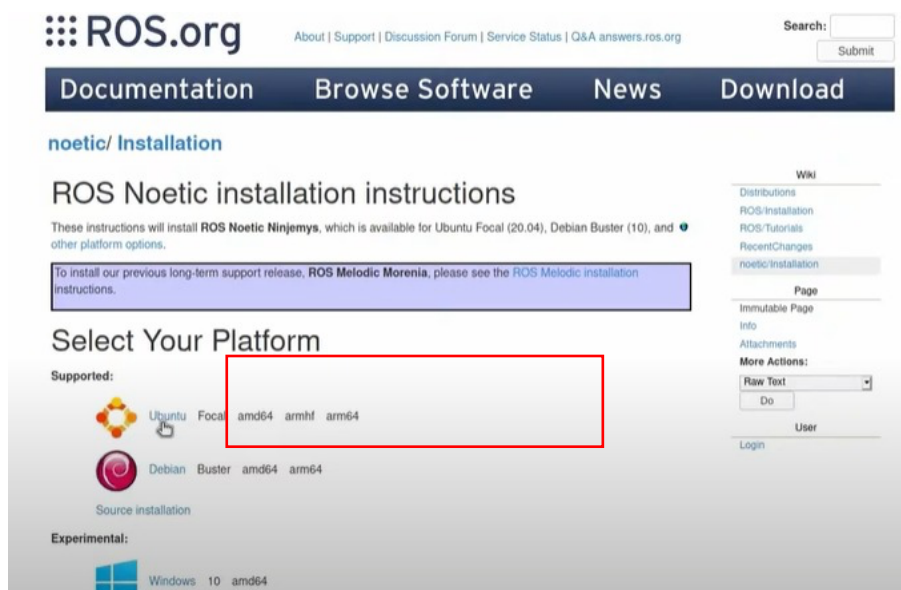
5- Finally, the system is installed.

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](#)

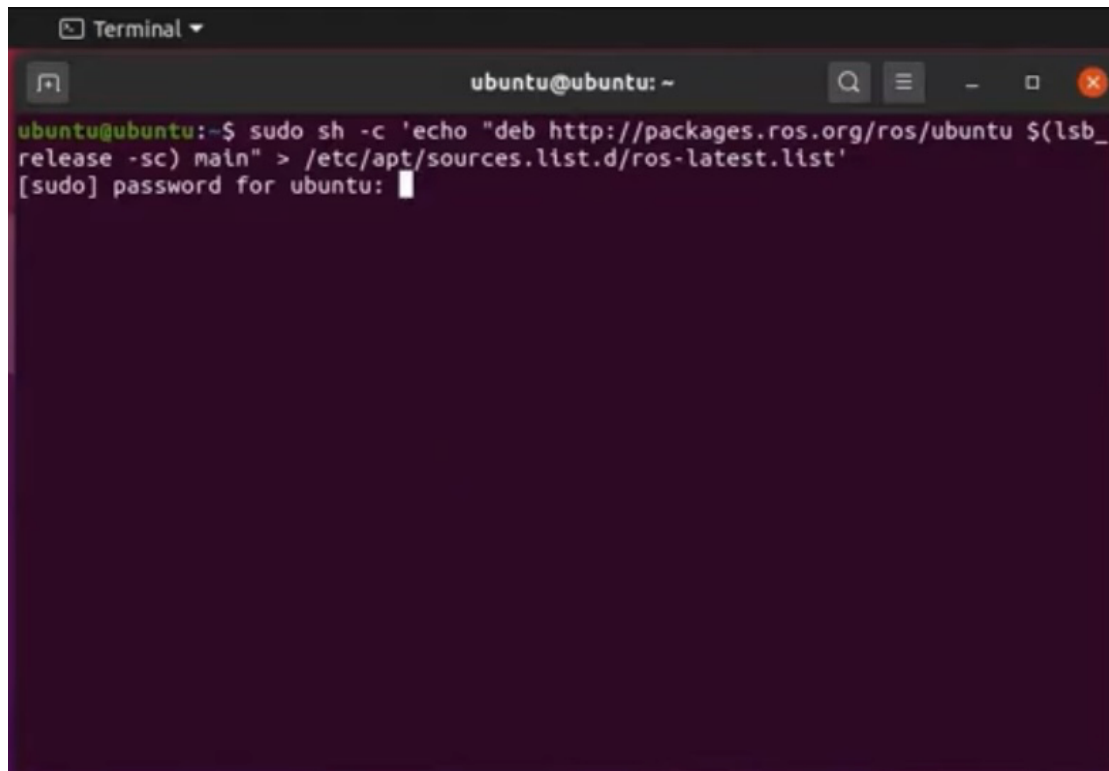
Desktop Install: Everything in **ROS-Base** plus tools like [rqt](#) and [rviz](#)

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

or [click here](#)

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

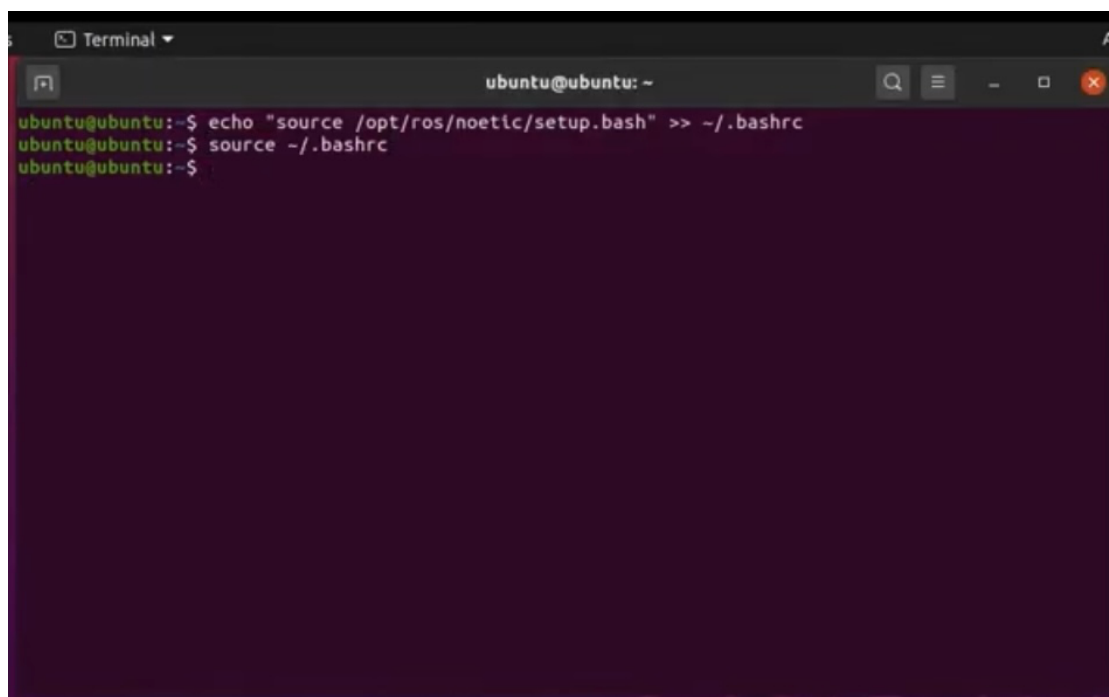
```
sudo apt install ros-noetic-ros-base
```

A terminal window titled "Terminal" with the prompt "ubuntu@ubuntu: ~". The command entered is `sudo sh -c 'echo "deb http://packages.ros.org/ros/ubuntu $(lsb_release -sc) main" > /etc/apt/sources.list.d/ros-latest.list'`. The prompt changes to `[sudo] password for ubuntu:` with a cursor.

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

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
```

A terminal window titled "Terminal" with the prompt "ubuntu@ubuntu: ~". The command entered is `echo "source /opt/ros/noetic/setup.bash" >> ~/.bashrc`. The prompt changes to `ubuntu@ubuntu:~$`. The next command entered is `source ~/.bashrc`, and the prompt changes to `ubuntu@ubuntu:~$` again.

```
ubuntu@ubuntu:~$ echo "source /opt/ros/noetic/setup.bash" >> ~/.bashrc
ubuntu@ubuntu:~$ source ~/.bashrc
ubuntu@ubuntu:~$
```

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 using 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
```