Install ROS in Ubuntu

1- Configure your Ubuntu repositories

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

2- Installation

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

- Desktop Install: Everything in ROS-Base plus tools like rqt and rviz
  - sudo apt install ros-noetic-desktop
- ROS-Base: (Bare Bones) ROS packaging, build, and communication libraries. No GUI tools.
  - sudo apt install ros-noetic-ros-base
- There are even more packages available in ROS. You can always install a specific package directly.

3- Environment setup

- echo "source /opt/ros/noetic/setup.bash" >> ~/.bashrc

  source ~/.bashrc

  if you use zsh

- echo "source /opt/ros/noetic/setup.zsh" >> ~/.zshrc

  source ~/.zshrc

4- Dependencies for building packages

- sudo apt install python3-rosdep python3-rosinstall python3-rosinstall-generator python3-wstool build-essential

5- Initialize rosdep

- sudo apt install python3-rosdep

With the following, you can initialize rosdep.

- sudo rosdep init

  rosdep update

install xubuntu in Jetson Nano

1- download balena
2- after we download both Should be write xubuntu to flash or card useing balena
3- ros2 install
4- Set locale
    1- 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
```

2- Setup Sources

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

3- 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
```

4- 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
```

5- 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
```

6- 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
```

5- Install ROS 2 packages

1- Update your apt repository caches after setting up the repositories.

```
sudo apt update
```

2- 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
```

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

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

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

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

6- 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