Setting up WSL + Ubuntu 20.04 + ROS Noetic

Part 1: Setting Up WSL on Windows

1. Enable WSL (Only Once)

Step 1.1: Open PowerShell as Administrator

- Press Win key → Search for PowerShell
- Right-click → Select **"Run as Administrator"**

Step 1.2: Run This Command to Enable WSL + Virtual Machine

wsl --install

This installs:

- WSL system
- Latest Ubuntu (if not, we'll do it manually)
- Reboots your system after install

If it says **"WSL 2 required"** or asks for **manual steps**, follow Microsoft's prompt or visit https://aka.ms/wsl2kernel.

2. Install Ubuntu 20.04 from Microsoft Store

- Open **Microsoft Store**
- Search: **"Ubuntu 20.04 LTS"**
- Click **Install**
- After installation, click **Launch**

It will ask you to:

- Create a **UNIX username** (e.g., divya)
- Set a **password**

Part 2: Managing WSL (From Windows)

Open **Command Prompt (CMD)** or **PowerShell** (Run as Admin for full access).

Check Installed WSL Distros

wsl -l -v

Convert Ubuntu to WSL 2 (If not already)

wsl --set-version Ubuntu-20.04 2

Set WSL 2 as Default (For future installs)

wsl --set-default-version 2

Export for Backup

wsl --export Ubuntu-20.04 C:\wsl_backups\ubuntu2004.tar

Import from Backup

wsl --import MyNewUbuntu C:\wsl_distros\MyNewUbuntu
C:\wsl_backups\ubuntu2004.tar

Remove WSL Distro (Careful!)

wsl --unregister Ubuntu-20.04

Exit or Stop a WSL Distro

wsl --terminate Ubuntu-20.04

Part 3: Setting Up ROS Noetic in Ubuntu 20.04 (inside WSL)

1. Open WSL (Ubuntu 20.04)

- From Start Menu → Search: **Ubuntu 20.04 LTS**
- Open it

2. Update the System

sudo apt update
sudo apt upgrade -y

3. Add the ROS Repository

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

4. Add the GPG Key

sudo apt install curl -y
curl -s https://raw.githubusercontent.com/ros/rosdistro/master/ros.asc | sudo apt-key add -

5. Update Packages Again

sudo apt update

6. Install ROS Noetic (Desktop Full)

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

7. Setup rosdep (Required for dependencies)

sudo apt install python3-rosdep python3-rosinstall python3-rosinstall-generator python3-wstool build-essential -y
sudo rosdep init
rosdep update

8. Source ROS Environment Automatically

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

9. (Optional) GUI Support - For Visual Tools like RViz

Install VcXsrv on Windows

Then, in Ubuntu:

echo "export DISPLAY=$(grep -m 1 nameserver /etc/resolv.conf | awk '{print $2}'):0.0" >> ~/.bashrc
source ~/.bashrc

Final Check

Try these in your Ubuntu terminal:

- Check ROS is sourced:

printenv | grep ROS

- Run a ROS command:

roscore