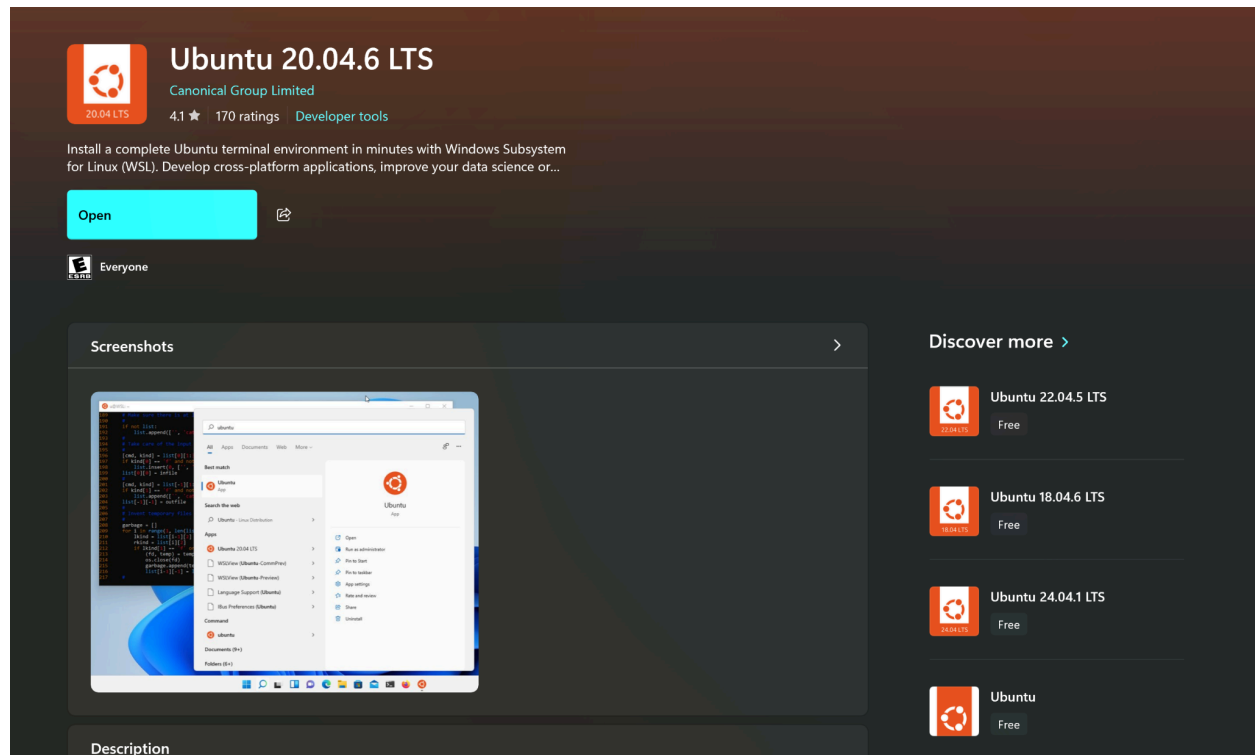


# Setting Up The Lidar Development Workspace For Windows

1. If you're on Windows, install Ubuntu 20.04.6 - that is what the Jetson computer uses. It can be installed through the Microsoft Store



2. Restart your computer, and when it's booting up, press F2 to open the bootup options - there, check to see if your environment variables are enabled. If they are not, set them to enabled

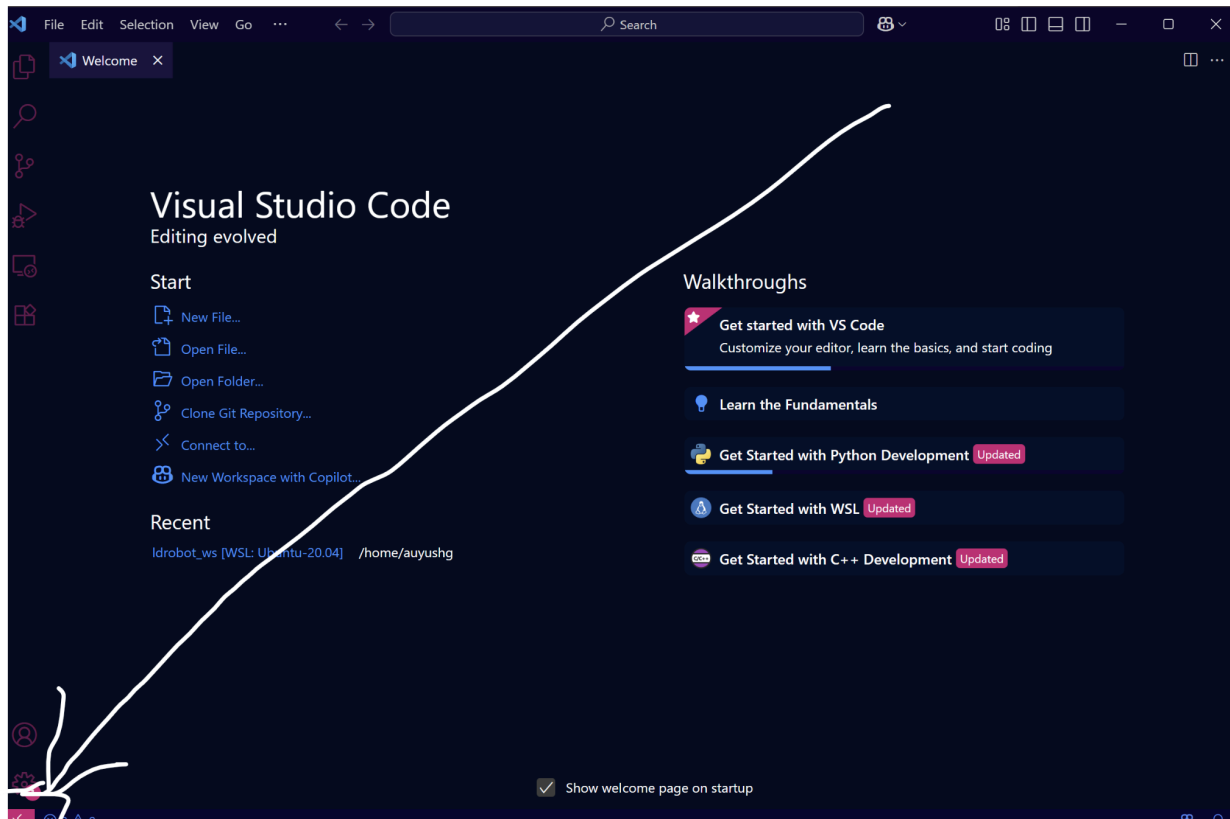
3. Open your command prompt, and type:  
`wsl --update`

Then restart your computer. You'll be able to use the Linux environment on Windows by opening the Ubuntu terminal, which behaves like an app. You can also type `wsl` on your command prompt

4. Set your WSL username and password, DO NOT FORGET YOUR PASSWORD

5. Install VSCode: <https://code.visualstudio.com> and set it up

6. Configure VSCode to work with the WSL terminal:



After clicking on that button, select “WSL” in the terminal

7. Now you're ready to install ROS2, the operating system ([Installation page](#)). After following the directions on the installation page, type in the command prompt:

```
sudo apt update && sudo apt upgrade -y
sudo apt install software-properties-common
sudo add-apt-repository universe
sudo apt update && sudo apt install curl -y
sudo curl -sSL https://raw.githubusercontent.com/ros/rosdistro/master/ros.key | sudo
apt-key add -
sudo sh -c 'echo "deb [arch=amd64
signed-by=/usr/share/keyrings/ros-archive-keyring.gpg]
http://packages.ros.org/ros2/ubuntu $(lsb_release -cs) main" >
/etc/apt/sources.list.d/ros2.list"
sudo apt update
sudo apt install ros-foxy-desktop
echo "source /opt/ros/foxy/setup.bash" >> ~/.bashrc
source ~/.bashrc
sudo apt install python3-colcon-common-extensions python3-rosdep python3-vcstool
sudo build-essential
sudo rosdep init
rosdep update
```

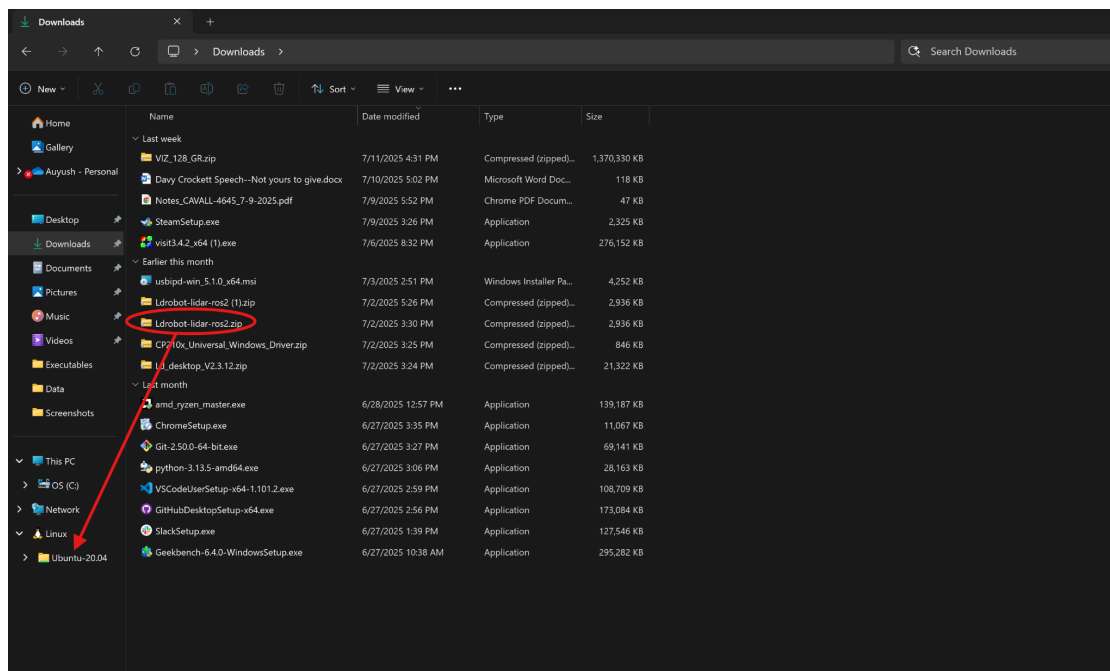
8. Create the workspace:

```
mkdir -p ~/lidar_ws/src
cd ~/lidar_ws
colcon build
source ./install/setup.bash
```

9. Download the software development kit from

[https://www.waveshare.com/wiki/D500\\_LiDAR\\_Kit](https://www.waveshare.com/wiki/D500_LiDAR_Kit). From there, manually drop the zip file into your Ubuntu terminal using the file explorer or copy the zip file through the terminal command:

```
cp SDK file path ~
```



From there, type the following commands in the Ubuntu terminal:

```
unzip Ldrobot-lidar-ros2.zip
mv ./ldrobot-lidar-ros2-main/* ./lidar_ws/src
cd ~/lidar_ws
rosdep install --from-paths src --ignore-src -r -y
colcon build
source ./install/setup.bash
```

10. Getting the USB port to work:

- Install the usbipd .msi file [here](#)
- Open powershell as an administrator
- Type in "usbipd list" and find the busid for the lidar(look for things like "LD500", "lidar", "Silicon Labs", "CP2102", etc) and note the corresponding busid

- d. Type in “usbipd bind --busid <busid>”  
Example: usbipd bind --busid 1-1
- e. Type in “usbipd attach --wsl --busid <busid>”  
You will need to type this into your powershell every time you use the lidar
- f. Go back to your Ubuntu terminal, and type “lsusb” to verify the connection.
- g. Type “sudo usermod -a -G dialout \$USER”
- h. Type “dmesg | grep tty” in the VSCode terminal to verify the USB port  
Example output: /dev/ttyUSB#

11. Install rviz2 with the following command:

```
cd ./lidar_ws/src
sudo apt update
sudo apt install ros-foxy-diagnostic-updater
sudo apt install ros-foxy-rviz2
sudo apt install ros-foxy-navigation2 ros-foxy-nav2-bringup
```

Then launch the visualization software:

```
cd ..
colcon build
source ./install/setup.bash
ros2 launch ldlidar_node ldlidar_rviz2.launch.py serial_port:=/dev/ttyUSB#
```

12. Configuring and Activating Lidar

The Lidar may be unconfigured to begin, so you'll need to configure it:

```
ros2 lifecycle set /ldlidar_node configure
```

If the Lidar is inactive, you need to activate it:

```
ros2 lifecycle set /ldlidar_node activate
```

To deactivate the Lidar:

```
ros2 lifecycle set /ldlidar_node deactivate
```

To completely shutdown the Lidar:

```
ros2 lifecycle set /ldlidar_node shutdown
```

You can view the data from the Lidar using:

```
ros2 topic echo /ldlidar_node/scan
```

13. Setting up Rviz:

Add the LaserScan tool and change topic to “/ldlidar\_node/scan”

Underneath Global Options, change Fixed Frame to “ldlidar\_link”

