ROS 2 Jazzy Jalisco on Linux

Setup and Run Guide (Native or Virtual Machine)

Note

This guide installs **ROS 2 Jazzy Jalisco** on Linux and runs the image publisher/subscriber demo.
If ROS 2 Jazzy is already installed on your system, you may skip directly to **Clone Repository** and **Run the Project**.

Note

Linux support note:
This project is best supported on **Ubuntu 24.04 LTS**, which is the officially supported platform for **ROS 2 Jazzy Jalisco**.
Other Ubuntu-based (APT-based) Linux distributions may work but are not officially supported by ROS.
Non–APT-based Linux distributions require building ROS from source and are out of scope.

System Dependencies (Required)

These packages are required for Python execution, camera access, and image handling:

```
sudo apt update
sudo apt install -y python3 python3-opencv v4l-utils
```

Official ROS documentation:
https://docs.ros.org/en/jazzy/Installation.html

Install ROS 2 Jazzy (Fresh System)

Skip this step if ROS 2 Jazzy is already installed.

```
sudo apt update
sudo apt install -y curl gnupg lsb-release
```

```
sudo mkdir -p /etc/apt/keyrings
curl -sSL https://raw.githubusercontent.com/ros/rosdistro/master/ros.
   key \
| sudo tee /etc/apt/keyrings/ros-archive-keyring.gpg > /dev/null
```

```
echo "deb [arch=$(dpkg --print-architecture) signed-by=/etc/apt/
   keyrings/ros-archive-keyring.gpg] \
http://packages.ros.org/ros2/ubuntu $(lsb_release -cs) main" \
| sudo tee /etc/apt/sources.list.d/ros2.list > /dev/null
```

```
sudo apt update
sudo apt install -y ros-jazzy-desktop
```

Source and Verify ROS

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

```
ros2 --help
echo $ROS_DISTRO
```

Important

The command `ros2 -version` does not exist in ROS 2. Use `ros2 -help` and `echo $ROS_DISTRO` to verify installation.

Clone Repository

```
mkdir -p ~/work
cd ~/work
git clone https://github.com/VamsiU987/ros_camera.git
cd ros_camera
```

Run the Project

Terminal 1 — Publisher

```
source /opt/ros/jazzy/setup.bash
cd ~/work/ros_camera
export ROS_DOMAIN_ID=0
python3 publisher/image_publisher.py
```

Terminal 2 — Subscriber

```
source /opt/ros/jazzy/setup.bash
cd ~/work/ros_camera
export ROS_DOMAIN_ID=0
python3 subscriber/image_subscriber.py
```

Important

`ROS_DOMAIN_ID` must match in both terminals.

Expected Output

- Images: `/work/ros_camera/output/images/`
- Metadata: `/work/ros_camera/output/metadata.json`

By default, the publisher generates synthetic images. If a webcam is available and detected (for example `/dev/video0`), the camera stream will be used automatically.

Note

Virtual Machine Camera Note (Optional) When running inside a VirtualBox VM, the webcam may occasionally fail to initialize for OpenCV-based applications even though it works in tools like Cheese. If the camera does not work, run the following command once to initialize it

```
    ffplay -loglevel quiet -t 1 /dev/video0
```