You're reading the documentation for an older, but still supported, version of ROS 2. For information on the latest version, please have a look at Kilted.

Ubuntu (deb packages)

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Deb packages for ROS 2 Humble Hawksbill are currently available for Ubuntu Jammy (22.04). The target platforms are defined in REP 2000.

Resources

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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

You will need to add the ROS 2 apt repository to your system.

First ensure that the Ubuntu Universe repository is enabled.

```
$ sudo apt install software-properties-common
$ sudo add-apt-repository universe
```

The ros-apt-source packages provide keys and apt source configuration for the various ROS repositories.

Installing the ros2-apt-source package will configure ROS 2 repositories for your system. Updates to repository configuration will occur automatically when new versions of this package are released to the ROS repositories.

```
$ sudo apt update && sudo apt install curl -y
$ export ROS_APT_SOURCE_VERSION=$(curl -s https://api.github.com/repos/ros-
infrastructure/ros-apt-source/releases/latest | grep -F "tag_name" | awk -F\" '{print $4}')
$ curl -L -o /tmp/ros2-apt-source.deb "https://github.com/ros-infrastructure/ros-apt-
source/releases/download/ ${ROS_APT_SOURCE_VERSION }/ros2-apt-
source_ ${ROS_APT_SOURCE_VERSION }.$(. /etc/os-release && echo $VERSION_CODENAME)_all.deb"  # If
 using Ubuntu derivates use $UBUNTU_CODENAME
$ sudo dpkg -i /tmp/ros2-apt-source.deb
```

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
```

Warning

Due to early updates in Ubuntu 22.04 it is important that `systemd` and `udev` -related packages are updated before installing ROS 2. The installation of ROS 2's dependencies on a freshly installed system without upgrading can trigger the **removal of critical system packages**.

Please refer to ros2/ros2#1272 and Launchpad #1974196 for more information.

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

```
$ sudo apt install ros-humble-desktop
```

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

```
$ sudo apt install ros-humble-ros-base
```

Development tools: Compilers and other tools to build ROS packages

```
sudo apt install ros-dev-tools
```

Environment setup

Sourcing the setup script

Set up your environment by sourcing the following file.

```
$ source /opt/ros/humble/setup.bash
```

Note

Replace `.bash` with your shell if you're not using bash. Possible values are: `setup.bash` , `setup.sh` , `setup.zsh` .

Making life easy:

This is meant to make your lab assignments easier.
Please perform the operations only once in one terminal,

```
$ echo "source /opt/ros/humble/setup.bash" >> ~/.bashrc
$ mkdir -p ~/ros2_ws/src
$ cd ~/ros2_ws
$ colcon build
$ echo "source ~/ros2_ws/install/setup.bash" >> ~/.bashrc
$ source ~/.bashrc
```

Try some examples

Talker-listener

If you installed `ros-humble-desktop` above you can try some examples.

In one terminal, source the setup file and then run a C++ `talker` :

```
$ source /opt/ros/humble/setup.bash
$ ros2 run demo_nodes_cpp talker
```

In another terminal source the setup file and then run a Python `listener` :

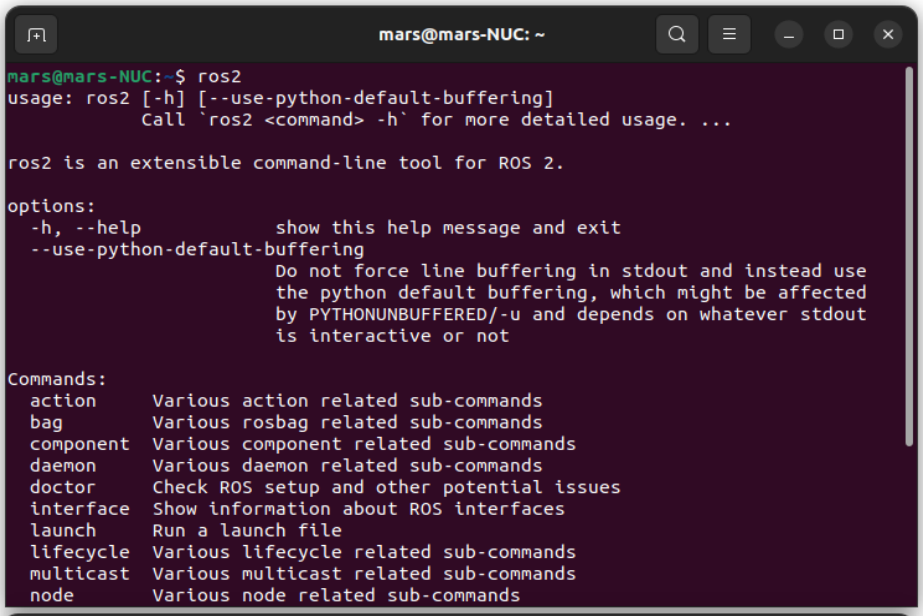
```
$ source /opt/ros/humble/setup.bash
$ ros2 run demo_nodes_py listener
```

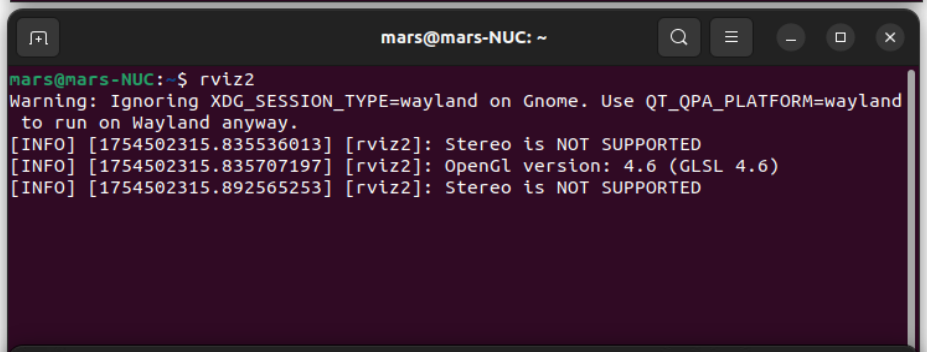
You should see the `talker` saying that it's `Publishing` messages and the `listener` saying `I heard` those messages. This verifies both the C++ and Python APIs are working properly. Hooray!

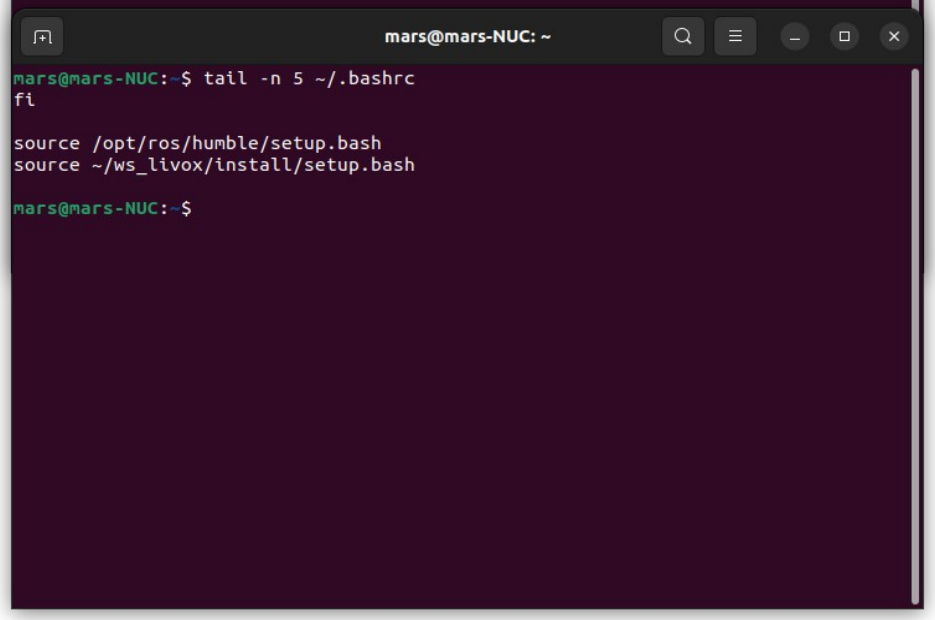
Submissions:

By the end of this assignment we require you to submit the following screenshots:

1> type “ros2” in terminal.
2> type “rviz2” in terminal.
3>type “tail -n 5 ~/.bashrc” in terminal.







Upload all of these images to the classroom.