# ROS2-IMU

## Overview

This document shows how to run a C++ ROS2 node that reads data from an IMU sensor. It also showcases the IMUD daemon/library sample code so you can build your own IMU node.

- sensor-daemon: the IMUD service to access IMU data from DSP.

- sensor-client: the library for communicating with IMUD.

- imu-ros2node: the sample implementation of IMU node based on ROS2.

\*\*TIP:\*\* All these components are built-in in RB5 image as binary programs.

Follow these pre-requisite steps to setup ROS on Qualcomm Robotics RB5, once you are connected to a network

1 Download and Install ROS2

The built-in IMU ROS node supports ROS2 Dashing only.

\*\*1.1 Connect Qualcomm Robotics RB5 with adb\*\*

adb shell

\*\*1.2 Install ROS2 via Debian packages\*\*

You can reference the official ROS document:

https://docs.ros.org/en/dashing/Installation/Ubuntu-Install-Debians.html

Or you can directly use the commands below:

# update locales

apt update && apt install locales

locale-gen en\_US en\_US.UTF-8

update-locale LC\_ALL=en\_US.UTF-8 LANG=en\_US.UTF-8

export LANG=en\_US.UTF-8

# add apt source

apt update && apt install curl gnupg2 lsb-release

curl -sSL https://raw.githubusercontent.com/ros/rosdistro/master/ros.key -o /usr/share/keyrings/ros-archive-keyring.gpg

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

apt update

# install ROS2 package

apt install ros-dashing-ros-base

Wait until all ROS2 packages are installed completely.

2 Verify the ROS2 installation\*\*

source /opt/ros/dashing/setup.bash

ros2

Will show the ros2 help message if installation is complete.

## 3 Run IMU ROS node

\*\*3.1 Clone the sample app and re-build ROS2 to include IMU Node\*\*

In terminal 1

adb shell

cd /data

git clone <https://github.com/quic/sample-apps-for-robotics-platforms.git>

cd ~ && mkdir ~/ros\_ws

mv <path to directory in Git repository>/imu-ros2node ~/ros\_ws/

# Install colcon

apt install python3-colcon-common-extensions

# Re-build ROS

cd ~/ros\_ws

source /opt/ros/dashing/setup.bash

colcon build

cd ~/ros\_ws

. install/local\_setup.sh

\*\*3.2 Run the IMU ROS node sample \*

In terminal 1, run

Source ~/.bashrc

ros2 run imu-ros2node imu-ros2node

In terminal 2 , Run

source /opt/ros/dashing/setup.bash

ros2 topic echo /imu

Pick up RB5 and shake it, you could see the IMU data are changing in the logs:

## License

This is licensed under the BSD 3-clause-Clear “New” or “Revised” License. Check out the [LICENSE](LICENSE) for more details.