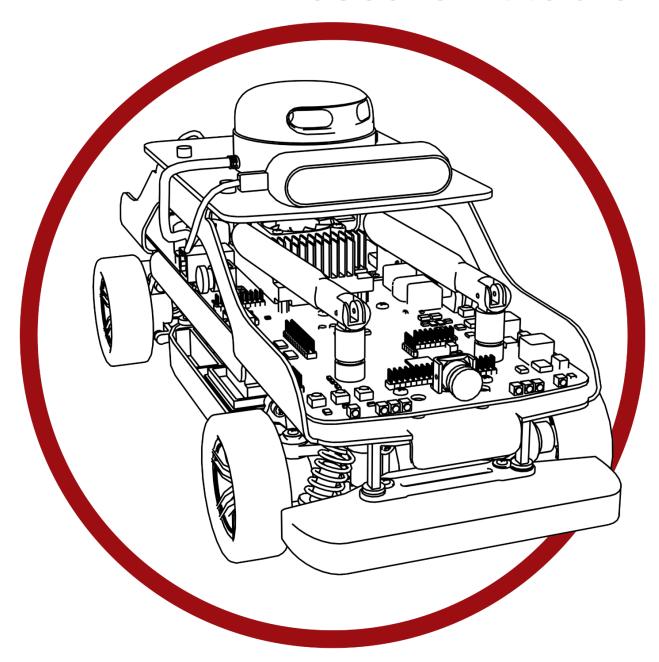


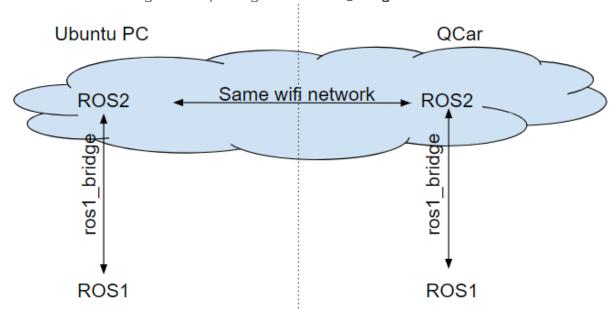
Self-Driving Car Research Studio



ROS-to-ROS Communication

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The QCar was built around ROS2, but with the vast libraries built around ROS1, sometimes you need to mix ROS1 and ROS2 nodes. ROS-to-ROS communication can be done in multiple ways. In this documentation, we will explain how to setup a QCar-to-Ubuntu PC communication using a ROS2 package called **ros1_bridge**.



All the topics that are published by a ROS2 device can be subscribed by other ROS2 devices as long as they are in the same network. **If users are only using ROS2** as their main development platform, and they are running ROS2 on both QCar and their Ubuntu PC, then the ROS-to-ROS communication does **not need extra setup**.

If users will also use ROS1 on either/both platforms, then they need to download a ROS2 package called **ros1_bridge**. This package will bring all the topics from ROS1 environment to ROS2 or vice-versa.

A typical use case is a ROS1 node on the QCar capturing a CSI image which needs to be used by a ROS1 node on a remote machine. Using the **ros1_bridge** on the **QCar**, ROS2 on the **QCar** will bring that topic from ROS1 and share it with the other ROS2 device **Ubuntu PC** on the same network. The **ros1_bridge** on **Ubuntu PC** will detect that topic in the *ros2 topic list* and bring it to ROS1 on the **Ubuntu PC** where it can process the image to reading a sign, detect lanes, etc. Then the resulting command will use the same tunnel to return to the ROS1 environment on QCar.

When measuring the performance, WiFi latency should be considered. See user guide **II – Connectivity** for discussion on WiFi configurations.

Please follow this link https://github.com/ros2/ros1_bridge/blob/master/README.md to setup ros1_bridge on each device.