

## ROS2 RIEGL-VZ Package

This package is based on ROS2 Galactic Geochelone distribution and has been tested on Ubuntu Desktop 20.04 (Focal Fossa).

### ROS2 installation and setup:

Follow ROS2 installation instructions on <https://docs.ros.org/en/galactic/Installation/Ubuntu-Development-Setup.html>.

Configure the ROS2 environment according to <https://docs.ros.org/en/galactic/Tutorials/Configuring-ROS2-Environment.html>.

Create a new workspace (<https://docs.ros.org/en/galactic/Tutorials/Workspace/Creating-A-Workspace.html>) and clone repository into subdirectory 'src'.

### Install diagnostics updater package:

```
sudo apt-get install ros-galactic-diagnostic-updater
```

### Install python requirements:

Switch to 'src' subdirectory and install required python modules:

```
python3 -m pip install -r requirements.txt
```

### Install librdp python wheel:

Request a python wheel for librdp from RIEGL support: [support@riegl.com](mailto:support@riegl.com)

The wheel includes a shared linux library which must be appropriate for the target processor architecture.

Install the wheel, e.g. x86\_64:

```
pip3 install rieg1.rdb-2.3.4-cp34.cp35.cp36.cp37.cp38.cp39-none-linux_x86_64.whl
```

### Build package:

Switch to workspace root directory.

```
colcon build
```

### Start 'riegl\_vz' node:

Open a second terminal. Execute '. install/setup.bash'.

Find .yaml files for configuration of node parameters in package install directory at: `install/riegl_vz/share/riegl_vz/config/`.

Copy `params__default.yaml` to `params.yaml` and edit parameter settings.

Launch 'riegl\_vz' node with parameter settings from `params.yaml`:

```
ros2 launch rieg1_vz std_launch.py
```

### Trigger a scan data acquisition:

Open another terminal. Execute '. install/setup.bash'.

Execute the scan trigger service:

```
ros2 service call /scan std_srvs/srv/Trigger
```

**Visualize scan data point cloud with rviz:**

Start 'rviz' tool:

```
rviz2
```

Set 'fixed-frame' in 'Global Options' to 'riegl\_vz\_soc'. Activate 'PointCloud2' plugin and bind it to rieg1\_vz/pointcloud topic:

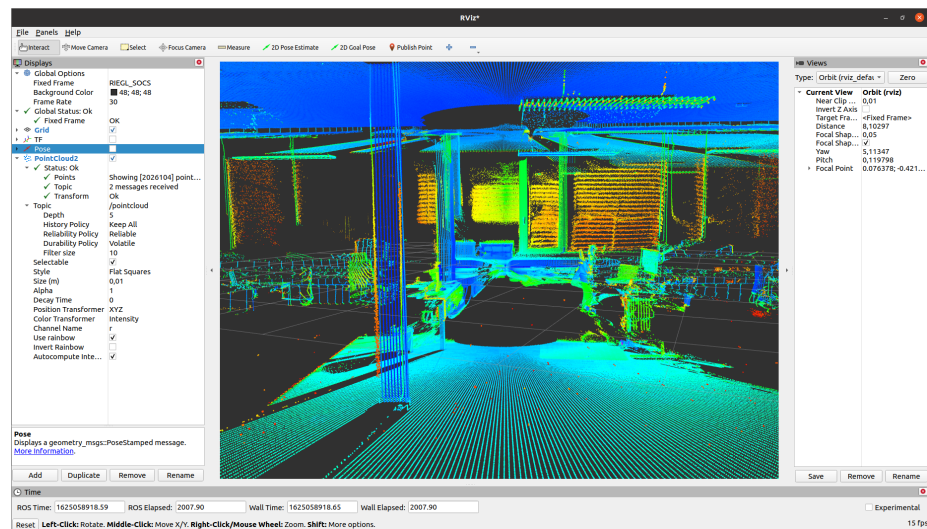


Figure 1: rviz2

**Monitor diagnostics with rqt:**

Start 'rqt' tool, activate 'Topic Monitor' plugin and select '/diagnostics' topic for monitoring:

```
rqt
```

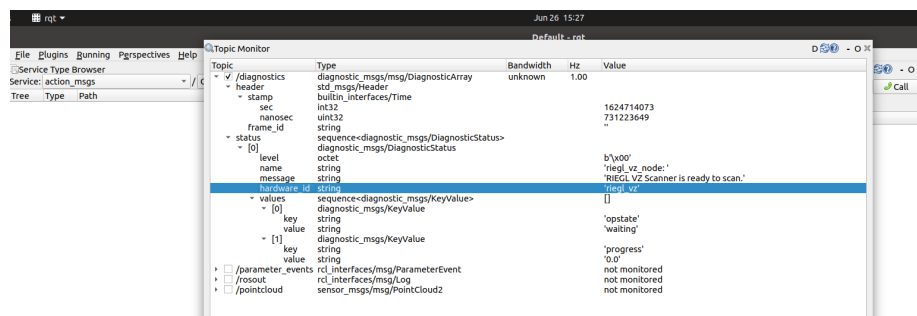


Figure 2: rqt