

2. Handheld Radar Mapping

This function requires launching a program from the slam_gmapping package, the source code of which is located in the `【ydlidar_ros2_ws】` source code. This guide uses the accompanying virtual machine to illustrate how to launch the program. If you want to run it on your own motherboard, place `ydlidar_ros2_ws` in the root directory and compile it.

2.1. Activate the radarTerminal input

```
ros2 launch ydlidar_ros2_driver ydlidar_launch.py
```

2.2 Publish static odom conversions

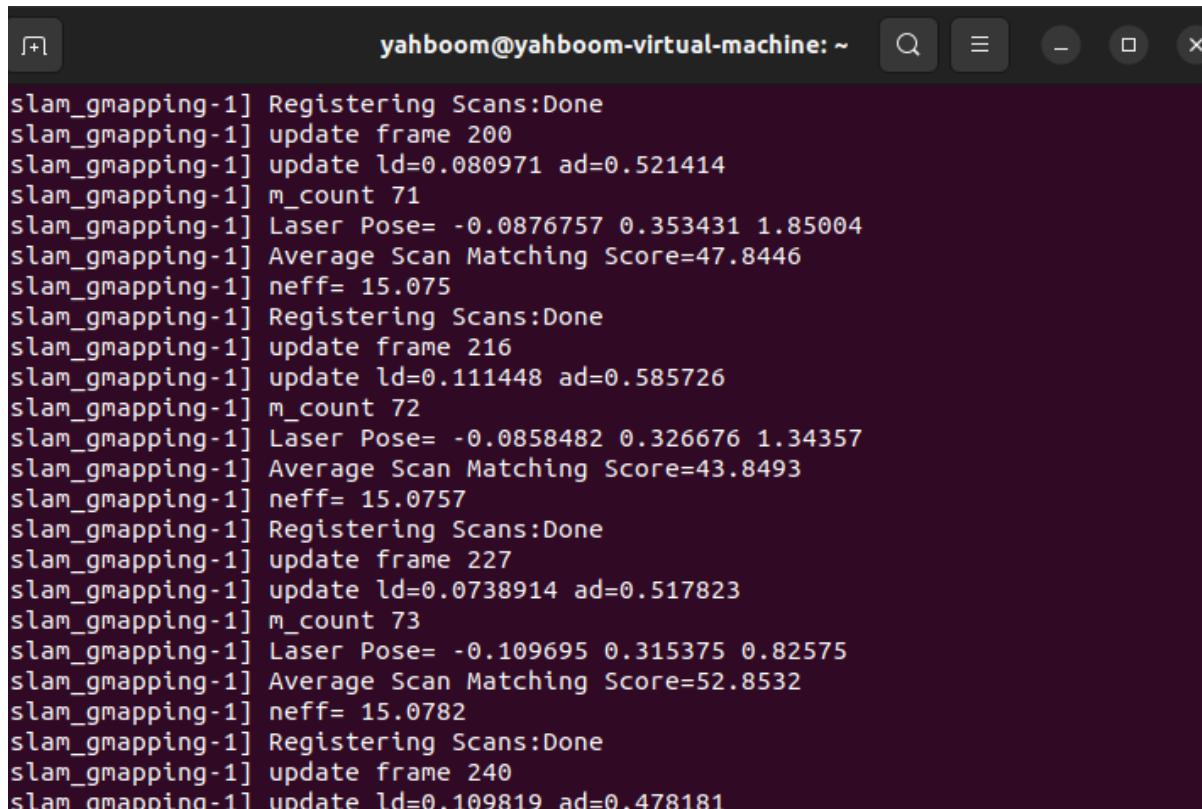
Terminal input

```
ros2 launch rf2o_laser_odometry rf2o_laser_odometry.launch.py
```

2.3. Start gmapping for mapping

Terminal input

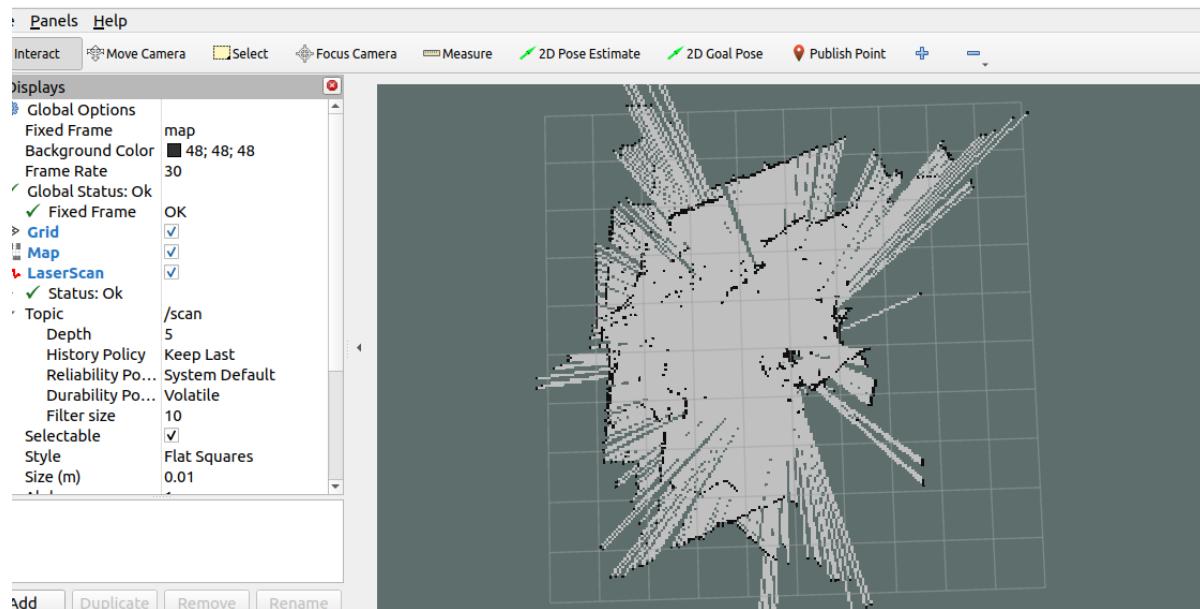
```
ros2 launch slam_gmapping slam_gmapping.launch.py
```



The screenshot shows a terminal window titled "yahboom@yahboom-virtual-machine: ~". The window displays the log output of the gmapping process. The output shows the robot registering scans, updating frames, and performing laser pose estimation. It includes details like frame numbers, laser pose (ld, ad), average scan matching score, and the number of scans registered (m_count). The log ends with the robot updating frame 240 and its laser pose.

```
slam_gmapping-1] Registering Scans:Done
slam_gmapping-1] update frame 200
slam_gmapping-1] update ld=0.080971 ad=0.521414
slam_gmapping-1] m_count 71
slam_gmapping-1] Laser Pose= -0.0876757 0.353431 1.85004
slam_gmapping-1] Average Scan Matching Score=47.8446
slam_gmapping-1] neff= 15.075
slam_gmapping-1] Registering Scans:Done
slam_gmapping-1] update frame 216
slam_gmapping-1] update ld=0.111448 ad=0.585726
slam_gmapping-1] m_count 72
slam_gmapping-1] Laser Pose= -0.0858482 0.326676 1.34357
slam_gmapping-1] Average Scan Matching Score=43.8493
slam_gmapping-1] neff= 15.0757
slam_gmapping-1] Registering Scans:Done
slam_gmapping-1] update frame 227
slam_gmapping-1] update ld=0.0738914 ad=0.517823
slam_gmapping-1] m_count 73
slam_gmapping-1] Laser Pose= -0.109695 0.315375 0.82575
slam_gmapping-1] Average Scan Matching Score=52.8532
slam_gmapping-1] neff= 15.0782
slam_gmapping-1] Registering Scans:Done
slam_gmapping-1] update frame 240
slam_gmapping-1] update ld=0.109819 ad=0.478181
```

rviz displays the following:



2.4 Saving the Map

Terminal input,

```
ros2 run nav2_map_server map_saver_cli -f
~/ydlidar_ros2_ws/src/slam_gmapping/maps/my_map
```

```
yahboom@yahboom-virtual-machine:~$ ros2 run nav2_map_server map_saver_cli -f ~/ydlidar_ros2_ws/src/slam_gmapping/maps/my_map
[INFO] [1764593460.400443034] [map_saver]:
    map_saver lifecycle node launched.
[INFO] [1764593460.400443034] [map_saver]:
    Waiting on external lifecycle transitions to activate
[INFO] [1764593460.400443034] [map_saver]:
    See https://design.ros2.org/articles/node_lifecycle.html for more information.
[INFO] [1764593460.400770673] [map_saver]: Creating
[INFO] [1764593460.400903451] [map_saver]: Configuring
[INFO] [1764593460.402731840] [map_saver]: Saving map from 'map' topic to '/home/yahboom/ydlidar_ros2_ws/src/slam_gmapping/maps/my_map' file
[WARN] [1764593460.402763980] [map_saver]: Free threshold unspecified. Setting it to default value: 0.250000
[WARN] [1764593460.402779162] [map_saver]: Occupied threshold unspecified. Setting it to default value: 0.650000
[WARN] [1764593460.416484370] [map_io]: Image format unspecified. Setting it to:
[INFO] [1764593460.416570197] [map_io]: Received a 384 X 608 map @ 0.05 m/pix
[INFO] [1764593460.481334569] [map_io]: Writing map occupancy data to /home/yahboom/ydlidar_ros2_ws/src/slam_gmapping/maps/my_map.pgm
[INFO] [1764593460.482997098] [map_io]: Writing map metadata to /home/yahboom/ydlidar_ros2_ws/src/slam_gmapping/maps/my_map.yaml
[INFO] [1764593460.483137792] [map io]: Map saved
```

Then you can find the map file we saved in the file path mentioned above.

