Vanjee 720 + cartographer 3D mapping

1、Operating environment

ROS(ubuntu 18.04 melodic)

cartographer

cartographer_ros

pointcloud_to_laserscan

vanjee_lidar_720

2、Source code path

cartographer source code path：

```
src/cartographer
```

```
src/cartographer_ros
```

Vanjee 720 16-line radar driver：

```
src/vanjee_lidar_720
```

3、Parameter configuration

Lua file path for 3D mapping：

```
#under the working directory
src/cartographer_ros/cartographer_ros/launch/wlr_720_3d_no_imu.lua
```

3D mapping launch file path：

```
under the working directory
src/cartographer_ros/cartographer_ros/launch/wlr_720_cartographer_3d.launch
```

The tracking_frame in the wlr_720_3d_no_imu.lua file is set to wlr_720. We use the imu that comes with Wanji Radar, and the frame_id of the imu that comes with Wanji Radar is wlr_720.

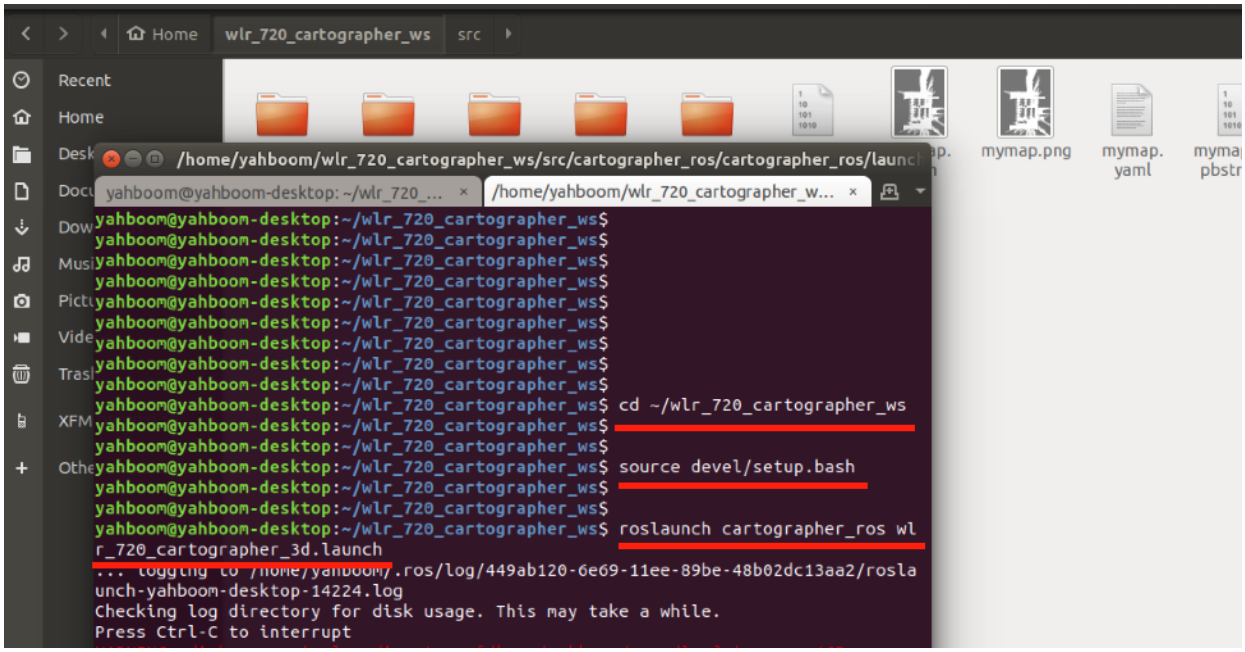
4、Run mapping

Start the terminal under the workspace and enter the command in the terminal：

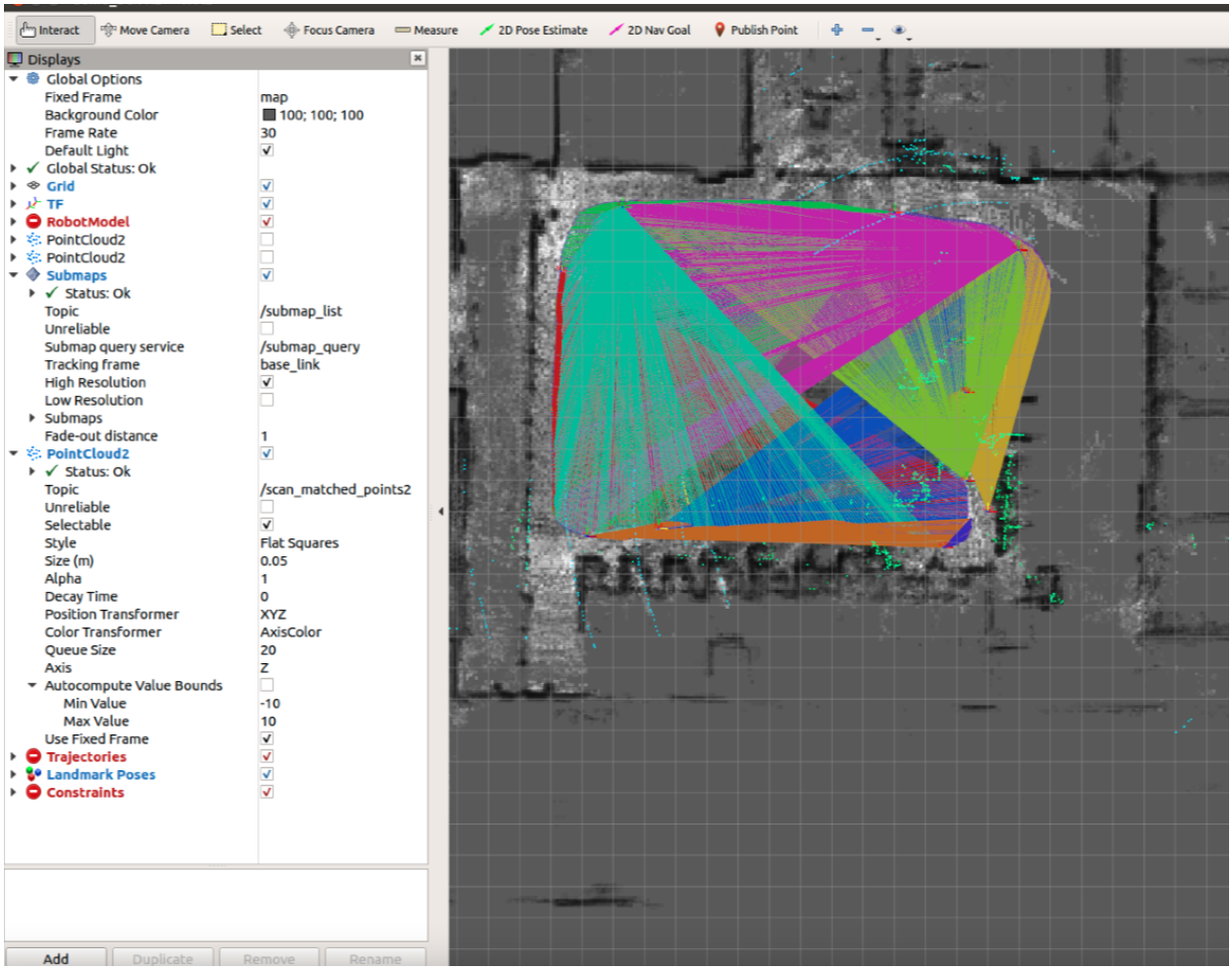
```
cd ~/wlr_720_cartographer_ws

source devel/setup.bash

roslaunch cartographer_ros wlr_720_cartographer_3d.launch
```

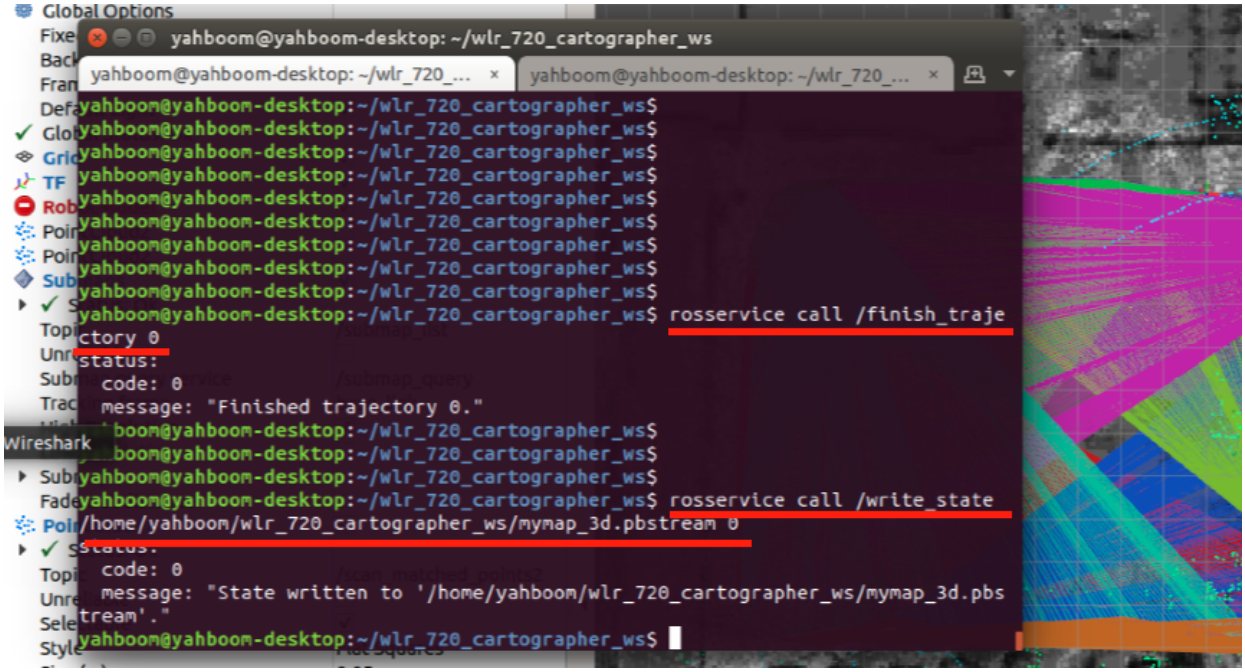


Completed mapping effect:

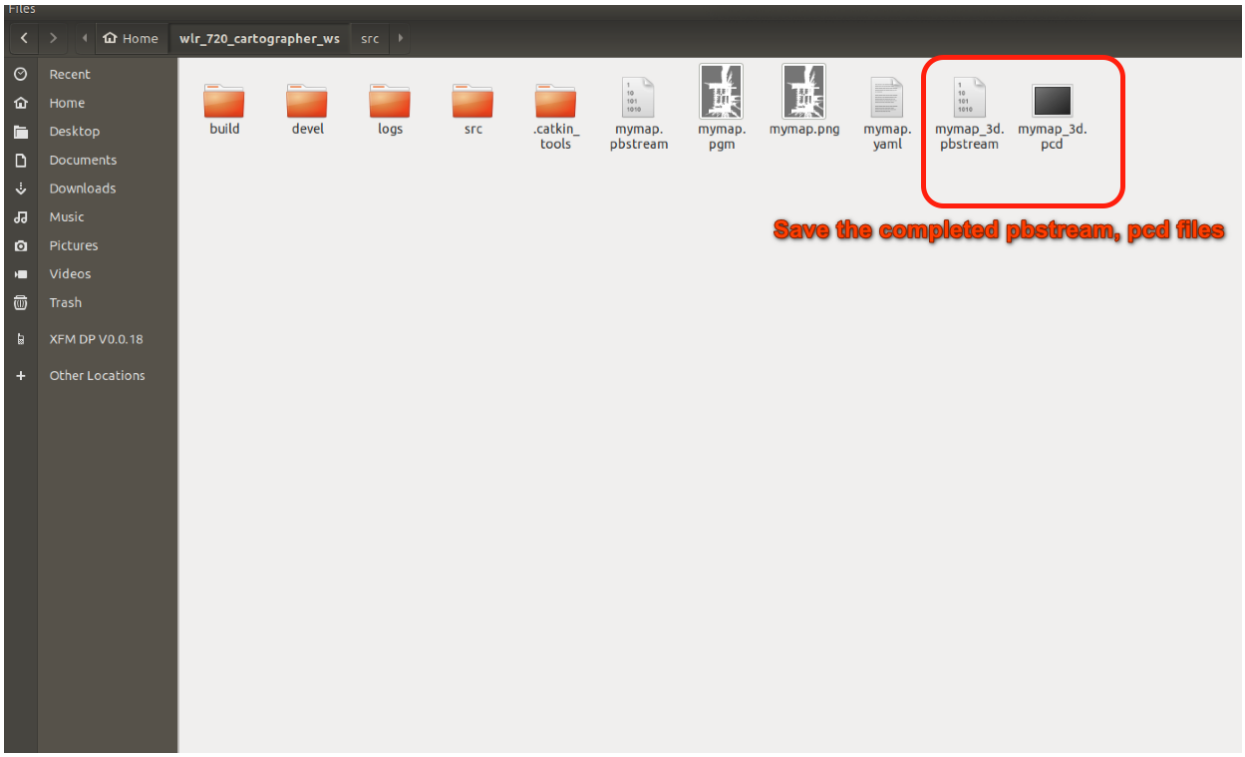


Save map:

```
cd ~/wlr_720_cartographer_ws
source devel/setup.bash
rosservice call /finish_trajectory 0
rosservice call /write_state /home/yahboom/wlr_720_cartographer_ws/mymap_3d.pbstream
0
```

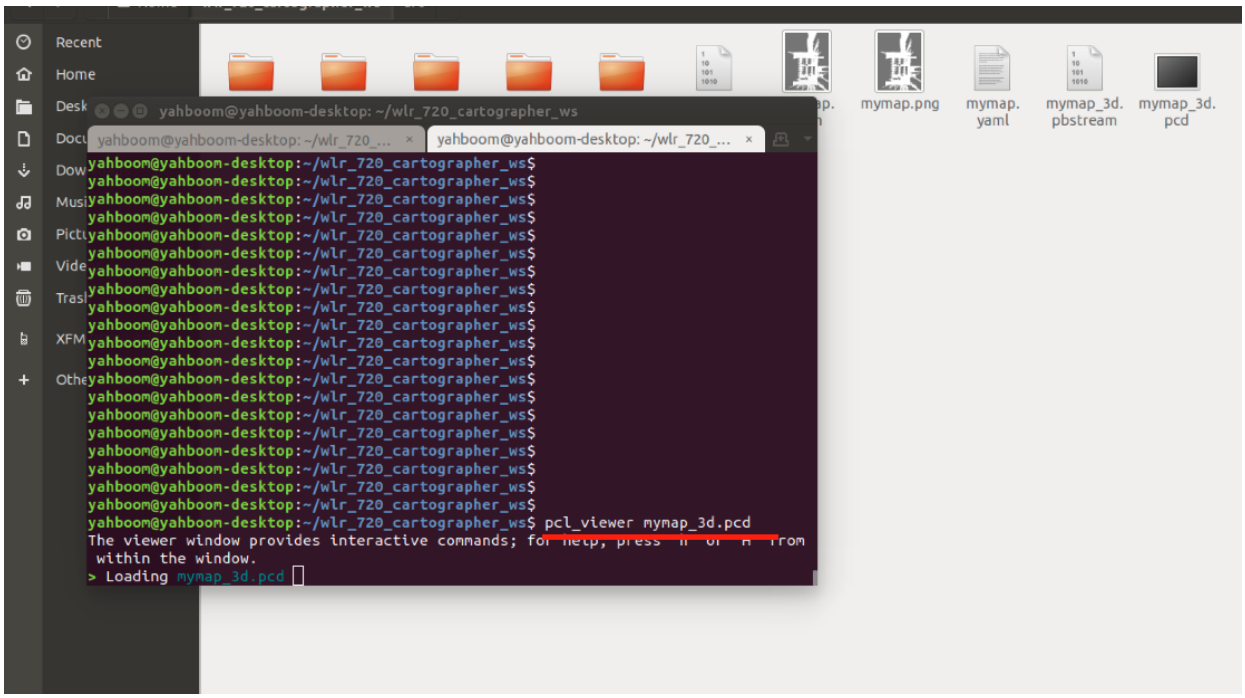


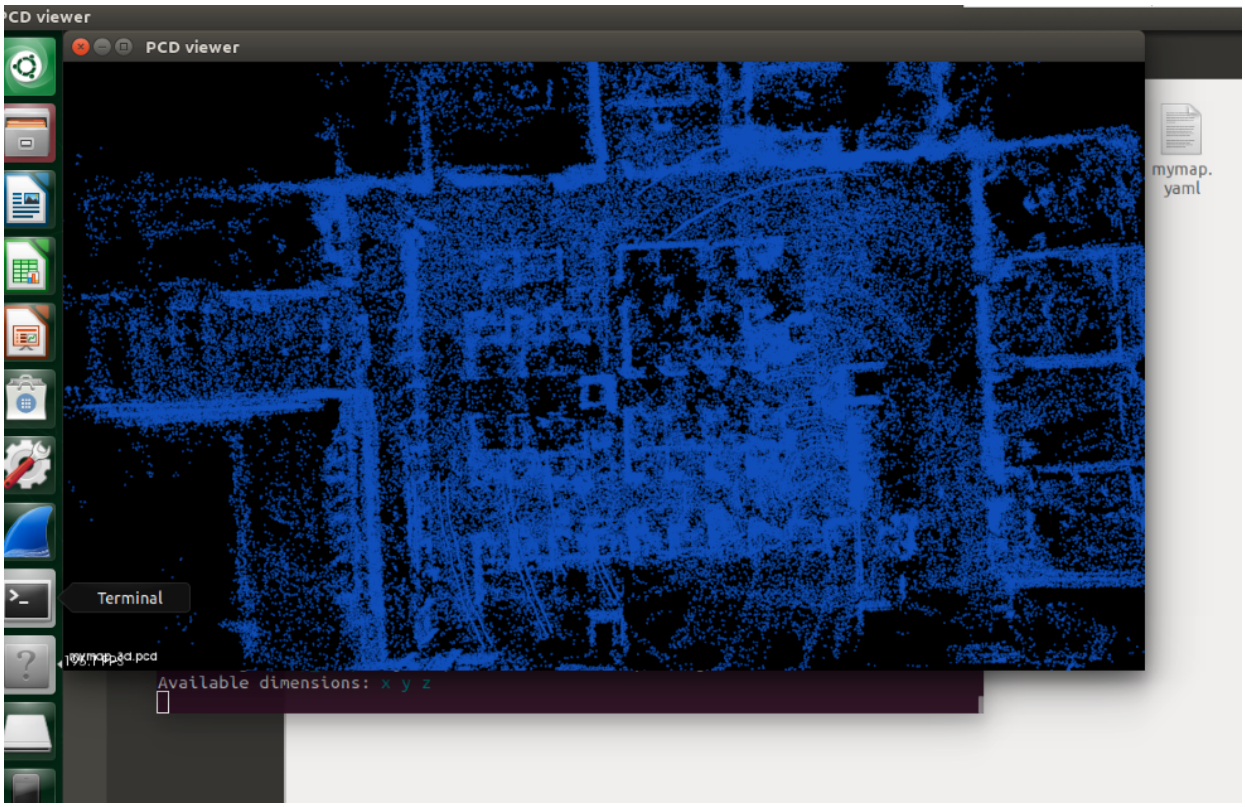
Map save path:



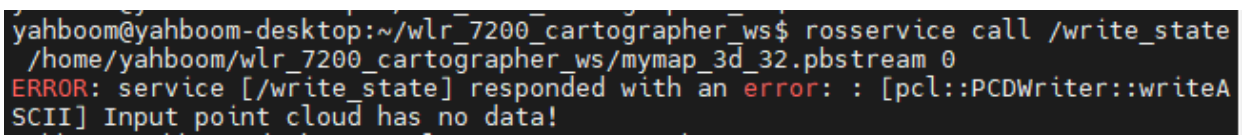
To view the pcd file, enter the command in the terminal:

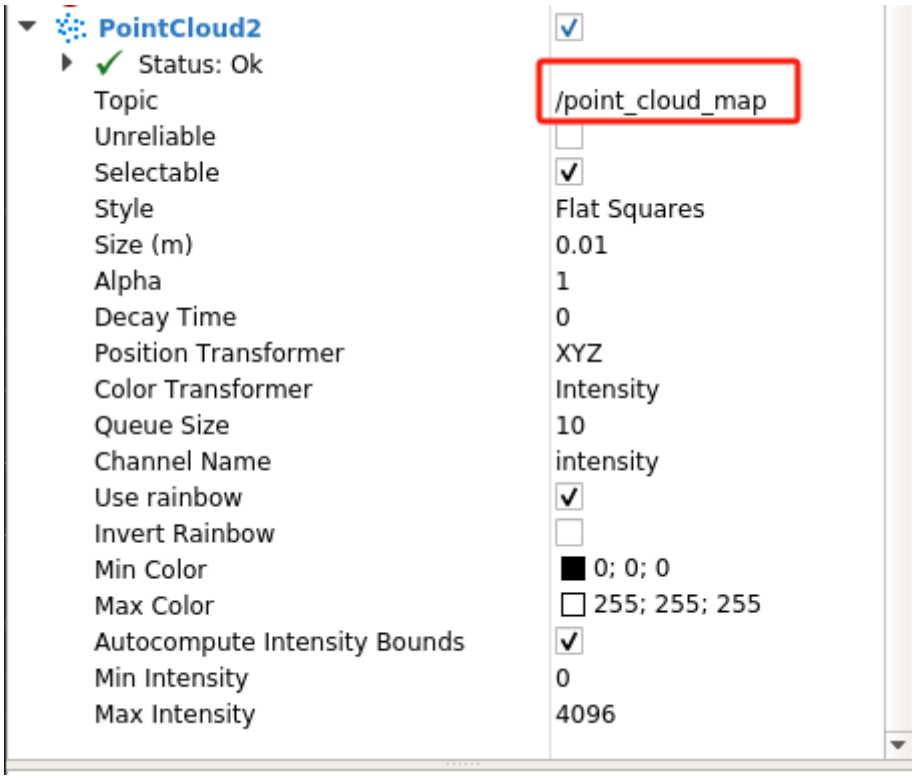
Note that you need to start the terminal in the saved pcd folder, and then enter the following command
pcl_viewer mymap_3d.pcd





If the following error occurs, you need to set the topic in rviz




PointCloud2
Status: Ok
Topic
/point_cloud_map
Unreliable
Selectable
Style
Flat Squares
Size (m)
0.01
Alpha
1
Decay Time
0
Position Transformer
XYZ
Color Transformer
Intensity
Queue Size
10
Channel Name
intensity
Use rainbow
Invert Rainbow
Min Color
0; 0; 0
Max Color
255; 255; 255
Autocompute Intensity Bounds
Min Intensity
0
Max Intensity
4096