Preparation before using the high-speed version of A1 lidar

1. Create a new workspace and compile function packages

Take the creation name rplidar_ws as an example, enter in the terminal,

```
mkdir rplidar_ws
cd rplidar_ws
mkdir src
cd src
catkin_init_workspace
```

Then copy the decompressed rplidar_ros function package to the rplidar_ws/src directory, and then use catkin_make to compile in the rplidar_ws directory.

```
cd ~/rplidar_ws
catkin_make
```

After the compilation is passed, add the path of the workspace to .bashrc.

```
sudo gedit ~/.bashrc
```

Copy the following content to the end of the file,

```
source ~/rplidar_ws/devel/setup.bash --extend
```
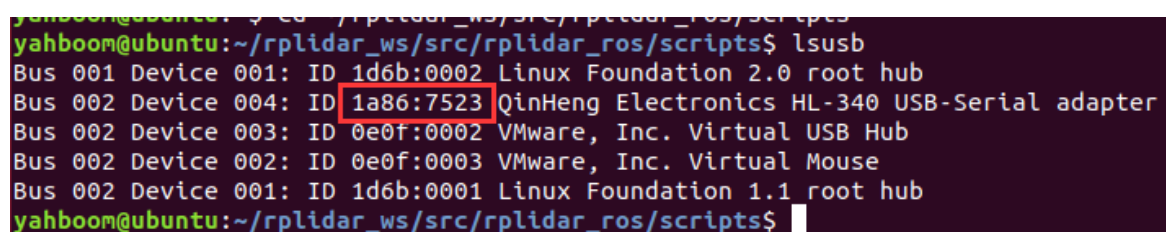
2. Bind the radar port name

Open the terminal, enter the following command, and copy the rplidar.rules file under the function package to /etc/udev/rules.d.

```
cd ~/rplidar_ws/src/rplidar_ros/scripts
sudo cp rplidar.rules /etc/udev/rules.d/
```

Check the port number of the high-speed version of the A1 lidar

```
lsusb
```


Remember the framed port number, enter the /etc/udev/rules.d directory, and modify the port number

```
cd  /etc/udev/rules.d
```

```
sudo nano rplidar.rules
```


After modification, press ctrl+s to save, then press ctrl+x to exit and run the modified rule file.

```
sudo udevadm trigger
sudo service udev reload
sudo service udev restart
```

Re-plug the radar serial port and enter ll /dev/rplidar in the terminal.

The above content indicates that the binding is successful. The end is not necessarily 0 and changes according to the order in which the devices are inserted.
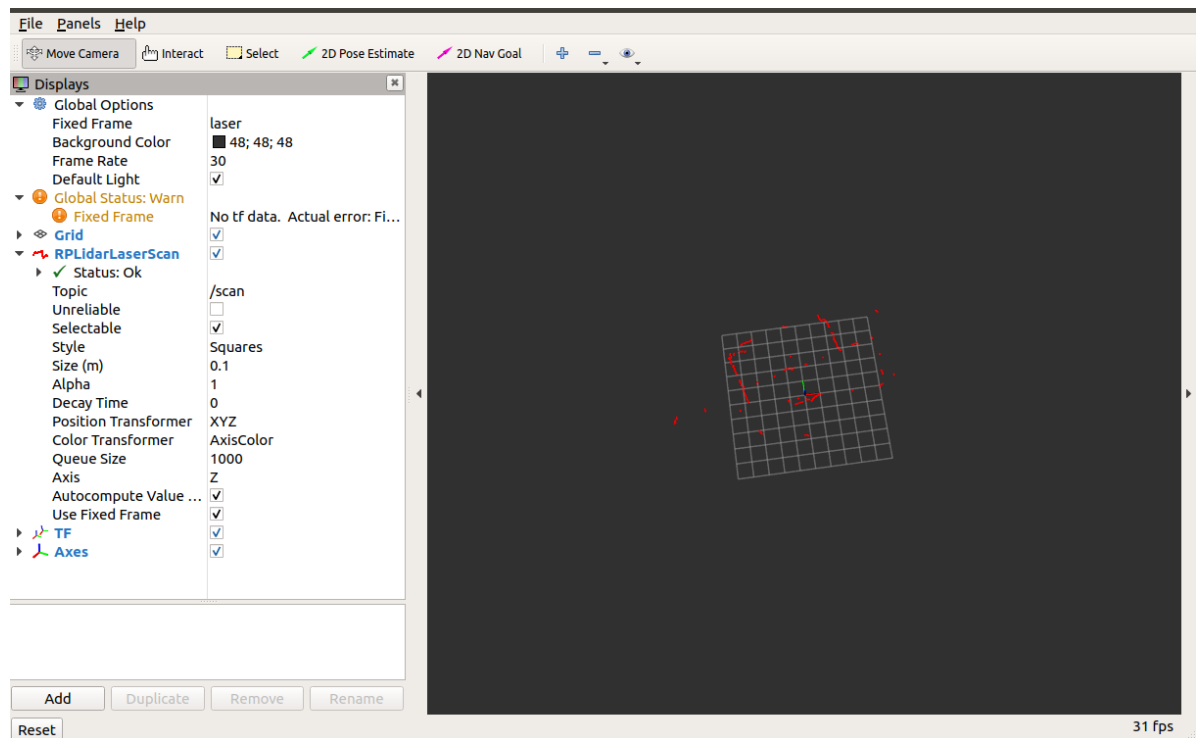
3. Test radar

Re-open a terminal and confirm that the radar model is a1, as shown in the picture. If not, please refer to **0.ReadMe**

Enter the following statement to open the radar and display it in rviz,

```
##High-speed version a1 lidar
roslaunch rplidar_ros view_rplidar_a1.launch
```

When the above screen appears, it means that all preparations have been completed.

4. Adjust the radar scanning frequency

Find the potentiometer of the radar, as shown in the picture. The potentiometer has a limited position. When it cannot be turned, it means that it has reached the maximum limit or minimum limit and cannot be turned anymore.
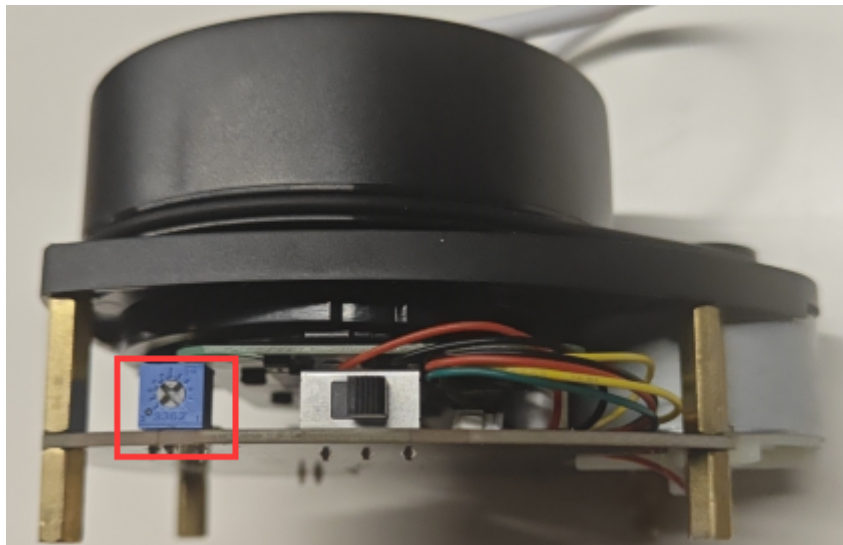
Turn clockwise to increase scan frequency
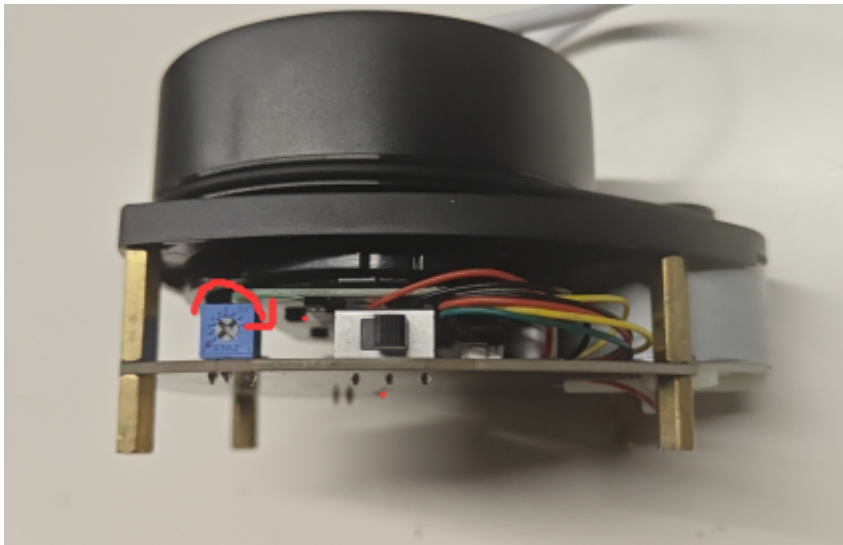
Counterclockwise rotation reduces scan frequency
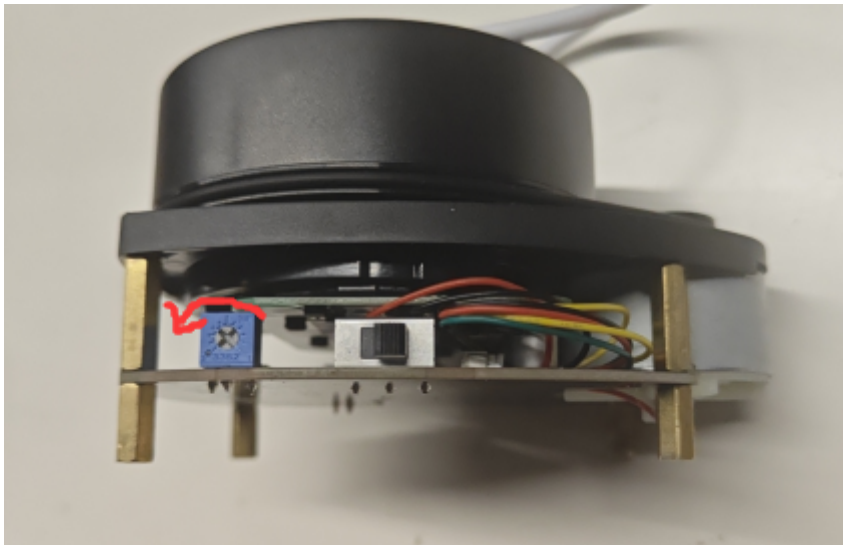
Keep the previous terminal running, and open a new terminal. Enter the following command to view the adjusted frequency.

```
rostopic hz /scan
```

rplidar.rviz* - RViz

File   Panels   Help

Move Camera   Interact   Select   2D Pose Estimate   2D Nav Goal

/home/yahboom/rplidar_ws/src/rplidar_ros/launch/view_rplidar_a1.launch http://localhost:11311

File   Edit   View   Search   Terminal   Help

```
NODES
  /
    rplidarNode (rplidar_ros/rplidarNode)
    rviz (rviz/rviz)

auto-starting new master
process[master]: started with pid [2393]
ROS_MASTER_URI=http://localhost:11311
```

rviz   yahboom@ubuntu: ~

File   Edit   View   Search   Terminal   Help

```
yahboom@ubuntu:~$ rostopic hz /scan
subscribed to [/scan]
average rate: 8.925
        min: 0.109s max: 0.122s std dev: 0.00392s window: 9
average rate: 8.935
        min: 0.109s max: 0.122s std dev: 0.00376s window: 18
average rate: 8.928
        min: 0.109s max: 0.122s std dev: 0.00364s window: 27
average rate: 8.932
        min: 0.109s max: 0.122s std dev: 0.00369s window: 36
average rate: 8.934
        min: 0.109s max: 0.125s std dev: 0.00391s window: 45
average rate: 8.936
        min: 0.109s max: 0.125s std dev: 0.00386s window: 54
average rate: 8.935
        min: 0.109s max: 0.125s std dev: 0.00387s window: 62
average rate: 8.932
        min: 0.109s max: 0.125s std dev: 0.00385s window: 71
average rate: 8.934
        min: 0.109s max: 0.125s std dev: 0.00384s window: 80
average rate: 8.934
        min: 0.109s max: 0.125s std dev: 0.00391s window: 89
```

ros, SDK Version:2.1.0

434560

rate: 8 Khz, max_distance: 12.0 m, scan freque

The lower number
minus the upper number
is the current lidar
scanning frequency.
that is27-18= 9 hz