

1. Preparation before use

1、Install SDK

Unzip the YDLidar-SDK-master.zip file in the folder, Get a file YDLidar-SDK-master, Copy this file to your own file directory, Here, taking the installation in the /home directory as an example, and then entering it one by one,

```
cd YDLidar-SDK-master
mkdir build
cd build
cmake ..
make
sudo make install
```

2. Compile ROS feature package

ROS1

Unzip the ydlidar_ros_ws.rar file in the folder, get a file ydlidar_ros_ws, Copy this feature package to the root directory of your own environment, then open the terminal in the workspace and enter the following command to compile,

```
cd ydlidar_ros_ws
catkin_make -DCATKIN_WHITELIST_PACKAGES=ydlidar_ros_driver
source install/setup.bash          #激活工作空间
```

ROS2

Extract the ydlidar_ros2_ws.rar file from the folder and obtain a file ydlidar_ros2_ws. Copy this feature package to the root directory of your own environment, then open the terminal in the workspace and enter the following command to compile,

```
cd ydlidar_ros2_ws
colcon build --symlink-install
```

3. Create a serial port alias

To prevent recognition errors when multiple USB devices are connected, we create a module serial port alias.

```
sudo chmod 0777 ~/catkin_ws/src/ydlidar_ros_driver/startup/*
sudo sh ~/catkin_ws/src/ydlidar_ros_driver/startup/initenv.sh
```

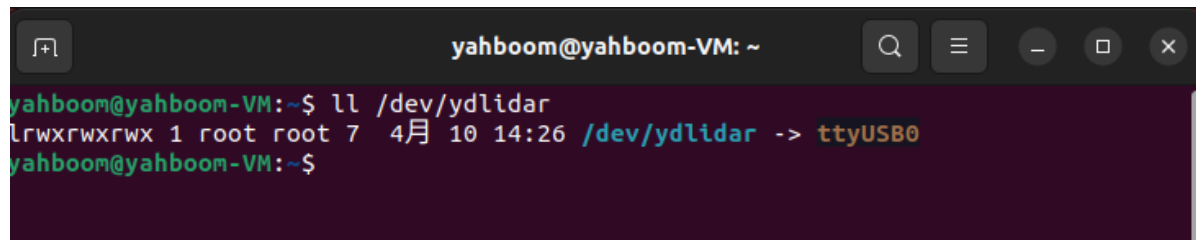
The ~/catkin_ws/src/ydlidar_ros_driver here is the location for installing the feature pack and needs to be modified according to the actual situation. Take care:

After completing the previous operation, please reinsert the module again.

Enter the following command to check if the recognition was successfully created,

```
ll /dev/ydlidar
```

If the following screen appears, it indicates success,



```
yahboom@yahboom-VM: ~  
yahboom@yahboom-VM:~$ ll /dev/ydlidar  
lrwxrwxrwx 1 root root 7 4月 10 14:26 /dev/ydlidar -> ttyUSB0  
yahboom@yahboom-VM:~$
```

Note: This may not necessarily be ttyUSB0, the assigned serial number based on system identification shall prevail.

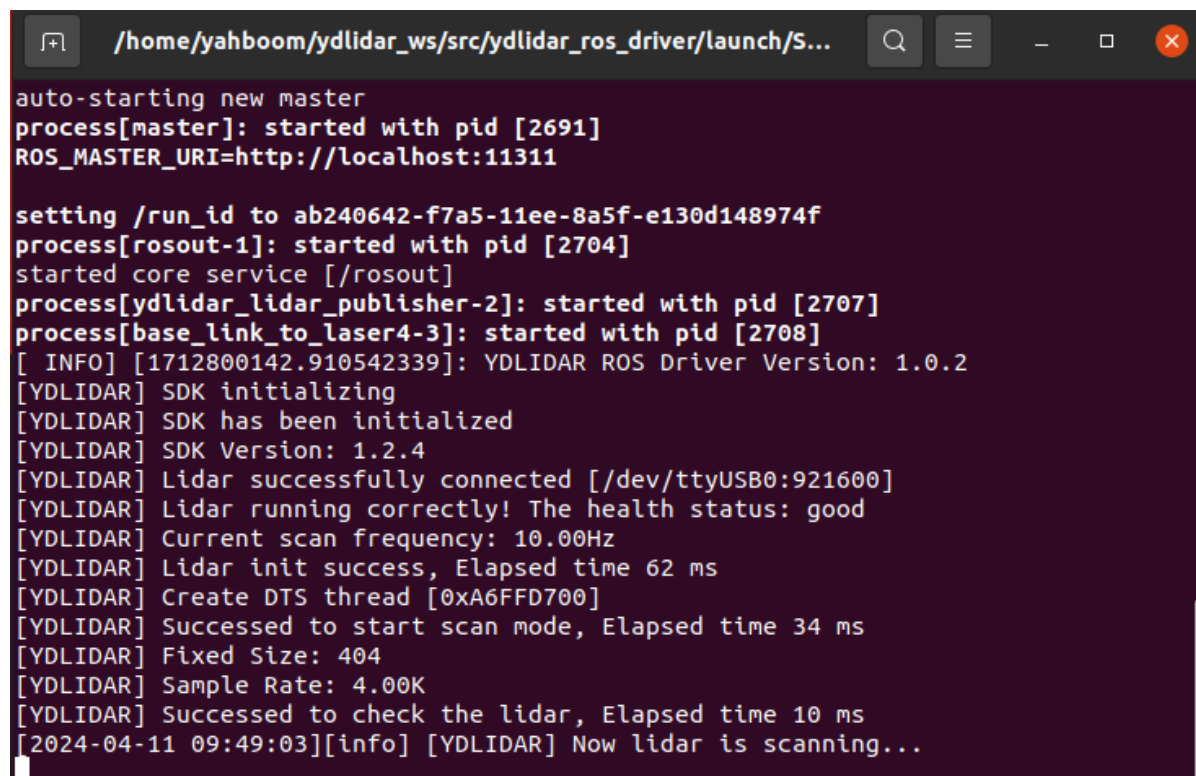
4. Running programs

Terminal input,

ROS1,

```
roslaunch ydlidar_ros_driver SDM18.launch
```

The screenshot of successful operation is as follows,



```
/home/yahboom/ydlidar_ws/src/ydlidar_ros_driver/launch/S...  
auto-starting new master  
process[roscpp]: started with pid [2691]  
ROS_MASTER_URI=http://localhost:11311  
  
setting /run_id to ab240642-f7a5-11ee-8a5f-e130d148974f  
process[rosout-1]: started with pid [2704]  
started core service [/rosout]  
process[ydlidar_lidar_publisher-2]: started with pid [2707]  
process[base_link_to_laser4-3]: started with pid [2708]  
[ INFO] [1712800142.910542339]: YDLIDAR ROS Driver Version: 1.0.2  
[YDLIDAR] SDK initializing  
[YDLIDAR] SDK has been initialized  
[YDLIDAR] SDK Version: 1.2.4  
[YDLIDAR] Lidar successfully connected [/dev/ttyUSB0:921600]  
[YDLIDAR] Lidar running correctly! The health status: good  
[YDLIDAR] Current scan frequency: 10.00Hz  
[YDLIDAR] Lidar init success, Elapsed time 62 ms  
[YDLIDAR] Create DTS thread [0xA6FFD700]  
[YDLIDAR] Succeeded to start scan mode, Elapsed time 34 ms  
[YDLIDAR] Fixed Size: 404  
[YDLIDAR] Sample Rate: 4.00K  
[YDLIDAR] Succeeded to check the lidar, Elapsed time 10 ms  
[2024-04-11 09:49:03][info] [YDLIDAR] Now lidar is scanning...
```

You can enter the following command to view specific data,

```
rostopic echo /scan
```

```
yahboom@yahboom-virtual-machine: ~/ydlidar_ws
yahboom@yahboom-virtual-machine:~/ydlidar_ws$ rostopic echo /scan
header:
  seq: 1593
  stamp:
    secs: 1712800196
    nsecs: 186082000
  frame_id: "laser_frame"
angle_min: -3.1415927410125732
angle_max: 3.1415927410125732
angle_increment: inf
time_increment: inf
scan_time: 0.029839999973773956
range_min: 0.009999999776482582
range_max: 50.0
ranges: [2.990999937057495]
intensities: [1525.0]
---
header:
  seq: 1594
  stamp:
    secs: 1712800196
    nsecs: 216199000
  frame_id: "laser_frame"
angle_min: -3.1415927410125732
```

The data in ranges is the actual measured distance, measured in meters.

ROS2

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

The following screenshot appears when running successfully,

```
yahboom@yahboom-VM: ~
yahboom@yahboom-VM:~$ ros2 launch ydlidar_ros2_driver ydlidar_launch.py
[INFO] [launch]: All log files can be found below /home/yahboom/.ros/log/2024-04-10-14-31-32-285878-yahboom-VM-5767
[INFO] [launch]: Default logging verbosity is set to INFO
[INFO] [ydlidar_ros2_driver_node-1]: process started with pid [5778]
[INFO] [static_transform_publisher-2]: process started with pid [5780]
[static_transform_publisher-2] [WARN] [1712730692.611677654] [:]: Old-style arguments are deprecated; see --help for new-style arguments
[static_transform_publisher-2] [INFO] [1712730692.665684054] [static_tf_pub_laser]: Spinning until stopped - publishing transform
[static_transform_publisher-2] translation: ('0.000000', '0.000000', '0.020000')
[static_transform_publisher-2] rotation: ('0.000000', '0.000000', '0.000000', '1.000000')
[static_transform_publisher-2] from 'base_link' to 'laser_frame'
[ydlidar_ros2_driver_node-1] [INFO] [1712730692.667410531] [ydlidar_ros2_driver_node]: [YDLIDAR INFO] Current ROS Driver Version: 1.0.1
[ydlidar_ros2_driver_node-1]
[ydlidar_ros2_driver_node-1] [YDLIDAR] SDK initializing
[ydlidar_ros2_driver_node-1] [YDLIDAR] SDK has been initialized
[ydlidar_ros2_driver_node-1] [YDLIDAR] SDK Version: 1.2.4
[ydlidar_ros2_driver_node-1] [YDLIDAR] Lidar successfully connected [/dev/ttyUSB0:921600]
[ydlidar_ros2_driver_node-1] [YDLIDAR] Lidar running correctly! The health status: good
[ydlidar_ros2_driver_node-1] [YDLIDAR] Current scan frequency: 10.00Hz
[ydlidar_ros2_driver_node-1] [YDLIDAR] Lidar init success, Elapsed time 176 ms
[ydlidar_ros2_driver_node-1] [YDLIDAR] Create DTS thread [0x44E11640]
[ydlidar_ros2_driver_node-1] [YDLIDAR] Succeeded to start scan mode, Elapsed time 31 ms
[ydlidar_ros2_driver_node-1] [YDLIDAR] Fixed Size: 404
[ydlidar_ros2_driver_node-1] [YDLIDAR] Sample Rate: 4.00K
[ydlidar_ros2_driver_node-1] [YDLIDAR] Succeeded to check the lidar, Elapsed time 10 ms
[ydlidar_ros2_driver_node-1] [2024-04-10 14:31:32][info] [YDLIDAR] Now lidar is scanning...
```

You can enter the following command to view specific data,

```
ros2 topic echo /scan
```

```
yahboom@yahboom-VM: ~  
angle_min: -3.1415927410125732  
angle_max: 3.1415927410125732  
angle_increment: .inf  
time_increment: .inf  
scan_time: 0.04973199963569641  
range_min: 0.009999999776482582  
range_max: 50.0  
ranges:  
- 3.188999891281128  
intensities:  
- 1151.0  
---  
header:  
  stamp:  
    sec: 1712730887  
    nanosec: 197642000  
  frame_id: laser_frame  
angle_min: -3.1415927410125732  
angle_max: 3.1415927410125732  
angle_increment: .inf  
time_increment: .inf  
scan_time: 0.05055199936032295  
range_min: 0.009999999776482582  
range_max: 50.0  
ranges:  
- 3.1600000858306885  
intensities:  
- 1169.0
```

The data in ranges is the actual measured distance, measured in meters.