

1、Preparation

1、Install SDK

Extract the YDLidar-SDK.rar file in the folder to get a file YDLidar-SDK. Copy the file to your own file directory.

Take the installation in the/home directory as an example, and then enter it in sequence.

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

2、Compile ROS function package

ROS1

Extract the ydlidar in the folder_ ros_ Driver.rar file, get a file ydlidar_ ros_ Driver, copy the function package to the src directory of the created workspace, open the terminal in the workspace, and enter the following command.

For ROS1:

```
catkin_make -DCATKIN_WHITELIST_PACKAGES=ydlidar_ros_driver
```

ROS2

Extract the ydlidar in the folder_ ros2_ Driver.rar file, get a file ydlidar_ ros2_ Driver, copy the function package to the src directory of the created workspace, open the terminal in the workspace, and enter the following command.

For ROS2:

```
colcon build --symlink-install
```

3、Create a serial port alias

In order to prevent identification 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
```

~/catkin_ws/src/ydlidar_ ros_ The driver is the location where the function package is installed, which needs to be modified according to the actual situation.

Note: After completing the previous operation, please re-insert the module .

Input the following command to check whether the recognition is created successfully,

```
ll /dev/ydlidar
```

If the following screen appears, it means success.

```
yahboom@VM:~$ ll /dev/ydlidar
lrwxrwxrwx 1 root root 7 Feb 18 12:15 /dev/ydlidar -> ttyUSB0
```

Note: This is not necessarily ttyUSB0, but the serial number assigned by the system identification

4、Run code

Enter the following command.

ROS1

```
roslaunch ydlidar_ros_driver SDM15.launch
```

After successful operation, the terminal displays as follows.

```
setting /run_id to 3397fa98-af44-11ed-8713-000c297dd9fe
process[rosout-1]: started with pid [8401]
started core service [/rosout]
process[ydlidar_lidar_publisher-2]: started with pid [8407]
process[base_link_to_laser4-3]: started with pid [8409]
[ INFO ] [1676694298.171784747]: YDLIDAR ROS Driver Version: 1.0.2
[YDLIDAR] SDK initializing
[YDLIDAR] SDK has been initialized
[YDLIDAR] SDK Version: 1.1.4
[YDLIDAR] Lidar successfully connected
[YDLIDAR]:Lidar running correctly ! The health status: good
[YDLIDAR] Connection established in [/dev/ydlidar][460800]:
Firmware version: 0.9
Hardware version: 0
Model: SDM15
Serial: 2022070400000000
[YDLIDAR] Current scan frequency: 10.00Hz
[YDLIDAR] Lidar init success, Elapsed time 47 ms
[YDLIDAR] Create SDM thread 0x57FFF700
[YDLIDAR] Succeeded to start scan mode, Elapsed time 43 ms
[YDLIDAR] Sample Rate: 0.01K
[YDLIDAR] Current Sampling Rate : 0.01K
[YDLIDAR] Now YDLIDAR is scanning ...
```

Enter the following command to view the specific data.

```
rostopic echo /scan
```

```
---
header:
  seq: 4058
  stamp:
    secs: 1676694440
    nsecs: 128690000
  frame_id: "laser_frame"
angle_min: -3.14159274101
angle_max: 3.14159274101
angle_increment: inf
time_increment: nan
scan_time: 0.0
range_min: 0.00999999977648
range_max: 50.0
ranges: [3.2209999561309814]
intensities: [207.0]
---
```

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

ROS2

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

After successful operation, the terminal displays as follows.

```
nx-ros2@nxros2-desktop:~$ ros2 launch ydlidar_ros2_driver ydlidar_launch.py
[INFO] [launch]: All log files can be found below /home/nx-ros2/.ros/log/2023-02-20-16-46-27-877324-nxros2-desktop-15396
[INFO] [launch]: Default logging verbosity is set to INFO
/opt/ros/foxy/lib/python3.8/site-packages/launch_ros/actions/lifecycle_node.py:84: UserWarning: The parameter 'node_name' is deprecated, use 'name' instead
  warnings.warn("The parameter 'node_name' is deprecated, use 'name' instead")
/opt/ros/foxy/lib/python3.8/site-packages/launch_ros/actions/lifecycle_node.py:95: UserWarning: The parameter 'node_executable' is deprecated, use 'executable' instead
  super().__init__(name=name, namespace=namespace, **kwargs)
/opt/ros/foxy/lib/python3.8/site-packages/launch_ros/actions/node.py:196: UserWarning: The parameter 'node_namespace' is deprecated, use 'namespace' instead
  warnings.warn("The parameter 'node_namespace' is deprecated, use 'namespace' instead")
/home/nx-ros2/ydlidar_ws/install/ydlidar_ros2_driver/share/ydlidar_ros2_driver/launch/ydlidar_launch.py:46: UserWarning: The parameter 'node_executable' is deprecated, use 'executable' instead
  tf2_node = Node(package='tf2_ros',
/home/nx-ros2/ydlidar_ws/install/ydlidar_ros2_driver/share/ydlidar_ros2_driver/launch/ydlidar_launch.py:46: UserWarning: The parameter 'node_name' is deprecated, use 'name' instead
  tf2_node = Node(package='tf2_ros',
[INFO] [ydlidar_ros2_driver_node-1]: process started with pid [15408]
[INFO] [static_transform_publisher-2]: process started with pid [15410]
[ydlidar_ros2_driver_node-1] [INFO] [1676882788.792898806] [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: 1.1.4
[static_transform_publisher-2] [INFO] [1676882788.801972249] [static_tf_pub_laser]: Spinning until killed publishing transform from 'base_link' to 'laser_frame'
[ydlidar_ros2_driver_node-1] [YDLIDAR] Lidar successfully connected
[ydlidar_ros2_driver_node-1] [YDLIDAR]:Lidar running correctly ! The health status: good
[ydlidar_ros2_driver_node-1] [YDLIDAR] Connection established in [/dev/ydlidar][460800]:
[ydlidar_ros2_driver_node-1] Firmware version: 0.9
[ydlidar_ros2_driver_node-1] Hardware version: 0
[ydlidar_ros2_driver_node-1] Model: SDM15
[ydlidar_ros2_driver_node-1] Serial: 2022070400000000
[ydlidar_ros2_driver_node-1] [YDLIDAR] Current scan frequency: 10.00Hz
[ydlidar_ros2_driver_node-1] [YDLIDAR] Lidar init success, Elapsed time 47 ms
[ydlidar_ros2_driver_node-1] [YDLIDAR] Create SDM thread 0x877AB9A0
[ydlidar_ros2_driver_node-1] [YDLIDAR] Succeeded to start scan mode, Elapsed time 43 ms
[ydlidar_ros2_driver_node-1] [YDLIDAR] Sample Rate: 0.01K
[ydlidar_ros2_driver_node-1] [YDLIDAR] Current Sampling Rate : 0.01K
[ydlidar_ros2_driver_node-1] [YDLIDAR] Now YDLIDAR is scanning ...
```

Enter the following command to view the specific data.

```
ros2 topic echo /scan
```

```
nx-ros2@nxros2-desktop:~$ ros2 topic echo /scan
```

```
header:
  stamp:
    sec: 1676882793
    nanosec: 32535000
  frame_id: laser_frame
angle_min: -3.1415927410125732
angle_max: 3.1415927410125732
angle_increment: .inf
time_increment: .nan
scan_time: 0.0
range_min: 0.009999999776482582
range_max: 64.0
ranges:
- 1.9479999542236328
intensities:
- 211.0
- -
header:
  stamp:
    sec: 1676882793
    nanosec: 92678000
  frame_id: laser_frame
angle_min: -3.1415927410125732
angle_max: 3.1415927410125732
angle_increment: .inf
time_increment: .nan
scan_time: 0.0
range_min: 0.009999999776482582
range_max: 64.0
ranges:
- 1.9479999542236328
intensities:
- 213.0
```

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