YDLIDAR TIA-H

USER MANUAL BETA

DOC# :01.13.005102

Shenzhen EAI Technology Co., Ltd.

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1 Operating Instructions on Windows

1.1 Device Connection

To evaluate and develop with the TIA-H on Windows, connect the TIA-H to a PC. The procedure is as follows:

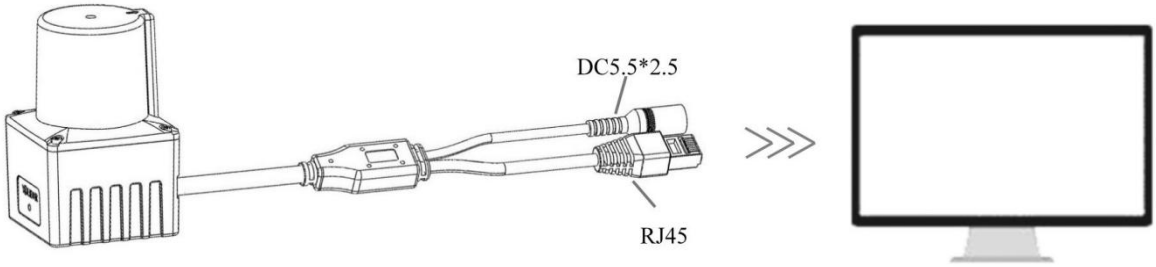

Figure 1 YDLIDAR TIA-H Device Connection

Connect one end of the connection cable to the PC Ethernet port via the RJ45 interface, and set the device and PC on the same subnet; connect the DC interface to a power outlet via a 12V-1A power adapter.

1.2 Network Configuration

The TIA-H ships with the following default network parameters:

IP Address: 192.168.0.11

Subnet Mask: 255.255.255.0

When connecting to the LiDAR for the first time, set the PC network parameters to the same subnet as the LiDAR parameters, with no IP conflict. As shown below:

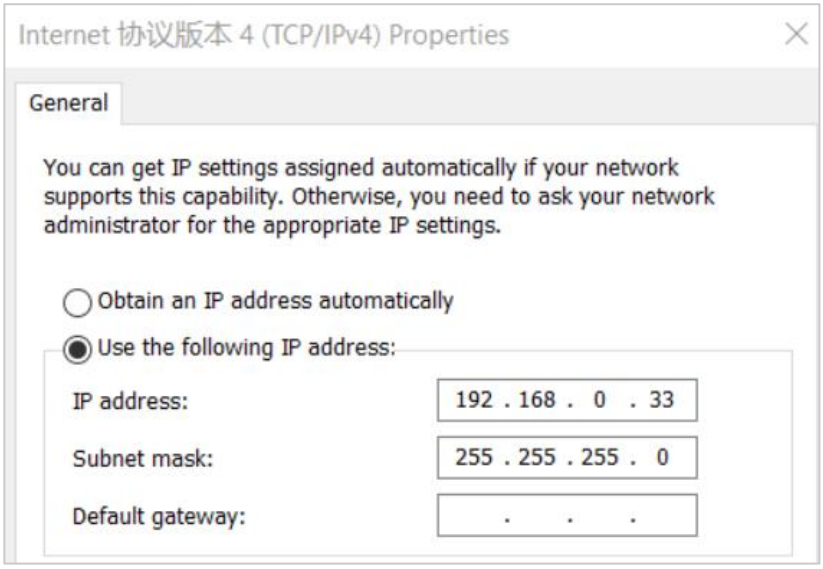

Figure 2 PC Network Configuration

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When using the LiDAR client software EaiLidarTest to view point cloud data, you must allow the software through the operating-system firewall to receive data. It is recommended to add the software to the firewall allowed-app list. Procedure: “Control Panel - System and Security - Allow an app through firewall”, and allow EaiLidarTest through the firewall.

1.3 Device Management

The TIA-H can be managed through a web interface. After the device is powered on, enter the device IP in a browser to open the web interface, as shown below:

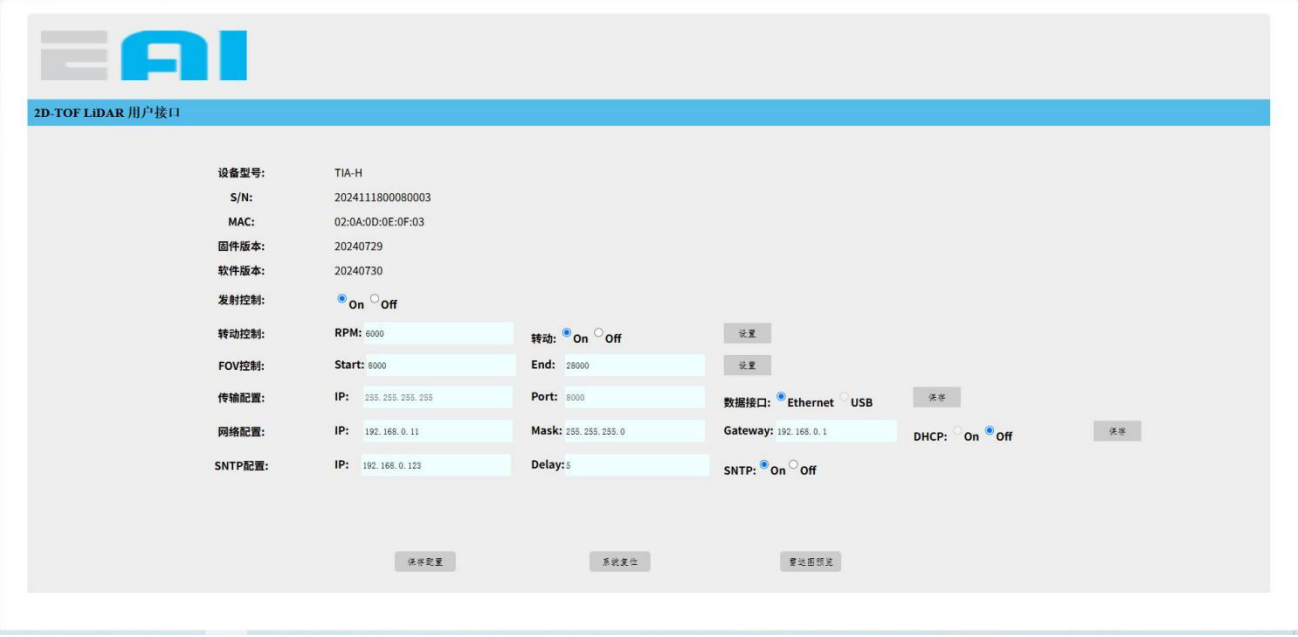

Figure 3 Web Interface Management

The web interface shows device information and allows configuration. The configuration items are defined as follows:

- Device Model: device model information;
- **S/N**: device serial number;
- **MAC**: device MAC address;
- Firmware Version: firmware version number, updated automatically after a firmware upgrade;
- Software Version: software version number, updated automatically after a software upgrade;
- Emission Control: controls laser emission; “on” enables it and “off” disables it;
- Rotation Control: controls motor rotation and sets the motor speed, which ranges from 3000 to 9000. Click the “Set” button to apply the setting;
- FOV Control: controls the scanning field of view. Set the start and end scan angles via the Start and End values; the minimum Start value is 80 and the maximum End value is 280. Click the “Set” button to apply the setting;
- Transfer Configuration: configures data-transfer parameters. Use IP and Port to set the destination host IP address and port number. The default IP is the broadcast IP and the default port is 8000. After changing any setting, click the “Save” button; the settings take effect after the device restarts. (USB transfer is not currently supported)

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- Network Configuration: configures the device network parameters, including IP address, subnet mask, and gateway, and enables DHCP for automatic IP assignment. After changing any setting, click the “Save” button; the settings take effect after the device restarts;
- Firmware Upgrade Upload: to perform an upgrade, select the upgrade file and click “Upload”; an “Upgrading” window will appear. Keep the power supply stable during the upgrade. After the upgrade completes, the device restarts to apply it;
- Calibration File Upload: upload the calibration file;
- Save Configuration: saves all current web configuration items; takes effect after the device restarts;
- System Reset: click to restart the device;
- LiDAR Chart Preview: launches the point-cloud LiDAR client software to preview the radar chart;

1.4 Using the Evaluation Software

YDLIDAR provides EaiLidarTest, a LiDAR client software for viewing the real-time point cloud data of TIA-H scans. With this software, users can visually observe the TIA-H scan results. EaiLidarTest displays the TIA-H real-time point cloud data and real-time scanning frequency, and can also save scan data offline to an external file for further analysis. Download the LiDAR client software at:

https://www.ydlidar.com/download/category/tool-sdk-ros_2/

Evaluation software: EaiLidarTest.exe. Select the default model (default IP: 192.168.0.11).

1.4.1 Main Interface

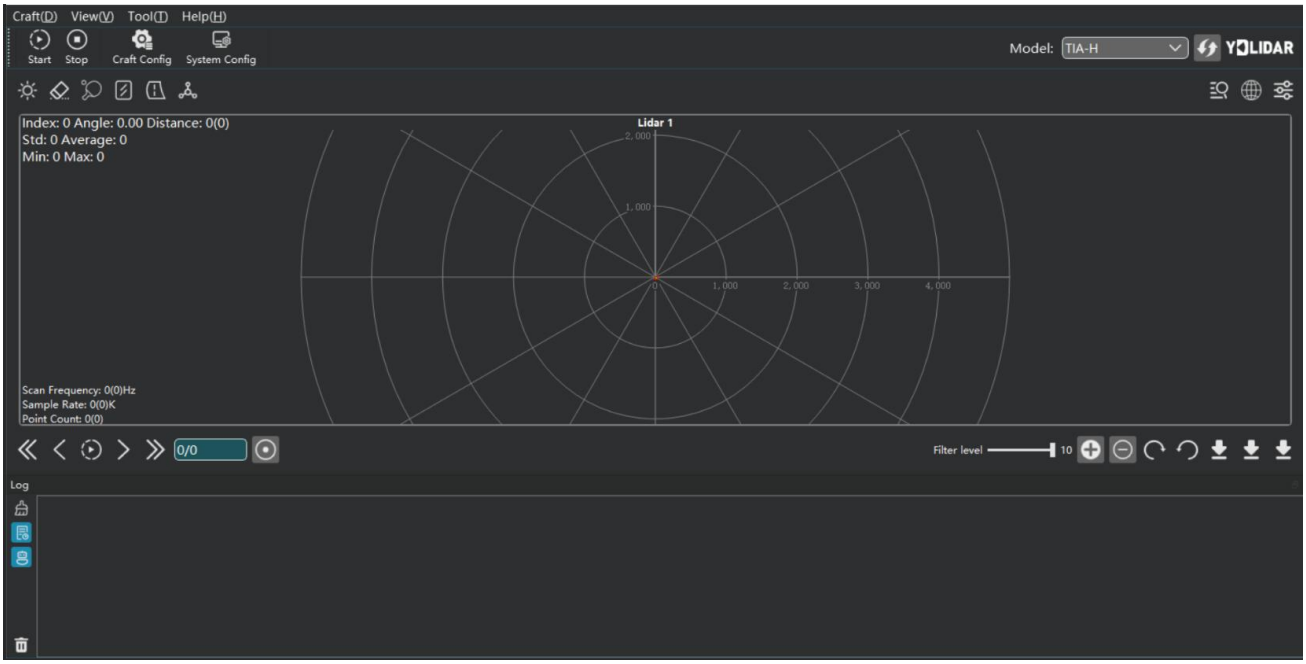

Figure 4 YDLIDAR TIA-H Main Interface

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1.4.2 Language Selection

Users can select their preferred language from the menu in the upper-left corner of the main interface: [Help] -> [Language] -> [Chinese].

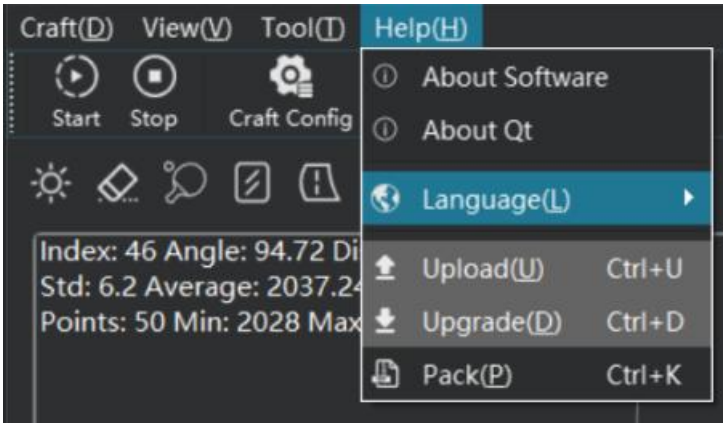
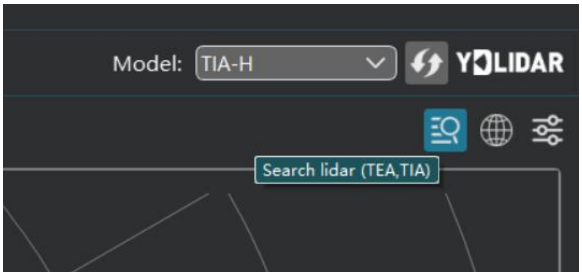


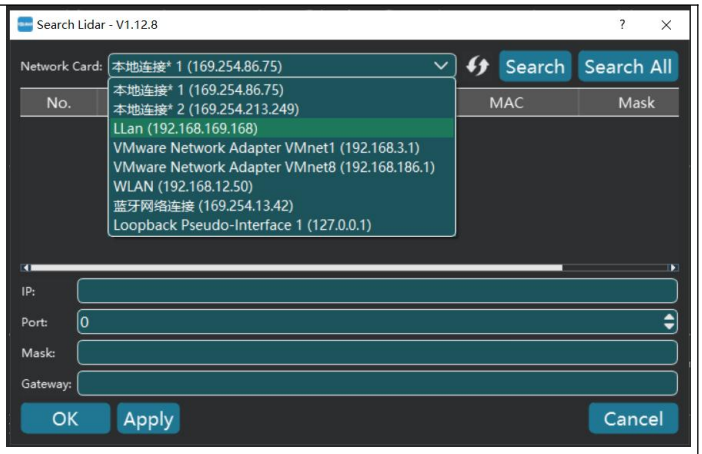
Figure 5 YDLIDAR TIA-H Language Selection

1.4.3 Searching for the LiDAR

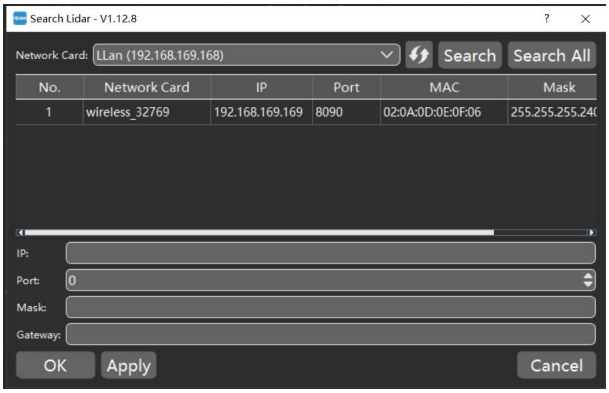
The default factory LiDAR IP address is 192.168.0.11. If the LiDAR IP address has been changed, refer to the instructions below to add a custom model. The IP address is searched automatically;



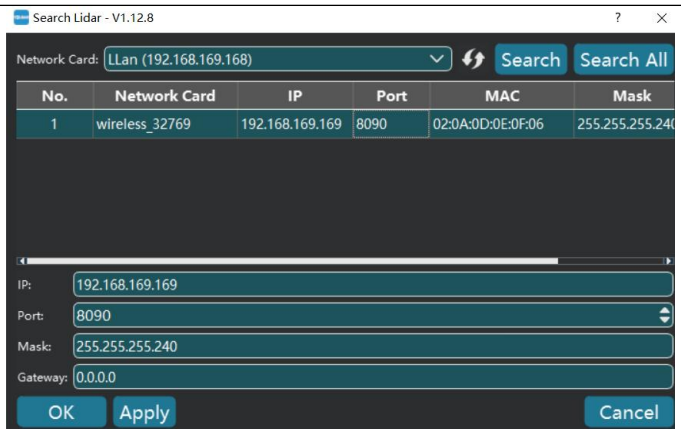
Step 1:Search lidar



Step 2:Select network adapter



Step 3:Search All



Step 4:Select lidar

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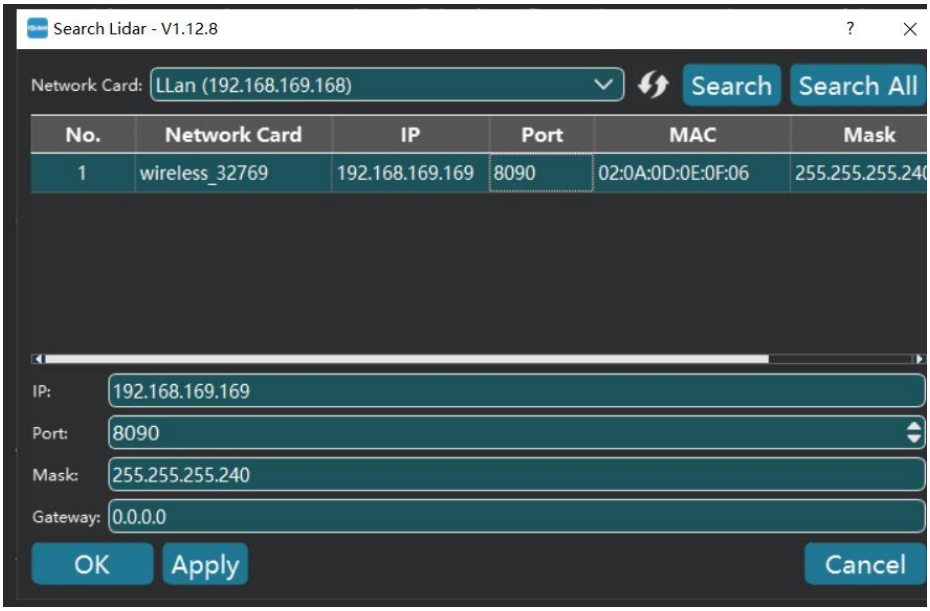
you may also click [Modify] to update the IP address.



1.4.4 Configuring LiDAR Parameters

Configure the basic LiDAR parameters as shown below. Select [Tools] -> [System Configuration] -> [LiDAR Configuration] to open the interface below. If you are configuring the LiDAR parameters for the first time, click the [Add] button.

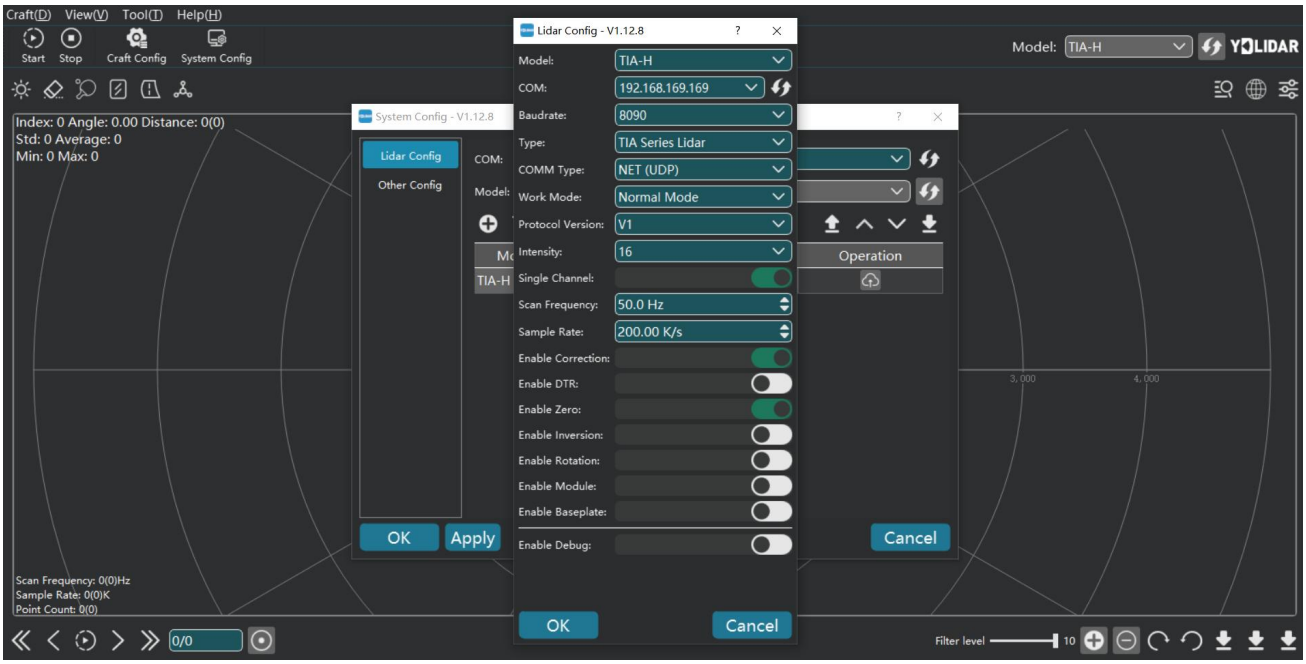


Figure 6 YDLIDAR TIA-H Parameter Configuration

1.4.5 Starting a Scan

When stopped, click the button. The LiDAR will automatically start scanning and display the surrounding point cloud; the angle & distance at the red-line position (unit: mm) is shown in the

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upper-left corner. Click again to stop the scan, as shown in the following figure:

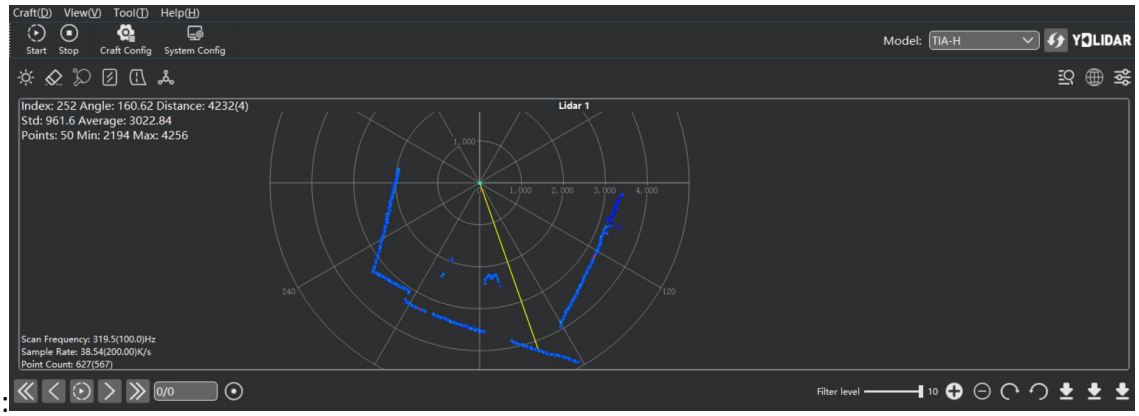

Figure 7 LiDAR Scan Point Cloud Display

1.4.6 Parameter Configuration (Scanning Frequency)

Click [Tools] in the main menu and select [System Configuration] -> [LiDAR Configuration] to configure the “sampling rate” and “scanning frequency”.

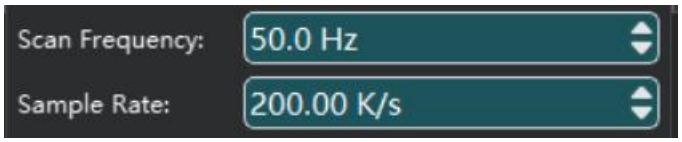

Figure 8 Parameter Configuration

2 ROS-Based Operating Instructions on Linux

There are many Linux distributions; this document uses Ubuntu 18.04 and ROS Melodic as examples.

SDK driver repository:
https://github.com/YDLIDAR/LIDAR_SDK

ROS driver repository:
https://github.com/YDLIDAR/LIDAR_ros_driver

ROS2 driver repository:
https://github.com/YDLIDAR/LIDAR_ros2_driver

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2.1 Device Connection

On Linux, the procedure for connecting the TIA-H to a PC is the same as on Windows; refer to **Device Connection** under Windows.

2.2 Compile and Install LIDAR_SDK

LIDAR_ros_driver depends on the LIDAR_SDK library. If you have never installed the LIDAR_SDK library, or if it is outdated, you must install the LIDAR_SDK library first. If you have installed the latest version of LIDAR_SDK, skip this step and proceed to the next one.

```
$git clone https://github.com/YDLIDAR/LIDAR_SDK.git
$cd LIDAR_SDK/build
$ cmake ..
$ make
$ sudo make install
```

2.3 Installing the ROS Driver Package

1) Clone the LIDAR_ros_driver package from GitHub:

```
$ git clone https://github.com/YDLIDAR/LIDAR_ros_driver.git
LIDAR_ros/src/LIDAR_ros_driver
```

2) Build the LIDAR_ros_driver package:

```
$ cd LIDAR_ros
$ catkin_make
```

3) Set up the package environment:

```
$ source ./devel/setup.sh
```

Note: add the workspace environment variables permanently. It is convenient to have the ROS environment variables added to your bash session automatically each time you start a new shell:

```
$ echo "source ~/LIDAR_ros/devel/setup.bash" >> ~/.bashrc
$ source ~/.bashrc
```

4) To confirm that your package path is set, echo the ROS_PACKAGE_PATH variable.

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```
$ echo $ROS_PACKAGE_PATH
```

You should see something like: /home/tony/LIDAR_ros/src:/opt/ros/melodic/share.

5) Create a serial port alias [optional].

```
$ chmod 0777 src/LIDAR_ros_driver/startup/*
$ sudo sh src/LIDAR_ros_driver/startup/initenv.sh
```

Note: after completing the above steps, please re-insert the LiDAR.

2.4 Running LIDAR.launch

To run the launch file, use the following example:

```
$ cd src/LIDAR_ros_driver/launch
$ roslaunch LIDAR.launch
```

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3 Revision History

Date	Version	Revision Description
2022-12-21	0.1.0	Initial release
2023-05-22	0.1.1	Optimized SDK and ROS build instructions
2023-12-07	0.1.2	Updated Chapter 2
2025-06-21	0.1.3	Updated LiDAR client download URL
2026-10-26	0.1.4	Updated TIA-H LiDAR user interface

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