

# 1、Environment construction

## 1.1、Installation related dependencies

Input following command in terminal.

```
sudo apt install libgflags-dev ros-$ROS_DISTRO-image-geometry ros-$ROS_DISTRO-camera-info-manager ros-$ROS_DISTRO-image-transport ros-$ROS_DISTRO-image-publisher libgoogle-glog-dev libusb-1.0-0-dev libeigen3-dev nlohmann-json3-dev
```

## 1.2、Install libuvc

Input following command in terminal.

```
git clone https://github.com/libuvc/libuvc.git
cd libuvc
mkdir build && cd build
cmake .. && make -j2
sudo make install
sudo ldconfig
```

## 1.3、Compile function package

Set up the workspace (Take astra\_ws as an example here).

Extract the folder, and get ros2\_astra\_camera folder.

Copy this folder to the src directory of the workspace, and then input the following instructions to compile.

```
cd ~/astra_ws #My workspace in the~directory. Modify it according to your workspace directory
colcon build --event-handlers console_direct+ --cmake-args -DCMAKE_BUILD_TYPE=Release
```

Compilation will take some time, please wait patiently.

## 1.4、Install libusb rules

Input following command in terminal.

```
cd ~/astra_ws/src/ros2_astra_camera/astra_camera/scripts #My workspace in the~directory. Modify it according to your workspace directory
sudo chmod 777 *
sudo bash install.sh
sudo udevadm control --reload-rules && sudo udevadm trigger
```

## 1.5、 Add environment working variables

Edit the `~/.bashrc` file and add the following statement to the last line.

```
sudo vim ~/.bashrc
source ~/astra_ws/install/setup.bash    #My workspace in the~directory. Modify
it according to your workspace directory
```

After saving and exiting. Then, refresh the environment variables

## 1.6、 Run camera

Connect the camera to the motherboard or computer. If it is a virtual machine, you need to ensure the USB3.0 connection.

Input following command in terminal.

```
ros2 launch astra_camera astra_pro.launch.xml    #astrapro camera
ros2 launch astra_camera astra_pro_plus.launch.xml    #astraproplus camera
```

```
[INFO] [astra_camera_node-1]: process started with pid [4753]
[astra_camera_node-1] Warning: class_loader.impl: SEVERE WARNING!!! A namespace collision has occurred with plugin factory for class
rclcpp_components::NodeFactoryTemplate<astra_camera::OBCameraNodeFactory>. New factory will OVERWRITE existing one. This situation
occurs when libraries containing plugins are directly linked against an executable (the one running right now generating this messag
e). Please separate plugins out into their own library or just don't link against the library and use either class_loader::ClassLoad
er/MultiLibraryClassLoader to open.
[astra_camera_node-1] at line 253 in /opt/ros/foxy/include/class_loader/class_loader_core.hpp
[astra_camera_node-1] [INFO] [1677636014.919825971] [camera.camera]: init done.
[astra_camera_node-1] [INFO] [1677636014.920576240] [camera.camera]: Waiting for device connection...
[astra_camera_node-1] [INFO] [1677636014.920839343] [device_listener]: Found 1 devices
[astra_camera_node-1] [INFO] [1677636014.921054701] [camera.camera]: Trying to open device: 2bc5/0403@3/8
[astra_camera_node-1] [INFO] [1677636015.134494844] [camera.camera]: Device connected: Astra serial number: ACPX42300AR
[astra_camera_node-1] [INFO] [1677636015.134559156] [camera.camera]: starting device
[astra_camera_node-1] [INFO] [1677636015.154419272] [camera.camera]: set depth video mode Resolution :640x480@30Hz
[astra_camera_node-1] format PIXEL_FORMAT_DEPTH_1_MM
[astra_camera_node-1] [INFO] [1677636015.154724179] [camera.camera]: set ir video mode Resolution :640x480@30Hz
[astra_camera_node-1] format
[astra_camera_node-1] [INFO] [1677636015.162226822] [camera.camera]: open uvc camera
[astra_camera_node-1] [INFO] [1677636015.240022788] [camera.camera]: uvc config: vendor_id: 2bc5
[astra_camera_node-1] product_id: 501
[astra_camera_node-1] width: 640
[astra_camera_node-1] height: 480
[astra_camera_node-1] fps: 30
[astra_camera_node-1] serial_number: ACPX42300AR
[astra_camera_node-1] format: mjpeg
[astra_camera_node-1] frame_id: camera_color_frame
[astra_camera_node-1] optical_frame_id: camera_color_optical_frame
[astra_camera_node-1]
[astra_camera_node-1] [INFO] [1677636015.244075534] [camera.camera]: open camera success
[astra_camera_node-1] [INFO] [1677636015.245105565] [camera.camera]: set depth video mode Resolution :640x480@30Hz
[astra_camera_node-1] format PIXEL_FORMAT_DEPTH_1_MM
[astra_camera_node-1] [INFO] [1677636015.245486581] [camera.camera]: set ir video mode Resolution :640x480@30Hz
[astra_camera_node-1] format
[astra_camera_node-1] [WARN] [1677636015.245113560] [camera.camera]: Publishing dynamic camera transforms (/tf) at 10 Hz
[astra_camera_node-1] [INFO] [1677636015.266534949] [camera.camera]: depth is started
[astra_camera_node-1] [INFO] [1677636015.282501191] [camera.camera]: ir is started
[astra_camera_node-1] [INFO] [1677636015.282564343] [camera.camera]: Start UVC camera
[astra_camera_node-1] [INFO] [1677636015.301142086] [camera.camera]: set uvc mode 640x480@30 format UVC_FRAME_FORMAT_MJPEG
[astra_camera_node-1] [INFO] [1677636015.387368745] [camera.camera]: device started.
```

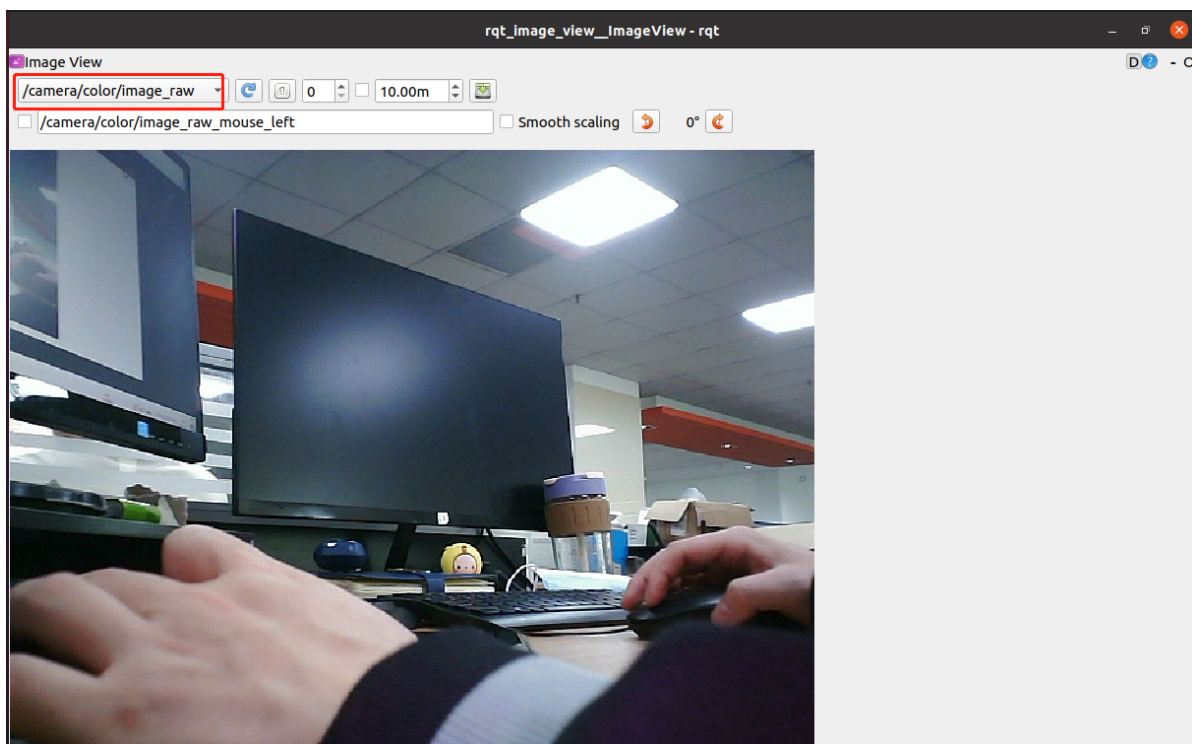
Input following command in terminal to view node and topic.

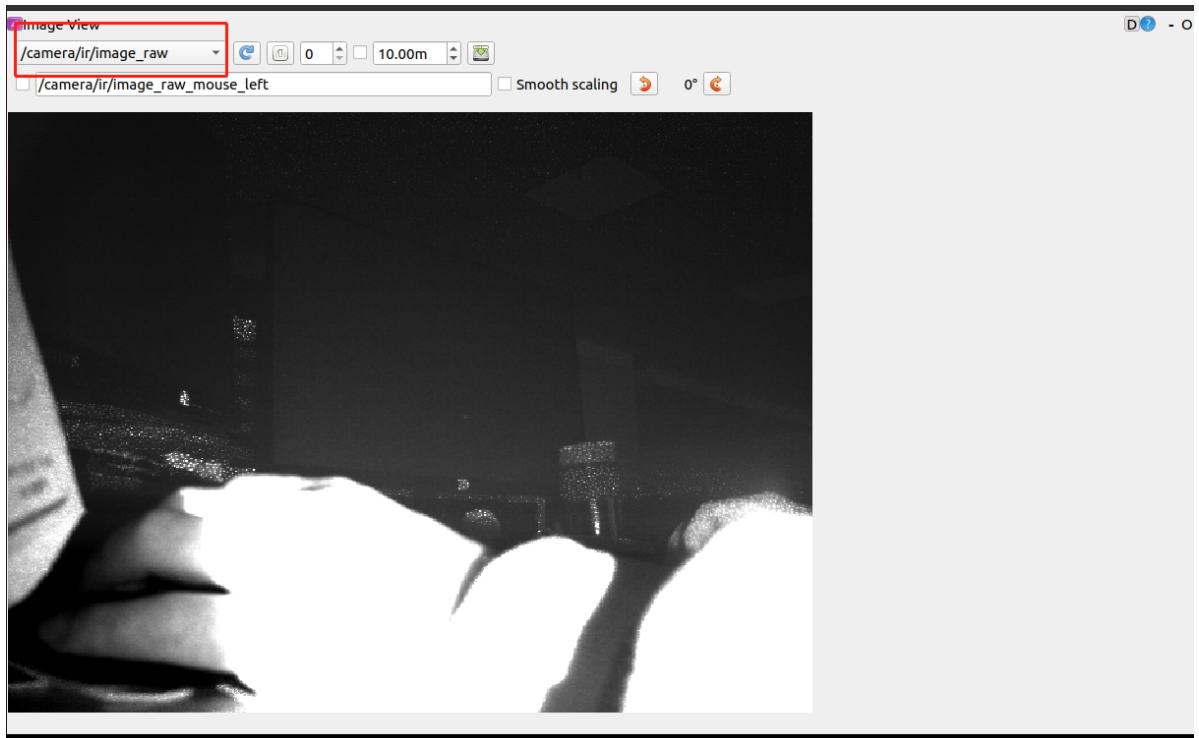
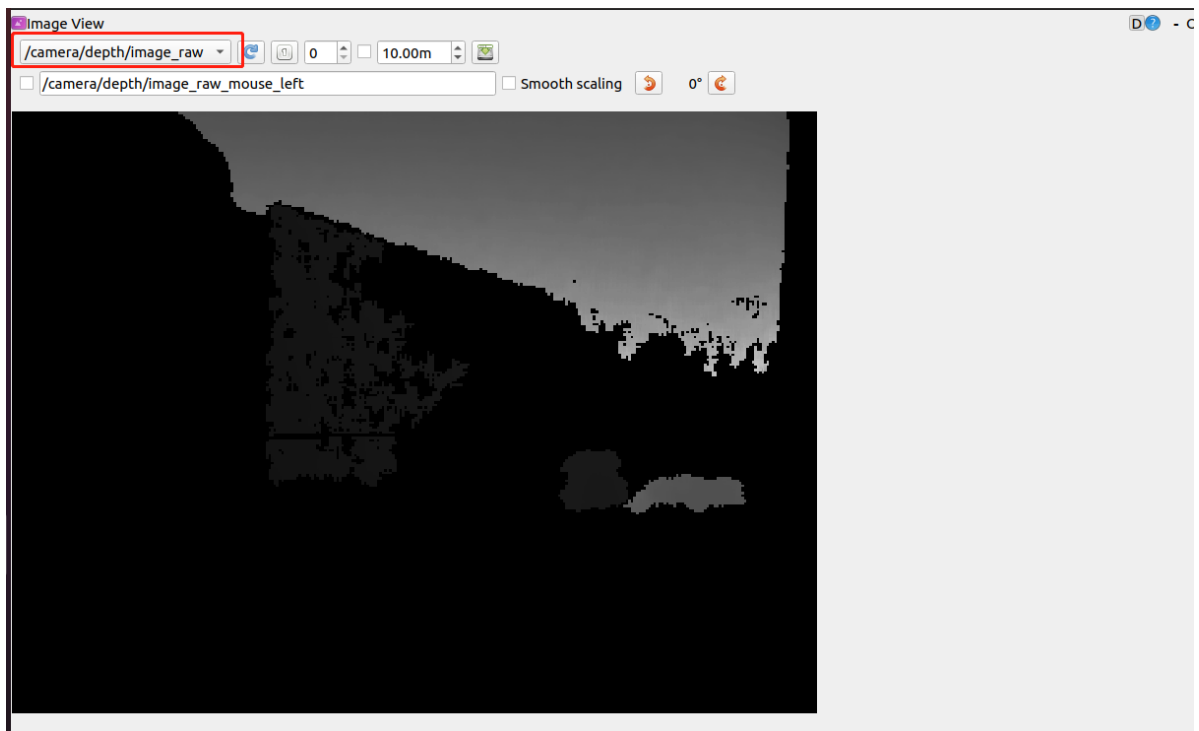
```
ros2 topic list
```

```
yahboom@yahboom-virtual-machine:~$ ros2 topic list
/camera/color/camera_info
/camera/color/image_raw
/camera/depth/camera_info
/camera/depth/image_raw
/camera/depth/points
/camera/ir/camera_info
/camera/ir/image_raw
/clicked_point
/goal_pose
/initialpose
/parameter_events
/rosout
/tf
/tf_static
```

Input following command in terminal to view image by rqt\_image tool.

```
ros2 run rqt_image_view rqt_image_view
```





Turn on RVIZ to view the depth point cloud information.

