1. Environment setup

This course takes **Ubuntu20.04+ros-foxy** as an example to explain how to build an environment and use a camera in a ros2 environment.

1. Install related dependencies

Terminal input,

```
sudo apt install libgflags-dev nlohmann-json3-dev libgoogle-glog-dev ros-foxy-image-transport ros-foxy-image-publisher
```

Here, foxy** is modified according to the actual ros2 version**. If it is galactic, just change it to galactic.

2. Compile the function package

1) Create a workspace

Take the example of creating a workspace named orbbec_ws in the ~ directory,

```
mkdir orbbec_ws
cd orbbec_ws
mkdir src
```

2) Copy the function package to the workspace

Unzip the file, copy and paste the folder (function package) under src to the ~/orbbec_ws/src directory just created.

3) Compile

Terminal input,

```
cd ~/orbbec_ws
colcon build
```

4) Add environment variables

Terminal input,

```
echo "source ~/orbbec_ws/install/setup.bash" >> ~/.bashrc
```

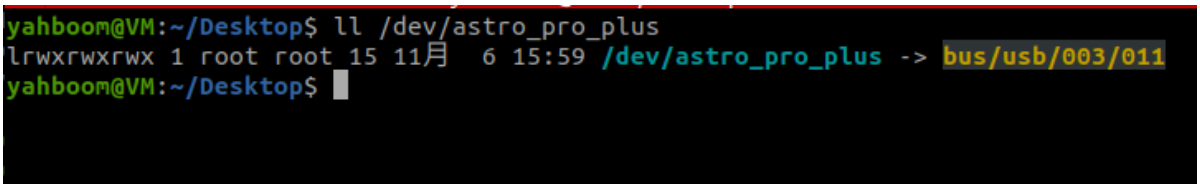
3) Install udev rules

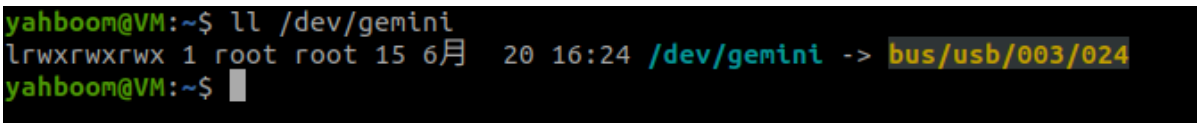
Terminal input,

```
cd ~/orbbec_ws/src/OrbbecSDK_ROS2/orbbec_camera/scripts
sudo bash install.sh
```

Enter the following command to check whether the rule file is loaded successfully and the camera is bound,

```
#astraproplus
ll /dev/astro_pro_plus
#gemini max
ll /dev/gemini
```





If the above picture appears, it means success.

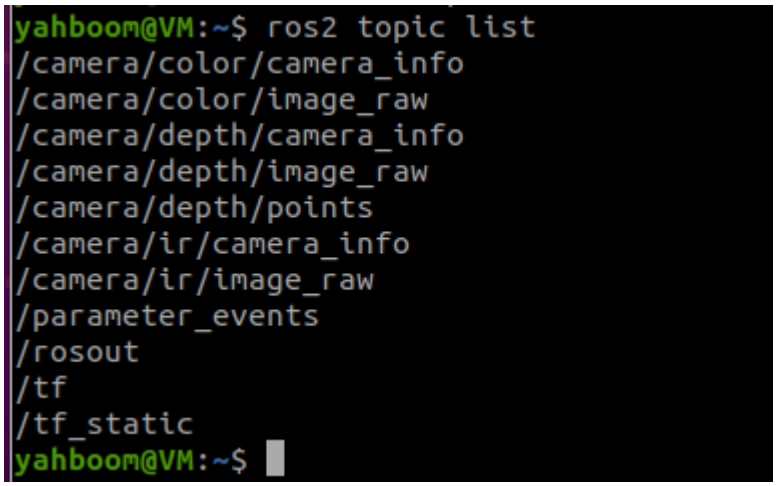
4. Run the camera and view the image

Terminal input,

```
#astraproplus camera launch
ros2 launch astra_camera astro_pro_plus.launch.xml
#gemini camera launch
ros2 launch astra_camera gemini.launch.xml
```

Enter the following command to view the topic information,

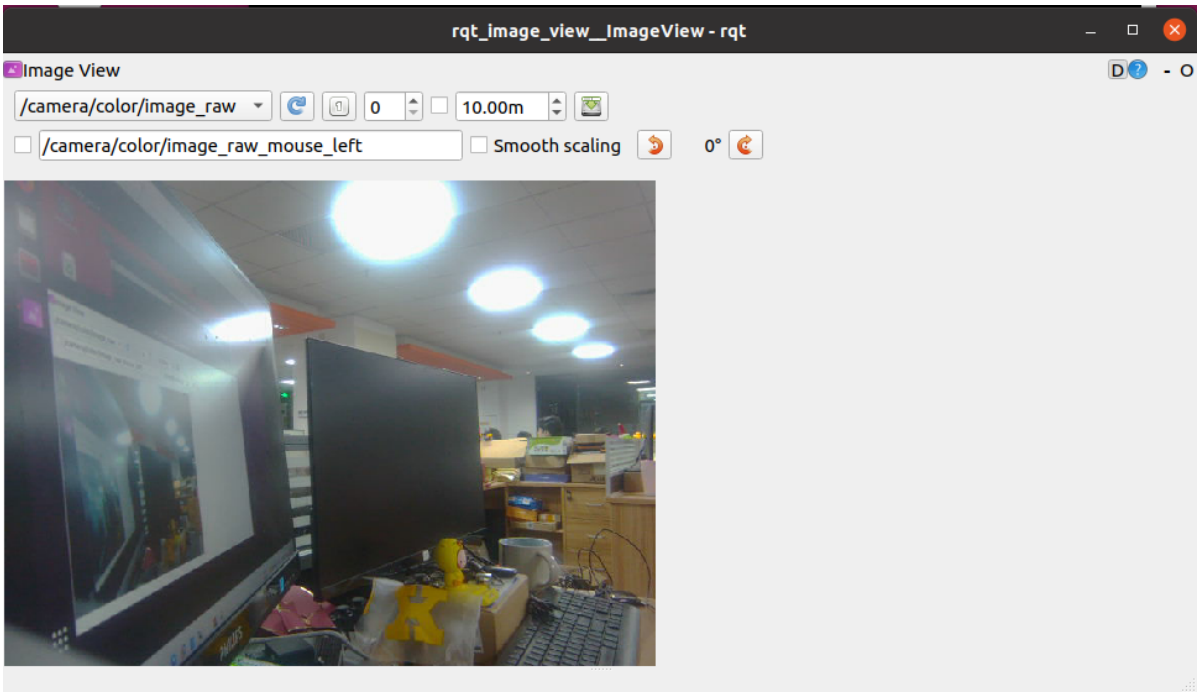
```
ros2 topic list
```



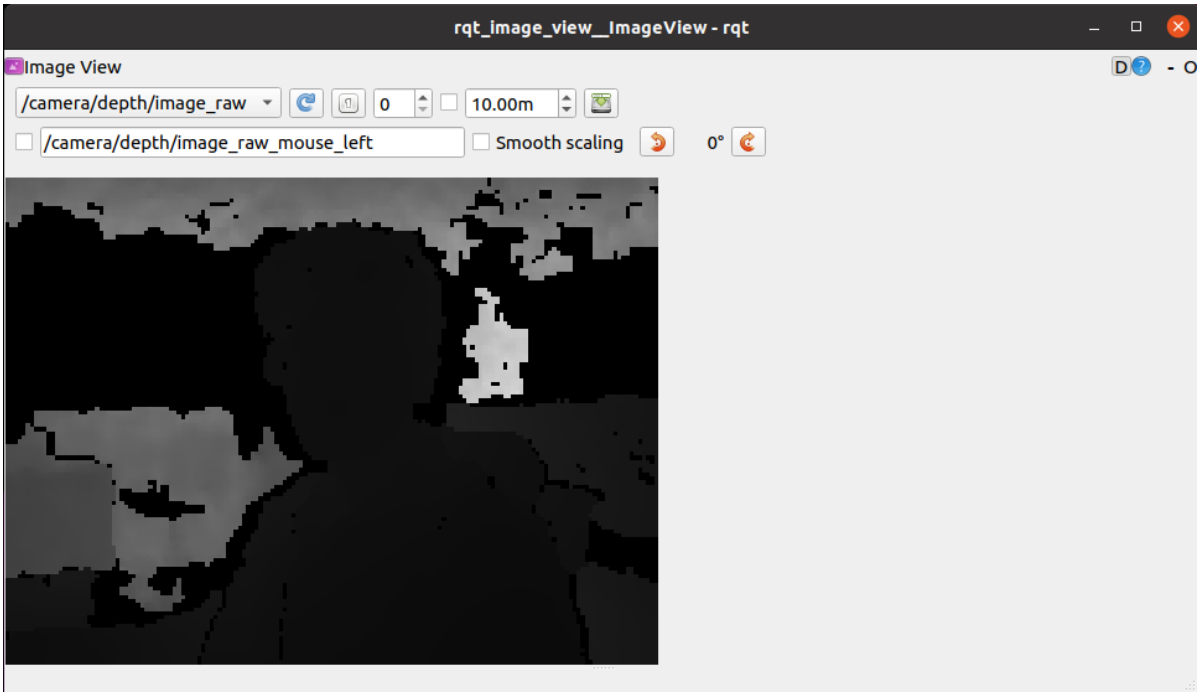
Use the rqt_image_view tool to view the image, terminal input,

```
ros2 run rqt_image_view rqt_image_view
```

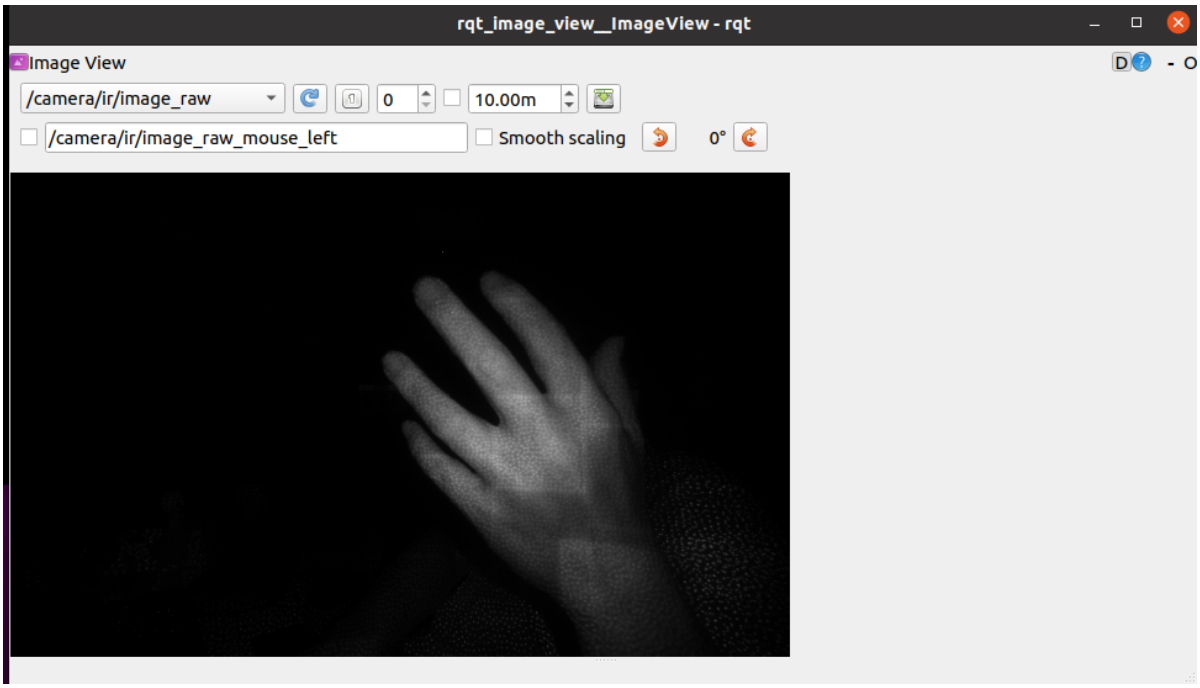
Color image



Depth image



IR image



Select the topic in the upper left corner.

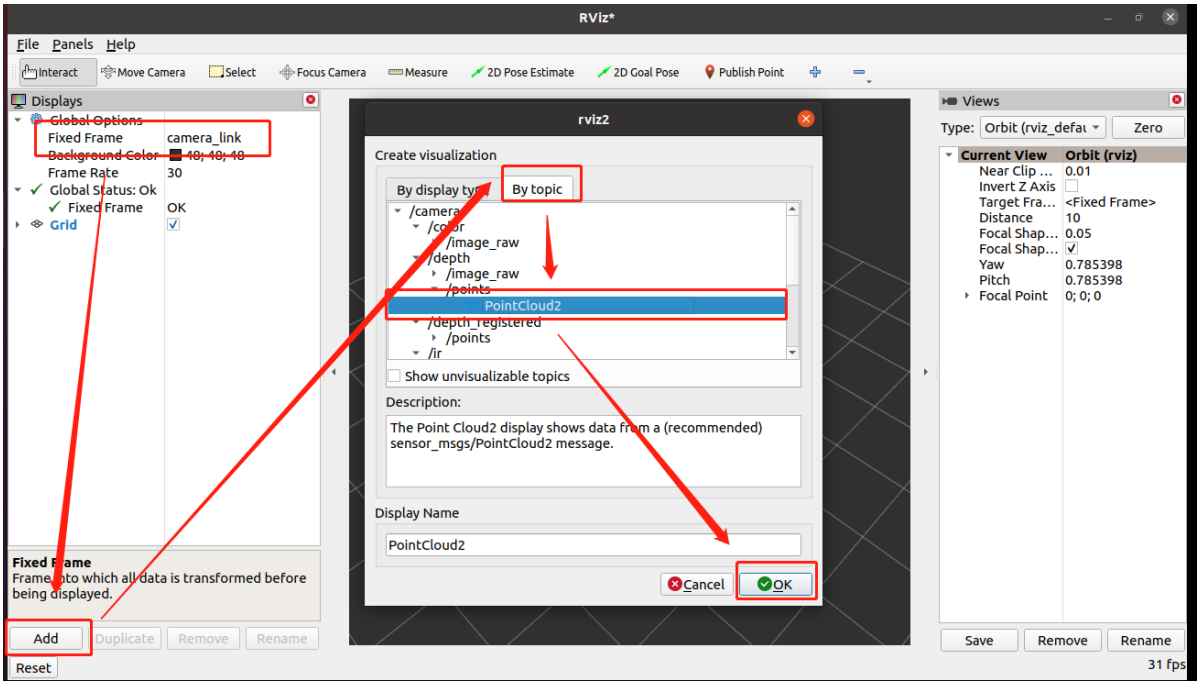
5. Run the camera and view the point cloud image

Terminal input,

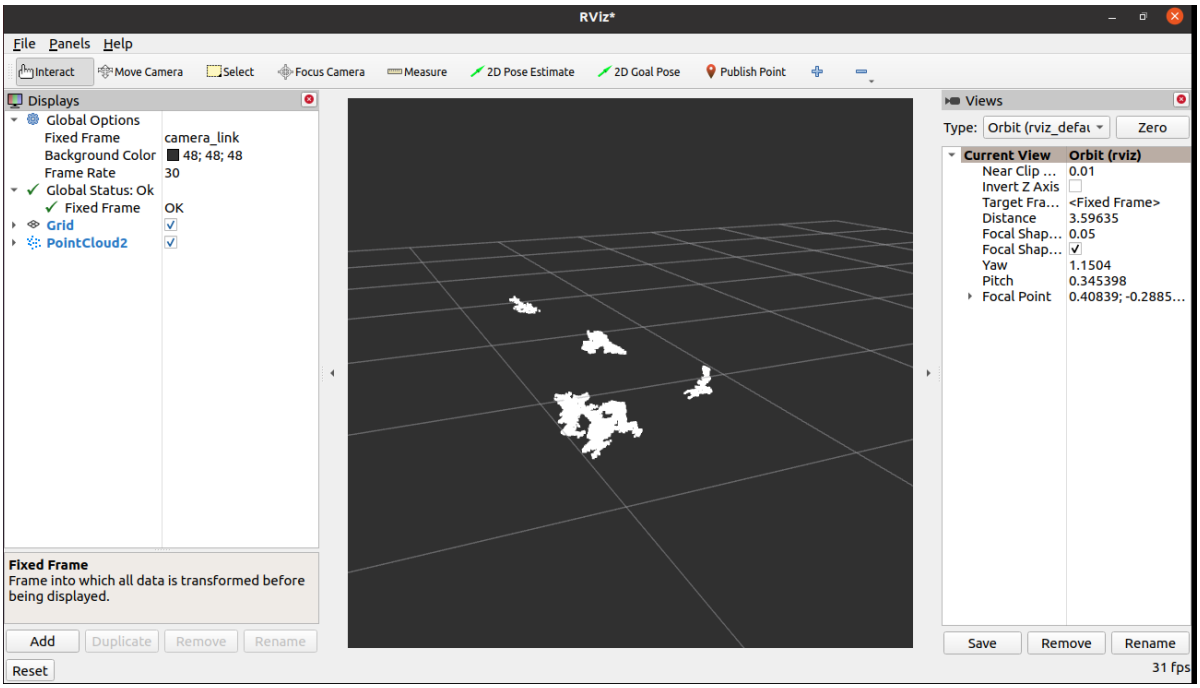
```
ros2 launch astra_camera gemini.launch.xml
```

You can see the point cloud data released by the camera in rviz, terminal input,

```
rviz2
```



After opening rviz, set the visualization point cloud data as shown in the figure above.


RViz*
File Panels Help
Interact
Move Camera
Select
Focus Camera
Measure
2D Pose Estimate
2D Goal Pose
Publish Point
Displays
Global Options
Fixed Frame camera_link
Background Color 48; 48; 48
Frame Rate 30
Global Status: Ok
Fixed Frame OK
Grid
PointCloud2
Fixed Frame
Frame into which all data is transformed before being displayed.
Add
Duplicate
Remove
Rename
Reset
Views
Type: Orbit (rviz_defa
Zero
Current View Orbit (rviz)
Near Clip ... 0.01
Invert Z Axis
Target Fra... <Fixed Frame>
Distance 3.59635
Focal Shap... 0.05
Focal Shap...
Yaw 1.1504
Pitch 0.345398
Focal Point 0.40839; -0.2885...
Save
Remove
Rename
31 fps