2、环境搭建

注：配套的虚拟机已经搭建好环境，无需要再做搭建。这里是说明在新的主板或者虚拟机上搭建需要进行的工作。

虚拟机环境的配置如下：

Ubuntu20.04 + ROS-Noetic+ OpenCV 4.2+Python3.8

2.1、安装相关依赖

终端输入，

```
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
```

2.2、创建ROS工作空间

以在~目录下，建立名为orbbec_ws的工作空间为例。

终端输入，

```
mkdir -p ~/ascam_ws/src
```

解压""源码""文件夹，把其中的src里面的文件夹复制到~/ascam_ws/src下，然后输入以下命令进行编译，

```
cd ~/ascam_ws
catkin_make
```

编译时出现以下报错，请多运行几次编译命令。直到编译成功。


```
[ 62%] Generating Javascript code from opencv_apps/Circle.msg
[ 63%] Generating C++ code from opencv_apps/Face.msg
[ 63%] Generating Javascript code from opencv_apps/CircleArray.msg
[ 64%] Generating Python from MSG opencv_apps/Point2DArray
[ 65%] Generating Javascript code from opencv_apps/CircleArrayStamped.msg
[ 65%] Generating C++ code from opencv_apps/FaceArray.msg
[ 65%] Generating Javascript code from opencv_apps/Moment.msg
[ 65%] Generating Python from MSG opencv_apps/Point2DArrayStamped
[ 65%] Generating Javascript code from opencv_apps/MomentArray.msg
/home/yahboom/ascam_ws/src/yahboomcar_mediapipe/src/mediapipe_point.cpp:12:10: f
atal error: yahboomcar_msgs/PointArray.h: No such file or directory
   12 | #include <yahboomcar_msgs/PointArray.h>
      |          ^~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
compilation terminated.
[ 65%] Generating C++ code from opencv_apps/FaceArrayStamped.msg
make[2]: *** [yahboomcar_mediapipe/CMakeFiles/mediapipe_point.dir/build.make:63:
 yahboomcar_mediapipe/CMakeFiles/mediapipe_point.dir/src/mediapipe_point.cpp.o]
Error 1
make[1]: *** [CMakeFiles/Makefile2:11095: yahboomcar_mediapipe/CMakeFiles/mediap
ipe_point.dir/all] Error 2
make[1]: *** Waiting for unfinished jobs....
```

编译完成后，输入以下命令，打开编辑~/.bashrc文件，

```
echo "source ~/ascam_ws/devel/setup.bash" >> ~/.bashrc
```
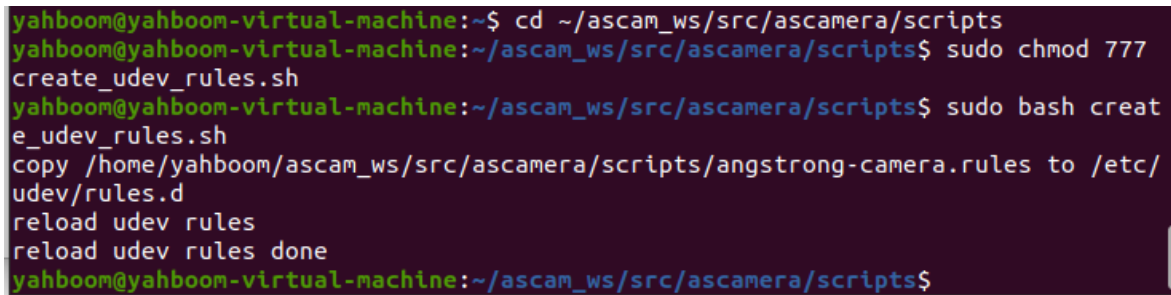
重新刷新环境，

```
source ~/.bashrc
```

2.3、安装相机udev规则文件

终端输入，

```
cd ~/ascam_ws/src/ascamera/scripts
sudo chmod 777 create_udev_rules.sh
sudo bash create_udev_rules.sh
```


出现上图代表安装成功。安装结束后，最好是重启一下。

2.4、使用相机
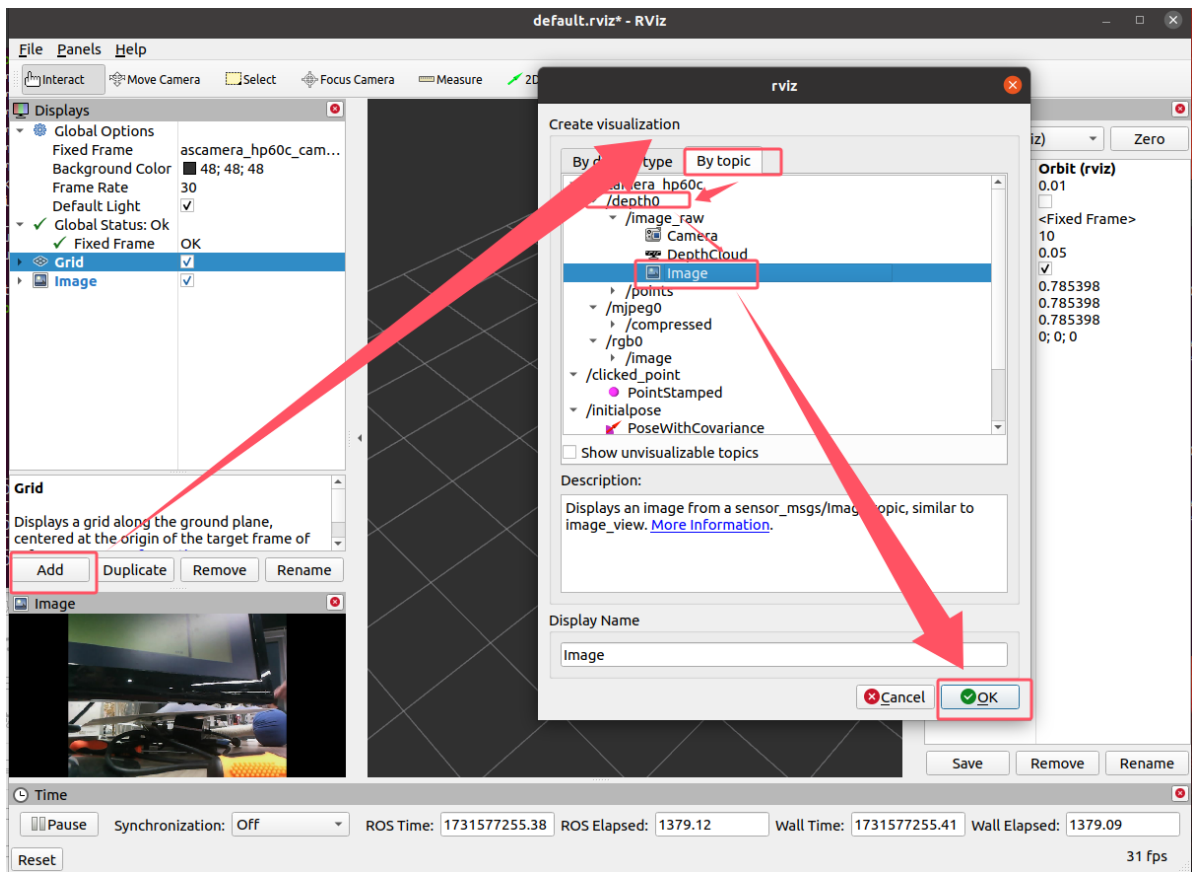
终端输入，

```
#启动相机
roslaunch ascamera hp60c.launch
```

使用rviz查看图像，再打开一个终端输入，

```
rviz
```

把Fixed Frame修改成ascamera_hp60c_camera_link_0，然后按下图所示，添加Image显示插件，在Image Topic栏选择显示彩色图像:**/ascamera_hp60c/rgb0/image**
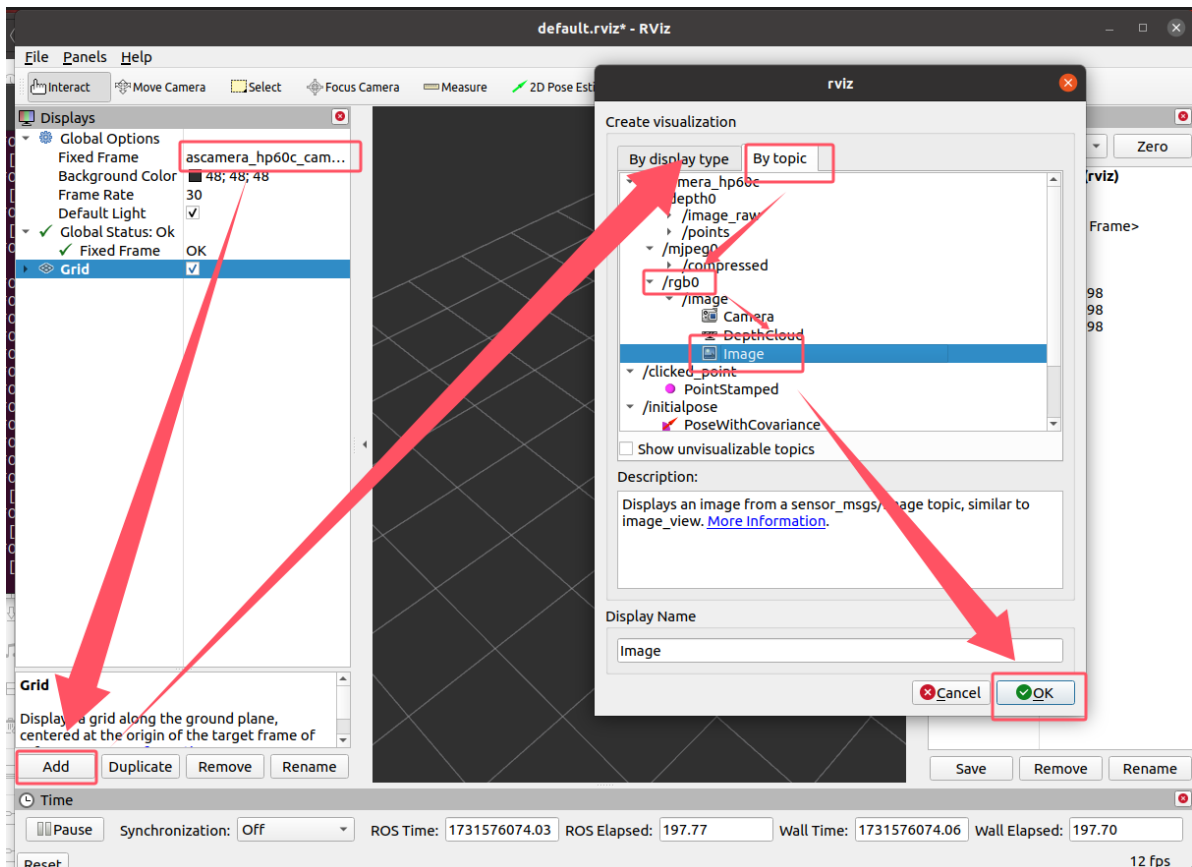
如下图，同样在Image Topic栏选择显示深度图像:**/ascamera_hp60c/depth/image_raw**

查看深度点云

default.rviz* - RViz

File   Panels   Help

Interact   Move Camera   Select   Focus Camera   Measure   2D Pose Estimate   2D Nav Goal   Publish Point

Displays

Global Options
  Fixed Frame   ascamera_hp60c_cam...
  Background Color   48; 48; 48
  Frame Rate   30
  Default Light   ✓
Global Status: Ok
  ✓ Fixed Frame   OK
Grid   ✓
Image   ✓
Image   ✓
PointCloud2   ✓

Grid

Displays a grid along the ground plane,
centered at the origin of the target frame of

Add   Duplicate   Remove   Rename

Image

Image

Views

Type: Orbit (rviz)   Zero

Current V...   Orbit (rviz)
  Near Cl...   0.01
  Invert ...
  Target ...   <Fixed Frame>
  Distance   10
  Focal S...   0.05
  Focal S...   ✓
  Yaw   6.14859
  Pitch   0.245398
  Field o...   0.785398
  Focal P...   0; 0; 0

Save   Remove   Rename

Time

Pause   Synchronization: Off   ROS Time: 1731577462.22   ROS Elapsed: 1585.96   Wall Time: 1731577462.25   Wall Elapsed: 1585.90

Reset   31 fps