2.ROS installation

Select the corresponding ros version according to the Ubuntu system. For the corresponding relationship, please refer to [1. ROS Introduction]-[1.5. Release Version] to select.This course takes the installation of **ROS-Noetic** on **Ubuntu20.04** as an example to explain how to install ros.

```
#Raspberry Pi 5 master control, ROS tutorials are all used in the DOCKER
container, just follow the ROS/07 and docker usage tutorials.
#ubuntu23.10 has not updated ROS yet. The host machine cannot install the ROS
environment for the time being. Waiting for subsequent updates...
```

2.1 Set ros source

Terminal input,

```
sudo sh -c 'echo "deb http://packages.ros.org/ros/ubuntu $(lsb_release -sc) main"
> /etc/apt/sources.list.d/ros-latest.list'
```

2.2 Set the key

Terminal input,

```
sudo apt-key adv --keyserver 'hkp://keyserver.ubuntu.com:80' --recv-key
C1CF6E31E6BADE8868B172B4F42ED6FBAB17C654
```

2.3 Update source

Terminal input,

```
sudo apt update
```

2.4 Install ROS-Noetic

What is installed here is the basic desktop version, terminal input,

```
sudo apt install ros-noetic-desktop -y
```

2.5 Set up ROS environment

Add the path of ROS to the environment variable so that when you open the terminal in the future, you can find the running environment of ROS and enter it in the terminal.

```
echo "source /opt/ros/noetic/setup.bash" >> ~/.bashrc
```

Then reopen the terminal or source to refresh the environment variables, and enter in the terminal,

```
source ~/.bashrc
```

2.6 Verification

Terminal input,

```
roscore
```

If the following screen appears, the installation can be successful.