# 安装 ROS Melodic

如果树莓派中烧录的镜像是本实验室提供的，可以不做本步；如果树莓派中烧录的是从官网下载的镜像文件，需要根据下面的步骤进行 melodic 的安装。

· ssh ubuntu@192.168.1.106【注意】IP 地址要自行查看

```
wangtao@wangtaodeMacBook-Pro ~ % ssh ubuntu@192.168.1.106
The authenticity of host '192.168.1.106 (192.168.1.106)' can't be established.
ED25519 key fingerprint is SHA256:nVeg2BYc20mMQIhRBBac3znt/qwrY5H+WSHU/maxlrY.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '192.168.1.106' (ED25519) to the list of known hosts.
ubuntu@192.168.1.106's password:
Welcome to Ubuntu 18.04.5 LTS (GNU/Linux 5.4.0-1015-raspi aarch64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

  System information as of Tue Dec 14 07:32:51 UTC 2021

  System load:  0.99              Processes:            123
  Usage of /:   5.4% of 28.95GB   Users logged in:      1
  Memory usage: 6%                IP address for eth0: 192.168.1.106
  Swap usage:   0%

 * Super-optimized for small spaces - read how we shrank the memory
   footprint of MicroK8s to make it the smallest full K8s around.

   https://ubuntu.com/blog/microk8s-memory-optimisation

180 packages can be updated.
130 updates are security updates.

Your Hardware Enablement Stack (HWE) is supported until April 2023.

Last login: Thu Aug  6 22:54:00 2020
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ubuntu:~$
```

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

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

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

C1CF6E31E6BADE8868B172B4F42ED6FBAB17C654

```
ubuntu@ubuntu:~$ sudo apt-key adv --keyserver 'hkp://keyserver.ubuntu.com:80' --recv-key
 C1CF6E31E6BADE8868B172B4F42ED6FBAB17C654
Executing: /tmp/apt-key-gpghome.HfCc6zTaId/gpg.1.sh --keyserver hkp://keyserver.ubuntu.c
om:80 --recv-key C1CF6E31E6BADE8868B172B4F42ED6FBAB17C654
gpg: key F42ED6FBAB17C654: public key "Open Robotics <info@osrfoundation.org>" imported
gpg: Total number processed: 1
gpg:               imported: 1
```

・sudo apt update

```
ubuntu@ubuntu:~$ sudo apt update
Hit:1 http://ports.ubuntu.com/ubuntu-ports bionic InRelease
Get:2 http://ports.ubuntu.com/ubuntu-ports bionic-updates InRelease [88.7 kB]
Hit:3 http://ports.ubuntu.com/ubuntu-ports bionic-backports InRelease
Hit:4 http://ports.ubuntu.com/ubuntu-ports bionic-security InRelease
Get:5 http://ports.ubuntu.com/ubuntu-ports bionic-updates/main arm64 Packages [1390 kB]
Get:6 http://ports.ubuntu.com/ubuntu-ports bionic-updates/universe arm64 Packages [1580 kB]
Get:7 http://packages.ros.org/ros/ubuntu bionic InRelease [4680 B]
Get:8 http://packages.ros.org/ros/ubuntu bionic/main arm64 Packages [759 kB]
Fetched 3823 kB in 53s (72.7 kB/s)
Reading package lists... Done
Building dependency tree
Reading state information... Done
172 packages can be upgraded. Run 'apt list --upgradable' to see them.
```

・sudo apt install ros-melodic-desktop-full

・sudo apt install python-rosdep

```
ubuntu@ubuntu:~$ sudo apt install python-rosdep
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following NEW packages will be installed:
  python-rosdep
0 upgraded, 1 newly installed, 0 to remove and 155 not upgraded.
Need to get 3236 B of archives.
After this operation, 21.5 kB of additional disk space will be used.
Get:1 http://packages.ros.org/ros/ubuntu bionic/main arm64 python-rosdep all 0.21.0-1 [3236 B]
Fetched 3236 B in 11s (307 B/s)
Selecting previously unselected package python-rosdep.
(Reading database ... 163411 files and directories currently installed.)
Preparing to unpack .../python-rosdep_0.21.0-1_all.deb ...
Unpacking python-rosdep (0.21.0-1) ...
Setting up python-rosdep (0.21.0-1) ...
```

・git clone https://gitee.com/mrobotit/mrobot_book.git

・cd robot_book/ch2

・sudo cp -r ros /etc/

・sudo vim /usr/lib/python2.7/dist-packages/rosdistro/__init__.py

・将文件中的

　DEFAULT_INDEX_URL='http://raw.githubusercontent.com/ros/rosdistro/master/index-v4.yaml'

修改为

DEFAULT_INDEX_URL='file:///etc/ros/rosdistro/master/index-v4.yaml'

```
#DEFAULT_INDEX_URL = 'https://raw.githubusercontent.com/ros/rosdistro/master/index-v4.yaml'
DEFAULT_INDEX_URL = 'file:///etc/ros/rosdistro/master/index-v4.yaml'
```

・sudo rosdep update

・source /opt/ros/melodic/setup.sh

・roscore 验证是否安装成功

```
ubuntu@ubuntu:~$ roscore
WARNING: cannot create log directory [/home/ubuntu/.ros/log/478fb106-5cc2-11ec-97f2-dca632fb4b6f].
Checking log directory for disk usage. This may take a while.
Press Ctrl-C to interrupt
Done checking log file disk usage. Usage is <1GB.

started roslaunch server http://ubuntu:36817/
ros_comm version 1.14.12


SUMMARY
========

PARAMETERS
 * /rosdistro: melodic
 * /rosversion: 1.14.12

NODES

auto-starting new master
process[master]: started with pid [8683]
ROS_MASTER_URI=http://ubuntu:11311/

setting /run_id to 478fb106-5cc2-11ec-97f2-dca632fb4b6f
process[rosout-1]: started with pid [8694]
started core service [/rosout]
```