

2.ROS2 install Humble

1. Set the language environment

Please first check whether the local language environment supports UTF-8 encoding. You can call the following command to check and set UTF-8 encoding.

```
locale # check for support of UTF-8

sudo apt update && sudo apt install locales
sudo locale-gen en_US en_US.UTF-8
sudo update-locale LC_ALL=en_US.UTF-8 LANG=en_US.UTF-8
export LANG=en_US.UTF-8

locale # verify that the settings are successful
```

Note: The locale can be different, but must support UTF-8 encoding

2. Set software source

Start the Ubuntu universe repository

```
sudo apt install software-properties-common
sudo add-apt-repository universe
```

Add the ROS 2 apt repository to the system and authorize our GPG key with apt

```
sudo apt update && sudo apt install curl -y
sudo curl -sSL https://raw.githubusercontent.com/ros/rosdistro/master/ros.key -o
/usr/share/keyrings/ros-archive-keyring.gpg
```

Add repository to sources list

```
echo "deb [arch=$(dpkg --print-architecture) signed-by=/usr/share/keyrings/ros-
archive-keyring.gpg] http://packages.ros.org/ros2/ubuntu $(. /etc/os-release &&
echo $UBUNTU_CODENAME) main" | sudo tee /etc/apt/sources.list.d/ros2.list >
/dev/null
```

3. Install Humble

First update the apt repository cache:

```
sudo apt update
```

Then upgrade the installed software (ROS2 packages are built on Ubuntu systems which are frequently updated, please make sure your system is up to date before installing new packages):

```
sudo apt upgrade
```

Install the desktop version of ROS2 (recommended), including: ROS, RViz, examples and tutorials. The installation command is as follows:

```
sudo apt install ros-humble-desktop python3-argcomplete
```

Install colcon build tools

```
sudo apt install python3-colcon-common-extensions
```

4. Configure environment

Under the terminal, when executing the ROS2 program, you need to call the following command to configure the environment:

```
source /opt/ros/humble/setup.bash
```

Every time you open a new terminal, you must execute the above command, or you can also execute the following command to write the configuration environment instructions into the "~/.bashrc" file. Then every time you start a new terminal, you do not need to manually configure the environment.

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

So far, ROS2 has been installed and configured.

5. About uninstallation

After ROS2 is installed, if you want to uninstall ROS2, you can execute the following command:

```
sudo apt remove ~nros-humble-* && sudo apt autoremove
```

You can also delete the corresponding repository of ROS2:

```
sudo rm /etc/apt/sources.list.d/ros2.list
sudo apt update
sudo apt autoremove
# Consider upgrading for packages previously shadowed.
sudo apt upgrade
```

