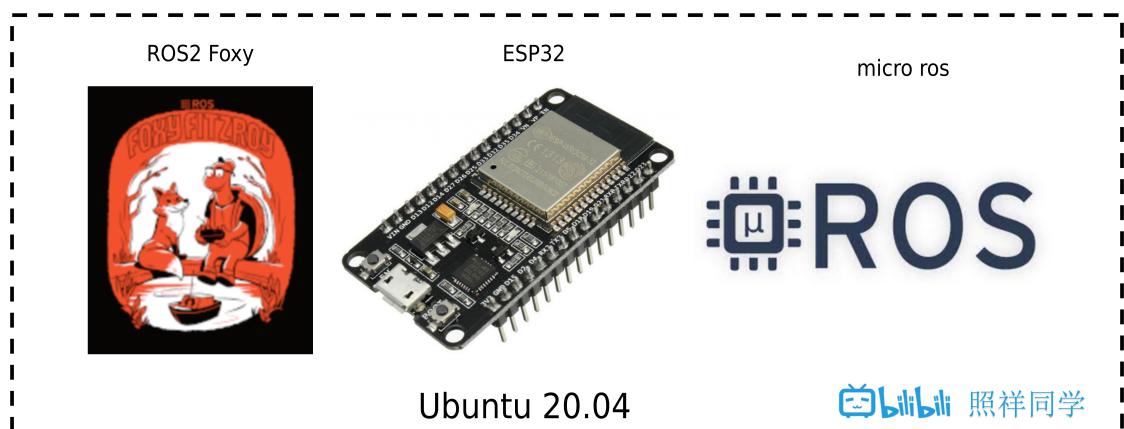


Chapter 2 install_micro_ros



02-install_micro_ros

URL: https://github.com/ZhaoXiangBox/esp32_ros2_robot

Videos from Bilibili 照祥同学: [第二节：安装micro_ros 的 Arduino 开发环境](#)

First : Install micro-ROS Application On Ubuntu 20.04

Ref Url : [Teensy with Arduino](#)

```
# Source the ROS 2 installation
source /opt/ros/$ROS_DISTRO/setup.bash

# Create a workspace and download the micro-ROS tools
mkdir microros_ws
cd microros_ws
git clone -b $ROS_DISTRO https://github.com/micro-ROS/micro_ros_setup.git
src/micro_ros_setup

# Update dependencies using rosdep
sudo apt update && rosdep update
rosdep install --from-paths src --ignore-src -y

# Install pip
sudo apt-get install python3-pip

# Build micro-ROS tools and source them
colcon build
source install/local_setup.bash
```

Second : Creating a new firmware workspace

```
# Download micro-ROS agent packages  
ros2 run micro_ros_setup create_agent_ws.sh
```

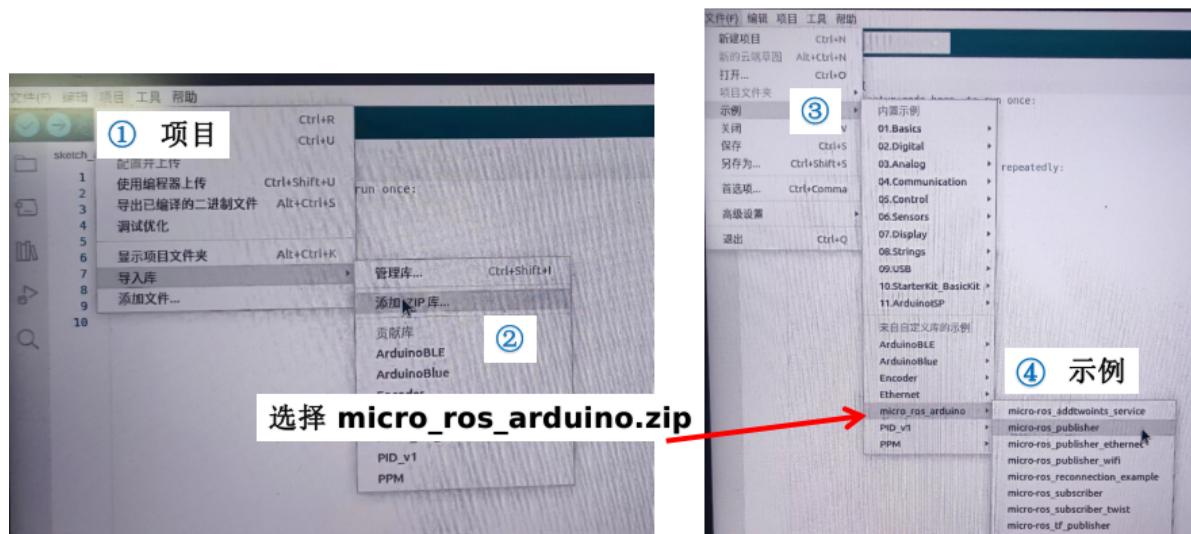
Tips: May need update your cmake version to 3.16.3

```
# Build step  
ros2 run micro_ros_setup build_agent.sh  
source install/local_setup.bash
```

```
lee@lee:~/microros_ws$ ros2 run micro_ros_setup build_agent.sh  
Building micro-ROS Agent  
Starting >>> micro_ros_msgs  
Finished <<< micro_ros_msgs [1.76s]  
Starting >>> micro_ros_agent  
Finished <<< micro_ros_agent [1.09s]  
  
Summary: 2 packages finished [3.07s]  
lee@lee:~/microros_ws$ ls src/  
micro_ros_setup ros2.repos uros
```

Third : Download micro_ros_arduino Library from github

Download URI : [micro ros arduino](#) (**Tips:** branch: foxy)



Fourth : communication with serial

example : [micro_ros_publisher](#)

Tips: May be need Permission before upload code into esp32 board.

```
sudo chmod 0777 /dev/ttyACM0
```

·Run micro_ros_agent

```
cd microros_ws
source install/setup.bash
ros2 run micro_ros_agent micro_ros_agent serial --dev /dev/ttyACM0
```

Tips: Run the ros2 node ,and then press the boot button on the ESP32 Board, you will see.

```
lee@lee:~/microros_ws$ ros2 run micro_ros_agent micro_ros_agent serial --dev /dev/ttyACM0
[1681479233.015057] [Info] [TmrRosAgentLinux.cpp] [int] | running...
[1681479233.015198] [Info] [Root.cpp] | set_verbose_level | verbose_level: 4
[1681479261.977911] [Info] [Root.cpp] | create_client | client_key: 0x3AD27E20, session_id: 0x81
[1681479261.977954] [Info] [SessionManager.hpp] | establish_session | session_established | client_key: 0x3AD27E20, address: 0
[1681479262.003198] [Info] [ProxyClient.cpp] | create_participant | participant_created | client_key: 0x3AD27E20, participant_id: 0x000(1)
[1681479262.018557] [Info] [ProxyClient.cpp] | create_topic | topic_created | client_key: 0x3AD27E20, topic_id: 0x000(2), participant_id: 0x000(1)
[1681479262.027041] [Info] [ProxyClient.cpp] | create_publisher | publisher_created | client_key: 0x3AD27E20, publisher_id: 0x000(3), participant_id: 0x000(1)
[1681479262.036826] [Info] [ProxyClient.cpp] | create_datawriter | datawriter_created | client_key: 0x3AD27E20, datawriter_id: 0x000(5), publisher_id: 0x000(3)
```

·Open another Terminal and Subscribe the Topic by ESP32 pub

```
lee@lee:~$ ros2 topic list
/micro_ros_arduino_node_publisher
/parameter_events
/rrosout
lee@lee:~$ ros2 topic echo /micro_ros_arduino_node_publisher
data: 236
---
data: 237
---
data: 238
---
data: 239
---
data: 240
```

You can try other example !!!

update by zhaoxiangli 2023.04.14

