Connect to microROS agent

1. Enable agent

The ESP32 communication board parameters have been configured in the previous section. For users who have purchased the ROS-WiFi image transmission module, after the hardware connection is completed, while configuring the ESP32 communication board parameters, the WiFi and IP agent that the image transmission module needs to connect to will also be configured.

ESP32 communication board

If you use the factory virtual machine system, you can enter in the terminal:

```
sh ~/start_agent_computer.sh
```

If you use a third-party virtual machine system, you need to install the docker development environment first, and open the terminal to enter:

```
docker run -it --rm -v /dev:/dev -v /dev/shm:/dev/shm --privileged --net=host
microros/micro-ros-agent:humble udp4 --port 8899 -v4
```

ROS-WiFi image transmission module (optional)

If you use the factory virtual machine system, you can enter in the terminal:

```
sh ~/start_Camera_computer.sh
```

If you use a third-party virtual machine system, you need to install the docker development environment first, and open the terminal to enter:

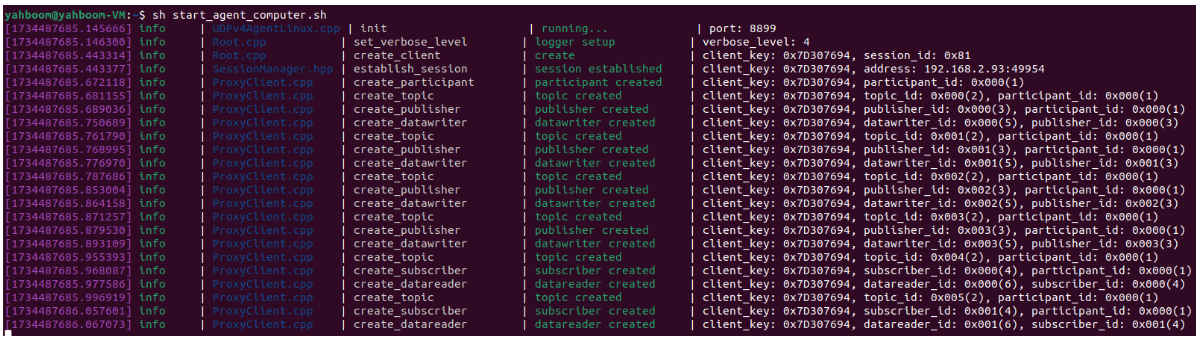
```
docker run -it --rm -v /dev:/dev -v /dev/shm:/dev/shm --privileged --net=host
microros/micro-ros-agent:humble udp4 --port 9999 -v4
```

2. Connect to the proxy

Turn on the robot power switch and automatically connect to the proxy.

ESP32 communication board

The connection is successful as shown in the figure below

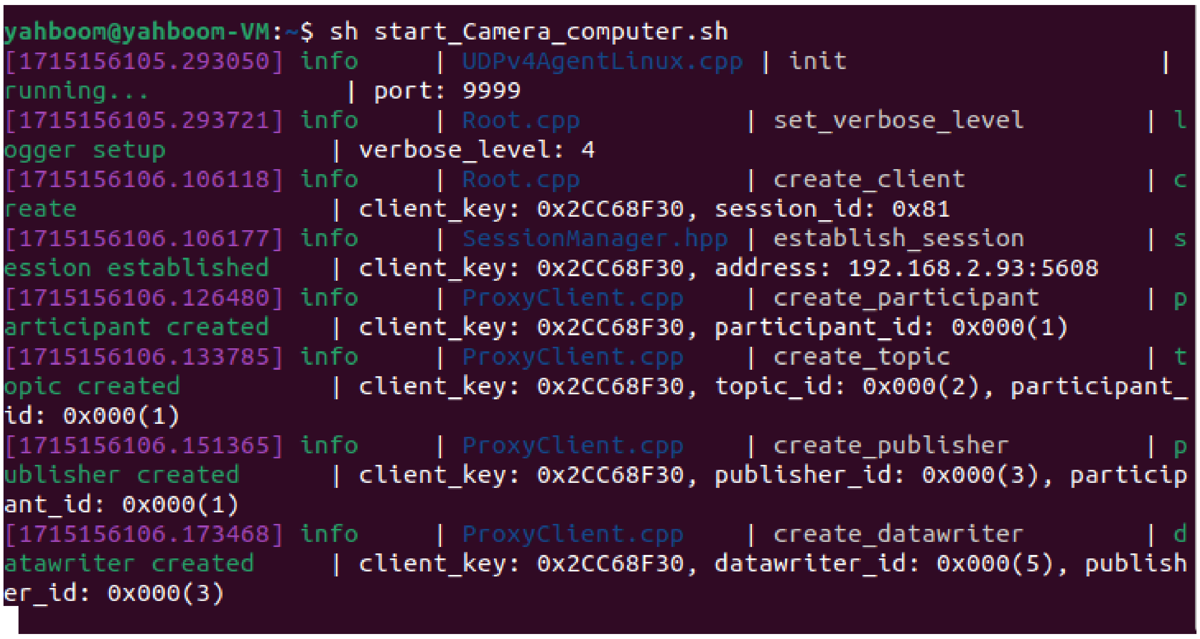


```
yahboom@yahboom-VM:~$ sh start_agent_computer.sh
[1734487685.145666] info     | UDPv4AgentLinux.cpp | init                  | running...             | port: 8899
[1734487685.146300] info     | Root.cpp           | set_verbose_level     | logger setup           | verbose_level: 4
[1734487685.443314] info     | Root.cpp           | create_client         | create                 | client_key: 0x7D307694, session_id: 0x81
[1734487685.443377] info     | SessionManager.hpp | establish_session     | session established    | client_key: 0x7D307694, address: 192.168.2.93:49954
[1734487685.672118] info     | ProxyClient.cpp    | create_participant    | participant created    | client_key: 0x7D307694, participant_id: 0x000(1)
[1734487685.681155] info     | ProxyClient.cpp    | create_topic          | topic created          | client_key: 0x7D307694, topic_id: 0x000(2), participant_id: 0x000(1)
[1734487685.689036] info     | ProxyClient.cpp    | create_publisher      | publisher created      | client_key: 0x7D307694, publisher_id: 0x000(3), participant_id: 0x000(1)
[1734487685.750689] info     | ProxyClient.cpp    | create_datawriter     | datawriter created     | client_key: 0x7D307694, datawriter_id: 0x000(5), publisher_id: 0x000(3)
[1734487685.761790] info     | ProxyClient.cpp    | create_topic          | topic created          | client_key: 0x7D307694, topic_id: 0x001(2), participant_id: 0x000(1)
[1734487685.768995] info     | ProxyClient.cpp    | create_publisher      | publisher created      | client_key: 0x7D307694, publisher_id: 0x001(3), participant_id: 0x000(1)
[1734487685.776970] info     | ProxyClient.cpp    | create_datawriter     | datawriter created     | client_key: 0x7D307694, datawriter_id: 0x001(5), publisher_id: 0x001(3)
[1734487685.787686] info     | ProxyClient.cpp    | create_topic          | topic created          | client_key: 0x7D307694, topic_id: 0x002(2), participant_id: 0x000(1)
[1734487685.853004] info     | ProxyClient.cpp    | create_publisher      | publisher created      | client_key: 0x7D307694, publisher_id: 0x002(3), participant_id: 0x000(1)
[1734487685.864158] info     | ProxyClient.cpp    | create_datawriter     | datawriter created     | client_key: 0x7D307694, datawriter_id: 0x002(5), publisher_id: 0x002(3)
[1734487685.871257] info     | ProxyClient.cpp    | create_topic          | topic created          | client_key: 0x7D307694, topic_id: 0x003(2), participant_id: 0x000(1)
[1734487685.879530] info     | ProxyClient.cpp    | create_publisher      | publisher created      | client_key: 0x7D307694, publisher_id: 0x003(3), participant_id: 0x000(1)
[1734487685.893109] info     | ProxyClient.cpp    | create_datawriter     | datawriter created     | client_key: 0x7D307694, datawriter_id: 0x003(5), publisher_id: 0x003(3)
[1734487685.955393] info     | ProxyClient.cpp    | create_topic          | topic created          | client_key: 0x7D307694, topic_id: 0x004(2), participant_id: 0x000(1)
[1734487685.968087] info     | ProxyClient.cpp    | create_subscriber     | subscriber created     | client_key: 0x7D307694, subscriber_id: 0x000(4), participant_id: 0x000(1)
[1734487685.977586] info     | ProxyClient.cpp    | create_datareader     | datareader created     | client_key: 0x7D307694, datareader_id: 0x000(6), subscriber_id: 0x000(4)
[1734487685.996919] info     | ProxyClient.cpp    | create_topic          | topic created          | client_key: 0x7D307694, topic_id: 0x005(2), participant_id: 0x000(1)
[1734487686.057601] info     | ProxyClient.cpp    | create_subscriber     | subscriber created     | client_key: 0x7D307694, subscriber_id: 0x001(4), participant_id: 0x000(1)
[1734487686.067073] info     | ProxyClient.cpp    | create_datareader     | datareader created     | client_key: 0x7D307694, datareader_id: 0x001(6), subscriber_id: 0x001(4)
```

Note: If the connection is not successful, please check and confirm the configuration parameters of the robot, whether it can be connected to the LAN normally, and whether the proxy IP address and port number correspond.

ROS-WiFi image transmission module (optional)

The connection is successful as shown in the figure below



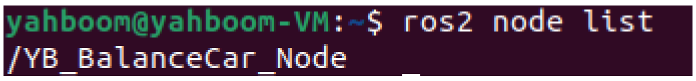
```
yahboom@yahboom-VM:~$ sh start_Camera_computer.sh
[1715156105.293050] info     | UDPv4AgentLinux.cpp | init                     |
running...               | port: 9999
[1715156105.293721] info     | Root.cpp            | set_verbose_level        | l
ogger setup              | verbose_level: 4
[1715156106.106118] info     | Root.cpp            | create_client            | c
reate                    | client_key: 0x2CC68F30, session_id: 0x81
[1715156106.106177] info     | SessionManager.hpp  | establish_session        | s
ession established       | client_key: 0x2CC68F30, address: 192.168.2.93:5608
[1715156106.126480] info     | ProxyClient.cpp     | create_participant       | p
articipant created       | client_key: 0x2CC68F30, participant_id: 0x000(1)
[1715156106.133785] info     | ProxyClient.cpp     | create_topic             | t
opic created             | client_key: 0x2CC68F30, topic_id: 0x000(2), participant_
id: 0x000(1)
[1715156106.151365] info     | ProxyClient.cpp     | create_publisher         | p
ublisher created         | client_key: 0x2CC68F30, publisher_id: 0x000(3), particip
ant_id: 0x000(1)
[1715156106.173468] info     | ProxyClient.cpp     | create_datawriter        | d
atawriter created        | client_key: 0x2CC68F30, datawriter_id: 0x000(5), publish
er_id: 0x000(3)
```

Note: If the connection is not successful, please check and confirm whether the ROS-wifi image transmission module can be connected to the local area network normally and whether the proxy IP address corresponds.

3. Test ROS nodes

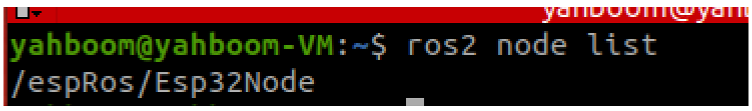
Open the ROS2 terminal environment and enter the following command to view the node name **/YB_Car_Node**

```
ros2 node list
```



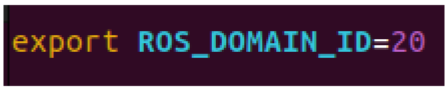
```
yahboom@yahboom-VM:~$ ros2 node list
/YB_BalanceCar_Node
```

If there is a ROS-WiFi image transmission module, you can also see the node name **/espRos/Esp32Node**,

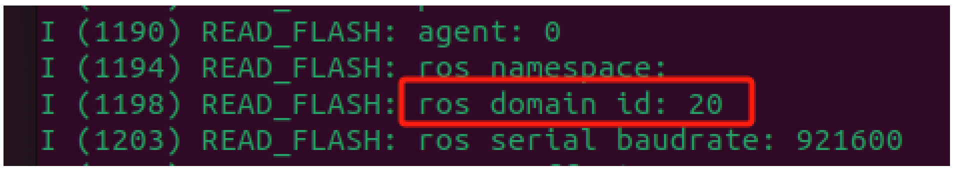


```
yahboom@yahboom-VM:~$ ros2 node list
/espRos/Esp32Node
```

If you cannot search for /YB_BalanceCar_Node or /espRos/Esp32Node nodes, please check whether the ROS_DOMAIN_ID in the .bashrc file on the virtual machine/computer is consistent with the configuration on the ESP32 communication board. Only when they are consistent can the node information be searched, otherwise the car cannot perform AI vision gameplay.



```
export ROS_DOMAIN_ID=20
```



```
I (1190) READ_FLASH: agent: 0
I (1194) READ_FLASH: ros namespace:
I (1198) READ_FLASH: ros domain id: 20
I (1203) READ_FLASH: ros serial baudrate: 921600
```