

# ROS Robot APP screen view

Note: The virtual machine, ROS image transmission module, and mobile app are located on the same local area network.

## 0、If not using the matching virtual machine (must read)

**Skip this step directly using the matching virtual machine**

Operation steps:

Open a new terminal and enter the following command

```
echo "export ROS_DOMAIN_ID=20" >> ~/.bashrc
```

You can see that this sentence has been added to the **.bashrc** file to keep the ROS2ID of the virtual machine and image transmission module on the same message segment



## 1、Program Function Description

Connect the ROS image transmission module to the agent, run the program, open the 【ROS Robot】 app downloaded from your phone, enter the IP address of the virtual machine, select ROS2, click connect to connect to the image transmission module, and view the camera's image in real time through the app.

## 2、Start and connect the proxy

Taking the supporting virtual machine as an example, enter the following command to start the agent (the agent can be started once without shutting down and does not need to be restarted),

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

The camera is connected to the proxy, and the connection is successful as shown in the following figure,

```
yahboom@yahboom-VM: ~
yahboom@yahboom-VM: ~ 80x24
yahboom@yahboom-VM:~$ docker run -it --rm -v /dev:/dev -v /dev/shm:/dev/shm --privileged --net=host microros/micro-ros-agent:humble udp4 --port 9999 -v4

[1711695468.874360] info      | UDPv4AgentLinux.cpp | init
running...              | port: 9999
[1711695468.874663] info      | Root.cpp             | set_verbose_level
logger setup            | verbose_level: 4
[1711695469.608224] info      | Root.cpp             | create_client
create                   | client_key: 0x63824D0E, session_id: 0x81
[1711695469.608287] info      | SessionManager.hpp    | establish_session
session established      | client_key: 0x63824D0E, address: 192.168.2.114:27599
[1711695469.626174] info      | ProxyClient.cpp       | create_participant
participant created      | client_key: 0x63824D0E, participant_id: 0x000(1)
[1711695469.631263] info      | ProxyClient.cpp       | create_topic
topic created            | client_key: 0x63824D0E, topic_id: 0x000(2), participant_id: 0x000(1)
[1711695469.646135] info      | ProxyClient.cpp       | create_publisher
publisher created        | client_key: 0x63824D0E, publisher_id: 0x000(3), participant_id: 0x000(1)
[1711695469.652213] info      | ProxyClient.cpp       | create_datawriter
datawriter created       | client_key: 0x63824D0E, datawriter_id: 0x000(5), publisher_id: 0x000(3)
```

### 3、 Start program

Start the APP command, terminal input,

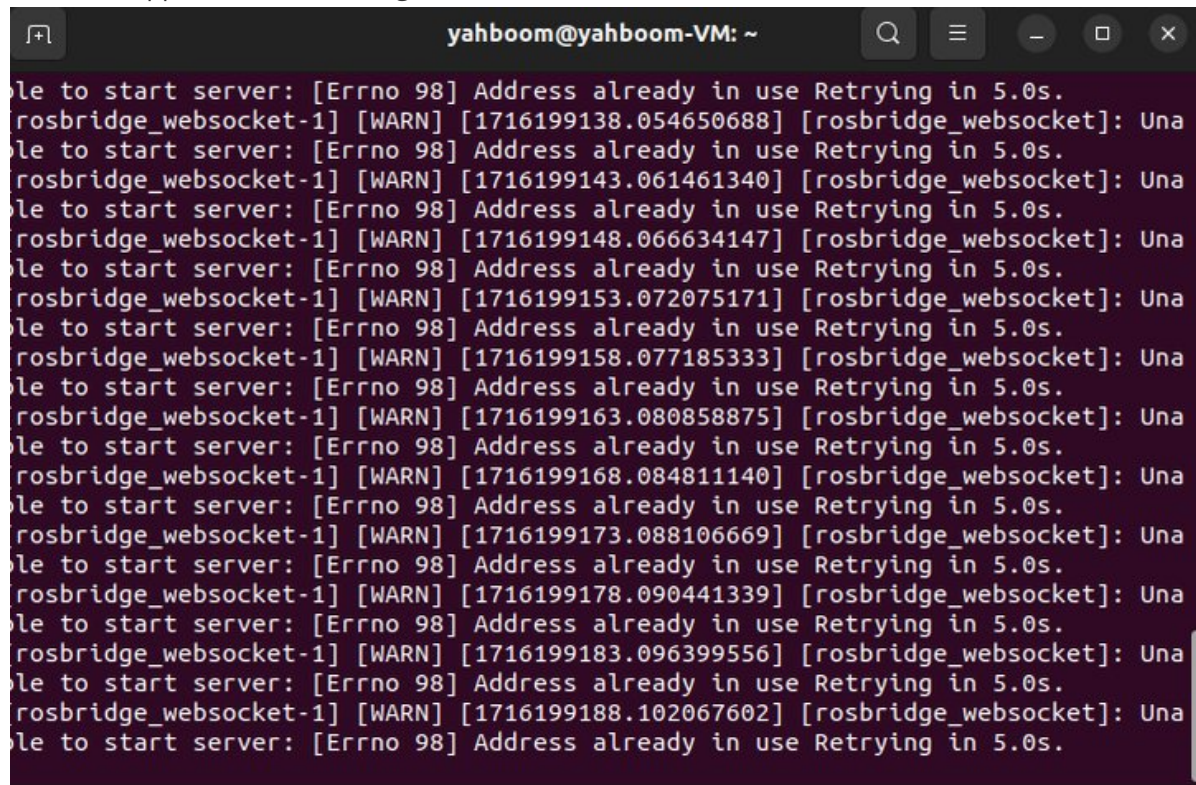
```
ros2 launch yahboomcar_nav map_cartographer_app_launch.xml

ros2 run yahboom_esp32_camera sub_img
```

success:

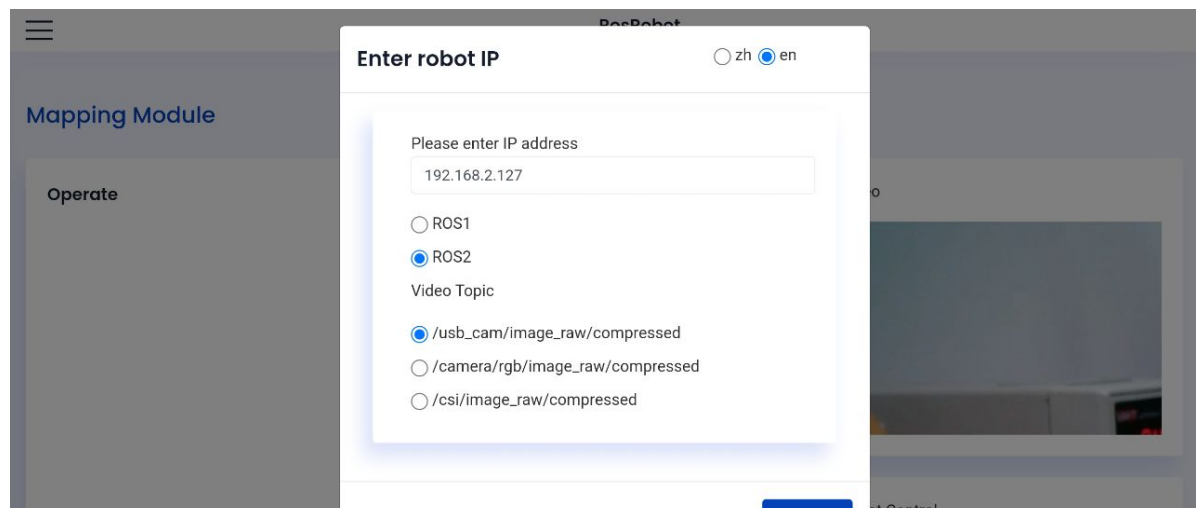
```
[INFO] [imu_filter_madgwick_node-1]: process started with pid [6638]
[INFO] [ekf_node-2]: process started with pid [6640]
[INFO] [static_transform_publisher-3]: process started with pid [6642]
[INFO] [joint_state_publisher-4]: process started with pid [6644]
[INFO] [robot_state_publisher-5]: process started with pid [6646]
[INFO] [static_transform_publisher-6]: process started with pid [6658]
[static_transform_publisher-3] [WARN] [1702865272.944043208] []: Old-style arguments are deprecated; see --help for new-style arguments
[static_transform_publisher-6] [WARN] [1702865272.984740987] []: Old-style arguments are deprecated; see --help for new-style arguments
[static_transform_publisher-3] [INFO] [1702865272.991057276] [base_link to base_imu]: Spinning until stopped - publishing transform
[static_transform_publisher-3] translation: ('-0.002999', '-0.003000', '0.031701')
[static_transform_publisher-3] rotation: ('0.000000', '0.000000', '0.000000', '1.000000')
[static_transform_publisher-3] from 'base_link' to 'imu_frame'
[static_transform_publisher-6] [INFO] [1702865273.005707993] [static_transform_publisher_JH06Gexf4GRodmgs]: Spinning until stopped - publishing transform
[static_transform_publisher-6] translation: ('0.000000', '0.000000', '0.050000')
[static_transform_publisher-6] rotation: ('0.000000', '0.000000', '0.000000', '1.000000')
[static_transform_publisher-6] from 'base_footprint' to 'base_link'
[robot_state_publisher-5] [WARN] [1702865273.013202438] [kdl_parser]: The root link base_link has an inertia specified in the URDF, but KDL does not support a root link with an inertia. As a workaround, you can add an extra dummy link to your URDF.
[robot_state_publisher-5] [INFO] [1702865273.013312806] [robot_state_publisher]: got segment base_link
[robot_state_publisher-5] [INFO] [1702865273.013516195] [robot_state_publisher]: got segment imu_Link
[robot_state_publisher-5] [INFO] [1702865273.013524175] [robot_state_publisher]: got segment jq1_Link
[robot_state_publisher-5] [INFO] [1702865273.013528144] [robot_state_publisher]: got segment jq2_Link
[robot_state_publisher-5] [INFO] [1702865273.013531665] [robot_state_publisher]: got segment radar_Link
[robot_state_publisher-5] [INFO] [1702865273.013535185] [robot_state_publisher]: got segment yh_Link
[robot_state_publisher-5] [INFO] [1702865273.013538763] [robot_state_publisher]: got segment yq_Link
[robot_state_publisher-5] [INFO] [1702865273.013542135] [robot_state_publisher]: got segment zh_Link
[robot_state_publisher-5] [INFO] [1702865273.013545612] [robot_state_publisher]: got segment zq_Link
[imu_filter_madgwick_node-1] [INFO] [1702865273.030399479] [imu_filter]: Starting ImuFilter
[imu_filter_madgwick_node-1] [INFO] [1702865273.031826501] [imu_filter]: Using dt computed from message headers
[imu_filter_madgwick_node-1] [INFO] [1702865273.031858361] [imu_filter]: The gravity vector is kept in the IMU message.
[imu_filter_madgwick_node-1] [INFO] [1702865273.032488302] [imu_filter]: Imu filter gain set to 0.100000
[imu_filter_madgwick_node-1] [INFO] [1702865273.032525566] [imu_filter]: Gyro drift bias set to 0.000000
[imu_filter_madgwick_node-1] [INFO] [1702865273.032531441] [imu_filter]: Magnetometer bias values: 0.000000 0.000000 0.000000
[imu_filter_madgwick_node-1] [INFO] [1702865273.053298796] [imu_filter]: First IMU message received.
[joint_state_publisher-4] [INFO] [1702865273.282975810] [joint_state_publisher]: Waiting for robot_description to be published on the robot_description topic...
```

If this error occurs: the virtual machine can be restarted for repair, and not restarting will not affect the app's real-time viewing



```
yahboom@yahboom-VM: ~  
[Errno 98] Address already in use Retrying in 5.0s.  
[rosbridge_websocket-1] [WARN] [1716199138.054650688] [rosbridge_websocket]: Unable to start server: [Errno 98] Address already in use Retrying in 5.0s.  
[rosbridge_websocket-1] [WARN] [1716199143.061461340] [rosbridge_websocket]: Unable to start server: [Errno 98] Address already in use Retrying in 5.0s.  
[rosbridge_websocket-1] [WARN] [1716199148.066634147] [rosbridge_websocket]: Unable to start server: [Errno 98] Address already in use Retrying in 5.0s.  
[rosbridge_websocket-1] [WARN] [1716199153.072075171] [rosbridge_websocket]: Unable to start server: [Errno 98] Address already in use Retrying in 5.0s.  
[rosbridge_websocket-1] [WARN] [1716199158.077185333] [rosbridge_websocket]: Unable to start server: [Errno 98] Address already in use Retrying in 5.0s.  
[rosbridge_websocket-1] [WARN] [1716199163.080858875] [rosbridge_websocket]: Unable to start server: [Errno 98] Address already in use Retrying in 5.0s.  
[rosbridge_websocket-1] [WARN] [1716199168.084811140] [rosbridge_websocket]: Unable to start server: [Errno 98] Address already in use Retrying in 5.0s.  
[rosbridge_websocket-1] [WARN] [1716199173.088106669] [rosbridge_websocket]: Unable to start server: [Errno 98] Address already in use Retrying in 5.0s.  
[rosbridge_websocket-1] [WARN] [1716199178.090441339] [rosbridge_websocket]: Unable to start server: [Errno 98] Address already in use Retrying in 5.0s.  
[rosbridge_websocket-1] [WARN] [1716199183.096399556] [rosbridge_websocket]: Unable to start server: [Errno 98] Address already in use Retrying in 5.0s.  
[rosbridge_websocket-1] [WARN] [1716199188.102067602] [rosbridge_websocket]: Unable to start server: [Errno 98] Address already in use Retrying in 5.0s.
```

The mobile app displays as shown in the figure below. Enter the IP address of the virtual machine (which can be found in ifconfig), where [zh] represents Chinese and [en] represents English; Select ROS2, select /usb\_cam/imageraw/compressed from the Video Tpoint below, and finally click [Connect]



After successfully connecting, the display is as follows:

