# Multi-robot queue performance

**Startup file path**

(1) Transbot robot:

/home/pi/transbot_ws/src/transbot_bringup/launch/bringup_robot_formation.launch

(2) Virtual machine side:

/home/pi/transbot_ws/src/transbot_ctrl/launch/transbot_joy_multi.launch

/home/pi/transbot_ws/src/transbot_ctrl/launch/play_robot_bag1.launch

/home/pi/transbot_ws/src/transbot_ctrl/launch/play_robot_bag2.launch

/home/pi/transbot_ws/src/transbot_ctrl/launch/play_robot_show.launch

**Function package description:**

After this function is turned on, multiple robot can drive synchronously according to the pre-recorded route.

**Feature package path:**

/home/pi/transbot_ws/src/transbot_bringup

/home/pi/transbot_ws/src/transbot_ctrl

**Function realization conditions:**

1) It is necessary to configure the network of multiple Transbot robot, make all Transbot robot and the virtual machine are in the same local area network, and the virtual machine must be used as the host (Master).

2)The remote control signal receiver needs to be inserted into the virtual machine.

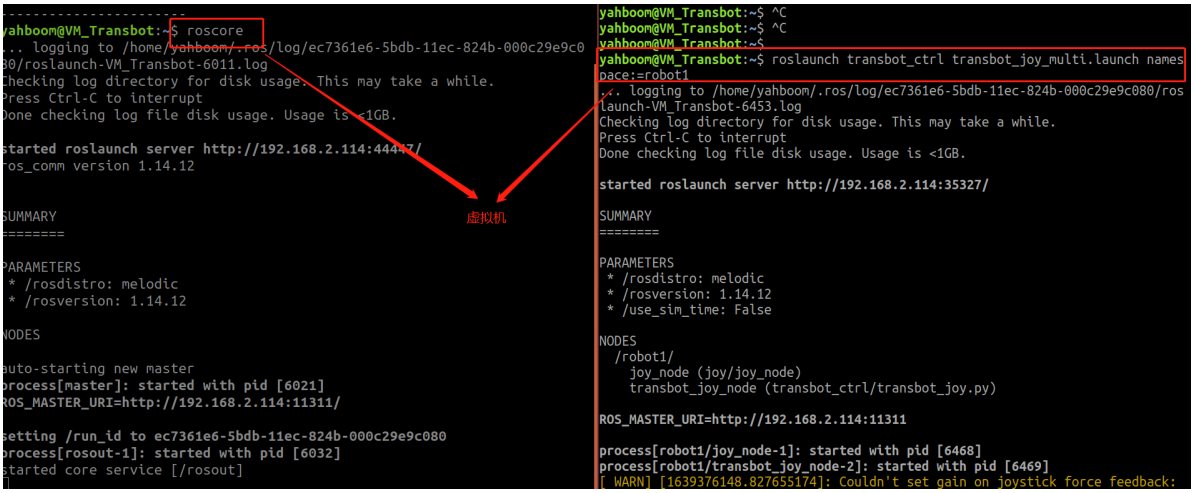
## 1. Start up function

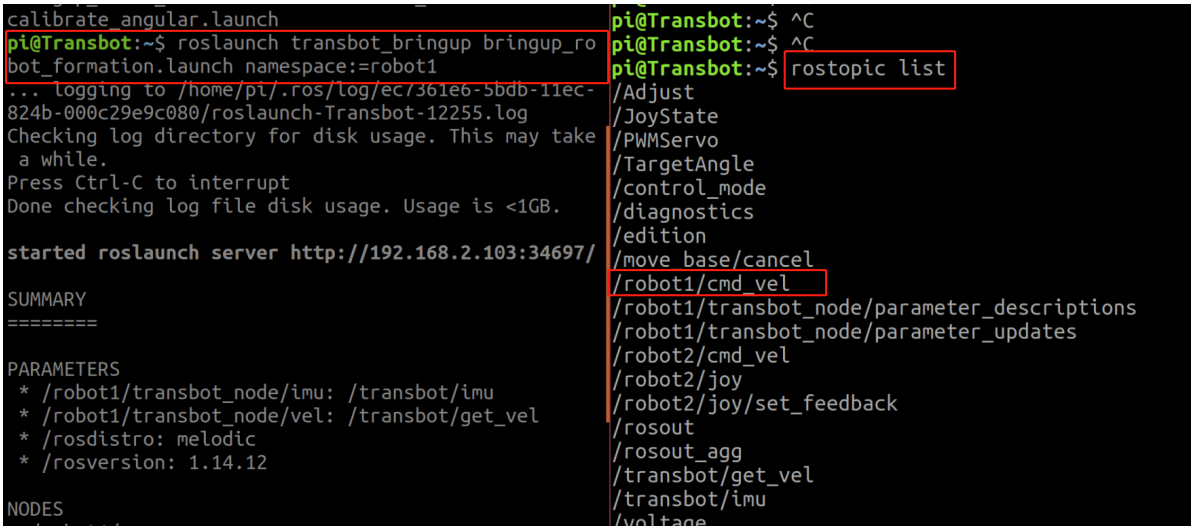
Take two cars as an example:

### 1.1 Record the motion trajectory of No.1 Transbot robot

1)Input following command

```
    virtual machine side:
    roscore
    roslaunch transbot_ctrl transbot_joy_multi.launch namespace:=robot1 #Enable
remote control
    No.1 Transbot robot:
    roslaunch transbot_bringup bringup_robot_formation.launch namespace:=robot1
    virtual machine side:
    rosbag record /robot1/cmd_vel   #Record the speed topic content of each
moment
```

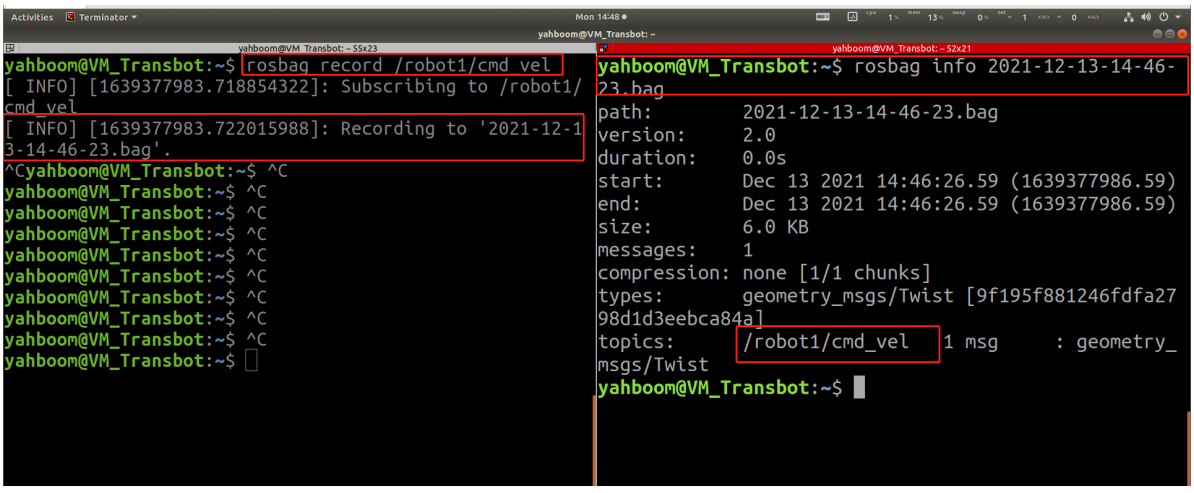



2)After turning on the drive control system of No.1 Transbot robot, we can enter the command rostopic list to view the topics currently subscribed by No.1 Transbot robot.

The velocity topic subscribed to is /robot1/cmd_vel.

Then we open another terminal in the virtual machine and enter the command rosbag record /robot1/cmd_vel to record the speed of No.1 Transbot robot at each moment.




3. Then, we can remotely control the robot to move, and the system will record the speed at the current moment.
   After recording the route, press ctrl+c in the terminal where the command "rosbag record /robot1/cmd_vel" is run to end the recording. At this point, the system will generate a data

package named time and suffixed with .bag in the terminal directory (default is the home directory).

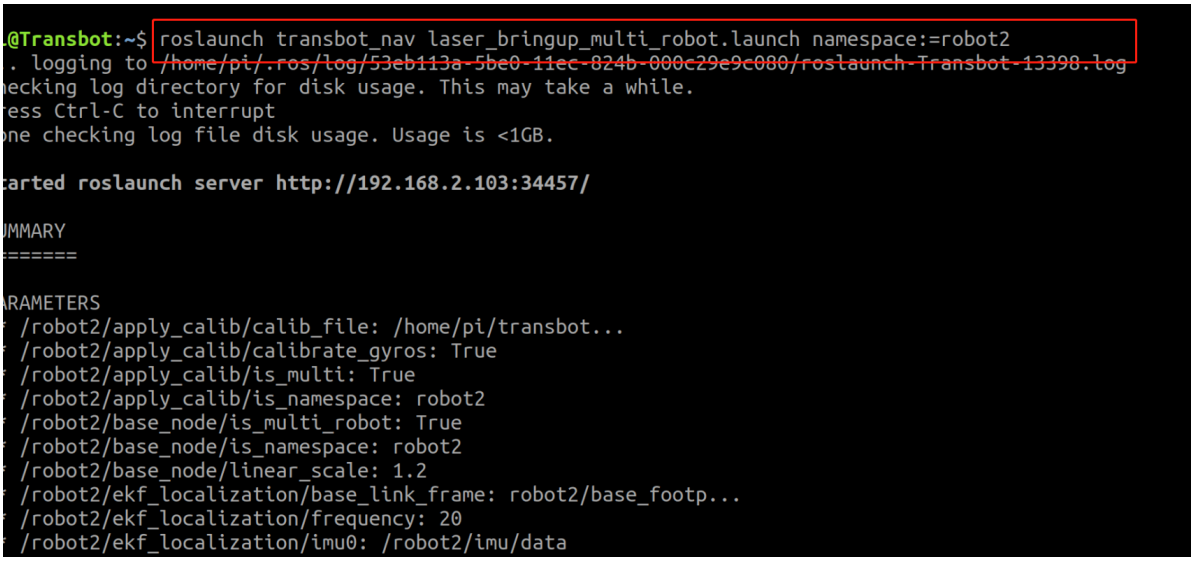
This data packet records the speed of the Transbot car at each moment.

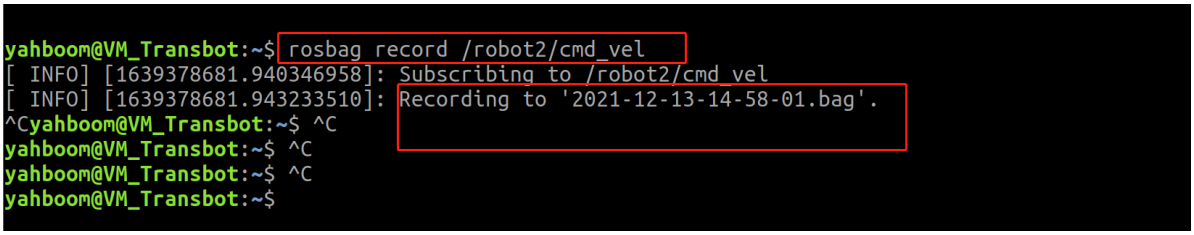
We can input the command "rosbag info packet name" to view the contents of the packet, and find that the toplcs is consistent with what was just recorded.

### 2. Record the motion trajectory of No.1 Transbot robot

1)Input following command

```
    virtual machine side:
    roscore
    roslaunch transbot_ctrl transbot_joy_multi.launch namespace:=robot2 #Enable
remote control
    No.2 Transbot robot:
    roslaunch transbot_bringup bringup_robot_formation.launch namespace:=robot2 #
开启底盘
    virtual machine side:
    rosbag record /robot2/cmd_vel   #Record the speed topic content of each
moment
```



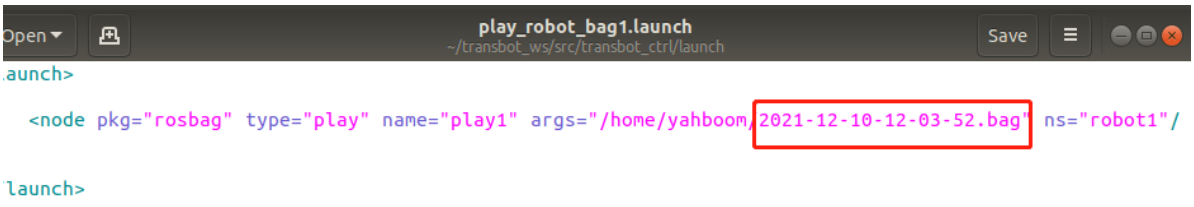

The recording steps are the same as above. After the recording is over, a data package named at the current time and suffixed with .bag is generated.

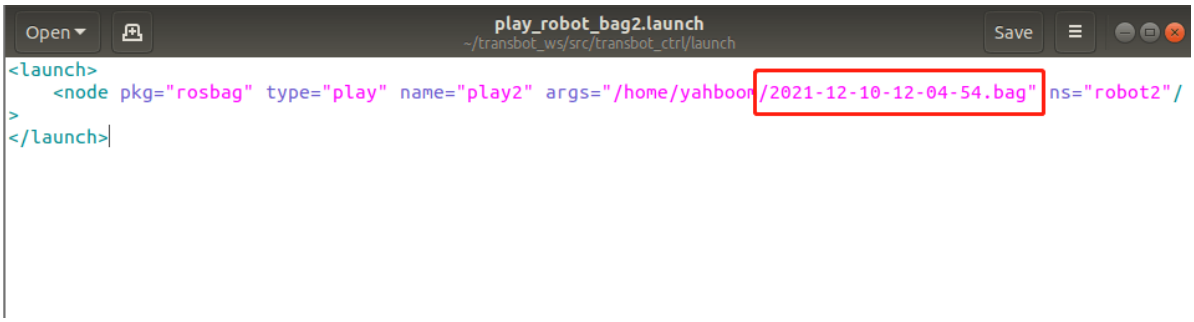
### 3. Load the two data packages into the startup file

Modify the /home/yahboom/transbot_ws/src/transbot_ctrl/launch/play_robot_bag1.launch file in the virtual file, and replace the data packet in the file with the data packet that just recorded the speed of No.1 Transbot robot.

Modify the play_robot_bag2.launch file in the same directory, and replace the data packet in the file with the data packet that just recorded the speed of the No.2 Transbot robot.

These two commands are to enable the function of playing the data packet rosbag play.




After modification, run following command in the virtual machine terminal.

```
roslaunch transbot_ctrl play_robot_show.launch
```