MoveIt precautions and control of the real machine

Follow the previous steps to install the virtual machine. After decompressing the system files, open the virtual machine and use it. The environment has been set up and the relevant code has been placed in the Ubuntu system, in the file path /home/dofbot/dofbot_ws/src directory.

1. Control the real machine

- **Configure multi-machine communication**

Just refer to the distributed communication tutorial in ros basics

- **Using Raspberry Pi as host**

```
roslaunch dofbot_config demo.launch #Virtual machine side
rosrun dofbot_moveit 00_dofbot_move.py #Host side
```

The corresponding relationship between the robotic arm servo and the joints: from the lowest end of the robotic arm to the end of the gripper.

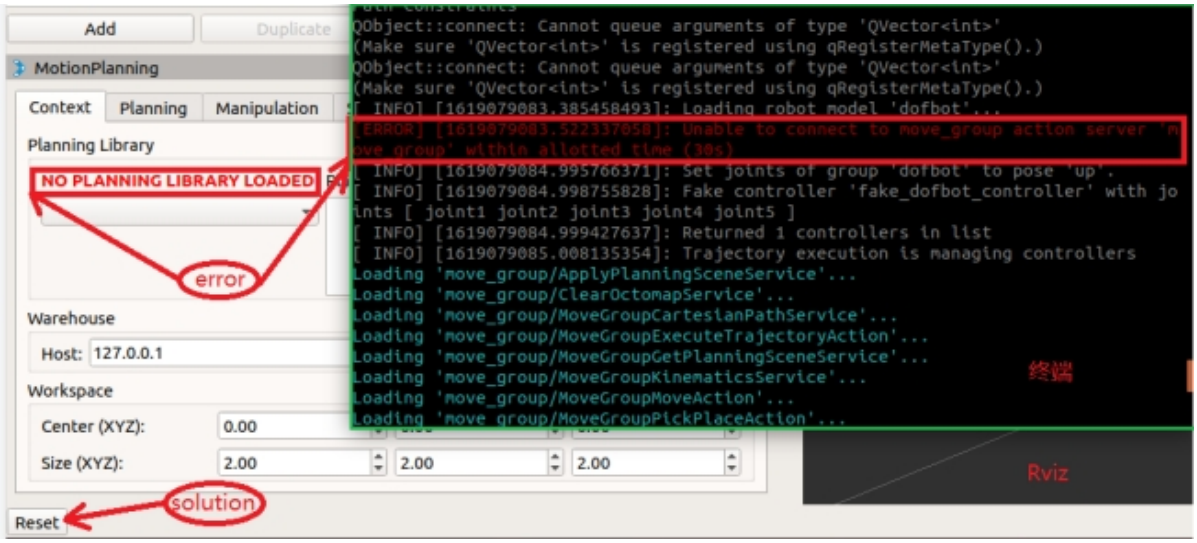
Robotic arm servo	**joint**	**joint**
The first servo	joint1	joint1
Second servo	joint2	joint2
The third servo	joint3	joint3
The fourth servo	joint4	joint4
The fifth servo	joint5	joint5
Servo that controls the gripper	grip_joint	Gripper

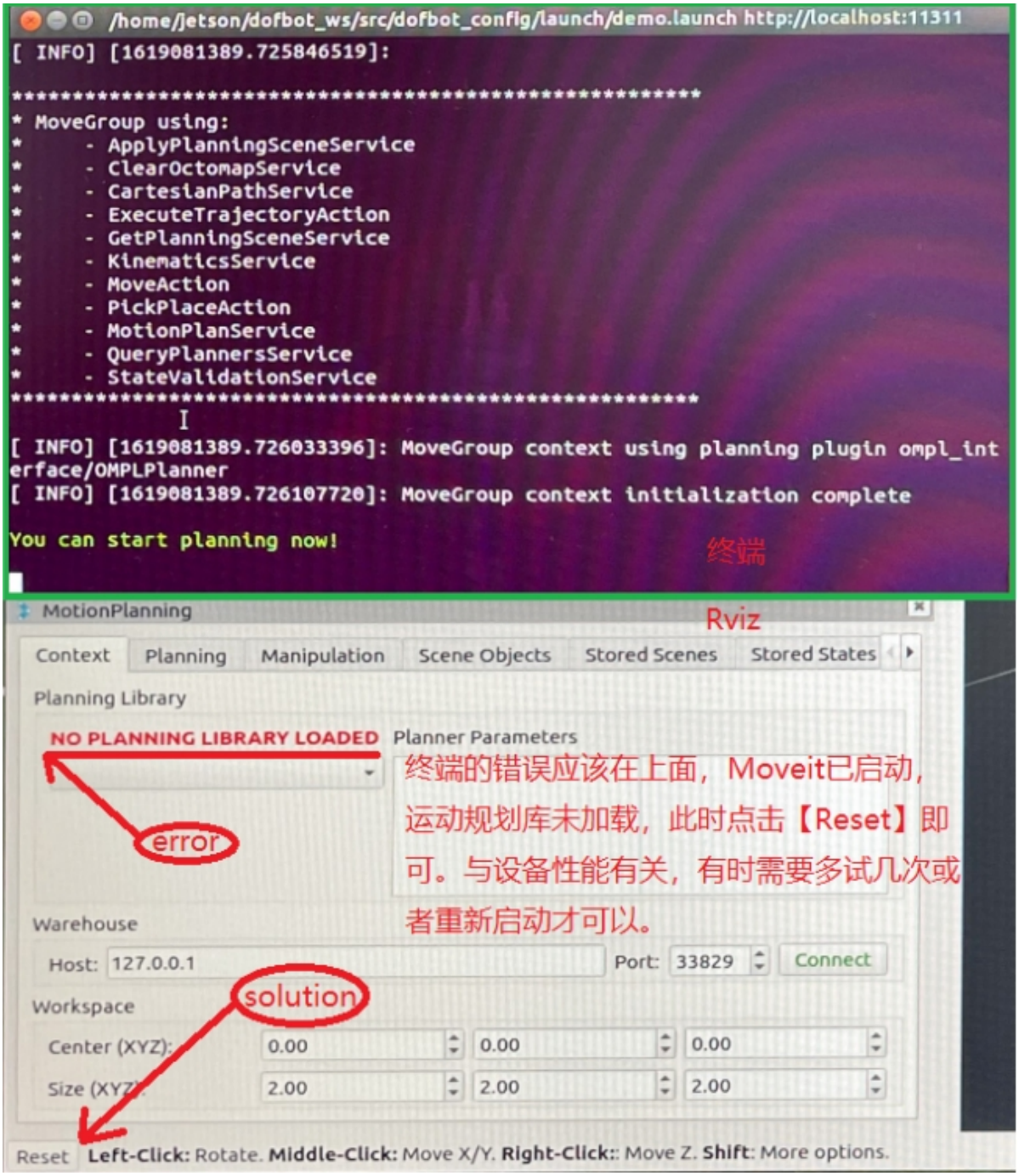
2. Start the robotic arm

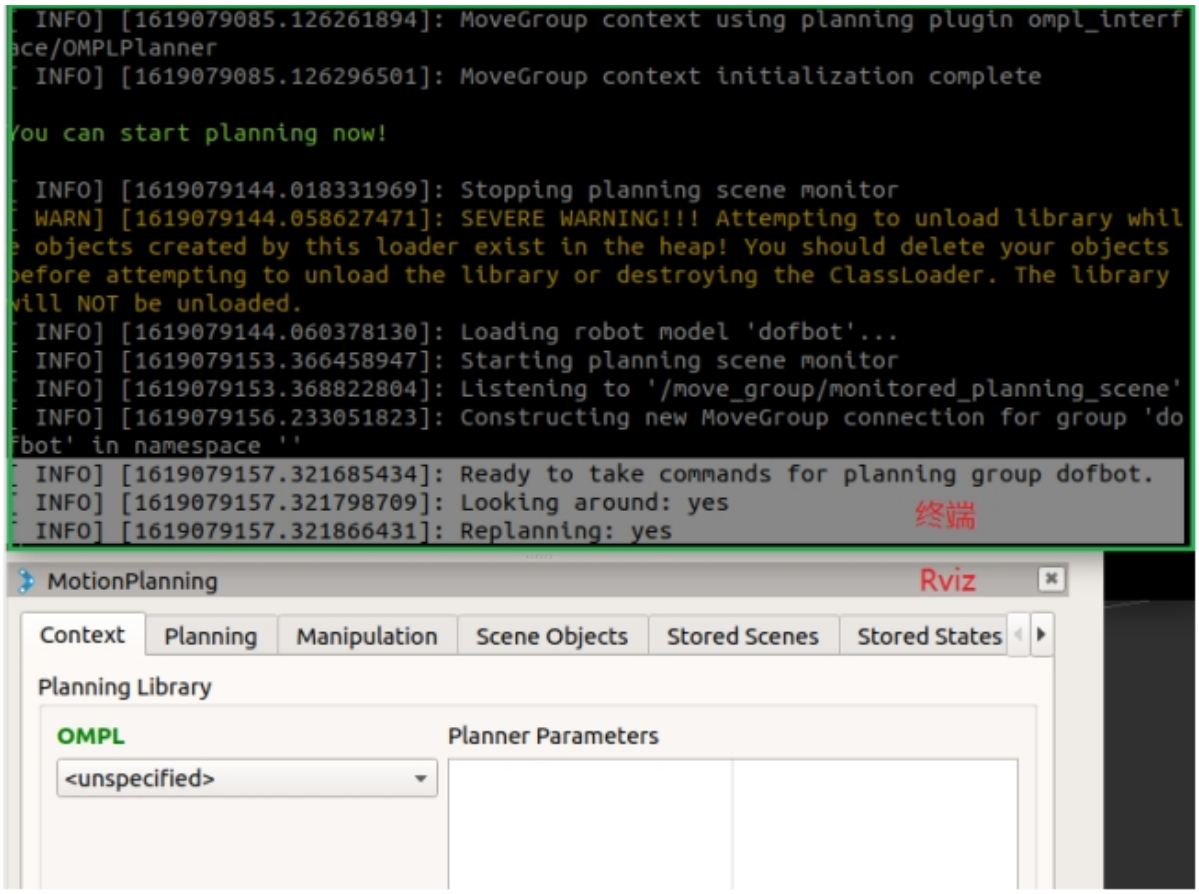
- When using the robot arm to move randomly to control a real machine, pay attention to the movement of the robot arm. Try to keep no objects next to the robot arm, because random movement will cause random walking.
- Scene Design: You can design the scene yourself and then import it.
- When moveIt is run and combined with the real machine case, there are non-corresponding actions. It may be because the previous control program has not been completely closed. You can try using Ctrl+C to interrupt the program, or simply close the terminal to shut down the previous process more completely.

3. MoveIT startup

The MoveIt simulation environment starts slowly, so wait patiently and observe the terminal. An error occurs as shown in the figure below. The solution is as shown in the figure. If the terminal reports an error and the motion planning library is not loaded, click [Reset] in the lower left corner and reload. At first, it is during the loading process. Don't rush to click [Reset]. If you click it before loading is complete, the system will reload and it will not start.


Add
Duplicate
MotionPlanning
Context
Planning
Manipulation
Planning Library
NO PLANNING LIBRARY LOADED
error
Warehouse
Host: 127.0.0.1
Workspace
Center (XYZ): 0.00
Size (XYZ): 2.00 2.00 2.00
solution
Reset
QObject::connect: Cannot queue arguments of type 'QVector<int>'
(Make sure 'QVector<int>' is registered using qRegisterMetaType().)
QObject::connect: Cannot queue arguments of type 'QVector<int>'
(Make sure 'QVector<int>' is registered using qRegisterMetaType().)
[INFO] [1619079083.385458493]: Loading robot model 'dofbot'...
[INFO] [1619079084.995766371]: Set joints of group 'dofbot' to pose 'up'.
[INFO] [1619079084.998755828]: Fake controller 'fake_dofbot_controller' with joints [joint1 joint2 joint3 joint4 joint5]
[INFO] [1619079084.999427637]: Returned 1 controllers in list
[INFO] [1619079085.008135354]: Trajectory execution is managing controllers
Loading 'move_group/ApplyPlanningSceneService'...
Loading 'move_group/ClearOctomapService'...
Loading 'move_group/MoveGroupCartesianPathService'...
Loading 'move_group/MoveGroupExecuteTrajectoryAction'...
Loading 'move_group/MoveGroupGetPlanningSceneService'...
Loading 'move_group/MoveGroupKinematicsService'...
Loading 'move_group/MoveGroupMoveAction'...
Loading 'move_group/MoveGroupPickPlaceAction'...
终端
Rviz


/home/jetson/dofbot_ws/src/dofbot_config/launch/demo.launch http://localhost:11311
[INFO] [1619081389.725846519]:
* MoveGroup using:
* - ApplyPlanningSceneService
* - ClearOctomapService
* - CartesianPathService
* - ExecuteTrajectoryAction
* - GetPlanningSceneService
* - KinematicsService
* - MoveAction
* - PickPlaceAction
* - MotionPlanService
* - QueryPlannersService
* - StateValidationService
[INFO] [1619081389.726033396]: MoveGroup context using planning plugin ompl_interface/OMPLPlanner
[INFO] [1619081389.726107720]: MoveGroup context initialization complete
You can start planning now!
终端
Rviz
MotionPlanning
Context
Planning
Manipulation
Scene Objects
Stored Scenes
Stored States
Planning Library
NO PLANNING LIBRARY LOADED
Planner Parameters
error
终端的错误应该在上面，Moveit已启动，运动规划库未加载，此时点击【Reset】即可。与设备性能有关，有时需要多试几次或者重新启动才可以。
Warehouse
Host: 127.0.0.1
Port: 33829
Connect
Workspace
solution
Center (XYZ): 0.00 0.00 0.00
Size (XYZ): 2.00 2.00 2.00
Reset
Left-Click: Rotate. Middle-Click: Move X/Y. Right-Click:: Move Z. Shift: More options.


[INFO] [1619079085.126261894]: MoveGroup context using planning plugin ompl_interf
ace/OMPLPlanner
[INFO] [1619079085.126296501]: MoveGroup context initialization complete
You can start planning now!
[INFO] [1619079144.018331969]: Stopping planning scene monitor
[WARN] [1619079144.058627471]: SEVERE WARNING!!! Attempting to unload library whil
e objects created by this loader exist in the heap! You should delete your objects
before attempting to unload the library or destroying the ClassLoader. The library
will NOT be unloaded.
[INFO] [1619079144.060378130]: Loading robot model 'dofbot'...
[INFO] [1619079153.366458947]: Starting planning scene monitor
[INFO] [1619079153.368822804]: Listening to '/move_group/monitored_planning_scene'
[INFO] [1619079156.233051823]: Constructing new MoveGroup connection for group 'do
fbot' in namespace ''
[INFO] [1619079157.321685434]: Ready to take commands for planning group dofbot.
[INFO] [1619079157.321798709]: Looking around: yes
[INFO] [1619079157.321866431]: Replanning: yes
终端
MotionPlanning
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Stored Scenes
Stored States
Planning Library
OMPL
Planner Parameters
<unspecified>