7. MoveIt scene design

This lesson takes the MoveIT simulation as an example. If you need to set the synchronization between the real machine and the simulation, please refer to the lesson [02, MoveIt Precautions and Controlling the Real Machine]. ! ! ! be careful! ! !

The effect demonstration is a virtual machine, and other masters are running (related to the performance of the master, depending on the actual situation).

If the scene does not appear after running, you can wait for the scene design node command to run and then run it again. The scene will be loaded.

7.1. Start

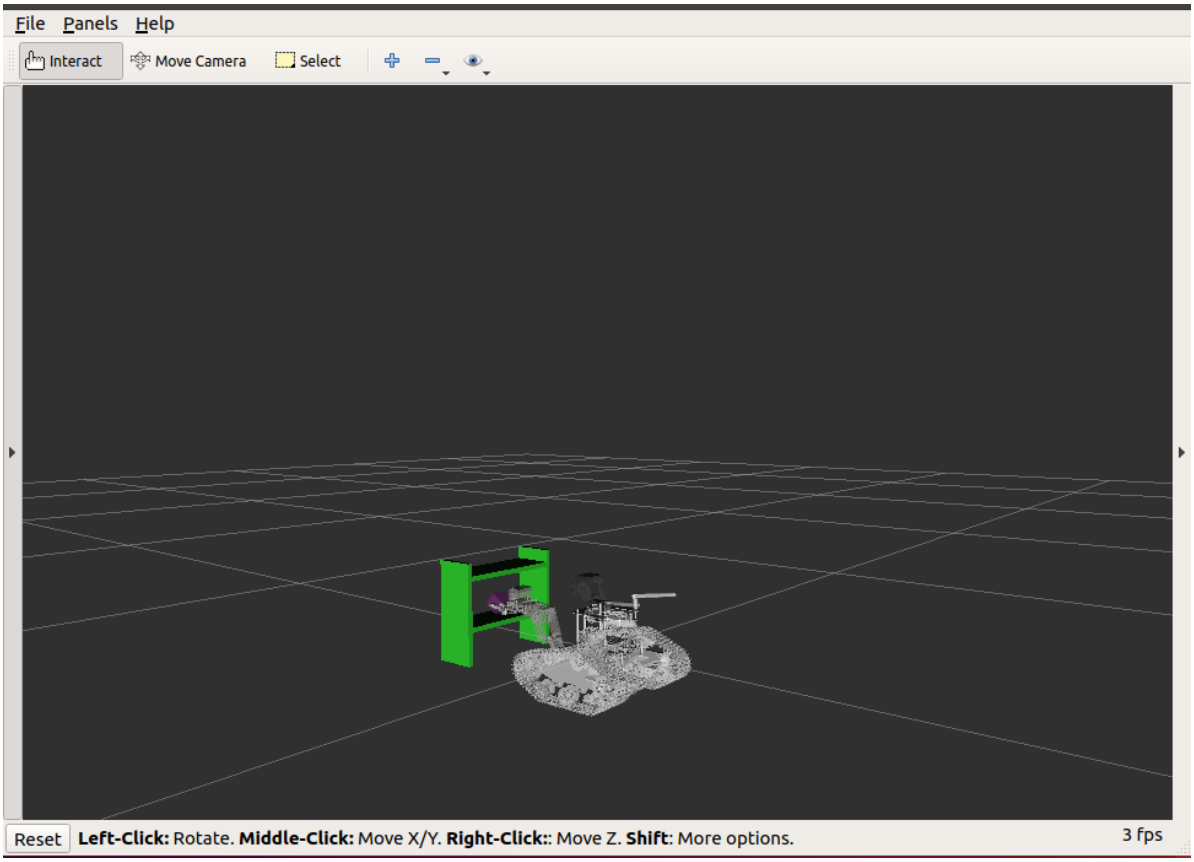
Start the MoveIT

```
roslaunch transbot_se_moveit_config demo.launch
```

Start scene design node

```
rosrun transbot_se_moveit_config 06_set_Scene.py
```

The effect diagram is as follows



7.2. Source code

Open gripper

```
    #Simulation
    pub_joint = rospy.Publisher("/move_group/fake_controller_joint_states",
JointState, queue_size=1000)
```

Add end-of-arm clamps

```
    p = PoseStamped()
    p.header.frame_id = end_effector_link
    p.pose.orientation.w = 1
    p.pose.position.x += 0.1
    p.pose.position.z -= 0.07
    #Add tool
    scene.attach_box(end_effector_link, 'tool', p, [0.03, 0.03, 0.03])
```

Add a stand

```
    table_list = {
        "obj0": [[0.01, 0.08, 0.2], [0.11, 0.28, 0.05]],
        "obj1": [[0.01, 0.08, 0.2], [-0.11, 0.28, 0.05]],
        "obj2": [[0.22, 0.08, 0.01], [0, 0.28, 0.12]],
        "obj3": [[0.22, 0.08, 0.01], [0, 0.28, 0.02]],

    }
    #Add obj
    for i in range(len(table_list)):
        add_obj(p, table_list.keys()[i], table_list[table_list.keys()[i]][0],
                table_list[table_list.keys()[i]][1])
```

Cycle planning between two points

```
     i = 0
    while i < 5:
        transbot.set_joint_value_target(target_joints1)
        transbot.go()
        transbot.set_joint_value_target(target_joints2)
        transbot.go()
        i += 1
        print ("Plan {}th time!!!".format(i))
```