

# Movelt Usage

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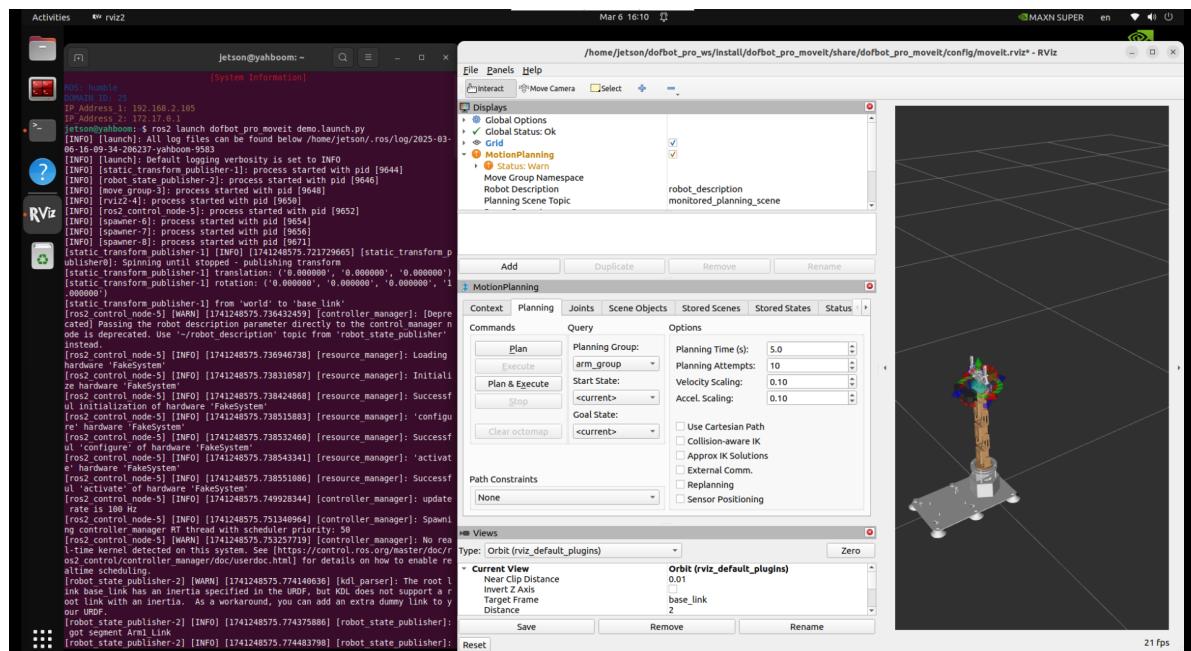
## 1. Usage Environment

Board: Jetson Orin Nano/Nx

ROS2: Humble

## 2. Launch Movelt

```
ros2 launch dofbot_pro_moveit demo.launch.py
```

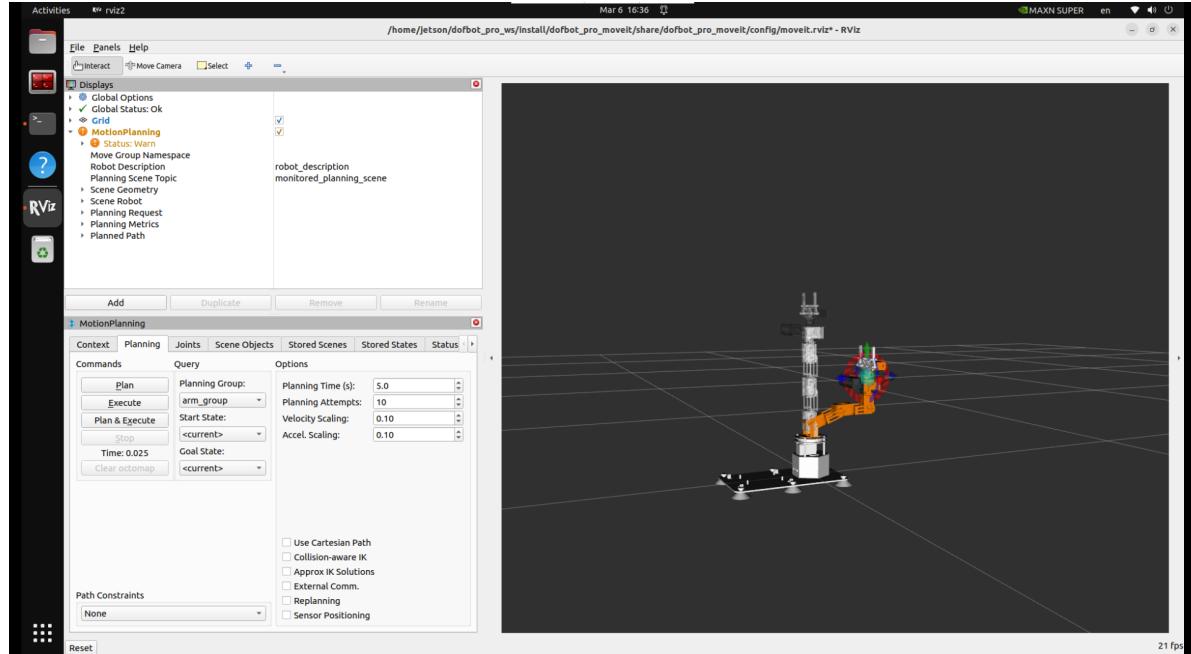


## 3. Custom Poses

### 3.1. Set Pose

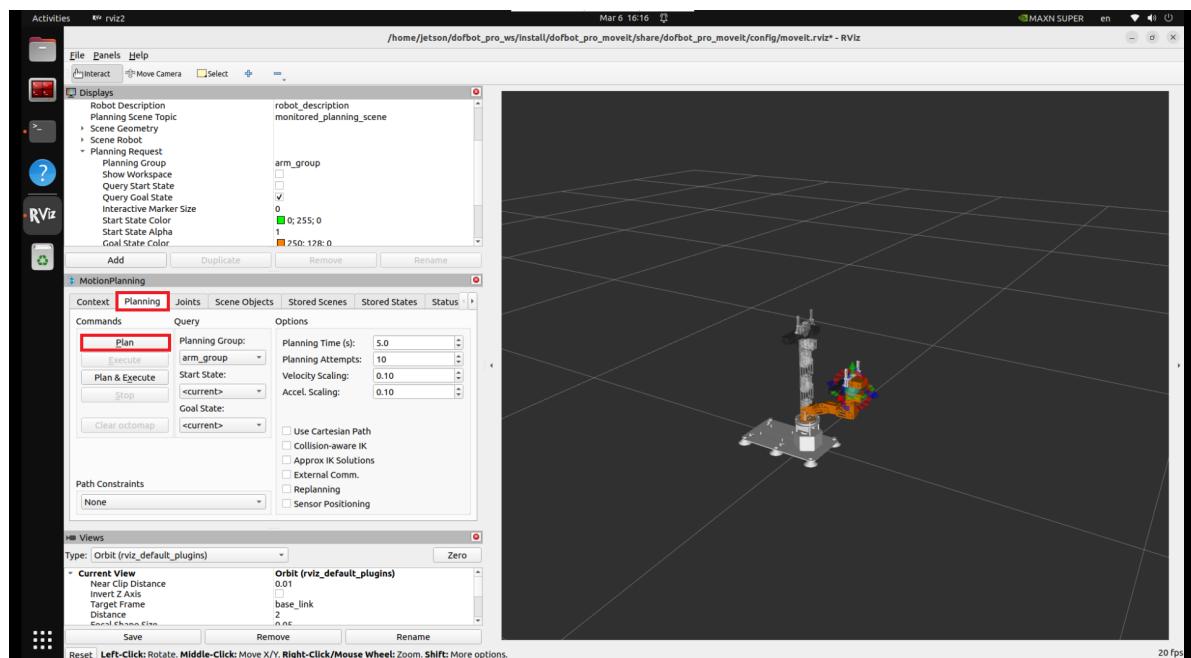
Control the robotic arm pose by dragging the trajectory balls on the robotic arm in RViz: The trajectory balls are new spheres added to the robotic arm, and the yellow robotic arm represents the target state.

Note: The robotic arm will only change its pose when the dragged trajectory ball is in a reachable position.



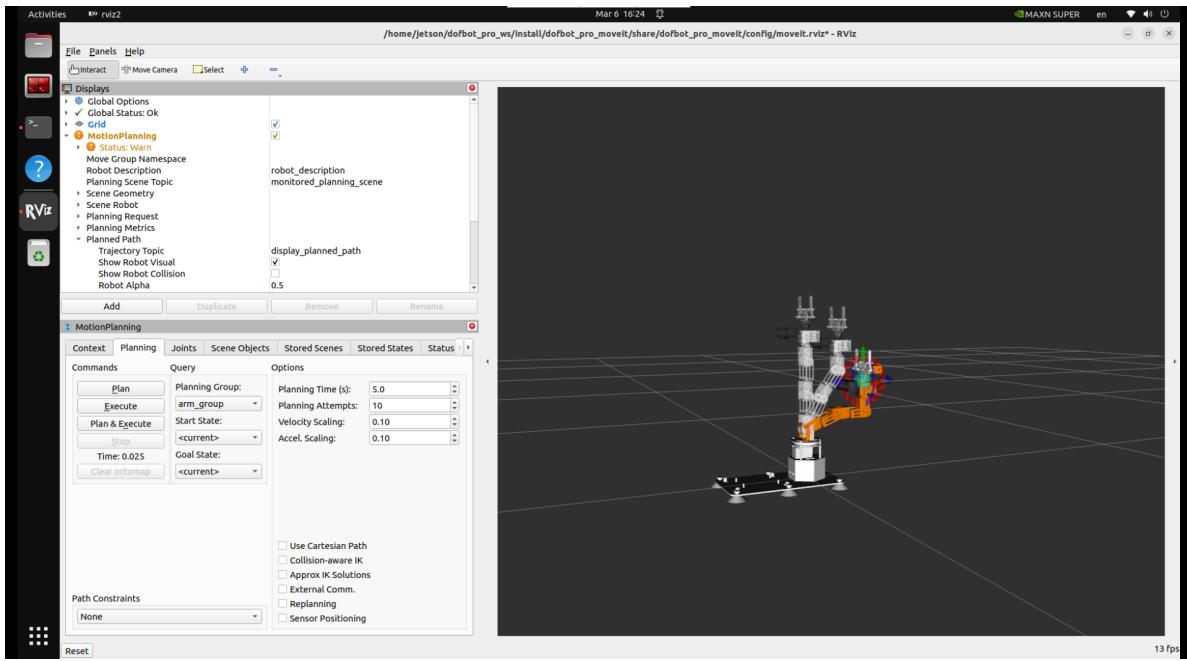
### 3.2. Plan Motion

Click `MotionPlanning` → `Planning` → `Plan` to plan the robotic arm to the specified pose.

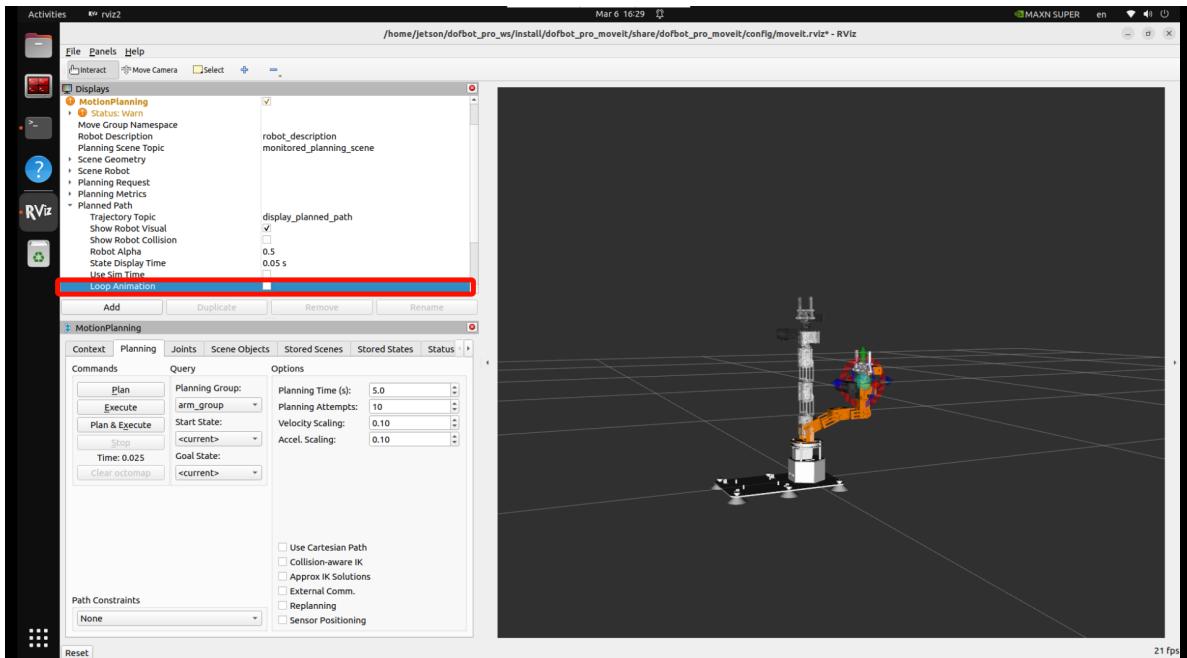


#### Start Planning Motion

The shadow of the robotic arm is the planned motion. If the planning path is not set, the robotic arm will continuously repeat the planning path.

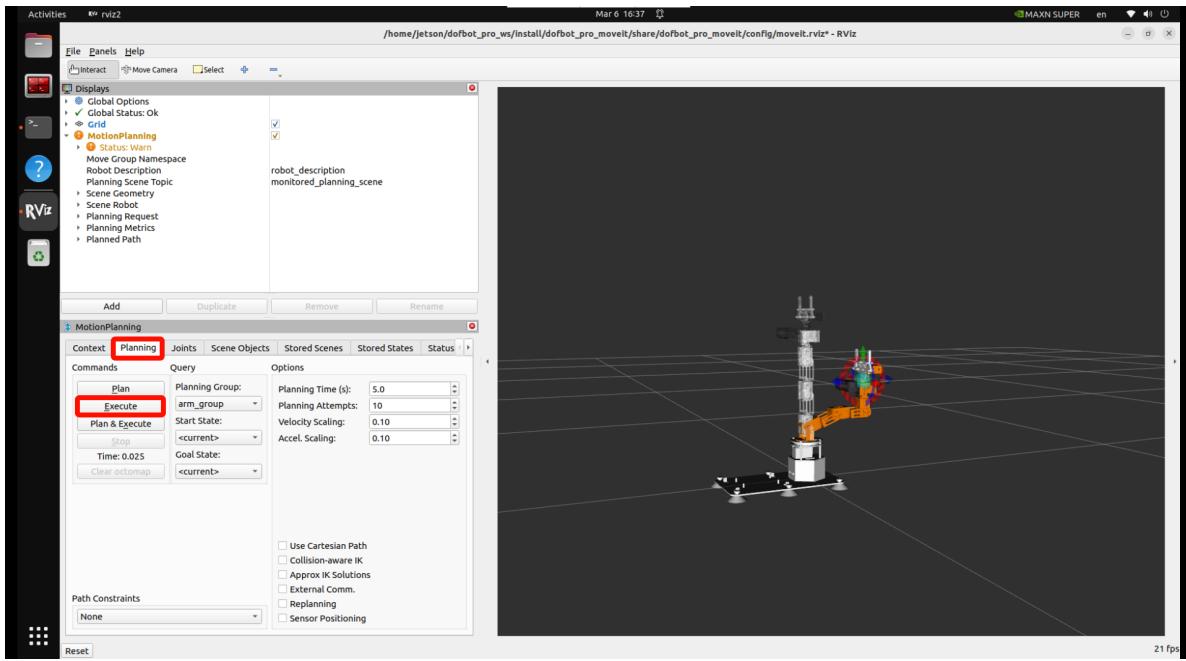


Turn off planning path loop: After turning off, the robotic arm will only plan the path once to the specified pose.



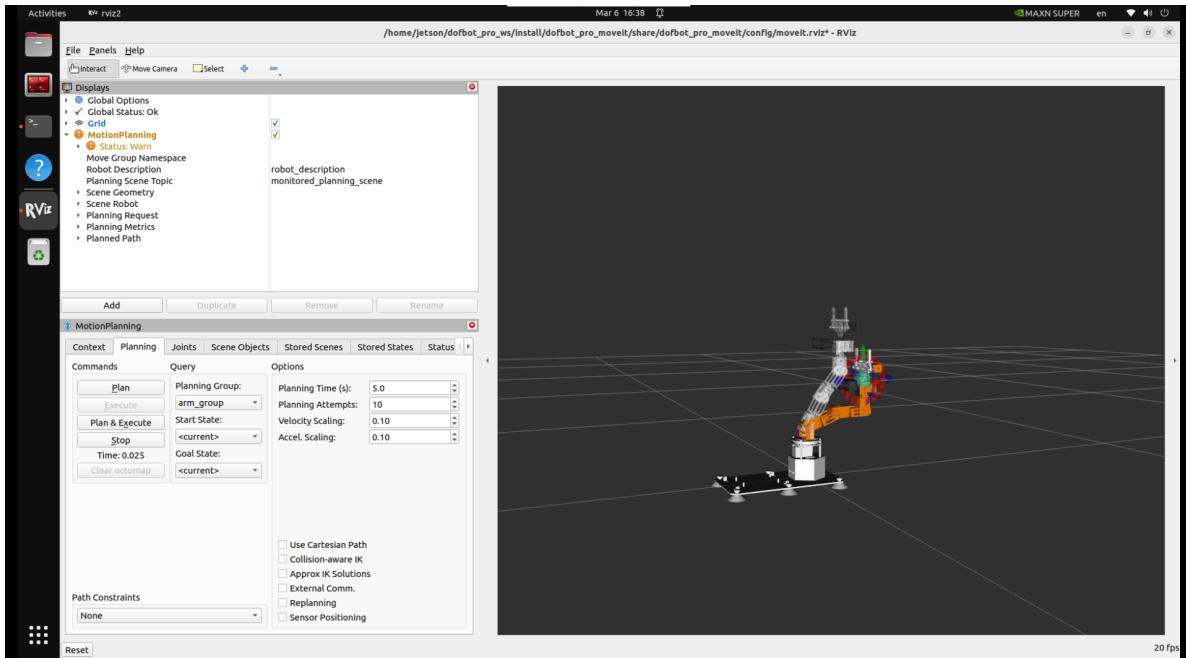
### 3.3. Execute Motion

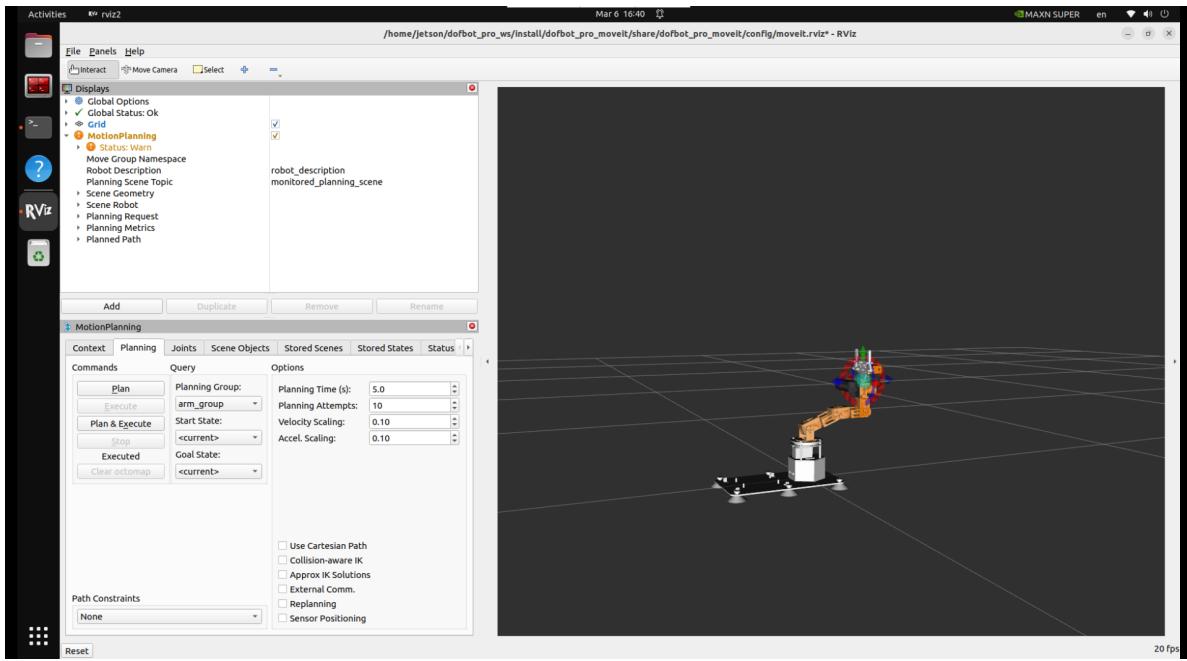
Click `MotionPlanning` → `Planning` → `Execute` to make the robotic arm move to the specified pose.



## Start Executing Motion

After clicking the execute option, the robotic arm will move to the target state until it coincides.





## 4. Preset Poses

Preset poses are several poses set for the robotic arm in MoveIt Setup Assistant.

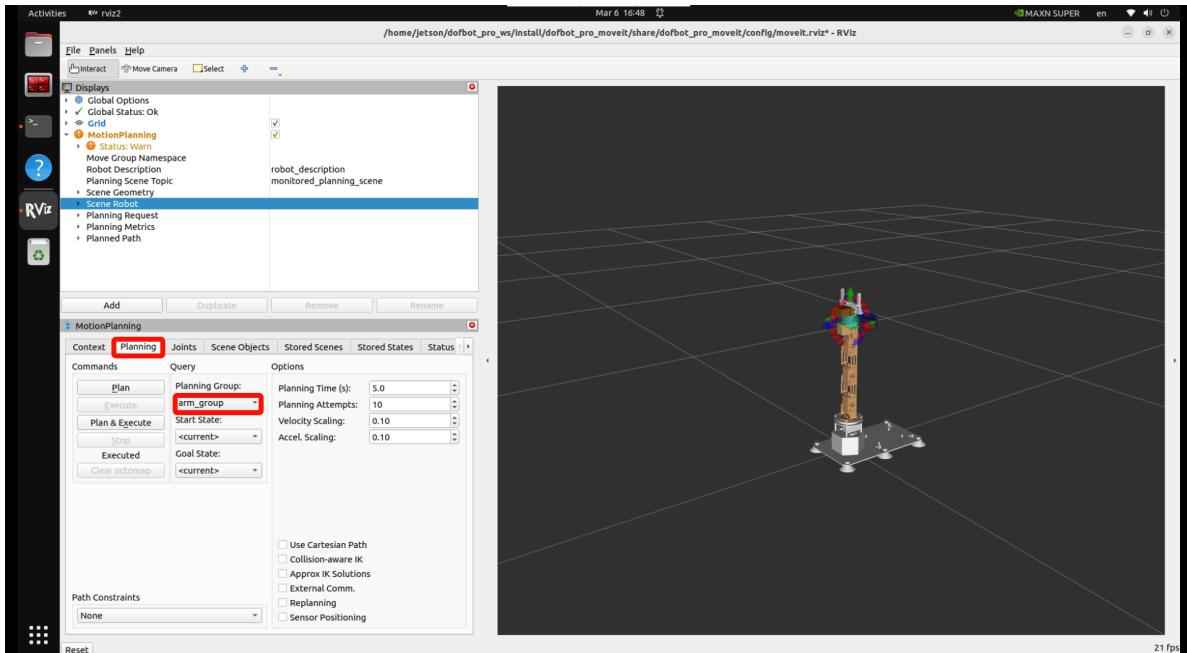
In `MotionPlanning` → `Planning` → `Planning Group`, you can set the planning group: robotic arm or gripper.

In `MotionPlanning` → `Planning` → `Start State`, you can set the starting pose for planning.

In `MotionPlanning` → `Planning` → `Goal State`, you can set the target pose for planning.

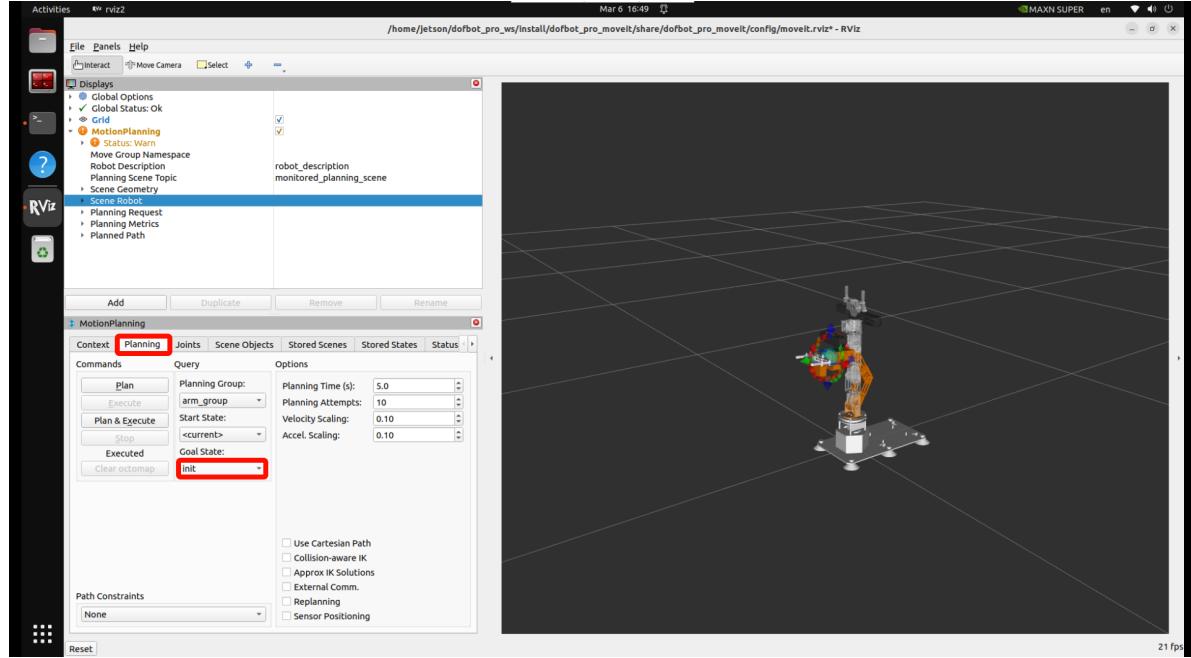
### 4.1. Robotic Arm Poses

In `MotionPlanning` → `Planning` → `Planning Group`, set the planning group: `arm_group`.



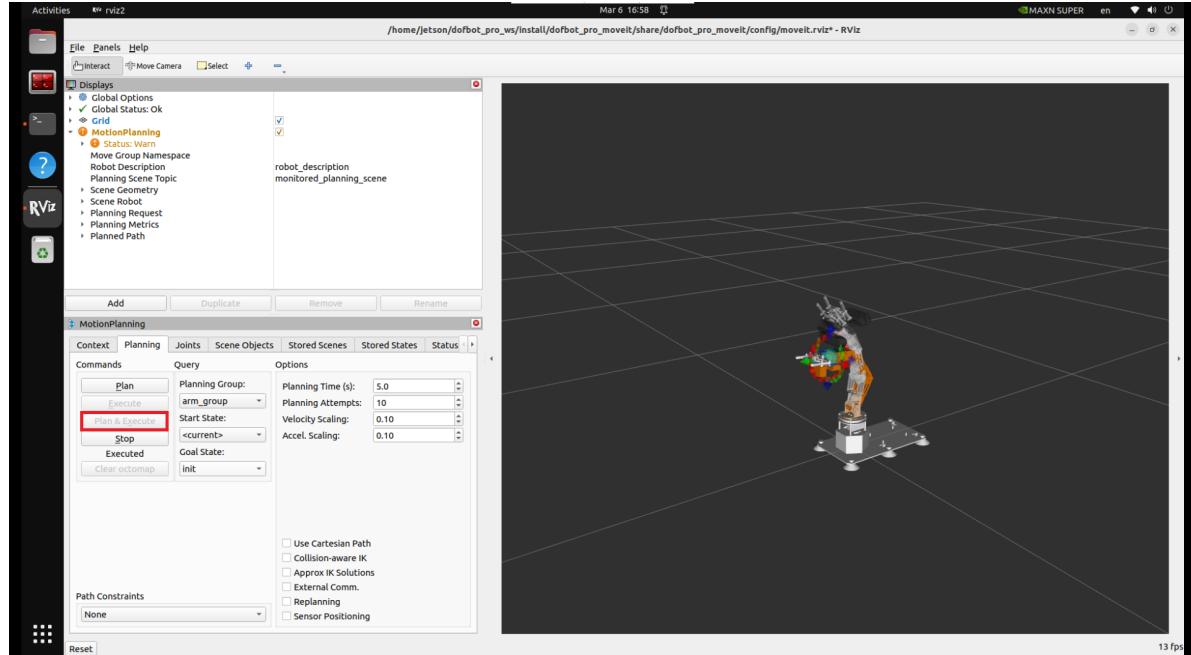
### 4.1.1. Set Pose

In `MotionPlanning` → `Planning` → `Goal State`, set the planning target pose: init



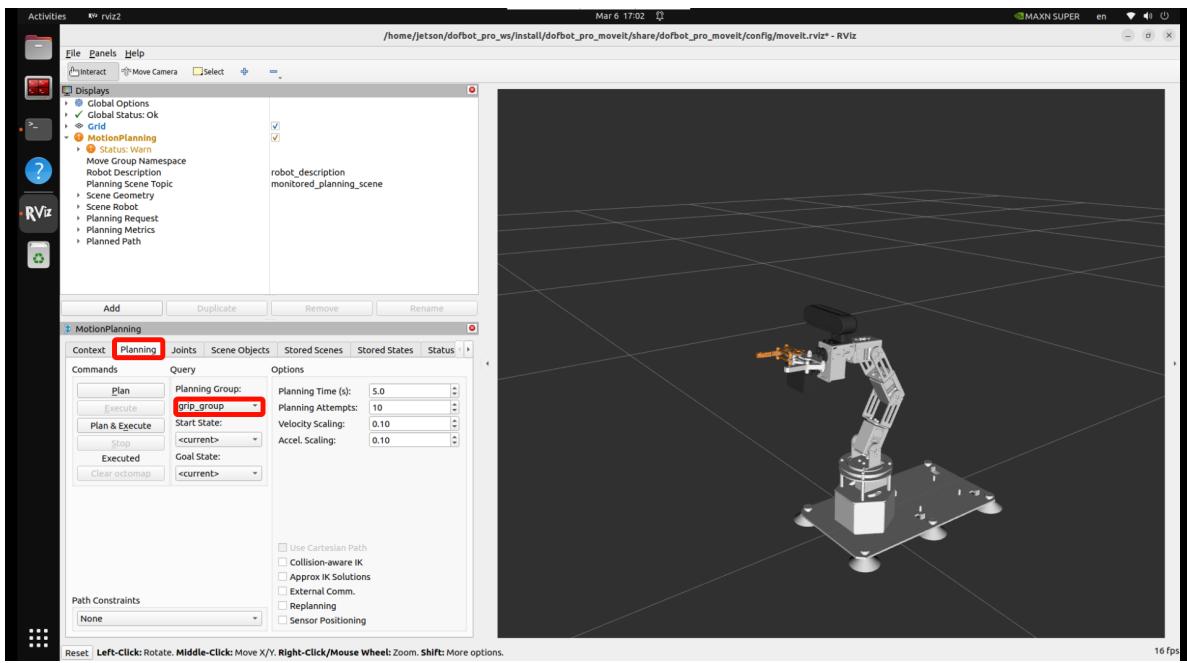
### 4.1.2. Plan and Execute Pose

Click `MotionPlanning` → `Planning` → `Plan & Execute` to make the robotic arm plan and execute to the specified pose.



## 4.2. Gripper Poses

In `MotionPlanning` → `Planning` → `Planning Group`, set the planning group: `grip_group`.



#### 4.2.1. Set Pose

In `MotionPlanning` → `Planning` → `Goal State`, set the planning target pose: close



#### 4.2.2. Plan and Execute Pose

Click `MotionPlanning` → `Planning` → `Plan & Execute` to make the gripper plan and execute to the specified pose.



### 4.3. Planning Options

`MotionPlanning` → `Planning` → `Options` can control planning time (Planning Time), planning attempts (Planning Attempts), velocity scaling for planning/execution (Velocity Scaling), and acceleration scaling for planning/execution (Accel. Scaling).

