

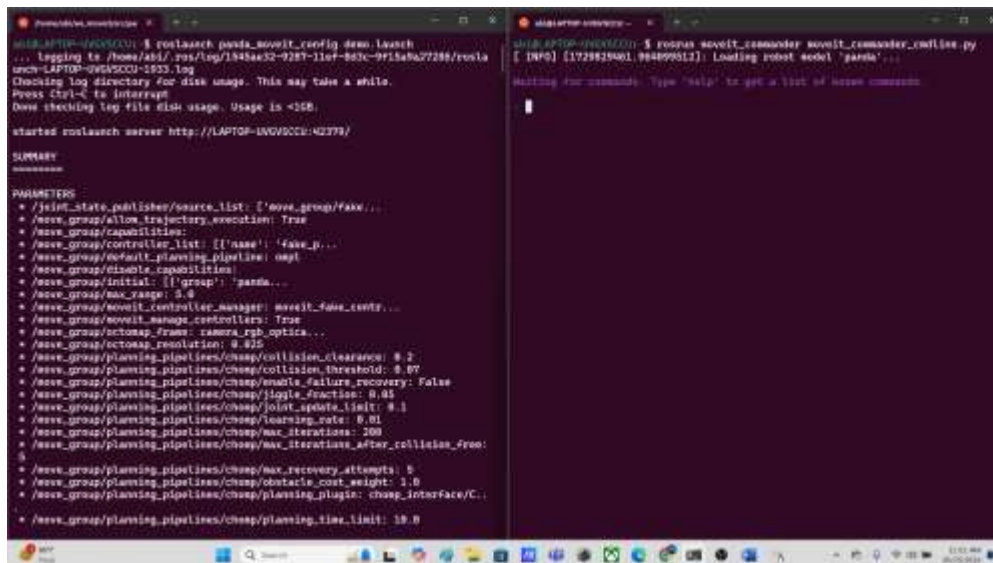
Nama : Ketut Satria Wibisana

NIM : 1103213148

Kelas : TK-45-G09

## MoveIt Commander Scripting (MoveIt 1 Noetic)

1. Jalankan syntax **roslaunch panda\_moveit\_config demo.launch** untuk membuka Rviz dan **roslaunch moveit\_commander moveit\_commander\_cmdline.py** untuk membuka command line MoveIt Commander.



The image shows two terminal windows. The left window displays the output of `roslaunch panda_moveit_config demo.launch`, which starts a ROS launch file. It shows the loading of robot models, checking log directories, and starting a ROS launch server. The right window displays the output of `roslaunch moveit_commander moveit_commander_cmdline.py`, which starts the MoveIt Commander interface. It shows the loading of the robot model 'panda' and a prompt for user commands.

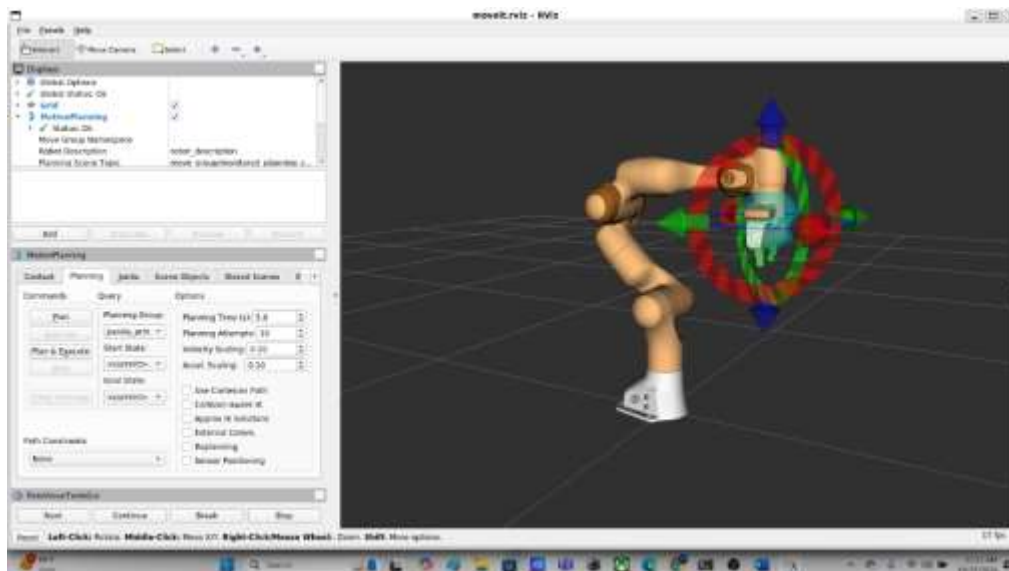
```
ubuntu@LAPTOP-UNQV5CCU:~$ roslaunch panda_moveit_config demo.launch
... logging to /home/aki/.ros/log/1545ae32-9287-11e7-8d3c-9f15a6a27288/roslaunch-LAPTOP-UNQV5CCU-1553.log
Checking log directory for disk usage. This may take a while.
Press Ctrl-C to interrupt
Done checking log file disk usage. Usage is 455B.

started roslaunch server http://LAPTOP-UNQV5CCU:42279/

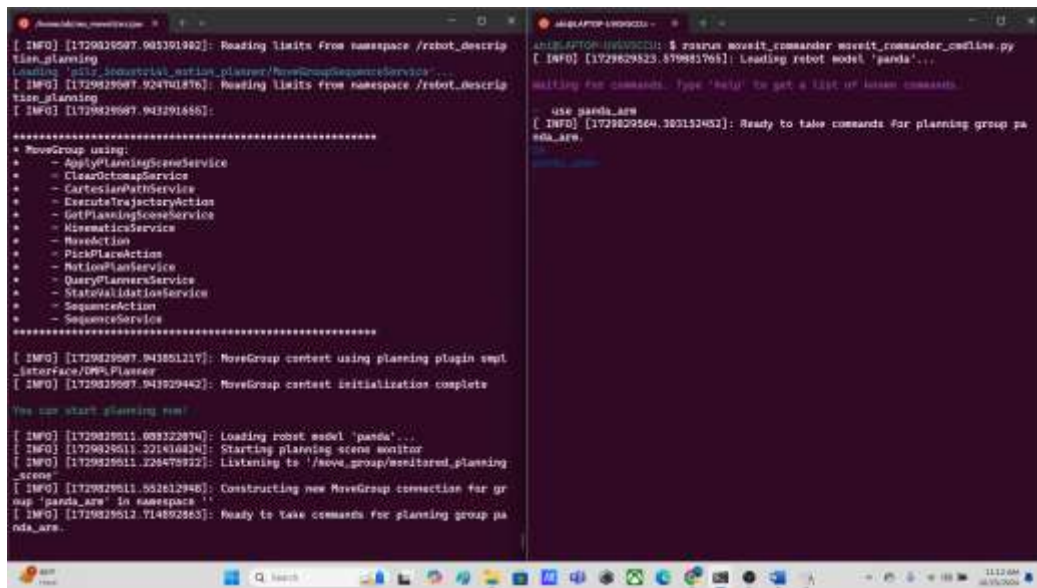
SUMMARY
=====

PARAMETERS
 * /joint_state_publisher/source_list: ['move_group/fake_...
 * /move_group/allow_trajectory_execution: True
 * /move_group/capabilities:
 * /move_group/controller_list: [{'name': 'fake_p...
 * /move_group/moveit_planning_pipeline: seqt
 * /move_group/disable_capabilities:
 * /move_group/initial: [{'group': 'panda...
 * /move_group/max_range: 5.0
 * /move_group/moveit_controller_manager: moveit_fake_cont...
 * /move_group/moveit_manage_controllers: True
 * /move_group/octomap_frame: camera_rpl_optica...
 * /move_group/octomap_resolution: 0.025
 * /move_group/planning_pipeline/chomp/collision_clearance: 0.2
 * /move_group/planning_pipeline/chomp/collision_threshold: 0.05
 * /move_group/planning_pipeline/chomp/enable_failure_recovery: False
 * /move_group/planning_pipeline/chomp/jiggle_fraction: 0.05
 * /move_group/planning_pipeline/chomp/joint_update_limit: 0.1
 * /move_group/planning_pipeline/chomp/learning_rate: 0.01
 * /move_group/planning_pipeline/chomp/max_iterations: 200
 * /move_group/planning_pipeline/chomp/max_iterations_after_collision_free: 5
 * /move_group/planning_pipeline/chomp/max_recovery_attempts: 5
 * /move_group/planning_pipeline/chomp/obstacle_cost_weight: 1.0
 * /move_group/planning_pipeline/chomp/planning_plugin: chomp_interface/C...
 * /move_group/planning_pipeline/chomp/planning_time_limit: 10.0
```

2. Rviz akan terbuka untuk visualisasi robot.



3. Jalankan syntax **use panda\_arm** pada terminal kedua untuk memilih grup robot arm.



```
[INFO] [1729829087.905301902]: Reading limits from namespace /robot_description_planning
Loading 'gls_industrial_motion_planner/MoveGroupSequenceService' ...
[INFO] [1729829087.924701876]: Reading limits from namespace /robot_description_planning
[INFO] [1729829087.943291666]:
*****
* MoveGroup using:
*   - ApplyPlanningSceneService
*   - ClearOctomapService
*   - CartesianPathService
*   - ExecuteTrajectoryAction
*   - GetPlanningSceneService
*   - KinematicService
*   - MoveAction
*   - PickPlaceAction
*   - MotionPlanService
*   - QueryPlannerService
*   - StateValidationService
*   - SequenceAction
*   - SequenceService
*****
[INFO] [1729829087.943851217]: MoveGroup context using planning plugin smt_interface/OMPLPlanner
[INFO] [1729829087.943929442]: MoveGroup context initialization complete

You can start planning now!

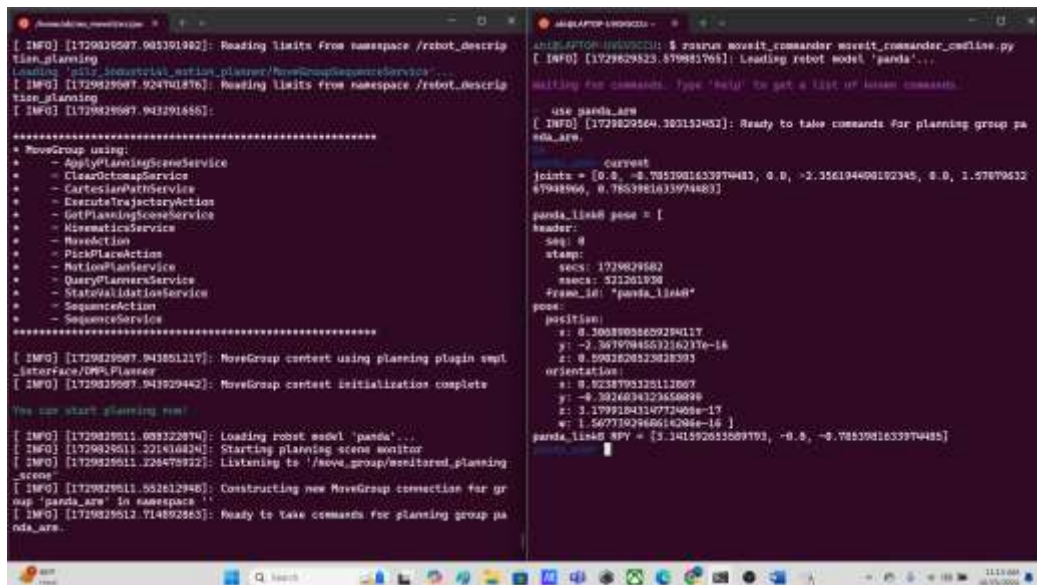
[INFO] [1729829087.905322874]: Loading robot model 'panda'...
[INFO] [1729829087.924701876]: Starting planning scene monitor
[INFO] [1729829087.924701876]: Listening to '/move_group/monitored_planning_scene'
[INFO] [1729829087.943291666]: Constructing new MoveGroup connection for group 'panda_arm' in namespace ''
[INFO] [1729829087.943291666]: Ready to take commands for planning group panda_arm.
```

```
ANILAPTON@ANILAPTON:~$ rosrun moveit_commander moveit_commander_cli.py
[INFO] [1729829087.879881765]: Loading robot model 'panda'...

Waiting for commands. Type 'help' to get a list of known commands.

- use panda_arm
[INFO] [1729829087.905322874]: Ready to take commands for planning group panda_arm.
```

4. Jalankan syntax **current** untuk menampilkan posisi saat ini dari robot.



```
[INFO] [1729829087.905301902]: Reading limits from namespace /robot_description_planning
Loading 'gls_industrial_motion_planner/MoveGroupSequenceService' ...
[INFO] [1729829087.924701876]: Reading limits from namespace /robot_description_planning
[INFO] [1729829087.943291666]:
*****
* MoveGroup using:
*   - ApplyPlanningSceneService
*   - ClearOctomapService
*   - CartesianPathService
*   - ExecuteTrajectoryAction
*   - GetPlanningSceneService
*   - KinematicService
*   - MoveAction
*   - PickPlaceAction
*   - MotionPlanService
*   - QueryPlannerService
*   - StateValidationService
*   - SequenceAction
*   - SequenceService
*****
[INFO] [1729829087.943851217]: MoveGroup context using planning plugin smt_interface/OMPLPlanner
[INFO] [1729829087.943929442]: MoveGroup context initialization complete

You can start planning now!

[INFO] [1729829087.905322874]: Loading robot model 'panda'...
[INFO] [1729829087.924701876]: Starting planning scene monitor
[INFO] [1729829087.924701876]: Listening to '/move_group/monitored_planning_scene'
[INFO] [1729829087.943291666]: Constructing new MoveGroup connection for group 'panda_arm' in namespace ''
[INFO] [1729829087.943291666]: Ready to take commands for planning group panda_arm.
```

```
ANILAPTON@ANILAPTON:~$ rosrun moveit_commander moveit_commander_cli.py
[INFO] [1729829087.879881765]: Loading robot model 'panda'...

Waiting for commands. Type 'help' to get a list of known commands.

- use panda_arm
[INFO] [1729829087.905322874]: Ready to take commands for planning group panda_arm.

current
[INFO] [1729829087.905322874]: Ready to take commands for planning group panda_arm.

joints = [0.0, -0.7053981633979483, 0.0, -2.356194400182345, 0.0, 1.5707963267948966, 0.7853981633979483]

panda_link0 pose = {
header:
seq: 0
stamp:
secs: 1729829087
nsecs: 521201930
frame_id: "panda_link0"
pose:
position:
x: 0.3055803660928417
y: -2.3679704653216217e-16
z: 0.5002620523828393
orientation:
x: 0.9238795325112067
y: -0.3816034123656899
z: 3.1799184314977240e-17
w: 1.5607702960616204e-16 }
panda_link0 WPY = {3.141592653589793, -0.0, -0.7053981633979483}
```

5. Jalankan syntax **rec c** untuk merekam posisi saat ini sebagai variabel, **goal = c** untuk menyimpan posisi tersebut, dan **go goal** untuk menggerakkan robot ke posisi yang disimpan.

```

[INFO] [1729829507.943851217]: MoveGroup context using planning plugin seqt
interface/OMPLPlanner
[INFO] [1729829507.943929442]: MoveGroup context initialization complete

You can start planning now!

[INFO] [1729829511.888322874]: Loading robot model 'panda'...
[INFO] [1729829511.221416824]: Starting planning scene monitor
[INFO] [1729829511.22675922]: Listening to '/move_group/motion_planning
scene'
[INFO] [1729829511.552612948]: Constructing new MoveGroup connection for gr
oup 'panda_arm' in namespace ''
[INFO] [1729829512.714092865]: Ready to take commands for planning group pa
nda_arm
[INFO] [1729829507.422226888]: Combined planning and execution request rece
ived for MoveGroup action. Forwarding to planning and execution pipeline.
[INFO] [1729829507.422525186]: Planning attempt 1 of at most 1
[INFO] [1729829507.437281833]: Planner configuration 'panda_arm' will use p
lanner 'geometric::RRTConnect'. Additional configuration parameters will be
set when the planner is constructed.
[INFO] [1729829507.43735948]: panda_arm/panda_arm: Starting planning with
1 states already in datastructure
[INFO] [1729829507.458897448]: panda_arm/panda_arm: Created 8 states (2 sta
tes + 6 goal)
[INFO] [1729829507.458172840]: Solution found in 0.022388 seconds
[INFO] [1729829507.465576499]: SimpleSetup: Path simplification took 0.0261
51 seconds and changed from 4 to 2 states
[INFO] [1729829507.522393745]: Fake execution of trajectory
[INFO] [1729829509.328368476]: Completed trajectory execution with status 8
SUCCEEDED ...

```

```

[INFO] [1729829523.879081765]: Loading robot model 'panda'...
Waiting for commands. Type 'help' to get a list of known commands.

- use panda_arm
[INFO] [1729829509.38332452]: Ready to take commands for planning group pa
nda_arm.

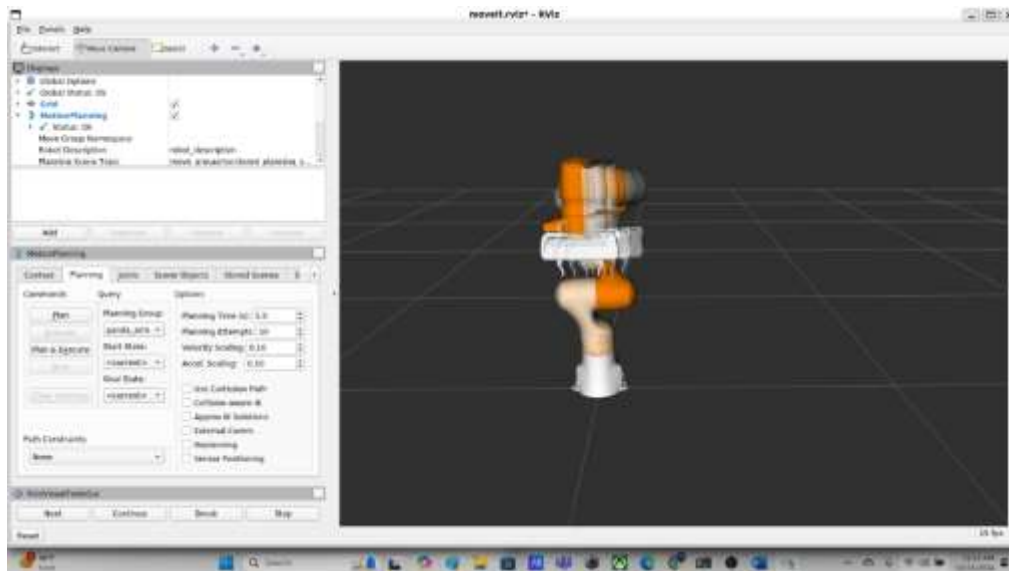
panda_arm: current
joints = [0.0, -0.70539016339794483, 0.0, -2.356194460192340, 0.0, 1.07079632
67948066, 0.70539016339794483]

panda_link0 pose = {
header:
seq: 0
stamp:
secs: 1729829502
secs: 521281939
frame_id: "panda_link0"
pose:
position:
x: 0.3860815609738013
y: -2.3079784653216277e-16
z: 0.590282852382393
orientation:
x: 0.9238795326113807
y: -9.382013022385089e-9
z: 3.196184310772466e-19
w: 1.8677392569814200e-16
panda_link0 RPV = [1.141592653329703, -0.0, -0.70539016339794483]

ctrl: ctrl: rec c
New thread: current: from values under the name c
ctrl: ctrl: goal = c
goal is now the same as c
ctrl: ctrl: goal[0] = 0.2
ctrl: ctrl: go goal
Reset to goal
ctrl: ctrl:

```

6. Robot akan bergerak sesuai instruksi.



```
...scene'
[INFO] [1729029511.822612946]: Constructing new MoveGroup connection for ge
map 'panda_arm' in namespace ''
[INFO] [1729029512.1748928631]: Ready to take commands for planning group pa
nda_arm
[INFO] [1729029567.422226888]: Combined planning and execution request rece
ived for MoveGroup action. Forwarding to planning and execution pipeline.
[INFO] [1729029667.022555146]: Planning attempt 1 of at most 1.
[INFO] [172902967.03330123]: Planner configuration 'panda_arm' will use p
lanner {name: 'RRTConnect'}. Additional configuration parameters will be
set when the planner is constructed.
[INFO] [1729029677.037132948]: panda_arm/panda_arm: Starting planning with
1 states already in datastructure
[INFO] [1729029677.408197448]: panda_arm/panda_arm: Created 5 states (2 sta
rt + 3 goal)
[INFO] [1729029647.40592173849]: Solution found in 0.022288 seconds
[INFO] [1729029647.485576939]: SingleSetup: Path simplification took 0.0263
51 seconds and changed from 8 to 2 states
[INFO] [1729029670.823639451]: False execution of trajectory
[INFO] [1729029649.328166676]: Completed trajectory execution with status S
UCCEEDED ...
[INFO] [1729029709.920414959]: Planning request received for MoveGroup acti
on. Forwarding to planning pipeline.
[INFO] [172902979.822932686]: Planner configuration 'panda_arm' will use p
lanner {name: 'RRTConnect'}. Additional configuration parameters will be
set when the planner is constructed.
[INFO] [1729029709.921562078]: panda_arm/panda_arm: Starting planning with
1 states already in datastructure
[INFO] [1729029709.9581177310]: panda_arm/panda_arm: Created 5 states (2 sta
rt + 3 goal)
[INFO] [1729029709.958174936]: Solution found in 0.035077 seconds
[INFO] [1729029709.981595165]: SingleSetup: Path simplification took 0.0249
17 seconds and changed from 8 to 2 states
[INFO] [1729029794.197416961]: Execution request received
[INFO] [1729029794.228460918]: False execution of trajectory
[INFO] [1729029699.221467224]: Completed trajectory execution with status S
UCCEEDED ...
[INFO] [1729029699.221961978]: Execution completed: SUCCEEDED

panda_lined pose = {
header:
seq: 0
stamp:
secs: 1729029582
nsecs: 521261936
frame_id: 'panda_lined'
pose:
position:
x: 0.368498566550294337
y: -2.3679784032182579e-16
z: 0.39402365623620393
orientation:
x: 0.9230749322112587
y: -0.3820819323608899
z: 1.1790124014772486e-17
w: 1.5877321968614296e-16
panda_lined RPV = [3.141592653589793, -0.0, -0.7853981633974483]
Numbered current joint values under the name c
goal is now the same as c
panda_arm goal[0] = 0.2
Numbered goal[0] = c
goal is now the same as c
panda_arm goal[0] = 0.2
Numbered goal[0] = c
Numbered current joint values under the name c
goal is now the same as c
panda_arm goal[0] = 0.2
Numbered goal[0] = c
panda_arm goal[1] = 0.2
Numbered goal[1] = c
panda_arm plus goal
Planned to goal
Execute
Plan submission for execution
Numbered current joint values under the name c
```