# Navigation with move_base package

8th January 2020 at 3:14pm

**move_base** - Action server for reaching a given navigation goal

Message used for setting Goal position

```
rosmsg show MoveBaseActionGoal
```

Configuration Parameter for move_base path planning

- base_local_planner_params.yaml
- costmap_common_params.yaml
- global_costmap_params.yaml
- local_costmap_params.yaml

# Testing move_base action server with turtlebot3 simulator

8th January 2020 at 3:26pm

Start the turtlbot3 simulation environment in gazebo with empty_world

```
roslaunch turtlebot3_gazebo turtlebot3_world.launch
```

In another terminal start the navigation package for turtlebot3_simulation

```
roslaunch turtlebot3_navigation turtlebot3_navigation.launch
map_file:=$HOME/blank_map.yaml
```

Start the turtlbot3 simulation environment in gazebo with turtlebot3_world

```
roslaunch turtlebot3_gazebo turtlebot3_world.launch
```

In another terminal start the navigation package for turtlebot3_simulation

```
roslaunch turtlebot3_navigation turtlebot3_navigation.launch
map_file:=$HOME/map.yaml
```

# Sending topic to move_base through terminal

8th January 2020 at 3:29pm

```
rostopic pub /move_base_simple/goal geometry_msgs/PoseStamped '{ header: {
frame_id: "map" }, pose: { position: { x: 1.0, y: 0.0, z: 0 }, orientation: {
x: 0, y: 0, z:0.0, w: 1.0 } } }'
```

# Using python script to control the TurtleBot3

8th January 2020 at 3:37pm

## Import actionlib library and message object for *MoveBaseAction* and *MoveBaseGoal*

```
import actionlib

from move_base_msgs.msg import MoveBaseAction, MoveBaseGoal
```

## Create a action client

```
client = actionlib.SimpleActionClient('move_base', MoveBaseAction)
```

## Set the goal pose

```
    goal_pose = MoveBaseGoal()
    goal_pose.target_pose.header.frame_id = 'map'
    goal_pose.target_pose.pose.position.x = pose[0][0]
    goal_pose.target_pose.pose.position.y = pose[0][1]
    goal_pose.target_pose.pose.position.z = pose[0][2]
    goal_pose.target_pose.pose.orientation.x = pose[1][0]
    goal_pose.target_pose.pose.orientation.y = pose[1][1]
    goal_pose.target_pose.pose.orientation.z = pose[1][2]
    goal_pose.target_pose.pose.orientation.w = pose[1][3]
```