

Instructions to install and run the application

This document contains the instructions required to install and run the application, along with its software dependencies. Throughout the document, it will be assumed that the workspace created for the application will be named “catkin_ws”.

Installing ROS and the TIAGo robot’s dependencies

Follow the instructions in the “ROS instructions.pdf” document to install the Robot Operating System (Indigo version), Gazebo, MoveIt, and the TIAGo robot’s dependencies

Installing the *explorer* package

At the following file path (catkin_ws/src) install the “aau_multi_robot” package (Indigo branch), which can be found at the below link:

https://github.com/aau-ros/aau_multi_robot

Further instructions on this package can be found on its ROS Wiki page:

<http://wiki.ros.org/explorer>

Replace the *explorer* script

Replace the “explorer.cpp” file found at the following file path within the “aau_multi_robot” package:

catkin_ws/src/aau_multi_robot/explorer/src

with the “explorer.cpp” file found in this repository.

aau_multi_robot package launch files

Insert the “tiago_explorer.launch” file at the following file path:

catkin_ws/src/aau_multi_robot/explorer/launch

Insert the “tiago_map_merger.launch” file at the following file path:

catkin_ws/src/aau_multi_robot/map_merger/launch

callery_map_analysis package installation

Save the “callery_map_analysis” package at the following file path:

catkin_ws/src

.world files

Insert the .world files contained within this zip file at the following location:

catkin_ws/src/tiago_simulation/tiago_gazebo/worlds

Compile

Enter the below terminal commands to compile the workspace before launching the program:

```
cd ~/catkin_ws/src
catkin build
```

Launching the application

Enter the following commands to launch the application (the starting pose of the robot and simulated world can be altered as desired):

```
cd ~/catkin_ws/src
source ./devel/setup.bash
roslaunch callery_map_analysis ifttt_robot.launch gzpose:="-x 0.0 -y 0.0 -z 0.0 -R 0.0 -P 0.0 -Y 0.0" world:=small_office
```