

Erle-Copter simulation

This guide demonstrates how to simulate an Erle-Copter in Gazebo, and control it with APM Planner. Make sure to follow the installation instructions first. For a brief demonstration, view the '*Control an Erle-Copter in Gazebo*' video.

Installation

- First, we set up an UDP connection to control the simulated Erle-Copter with APM Planner.
 - Open APM Planner by running the **apmplanner2** executable in the `/apm_planner/release` folder
 - Go to the '*Communication*' tab and select '**Add link**' > '**UDP**'
 - Type '**14551**' as 'UDP port'
 - Click on '**Add IP**' and type '**localhost:14551**' in the pop-up window
 - Close APM Planner
- Second, we spawn the Erle-Copter in a simulated world. Follow the '*Create a simulated world*' manual to create your own world.
 - Open a terminal and execute

```
cd ~/simulation/ardupilot/Arducopter
../Tools/autotest/sim_vehicle.sh -j 4 -f Gazebo
```
 - In a new terminal, run

```
roslaunch ardupilot_sitl_gazebo_plugin erlecopter_spawn.launch
```
 - Go back to the first terminal and type

```
param set ARMING_CHECK 0
param set SYSID_MYGCS 1
```
- Now, we can control the Erle-Copter. There are multiple ways to do this:
 - For the first method, we return to the first terminal window (where we set the parameters) and run these commands to make the Erle-Copter take-off to 2 metres

```
mode GUIDED
arm throttle
takeoff 2
```

To land, simply type

```
mode LAND
```
 - The second method will make use of APM Planner.
 - Connect a PS3 controller to your computer via USB, open a new terminal and type

```
sixpair
```

Then, in the same terminal, type

```
sixad --start
```

You will be prompted to push the PS-button on your controller. The PS3 controller should be connected now.
 - Open APM Planner by running the **apmplanner2** executable in the `/apm_planner/release` folder.
 - Go to '**File**' > '**Joystick**' and click '**Activate**'
 - Go to the '*Actions*' tab and select the flight mode that you want to use. I suggest '**LOITER**' or '**ALT_HOLD**' for stable flight.
 - Click '**ARM**' to arm the Erle-Copter, you can now use the sticks on your PS3 controller to steer the Erle-Copter!