# Erle-Copter simulation

1. This guide demonstrates how to install all necessary packages to simulate an Erle-Copter in Gazebo on Ubuntu 14.04.

## Installation

* The first step is to configure your simulation environment. To do this, simply follow the instructions at [**http://docs.erlerobotics.com/simulation/configuring\_your\_environment**](http://docs.erlerobotics.com/simulation/configuring_your_environment)**.**
  + After completing this tutorial, you have a working ROS workspace that contains all necessary packages to simulate the Erle-Copter in Gazebo. However, the *rotors\_simulator* package implemented by Erle-Robotics has a bug that results in very unstable yaw rotation! You can fix this problem by removing the **rotors\_gazebo\_plugins** folder, located on your computer at *~/simulation/ros\_catkin\_ws/src/rotors\_simulator/*. Then, replace that folder with the new **rotors\_gazebo\_plugins** folder located in this portfolio at */Code/ros\_catkin\_ws/src/rotors\_simulator.* Build the package again by executing:  
     ***cd ~/simulation/ros\_catkin\_ws  
     catkin\_make --pkg rotors\_simulator***  
    Yaw rotation should work now!
* In order to control the Erle-Copter, you can install a Ground Control Station (GCS). For our simulation, we install APM Planner.
  + As building this GCS requires your Qt version to be at least 5.4.2, we will have to install that first:  
     ***sudo add-apt-repository ppa:beineri/opt-qt542-trusty  
     sudo apt-get update  
     sudo apt-get install qt-latest***To enable this Qt version, execute the following:  
     ***export QT\_SELECT=qt5***
  + Now we can install APM Planner. First,clone the repository to your desired location:  
     ***git clone*** [***https://github.com/diydrones/apm\_planner***](https://github.com/diydrones/apm_planner)Now go to the APM Planner directory and execute:  
     ***qmake apm\_planner.pro  
     make***When the build is complete, you can run APM Planner by executing the following command in the APM Planner directory:  
     ***./release/apmplanner2***
* APM Planner comes with a built-in joystick functionality. The simulated Erle-Copter can be steered with a PS3 Controller, if the right drivers are installed. Installing these drivers is very simple:  
   ***sudo apt-get install sixad***