# Simulation worlds

1. This guide demonstrates how to create your own simulation world in Gazebo, and place items in it.

## Gazebo Building Editor

* + The first step is to model a building. This is easily done with the Gazebo Building Editor. Open Gazebo, and go to **'Edit' > 'Building Editor'.**
  + In this editor, you can easily draw the walls of your environment, and add stairs, doors and windows for multiple floors. Aftwerwards, you can add colors and textures to these walls.
  + When you are done modeling, go to '**File' > 'Save as'**  and save your model in the following location:  
    ***~/.gazebo/models/<your\_model\_name>/<your\_model\_name>.world***Replace *<your\_model\_name>* with a well-suited name for your model.

## Create a world

Next, we insert our own model in a world, together with some items.

* Create a new file ***<your\_world\_name>.*world** and place it in *~/simulation/ros\_catkin\_ws/src/ardupilot\_sitl\_gazebo\_plugin/worlds/*
* Copy the contents of ***/Tech Report/Code/ros\_catkin\_ws/src/ardupilot\_sitl\_gazebo\_plugin/ardupilot\_sitl\_gazebo\_plugin/worlds/vbuilding/vbuilding.world*** from this portfolio into your newly created *<your\_world\_name>.*world file
* On line 108 in your *<your\_world\_name>.*world file, replace ***model://v315***with ***model://<your\_model\_name>***. This will insert the building that you modeled in your own world. If you want to use the world that can be seen in the simulation video (“*Control an Erle-Copter in Gazebo”)*, you do not have to replace this line
* In the simulation demo, you can see numerous objects placed around the room. You have copied all these items into your own world! For example, take a look at line 288 in your .world file. Here, I model all spheres in the room, and give them a position. Change the position by changing the values in the ***<pose>****x y z roll pitch yaw****</pose>*** tag, and change the color of the object bay changing the values in the ***<ambient>****R G B sat****</ambient>*** tag.
* Also, you can insert default objects like a cardboard box. For example, take a look at line 113 in the code. To see all default models that you can insert, open Gazebo and click on the **'Insert'** tab. Here, you will see a list of all default objects.

## Launch the Erle-Copter in your world

* The last step is to use your new world in the Erle-Copter simulation. In order to do this, open ***~/simulation/ros\_catkin\_ws/src/ardupilot\_sitl\_gazebo\_plugin/launch/erlecopter\_spawn.launch*** in a text editor. Around line 15, you will find a line that spawns the *empty.world* file in your simulation. Comment the entire line, and put this line right below it:  
  ***<arg name="world\_name" default="$(find ardupilot\_sitl\_gazebo\_plugin)/worlds/<your\_world\_name>/<your\_world\_name>.world"/>***Of course, you will have to replace *<your\_world\_name>* with the actual name that you gave to your world. Now, you can run the simulation with your own world! If you do not know how to do this, take a look at the **“Control an Erle-Copter in Gazebo”** tutorial in this portfolio.