Version: 0.3

Tutorial on how to create a new airport in MSFS

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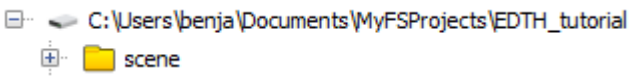
1. Before you start:

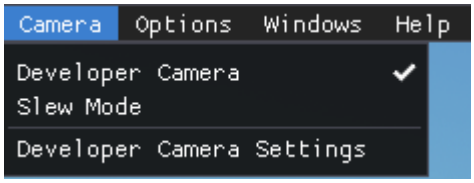
Make sure you have enabled the developer mode and are familiar with some of the basics. Please note that the SDK is still “under construction”, meaning the information below can change over time.

2. Actual steps:

1. In your documents folder, search up the folder called “MyFSProjects” or create one. In this folder create one project folder which we will call “EDTH_tutorial” and in this folder one folder called “scene”. It should look something like this:



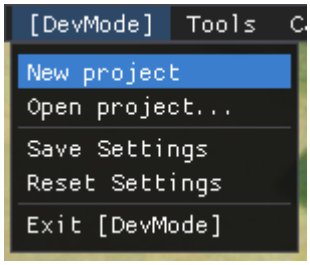
2. Start MSFS and teleport yourself to the coordinates of the non-existing airport (tutorials on how teleport to custom coordinates in the forum). In this tutorial I will use the small airfield EDTH in Germany (coordinates: 48.803030, 9.929140).
3. Place yourself somewhere on the ground and activate developer camera.



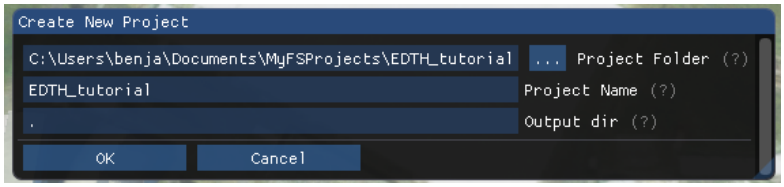
(Move the camera using ALT + LMB/ RMB/ MMB[1] and SCROLL)

4. This is our sample airport we'll be working on. We will create a basic airport, a runway, and a polygon to remove the misplaced buildings and vegetation. More advanced airport editing techniques are in the sections below.

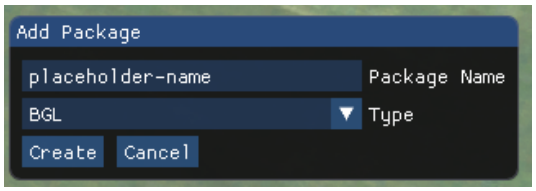
5. Create a new project.



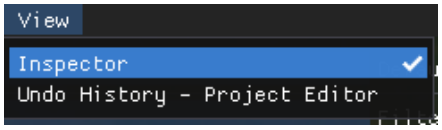
Make sure our "EDTH_tutorial" folder in the "MyFSProjects" folder is the Project folder.



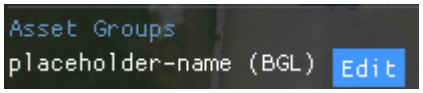
6. In the project editor create a new package (little plus icon in the bottom left) and give it any name (will be changed later). Select BGL as the type.



7. Open the inspector.



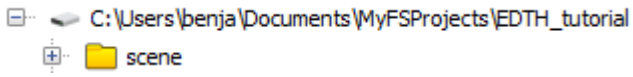
8. In the inspector window change the company name to something you wish. Name the Package to "airport-<ICAO>-<name>". In our case this could be "airport-EDTH-tutorial". Select SCENERY as the content-type. As a thumbnail you can use the Placeholder.png from the SDK (can be found here → "MSFS SDK\Samples\SimpleAirport\PackageDefinitions\mycompany-airport\ContentInfo")
9. Our project has created an asset group which we will now edit. Click on the edit button in the inspector window.



[1] LMB = Left Mouse Button; MMB = Middle Mouse Button; RMB = Right Mouse Button

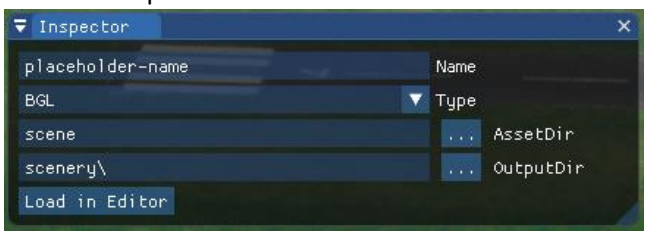
In the Inspector window we will now assign a correct AssetDir and a correct OutputDir. Our asset directory will be the “scene” folder we created in the “EDTH_tutorial” folder.

Our AssetDir will be this one:

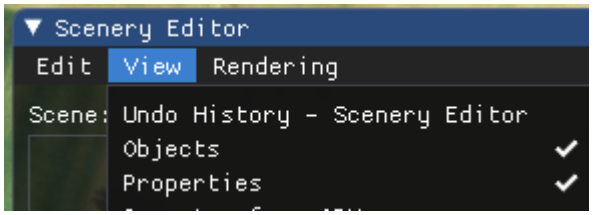


Now put “scenery” into the OutputDir field. When building the package later, a folder called “Packages” should be created in the “EDTH_tutorial” folder.

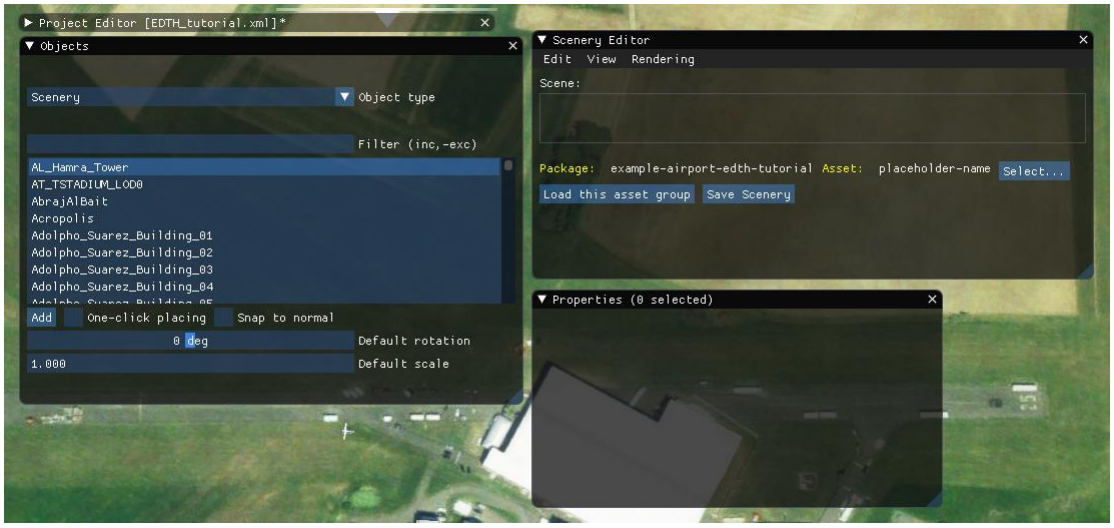
Now the inspector window should look like this:



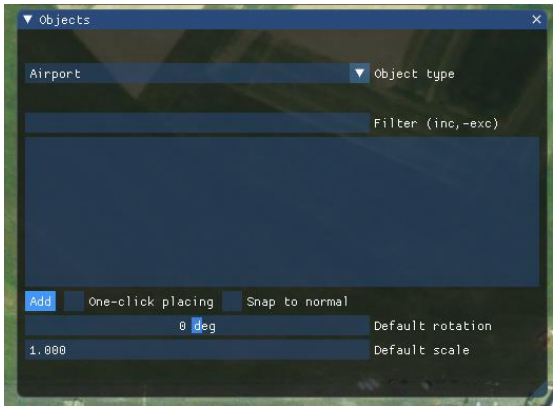
10. Now click on the load in Editor window to open our asset group in the scenery editor. Adjust the opened windows so you have the scenery editor, the objects window, and the properties window. (You can open the objects and properties window via the scenery editor.)



Now you should have these windows open.



11. The first thing we will do is to place the airport. Do this by selecting airport in the objects menu and then pressing the add button.



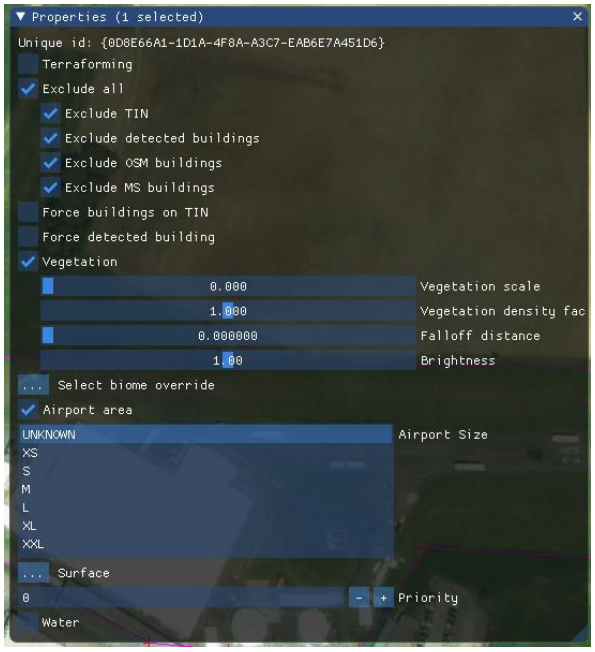
You can then select it in the scenery editor and move it with the Gizmo on the map. We will put it onto the runway.

In the properties window, there will be some empty fields which we need to fill in. Give your airport the according ICAO code (in our case EDTH) and the name (in our case “Heubach”). (Press ENTER to submit the fields). You can also add other properties such as the star airport or regions. In our case the properties window should look like this:

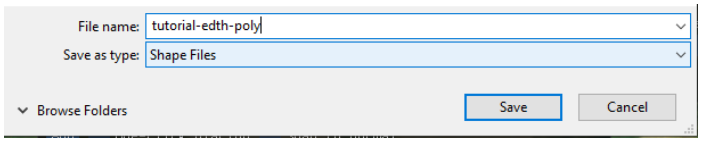
12. Now we will save our Scenery for the first time, because sometimes the game just tends to crash. In the scenery editor click on save scenery, locate the “scene” folder in your “EDTH_tutorial” folder and save it there with a name. After you saved it your scenery editor should look something like this:

13. Now we will create a polygon which will exclude the buildings on the airport and any vegetation. Select the object type Polygon in the objects menu and click add. In the Scenery editor select the new polygon (marked red). Now we can create the polygon by clicking CTRL + LMB and DOUBLE LMB. Mine looks like this:

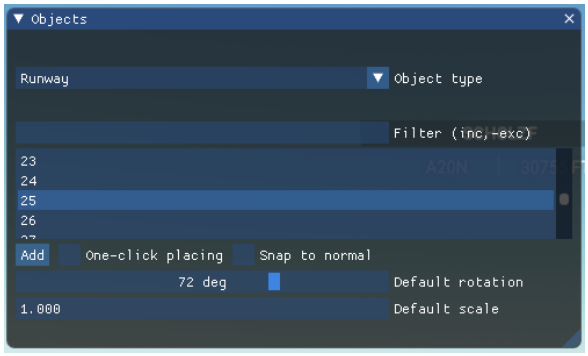
In the properties menu of the polygon, select the options below:



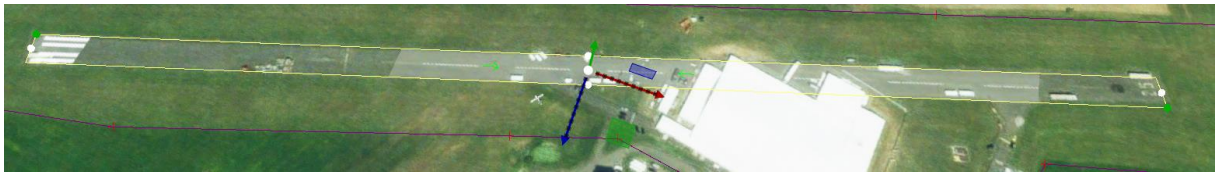
14. Now we need to save our polygon. You need to make sure NOT to give it the same name as the scenery we saved earlier, as it would override it. So, select Save scenery in the scenery editor and give it an appropriate name:



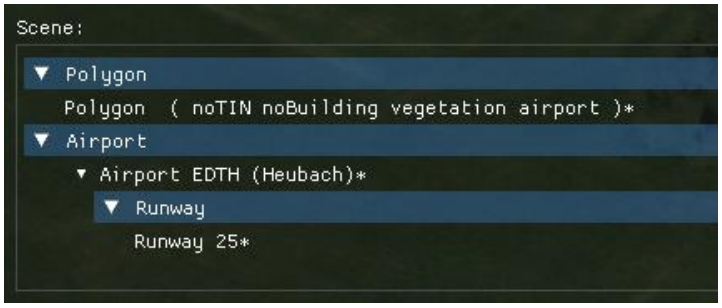
15. The last thing we will add is the runway. Select runway in the object menu, select the right number and place it. In our case it will be runway 25 and the direction will be 72°. (The direction of runways can be easily read out from aeronautical charts.)



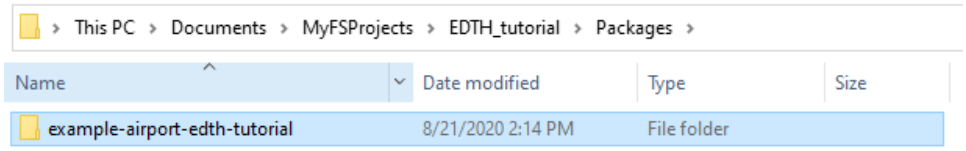
In the properties menu of the runway, select the correct length (in meters), width, markings, and materials for now. You can select more advanced stuff too, if you wish to, but we will stick to the basics. Use the gizmo to put it into the right place and check if the elevation seems correct. Our runway is now in place:



16. Save your Scenery for one more time before we will start to export it. Our scenery editor should look something like this:



17. In the project editor, select our project and click on build package. Click on save in the popup window and don't be irritated if there are any errors or warnings in the console.
18. Our package should now be in this folder "MyFSProjects\EDTH_tutorial\Packages" For now, exit the dev mode and the game and find the package. Our package was located here:



19. Copy the folder into the community folder of your MSFS directory. (The location of the community folder can be found in the FAQ section)
20. Open MSFS and zoom into the airport. We can now see our "star" airport EDTH, where it previously didn't exist.

And if we spawn ourselves on the runway we can see our results:

Congratulations! You created your first airport for MSFS!

Hope this tutorial helped you to create your first airport. This updated version is easier and should work fine like the first, more complicated version. Now have fun adding some of the missing airports to the game.

Also credits to RinseV who helped me a lot in the forums when I was struggling. Without his help this tutorial wouldn't be possible!

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3. FAQ:

1. The input field isn't taking my input. Especially the ICAO and Airport name fields in the properties window for the airport.
   Answer: Press Enter to submit the fields
2. Where can I find the community folder to put the packages?
   Answer:

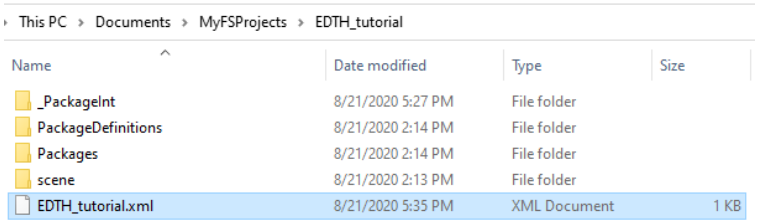
MSFS store should have this (default) path:

C:\Users\yourusername\AppData\Local\Packages\Microsoft.FlightSimulator_8wekyb3d8bbwe\LocalCache\Packages\Community

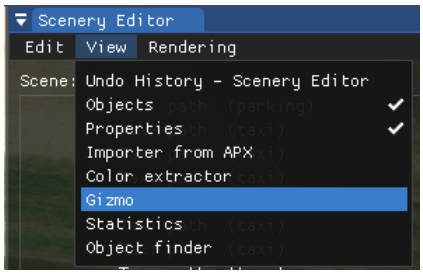
Steam users should have this (default) path:

C:\Users\yourusername\AppData\Roaming\Microsoft Flight Simulator\Packages\Community

3. Why is my console getting many errors when building the package?
   Answer: Just see if the package built correctly, most of the time the errors don't mean anything.
4. How do I work on the project later?
   Answer: When you saved everything correctly you can open the project via the project editor and open the xml file. In our case this would be this file:



5. How do I rotate objects after they were placed?
   In the scenery editor, open up the Gizmo window.



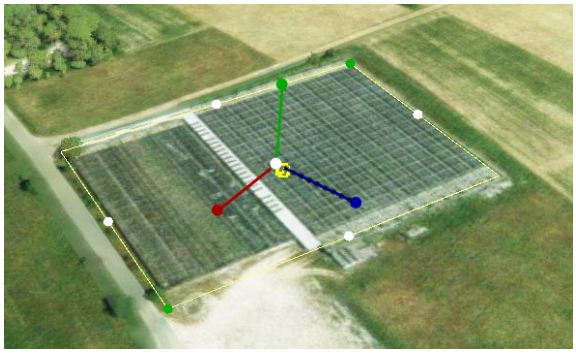
   Now you can switch between the translate, rotate, and scale gizmo.

   Or even simpler: MMB on the gizmo to switch through.

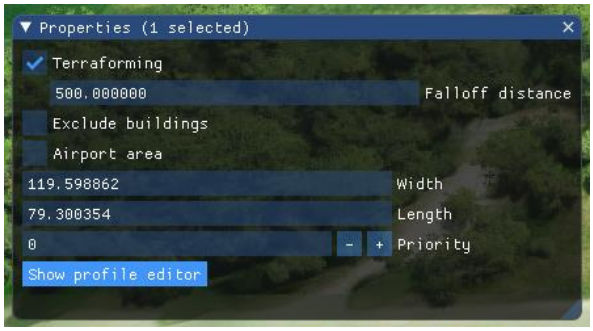
4. Basics of custom tools and airport assets:

4.1 Terraforming using the profile editor:

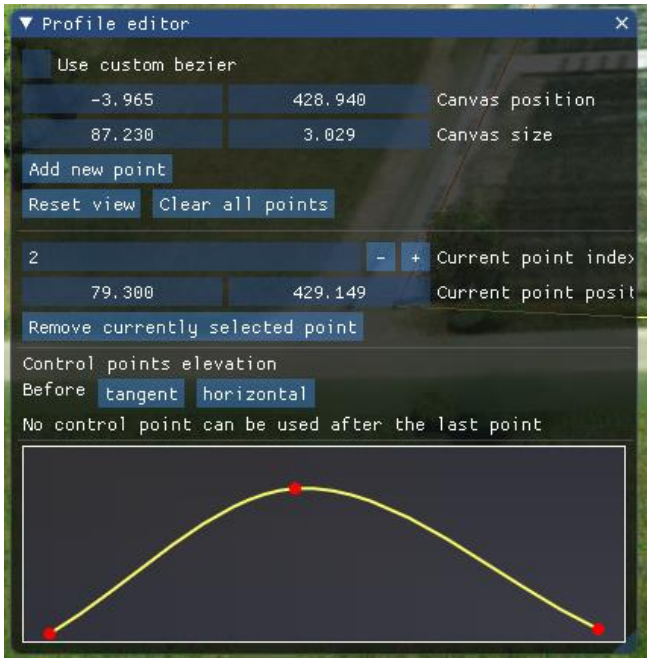
You can use the object type rectangle to create optimized terraforming in your projects. For example, if we want to heighten an area near our tutorial airport we can select the object rectangle and place it.

→


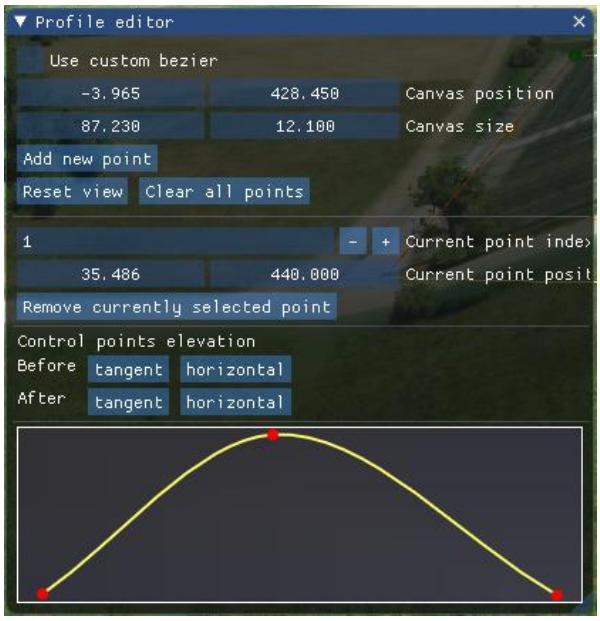
In the properties menu select terraforming and open the profile editor.



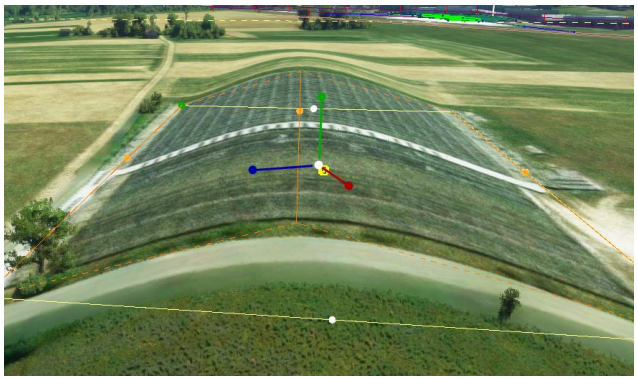
In the profile menu you can set the canvas position and size (canvas = box with the line at the bottom), but you can also reset the view to get an overview of the canvas. You can also add new points to create profiles like in the example below. Using the menu in the middle you can set the height for specific points.



For example, if we want to change the height for the point in the middle to 440 meters we can select the point using “Current point index” (in our case “1”, because it starts to count from 0) and then set the position, in our case the height (second field) to 440 meters like below.



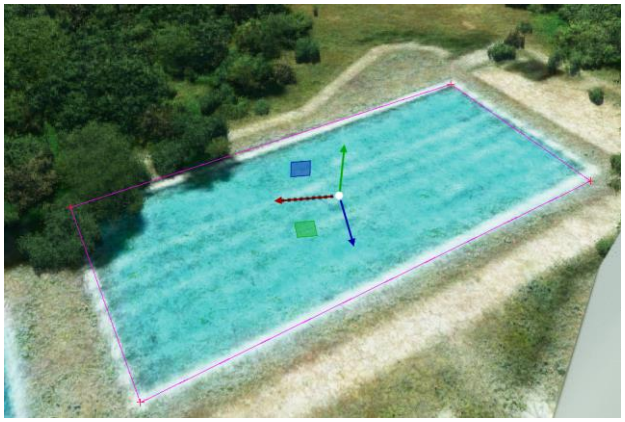
Our basic terraforming results can now be inspected.



This should have covered the basics for more complex terraforming. Note you can do more essential terraforming (flattening to one specific height) using polygons.

4.2 Adding water areas:

If you want to create water masks for missing water surfaces you can do so using polygons. Place a polygon over the missing area. In our example we will add water over an outdoor swimming pool.



In the properties window select the option “water” and the water type.

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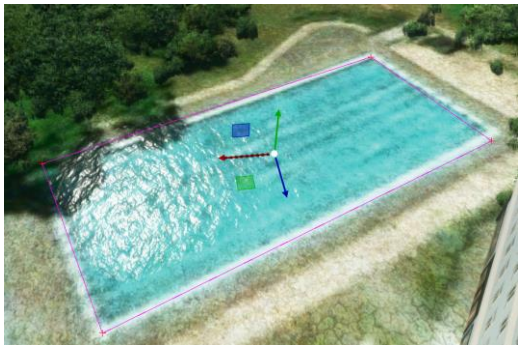
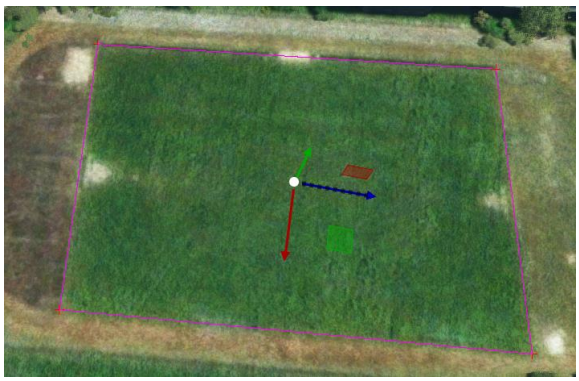


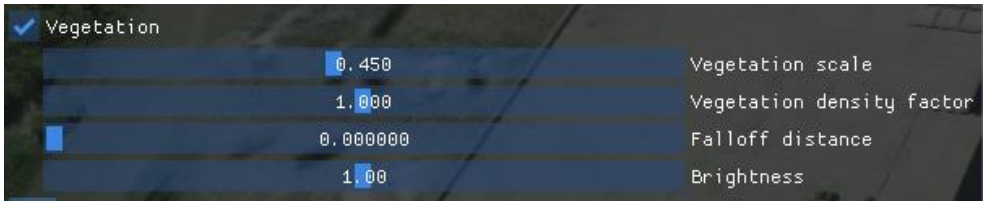
4.3 Adding vegetation:

Adding vegetation is just as simple as adding water. Place a polygon and enable vegetation under the properties tab. For our example we want to add some trees to this sports field.



In the properties menu you can find several options regarding vegetation. An easy explanation:

- Vegetation scale: Size of the trees
- Vegetation density factor: Density of the trees
- Falloff distance: How far away from the polygon should trees still be placed.
- Brightness: Brightness of the trees.



You can change the types of trees by changing the biome via the “Select biome override menu” in the properties menu.

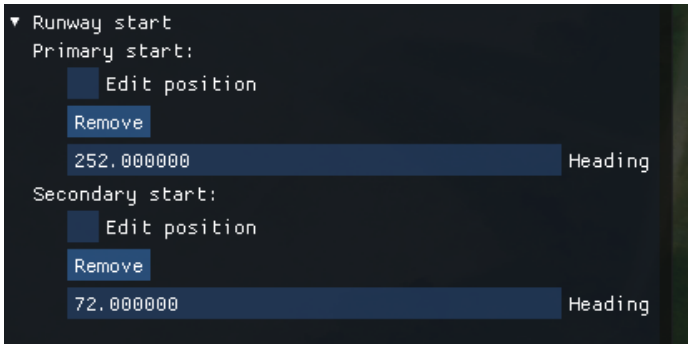
4.4 Adding Asobo props:

You can add props to enhance your scenery (such as planes, trucks or even animals). To do so, select the object type “SimObject” and search for the objects you want. For example, we want to add a firetruck and a giraffe to our airport. Just search for it and add them to your scenery. Note you can add other objects using the object type “Scenery”

Tutorial made by Lyriax4391

4.5 Runway start:

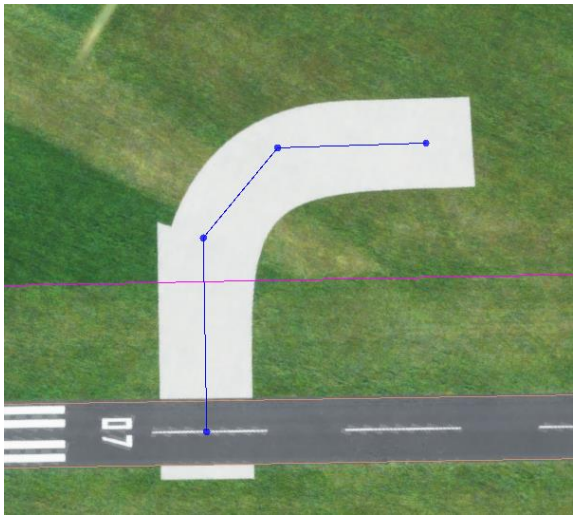
One of the things you may have noticed if you created your first airport is that the spawn points are not at the end of the runway. To change this default setting, open the “runway start” tab under the properties menu.



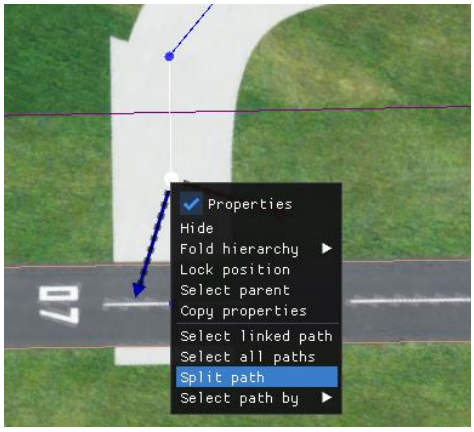
If you tick the edit position for one of the runway starts, you can change the starting position using the gizmo and move it you the end of the runway. You can also change the heading.

4.6 Taxiways

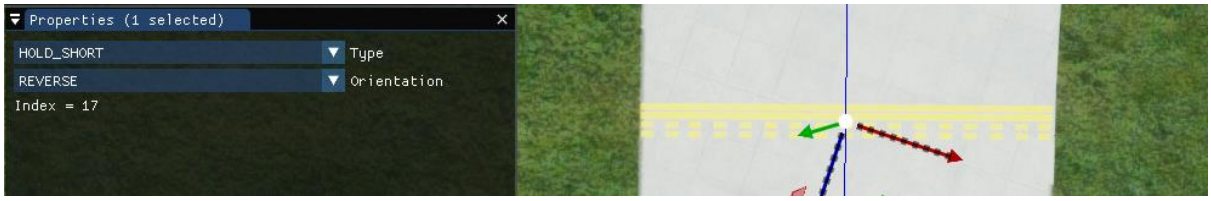
To place taxiways, select the object type “TaxiwayPoint” and check the box “One-click placing” in the objects menu. We will create a basic taxiway first.



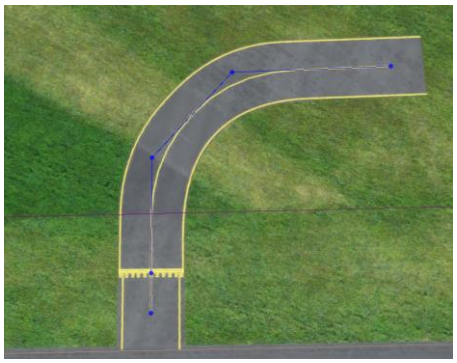
If you want to add more points between two existing points, RMB on the line and select “Split path”. This will add a point in between.



We can assign a TaxiwayPoint some properties. For example, we can give it the type “HOLD_SHORT” and an orientation.

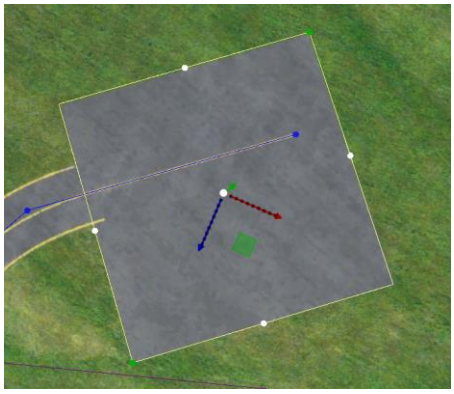


A TaxiwayPath can be assigned more properties. Select the path connecting two points and open the properties menu. (Holding CTRL + LMB, you can select multiple paths at once.) Using the properties menu, we can achieve something basic like this:

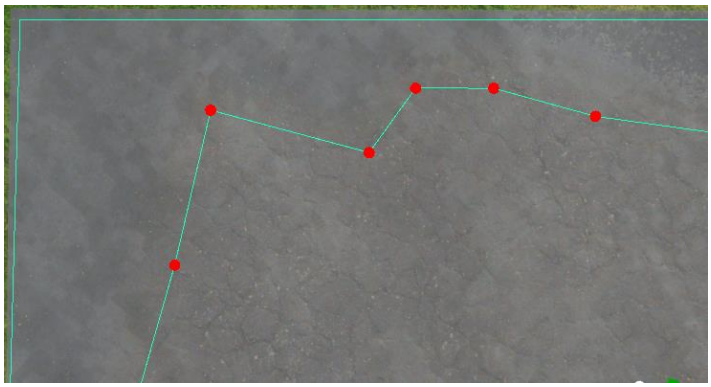


4.7 Aprons

You can add different kinds of aprons using the object type “Apron”. “Default” will let you add a polygon. “Disk” will add a circle and “square” a rectangle. In our example we will add a square apron to the end of our previously made taxiway. Using the properties menu, we can change the surface and other properties.



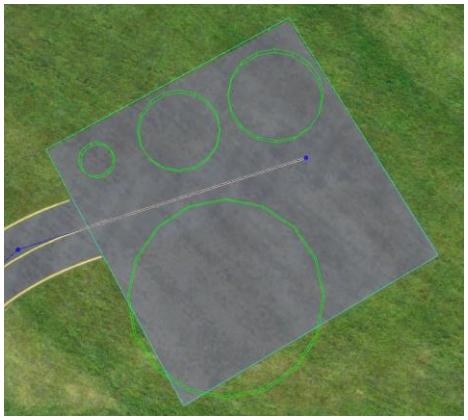
You can add more aprons on top of another to create more texture. Something like this can be achieved by setting a lower opacity for the top apron and setting a falloff for better blending.



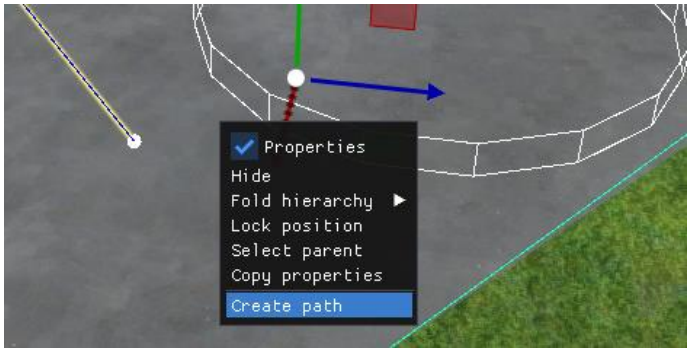
4.8 Parking spaces

The “TaxiwayParking” object type refers to parking spaces. You can select different types of parking spaces. You can see the differences between the parking spaces visually. Note that parking spaces with the type GATE require jetways to be linked, which are covered in another section. Note you need to give every parking space an individual number, otherwise you will get an error.

In our example we have added some basic parking spaces.



To link a parking space with a taxiway, select both the point and the parking space, then RMB and then select “create path”.

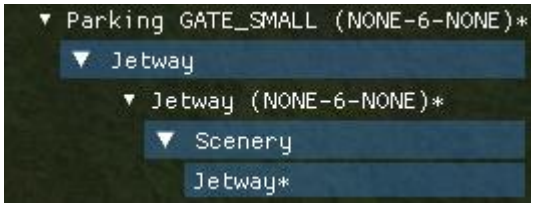


Having everything linked, our apron now looks like this:

4.9 Gates with jetways

Assuming we want to create a gate with a jetway instead of a ramp, we need to take some further steps. For our example see box above. To add a jetway, the parking space must be a type GATE. If this is the case, select it and open the objects menu. Under object type “jetway” search for jetway.

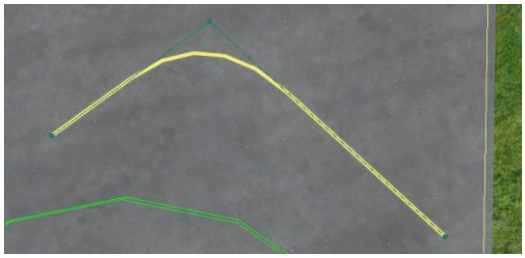
Select “Jetway” and add it (with the parking space selected). This should add a jetway which is linked with the parking space. In your scenery editor you can now see something like this:



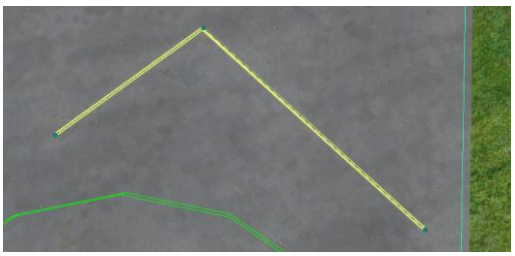
Now we can add the jetway links which can be found under the object type “scenery” to connect our jetway to a building. In case no building is located at our position, we can search for “gen” under the “scenery” object type, which brings up many generic buildings from Asobo. (I chose “Gen_Hangar162” for our example.) Our end result using a Jetway_Minilink attached to a generic building.

4.10 Painted lines and painted areas

If you want to place painted lines or areas you can do so by using the object types. Painted lines can be places by holding down CTRL + LMB just like placing polygons. To create lines without these curves below select ALL_POINTS under the “True Angle” property in the properties menu.



Without true angle = ALL_POINTS



with true angle = ALL_POINTS

Hatched areas can be created just like any polygon, just select the object type “PaintedHatchedArea”.

4.11 Taxiway signs

Taxiway signs can be placed places as object type “TaxiwaySign”. They are more advanced because of the endless possibilities they bring.

After you placed the sign, you need to add sections and content. Using this reference for the content section, letters from A-Z and numbers from 0-9 you can create any taxiways sign.

Character	Description
_ or space	Space
-	Dash
>	Right arrow
^	Up arrow
'	Up-right arrow
<	Left arrow
v	Back arrow
`	Up-left arrow
/	Back-left arrow
\	Back-right arrow
[	Left border
]	Right border
|	Vertical line

This is the tooltip for the content section. The two examples below should visualize the creation of taxiway signs.