

Google Earth to Simmetry3d

This tutorial documents the interface between Google Earth and Simmetry 3d.

Concepts

In this tutorial you will learn to:

- Creating a terrain grid with aerial photo from Google Earth
- Creating a peripheral terrain mesh to fit around the terrain grid

Prerequisites

- Introduction to Simmetry 3d

Google Earth

Google Earth provides a mechanism for other software packages to interrogate it in order to either receive terrain data from it or to pass viewing parameters back to it. Simmetry exploits this mechanism to allow terrain information to pass from Google Earth to Simmetry and to allow Simmetry to adjust the view in Google Earth. This mechanism is, at the time of writing, unsupported by Google Earth, which means that they could choose to remove it in the future.

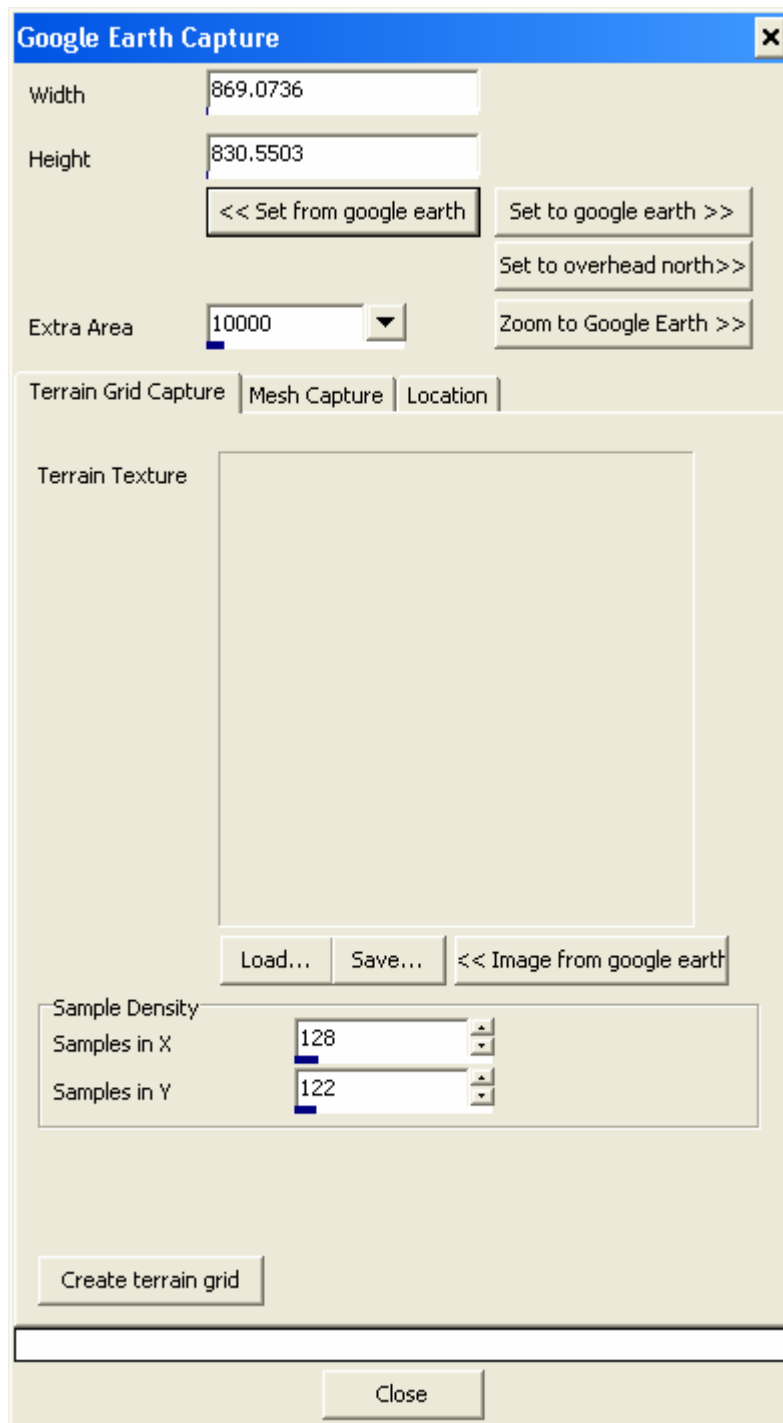
Simmetry allows designers to design and edit an area of terrain; this area can first be imported from Google Earth by navigating in Google Earth to the area of interest and then using the “Google Earth Capture” in Simmetry to import this area. In addition, the peripheral terrain to the area of interest can also be captured and imported. This gives an excellent backdrop to the area of interest.

NOTE : Remember to turn on “Terrain” in Google Earth otherwise all you will capture will be flat areas.

EXERCISE 1

Capturing a terrain grid from Google Earth

- File|New
- Terrain|Google Earth Capture (If you don't see it there then it means that you have not installed the Google Earth Capture plugin” – Close Simmetry3d, install the plugin and re-start Simmetry.



- This will start Google Earth (if its not running already).
- Navigate in Google Earth to the area you are interested in.
- Make sure that the view is North aligned with no tilt. (there is a button in the dialog box to do this for you – “Set to overhead north>>”)
- Press the “<<Set from google earth” button – this will interrogate Google Earth for the width and height of the area it is currently showing. (You don’t have to do this – but it is helpful to see the sort of values it provides).
- First click on the “Terrain Grid Capture” tab – this has the settings required to generate a terrain grid.

- The way Google Earth provides the aerial photography to other software packages is black and white only. If this is ok for you then press the “<<Load from google earth” button in the Terrain Texture section of the dialog. If you want colour then switch to the Google Earth program and choose “File|Save|Save Image”. Once you have done that switch back to Simmetry and press the “Load” button and pick the image file that you have just saved from Google Earth.
- Now you need to choose what the resolution of the terrain grid should be – this is the “Sample Density” :



- Although the terrain data in Google Earth is not particularly high resolution, if you intend to edit it in Simmetry then we recommend a

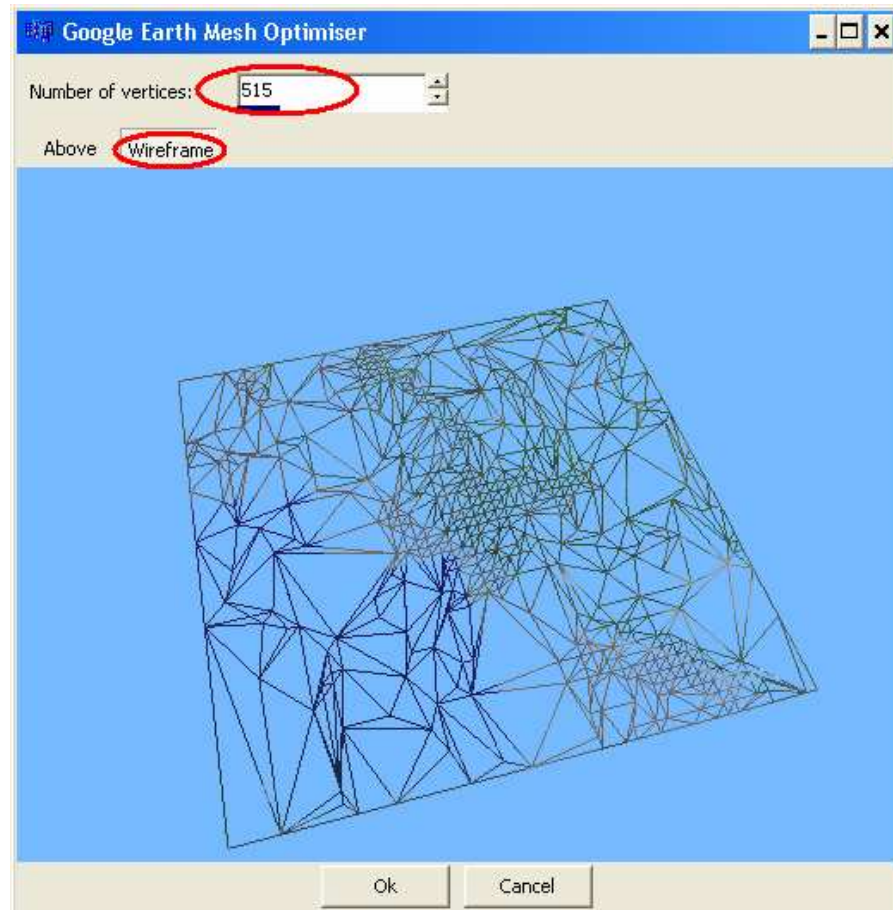
terrain grid of at least 128*128. Notice how the aspect of the terrain grid is maintained – it is matching the aspect of the Google Earth window, If you want a square grid the re-size the Google Earth window so that the 3d view is square.

- When you are happy – press the “Create Terrain Grid” button.

EXERCISE 2

Capturing a peripheral terrain mesh from Google Earth. Carrying on from before; you have a terrain grid imported from Google Earth. Now we want to grab the area of terrain surrounding the terrain grid – we’re not going to edit this part we just want it to help with the visualisation.

- Either zoom out in Google Earth to the larger area you are interested in (don’t move the centre of view though) or adjust the “Extra Area” entry to the value you require (this will be added to the width and the height of the area Google Earth is currently showing), and press the “Set to google earth” button which is next to the “extra area” field.
- Now click on the “Mesh” tab – this contains the settings required to make a triangulated mesh.
- Follow the same procedure as before to get the aerial photograph
- Similarly adjust the Sample Density values – these don’t necessarily need to be as high as for the terrain grid; (but the “Optimise” option will help reduce the un-needed ones).
- Check the “Optimise” box if you want the mesh to be optimised (less triangles where the terrain is flat).
- Check the “Projected Vertices” if you want the Google Earth projection to be applied to the vertices.
- Press the “Create Mesh” button. If you have checked the “Optimise” box then the following dialog will appear:



- Adjust the “Number of vertices” to the required number, then press ok.
- A mesh will be created around the terrain grid. You will notice that the centre of the mesh overlays the terrain grid. You can remove this part of the mesh by selecting the insert of the mesh and choosing “Objects|Cut Terrain Hole”. If you edit the terrain grid and change the heights at the edges then this tool can be re-applied to make sure the edges still join up.