Real World Terrain

Version 2.0.4

Infinity Code, 2013

http://www.infinity-code.com/

Description

The component is designed to generate Terrains, based on the real elevation maps of the earth.

Together with the component comes with a tool that allows you to specify the desired area on Google maps.

Specification

Uses elevation maps SRTM v4.1, accuracy of 3 arcseconds (90 meters). The relative error in height for the data of less than 6 meters.

SRTM data do not contain height maps water spaces, so for the seas and oceans value is zero altitude.

To create additional objects used data «**Open Street Map**».

Using

Select the menu item «**Window / Infinity Code / Real World Terrain** », to open the component.

Enter the coordinates of the area in decimal form, configure the fields of the component, and press «**Start**».

The component will automatically download the necessary elevation maps, textures, «**Open Street Map**» data, and create new Terrains containing the specified area. For each Terraon creates an information block containing the coordinates, texture, and giving the opportunity to re-create it with the new settings.

Created terrains are stored in the «**RWT_Result**».

IMPORTANT

The component works with a lot of data, and can, depending on the settings to use a lot of memory.

We do not limit the component's settings, so you can get exactly what you want. But when a large amount of generated Terrains, you may get an error of memory, with crashes to Unity Editor.

To create the most detailed Terrains and avoid mistakes, we recommend the following procedure:

- Create the desired area without textures, or with a minimum resolution (128 or less).
- Create a texture with the required resolution.
- Create additional objects.

After the successful completion of each step to save your scene.

Description of fields

Decimal coordinates - the coordinates of the top-left and bottom-right corners of the area in decimal format. Available latitude from 60 to -60.

Count terrains - the number of new terrains by longitude and latitude.

Scale - a scaling factor to the new area.

Max elevation - the maximum height of the new area.

- **Auto detect** - the maximum height is determined automatically. Recommended.
- **Real World Value** - the maximum height is 15,000 meters.

No data value - value to be used when height map value is missing. Usually it is the sea, oceans and lakes.

Detail Resolution - resolution map Detail Map.

Resolution Per Patch - indicates the size in pixels of each Detail Path.

Base Map Resolution - resolution Base Map.

Height Map Resolution - resolution height map.

Create prefab - specifies whether to create prefab, in the folder results. Create prefab takes some time.

Generate textures - indicates whether the created texture. **Important:** Textures are for informational purposes only.

Provider - the source that will be downloaded texture. Textures derived from different providers vary in quality, maximum detail and conditions of use.

Type - the type of texture map.

Texture width / height - size of the texture created for each terrains.

Max level - the highest level of approximation for the textures.

Generate buildings - specifies whether to create buildings and walls.

Generate rivers - specifies whether to create the river.

Generate trees - specifies whether to create trees.

Generate grass - specifies whether to create grass.

Usage of the helper

In the component, click «**Run the helper**», to launch a helper. Helper will run in the default browser with the coordinates specified in the component.

Helper contains:

- A search box.
- Google Map added to it a frame indicating the area that will be used in the operation of the component. The frame can modify and moved.
- Block information on the current position, the code to copy and control buttons.
    - The button «**Place selector**» fits the frame to the visible area of the map and set the frame size - 70% of the visible area.
    - The button «**Show download links**» shows the download links height maps.
- Download links height maps of the selected area.

Place the frame on the desired area on the map, select and copy the text in the block «**Copy this to Clipboard**». In the component, click «**Insert the coordinates from the clipboard**» and selected in the helper coordinates frame will be inserted into the component.

Commercial use

You can use created by the component, terrains for commercial purposes.

The rights to the commercial use of textures depending on the selected provider. You are responsible to read the license agreement on the provider's site. We recommend using the Nokia maps. They have good quality and does not restrict the use of textures.

Generation of additional elements

The component can automatically create buildings, walls, rivers, trees and grass, based on real data obtained from the «**Open Street Map**».

Before the creation of additional objects please visit «**www.openstreetmap.org**» and make sure that you are required objects are marked on the map. In Europe, perfectly marked, almost all of the city. In America, most buildings are not marked.

Important: the created objects may be slightly different from the picture on the texture. This is because the layout objects in the «**Open Street Map**». If the building is present on the texture, but not created, then it means that it is not marked in the «**Open Street Map**».

For buildings and walls added a description of all available tags «**Open Street Map**». For many of the buildings there including address, name, height, etc.

For buildings, walls and rivers are automatically generated UV-maps.

If the tag contains the height or number of floors, the object will be created with the correct height. You can always correct height, specifying the desired value and pressing the «Update». For buildings can change the type and height of the roof.

If the component was created with the wrong normals walls or roof, you can quickly fix it by pressing «Invert wall normals» or «Invert roof normals» respectively.

Regeneration

You can recreate the already created objects with the new settings. To do this, select «**RealWorld Terrain**» in the «**Hierarchy**» and click:

Regenerate terrains - to change the parameters Terrains.

Regenerate textures - to create textures with the new settings.

Regenerate additional - to rebuild the buildings, walls, rivers, trees and grass.

Support

To go to the product page, see online documentation, or contact the developers, press the «**Support**» in the component.

Update component

We want our customers to get updates as soon as possible. Unfortunately this is not possible within the Unity Asset Store. Therefore, we developed our own system updates. When a new version of a component, it will be available to you immediately.

The presence of available updates tells you the red button at the top of the window component. By clicking on it, you will find a list of the changes and update the component to the desired version.

Clear the cache

Component to work requires a large amount of data that it caches in the folder «**RWT_Cache**». If this data is not more than you need, you can bring up the cache is cleared by pressing the «**Clear cache**» in the component.

Troubleshooting

If you have trouble downloading elevation maps in the component, or you want to download them manually (eg on another computer), follow these steps:

- Select the desired area in the helper.
- Press the «**Show download links**».
- Download the files.
- Put the files «***.asc**» from the archives to folder **«{Project} / RWT_Cache / Heightmaps**».
- Start the component.

If you have trouble downloading textures, change provider of textures

Frequently asked questions

Q: What is the maximum area can be created.

A: We are at a time creating an area of 10x10 angular degrees. It's a little larger than the size of Germany. But the maximum created territory, strongly depends on the settings of the component.

Q: Can I add the creation of highways?

A: Currently we do not have its own technology of roads, but in the future we will try to implement and integrate with the component.

Q: What are the assets available in the Unity Asset Store compatible result?

A: With all that work with standard Terrains. For example: EasyRoads3D, Terrain Slicing & Neighboring Kit, Terrain Hole System, etc.