Real World Terrain

Version 4.5

Contents

Overview

Description

Real World Terrain is designed to generate Terrains, Meshes, Gaia stamps and RAW files, based on real Earth elevation data, and buildings, roads, rivers, grass, trees, based on data from Open Street Map.

With Real World Terrain comes utility that allows you to select the necessary part on Google Maps, a set of tools for post-processing terrains, textures, place objects on the map.

Specification

Real World Terrain uses:

- For elevation maps uses:
  - ArcGIS. Accuracy: 10m – USA, 90m - 56° S - 60° N, 900m – other.
  - Bing Maps. Accuracy: 10m – USA, 90m - 56° S - 60° N, 900m – other.
  - Mapbox. Accuracy is unknown.
  - SRTM v4.1. Accuracy of 3 arcseconds (90 meters). The relative error in height for the data of less than 6 meters.
  - SRTM 30. Accuracy of 1 arcseconds (30 meters).
- To create additional objects used Open Street Map data.
- To create textures used: ArcGIS, DigitalGlobe, Map Quest, Mapbox, Mapy.CZ, Nokia Maps (HERE.com), Virtual Earth (Bing Maps), Open Street Map, Sentinel-2.
- Mapbox Streets v8 is used to generate Terrain Layers.
  https://docs.mapbox.com/vector-tiles/reference/mapbox-streets-v8/

Note: SRTM data do not contain water depth maps, so zero height is used for seas and oceans.

Using

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

Enter the coordinates of the area in decimal, configure the fields and click «Start».

Real World Terrain will automatically download the necessary elevation data, textures, Open Street Map data, create new GameObjects or files containing the specified area, and add them to the scene. For each Terrain 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 «Assets / RWT_Result».

IMPORTANT

Real World Terrain works with a lot of data, and can, depending on the settings to use a lot of memory.

We do not limit Real World Terrain 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 errors, we recommend the following steps:

- 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.

Generation of Gaia stamps

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

Enter the coordinates of the area in decimal, select «Result - Gaia Stamp», specify the required resolution and click «Start».

Note: Real World Terrain uses Gaia's built-in features to generate terrains, so only Gaia stamp is created.

Real World Terrain will create a new RAW object that contains elevation data.

RAW object will be scanned using Gaia Scanner and saved as Gaia stamp in «Assets / Gaia / Stamps / Bases» folder.

The new Gaia stamp will be opened in Gaia Stamper.

You will need to specify the required size, position and Base Level, and click «Stamp».

Read more about working with Gaia stamps in the Gaia documentation.

Note: If you do not have a Gaia Session Manager in the scene, the new Session Manager will be created.

Generation of RAW files

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

Enter the coordinates of the area in decimal, select «Result - Raw File», specify the result type, filename, required resolution and click «Start».

Real World Terrain can generate two types of the result:

- **RAW** - binary file where elevation values are linear and use two bytes.
- **Mapbox RGB** - image (PNG) where each elevation value is encoded in color.
  https://www.mapbox.com/help/access-elevation-data/

Providers of tiles

Real World Terrain can use to generate textures any source of the tiles in WGS84 Web Mercator (Spherical Mercator) projection.

Real World Terrain has presets for most known compatible sources of satellite tiles. If the source of the tiles you want to use does not have a preset, you can do it using «Provider – Custom».

Note: The preset for Google Maps tiles has been removed, because it has a limit on the amount of downloaded data. But if you really want to use it, you can do it using Provider-Custom.

The legal way to use tiles from Google Maps:

https://developers.google.com/maps/documentation/tile/

Note: Some tile sources require API keys (tokens), for example: DigitalGlobe and Mapbox.

Using «Provider - Custom»

To use «Provider - Custom» in the field «URL» specify a URL pattern for download tiles.

URL pattern supported tokens:

{zoom} – Zoom level.

{x} – Tile X.

{y} – Tile Y.

{quad} – Tile Quad Key. Uses in Virtual Earth (Bing Maps).

General instructions:

1. Open in a browser map on the site of provider, tiles from which you want to use.
2. Open a browser developer tools. Hotkey in most browsers - F12.
3. Find the address of tile.
4. The address replace the numbers that are responsible for the tile zoom, x, y, to tokens.
5. Insert the URL pattern into the field «URL».

Commercial use

You can use terrains, buildings, roads, rivers, trees, grass, created with Real World Terrain, 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.

Real World Terrain Window

Description of fields

Along with most of the fields added icons, when you hover on which you can read a summary of the field. Clicking on the icon will open a detailed description of the field.

File - allows you to export and import settings.

History - contains the history of generations.

Settings - opens the settings window.

Help - documentation, API reference and useful links.

Area - the coordinates of the top-left and bottom-right corners of the area in decimal or UTM (Universal Transverse Mercator) format.

Title - a description of the current generation. Used only in history.

Use Anchor - whether to use anchor coordinates. If yes, then the zero position of the container in the scene will have the specified coordinates.

Insert the coordinates from the clipboard - inserts the coordinates copied in the helper.

Run the helper - open the helper.

Get the best settings for the specified coordinates - opens the wizard that will help you get the best result.

Show Open Street Map - opens Open Street Map in the browser on your current location. It is useful to know which objects are marked on the selected area.

Result type - the type of object being created.

- **Terrain** - standard Unity Terrain. After creating the object, you will be available built-in tools to work with the Terrain.
- **Mesh**
- **Gaia Stamp**
- **RAW file**

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

Size type - the method of determining the size of created Terrains.

- **Real world sizes.** Width equal to the average of the lengths of the upper and lower parallels. Height equal to the length of the meridian.
- **Mercator sizes.** The size of one degree of latitude and longitude is fixed.

- **Fixed Size.** Each terrrain or mesh will have a fixed specified size.

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.

Max underwater depth - the value used when no value of the height map. Usually it is the sea, oceans, lakes. Uses the absolute depth, such as «-30».

Detail Resolution - the number of cells available for placing details onto the Terrain tile. This value is squared to make a grid of cells.

Resolution Per Patch - the number of cells in a single patch (mesh). This value is squared to form a grid of cells, and must be a divisor of the detail resolution.

Base Map Resolution - the resolution of the composite texture to use on the Terrain when you view it from a distance greater than the Basemap Distance.

Height Map Resolution - the pixel resolution of the Terrain's heightmap.

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

Elevation Provider – provider of elevation data.

- **ArcGIS**
- **Bing Maps.** Required Bing Maps API Key.
- **Mapbox.** Required a Mapbox API key (public token).
- **SRTM**
- **SRTM 30.** Required a login / password for earthdata.nasa.gov.

Generate textures - indicates whether the created texture.

Result Type - type of texture result.

- **Regular Texture**. One texture for each terrain will be generated, and set to the first Terrain Layer.
- **Huge Texture**. One Huge Texture (up to 26624x26624px) will be generated for each terrain. For display, Huge Texture material will be created and set as material for terrain.
  Important: when using Huge Texture, you cannot use Terrain Layers.
- **(Unity 2018.3 and higher) Terrain Layers**. Terrain Layers will be generated based on vector tile data from Mapbox. You can flexibly configure the generation rules for each layer and tag.

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.

Count textures - number of created texture. Only Mesh.

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.

Generate roads - specifies whether to generate roads. This field will be available if the integration with EasyRoads3D v3 or Road Architect is enabled.

Generate rivers - specifies whether to create rivers.

Generate trees - specifies whether to create trees.

Generate grass - specifies whether to create grass.

History

It contains the history of all runs Real World Terrain.

Each record contains fields:

- Number.
- Title. If the title is empty, then the coordinates of the area are displayed.
- Time of starting the generation.
- > - restores the generation settings.
- X - remove a record from the history.

Best Settings

If you do not know what settings to use for the selected area, click «Get the best settings for the specified coordinates». Move the sliders to the desired quality setting and press «Apply».

Settings of Real World Terrain

To open the Settings window, click «Settings» in the upper part of the window.

In the settings you can:

- Change the folder of the application cache. This is useful if you want to use a shared cache for multiple applications.
- Specify the name of the created GameObject.
- Enable or disable working with third-party assets. To enable will be available only assets that are present in the project.

To return to the default settings, click «Revert to default settings».

Memory usage

Click «Memory Usage» in the main window of Real World Terrain to open memory usage information window.

This window displays the uncompressed size of terrains and textures, after being generated with the current settings.

Only the main fields affecting the size of the result are shown.

Important: This window does not show the memory that Real World Terrain will use to generate the result.

Clear the cache

Real World Terrain uses a large amount of data that it caches in the folder «{PROJECT FOLDER} / RWT_Cache». If this data is not more than you need, you can clear cache by pressing the «Clear cache» in Real World Terrain.
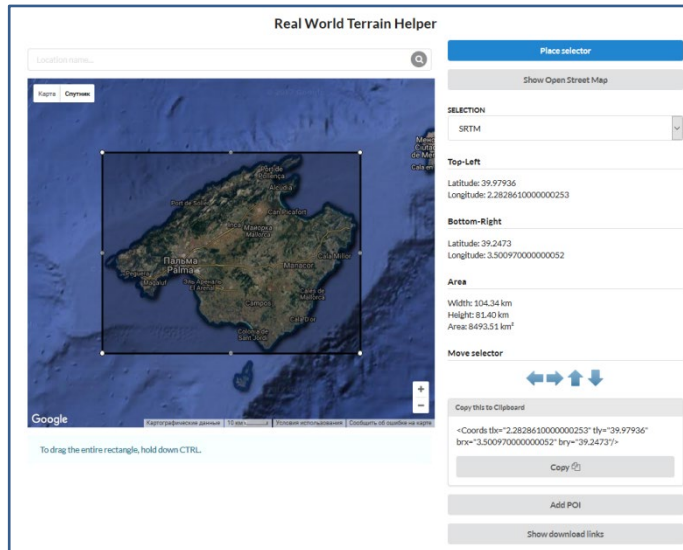
Helper

Usage of the helper

Click «Run the helper», to show a helper. Helper will run in the default browser with the coordinates specified in Real World Terrain.

Helper contains:

- A search box.
- Google map with a frame added to it that indicates the area that will be used in Real World Terrain. The frame can be resized and moved. To move the entire frame, hold down «CTRL».
- Block information on the current position, the code to copy and control buttons.
    - **Add POI** - adds a new POI (point of interest) in the center of map.
    - **Place selector** - fits the frame to the visible area of the map and set the frame size - 70% of the visible area.
    - **Show Open Street Map** - opens in a new tab «**openstreetmap.org**» in the same position in which the map in the helper.
    - **Show download links** shows the download links height maps.
- Block POI lists all the POI on the map. What would change the title of the POI, double-click on the title. POI on the map supports Drag and Drop.
- 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 «**C**opy this to Clipboard». In Real World Terrain, click «Insert the coordinates from the clipboard» and selected in the helper coordinates frame will be inserted into Real World Terrain.

Alternative helper

If you have any problems when using the built-in helper, you can use an alternative helper:

http://service.infinity-code.com/RWT_Helper/RWT_Helper.html

POI

Contains a list of points of interest.

Point of interest contains:

- Title - the title of POI.

- Latitude (Lat) - geographical latitude of POI.

- Longitude (Lng) - geographical longitude of POI.

- Altitude - altitude of POI above sea level. If "0" is specified, the zero height above the terrain will be used.

- Prefab - GameObject that will be used to display the POI.

After creating the terrains all the POI will be placed in right places. You can quickly navigate to the desired POI double-clicking on the line in the window «Hierarchy».

Use the utility «POI Manager» to comfortably work with POI.

To replace POI GameObject, drag a new prefab from the project to Real World Terrain POI Item (Script).

To update the position of POI in the scene based on the coordinates, click «Update World Position».

To update the coordinates of POI based on the position in the scene, click «Get Coordinates from World Position».

Additional features

Generation of additional elements

Real World Terrain can automatically create buildings, roads, trees and grass, based on real data from 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 Open Street Map. If the building is present on the texture, but not created, then it means that it is not marked in Open Street Map.

Buildings

Real World Terrain can generate buildings in the following modes:

- Built-in - To display buildings using the built-in building engine.
  UV maps are automatically generated for buildings and walls.
  Textures for roofs and walls are chosen randomly.

- BuildR2 - BuildR 2 is used to display buildings.

- BuildR3 – BuildR v3.x is used to display buildings.

- Instantiate Prefab - The specified prefabs will be used as buildings.

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.

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

Roads

Real World Terrain can generate roads for EasyRoads3D v3 or Road Architect.

When generating roads, you can select the types of roads to be created.

For EasyRoads3D v3, you can specify the types of roads from the Open Street Map and the types of roads EasyRoads3D, customize the width of the road and generate connections.

Rivers

For the generation of rivers, you need to specify the material of the rivers.

This may be a regular material or a material of a third-party asset (for example, R.A.M - River Auto Material).

Trees

Real World Terrain can generate trees:

- Regular terrain trees.
  Specify the density of grass and prefabs of trees.

- Areas of trees for Vegetation Studio.
  Specify the Vegetation Package and select Vegetation types.

Grass

Real World Terrain can generate grass:

- Regular terrain grass.
  Specify the density and textures of the grass.

- Grass areas for Volume Grass.

- Grass areas for Vegetation Studio.
  Specify the Vegetation Package and select Vegetation types.

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.

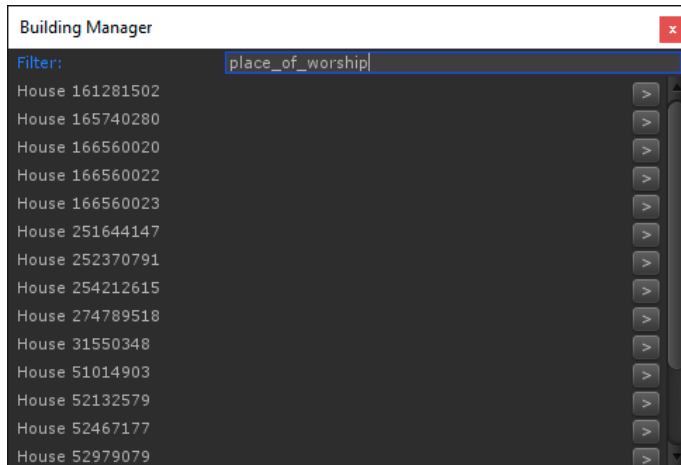**Regenerate additional** - to rebuild the buildings, roads, trees and grass.

Utils

Overview

Real World Terrain contains a set of tools that will be useful for the search and placement of objects on the map, working with the POI, etc.

These tools are grouped in «Real World Terrain Container / Utils».
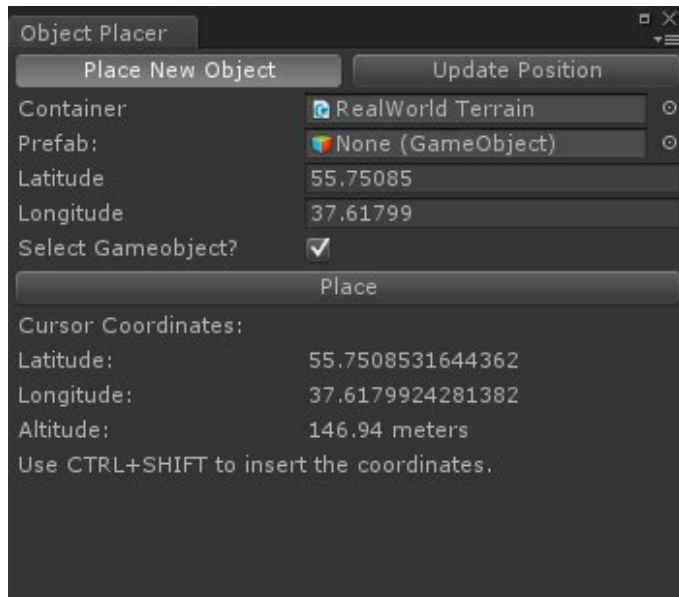
Building Manager

Tool to search the buildings.

It allows you to filter the buildings on the values of tags.

Enter the street name, house number or any other information contained in the tags, and will show buildings that contain tags with the specified value.

Object Placer

A tool for placing objects on the terrains by geographical coordinates.

This tool works in two modes:

• Creating a new GameObject at the specified coordinates.
• Updating existing provisions GameObject.

To create a new GameObject select «Place New Object», specify prefab and coordinates, and click «Place».

To update position of existing GameObject select «Update Position», select GameObject, specify a coordinate, and click «Update».

Place your cursor on the terrains, to see the location under the cursor.

Press «CTRL + SHIFT», to insert the coordinates under the cursor in coordinates fields.

POI Manager
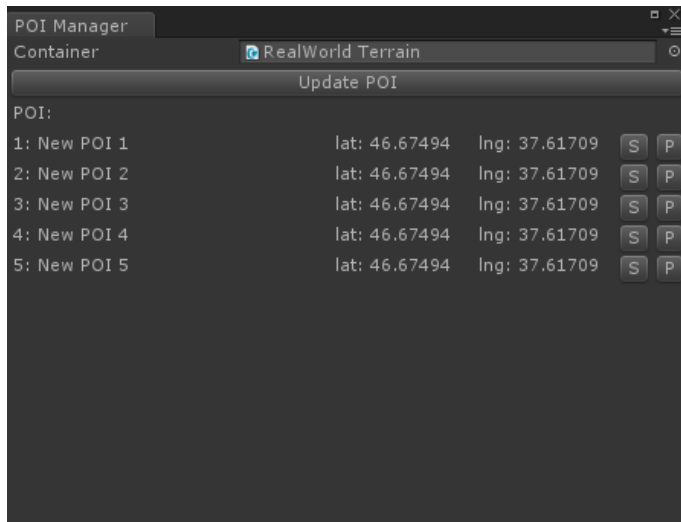
POI management tool created using the helper or specified before generating.

For each POI is displayed: name, coordinates and buttons:

S - Select POI GameObject.

P - Open the POI in Object Places.

Scaler
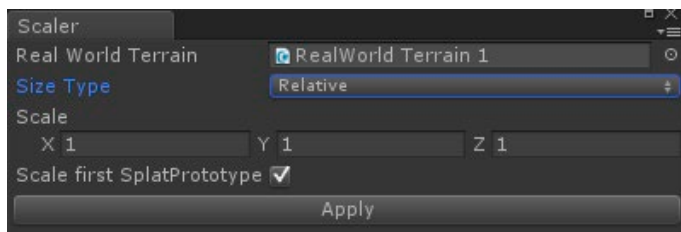
Tool to change the size of terrain in the scene.

It works in two modes:

- Relative. Specify the relative scale of terrains and click Apply.
- Absolute. Specify a new absolute size for terrains and click Apply.

Scale first SplatPrototype allows you to adjust the size of the texture so that it looks correct after scaling.

Show Location

The tool, showing the geographical coordinates of under cursor and the scene view camera.
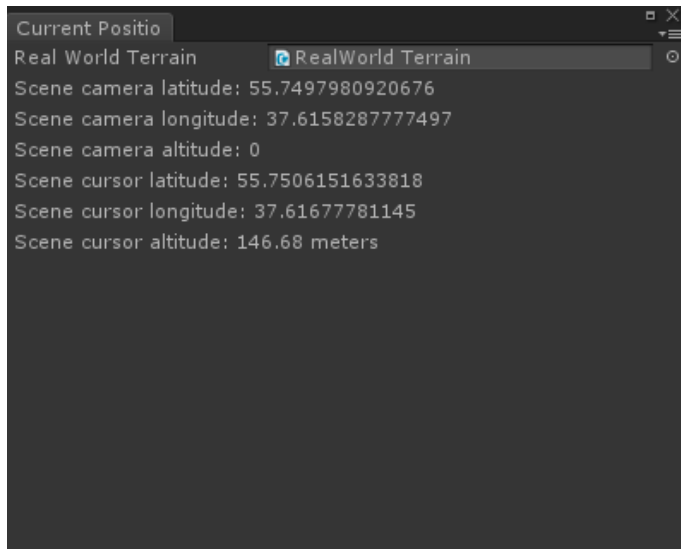
Post-processing

Overview

Real World Terrain contains set of tools for post-processing.

These tools are grouped in «Real World Terrain Container / Postprocess».

Brightness, Contrast and HUE
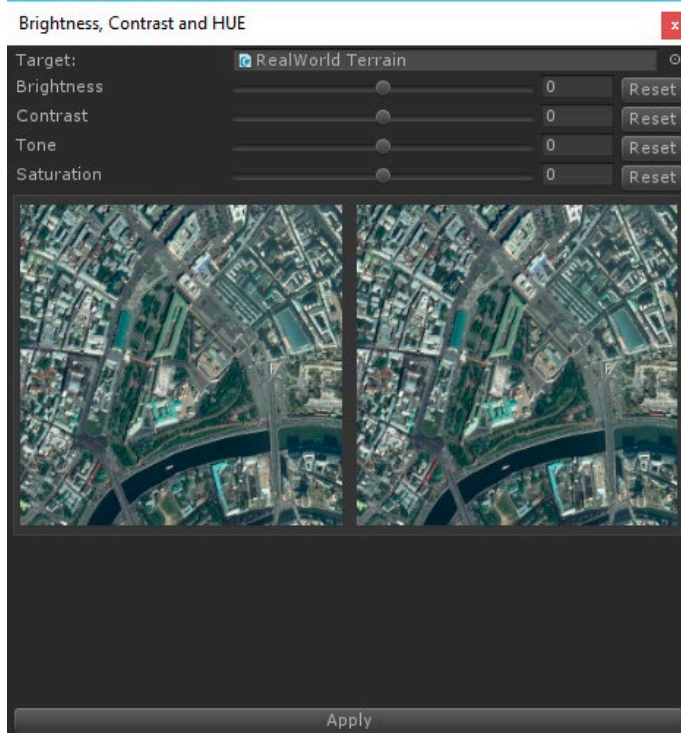
Tool to adjust brightness, contrast, hue and saturation of the image.

Left - the original image, to the right - a preview of the result.

Specify the required values using the sliders and press «Apply».

Color Balance

Tool to change the color balance of the image.

Left - the original image, to the right - a preview of the result.

Specify the required values using the sliders and press «Apply».

Color Levels
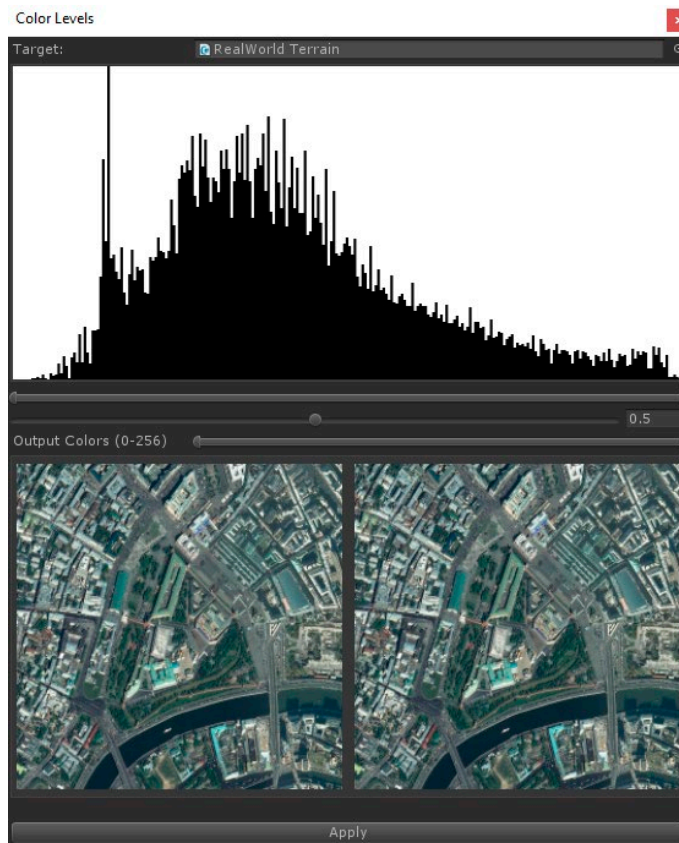
Tool to change the color range of the image.

Left - the original image, to the right - a preview of the result.

Specify the required values using the sliders and press «Apply».

Erosion Filter

Allows you to apply water erosion to the current heightmap.

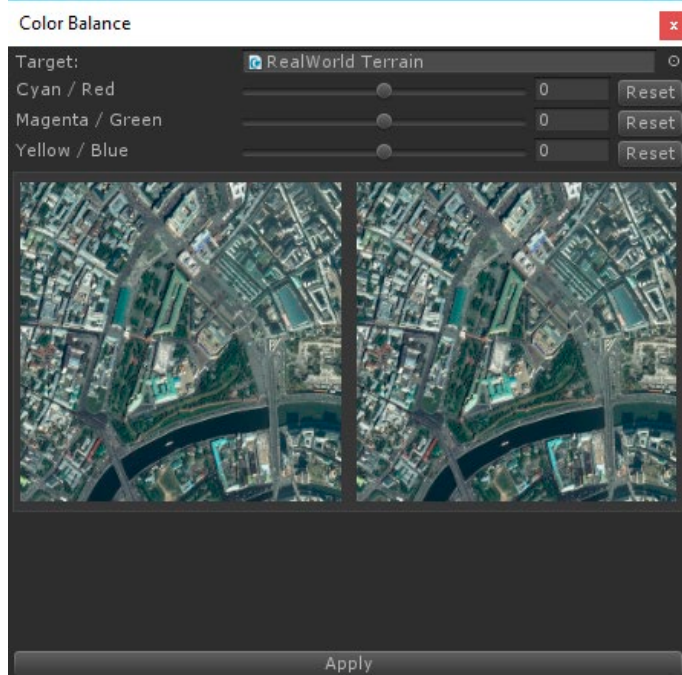**Important:** This utility works very slowly, because for erosion it is required to make a huge amount of calculations.

Erosion iterations - The number of times the filter will be applied.

Rain fall - The amount of water added to the system during the iteration. The greater this value, the more dramatic and gross changes you can see on the relief in the same number of iterations.

Cone threshold - The roughness of the soil, which was washed away with water and precipitated.

Flow Iterations - Number of iterations for water flow. The smaller the value, the higher the speed, but the worse the accuracy and quality.

Generate Grass from Texture
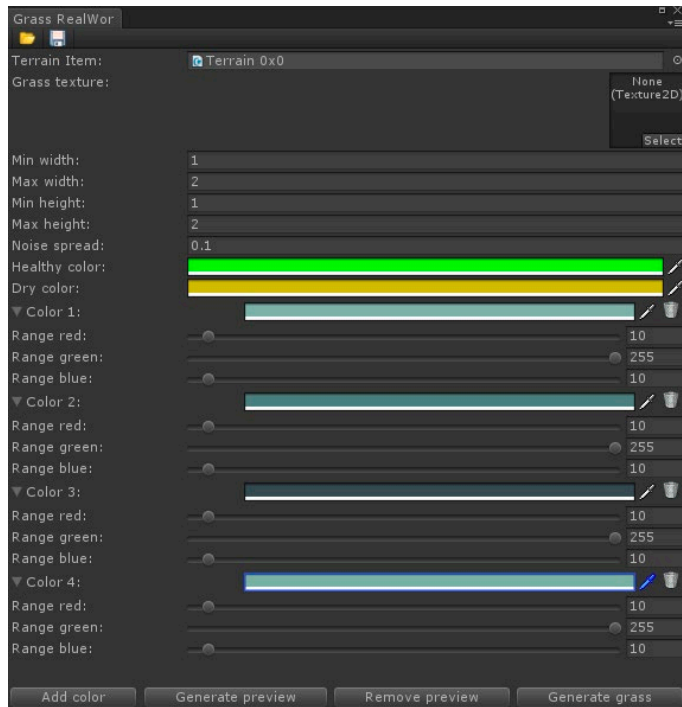
Tool to generate grass based on texture.

Add grass texture, and specify grass parameters.

Add colors, which will be created grass.

To work was faster for each color indicates range of values.

Click «Generate preview», to see the area to be created grass.

Click «Generate grass», to create grass and close the window.

You can save and load settings using the buttons at the top of the window.

To remove the grass, remove the relevant Detail in a script «Terrain».

Generate SplatPrototypes from Texture
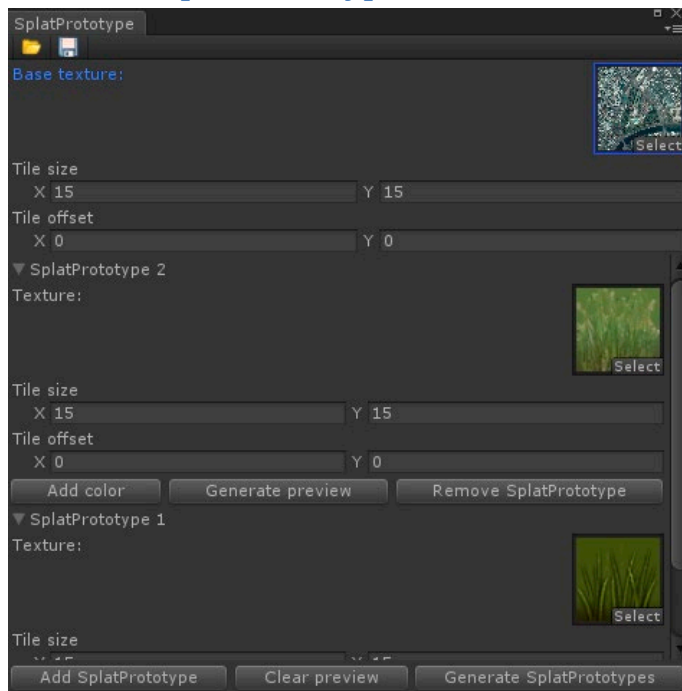
Tool to generate SplatPtototypes based on texture.

Add base texture, specify parameters. Base texture will be used for all terrain. Add SplatPrototype, you want to use. For each SplatPrototype add color, so it will be created.

To work was faster for each color indicates range of values.

Click «Generate preview», to see the area to be used corresponding SplatPrototype.

Click «Generate SplatPrototypes», to create SplatPrototypes and close the window.

You can save and load settings using the buttons at the top of the window.

Export / import RAW data

Real World Terrain can export and import RAW data: heightmaps, detailmaps, alphamaps and texture.

Select generated terrains, and in «Real World Terrain Container / Export / Import Raw» select a menu item.

In the export / import window specify the required color depth (8 or 16 bits) and the order of the bytes (Windows or Mac).

Export Mesh as OBJ

To export a mesh, select «Real World Terrain Container» or «Real World Terrain Item» and click «RAW / Export OBJ».

Third Party Assets

Overview

Third-party assets are not containing on Real World Terrain and integration is disabled by default.

Import the asset into your project and enable integration in Real World Terrain settings.

Important: Integration with third-party assets may break when the developer releases a new version of the asset. This usually occurs when changing API or internal errors in the assets. We are developing this integration, so the quickest way to fix the problem is contact to us, indicating the name and version of the asset with which integration problems are. We will check this and release the update, or contact the asset developer to fix the issue.

If you want to remove the asset from the project, first disable it in Real World Terrain settings.

If you forget to disable asset and removed it, you will see an error in the console. To manually remove the integration with the asset, open PlayerSettings (Edit / Project Settings / Player), and remove the corresponding entry from «Scripting Define Symbols».

BuildR - Procedural Building Generator

https://assetstore.unity.com/packages/tools/modeling/buildr-procedural-building-generator-82220

It allows you to generate procedural editable buildings.

How to generate buildings using BuildR:

- Enable integration with BuildR in Real World Terrain settings;
- Real World Terrain / Generate Buildings - ON;
- Real World Terrain / Building Generator - BuildR.

All buildings generated using Real World Terrain is editable, and you can completely change the style and setting of the buildings.

BuildR2 and BuildR v3.x are supported.

EasyRoads 3D v3

https://assetstore.unity.com/packages/tools/terrain/easyroads3d-pro-v3-469

It allows you to generate editable roads.

How to generate the roads using EasyRoads 3D:

- Enable integration with EasyRoads 3D in Real World Terrain settings;
- Real World Terrain / Generate Roads - ON.
- Select road generation mode.

Modes of road generation:

- Simple - for all roads Open Street Map will be used the same type of roads EasyRoads3D, which you can change after generation. In this mode, you can select which types of Open Street Map roads should be generated.
  In this mode, you can specify a multiplier for the width of the road so that your roads have a more correct width.
- Advanced — for each type of Open Street Map road, you must specify EasyRoads3D road type. Types of roads Open Street Map for which the type of roads is not specified EasyRoads3D will not be generated.

Connection Generation:

Use Generate Connections - ON to Real World Terrain generate connections for two, three, and four road sections.

The connection of the three sections will occur only if the angle between the straight and side sections is from 60 to 120 degrees.

All roads created by the Real World Terrain is editable.

Note: only supported EasyRoads 3D v3. EasyRoads 3D v2.x is not supported.

Gaia и Gaia Pro

https://assetstore.unity.com/packages/tools/terrain/gaia-42618

https://assetstore.unity.com/packages/tools/terrain/gaia-pro-terrain-scene-generator-155852

A great all-in-one tool for generating terrains.

The integration of this asset does not need to enable or configure.

You just need to have Gaia in the project.

Huge Texture

https://assetstore.unity.com/packages/tools/input-management/huge-texture-163576

Allows you to generate textures larger than 8192x8192 (up to 26624x26624px) for each terrain.

Online Maps

https://assetstore.unity.com/packages/tools/integration/online-maps-v3-138509

It allows you to show the location from Real World Terrain on a dynamic map.

Integration with Online Maps enabled using OnlineMapsRWTConnector component.

Add this component to the map GameObject, and click «Enable Real World Terrain».

Playmaker

https://assetstore.unity.com/packages/tools/visual-scripting/playmaker-368

The powerful visual scripting solution to quickly make gameplay prototypes, A.I. behaviors, animation graphs, interactive objects, cut-scenes, walkthroughs...

To enable integration with Playmaker, select «Window / Infinity Code / Real World Terrain / Packages / Playmaker Integration Kit»

or

import «Assets / Infinity Code / Real World Terrain / Packages / RWT-Playmaker-Integration-Kit.unitypackage».

Relief Terrain Pack (RTP)

https://assetstore.unity.com/packages/tools/terrain/relief-terrain-pack-v3-3-5664

Great shader for terrains. Using this shader, the result will look a lot better.

Relief Terrain Pack does not require configuration. Just enable integration with Relief Terrain Pack in Real World Terrain settings.

Road Architect

https://github.com/MicroGSD/RoadArchitect

Allows generating roads.

How to generate roads using Road Architect:

- Enable Road Architect support in the settings;
- Real World Terrain / Generate Roads - ON.

All roads created using Real World Terrain is editables.

uContext

https://assetstore.unity.com/packages/tools/utilities/ucontext-141831

Integration with uContext is enabled automatically. You just need to have Real World Terrain and uContext in the project.

Integration adds to WAILA a display of latitude, longitude, and altitude of the terrain under the cursor.

The integration adds the following actions:

1. Geocoding - allows you to find a location by address. The location will be converted to Unity World Position, and GameObject will be created in this position, whose name is the full address of the location.
2. Reverse geocoding - allows you to find out the address of the location under the cursor. The address will be displayed in the console.
3. Place objects - opens a window for placing objects at a specified location.
4. Show Google Maps - opens Google Maps at the specified location.
5. Show Google Street View - Opens a panorama of the location under the cursor.
6. Show Open Street Map - opens Open Street Map at the specified location.

These actions are grouped in the section Real World Terrain.

For geocoding and reverse geocoding, ArcGIS Geocoding API is used, which does not require authorization.

Vegetation Studio and Vegetation Studio Pro

Vegetation Studio:

https://assetstore.unity.com/packages/tools/terrain/vegetation-studio-103389

Vegetation Studio Pro:

https://assetstore.unity.com/packages/tools/terrain/vegetation-studio-pro-131835

Allows you to generate editable areas of grass and trees.

Integration with this asset does not require activation. You just need to have Vegetation Studio (Pro) in the project.

To work correctly, you need to configure the Vegetation Package:

Select «Window / Awesome Technologies / Add Vegetation Studio (Pro) to scene».

Select «Hierarchy / Vegetation Studio (Pro) / VegetationSystem (Pro)».

Select the Vegetation Package you want to use.

Add Vegetation Items (grass and trees).

For Vegetation Studio: Vegetation System / Vegetation / Vegetation Mask - ON

For Vegetation Studio Pro: Vegetation System Pro / Edit Biomes / Vegetation Mask Rules - ON

Read more about setting up Vegetation Studio and Vegetation Studio Pro in the asset documentation.

Volume Grass

https://assetstore.unity.com/packages/tools/particles-effects/volumegrass-436

It allows you to generate a volumetric dynamic grass.

How to generate the grass using Volume Grass:

- Enable the integration with Volume Grass in Real World Terrain settings;
- Real World Terrain / Generate Grass - ON;
- Real World Terrain / Grass Generator - Volume Grass.

Note: If you try to generate the grass outside the terrains, Volume Grass can cause freezing of Unity Editor.

WorldStreamer

https://assetstore.unity.com/packages/tools/utilities/world-streamer-36486

Keeps objects in the separate scenes, and dynamically load them during use.

This allows you to greatly increase the performance of your application.

How to use WorldStreamer:

• Enable the integration with WorldStreamer in Real World Terrain settings;
• Generate all terrains;
• Real World Terrain Container / Finish / Open WorldStreamer.

Real World Terrain API

Detailed information about all the available classes, methods and fields can be found in API Reference.
http://infinity-code.com/docs/api/real-world-terrain/

The order of the values in the coordinates:
Vector2, Vector3: X - longitude, Y - latitude;
Parameters of methods: first - the longitude, second - the latitude.

Updating versions

In Unity Asset Store, we will send only the stable version. Renewal period is several months.

Real World Terrain has built-in update system, using which you can update Real World Terrain to the latest version and get early access to all versions and updates.

Click «Window / Infinity Code / Real World Terrain / Check Updates», to open the window checking for updates. Enter your Invoice Number (digits only) or Order Number, select a channel of updates and click «Check New Versions». Download the new version and import it into the project.

Important: Always make backups when upgrading assets or Unity Editor.

Removing the old version in most cases is not necessary.

You can find out your Invoice Number in order confirmation, or visit the account transaction page in Unity Asset Store:

https://assetstore.unity.com/orders

If from the current version was released more than 10 updates in the selected channel then will only show the last 10 updates.

If updates are available, you can read the list of changes and download the update.

If you have any problems with installing the update, then:

1. Open an empty scene.
2. Delete the folder «Infinity Code / Real World Terrain».
3. Import the new version of Real World Terrain to the project.

If you want to return to the previous version of Real World Terrain, select the channel «Stable Previous». Using this channel, you can get 10 previous updates.

Real World Terrain automatically checks for updates every 24 hours. If a new version is available, you will see a red button in Real World Terrain. When clicked, will open check for updates window.

Automatic check for updates does not require Invoice Number, and works on the selected channel updates. If you do not select a channel update, it will be checked only stable versions.

Troubleshooting

Known issues

You have trouble downloading elevation maps in Real World Terrain, 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 Real World Terrain.

You have trouble downloading textures

Try to choose another texture provider.

Visible gap between terrains

Most likely your terrains have lost their neighbors.

Select «Real World Terrain Container / Utils / Update Neighbors».

For your area is not generates buildings, roads, grass or trees

Please make sure that they are marked on Open Street Map.

To open the current area in Open Street Map, click «Show Open Street Map» in Real World Terrain window or the helper.

Building has inverted normals

Select the building and click «Invert normals».

How to create an intersection in Road Architect

Select the nodes that must intersect, enable "Allow intersect", and move first node close to the second node.

You have lost your Invoice Number and it is missing from the Unity Asset Store / Account / Transactions

We do not know Invoice Numbers of the customers. We can only check the number that you will give us. So contact with support of Unity Asset Store.

https://support.unity3d.com/hc/en-us/requests/new

Your problem is not listed

Please contact us about your problem (support@infinity-code.com). We will try to fix all errors and release an update as soon as possible.

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 Real World Terrain.

Q: Can Real World Terrain generate terrain at runtime?

A: No, Real World Terrain is Editor Extension and can generate terrains only in Unity Editor. If you need a runtime solution, look at Online Maps.

https://assetstore.unity.com/packages/tools/integration/online-maps-v3-138509

Support

We provide support by email (support@infinity-code.com) in English and Russian or in the forum (https://forum.infinity-code.com) in English.

If something does not work for you, you find a bug, have a suggestion or question, contact us.

When contacting, please specify your version of Unity, OS and the version of Real World Terrain.

We always try to answer all requests to the support within 24 hours.

Important: We do not provide support in the reviews section of Unity Asset Store. All questions in the reviews section will be ignored.

Other Infinity Code assets

Huge Texture

https://assetstore.unity.com/packages/tools/input-management/huge-texture-163576

*Huge Textur*e allows you to import and use textures larger than 8192x8192px.

How it works:

When importing a texture, Huge Texture splits the texture into pages and saves it as a Texture Array. Texture Array is combined on the shader side, which does not create extra draw calls and has almost no effect on performance.

Features:

• The maximum size of the texture: PNG and JPEG up to 16384x16384px, RAW up to 2GB (26624x26624px for square textures without transparency);
• Standard Render Pipeline, Universal Render Pipeline (URP, LWRP), High Definition Render Pipeline (HDRP);
• Compressed and uncompressed formats;
• Does not produce extra draw calls. You will have as many draw calls as you would with a regular texture;
• API for working with huge textures, as with regular Texture2D;
• Built-in update system.

Requirements:

• Not all platforms support Texture Arrays.
The list of supported platforms is here:
https://docs.unity3d.com/Manual/SL-TextureArrays.html

• The field must accept Texture (not Texture2D), and the component must accept custom material or shader.
For example, Huge Texture can be used in Mesh Renderer, Raw Image, etc.

Mesh to Terrain

https://assetstore.unity.com/packages/tools/terrain/mesh-to-terrain-7271
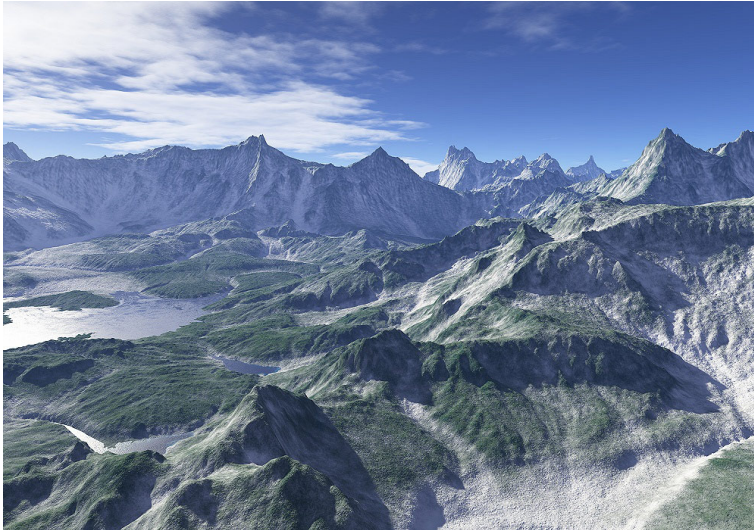
Mesh to Terrain is a tool for easily and quickly converting a 3D terrain model created in 3ds Max, Terragen or any other editor to Unity Terrains.

Mesh to Terrain can convert textures to SplatPrototypes (Terrain Layers), generate terrain from several models and split the model into several terrains.

Features:

- Supports Unity v5.6 and higher;
- Unlimited number of models and terrains used in the component;
- Terrains are created in the same place where the meshes;
- Convert the textures of models to textures of terrain;
- Seamless result, when working with multiple terrains;
- Manually adding models or automatic detection of all models in the layer;
- No need to manually add the components of physics;
- Works with Relief Terrain Pack (optional);
- Built-in update system.

Online Maps
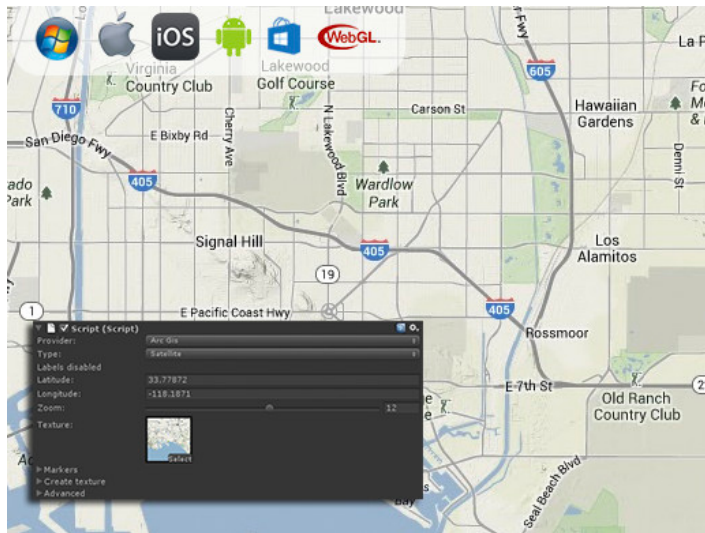
Online Maps is a universal multi-platform mapping solution for your 2D, 3D, AR / VR and mobile applications and games.

Fully customizable, incredibly easy to learn and use, and at the same time is one of the most powerful and flexible solutions in the industry.

Supports a huge number of services for any mapping needs, and has integration with the best Asset Store assets.

The package contains the complete source code without dependencies, and if you want to add or change some feature, you can easily do it.

Don't have programming experience or don't know C# - Online Maps supports visual scripting using Bolt and Playmaker.

All the features to create any map in Unity in one asset.

Features:

- Unity 2017.4 LTS and higher;
- Standalone, Android, iOS, Windows Store, WebGL;
- Online and offline maps;
- 2D maps and 3D maps with elevation;
- 2D, 3D, billboard and custom markers;
- You can display the map anywhere: on UI, in a scene, or draw into texture;
- Huge number of predefined tile sources: Google Maps, Mapbox, ArcGIS, Nokia Maps, Bing Maps, Open Street Maps, and many others (16 providers, 88 map types);
- Ability to create your own map style or use your own source of tiles (e.g. WMS);
- Multilingual map with or without labels;
- **Support Google API web services**: Direction API, Elevation API, Geocode API, Places API, Places Autocomplete API, Roads API;

- Other web services: AMap Search, Bing Maps Elevation API, Bing Maps Location API, HERE Routing API, Open Route Service Directions, Open Route Service Geocoding, Open Street Map Nominatim, Open Street Map Overpass API, QQ Search, What 3 Words;
- Show Google Street View using uPano;
- Additional Features: GPS (with emulator), cache, traffic, Overlays, Drawing API, runtime 3D buildings;
- Integration with: Bolt, Curved UI, EasyTouch, Fingers - Touch Gestures, NGUI, Playmaker, Real World Terrain, TouchScript, uContext, uPano;
- Easy-to-use and powerful API. Large number of examples of using is attached. Atlas of Examples;
- Built-in update system.

Terrain Quality Manager

https://assetstore.unity.com/packages/tools/terrain/terrain-quality-manager-28949

Terrain Quality Manager allows you to change the resolution of Heightmap, Detailmap, Alphamap and Basemap, **without losing data**.

If you need to increase the quality of terrain, or optimize terrain for better performance, with this tool you can do it.

Features:

- Unity v5.2 and higher;
- Allows you to change resolution of Heightmap, Detailmap, Alphamap, Basemap and Resolution Per Patch, without losing data;
- Works for single terrain, all terrains in scene, all terrains in project;
- Allows you to scale up and scale down terrain maps;
- Seamless result, when working with multiple terrains;
- Very easy to use.

uContext

uContext is a toolkit that take your workflow in Unity Editor to a next level, simplifies working with content, adds new features to the editor, corrects and improves the editor's built-in behaviors.

A huge number of new and unique features in one toolkit, at the price of a small utility.

Make your usual actions with lightning speed with uContext.

Key features:

- **Universal context menu** which is available everywhere in Unity Editor and allows you to quickly open the most useful windows, open components, create objects, add components, navigate and perform many more useful actions.

- **WAILA** (What Am I Looking At) + **Smart Selection**. WAILA displays one or all GameObjects under the cursor, and allows you to quickly find any object, even if it is hidden behind another object.
Smart Selection allows you to quickly select any object that WAILA shows.

- **Object Placer** allows you to easily and quickly create objects in the scene. Just point to the place where you want to create the object and press CTRL + SHIFT + Right Click.

- Ability to **open any component in a separate window**. The component will always be available, even if GameObject has lost focus.

- **View Gallery** - displaying images from all cameras in the scene and all View States, with the ability to set the view from the camera or View State with one click.

- **Bookmarks** for any objects in a scene or project, allow you to always keep your most needed objects at

hand.

- **Smart Search** for GameObjects and Components in the scene, assets in the project, and items in the menu.
Extra search features:
Fuzzy search: allows you to search by characters and parts of a word, for example, enter «pw» to find «Project Window».
Search by type: Enter «:» and the type of object (in whole or in part) to search by type. For example, «wa:te» will find «08. Waila» texture in the project, or «DL:go» will find «Directional Light» GameObject in the scene.
Drag and Drop: You can drag and drop objects from search results into a scene or inspector.

- **Quick Preview** shows the image from cameras and View States in Scene View.
Allows you to quickly view the scene from different angles, and adjust the scene view in one click.

- **Selection History** - uContext stores a history of object selections in the scene and project, and you can quickly switch between entries.

Improves the built-in behavior of the Unity Editor:
- Drag and drop objects onto Canvas;
- Add Component by shortcut;
- Change the size of the brush Terrain Editor using the mouse wheel;
- Maximize Game View in playmode by SHIFT + Space;
- Maximize any window by F11.

Additional features:
- Hierarchy Icons;
- Grouping and ungrouping GameObjects;
- Fast switching between Scene View and Game View (CTRL + SHIFT + TAB);
- Temporary objects. Allows you to create temporary objects that will be destroyed at start the scene;
- Fast zoom in / out scene view;
- Rename GameObjects in Scene View by F2;
- Integration with [Online Maps](), [Real World Terrain]();
- Built-in update system.

uContext is fully customizable. If a feature does not fit your workflow, you can adjust or disable this feature.

uPano

https://assetstore.unity.com/packages/tools/integration/upano-126396

uPano (Unity Panoramic Framework) is a universal solution for displaying dynamic and static panoramas, and creating virtual tours.

uPano is very easy to learn and use, and is great for people who do not have programming experience. Visual Tour Maker lets you create virtual tours in minutes.

In most usage scenarios, you can make interactive panoramas without creating your own scripts.
If you have some very specific purpose, uPano has a powerful and easy-to-use API that will allow you to implement any behavior.

Most of the existing types of panoramas are supported: spherical, cylindrical, cubic panoramas on single or six images, cubemap.

Supports Unity 2017.4 LTS and higher.
Supported platforms: Standalone, iOS, Android (including Google VR), Universal Windows Platform, WebGL.
Other platforms have not been tested, but most likely uPano will work well.

Additional features:

- Can display textures larger than 8192px using Huge Texture;
- Visual Tour Maker;
- Interactive elements (Hot Spots, Directions) + Visual Editor;
- Lots of built-in actions for HotSpots and Directions;
- Compound transitions;
- Download Google Street View panoramas by ID or location;
- Video panoramas;
- Control with: mouse, touch, keyboard, gyro, compass, UI buttons, UI compass, UI joystick;
- Plugins: Auto Rotate, Downloader, Limits, Multi Camera, Orthographic Camera, Timed Gaze;
- (optional) Integration with Online Maps, Playmaker;
- Built-in update system.

Final words

We sincerely hope that you will enjoy using Real World Terrain, and this will save you a lot of time.

If you have any questions or problems, please contact us.

We will try to help you as quickly as possible.

Please do not forget to leave your review in Unity Asset Store.

It is very important for us to have feedback from users to make our assets better.

For other users, it is also very important to make a right understanding of this asset.

Links

Product page: https://infinity-code.com/products/real-world-terrain

API Reference: https://infinity-code.com/docs/api/real-world-terrain/

Forum: https://forum.infinity-code.com

Support: support@infinity-code.com

Twitter: https://twitter.com/InfinityCodeCom

YouTube: https://www.youtube.com/playlist?list=PL2QU1uhBMew9F_7iwf_gKjuenEpQcYD-K

Vimeo: https://vimeo.com/channels/realworldterrain