

Mesh to Terrain

Version 2.3



Infinity Code, 2013-2021

<https://infinity-code.com/>

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Description

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.

Using

Important: before starting, please make sure that your model has an Index Format - 16 bits. Otherwise, when the mesh has more than 65k vertices, Physic.Raycast is unstable and may cause the editor to freeze at any time.

Add the 3D scene model that you want to convert into Terrain. The number of models is not limited, and they can have any nesting.

Important: You can use any model, but Unity Terrains can only be rectangular. Keep this in mind when converting non-rectangular models.

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

Specify the required settings, click «**Start**» and wait for the conversion. Depending on your computer performance, the number of pieces and settings it can take from a few seconds to several minutes.

Important: If the model has a collider, other than «**Mesh Collider**», it can be converted incorrectly. To solve the problem, remove the collider component from models.

Description of fields

Mesh to Terrain Help

▼ Meshes

Mesh select type: Game Objects

Mesh 1: Terrain Model

Mesh GameObject: None (Game Object)

Direction: Normal

Y Range: Minimal Range

▼ Terrains:

Type: New Terrains

Count terrains. X: 4 Y: 1

Adjust size of meshes: ☒

Adjust the size of meshes will break your prefabs (if present), but will help to work around the raycast problem on too small and too big meshes. After generation meshes and terrains will have the original size.

Bounds: Auto Detect

? Heightmap Resolution: 129

? Detail Resolution: 2016

? Control Texture Resolution: 512

? Base Texture Resolution: 2048

? Resolution Per Patch: 32

☐ Use smoothing of height maps.

Holes: Minimum Value

▼ ☒ Textures

Capture Mode: Camera

Texture Capture Mode - Camera is affected by the lighting of the scene. Prepare it first.

Resolution: 1024

Empty color:

Start

Mesh to Terrain window contains three sections:

- **Meshes** – List of mesh, which will be converted into terrains, and general conversion settings.
- **Terrains** – Settings of terrains.
- **Textures** – Settings of textures.

Meshes

In «**Mesh select type**» section Meshes, select how you want to define a model for the transformation:

- **GameObjects** – Objects to be added manually. For all the added objects considered subobjects. To avoid errors, you must remove all unnecessary sub-objects of the objects do not belong to the terrain.
- **Layers** – As models for the conversion of all the models used in the layer. In order to avoid errors from the layer to remove all unnecessary objects that do not belong to the terrain.

In «**Direction**», specify the direction of raytracing:

- **Normal** - Rays go from top to bottom.
- **Reversed** - Rays go from bottom to top. Must be used if the polygon model is facing downwards.

In «**Y Range**», select the desired range of heights:

- **Minimal Range** - the range of values will be determined automatically based on the meshes boundaries Y.
- **Long Mesh Side** - the range of values will be determined automatically based on the meshes boundaries by the maximum size of X and Z.
- **Fixed Value** - allows you to specify a Y range manually. The higher the value, the lower the accuracy.

Terrains

In «**Type**» section Terrains, select:

- **Exist Terrains** - If you want to convert your existing terrains. To do this, place the terrains under the models and add terrains to the list.
- **New Terrains** - Terrains will be created and placed under the model automatically. In the appropriate fields number of the terrains that will be created.

If «**Type - New Terrains**» is selected, then there are additional settings:

- **Count** - Number of terrains you want to get.
- **Adjust size of meshes** - The size of meshes will be adjusted to work around the problem of raycasting for very small and very big meshes.
After generation, Mesh to Terrain will restore the original hierarchy and size of meshes.
Important: If meshes are part of prefabs, after using this setting prefab will be lost.
- **Bounds** - Type boundary of the model:
 - **Auto Detect** – model boundaries are determined automatically.
 - **From GameObject** – boundaries of model set by another GameObject. This GameObject must be Cube without rotation and include the entire area you want to convert.

- **Select Bounds** – you manually select the boundaries (like in Collider). Click «Show Selected», to start select the boundaries.
- **New terrains settings.**

If you want to use smoothing, choose the «**Use smoothing of height maps**» and set the smoothing factor.

Field «**Holes**» determines the behavior of Mesh to Terrain for areas of models where the height is unknown (holes and the edge of the model, if the model is not rectangular):

- **Minimum Value** - will use the minimum height.
- **Neighbor Average** - height will be calculated on the basis of the neighboring known values.
- **Remove** – use Unity Terrain Engine hole system.

Textures

Mesh to Terrain can optionally generate one texture for each Terrains.

Result Type:

- **Regular Texture** – PNG up to 8192x8192px.
- **Huge Texture** – up to 2GB (0.715 gigapixels, 26624x26624px for square textures without transparency). Requires Huge Texture asset.

Mesh to Terrain has two modes for generating textures:

- **Camera** - textures will be created using a dynamic camera with orthographic projection. Required Adjust size of meshes - ON.
Important: when generating textures, lighting is used, which will affect the result. Prepare the lighting first.
- **Raycasting** - textures will be created by raycasting the main textures of meshes.
Important: this texture generation mode does not support complex texturing techniques and only uses the main texture of the first material.

Auto Setup Lighting - automatically setup lighting in the scene for Capture Mode - Camera, and after conversion restores its original state.

Manual Light Setup for Capture Mode - Camera

There are many ways to setup the lighting in a scene.

The simplest and best result:

1. Disable all lights in the scene.

2. Open Window / Rendering / Lighting / Environment.
3. Environment Lighting / Source - Color, Ambient Color - White.

After conversion, you can enable the lights, and return Environment Lighting / Source - Skybox.

Convert from the context menu

In «**Hierarchy**» right-click on the GameObject, you want to convert into terrain. Opens «**Mesh to Terrain**» with the selected GameObject.

Integration with third party assets

Third party assets are not included in Mesh to Terrain and must be purchased separately.

Huge Texture

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

Huge Texture allows you to generate textures larger than 8192x8192px.

Integration with Huge Texture is automatically enabled when importing Huge Texture into a project.

Select «Mesh to Terrain / Textures / Result Type - Huge Texture», and specify the page size, number of columns and rows.

Huge Texture allows you to generate textures up to 2GB (0.715 gigapixels, 26624x26624px for square textures without transparency).

Huge Texture has several limitations:

1. You cannot use Terrain Layers.
2. You will be able to use only Texture / Capture Mode - Raycast (read more in the Description of fields / Textures section).
3. Integration with Relief Terrain Pack will not work.

Relief Terrain Pack

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

Integration with Relief Terrain Pack is disabled by default.

Import Relief Terrain Pack to your project. Open Mesh to Terrain. Select Third-party / Enable Relief Terrain Pack.

No settings Relief Terrain Pack is required. If you have any questions about Relief Terrain Pack, you can find answers in the documentation of Relief Terrain Pack.

Important: Relief Terrain Pack is not compatible with Huge Texture, and you won't see the benefits of Relief Terrain Pack when generating Huge Texture.

If you want to delete Relief Terrain Pack from the project, you should first disable it in Mesh to Terrain (Third-party / Disable Relief Terrain Pack).

If you forget to disable Relief Terrain Pack and removed it, then you will see errors in the console. To manually remove support of Relief Terrain Pack, open PlayerSettings (Edit / Project Settings / Player) and delete the corresponding entry from «Scripting Define Symbols».

Updating versions

In Unity Asset Store we ship only stable versions. Renewal period is several months.

Mesh to Terrain has a built-in update system, using which you can get early access to all versions and updates.

Click «**Window / Infinity Code / Mesh to Terrain / Check Updates**», to open window checking for updates. Enter your Invoice Number, select a channel of updates and click «**Check New Versions**».

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 / Mesh to Terrain**».
3. Import the new asset version in the project.

Troubleshooting

After starting you get the error border or nothing happens.

There are two reasons for this:

1. The models in the scene have a size that is insufficient for correct operation of physics. You need to increase the model in 100 + times and start the component again. The problem is that the default scaling factor of imported models «**0.01**».
2. You choose the models are not in the scene. Add model in the scene and convert them.

Terrains not correspond to the models axis Y.

1. Scale up the model several times.

New terrains have a insufficient resolution / accuracy.

1. Increase the Height Map Resolution.
2. Increase the number of new terrains.

You cannot see the grass or trees.

1. Zoom in to the place where you draw grass or trees.
2. Increase the value of «Tree Distance» in Terrain settings.

You receive an error «Selected meshes not in the scene», and the model is in the scene.

Please make sure that you choose a model from the tab «**Scene**».

Conversion process freeze at some percentage

Please make sure your model has an Index Format of 16 bits. Otherwise, when the mesh has more than 65k vertices, Physic.Raycast is unstable and may cause the editor to freeze at any time.

Support

We provide support by email (support@infinity-code.com) in English and Russian languages, or using forum (<https://forum.infinity-code.com>) in English language.

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

Please, specify your version of Unity, OS, and the current version of Mesh to Terrain.

We strive to answer all emails in the customer support within 24 hours.

Other Infinity Code assets

Huge Texture



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

Huge Texture 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 (0.715 gigapixels, 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.

Online Maps



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

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:

- 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.

Real World Terrain



<https://assetstore.unity.com/packages/tools/terrain/real-world-terrain-8752>

Real World Terrain is a tool for automatically creating high-quality terrains, meshes, Gaia stamps and RAW files based on real-world data with global coverage.

Incredibly fast and easy to use, and allows you to create high-quality terrains in a couple of clicks.

In addition, Real World Terrain can create buildings, roads, trees, grass, and rivers based on Open Street Map data.

Real World Terrain is incredibly powerful and flexible. It has a powerful Editor API to automate the generation of terrains, and Runtime API positioning objects by coordinates, etc.

Real World Terrain has integration with the best assets of the Asset Store, which gives almost unlimited possibilities in the generation of terrains.

Features:

- Render Pipelines: Standard RP, URP, HDRP.
- Elevation Heightmaps:

- ArcGIS resolution of max 10 meter per pixel;
- Bing Maps resolution of max 10 meter per pixel;
- Mapbox;
- SRTM v4.1 resolution of 90 meters per pixel;
- SRTM30 resolution of 30 meters per pixel.
- Texture providers: ArcGIS, DigitalGlobe, Map Quest, Mapbox, Mapy.CZ, Nokia Maps (here.com), Virtual Earth (Bing Maps), Open Street Map , Sentinel-2 + ability to download tiles from custom url;
- Satellite images resolution of max 0.25 meter per pixel;
- Can create: Unity Terrains, Meshes, [Gaia](#) stamps, RAW files;
- Can generate regular textures and [Huge Texture](#) (up to 26624x26624px) for each terrain.
- Can generate Terrain Layers based on Mapbox vector tile data;
- Can create objects based on Open Street Map:
 - Editable roads for [EasyRoads 3D v3](#) and [Road Architect](#);
 - Editable buildings for [BuildR2](#) (editable) or built-in building engine;
 - Rivers as meshes or for [R.A.M 2019](#);
 - Trees;
 - Grass.
- A tool to select area directly on Google Maps;
- A lot of extra tools for working with coordinates, objects and postprocessing;
- Unlimited number of generated terrains;
- Integration (optional): [BuildR](#), [EasyRoads3D Pro v3](#), [Gaia 2](#), [Gaia Pro](#), [Huge Texture](#), [Online Maps](#), [Playmaker](#), [R.A.M 2019](#), [Relief Terrain Pack](#), [Road Architect](#), [uContext Basic](#), [uContext Pro](#), [Vegetation Studio](#), [Vegetation Studio Pro](#), [VolumeGrass](#), [WorldStreamer](#).

Terrain Quality Manager



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

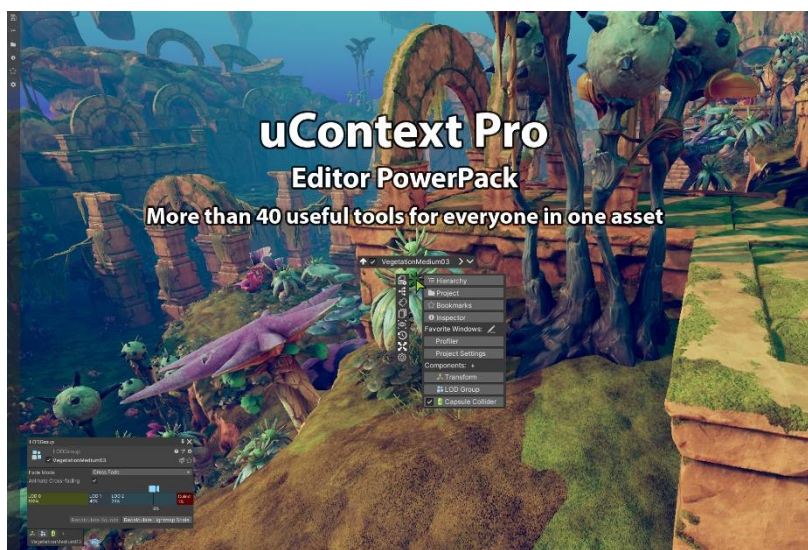
Terrain Quality Manager allows you to change the resolution of Heightmap, Detailmap, Alphamap and Basemap, **without losing data**.

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 (FREE, PRO)



uContext Basic (FREE):

<https://assetstore.unity.com/packages/tools/utilities/ucontext-basic-182221>

uContext PRO (PAID):

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

uContext is Editor PowerPack 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. Over 40 useful tools for everyone in one asset. 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.
- **Object Toolbar** for accessing the components of the selected GameObject and importers of the asset. The most useful editor opens automatically when the Object is selected.

Can display related components: components that are on another GameObject but are logically related to the current one.

- **Quick Access Bar** for quickly opening a window, scriptable objects, settings, executing a menu item, and calling static methods.

- **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 be displayed as if it were part of an inspector. Custom editors and third-party assets that modify the inspector (like Odin - Inspector and Serializer) are supported. It has a debug mode where only serialized fields will be displayed. 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. In addition, you can save View States for selection, and quickly restore it.

- **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.

- **Bookmarks** for any objects in a scene or project, allow you to always keep your most needed objects at hand. In addition, you can store folders from the project in bookmarks, which gives you almost limitless possibilities for organizing content.

- The ability to quickly switch between open windows, even when the current window is maximized.

- **Recent windows** allows you to quickly open windows that are not closed recently.

- **Favorite Windows** allows you to create your own list of windows that are most useful to you and open them with one click. Built-in Unity Editor windows and third-party asset windows are supported.

- **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.

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

- **Duplicate Tool** - just drag GameObjects in the desired direction to create a duplicate. Ability to temporarily switch to the Duplicate Tool from the Move Tool or Transform Tool by pressing CTRL + SHIFT.

Additional features:

- Align & Distribute Tools;
- Auto switch to maximized Game View on enter playmode when Scene View is maximized;
- Components in Hierarchy + display components errors and exceptions on Hierarchy;
- Displays the icon of the best component, instead of the standard GameObject icon in the hierarchy;
- Displaying position, rotation and scale in Scene View when using the appropriate tools;
- Displaying the size of selected objects;
- Drop To Floor + Advanced Drop To Floor;
- Editor Icon Browser;
- Fast switching between Scene View and Game View (CTRL + SHIFT + TAB);
- Fast zoom in / out scene view;
- Frame Selected Bounds;
- Grouping and ungrouping GameObjects;
- Jump To Point;
- Quick replacement GameObjects;
- Recent Scenes;
- Rename GameObjects in Scene View by F2 + Mass Rename;
- Tool for calculating distances in the scene;
- Temporary objects. Allows you to create temporary objects that will be destroyed at start the scene;
- Transform Editor Tools;
- Integration with [Online Maps](#), [Real World Terrain](#);
- Built-in update system.

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.

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 Mesh to Terrain.

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/assets/mesh-to-terrain>

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

Support: support@infinity-code.com

Videos: <https://vimeo.com/channels/490422>