

Terrain Engine 2D

A 2D Block Engine for Unity

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Terrain Engine 2D

User Manual - V1.20

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Modification

In depth information on how you can modify the terrain.

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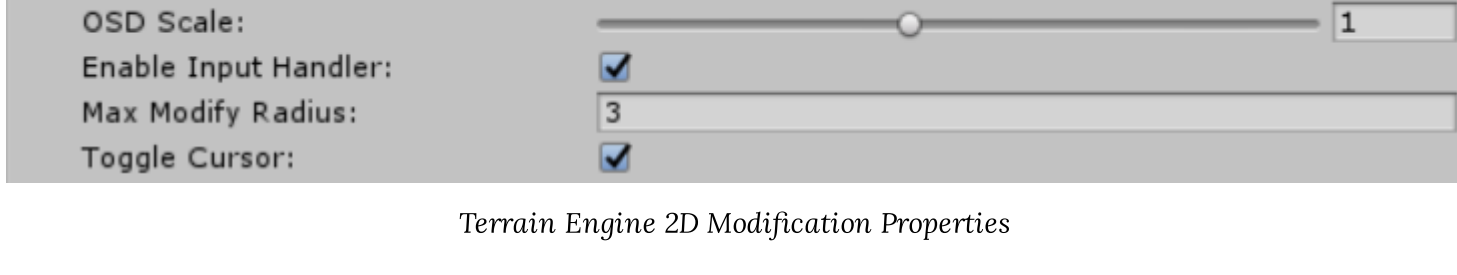
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General

One of the best parts of the terrain engine is the ability to dynamically modify the terrain at runtime. You can add, remove, and replace any kind of block from any layer. There are many functions set in place to help you modify the terrain from script. As well as examples classes such as the **WorldModifier** and **WorldInputHandler** which can help get you started.

Modification Properties

The **Modification** properties of the World inspector gives you options for modifying the OSD and changing properties associated with world interaction. The first few fields are settings for the OSD and are pretty self explanatory. Below that you have the option to enable or disable the included Input Handler. You will want to disable the Input Handler if you have your own input controller. It is recommended you replace the included input handler with your own as the World Input Handler is meant for testing with the OSD and Grid Selector. It may not be a good fit for actual game use. The Max Modify Radius determines how large you can set the Brush Size in the OSD. You also have the option to toggle off the mouse cursor in favor of just showing the Grid Selector in play-mode.



Terrain Engine 2D Modification Properties

- **Toggle OSD** Toggle for enabling/disabling the On Screen Display (OSD) - Accessible at runtime
- **OSD Update Rate** The rate at which the OSD updates its values (in seconds)
- **OSD Scale** The scale factor use to resize the UI of the OSD
- **Enable Input Handler** Enable or disable the Input Handler in favor of using your own custom input controller
- **Max Modify Radius** The max size of the Modify Radius
- **Toggle Cursor** Show or hide the cursor in game - Accessible at runtime

Scripting

Below is some information on the **World Modifier** and **World Input Handler** which are scripts used by the example scenes in combination with the **OSD** to allow you to modify the terrain. As well as some information on what functions and events you can use in your own scripts for dynamically modifying the world.

World Modifier

The World Modifier script is a static class which contains functions that can be used to safely add and remove fluid from the world. These functions perform the necessary checks to ensure that any actions performed are valid (i.e. the location is within the world bounds, there is a block at the location you called RemoveBlock, or there is no block at the location you called SetBlock). This way you can call any of the World Modifier functions directly from input without any errors. These functions are listed below:

- **PlaceFluid** Places fluid at a specific location in the world
- **RemoveFluid** Removes fluid from a specific location
- **SetBlock** Sets the block at a specific location of a specific layer
- **RemoveBlock** Removes blocks from a specified location in specified layers

For more help on how to use these functions in your scripts, the **World Input Handler** is an excellent example.

World Input Handler

The World Input Handler processes mouse input into various actions according to the settings of the OSD. Once a mouse input is processed the script calls on the appropriate function from the World Modifier script to perform the necessary action set out in the OSD. This script is a great example for how you may want to process input in your game. It shows how you can use the World Modifier and other tools to dynamically modify your terrain through user input.

Functions

The World Modifier adds on a layer of abstraction/overhead to the base functions to provide more functionality and make them easier to use for direct input. However the base **AddBlock** and **RemoveBlock** functions of the World script can also be utilized to modify your terrain.

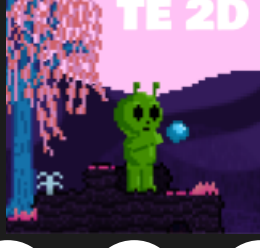
- **AddBlock** Adds a block to the specified coordinate
- **RemoveBlock** Removes a block from the specified coordinate

If you wish to have even more control over the terrain you can use the **GetBlockLayer** function to get the **BlockLayer** and from there you can directly modify all of the terrain data arrays (set block types, variations, bitmasks...). However you must be careful modifying that data as it can cause unpredictable behavior and errors if you don't know what you're doing.

Events

The World also runs a number of events for important state changes or when certain actions are performed. These events are listed below.

- **OnWorldGenerated** Event called when the world is finished loading
- **OnNewDay** Event called when a new day starts
- **OnBlockPlaced** Event called when blocks have been placed
- **OnBlockRemoved** Event called when blocks have been removed



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