InfiniTile

v.1.0

Beginner's guide

tool and guide made by
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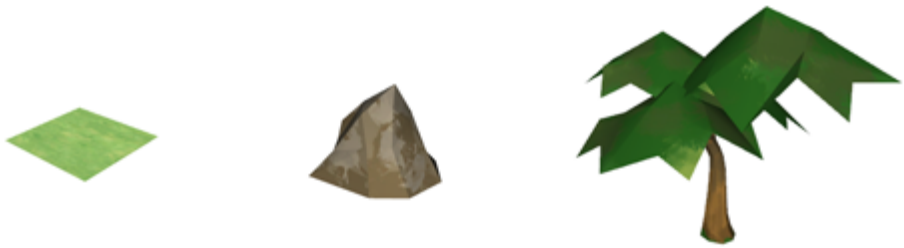
Introduction

Welcome in the beginner's guide to InfiniTile - a tile based 3D level editor - that will greatly improve your game design and prototyping in any Unity based projects!

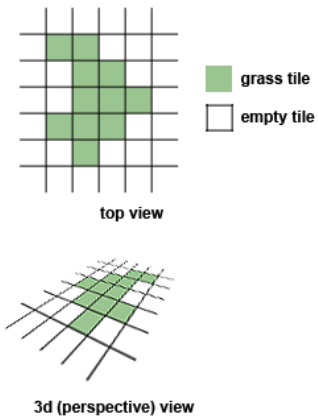
Basic information

The main principle of this tool is that it is based on tiles. A tile can be anything, from simple plane to a complex 3d object. In your future projects, when using this tool, you will probably use a mixture of those to create a good looking levels in almost no time at all.



img.1 - different types of tiles.

A simple representation of a future InfiniTile project would be a grid of mentioned tiles that make a level:



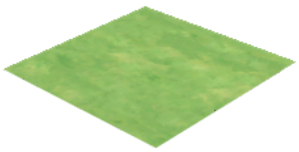
img.2 - tile representation of a simple level

Every tile represents a part of terrain (or lack of) with a basic interaction(walking on it, or falling, if tile is empty).
Problem with this design is when many of those tiles are joined together, they form a repetitive pattern, with a boring look. Not too pretty either.

To dispose of those problems we can add additional tiles to every tile that is touching nothing on either of it's

sides. This way we can hide repetitive pattern of the tiles with a seamless additional tiles.

A basic tile would look like this:

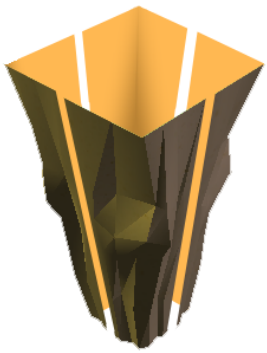


A normal tile

And a tile with additional tiles(walls) added:

This tile is surrounded by 4 additional seamless vertical tiles.

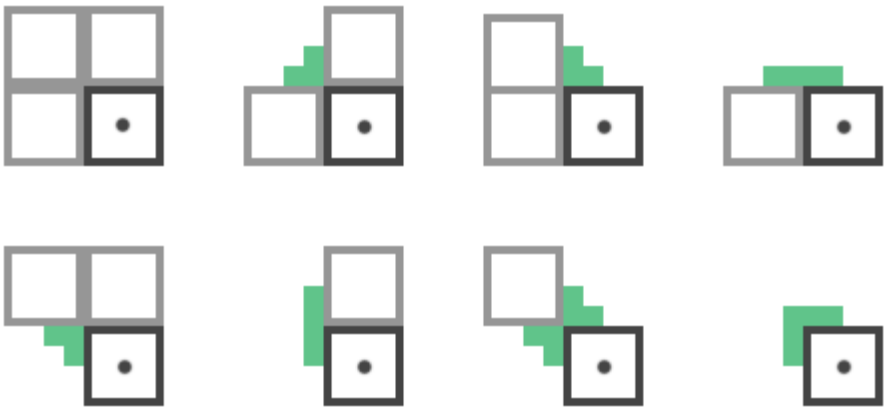
To achieve that, every tile has to be surrounded with maximum of 4 tiles, chosen from a set of 9(seven walls and two connectors). In the previous image the tile was surrounded by them like this:



img.3 - Four walls surrounding a tile

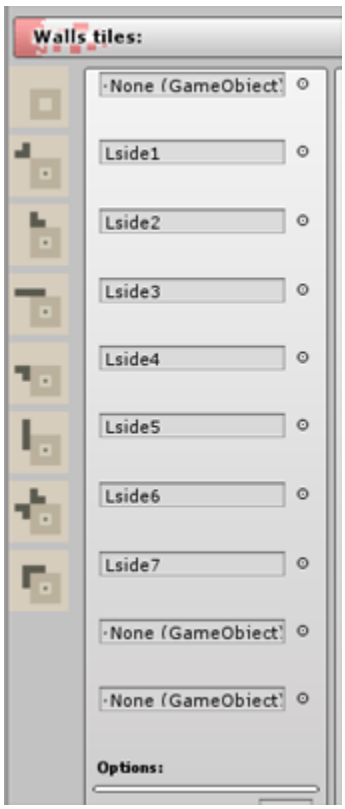
A single tile can be surrounded by any 3d model. It can be a cliff wall, like in the example, or a part of a cathedral wall. Or a bunch of trees. Anything can be used to build the walls of the tiles.
One thing to remember is that those models should be seamless or should slightly overlap, to hide any holes or seams. Also, they can extend in any direction, not only down, but up, or sideways.

Every corner of a tile is evaluated for it's neighbours. Based on that, InfiniTile will pick one wall type from the set of 7, to fill the gap. If there are different types of walls already created in any surrounding tiles, InfiniTile will pick one of two connectors to close the gap and connect the two different types of walls.



img.4 - types of "walls" in one wallSet. (grey are neighbour tiles)

These walls are represented by icons, when an instance of InfiniTile is selected and a wallSet is created:



img.5 - Wall tiles editor filled with 7 possible wall types.

The first one is almost always empty. It represent an object that will be created if there are no empty tiles surrounding a given tile.
The last two are two connectors. They, as the name implies, connect different styles of walls to each other.

img.5.5 - Two possible connectors that can be added to every wall set.

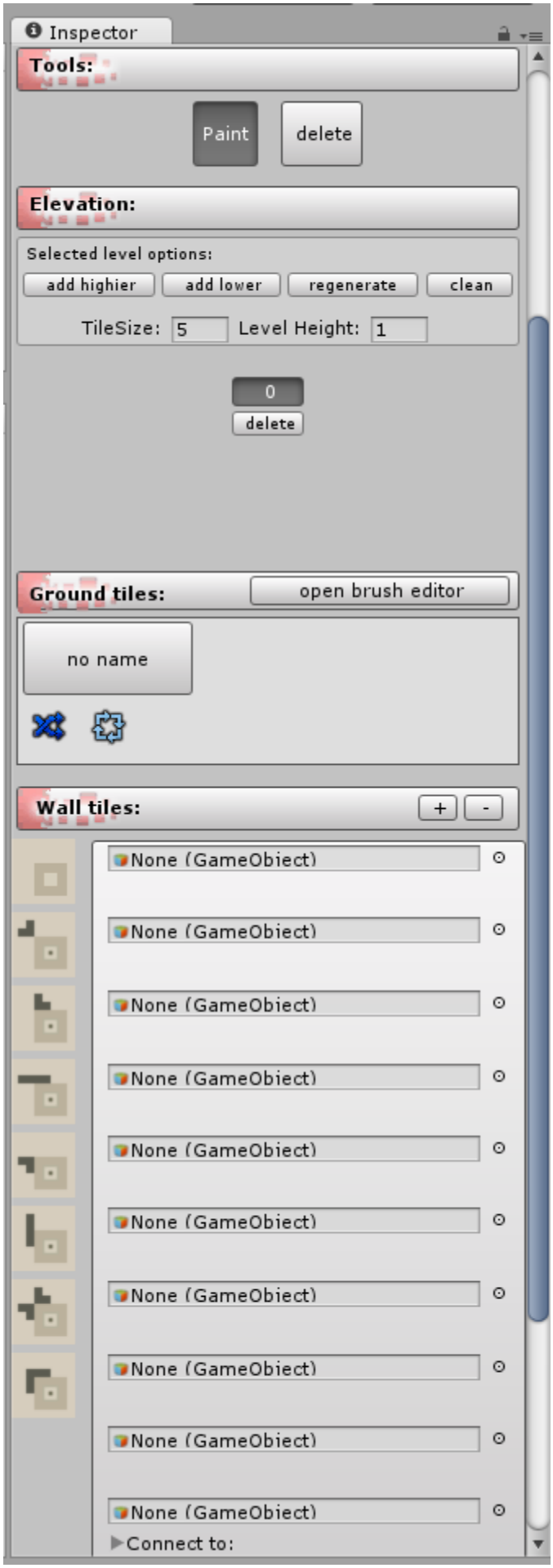
So, when two different types of walls are used and joined together, those connectors would make a

seamless connection between the two types of walls:

img.6 - Example of tiles and surrounding walls

User interface

Main part of the InfiniTile tool is the tool's main prefab inspector information:

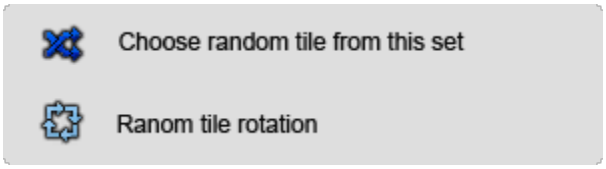


It is divided into four main parts:

Tools - main functions of the InfiniTile tool representing main possible interactions with the level. Any additional future updates, that will include new functions of this tool, will be visible in this category.

Elevation - Every level can be divided into vertical parts(levels). This part of the UI controls those sub levels.It is important to note, that most of the time used tiles would be created with predefined dimmensions, that would be set in the “TileSize” field. Every sublevel can have different tile dimensions.

Ground tiles - this part is the palette of added tiles that can be placed(or painted) into the scene. Aditional options like random tile choosing, or random rotation of a tile are placed under the brush set name in form of buttons:

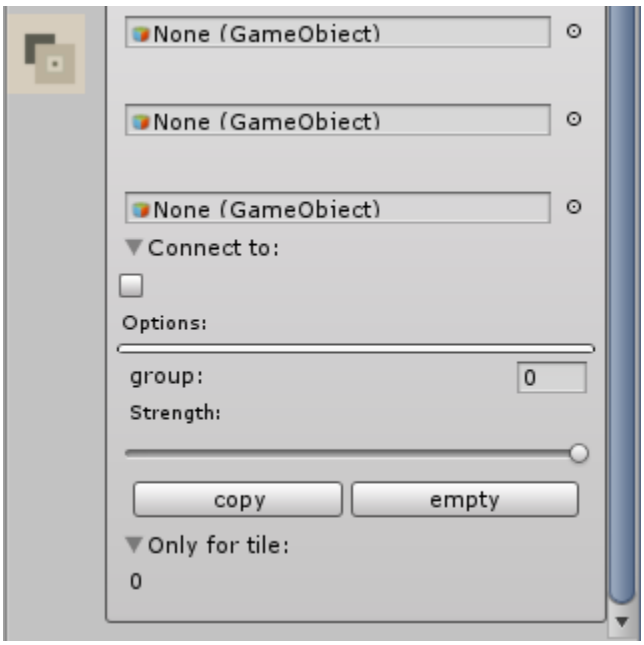


img.8 - Brush set options

Additional sets of tiles or tiles of a set are added in the brush editor window, that can be opened by pressing the ‘open brush editor’ button or by choosing the brush editor from the main editor menu (Window/InfiniTile/Brush Editor).

Wall tiles - This is the part for adding sets of objects that would be chosen when painting tiles in a scene. To add new set or delete the last one, press the ‘+’ or ‘-’ buttons at the top of this part of the inspector. Remember that all wall set objects have their origin set in the center of the tile they surround, so please prepare your object with this in mind. For more information check the **Preparing Walls** section of this guide.

Possible options in every set of walls are :



img.9 - Available options in every set of walls objects.

Connect to - any connectors added to a set of wall objects will check this option for information to witch other set of wall objects this wall should connect(use connector object).

Note: A set cannot connect to it self, so it's checkbox will always remain false.

Group - any sets of walls sharing the same number of group, will be picked based on the 'strength' slider when placing a tile in a scene.

Empty - clean all objects from a set.

Only for tile - checkboxes for every tile in all sets of tiles. When making a tile, walls will be added if the picked tile has it's checkbox set to true.

Brush Editor

img.10 - Standard brush editor window.

Any changes to existing brush sets, adding or deleting them is made in the brush editor window. Every brush set can have a name and a set of tiles. To add a tile to a brush set just drag a prefab(or just an object with a material and a texture) to the inserting square. To delete a tile from a set, click on the tile in the set.

Aditional info

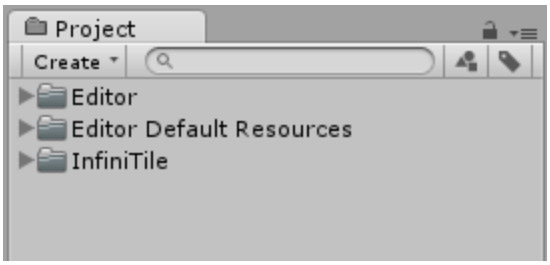
There can be unlimited instances(prefabs) of InfiniTile in a scene. It will be costly though, with lots of complicated prefabs (more memory reserved for every prefab) (no numbers yet), so be careful when adding them.

All InfiniTile prefabs in the scene are placed at the 0 position in the y axis. This cannot be changed.

All sub levels tile size have to be set to the size of the chosen tiles. This is set only once for every sub level, so please make your tile objects share the same size for best effect. That rule does not apply to all objects chosen as tiles. For example, when adding objects such as trees, rocks lamps and similar, that tile size does not matter in most cases. Be aware that when objects are placed in the scene, it is best not to change the tile size setting. Clean all objects first before changing this.

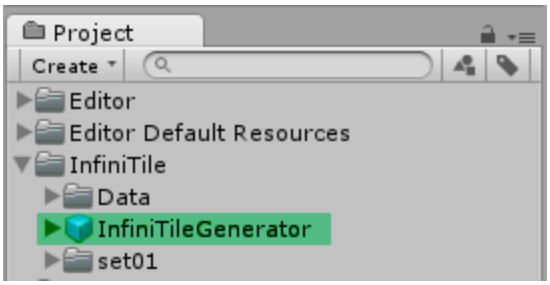
Simple level creation

To start painting a level create a new scene and import the InfiniTile package.
Your project window should look similar to this:



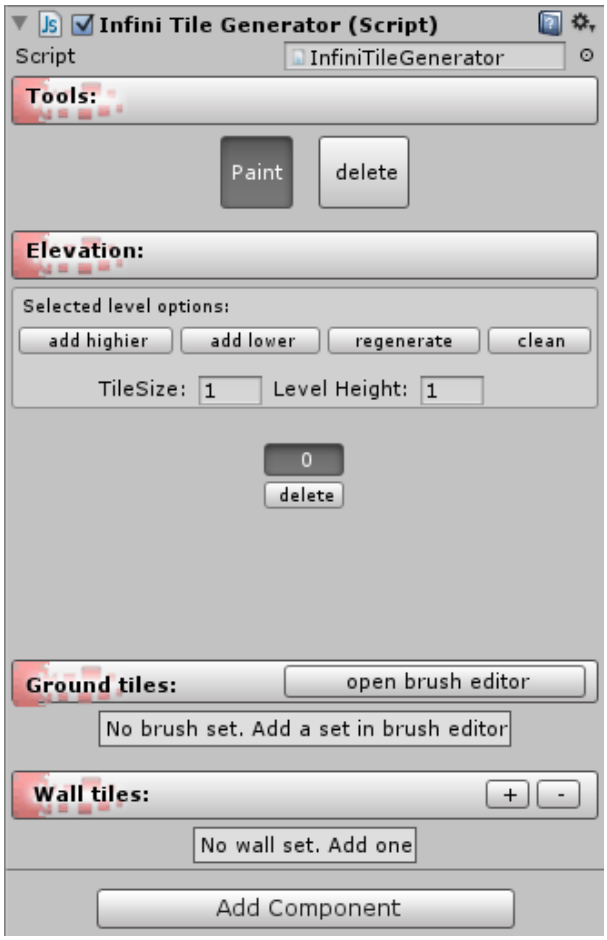
img. 11 - project view with InfiniTile.

Now drag the InfiniTileGenerator prefab from the InfiniTile folder to the scene:



img.12 - drag this to the scene view.

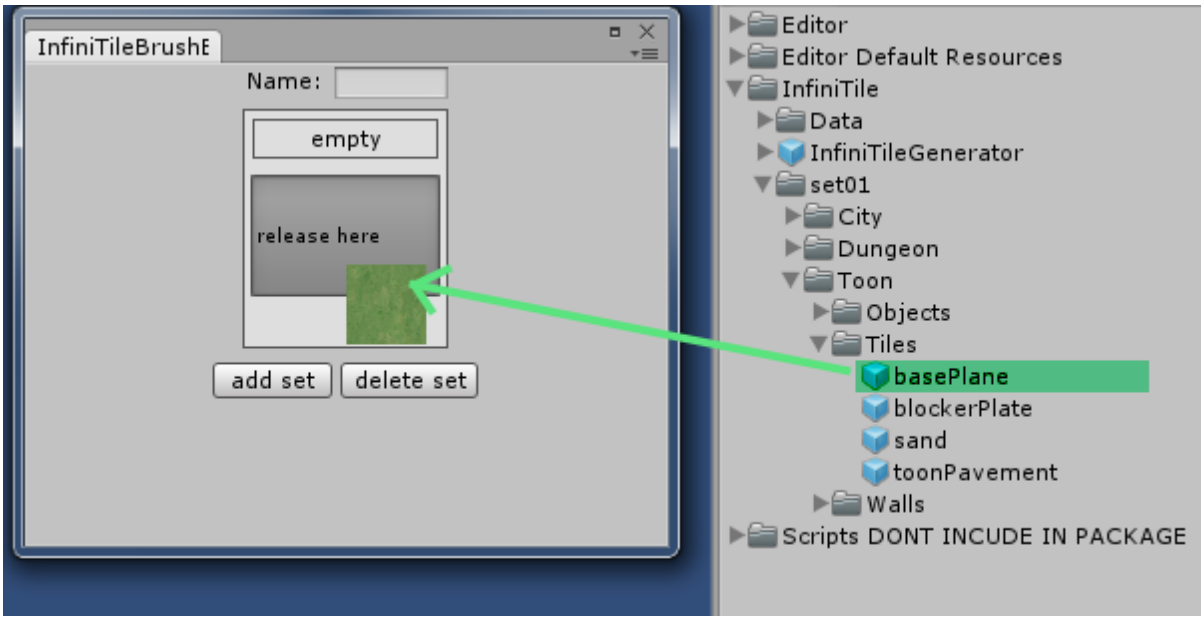
That should create an instance of the main InfiniTile prefab to use in your scene. Select this prefab in the scene to edit it's settings. The inspector for this should look like this:



img.13 - Clean inspector view after adding InfiniTile generator to the scene.

Right now subLevel ‘0’ is selected, so every change in options will affect only this sublevel.
First thing to set is the size of the tiles you will be using in this level or sublevel. Set the ‘TileSize’ field to 5, because we will be using pre made tiles and objects that are in the package, and those are prepared to fit tiles of size 5.

Now open brush editor and add a new set then drag tiles from the project window to the box inside created brush set in the brush set editor:



img.14 - Add tile objects to the brush set in the brush editor window.

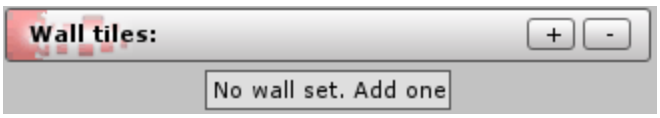
In the package there are sets of tiles, walls and objects already made. That way we can jump right into painting our tiles without the aid of external modelling software. Those objects are very basic, and are added just for example, but will be sufficient for this guide.

Name your brush set by clicking in the name field.

That is out first brush set. Close the brush editor window to continue.

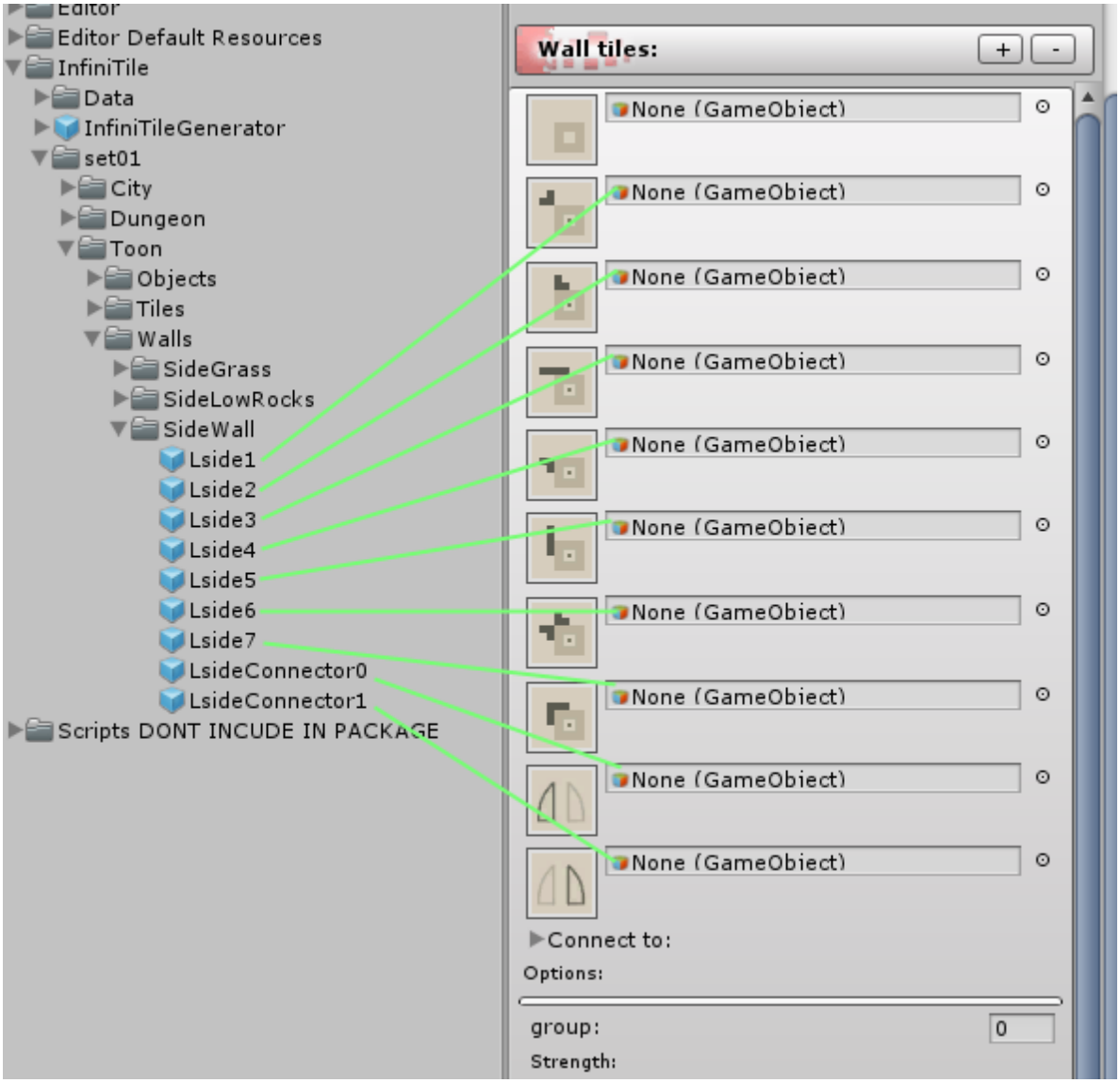
You can start painting your tiles in the scene view by clicking the ‘paint’ button in the ‘tools’ section of the inspector. To delete painted tiles hold ctrl and drag the cursor over some tiles, or press the ‘delete’ button and drag.

Now add new wall set to this level by clicking on the ‘+’ button. It is placed on the right side of the Wall tiles panel:



img.15 - Click the plus sign to add a wall set.

This will create an empty wall set for this sub level. The first 7 fields are for all seven types of walls. The last two are for wall connectors. Fill those with objects from the ‘InfiniTile/set01/toon/Walls/SideWall’ folder path.



img.16 - Drag wall objects to the wall tiles set. Connectors are not mandatory, but they improve the quality of whole level.

Now paint those tiles in the scene.
We could add additional tiles in the brush set or additional sets of walls to add more variety to our level. Good thing to remember is that every new set of walls should be in separate group. Wall sets with the same group will be picked at random when making a tile, so this should be used only with similar types of walls.

Creating walls objects