



PATH PAINTER

By Frank Slater & Procedural Worlds

Path Painter is a path painting system that enables the creation of gorgeous looking paths, roads, ramps and riverbeds on Unity terrains quickly and intuitively.

Version 1.0.0

About Procedural Worlds

Powerful, simple, beautiful. Friendly tools, gorgeous games!

Procedural Worlds empowers artists and developers to bring their vision to life by making it easy to create beautiful worlds. Leverage the latest procedural generation techniques to take the pain out of creating stunning environments and focus on creating amazing games.

The only end to end environmental generation and delivery suite:

Gaia - A world generation system for creating, texturing, planting and populating scenes from low poly mobile, VR and through to high end desktop.

GeNa - A sophisticated localised level design tool that augments Gaia's broad-brush strokes, by working intuitively to give fine grained control.

Path Painter – A powerful path, ramp and river channel creation tool.

CTS - Nominated by Unity of as one of the best assets in 2017, a PBR terrain shading system that significantly improves terrain look, performance and usability.

SECTR - A suite of performance-enhancing tools that enable open world streaming, massive mobile games and includes the latest techniques in audio occlusion and propagation.

Pegasus - A cut scene and fly through creator that makes it easy to show off gorgeous environments and also drive characters through scenes with localised avoidance and mecanim animation support.

Learn more at our website here : <http://www.procedural-worlds.com/>

Tutorials, Chat, Ticketed Support

Thanks for purchasing Path Painter!

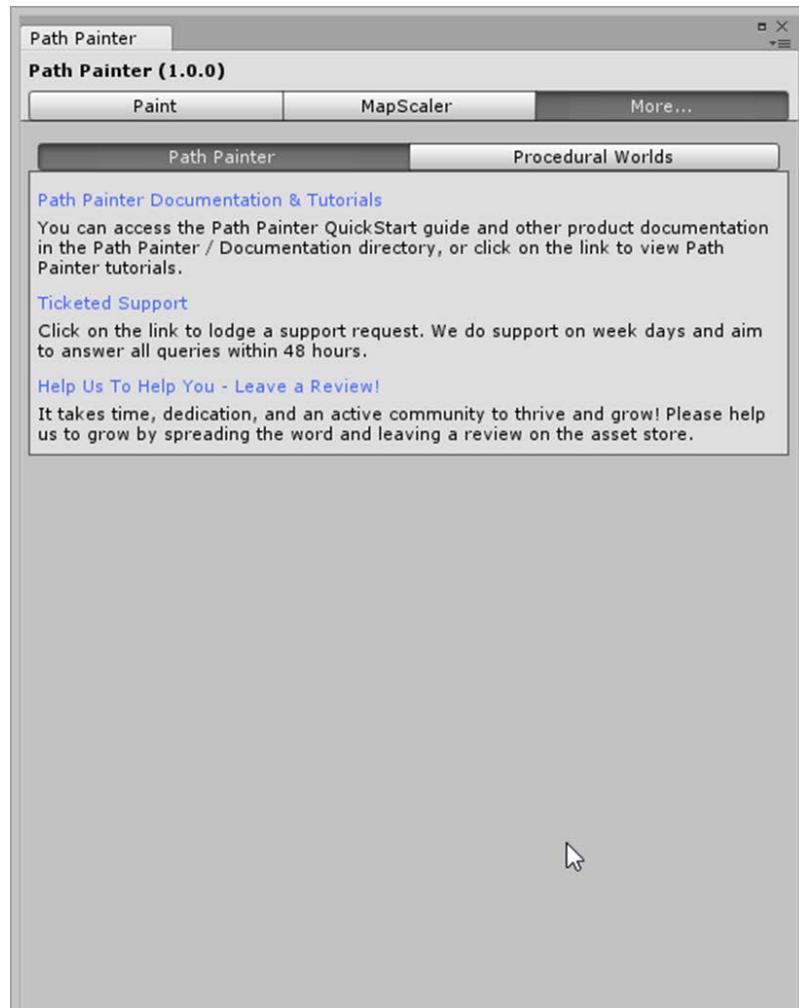
Sometime new tools can be a little overwhelming. To help you with this we have created an awesome support network for you. You can also get access to these links from the Path Painter menu in Unity.

Tutorials: <http://www.procedural-worlds.com/pathpainter/?section=tutorials>

Have A Chat: <https://discord.gg/rtKn8rw>

Lodge a Support Request: <https://proceduralworlds.freshdesk.com/support/home>

Quick access can be found at More... -> Path Painter in the Path Painter Window.

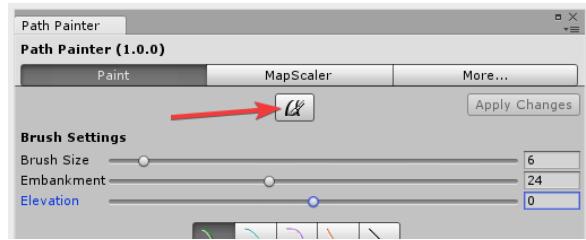


Quick Start

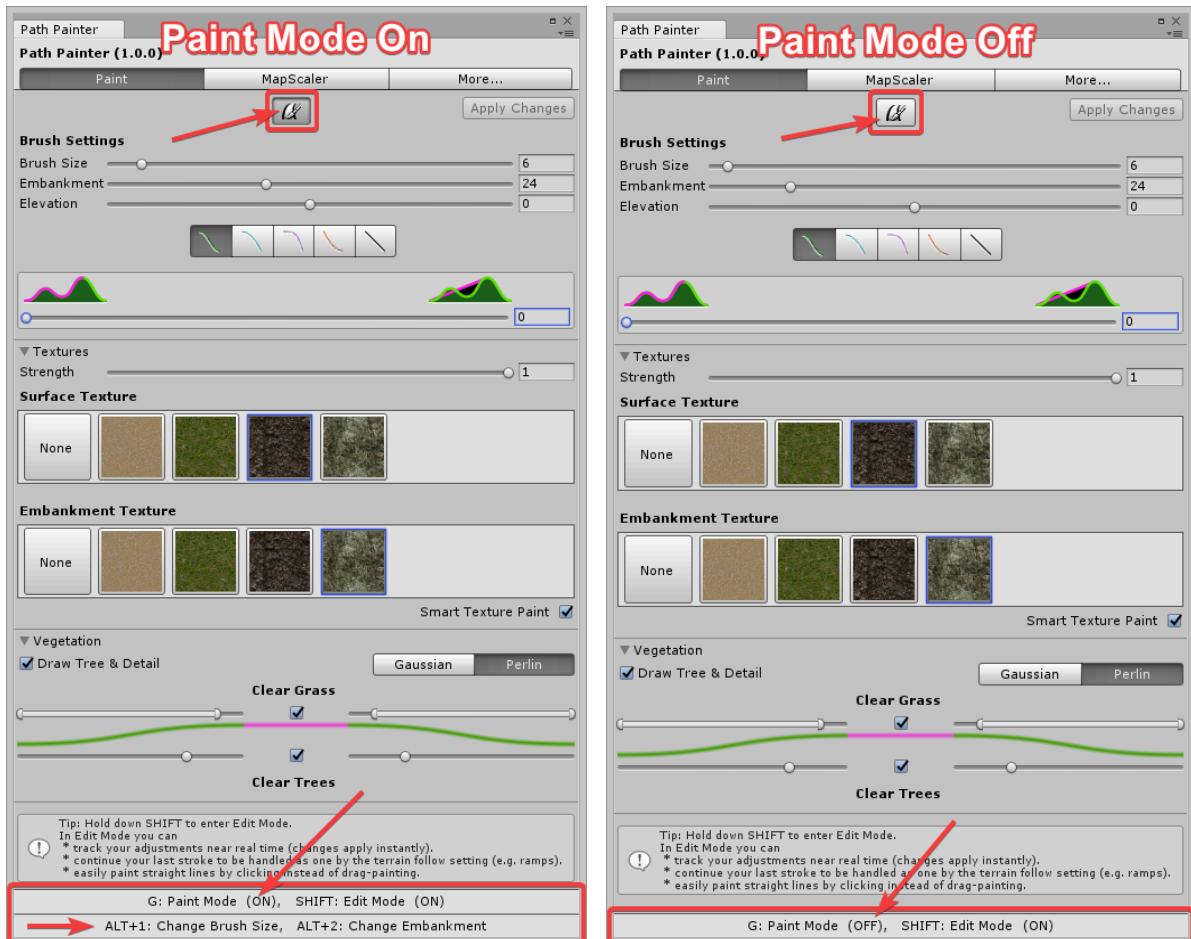
Path Painter States/Modes

Paint Mode

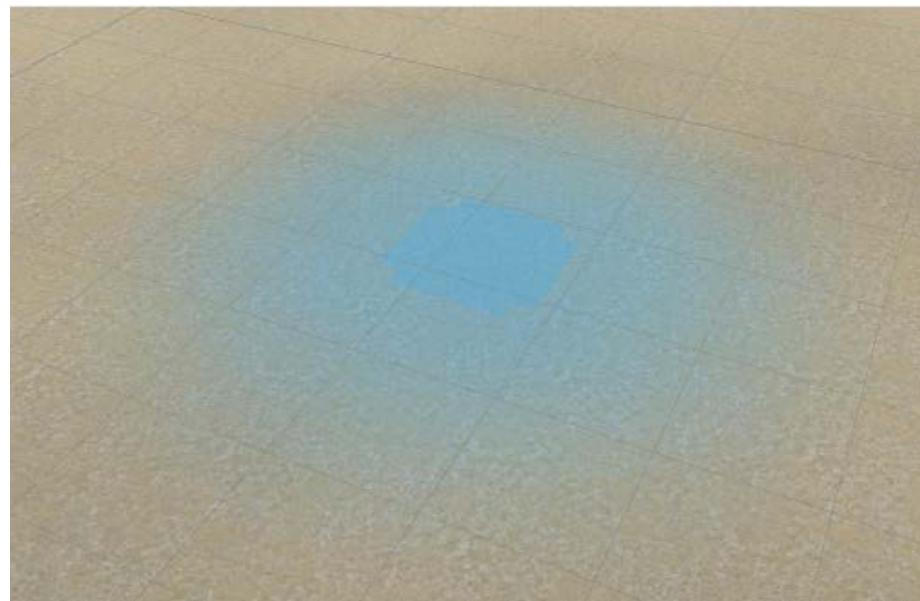
Painting is enabled in **Paint Mode**. You can enter paint mode by clicking the **Paint Button** or by pressing G.



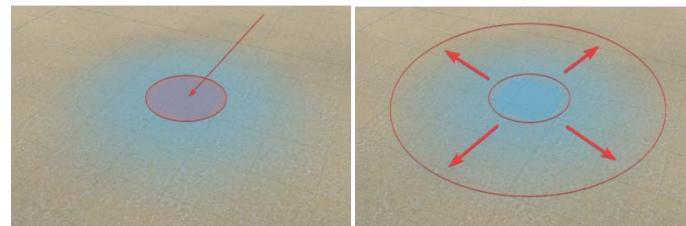
Both the button and the **Status Bar** shows when **Paint Mode** is active



and a brush visualisation will be visible on the terrain.

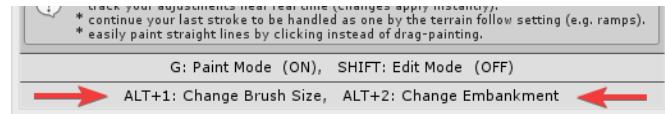


The visualisation displays both the surface and the embankment according to the settings.



The **Brush Size**, **Embankment Size**, and **Embankment Curve** are all visible on the visualisation.

In **Paint Mode** you can use hotkeys to [Change the Brush Size](#) and [Change the Embankment Size](#) in the Scene View. The **Status Bar** also displays this

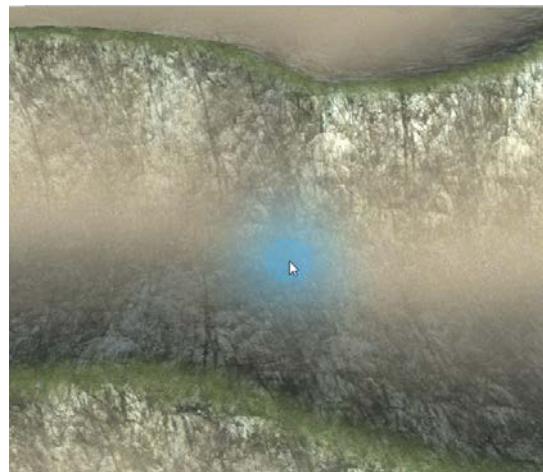


Changing Brush Size - in Scene View

Changing **Brush Size** in the Scene View can often come handy. Note: the same limits apply as in **Brush Settings** of the GUI.

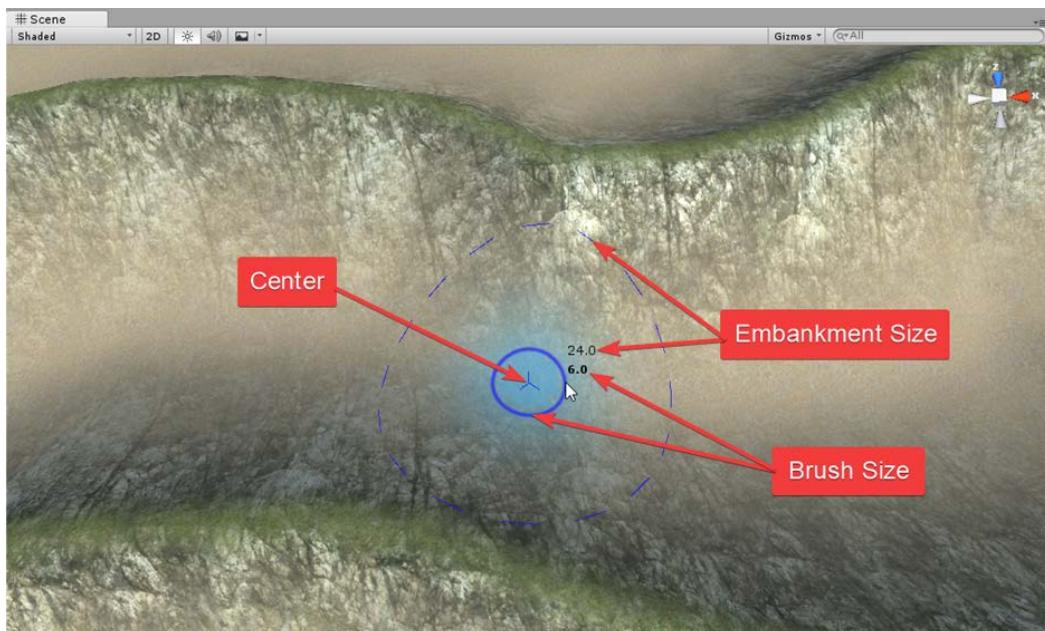
Press the appropriate hotkey (visible in the **Status Bar**) while

- the **Paint Mode** is active
- the **Scene View** is focused and
- the brush is visible on the terrain



When you hit the hot key the following will happen:

- The **Status Bar** updates.
A screenshot of the Unity Status Bar. It shows "G: Paint Mode (ON), SHIFT: Edit Mode (ON)". Below this, a red arrow points to the "LMB: Set, Esc/RMB: Cancel" button.
- Outlines of the brush appear.
- The mouse cursor snaps into place for the change.
- The current values will be displayed next to the mouse (**Brush Size** in bold).



As you move the mouse, **Brush Size** will update. You can now

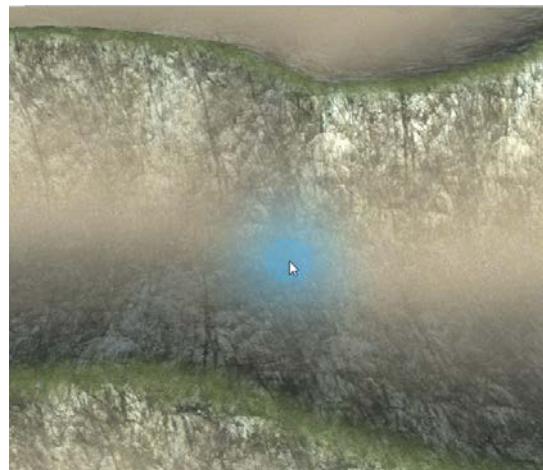
- set the **Brush Size** with the Left Mouse button once you are happy with it, or
- cancel with the Right Mouse button or by pressing Esc.

Changing Embankment Size - in Scene View

Changing **Embankment Size** in the Scene View can often come handy. Note: the same limits apply as in **Brush Settings** of the GUI.

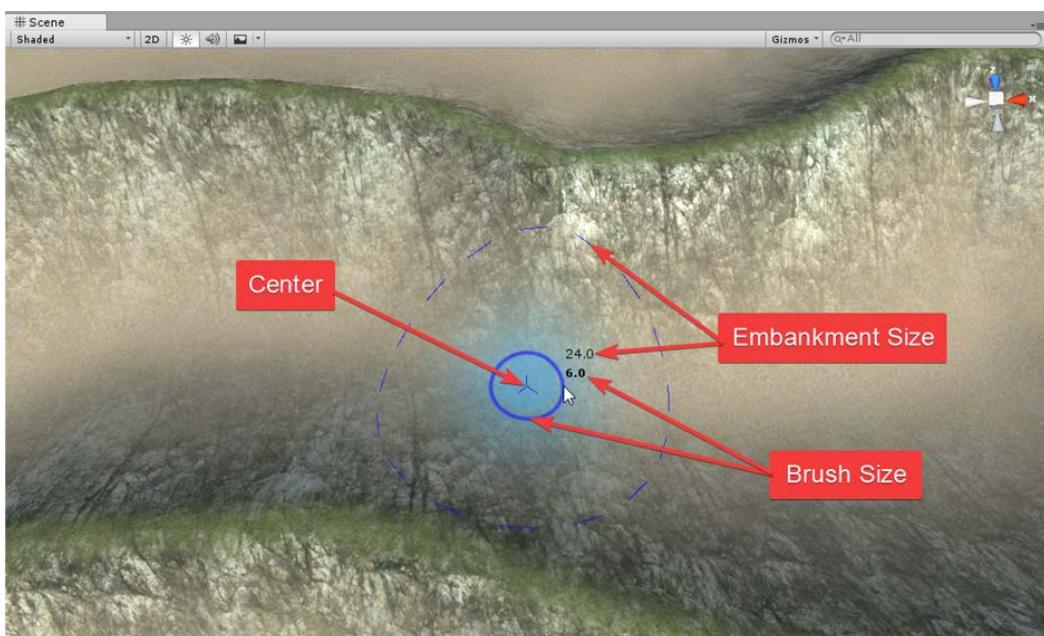
Press the appropriate hotkey (visible in the **Status Bar**) while

- the **Paint Mode** is active
- the **Scene View** is focused and
- the brush is visible on the terrain



When you hit the hot key the following will happen:

- The **Status Bar** updates.
A screenshot of the status bar at the bottom of the screen. It shows "G: Paint Mode (ON)" and "SHIFT: Edit Mode (ON)". Below this, a red arrow points to the text "LMB: Set, Esc/RMB: Cancel".
- Outlines of the brush appear.
- The mouse cursor snaps into place for the change.
- The current values will be displayed next to the mouse (**Brush Size** in bold).



As you move the mouse, **Embankment Size** will update. You can now

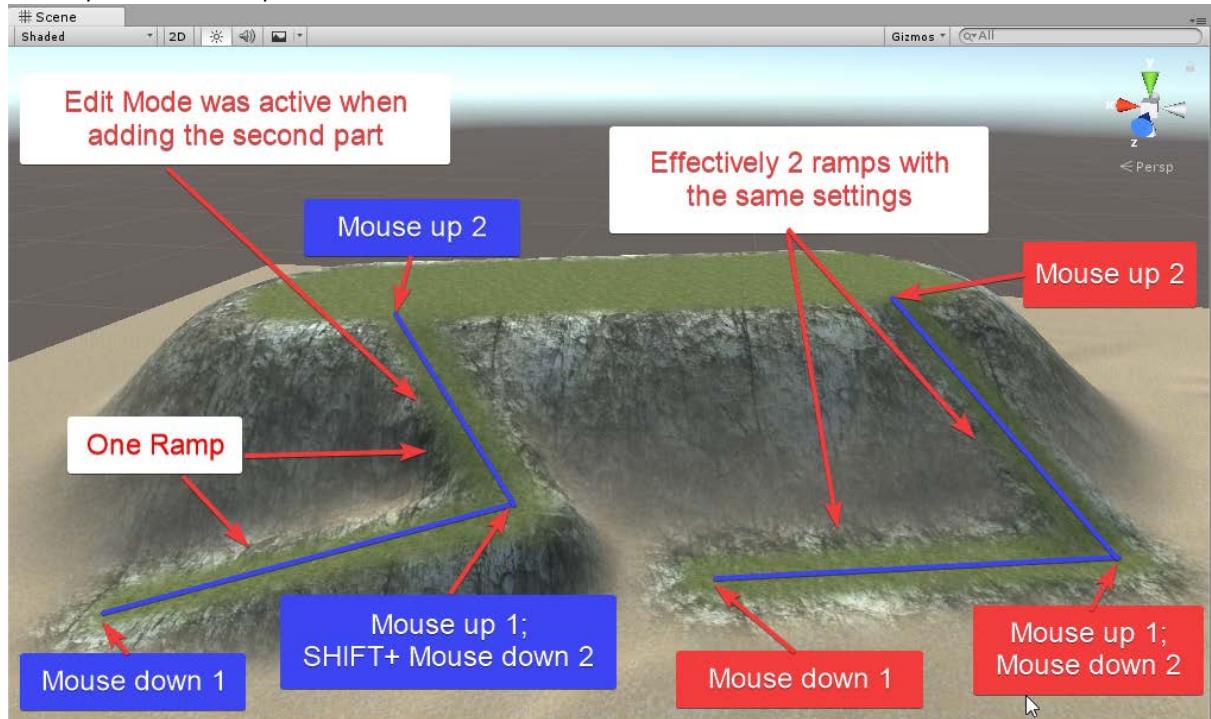
- set the **Embankment Size** with the Left Mouse button once you are happy with it, or
- cancel with the Right Mouse button or by pressing Esc.

Edit Mode

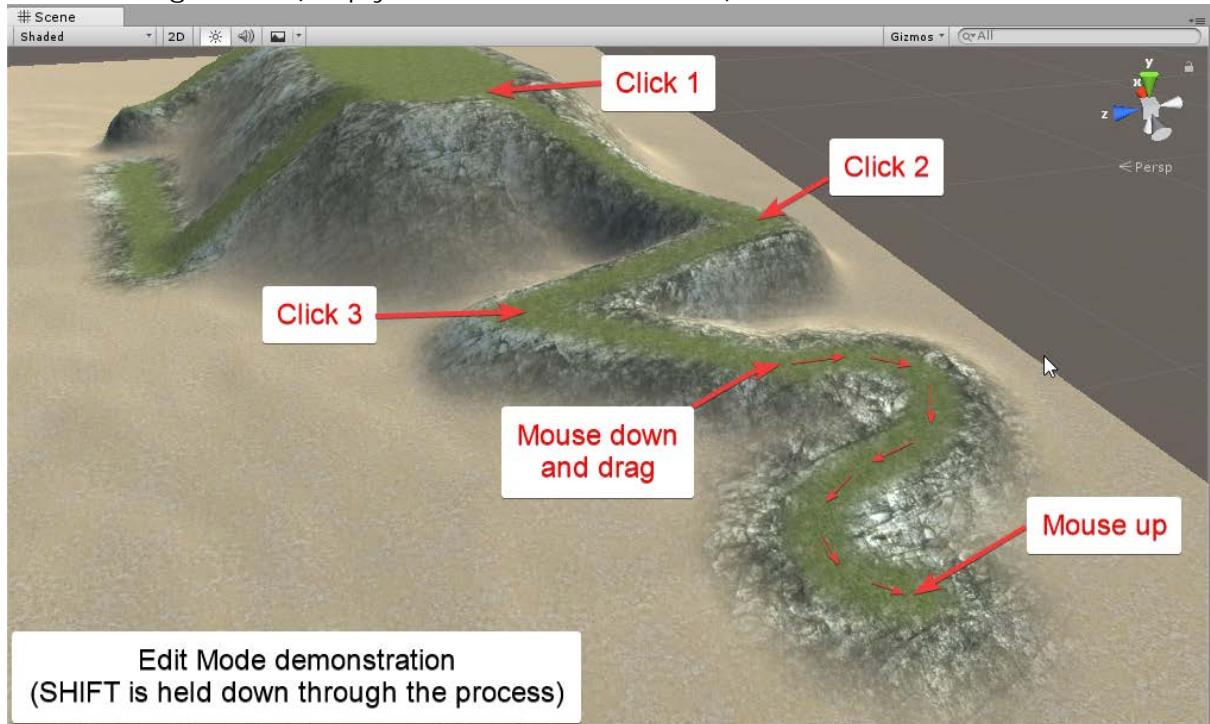
Edit Mode is a powerful feature of Path Painter. It modifies some of the functionality, like the *SHIFT* key on your keyboard. It's easy to remember this, because by default **Edit Mode** is mapped to the *SHIFT* key. It comes very handy when tweaking and when working on more complex, long paths, that need a lot of viewport navigation during creation.

Edit Mode can be used to

- Edit the active stroke and get live visual feedback.
- Add to the active stroke. This can be important when strokes are needed to be handled as one by the **Terrain Follow** setting (see **Brush Settings**). Good examples are ramps.



- Create straight lines (simply click while in **Edit Mode**)



Edit Mode applies if there is an active stroke and it does the following

- Instead of starting a new line, the active stroke is going to be continued.
- Adjustments are instantly applied to the active stroke without the need to push the **Apply Changes** button.

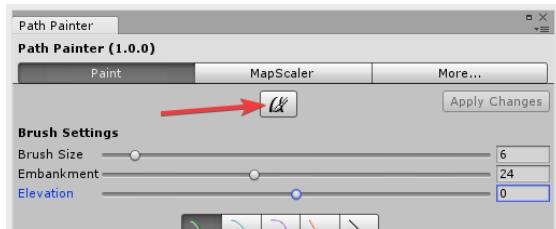
Introduction Workflows

Note: These examples don't cover a lot of traditional path creation techniques. Their aim is to help the user understand how Path Painter works. After completing these, the user will be familiar enough with Path Painter to create any kind of paths.

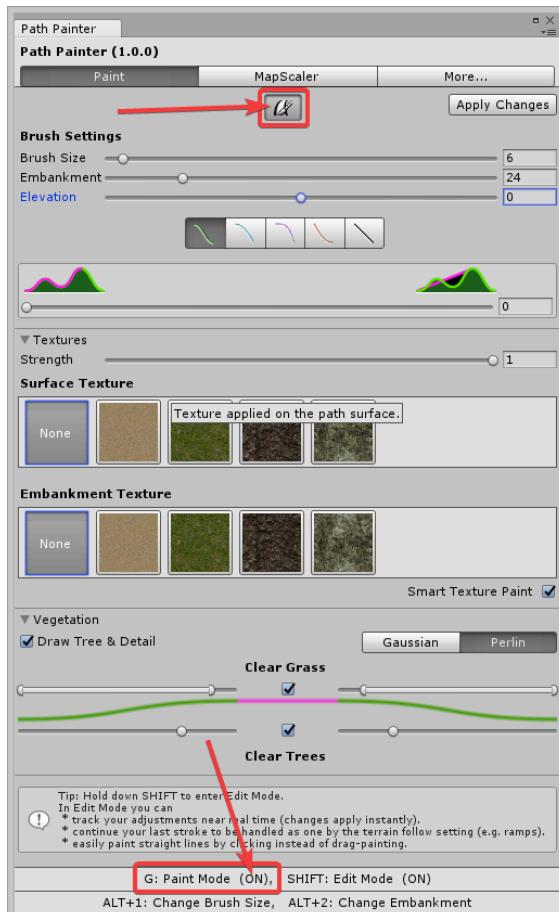
The first path

In this example we are going to be working on the *Demo Terrain* found in the *Demo* folder of the package.

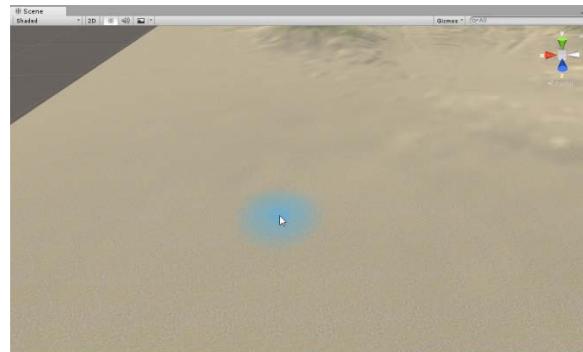
After opening Path Painter activate **Paint Mode** by pushing the button (or press G).



Both the button and the **Status Bar** will update to show that **Paint Mode** is active.



The brush will also be visible on the terrain

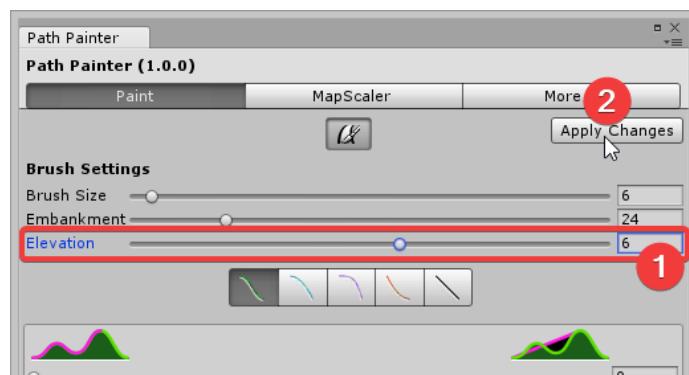


1. Now click on the terrain. - Nothing major will be visible on a flat terrain, but clicking does create a levelled flat surface and it can be used to create terrace spots.

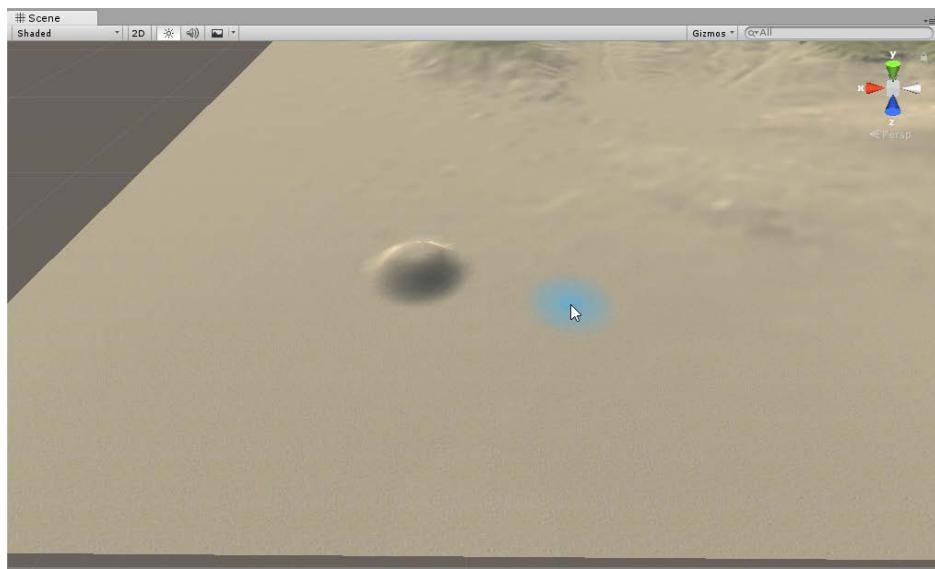


Back to our Demo terrain:

2. Set **Elevation** to **6** and press **Apply Changes**.



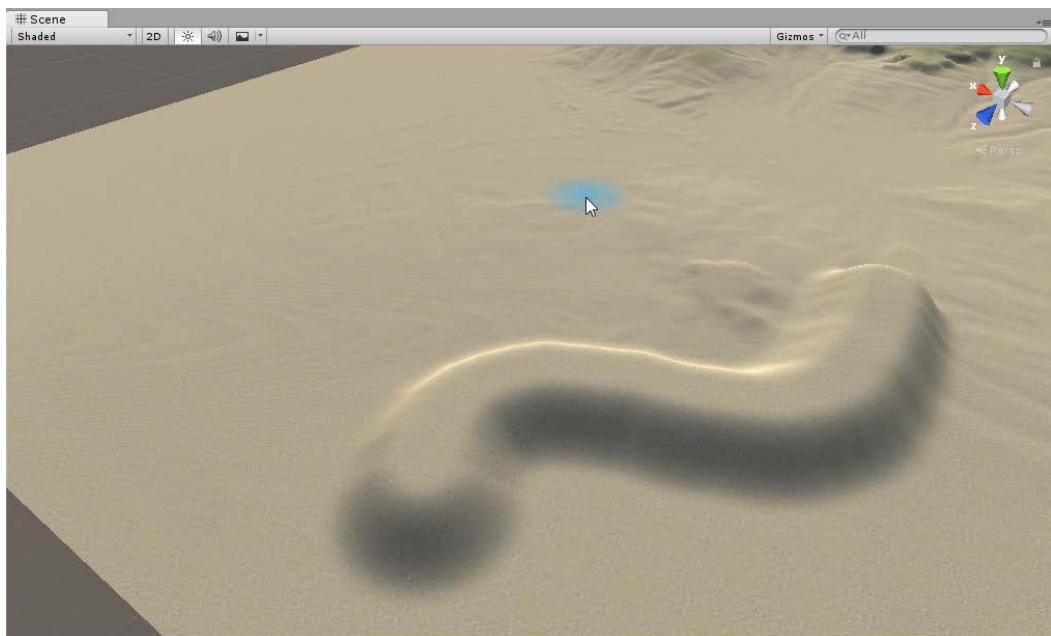
Congratulations! You created your first little hill.



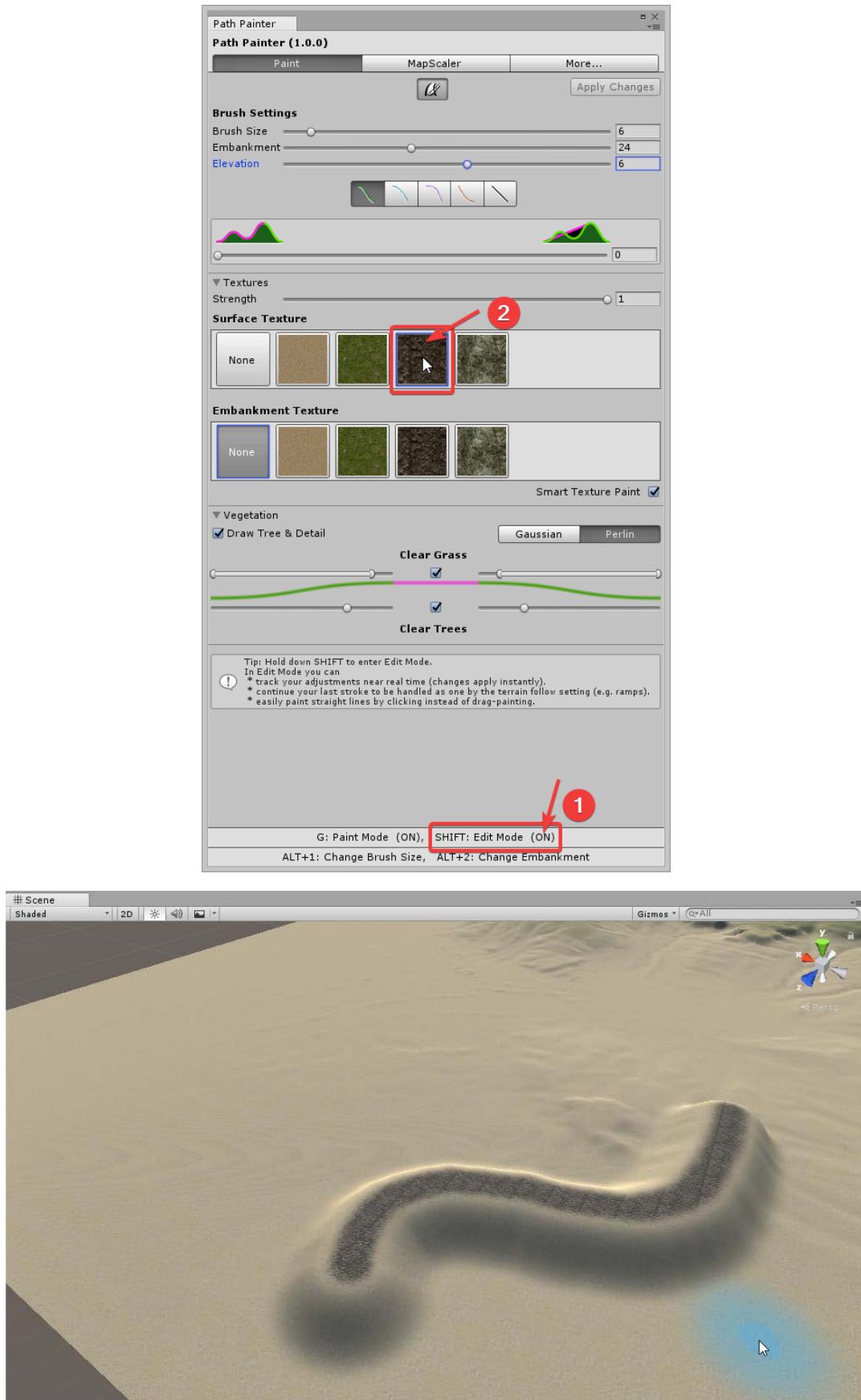
3. Let's get rid of it. Press **CTRL+Z**. You can find yourself doing this often.

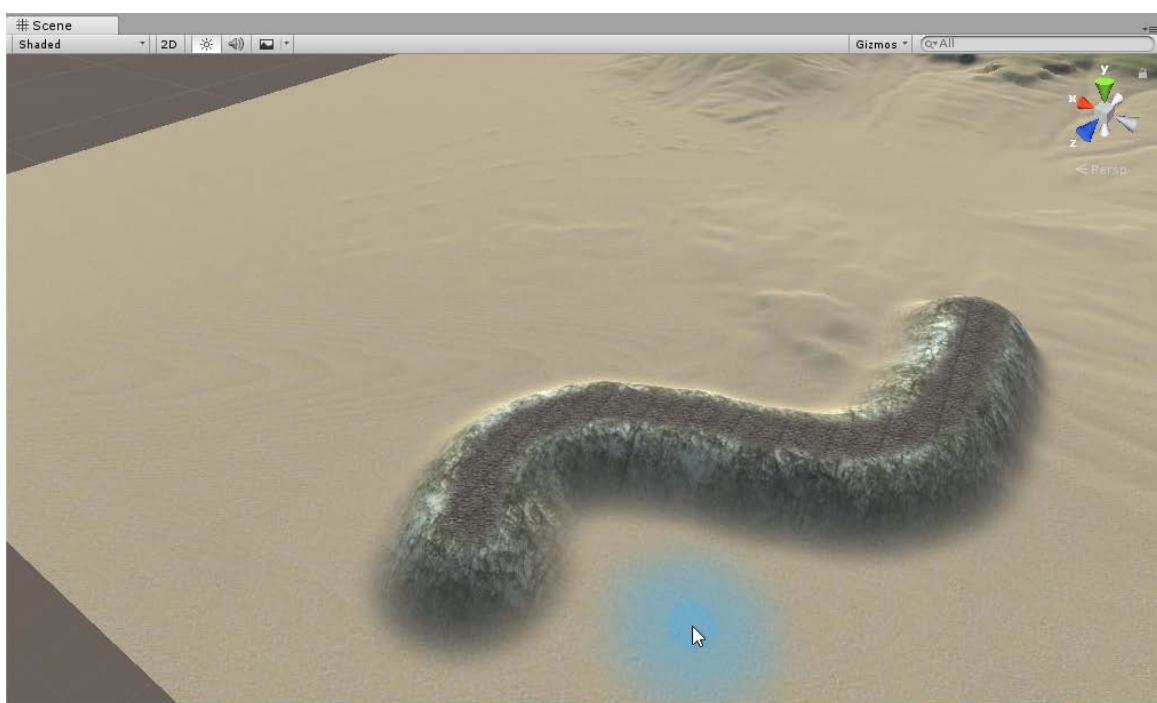
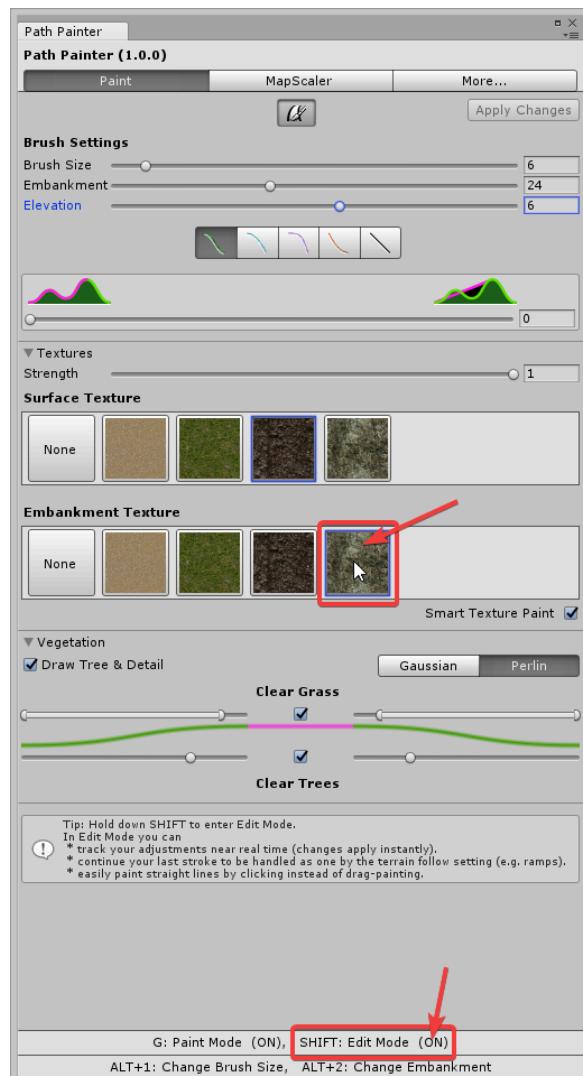
1. First painting a quick prototype to tweak your settings to what you want to do next.
2. Removing the prototype
3. And painting the paths you had in mind.

4. Now paint a line.



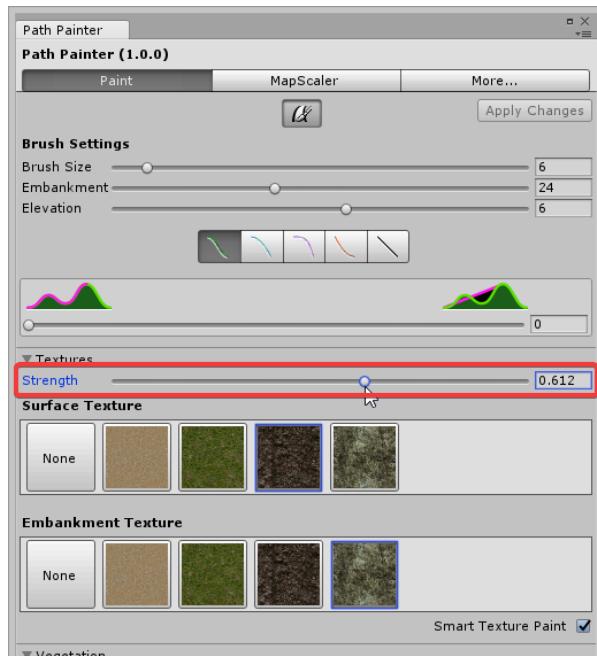
5. Let's add textures and use **Edit Mode** this time (hold down **SHIFT**) to avoid getting repetitive strain injuries from clicking the **Apply Changes** button all the time.



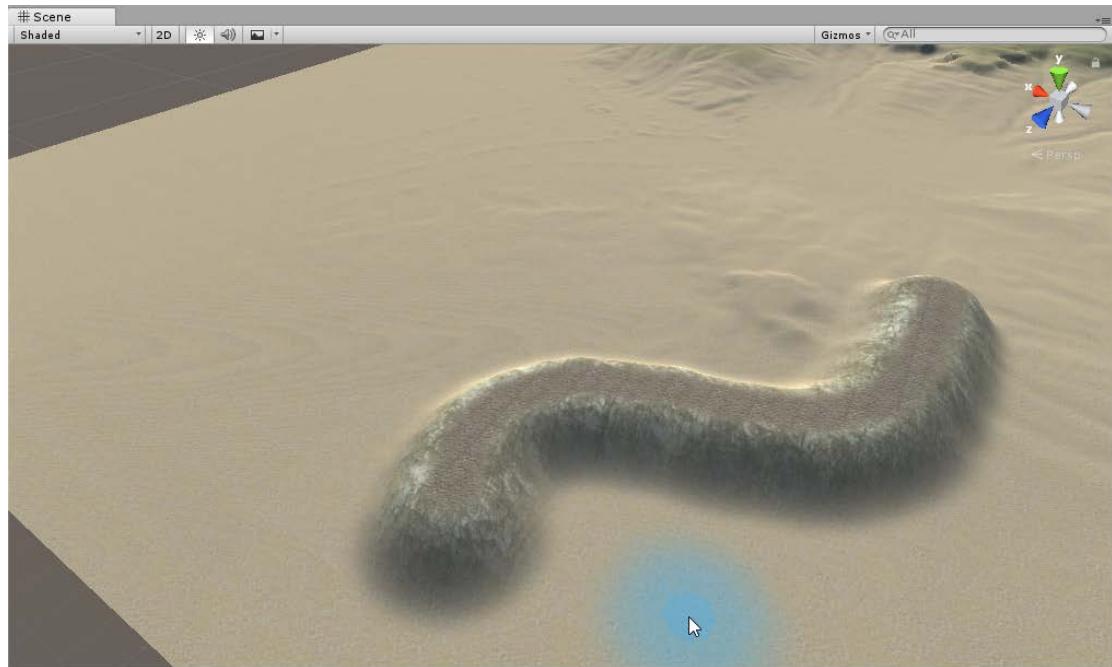


Well done.

6. Play with the **Texture Strength** slider to see what it does. Do this in **Edit Mode** to get live feedback.

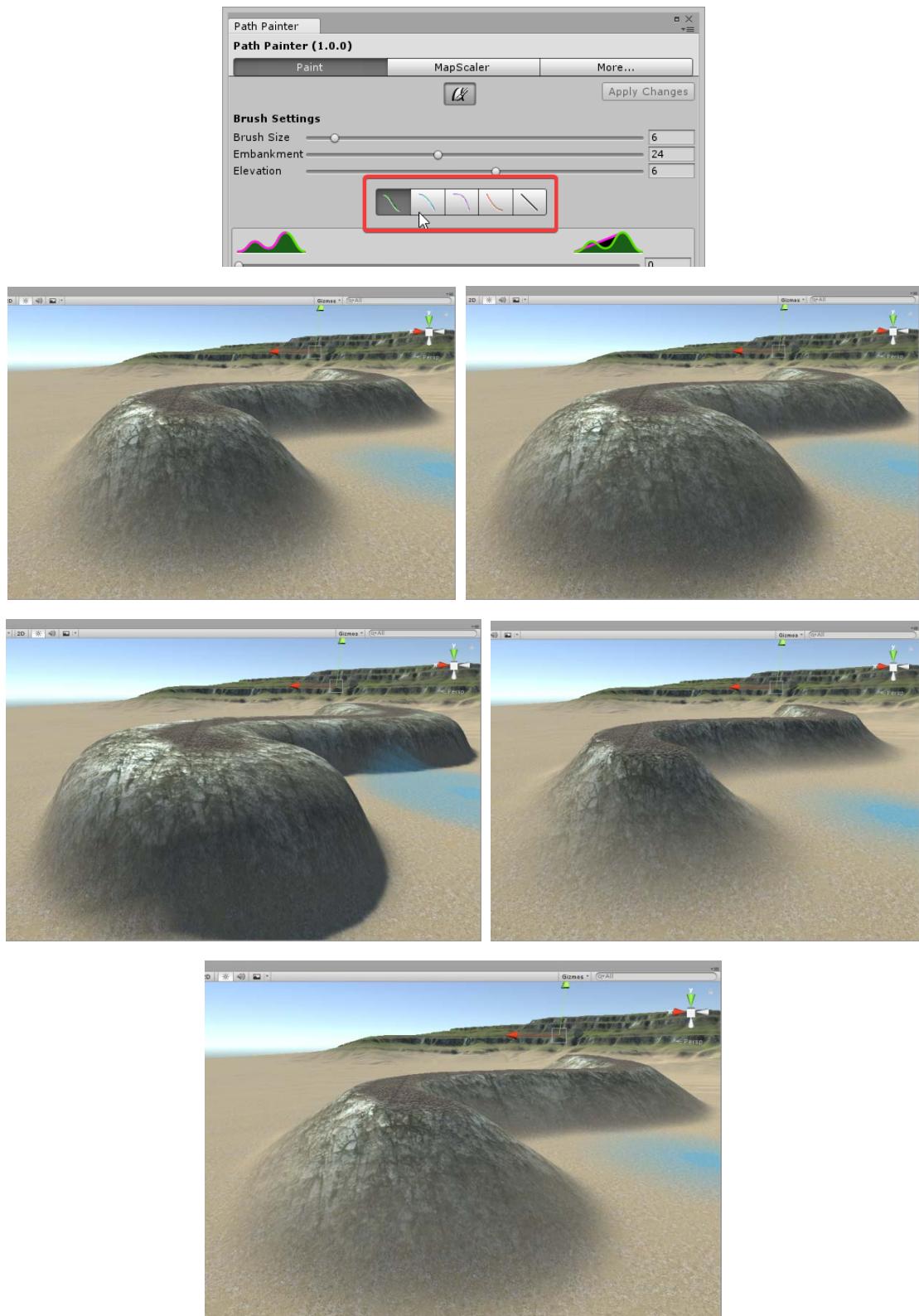


Hold down **SHIFT** to enter Edit Mode - you will see the Status Bar update



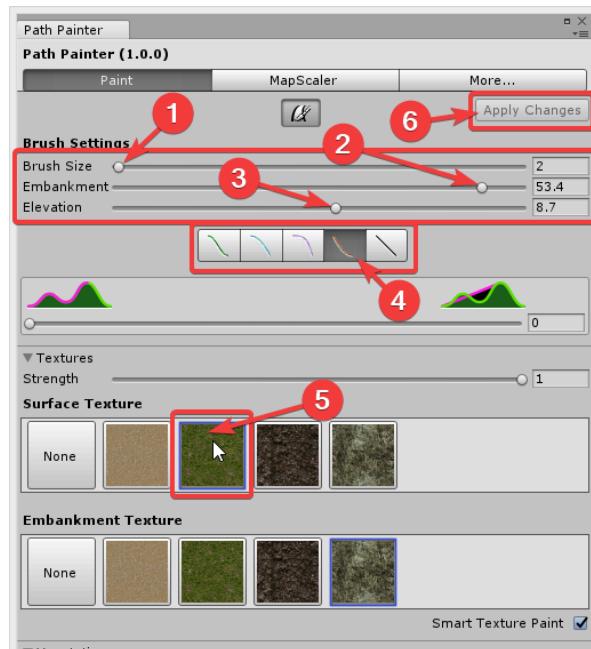
Set it back to 1 when you are done with it.

6. Play with **Embankment Curves** to see what they do. (Do this in **Edit Mode**).

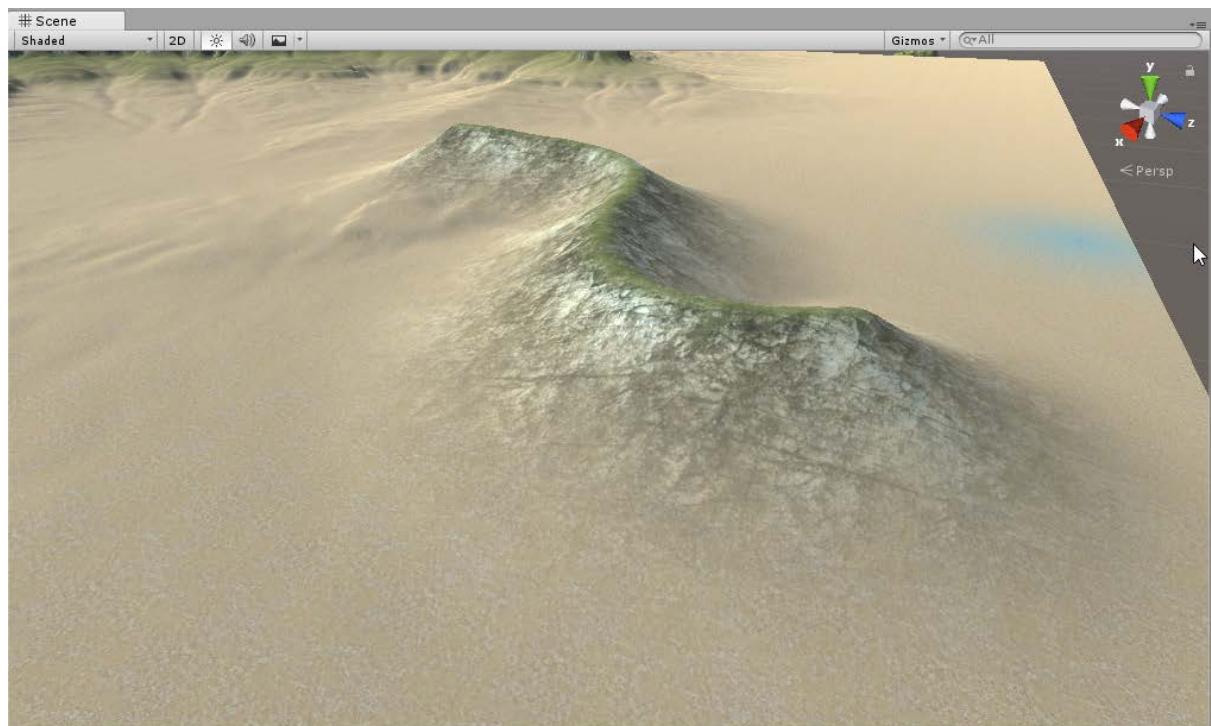


7. Change a few setting and see what we get. This time we will do the changes and apply them all at once. Set

1. Brush Size: 2
2. Embankment Size: 50 - 55
3. Elevation: 8 - 9
4. Embankment Curve: Sharp (second from the right)
5. Surface Texture: Grass texture
6. And click Apply Changes.



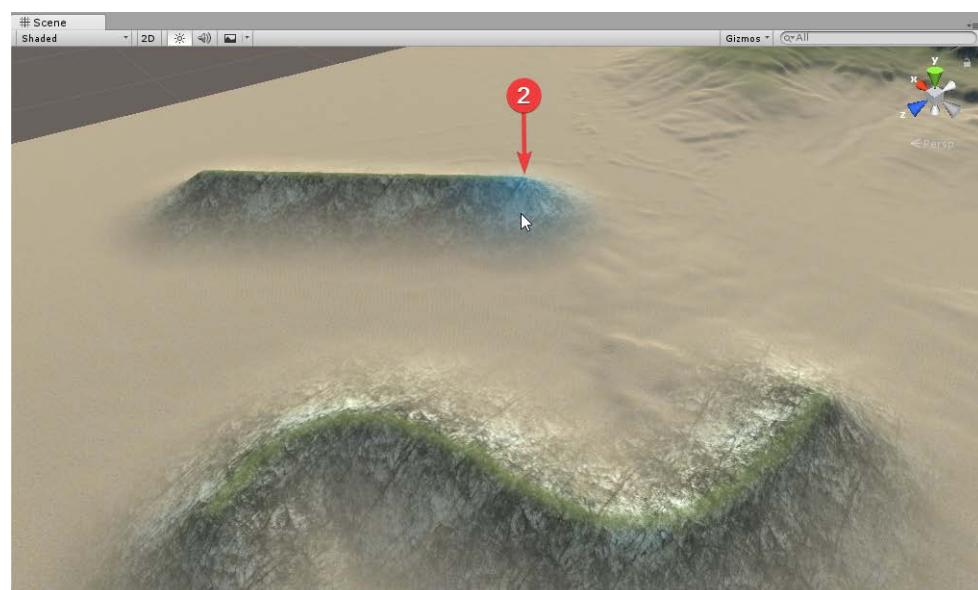
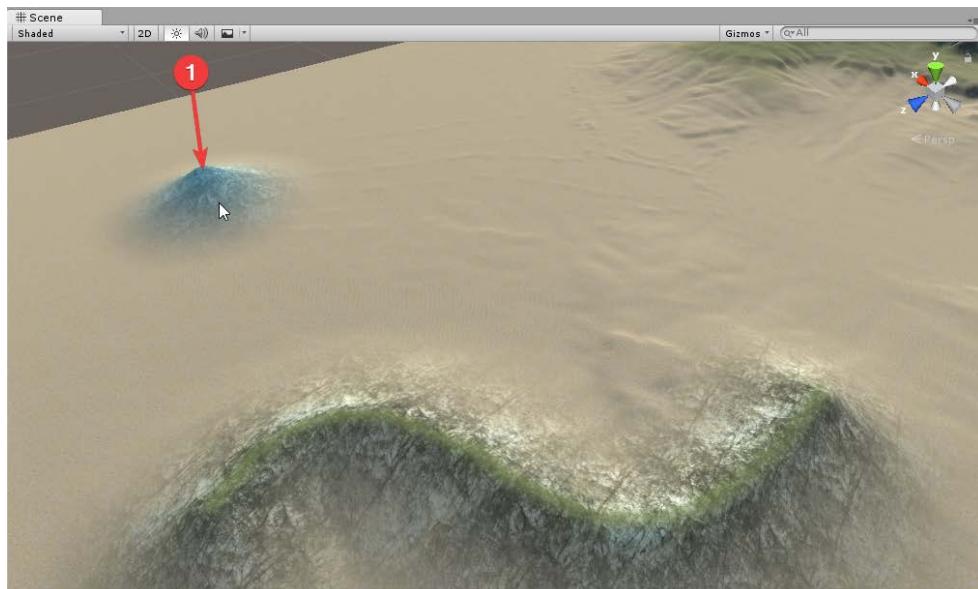
The result:



Ramps, Straight Lines, Mixed Lines

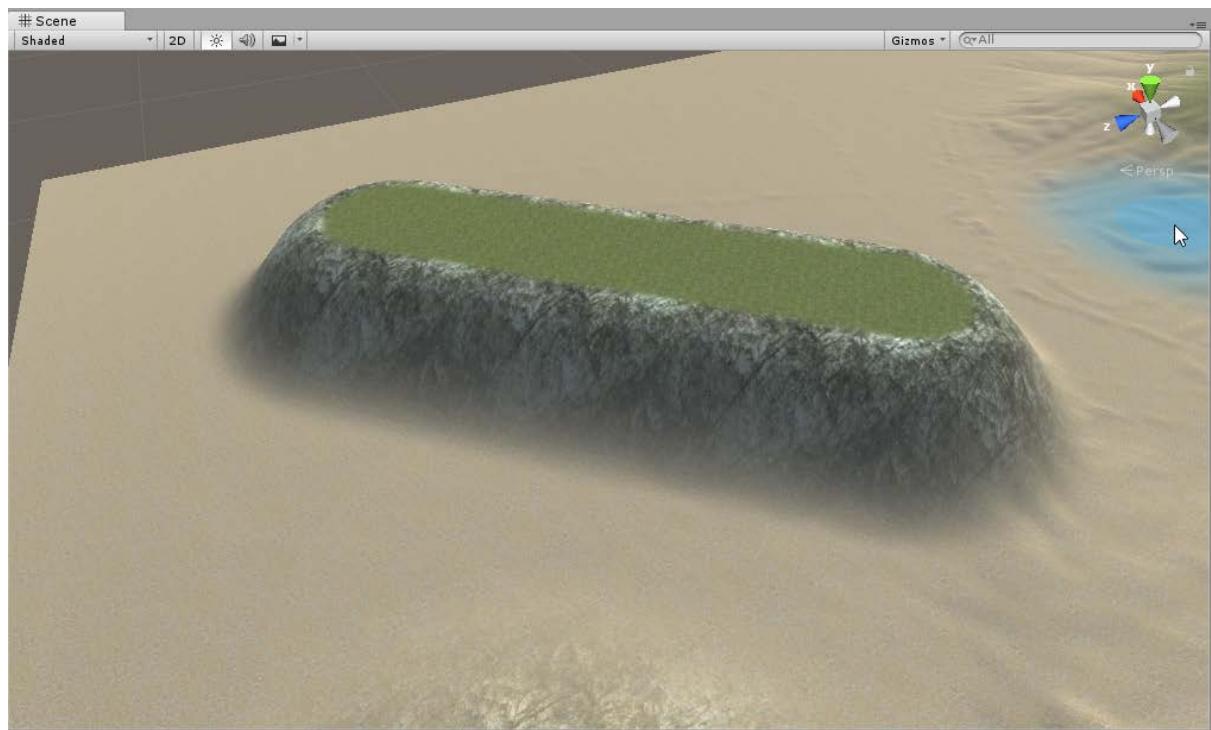
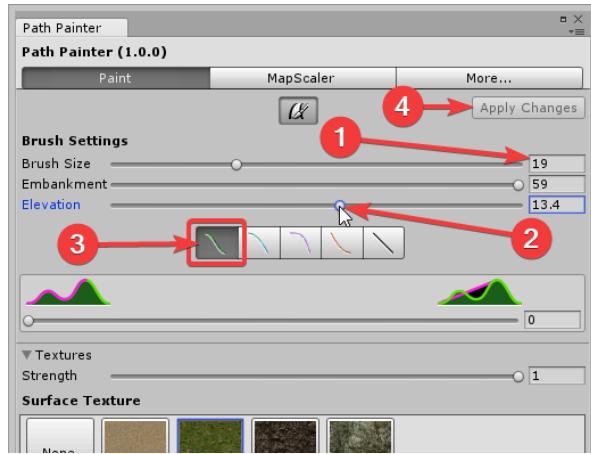
In this example we are going to be working on the *Demo Terrain* found in the *Demo* folder of the package.

1. Create a straight line by clicking a start and end point on the terrain in **Edit Mode** (We are adding to a point to get a straight line).



2. Update the line:

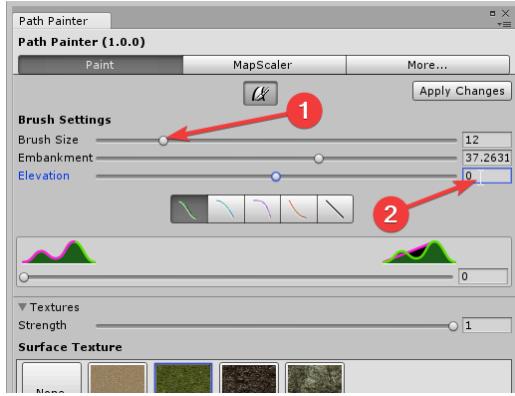
1. Brush Size: 19 (Embankment Size gets maxed out automatically)
2. Elevation: 13-14
3. Embankment Curve: Smooth (first on the left)
4. And click Apply Changes.



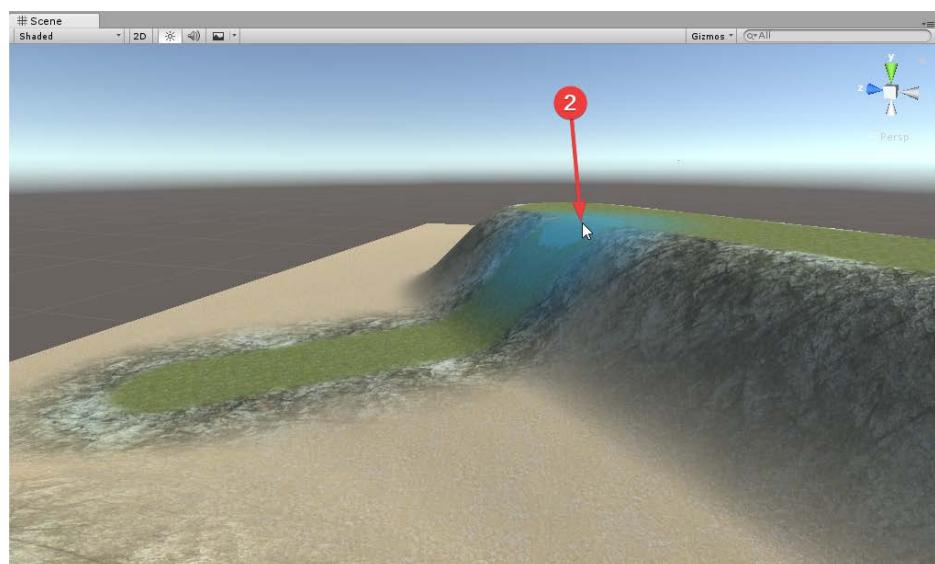
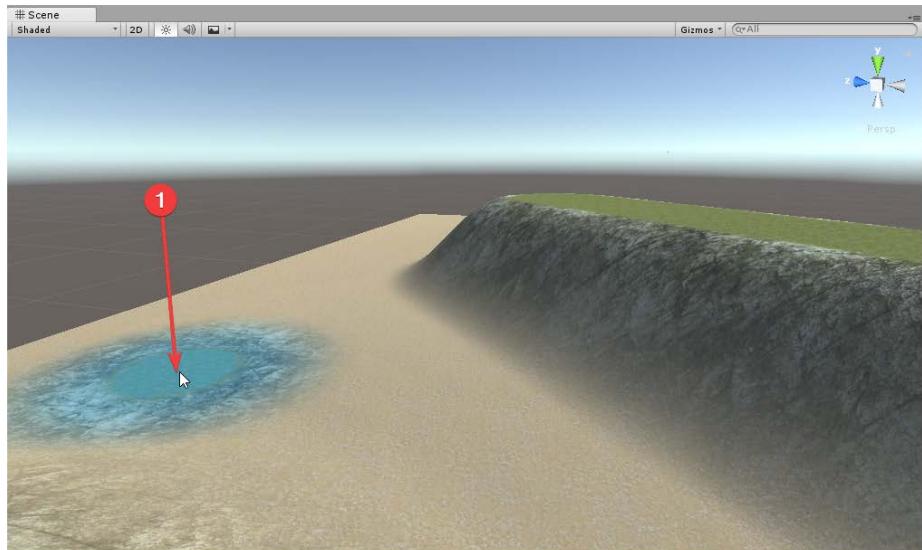
3. Creating a ramp - first step. Set

1. **Brush Size:** 12 (Embankment Size updates automatically)
2. **Elevation:** 0

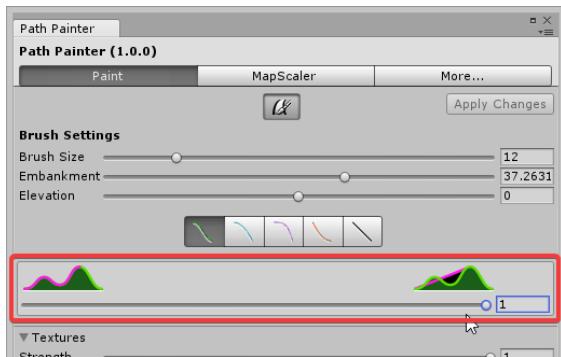
Do not Apply Changes. These settings are for the next path.



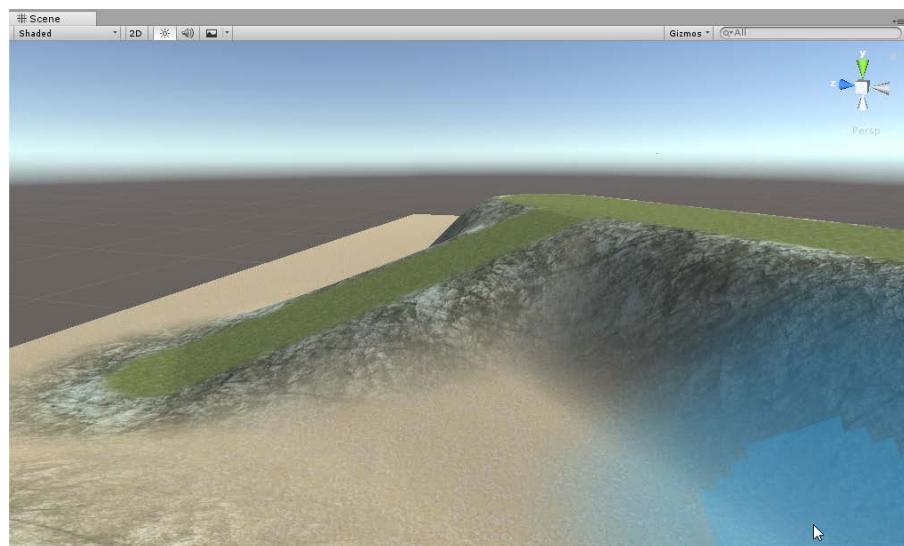
and paint a straight path up to the last one



4. Play with the **Terrain Follow** setting to see how it works and leave it at a setting you like. In the rightmost, even slope position



this is what the path will look like:

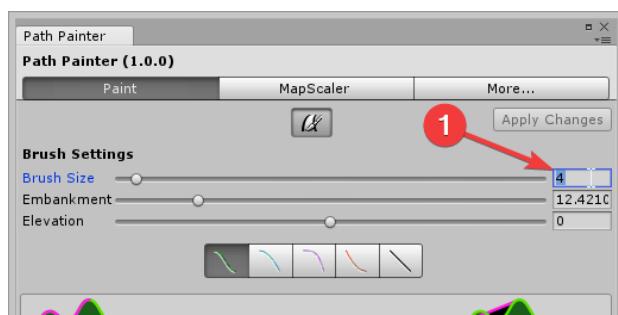


Adding to Paths

In this example we are going to be working on the *Demo Terrain* found in the *Demo* folder of the package.

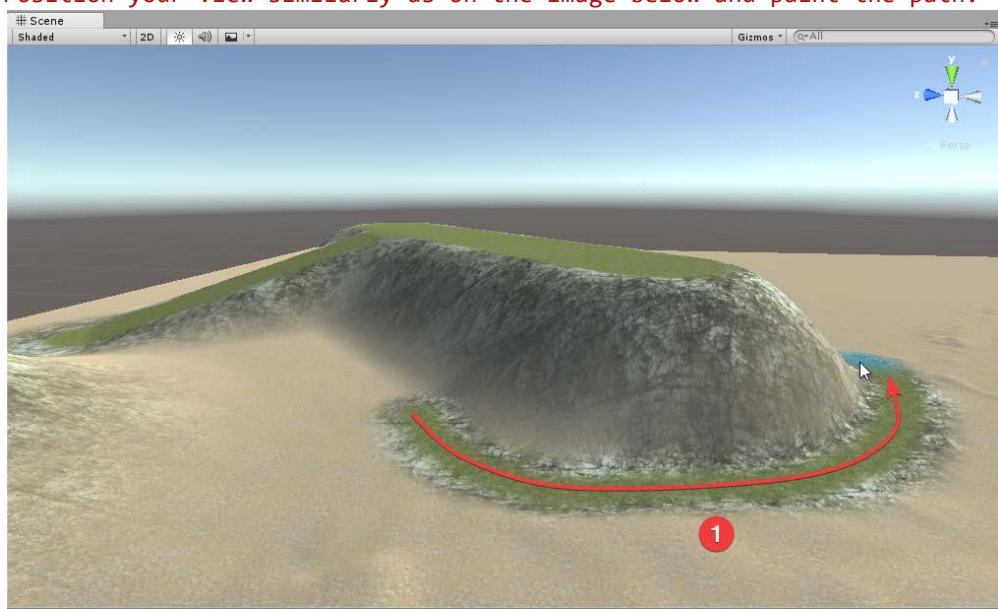
In the next steps we are going to look at when adding to a line comes especially handy. We are going to create a ramp with and without **Edit Mode** activated. In the first scenario we are going to try without using **Edit Mode**. We could fairly easily handle this example situation without **Edit Mode** by using the correct angle of view, but in real life scenarios this can be increasingly difficult.

1. Setup for thinner paths. Set **Brush Size** to 4.

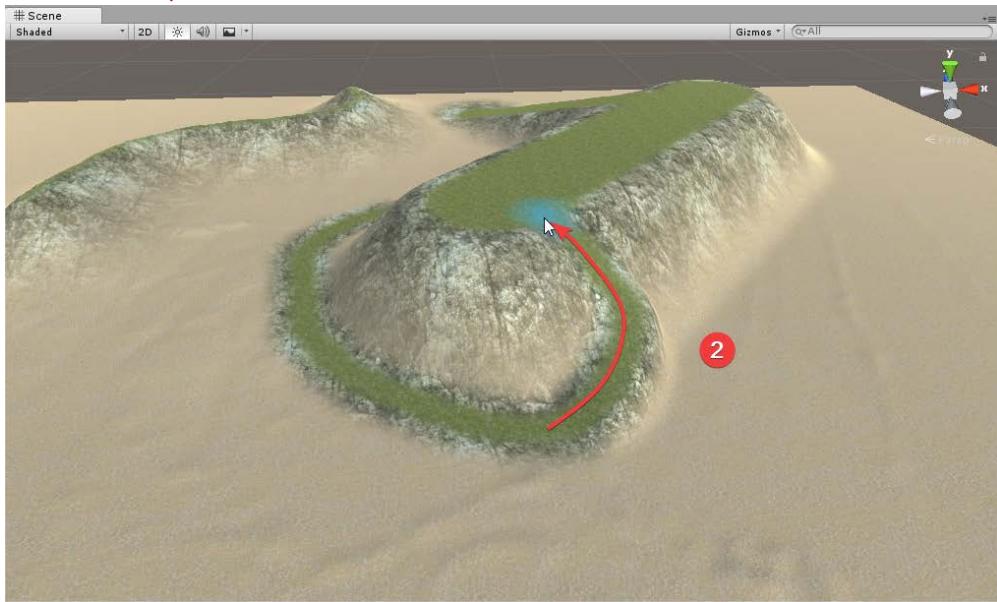


2. Painting the path in two.

1. Position your view similarly as on the image below and paint the path.



2. Now you will need to rotate your camera to see the other side and paint the rest of the path.



Notice where the actual ramp starts. In some cases this is not desirable, especially if the ramp ends up too steep.

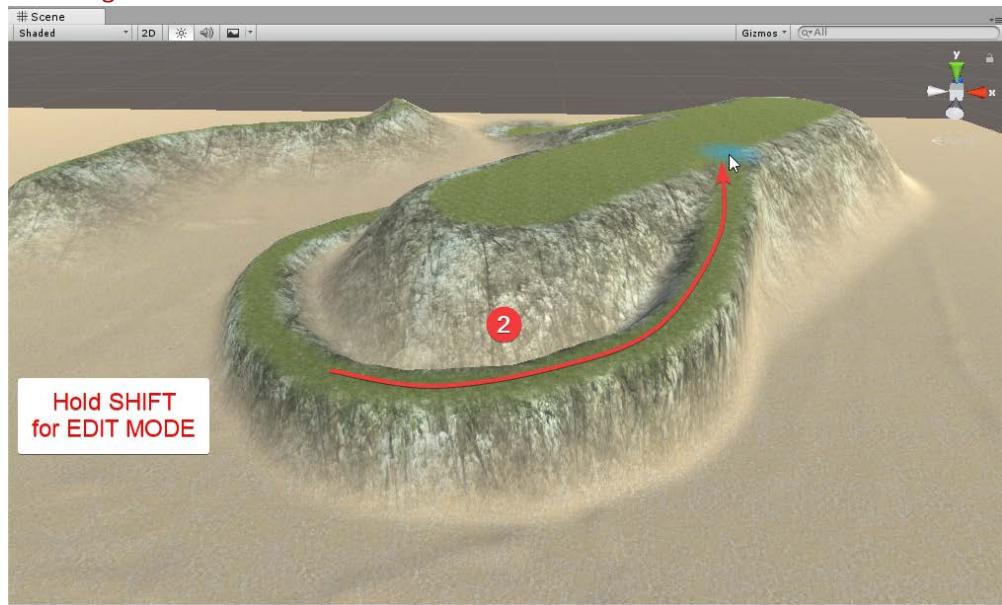
3. Use **CTRL-Z** twice to undo this before we try to do the same in [Edit Mode](#).

2. Now let's imagine that we wanted the previously painter path to be a single ramp but the need to rotate the view made this difficult if not impossible.

1. Position your view similarly as on the image below and paint the first section of the path again.

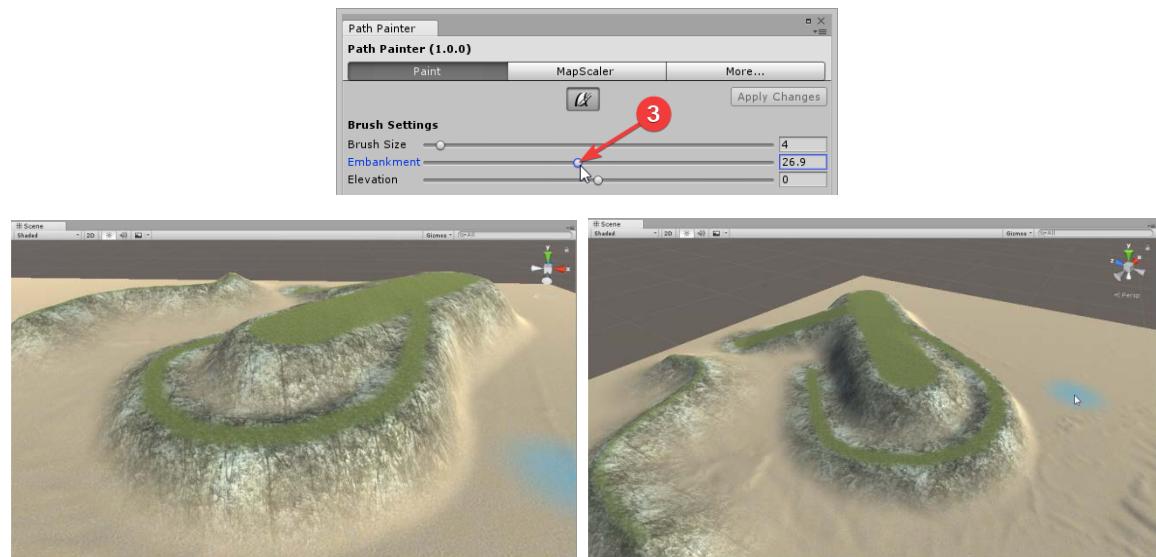


2. Rotate your camera to see the other side and paint the rest of the path, but this time hold down **SHIFT** for **EDIT MODE** to add to the first path instead of starting a new one.



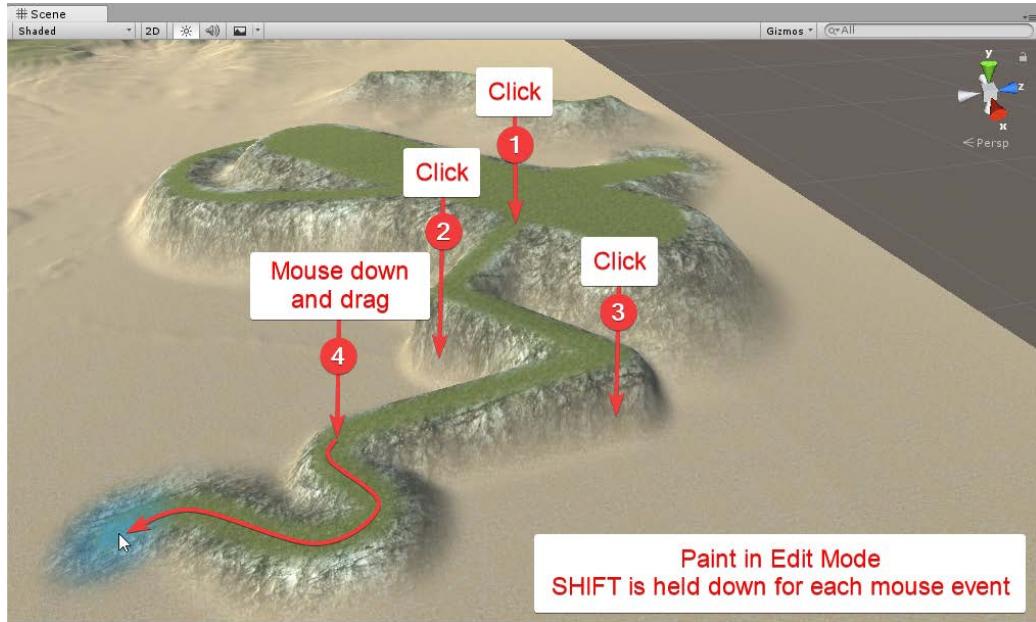
This time the whole path is a single ramp and it will be an easy walk up for characters.

3. You can increase the **Embankment Size** to make it seem like it's part of the feature.

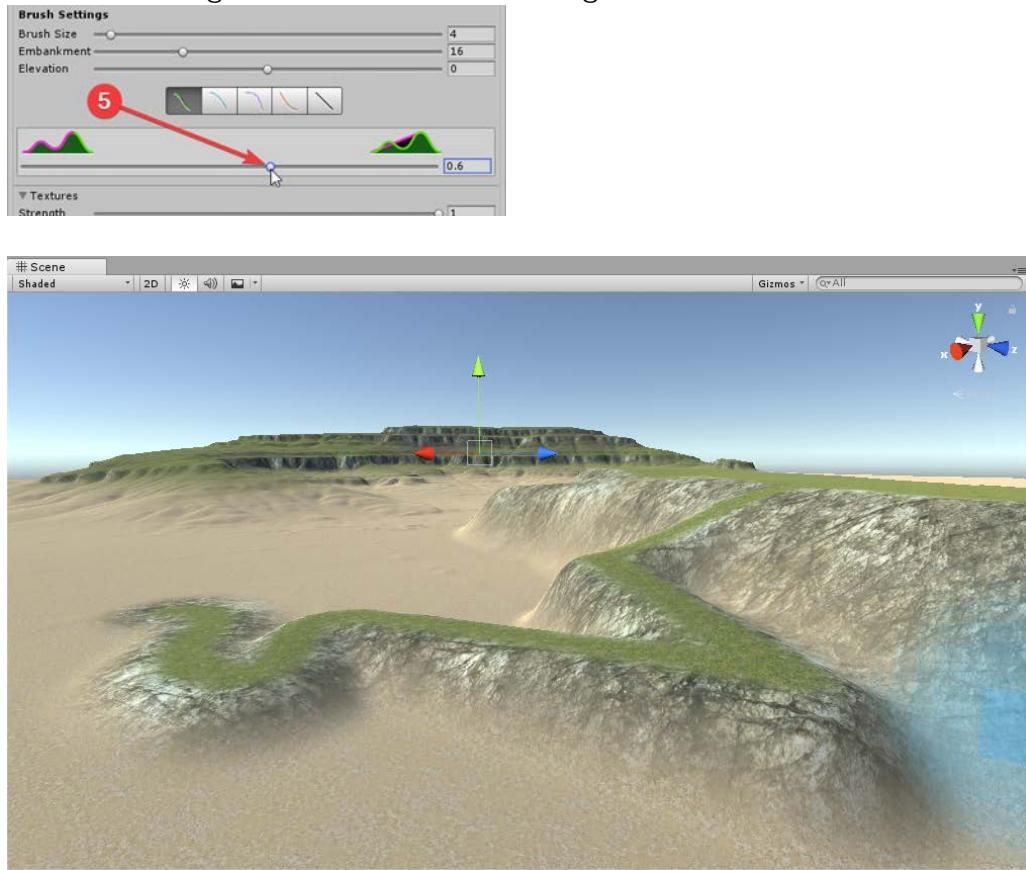


Creating a mixed (straight and curved) path.

1. Set the Embankment Size to 16 (don't Apply Changes).
2. Hold down SHIFT to add all the sections

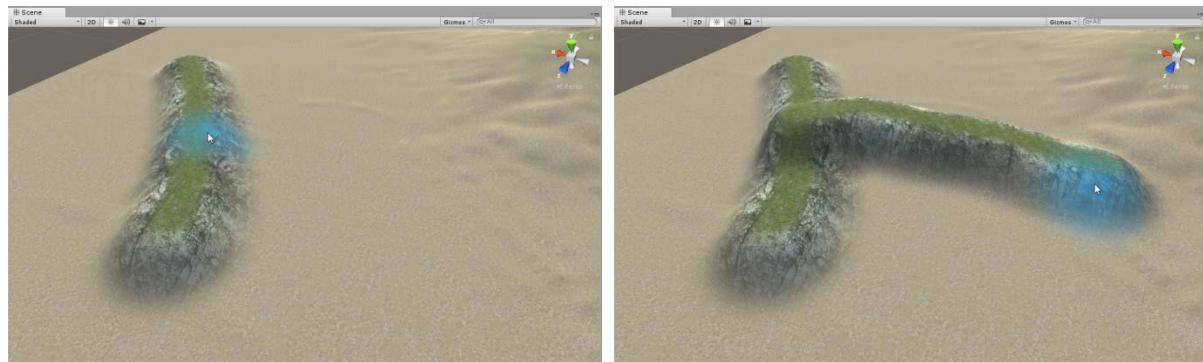


3. You can change the **Terrain Follow** setting to



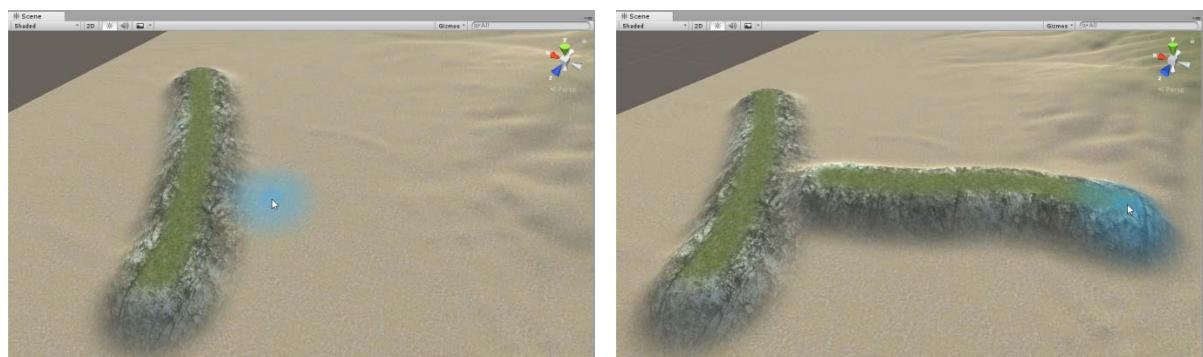
Connecting Elevated Paths, Riverbeds

Path Painter was created to paint. In this sense an existing elevated (or lowered) path/riverbed is just part of the canvas and the next path will apply its elevation according to this.

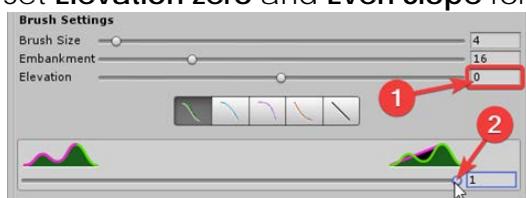


There are plans to improve this in the future. It's easy to get around this in the meantime. Even slope to the rescue! (CTRL-Z to Undo if you followed along)

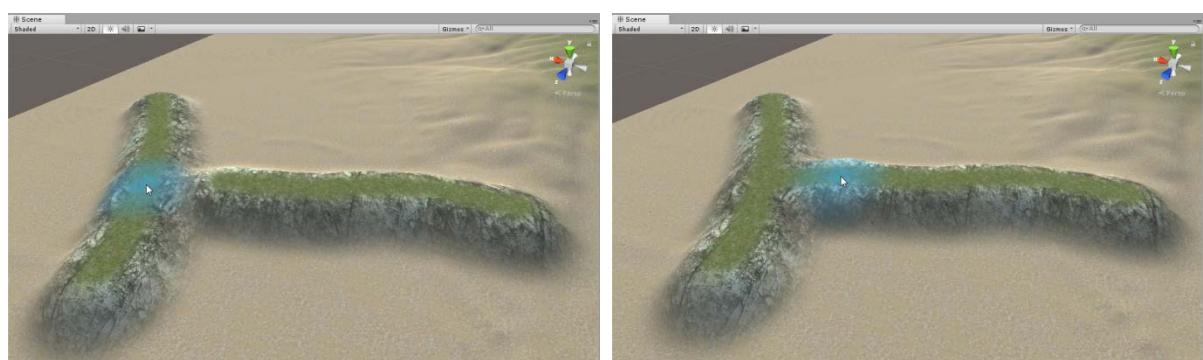
1. Create the paths so they don't cross one another.

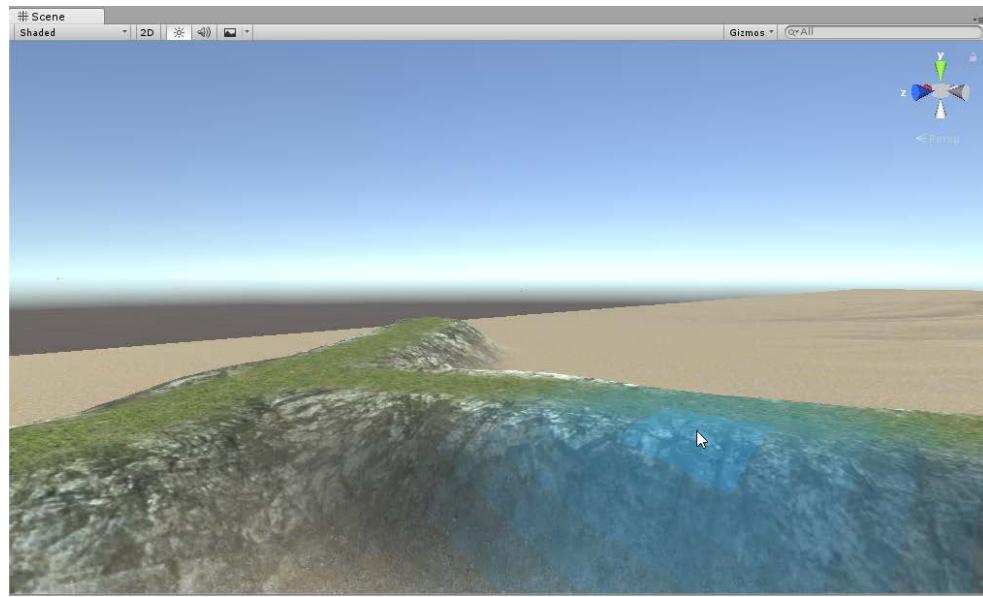


2. Set Elevation zero and Even Slope for your next step.



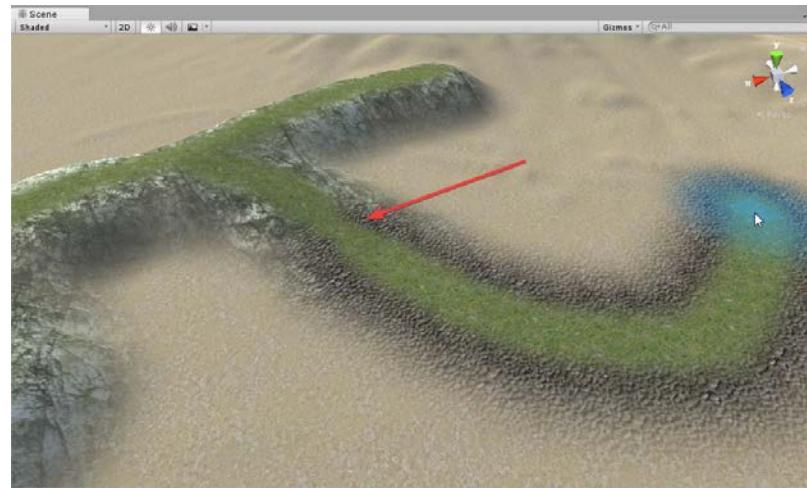
3. Connect the paths with this setting





Blending Embankment Textures

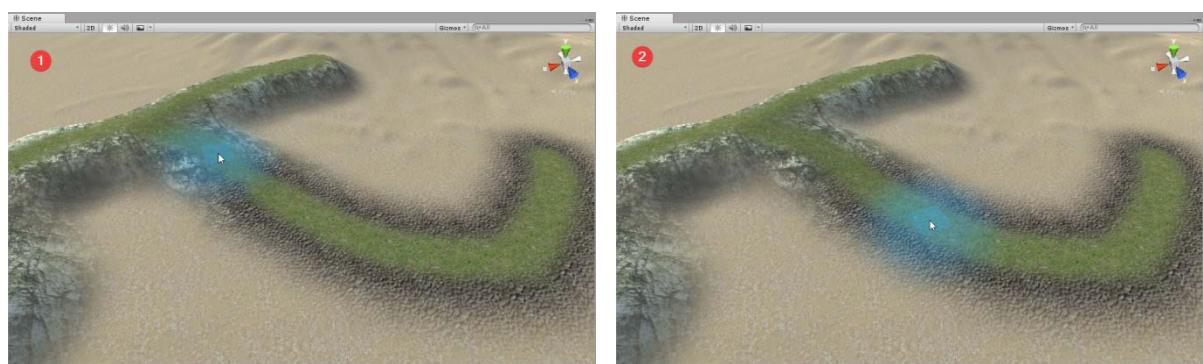
When a paths switch to a different embankment texture, a little blending can become necessary.



This can be easily achieved.

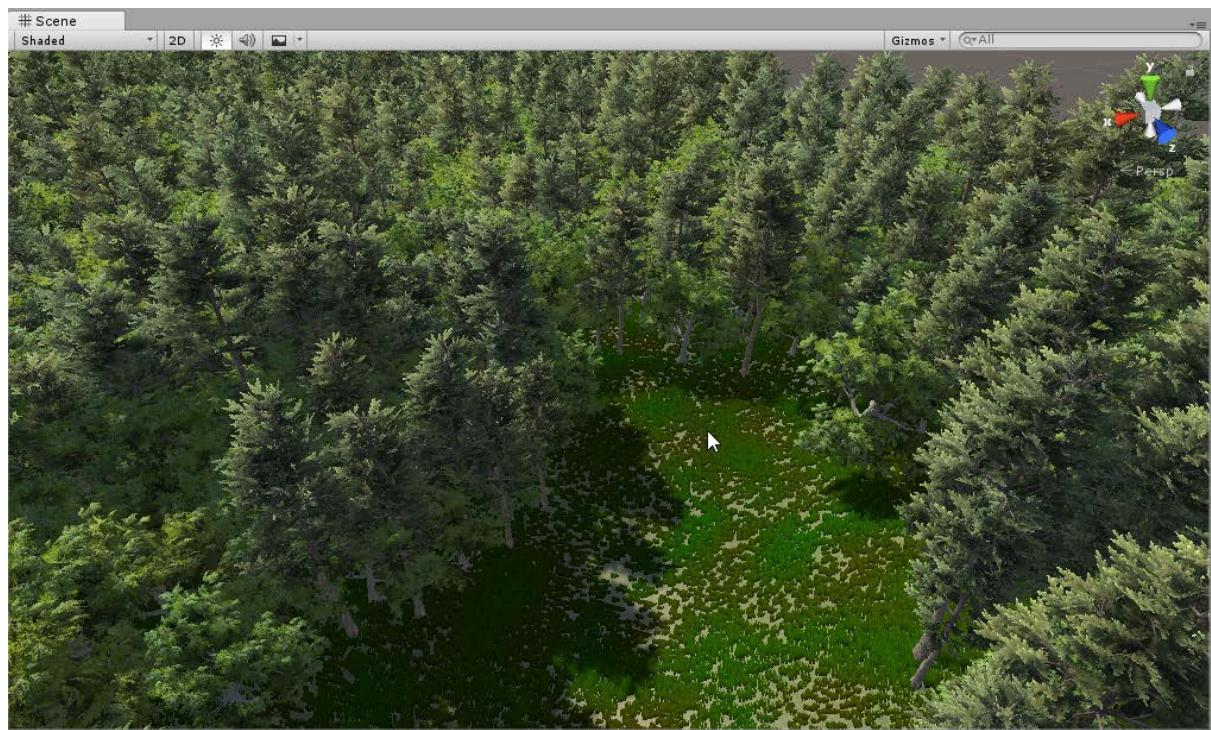
- No **Embankment (Embankment Size in the leftmost position, equal Brush Size)**
- No **Elevation**
- **Terrain Follow** (Leftmost position)
- **Embankment Texture -> None.**

Paint over

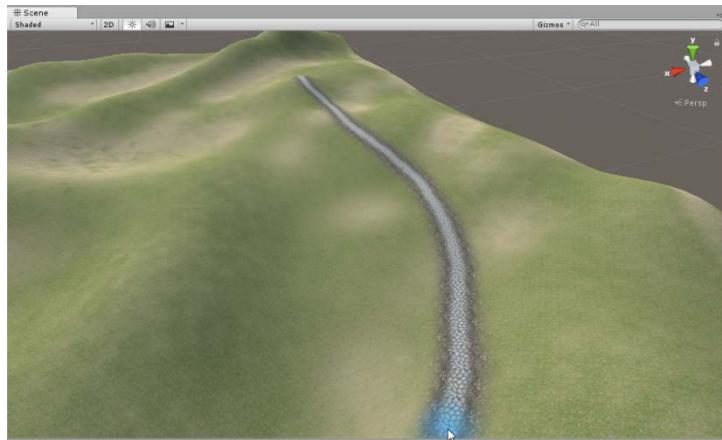


Path and Vegetation

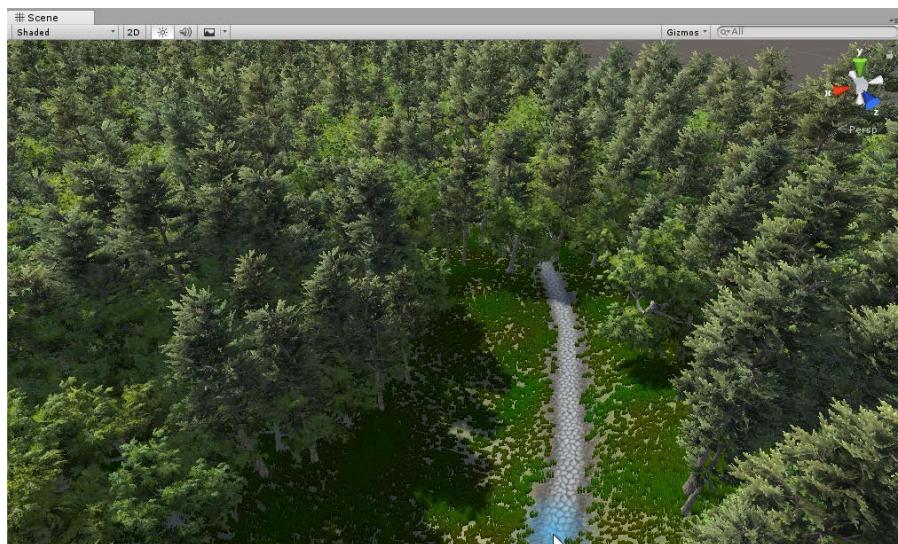
This example uses a terrain with some grass and trees. You can follow along if you have a similar terrain.



While painting, trees and grass are not visible to aid the painting process.

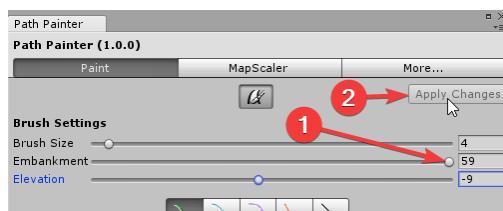


When painting is done, vegetation will be visible again (if drawing for them is enabled; see the **Vegetation** section in the Documentation).



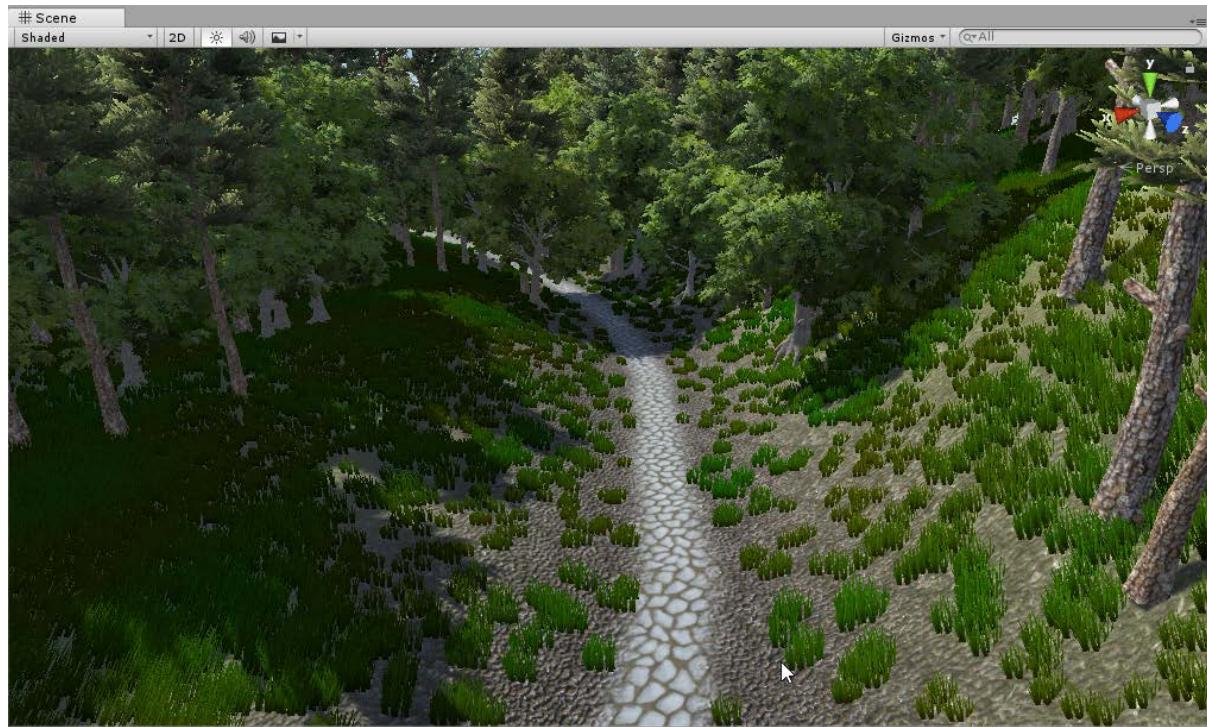
Edit Mode with **Paint Mode** activated will also hide vegetation to aid tweaking. An exception from this is when the vegetation settings themselves are being tweaked.

I maxed out the embankment on the path to better show the thinning and clearing options.

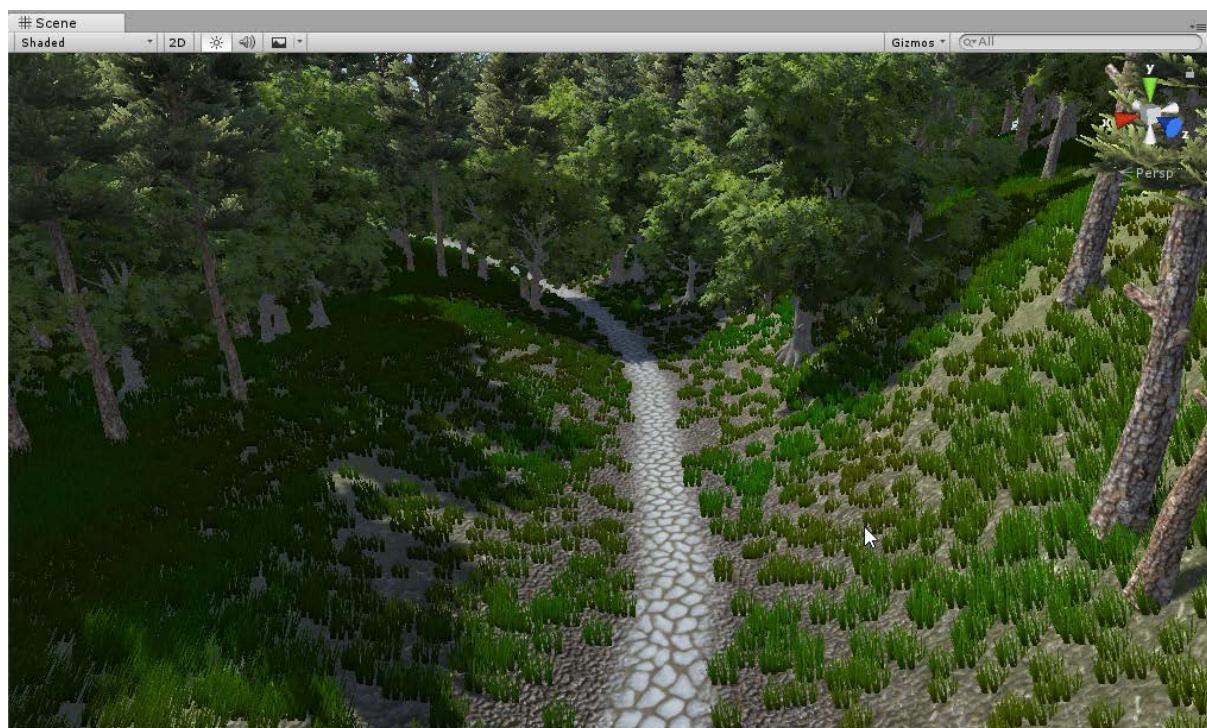


Do the grass tweaks in **Edit Mode** (SHIFT held down). The effect of clearing and thinning is easily visible that way.

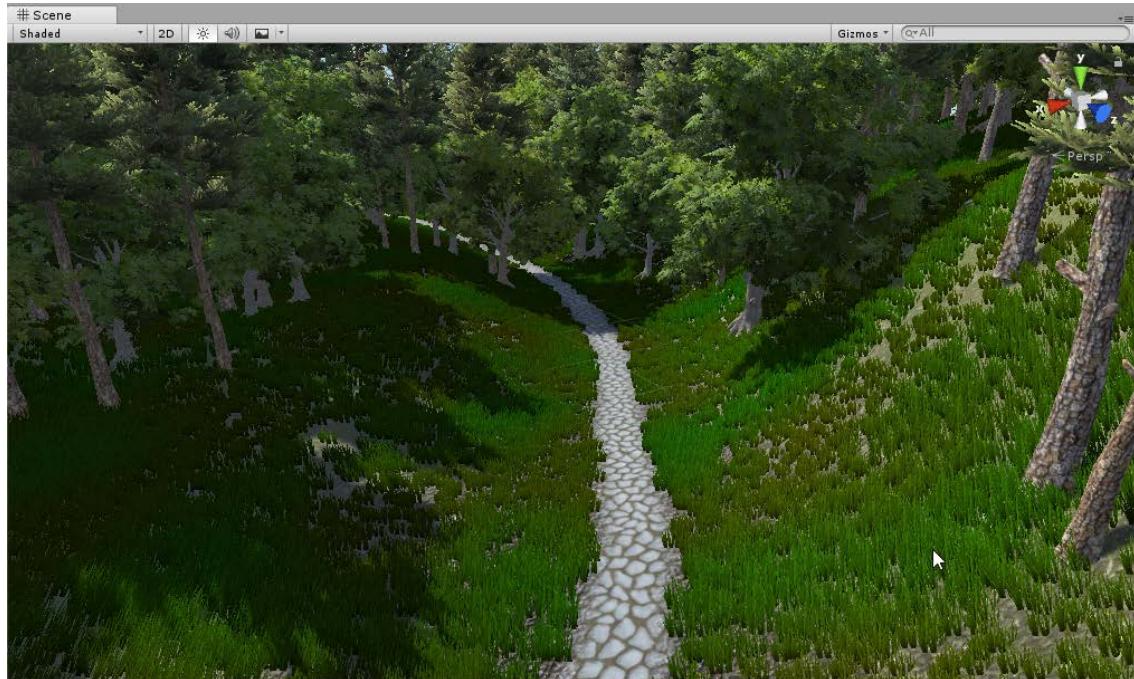
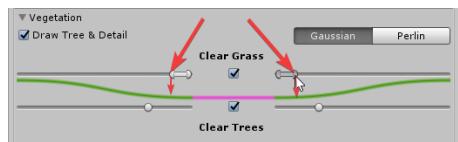
Grass thinning now have **Perlin** Noise applied



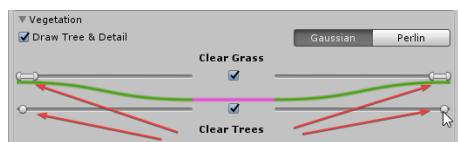
Change to **Gaussian**



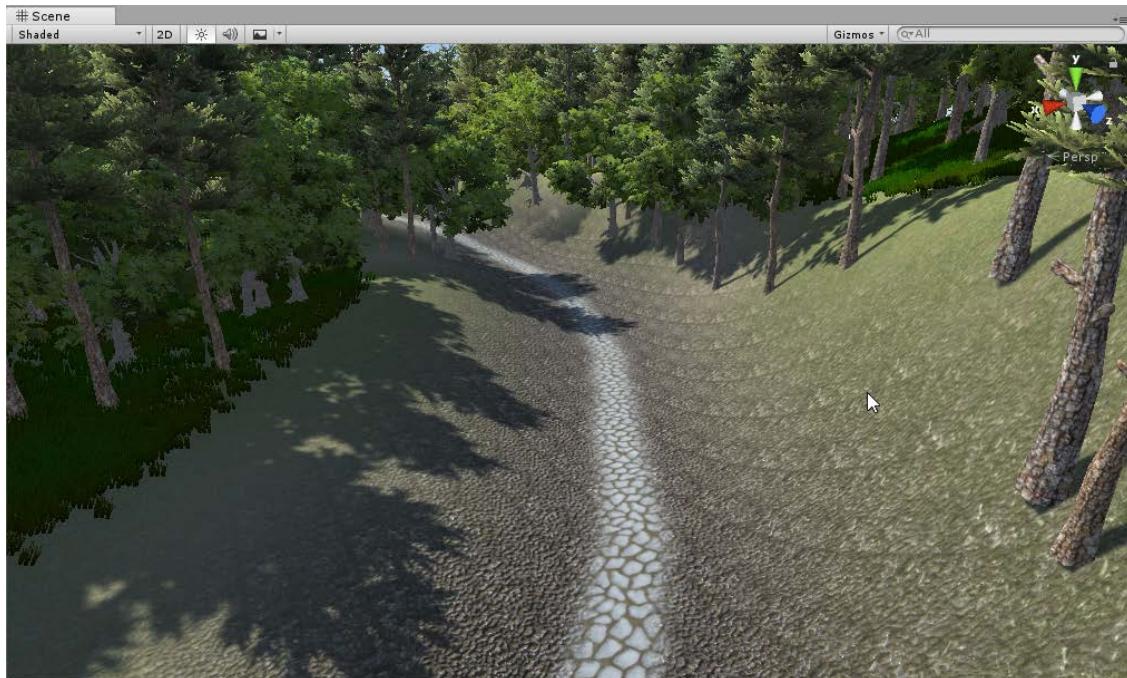
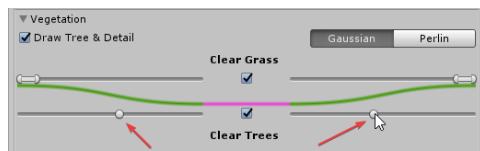
Reduce the thinning range



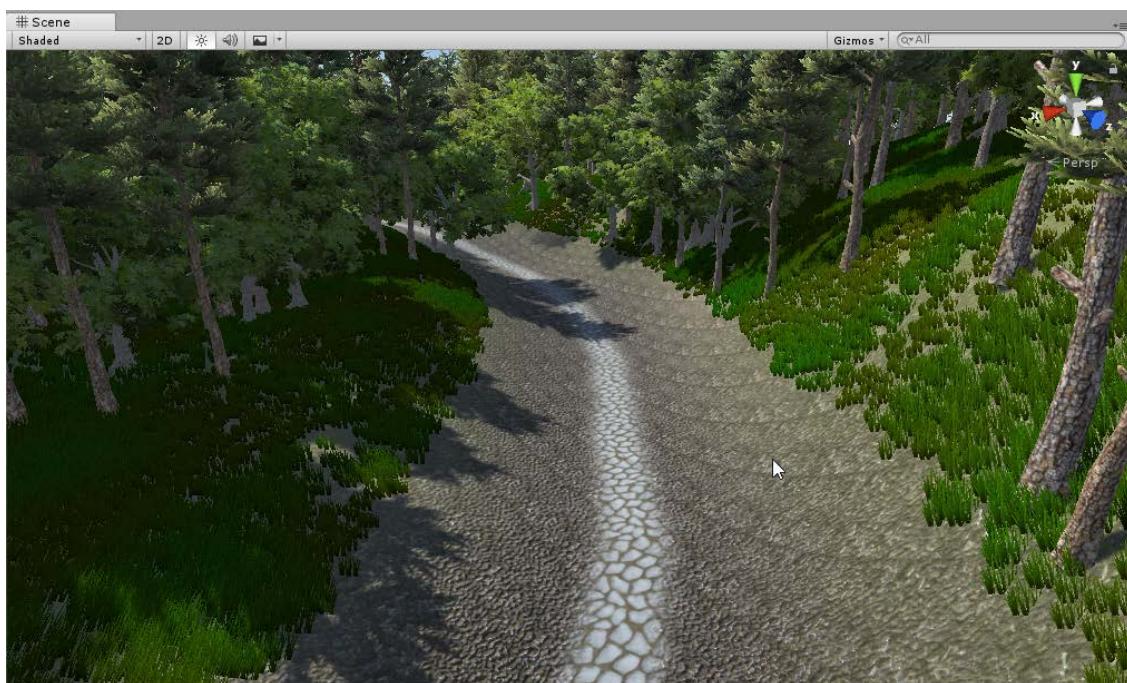
Grab and move the whole grass range to the outer edge of the embankment. Do the same with the tree slider.

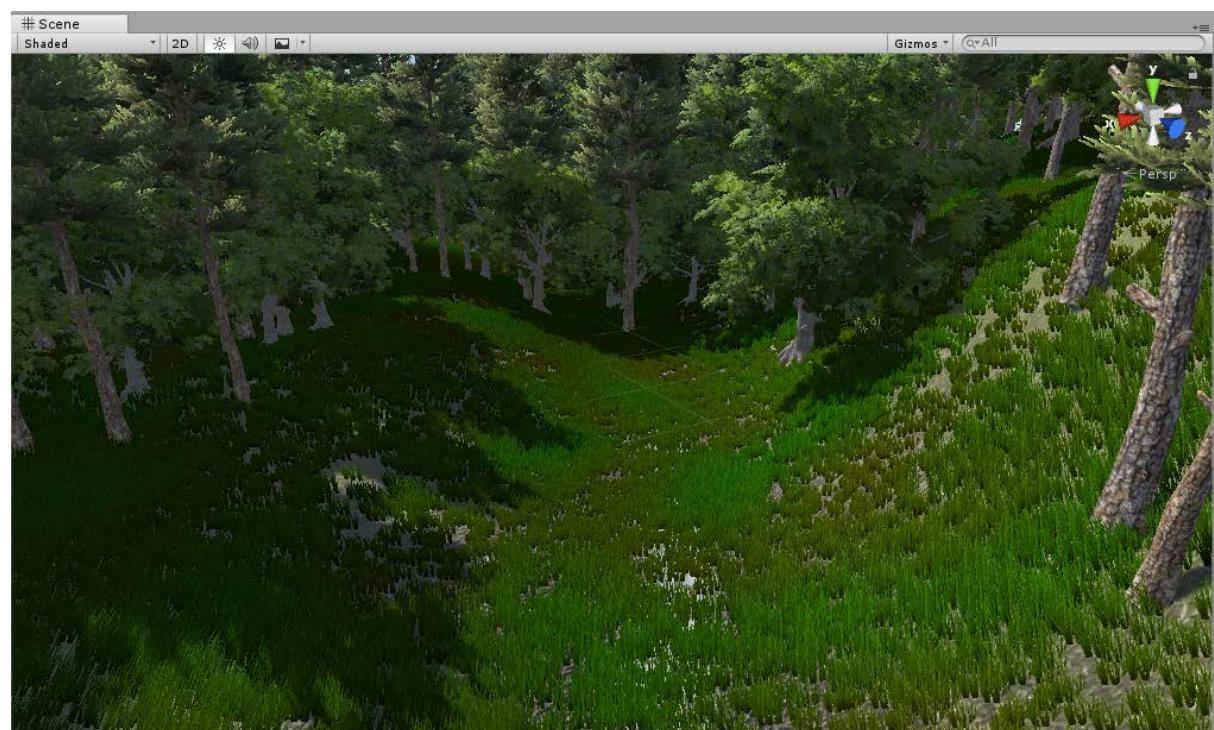
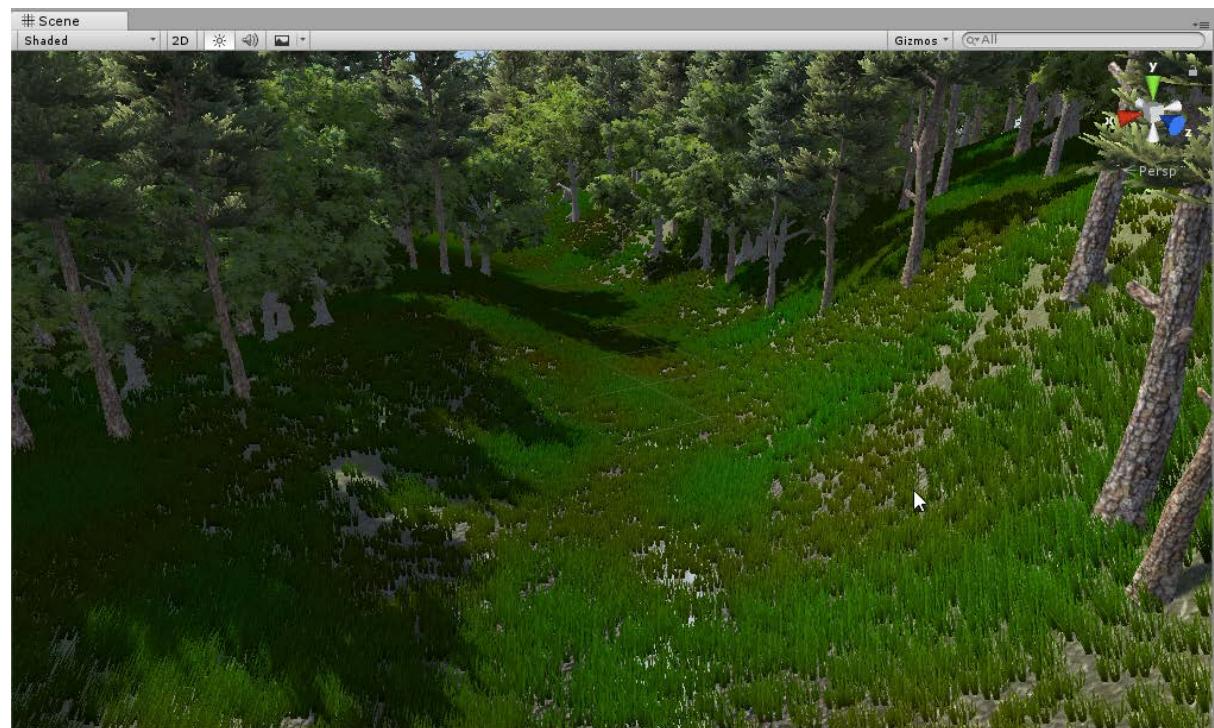


Click on the tree slider to move it back something like this.



Pull the grass range back as well.





This was a quick run through of the vegetation settings. It's recommended to play with them a little until it's clear what each of them does. You can also find more information in the **Vegetation** section of the documentation.

I hope you enjoy Path Painter. If you would like to add more cool things to make your environment look even better then check out our other Assets:

<http://www.procedural-worlds.com>