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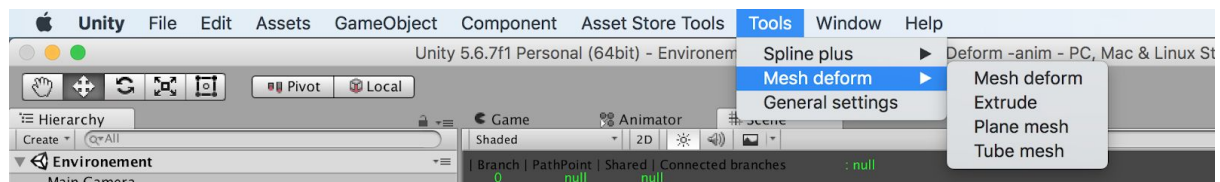
# Documentation

- Introduction
- Mesh deform
- Extrude spline
- Plane mesh
- Tube mesh

## Introduction

Spline mesh deform is a procedural mesh generation tool for Spline plus, it is simple to use and very quick because of the efficient caching system built in,  
This package includes the last version of [Spline plus](#) available in the asset store.

### Sub tools:



This is a list of all the additionnel sub tools you get when owning a copy of Spline mesh deform

**Mesh deform:** used to deform or align prefab meshes along spline plus branches.

**Extrude:** used to extrude the spline plus shape and allows you to export the generated mesh as an asset file,

**Plane mesh:** used to convert all spline plus branches into a plane mesh, similar to unity line renderer, the generated mesh can be exported to an asset file as well,

**Tube mesh:** this transforms spline plus branches into a fully customizable 3D mesh tubes, this can be used to easily create pipes and wires for an example,


**Spline plus:** is the spline system of spline mesh deform , it is used for the creation and management of splines with multiple branches, it is also used as an advanced path following tool

**Path generator:** is used to generate splines from sets of game objects placed in your scene view , it can be used to increase the productivity and speed up the splines drawing process when spline shapes gets to a complex level,



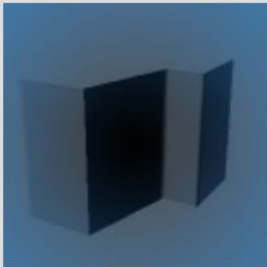





## Mesh deform

# Mesh Deform










### Prefab meshes





### Concret

Mesh prefab	<input type="text" value="Concret"/>			
Material	<input type="text" value="No Name"/>			 <b>Unique</b>
Type	Deformation			
Axis	Y			
Mesh trim	Both			
Offset	X <input type="text" value="0"/>	Y <input type="text" value="0"/>	Z <input type="text" value="0"/>	<b>Rand</b>
Rotation	X <input type="text" value="0"/>	Y <input type="text" value="90"/>	Z <input type="text" value="0"/>	<b>Rand</b>
Scale	X <input type="text" value="1"/>	Y <input type="text" value="1"/>	Z <input type="text" value="1"/>	<b>Unif</b> <b>Rand</b>
Tiling	<input type="text" value="7"/>			<b>Auto tile</b>
Spacing	<input type="text" value="5.2"/>			 <b>Rand</b>
Placement	<input type="text" value="5.1"/>			
Normals	<input type="text" value="60"/>			<b>Smth</b>
Mirror axis	X			
Mirror offset	<input type="text" value="4.72"/>			

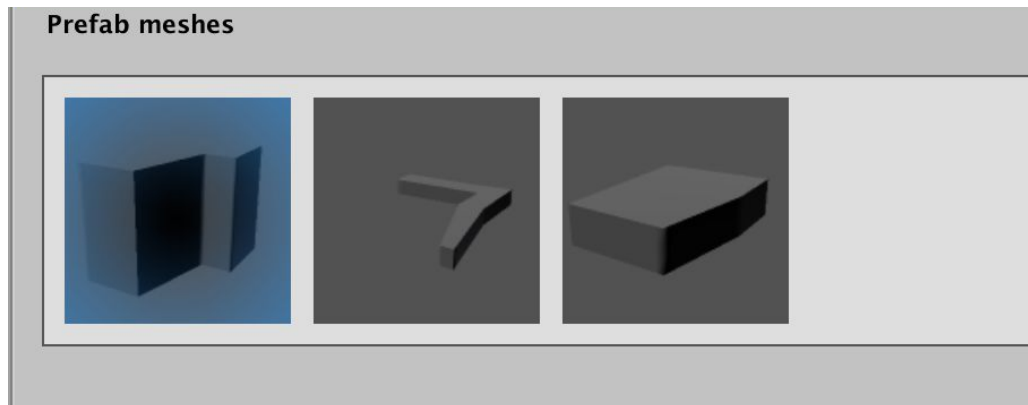
Mesh deform is used to deform or align prefab meshes along spline plus branches.

**Prefab meshes area:** this contains the list of prefab meshes which user drag from the project window,  
the area is used to organize the meshes combination process, each prefab mesh “Mesh” has its own settings listed below,  
For each branch there is new prefab meshes list, once you change branches selection you will see that the prefab meshes list has changed as well

**Ps :**Meshes need to be dragged from the project window and dropped into the prefab meshes area,



**Select prefab mesh:** each prefab mesh is represented in the prefab meshes area by a selectable prefab texture button,  
Click on the prefab mesh texture button to select the desirable prefab mesh



**Delete prefab mesh:** click on the “X” button to delete the selected prefab mesh



**Hide/unhide prefab mesh:**



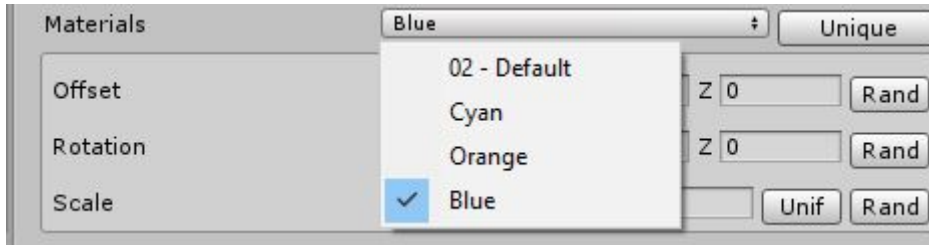
**Duplicate prefab mesh:**



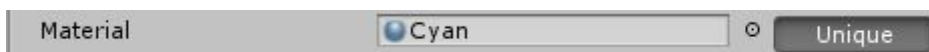
**Prefab mesh name:** it usually receives the prefab name but it can be edited to whatever value you want, just click on the text area and start typing to edit.



**Materials:** Spline mesh deform supports multiple materials,



The list contains all the unique materials that will be found in the final mesh,  
In the case above the prefab mesh selected is using another prefab mesh material called “blue”



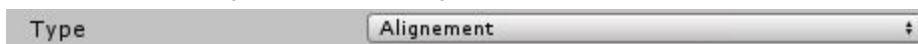
You can add the selected prefab mesh material to the list by setting unique to true,  
This will add the selected prefab mesh material to the materials list so it can be reused by other prefab meshes.

This will optimize performance, instead of having a final mesh with 10 materials for example , you can cut that down to whatever number of materials is suitable for your case by sharing materials between prefab meshes ,  
less materials for your mesh means less draw calls ,

**Type:** currently there are two types supported ,

**Alignment:** this aligns the meshes along the spline without performing a deformation,

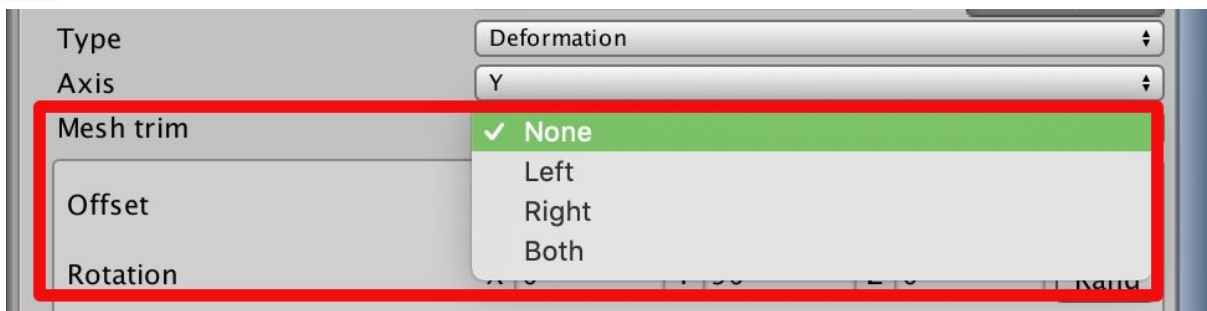
**Deformation:** this aligns the meshes along the spline and perform deformation too,

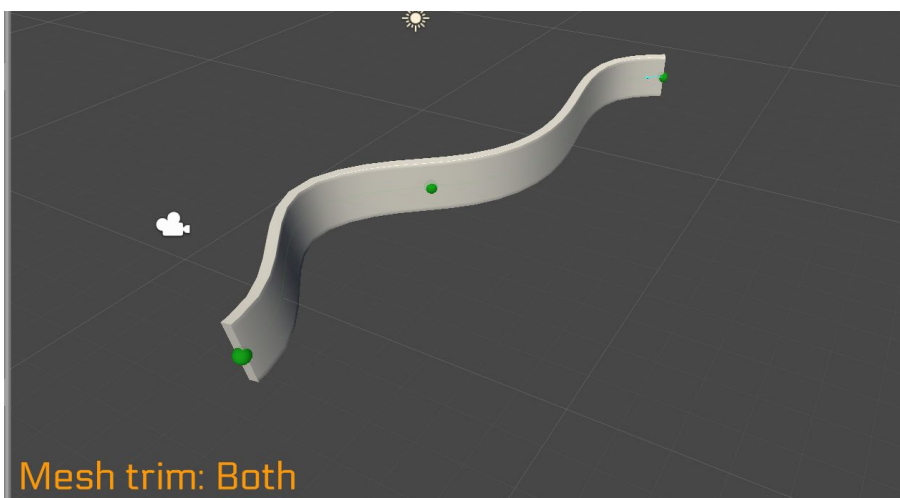
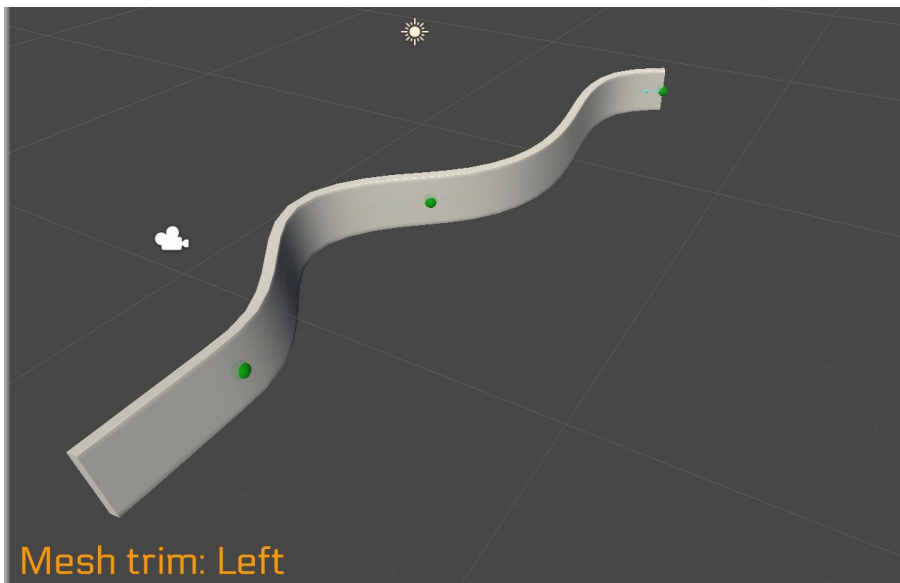
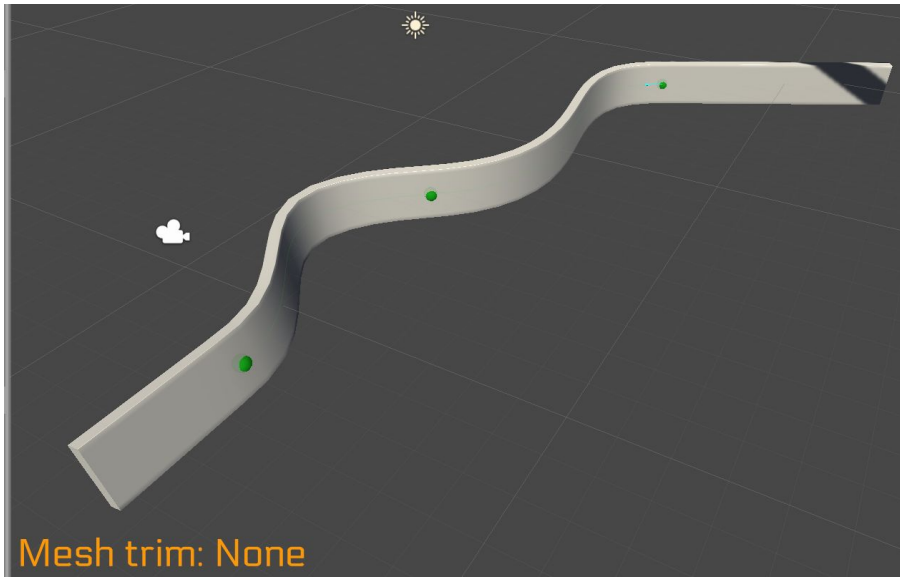


**Axis:** this is the mesh axis that will follow the spline forward direction



**Mesh trim:** is used to define the extensions of a deformed mesh when exceeding the branch distance limit,

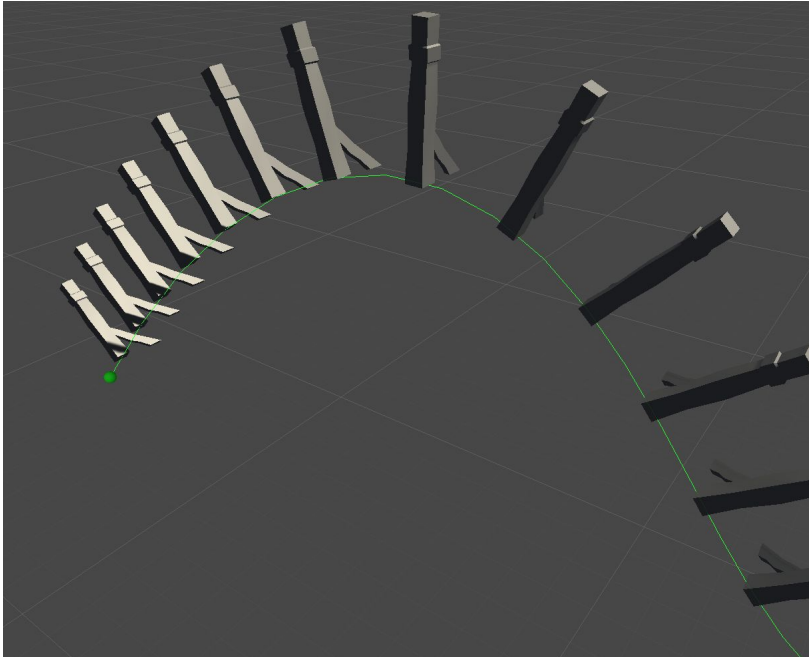




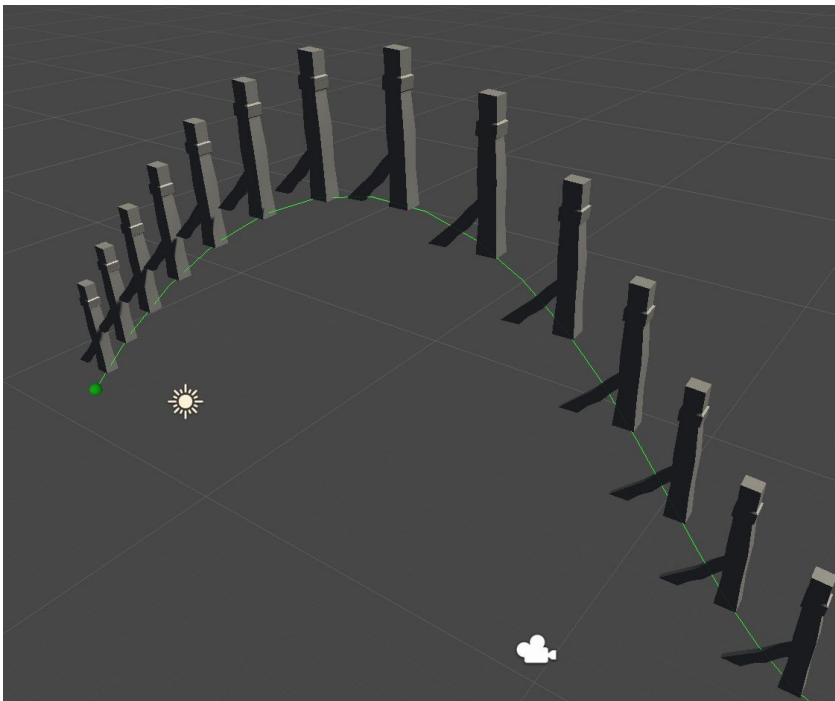
**Lock** : is used to lock the rotation to upward only ,the meshes will follow the spline rotation data on the Y axis only if set to true,  
You will have a vector3 field revealed If 'Lock' is set to true. it's used to edit the rotation axes of your meshes ,  
this is very useful in some cases where you don't want the meshes to completely follow spline rotation data,  
*ps:*This can be used in Alignment mode only,

Lock rotation	X <input type="text" value="0"/>	Y <input type="text" value="0"/>	Z <input type="text" value="0"/>	<input type="button" value="Lock"/>
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**Lock rotation turned Off**



**Lock rotation Turned On**





**Offset:** Translate the meshes

**Rotation:** Rotate the meshes

**Scale:** Scale the meshes

Set 'Unif' to On in case you want to scale the meshes on all 3 axes all at once, set it to Off in case you want to scale on separate axis,

**Rand:** is used to create a random Offset, Rotation or Scale behaviour

Once Rand is set to On then new Offset , Rotation or Scale fields appear , the randomization will be done between the two fields

**Seed:** is used to change the randomization seed

Offset	X	<input type="text" value="0"/>	Y	<input type="text" value="0"/>	Z	<input type="text" value="0"/>	Rand
Rotation	X	<input type="text" value="0"/>	Y	<input type="text" value="0"/>	Z	<input type="text" value="0"/>	Rand
Scale	X	<input type="text" value="1"/>	Y	<input type="text" value="1"/>	Z	<input type="text" value="1"/>	Unif Rand

Offset	X	<input type="text" value="0"/>	Y	<input type="text" value="0"/>	Z	<input type="text" value="0"/>	Rand
Offset 2	X	<input type="text" value="0"/>	Y	<input type="text" value="0"/>	Z	<input type="text" value="0"/>	Seed
Rotation	X	<input type="text" value="0"/>	Y	<input type="text" value="0"/>	Z	<input type="text" value="0"/>	Rand
Rotation 2	X	<input type="text" value="0"/>	Y	<input type="text" value="0"/>	Z	<input type="text" value="0"/>	Seed
Scale	X	<input type="text" value="1"/>	Y	<input type="text" value="1"/>	Z	<input type="text" value="1"/>	Unif Rand
Scale 2	X	<input type="text" value="1"/>	Y	<input type="text" value="1"/>	Z	<input type="text" value="1"/>	Seed

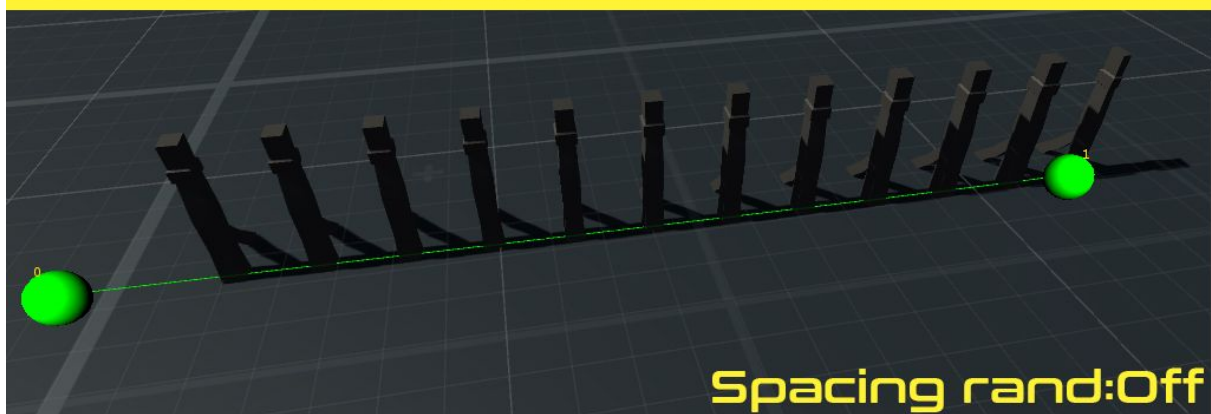
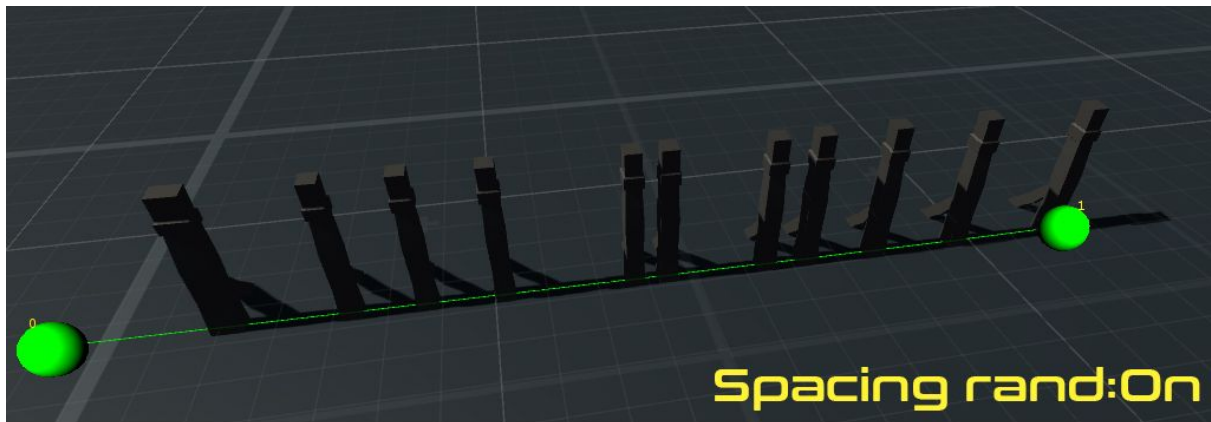
**Tiling:** is used to define how many times you want the mesh to be repeated along the spline,

**Auto tiling:** this calculates automatically how many meshes from the selected prefab mesh fits into the spline branch while taking into consideration the spacing value

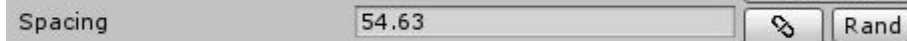
Tiling	<input type="text" value="2"/>	Auto tile
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**Spacing:** is used to control the space between the meshes of the prefab mesh,

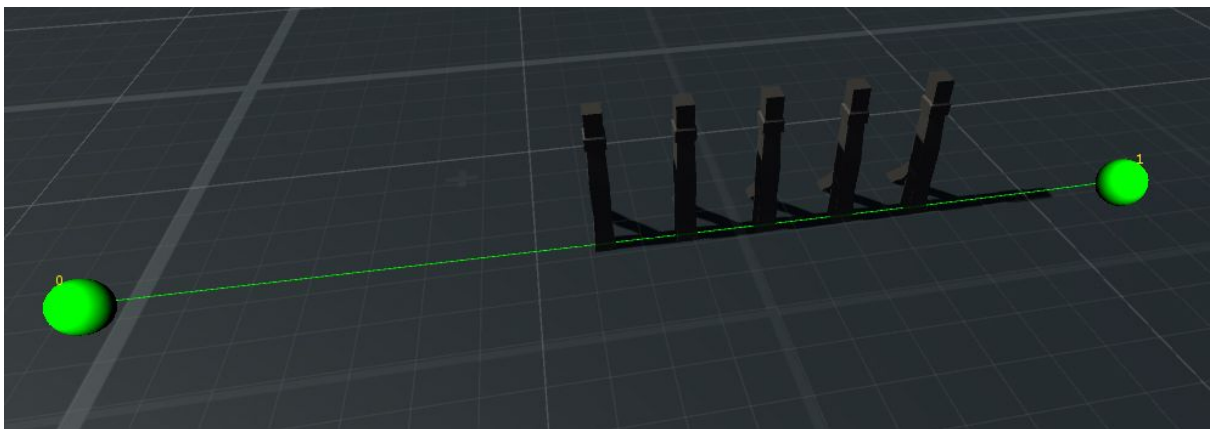
**Rand:** creates a randomization behaviour for spacing , this helps creates a random mesh positioning instead of monotone behaviour



**Link:** this links the spacing of all the other prefab meshes to the currently selected prefab mesh, This helps you move prefab meshes all at once instead of going through them one by one

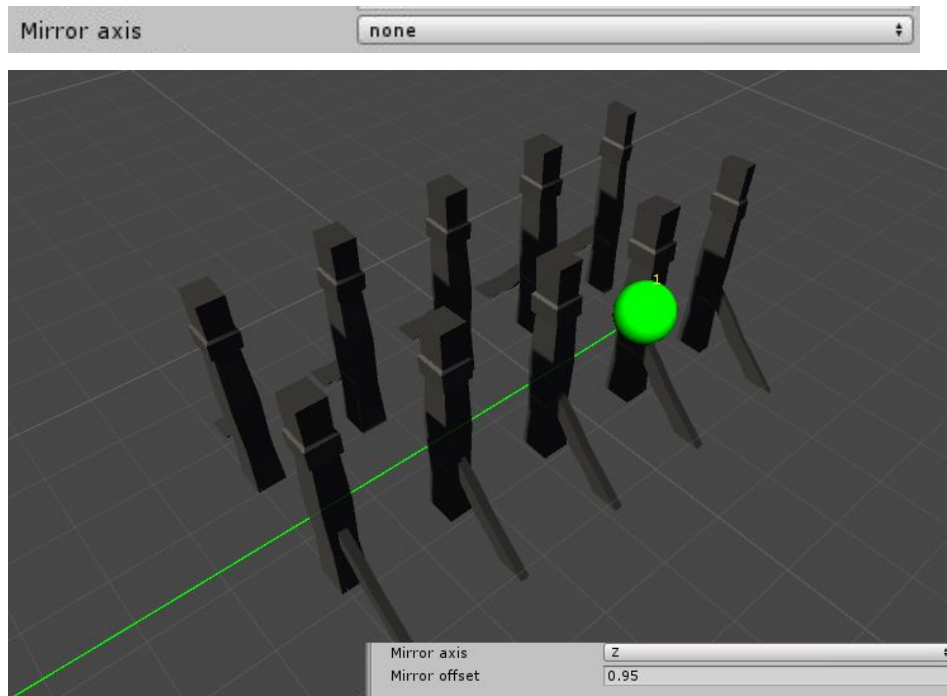


**Placement :** is used to add an offset distance on the spline axis, instead of starting from the first vertex of the spline



**Mirror axis:** this is used to create a mirrored mesh copy on a selected axis

**Offset:** is the distance between the original mesh and the mirrored copy mesh based on the mirror axis

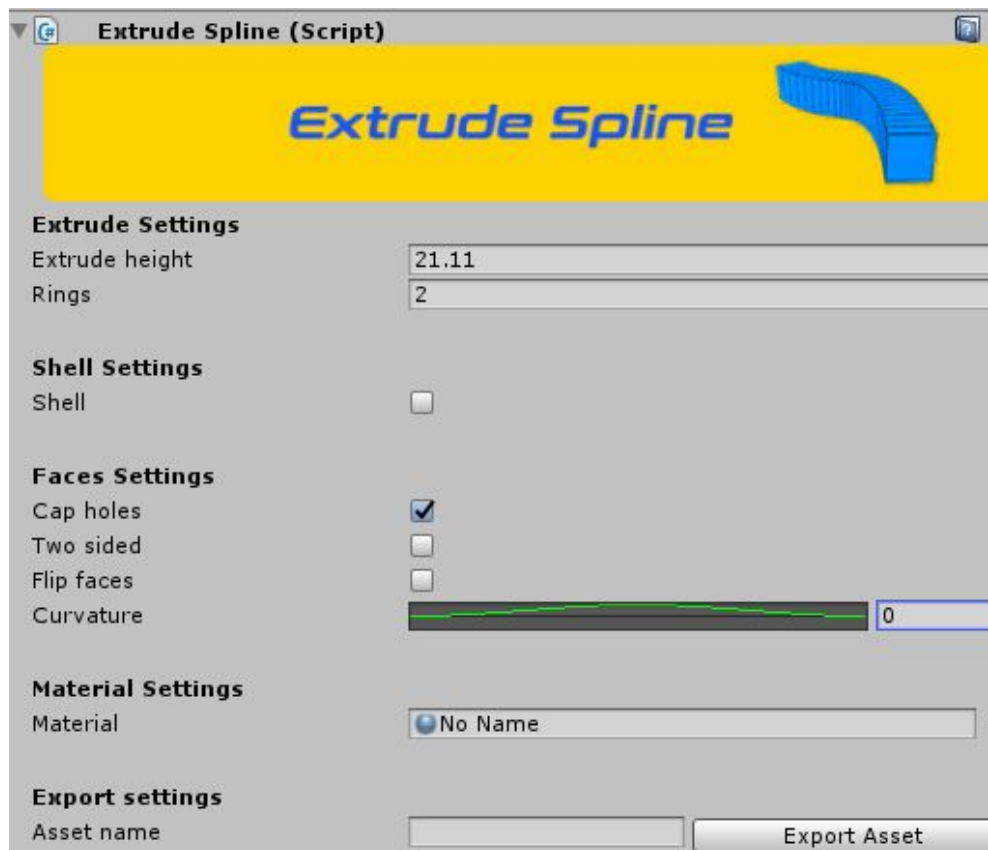


**Export :** export mesh to an asset file , the file can be found in "Assets/SMDExport"



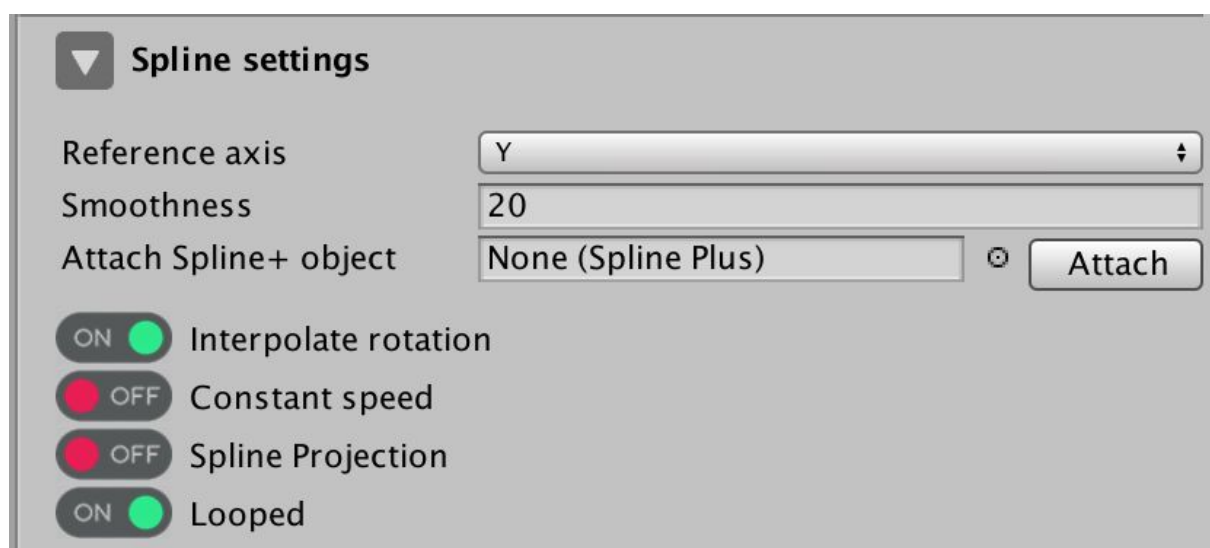


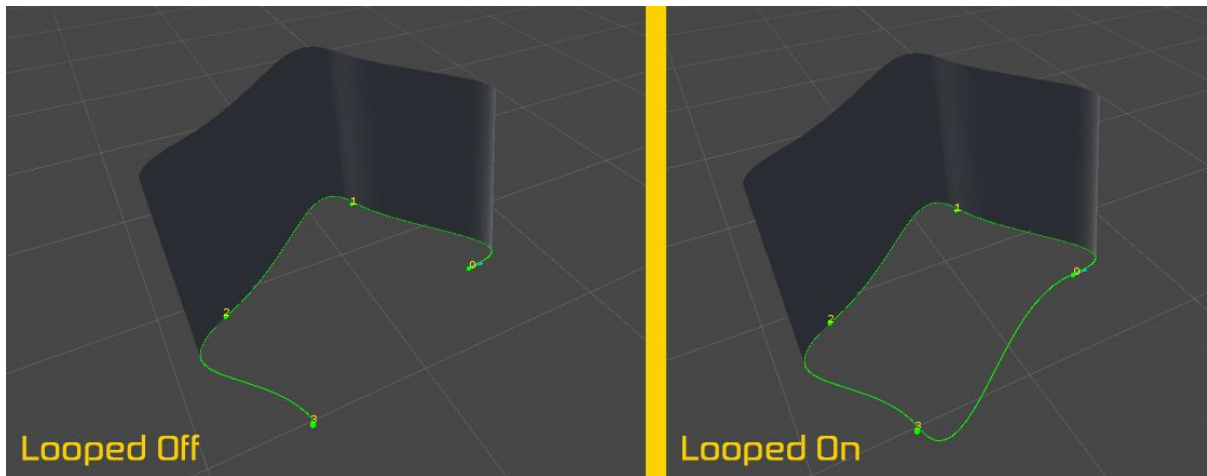
## Extrude spline



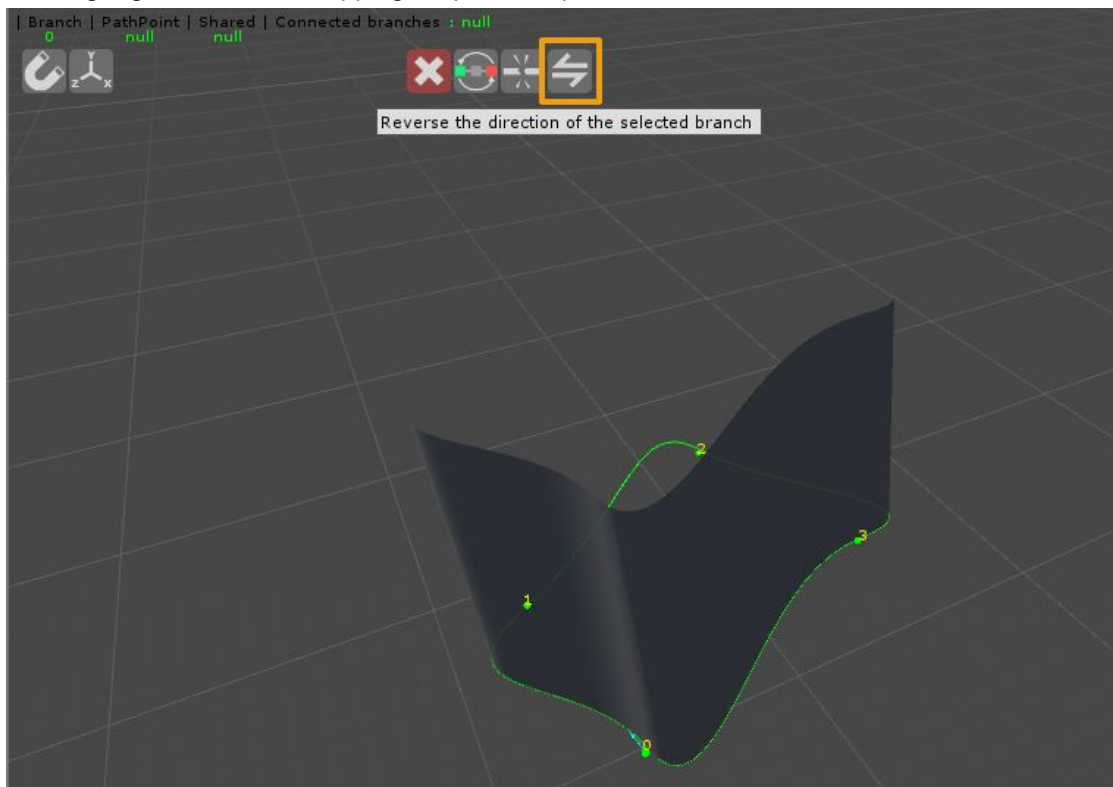
This Extrudes the spline plus shape and transforms it into a mesh with auto generated correct Uvs,

Since you're allowed to use only one branch with extrude spline, you will certainly fall into the case where you want to close the shape, to do that without the help of another branch you need to set 'Looped' to true in your Spline plus inspector settings



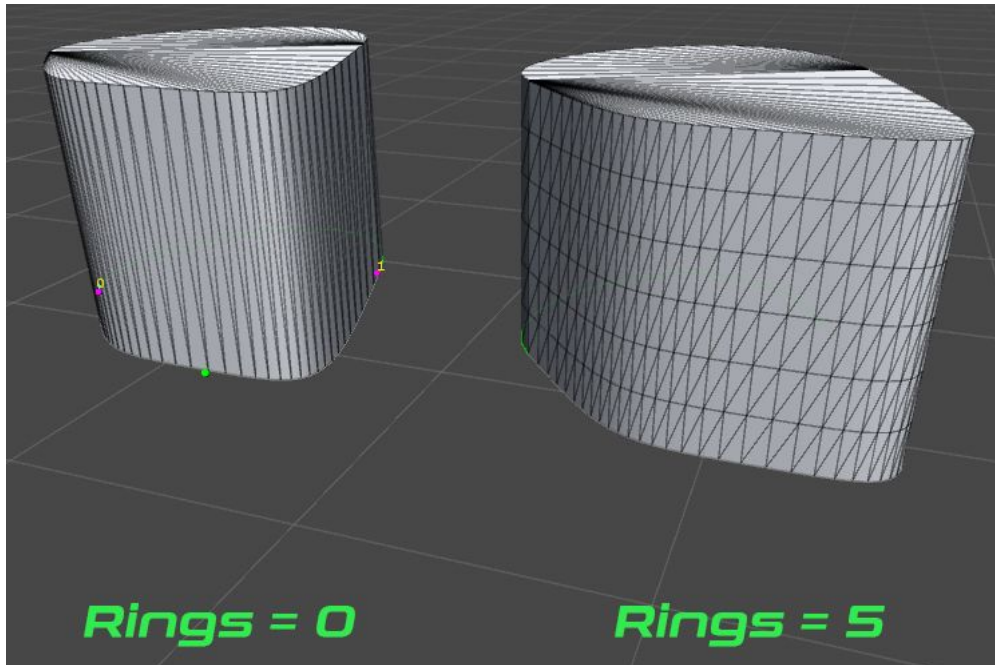


If your generated extrusion mesh has its faces facing the wrong direction, then It's recommended to reverse the extruded branch instead of flipping the faces from the extrude settings inspector, You might get issues with capping if flip faces option was used instead,

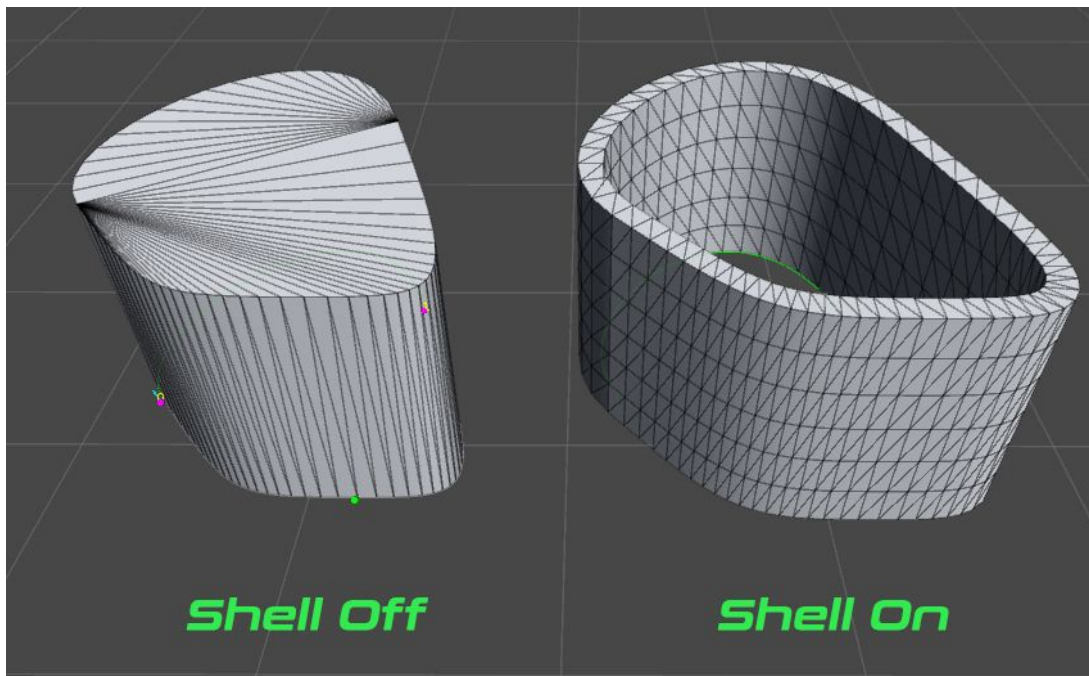


**Extrude height:** change the extrusion height on the Y axis , currently the axis of extrusion supported is Y only, you can rotate your spline plus object to get extrusion on other axis in case it's needed,

**Rings:** the number of ring edges you have in your extrusion shape



**Shell:** when set to On this will create a shell extrusion effect, the cap holes is set to On by default when the shell is set to On, you can set cap holes off later in case it is needed

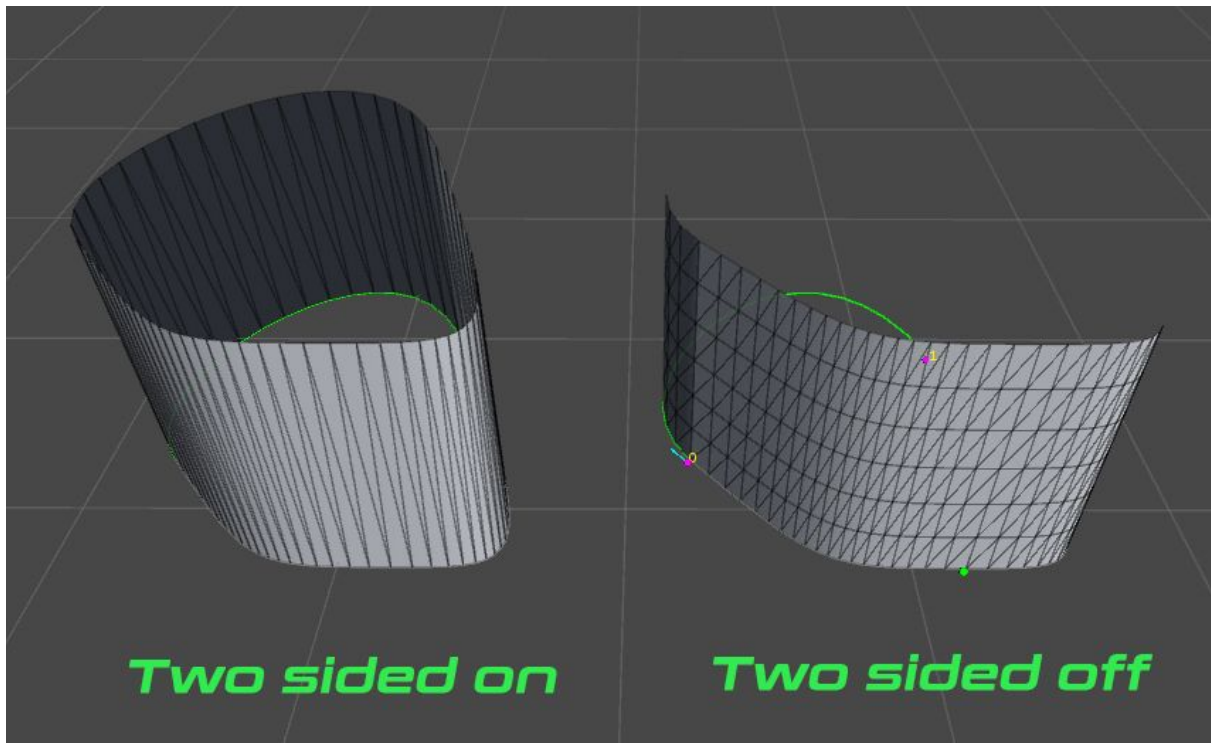


**Cap holes:** fill both extrusion mesh holes,

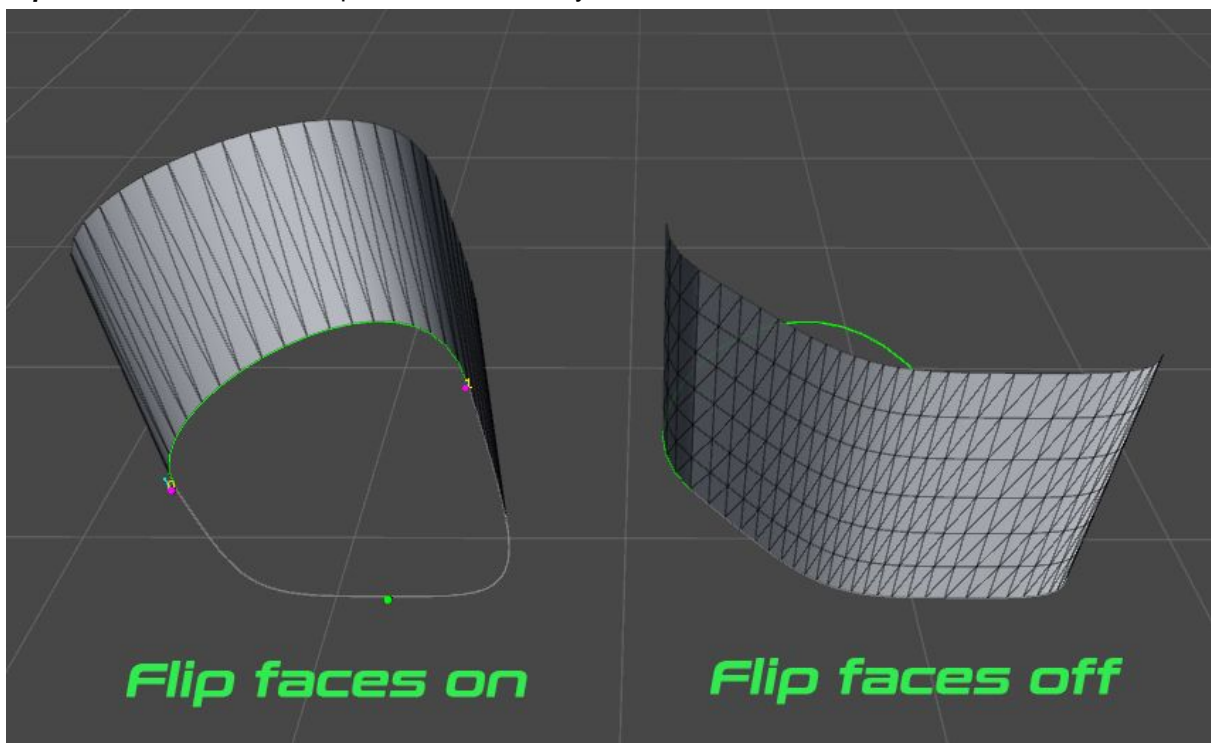
Ps: spline mesh deform is using ear clipping algorithm to triangulate the caps,



**Two sided:** used in case you want your mesh to be visible from both sides, in case two sided is not required then it's better to keep it off for optimization purpose,

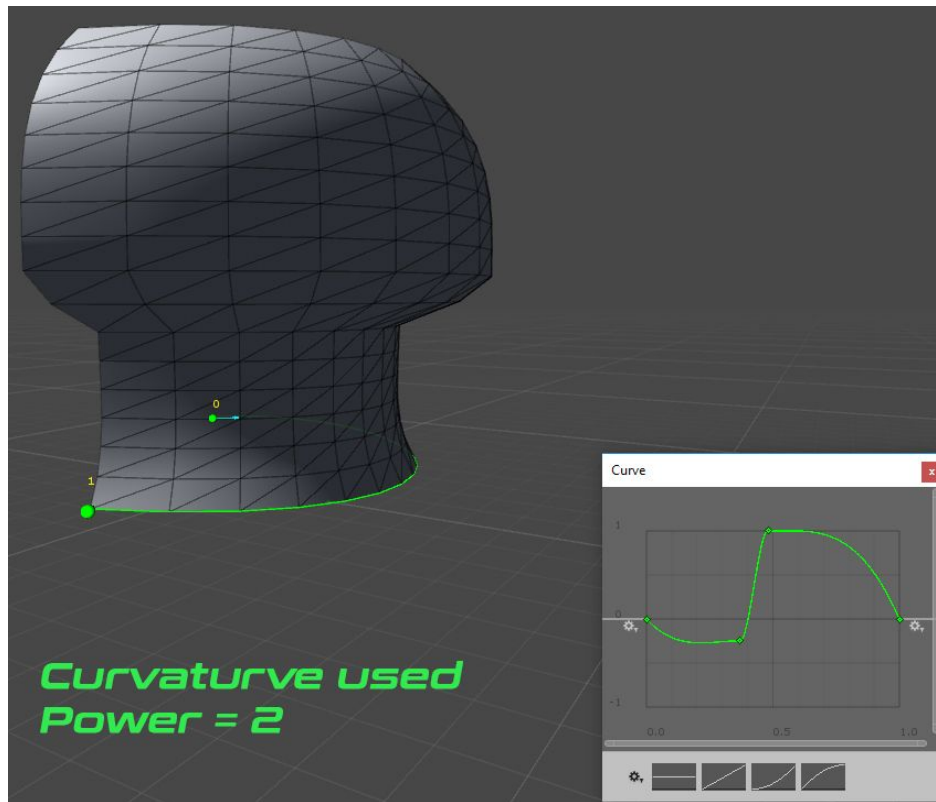


**Flip faces:** This is used to flip the visible side of your mesh





**Curvature:** change the extruded mesh side by modifying the curve , this can be used to create some really cool shapes that you can use in your project ,  
You can increase the curve effect on the mesh by changing the power value next to the inspector curve

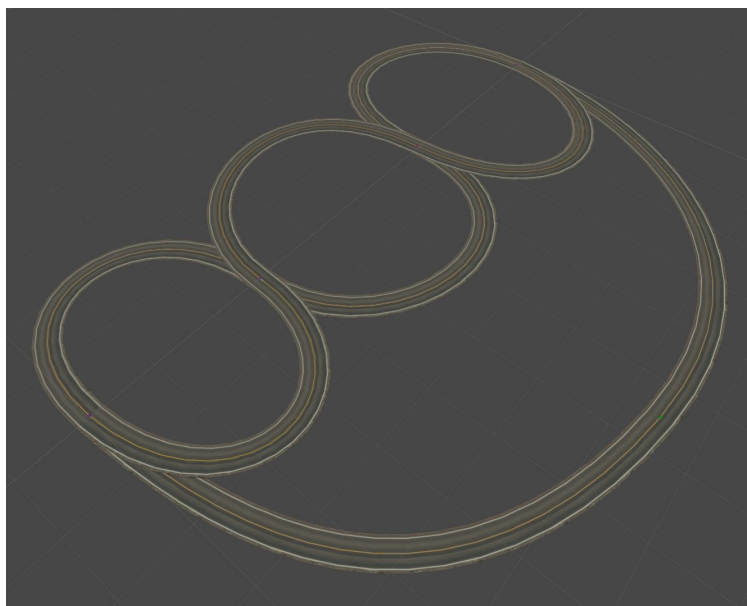
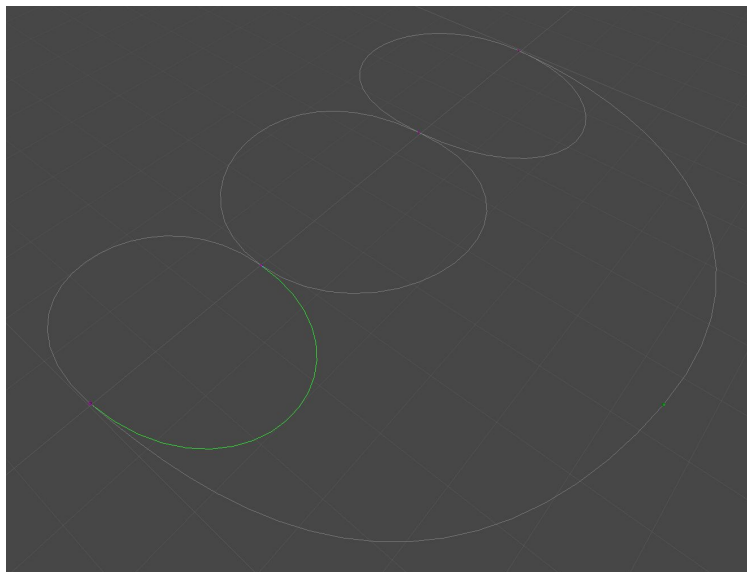
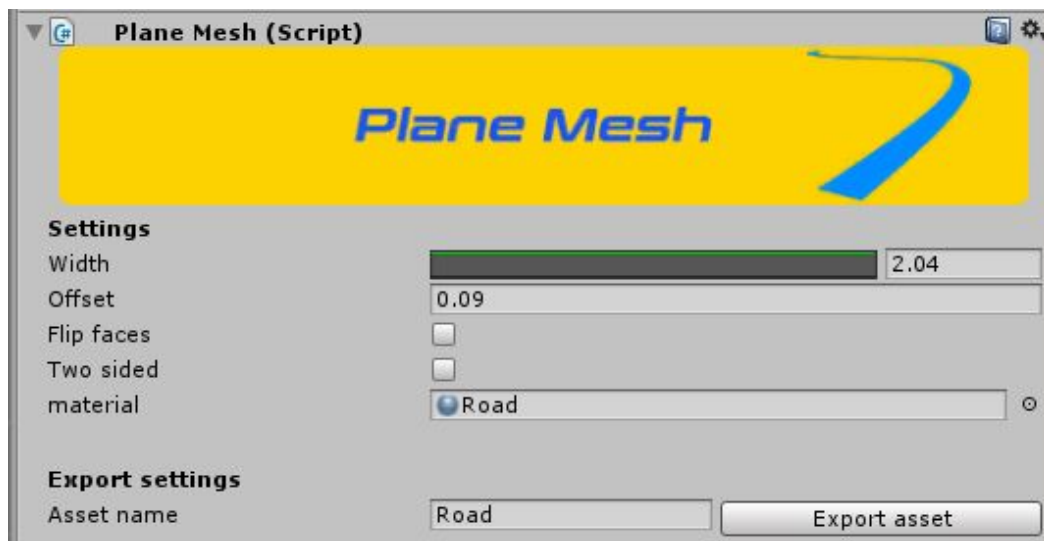


**Material:** this is where you can set the material of your extruded mesh ,  
It is recommended to use this to change material instead of using the mesh renderer material slot.

**Export asset:** export mesh to an asset file , the file can be found in "Assets/SMDEXport"



## Plane mesh

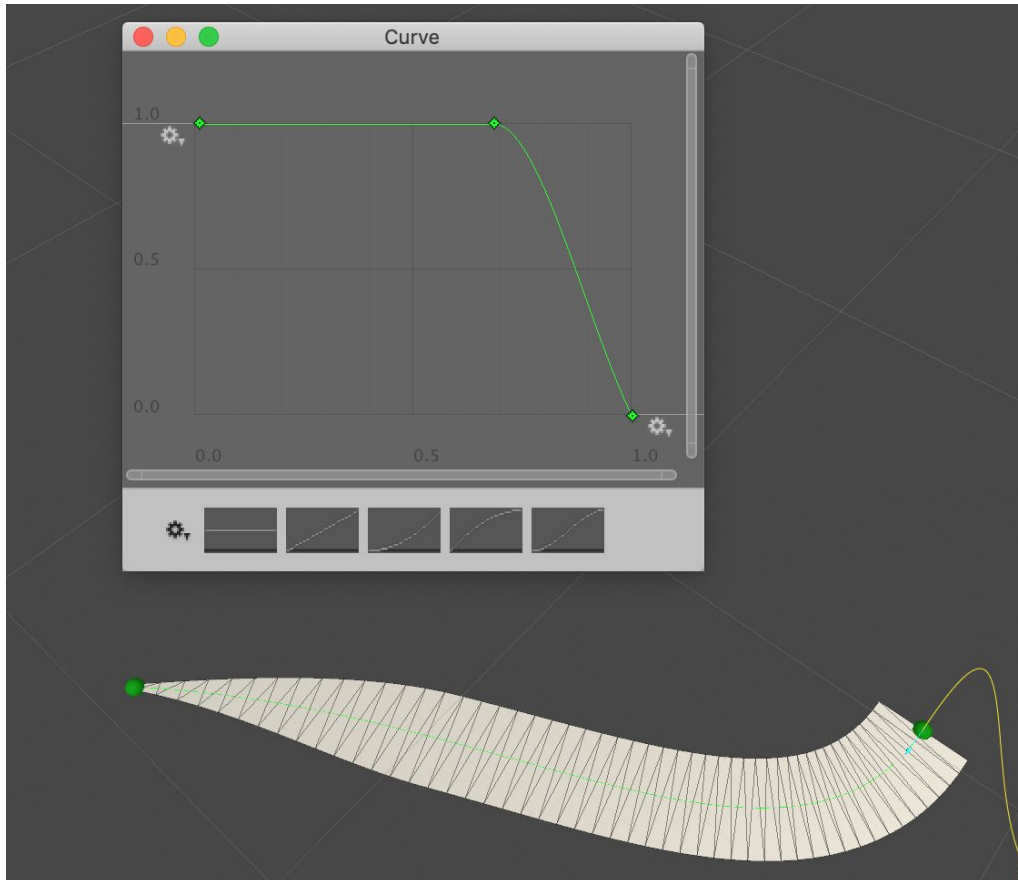


Plane mesh is a simple and straightforward sub tool of Spline mesh deform, used to transform the spline plus branches into a plane mesh, this is very similar to the unity line renderer except this one is controlled by spline nodes and it's generated for all spline plus branches

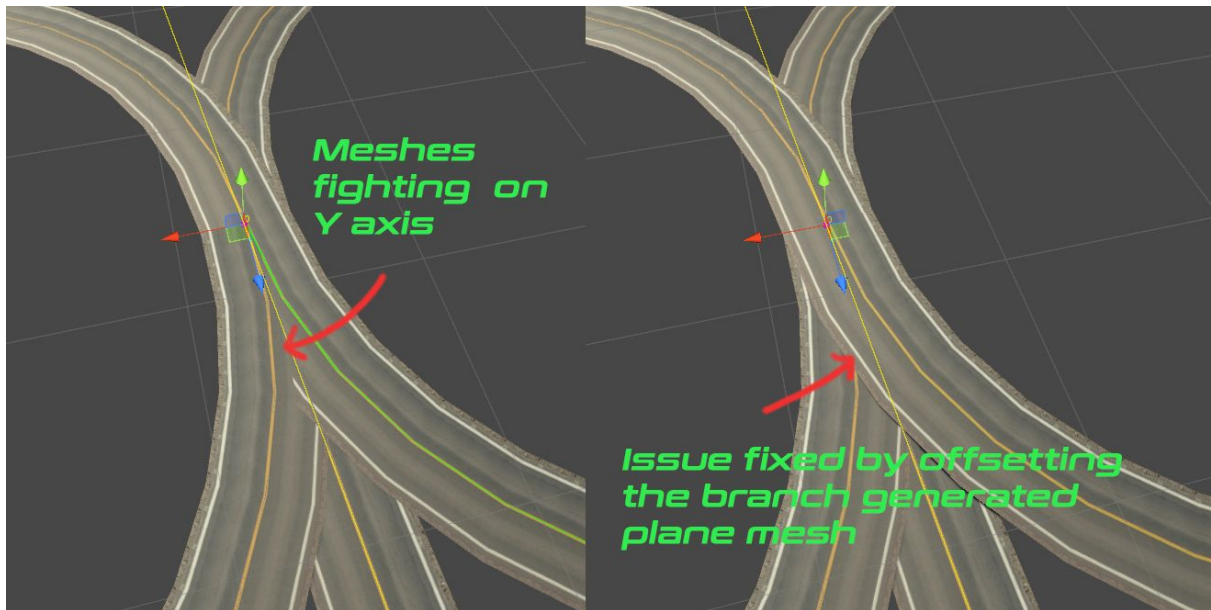
Ps: "Width", "Max width", "Offset" are branch specific fields, once you change branch selection then expect to have new fields values.

**Width:** this is a unity curve that allows you to control the width of every vertex of the branch you are currently selecting,

*To change the curve power, you need to use the max width value, next to the Unity curve in the inspector.*



**Offset:** is used to offset the selected branch generated plane mesh on the Y axis, this can help eliminate the Y axis mesh fighting effect ,

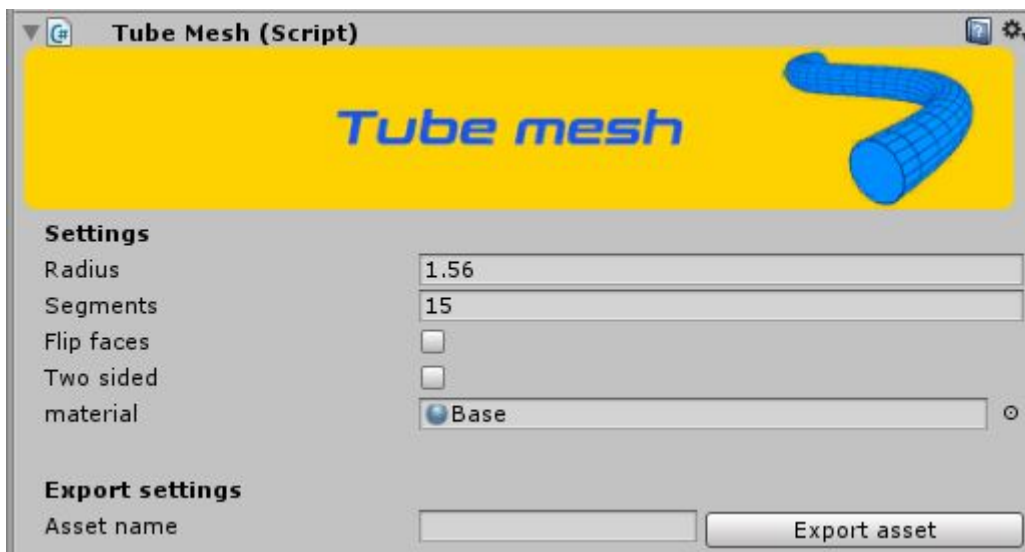


**Flip faces:** This is used to flip the visible side of your Plane meshes

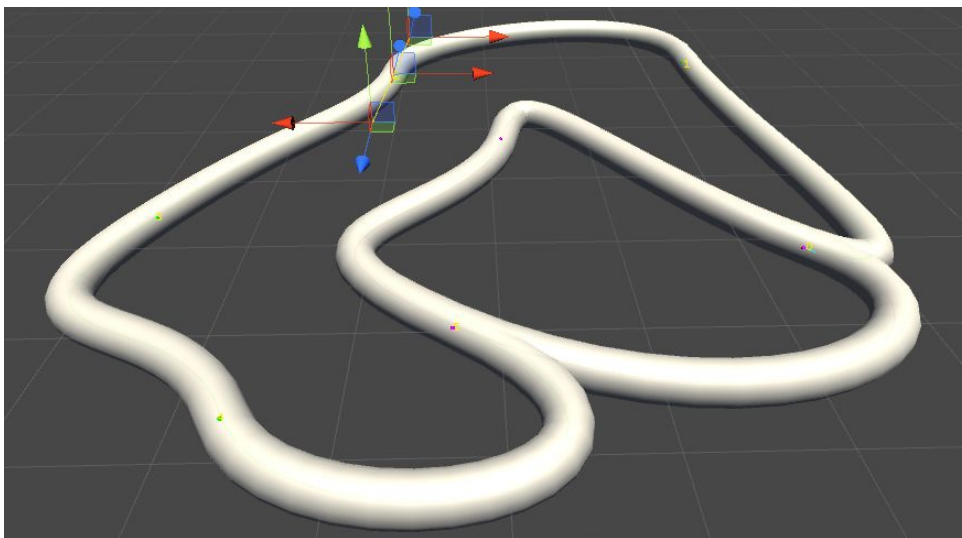
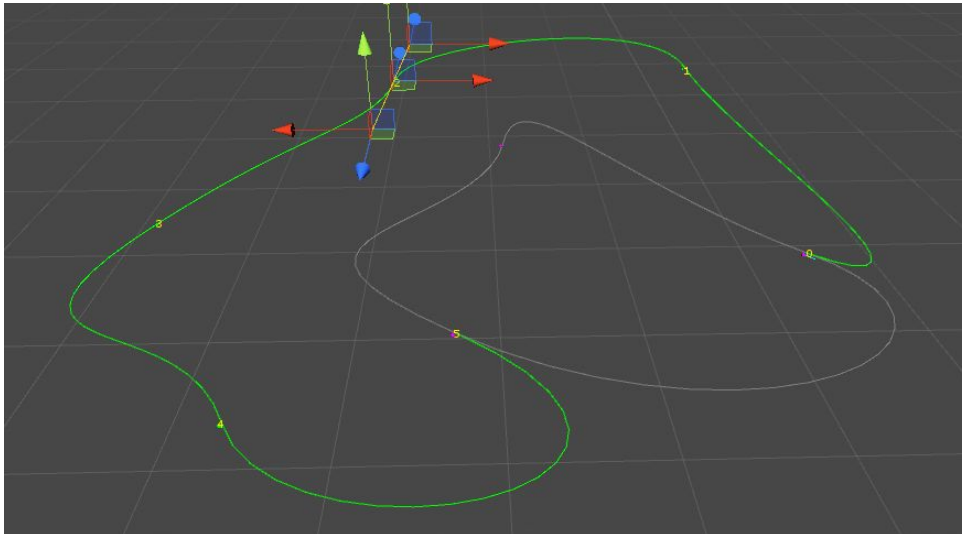
**Two sided:** used in case you want your Plane meshes to be visible from both sides, it's recommended to turn this off for optimization purpose unless this effect is required.

**Export :** export mesh to an asset file , the file can be found in "Assets/SMDEExport"

## Tube mesh



Tube mesh transforms spline plus branches into fully customizable 3D mesh tubes, this can be used to easily generate pipes and wires in Unity,



**Radius:** This is the tube radius

**Segments:** This is the number of segments the tubes will have,

**Flip faces:** Flip the tubes mesh faces

**Two sides:** The tube mesh will be visible from inside as from outside if it's set to true.

**Material:** The tube mesh material

**Export :** export mesh to an asset file , the file can be found in "Assets/SMDExport"

Export settings	
Asset name	<input type="text"/>
<input type="button" value="Export Asset"/>	