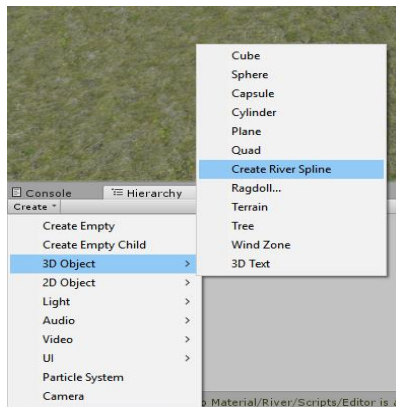


River Auto Material: <https://www.assetstore.unity3d.com/#!/content/101205?aid=1011IGkb>

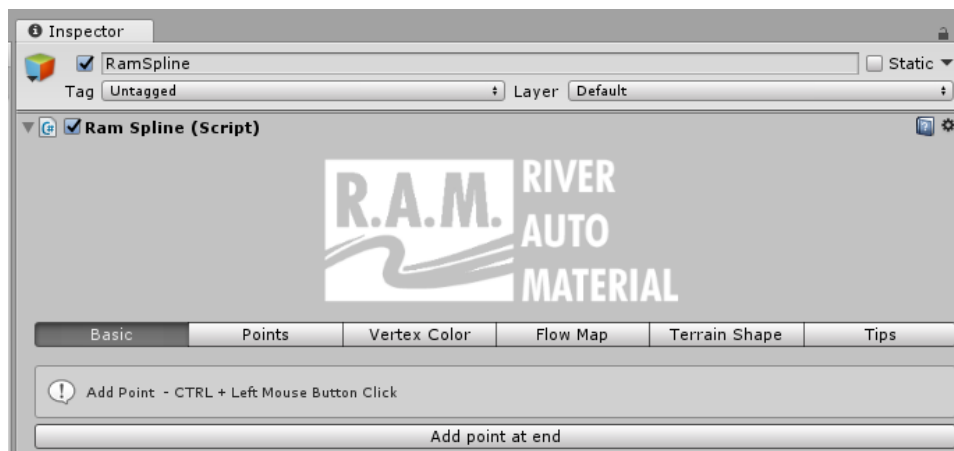


By our spline tool you could create very advanced mesh for your water river or cliff and road. By our vertex paint you could customize meshes and spline in selected places. Here are few steps that will give you ability to create simple mesh for your river:

1. Create river object at your scene:



2. Check spline object at your scene hierarchy. You will get such view in inspector window.



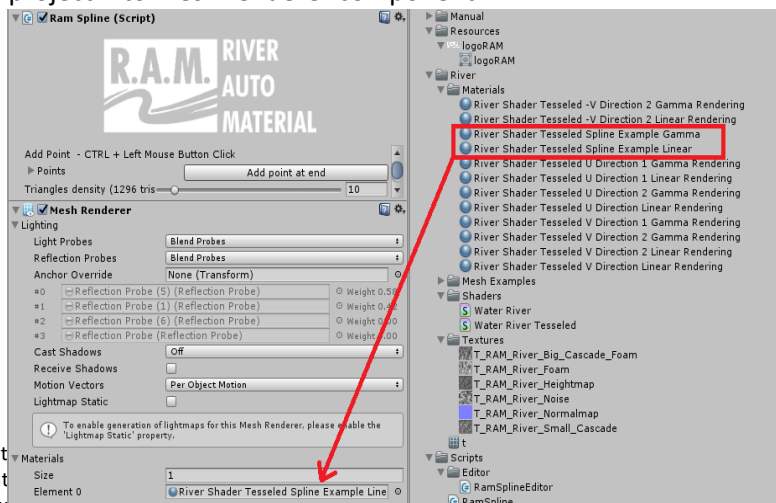
As you see there are few main pages:

- **"Basic"** - changes which are global for whole mesh or even few of them if rivers are connected.
- **"Points"** - local changes like rotation, position, scale, add, remove, select.
- **"Vertex Color"** - modify mesh and customize locally by our vertex color tool if vertex color shader is selected.
- **"Flow Map"** – modify flow map for shaders that support flow direction
- **"Terrain Shape"** – modify terrain under the spline
- **"Tips"** info about lighting and tricks.

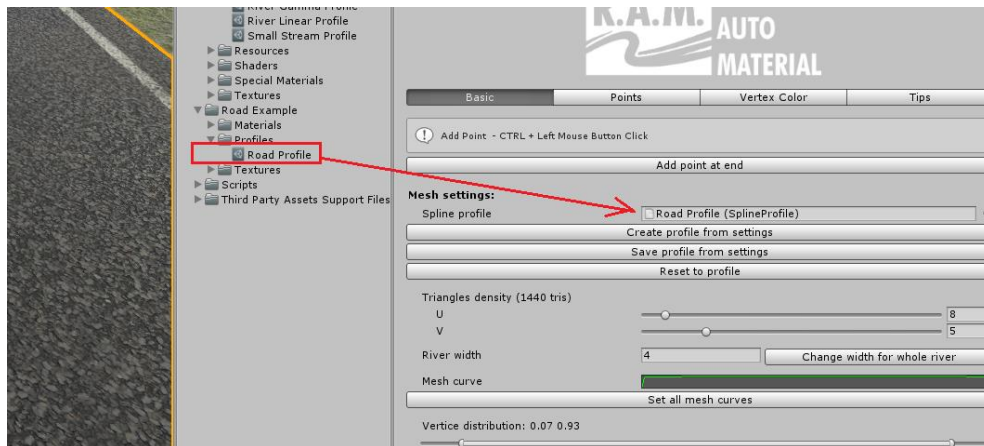
3. Add points (raycast from mouse) when you hold CTRL + Left Mouse . Setup few points like that.

4. To setup your material into river you can do this in few ways.

- You could drag and drop it from our library or create your own. Just drag and drop material from project into mesh renderer component

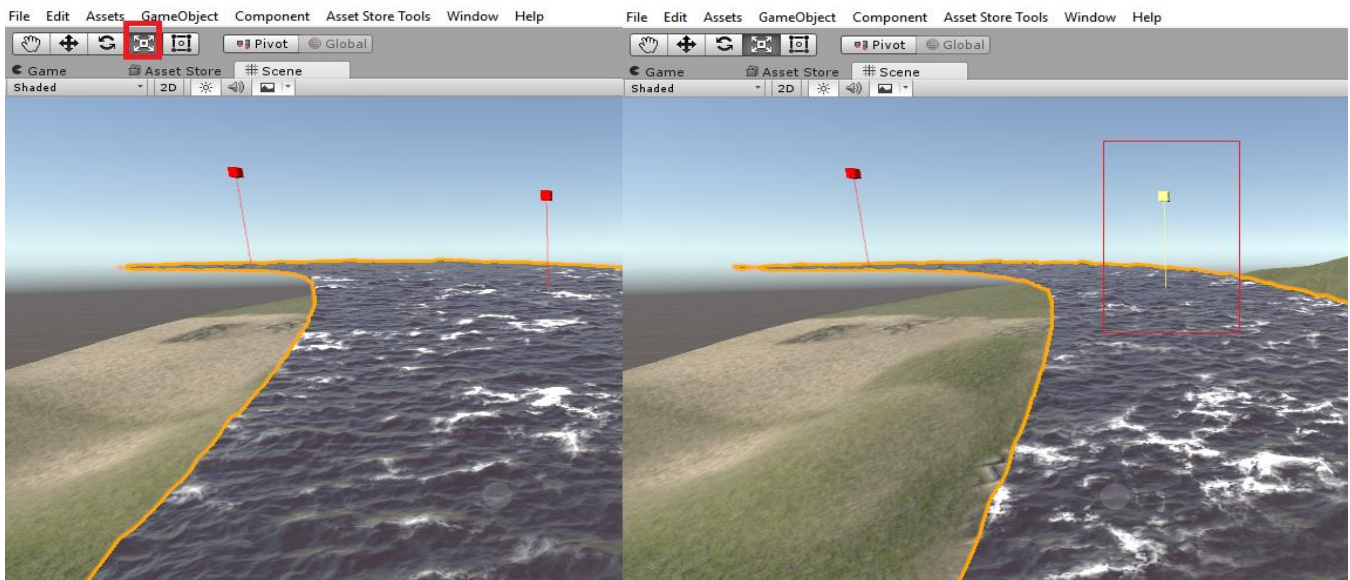


- You could drag and drop profiles which contain info about material, mesh shape, spline resolution. Try our river and road profiles. It's very useful, you don't have to copy paste any values anymore to create similar effects.

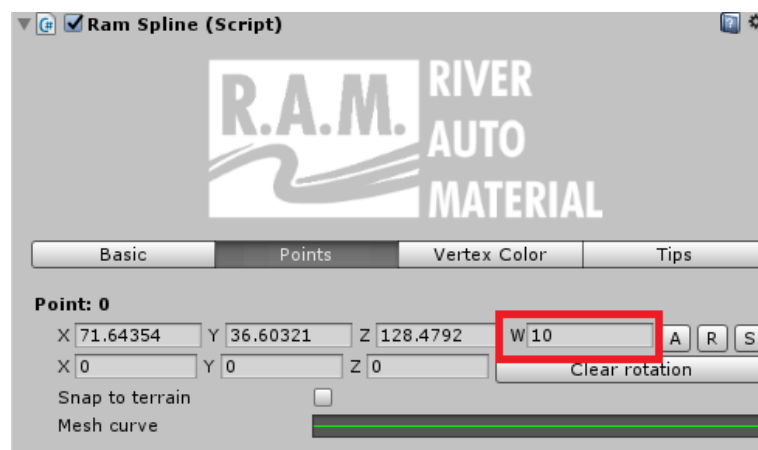


5.Scale mesh.

You could start scaling your river in specific point by clicking "R" or by this marked button. During moving the box up or down at your screen, river will get different scale at selected point.

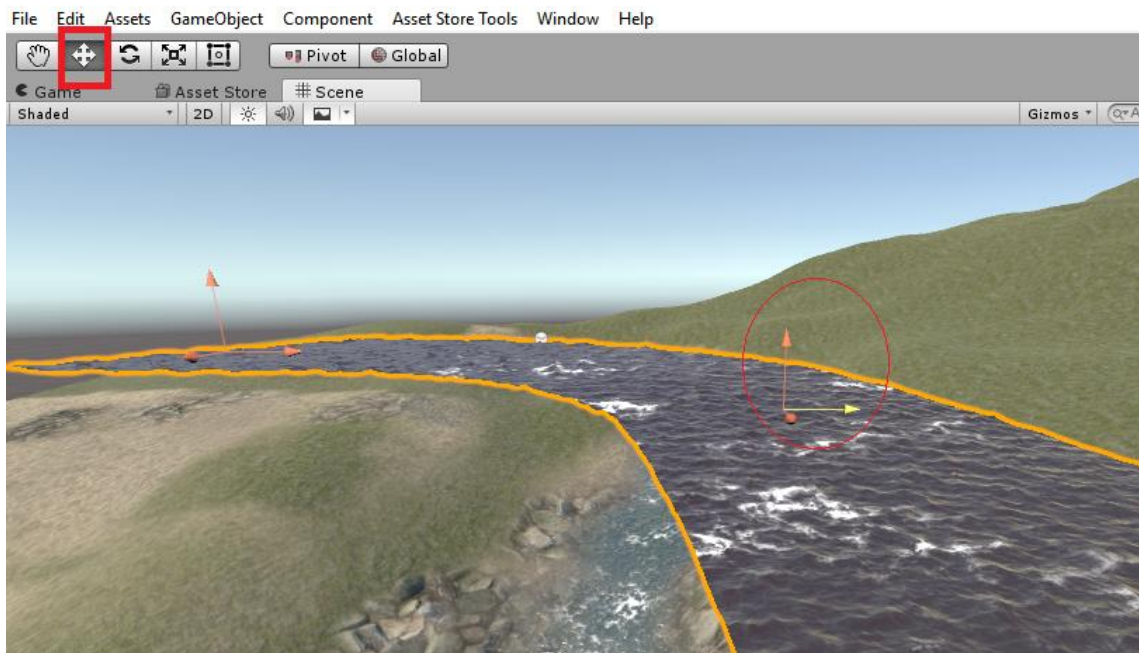


You could also scale river in specific place in Points page – “W” value



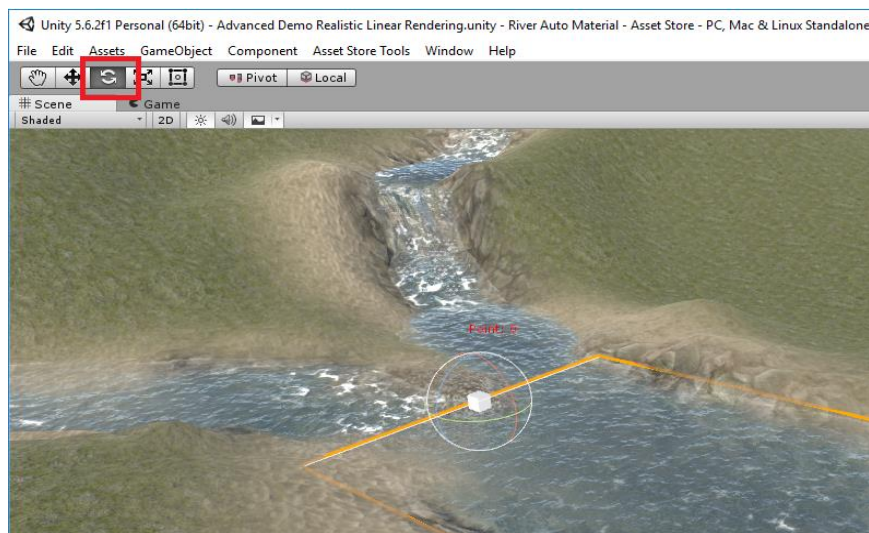
6. Point move.

You could start to move your river specific points by clicking "W" or by this marked button. By moving selected arrow at your screen river point will change point position.

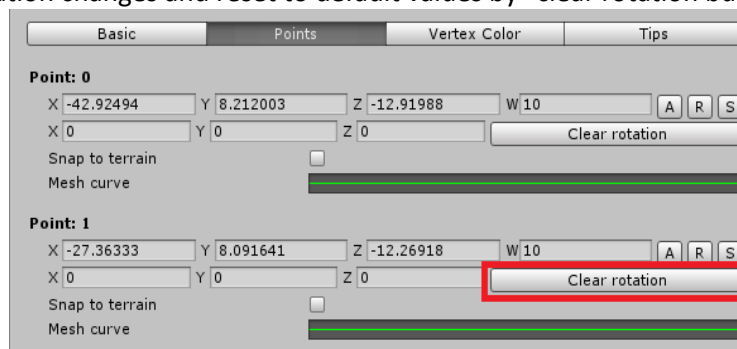


7. Rotation

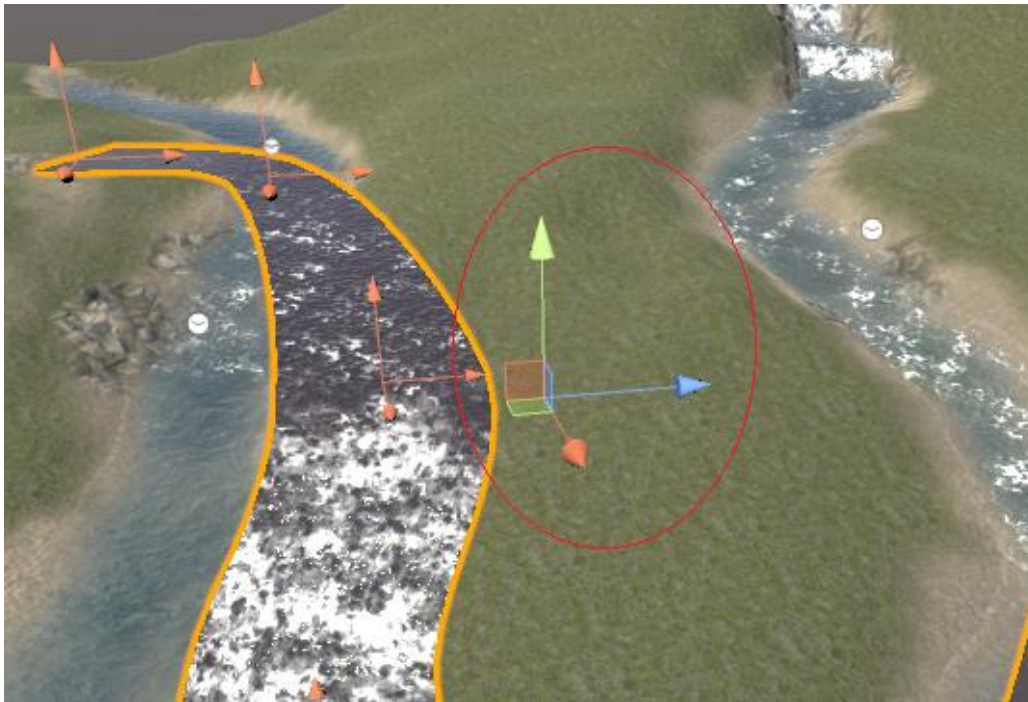
You could rotate points at river like normal objects in scene hierarchy. Click "R" or marked this button. Note that too big angle sometimes could invert normal but small changes could fix spline or add additional details. By green and blue lines you could control shape, by red mesh normal direction. Via mesh normal direction you could create cascade even at flat area or adjust it before or after cascade. We advise to play with it a bit!



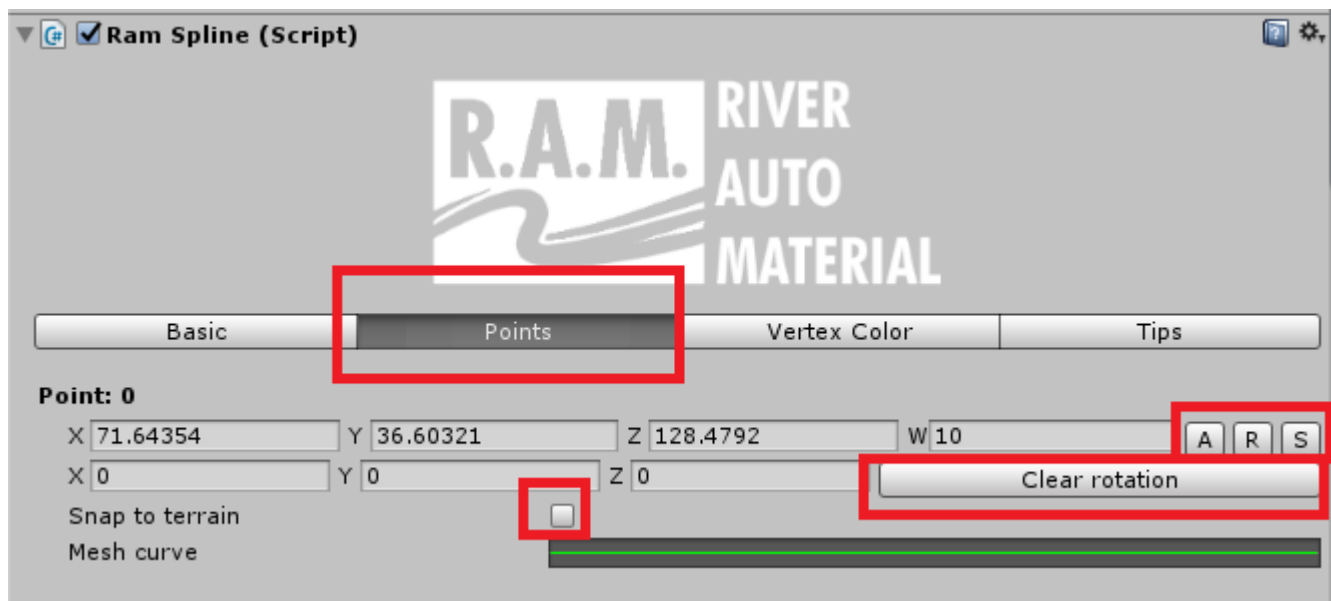
You could always clear rotation changes and reset to default values by "clear rotation button" in points page.



8. You could move whole river by selecting big object arrow.



9. Additional point options in points page:

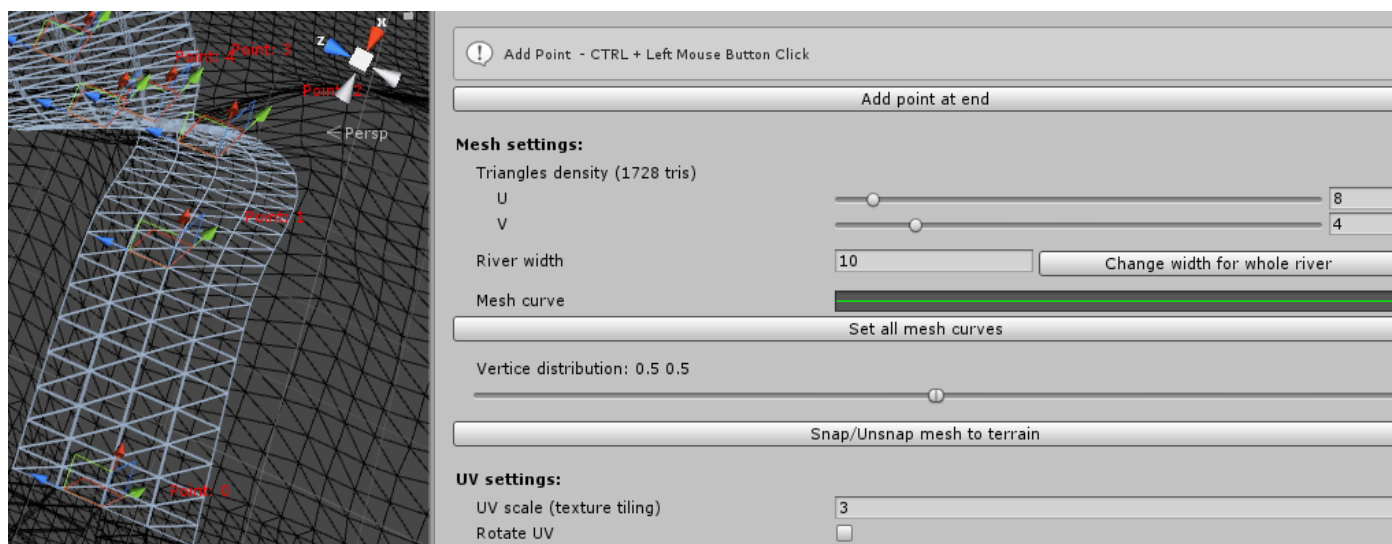


- "R" button to remove points from spline.
- "A" button to add point after this selected point.
- "S" button to select "mark" point at spline. Helpful before remove operation.
- "Clear Rotation" will reset rotation in current point to default values
- "Snap to terrain" your mesh (mesh will follow the terrain in current spline point), useful for streams and in other objects then river, our tool is universal.
- "Mesh curve" allows you to change locally mesh shape in current point. Useful rather for roads or small streams in combination with "Snap to terrain" To get more visible changes you have to change mesh distribution in "Basic" page.



10. Mesh resolution.

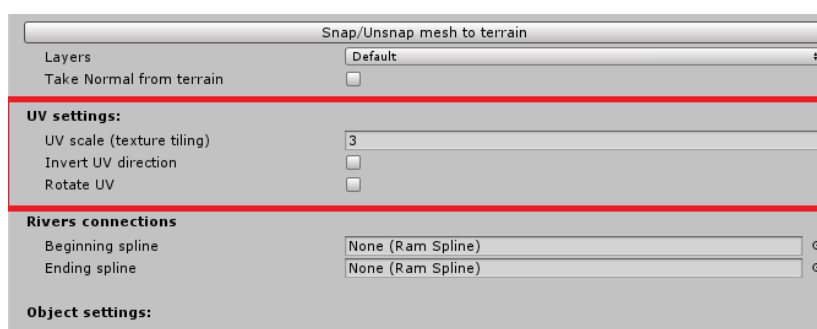
You could control it by changing triangle density number in U or V direction. From our perspective 4-8 is pretty good value. You could add more triangles in specific area by adding more control points instead of adding them globally by this slider. If you connect few rivers you also have to keep a bit more verts in V value to distribute to other rivers. Note that if you have multiple rivers connected this option will be switched off for rivers which are connected with main river. More info you will find lower. Anyway just play with it.



Note: For tessellated shader it's good to hold pretty square mesh because of equal triangles. Ofc do not add V density too much. Tessellation will handle non square mesh but when difference is too huge it could start to look weird. In close distance tessellation will handle and fix most mesh problems with river shape so there is no need to adding huge density in the mesh – trust tessellation ☺

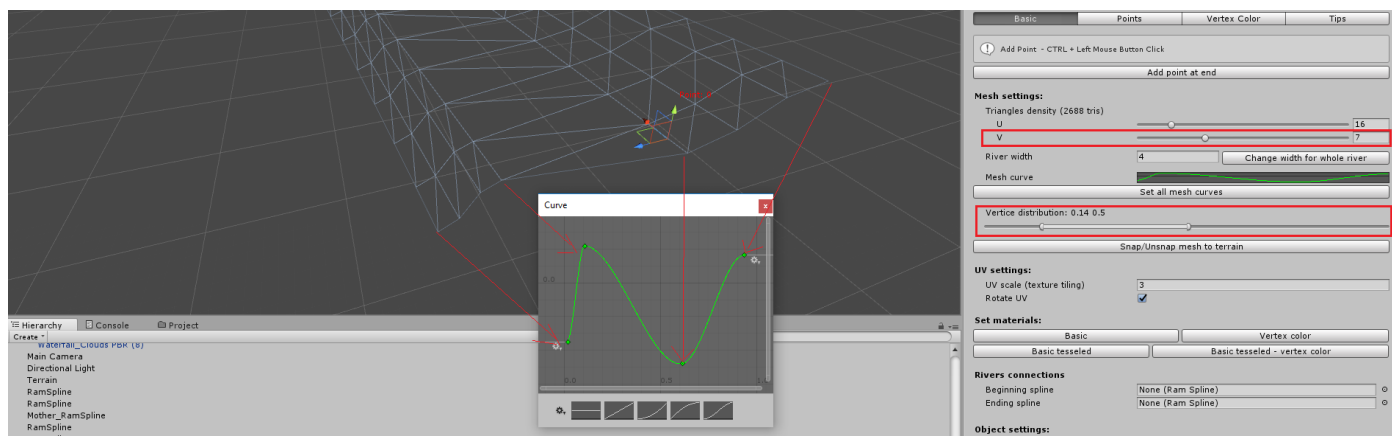
11. UV settings

UV control gives ability to change tiling of the river or rotate whole UV by 90 degrees. Our realistic material use non-rotated uv. This option was added to support textures with different directions. UV scale could be switched off if river depend from other rivers (multiple river connections) . You could also invert river direction.



12. Mesh curve and vert distribution.

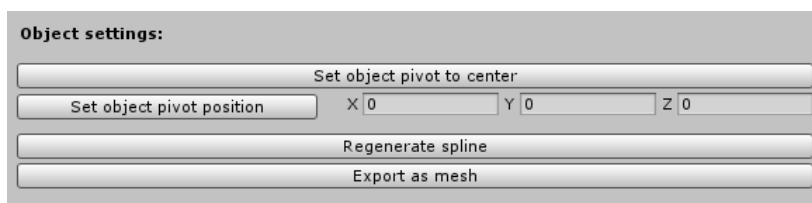
This options allow to change mesh shape and vertex position. Anyway this need a bit more V density. Take a look at this configuration:



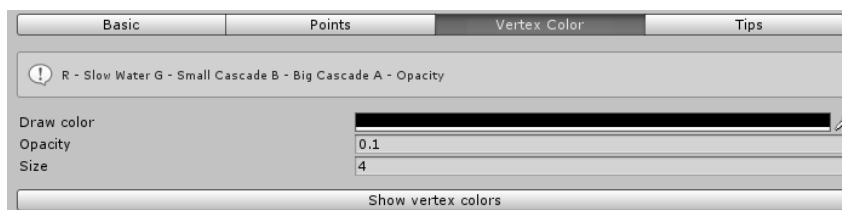
We moved vertex density into left side of the mesh and we change shape globally by curve. You could change this shape also locally in "Points" setting.

13. In object settings you could:

- change river object pivot position to its center or specific position.
- export it into unity asset instead of editable spline object.
- regenerate mesh object if you need. For example after copy/paste into other scene or multiple rivers changes/refreshing. It sometimes helps.



14. About vertex color:



- When you start playing with vertex color you have to choose vertex color shader variant.
- Each color/mask give ability to paint by different water stage.
- Different surface react on their own way on vertex paint:



- Water:

- R – Slow water
- G – Small cascade
- B – Waterfall
- A – Alpha color It's useful to blend with other water systems or paint specific behave in specific place.



15. Multiple river connections

Best practice is to watch our video tutorial with our demo scene then try to do it yourself. Basically you have to prepare yourself for this operation. Because there is few rules which have to be hold to get good synced mesh. For non-tesseled shaders you don't have to keep them all because vertex offset will not desync and destroy mesh at connections.

- If you create 2 rivers connections and they will become 3rd you have to drag and drop 3rd river as end of 1st and 2nd and adjust how big part of new river is 1st and 2nd river by "Part parent" slider.



This 3rd river will now control "V" mesh density of your 1st and 2nd river and tiling. We did this to create seamless connection between rivers even with tesseled shader. Look at V and UV settings at 1st river. They were grayed.

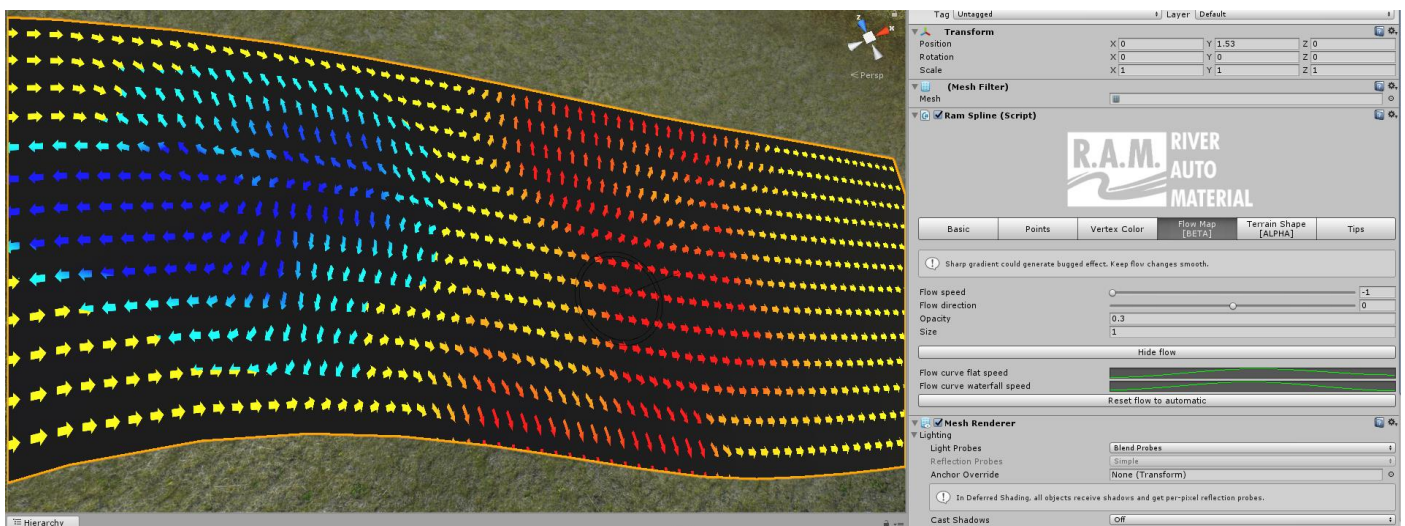
- If 1st river become 2nd and 3rd river you have to connect 2nd and 3rd river into mother "1st river" at beginning spline window. You also have to adjust how big part of the old river is the new one. In this case mother river will also control 1st and 2nd "V" mesh density. Anyway look in our example this 2nd river is also connected to another river in ending spline window. Bigger constructions are also allowed.





In such case you could create connection of 2,3,4,5 rivers at the same place but... each river take 1 or more “V” resolution. If mother river have v resolution = 4 you could create 2 rivers with V=2 and V=2 like at the image or V=3 and V=1. Play with it and check our complicated example in our demo scenes. We will add more info about this soon and show how awesome it could be.

16. Flow Map



Flow mapped shaders are very sensitive. Gradient between direction must be smooth, mostly in tessellation shaders where verts must smoothly change UV and direction. We gives to debugs.

- Show flow directions - Arrows with colors which shows direction and speed of water. Deep red or blue mean big speed. Be careful and blend speed, don't create big gradient. (At screen we have totally bad example:D).
- Show flow smoothness – used to debug flow on connections between multiple rives. If you will see hard gradient there, try to move a bit mother river it will blend flow in connected rivers.

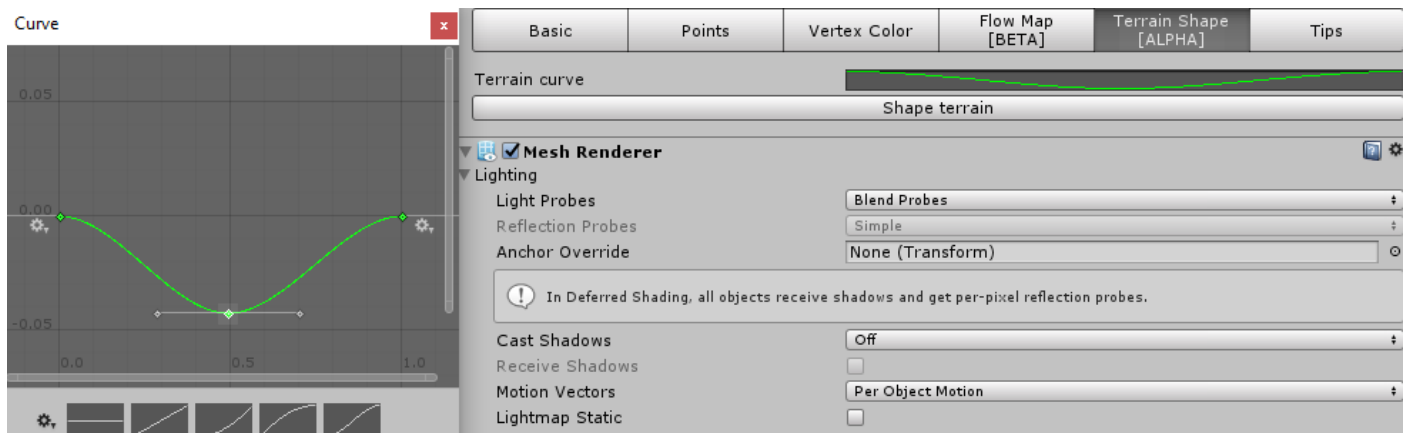
Note!!

In next version we will add flow painting on multiple rivers at the same time. Until now you have to carefully blend flow on river connections or leave this as it is – it will work fine and natural on automatic mode. Flow mapping need a bit more love from our side. We will upgrade it many times.



17. Terrain Shape (Alpha)

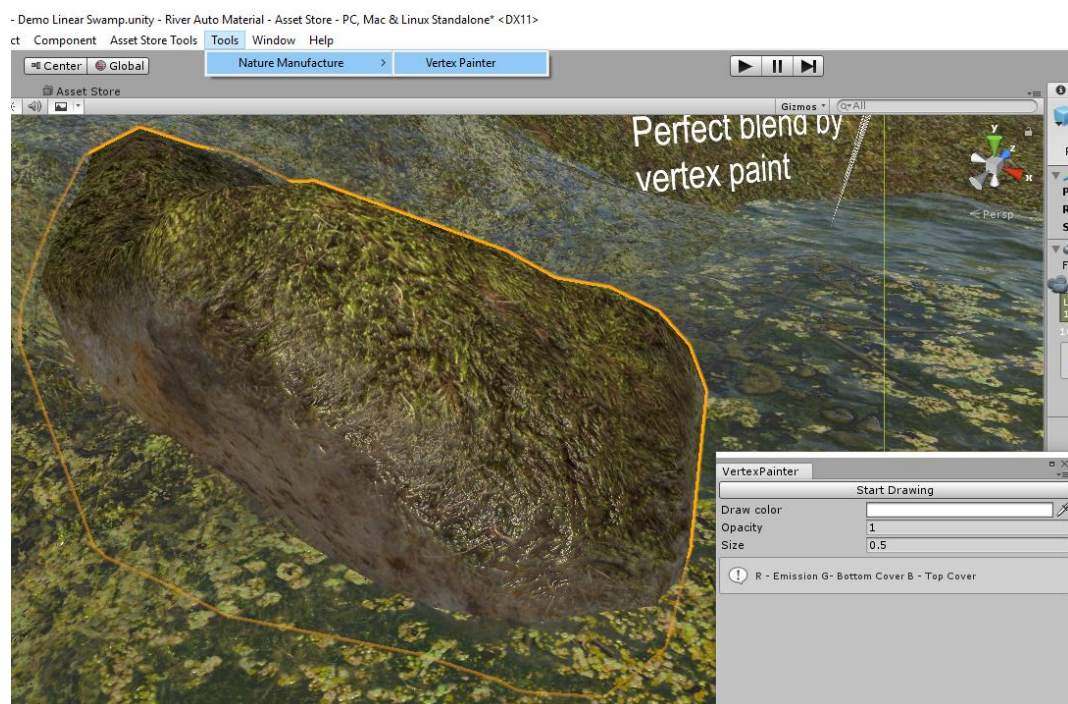
This is early tool to shape terrain around spline. It works on multiple terrains and it could create river bed or road hill. We will focus on this as well at next releases to save your time.



18. Vertex Painter (Beta)

This early version of tool give ability to paint on vertex to get additional effect. In river it will make rocks wet or cover by moss.

- Default color is white – no actions. By decreasing color power R,G or B it starts to shows effects in our shaders.
- We choose white because shader must work without any effects on default white meshes too.
- **Always check mother** (object with LOD group) to paint on every LOD at the same time. If you will check only LOD_0 etc only this lod will be modified. Rest will be untouched. For small changes its pretty cool to leave last LOD untouched to save GPU and memory. You always could paint on all LOD's and at the end change/reset last LOD mesh to default.



We will improve it every update but.. you also could use own vertex paint tools to play with our shaders.



