Shaders

Dissolve

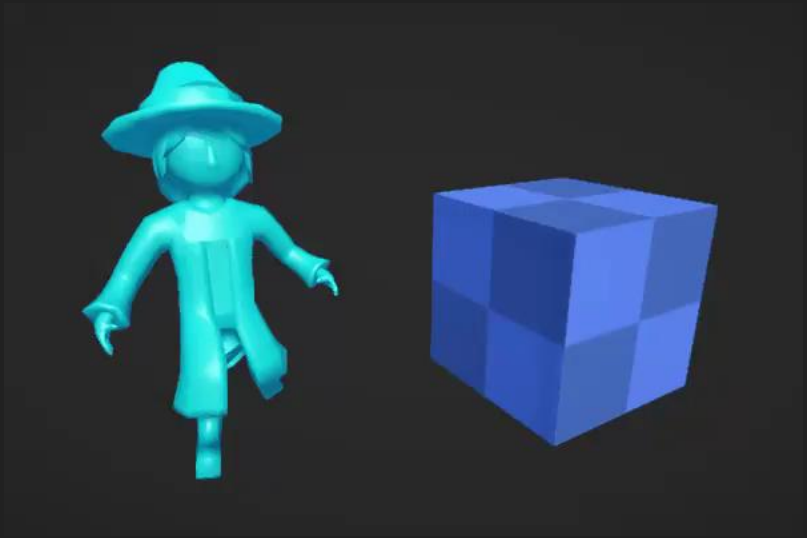
Akis Zachariadis - Games Dept. Coordinator

Manipulation Elements

- Surface Elements
  - Textures, Emissive, Specular etc.
- UVs
  - Scrolling, Scale, Twist
- Object Position
  - Vertex Position, Normal Vector, Camera Position

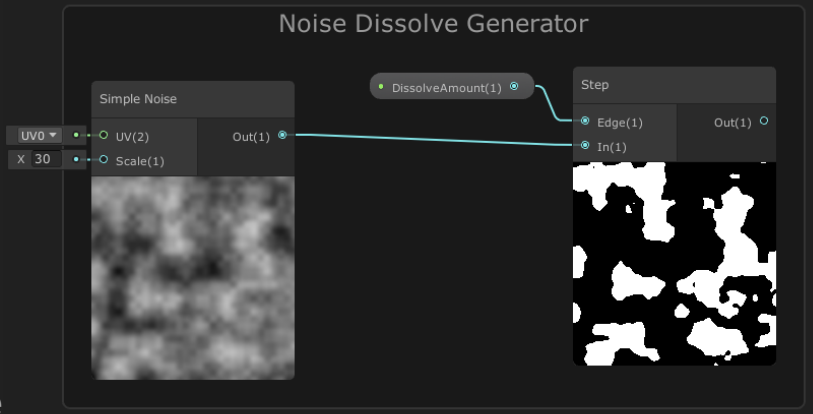
Dissolve Effect Breakdown

- Transparency based on Noise Texture
  - Generate Noise Texture, Sample Noise Texture
- Noise Edge Width
- Noise Edge Color
- Scrolling across the object
- Dissolve based on the Y of the Object



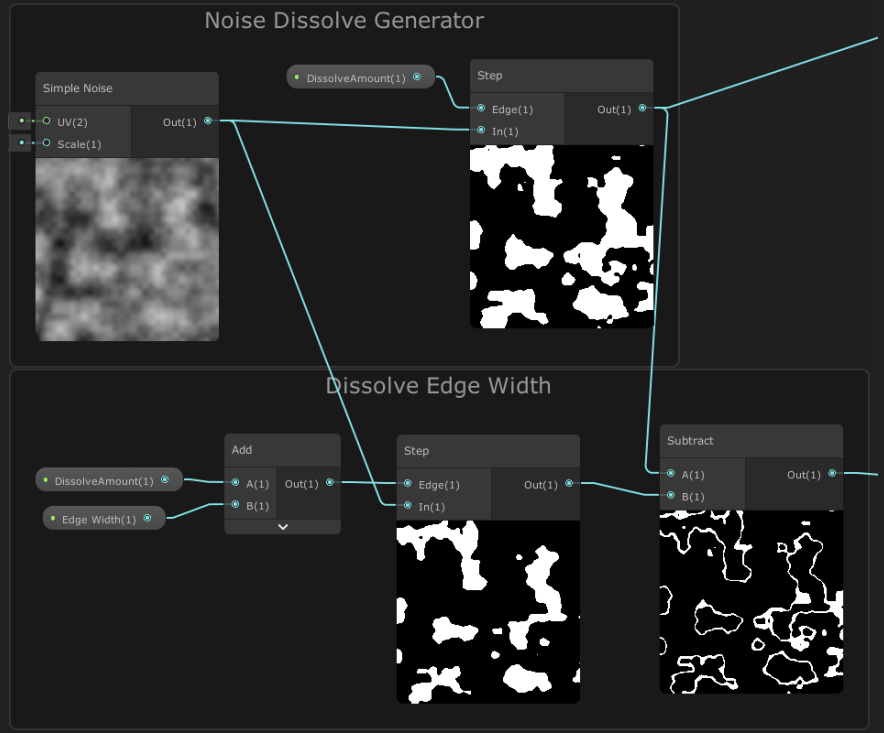
Dissolve Noise Texture

- We can use the node Simple Noise or Gradient Noise to generate the Noise Texture for the Dissolve Effect.
  - For performance reason we can use a noise texture and sample it. [Mobile]
- The noise texture generates values between 0-1. Because we want to have parts of the object either opaque or full transparent we want the values to be 0 or 1.
- The Step node based on a value pushes the value to 0 or 1 based if they are bigger or smaller to a specific amount. In our situation it is based on the Dissolve Amount



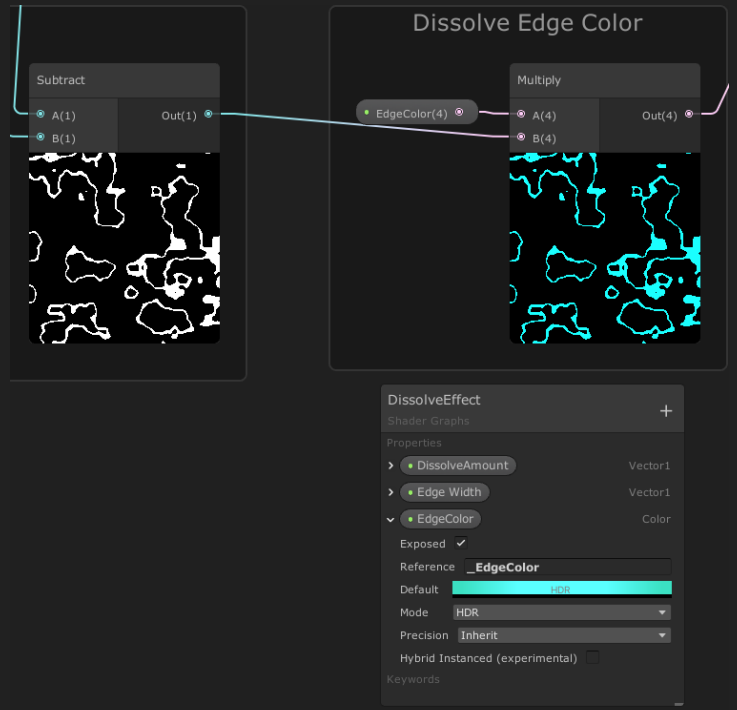
Edge Width

- In order to create an edge at the end of our dissolve effect we need to create a space that we can control the width and apply color.
- For this reason we will create a smaller version of our dissolve texture and we will subtract it from the bigger version. The result of the subtract will be the difference which means the edge width space that we wanted
- To create a smaller version of the dissolve texture we will have to use again the Step Node and for the Edge input we will use the DissolveAmount property but we will add a really small number. (0.05)



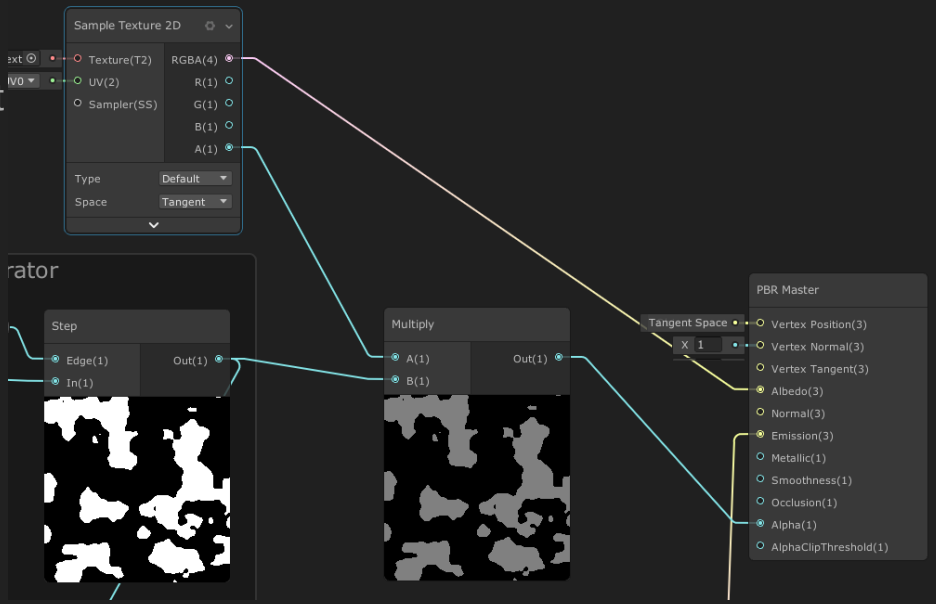
Edge Color

- For the Edge Color we will have to multiply the result of the subtract with a color property.
- If we use a PBR graph we can connect the multiply result to the emissive input.
  - For the glowing effect we will have to use a bloom post process in Camera.
  - Also, in the color node use the HDR mode and increase a bit the intensity
- However if we use an Unlit Master node, since it only has a Color input, we must use a Lerp node in order to interpolate between the texture and the dissolve.



Dissolve Based Transparency

- To create the transparency effect based on our dissolve we must multiply the result of the step node with the small edge amount with the Alpha component of our main texture.
- We will insert the result of the multiplication to the Alpha input of the Master node.



Dissolve Based on Height

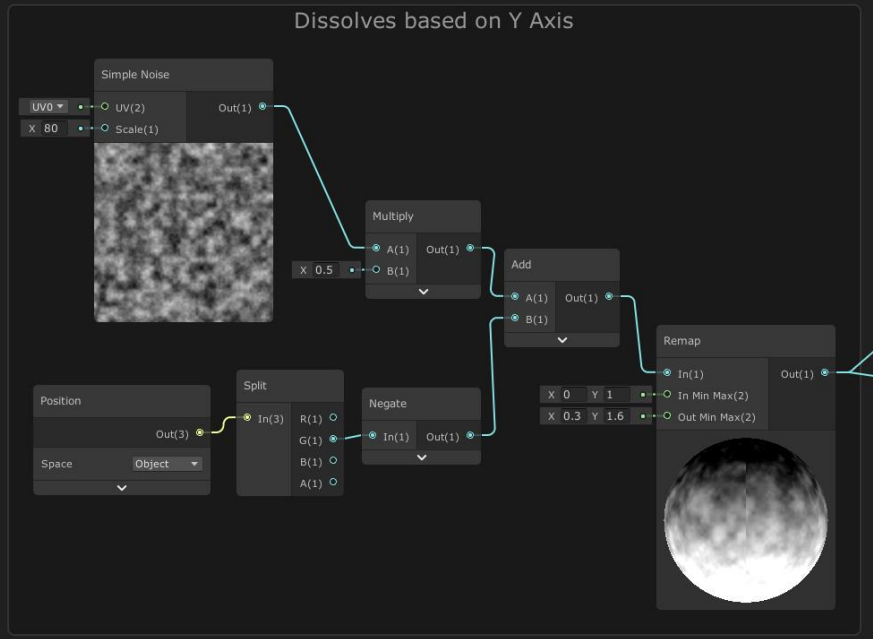
- Our current effect dissolves uniformly across the mesh/object. We can add a feature to our dissolve effect to follow specific axes of our object.

- For this behavior we can use the Position node and obtain the Y axis of the object. In order to obtain it we must use the Split node and get the G output.

  - If we want the dissolve effect to stay fixed on the object axis regardless of rotation and scale we must use Object Space otherwise we must use World Space.

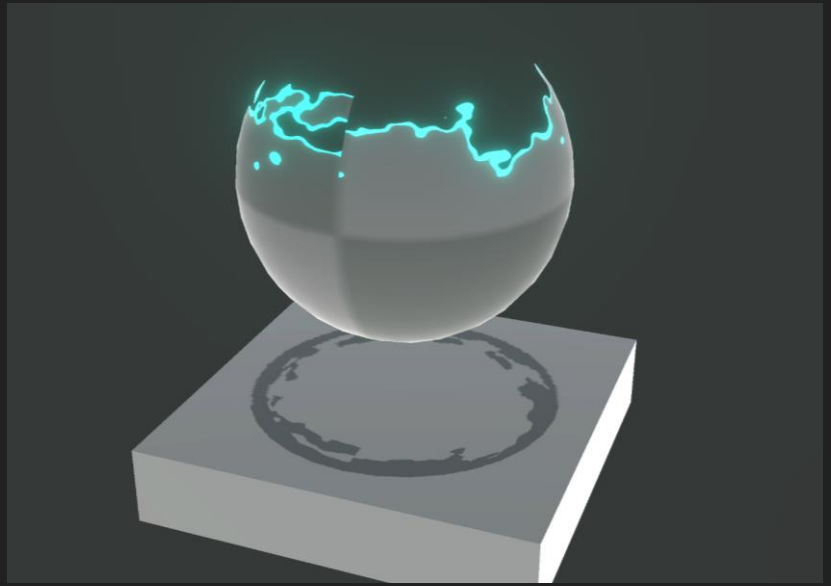
- We will add this onto the noise output, but first we will negate it, to make sure the dissolve effect starts with an DissolveAmount of 0.

- Because we add values to the Noise we move the values outside the range 0-1 so we need to remap them.



Issues

- Visible Seams
  - Use triplanar texturing or view space
- On view space as the camera moves the texture noise will follow the movement
- If we want to avoid this effect we can offset the view position with the object's origin.
- Using this method means that every object shares the same set of noise.



Challenge #7

- Add scrolling animation on the dissolve effect
- Add edge color change when it is scrolling
- Create 2 variations of noise texture: Voronoi and Gradient Noise
- Add twirl effect on the noise textures
- Add script functionality: When you approach the object it starts dissolves