

ALL IN 1 SPRITE SHADER

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Overview

First of all thanks for downloading this asset! The intention of this asset is to provide you with an all in one solution to include cool popular sprite and UI images effects to your project in the easiest and fastest way possible.

What makes this asset unique is that you choose which effects you desire and the material will blend and stack all your desired effects appropriately. So the same material allows you to create a huge variety of effects without altering the setup of your sprites.

Link to the youtube playlist that explains how to use this asset:

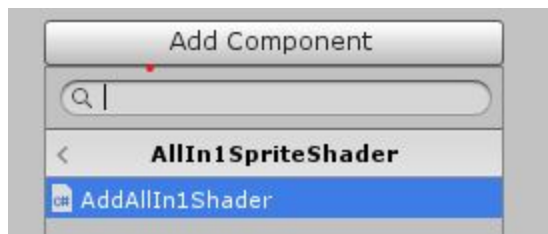
https://www.youtube.com/playlist?list=PLKS0HUbKxp-IL2P67N9W0_fJ_55IynpPP

How to use

Here you have a link to a video that explains how to add the tool to your sprites in case you prefer a visual explanation:

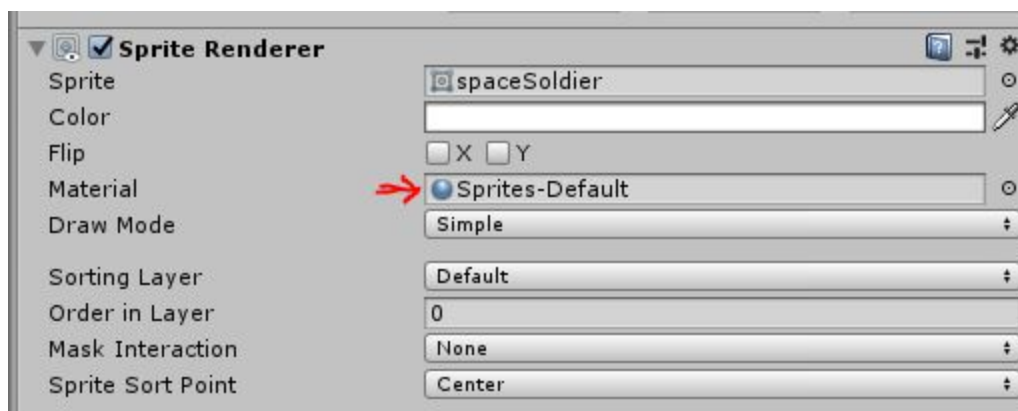
https://youtu.be/47Q9uPL_C0U

The asset includes a component that will do all the setup for you. The component is called “AllIn1Shader”:



When you add it, the component will swap the current material for a new instance of the AllInOneSpriteShader material. The component also has some features that are overviewed in the next point.

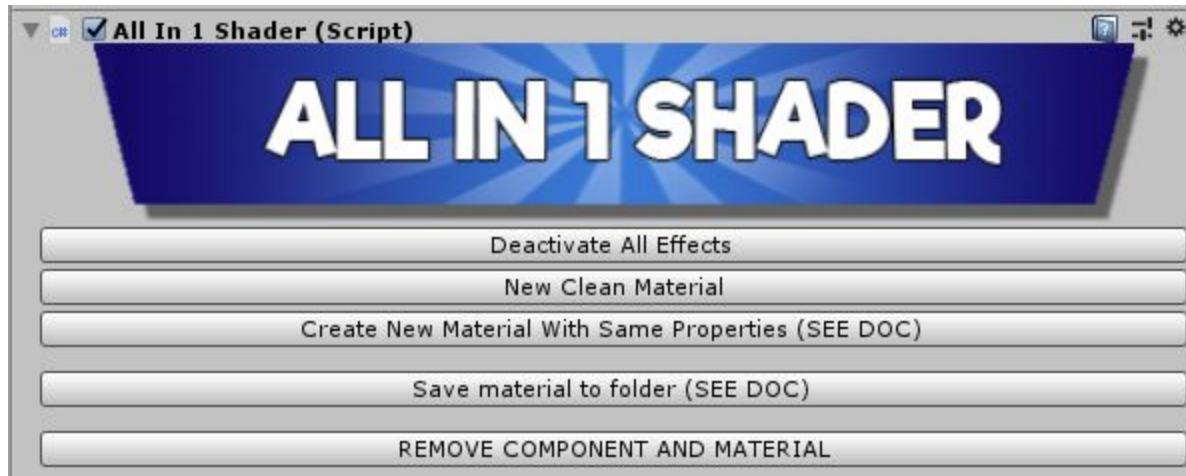
But you can also do it the classic way: right clicking the AllInOneSpriteShader and then going Create->Material. You can then name this material and drag it into the Sprite Renderer Material slot in the Inspector of the desired Sprite:



The same process can be followed for UI images.

Component Features

Once added the component will look like this:



The buttons do the following:

- **Deactivate All Effects:** It will deactivate all effects but won't touch any properties. So if you activate an effect again you will obtain your previous visual results.
- **New Clean Material:** It will create a new instance of the AllInOneSpriteShader material and assign it to the Sprite.
- **Create New Material With Same Properties:** It will create a new instance of the AllInOneSpriteShader material with the same properties of the previous one. This is useful when you want to create a material similar to another one.
- **Save Material to Folder:** Creates a Material asset with the name of the current GameObject and saves it in the following path: "Assets/AllIn1SpriteShader/Materials". This can be used to assign the same Material to many different Sprites.
- **Remove Component and Material:** Removes the component from the GameObject and sets the Sprite Material back to the Sprite/Default one.

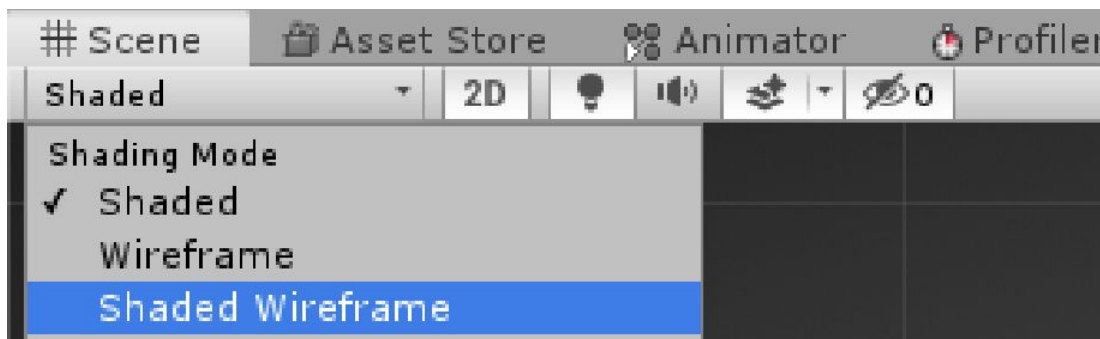
Textures Setup

In order to get the effects looking as they should, it's important to know is how to import and setup the textures we'll be using for our sprites and UI images.

Here you have a link to a video that explains how to setup your textures in case you prefer a visual explanation:

<https://youtu.be/K4I8OCZAMio>

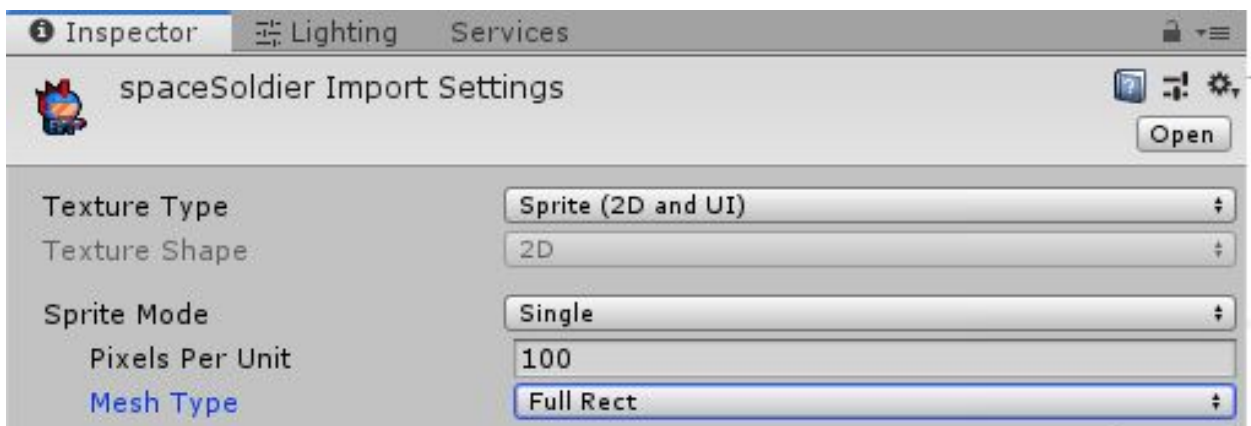
1. The most important part is having room within the sprite shape to show the effects. In the top of the Scene window you can choose how the scene view is rendered. If we change from Shaded to ShadedWireframe we'll be able to see the sprite rect size:



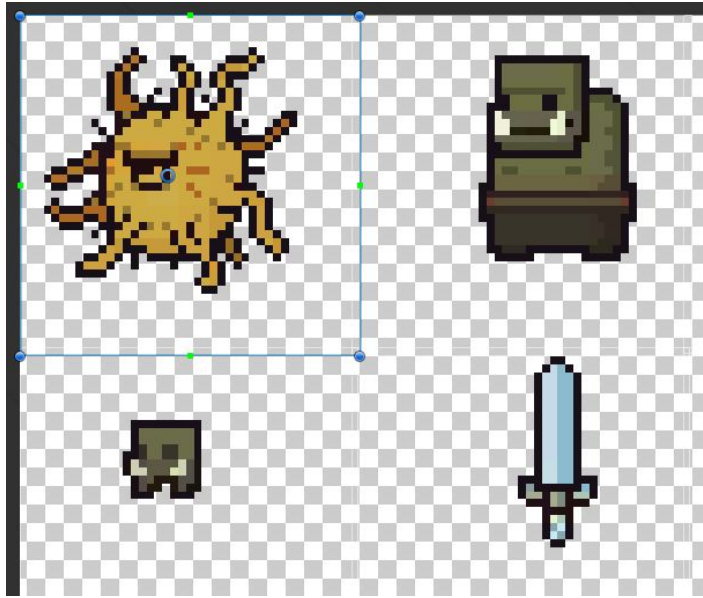


In the Shaded Wireframe view we can see black lines, that's the shape of the mesh where your sprite is being rendered. To get all effects to display properly we'll need more space.

The easiest way of doing so is changing the Mesh Type to Full Rect in the import settings of the sprite:



2. In a similar fashion if we are using a spritesheet you must import the sprites in Multiple Sprite Mode (as you always do) and then make sure that when you Slice your sprites they have some spacing:



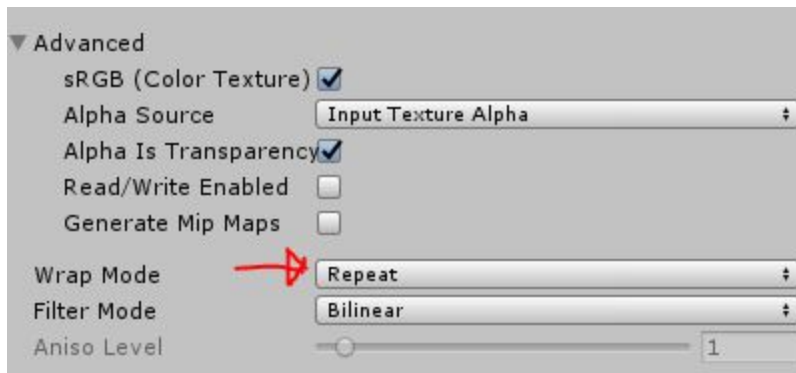
Notice how sprites have a generous spacing between them.

3. You'll see that some effects have a Glow property. In order for these properties to have the desired effect you need to add Post Processing and Bloom to the Main Camera of your scene.

If you don't know how this is done you can follow this video:

<https://youtu.be/ly6EGFLvLBQ>

4. Most of the time it will be a good idea to set the Wrap Mode of the Import Settings of the textures you use to Repeat. This will assure a proper result when using effects that use scrolling textures



5. The same exact process applies to UI images

How to animate effects

The custom material inspector properties can be animated through the Animation window as any other Unity component.

If you don't know how this is done you can follow this video:

https://www.youtube.com/watch?v=28kfPcAlwuY&list=PLKS0HUbKxp-IL2P67N9W0_fJ_55lynpPP&index=5&t=0s

Scripting

If you prefer avoiding animations or want to change properties through code you also have the possibility.

To do so you'll need to use the following Unity functions:

- Material.SetFloat:
<https://docs.unity3d.com/ScriptReference/Material.SetFloat.html>
- Material.SetColor:
<https://docs.unity3d.com/ScriptReference/Material.SetColor.html>
- Material.SetTexture:
<https://docs.unity3d.com/ScriptReference/Material.SetTexture.html>

You can find all property names on

AllIn1SpriteShader/Resources/AllIn1SpriteShader.shader. All properties are located from line 6 to 193.

Here an example code snippet:

```
Material mat = GetComponent<Renderer>().material;  
mat.SetFloat("_Alpha", 1f);  
mat.SetColor("_Color", new Color(0.5f, 1f, 0f, 1f));  
mat.SetTexture("_MainTex", texture);
```

Considerations

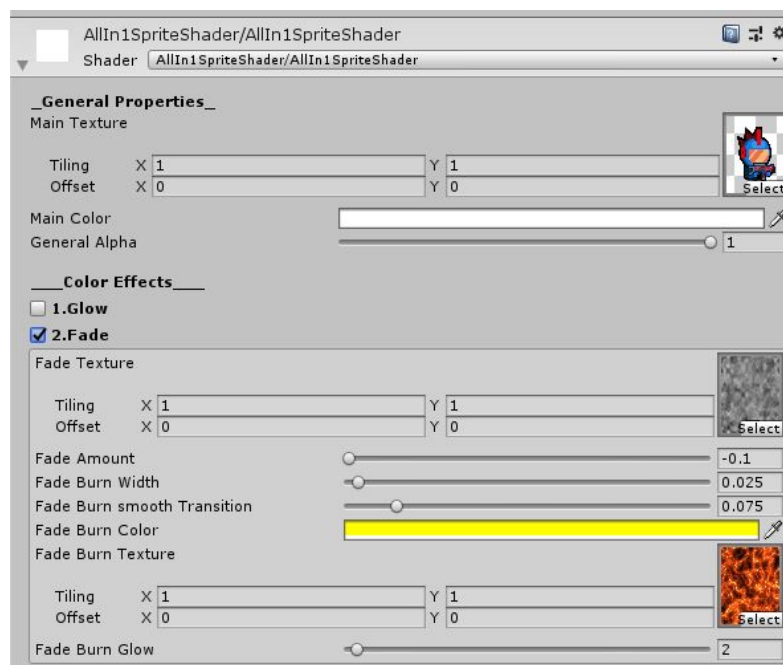
The shader that the material uses compiles flags to enable and disable the code of the different effects. So only the effects that you enable will be taken into account by the GPU and therefore only those parts will be computed.

The shader code is also fast, uses as less memory as possible and has no conditionals.

That being said, having all these properties in the shader has a slight GPU overhead. But there's nothing to worry about unless your game displays many different materials at the same time since Unity will batch instances of the same material into a single draw call.

Effects and properties breakdown

The AllIn1SpriteShader has a custom Material Inspector that allows you to activate and deactivate effects. When an effect is activated it displays its properties so that they can be modified:



This is the custom Material Inspector. In this image we can see that the Fade effect is activated and all its properties.

Keep in mind that there's an example of every effect on the Demo scene.

- General Properties
 - Main Texture: Main Texture, supports Tiling and Offset
 - Main Color: The Tint of the the Main Texture
 - General Alpha: Transparency of the end result
- Color Effects
 1. Glow (Needs Post Processing Bloom to work as intended)
 - a. Glow Color: Color of the Glow
 - b. Glow Intensity: Indicates how much the sprite will glow
 - c. Glow Texture used?: When checked shows the following property
 - d. Glow Texture: Acts as a mask. The glow will only be applied where the alpha of this texture is greater than 0
 2. Fade
 - a. Fade Texture: Maps how the fade will be made. The fade will be made from black to white
 - b. Fade Amount: How much fade to apply. 0 is no fading and 1 is completely faded
 - c. Fade Burn Width: Size of the burned edge. Can be set to 0 to have no burned edge
 - d. Fade Burn Smooth Transition: How sharp the burned edge is
 - e. Fade Burn Color: Tint of the burned edge
 - f. Fade Burn Texture: Texture of the burned edge
 - g. Fade Burn Glow: How much the burned edge glows (needs Bloom in the scene)
 3. Outline (when the width is large it doesn't look good)
 - a. Outline Base Color: Tint of outline color

- b. Outline Base Alpha: Transparency of the outline
 - c. Outline Base Glow: How much the outline glows (needs Bloom in the scene)
 - d. Outline Base High Resolution: When toggled the outline has double the resolution and looks smoother on corners. It's more expensive computation wise
 - e. Outline Base is Pixel Perfect: When toggled the outline width increases pixel by pixel (ideal for pixel art games)
 - f. Outline Width: How thick the outline is
 - g. Outline uses texture: Toggles if the outline has a texture overlay or not (is affected by Outline Base Color)
 - h. Outline Texture Scroll Speed: Scroll speed of the outline texture in the X axis and Y axis
 - i. Outline Texture is Greyscale: When toggled the outline texture will be greyscaled
 - j. Outline uses distortion: When toggled distortion will be applied to the outline and the outline distortion properties will be shown
 - k. Outline Distortion Texture: Noise texture that determines how the distortion is done
 - l. Outline Distortion Amount: How much is the outline distorted following the distortion texture
 - m. Outline Distortion scroll speed: Scroll speed of the distortion texture in the X axis and Y axis
4. Gradient
- a. Gradient Blend: How much of the gradient we show. 0 means the gradient will be fully transparent and 1 means that it will be fully visible
 - b. Gradient Colors: The color of each corner of the gradient. Colors will be automatically blended together
5. Color Swap (needs a color swap texture to work)
- a. Color Swap Texture: This texture must contain pure red, blue and green sections. This sections will then be recolored with whatever color we choose in the following properties

- b. Color Swap Red Channel: New color of the red parts of the Color Swap texture
 - c. Color Swap Red Luminosity: How bright the Red Channel Color will be
 - d. The green and blue properties work like the red channel properties
- 6. Hue Shift
 - a. Hue Shift: How much the colors will be shifted
 - b. Hue Shift Saturation: Saturation of the hue shift result
 - c. Hue Shift Bright: Brightness of the hue shift result
- 7. Change 1 Color
 - a. Tolerance: How similar to the Color to Change we need to be in order to change to the new color
 - b. Color to Change: This is the color that the shader will look for. The shader will change the pixels that are similar to this color by the New Color
 - c. New Color: The result color of the pixels that are similar to Color to change
- 8. Color Ramps
 - a. Color Ramp Texture: This texture will be the new color palette of the sprite
 - b. Color Ramp Luminosity: Extra of luminosity used to shift the color palette to where you want
 - c. Color Ramp Affects Outline: When checked the color ramp will also affect the outline
- 9. Hit Effect
 - a. Hit Effect Color: The tint of the effect
 - b. Hit Effect Glow: Glow of the effect. Needs Bloom in the scene
 - c. Hit Effect Blend: How much of the effect is shown. When set to 0 it's not shown, when set to 1 it shows fully. This is meant to be animated to get cool looking results
- 10. Negative

- a. Negative Amount: How much of the negative effect we want to show
- 11. Pixelate
 - a. Pixelate size: The lower the number the more pixelated the sprite gets. This effect looks bad with combined with distortions
- 12. Greyscale
 - a. Greyscale Luminosity: Make sprite whiter
 - b. Greyscale Affects Outline: When checked the greyscale will also affect the outline
 - c. Greyscale Tint Color: Tint of the greyscale
- 13. Posterize
 - a. Posterize Number of Colors: The higher the number the more different colors the sprite will display
 - b. Posterize Amount: The higher the number the more different the posterize colors will be
 - c. Posterize Affects Outline: When checked the posterize will also affect the outline
- 14. Blur (won't affect the outline)
 - a. Blur Intensity: How much the sprite is blurred
 - b. Blur is low res: When active an alternative and less expensive (computation wise) blur version is used
- 15. Ghost
 - a. Ghost Color Boost: How white the ghost effect gets
 - b. Ghost Transparency: How transparent the effect gets
- 16. Inner Outline (places outlines over the Main Texture)
 - a. Inner Outline Color: Color of the Inner Outline
 - b. Inner Outline Thickness: How thick the Inner Outline is
 - c. Inner Outline Alpha: How transparent the Inner Outline is
 - d. Inner Outline Glow: How much the Inner Outline glows (needs Bloom in the scene)
- 17. Hologram
 - a. Hologram Stripes Amount: How many hologram stripes are displayed

- b. Hologram Stripes Fill: How tall the stripes are
 - c. Hologram Stripes Alpha: Transparency of the stripes
 - d. Hologram Stripes Speed: How fast the stripes scroll
 - e. Hologram Stripes Luminosity: How much the stripes glow
- 18. Chromatic Aberration
 - a. ChromaticAberr Amount: How visible the effect is
 - b. ChromaticAberr Alpha: How transparent the effect is
- 19. Glitch
 - a. Glitch Amount: The higher the number, the more intense the effect gets
- 20. Flicker
 - a. Flicker Percent: The percentage of time the sprite is invisible (from 0 to 1)
 - b. Flicker Frequency: How often does the flicker happen
 - c. Flicker Alpha: How transparent the sprite is when it flickers
- 21. Shadow
 - a. Shadow X Axis: Shadow position offset on the X axis
 - b. Shadow Y Axis: Shadow position offset on the Y axis
 - c. Shadow Alpha: Transparency of the shadow
 - d. Shadow Color: Tint of the shadow
- 22. Alpha Cutoff
 - a. Alpha cutoff value: Pixels that are more transparent than this value are not drawn. This is useful to make more cartoon looking effects and to discard unwanted transparencies from certain effects
- UV Effects
- 23. Hand Drawn
 - a. Hand Drawn Amount: How much of a distortion we apply to make it look hand drawn frame a frame
 - b. Hand Drawn Speed: How often we distort the sprite
- 24. Grass Movement / Wind

- a. Grass Speed: How fast it moves from side to side
 - b. Grass Wind: How much the sprite bends
 - c. Grass is manually animated: When checked the sprite won't move on its own (useful if you want a sprite to interact with the player)
 - d. Grass manual anim: If the previous property is checked this property dictates how the sprite bends. -1 means fully bent to the left and 1 fully bent to the right
25. Wave
- a. Wave Amount: How many waves we make
 - b. Wave speed: How fast the wave scrolls across the sprite
 - c. Wave Strength: How much the wave affects the sprite
 - d. Wave X Axis: Position of the wave origin on the X axis (0 is left 1 is right)
 - e. Wave Y Axis: Position of the wave origin on the Y axis (0 is bottom 1 is top)
26. Rect Size
- a. Rect Size: Size of the mesh where the sprite is drawn. Set Scene to "Shaded Wireframe" shading mode to see the mesh shape
27. Offset
- a. Offset X axis: Offset of the sprite on the X axis
 - b. Offset Y axis: Offset of the sprite on the Y axis
28. Clipping (useful for sliders)
- a. Clipping Left: How much of the image we clip from left to right
 - b. Clipping Right: How much of the image we clip from right to left
 - c. Clipping Up: How much of the image we clip from up to down
 - d. Clipping Down: How much of the image we clip from down to up
29. Texture Scroll
- a. Texture Scroll Speed X: Scrolling speed on the X axis
 - b. Texture Scroll Speed Y: Scrolling speed on the Y axis
30. Zoom
- a. Zoom Amount: How much the sprite is zoomed

- 31. Distortion
 - a. Distortion Texture: Noise texture that determines how the distortion is done
 - b. Distortion scroll speed: Scroll speed of the distortion texture in the X axis and Y axis
- 32. Twist
 - a. Twist Amount: How much is the sprite twisted
 - b. Twist Pos X Axis: Position of the center of the twist on the X axis (0 is left and 1 is right)
 - c. Twist Pos Y Axis: Position of the center of the twist on the Y axis (0 is bottom and 1 is top)
 - d. Twist Radius: The radius of the twist effect
- 33. Rotate
 - a. Rotate Angle: Indicates in radians the angle of rotation of the sprite texture
- 34. Polar Coordinates
 - a. Transforms the uv coordinates into polar coordinates (this effect looks goods with tiling on the main texture + texture scrolling)
- 35. Fish Eye
 - a. Fish Eye Amount: How much fish eye distortion we want to apply
- 36. Pinch
 - a. Pinch Amount: How much pinch effect we want to apply
- 37. Shake
 - a. Shake Speed: How fast it shakes
 - b. Shake X Multiplier: The higher the value the more it will move on the X axis while shaking
 - c. Shake Y Multiplier: The higher the value the more it will move on the Y axis while shaking