Window -> ShaderOne Generator

Render Pipelines:

- **Unlit**: Fastest render pipeline. Can be used with GUI elements and can still use:
    - Reflection
    - Smoothness and metallic textures from substance painter
    - All of the effects in Shaderone
- **Unity Forward**: Default pipeline for 4 vertex lights. Each pixel light is one extra shader pass
- **ShaderOne Lighting**: Can have up to 4 directional lights, 16 point lights and 16 spotlights in one shader pass, and allowing you to choose which you want to be per pixel or per vertex. Lights are chosen based their distance from the camera

Color Precision:

- **Fixed**: Fastest, but least precise
- **Half**: Generally used, useful for short vectors, directions, object space positions, high dynamic range colors
- **Float**: The most precise

Reflection Type:

- **Sphere Map**: Uses a fast, 2D sphere map to approximate reflections
- **Reflection Probe**: For more realistic reflections

Terrain Type:

- **None**
- **Mesh Terrain:** Create mesh based terrain. Can use splat map or vertex colors
- **Unity Terrain:** Enables Unity's terrain, see ShaderOne Material Docs for How to

Warp Type:

- **Off**
- **Simple:** Built in world warping/bending
- **Curved World:** Use the curved world asset for bending (Requires that you own the asset Curved World)

Fog:

- **Solid**: Fades over distance to a solid color
- **Volumetric**: Fog effect in a 3D space with constant density
- **Volumetric 3D**: Fog Effect with billowing effect

    - Fog Image Light: Lets brightness of image effect the lighting of fog in front of it. If it is a lit object it uses any RGB value over 1.0 and if it is unlit it is always used
    - Fog Roughness: Changes vertical roughness of fog
    - Adjustable Raycast count: How many rays to be cast out to calculate the volumetric fog. More looks better, less is faster

Other:

- **GPU Instancing**: Used to “draw multiple copies of the same Mesh at once, using a small number of draw calls.” See Unity Docs
- **Vertex Options:** Enables you to choose color, mesh movement, or terrain splat control options
- **Alpha Map**: Like surface map, but uses alpha map of main texture
- **Baked Light Mapping**: Uses unity light baking
- **Dynamic Light Mapping:** Real time light maps
- **Color Amplify:** Lets you over brighten objects, adds option in material
- **DirectX Normal Map:** lets you use normal maps in the DirectX format
- **UV World Mapping:** Lets you bypass the mesh UV. Map UV to world coordinates
- **Normal Map Flip (BG):** Flips the Blue and Green channels for Normal Maps exported from Substance Painter using the UE4 packed option

- **Normal Map Scale:** Scales normal map
    - None
    - Global
    - Per Layer

- **Ambient Occlusion Scale:** Scales Ambient Occlusion
    - None
    - Global
    - Per Layer

Surface Map:

- **Surface Map Import:**
    - Manual
    - Force SRGB
    - Force Linear
- **Surface Map (RGBA)**: Similar to metallic map in Unity standard shader. Surface maps let you customize what the 4 channels are used for. If using specular workflow, Alpha channel is the only customizable channel. (RGB reserved for specular color)
    - Material Selectable: Lets you pick the options in the material but uses more shader keywords.
        - Other Options do not use any shader keywords but are set for all materials using the shader
    - Metallic
    - Smoothness
    - Roughness
    - Ambient Occlusion
    - Unlit Mask
    - Parallax Height
    - Progress Gradient

Blend Modes: Select what blend modes you want available in your entire project. Only use what you need to use less shader keywords

- **Solid**
- **Cutout**
- **Fade**
- **Transparent**
- **Additive**
- **Additive Soft**
- **Additive Alpha**
- **Multiply**

Lighting Options:

- **PBR**: Physically Based Rendering. Off uses faster diffuse lighting
- **Workflow**:
    - Metallic Smoothness
    - Metallic Roughness
    - Specular
- **Specular Map (A):** What the Alpha channel is used for in the specular map (specular workflow only)
- **Fresnel:** Toggle fresnel
    - Fresnel Power:
        - Fast
        - Normal
        - High Quality
- **Specular**:
    - Off
    - Fast: A faster specular that actually looks better than the standard shader
    - Normal: Specular just like the Unity Standard Shader
    - High Quality: A better looking specular that resembles UE4

- **Specular Blend**:
    - Color: Specular blends with the RGB of the combined layers
    - Monochromatic: Takes the brightest color channel of the combined layers and converts it to grayscale to blend
- **Shadows**: In forward lighting all lights can render shadows. Shader One Lighting renders shadows for a single directional light only
- **Light Probes**: Used to get baked lighting and ambient light
- **Directional / Point / Spot Lights (**ShaderOne Lighting**):** Allows you to customize how many of each lights are per pixel or per vertex
    - Per Pixel: Looks better but slower
    - Per Vertex: Only calculating light per vertex. Faster but doesn't look as good as per pixel

Advanced Lighting Options (ShaderOne Lighting):

- **Directional / Point / Spot Lights:** Allows you to change the maximum number of each type of light

Layers & Options:

ShaderOne allows you to select up to 4 layers , which enables you to achieve layered effects such as scrolling, rotation, detail maps

- **UV2**
  - Off
  - Material Selectable: Select to use UV2 on specific materials
  - Always UV2: Always use UV2 on this layer
- **Blend Modes**: Adjust the blend mode of the specific layer
- **Normal Map**: A special kind of texture that allow you to add surface detail to a model which catch the light as if they are represented by real geometry. (Bump Map)
- **Surface Map**: A single texture that stores data for various options on the channels (example: Metallic, smoothness, Ambient Occlusion)
- **Flow Map**: Texture used to make fluid effects (example: Water)
- **Animation**: Allows the layer to have cell animation, progress/dissolve animation (example: progress meters) and random uv animation (example: static)
- **Scroll & Rotate**: Ability to scroll and rotate layers independent from other layers
- **Script Toggle**: Allows you to turn layers on and off via script. (uses one more keyword)

Effects:

- **Distortion**: Distort image horizontally or vertically
- **Emission**: Light emitted off object surface (Unity Emission)
- **Chromatic Aberration**: Offset each Red, Green and Blue channel
- **Saturation**: Color Saturation of image
- **Scan Lines**: Choose strength and scroll speed of horizontal or vertical scanlines
- **Rim Lighting**: Light based on the angle between surface normal and view direction.
- **Intersect**: Provides lighting effect based on intersecting objects

Bottom Toolbar:

- **?:** Brings up Help file
- **Default Options:** Resets shader to Default Options. You must press Generate after to make shader with Default Options
- **Save:** Save your ShaderOne settings
- **Load:** Load you ShaderOne Settings
- **Generate Shader:** Builds shader with your Selected Options