

Procedural Mosaic & Stained Glass

Stylized Post-Process Material

Documentation



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1. Implementation (Getting Started)

The core mosaic and stained glass patterns are generated procedurally via a single Master Post-Process Material (**M_Mosaic_PP_Master**), requiring no texture assets for the geometric shapes.

1. Select your **Post Process Volume** in the level (ensure "Infinite Extent (Unbound)" is checked if you want it applied globally).
2. Go to the Details Panel and search for **Rendering Features -> Post Process Materials**.
3. Click the **+** icon to add an array element.
4. Choose **Asset Reference** and assign one of the included Material Instances.

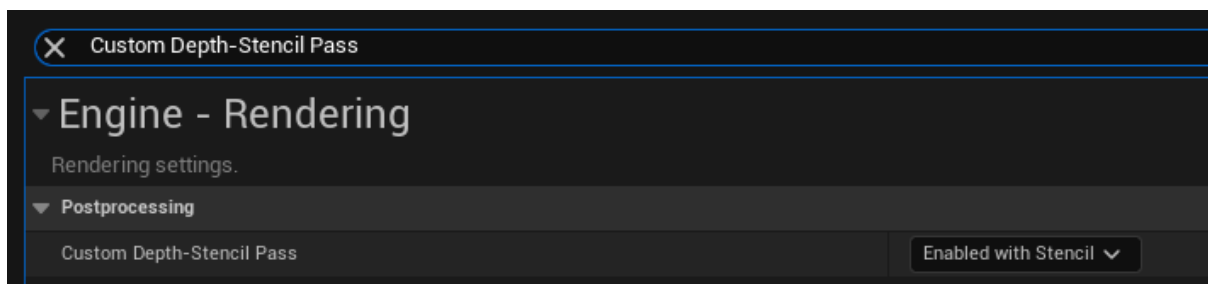
Recommended Setting: It is recommended (though not required) to set the **Motion Blur Amount** to **0.0** in your Post Process Volume settings. This prevents smearing and ensures the edges of the mosaic tiles remain crisp during fast camera movements.

2. Excluding Objects (Custom Stencil Setup)

The material supports masking out specific objects so they remain unaffected by the mosaic/glass effect. This requires specific project settings:

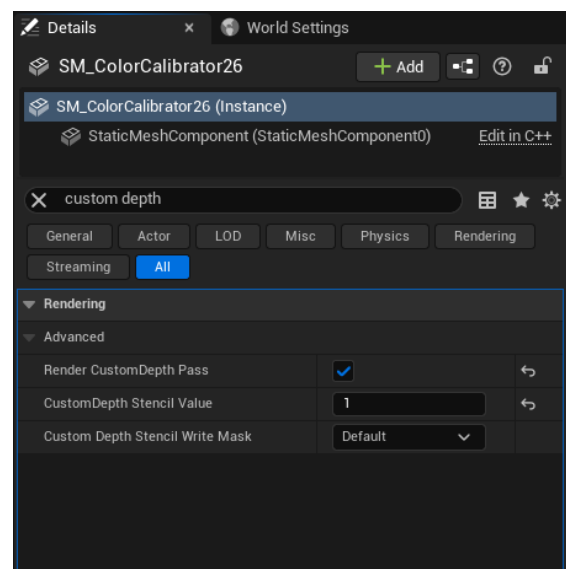
Step A: Enable Project Settings

1. Go to **Edit -> Project Settings**.
2. Search for **Custom Depth-Stencil Pass**.
3. Change the setting to **Enabled with Stencil**.



Step B: Masking the Object

1. Select the Actor(s) in your level that you want to exclude.
2. In the Details Panel, search for **Custom Depth**.
3. Check **Render CustomDepth Pass** (Set to True).
4. Set the **CustomDepth Stencil Value** to **1**.



3. Core Concepts & Visual Styles

The material is driven by advanced math and HLSL custom nodes (for Hexagon and Voronoi) to ensure efficiency. It is built around a few core choices:

- **3 Master Patterns:** Square, Hexagon, and Voronoi.
 - **2 Projection Modes:**
 - **Screen Space:** The pattern is overlaid flat onto the camera screen.
 - **Triplanar (World Space):** The pattern adheres to the 3D geometry using triplanar mapping.
 - **2 Visual Styles:**
 - **Color Look:** A flat, pixelated style.
 - **Glass Look:** Simulates stained glass, featuring light refraction and chromatic aberration.
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4. Included Presets (Material Instances)

The pack includes 24 Plug & Play Material Instances, covering all combinations of patterns, styles, and projections. Each setup comes in a **Small** and **Large** variant for immediate use. *(Note: The exact file names are abbreviated to keep naming conventions clean).*

- **Square (8 Instances):** Color/Glass, Screen/Triplanar (Small & Large)
 - **Hexagon (8 Instances):** Color/Glass, Screen/Triplanar (Small & Large)
 - **Voronoi (8 Instances):** Color/Glass, Screen/Triplanar (Small & Large)
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5. Key Material Parameters & Anti-Flickering

Open any Material Instance to customize the look. Most parameters (like GroutThickness, TilingScreen, and Imperfections) are self-explanatory. However, the following technical parameters are crucial for optimizing the visual output:

Distance Controls (Essential for Triplanar):

- **UseDistanceFade:** Allows you to fade out the entire post-process effect over a specified distance.
- **GroutFadeDistance & GroutDistanceFactor:** Available in Triplanar mode. The black grout lines automatically thin out at a distance to prevent moiré patterns and severe flickering.

Flickering & Multi-Sampling (Color Look only): When using the "Color" style (especially with Triplanar projection), the material samples the color at the exact center of each tile. Moving the camera, or having Temporal Anti-Aliasing (TAA / TSR) active, can cause this single sample point to shift, resulting in flickering.

- **UseMultiSampling (Reduces Flickering):** Set this to True to sample the center point *plus* 8 surrounding points, averaging the result to heavily reduce flickering.
 - **SamplingSpreadOffset:** Controls the distance of those 8 extra sample points from the center (Default: 0.001).
 - *Warning:* Do not set this value too high. Excessive values will cause the underlying image to blur or shift incorrectly.
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6. Support

If you have any questions, please send an email to support@geamgames.com