

Post Process Livestream Outline

I. What is [Post Processing](#)?

- A. Allow artists and designers to tweak the overall look and feel of the scene through a number of different effects. (i.e. Bloom, DoF, Vignette).
- B. Added/Modified using Post Process Volumes
 - 1. Post Process Volume is essentially only a type of blend layer.
 - 2. Blend Radius and Weight to Blend Different Effects
- C. Physically Based Post Processing using ACES Tonemapper
 - 1. Enables the tonemapper in UE4 to easily target multiple display types.
 - 2. Mention [Livestream](#) that covered this change.

II. Managing Post Processing Effects - Understanding and using Visualizers to manage effects.

A. [Bloom](#)

- 1. Real world light phenomena that can greatly add to the perceived realism of a rendered image at a moderate render performance cost.
- 2. Mention [stream on the documentation page.](#)

B. [Auto-Exposure](#) (Eye Adaptation)

- 1. Causes the exposure of the scene to automatically adjust to recreate the effect experienced as human eyes adjust when going from a bright environment into a dark environment or vice versa.
 - 2. Show Visualizer and Examples of different ways to disable it the viewport.

C. [Blendables](#)

1. Asset that has properties which can be smoothly interpolated (blended) with other blendables. We mostly used blendables for [Post Process Materials](#), but the system can be used for anything that should be depending on the view (usually dependent on the camera position).
2. Show example of blending between Two Post Process Volumes using a material instance.

D. [Color Grading](#) (Tone Mapping)

1. Map the wide range of HDR (high dynamic range) colors into the small LDR (low dynamic range) so a monitor can display the color.
2. A good tone mapper function tries to preserve the color of a pixel even if the color is very bright.
3. Stream done on [transition to ACES Tonemapper](#).
4. Color Grading and [LUT example](#).

E. [Depth of Field](#)

1. Applies a blur to the scene based on distance in front of or behind a focal point.
2. Bokeh, Gaussian, and Circle.
3. Reference the *Implementation* section

F. [Lens Flare](#)

1. Image-based technique that simulates the scattering of light when viewing bright objects due to imperfections in camera lenses.
2. Using shapes and layers to define Lens Flares.

G. [Post Process Materials](#) (Blendables)

1. Show Example of Custom Post Process Material.
2. Mention [Custom Depth](#) and show simple example.

H. [Scene Fringe](#) (Chromatic Aberration)

1. Effect that simulates the color shifts in real-world camera lenses. The effect is mostly noticeable near the edges of the image.
2. Show Examples

I. [Vignette](#)

1. Simulates the darkening in real-world camera lenses. High quality lens try to compensate for this effect. The effect is mostly noticeable near the edges of the image.
2. Show Examples

J. [Screen Space Reflections](#) & [Occlusion](#)

1. Show Examples of each.
2. Use Third Person Character.

K. [Panini Projection](#)

1. Using a perspective projection model creates distortions of the geometry when working with a wide field of view. This applies an upscaling pass to attempt to correct this distortion.
2. [Website](#) and [Paper](#) for more details.