BEAUTIFY

Post Processing Stack Edition

Kronnect

www.kronnect.com

Contents

Introduction

Thanks for purchasing!

Beautify for Post Processing Stack packs the best effects rewritten from scratch for the new render pipelines (requires Unity 2018.3 or later).

What's Beautify?
Beautify is a combined set of effects. **Uses several algorithms in a single-pass resulting in a very fast image effect**:

- Analyses local pixel contrast, enhancing visual features and producing sharp images.
- Reduces or completely removes banding in gradients, usually seen in sky boxes due to color quantization.
- Adjusts pixel saturation, boosting pixel color without over saturating the image.
- Factory presets or global effect slider, which takes care of all effect details in one step.

In addition to this unique image enhancement technology, Beautify provides state of the art filmic ACES tonemap operator and high quality extra effects which you can combine just enabling them in the inspector. These are high quality effects which are combined in the same render passes providing superior performance.

Setup for Universal Rendering Pipeline

Skip this section if you're using built-in pipeline!

You can follow these steps in this setup video: https://youtu.be/9SL4FOXu2fg

Guideline

1.- Install both **Universal RP** and **Post Processing Stack v2** from the Package Manager.

2.- Select the **URP setting pipeline** and switch "Feature Set" from Integrated to Post Processing v2.

Important! If you have created the project using the "Universal Rendering Pipeline" template, Unity has assigned a different URP asset to each Quality level. For example, if you have High Quality level selected in "Project Settings / Quality" section, you can see the High Quality URP settings asset assigned there. In this case, this URP asset will be used and not the default URP asset assigned in "Project Settings / Graphics" section. Bottomline: whenever changing some parameter from the URP asset, make sure you're updating both the URP asset in "Project Settings / Graphics" section and in "Project Settings / Quality" (if there's any there).

3.- Select your camera and **enable Post Processing checkbox**.

4.- You can now **add Beautify effects to your PPSv2 profile** (as you would add other effects in PPSv2). Follow steps in next section for details.

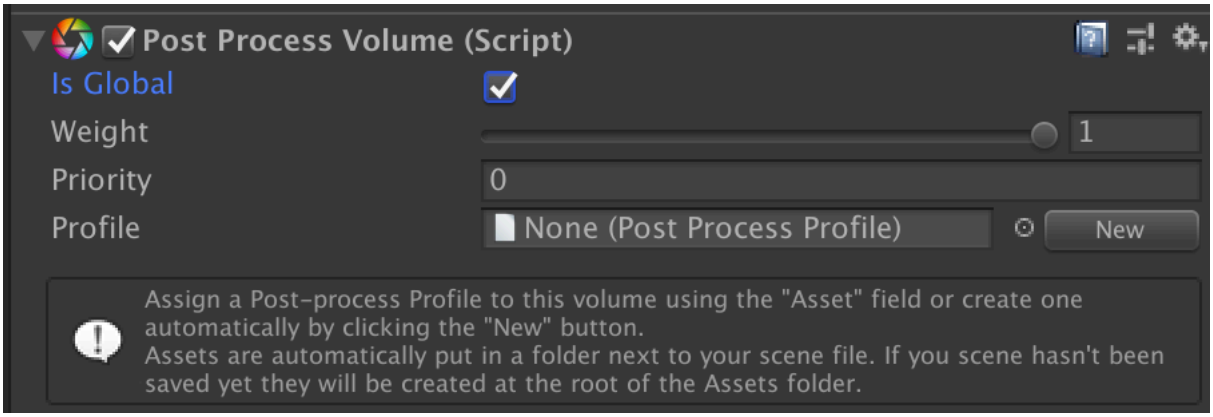
Additional hints:

1. The demo scene included in Beautify 2 uses materials for built-in so they will show in pink (because PPSv2 can also be used in built-in). To use the demo scene just select "Edit" -> "Universal Render Pipeline" -> "Upgrade Project Materials to UniversalRP Materials" option.

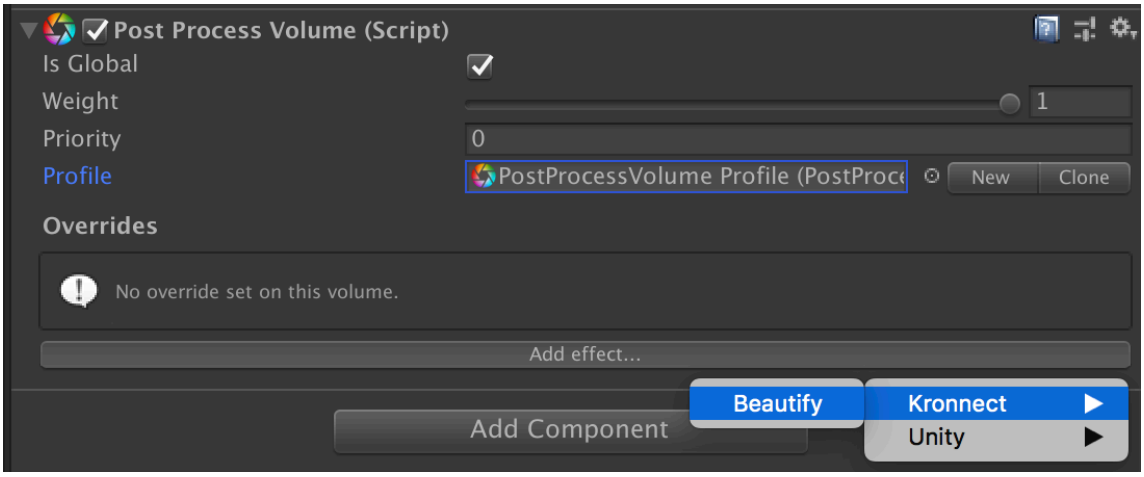
2. If you bloom doesn't seem to work properly in GameView, reduce bloom threshold or enable HDR in the URP settings asset.

Post Processing Stack v2 Components Setup

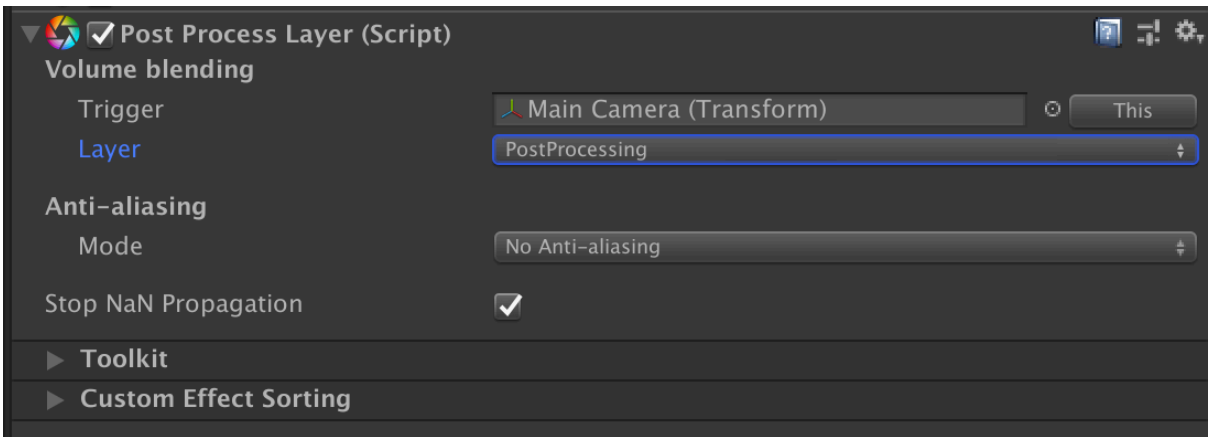
1. Create a Post Process Volume (ie. create an empty game object and add Post Process Volume component to it) and assign it to the layer “Post-Processing”.



2. Select an existing “Post Process Profile” (if you already have one or create a new one pressing “New” button).
3. Add the effect “Kronnect/Beautify” to your profile in the Overrides section:



4. Select your Camera and add a “Post Process Layer” component:



5. Make sure the “Layer” property includes the “PostProcessing” layer (the layer of the Post Processing Volume).

6. To customize the effects, expand the “Beautify” effect in Overrides section and enable / set the parameters to match the desired look:

Demo Scene

A demo scene is included in the package. It allows you to quickly play with the different effects. Just open, select the camera and expand the Post Process Volume component and play with the different settings to learn about Beautify possibilities.

Note! The demo scene included in Beautify 2 uses materials for built-in pipeline so they will show in pink in Universal Rendering Pipeline. To use the demo scene just select “Edit” -> “Universal Render Pipeline” -> “Upgrade Project Materials to UniversalRP Materials” option.

Beautify parameters

General Settings

- **Compare Mode**: shows a side by side comparison of Beautify effect.

Sharpen Section

- **Intensity**: sharpen intensity. A higher value will produce a dramatic result but can show some undesired artifacts with thin objects or whitish backgrounds. Use the following extra settings to control those artifacts:
- **Min/Max depth**: allows you to choose the depth range where sharpen will be applied. Decrease max depth to remain skybox untouched. Increase min depth to cause an effect similar to depth of field.
- **Depth Threshold**: will compute depth difference around pixels to detect edges. When the depth delta is greater than this value, sharpen will not occur. This will protect thin objects like standalone wires or lines.
- **Luminance Relaxation**: sharpen is subtler on high contrasted areas. This parameter tunes this relaxation. Reduce this value to preserve thin edges or bright areas.
- **Clamp**: irrespective of sharpen intensity or above params, clamp controls the maximum effect applied over a single pixel.
- **Motion Sensibility**: reduces sharpen effect while camera moves/rotates. This option can reduce flickering and produce a cheap motion blur effect. Set this value to 0 to disable this option.

Color Tweaks

- **Daltonize**: similar to vibrance but mostly accentuate primary red, green and blue colors to compensate protanomaly (red deficiency), deuteranomaly (green deficiency) and tritanomaly (blue deficiency). This effect does not shift color hue hence it won't help completely red,

green or blue color blindness. The effect will vary depending on each subject so this effect should be enabled on user demand.

Tonemapping: default is Linear which means no tonemap operator is applied. Choose ACES (Academy Color Encoding System) to map HDR colors into LDR space. Use only with HDR enabled on your camera.

- **LUT (Look-up Texture) Transform**: switches colors according to the provided lookup texture. A sample LUT Sepia texture can be found inside Beautify/Resources/Textures folder.

- **Vibrance**: controls the intensity of adaptative saturation. This algorithm considers current saturation of each pixel, so low saturated pixels receive more importance than high saturated pixels.

- **Tint Color**: multiplies scene pixels by a given color. Alpha controls the transparency of the tint effect.

- **Contrast** & **Brightness**: these two paramters adds a final contrast + brightness adjustment to the image.

Except for LUT, all color tweaks use GPU code with no texture reads, resulting in a very fast color transformation.

Lens & Lighting Effects

- **Bloom**: produces fringes of light extending from the borders of bright areas, contributing to the illusion of an extremely bright light overwhelming the camera or eye capturing the scene. Use intensity and threshold (light sensibility) to adjust bloom effect. Layer mask option allows you to specify which objects are subject to bloom.

- **Anamorphic Flares**: also known as JJ Abrams flares, they add a sci-fi look to the scene. This effect is only available for Best Quality settings. It's similar to bloom but also can be assigned a tint color (use alpha to blend between original and tint color) and an orientation (horizontal or vertical).

- **Sun Flares**: beautiful, fast and procedural lens flares produced by the bright light of the Sun. There're lot of options to customize from sun disk size and intensity, corona rays, ray diffraction and ghosts.

- **Lens Dirt**: adds dust and dirt effect to your camera when looking to a light source. You can control the intensity and the brightness threshold (brightness sensibility). If you want to use different dirt textures, just assign your own texture into the Dirt Texture slot (several textures are provided in this asset inside the Textures folder).

- **Depth of Field with Bokeh**: depth of field is the distance between the nearest and the furthest objects giving a focused image. Enable this option to produce a photography effect where the target object remains focused while the the backgorund and foreground looks blurred.

    - **Autofocus / Focus target / Focus distance:** allows you to specify where is the focus plane. For autofocus it's recommended to reduce the focus speed as it will produce a more pleasant effect between changes.
    - **Focus speed**: the speed between current focus and a focus change. For example, if the target focus is moving a focus speed of 1 will update the focus instantly whereas a lower value will make the focus more progressive.
    - **Focal Length and Aperture:** these two parameters are used to simulate the virtual camera. Focal Lenth is the distance between the lens and the image sensor. Aperture is referred to the effective apertura or diameter of the pupil through which the outside light enters.
    - **Foreground Blur:** enable to allow foreground objects to be blurred. Use offset to adjust the foreground blur distance.
    - **Downsampling**: reduces the screen buffer size to improve performance. Can produce some artifacts.
    - **Sample count**: referes to the maximum samples that will be gathered. The algorithm is optimized to produce adequate results with a value of 4. A lower value will be faster but the results will look incorrect. A greater value will increase the quality of the blur, which can be appreciated when using a higher focal length value.
    - **Bokeh**: adds hexagonal shapes on bright spots resembling the aperture shape.

- **Eye Adaptation**: simulates eye reaction to quick luminance changes in the scene. You can customize the eye adaptation to light or to dark, either min/max exposure changes and adaptation speeds.

- **Purkinje**: this effect simulates the achromatic vision in the dark plus a spectrum shift to blue tones. You can customize the shift amount and the effect luminance threshold.

Artistic Choices

- **Vignetting**: darkens or tints with a custom color the border of the scene. The alpha component controls the effect intensity. This effect can be combined with Night Vision or others to add great depth and special feeling to your scene.
  Optionally assign a mask texture whose alpha component will be overlaid over the image. You can find a sample grungeBorder texture inside Resources/Textures folder.

Scripting support (C#)

The following properties and methods can be accessed through **BeautifySettings.instance** property (check sample script included in demo scene):

sun: assigns or gets the gameobject that holds the directional light acting as the Sun.

depthOfFieldTarget: assigns or gets the gameobject that's being tracked by the depth of field autofocus algorithm when in Follow Target mode.

OnBeforeFocus: event that's triggered when focusing an object and allows you to get and change the current focus distance dynamically.

depthOfFieldCurrentFocalPointDistance: the current distance to the focused object.

volume: returns a reference to the Post Processing Volume component.

sharedProfile: returns a reference to the current Post Processing Profile used by the volume.

profile: returns a copy of the profile used in the volume.

sharedSettings: returns a reference of the current settings of the Beautify effect in the volume.

settings: returns a copy of the current settings of the Beautify effect in the volume.

Blink(duration, maxValue): executes a blink effect (like in demo scene).

For example, if you call **BeautifySettings.instance.Blink(0.5f)**, it will execute a blink effect for 0.5 seconds.

Support

Please visit kronnect.com for questions, support and more info.