



Cinematic URP Post-Processing - PRISM

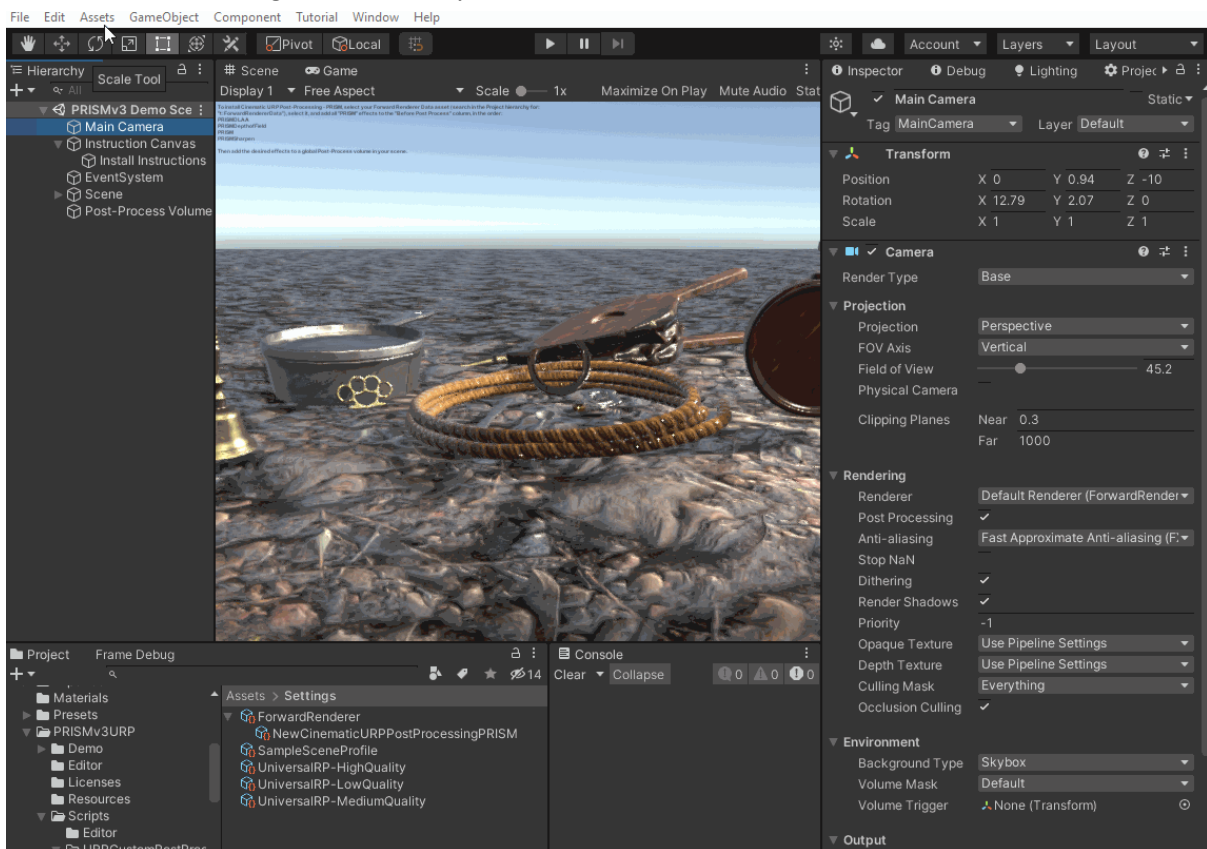
V1.0. Find the latest guide [here](#)

For support, send an email over to support@gadget-games.com

Or (preferred), make a post on the forum thread/PM GoGoGadget on the Unity Forums [here](#)

Quick Start Guide

1. Import the Cinematic URP Post-Processing - PRISM Package into your project
2. Find your Forward Renderer Data. To Do this, go to the quality project setting in your inspector. Alternately, you can simply click the menu option *Assets>Cinematic Post-Processing PRISM> Install Helper*
 - a. *Edit>Project Settings>Quality*
 - b. *Select your Render Pipeline Asset*
 - c. *Within your Render Pipeline Asset's inspector, select your Forward Renderer Data*
3. Add a new "CinematicURPPostProcessingPRISM" feature to your forward rendering data
4. In your Forward Renderer Data inspector, add all "PRISM" effects to the "Before Post Process" column, by clicking "Add all Cinematic Post-Processing Effects"
5. Create a Global Volume in your scene, set weight to 1, and add your desired effects. Ensure Post-Processing is enabled on your main camera.



About Cinematic URP Post-Processing - PRISM

Cinematic URP Post-Processing - PRISM (Referred to as “PRISM” moving forward) is a custom built post-processing effects stack for the URP renderer that offers unique, high quality cinematic effects, combined into one main “stack” for performance. By creating algorithms from the ground-up that closely mimic the properties of real-world camera lenses and sensors, *PRISM* is designed to fill the gap in Unity’s Universal Render Pipeline for true “Cinematic” quality effects.

PRISM In-depth: Effects

1. PRISM Directional Localised Anti-Aliasing
 - a. Performance Impact:
 - i. PC/Console: **LOW**
 - ii. Mobile: **HIGH**
 - b. An effect used in many AAA games, DLAA is a classic Full-Screen Anti-Aliasing effect (antialiasing reduces the jagged appearance of thin lines) that performs well when rendered prior to the post-FX stack. The effect closely mimics the sort of AA filter found on a camera sensor, which is why it is used at the **start** of the PRISM stack, instead of after all other post-processing is complete. It is designed to work with other AA effects, including Unity’s builtin.
 - c. Values:
 - i. *Retain sharpness*: Tweaks the algorithm to prefer keeping some sharp edges
2. Color Correction
 - a. Performance Impact:
 - i. PC/Console: **LOW**
 - ii. Mobile: **LOW**
 - b. PRISM’s Color Correction performs LAB-space operations on the scene colour, retaining maximum color data for a result that works perfectly in HDR and Linear colour spaces. Designed based off modern RAW photo editing algorithms.
 - c. Sub-Effects:
 - i. *Color Temperature*: Changes the temperature of the image, from warm to cool, without affecting the brightness of the pixel
 - ii. *Color Tint*: Changes the tint of the image, from Magenta to Green, without affecting the brightness of the pixel
 - iii. *Exposure Compensation*: Applies a camera-style ISO bump on the image, to increase or decrease scene exposure.
 - iv. *Vibrance*: Saturates primary colours with a sloped curve, avoiding clipping
 - v. *Contrast*: Increases the perceptual difference between colours in an image. Changes brightness.
 - vi. *Green & Magenta Chromacity*: Changes the value of the “A” channel in LAB colour space. Higher values saturate Green & Magenta colours.
 - vii. *Yellow & Blue Chromacity*: Changes the value of the “B” channel in LAB colour space. Higher values saturate Yellow & Blue colours.
 - viii. *Lightness*: Increases or decreases the brightness of the image, based on a slope.
 1. *Lightness slope*: Increases the curve of the lightness slope
 - ix. *Shadows, Midtones, Highlights (RGB, Lift)*: Applies a mix of RGB colours to the chosen ‘portion’ of the image. Shadows = dark areas of the image, midtones = areas in the middle of the histogram, Highlights = bright areas.

3. Bloom

- a. Performance Impact:
 - i. PC/Console: **LOW-MEDIUM**
 - ii. Mobile: **LOW-MEDIUM** (with 'USE HQ BLOOM' turned off)
- b. Simulates light scattering within a lens. In a real-world lens, this can occur because a lenses' coating has been scratched, or internal surfaces of the lens are dispersing the light.
- c. Values:
 - i. *Bloom Intensity*: The strength of the bloom effect
 - ii. *Bloom Threshold*: Increasing this value will make darker areas of the scene not contribute to the bloom effect at all. Recommended value in HDR scenes: 3
 - iii. *Bloom Radius*: Increases the spread of the bloom around the image
 - iv. *Use HQ Bloom*: Greatly impacts performance on mobile. With this checked, PRISM's bloom will use a standard, multi-layer bloom. Without this checked, PRISM's bloom will use a single-texture, mobile-optimized bloom which looks acceptable for performance-focused mobile use cases.
 - v. *Use Stability Buffer*: Impacts performance negatively when checked. Performs a median pass on select buffers within the bloom to decrease flickering, and retains a bloom history texture.

4. Lens distortions

- a. Performance Impact:
 - i. PC/Console: **LOW**
 - ii. Mobile: **MEDIUM-HIGH**
- b. Simulates imperfections of a photographic lens. Chromatic aberration (ie. when wavelengths of light do not perfectly converge on the sensor), Barrel distortion (wide angle, pincushion distortion), Petzval distortion (ie. like that found in certain lens designs, like the Helios-44).
- c. Values:
 - i. *Vignette Strength*: Applies a vignette around the corners of the image, darkening them.
 - ii. *Lens Fringing*: Applies a visible fringe to high contrast areas
 - iii. *Barrel Distortion*: Applies barrel or pincushion distortion, changing the appearance of straight lines at the edges or center of the frame
 - iv. *Petzval Distortion*: 'Curves' The image slightly. Used to create 'cats-eye bokeh'
 - v. *Chromatic Aberrations*: Simulates the misalignment of glass, resulting in edges of the frame showing blur or colour channel separation

5. Filmic Noise

- a. Performance Impact:
 - i. PC/Console: **LOW**
 - ii. Mobile: **LOW-MEDIUM**
- b. Simulates sensor noise, and dithering in the image
- c. Values:
 - i. *Noise Intensity*: Strength of the effect
 - ii. *Sensor Pixel Size*: Size of the noise on screen
 - iii. *Dither Bit Depth*: Values under 8 will perform a dither, reducing colour bit depth on-screen and reducing banding.

6. Color Correction LUT

- a. Performance Impact:
 - i. PC/Console: **LOW**

- ii. Mobile: **LOW**
 - b. Uses a lookup-texture to recolour certain colours in the image, achieving a stylistic effect. Note: It is **recommended** to use this as your **primary colour correction effect on mobile** if using colour correction on mobile.
 - c. Values:
 - i. Lut Lerp Amounts: The amount to lerp the original image to the LUT-corrected image. Useful for simulating greyscale/low health effects.
7. Sharpen
- a. Performance Impact:
 - i. PC/Console: **LOW**
 - ii. Mobile: **LOW** (not using Multi-Pass sharpen)
 - b. A photographic sharpening effect, based off real-world sharpening algorithms used in photo editors. Increases perceptual contrast in the image.
 - c. Values:
 - i. *Intensity*: Intensity of the sharpen effect
 - ii. *Use Multi Pass Sharpen*: Performs an additional sharpening pass using an RL-Deconvolution (reverse gaussian blur) filter
 - iii. *Use depth-aware Sharpen*: Makes the sharpen aware of depth, and only sharpens pixels that are in close proximity to each other in the scene. Useful for avoiding hard halos around grass etc.
8. Depth of Field
- a. Performance Impact:
 - i. PC/Console: **HIGH**
 - ii. Mobile: **VERY HIGH**
 - b. An effect simulating out-of-focus areas in the camera lenses' field of view. Will take Physical Camera Parameters for Aperture & F-Stop if you have your camera set to physical.
 - c. Values:
 - i. *Aperture*: The lenses' F-Stop value. A **Lower** F-stop means **more blur**, and a smaller 'plane' of objects that are 100% in focus. A **higher** F-stop means **less blur**, and a wider 'plane' of objects that are 100% in focus.
 - ii. *Focal Length*: The lenses' focal length, ie. is it a telephoto lens (50 or more) or a wideangle lens (less than 50). Telephoto lenses produce **more blur** and have a **larger depth of field** vs. wideangle lenses, that produce **less blur** and have a **shallower depth of field**. Think mobile phone camera (wideangle, lower fstop, not much blur) vs DSLR (telephot, higher fstop, more blur)
 - iii. *Max Blur*: Cap the maximum amount of blur to apply on the scene
 - iv. *Enable Front Blur*: If disabled, increases performance. Enables front-field blur.
 - v. *Use GPU Autofocus (requires Shader Model 4.0 or above)*: Uses the GPU depth texture to autofocus at the middle of the screen.
 - vi. *Focus Distance (if not using GPU Autofocus)*: Select the exact distance you want to focus at. Useful if you want to code your own CPU-autofocus effect.