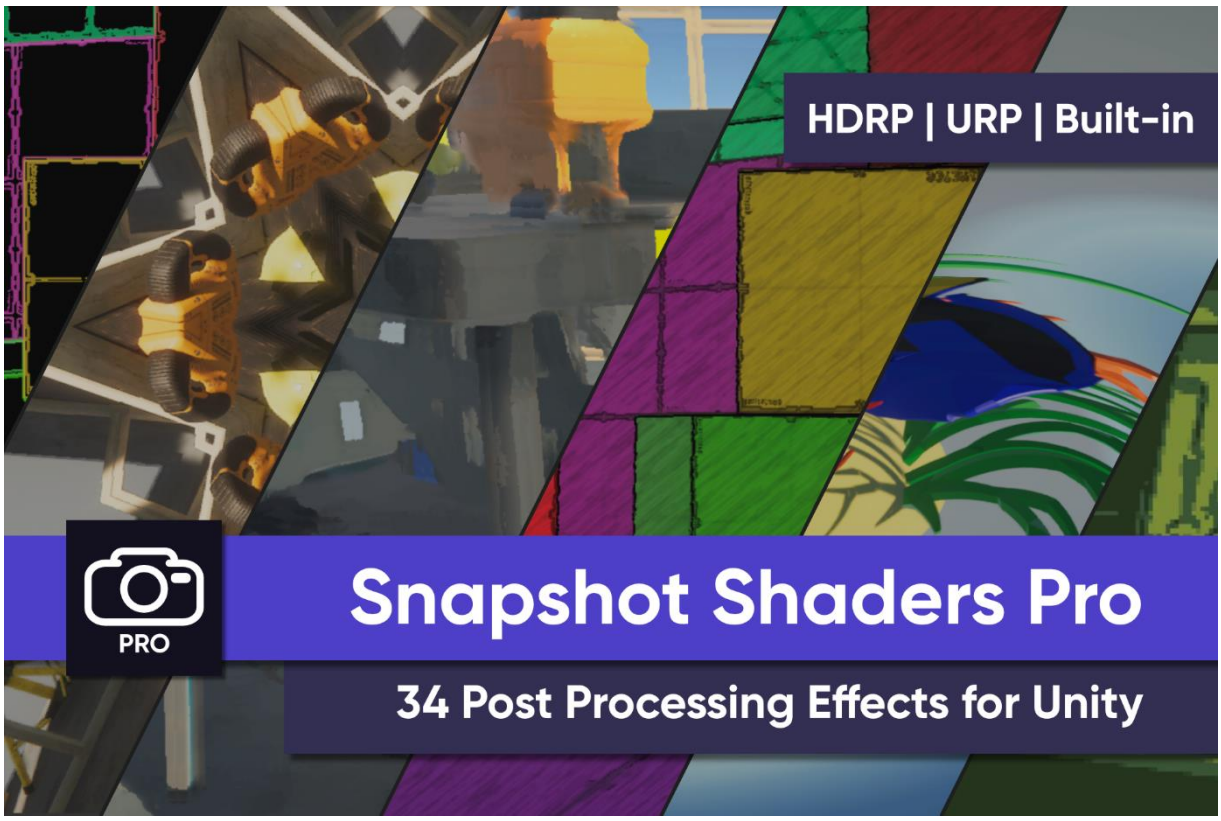

WHAT IS "SNAPSHOT SHADERS PRO"?

Snapshot Shaders Pro is a collection of 34 post-processing shader effects.

This README is intended for the version designed for Unity's **Post Processing Stack v2**, which is installed by default if you got this pack from the Asset Store. PPv2 is compatible with the **built-in renderer**.

SETUP (POST PROCESSING STACK V2)

This shader pack uses Post-Processing Stack v2 as its base. Ensure it is installed using the **Unity Package Manager**. Otherwise, you will encounter compiler errors.

Use the Quick Start guide to create a **Post Processing Layer** on your camera and a **Post Processing Volume** to contain your profile. Then, you'll be able to add these custom effects to your profile!

EFFECTS INCLUDED

The following effects are included in the collection:

VERSION 1.6 EFFECTS

SYNTHWAVE

Overlays lines onto the scene in world space in the X, Y, and Z axes (or a subset of those axes).

- **Background Color**: The color of the background if Use Scene Color is off.
- **Line Colors 1 & 2**: HDR-enabled colors which span the screen from the bottom (1) to the top (2).
- **Line Color Mix**: Controls the proportion of Line Colors 1 & 2 across the screen.
- **Line Width**: Thickness of the lines in world space units.
- **Line Falloff**: Falloff distance between lines and background in world space units.
- **Gap Width**: Distance between lines in each of the three axes.
- **Offset**: Distance of the grid system from (0, 0, 0).
- **Axis Mask**: Controls which axes the lines appear on.
- **Use Scene Color**: Replaces the background color with the original scene color if turned on.

NOISE GRAIN

Modifies the color of the scene slightly to simulate the physical imperfections you would find on analogue film formats.

- **Strength**: How strongly the noise changes the scene colors.
- **Speed**: How quickly the noise values change.
- **Noise Size**: The size of the noise 'particles' on the screen.
- **Noise Interpolation**: Either Hermite or Quintic. Hermite is faster, but Quintic produces very slightly nicer results.

WORLD SCAN

Creates a scanline that emanates from a point in space and travels across the scene. The scanline is overlaid onto the original scene contents.

Note: an external texture must be attached to the **Overlay Ramp Tex** field for this effect to work properly. An example is provided at **Resources/Textures/World Scan**.

- Scan Origin: The world space origin of the scan.
- Scan Distance: How far, in world space units, that the scan has travelled from the origin.
- Scan Width: The distance, in world space units, that the scan is applied over.
- Overlay Ramp Tex: An x-by-1 ramp texture representing the scene color.
- Overlay Color: An additional HDR-enabled tint color applied to the scan.

TEXT ADVENTURE

Replaces the screen contents with text elements that simulate an ASCII text display. Different characters stand in for pixels with different luminance.

Note: an external texture must be attached to the **Character Atlas** field for this effect to work properly. An example is provided at **Resources/Textures/Text Adventure**.

- **Character Size**: The on-screen size of each character, in pixels.
- **Character Atlas**: A texture containing the characters that will replace the image. An (nx)-by-y texture, where there are n characters, each of which is x-by-y pixels.
- **Character Count**: How many characters are contained within the Character Atlas.
- **Background Color**: The color of the background.
- **Character Color**: The color of the text overlaid onto the background.

VERSION 1.5 EFFECTS

HALFTONE

Creates fake “gradients” by using a series of differently-sized dots. It's used in some kinds of printing technology, but you might recognise it from comics in particular.

Note: an external texture must be attached to the **Halftone Texture** field for this effect to work properly. An example is provided in the **Resources/Textures/HalftoneCircle**.

- **Halftone Texture:** Texture to use for the halftone effect. This texture encodes a gradient which is used to determine the shape of the halftone 'dots'.
- **Softness:** How soft the transition between shaded dots and lighter parts is. A lower value means a harder cutoff.
- **Texture Size:** How large the halftone dots appear on-screen. A larger value means the dots appear larger.
- **Min Max Luminance:** Use this option to remap the luminance values of the original image. For example, setting a value of (0.5, 1) means that all pixels with a luminance below 0.5 are set to 0, then the rest are stretched so that they fit the range (0, 1). Then the halftone is applied.
- **Dark Color:** Color to use for the halftone dots.
- **Light Color:** Color to use outside the halftone dots.
- **Use Scene Color:** If this is ticked, the **Light Color** is ignored and the original scene colors are used for parts outside the halftone dots.

BARREL DISTORTION

Imitates the effect seen when wrapping a 2D image across a barrel with a bulge in the centre. The corners of the screen are pulled in towards the centre more than the edges.

- **Strength**: How strongly to distort the screen. High values pull pixels towards the center more strongly.
- **Background Color**: Color to use for the outer edge of the screen.

VORTEX

Warps the image around a centre point in a swirling pattern.

- **Strength**: How strongly to warp the image around the center. Higher values mean more intense warping.
- **Center**: UV position to use as the centre of rotation. By default, this is at (0.5, 0.5).
- **Offset**: UV offset to apply to the image before the rotation takes place.

DITHER 3D

Takes the luminance of each pixel and compares it to a texture containing thresholds to color pixels light or dark, resulting in a one-bit effect. The 3D version of this effect applies the threshold texture in world space using triplanar mapping.

Note: an external texture must be attached to the **Noise Texture** field for this effect to work properly. Examples are provided at **Resources/Textures/BlueNoise.png** and **Resources/Textures/BayerNoise.png**.

- **Noise Texture**: The dithering pattern used for smooth shading emulation.
- **Noise Size**: The resolution of the noise texture (higher values mean lower on-screen resolution).
- **Threshold Offset**: The value to use as the comparison point between light and dark pixels. This is added to values from the Noise Texture.
- **Blend Amount**: How much blending to apply between the three triplanar-mapped noise textures.
- **Dark Colour**: The colour used for dark portions of the screen.
- **Light Colour**: The colour used for light portions of the screen.

COLORIZE

Tints the screen a certain color.

- **Tint Color**: The color to apply to the screen. The strength is controlled by the color's alpha.

VERSION 1.4 EFFECTS

CUTOUT

Overlays a texture onto the camera with an alpha cutout.

Note: an external texture must be attached to the **Cutout Texture** field for this effect to work properly. Examples are provided in the **Resources/Textures/Cutout** folder.

- **Cutout Texture**: The texture to overlay onto the screen.
- **Border Color**: The tint used for opaque sections of the cutout overlay.
- **Stretch**: If true, the cutout texture stretches to fit the screen's aspect ratio.
- **Zoom**: The level of zoom to apply to the cutout texture.
- **Offset**: An offset to apply to the cutout texture.
- **Rotation**: Amount of rotation, in degrees, to apply to the cutout texture. The rotation is applied anti-clockwise.

GLITCH

Offsets rows of pixels slightly to give the appearance of a technical glitch. Best used in combination with animations to control the offset strength.

Note: an external texture must be attached to the **Offset Texture** field for this effect to work properly. An example is provided at **Resources/Textures/GlitchTex**. For best results, set the **Filter Mode** of this texture to **Point**.

- **Offset Texture**: A vertical strip texture which controls the strength of the offset for different rows of the image. Middle grey means no offset; white is full offset to the right; black is full offset to the left.
- **Offset Strength**: How far pixels are offset in UV space. A value of 1.0 moves a pixel from the left-hand-side of the image completely to the right-hand-side if the offset texture for that row of pixels is full-white.
- **Vertical Tiling**: How many times the offset texture is repeated vertically. In other words, controls the number of glitch rows.

INVERT

Inverts the RGB colour values of each pixel. At full strength, white becomes black and vice versa.

- **Strength**: How intense the effect is. Note that a value of 0.5 will always result in a grey image.

LIGHT STREAKS

Adds horizontal light streaks emitted by strong light sources in the scene.

Note: this effect works best when HDR is enabled on your camera and your scene contains strong light sources or emissive materials. A luminous intensity of 1 corresponds to a full-white, non-emissive object.

- **Strength**: How far the light streaks extend.
- **Luminance Threshold**: Any pixel below this luminance will not emit light streaks.
- **Downsamples**: This divisor is applied to the screen resolution in the x-direction. Higher values reduce the quality but improve performance.

RADIAL BLUR

A Gaussian Blur which gets stronger towards the edges of the image.

- **Strength**: The size of the blurring kernel (and the strength of the effect). Larger smoothing kernels require more pixel operations per frame.
- **Step Size**: The distance between samples. Higher values may result in visual artefacts.

Note: Both properties increase the *extent* of the blur effect, but in different ways. Increasing strength results in more samples, while increasing strength increases the distance between samples.

SHARPEN

Makes the image less blurry.

- **Intensity**: how strongly the image is sharpened.

VERSION 1.2 EFFECTS

DITHER

Produces a 1-bit shading effects (the scene uses only two colours with pixels arranged in a pattern to 'fake' smooth shading).

Note: an external texture must be attached to the **Noise Texture** field for this effect to work properly. Examples are provided at **Resources/Textures/BlueNoise.png** and **Resources/Textures/BayerNoise.png**.

- **Noise Texture**: The dithering pattern used for smooth shading emulation.
- **Noise Size**: The resolution of the noise texture (higher values mean lower on-screen resolution).
- **Threshold Offset**: The value to use as the comparison point between light and dark pixels. This is added to values from the Noise Texture.
- **Dark Colour**: The colour used for dark portions of the screen.
- **Light Colour**: The colour used for light portions of the screen.

- **Use Scene Color**: If this is ticked, the **Light Color** is ignored and the original scene colors are used for parts outside the halftone dots.

DRAWING

Shades in the scene with a brush stroke pattern. Darker parts of the scene have a more noticeable stroke effect.

Note: an external texture must be attached to the **Drawing Texture** field for this effect to work properly. An example is provided at **Resources/Textures/DrawingTex.png**.

- **Drawing Texture**: The drawing overlay used for the effect.
- **Animation Cycle Time**: The number of seconds taken for one animation cycle (where a cycle involves the effect 'bouncing' twice by moving the UV coordinates used by the drawing texture).
- **Strength**: How noticeable the effect is.
- **Tiling**: The number of times the drawing texture is tiled (in the y-direction).
- **Smudge**: Strength of the additional UV smudging effect (pixels are translated slightly based on the colour value of the pencil effect at this pixel).
- **Depth Threshold**: Pixels past this depth (normalised between 0 and 1) will not be 'drawn'.

KALEIDOSCOPE

Reflects part of the scene radially along several mirror lines crossing through the centre of the image.

- **Segment Count**: The number of mirror line segments to use.

NEON (FANCY)

An improved neon effect where the edge detection parameters can be altered to use image colours, depth or normals (or a combination).

- **Saturation Floor**: Any pixel with a saturation below this (in HSL colour space) gets clamped to this value.
- **Lightness Floor**: Any pixel with a lightness below this (in HSL colour space) gets clamped to this value.
- **Colour Sensitivity**: The threshold for colour-based edge detection.
- **Colour Strength**: The strength of colour-based edges, where detected.
- **Depth Sensitivity**: The threshold for depth-based edge detection.
- **Depth Strength**: The strength of depth-based edges, where detected.
- **Normal Sensitivity**: The threshold for normal-based edge detection.
- **Normal Strength**: The strength of normal-based edges, where detected.

OUTLINE (FANCY)

An improved edge detection algorithm which can be altered to use image colours, depth or normals (or a combination).

- **Outline Colour**: The colour of the outlines.
- **Colour Sensitivity**: The threshold for colour-based edge detection.
- **Colour Strength**: The strength of colour-based edges, where detected.
- **Depth Sensitivity**: The threshold for depth-based edge detection.
- **Depth Strength**: The strength of depth-based edges, where detected.
- **Normal Sensitivity**: The threshold for normal-based edge detection.
- **Normal Strength**: The strength of normal-based edges, where detected.

SCANLINES

Renders horizontal scanlines across the screen based on the input texture.

Note: an external texture must be attached to the **Scanline Texture** field for this effect to work properly. Examples are provided at **Resources/Textures/ScanlineBasic.png** and **Resources/Textures/ScanlineColor.png**.

- **Scanline Texture**: The texture used to denote how scanlines appear.
- **Strength**: How noticeable the scanlines are.
- **Size**: How large the scanlines are.

VERSION 1.0 EFFECTS

BLUR

Blurs each pixel based on the colours of nearby pixels.

- **Strength**: The size of the blurring kernel (and the strength of the effect). Larger smoothing kernels require more pixel operations per frame.
- **Blur Step Size**: The distance between samples. Higher values may result in visual artefacts, but better performance.
- **Blur Type**: Toggle between Gaussian blur (the blurring kernel uses a Gaussian curve to soften further from the middle) and Box blur (all pixels in the blurring kernel are weighted evenly).

FILM BARS

Fits the viewport to a desired aspect ratio and displays black bars above and below the viewport. Great for cutscenes.

- **Aspect**: The desired aspect ratio of the viewport, represented by a single decimal value (width / height). A value of 1.777 corresponds to a 16:9 ratio.

GAME BOY

Quantises the image to four luminance values and tints the screen based on those values. Default values reflect those used by the original Game Boy.

- **Darkest**: The darkest colour, used by pixels with luminance between 0.00 and 0.25.
- **Dark**: The second darkest colour, used by pixels with luminance between 0.25 and 0.50.
- **Light**: The second lightest colour, used by pixels with luminance between 0.50 and 0.75.
- **Lightest**: The lightest colour, used by pixels with luminance between 0.75 and 1.00.

GREYSCALE

Turns the screen greyscale based on pixel luminance.

- **Blend**: The strength of the effect. A value of one results in a fully greyscale effect; zero makes no change to the original pixel values.

MOSAIC

Pixelates the screen and overlays a mosaic tile texture onto each blocky pixel.

Note: an external texture must be attached to the **Overlay Texture** field for this effect to work properly. An example is provided at **Resources/Textures/MosaicOverlay.png**.

- **Overlay Texture**: The texture to overlay on each mosaic tile.
- **Overlay Colour**: The colour tint of the overlay texture.
- **X Tile Count**: The number of tiles along the x-axis. The y-tile-count is calculated automatically.
- **Use Point Filtering**: If true, tiles will look clean-cut. If not, tiles have a 'bloom-like' look.

NEON (SOBEL)

Runs an edge-detection filter over the image. Then, it saturates and lightens the original pixel colour up to a threshold and multiples by the edge-detect image.

- **Saturation Floor**: Any pixel with a saturation below this (in HSL colour space) gets clamped to this value.
- **Lightness Floor**: Any pixel with a lightness below this (in HSL colour space) gets clamped to this value.

OIL PAINTING

Runs a Kuwahara filter over the image, removing texture detail but preserving edge details.

- **Kernel Size**: The size of the Kuwahara kernel (and the strength of the effect). Larger smoothing kernels require more pixel operations per frame.

OUTLINE (SOBEL)

Runs a Sobel edge-detect kernel over the image.

- **Threshold**: How sensitive the edge-detection algorithm is.
- **Outline Colour**: Colour to use for edge pixels.
- **Background Colour**: Colour to use for all non-edge pixels. If you make this colour transparent, the original image will appear underneath the outlines.

PIXELATE

Downsamples the image.

- **Pixel Size**: The size of each new 'larger pixel' in the image.

SEPIA TONE

Turns the screen sepia-toned based on pixel luminance. Sepia-tone looks like an old yellowed photograph.

- **Blend**: The strength of the effect. A value of one results in a fully sepia-toned effect; zero makes no change to the original pixel values.

SILHOUETTE

Colours each scene element based on its distance from the camera.

Note: this effect works best when the far clipping plane of the camera is set to a smaller value, such that the entire scene just about fits within the camera.

- **Near Colour**: The colour of elements resting on the near clip plane of the camera.
- **Far Colour**: The colour of elements resting on the far clip plane of the camera.

SNES

Quantises each colour channel to a set number of levels. 6 levels gives the approximate colour palette of the SNES, and 4 gives the approximate colour palette of the NES.

- **Banding Levels**: The number of quantisation levels to use.

UNDERWATER

Creates waves that distort the image and adds a coloured water fog.

Note: this effect works best when the far clipping plane of the camera is set to a smaller value, such that the entire scene just about fits within the camera.

Note: an external texture must be attached to the **Bump Map** field for this effect to work properly. An example is provided at **Resources/Textures/UnderwaterNormals.png**.

- **Bump Map**: A texture to control the direction and amount of wave distortion.
- **Strength**: The strength of the wave distortion.
- **Water Colour**: The water tint colour at the far clipping plane.
- **Fog Strength**: The strength of the water fog (and the distance that the fog first appears at).