

# Fire VFX Starter Kit - Documentation

V1.0

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# Table of Contents

<b>Table of Contents</b>	<b>2</b>
<b>Overview</b>	<b>2</b>
What's inside?	2
Fire Tornado	2
Campfire	3
Brazier	3
Candle	3
Smoky Flames	4
<b>Shaders - Technical Overview</b>	<b>4</b>
Fire Tornado	4
Camp Fire	4
Brazier	6
Candle	6
Smokey Flames	6
<b>Additional Support/ Contact</b>	<b>7</b>

## Overview

Fire VFX - Starter Kit is an asset pack containing 11 fire VFX assets that make use of 5 unique shaders intended to help you create high quality fire VFX for your own games and interactive applications. This pack is part of a series of VFX packs from 2Ginge, with which we hope to provide a comprehensive set of VFX solutions to help you craft immersive game environments for your players.

## What's inside?

### Fire Tornado



The fire Tornadoes included in this pack are perfect for magical summons, or environmental phenomena in your game world.

This system is comprised of 4 cylinders making use of animated noise textures, cutoff, color overlay and vertex animation to create a convincing multi-layered tornado effect.

## Campfire



The campfire assets in this pack are straightforward and ready to be dropped in your game world right away. This system also includes a point light with a 'flicker' script to help tie it in to your game environment.

The campfire makes use of two cylinders with a gradient mask, animated noise textures, cutoff, color channels and vertex animation.

## Brazier



The brazier assets include a brazier mesh with a hand painted texture, emissive coals and variants of the billboard and cylindrical animated fire shaders.

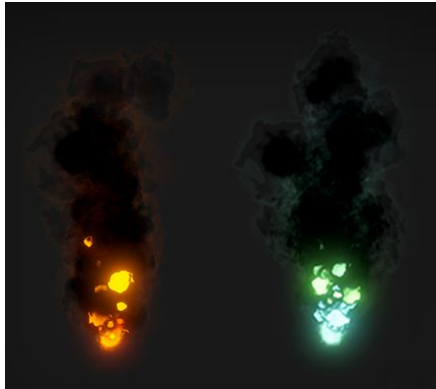
The billboard fire shader has a texture channel, a noise channel, cutoff, animation and color properties which can be tweaked to suit your needs.

## Candle



The candle asset makes use of a single billboard with a flame texture that is animated to give the illusion of realistic motion. It has two animation functions with variables for speed, offset and scaling, so you can have your flame behave exactly as you would like it to.

## Smoky Flames

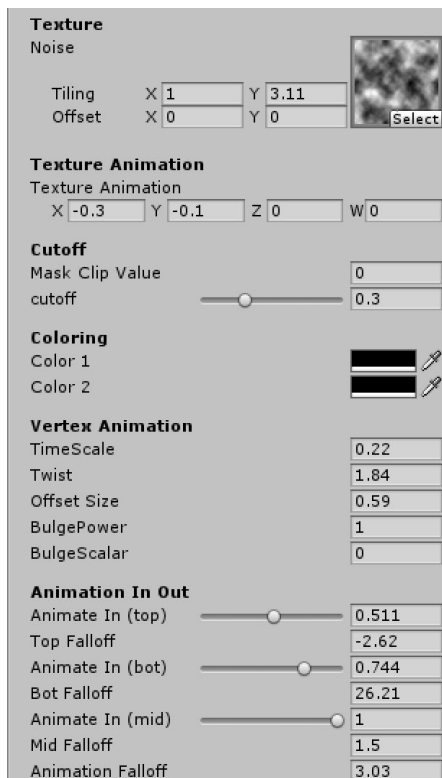


The smoky/ smouldering flame VFX are perfect for attaching to torches, or for use as a magical missile.

They are a combination of an animated, alpha blended gradient shader for the smoke and a simple billboard based particle system for the flame.

## Shaders - Technical Overview

### Fire Tornado



The Fire-Tornado shader accepts a noise **Texture**.

**Texture Animation** animates the texture over the UVs.

**Cutoff** clips/discards certain fragments/pixels.

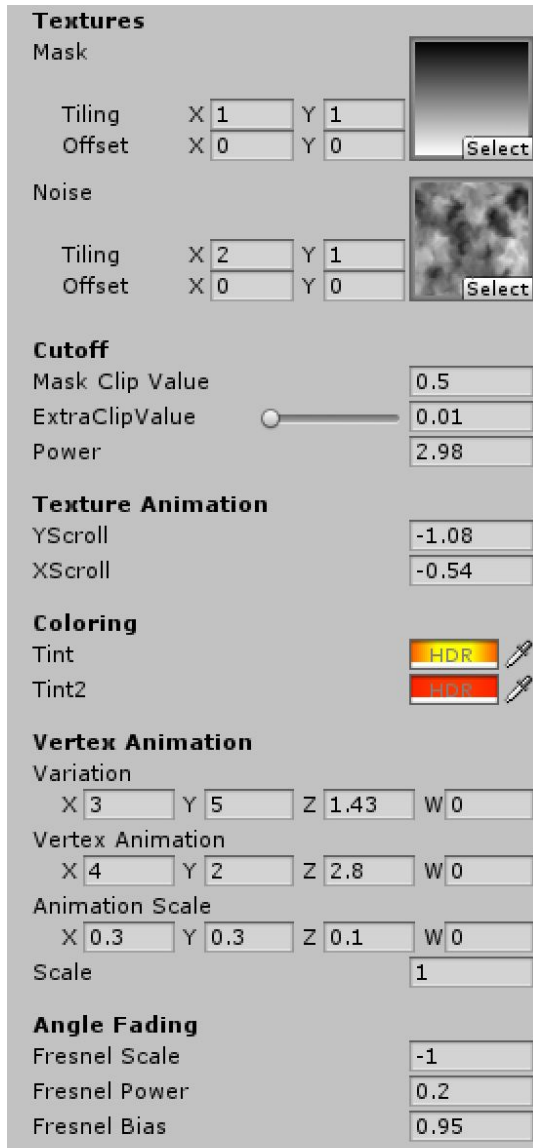
**Coloring** colors certain parts (based on the above values) of the Tornado.

**Vertex Animation** moves specific parts of the mesh.

**TimeScale** makes the animation faster or slower. **Twist** twists the mesh around its center while **BulgePower** and **BulgeScalar** handle the flaring bottom segment of the Tornado.

**Animation In Out** controls the ability to fade (cutout) the Tornado in and out from the top, bottom and middle. They can be combined, however they also have falloff values to more tightly control how noisy the fade in/out is. As well as an entire control **Animation Falloff** for all fade thresholds.

## Camp Fire



The screenshot shows the Camp Fire shader settings panel. It is organized into several sections:

- Textures**
  - Mask**: Tiling (X: 1, Y: 1), Offset (X: 0, Y: 0). A grayscale mask texture is selected.
  - Noise**: Tiling (X: 2, Y: 1), Offset (X: 0, Y: 0). A noise texture is selected.
- Cutoff**: Mask Clip Value (0.5), ExtraClipValue (0.01), Power (2.98).
- Texture Animation**: YScroll (-1.08), XScroll (-0.54).
- Coloring**: Tint (HDR), Tint2 (HDR).
- Vertex Animation**: Variation (X: 3, Y: 5, Z: 1.43, W: 0), Vertex Animation (X: 4, Y: 2, Z: 2.8, W: 0), Animation Scale (X: 0.3, Y: 0.3, Z: 0.1, W: 0), Scale (1).
- Angle Fading**: Fresnel Scale (-1), Fresnel Power (0.2), Fresnel Bias (0.95).

The Camp Fire shader takes two **Textures**. Firstly a mask and a tileable noise texture, this then creates an effect of animating fire by tiling the noise over time.

The **Cutoff** values diminish the 'volume' of the fire.

**Texture Animation** scrolls the noise over time with respect to the UVs of the mesh.

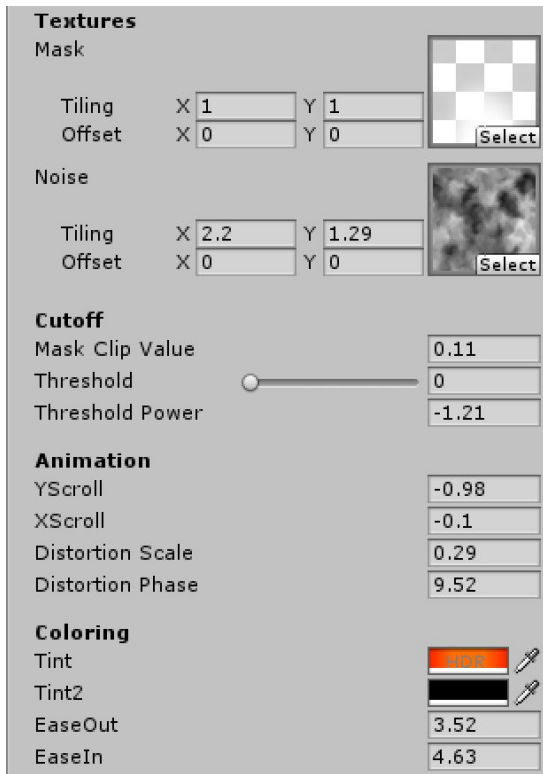
**Coloring** options color certain parts of the fire different colors, do note that these are HDR so they will not exactly line up to non-HDR values.

**Vertex Animation** will move the vertices in space. The **Variation** parameter changes the phase of the movement based on the vertex position (akin to turbulence). **Vertex Speed** controls how fast the animation plays. **Animation Scale** is the scale of the movement.

Please Note: The mesh has been vertex painted from black to white to selectively apply animation.

**Angle Fading** is a technique that utilizes a 'fresnel' like effect to fade/cutout certain pixels based on their normal orientation, thus harsh angles are less visible, however this can be tweaked to only show harsh angles and various combinations.

## Brazier



The Brazier shader accepts two **Textures**, similar to the Camp Fire shader.

The **Cutoff** acts in a similar manner to the Camp Fire shader.

**Animation** has a number of differences, notably the **Distortion Scale** which changes the UV phase scale and the **Distortion Phase** which changes the UV phase (cycle in a circular manner) such that the UV's do not necessarily propagate linearly.

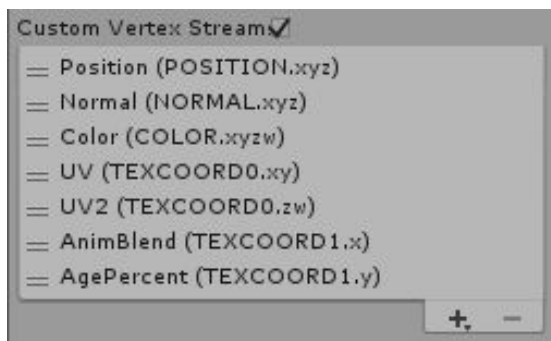
**Coloring** is another feature that has two differences, there is an ease in and ease out which controls the soft threshold of where the colors get applied.

## Candle

The Candle accepts a single **Texture** which has an alpha channel.

The **Primary/Secondary Animation** is animation that is all achieved in the UV space so performance is fast. It is entirely based on sinusoids. The **primary** should be used to set up basic animation while the **secondary** should be used to make smaller more interesting behaviours.

## Smokey Flames



The Smokey Flames particle system shader accepts two **Textures**, a particle texture and a gradient texture.

This gradient texture is sampled based on the alpha of the particle AND its lifetime.

The lifetime samples top to down while the alpha samples from left to right.

This is the setup for this particle system. It also blends frames in order to smooth cells per second of texture sheets.

**Pow / Scale** are extra sampling parameters to change and distort the way the particles sample the gradient (which does not need to be greyscale).

## Additional Support/ Contact

Feel free to contact us with any issues you may be having through any of the channels below. We are always happy to support our customers and will address bug fixes as soon as possible. Please do not hesitate to contact us with feature requests either! We'd love to continue to make our tools and assets better wherever possible.

We would be very grateful if you could take a moment to leave us a review on the Unity Asset Store if you have found the tool useful for your project. You can do this [here](#).

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