

# Easy Flares Pro

## Operation Manual





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## 1 Overview

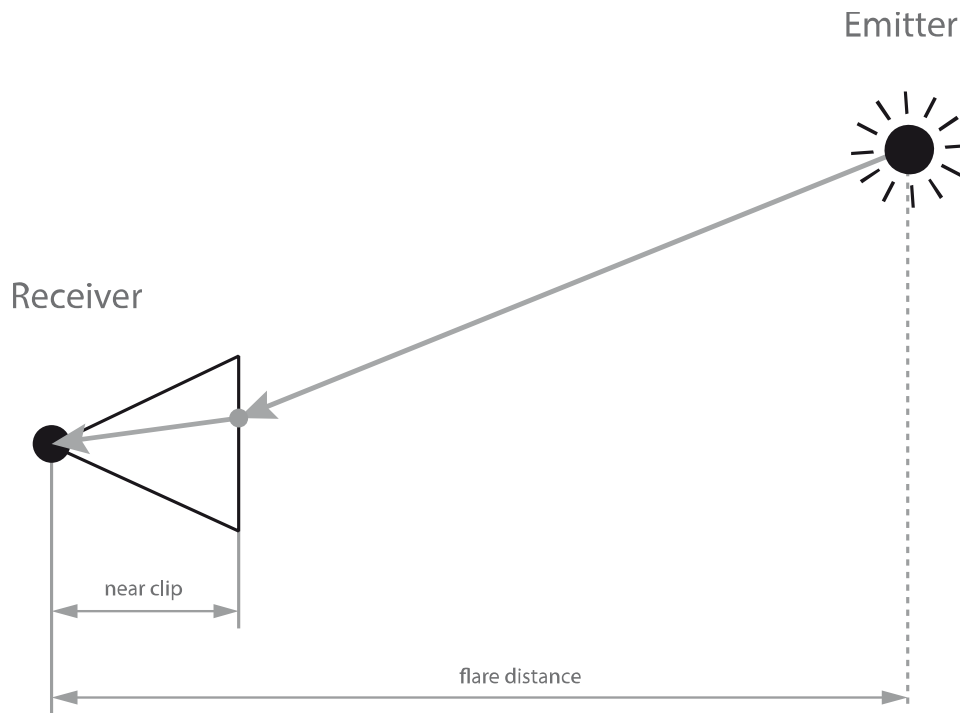
The **Easy Flares Pro** editor-extension allows you to easily generate and render procedural AAA quality lens flares. The artist-friendly design interface lets you create millions of different lens flares. The layer-based editor helps you to get stunning results in no time.

When working with procedural flares there is no need for any textures.

Every flare is stored in a separate style file. The style file can be exchanged between designers or easily ported to another project. This way your flare presets can be well organized and reused.

## 2 The Flare System

All important calculations are performed on the near clipping plane to achieve a physical adequate approximation of the aberrations within the lens. The goal was to find a good balance between physical correctness and performance.



### 2.1 Receiver

The flare receiver is basically a component attached to a camera. The receiver is part of the dynamic occlusion system.

### 2.2 Emitter

The emitter is, as the name says, responsible for the emitting process of the flare. The emitter determines where the flare gets rendered in 3D space.

### 2.3 Style

An emitter needs a style in order to know how the flare has to be rendered. So the style is basically the blueprint for the lens flare. Styles can be exchanged between projects.

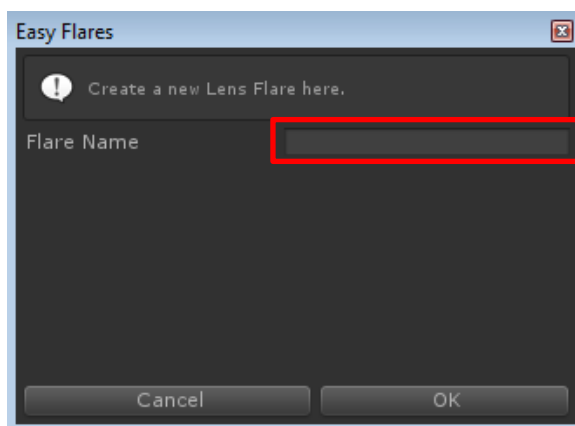
The generate style are located at **Assets/nu Assets/Easy Flares/Resources/ Lib/Flares**

## 3 Usage

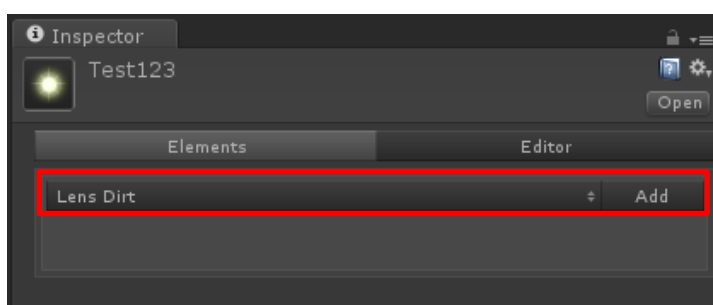
### 3.1 Begin from Scratch

#### 3.1.1 Create a Flare Style

1. Create a new Flare Style by clicking on **Assets > Create > nu > Easy Flare Style**
2. On the up popping dialog enter the name of the style you want to create and press **OK**.



3. Your recently created style gets focused. In the inspector window you can now see an empty style editor interface.
4. Select the Flare Element you want to add from the drop-down menu and click **Add**. Repeat this step until the flare fits your need.



For more information about the different Flare Elements go the Flare Elements section.

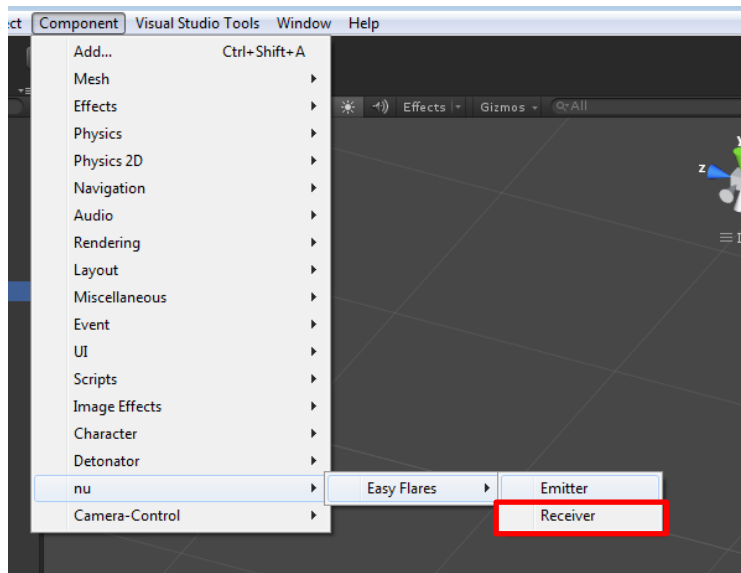
5. Save your style by pressing **Ctrl + S** or **File > Save Project**.

### 3.1.2 Create a Receiver

The Flare Receiver component must always be attached to a Camera.

1. Create a new Camera **GameObject > Camera** or select an already existing one.
2. Add a receiver component to the Camera.

**Component > nu > Easy Flares > Receiver**



The receiver needs a Capsule Collider. If there is no one attached, it gets automatically added.

### 3.1.3 Create an Emitter

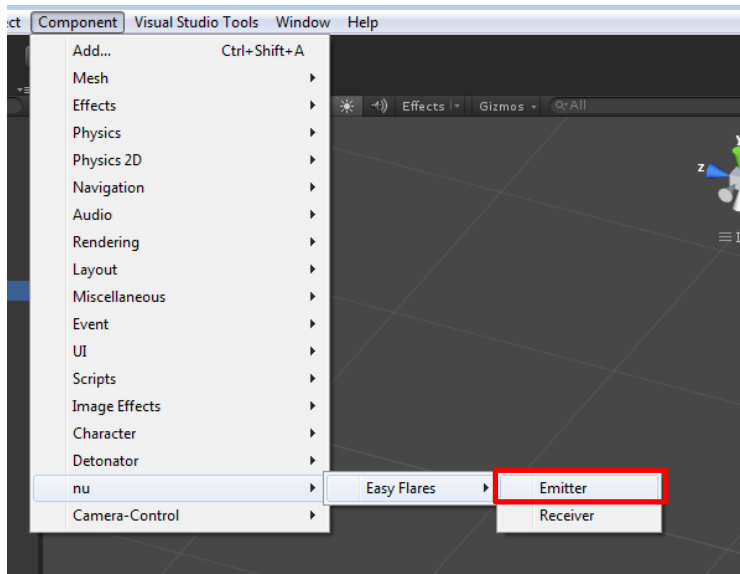
1. Create a new light source (this can also be an empty GameObject).

**GameObject > Light > Point Light**

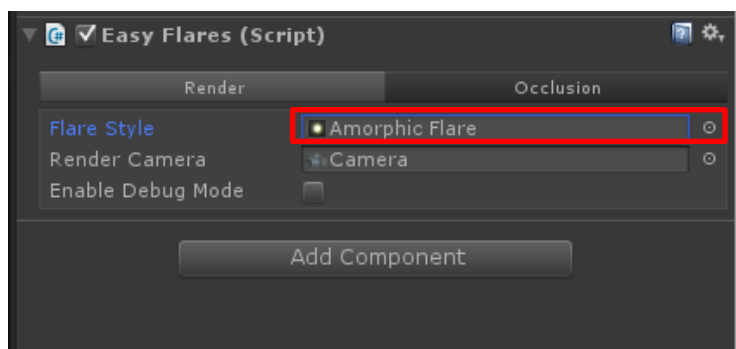
This object is the flare emitter.

2. Add an emitter component to the recently created GameObject.

**Component > nu > Easy Flares > Emitter**



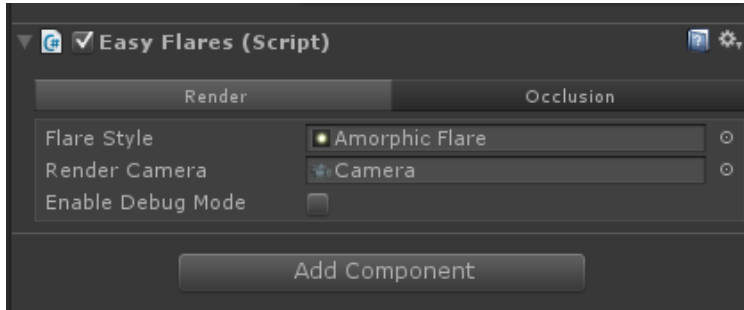
3. Assign the recently created style to the emitter by either dragging it to Flare Style field or selecting it directly from the selection menu.





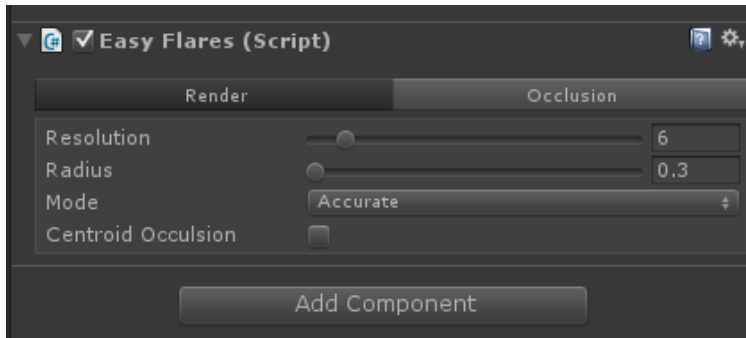
## 4 Emitter

### 4.1.1 Render



Setting Name	Description
<b>Flare Style</b>	The style used to render the flare.
<b>Camera</b>	The camera viewing the flare.  <b>Note:</b> The main camera is used by default.
<b>Enable Debug Mode</b>	Enables some visual debug figures.

## 4.1.2 Occlusion



Setting Name	Description
<b>Resolution</b>	The resolution of occlusion of the flare. Basically this value determines how many points are used to calculate the occlusion factor.
<b>Radius</b>	The radius of the occlusion circle. This value determines how far the occlusion points are away from the emitter.
<b>Mode</b>	<p>The mode used to compute the occlusion.</p> <p><b>None</b> Do not compute any occlusion factors. This mode is the fastest.</p> <p><b>Simple</b> Computes the occlusion from the center point (position) of the emitter. This option is faster than the Accurate option.</p> <p><b>Accurate</b> Computes the occlusion from the surrounding point determined by the resolution. Use this mode for a smoother fade-out when move behind an obstacle.</p>
<b>Centroid Occlusion</b>	When the Centroid Occlusion option is enabled, the emission center automatically gets shifted towards the centroid (point of gravity) of the visible area of the resulting polygon.

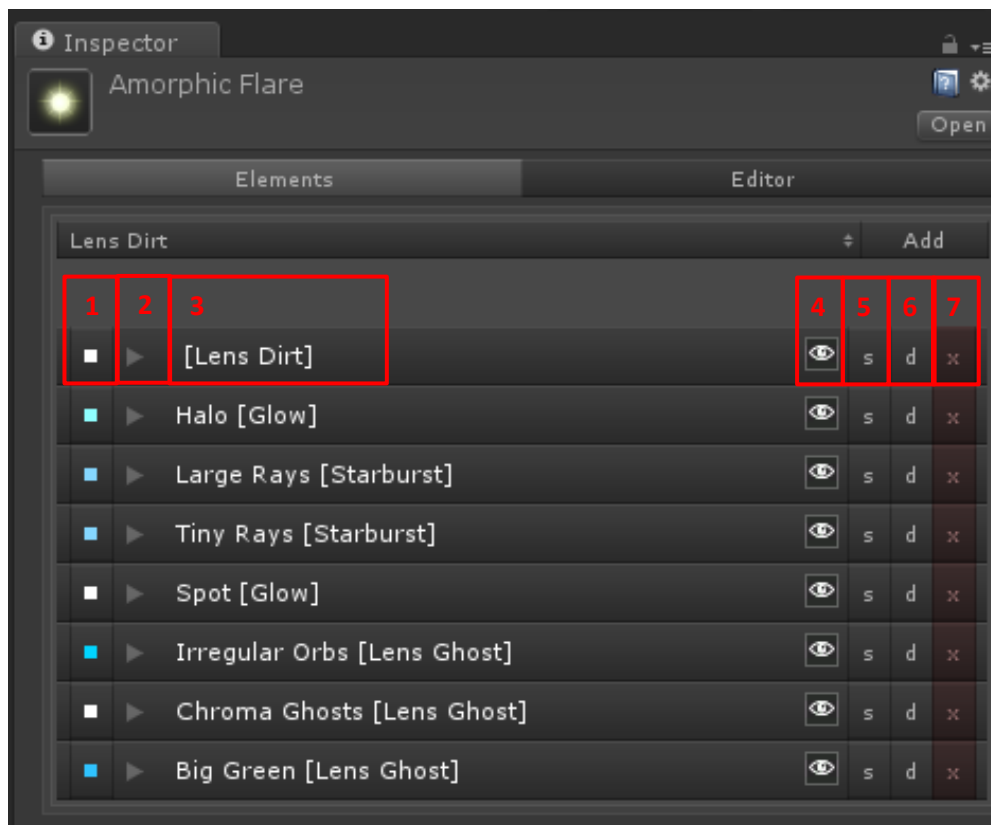


Note that a high value for the resolution can give a performance hit. As for every point there's a single ray cast needed.

## 5 Style Editor

### 5.1 Layer

A style is composed of different layers. Each layer represents a single flare element. A layer can be named, hidden, set to solo display or duplicated.

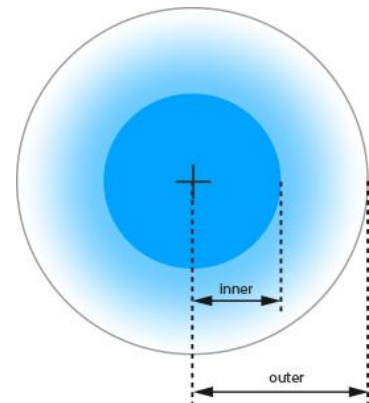
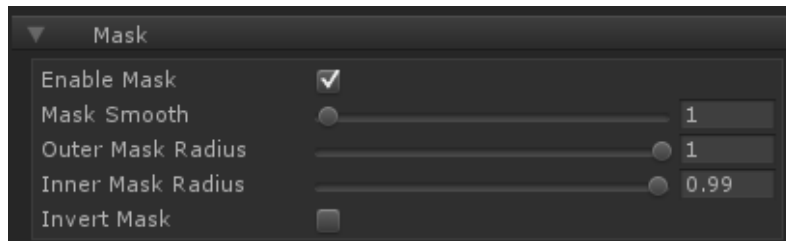


1. The tint color used to render the layer.
2. Layer foldout. Click to toggle between opened and closed state.
3. The name of the layer. Double click to rename.
4. The layer visibility. Click to hide or show the layer.
5. Set the layer to single render. This option has more priority than the layer visibility.
6. Duplicate the layer.
7. Delete the layer.

## 5.2 General Settings

### 5.2.1 Mask

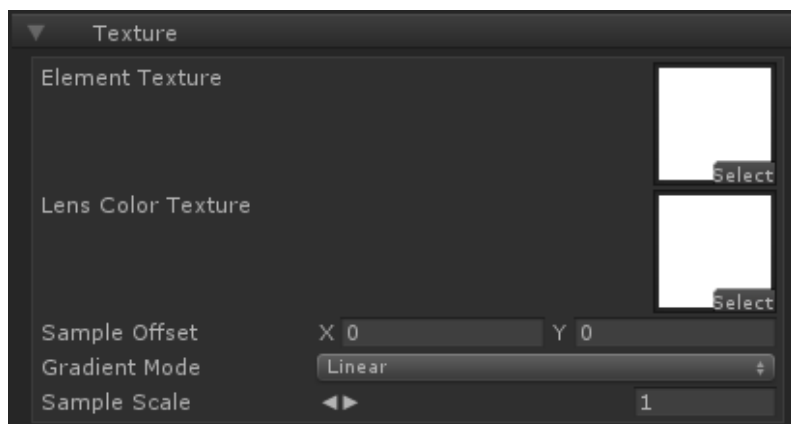
The mask of a flare element describes its visibility. All value are in relative viewport coordinates.



Setting Name	Description
<b>Enable Mask</b>	Enables or disables the masking stage.
<b>Smooth</b>	The amount of smoothing between the inner and the outer radius where a value of 0 means no smoothing at all.
<b>Outer Radius</b>	The outer radius of the masked circle.
<b>Inner Radius</b>	The inner radius of the masked circle.
<b>Invert Mask</b>	Determines whether the mask should be inverted.

## 5.2.2 Texture

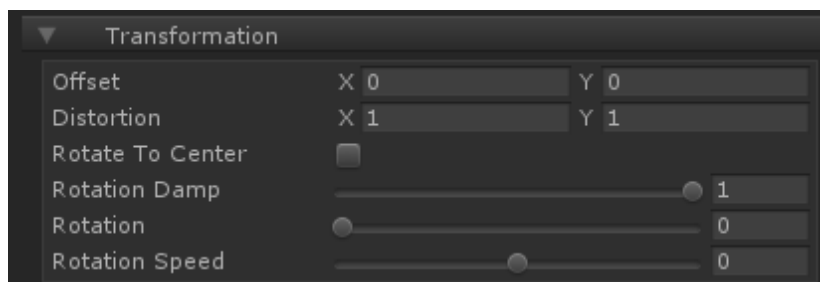
The texture tab contains information about the textures used by the texturing stage. There may be an “Element Texture” field when the flare element can render non-procedural flares.



Setting Name	Description
<b>Element Texture</b>	The texture used to render.  <b>Note:</b> Procedural flare elements do not have this field.
<b>Lens Color Texture</b>	The texture used to coloring the flare element. Use this for color gradients to faking lens coatings.
<b>Sample Offset</b>	The offset used for texture sampling. These values are in normalized UV space.
<b>Gradient Mode</b>	The mode of the texture wrapping.  <b>Linear</b> The pixels get read from the texture in a linear manner.  <b>Circular</b> The pixels get read from the texture in a circular manner.
<b>Sample Scale</b>	The scale factor used to stretch the texture in UV (XY) direction.

### 5.2.3 Transformation

The Transformation tab contains information about the textures used by this slot. There may be a “Element Texture” field when the flare element can render non-procedural flares.

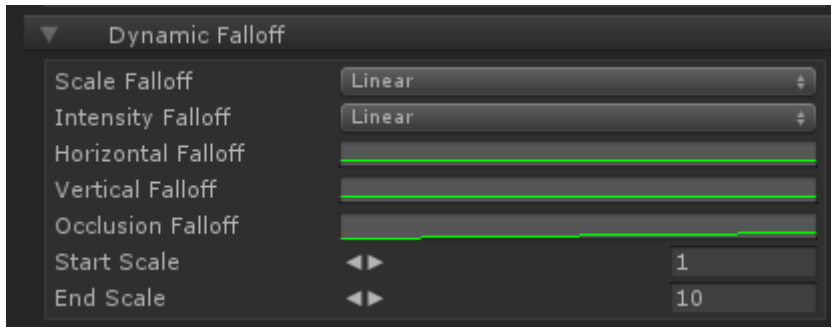


Setting Name	Description
<b>Offset</b>	The normalized offset used when rendering the flare. These values are in viewport space.
<b>Distortion</b>	The distortion of the flare in viewport space. Use these values to achieve thin streaks or asymmetrical flare effects.
<b>Rotate to Center*</b>	Enables or disables the center rotation for this flare element. When this option is activated, the element rotates automatically to the screen center.
<b>Rotation*</b>	The rotation in degrees of the current flare element in the view plane.
<b>Rotation Speed*</b>	The rotation speed in degrees per second of the current flare element.

\* Not all elements support these settings.

## 5.2.4 Dynamic Falloff

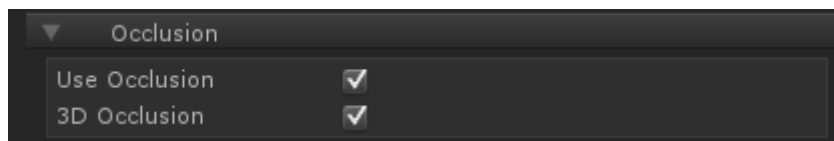
The Dynamic Falloff tab contains information about the triggered falloff in viewport and world space.



Setting Name	Description	
<b>Scale Falloff</b>	The falloff mode used for scaling.	
	<p><b>None</b> There is no scale falloff at all.</p> <p><b>Linear</b> The scale factor decreases linearly as a function of distance.</p> <p><b>Quadratic</b> The scale factor decreases quadratically as a function of distance.</p>	
<b>Intensity Falloff</b>	The falloff mode used for the flare element's intensity.	
	<p><b>None</b> There is no intensity falloff at all.</p> <p><b>Linear</b> The intensity decreases linearly as a function of the distance.</p> <p><b>Quadratic</b> The intensity decreases quadratically as a function of the distance.</p>	
<b>Horizontal Falloff</b>	The horizontal falloff curve in viewport space.	<p><u>Horizontal axis</u></p> <p>[0.0] means left border</p> <p>[0.5] means center</p> <p>[1.0] means right border</p>
<b>Vertical Falloff</b>	The vertical falloff curve in viewport space.	<p><u>Horizontal axis</u></p> <p>[0.0] means left border</p> <p>[0.5] means center</p> <p>[1.0] means right border</p>
<b>Start Scale</b>	The distance from where the 3D falloff starts.	
<b>End Scale</b>	The distance where the 3D falloff ends.	

### 5.2.5 Occlusion

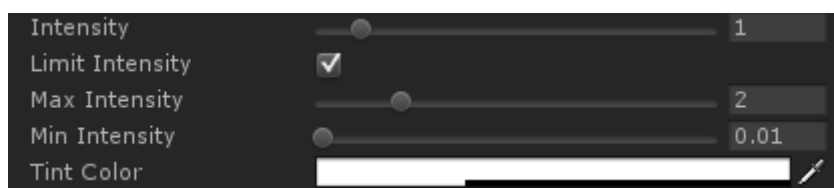
The flare element’s occlusion settings. These settings are per-layer.



Setting Name	Description
<b>Use Occlusion</b>	Enables or disables the occlusion for the current flare element.
<b>3D Occlusion</b>	Enables or disables the 3D occlusion for the current flare element. When this option is activated, the depth of the flare element is taken into account.

### 5.2.6 Common

The intensity and color settings of this flare element.



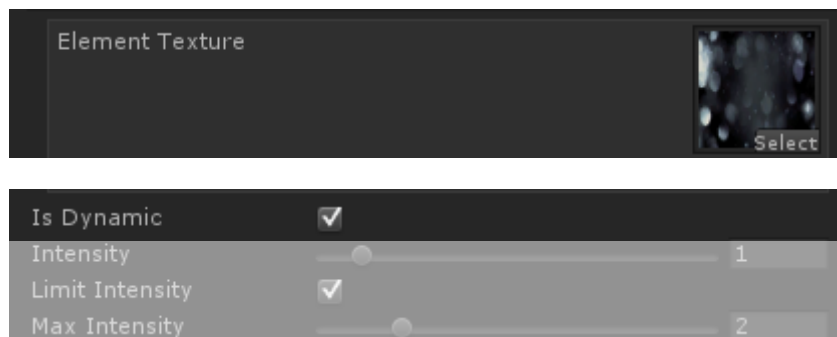
Setting Name	Description
<b>Intensity</b>	The brightness of the flare.  <b>Note:</b> The intensities of the layers are additive. That means that it can affect the other flare layers.
<b>Limit Intensity</b>	Enables or disables the limitation of intensity.
<b>Max Intensity</b>	The maximal intensity allowed while rendering the flare element. Larger values than specified here get clamped.
<b>Min Intensity</b>	The minimal intensity allowed while rendering this flare element. Smaller values than specified here get clamp.
<b>Tint Color</b>	The coloring of the flare element.



## 5.3 Flare Elements

### 5.3.1 Lens Dirt

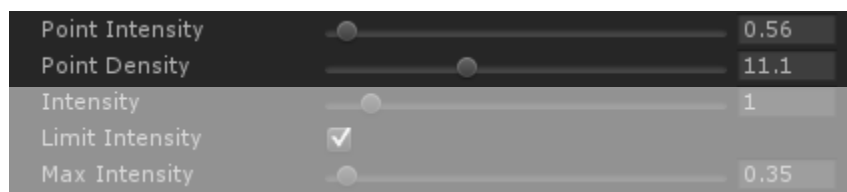
The lens dirt layer simulates image defects caused by dirt and dust on the lens.



Setting Name	Description
<b>Element Texture</b>	The texture used to render the lens dirt.
<b>Is Dynamic</b>	Enables or disables the dynamic masking for this lens dirt element. When this option is activated, the dirt map gets dynamically masked like a halo around the emitter.

### 5.3.2 Glow

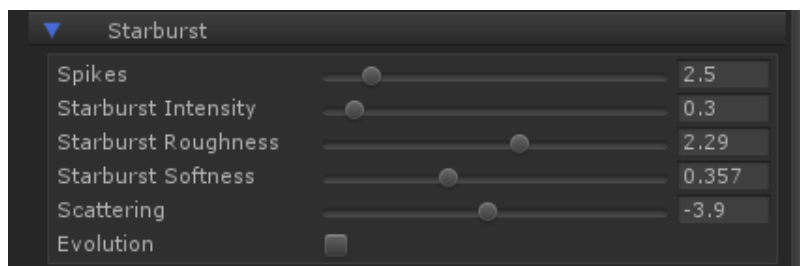
The glow layer simulates the scattering of the light on lens' surface. This layer is fully procedural.



Setting Name	Description
<b>Point Intensity</b>	The intensity in the center of the glow halo. The larger this value, the 'whiter' the glow halo gets.
<b>Point Density</b>	The density in the center of the glow halo.

### 5.3.3 Starburst

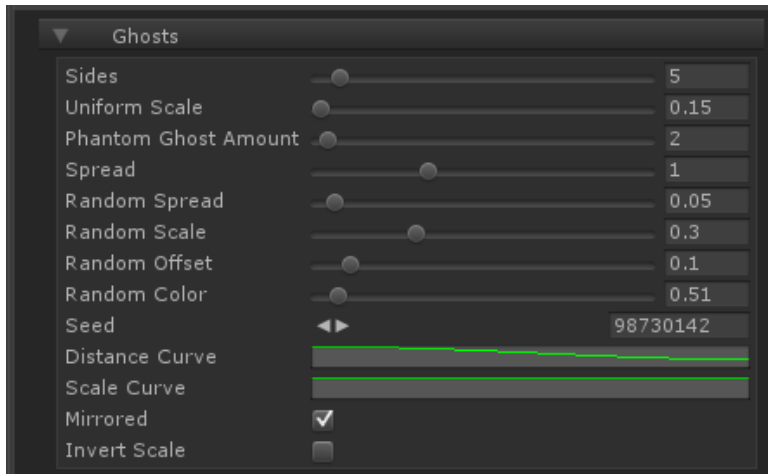
The starburst layer simulates the scattering of the light on the lens' surface this layer produces star-shaped aberrations. The starburst layer is fully procedural.



Setting Name	Description
<b>Spikes</b>	The amount of spikes rendered.
<b>Intensity</b>	The intensity of the starburst.
<b>Roughness</b>	The roughness of the rays rendered.
<b>Softness</b>	The softness/feathering along the rays.
<b>Scattering</b>	The amount of scattering.

### 5.3.4 Lens Ghost

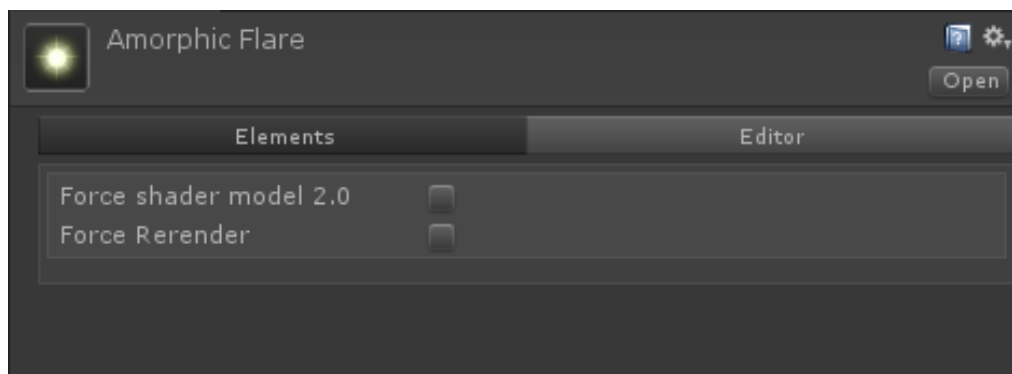
The lens ghost layer simulates the iris aperture and the reflections through the optical system.



Setting Name	Description
<b>Sides</b>	The simulated blade amount. This value is basically the amount of sides of the polygon.
<b>Uniform Scale</b>	The non-location-based scale factor. Every phantom ghost gets multiplied by this value.
<b>Phantom Ghost Amount</b>	The amount of ghosts rendered.
<b>Spread</b>	The distribution along the screen-centered ghost axis. Increase this value for greater distance between each ghost.
<b>Random Spread</b>	The amount of randomness added to the spread value.
<b>Random Offset</b>	The amount of randomness added to the ghost's position along an axis orthogonal (perpendicular) to the ghost axis.
<b>Random Color</b>	The amount of randomness added to initial color value. Use this value to fake lens coatings.
<b>Seed</b>	The seed of the random number generator. Changing this value achieves different random result.
<b>Distance Curve</b>	The curve describes the location-dependent offset values. The horizontal axis is basically the distance from lens center (screen center).
<b>Scale Curve</b>	The curve describes the location-dependent scale values. The horizontal axis is the distance from lens center (screen center).
<b>Mirrored</b>	Enables or disables the mirroring of the ghosts at center point.
<b>Invert Scale</b>	Enables or disables the inverting of the scale curve.

## 5.4 Editor Tab

In the editor tab you can modify settings concerning



Setting Name	Description
<b>Force SM 2.0</b>	<p>When activated, this flare style forces the renderer to use the sgader model 2.0.</p> <p><b>Note:</b> When this option is activated, some of the settings will become unavailable or do not take any effects.</p>
<b>Force Rerender</b>	<p>When activated, every emitter with this style attached, gets forced to render each frame within the editor.</p> <p><b>Note:</b> Activating this option can lead to performance hits while running in the editor.</p>