Sun Rays

Unity Asset Documentation

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What is Sun Rays?

Sun Rays is an image effect you add to your main camera, to create sun streaks around occluding geometry. This creates the illusion of volumetric rendering, however the effect is all calculated in screen space and merged in after the scene has been rendered.

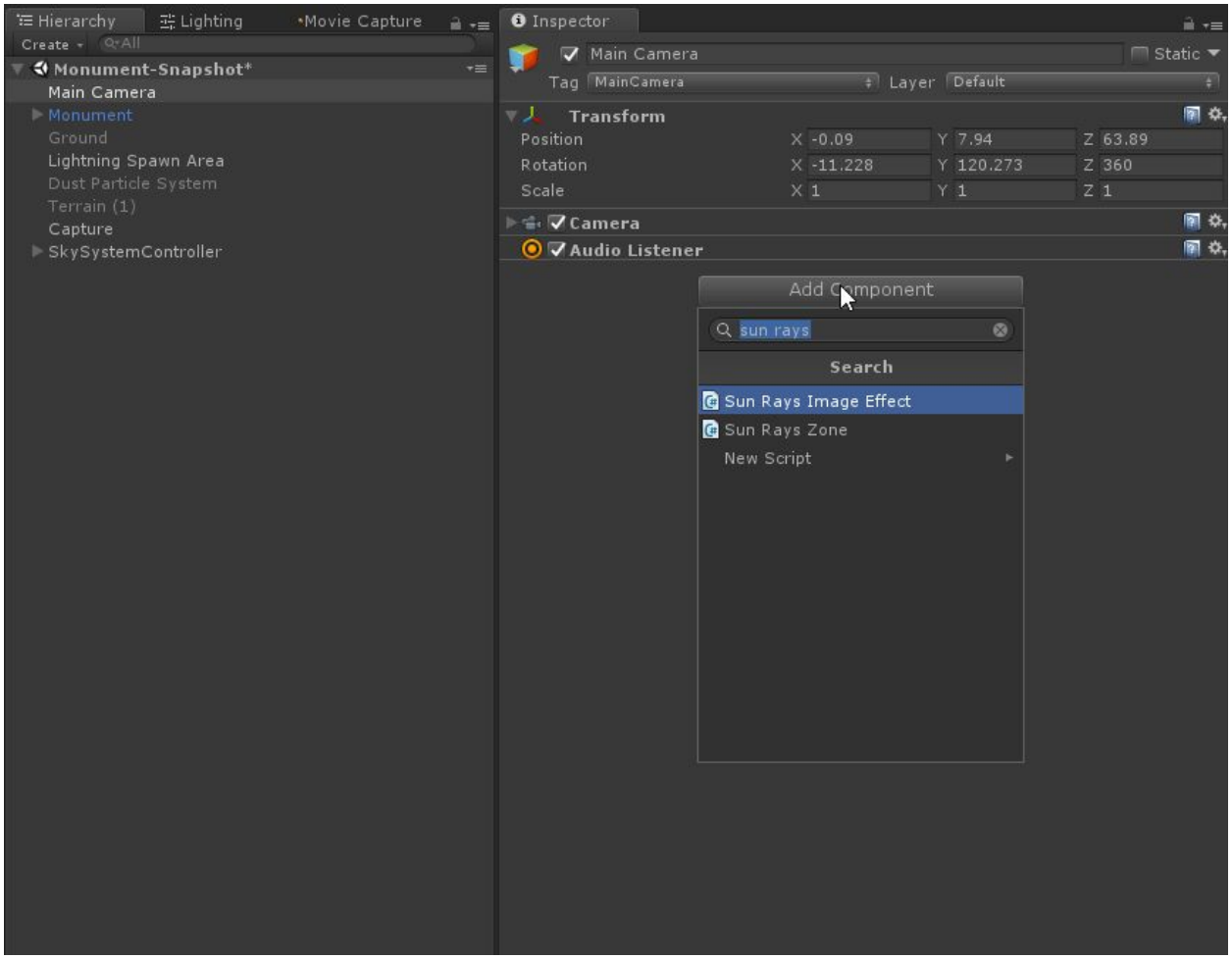
A simplified way to think of the effect, is that it creates a radial blur from the sun, that is pulled across other objects in the scene. The image effect is only visible when the camera is looking in the direction of the sun. Sun Rays also has full support for creating “Sun Ray Zones” which allow you to customize how the sun rays effect looks for different areas of your game (or disabling it entirely).

This is what Sun Rays looks like in a scene (see below), notice the long sun shafts coming from the sun.

Setup

Follow these simple steps to add the Sun Rays image effect to your scene.

1. Select the camera game object in your scene.
2. Add the component “Sun Rays Image Effect”
3. (*optional*) Assign a transform to “Light Transform” to set the direction of the sun light (typically this would be a directional light). If you have a directional light in your scene, or you’re using Sky Studio, this will be automatically setup for you.
4. Click play to preview your scene. Make sure you have some geometry (like large cubes, walls, etc) to block a portion of the sky to see the effect working.

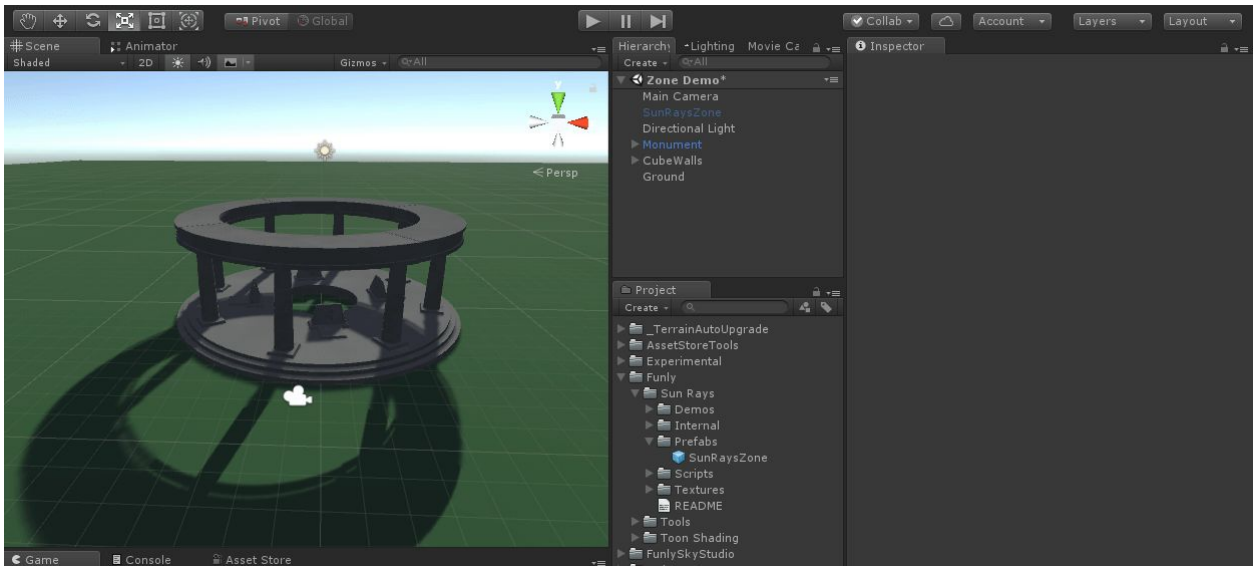


Setup process video (view online to watch the animated gif)

Zones

You can add custom zones, which are rectangular areas of your scene, that can have their own settings for Sun Rays. When the camera enters or exits these areas, Sun Rays will smoothly animate a transition between the settings.

The “Sun Rays Image Effect” contains the “Global Zone Settings”. These are the settings that are used if there are no zones used in your scene, or the camera isn’t currently inside a sun ray zone.
You can create a new “Sun Rays Zone” by simple adding the component to a game object in yoru scene, or by dragging out the prefab into your scene from “*Funly/Sun Rays/Prefabs/SunRaysZone*”. The boundary of the zone is clearly shown by the yellow outline when the zone game object is selected.



Setup process of zone (view online to watch the animated gif)

Demo Scenes

Sun Rays comes with 2 different demo scenes. They're designed to be simple examples demonstrating all the features of Sun Rays.

Simple Demo

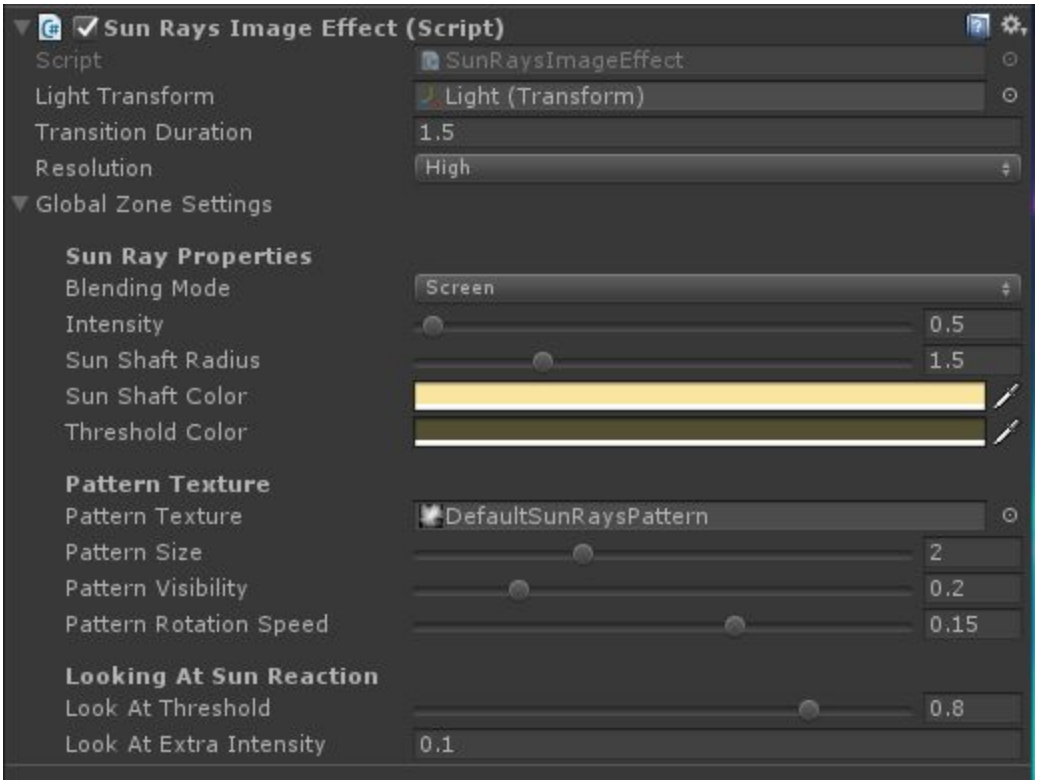
The Simple Demo shows an example using Sun Rays Image Effect on the main camera, and no zones. The demo scene is located it "Funly/Sun Rays/Demos/Simple Demo".

Zone Demo

The Zone Demo shows how to use a zone in your scene. When you click play the camera will move in and out of zone, demonstrating the tra

Sun Ray Image Effect Settings

Sun Rays has many properties (or settings) that are used to adjust the Sun Rays Image Effect. Here we'll review the various properties (as seen from the screenshot), and discus how to adjust them.



- **Light Transform**
    - Transform that indicates the direction of sun light (where Z+ is light forwarding). Typically this is just the transform of your directional light in the scene. If you don't have any lights, you can create an empty game object and drag it into this property.
- **Transition Duration**
    - The amount of time in seconds, for animating between settings when moving in or out of a Sun Rays Zone.
- **Resolution**
    - Determines the size (or resolution) of the framebuffer that's created for rendering the effect. A larger framebuffer produces a more accurate and stable result, but is most closely to calculate (since there are more pixels to fill). A lower value will render more quickly but will produce a blurry result.
        - High - Same resolution as camera framebuffer.
        - Medium - ½ the resolution of the camera framebuffer.
        - Low - ¼ the resolution of the camera framebuffer.
- **Blending Mode**
    - **Screen**
        - Color blending that merges 2 colors using the multiplied inverse of each.
    - **Additive**
        - Color blending that adds the sun rays color into underlying color.

- **Intensity**
    - The brightness of the sun rays effect. This value is multiplied to scale the effect.
- **Sun Shaft Radius**
    - Size of the sun rays effect stretched out from the sun position on screen. Shorter value makes smaller sun rays, larger value makes longer sun rays.
- **Sun Shaft Color**
    - Tint color of the sun ray shafts.
- **Threshold Color**
    - Color used as a threshold in brightness to determine which objects are occluding the background skybox color.
- **Pattern Texture**
    - Texture that's multiplied against the sun shafts to give the light volume some turbidity and animation. This is also useful for creating more toon or stylized sun shafts.
- **Pattern Size**
    - Size of the pattern texture that's scaled up from the suns position on screen. Typically the size should be a little bit smaller than the Sun Shaft Radius.
- **Pattern Visibility**
    - Determines the intensity of the pattern texture inside the sun shafts. A value of 0 completely disables the pattern texture (which useful for many situations), and a value of 1 will completely show the pattern texture. Typically a low value (~.1f) has a more natural appearance.
- **Pattern Rotation Speed**
    - Speed at which to rotate the pattern texture at. This will create the illusion that the sun shafts have some rolling animation inside them. A setting of 0 creates no rotation animation.
- **Look At Threshold**
    - The Look At Threshold determines how wide or narrow the angle is, that's used to determine when the user is looking towards the light source direction. When the camera looks towards the light, Sun Rays will start animating in extra intensity if there's a value > 0 in the "Look At Extra Intensity" property. A lower value represents a wider angle to animate in the intensity, while a higher value means the camera will need to be more precisely looking in the same exact light directly for the extra intensity to get applied.
- **Look At Extra Intensity**
    - Amount of extra intensity to apply when the camera looks towards the light direction. This value will be animated in-out as determined by the angle represented by the "Look At Threshold". You can set this to zero, if you don't want any extra light intensity applied when the user looks in the light direction.

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