Critter Volumetric Lighting 1.2

Documentation

Critter Entertainment

Contents

1. Introduction

Thank you for buying this asset! *Critter Volumetric Lighting* is a full-screen post-processing effect that simulates sunlight interaction with objects and clouds, creating distinct beams of light (also known as god rays). This asset is designed for stylistic top-down games and uses multiple optimization techniques that require *Orthographic* camera projection. With that in mind, this asset allows you to simulate shadows and god rays from three-dimensional cloud noise, creating beautiful volumetric light effects with good performance.

Your feedback is valuable to us! For feature requests, feedback, bug reports or simply sharing your work please contact us on Discord or via email.

Email – critter.entertainment@gmail.com

Discord – https://discord.gg/bmzP8pG6en

1.1 Setup tutorial (complete this first)

Tutorial video - https://youtu.be/1zv8xU_Pl_Y?si=L7XeXhJqO5e1WXjF&t=83

1. **Configure camera**
    a. Verify that your game camera is tagged with *MainCamera* and set to *Orthographic* projection.
2. **Update URP asset**
    a. Add *Volumetric Light Renderer* to the Renderer List of your URP asset.
    b. Select your game camera and make sure it uses this *Volumetric Light Renderer*.
        i. **Note:** Include any other renderer features used by your main camera within the Volumetric Light Renderer setup.
3. **Add manager scripts**
    a. Drag *VolumetricLightManager.cs* to an object.
    b. To simulate clouds, drag *CloudManager.cs* to an object.

2. User Guide

VolumetricLightManager.cs is the interface for configuring volumetric light effects. *CloudManager.cs* is the interface for adjusting values for clouds such as their scale, movement, density, etc.. *CloudManager.cs* offers a list of materials so it can synchronize their values with this volumetric light effect.

3. Performance Tips & Tricks

Main light shadows

Sampling of Unity's main light shadows significantly affects performance. Keep S*hadowMarchSteps* as low as possible to reduce computations. Reducing the total distance covered by Shadow March (*ShadowMarchSteps * ShadowMarchStepSize*) can slightly improve performance by being able to leverage cloud simulation optimizations sooner. Note that this is separate from simulating cloud shadows using cookie in main light. The cookie system does not require extra raymarching nor does it significantly affect performance.

Clouds

In this asset, "clouds" refer to the sunbeams or god rays from shadows generated using 3D cloud noise. *CloudDataResolution* directly impacts performance; higher resolutions yield more detail but decrease performance. To achieve high-quality visuals with low *CloudDataResolution*, minimize the area for which clouds are computed. This area is defined by *CloudAreaNearClipPlane* and *CloudAreaFarClipPlane* and can be visualized in Scene view when *ShowCloudAreaInEditor* is enabled. It is strongly encouraged to manually tweak this value until clouds appear and disappear in a visually correct manner.

Other

When main light is at a low angle (e.g. 0-20 degrees) the accuracy for sampling volumetric lights for clouds becomes challenging. It is recommended dynamically appear/disappear clouds near such extreme angles. The scale of clouds' shadows also increases massively when the sun is rising or setting in nature, so adjusting for small angles looks more natural than having static cloud scale and visibility at all sun angles.

4. FAQ

I added both manager scripts to a scene but can't see anything in play mode?

Make sure that your *CloudAreaNearClipPlane* and *CloudAreaFarClipPlane* accurately capture the area where you wish to see god rays.

Low FPS & God rays are clipping weirdly?

This is often the case if you have multiple cameras in your scene that are using a renderer containing the volumetric light effect. For example, if you have Critter 3D Pixel Camera, ensure that only PixelCamera uses a renderer containing the effect and **not** ViewCamera, which is a child object of PixelCamera.

5. Final words

Thank you for purchasing this asset! Please feel free to share your work on our Discord server and contact us if you have any questions or feedback, as we would love to help you bring your vision to life. We would greatly appreciate it if you submitted a review on the asset store as it helps us to improve this asset.