Buto

A Game-Ready Asset by **OccaSoftware**

Need Help?

If you run into any issues or have any questions, please don't hesitate to contact me by email or on Twitter.
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Introduction

Buto enables you to easily add real-time stylized volumetric fog to your scene. One Render Feature, One Material. That’s it.

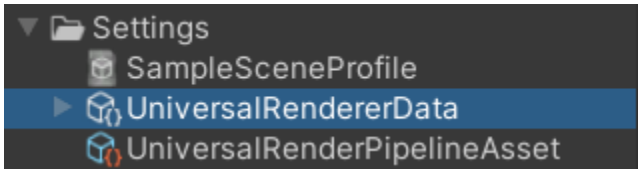
Designed for **Unity 2021.3 LTS Universal Render Pipeline (URP)**.

Features

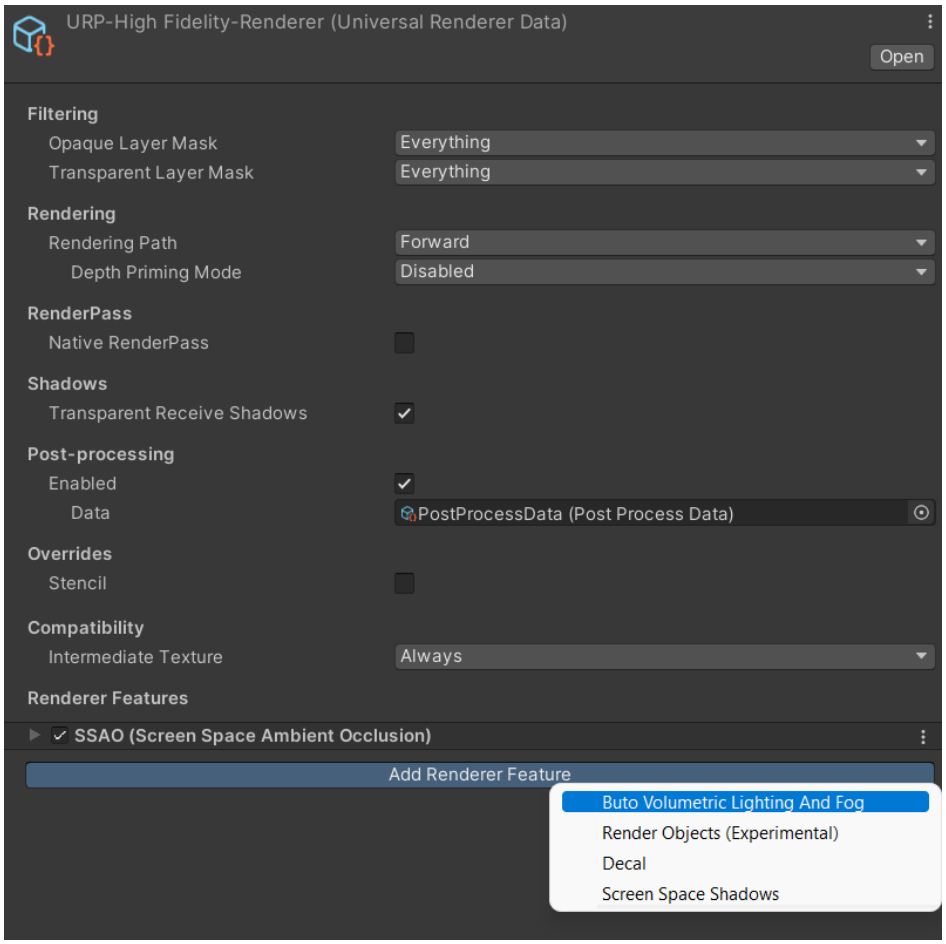
1. Physically-based volumetric lighting and fog generates an accurate simulation of atmospheric particles.
2. Optimized, high-performance rendering at half scale resolution with intelligent depth-aware upscaling.
3. Built-in volumetric noise gives depth and texture to the particle distribution.
4. Particle density exponentially decreases over height resulting in atmospheric height fog.
5. Analytic height fog is rendered behind the nearby ray-marched volumetric fog to guarantee long-range visual consistency.
6. Distance-based Color Ramps, Color Ramp influence, and Light and Shadow intensity sliders give you creative stylized fog options.

First Setup

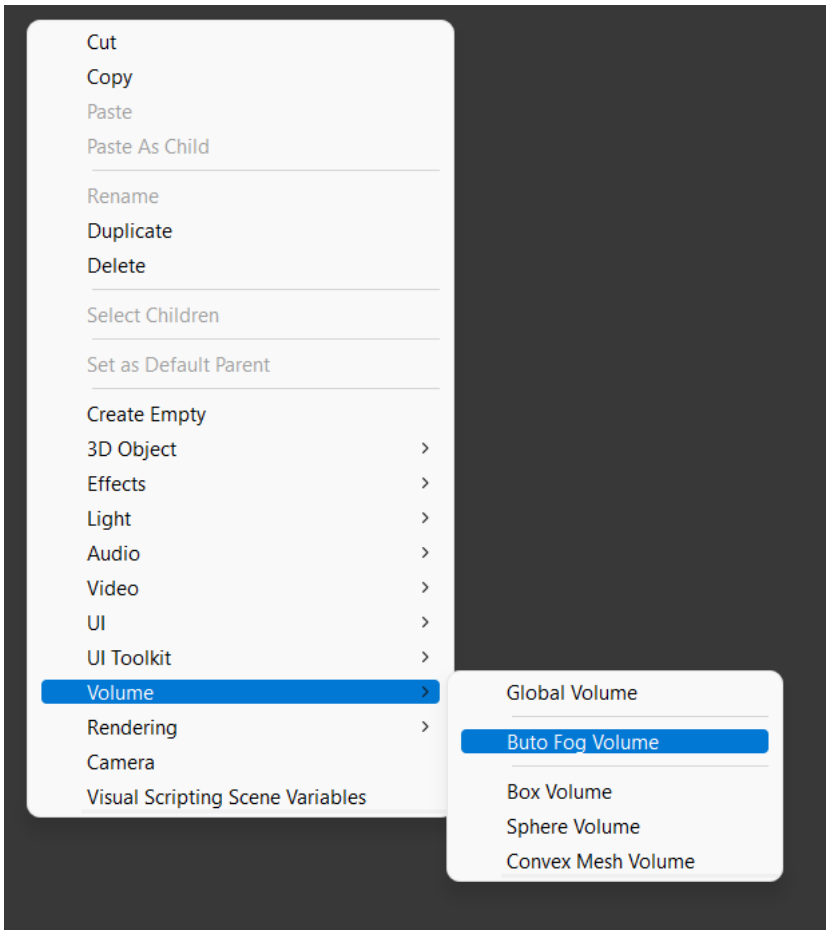
Navigate to your Universal Renderer Data asset. Click on it.



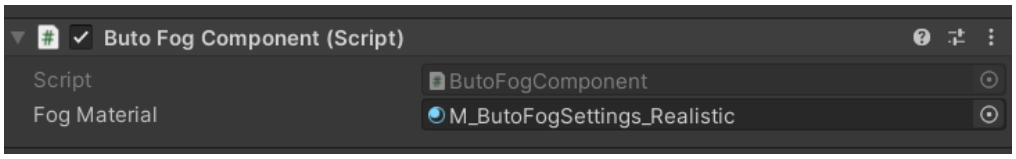
In the Universal Renderer Data Inspector, click “Add Renderer Feature” and choose “Buto Volumetric Lighting and Fog”



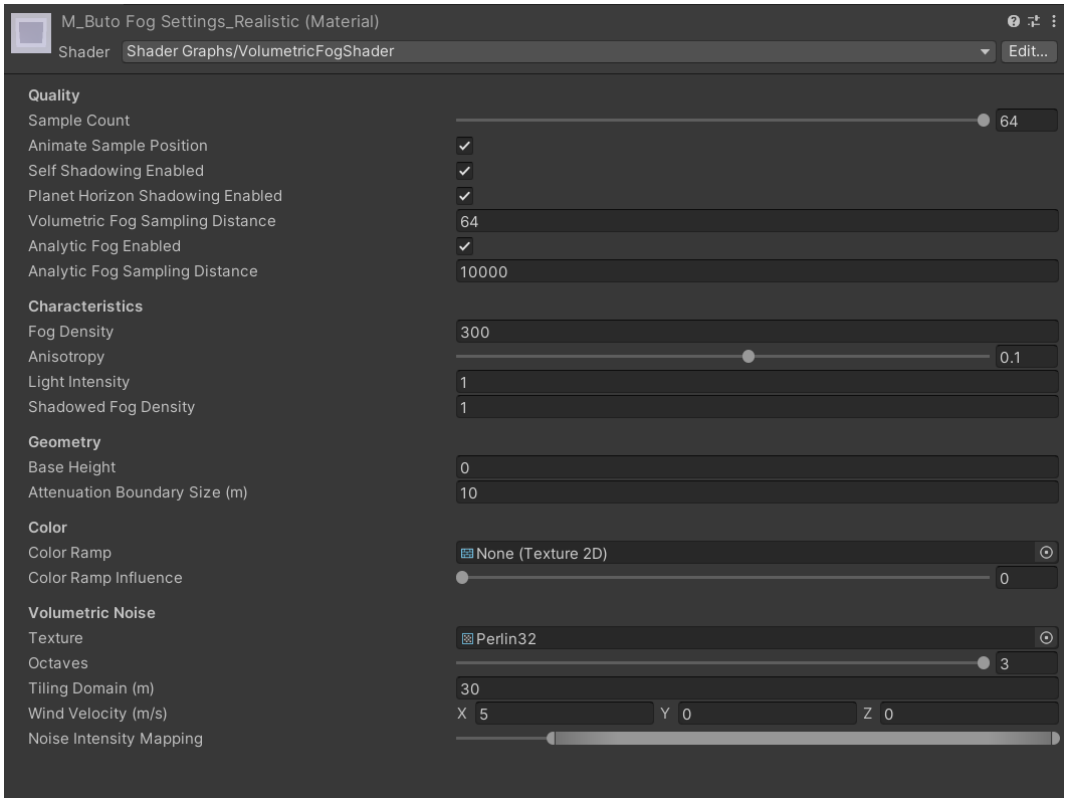
In your Hierarchy, right click, then go to Volume, **Buto Fog Volume**



Drag and drop one of Buto's included Fog Settings from ~/Buto/Materials into the Fog Material input slot on the newly created Buto Fog Volume.



Configure the Material according to your scene requirements.



Additional Fog Types

You may want different types of fog depending on your scene.

- Make a copy of any existing material using the Shader Graphs/VolumetricFogShader Shader, or create a new material and assign the Shader to it.
- Drag the new Fog Settings material into the scene's Buto Fog Component.
- Configure the material accordingly.

Note that a single scene can contain only one Buto Fog Volume / Buto Fog Component combination.

You can change the active Fog Material at runtime by calling the public method, SetFogMaterial(Material fogMaterial), available on the ButoFogComponent class. I've enclosed an example of this functionality in the demo scene using the DoChangeFogMaterial class.

Public API

ButoFogComponent includes the following public methods

SetFogMaterial public void SetFogMaterial(Material fogMaterial);
GetFogMaterial public Material GetFogMaterial();

Configuring Volumetric Point Lights

1. On any Game Object, add the **Buto Light** component
2. Buto will now treat this Game Object as a Volumetric Point Light
3. You can add a Light component to the same Game Object and have the Buto Light inherit the characteristics of the Light component. The easiest method is as follows:
    a. Toggle on the property, **Inherit Data From Light Component** in the Buto Light component.
    b. Click the button, **Check or Add Light Component**. A light component will be added if one is not already present on the Game Object.
    c. Configure the **Light** component's **Intensity** and **Color**.
4. Note that Volumetric Point Lights do not account for shadow attenuation

Creating a custom Color Ramp

Your Color Ramp texture can have any dimensions. However, be aware that it is sampled as follows:
X coordinate is selected by the relative distance from the camera to the end of the volumetric fog.
Y coordinate is pre-determined for each color type. For each x coordinate,

- **Shadow Color** is selected from the center of the bottom third of the image,
- **Lit Color** is selected from the center of the center third of the image,

- **Emission Color** is selected from the center of the top third of the image.

For example,

The Color Ramp is selected using Point filtering.

I recommend using **Adobe Color** to identify color ramps and using **GIMP** to create it.

If you'd like an easier method to create new Color Ramps, do submit a feature request by email to occasoftware@gmail.com. You can use the following subject line:
Subject: New Feature Request (Buto): Easier Color Ramp Creation

Contact

If you encounter any issues at all, please don't hesitate to contact me at occasoftware@gmail.com