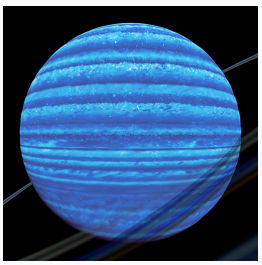
If you're viewing the offline pdf documentation, view the latest online documentation HERE.

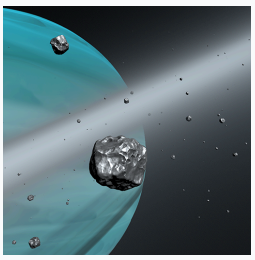
The Ultimate Gas Giant Rendering System

This asset is designed to work in Unity 2021 LTS, Unity 2022 LTS, Unity 2023, and Unity 6, with the Built-In Render Pipeline, URP, and HDRP.

This asset includes a volumetric atmosphere and cloud system, and a fluid simulation system.
All example scenes are in the **"Plugins/CW/Gas Giant Forge/Scenes"** folder. These show you what fully configured gas giants look like.



Fly From Space



Through The Rings

Required Packages

⚠ Your project must have the **Burst** and **Mathematics** and **Collections** packages installed.

> Package Installation Guide

Making Your Own Gas Giant

There are two types of gas giants in Gas Giant Forge:

1. **Full Fluid Sim** - The whole gas giant surface is one big fluid simulation.
2. **Slices** - The gas giant is made from thin bands/slices of static textures and small fluid simulations.

ⓘ Both gas giant types are fundamentally the same. The **Full Fluid Sim** gas giant just has one large fluid sim band/slice, whereas **Slices** comes pre-configured with many bands/slices. Both can be fully customized.

Full Fluid Sim | Slices

Example of a **Full Fluid Sim** gas giant.

To make your own gas giant from scratch, you can either:

- Right click in the **Hierarchy** tab, and select **"CW / Gas Giant Forge / Gas Giant (Full Fluid Sim) (Radius = 500)"**.
- Go to the menu bar, and select **"GameObject / CW / Gas Giant Forge / Gas Giant (Full Fluid Sim) (Radius = 500)"**.

This will create a new GameObject called **"Gas Giant"** with 2 child GameObjects:

- The **"Sky"** GameObject has the **SgtSky** component, which handles rendering of the core atmosphere of the gas giant. More info **HERE**.
- The **"Sky"** GameObject has the SgtShadowSphere component, which casta shadows from the gas giant onto the rings. More info **HERE**.
- The **"Cloud"** GameObject has the **SgtCloud** component, which handles rendering of the high altitude clouds that swirl around. More info **HERE**.
- The **"Cloud"** GameObject has the **SgtCloudBundle** component, which is a texture atlas that stores all gas giant bands/slices. More

info HERE.

- The **"Cloud"** GameObject has the **SgtGasGiantFluid** component, which runs a fluid simulation that is rendered on the gas giant. More info HERE.
- The "**Rings**" GameObject has the **SgtRingSystem** component, which renders volumetric rings around the gas giant. More info HERE.
- The **"Ring"** GameObject has the **SgtRingParticles** component, which renders small asteroid particles inside the volumetric rings. More info HERE.
- The **"Ring"** GameObject has the **SgtShadowRing** component, which casts shadows from the rings onto the planet. More info HERE.

The gas giant surface is updated using a fluid simulation. To modify its settings, select the **"Cloud"** GameObject, and change the **SgtGasGiantFluid** component's settings. To quickly see results from your changes, you can click the **"Step Simulation x1000"** setting.

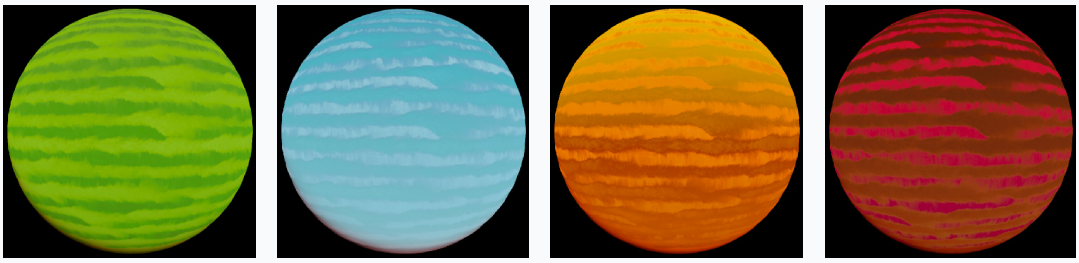
> The simulation settings are very sensitive, so I recommend changing them by small amounts like 10%.

By default, the gas giant has a radius of 100 meters, and the clouds extend 10 meters above the surface. To adjust this, select the **"Sky"** GameObject, and change the **SgtSky** component's **InnerMeshRadius** and **Height** settings.

> If you're not sure what **Height** value should be used, a good starting point is to make this 10% of your **InnerMeshRadius** setting.

The gas giant surface is colored using a portion of a color gradient. To modify this, select the **"Cloud"** GameObject, and change the **SgtCloud** component's **Albedo** settings. For example, the **AlbedoVariationX/Y** settings can be adjusted. You can also click the buttons to quickly modify

them, like **"Randomize Albedo Gradient Texture"** or **"Randomize Variation"**.



You can hover the mouse over any inspector setting, and it will tell you what it does.

Required Scene Components

Your main scene light must have the **SgtLight** component to calculate lighting on the atmosphere and clouds. When you create a new planet, this will automatically be added.

Your scene must have the **SgtVolumeManager** component to render the gas giants. When you create a new gas giant, this will automatically be added.

Your main camera must have the **SgtVolumeCamera** component to render the gas giants. When you create a new gas giant, this will automatically be added.

Last updated 8 days ago