404-GEN UNITY ADD-ON

ABOUT

With this package, users can:

- Enter text prompts to generate **3D Gaussian Splats** assets
- Display **3D Gaussian Splats** in Unity
- Perform basic transformations and apply cutouts
- Export .ply files

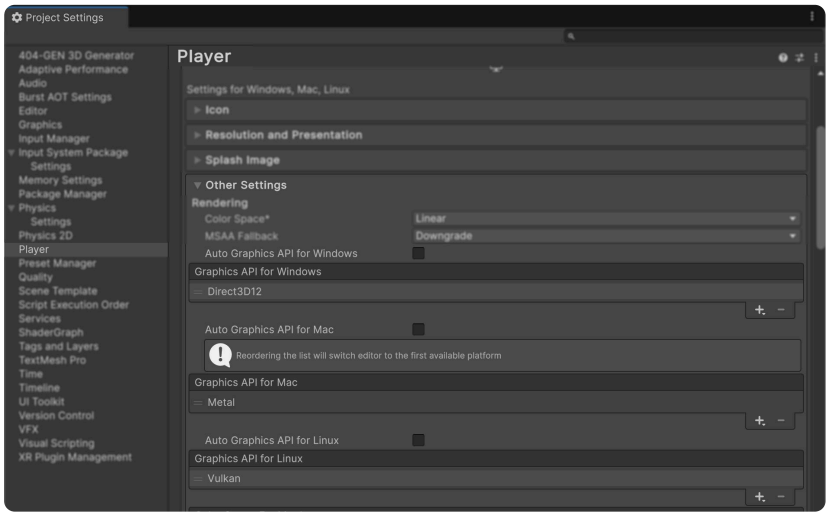
INSTALLATION

Software Requirements

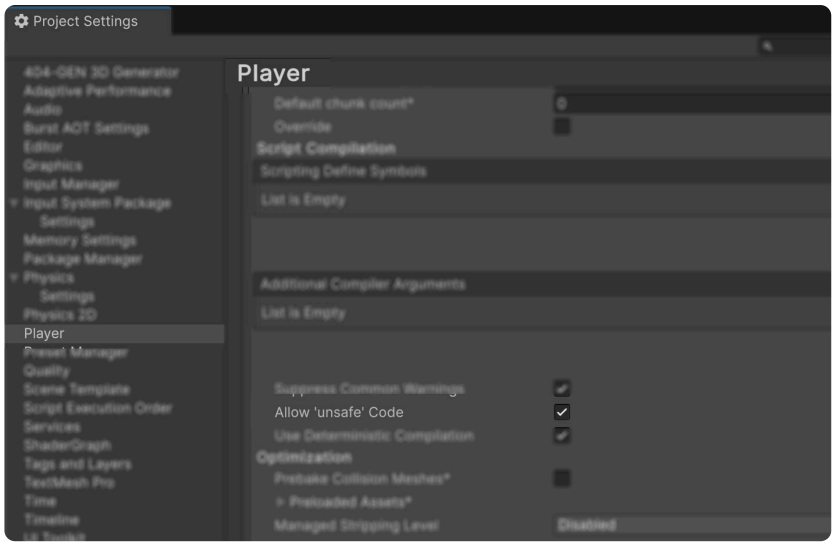
Unity 2022.3+

Installation

1. From the Unity Asset Store, click "**Add to My Assets**"
2. Download the package
   - In Unity, create a new 3D project or open an existing one
   - Go to **My Assets**
   - Select 404—GEN from the list
   - Click "**Download**"
3. Import the package
   - After the package has been downloaded, click "**Import**"
   - When the import window appears keep all files selected and click "**Import**"
4. Edit Project Settings
   - Go to **Edit** > **Project Settings...** > **Player** > **Other Settings**
   - Make sure the correct rendering backend is selected
     - D3D12 on Windows
     - Metal on Mac
     - Vulkan on Linux



- Scroll down and check the "**Allow 'unsafe' code**" box

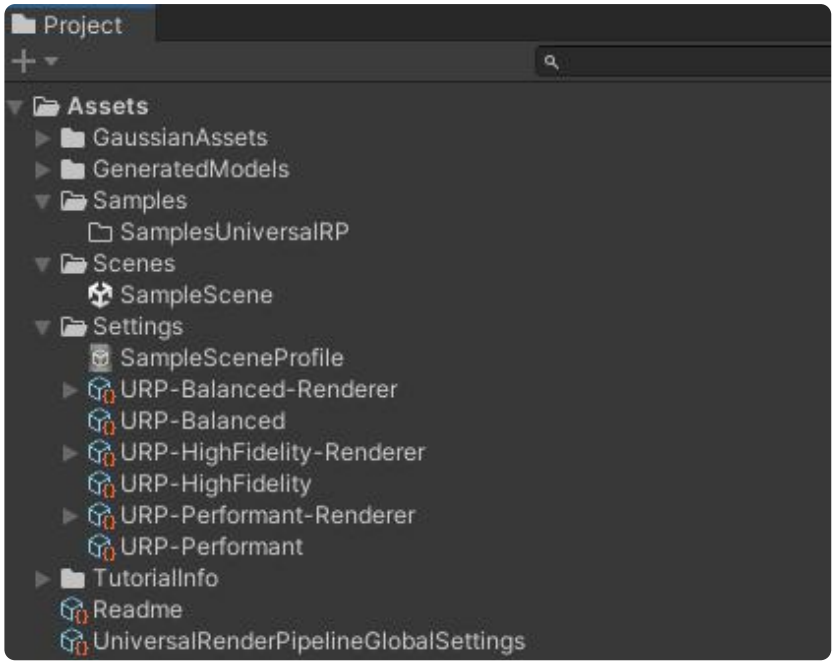


UNIVERSAL RENDER PIPELINE (URP)

As rendering Gaussian Splats differs from rendering 3D models represented with meshes and textures, a Renderer Feature must be added to the URP Renderer Asset for each of the three default quality levels, Balanced, HighFidelity, and Performant.

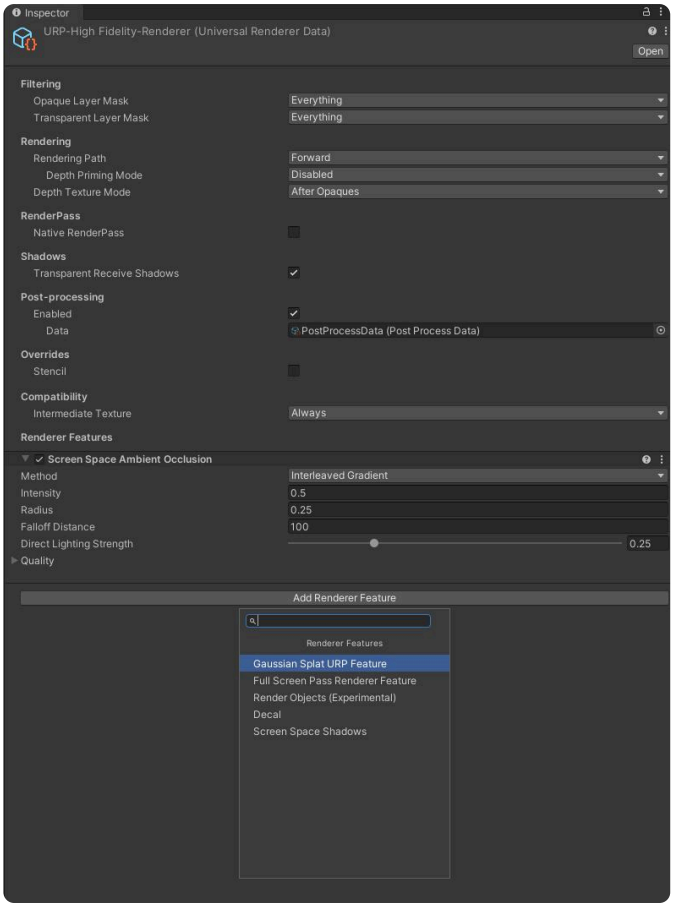
Unity 6 requires enabling Compatibility Mode (Render Graph Disabled) to use the custom Renderer Feature included in this package. This setting is in Project Settings > Graphics > Pipeline Specific Settings > URP > Render Graph

1. From the **Project Folder** go to **Assets** > **Settings**
2. Select the asset labeled **URP-Balanced-Renderer** or in Unity 6, **PC_Renderer (Universal Renderer Data)**



3. In the Inspector, under Renderer Features, click **Add Renderer Feature**

4. Select Gaussian Splat URP Feature



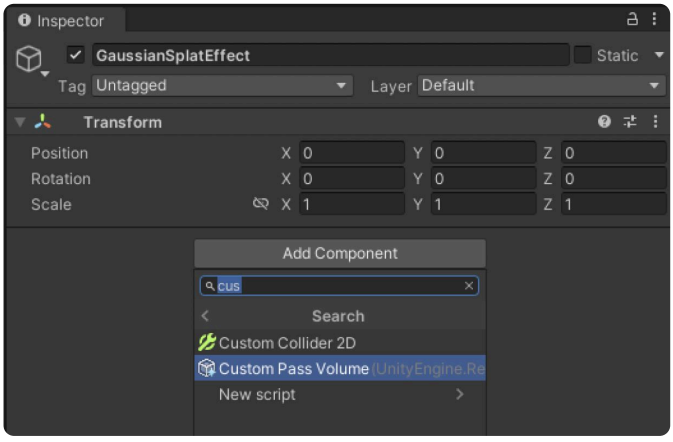
5. Repeat this process for the High Fidelity and Performant Renderer assets.

HIGH DEFINITION RENDER PIPELINE (HDRP)

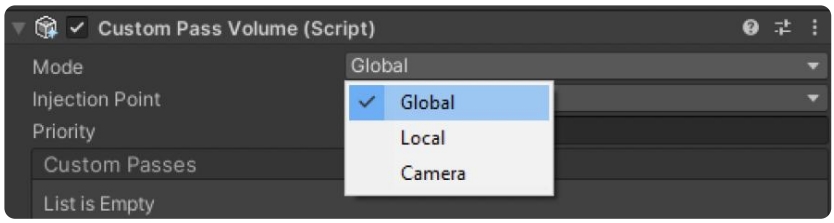
With HDRP, a Custom Pass Volume can be injected into the render loop, either globally or within a specified area.

1. Go to **Game Object -> Create Empty** to add a new Game Object to the scene and name it **GaussianSplatEffect**

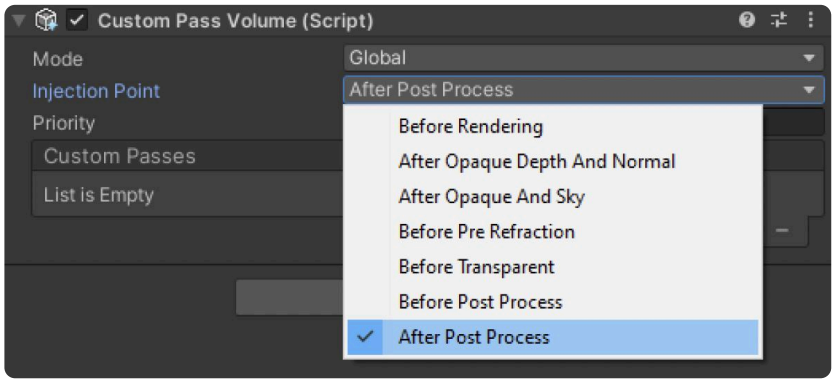
2. In the Inspector, use the **Add Component** button to add a **Custom Pass Volume**



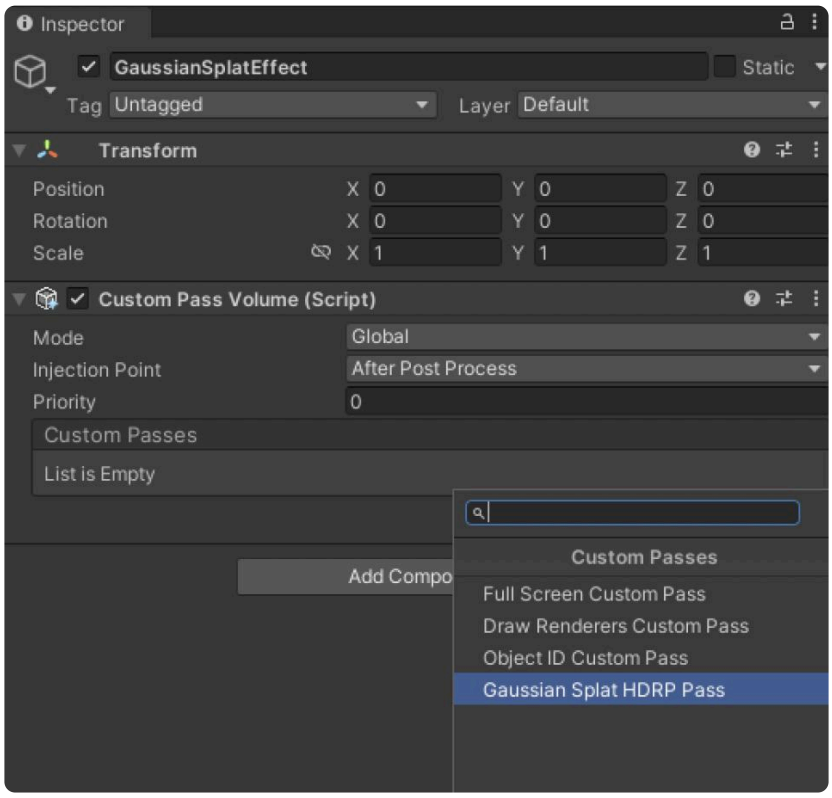
3. Set the **Mode** to **Global** unless you only intend to use Gaussian Splats in a specific area, defined by colliders.



4. Set the **Injection Point** to either **Before Transparent** or **After Post Process** (recommended).



5. Under **Custom Passes** select the + button and select **Gaussian Splat HDRP Pass.**

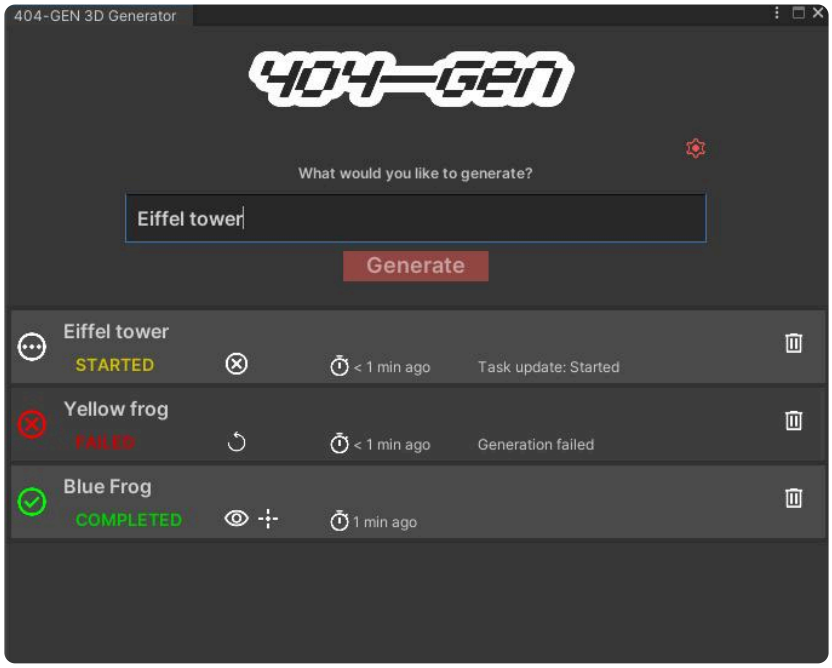


USAGE

Generating

1. Go to **Window** > **404—GEN 3D Generator** to open the generator window.
2. Type a prompt and click **Generate**. Each generation should take approximately **one minute**.

Results are generated on a decentralized AI network utilizing a variety of 3D generative AI models. Sometimes, a result does not meet our minimum quality threshold, in which case the prompt will display a **failed** status. You can try the same prompt again, or slightly re-word it.



Prompts

For help structuring prompts, visit the **Prompts** section of our user guide.

Transformations

In addition to the Position, Rotation, and Scale values, there are two easily adjustable Gaussian Splat-specific values.

1. Splat Scale

   Controls the size of the points, represented by ellipsoids, in the Gaussian Splat

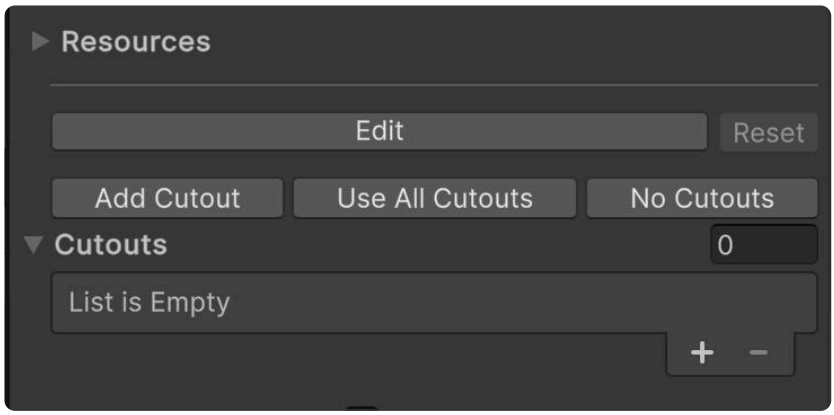
2. Opacity Scale

   Points within Gaussian Splats have varying degrees of opacity. This increases or decreases the opacity of all points

Cutouts

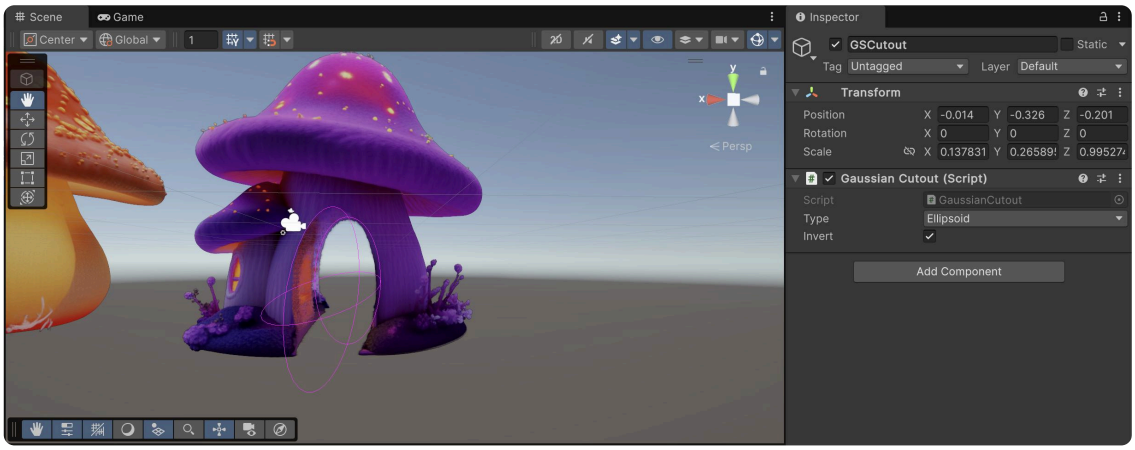
The cutouts feature can be used to hide a selection of points within the Gaussian Splat, defined by either a box or ellipsoid.

1. Create a cutout for a selected Gaussian Splat by clicking **Add Cutout** above the Cutouts heading of the Inspector.



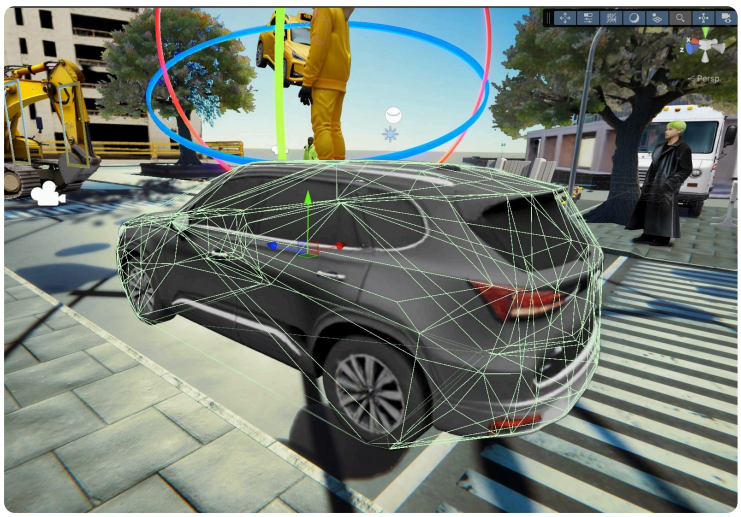
2. Select a shape and move/scale/rotate as needed.

By default, only the points **inside** the cutout will be rendered. Select **invert** to render the points outside the cutout. Below is an inverted ellipsoid cutout.



Mesh Collider

The **Add Mesh Collider** button in the Inspector will add a convex hull mesh collider. This collider applies to the original Gaussian Splat and does not apply cutouts.



ADDITIONAL RESOURCES

3D Gaussian Splatting

To learn more about 3DGS (3D Gaussian Splatting), please visit the Gaussian Splatting section of our user guide.

Complete User Guide

https://guide.404.xyz

Questions, Troubleshooting, Developers, Feedback

Visit the Help Forum in our Discord server

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