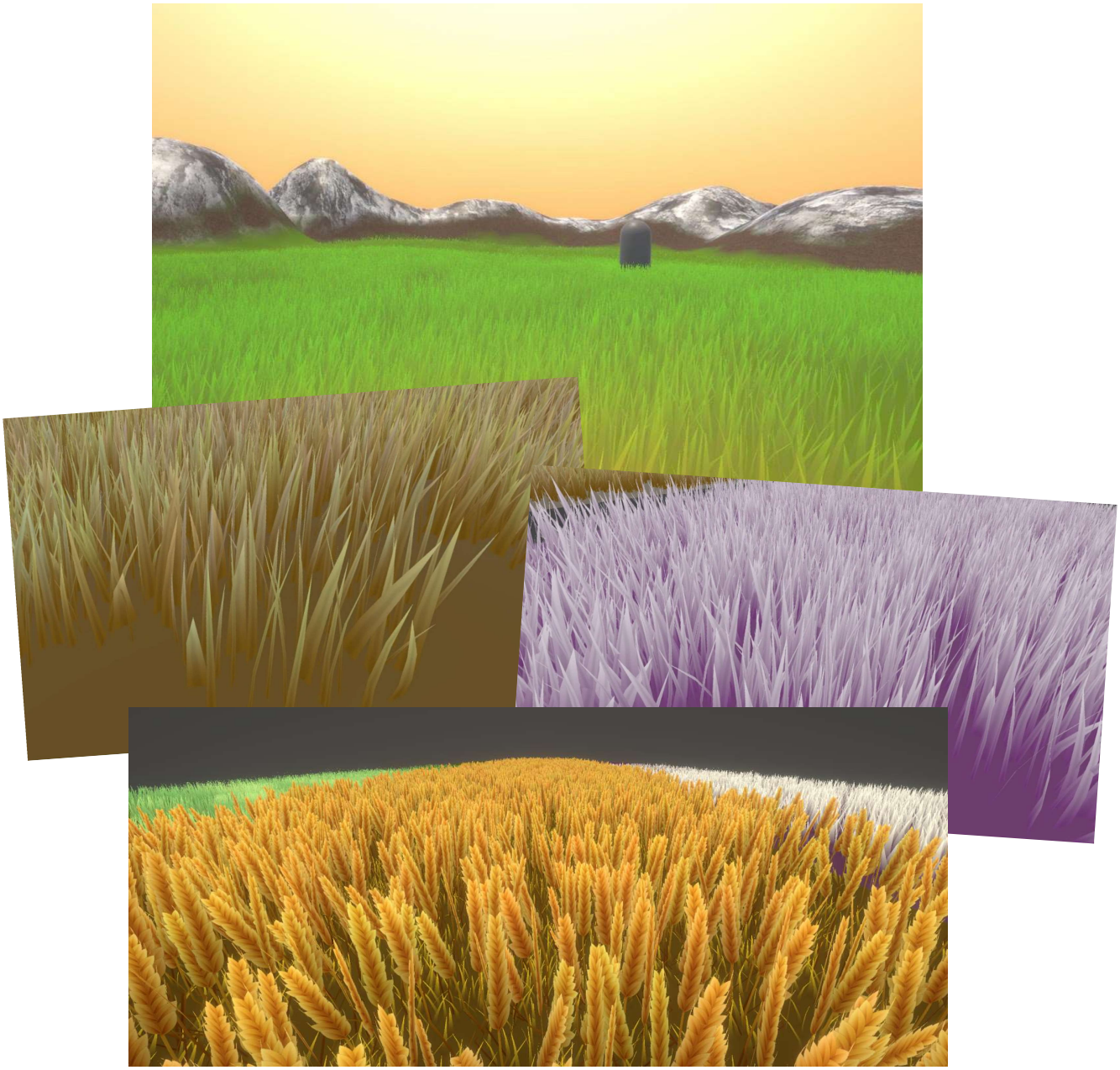
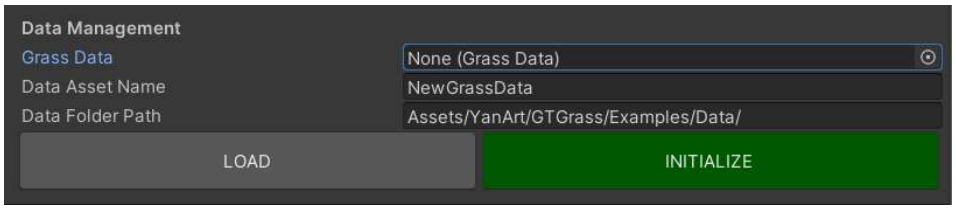
GT Grass

v1.0.3

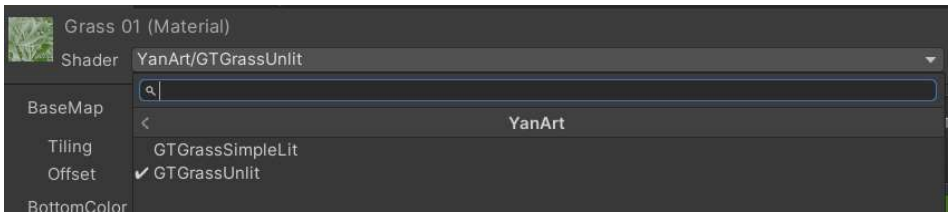


Getting Started

1. Choose your Rendering Pipeline: Built-in, Universal Rendering Pipeline or High Defination Rendering Pipeline.
2. Create an empty GTGrass gameobject by right clicking in the Hierarchy and choose **GTGrass > GTGrass**, or go to **GameObject > GTGrass > GTGrass**.
   This will automatically setup the grass:
   Set the scale in the world space to (1,1,1)
   Add a MeshFilter, a MeshRenderer and a GTGrassPainter components.
3. Scroll down to the Data Management section. Configure your Grass Data file name and the folder path. Then click the **INITIALIZE** button.
   This will create a GrassData file and a mesh asset to store the grass data in the Data Folder Path you specify.



4. Create a material in your project and choose one of the shaders:
   Built-in or URP: YanArt/GTGrassSimpleLit or **YanArt/GTGrassUnlit**
   HDRP: YanArt/GTGrassHDRPLit or **YanArt/GTGrassHDRPUnlit**
   The Unlit shaders don't receive any light and cast no shadow, whereas SimpleLit and Lit shaders receive lights and are able to cast shadows. **No baked light supported.**

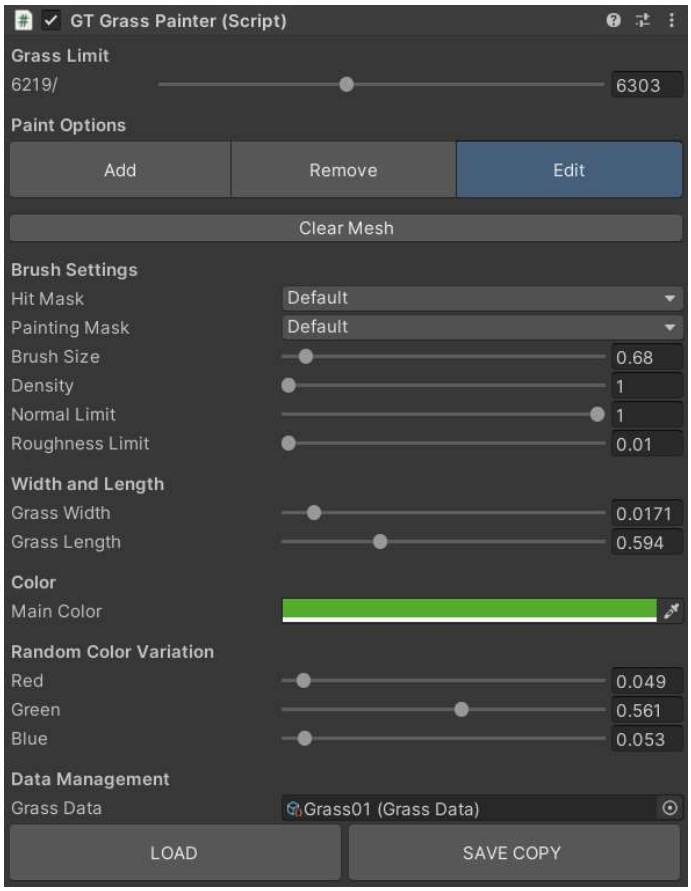


5. Assign the material to the MeshRenderer on the GTGrass GameObject
6. Adjust your settings on the GTGrassPainter and the Shader
7. Start Painting!
8. The Grass Data will be saved when you **Save the Scene** or **Enter Play Mode**.
   Notice: You can't save your grass data if the vertex count is 0!
9. When you need your characters to interact with the grass, simply right click in the Hierarchy and choose **GTGrass > GTGrassPlayerInteraction**, or go to **GameObject > GTGrass > GTGrassPlayerInteraction**. Then click the "+" sign under **Players** field, and assign your characters transforms. Interaction radius and strength can be set for each character. Finally assign your Grass materials from your **PROJECT.**

NOTICE: HDRP needs additional setup. Please jump to the HDRP part below.

Tips: To make the grass well optimized on the vertex count, you can start to paint roughly with a higher brush size and a higher density value. Then paint details with a smaller brush size and density value.

GTGrassPainter



Grass Limit

The left number is the current vertex count your mesh has. The right slider controls the limitation of the vertices that you can paint. Please set this depending on your device's capacity and consider using multiple GameObjects when reaching the limit.

Paint Options

There are 3 painting options you can choose.
Add: Paint grass.
Remove: Remove grass.
Edit: Apply settings to grass.
Clear Mesh: This will clear out all of the grass vertex and cached grass data.

Brush Settings

Hit Mask: This controls the layers of the colliders where you can see your painting brush.
Painting Mask: This controls the layers of the colliders where you can paint grass.
Brush Size: This controls the radius of your painting brush.
Density: This controls how many piles of grass you can paint at one time, limited from 1 to 7.
Normal Limit: This limits the surface normal where you can paint. 0 means you can only draw on the surface with normal (0,1,0), 1 means you can draw on any surface.
Roughness Limit: This limits the surface roughness where you can paint. A higher value means that you can paint on a surface that is rougher and more uneven.

Width and Length

Grass Width: This controls the base width of the grass blade.
Grass Height: This controls the base height of the grass blade.

Color

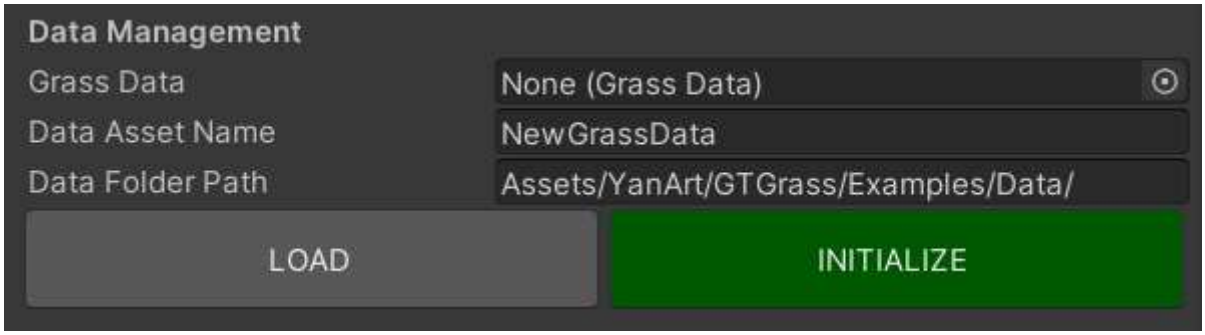
Main Color: This sets the main color of the grass, which will multiply with the TopColor in the shader.

Random Color Variation

Red: The red channel of the color difference the grass will have
Green: The green channel of the color difference the grass will have
Blue: The blue channel of the color difference the grass will have

Data Management

When you first attach GTGrassPainter, no mesh on the MeshFilter or no Grass Data being assigned, you will see the following options:



Grass Data: The Grass Data file that contains the grass data of the GTGrassPainter instance.
INITIALIZE: You can choose to INITIALIZE a new grass data file with the Data Asset Name and the Data Folder Path. By default, the Grass Data will be saved to *Assets/YanArt/GTGrass/Examples/Data/NewGrassData/NewGrassData.asset*
This will also create a Mesh asset in the same folder.

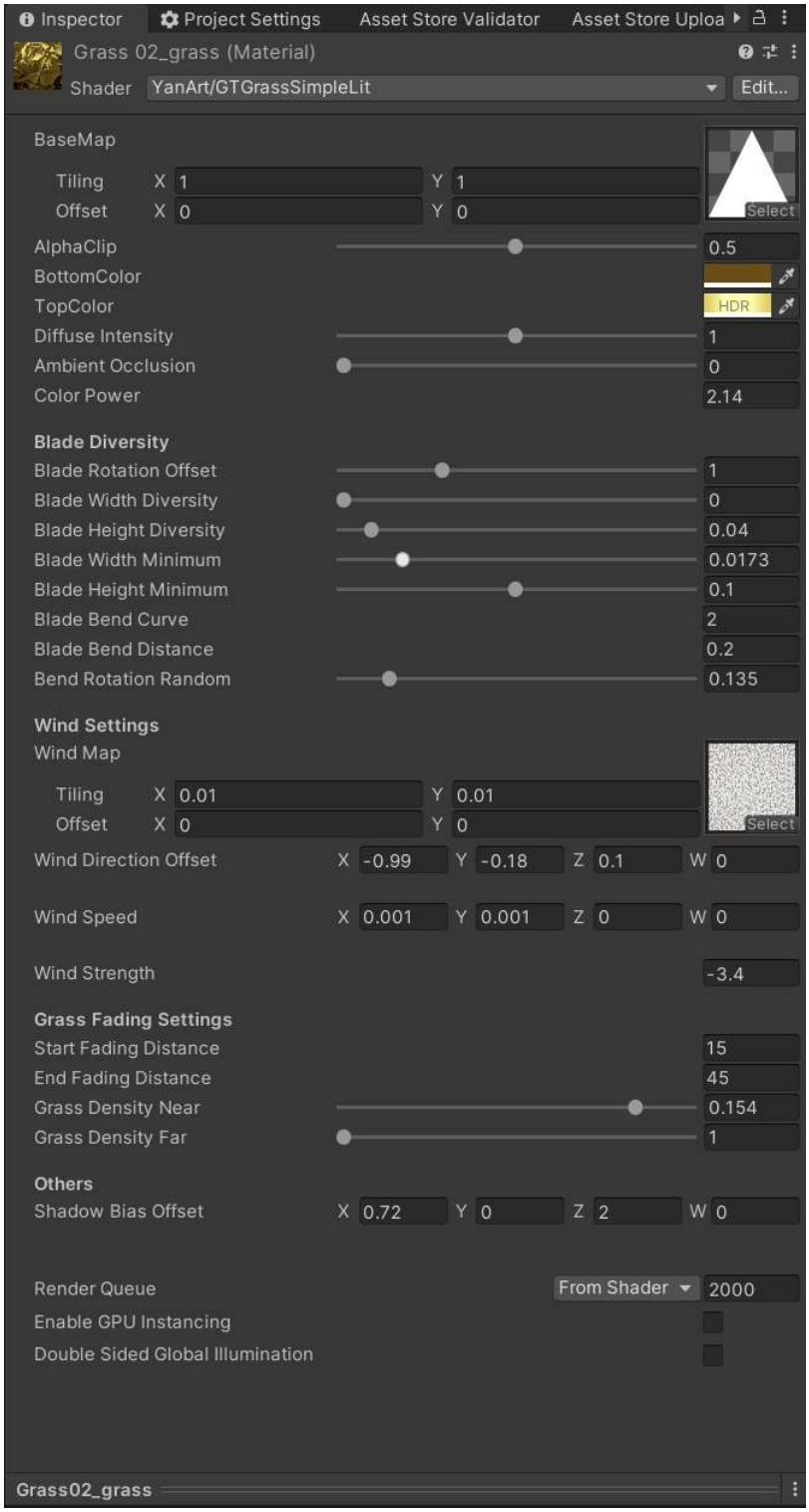
LOAD: If you already have a Grass Data file in your project, you can also assign it to the Grass Data field and LOAD the grass data.

Once you have initialized / loaded your Grass Data, you will see the following options:

LOAD: You can load the Grass Data again by clicking this. This is useful when you would like to quickly load an existing grass.
NOTICE: Before saving the scene or entering play mode, if you click the LOAD button, you will load the Grass from the last saved version!
SAVE COPY: You can use this to save a copy of your grass data. The copy will be saved at the same folder where your Grass Data file is.

GTGrassSimpleLit & GTGrassUnlit Shader

GTGrassSimpleLit and GTGrassUnlit can be used in **Built-in and URP**. If shadow is unwanted, you can always turn off the cast shadow on the MeshRenderer when you use GTGrassSimpleLit.



GTGrassSimpleLit

Base Settings

BaseMap: The base texture of the grass blade.
AlphaClip: This discards all of the pixels whose alpha value is lower than AlphaClip value.
BottomColor: The bottom color of the grass blade.
TopColor(HDR): The top color of the grass blade. This multiplies with the main color on the GTGrassPainter.
Diffuse Intensity: Overall adjustment of the diffuse color.
Ambient Occlusion: Simulate ambient occlusion which makes the shadow lighter.
Color Power: The power of the gradient from the bottom to the top.

Blade Diversity

Bend Rotation Random: The intensity of the grass blade bending.
Blade Width Diversity: The variety of the grass blade width.
Blade Height Diversity: The variety of the grass blade height.
Blade Width Minimum: The grass blade minimum width which prevents the blade too thin.
Blade Height Minimum: The grass blade minimum height which prevents the blade too short.
Blade Bend Curve: The bending curve of the grass blade.
Blade Bend Distance: The distance of the grass blade bending forward.

Wind Settings

WindMap: The wind movement map. Only R and G channels are used.
Wind Offset: The wind direction offset.
Wind Speed: The wind speed.
Wind Strength: The wind strength.

Grass Fading Settings

Start Fading Distance: The distance to the camera where the grass starts to reduce.
End Fading Distance: The distance to the camera where the grass disappears.
Grass Density Near: The density of the grass at the start fading distance.
Grass Density Far: The density of the grass at the end fading distance.

Others

Shadow Bias Offset: The offset of the shadow position. Useful when you turn on Cast Shadow on the MeshRenderer.

Player Interaction

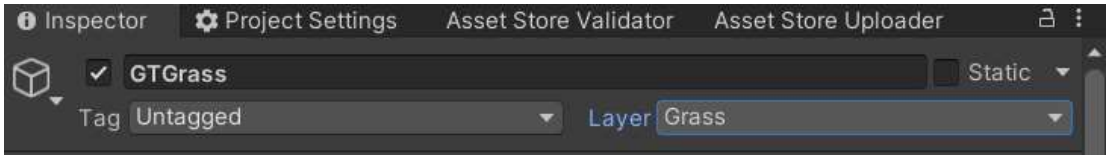
Radius: The radius of the bending grass influenced by the player.

Strength: The strength of the player's impact.

HDRP Setup

The HDRP example scene shows you how to set up GTGrass in HDRP. We need to use the Custom Pass Volume in order to make our grass functional. Please follow these steps after you have added your GTGrass to your scene.

1. Create a new layer for your Grass gameobjects and select the layer for them.



2. Create a Custom Pass Volume from right clicking the hierarchy, **Volume > Custom Pass.**
3. Make sure the Injection Point is Before Transparent.
4. Click “+” under the Custom Passes and choose **Draw Renderers Custom Pass.**
5. Select the **Layer Mask** under Filters to the layer we created in step 1.
6. Assign your Grass material in the Overrides.
7. If your material uses GTGrassHDRPLit shader, choose GTGrassLit in the Shader Pass. If your material uses GTGrassHDRPUnlit shader, choose GTGrassUnlit in the Shader Pass.

Notice: It’s better to add all of the Custom Passes on one Custom Pass Volume because some of the Unity versions don't support multiple Custom Pass Volumes at the same time.

Contact

Support Email: yanart0606@gmail.com
Unity Forum: https://forum.unity.com/threads/gt-grass.1325994/

Thank You