# PWS – SUNTAIL STYLIZED FANTASY VILLAGE SPAWNER PACK

By Procedural Worlds

PWS – SUNTAIL - Stylized Fantasy Village - Spawner Pack is a GeNa Pro and Gaia Pro Spawner kit for SUNTAIL - Stylized Fantasy Village by Raygeas.

# Contents

# About Procedural Worlds

Powerful, simple, beautiful. Friendly tools, gorgeous games!

Procedural Worlds empowers artists and developers to bring their vision to life by making it easy to create beautiful worlds. Leverage the latest procedural generation techniques to take the pain out of creating stunning environments and focus on creating amazing games.

The only end to end environmental generation and delivery suite:

Gaia Pro 2021 - A world generation system for creating, texturing, planting and populating scenes from low poly mobile, VR and through to high end desktop.

GeNa Pro - A sophisticated localised level design tool that augments Gaia's broad-brush strokes, by working intuitively to give fine grained control.

SECTR - A suite of performance-enhancing tools that enable open world streaming, massive mobile games and includes the latest techniques in audio occlusion and propagation.

Ambient Sounds - Lets you configure music and sounds to create a unique atmosphere for each region in your game, which can react to changes in your gameplay instantly.

Pegasus - A cut scene and fly through creator that makes it easy to show off gorgeous environments and drive characters through scenes with localised avoidance and Mecanim animation support.

Spawner Packs – You can save time by using our pre-configured Procedural Worlds Spawner packs (PWS). The packs contain configurations for our tools Gaia and GeNa, and are designed to work with popular asset packs from the Unity Asset Store. Currently available:

PWS – POLYGON Fantasy Kingdom - Spawner Pack
PWS – POLYGON Nature - Spawner Pack

Subscribe to our newsletter on our website: https://www.procedural-worlds.com/

# Introduction

Thanks for purchasing the Fantasy Village Spawner Pack!

The Fantasy Village Spawner Pack helps you to create awesome environments out of the modular SUNTAIL - Stylized Fantasy Village pack from Raygeas.

We automate the generation and placement of many of objects and structures provided by Raygeas and then use GeNa Pro to generate completely new and unique structures for you.

Be sure to check out the GeNa Decorators section for examples of how you can use the GeNa Pro decorator system to add even more procedural capability to your system.

NOTE: This document will provide some advice on how to start, however for a more detailed understanding of Gaia Pro / Gaia Pro 2021, and GeNa Pro you can read the documentation provided with them and check out the tutorials at Product Tutorials | Procedural Worlds (procedural-worlds.com).

## Installation

Ensure that you have installed the following packages from the Unity asset store before installing the Fantasy Village Spawner Pack. This will ensure that all object references are correctly maintained.

SUNTAIL - Stylized Fantasy Village by Raygeas

Gaia Pro 2021 - Terrain & Scene Generator | Terrain | Unity Asset Store
Please make sure to use Gaia Pro Version 3.2.2 or higher!

GeNa Pro - Terrains, Villages, Roads & Rivers | Terrain | Unity Asset Store

It should still be possible to install the assets in any order, but you might see errors & warnings when e.g. the configurations from the Spawner Pack cannot find the original prefabs from the Stylized Fantasy Village asset.

Then install the Fantasy Village Spawner Pack from Procedural Worlds. It will be installed into the following directories.

Procedural Worlds
Content Packs
Raygeas
Stylized Fantasy Village
Content Resources: Resources used by the pack.
Prefabs: Prefabs that were used for constructing the spawners.

Materials: Custom materials
Documentation: Fantasy Village Spawner Pack documentation.
Gaia Biomes: Gaia Pro Biome and Spawners.
GeNa Masks: Handy masks for GeNa Terrain Flatteners.
GeNa Roads: Contains a Road Profile for the use with the GeNa Roads system
GeNa Spawners: GeNa Pro spawners, categorized

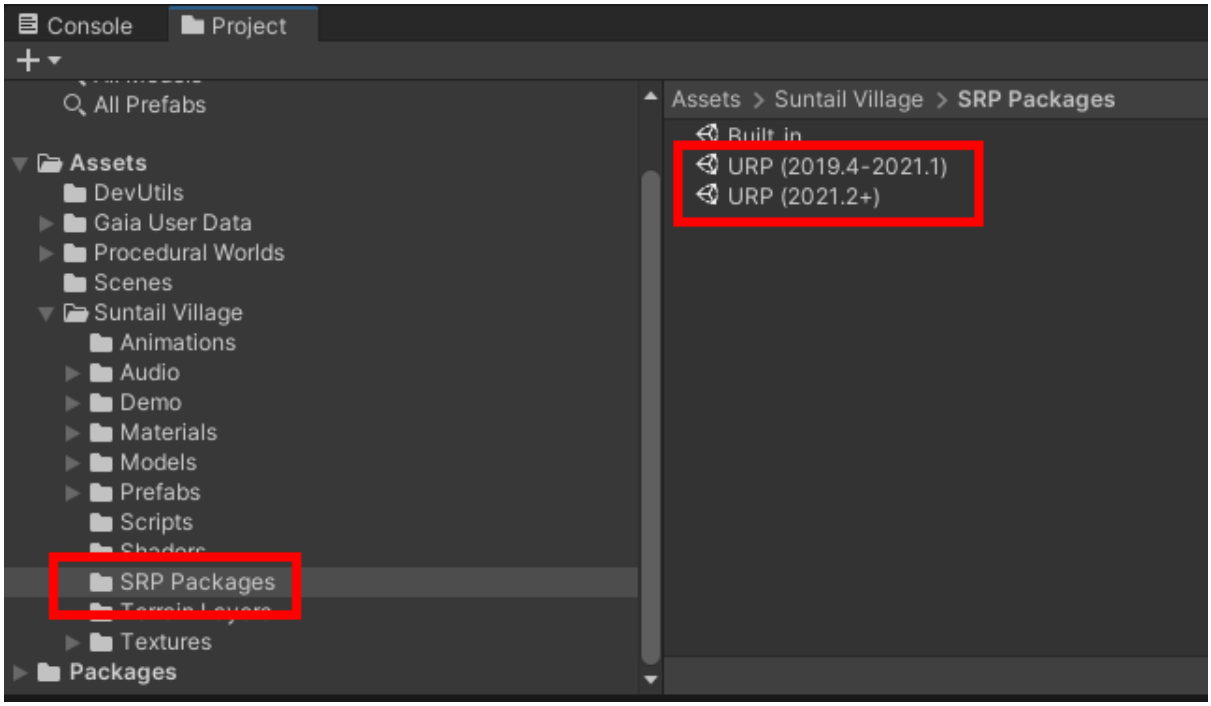
## Render pipeline support

Per default both the SUNTAIL Fantasy Village pack and the PWS spawner pack are configured for the built-in rendering pipeline.

When installing into URP or HDRP you will also need to install additional packages for rendering pipeline support.

Installing for URP

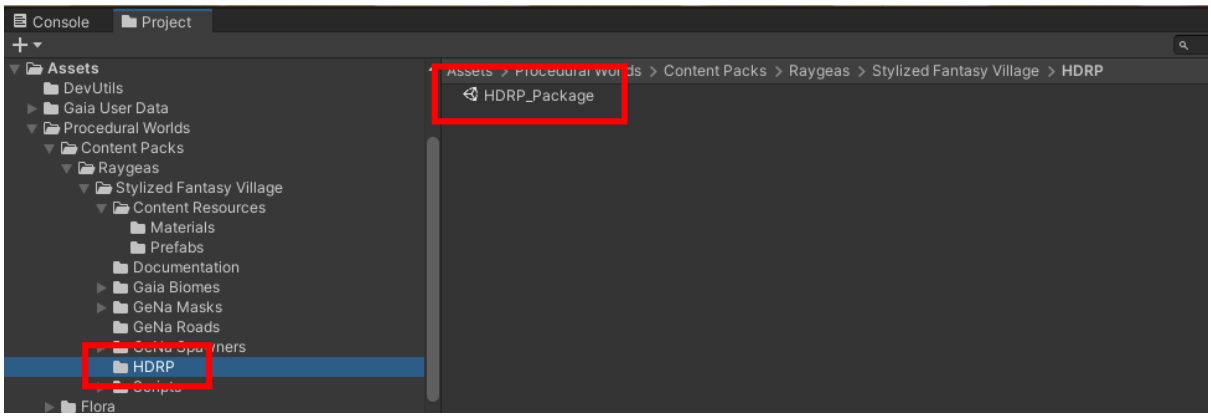
The SUNTAIL Fantasy Village asset comes with installation packs for URP by default. It can be found at the root of the installation folder here:




Double click the package for your unity editor version to update the Raygeas assets for the URP pipeline.

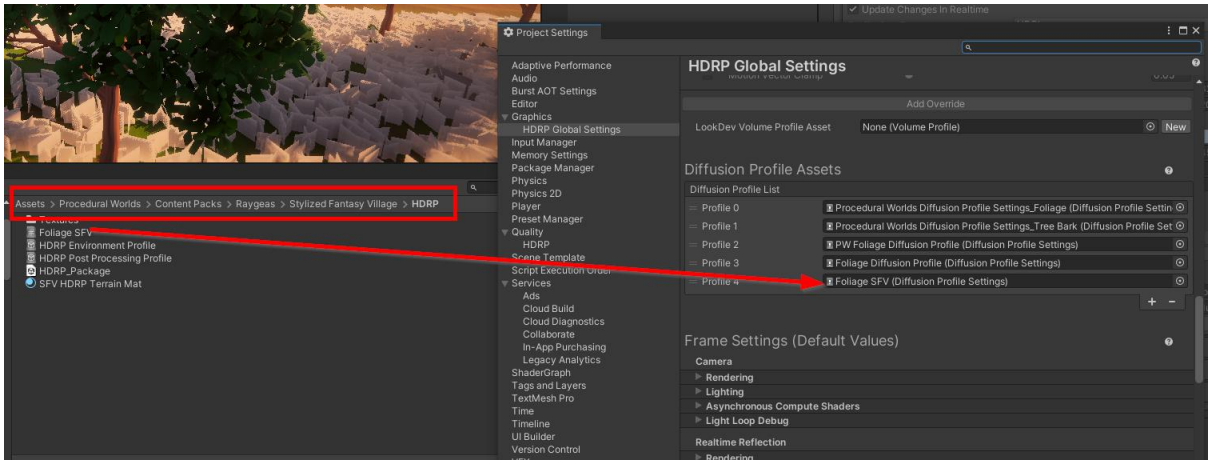
Installing for HDRP

The SUNTAIL Fantasy Village asset does not officially support HDRP at the moment, but we added an inofficial HDRP support pack that you can use to work in HDRP. You can find it in the Fantasy Village Spawner Pack here:

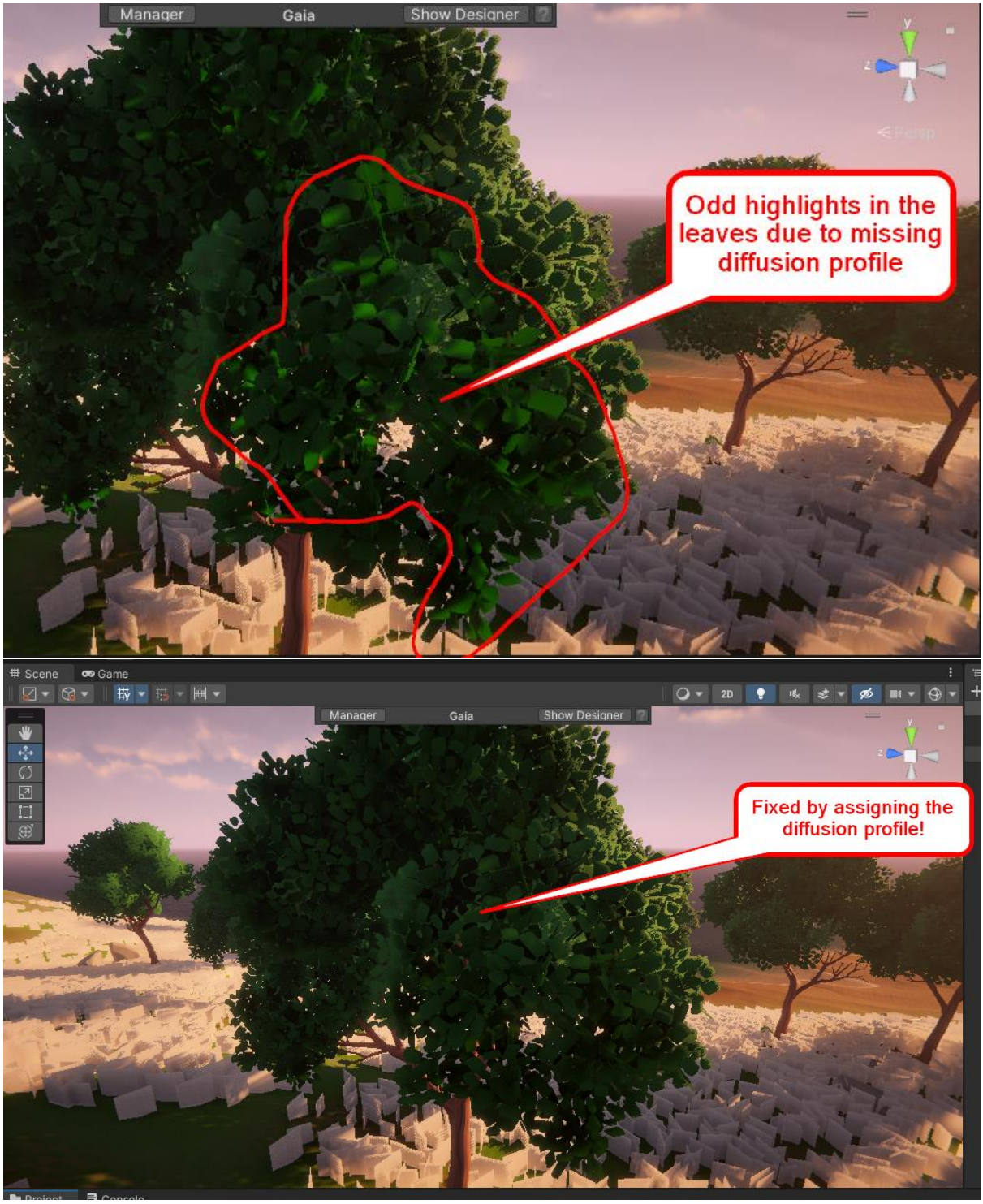



To install these files, simply double click them and they will extract their contents over the existing SUNTAIL Fantasy Village asset, making the materials compatible with the respective pipeline.

After unpacking the package, please assign the diffusion profile from the package to your HDRP Global settings:




Doing so will fix odd light highlights you will see in the trees otherwise:


Manager
Gaia
Show Designer
Odd highlights in the leaves due to missing diffusion profile
Scene
Game
2D
Manager
Gaia
Show Designer
Fixed by assigning the diffusion profile!

## Tutorials, Chat, Ticketed Support

Discord: https://discord.gg/TggjQNN

Website: https://www.procedural-worlds.com/

Tutorials: https://www.procedural-worlds.com/support/tutorials/

Support: https://www.procedural-worlds.com/support/

Newsletter: https://www.procedural-worlds.com/subscribe?referrer=UnityEditor

# Using the Fantasy Village Spawner Pack

## Typical Workflow

The Fantasy Village Spawner Pack is designed to be used with Gaia and GeNa.

A typical workflow would be to

1. Create a Unity terrain with Gaia using the Stylized Village biome;
2. Populate it with GeNa;
3. Optionally finish it off with a full Biome Spawn with Gaia;

Please note: While this is a suggested workflow you do not need to follow it. With GeNa Pro you can quickly add enhance any Unity scene. Most of the spawners will work on both Meshes and Unity terrain, however you will lose access to some features such as terrain flattening as this only works with Unity terrains.
You could decide to use all, some, or none of Gaias Runtime system for lighting or water.

## Asset Layout

Here is a brief overview of the more important content directories that you would browse to find the Gaia and GeNa spawners to apply to your scene:

Gaia Biomes:
Gaia Pro Biome and the spawners used in that biome.

GeNa Spawners / Houses:
Gena Spawners to spawn variations of the complete houses in the pack.

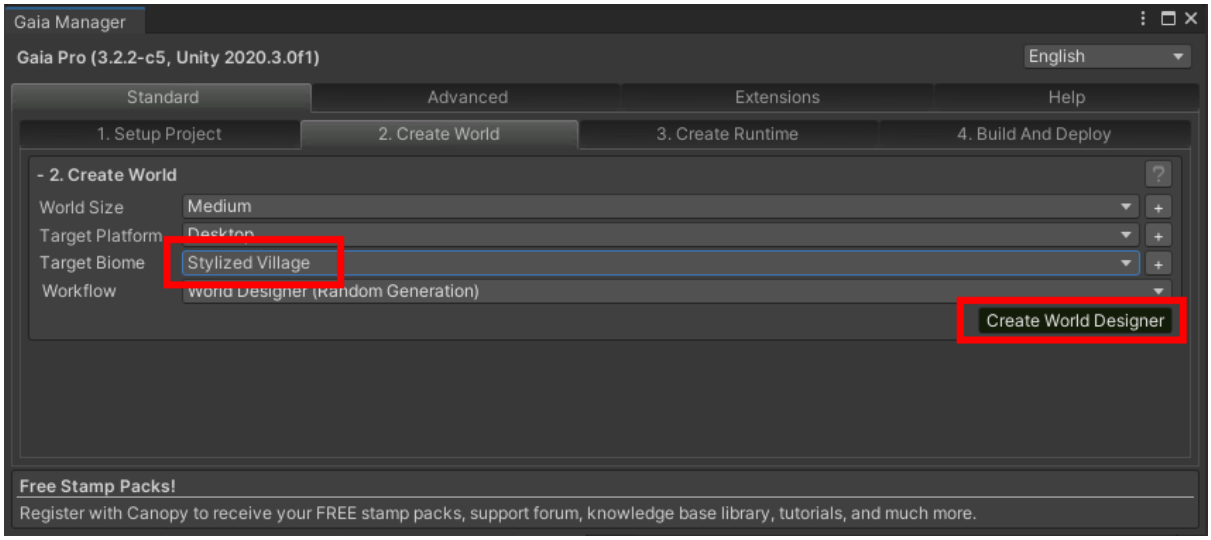
GeNa Spawners / Misc:
GeNa spawners to spawn miscellaneous smaller objects you can use to flesh out your scene. Includes also a spline spawner intended to create a fence along a GeNa spline.

GeNa Spawners / Nature:
GeNa spawner for forests, bushes and rocks.

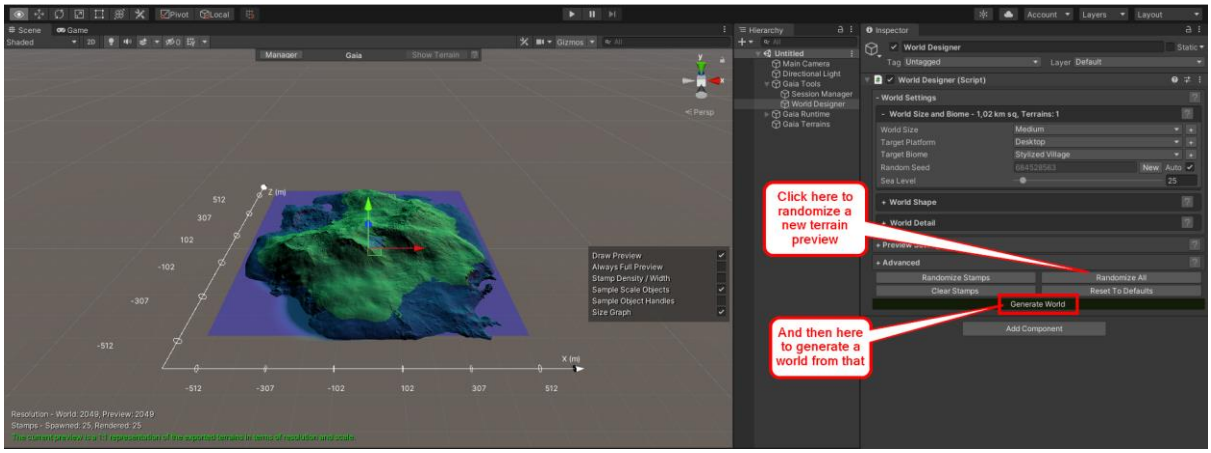
GeNa Spawners / Villages:
GeNa spawners for complete village parts that allow you to assemble a village quickly.

## World Creation with Gaia Pro

In this example we will create a base world with Gaia Pro 2021 that we then populate with the help of the spawner pack.

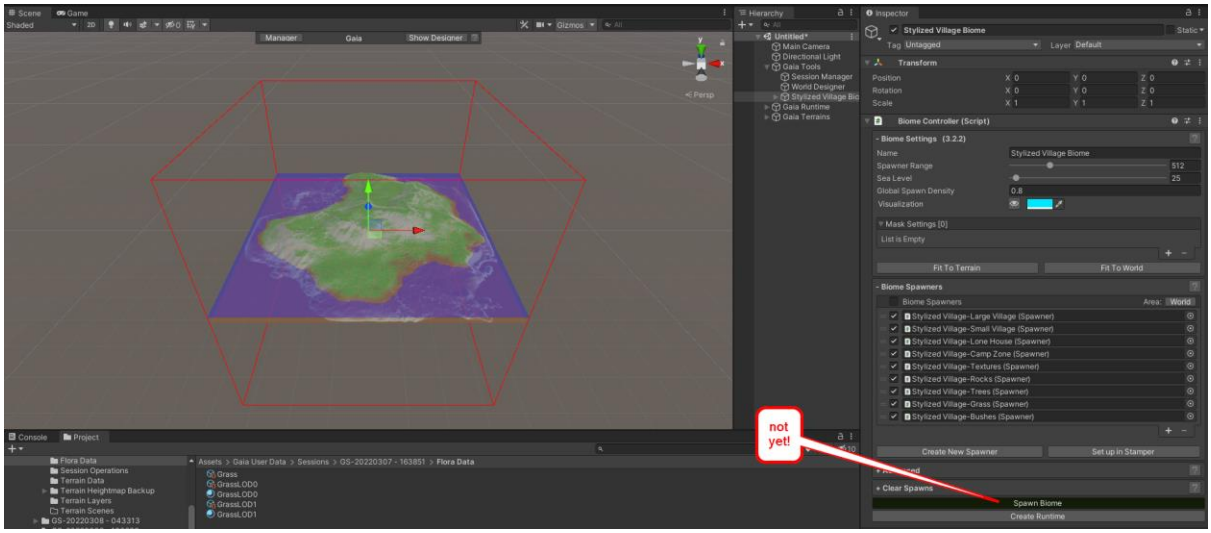



Select "Stylized Village Biome" as the Target Biome and generate a base world either manually with the Gaia stamper or with the World Designer. We will use the World Designer for this example.




The world designer is a tool that is more explained in detail in the Gaia Quickstart Guide and in the documentation. If you are not too familiar with it, you can press "Randomize All" to get a new world each time.

When you are happy with your preview hit Generate World.

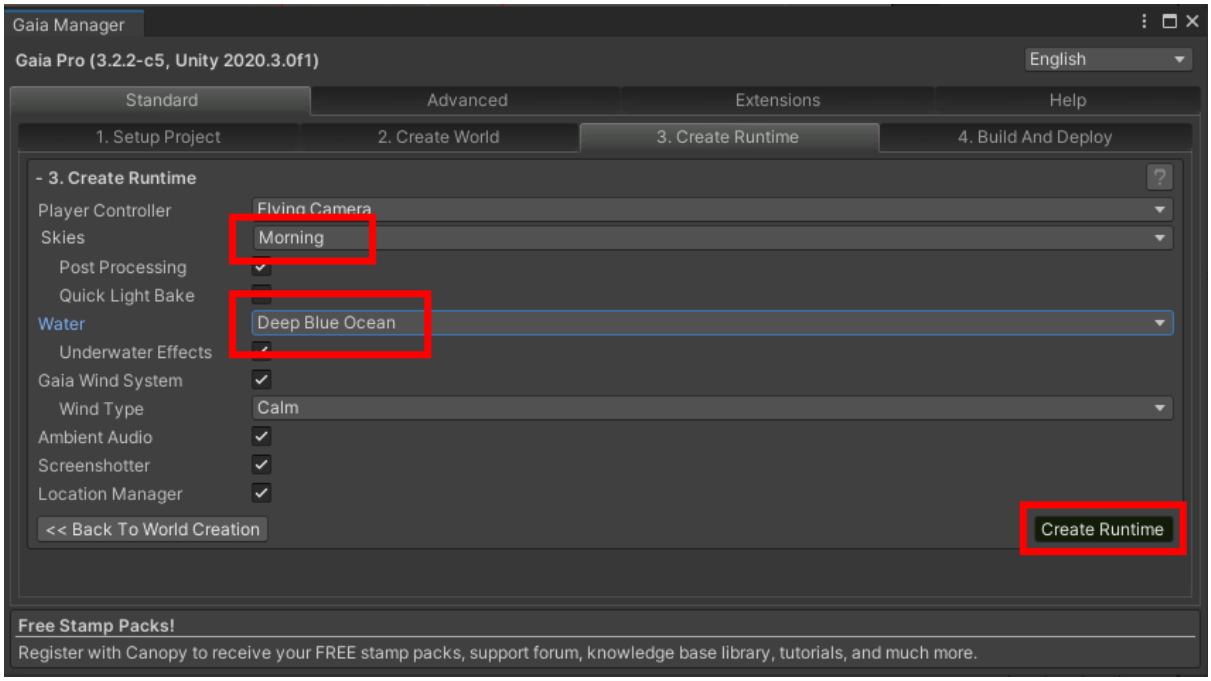



This will create and texture your terrain, and when it is complete it will select the biome object and present you with the option to Spawn the full Gaia Biome.

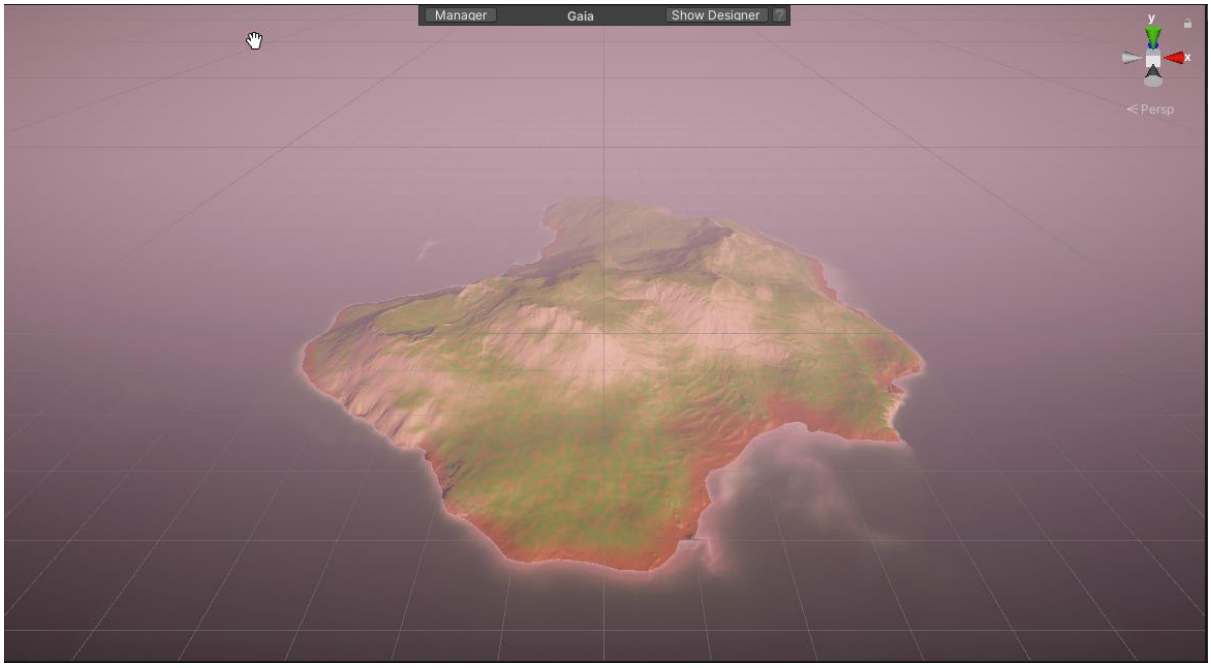
Do not do this yet – it is far easier to work on a clean terrain than on one that has already been filled with content. You can *optionally* do this at the end if you still think you need more content in your scene.

The next optional step is to add the Gaia runtime into your scene. Gaia runtime sets up lighting, post fx, water, camera etc. You do not need it, but it makes the development experience nicer. You can remove it later as desired.

Click on the Manager button to open the Gaia Manager. You can choose lighting and water presets that you like, and then hit Create Runtime.



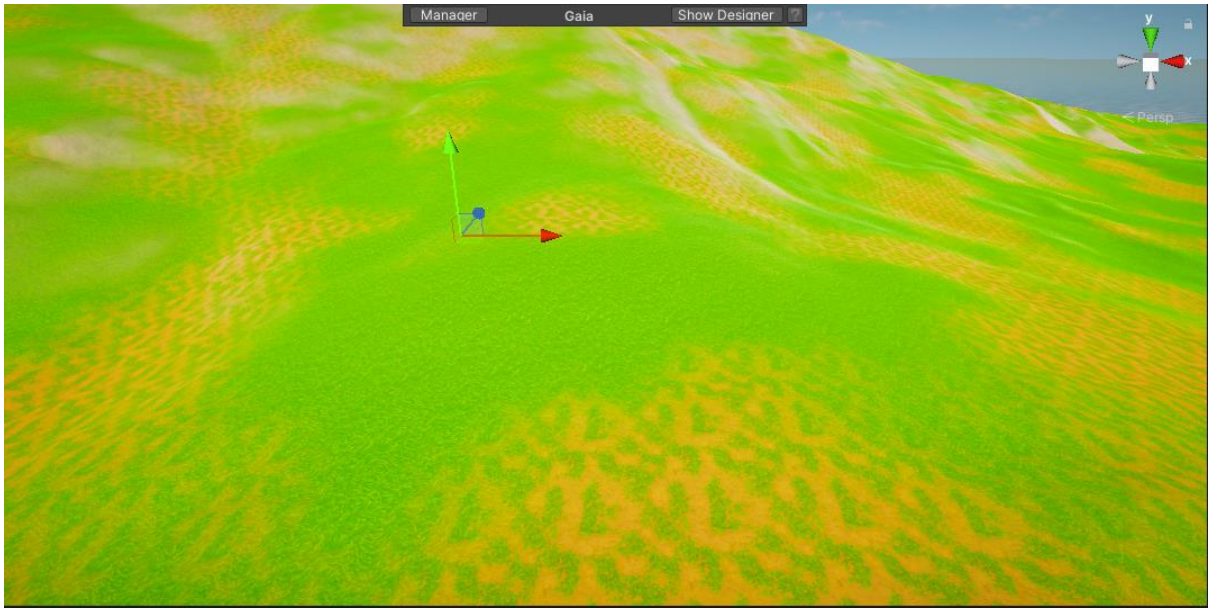

Magic happens...



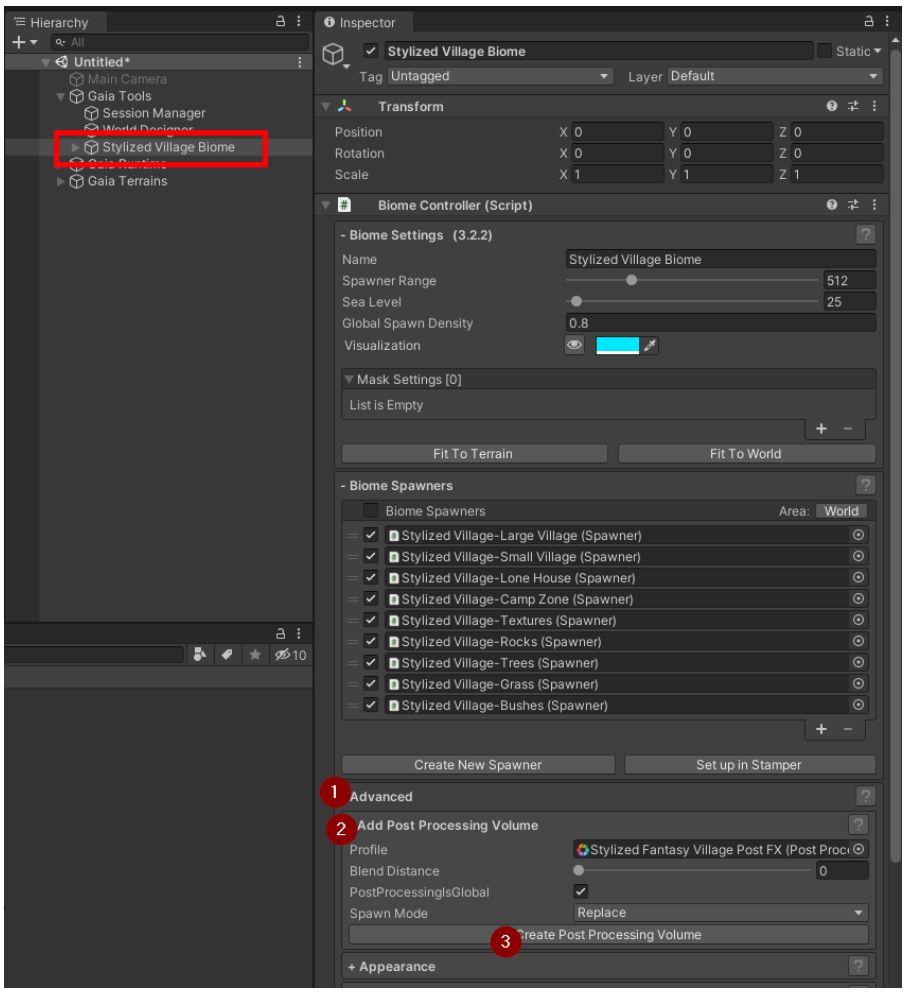

And you can now press play to survey your (currently still empty) new scene. A cool trick is to hit F11 to go into Photo Mode with Gaia Pro 2021 where you can play with lighting, post fx etc.


## A Note on Post Processing & Color Saturation

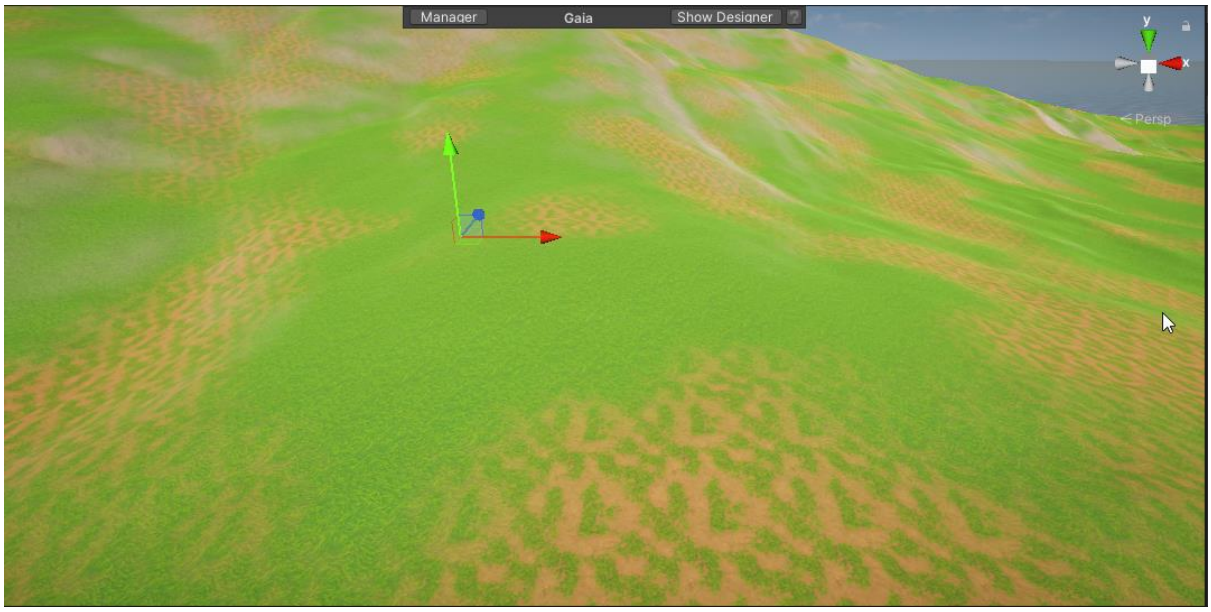
When using the Gaia Runtime setup, please note that the lighting and post-processing setup were originally developed for darker, less saturated textures than found in the Stylized Fantasy Village asset. Applying Gaia's default lighting and post processing setup from e.g. the daytime profile can lead to quite saturated, overly colorful textures:




To adjust this, you can exchange the default post processing profile that was created by Gaia with the one that is part of the Stylized Village biome. To apply that, open the Advanced -> Add Post Processing Volume Panel in the biome controller:



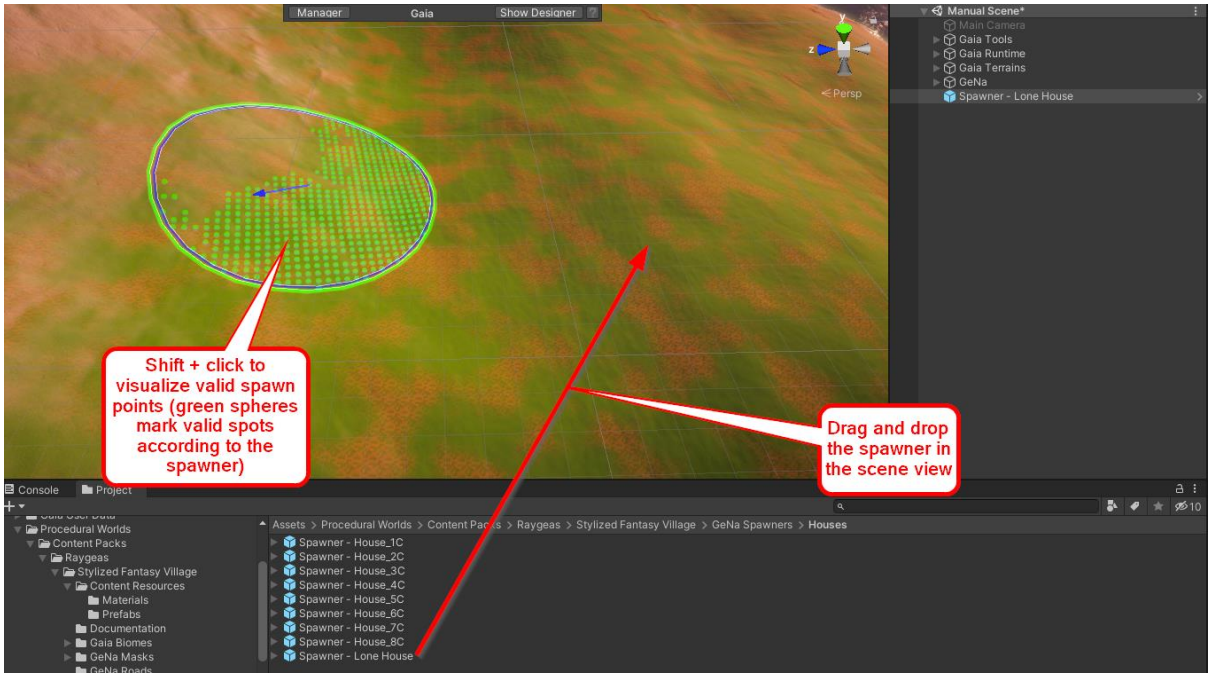
This reduces the saturation with adjusted post processing settings:




You can of course adjust the settings in the post processing profile to your liking.

## World Population with GeNa Pro

### Spawning




To use the GeNa spawners, drag one of the GeNa spawner prefabs into your scene. Hit Shift+Left Mouse click to sample your terrain. GeNa will also give you a visualization of where the structure can be spawned.


Press Ctrl+Click in any valid area to spawn. GeNa will child any prefabs or splines it spawns into your scene underneath the terrain of the scene it was spawned on. This is so that things like Gaia's Terrain streaming system can manage object loading and unloading correctly.


A lone house asset was automatically assembled out of different prefabs. Note that usually you would need to pick a random house prefab yourself– and place the vine and flower decoration by yourself, then adjust the terrain so it is flat underneath – all by hand, while here you can spawn a random new house with a single click.

## Iterating

Many of the GeNa spawners offer multiple variations on the same basic structure, so you can have fun 'iterating' the spawn result until you get the one you want.

To do this, first hit Ctrl+Left Mouse click to spawn, and then without de-selecting the spawner Iterate the spawn by hitting Ctrl+Shift+I to get another version of it. Keep Iterating until you get what you want.

GeNa will switch the visualizer off while you are doing this in order to make it easier to see the final result.

Here is some iterated variations of the same lone house spawner:

## Undo

You can undo any GeNa spawn or spline operation by hitting Ctrl+Z.

## Fixed Rotation Spawning

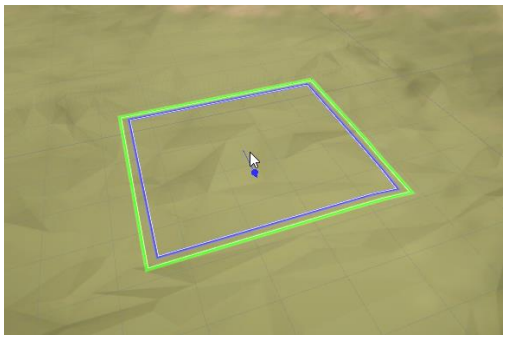
Some GeNa spawners are set up to operate in Fixed Rotation mode. Fixed rotation allows you to change the direction that the object will spawn.

Fixed Rotation is indicated with a blue arrow that shows the direction that the object will be rotated in when it is spawned.

Hold the left Shift key, and click and drag the mouse to change the direction that the object will spawn in. The blue direction pointer will update to show you the new direction.

When you have selected your rotation then spawn as usual with the Ctrl+Left Mouse click.

This technique enables precise orientation of your structures easy to achieve. It is also very useful when used in conjunction with splines.

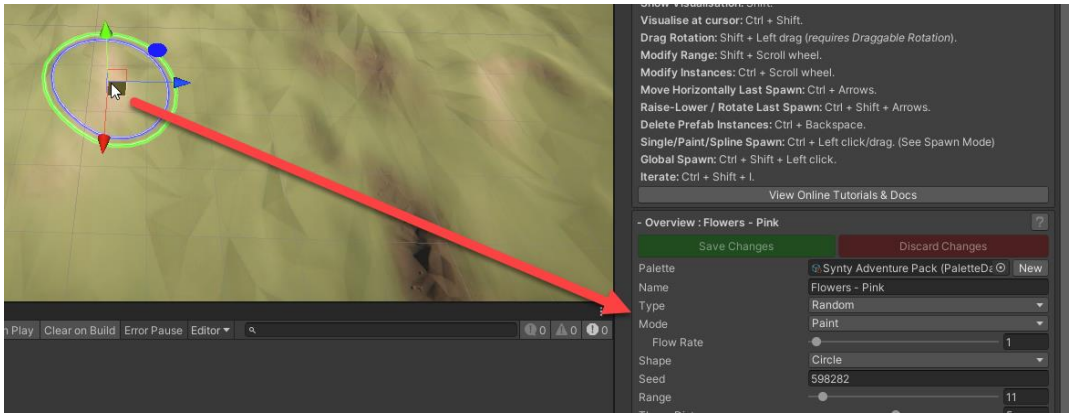


## Paint Mode

Some GeNa spawners are set up to operate in “Paint Mode”.

With these spawners you can hit Ctrl + Left Mouse Click to spawn, and then drag your mouse to continue to “Paint” your objects into your scene. The flow rate is the distance in meters that you need to move before the next spawn iteration is executed.

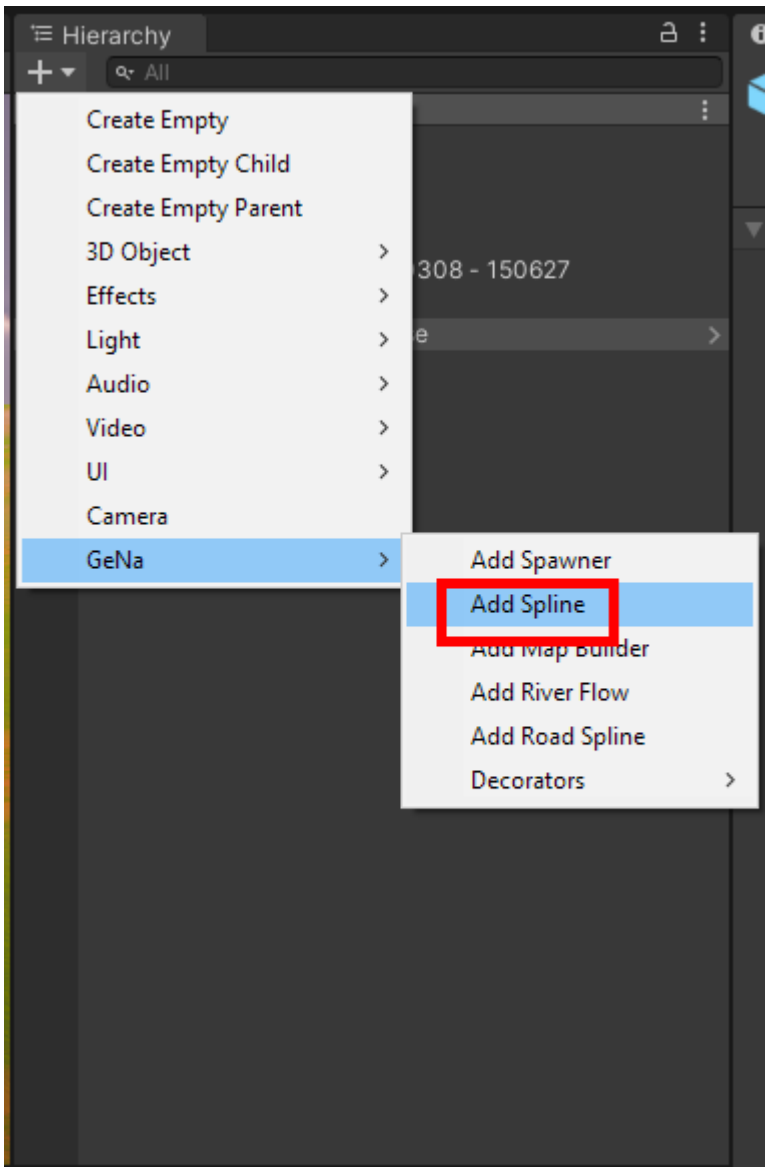
If you do not like what it did, you can then hit Ctrl+Shift+I to Iterate and get another version of the paint operation, or Ctrl+Z to undo it.



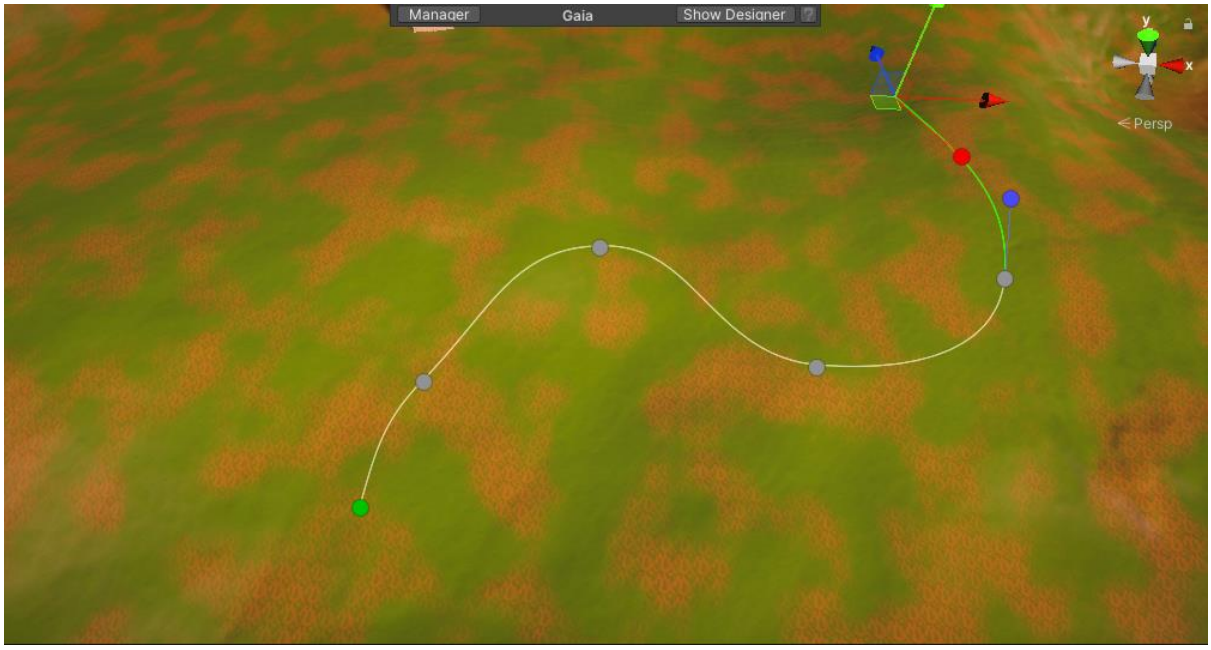
## Splines

Paths, fences, hedges, and other interesting path-based effects can also spawned along GeNa Pro Splines.

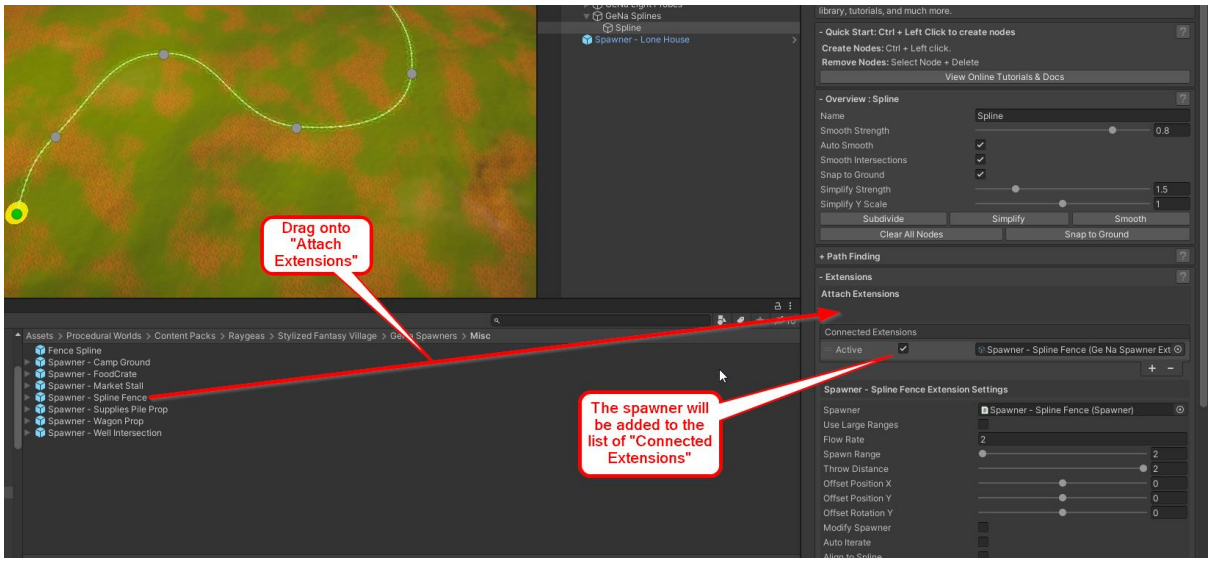
To add a spline to the scene right click in the hierarchy and select “GeNa -> Add Spline”



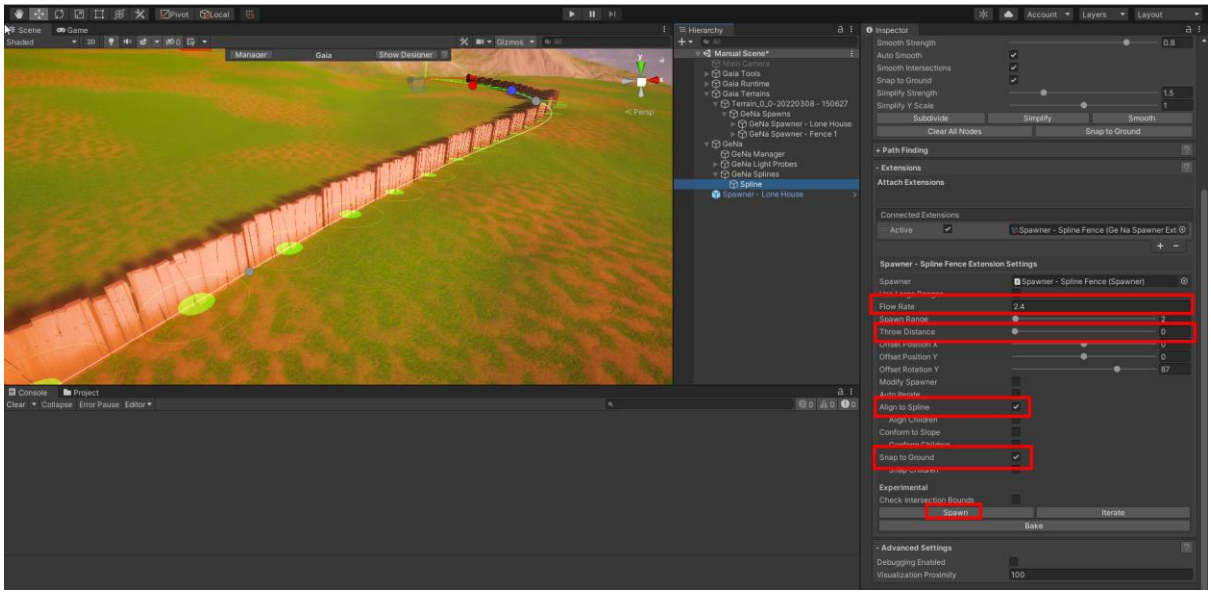

Hit Ctrl+Left Mouse click to add nodes to the spline.




Drag and drop a spawner onto the spline.



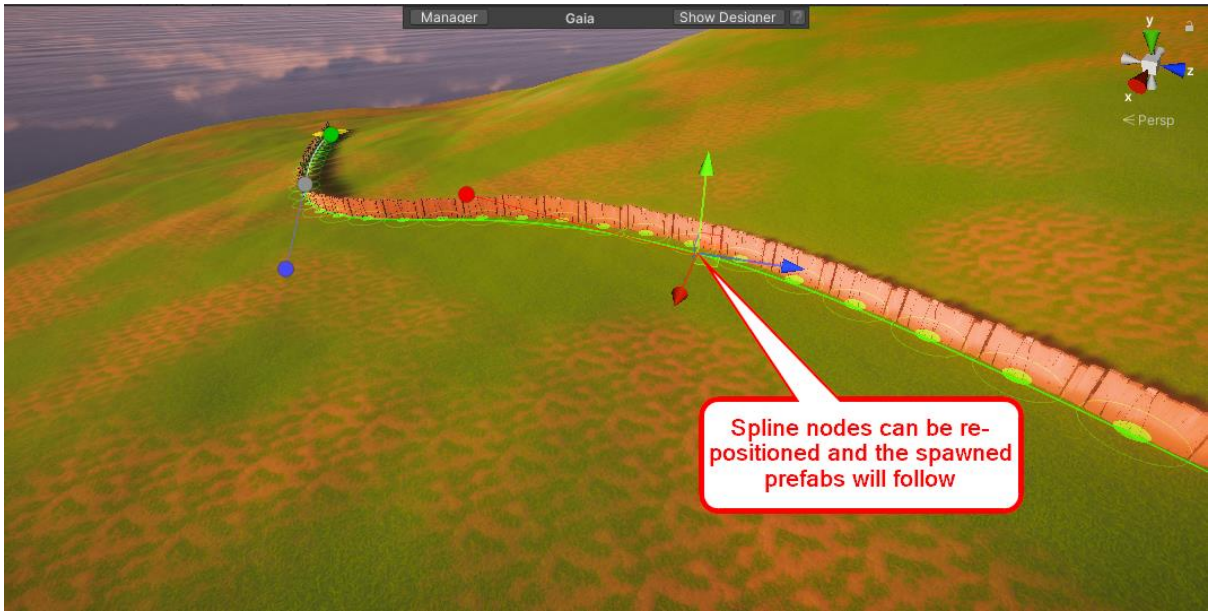
Adjust the flow rate – this controls the distance between spawns.



Click align to spline – optional but is often used in conjunction with Offset Rotation Y to change the angle of the objects along the spline. You can experiment with these settings to get the look you want.

Hit the spawn button to spawn along the spline.

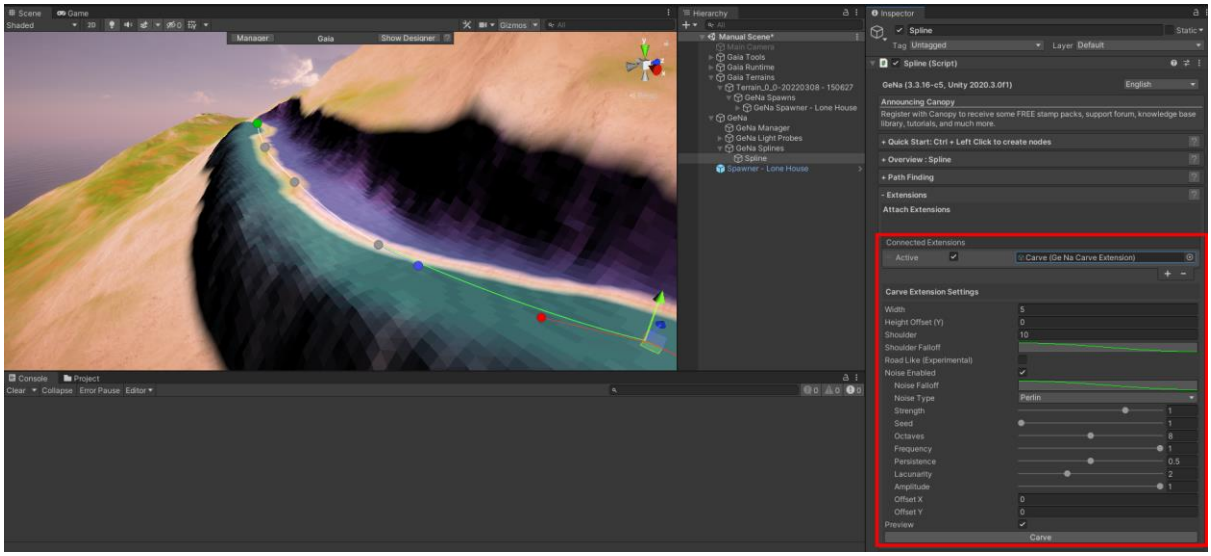
You can further refine this at by clicking on the spline nodes and modifying them (note – only works with prefab spawns). If you are unhappy with more permanent spawn types such as terrain trees, texturing or carving then hit Ctrl-Z first.



## Using Spline Extensions

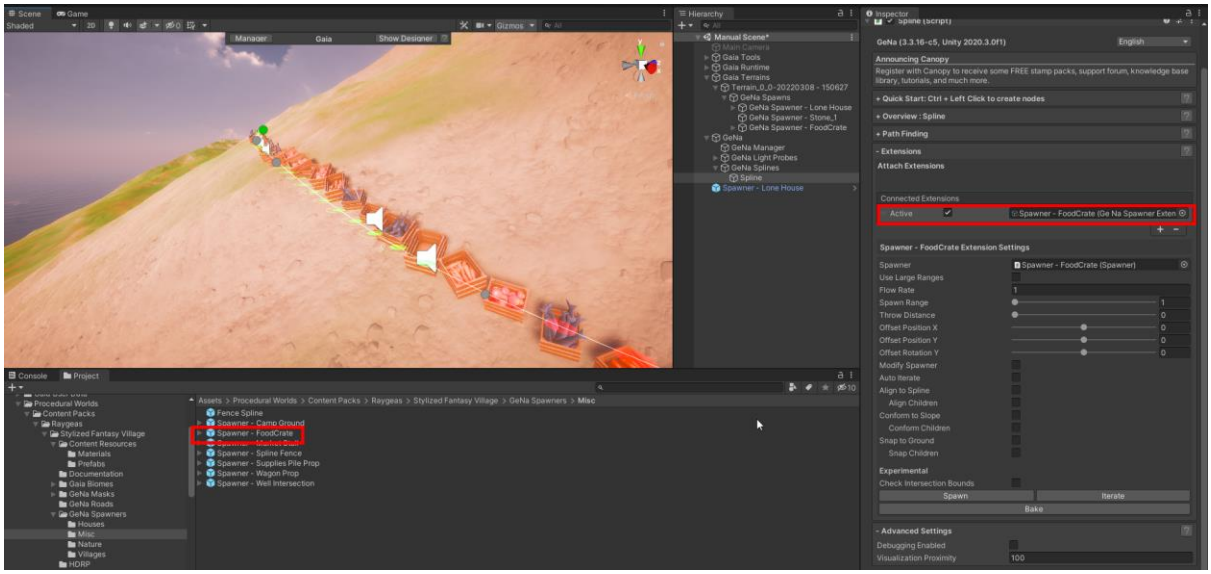
GeNa Pro allows you to mix and match as many spline extensions as you like. You can consider to build on them one at a time, and then bake the result when you are done. Baking is the process of finalizing the operation being performed by the extension. In general you want to do this when you are comfortable that you are done.

To carve and flatten the terrain along a spline, for example when creating a road, you can use the carve extension.




To texture the terrain along a spline, you can use the terrain extension in “Texture” mode:

And finally, you can also add spawner extensions to spawn things along the spline. For example you can spawn the food crate prefabs in a row:

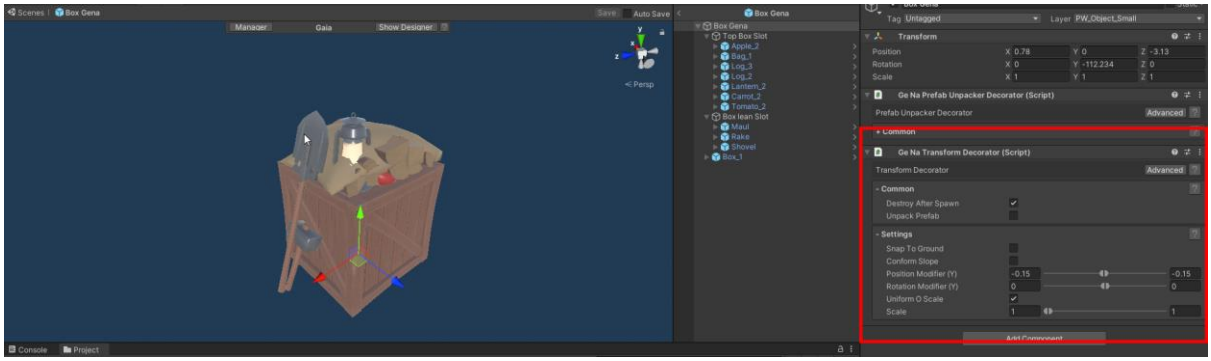


## GeNa Decorator System

GeNa comes with an exceptionally powerful decorator system, and this allows you to exert a high degree of control over how your content is spawned into your scene.

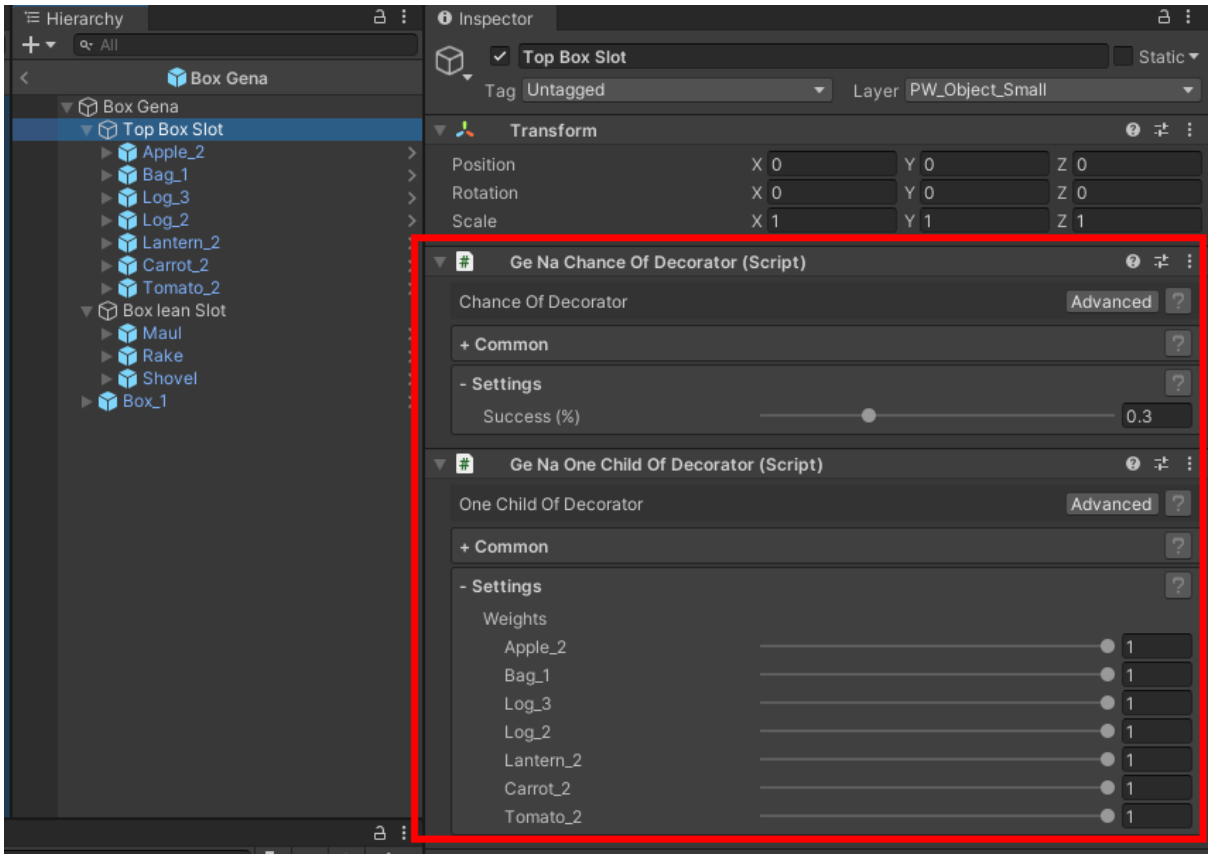
You see how many of the prefabs used in the spawners were configured by looking at them in Procedural Worlds/Content Packs/Raygeas/Stylized Fantasy Village/Content Resources/Prefabs.

Here for example we have a box that uses a transform decorator:



When this box is being ingested by a spawner, GeNa will recognize the decorator and apply those settings to the transform of the box when being spawned.

Digging deeper in the prefab you can find a “Chance of” and a “Child Of” decorator on the “Top Box Slot” and the “Box Lean Slot”.




If this prefab is used in a spawner, GeNa will unpack the prefab, randomly choose to spawn only one of the children as decoration for the box when spawning. This leads to the boxes looking slightly different with each spawn, having different decorations (or none) on them:

Study how these prefabs were configured and use the ideas to set up your own content decorators.

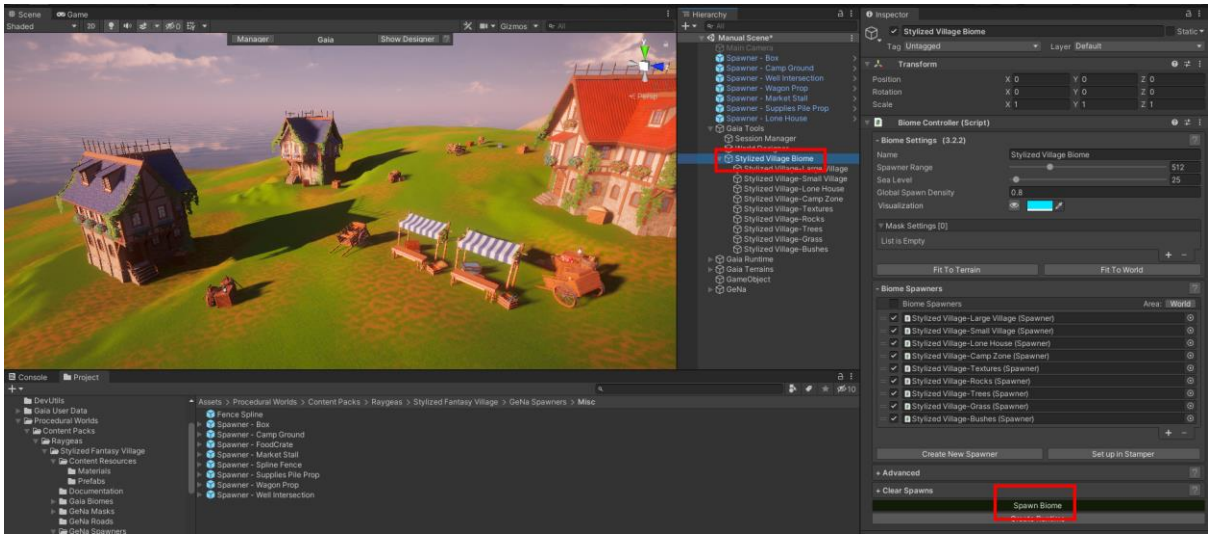
For more information on Decorators, please read the GeNa Documentation.

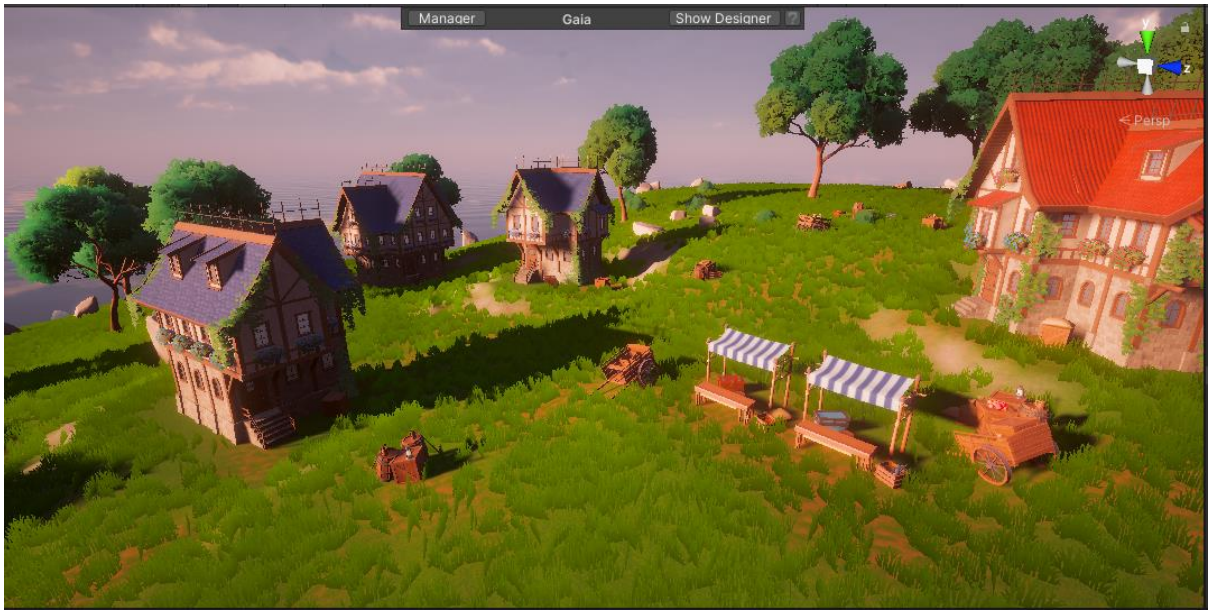
## API Based Runtime Spawning

GeNa Pro can be controlled via API to spawn at runtime. Please check out the GeNa Pro documentation to lean more.

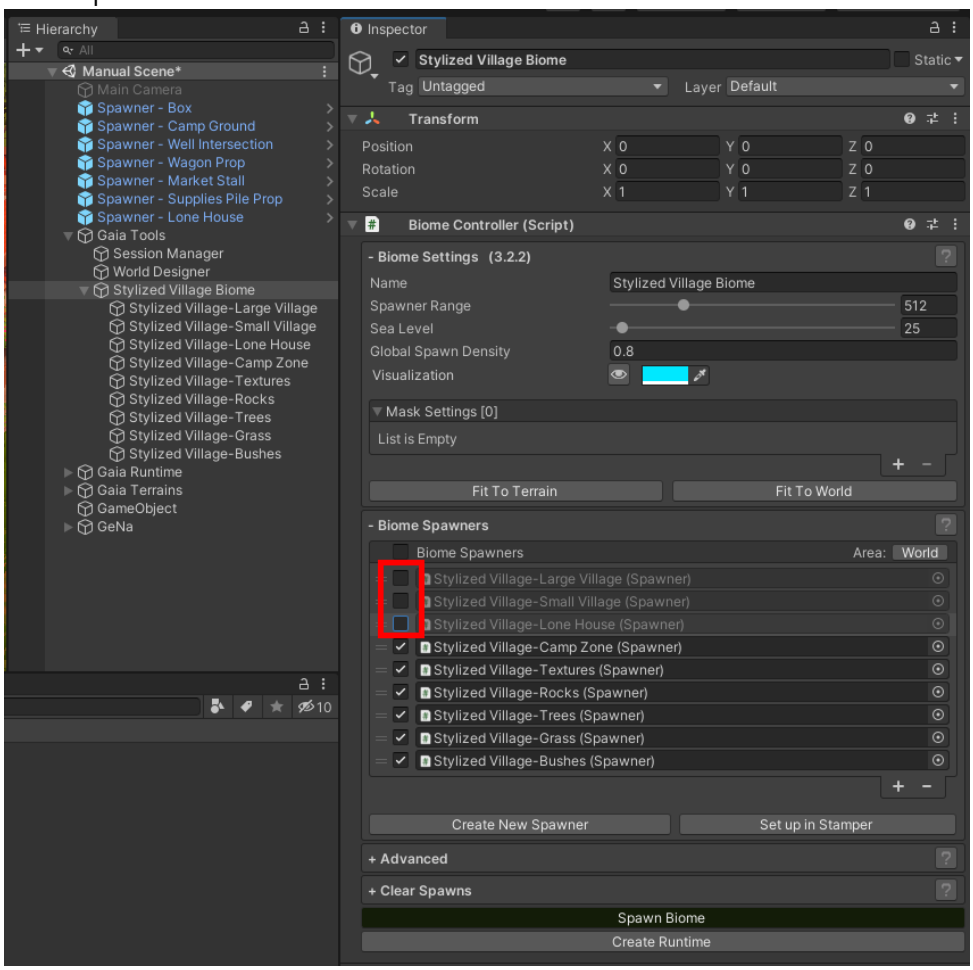
## World Finalization with Gaia Pro

In some scenarios you will want to use Gaia Pro to finalize your world. This will fill out all the areas you did not design yourself with GeNa & other tools. To do this select your biome under Gaia Tools and hit Spawn Biome.

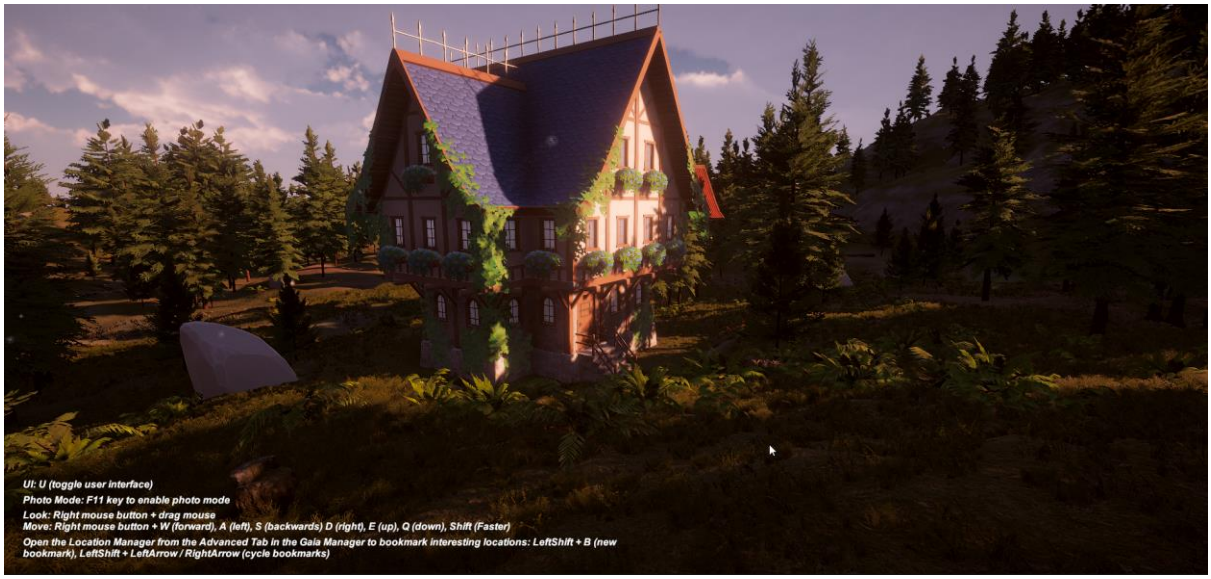




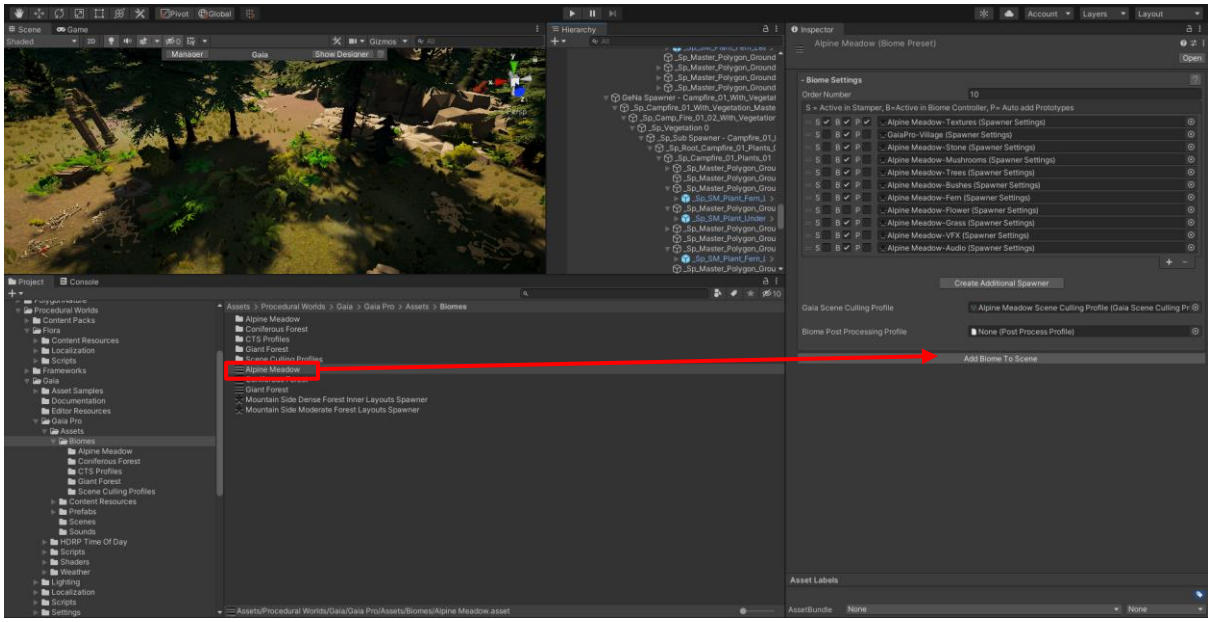

You can opt out of individual biome spawners and just spawn the ones you want if you would prefer this instead of all of them.




It can also be fun to mix and match styles! Here is the more realistic Gaia Alpine Biome mixed in with the assets from the Stylized Village Pack:




NOTE: You can add Gaia biomes to your scene at any time by selecting the biome and then clicking 'Add Biome To Scene'.



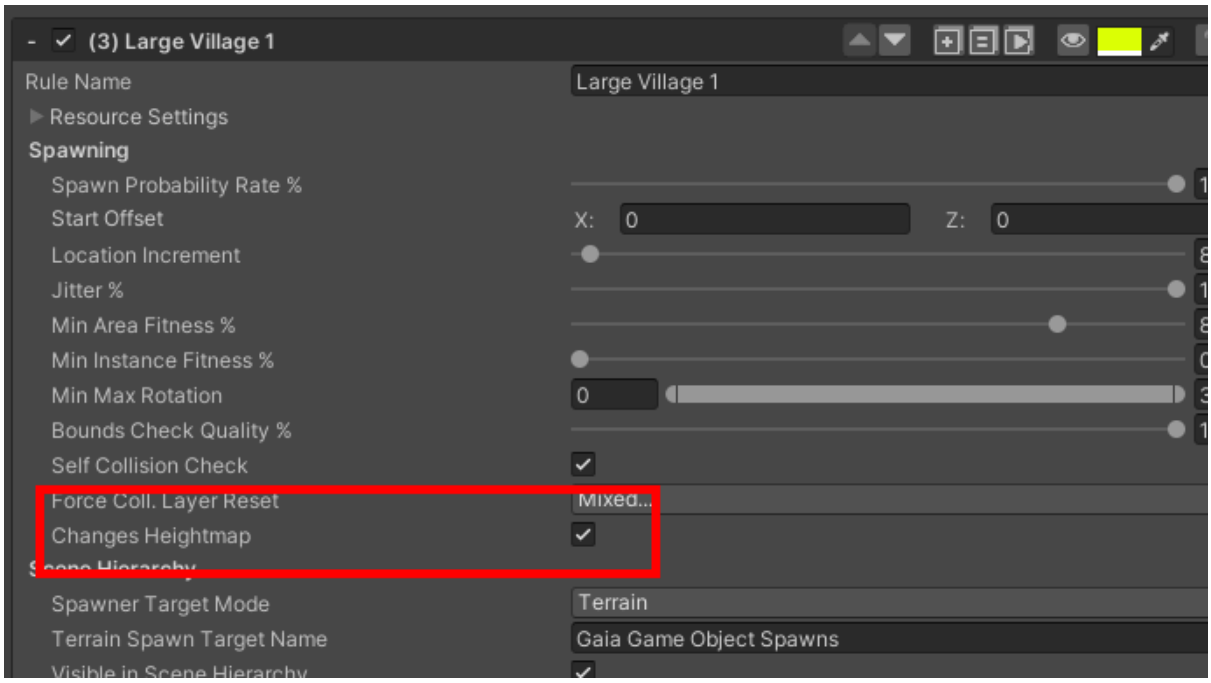

## Specialities of the Stylized Village Biome

The Stylized Village Gaia Biome calls GeNa spawners to spawn smaller villages on your terrains. These village contain terrain texture pathways and also modify the terrain heightmap:


In the example above the heightmap was flattened to place the houses, and the road in the middle is a terrain texture. This will all be done automatically during spawning, however when you re-spawn the biome, or single spawners you would need to be aware of the following:

1. The spawners that alter the heightmap will reset the heightmap before spawning to undo the heightmap changes from the last run. If you made manual changes to the heightmap inbetween, those changes might be gone.
You can prevent the heightmap reset from happening by deactivating these spawners in the biome:

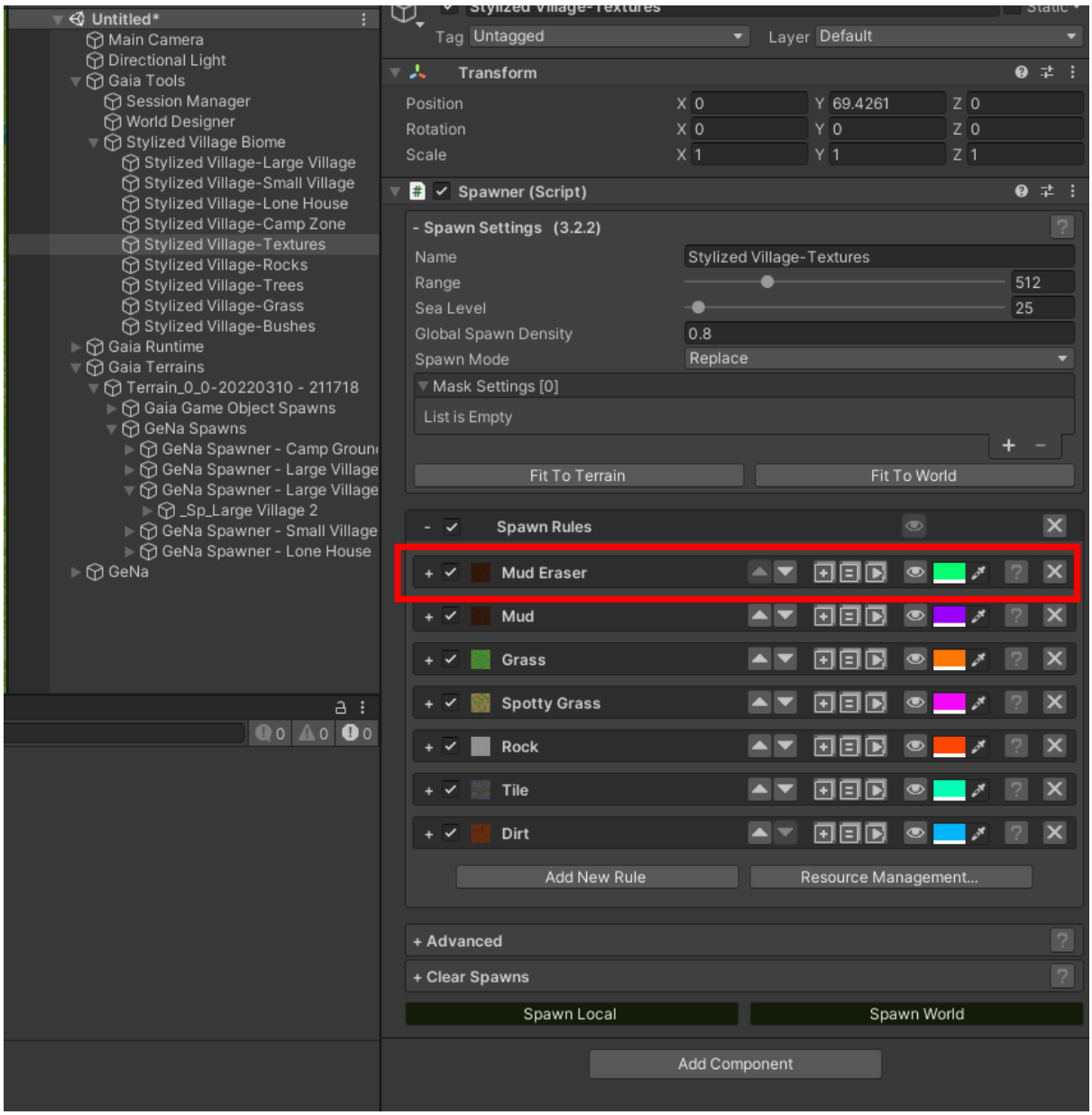

Alternatively you can deavtivate the “Changes Heightmap” flag in the spawn rules for all those spawners.




2. The terrain texture spawner is set up to NOT overwrite the cobblestone and dirt paths that the village spawners create. If you delete one of the spawned villages, you will find that the cobblestone and dirt path is being left behind:

Running the texture spawner again to fix this will not work in that case since the spawner

has been set up to specifically NOT delete those two textures.
If you want the texture spawner to overwrite everything and "reset" you can activate this spawn rule in the texture spawner:




The "Mud Eraser" spawn rule will fill everything with a mud texture as first step, and then all other textures can be spawned in one after another with all of those paths being erased. This will then remove any (!) paths on the terrain:


## Mesh Based Terrain Generation

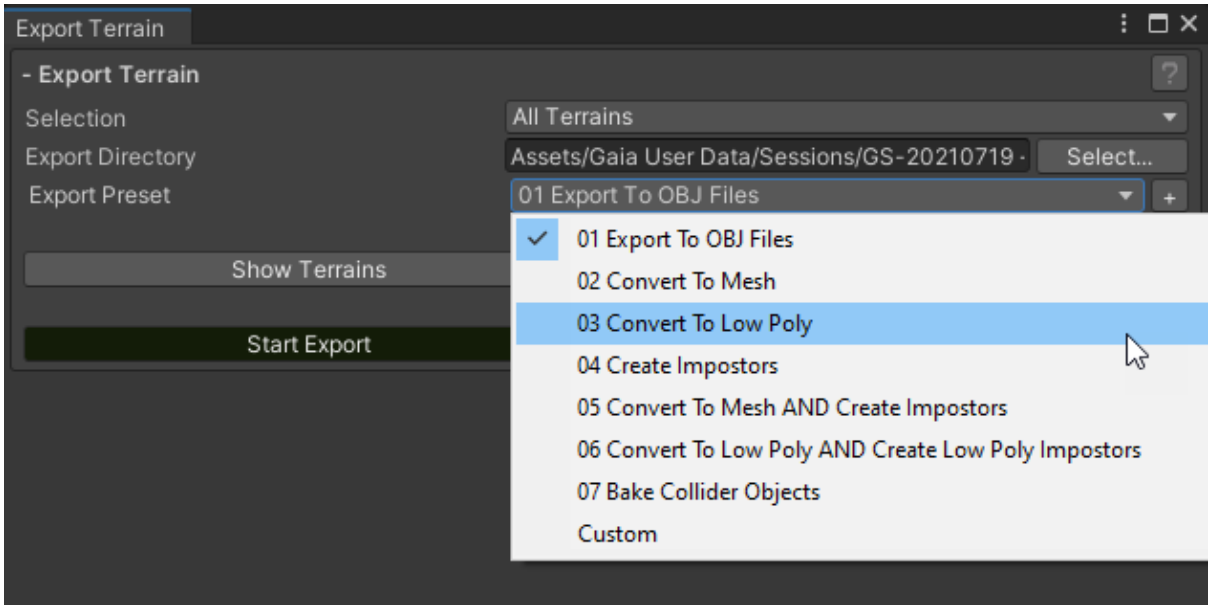
A powerful capability of Gaia Pro 2021 is its ability to convert your Unity terrain to a mesh and then to remove the original terrain completely.

The upside of this is that meshes are generally much faster than Unity terrain, but you also lose the ability to render unity terrain grass and terrain trees.

This would typically be done as one of the last things you do before finalizing your scene, as the GeNa spawners can flatten Unity terrain, but not flatten meshes (e.g., under buildings).

To convert your terrain to a mesh terrain, or a low poly mesh terrain.

1. Open Gaia Manager
2. Select Advanced Tab
3. Select Gaia Tools Foldout
4. Click on Terrain Mesh Exporter button.
5. Choose the option you want e.g., Low Poly Mesh.
6. Start the Export.




Here is an example low poly mesh export:

### Scene Finalization

When you are finished creating your scene the following things can reduce the size of your build.

1. Remove Gaia Tools. They are used only for creating environments.
2. Bake and then remove all your GeNa splines.
3. Delete your GeNa spawners.

## Spawner Examples

*(Just a few examples of some of the spawners from the pack. Variations were obtained by iterating on the spawner using Shift+Ctrl+I)*

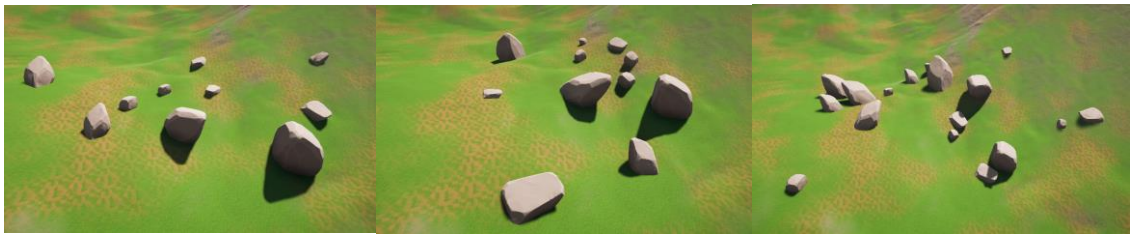
### Houses

### Bag Pile

### Wagon

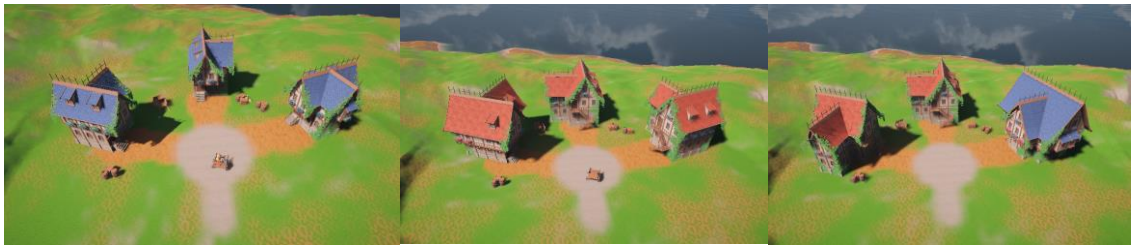
## Supply Pile

## Stone Cluster



## Smaller Village

(Can be combined into larger village formations with the marketplace spawner)



## Small Forest

# Gaia Pro Biome Examples