A.W.E.S.O.M.E.

Vegetation Studio Pro

Vegetation Studio Pro

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VEGETATION STUDIO PRO

Vegetation Studio Pro is a vegetation placement and rendering system designed to replace the standard tree and detail system in the Unity terrain component. It can also spawn and render vegetation on standard unity meshes.

Vegetation is spawned on the terrain based on a flexible set of rules, and controlled with both texture and polygon masks. There is also an extensive Biome system that allows you to define areas with custom biomes and splatmap rules.

Vegetation Studio Pro is based on Unity's new Job system and Burst compiler. This allows all available cores to be used for procedural generation, culling, LOD selection and render list preparation. The Burst compiler and a data oriented structure gives a huge speed increase and a major reduction in main thread CPU use.

Vegetation Studio Pro has its own culling system and a custom render system for Vegetation.

Use your existing trees (SpeedTree, Nature Manufacture, Tree Creator and others), rocks and grass textures. Rendering is done using Unity's new Instancing and Instancing Indirect system. This means no overhead on culling or handling GameObjects. Vegetation Studio should work with most vegetation shaders that support instancing.

You create a Vegetation Package that references your selected trees and plants. Configure the spawn rules and apply it to a terrain. The same package can be re-used on terrains in multiple scenes. Any changes done to the rule set will update the terrain directly.

- Extensive Biome system
- Supports both Unity terrains and mesh terrains
- Rule based vegetation
- Manual paining system
- API for 3rd party tools and shaders
- Run-time masking system
- Instanced rendering
- Rule based splat map generation
- Touch bend grass and plants
- Universal billboard system
- Collider system
- Real-time editor updates
- Multiple terrains/cameras on a single Vegetation System
- VR-Support

- and much more.

SETTING UP VEGETATION STUDIO PRO

This document will give you a quick guide to setting up Vegetation Studio Pro and biomes in a new project. It uses the new job system and burst compiler and requires some additonal setup.

SETTING UP UNITY

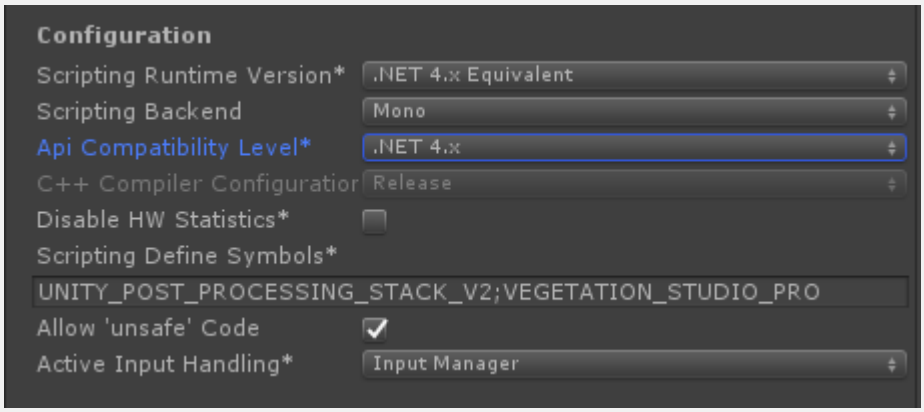
The Vegetation Studio Professional beta has a few setup requirements.

The minimum requirement is Unity 2018.2.11 This will likely increase with time as Unity adds a bit more of the NativeArray/job functionality.

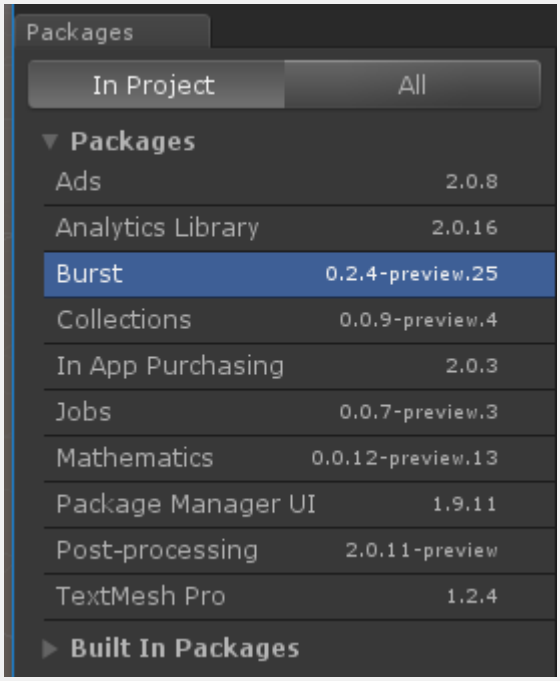
Set up a new project in Unity.

Go to Player settings and change the following settings.

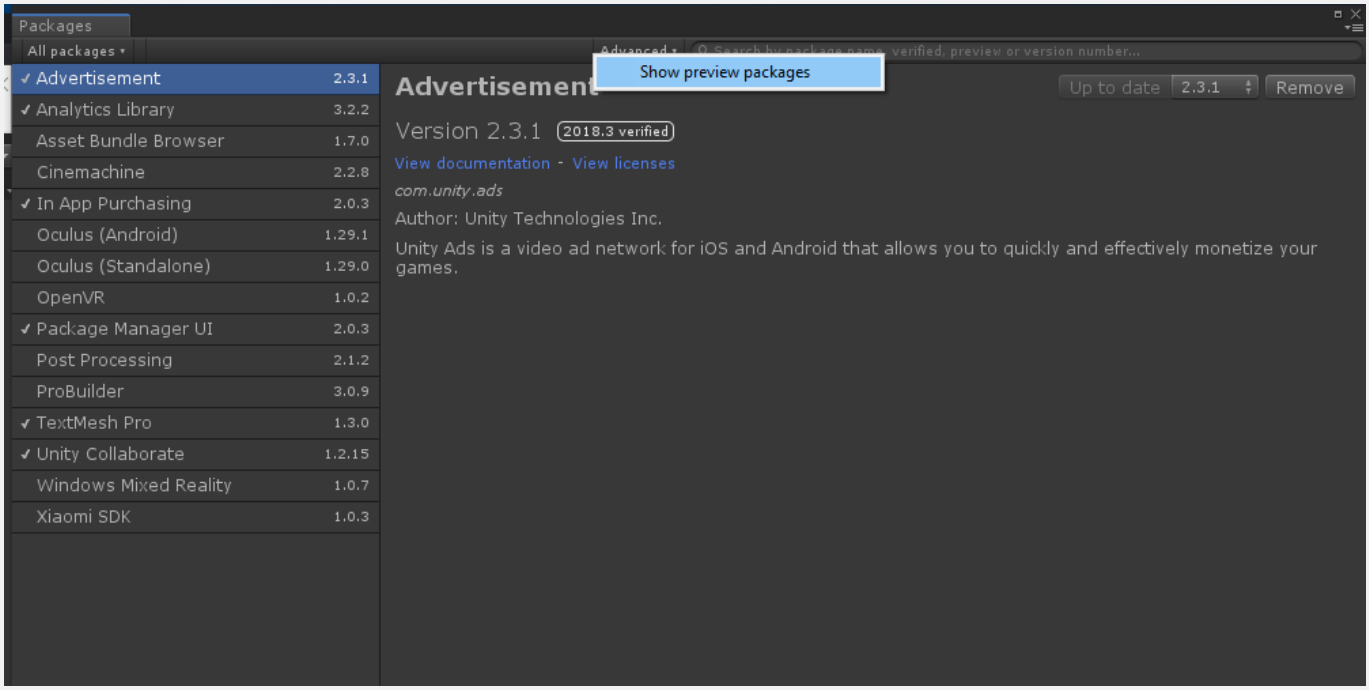
- Scripting Runtime Version to .Net 4.x Equivalent
- Api compability level to .net 4.x



Then open the Package Manager from the window menu. You need to enable show preview packages to see them all.



In Unity 2018.3 + the window changed a bit and you need to turn on preview packages to see all of them



Select and install 5 packages

- Mathemathics
- Jobs
- Collections
- Burst
- Postprocessing

Install the latest version of each package.

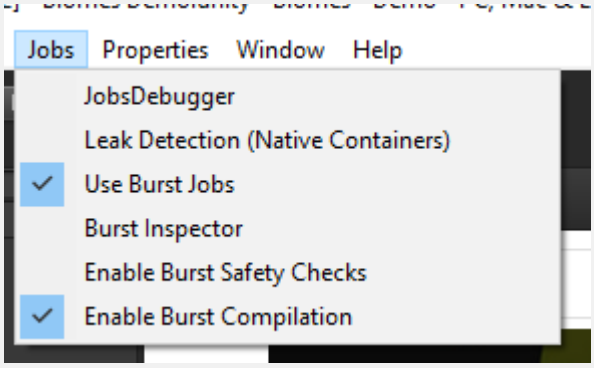
IMPORTANT: SOME 2018.2.X USERS HAVE REPORTED AN ERROR WHEN INSTALLING THE LATEST MATHEMATICS PACKAGE. INSTALLING MATHEMATICS 0.0.12-PREVIEW 21 OR EARLIER SEEMS TO HAVE FIXED THIS. I EXPECT UNITY TO UPDATE A PACKAGE WITH A FIX SOON.

THERE IS ALSO A PROBLEM WITH THE LATEST BURST PACKAGES TRY TO STAY AT BURST 1.0.0-PREVIEW.6 OR EARLIER UNTIL UNITY COMES OUT WITH A FIX.

These packages are needed to get Vegetation Studio running with the burst compiler and job system.

if you have the Post Processing stack installed direct from GIT or another source you need to uninstall this and use the version from the package manager.

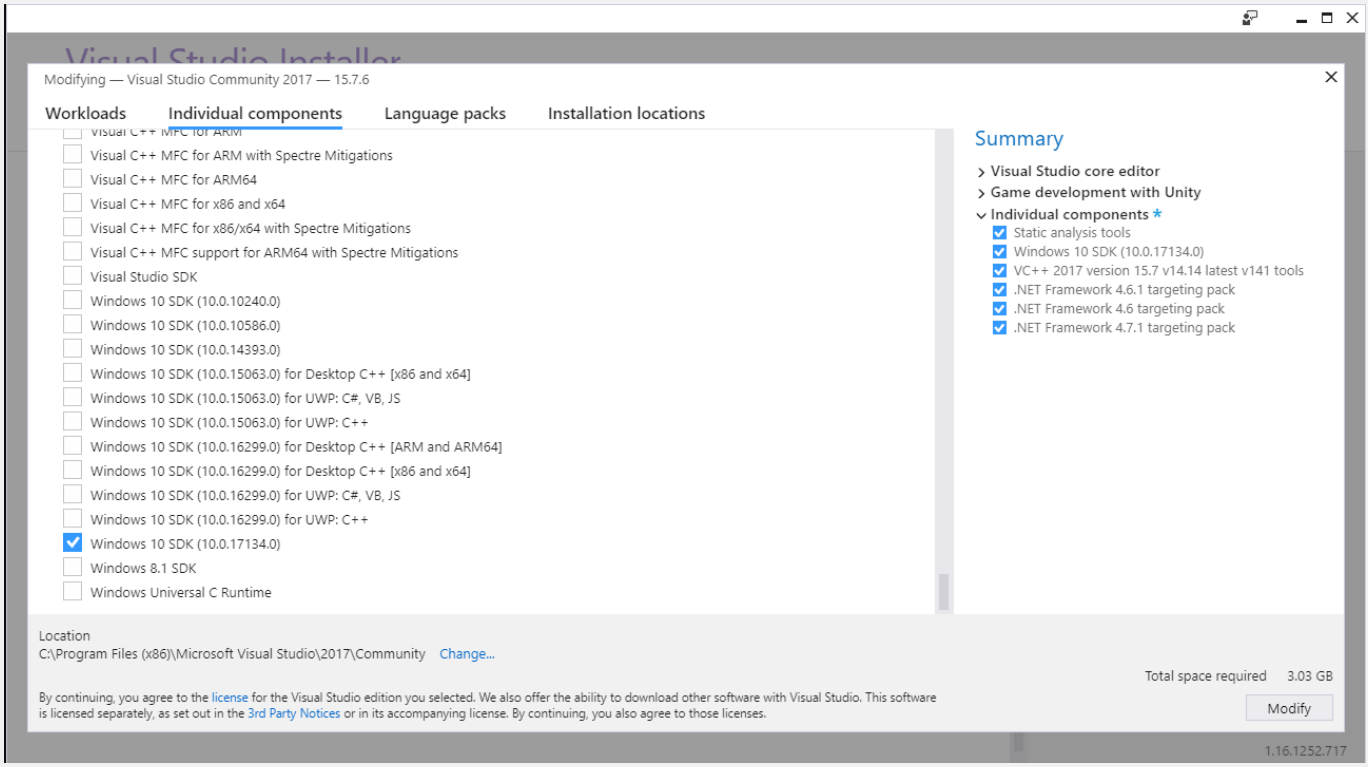
When done import the Vegetation Studio Pro beta package.

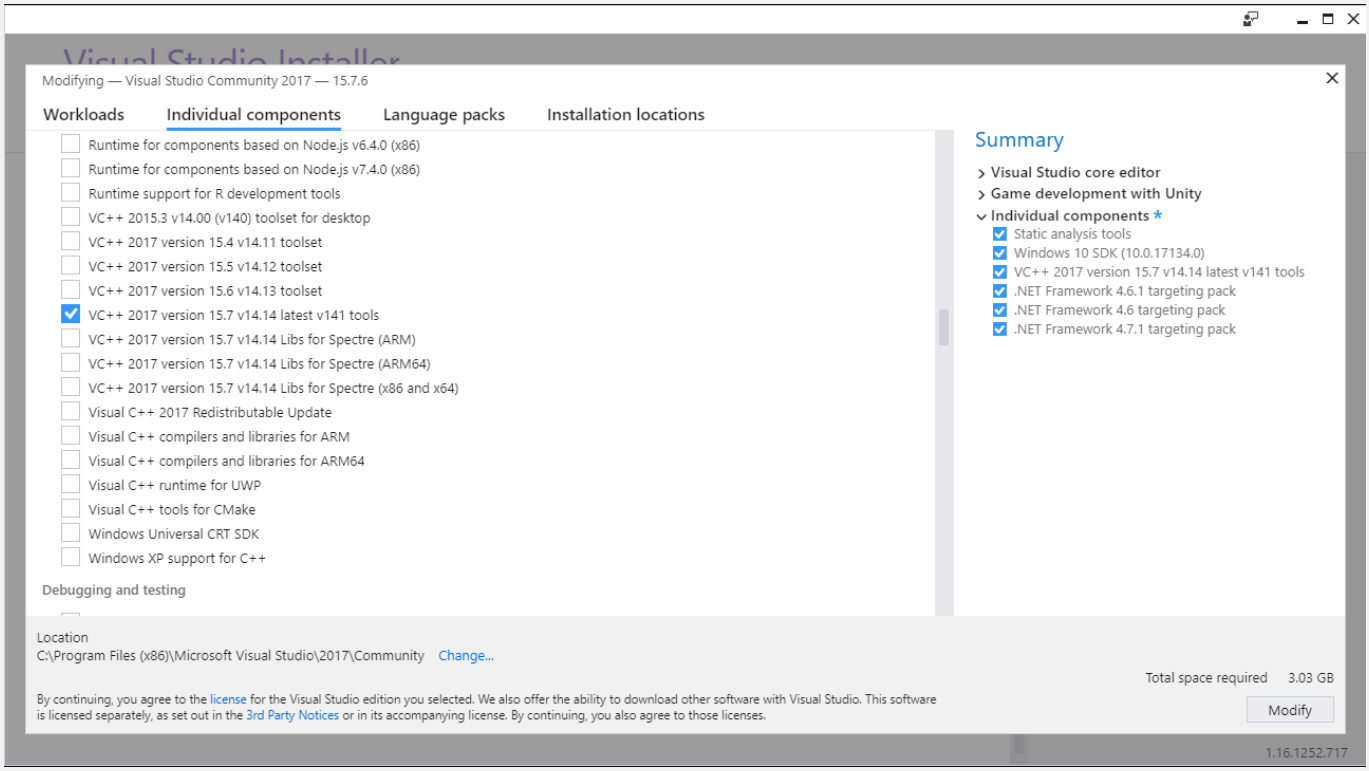


For better speed in the editor turn of the Jobs debuger and Leak Detection.

To use the burst compiler in standalone builds you need to make sure to install **Windows SDK** and **VC++ toolkit** from Visual Studio Installer

Install the latest available version of each.





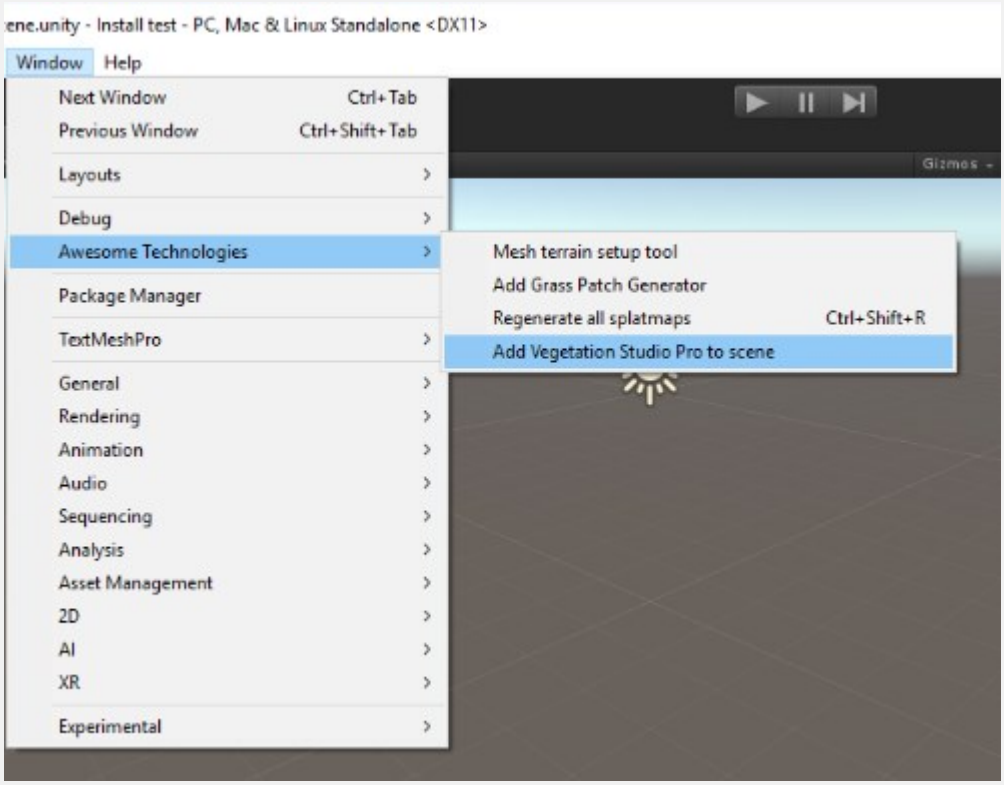
UPGRADING FROM STANDARD VEGETATION STUDIO

Vegetation Studio and Vegetation Studio Pro can not be in the same project. Remove the Vegetation Studio folders before importing. Also go to player settings and remove the VEGETATION_STUDIO compiler define.

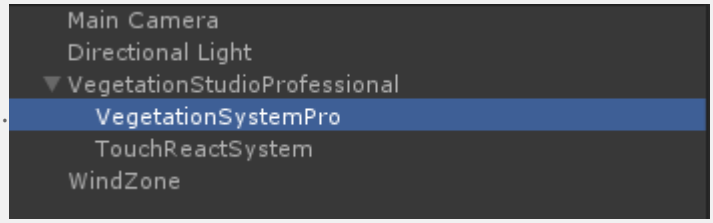
You need to set up again and create a new vegetation package.

ADDING VEGETATION STUDIO PROFESSIONAL TO A SCENE.

After installing the Vegetation Studio Pro beta package you can add Vegetation Studio Pro to the scene using the “Add vegetation Studio Pro to scene” menu.

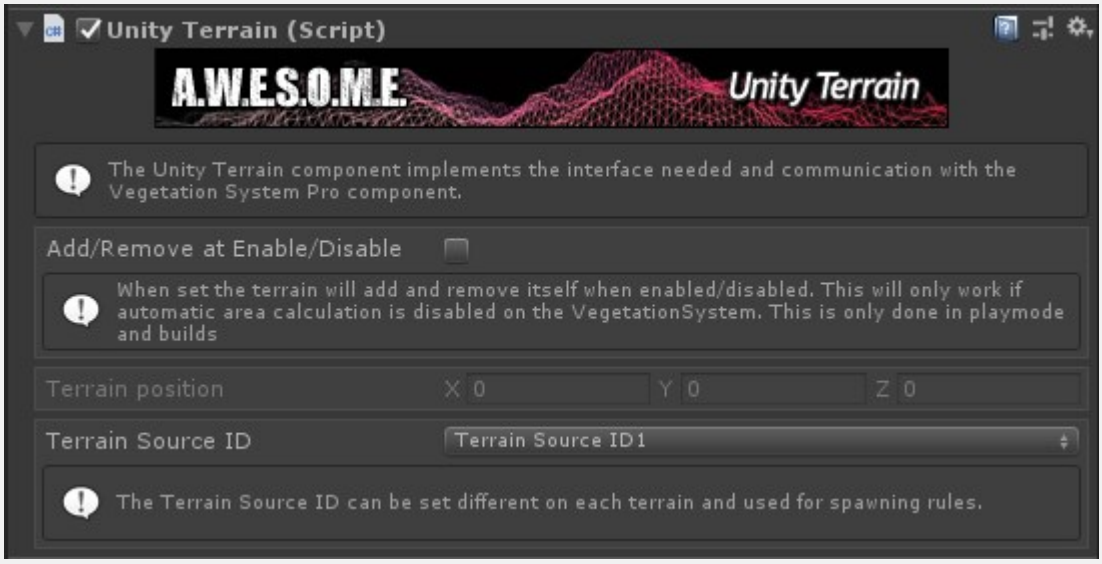


This will add the required component to the scene. The VegetationSystemPro object is what you will use most of the time.

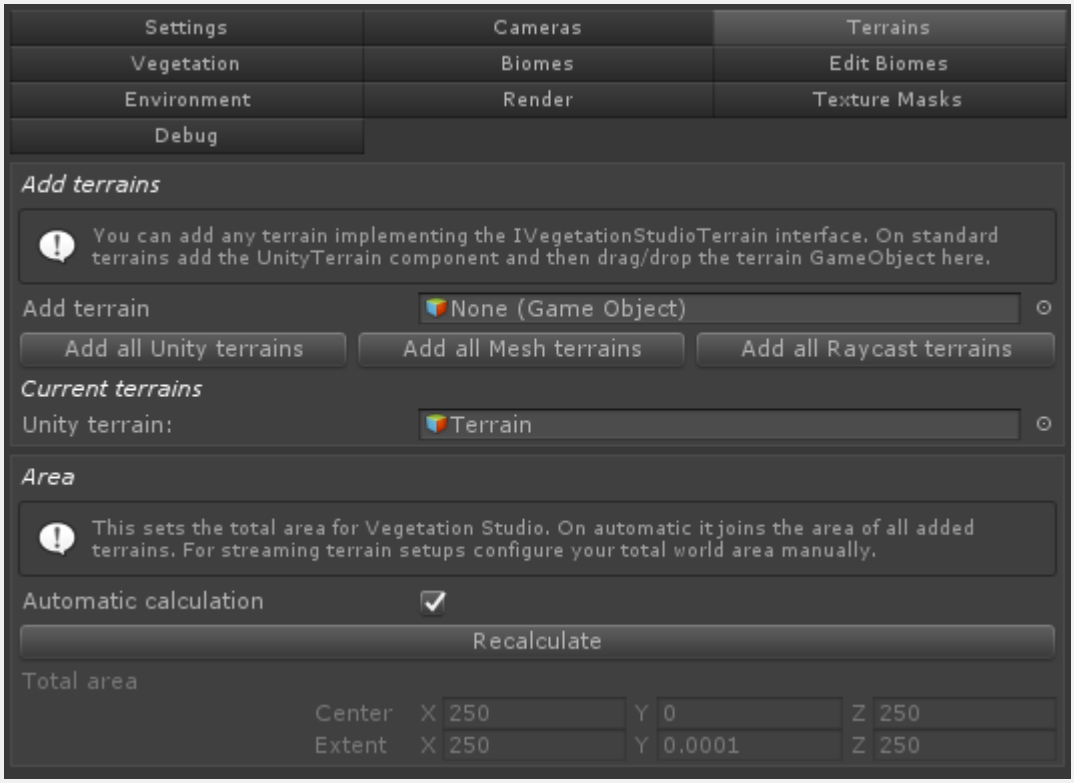


If you add the terrain to the scene after adding VS Pro you need to manually add the terrain.

Find the Terrain and add the UnityTerrain component.



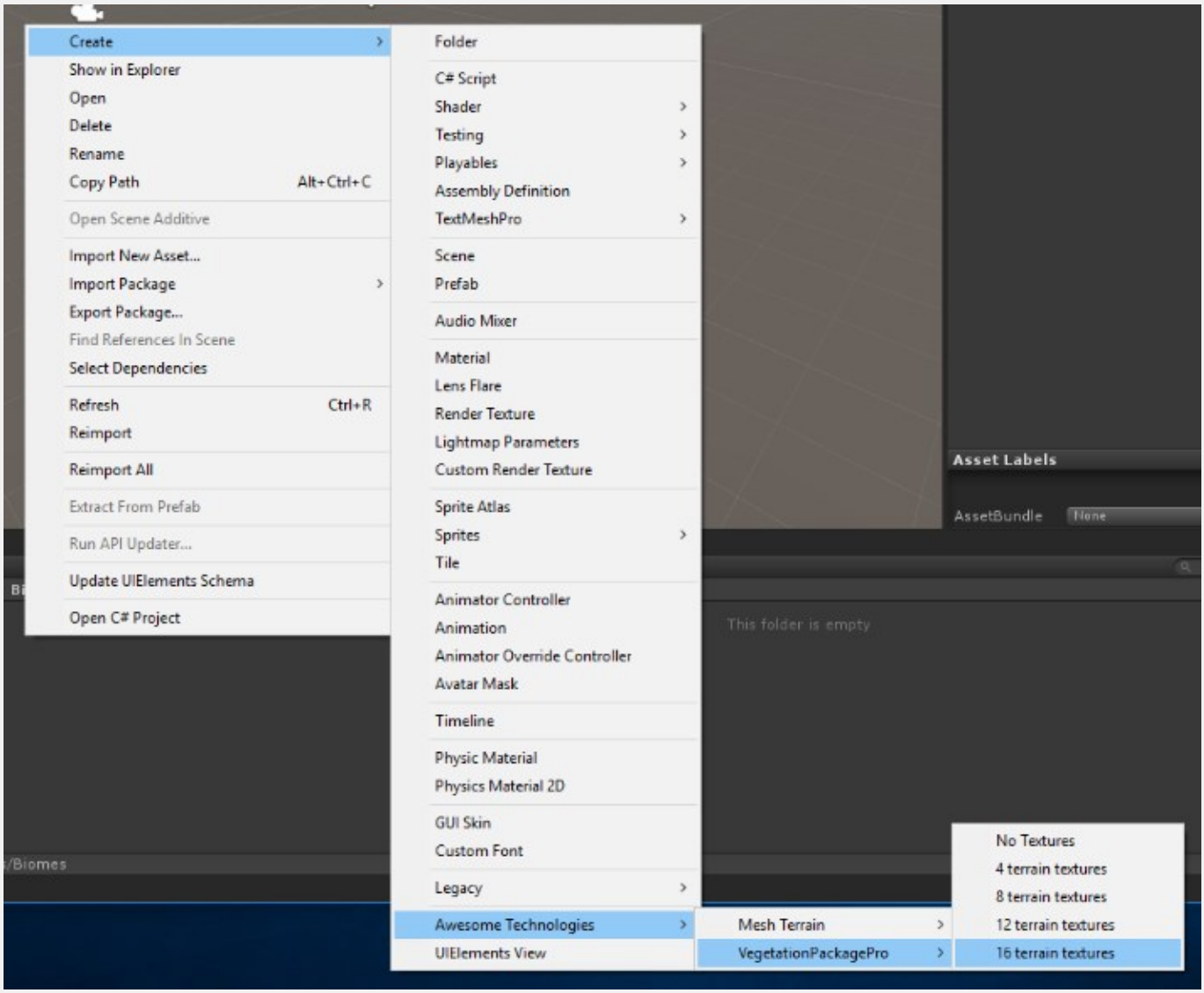
Next on the terrains tab on the Vegetation System pro component you drag and drop the terrains. You can add multiple terrains here.

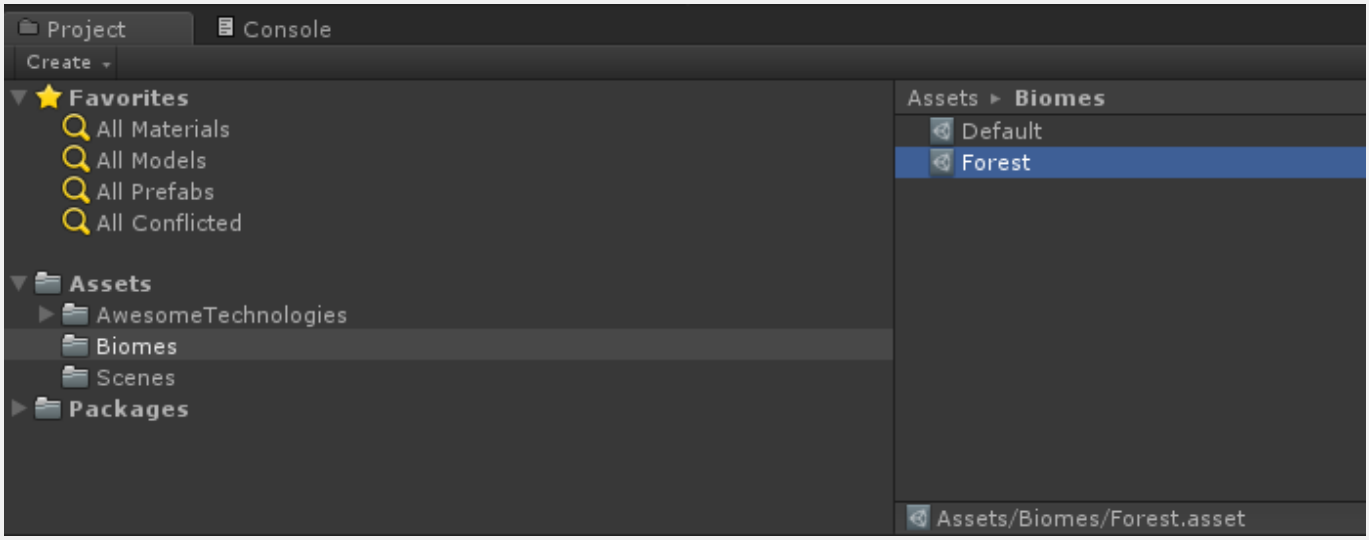


The world area will be calculated automatic from all added terrains. For setups where you load

terrain run-time you uncheck automatic calculation and define the total world area.

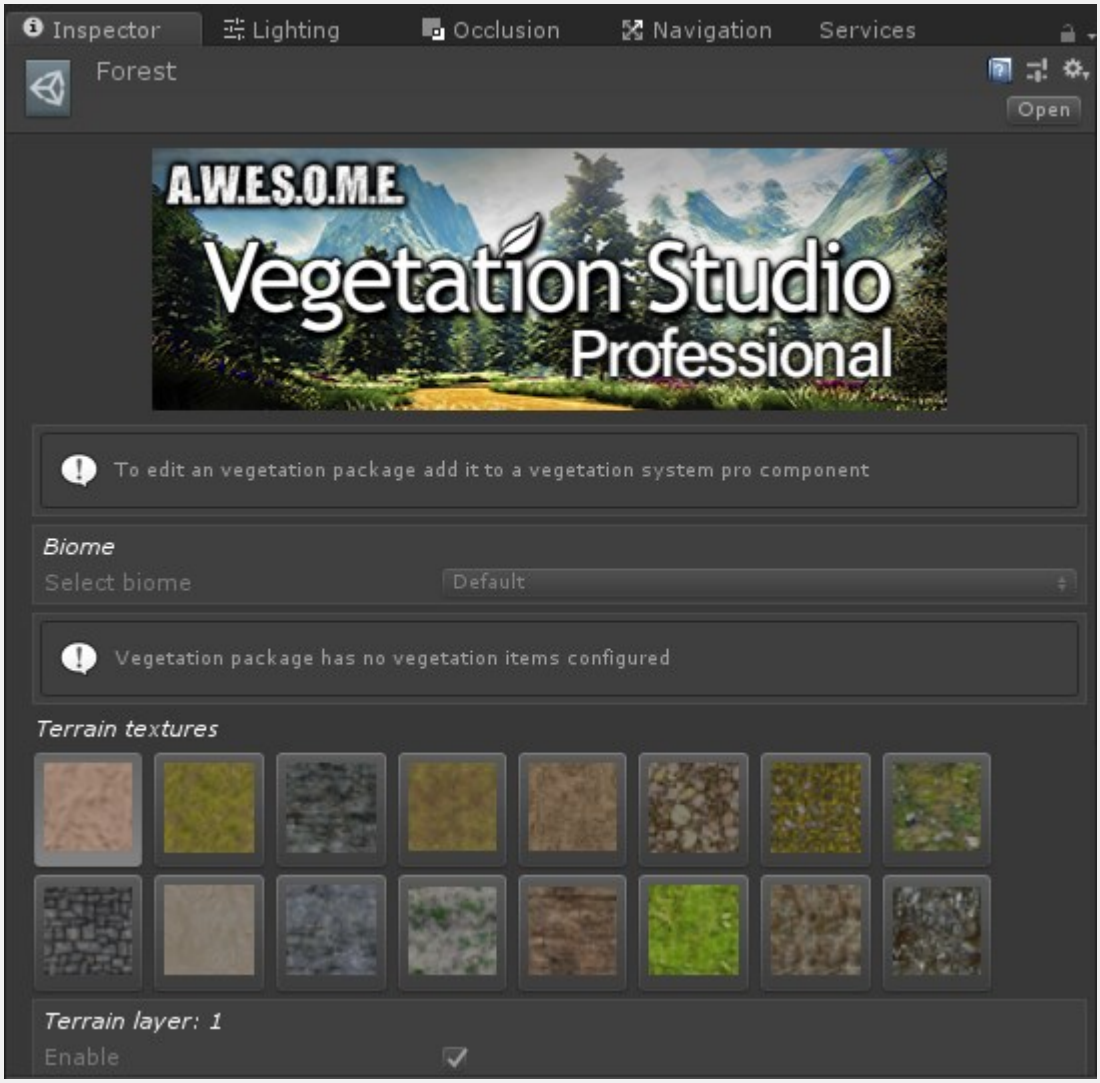
Next we create vegetation packages/biomes. These are scriptable objects that hold all the rules for vegetation spawning. For this example we will create 2 biomes. a default biome and a forest.



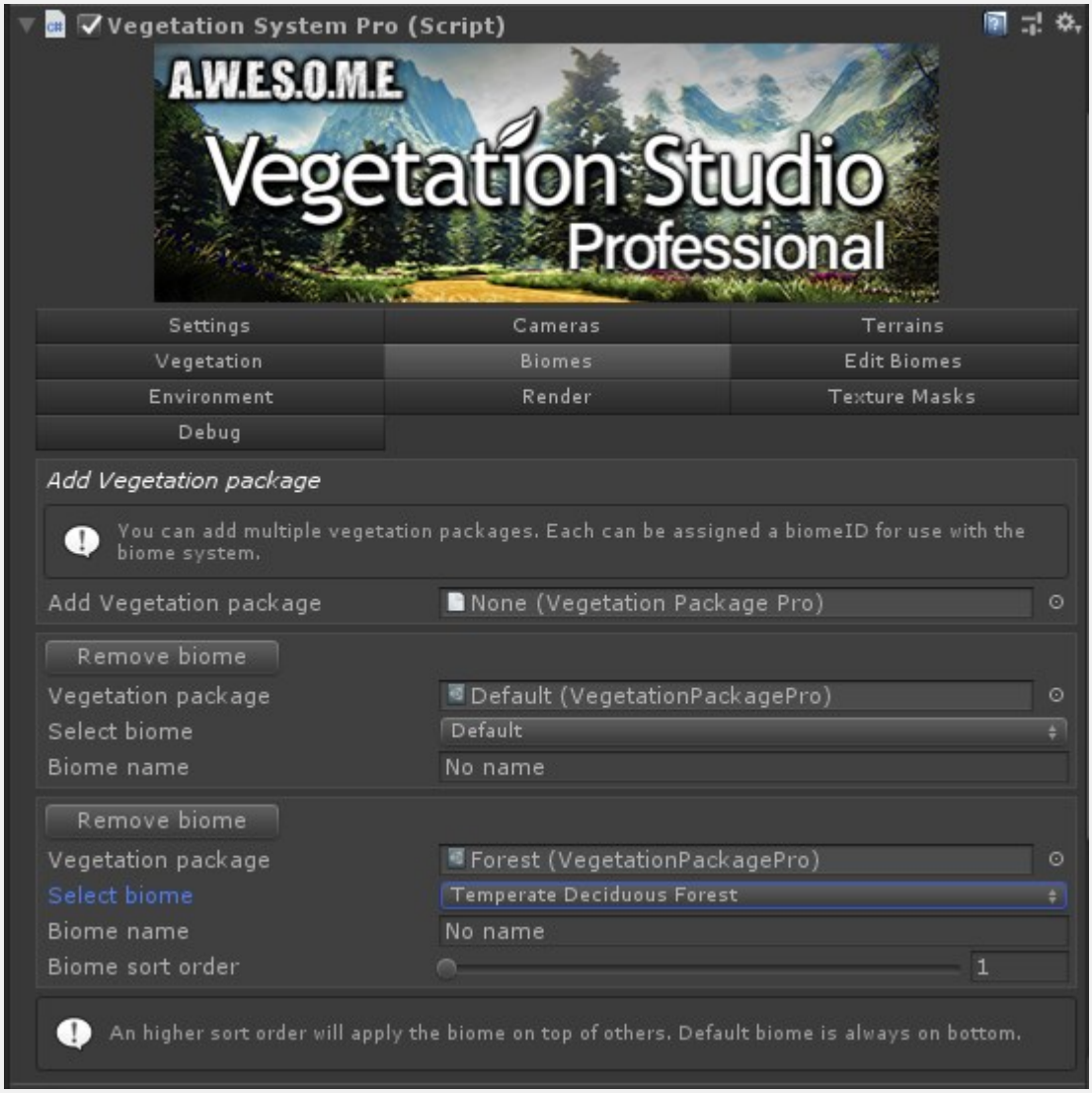


If you are going to use biomes together and create splat map rules it is important that all biomes are set up with the same number of textures.

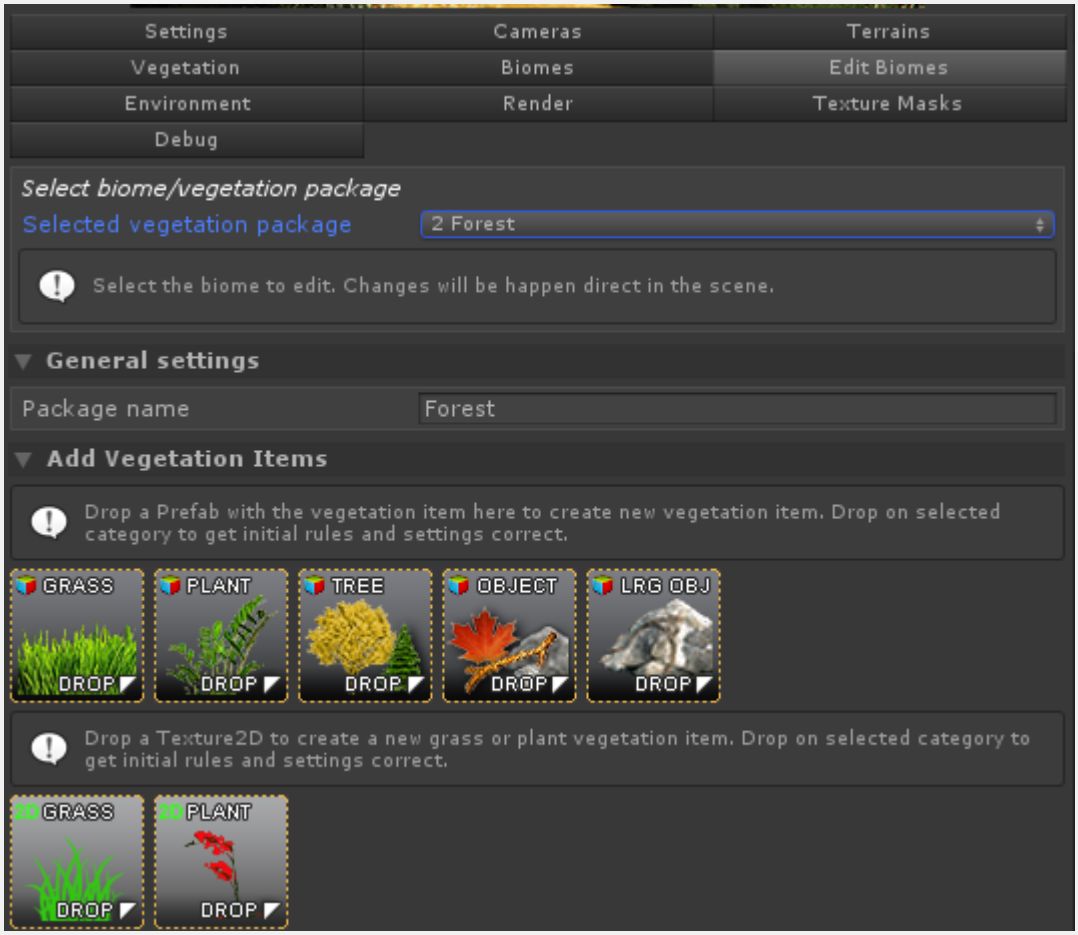
Each biome can have its own splat map generation rules and use any subset of the total textures. This way one biome can use textures 1-5 while the other uses 4-8. There is no problem for the biomes to use the same textures. When the splatmap is generated the rules will be used inside the biome mask area.



Next you add the biomes to the biomes tab of the Vegetation System and name them. Here i set my “default” biome as default and the other as a forest biome. This biome type will also be set on the BiomeAreaMasks we create later.



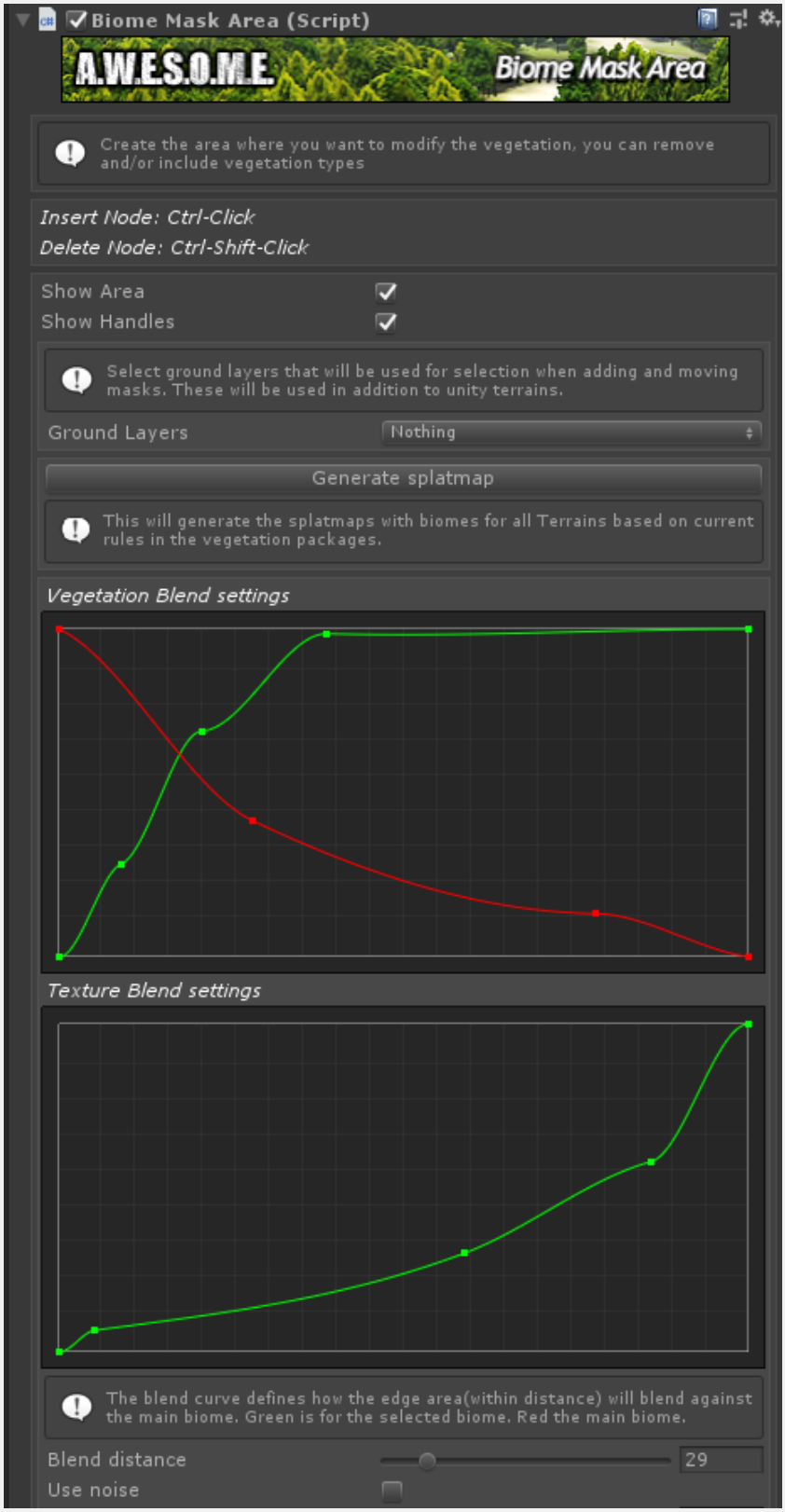
When added you can select what biome to edit on the edit biome tab. This process is similar to normal Vegetation Studio

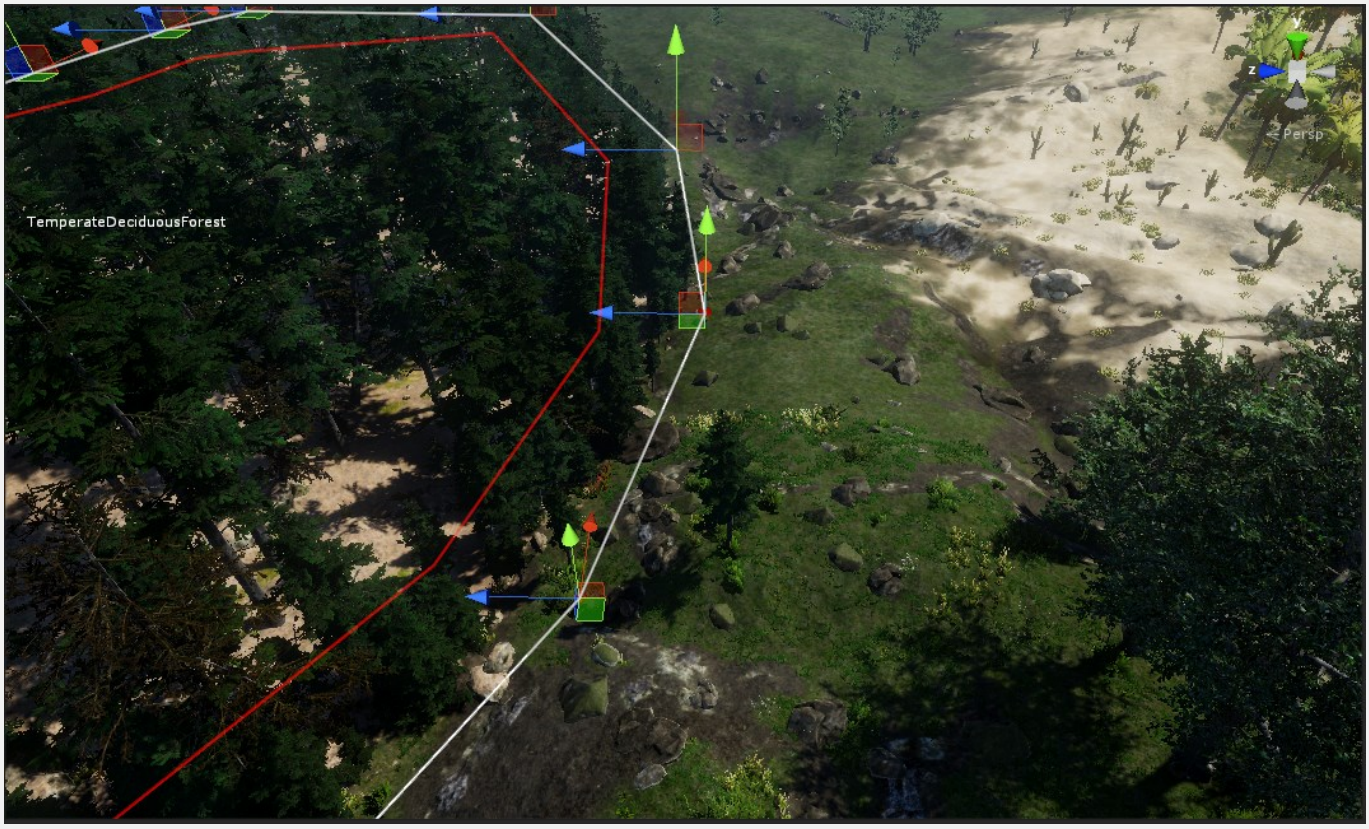


SETTING UP A BIOME MASK AREA

The default biome will be used everywhere where there is no BiomeMaskAreas. Add the BiomeMaskArea to a component and edit the nodes to select the area you want. There is also a pre made prefab you can drop in the scene.

For each biome mask area you select what biome should be in the mask area. If the Vegetation System has a biome/vegetation package of the same type it will be spawned within the mask.

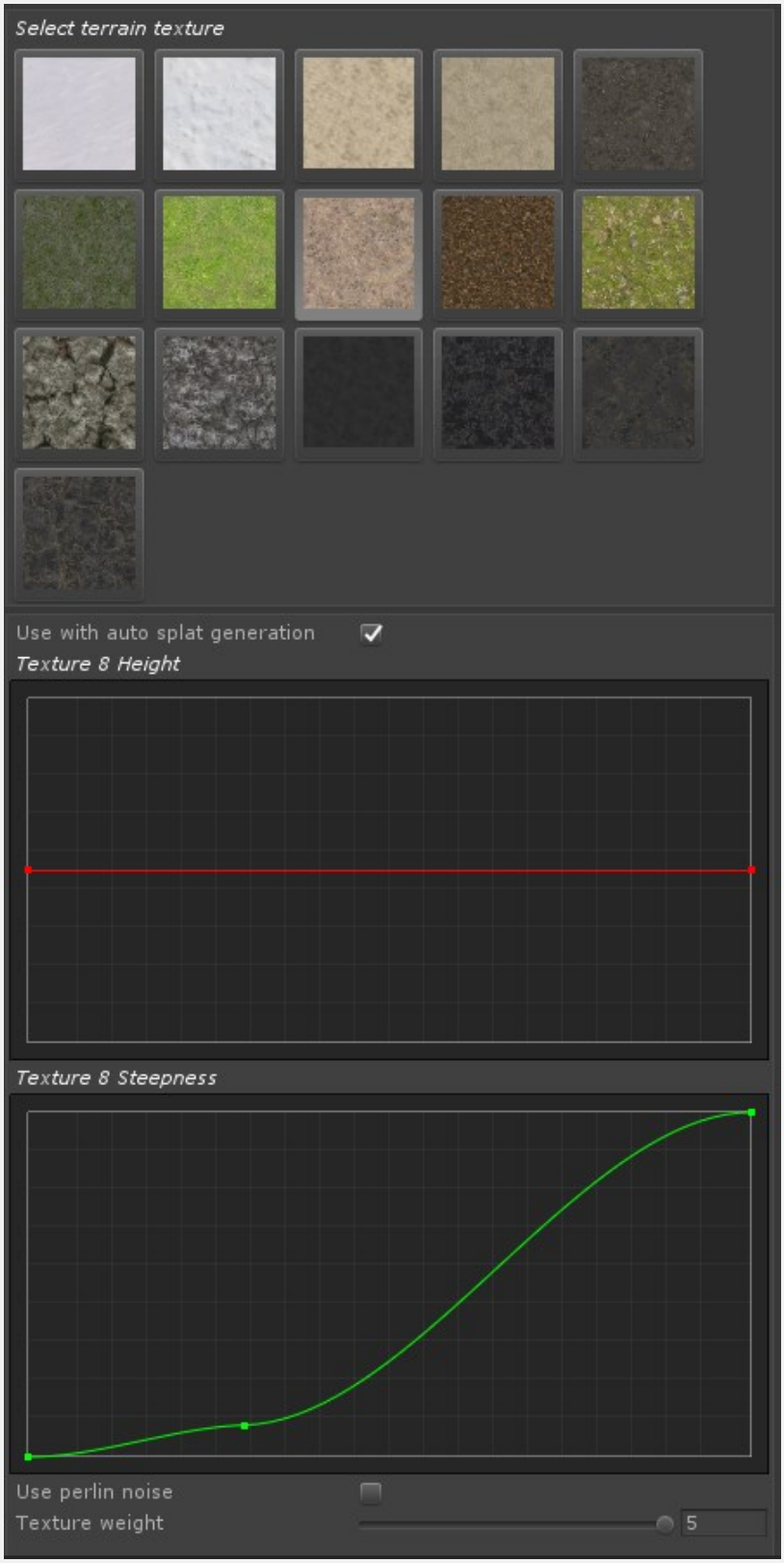

Biome Mask Area (Script)
A.W.E.S.O.M.E.
Biome Mask Area
Create the area where you want to modify the vegetation, you can remove and/or include vegetation types
Insert Node: Ctrl-Click
Delete Node: Ctrl-Shift-Click
Show Area
Show Handles
Select ground layers that will be used for selection when adding and moving masks. These will be used in addition to unity terrains.
Ground Layers
Nothing
Generate splatmap
This will generate the splatmaps with biomes for all Terrains based on current rules in the vegetation packages.
Vegetation Blend settings
Texture Blend settings
The blend curve defines how the edge area(within distance) will blend against the main biome. Green is for the selected biome. Red the main biome.
Blend distance
29
Use noise



SPLATMAP RULES

There is a TerrainSystem component on the same GameObject as the VegetationSystem component. This is used to set up splatmap rules for the added biomes. Select the biome you want to edit. Then enable the Use with splat map generation setting on the textures you want to use with this biome. You then set the distribution curves for height and steepness. There is also noise and weight settings.

Press the generate button to generate the splatmap for all terrains added to the vegetation system.


Select terrain texture
Use with auto splat generation
Texture 8 Height
Texture 8 Steepness
Use perlin noise
Texture weight
5

VEGETATION STUDIO MANAGER PRO

The Vegetation Studio Manager Component is a manager component designed to keep sync between all Vegetation System Pro components in one scene.

It handles sync with Vegetation and Biome masks and has an API to control one or multiple Vegetation Systems run-time. Set new vegetation packages. Vegetation Density etc.

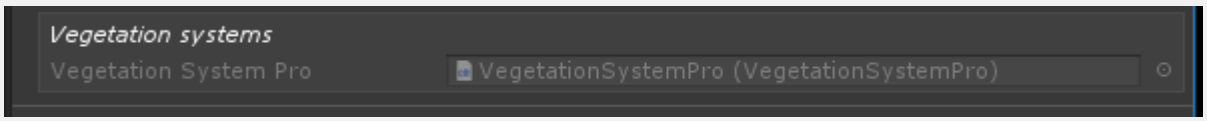
To create a new Vegetation Studio Manager Component select “Window/AwesomeTechnologies/Add Vegetation Studio Pro to scene” from the menu in Unity.

There should be only one instance of the Vegetation System Manager component per scene.

Settings
Vegetation Systems
Terrain Systems
Vegetation Masks
Postprocess volumes

SETTINGS

VEGETATION SYSTEMS



All Vegetation System Pro Components in the scene will auto register with the Vegetation Studio Manager Component and listed here.

VEGETATION MASKS

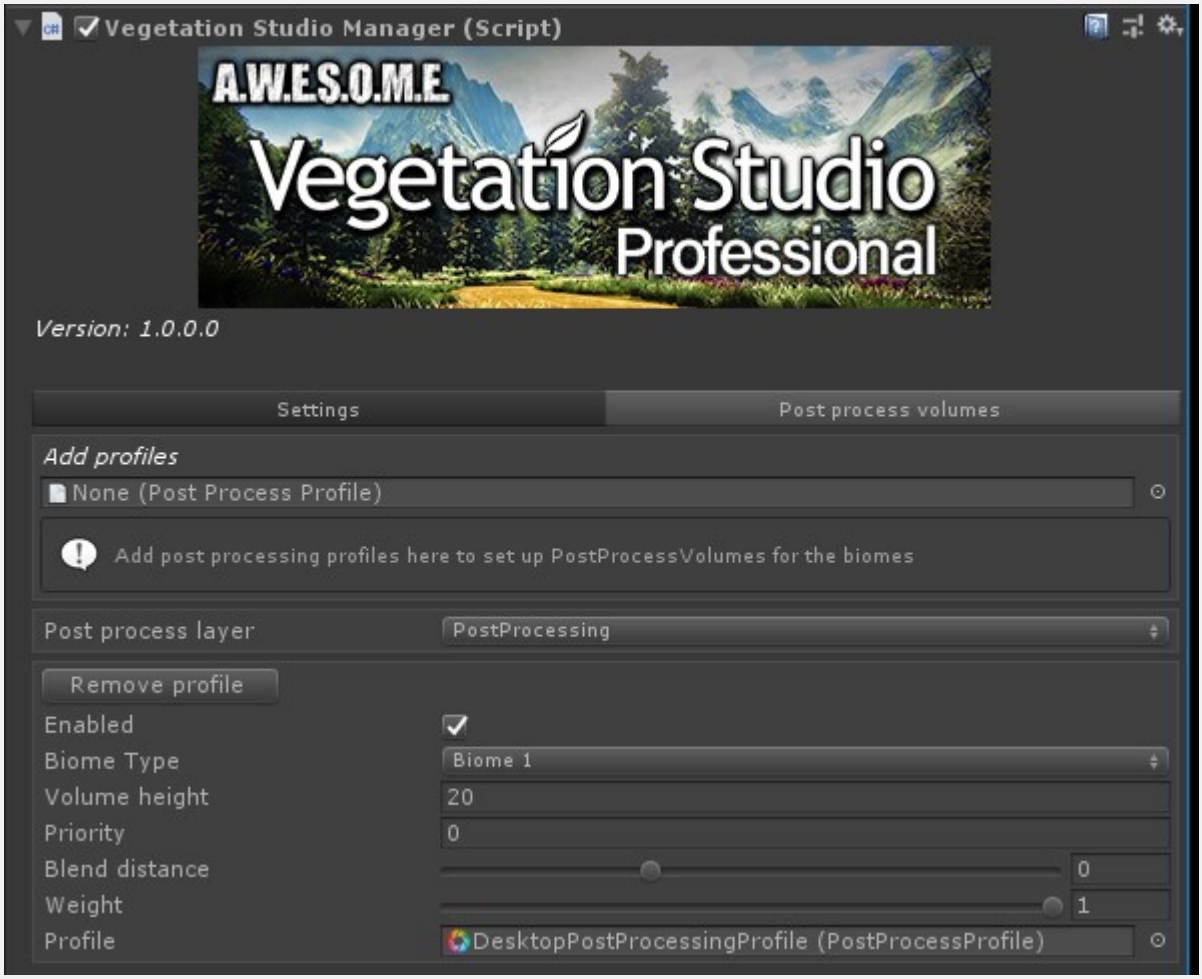
All Vegetation Masks in the scene will auto register with the Vegetation Studio Manager. The manager will then make sure all VegetationSystems have masks assigned and removed as needed.

BIOME AREA MASKS

All Biome Area masks in the scene will auto register with the Vegetation Studio Manager. The manager will then make sure all VegetationSystems have masks assigned and removed as needed.

POSTPROCESS VOLUMES

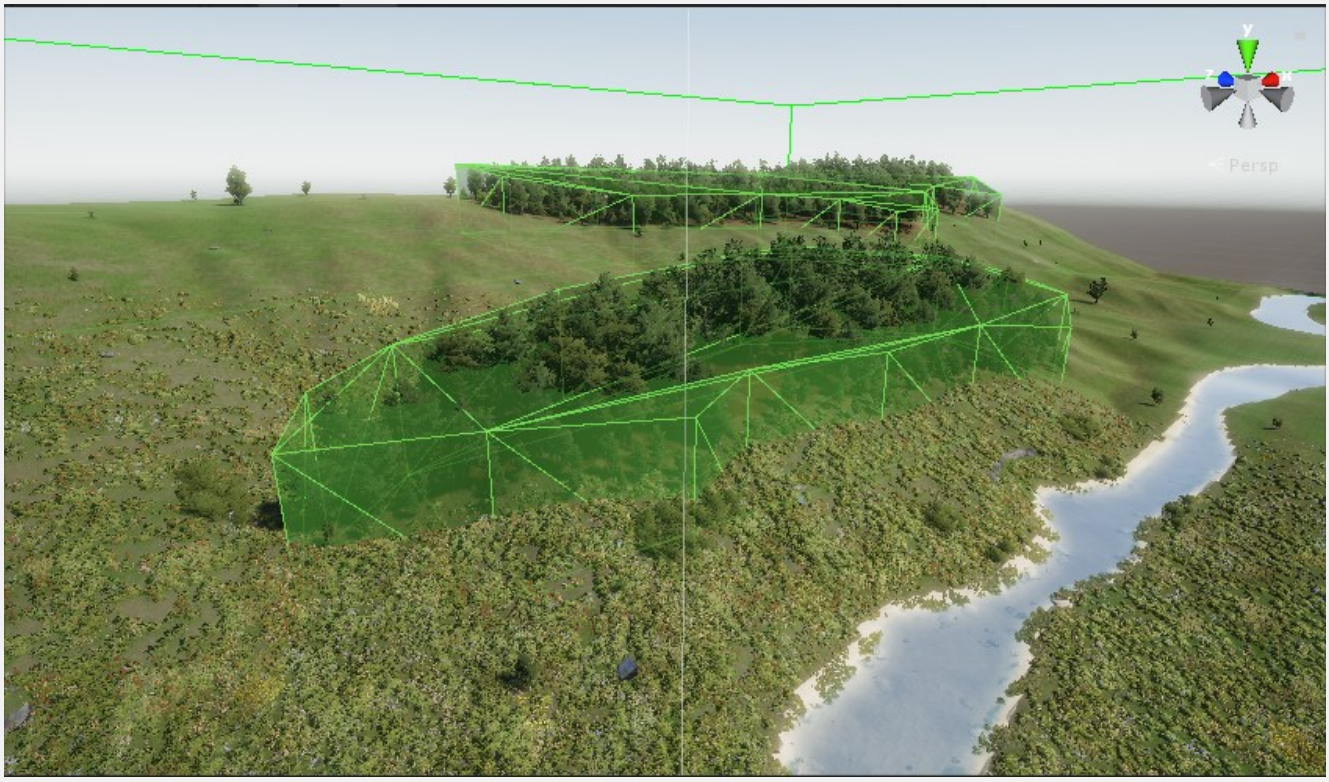
The Vegetation Studio manager can help you automate the process of setting up post processing volumes for Biome areas.



You start by adding one or more post processing profiles. You then set the biome type the profile will be assigned to.

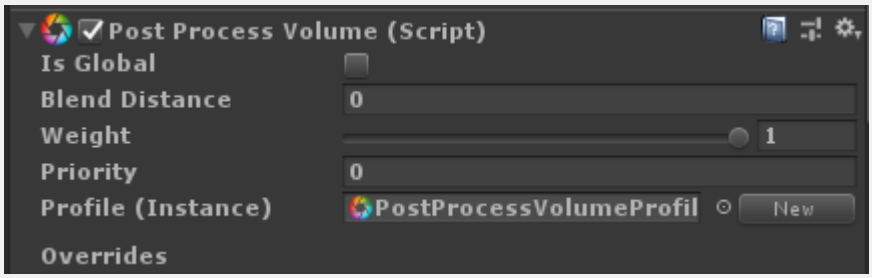
Vegetation Studio will then create mesh collider volumes for the Biome Mask Areas of the assigned type on the scene.

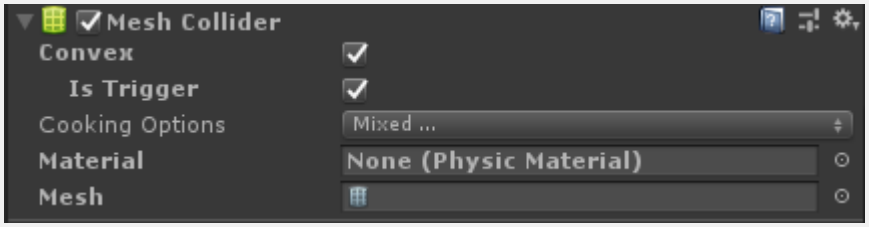
In the image below you see two forest areas with a generated biome area.



On the biome mask Area GameObject two new components are added. The standard PostProcessVolume component and a Mesh Collider, this is needed to define the area for the post processing effect. The BlendDistance, Weight and priority settings is set from the same settings on the Vegetation Studio Manager.

This way you can have a global and several post processing volumes that the post processing stack blends between when you move around the scene.





The global volume you add normally as you would with Unity’s post processing 2.0.

VEGETATION SYSTEM PRO

The VegetationSystemPro Component is the main component in Vegetation Studio Pro. It manages setup of terrains, cameras and Vegetation Packages and does the rendering of vegetation and billboards.

The documentation for this component is divided into several pages.

Settings Tab
Cameras Tab
Terrains Tab
Vegetation Tab
Biomes Tab
Edit Biomes Tab
Environment Tab
Render Tab
Texture Masks Tab
Debug Tab

SETTINGS TAB (VEGETATION SYSTEM PRO)

This page is part of the documentation for the **VegetationSystemPro** Component.

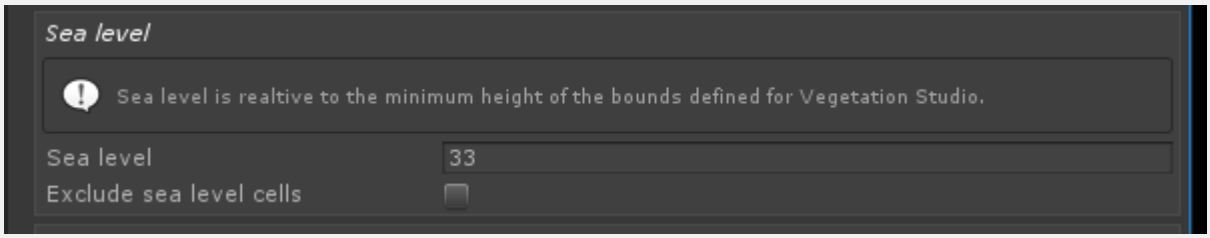
Sea level
Cell size
BillboardCell size
Floating origin anchor

SEA LEVEL

The sea level setting allows you to define your sea level on the terrains added to the VegetationSystemPro Component. It is relative to the lowest point in any of the added terrains.

Spawning rules for vegetation and splatmap generation use this as a 0 height. This way you can move the sea level and have splatmap rules and vegetation follow this height.

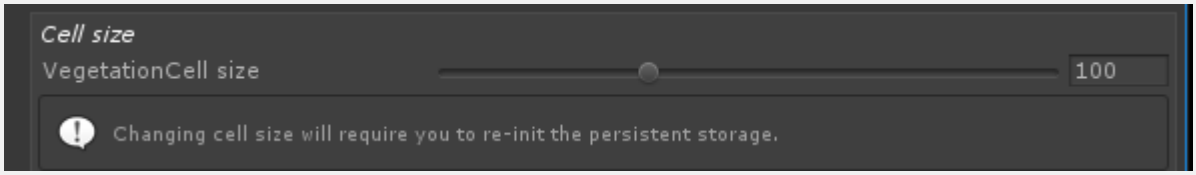
When the settings tab is active the sea level is displayed in the sceneview as a blue transparent plane



EXCLUDE SEA LEVEL CELLS

Exclude sea level cells can be used for setups where you have no underwater vegetation or rocks. It will remove internal cells where the entire cell is under sea level. This can speed up run-time spawning on island scenes with a lot of sea area since these cells are not evaluated when close to the camera.

CELL SIZE



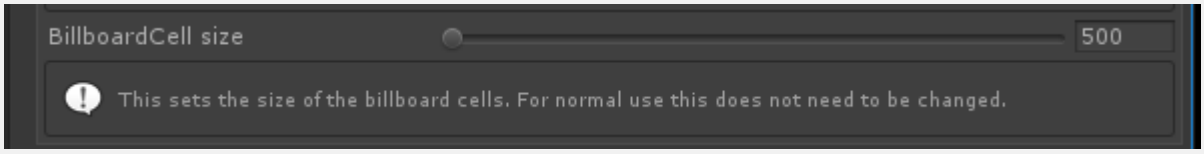
Vegetation cell size defines the size in meters for the internal cell structure. A smaller cell size will give faster run-time spawning as you move around the scene since a smaller area is loaded every time a new cell is visible.

Baking vegetation will allow you to use bigger cells since it is much faster to load pre-spawned

vegetation.

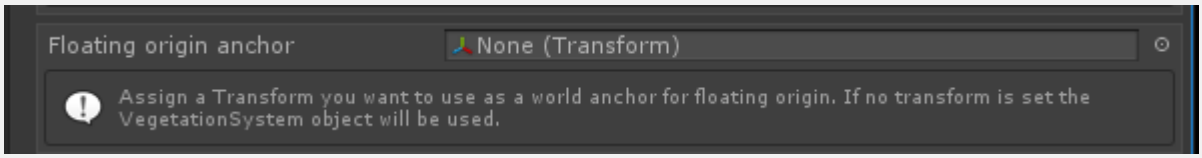
Larger cells give a faster init time since there are fewer cells, and also a bit less CPU time used in the render loop. Fewer cells to process to create the current render lists before frustum culling.

BILLBOARDCELL SIZE



Billboard cell size, like the vegetation cell size, defines the area that is batched together for billboards. Larger areas give fewer drawcalls at the cost of updating a bigger area when you add/remove trees run-time with masks or the API.

FLOATING ORIGIN ANCHOR



When using floating origin Vegetation Studio needs to know what object defines the root of the world. This should be the object you move to get rendering closer to the origo. If no object is assigned the GameObject/Transform of the VegetationSystemPro object is used.

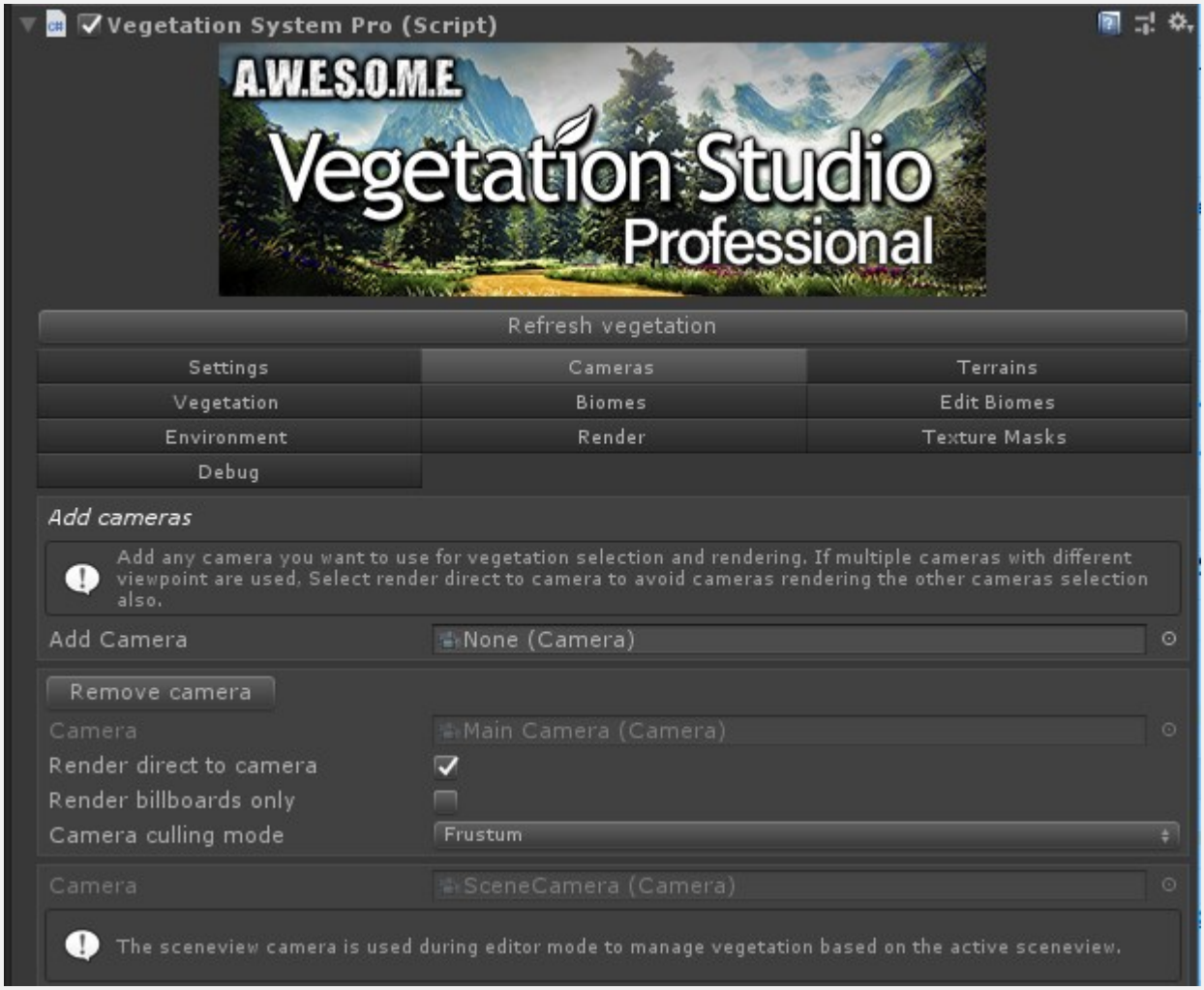
Vegetation Studio calculates an offset using this transform and applies it in the renderloop at no extra render cost.

CAMERAS TAB (VEGETATION SYSTEM PRO)

This page is part of the documentation for the **VegetationSystemPro** Component.

Vegetation Studio needs to be assigned one or more cameras in order to select and render vegetation.

You can add multiple cameras and enable/disable these as you want. They will share the internal cache and not use any resources when disabled. You can disable a camera by disabling the GameObject or the camera component itself.

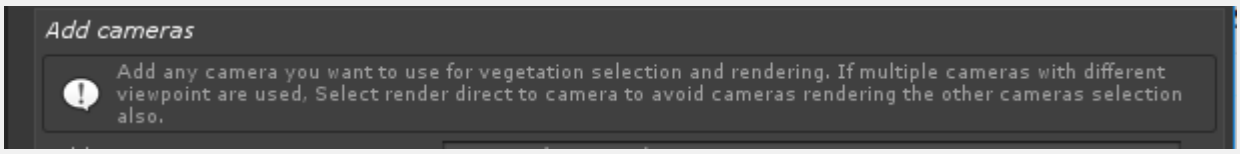


Add cameras
Remove camera

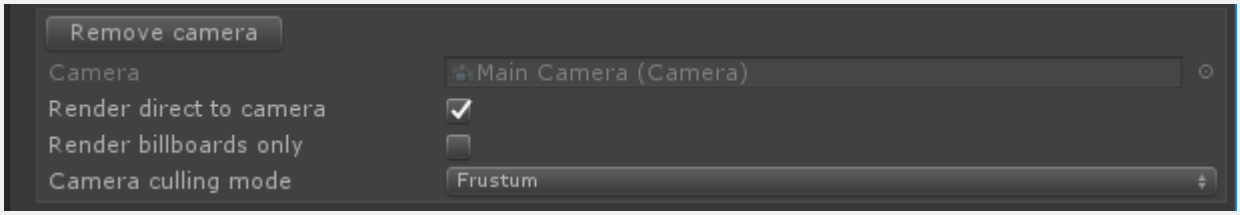
Camera

ADD CAMERAS

Drag and drop a camera here to add a new camera to Vegetation Studio. When you add Vegetation Studio to the scene from the menu it will try to automatically add the MainCamera.



EDIT/REMOVE CAMERA



REMOVE CAMERA

This will remove the selected camera.

RENDER DIRECT TO CAMERA

With multiple cameras added, render direct to camera should be enabled. This will make sure the camera does not see the other cameras selection and potentially render vegetation twice.

RENDER BILLBOARDS ONLY

With render billboards enabled all mesh grass, plants and objects will be excluded and only the billboards of trees will render. Billboards will also render close to the camera. This can be used for reflection cameras for water etc that does not need the detail of mesh trees and plants.

CAMERA CULLING MODE

Camera culling mode will decide how the camera does culling of vegetation items.

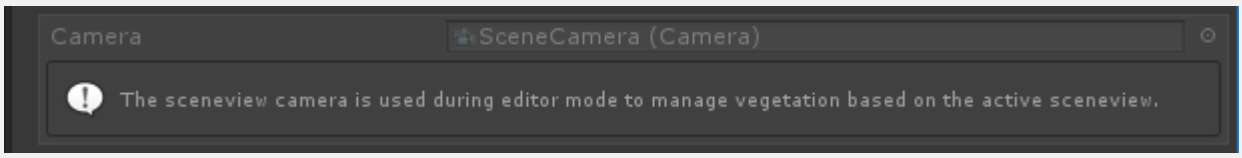
- Frustum
  When frustum is selected all vegetation is culled based on the camera frustum. For invisible trees and large objects behind the camera shadow visibility testing is done and the shadows is rendered.
- Complete360
  When complete 360 is selected there is no frustum culling. Vegetation Studio will load and render vegetation in all directions from the camera position. This can be usefull for 360 video exports.

SCENEVIEW CAMERA

When in editor mode a Sceneview camera is added automatically. This will always be the current active sceneview camera.

In editor mode all vegetation culling and selection is based on the current sceneview.

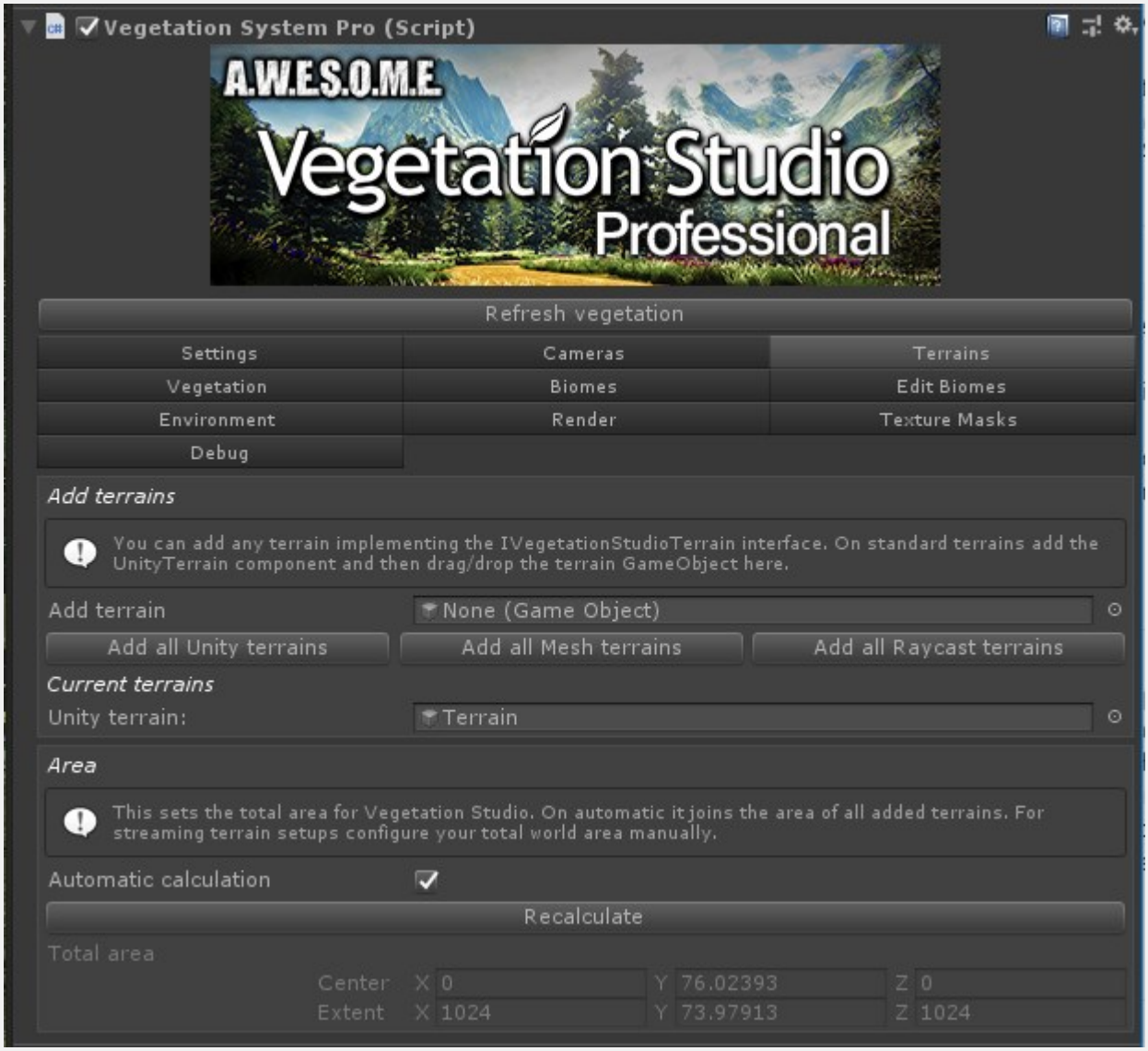
You can not remove this camera. It will not exist in playmode or standalone builds



TERRAINS TAB (VEGETATION SYSTEM PRO)

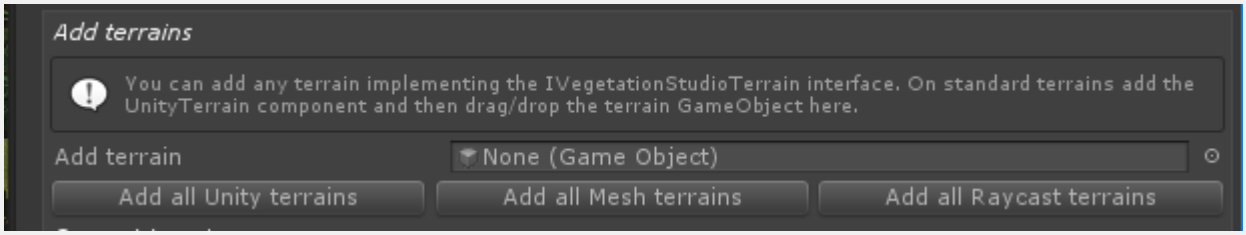
This page is part of the documentation for the **VegetationSystemPro** Component.

In order to generate, paint and render vegetation Vegetation Studio needs to know what terrains to use. On this tab you can configure areas and add/remove terrains.



Add terrains
Current terrains
Area

ADD TERRAINS



There are three kinds of terrains that can be added to the VegetationSystemPro Component. **UnityTerrains**, **MeshTerrains** and **RaycastTerrains**. See the documentation for each of these.

ADD ALL UNITY TERRAINS

This will find all standard Unity terrains in the scene, add the UnityTerrain Component to them and then add them to the VegetationSystemPro Component.

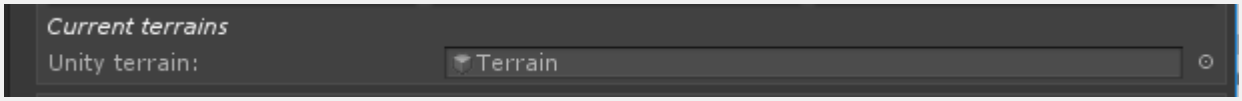
ADD ALL MESH TERRAINS

This will find all pre made MeshTerrain Components in the scene and add them to the VegetationSystemPro Component.

ADD ALL RAYCAST TERRAINS

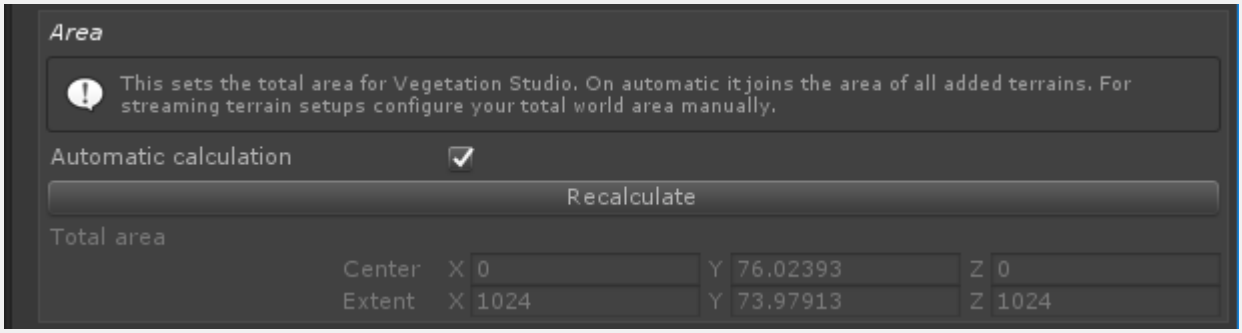
This will find all pre made RaycastTerrain Components in the scene and add them to the VegetationSystemPro Component.

CURRENT TERRAINS



This is a list of the current terrains added to the VegetationSystemPro Component. Select and press backspace to remove as terrain.

AREA



TOTAL AREA

The total area defines the “world” for the VegetationSystemPro component. Within this area there can be multiple terrains that can have vegetation. The internal cell structure is aligned with this area.

AUTOMATIC CALCULATION

By default automatic calculation is enabled. When you add a terrain the area will recalculate and cover the total area of all added terrains.

RECALCULATE

Press recalculate if you move or resize one of the added terrains in the scene.

RUN-TIME LOADED TERRAINS

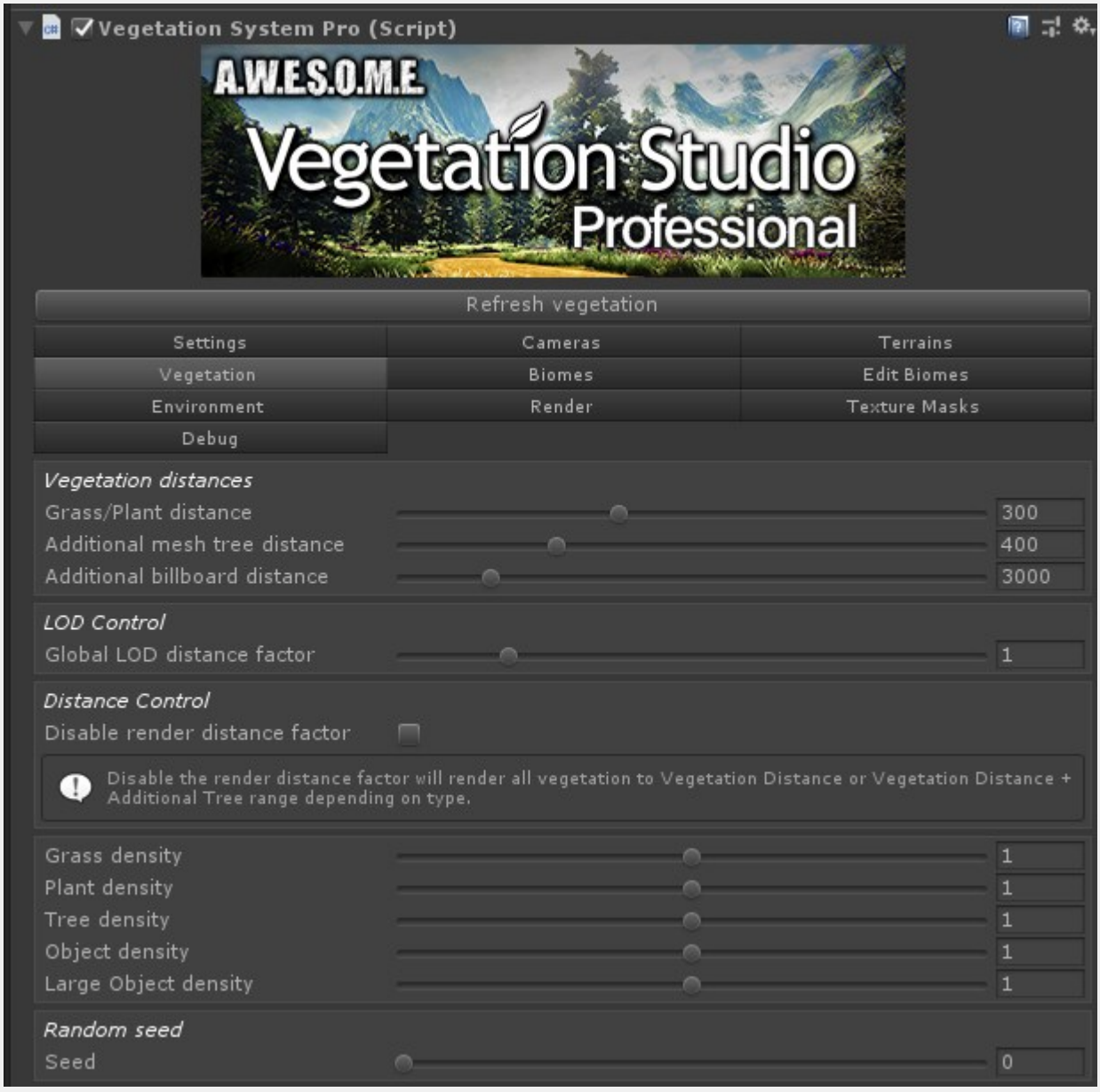
If you want to set up Vegetation Studio Pro with multiple terrains that will load run-time you need to disable automatic calculation. You then define an area that covers all the terrains that define your world.

When you start up the cell structure for the entire area is set up. As you create or load terrains run-time the terrain component will auto register itself with the VegetationSystemPro component and refresh the changed area. This way you can have a world of multiple terrains where only parts are loaded at a time.

VEGETATION TAB (VEGETATION SYSTEM PRO)

This page is part of the documentation for the **VegetationSystemPro** Component.

This tab contains settings related to vegetation distances, seed and density.



Vegetation distances
LOD control

Distance control
Random seed

VEGETATION DISTANCES

These distances control how far you can see vegetation from the added cameras.

GRASS/PLANT DISTANCE

This is the basic visible distance in meters for all Grass, Plants and Objects. This distance can be reduced per object with the render distance factor. Down to 0 meters where the object is culled.

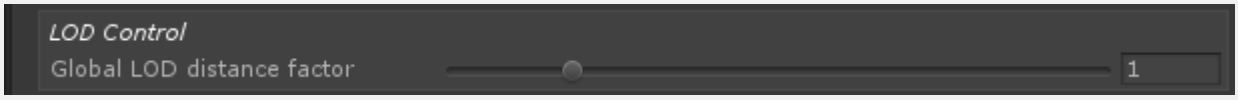
ADDITIONAL MESH TREE DISTANCE

On top of the grass/plant distance you can add additional distance where mesh trees and large objects are rendered.

ADDITIONAL BILLBOARD DISTANCE

This is the total visible distance of tree billboards on top of the grass/plant distance and additional tree distance.

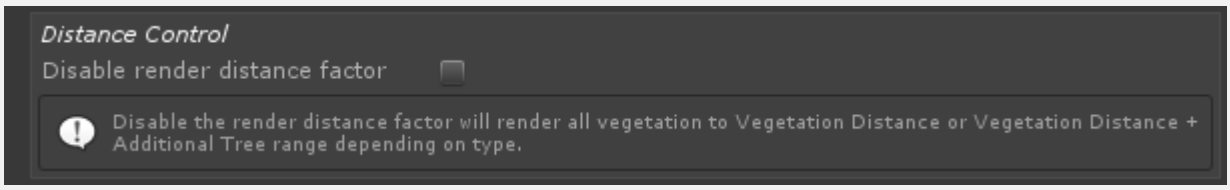
LOD CONTROL



GLOBAL LOD DISTANCE FACTOR

This allows you to control the distance for when LODs change between level. A higher factor gives a more detailed meshes in the distance. This factor is used for all items.

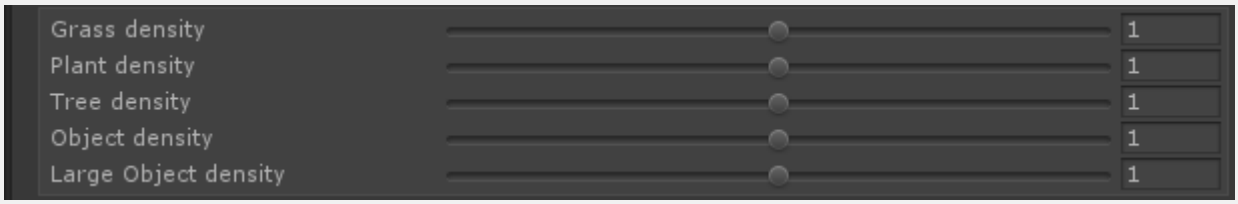
DISTANCE CONTROL



DISABLE RENDER DISTANCE FACTOR

When enabled the render distance factor that is set on each vegetation item is ignored. This will render all vegetation to the grass/plant or tree distance. This can be useful for testing on high end computers, making screenshots or videos where you want more detail in the distance

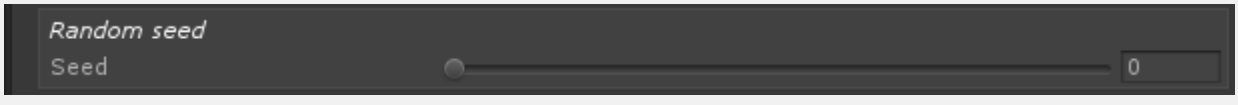
VEGETATION DENSITY



This global settings allows you to control the density/sample distance of all vegetation items in a category.
It is designed to allow developers to expose settings for the end user. Low end computer can set a lower density on grass and plants and get a speedup from this. This setting does not affect baked vegetation in the persistent storage.

- Grass density
- Plant density
- Tree density
- Object density
- Large object density

RANDOM SEED



SEED

This seed is used as a base for all generation of vegetation. Changing this will “randomize” the vegetation in the scene.

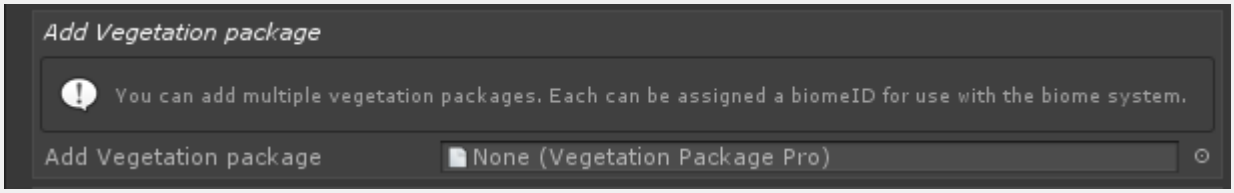
BIOMES TAB (VEGETATION SYSTEM PRO)

This page is part of the documentation for the **VegetationSystemPro** Component.

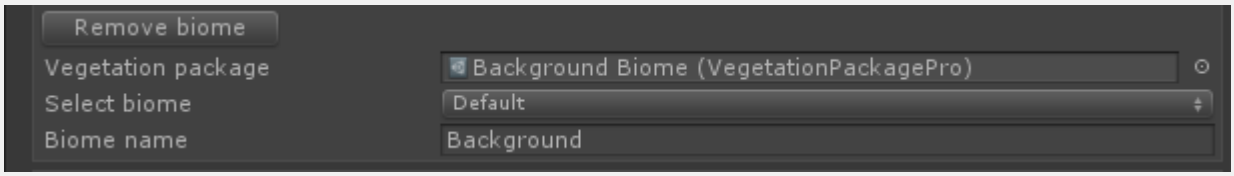
Add vegetation package
Remove biome

ADD VEGETATION PACKAGE

Drag and drop a VegetationPackagePro/biome here to add it to the Vegetaion System. A Vegetation system can have multiple biomes active. Only the “Default” biome will show unless there are BiomeMaskAreas in the scene.



INCLUDED BIOMES



REMOVE BIOME

Click Remove Biome to remove a biome from the VegetationSystemPro Component.

VEGETATION PACKAGE

This is the selected vegetation package. you can drag/drop a new package here to swap out the current.

SELECT BIOME

This sets the biome type of the vegetation package. If set as default it will show everywhere on the terrain where there are no BiomeMaskAreas. BiomeMaskAreas must match the selected BiomeType of the vegetation package

BIOME NAME

A name of your choice for this vegetation package.

EDIT BIOMES TAB (VEGETATION SYSTEM PRO)

This page is part of the documentation for the **VegetationSystemPro** Component.

The edit biomes tab of VegetationSystemPro allows you to add/delete and edit spawning rules for VegetationItems in a VegetationPackage/Biome.

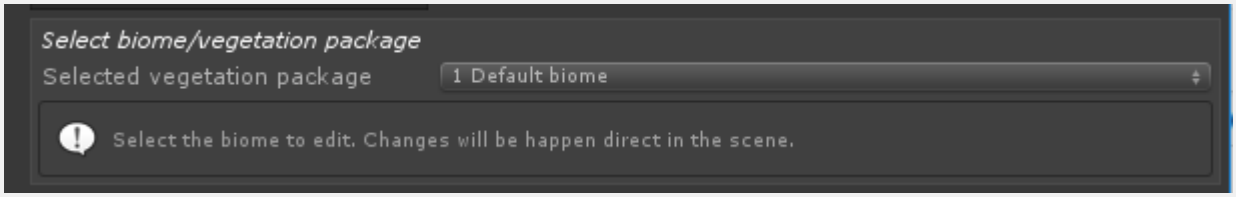
Here you will add your trees, rocks, grass etc and adding rules to control where they spawn.


Vegetation System Pro (Script)
A.W.E.S.O.M.E.
Vegetation Studio
Professional
Refresh vegetation
Settings
Cameras
Terrains
Vegetation
Biomes
Edit Biomes
Environment
Render
Texture Masks
Debug
Select biome/vegetation package
Selected vegetation package
1 Default biome
Select the biome to edit. Changes will be happen direct in the scene.
General settings
Package name
Default biome
Add Vegetation Items
Drop a Prefab with the vegetation item here to create new vegetation item. Drop on selected category to get initial rules and settings correct.
GRASS
PLANT
TREE
OBJECT
LRG OBJ
DROP
Drop a Texture2D to create a new grass or plant vegetation item. Drop on selected category to get initial rules and settings correct.
GRASS
PLANT
DROP
Select Vegetation Item
All
Trees
Large Objects
Objetcs
Plants
Grass
Delete selected item
Copy selected item
General settings
Position
Distance falloff
Colliders
Noise rules
Biome area rules
Concave location rules
Terrain texture rules
Texture mask rules
Vegetation mask rules
Terrain source rules

Select biome/vegetation package
General settings
Add Vegetation Items
Select Vegetation Item
General settings
Position
Distance falloff
Colliders
Noise rules
Biome area rules
Concave location rules
Terrain texture rules
Texture mask rules
Vegetation mask rules
Terrain source rules

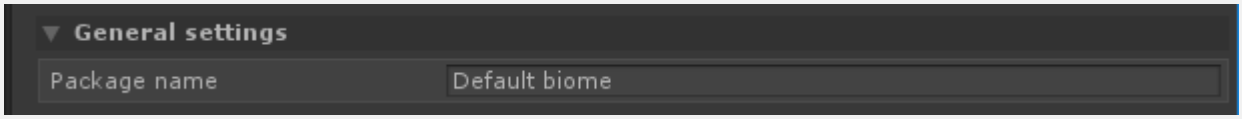
SELECT BIOME / VEGETATION PACKAGE

Select the vegetation package/biome you want to edit.



GENERAL SETTINGS

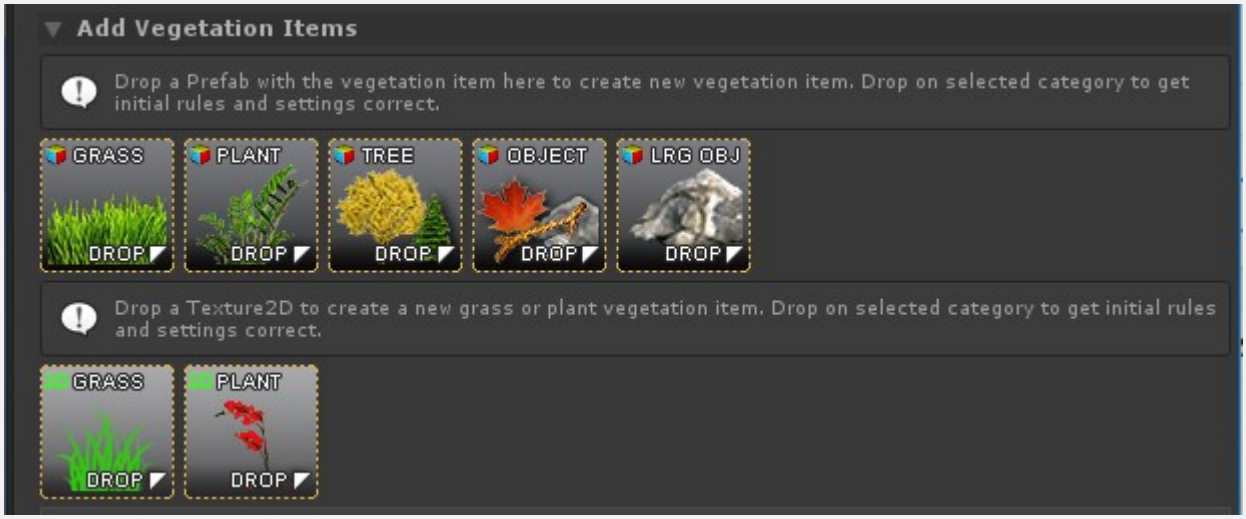
Set the name of the Vegetation package.



ADD VEGETATION ITEMS

In order to add new vegetation to the Vegetation Package, drag and drop the prefab of the plant, tree etc to the corresponding drop area. The difference between the areas is the default configuration for each item. Sample distance, Type, rotation etc.

In addition to prefabs you can drop Texture2D grass and flowers directly. They will be used as mesh grass/plants and you have a range of settings. If you want more detailed control you can make a custom grass mesh patch prefab using the **Grass Patch Generator.**



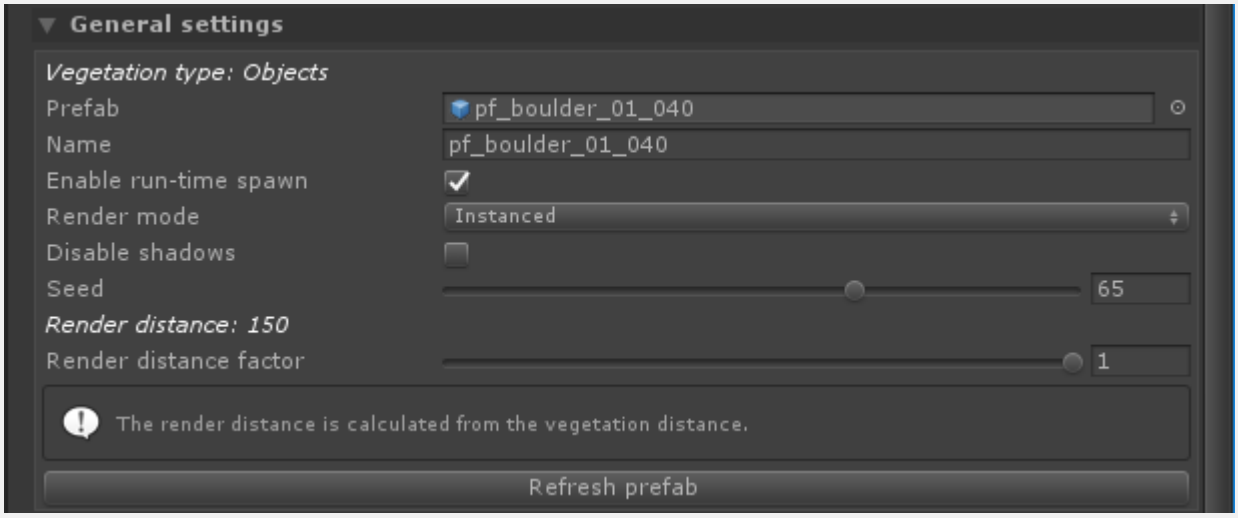
SELECT VEGETATION ITEM

To remove or edit a Vegetation Item in the package, select it from the grid.

Delete item will remove it from the vegetation package.

Copy selected item will allow you to paste it as a new item with all the same settings.

GENERAL SETTINGS



PREFAB/TEXTURE

This is the assigned prefab/texture for the vegetation item. You can drag/drop a new prefab here to switch prefabs.

ENABLE RUN-TIME SPAWN

Enable run-time spawn must be enabled for Vegetation Studio to procedurally spawn the vegetation. Disable this to remove the item. This is also disabled when baking to the persistent storage. Vegetation is then loaded directly from the storage

RENDER MODE

There are currently 3 different render mode for Vegetation Items.

- Normal
  Using Graphics.DrawMesh. This is the slowest rendering method and a fallback for computers without instancing support.
- Instanced
  Most Vegetation Items will use Instanced rendering. They will be rendered in batches of up to 1023 per draw call at a low CPU cost.
- Instanced Indirect
  At release only Vegetation Studio Grass is rendered InstancedIndirect. This is rendering done from a ComputeBuffer on the GPU. when set up the CPU use is very low and there is no 1023 batch limit like Instanced Rendering.

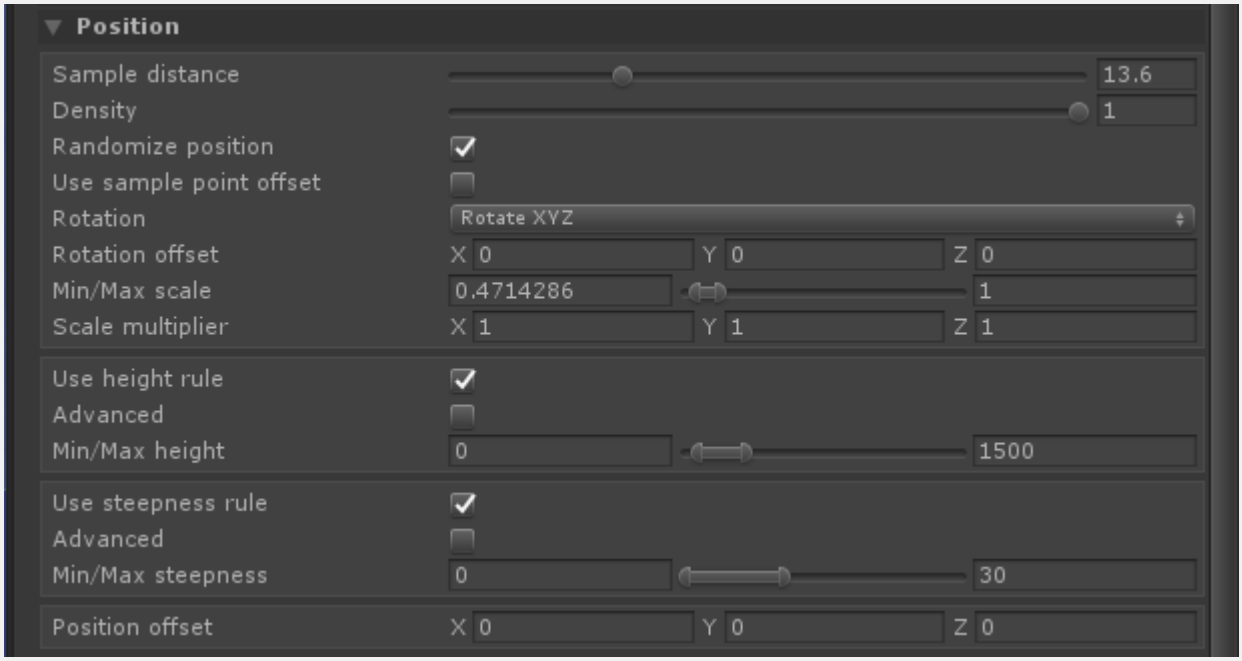
DISABLE SHADOWS

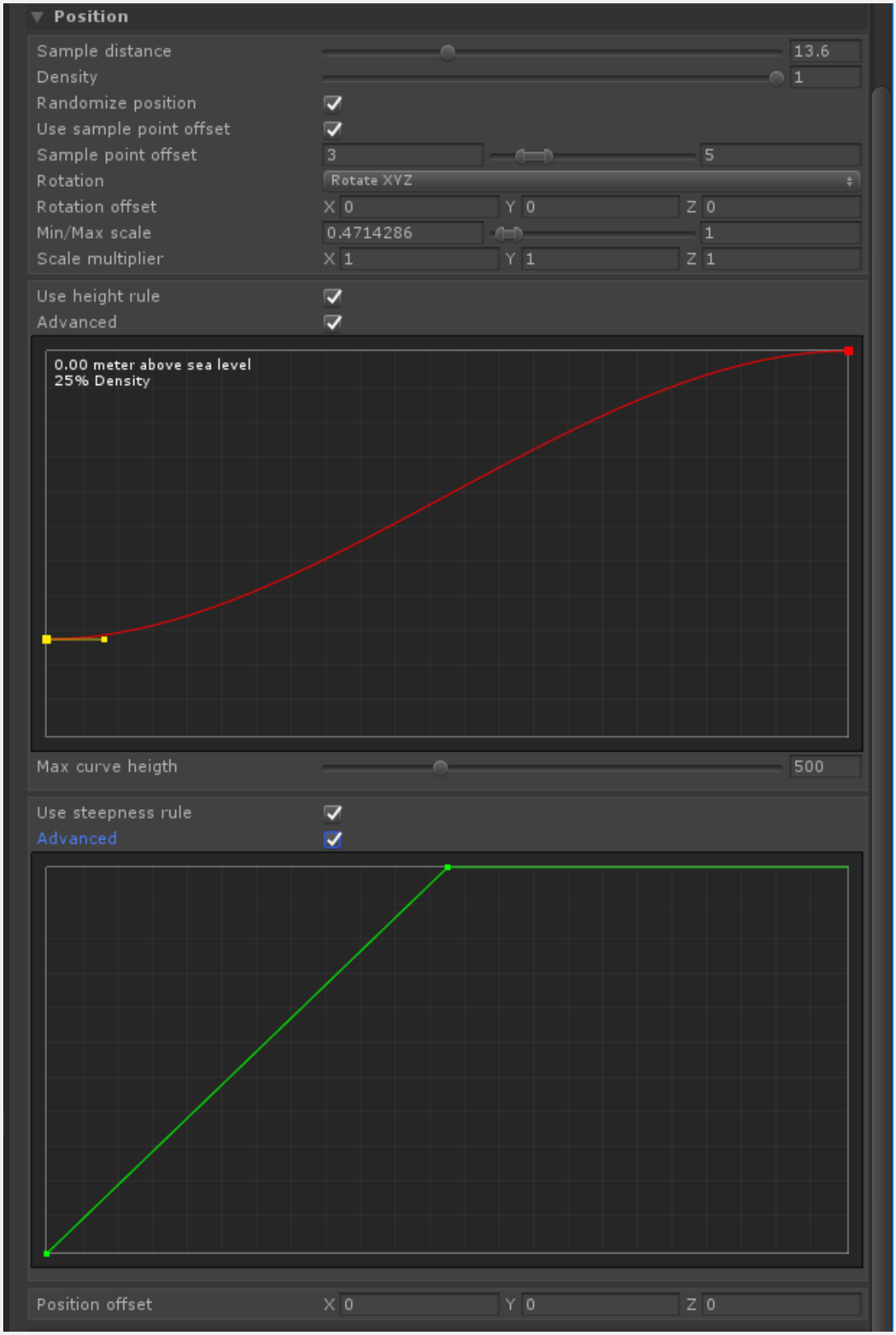
Check to disable shadows on this vegetation item. This will override shadow settings on the Render tab.

RENDER DISTANCE FACTOR

The render distance factor is by default set to 1. You can reduce this to only render this vegetation item a shorter distance from the camera than set as a default distance for the category.

POSITION


Position
Sample distance
13.6
Density
1
Randomize position
Use sample point offset
Rotation
Rotate XYZ
Rotation offset
X 0
Y 0
Z 0
Min/Max scale
0.4714286
1
Scale multiplier
X 1
Y 1
Z 1
Use height rule
Advanced
Min/Max height
0
1500
Use steepness rule
Advanced
Min/Max steepness
0
30
Position offset
X 0
Y 0
Z 0


Position
Sample distance
13.6
Density
1
Randomize position
Use sample point offset
Sample point offset
3
5
Rotation
Rotate XYZ
Rotation offset
X 0
Y 0
Z 0
Min/Max scale
0.4714286
1
Scale multiplier
X 1
Y 1
Z 1
Use height rule
Advanced
0.00 meter above sea level
25% Density
Max curve heigth
500
Use steepness rule
Advanced
Position offset
X 0
Y 0
Z 0

SAMPLE DISTANCE

When trying to find possible positions for Vegetation Items the terrain will be sampled. Each Vegetation Item will sample at “Sample Distance” intervals in both x and z direction.

RANDOMIZE DISTRIBUTION

When enabled the sampled position will be randomized within 50% of sample distance.

MIN/MAX SCALE

The vegetation Item will be spawned with a random size based on the min/mac value of the scale.

POSITION OFFSET

This Vector3 offset will be applied to the final sampled position. This is useful to move rocks down a bit more in the ground etc.

ROTATION

- Rotate around Y
- Rotate XYZ
- Follow terrain
- Follow terrain scale
- Geological Buckling. (coming soon)
  When tilting of specific spawned objects in the XZ planes (compass) are needed, for instance with geological buckling, or tilting from the plane of deposition for sedimentary rocks, Vegetation Studio has XZ sliders that will tilt the models to be spawned in world space.This is independent of Y axis rotation, so that models spawned with this method can be of any Y axis rotation, but will always have the same world space XZ rotation. Ensuring a more realistic geological outcome for spawned rocks and strata.The same technique can be employed for spawning a cheval de frise (sharpened angled stake defensive barrier), or wind-swept trees on a high cliff; indeed any repeating object that requires tilting from the horizontal at a given compass direction

HEIGHT

Height setting is used to decide if a Vegetation Item can spawn in a location or not. It is relative to Sea level in Settings.

USE HEIGHT LEVEL

Enable to use height level as part of the rules.

SELECTION TYPE

- Simple
- Advanced
  Advanced mode is still under development. Planned finished during the Beta.

MIN/MAX HEIGHT

the min and max height allowed for the Vegetation Item.

STEEPNESS

Steepness setting is used to decide if a Vegetation Item can spawn in a location or not. Value is location steepness (0-90 degrees)

USE STEEPNESS

Enable to use steepness as part of the rules.

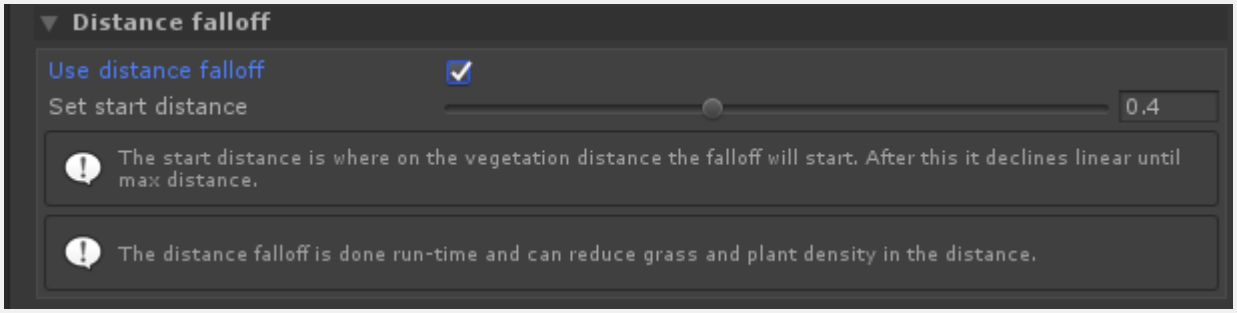
SELECTION TYPE

- Simple
- Advanced
- Advanced mode is still under development. Planned finished during the Beta.

MIN/MAX STEEPNESS

the min and max steepness allowed for the Vegetation Item.

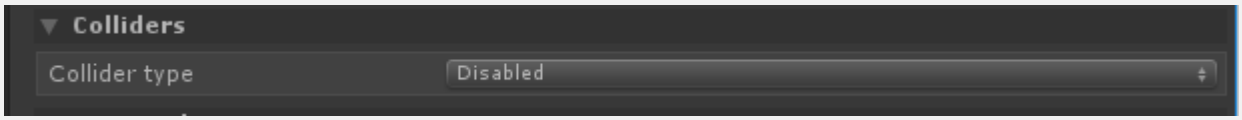
DISTANCE FALLOFF



The distance falloff rule is designed for grass. It will based on the current viewpoint reduce the grass density in the distance. This is a good speed increase for 1st person games at low visible difference.

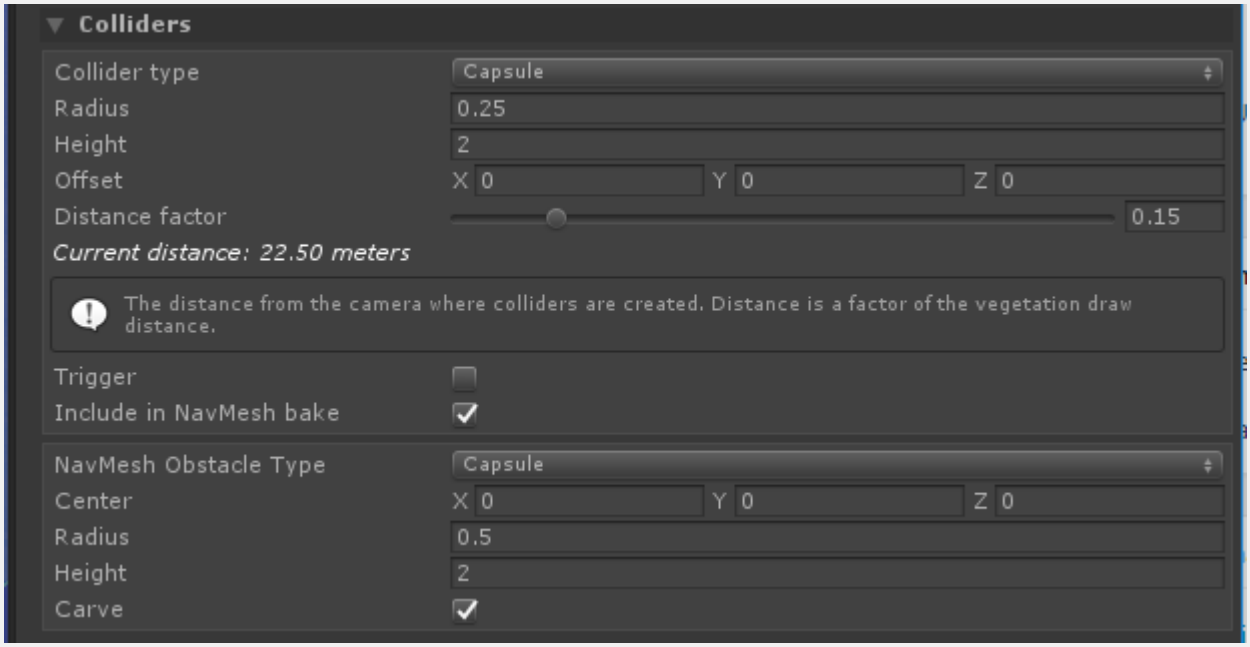
COLLIDERS

Change collider type from disabled to add a collider to the Vegetation Item. This is possible on trees, objects and Large Objects.
See **ColliderSystem** page for more detailed information.



There is several types of colliders available

- Capsule
  This lets you configure a single Capsule collider for a tree or a rock
- Box
  This lets you configure a single Box collider for a tree or a rock
- Sphere
  This lets you configure a single Sphere collider for a tree or a rock
- Mesh
  This lets you configure a single Mesh collider for a tree or a rock
- Custom Mesh
  This lets you configure a single Mesh with a mesh you assign
- From Prefab
  This option will use the original colliders set up on the Vegetation Item Prefab



NAVMESH OBSTACLE

When enabled you can add a NavMesh obstacle to the generated colliders. This can carve out holes in Unity Navmeshes while the collider is active.

NOISE RULES

Noise rules help you set the density and scale scale of the vegetation item using perlin noise.

You can also use cutoff rules to remove vegetation completely in some areas.

BIOME AREA RULES

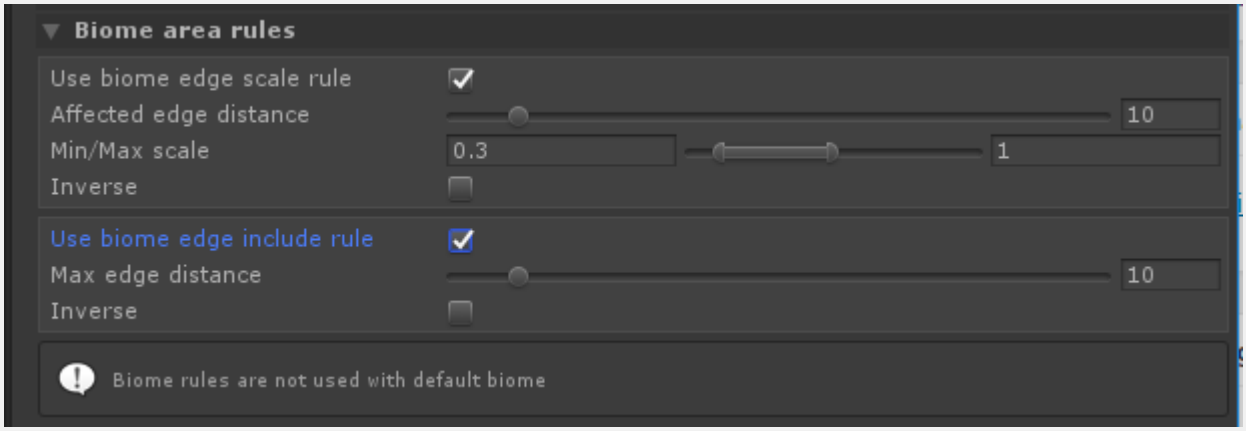
Biome area rules work for any biome not set as default.

EDGE SCALE RULE

The edge scale rule lets you scale the vegetation item based on the distance to the edge of the biome. This can give you smaller trees at biome edges etc.

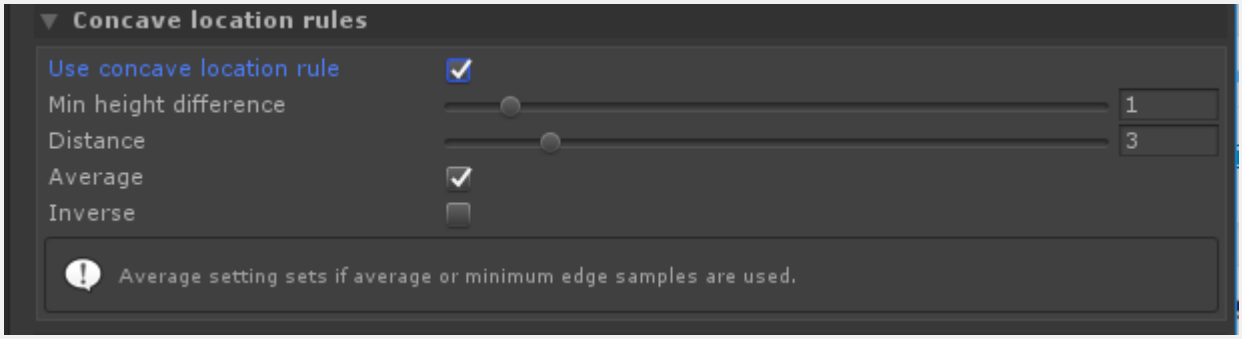
EDGE INCLUDE RULE

The edge include/exclude rule allows you to select vegetation item that only exist at the edge of the biome.



CONCAVE LOCATION RULES

The concave location rule will test the terrain for concave/convex locations and only spawn the vegetation Item there.



TERRAIN TEXTURE RULES

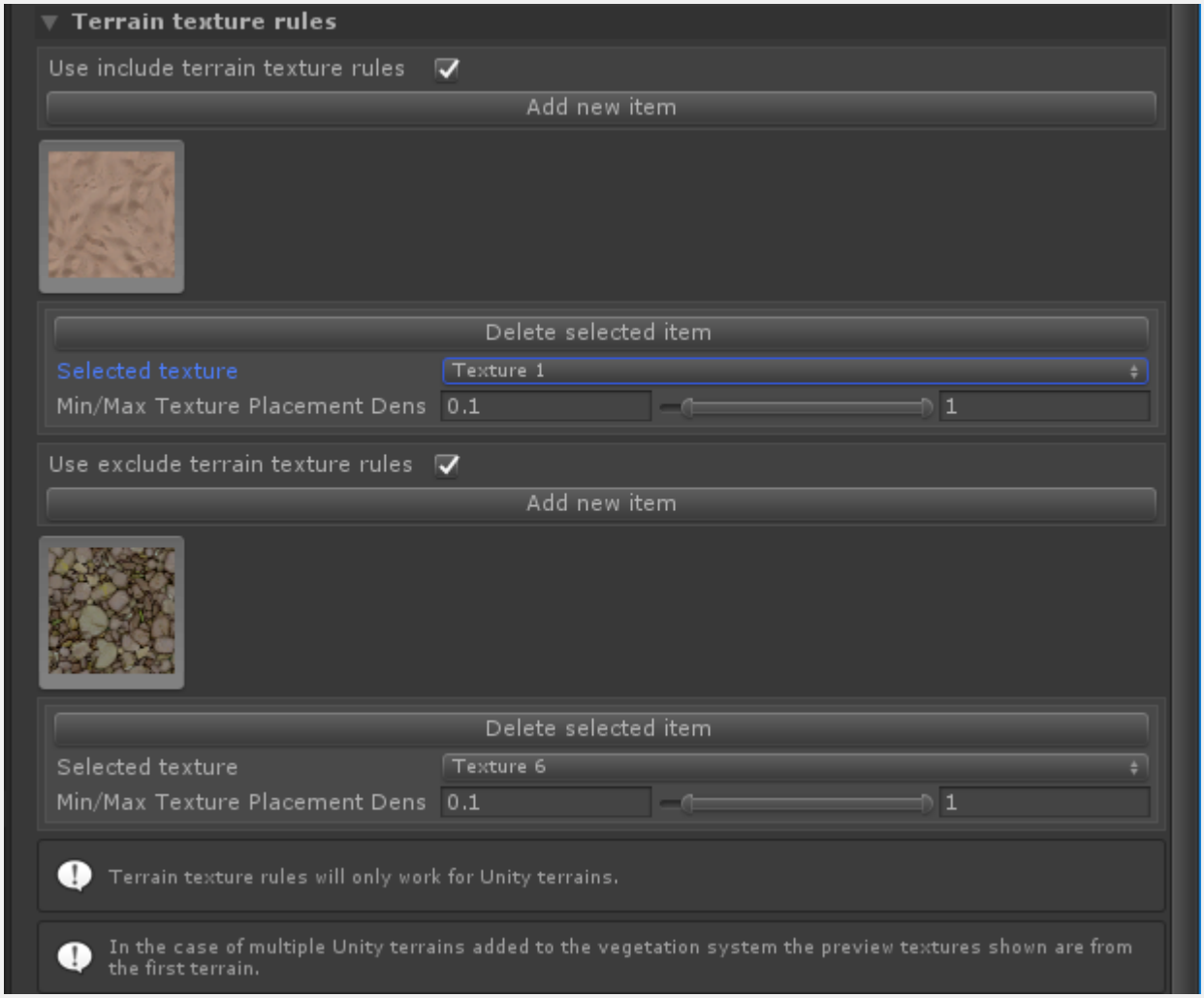
Terrain texture rules will use the terrain textures on the Unity Terrains. You select one or more textures that must be used at a location to include/exclude.

EXCLUDE TERRAIN TEXTURES

Enable toggle to show UI and use exclude rules. You can add multiple Terrain textures and rules.

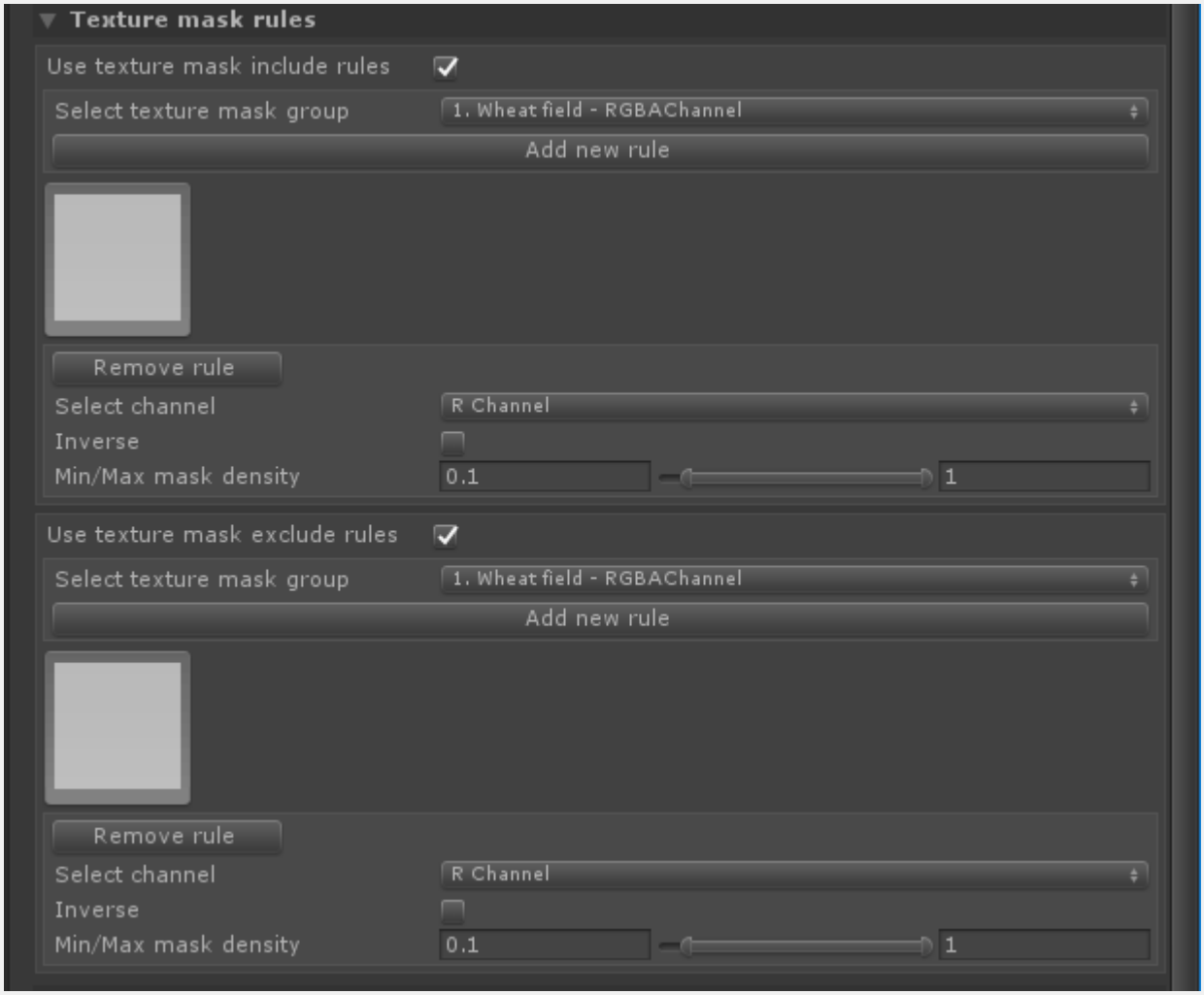
INCLUDE TERRAIN TEXTURES

Enable toggle to show UI and use include rules. You can add multiple Terrain textures and rules.



TEXTURE MASK RULES

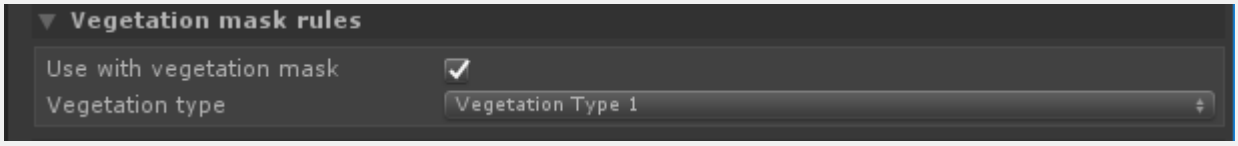
Configure texture mask rules. Masks must be added on the Texture Mask tab. Rules function the same way as terrain texture rules.



VEGETATION MASK RULES

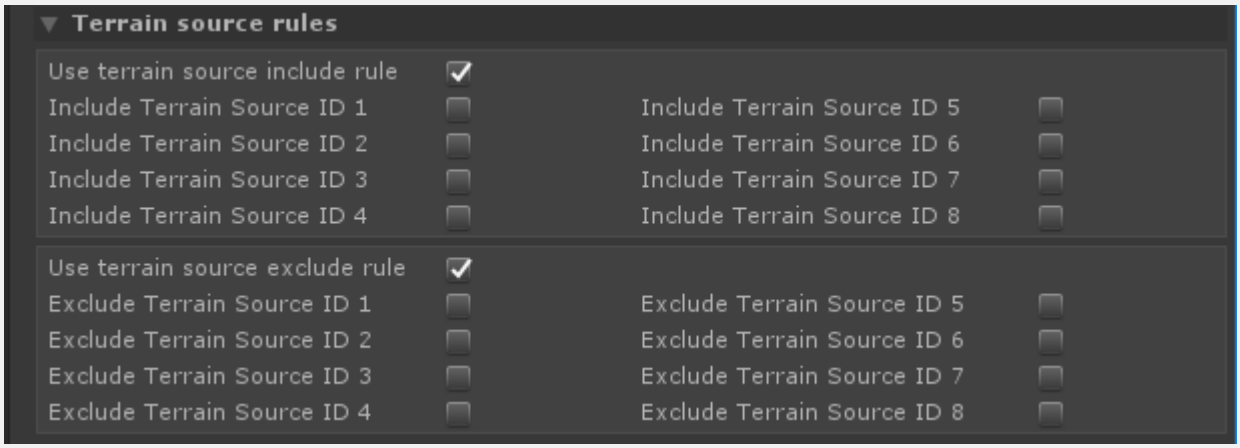
Enable toggle to show Vegetation ID dropdown selection and use vegetation mask rule.

When enabled the vegetation item will only spawn in vegetation Mask Areas or Lines where the localized vegetation include the same.



TERRAIN SOURCE RULES

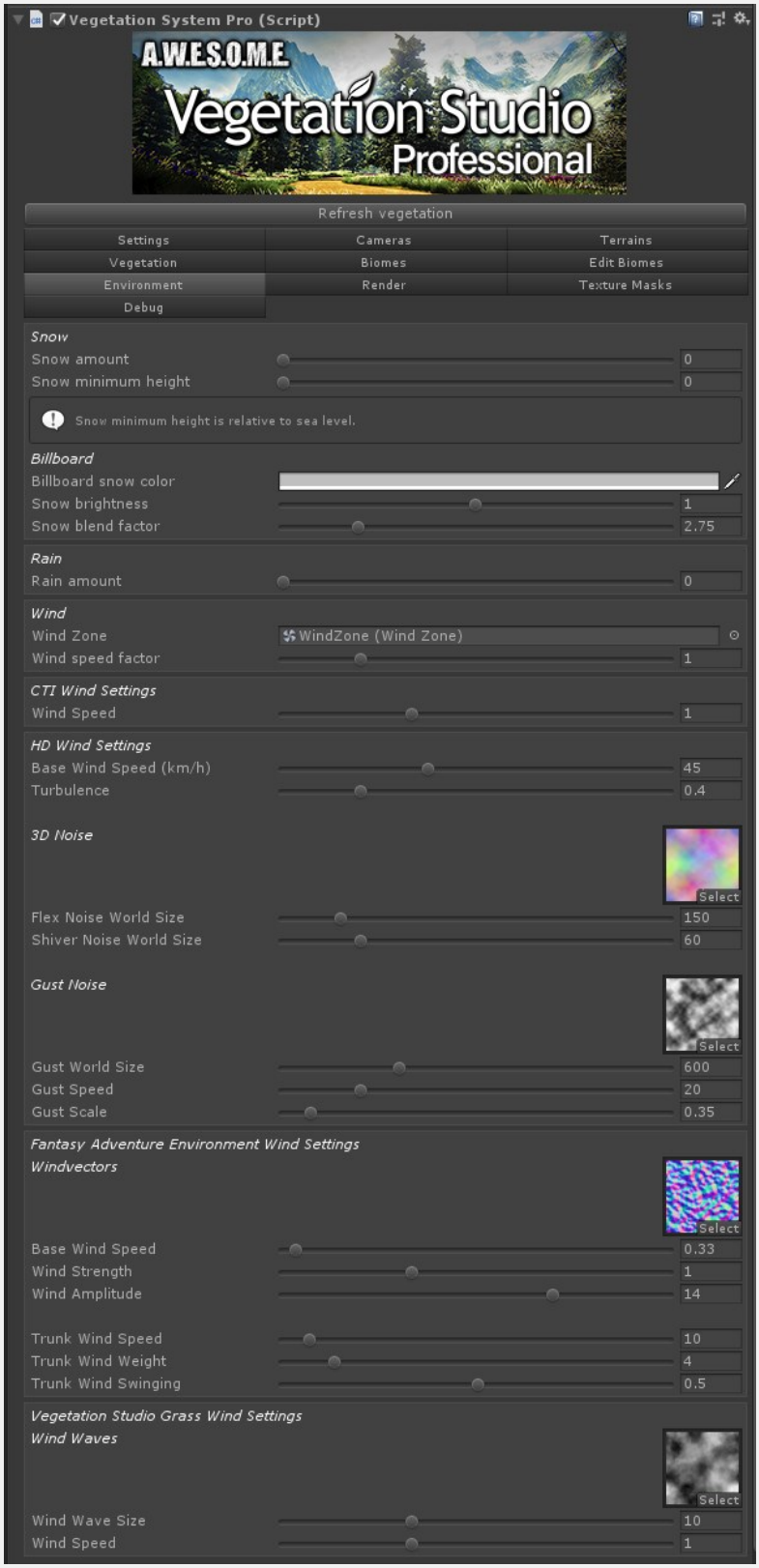
UnityTerrains, MeshTerrains and Raycast terrains can each have one or multiple TerrainSourcIDs. Check the include or Exclude here to decide what terrains the VegetationItem can spawn on.



ENVIRONMENT TAB (VEGETATION SYSTEM PRO)

This page is part of the documentation for the **VegetationSystemPro** Component.

The environment tab allows you to adjust settings that relate to the environment, wind, snow, rain etc.

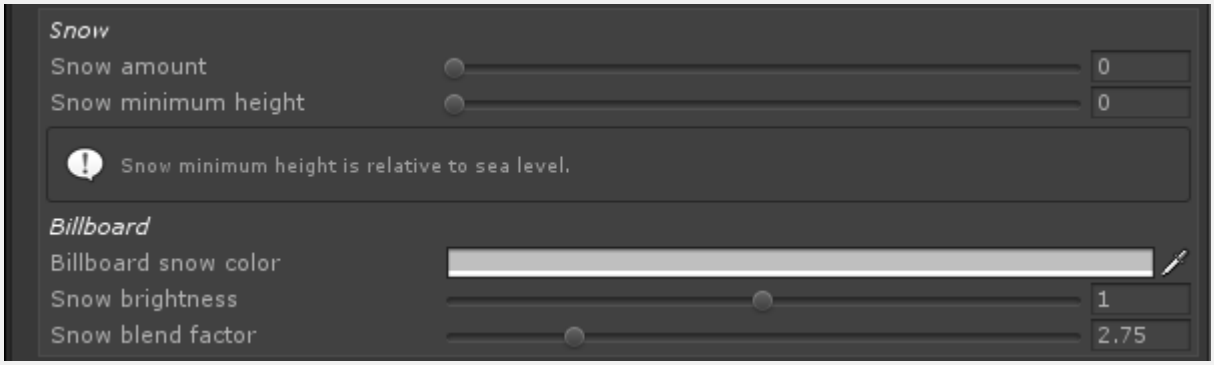

Vegetation System Pro (Script)
A.W.E.S.O.M.E.
Vegetation Studio
Professional
Refresh vegetation
Settings
Cameras
Terrains
Vegetation
Biomes
Edit Biomes
Environment
Render
Texture Masks
Debug
Snow
Snow amount
Snow minimum height
Snow minimum height is relative to sea level.
Billboard
Billboard snow color
Snow brightness
Snow blend factor
Rain
Rain amount
Wind
Wind Zone
WindZone (Wind Zone)
Wind speed factor
CTI Wind Settings
Wind Speed
HD Wind Settings
Base Wind Speed (km/h)
Turbulence
3D Noise
Select
Flex Noise World Size
Shiver Noise World Size
Gust Noise
Select
Gust World Size
Gust Speed
Gust Scale
Fantasy Adventure Environment Wind Settings
Windvectors
Select
Base Wind Speed
Wind Strength
Wind Amplitude
Trunk Wind Speed
Trunk Wind Weight
Trunk Wind Swinging
Vegetation Studio Grass Wind Settings
Wind Waves
Select
Wind Wave Size
Wind Speed

Snow
Rain
Wind
CTI Wind
Fantasy Adventure Environment Wind
Vegetation Stuido Grass Wind

SNOW

Snow settings are a way to have global setting for snow. Shaders that have support for dynamic snow can now create a ShaderController class for the shaders. These classes will get a call when a environment setting changes allowing the class to modify the material of the vegetation.

This way the developers can manage their own settings for the custom shader and the user has only one place to adjust.



Billboard snow is a dynamic snow feature on the vegetation studio billboards. This can be enabled for shaders that supports it in the shader controller.

RAIN

As with snow this rain setting is passed to the shader controller and 3rd party shaders that support wetness can implement this and adjust the material.

WIND

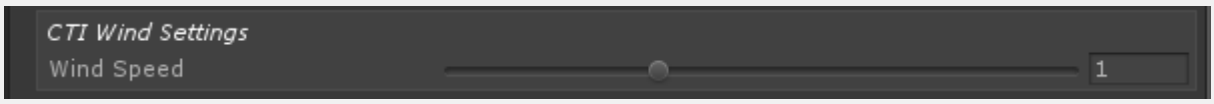
Vegetation Studio Pro has support for 3rd party wind controllers. This is a system where the developer can implement an interface and the wind controller class is found by reflection. This way the shader controller will get access to a wind zone and the global wind speed factor.

INCLUDED WIND CONTROLLERS

There are a few included wind controlers for 3rd party shaders.

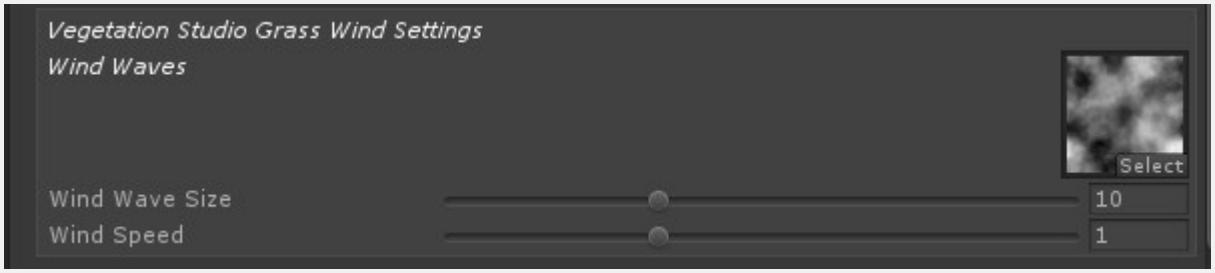
They all have different setting based on the capabilities of the shader.

CTI-WIND



FANTASY ADVENTURE ENVIRONMENT WIND

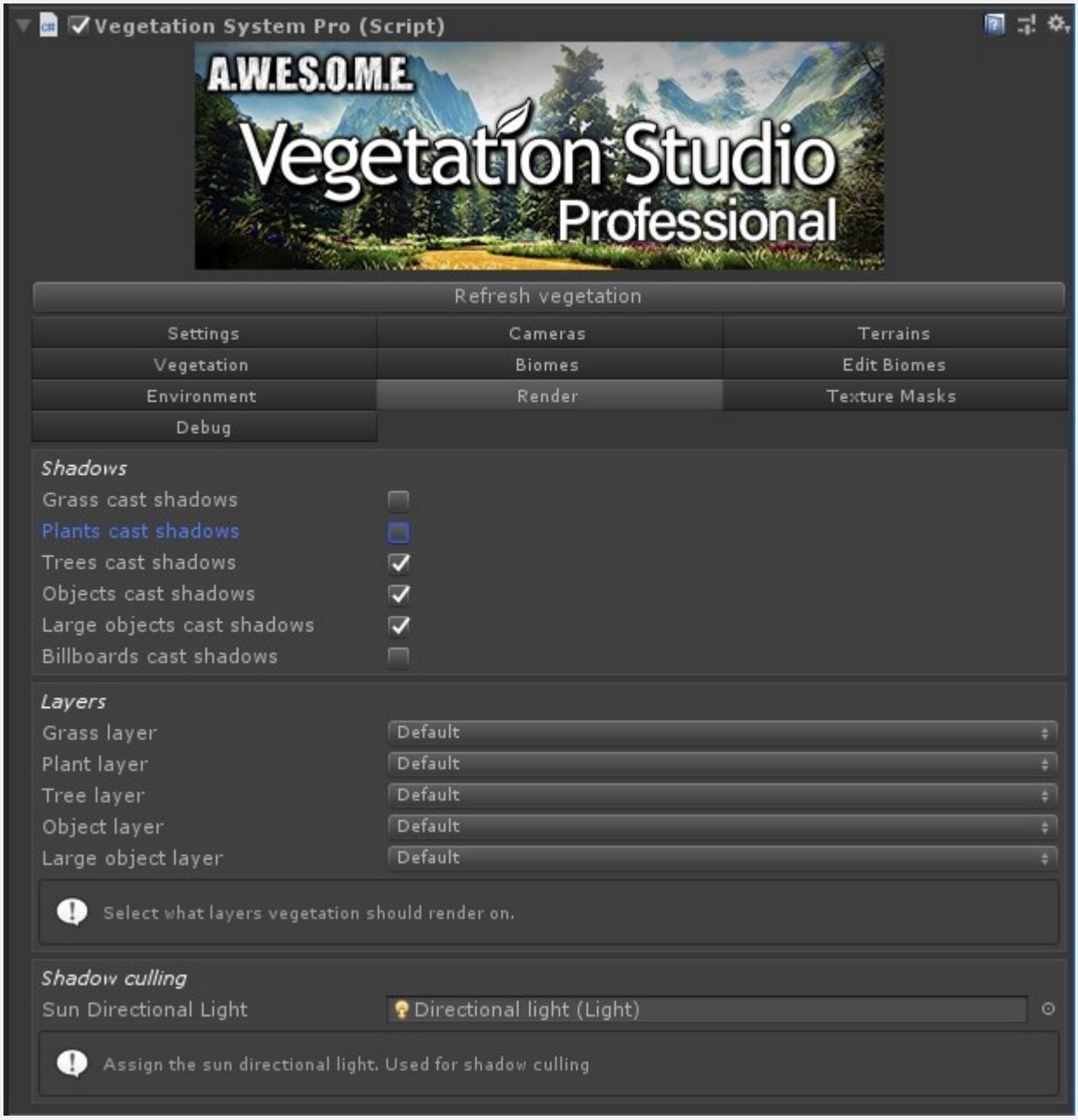
VEGETATION STUDIO GRASS WIND



RENDER TAB (VS PRO)

This page is part of the documentation for the **VegetationSystemPro** Component.

This tab contains setting related to the rendering of the vegetation.



Shadows

Layers
Shadow culling

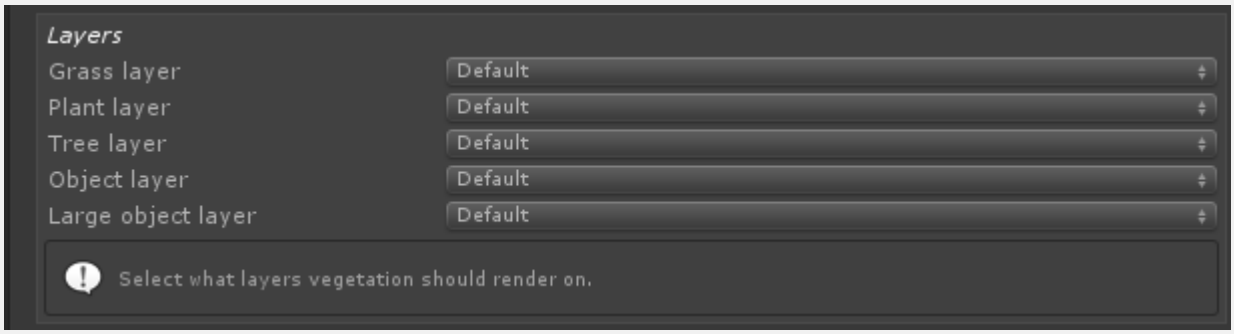
SHADOWS

Each vegetation category has its own setting for shadows. You can disable/enable shadows for each category here.

In addition to this shadows can be disabled on a per item basis on the Edit Biome tab.

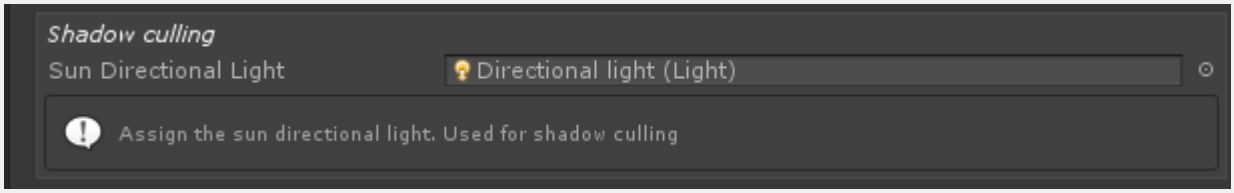
LAYERS

The layer settings defines what layers each vegetation category will be rendered on.



SHADOW CULLING

In order to calculate if shadows from trees behind the camera can be seen Vegetation Studio needs to know what light is used as sunlight. It will try to find this automatic but add a light here if selected wrong or it is missing.


Shadow culling
Sun Directional Light
Directional light (Light)
Assign the sun directional light. Used for shadow culling

TEXTURE MASKS TAB (VEGETATION SYSTEM PRO)

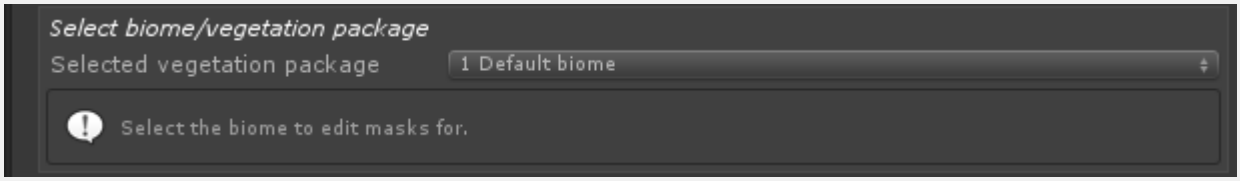
This page is part of the documentation for the **VegetationSystemPro** Component.

In Vegetation Studio Pro you can set up one or more textures as a texture mask group and use that in spawning rules to include or exclude vegetation.

Select biome/vegetation package
Add texture mask group
Select mask group

SELECT BIOME/VEGETATION PACKAGE

Texture mask groups are saved in a vegetation package. To get started select the package you want to edit texture masks for. When added the texture group is only available for rules on that vegetation package.



ADD TEXTURE MASK GROUP

To add a new texture mask group select the mask type and press the add mask button. The only mask type available now is RGBA Channel that can use RGBA32 or ARGB32 uncompressed textures. Other will be added later.

SELECT MASK GROUP

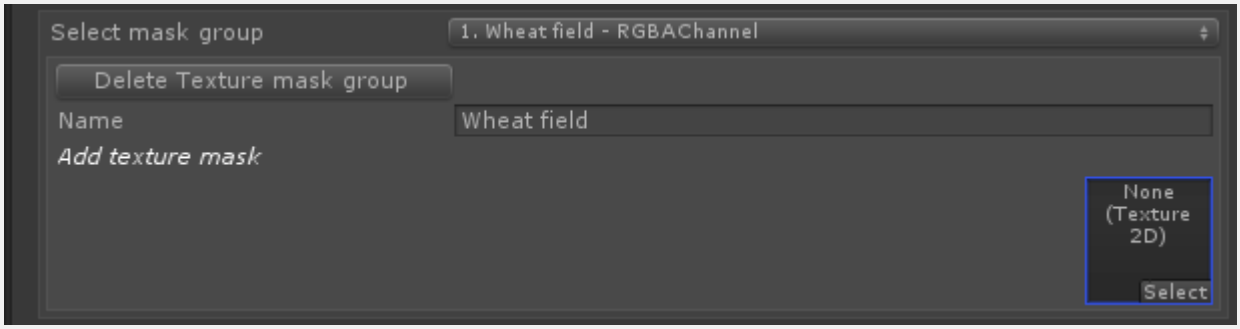
The select mask group selects what texture mask group you want to edit.

DELETE TEXTURE MASK GROUP

Press to delete the group. Any vegetation items using this mask as a spawning rule will have the rule removed.

NAME

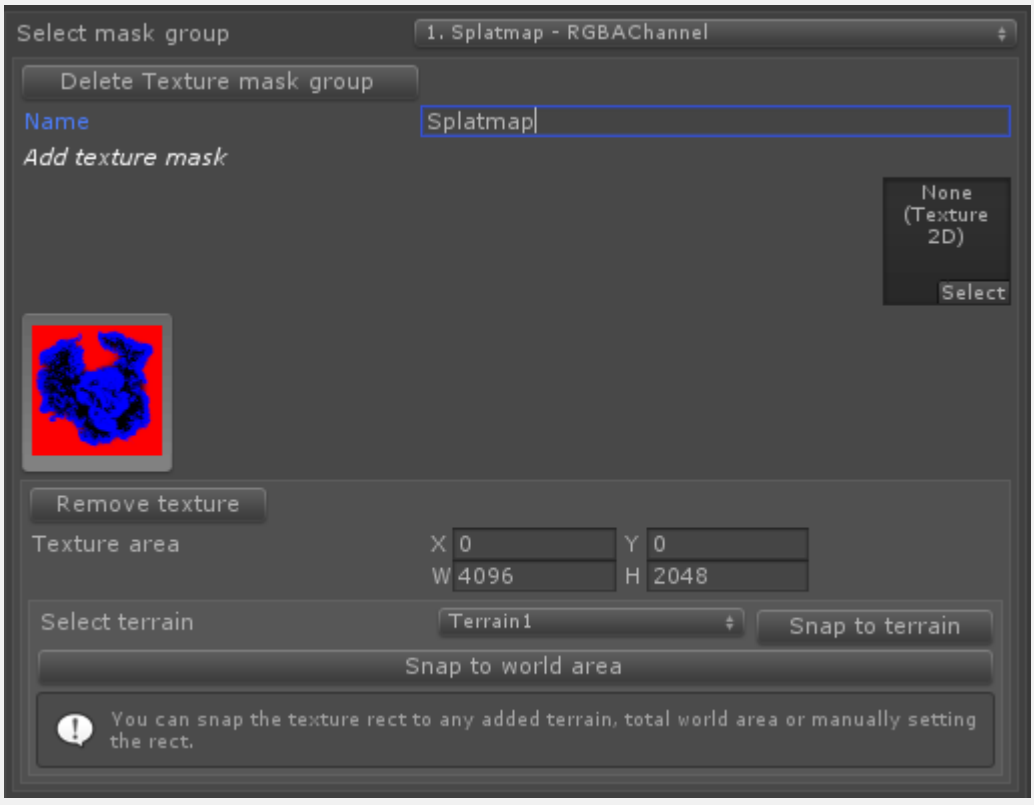
Set the name you want on the texture mask group. This name will show up when setting up rules.



ADD TEXTURE MASK

A texture mask group can have multiple textures. Add new by dragging and dropping here.

Select what texture you want to edit settings for by clicking the image of the texture.



REMOVE TEXTURE

Click remove texture button to remove a texture from the texture mask group.

TEXTURE AREA

Each texture has an area in worldspace to cover. This could be to fit the area of a single terrain, multiple terrains or even a high detail mask for a city area. The mask area is set by a rect where you set corner and width/height.

SELECT TERRAIN/SNAP TO TERRAIN

In order to do setup of the world area easier there is a snap function. Select any terrain in the list and press snap to terrain. This is useful for splatpmaps and other textures that align with a single terrain.

SNAP TO WORLD AREA

Click the snap to world area button to scale the texture to fit the entire defined world area in the VegetationSystemPro component.

DEBUG TAB (VEGETATION SYSTEM PRO)

This page is part of the documentation for the **VegetationSystemPro** Component.

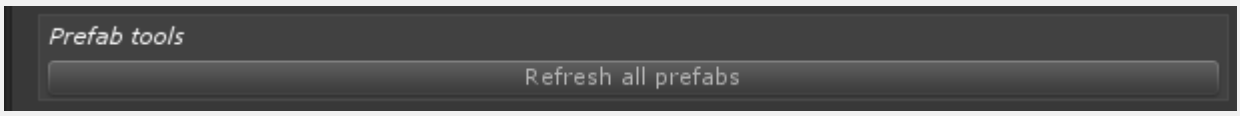
Debug settings
Prefab tools

DEBUG SETTINGS

These settings will, when enabled, draw vegetation cells and billboard cells in the sceneview.
This can be useful for debugging to see that the cells are created and follow the terrain heights.

PREFAB TOOLS

Refresh all prefabs will load the prefab of each vegetation item again. It will detect the shader used and add the shader controller and UI settings if available. This will reset any shader spesific settings exposed by the shader controller.



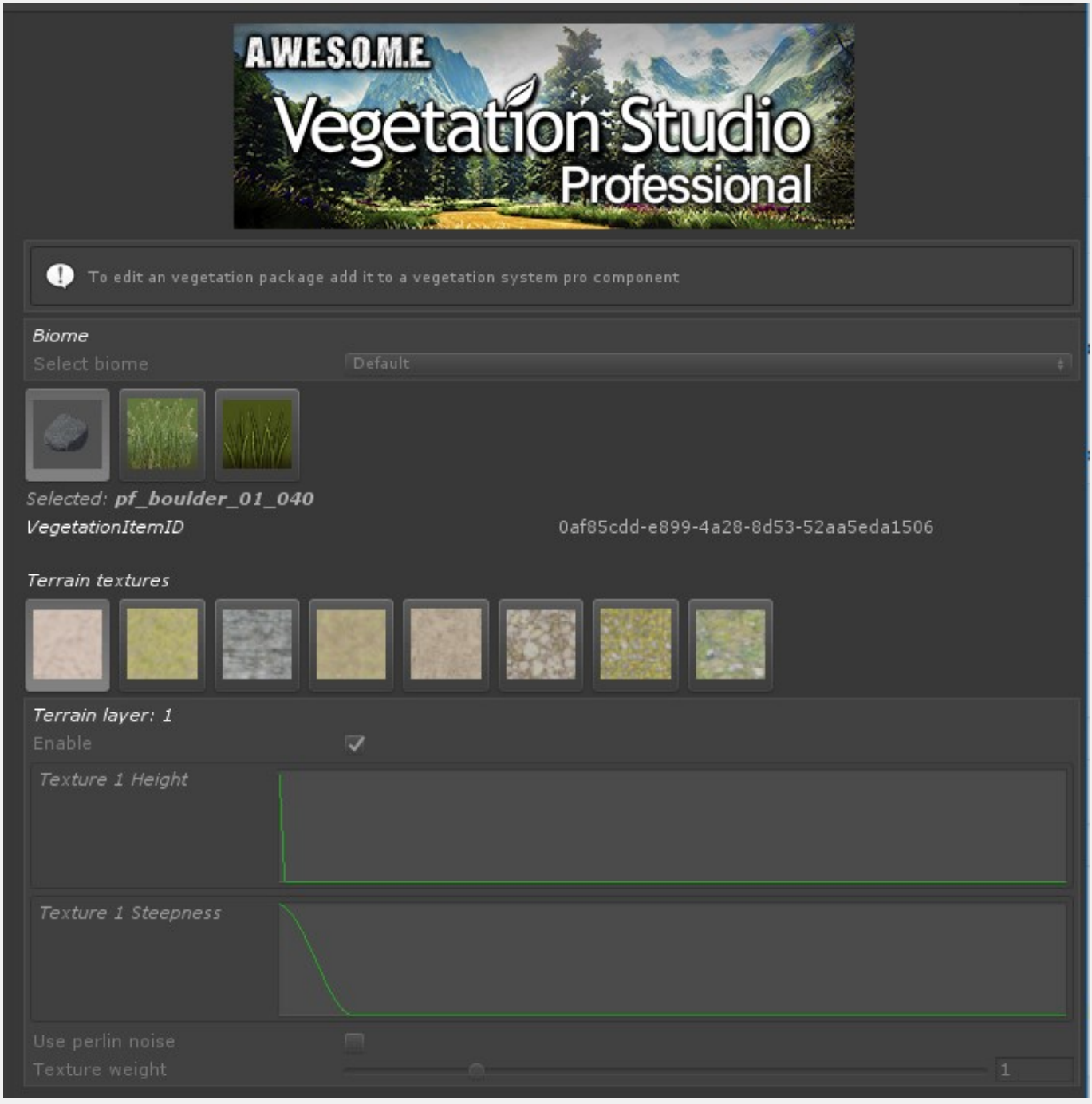
VEGETATION PACKAGE PRO

A Vegetaion package/biome is a scriptable object that holds all the procedural settings for the vegetation of a biome.

You assign this to a VegetationSystemPro component to edit and use the vegetation package.

It also holds splatmap generation rules and references to terrain textures.

Using packages to store vegetation makes it easy to re-use the ruleset on other terrains and projects.


A.W.E.S.O.M.E.
Vegetation Studio
Professional
To edit an vegetation package add it to a vegetation system pro component
Biome
Select biome
Default
Selected: pf_boulder_01_040
VegetationItemID
0af85cdd-e899-4a28-8d53-52aa5eda1506
Terrain textures
Terrain layer: 1
Enable
Texture 1 Height
Texture 1 Steepness
Use perlin noise
Texture weight
1

TERRAIN SYSTEM PRO

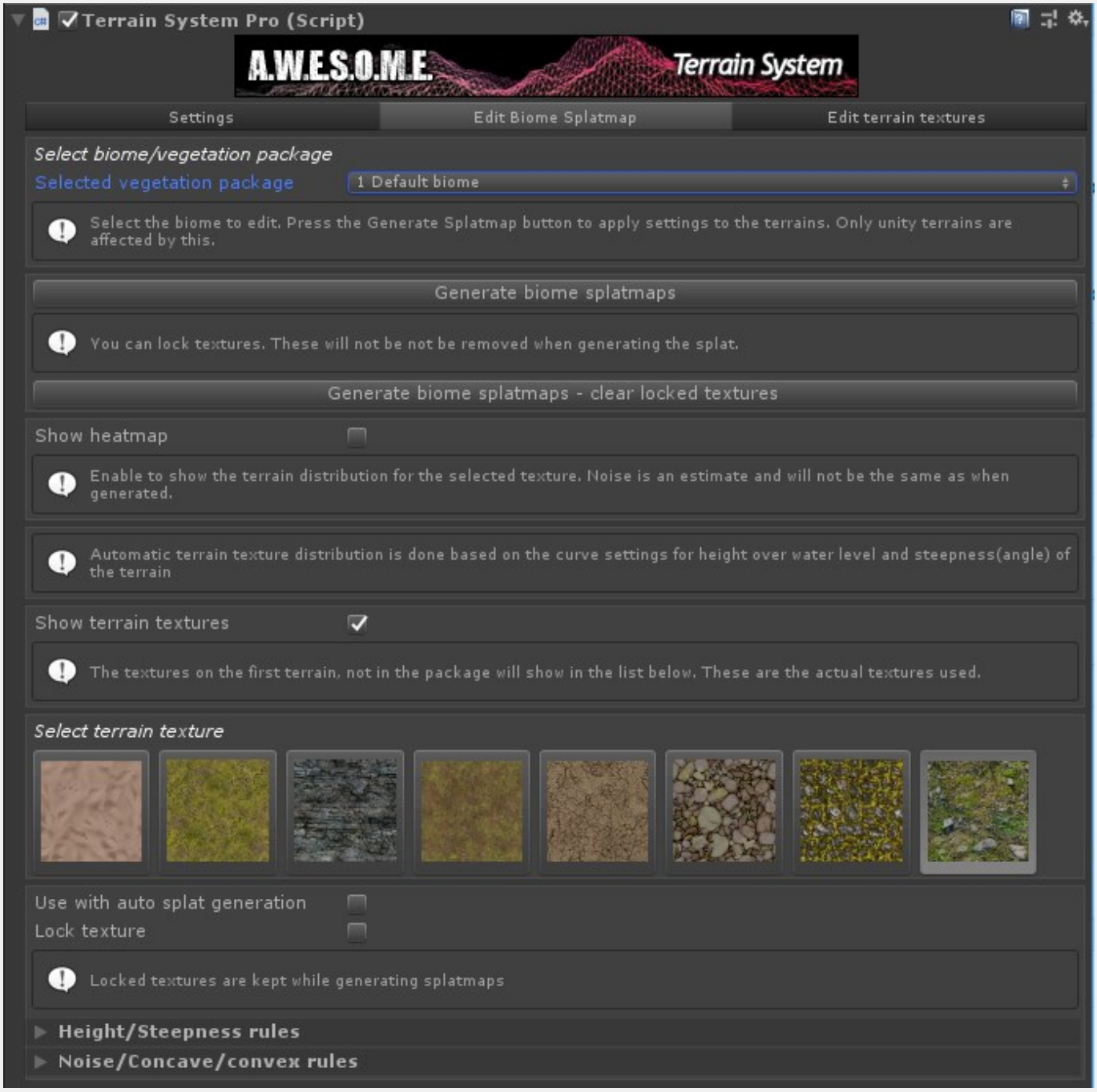
The TerrainSystem Component does splat map generation for the terrain. You can setup a rule set based on any number of textures in your terrain and based on height, steepness and other settings it will generate your terrain splat map.

Locked textures can be used to paint the terrain normally and will be kept even if you change the rule set and generate the splat map again. This way the manual work you do painting roads etc. will not be affected.

The component needs to be added to the same GameObject as VegetationSystemPro Component. This is done by default when setting up Vegetation Studio in a new scene. If Splat map generation is not needed, disable or remove the component.

Each biome can have its own set of splatmap rules that will be applied within the BiomeMaskArea with the transition blended between biomes based on the mask settings.

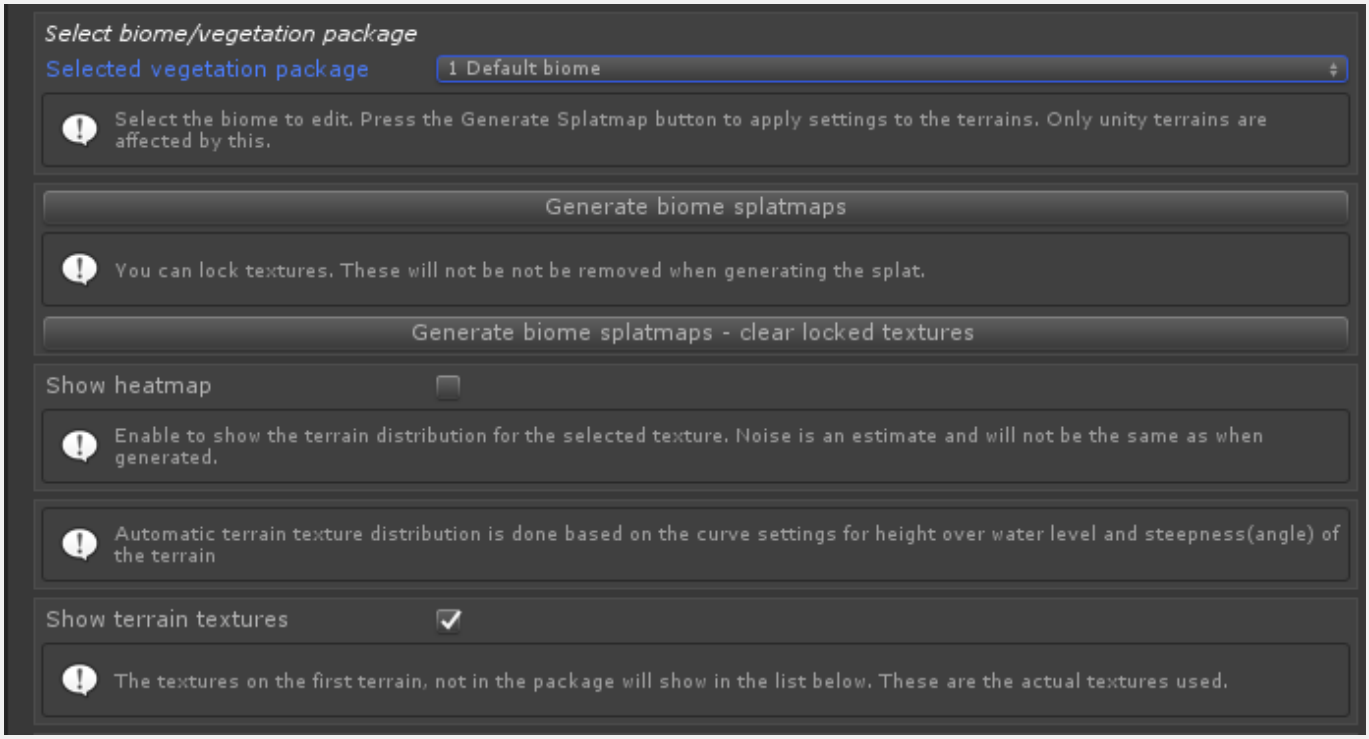
The vegetation package can store references to terrain textures. There is a system for reading these textures from a terrain or applying it to terrains. This helps you to set up new terrains with an already configured biome.



Select biome/vegetation package
Select terrain texture
Height/Steepness rules
Noise/Concave/convex rules
Edit terrain textures
Select biome/vegetation package

SELECT BIOME/VEGETATION PACKAGE

Select what vegetation package/biome you want to edit splat map rules for.



GENERATE BIOME SPLATMAPS

This will generate the splatmap for all Unity terrains added to the VegetationSystemPro component. Locked textures will be kept in the splatmap.

GENERATE BIOME SPLATMAPS – CLEAR LOCKED TEXTURES

This will generate the splatmap for all Unity terrains added to the VegetationSystemPro component. Locked textures are cleared.

SHOW HEATMAP

Enabling this will show a heatmap on the terrains. This allows you to see the coverage of the selected terrain texture rule as if there were no other textures on the entire terrain.

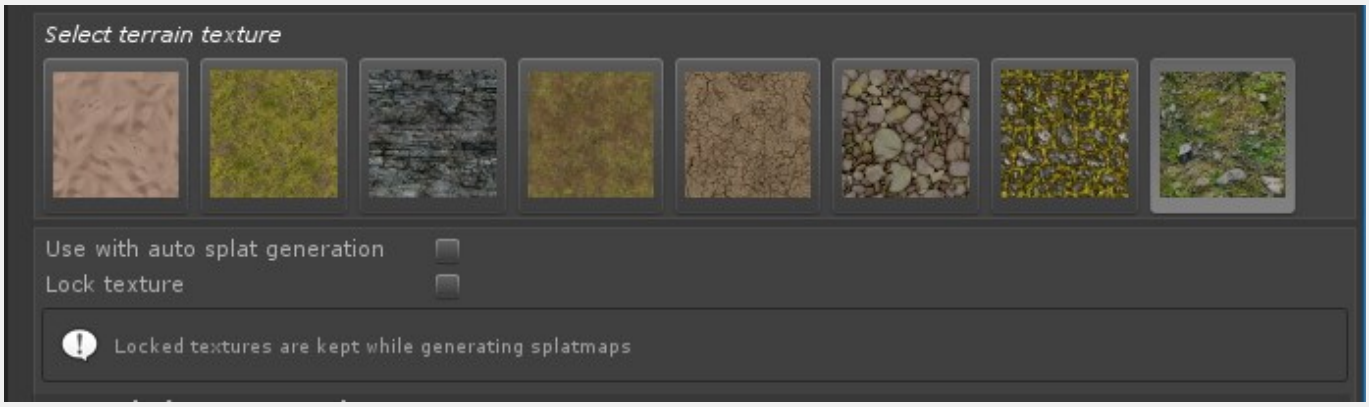
SHOW TERRAIN TEXTURES

Enabled by default. When enabled the textures shown in the list is from the first added Unity Terrain and not the textures in the package.

SELECT TERRAIN TEXTURE

Select what texture on the biome you want to set splatmap rules for. “Use with auto splat generation” has to be enabled in order for a rule to be active.

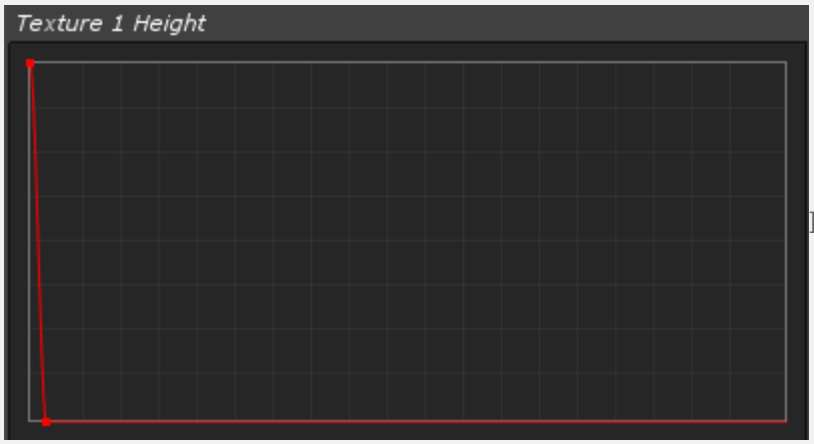
Lock texture allows you to lock textures not used for splat generation. This can be useful for painting manual paths or other features and keeping them while regenerating the splatmap of a terrain.



HEIGHT/STEEPNESS RULES

HEIGHT CURVE

The height curve setting sets the use of the texture based on height. Vertical axis is amount and horizontal height where 1 is max.



Height value goes from 0 to the set Max terrain height.

STEEPNESS CURVE

The steepness curve setting sets the use of the texture based on terrain steepness. Vertical axis is amount and horizontal steepness where 1 is max.

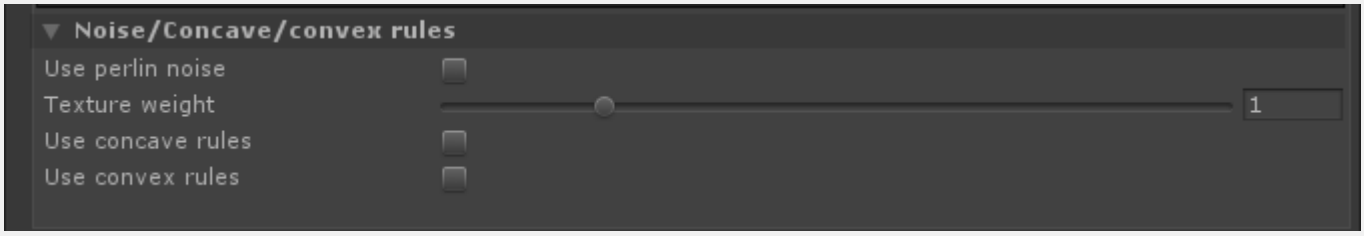
steepness value goes from 0 to 90 degrees.

NOISE/CONCAVE/CONVEX RULES

In addition to height/steepness rules you can use noise to control distribution.

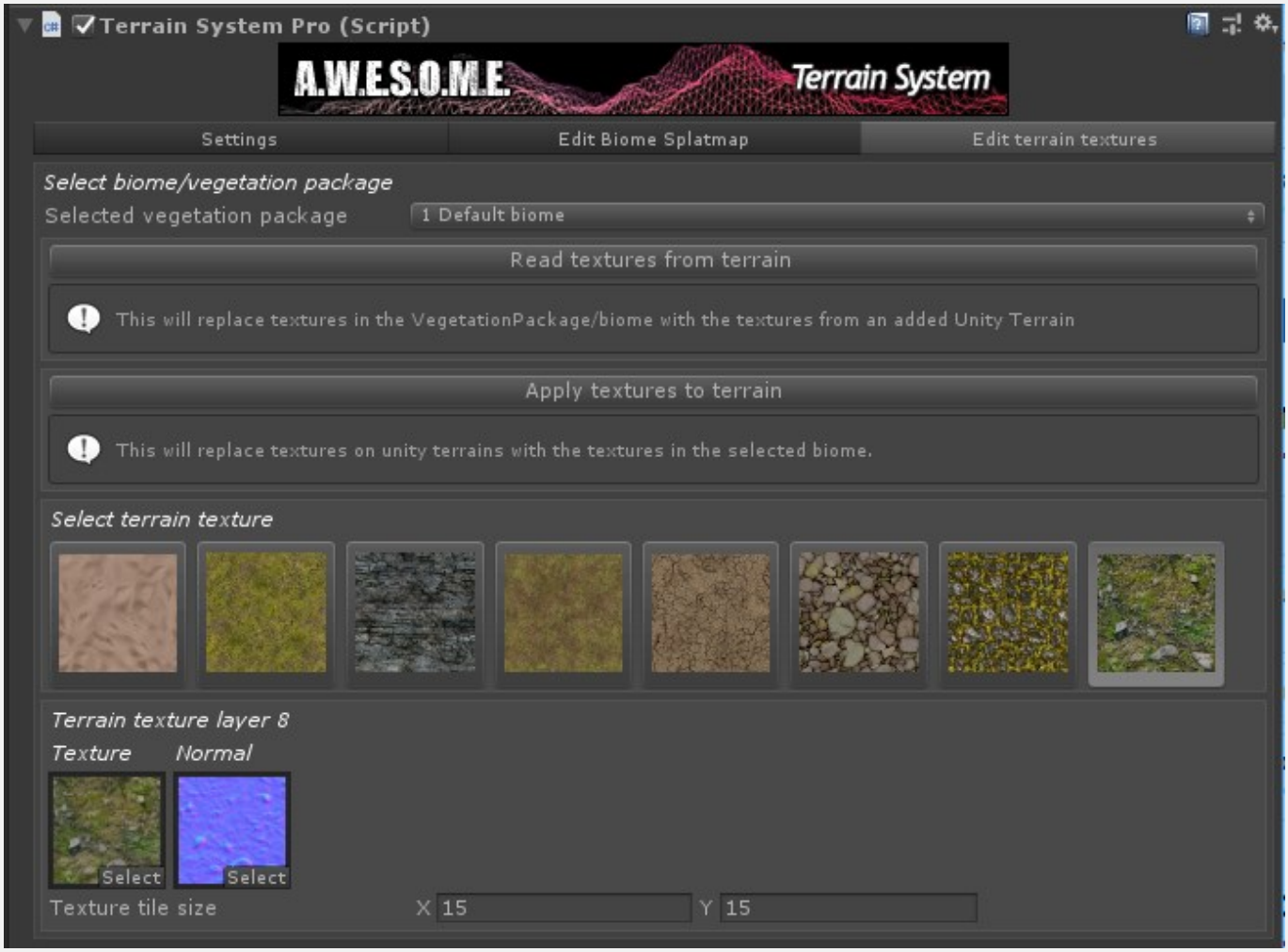
There is also a concave and convex ruleset to add textures in concave and convex areas.

The Texture weight is a weight of the selected textures while blending in with others that could be in the same location.



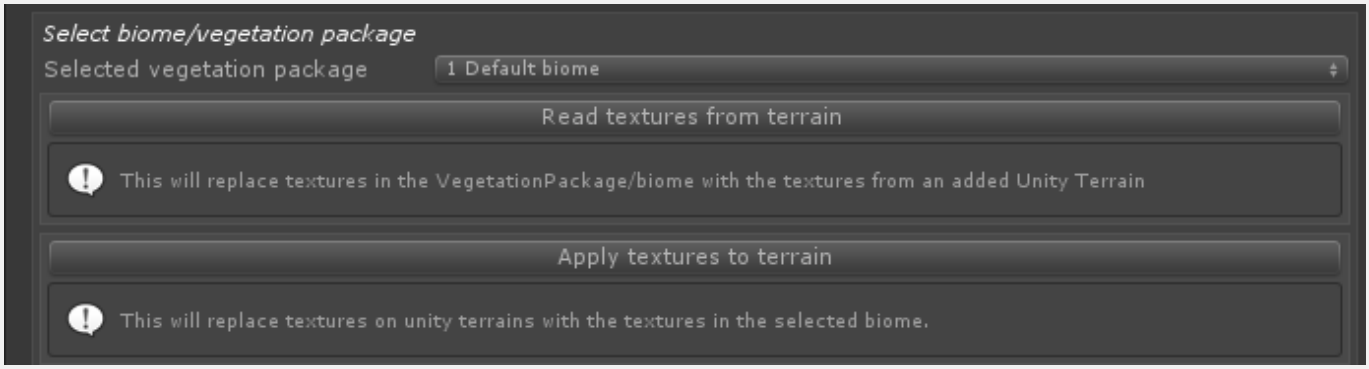
EDIT TERRAIN TEXTURES

The edit terrain textures tab has some tools for reading from and adding terrain textures to terrains.



SELECT BIOME/VEGETATION PACKAGE

Select what vegetation package/biome you want to use.



READ TEXTURES FROM TERRAIN

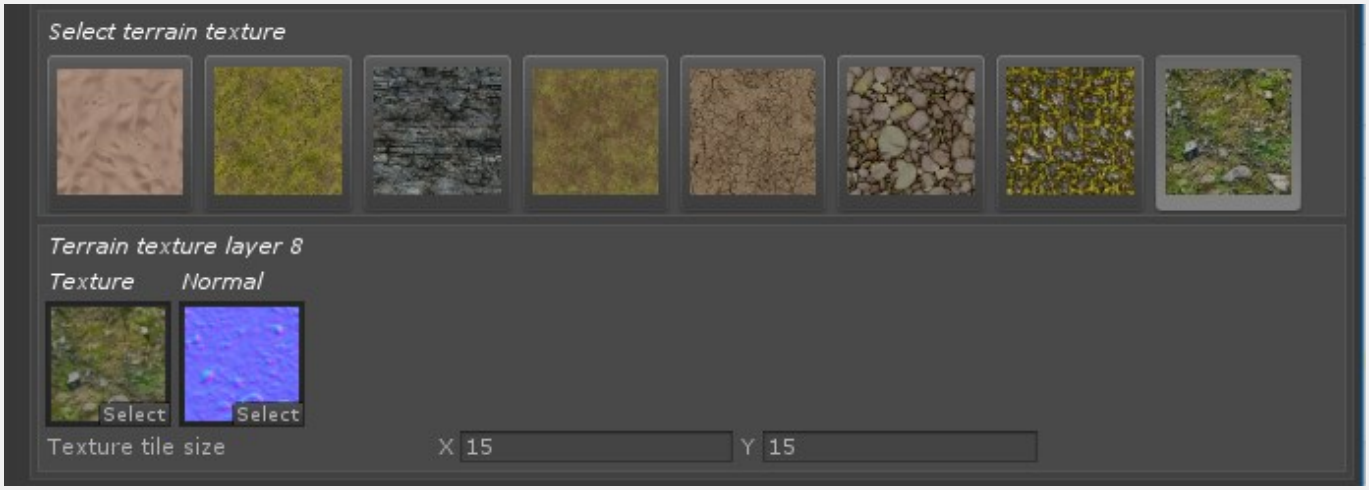
This will read all textures from the first Unity terrain added on the VegetationSystemPro component. The Vegetation Package has to be created with the same amount of textures as the terrain has.

APPLY TEXTURES TO TERRAIN

This will apply all textures in the package to all Unity terrains on the VegetationSystemPro component.

SELECT TERRAIN TEXTURE

Select what terrain texture to edit.



TERRAIN TEXTURE LAYER

You can here edit what diffuse and normal texture is used for a layer. Tile size can also be set.

TERRAIN TYPES

In order to have a terrain to spawn or paint vegetation on Vegetation Studio needs to be assigned one or more terrains.

See the individual terrain type for how it works and is set up.

UNITY TERRAIN PRO

MESH TERRAIN PRO

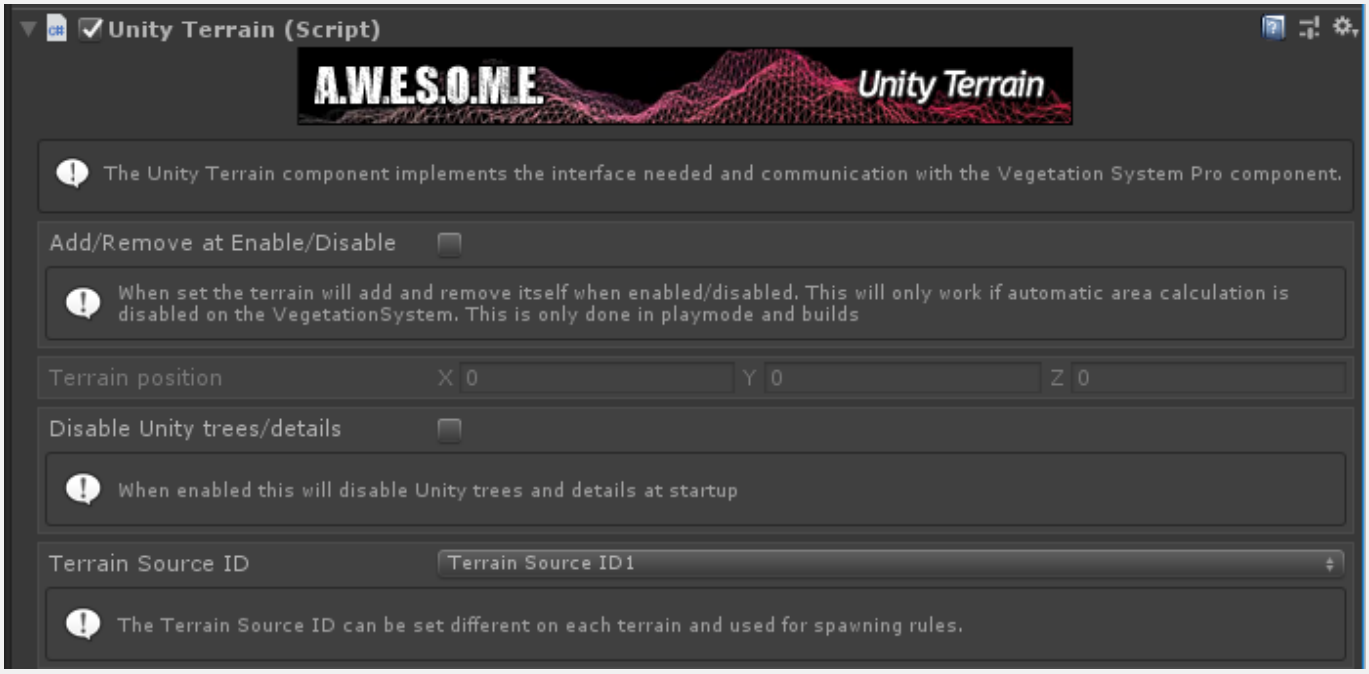
RAYCAST TERRAIN PRO

UNITY TERRAIN

In order to add a terrain to Vegeation Studio Pro it needs access to a component implementing an interface. This is done to have a common interface for multiple terrain types making it easier to extend and support terrain types.

To use a standard Unity terrain add the UnityTerrain Component to the same GameObject as the terrain. You can then add the terrain to the Vegeation System Pro component.

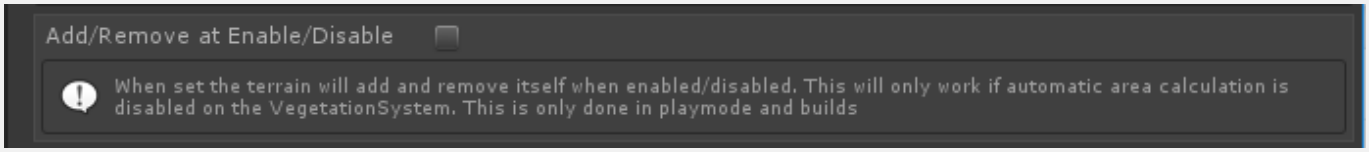
When a component is added it will store the position of the terrain. This is used for floating origin when terrains is loaded run-time. If you create the component run-time in code you need to set this terrain position to the terrains origin.



Add/Remove at Enable/Disable
Disable Unity trees/details
Terrain Source ID

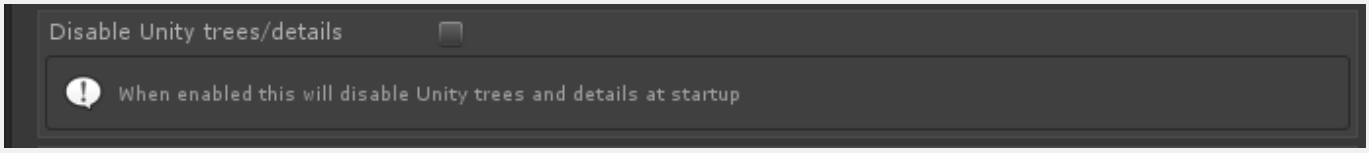
ADD/REMOVE AT ENABLE/DISABLE

For setups where you load and unload terrains run-time check this box. When loaded the component will auto register with the VegetaionSystemPro component in the scene. Remember that autocalculate area has to be turned off on the terrain tab of the VegetationSystemPro component to use this.



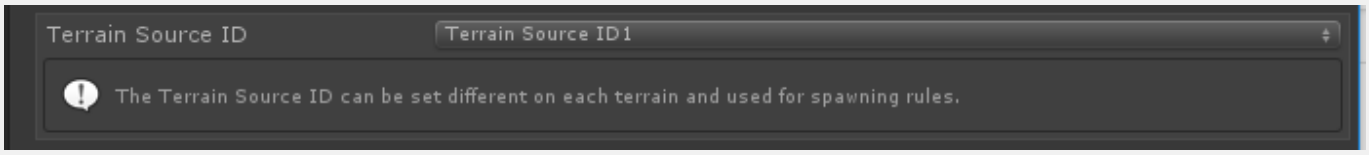
DISABLE UNITY TREES/DETAILS

When enabled this will disable draw on Unitys trees and detail. This is enabled by default since Vegetation Studio does its own rendering of Vegetation



TERRAIN SOURCE ID

This setting gives the terrain an ID. This ID can be used for spawning rules. A vegetation item that only grows on one terrain etc. The same ID exists on the other terrain types.

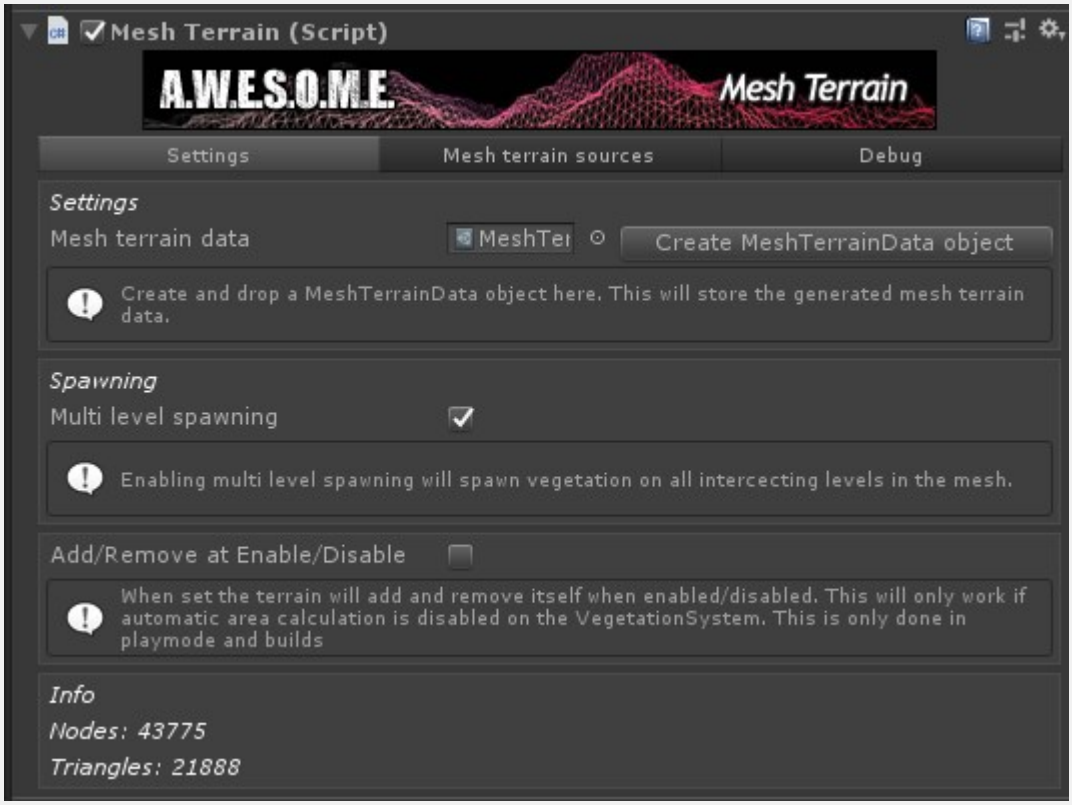


MESH TERRAIN

The mesh terrain allows you to add any mesh in the scene with a MeshRenderer. it will build an internal BVH tree used for sampling the height and normal of the terrain when spawning vegetation. Terrain Texture rules will be ignored.

This also allows for multi level spawning.

You can add a mesh terrain source to each of the meshes. This can be used for spawning rules.



MESH TERRAIN DATA

Create a new MeshTerrainData object. This is a scriptable object that will store the generate BVH tree used for terrain lookup.

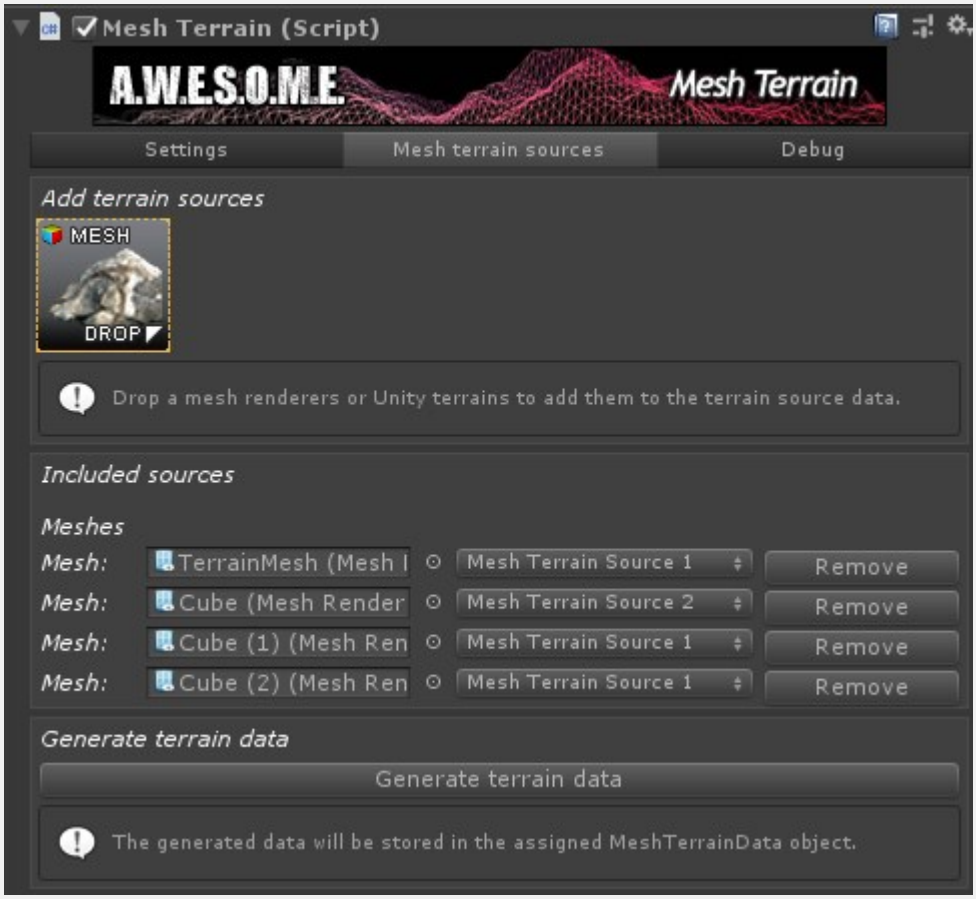
MULTI LEVEL SPAWING

When enabled raycasts against the terrain can hit multiple levels of meshes

ADD/REMOVE AT ENABLE/DISABLE

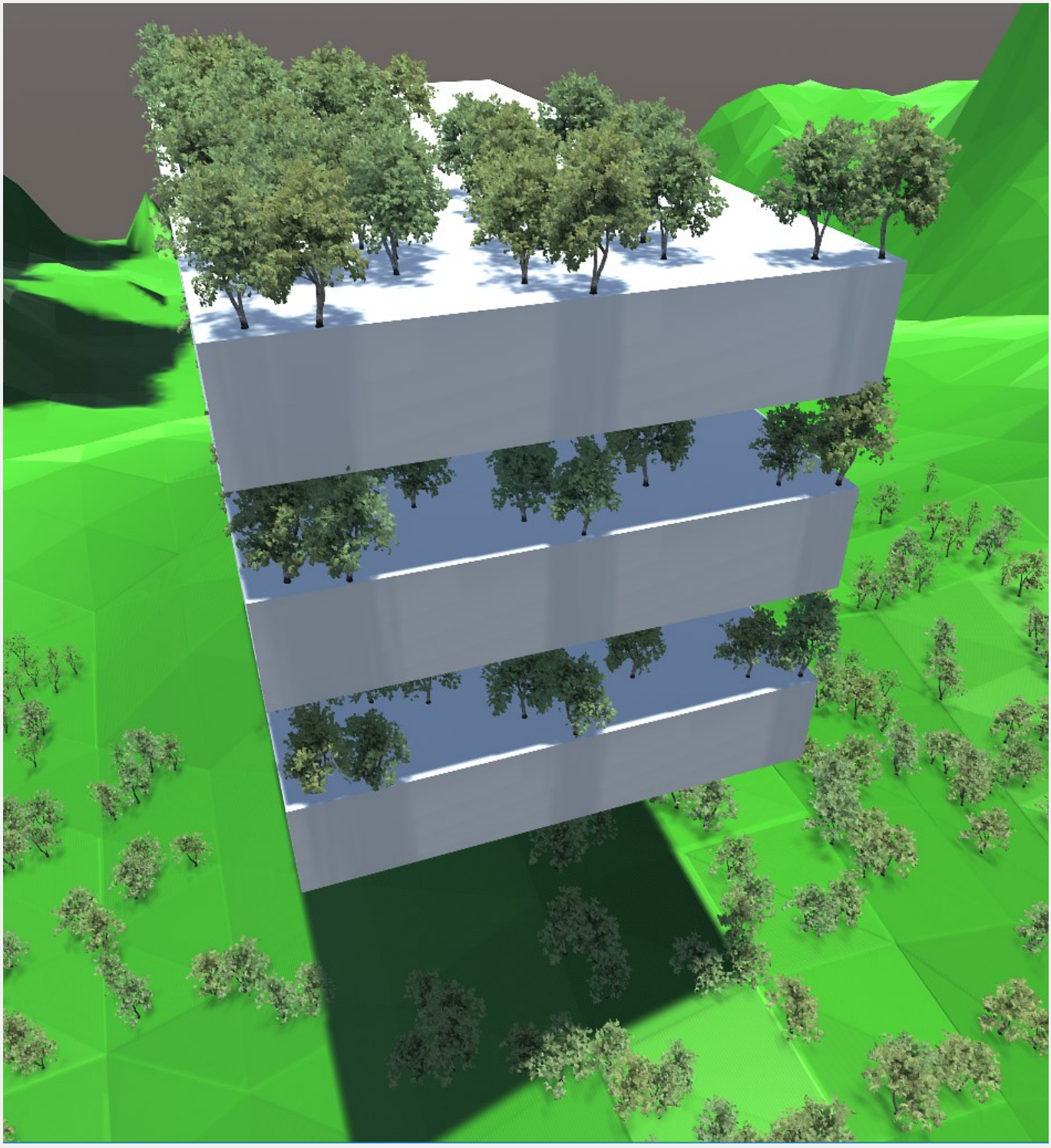
Enable this if you plan to load the MeshTerrains run-time

MESH TERRAIN SOURCES



GENEATE TERRAIN DATA

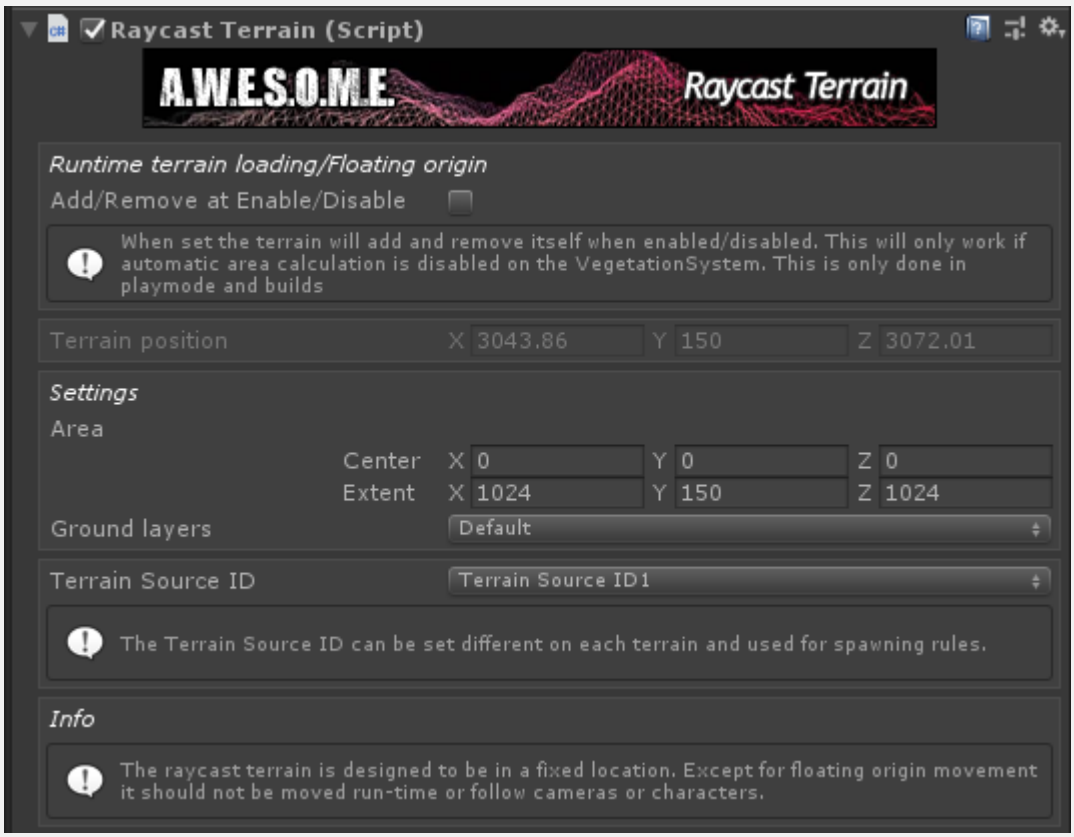
To create a mesh terrain drag and drop one or more meshRenderers to the component. Then press generate terrain data.



RAYCAST TERRAIN

Add the raycast terrain to any gameobject and define a bounds relative to the object position.
It will then raycast the layers selected for colliders to find terrain position/normal during spawning.

Raycasting is done using the new RaycastCommand job system that goes wide on all cores.



ADD/REMOVE AT ENABLE/DISABLE

For setups where you load and unload terrain run-time check this box. When loaded the component will auto register with the VegetaionSystemPro component in the scene. Remember that autocalculate area has to be turned off on the terrain tab of the VegetationSystemPro component to use this.

TERRAIN POSITION

The terrain position is stored in editor mode and used as an original position when using floating origin in a scene.

AREA

The area is a Bounds defining the area you want to use for raycasting. Any collider within these bounds will be tested.

GROUND LAYERS

Ground Layers should be set to the layers you have colliders that should be used as terrain.

TERRAIN SOURCE ID

This setting gives the terrain an ID. This ID can be used for spawning rules. A vegetation item that only grows on one terrain etc. The same ID exist on the other terrain types.

COLLIDER SYSTEM PRO

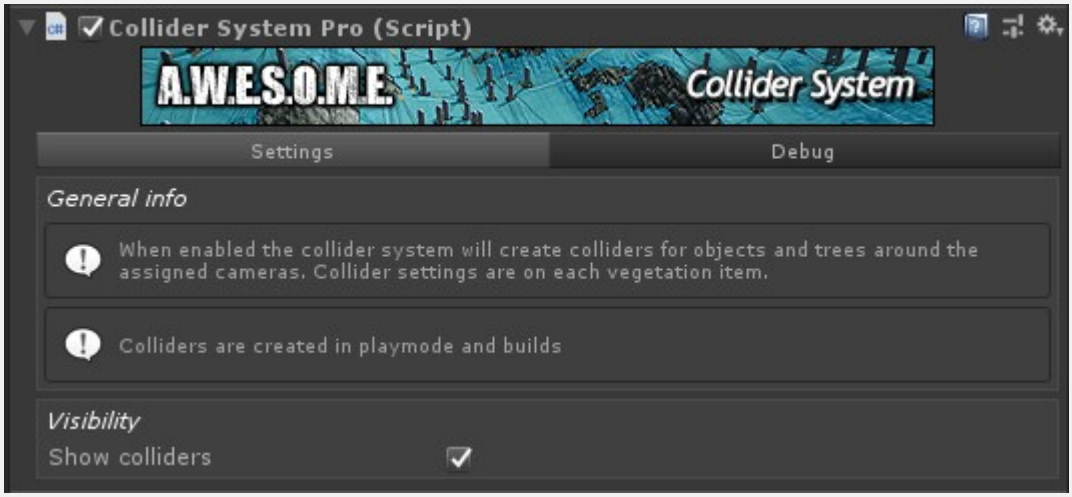
The collider system included in Vegetation Studio Pro will help you create colliders for your trees and rocks. Since there can be huge amounts of trees and rocks the collider system will create colliders when close to the camera.

The colliders are configured on each vegetation item on the Edit biomes tab of the Vegetation System Pro component.

Colliders are re-used from an internal pool.

Multiple cameras are supported and if cameras overlap only one collider is created for the same tree/rock.

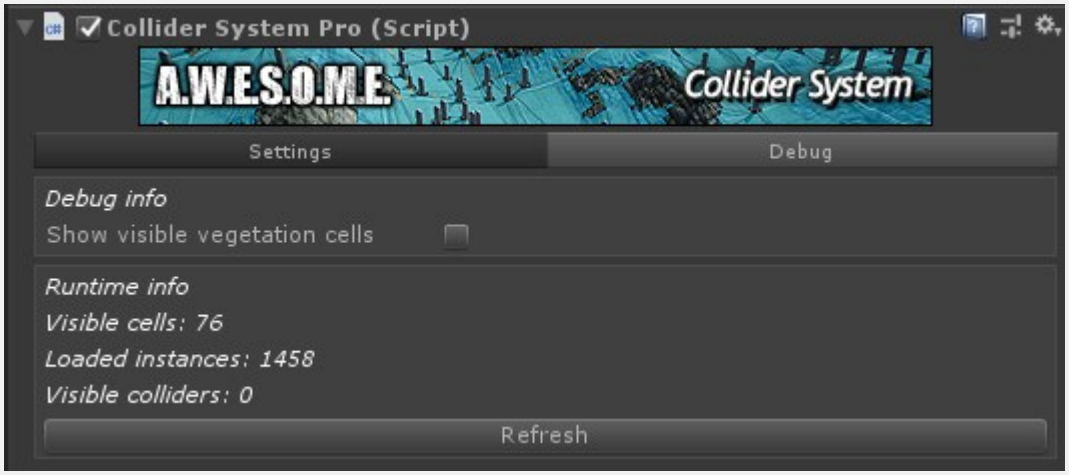
SETTINGS



Check show colliders to see the generated collider object in the hierarchy.

DEBUG

The debug setting shows how many instances are evaluated every frame. When within range the colliders are created.



PERSISTENT VEGETATION STORAGE PRO

Settings
Stored Vegetation
Bake Vegetation
Edit Vegetation
Paint Vegetation
Precision Painting

SETTINGS

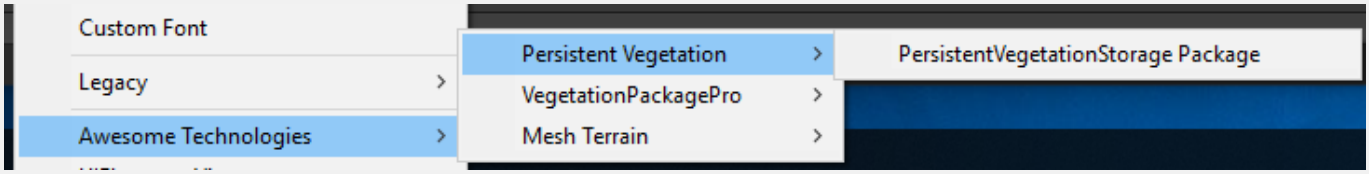
In order to work the Persistent Vegetation Storage component needs a **PersistentVegetationStoragePackage**. Create a new package and drag and drop it to the Storage slot in the inspector. The first time a package is added or if the package is initialized for another terrain it will ask you to initialize it. You can also press the create storage button to have one created and saved in the project folder for you.

When initialized it will work for only this terrain with the current vegetation cell size. If you change

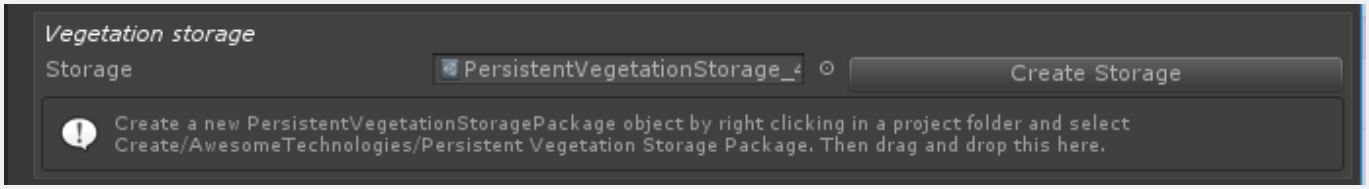
the cell size you need to initialize the storage again. This will clear all data in the storage.

VEGETATION STORAGE

Create a Persistent Vegetation Storage Package by right clicking in a project folder and select Create/Awesome Technologies/Persistent Vegetation/persistentVegetationStorage Package and give it a name. Then drag/drop the package to the slot.

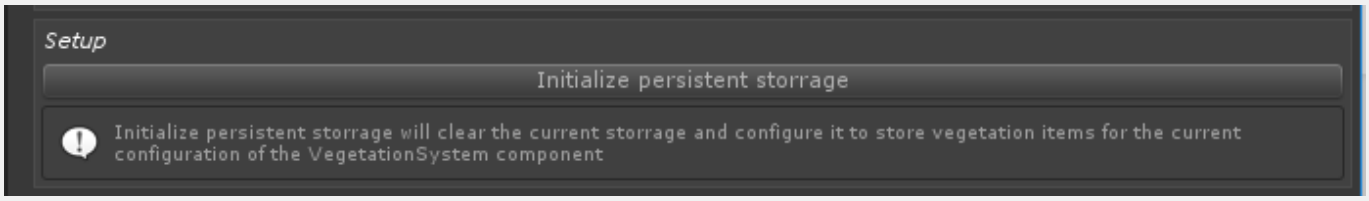


You can also have Vegetation Studio create it for you. It will be stored in the PersistentVegetationStorageData folder under Assets.



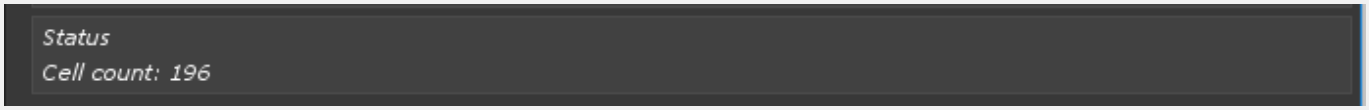
SETUP

If you change the cell size or world area of the VegetationSystemPro component you need to initialize the storage again. This will clear any vegetation instances in the storage



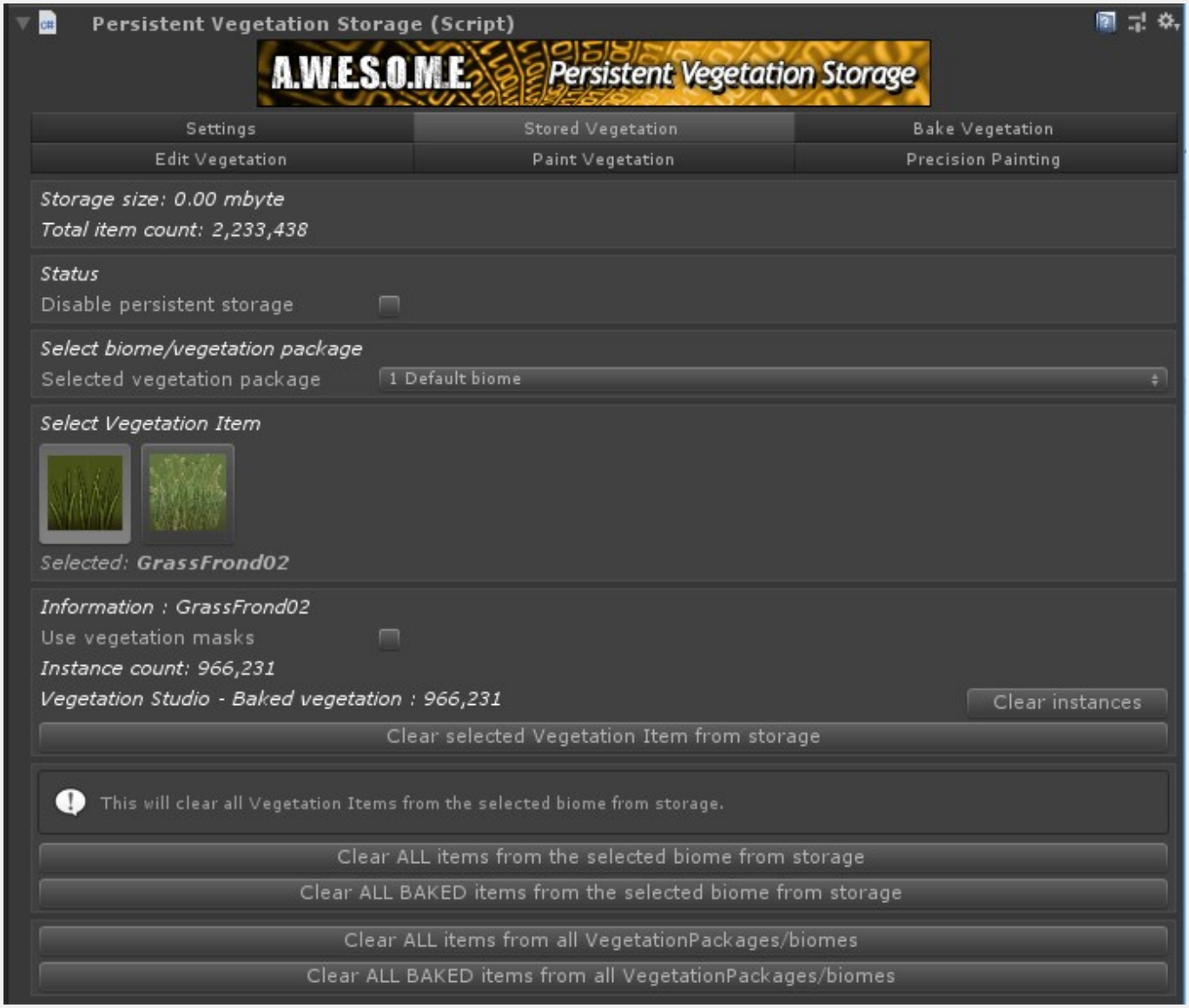
STATUS

This shows the total cell count in the storage.



STORED VEGETATION

This tab shows you info about all the vegetation stored in the storage.



STORAGE SIZE

This is the total storage size saved on disk. The disk size only updates when you save the scene.

Total item count is the number of instances in the storage.

STATUS

You can enable/disable the persistent storage by checking this.

SELECT BIOME/VEGETATION PACKAGE

In order to see the vegetation stored select the VegetationPackage/biome you want to see vegetation instances for.

SELECT VEGETATION ITEM

Select each item to see the number of stored instances.

If you have vegetation from multiple sources. baked, manually painted, imported, added with API etc you will see a count per source with an option to clear instances per source.

CLEAR INSTANCES

There are several options to clear baked or all instances from one or more vegetation packages. Select enable runtime spawn if you want to edit the spawning rules again.

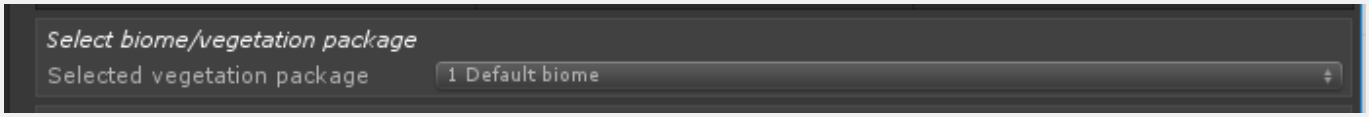
BAKE VEGETATION

In order to bake the results of the run-time spawning rules to the storage package select the vegetation item you want to bake and press the “Bake vegetation from ruleset button”. This will create all instances for the terrain and store it in the package.

Use the “Bake ALL” button to bake all vegetation items to the package. This will also disable the “run-time spawn” on each vegetation item. After bake it is loaded form the storage.

SELECT BIOME/VEGETATION PACKAGE

Select the biome you want to bake vegetation from

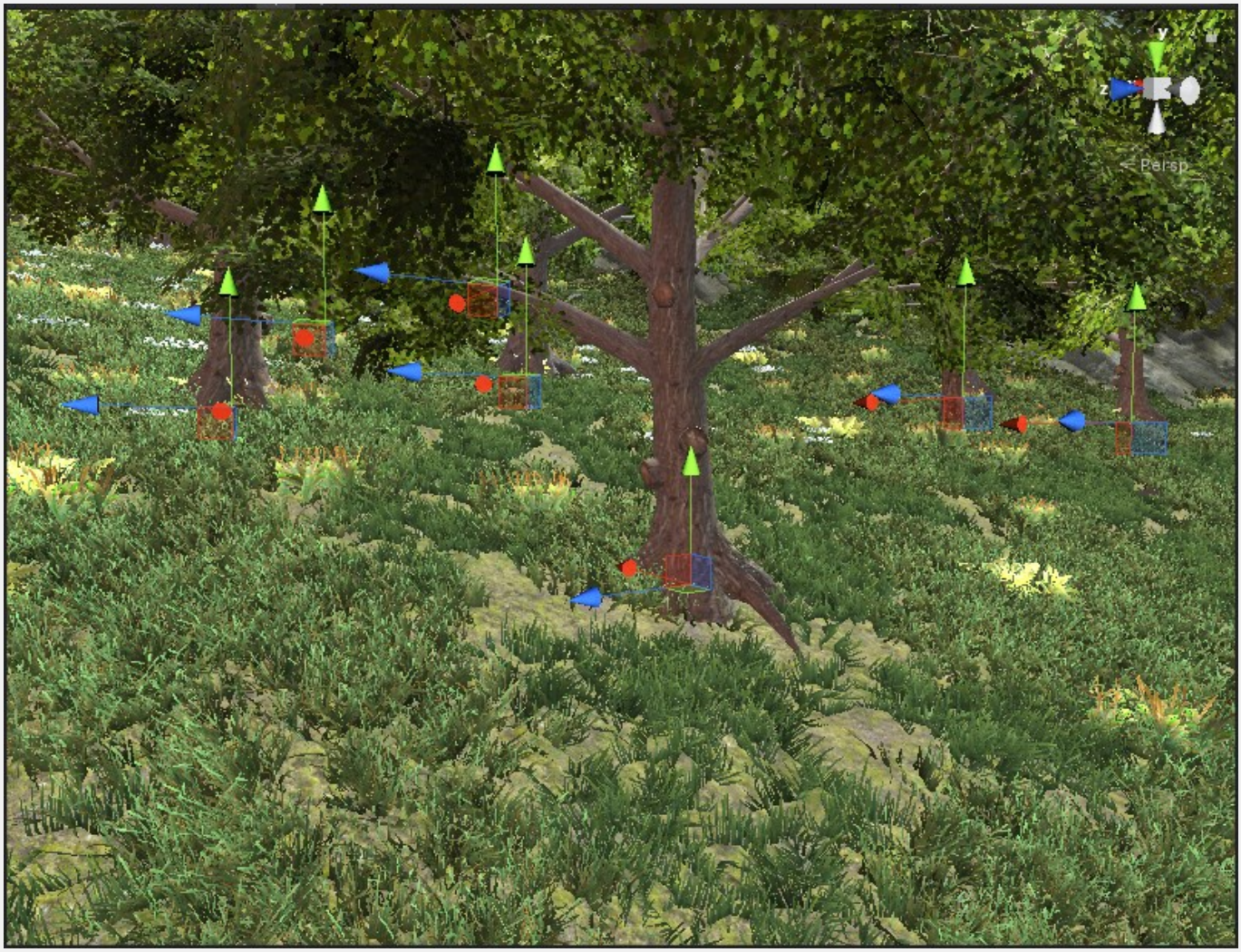


EDIT VEGETATION

This allows you to manually add, remove and edit any tree, object or large object in the persistent storage.
If you edit an items position, scale or rotation the VegetationSourceID will be set to manual edit.

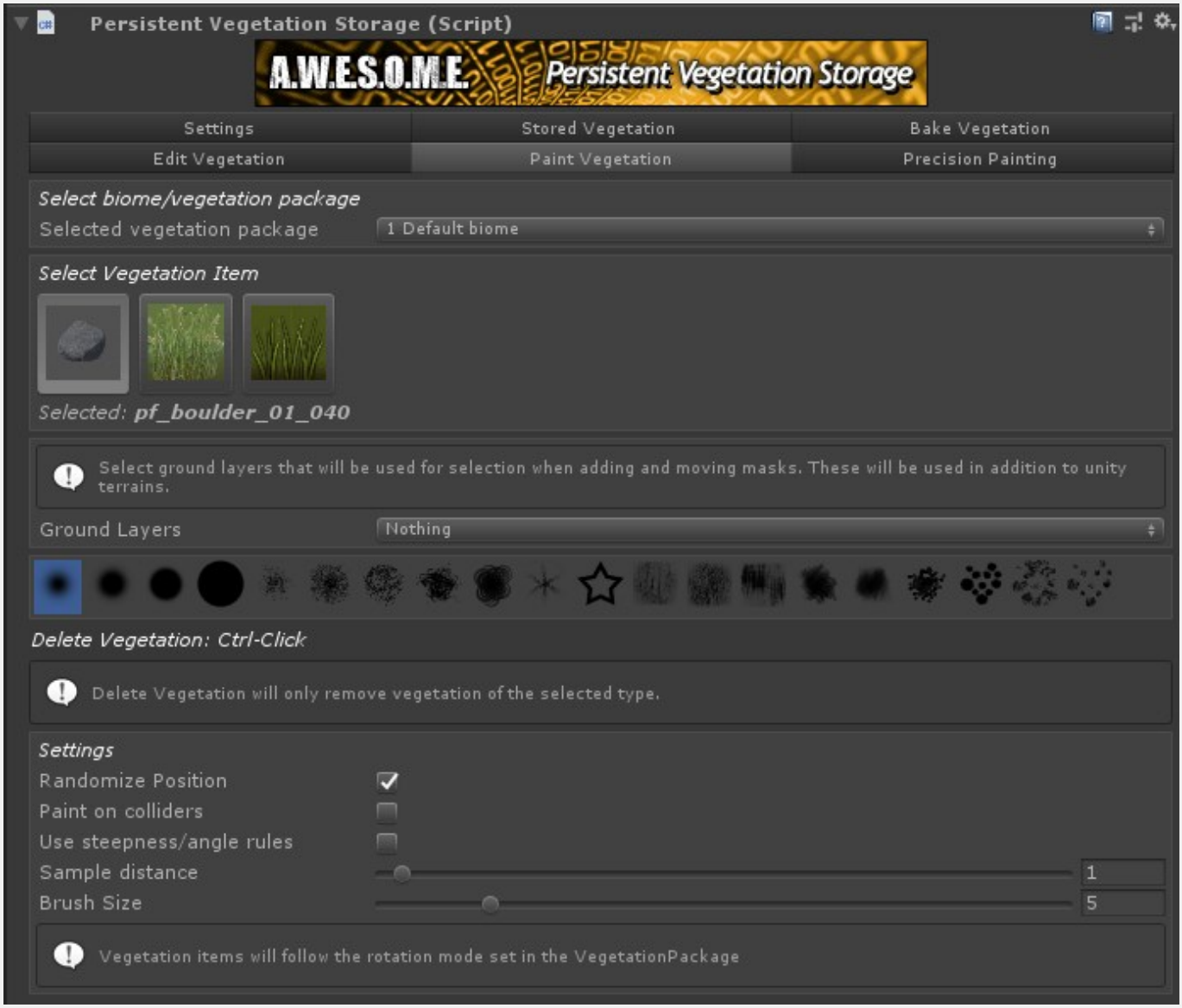
Add new items with Ctrl-click in the terrain. Remove with Ctrl-Shift-Click

All items within range will get normal unity move, rotate and scale handles. Mode is selected with the normal unity buttons.



PAINT VEGETATION

The persistent storage has a painting tool for painting grass and plants. It works in a similar way unity terrain painting tool does but with some additional functionality.



PAINTING

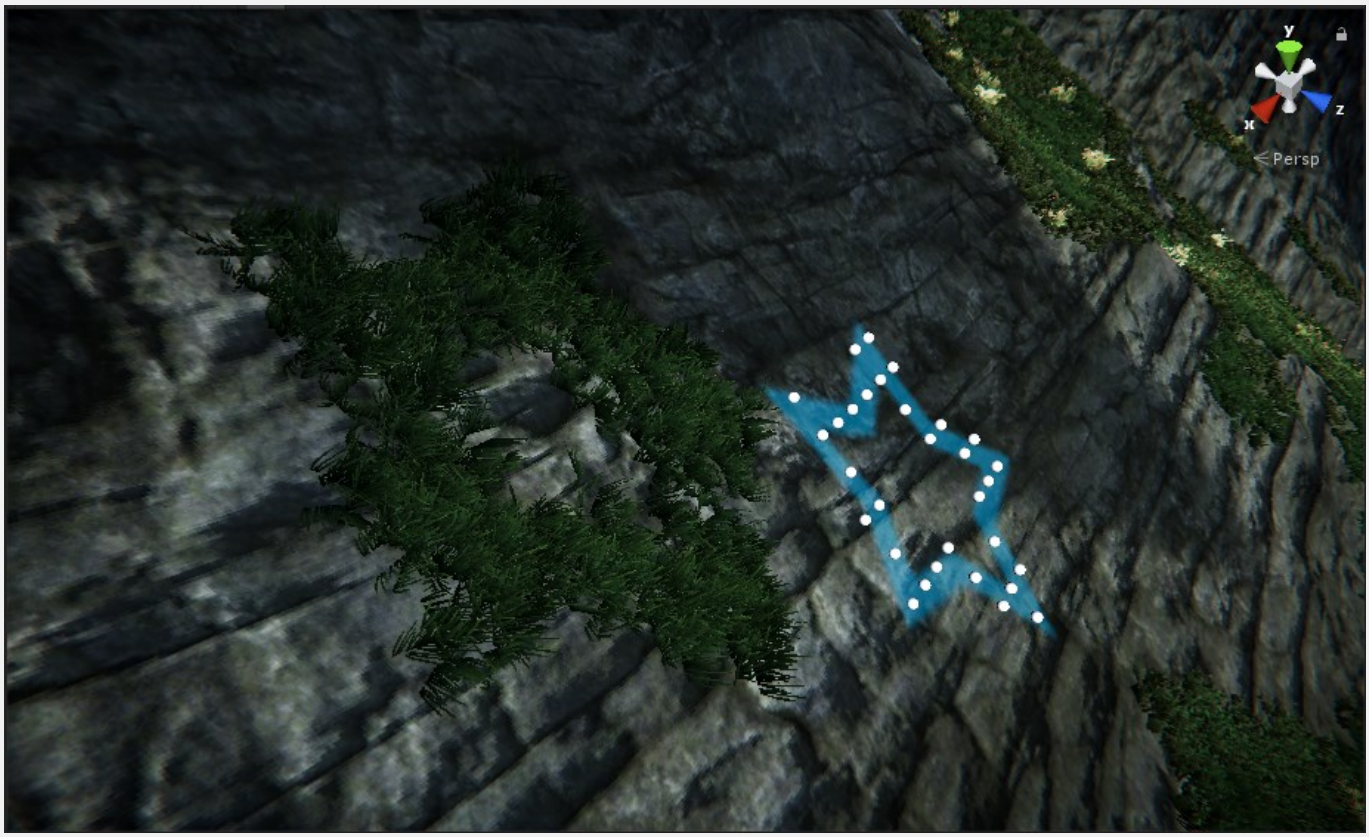
You paint with left click in the map, remove instanced with ctrl-click.

SETTINGS

- Randomize position
  will add randomness to the sample positions on top of the point grid you see in the terrain
- Paint on colliders
  With this enabled you will be able to paint vegetation on any collider in the scene as well as the terrain
- Use steepness/angle rules

With this enabled each vegetation items steepness rules (set in VegetationSystem component) will be applied before painting

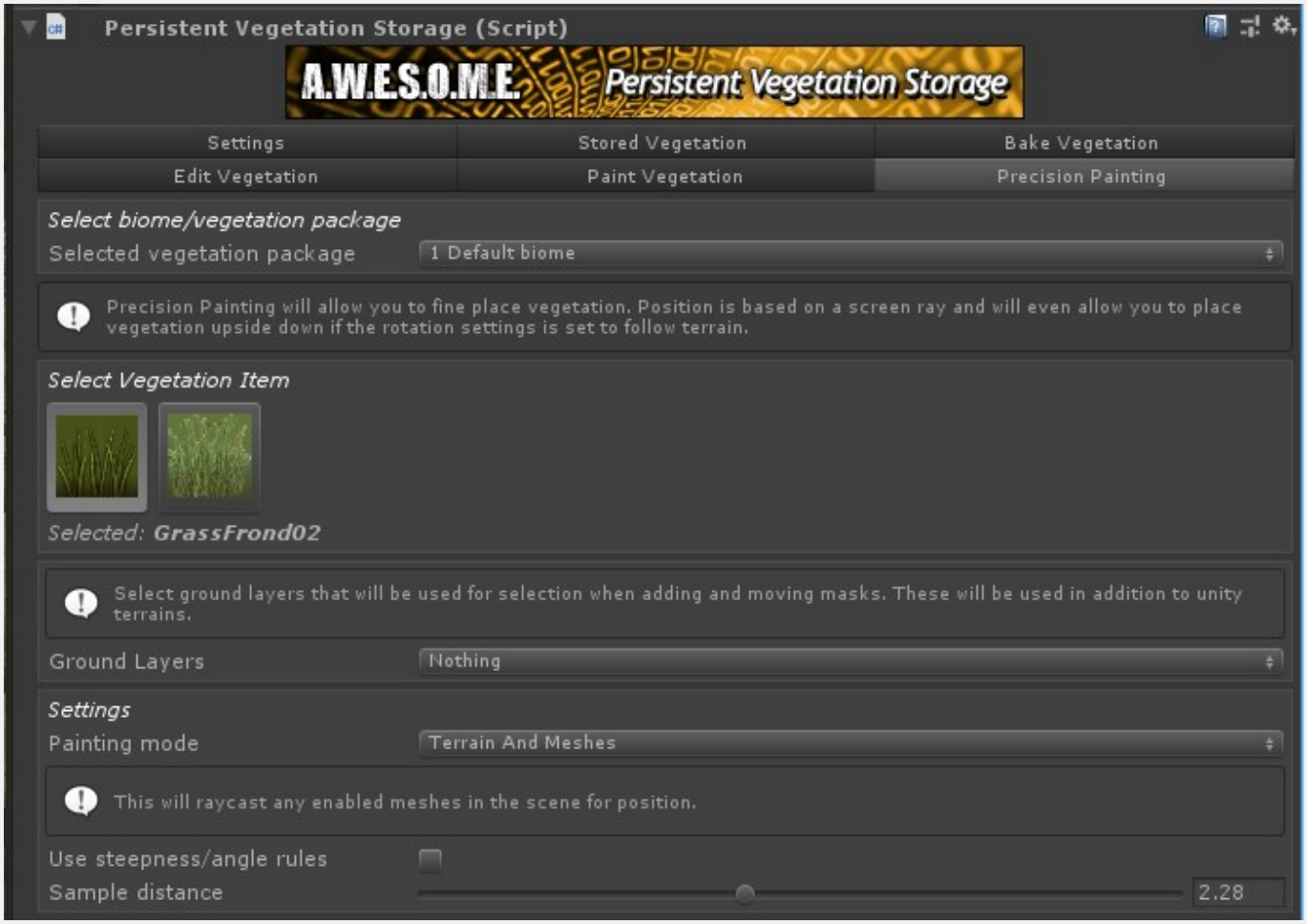
- Sample distance
  This is the density of the painting
- Brush size
  The size of the brush

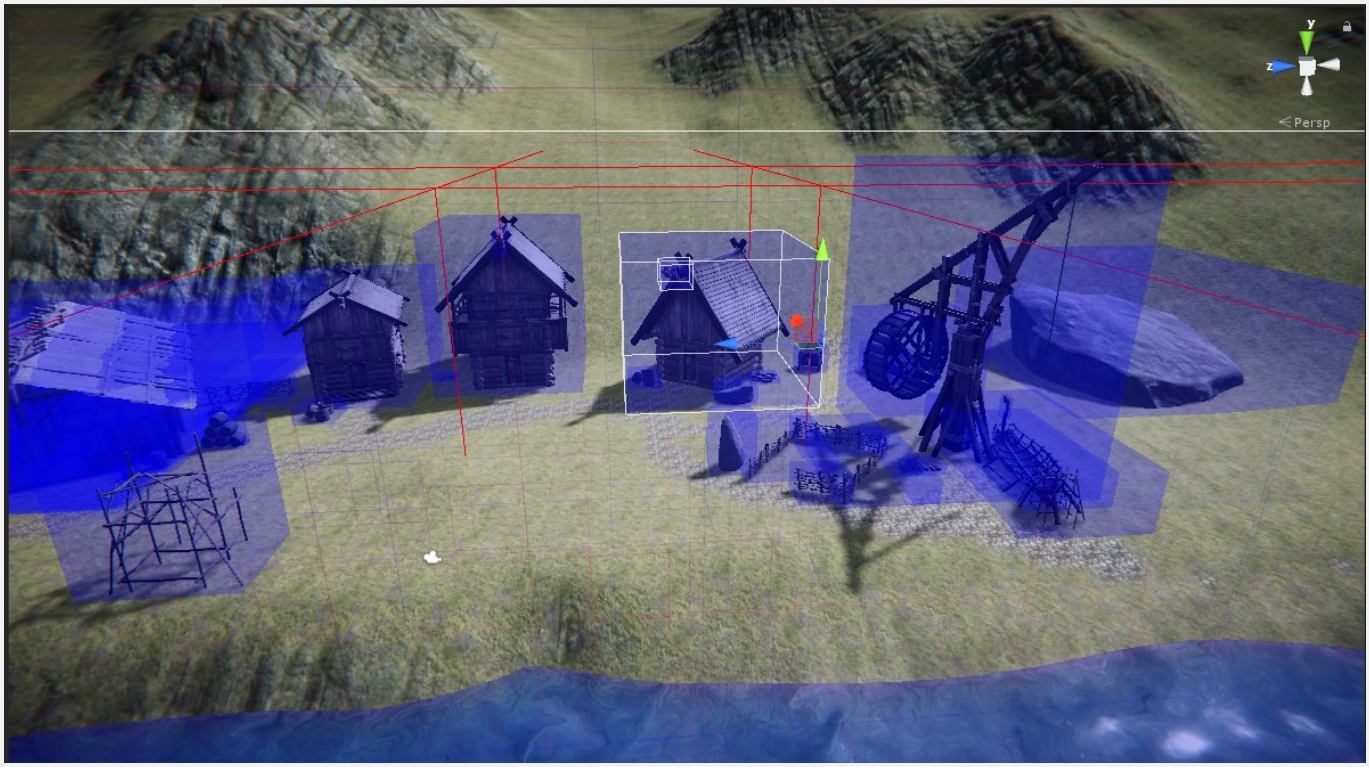


PRECISION PAINTING

The precision painting tool is similar to the normal painting tools but works a bit differently. While the normal painting tools project a brush from above and down on the terrain and colliders the precision painting tool will use a ray from the camera perspective. The normal of the hit point will be used as up direction for the placed vegetation. This allows for fine tuning the positioning.

The precision tool will allow you to paint on any mesh, even without a collider.


Persistent Vegetation Storage (Script)
A.W.E.S.O.M.E. Persistent Vegetation Storage
Settings
Stored Vegetation
Bake Vegetation
Edit Vegetation
Paint Vegetation
Precision Painting
Select biome/vegetation package
Selected vegetation package
1 Default biome
Precision Painting will allow you to fine place vegetation. Position is based on a screen ray and will even allow you to place vegetation upside down if the rotation settings is set to follow terrain.
Select Vegetation Item
Selected: GrassFrond02
Select ground layers that will be used for selection when adding and moving masks. These will be used in addition to unity terrains.
Ground Layers
Nothing
Settings
Painting mode
Terrain And Meshes
This will raycast any enabled meshes in the scene for position.
Use steepness/angle rules
Sample distance
2.28



Internally the painting tool is building up an octree of all gameobjects with meshes in the scene and manually raycasting these to find the mesh intersection.


y
x
z
Persp

PERSISTENT VEGETATION STORAGE PACKAGE

The persistent vegetation storage package is a scriptable object designed to store vegetation instances for a single terrain. You create the package with right clicking in any project folder. Choose “Create/Awesome Technologies/persistent vegetation/Persistent vegetation storage package”. Give the package the name you want and assign it to the PersistentVegetationStorage component.

The package is configured to serialize binary. A text serialization will be slow and use way more space and memory. You might have to configure your version control software to store this file in binary.

See the **PersistentVegetationStorage** component for more info.

VEGETATION MASKS

Vegetation masks are a set of Components designed to control vegetation. They can used both design and run-time. By adding areas with polygons or lines with a width you can remove, add or modify vegetation within the area. Common use cases are roads, houses, city areas etc.

See the components linked below for a more detailed description.

Example with a house with a vegetation mask. Vegetation will adapt to the house/mask as it is moved in the scene.

MASK TYPES

See the available mask types for a detailed description on use.

Vegetation Mask Area Pro

Vegetation Mask Line Pro

Vegetation Beacon Pro

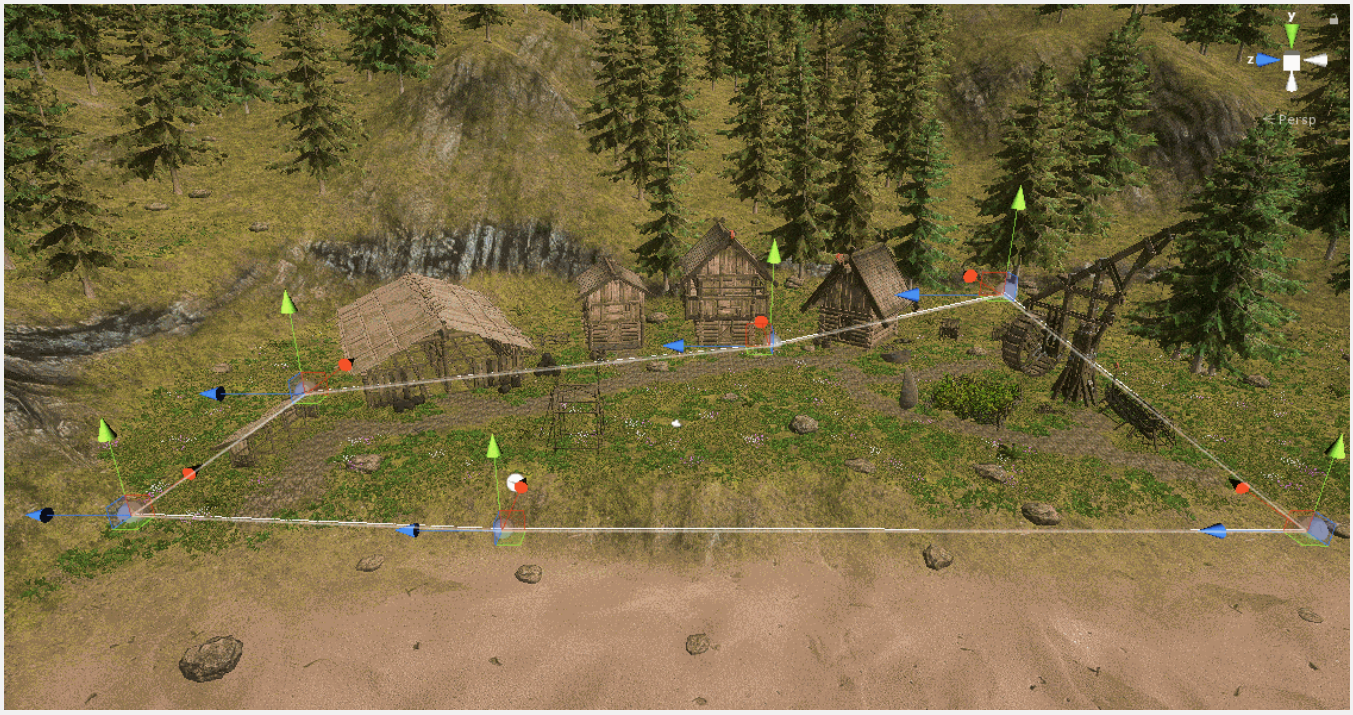
VEGETATION MASK AREA

The VegetationMaskArea component will handle run-time masking of vegetation. It is designed to be added to GameObjects in the scene and will make the vegetation adapt based on the settings. A mask will follow, scale and rotate with the GameObject. It can also be saved with prefabs and instanced at run-time.

In addition to the area defined by the nodes in the component, each vegetation type, Grass, Plants, Trees, Objects and Large Objects can be filtered and can have an additional range outside of the polygon mask area.

Masks are used at spawn time when new areas are loaded and will not affect rendering speed. Masking out vegetation may result in better performance.

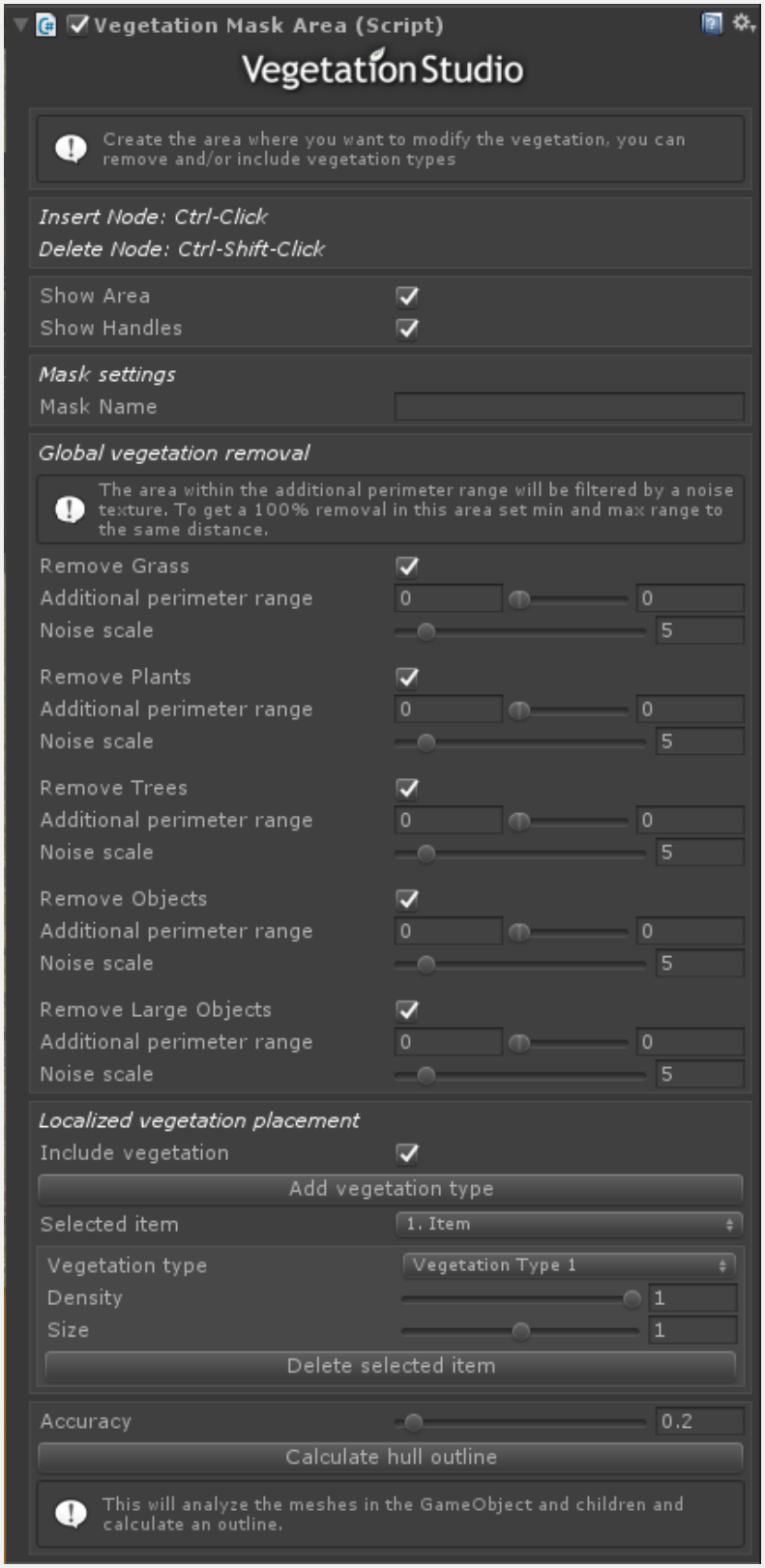
Node editing
Handles
Mask settings
Global vegetation removal
Localized vegetation placement
Script access



In this example an extra mask area that only removes trees is added to clear the area in front of the house. In addition to this each

house has its own mask.

This image shows a VegetationMaskArea component added to a house mode. It has nodes on the house corner and in addition to this an added range to remove trees and plants.


Vegetation Mask Area (Script)
Vegetation Studio
Create the area where you want to modify the vegetation, you can remove and/or include vegetation types
Insert Node: Ctrl-Click
Delete Node: Ctrl-Shift-Click
Show Area
Show Handles
Mask settings
Mask Name
Global vegetation removal
The area within the additional perimeter range will be filtered by a noise texture. To get a 100% removal in this area set min and max range to the same distance.
Remove Grass
Additional perimeter range
Noise scale
Remove Plants
Additional perimeter range
Noise scale
Remove Trees
Additional perimeter range
Noise scale
Remove Objects
Additional perimeter range
Noise scale
Remove Large Objects
Additional perimeter range
Noise scale
Localized vegetation placement
Include vegetation
Add vegetation type
Selected item
1. Item
Vegetation type
Vegetation Type 1
Density
Size
Delete selected item
Accuracy
Calculate hull outline
This will analyze the meshes in the GameObject and children and calculate an outline.

This house prefab has a vegetation mask. When you add it to a scene or move it, the vegetation will adapt.

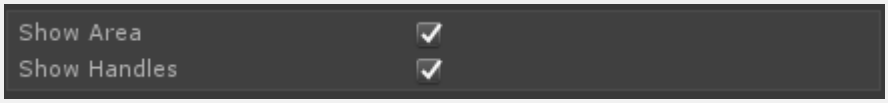
NODE EDITING

You can add or delete nodes directly in the editor. Nodes will follow terrain. Ctrl-Click in terrain to add new nodes. They will position between the 2 closest nodes. Ctrl-Shift-Click to delete nodes.

HANDLES

Show area will draw a line around the polygon area in scene view in the editor.

Show handles will add movement handles to the scene view. Use them to move nodes. With high node count polygons (100+) handles at a distance will not show.



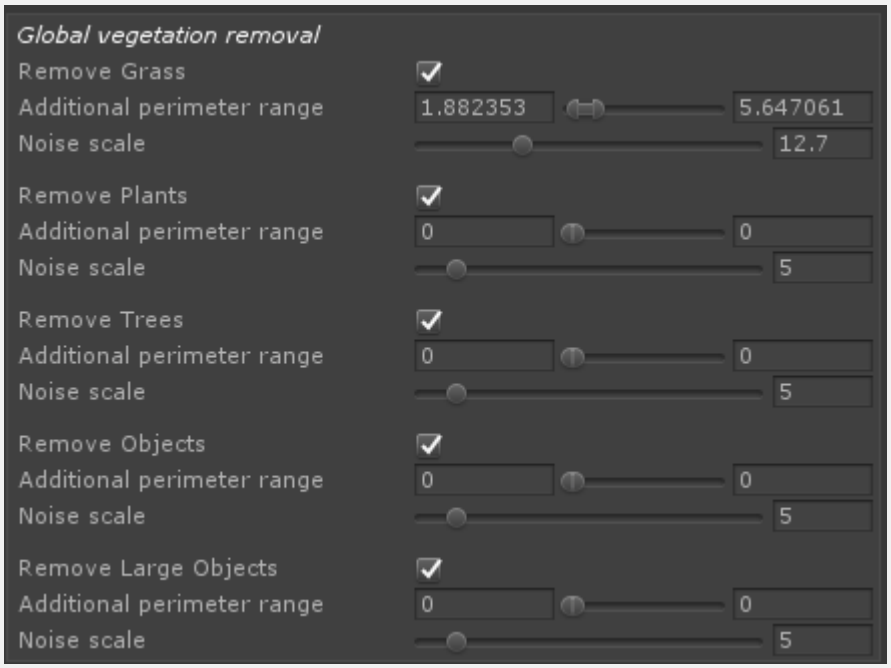
MASK SETTINGS

Mask name will show up as a label in center polygon in sceneview when option is turned on in VegetationStudioManager component.

GLOBAL VEGETATION REMOVAL

In order to remove vegetation within the polygon area enable Remove Grass, Plants, Trees, Objects or Large objects.

Additional perimeter ranges is in meters and can be set separate for each category. This will expand the polygon in all directions.



The additional perimeter range has a min/max value. The distance between these is using a perlin

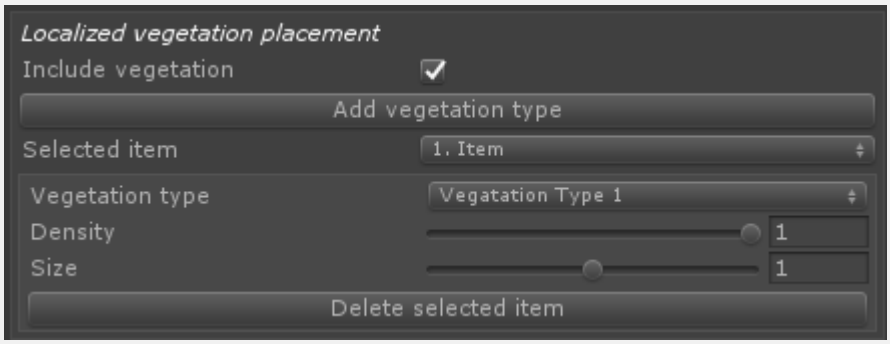
noise for the falloff to give a more organic edge to the mask. You can adjust the Noice scale to get a result you like

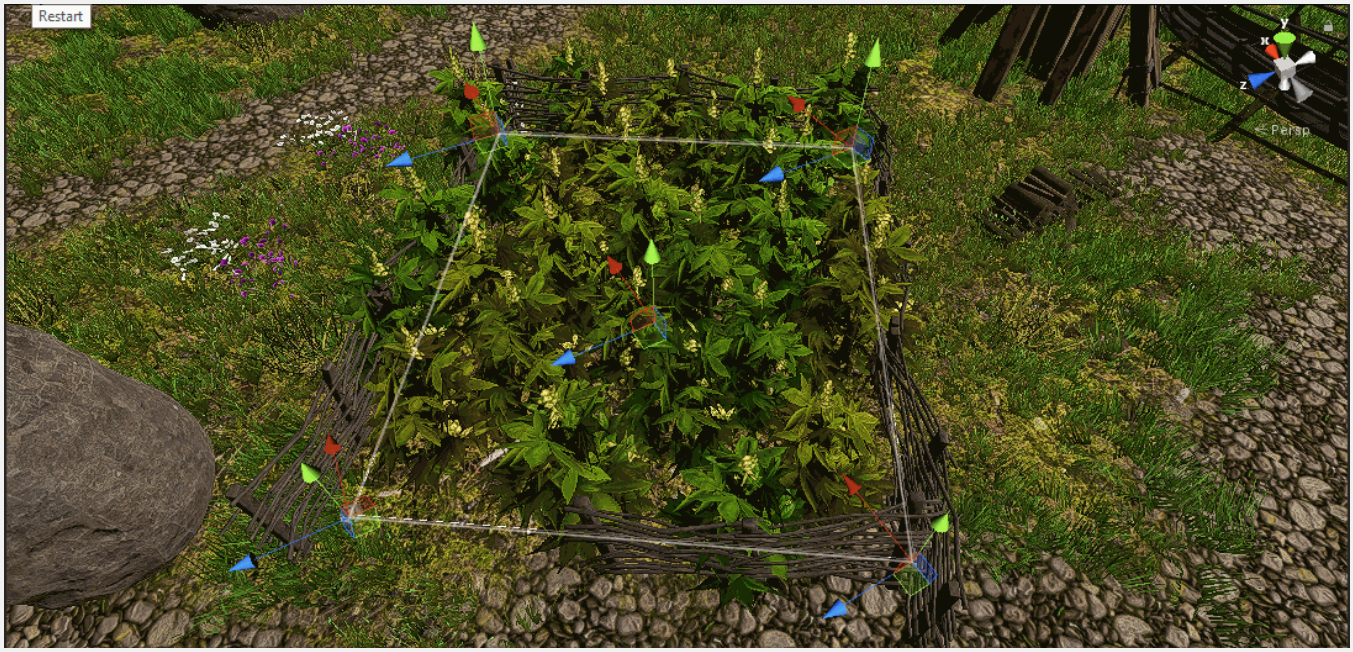
LOCALIZED VEGETATION PLACEMENT

Localized vegetation placement is used to include a vegetation type in a mask area. This could be used to introduce a new plant in a farm area, flowers in a garden etc. that does not spawn in the rest of the environment. In order to use enable the Include vegetation checkbox and add one or more Vegetation Types. The Vegetation item you want to spawn will have to be set with the same Vegetation Type ID in the Vegetation System component.

The vegetation item will be spawned inside the polygon with all normal rules set in the Vegetation System inspector.

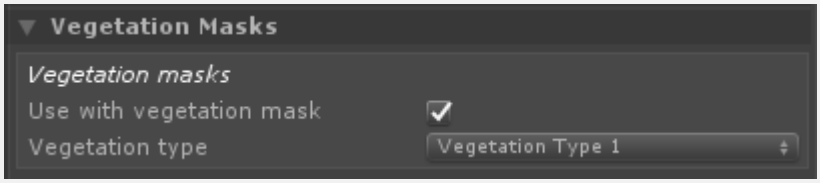
The density and size of these rules can be overridden on a mask to mask basis. This can give the effect of plants growing over time etc. These settings can be set run-time. This could allow you to switch plants in a field, make them bigger etc.





VegetationMaskArea component set up to exclude all vegetation within the area and add a plant to the field. Here size parameter is changed.

In order to configure a plant to be used for vegetation masks you select the plant in the vegetation system inspector and at the bottom enable the Use Vegetation Mask checkbox and select an ID. Multiple plants can have the same ID.



SCRIPT ACCESS

The VegetationMaskArea component can be added to any GameObject run-time. The mask settings and points can be changed at any time. The UpdateVegetationMask() function must be called after changes from script.

Available mask settings and default values are:

```
public bool RemoveGrass = true;
public bool RemovePlants = true;
public bool RemoveTrees = true;
public bool RemoveObjects = true;
public bool RemoveLargeObjects = true;
public float AdditionalGrassPerimiter = 0;
public float AdditionalPlantPerimiter = 0;
public float AdditionalTreePerimiter = 0;
public float AdditionalObjectPerimiter = 0;
public float AdditionalLargeObjectPerimiter = 0;
```

Adding a new mask to a gameobject:

```
VegetationMaskArea vegetationMaskArea =
this.gameObject.AddComponent<VegetationMaskArea >();
vegetationMaskArea.RemoveGrass = true;
vegetationMaskArea.AdditionalGrassPerimiter = 5f;
vegetationMaskArea.ClearNodes();
vegetationMaskArea.AddNodesToEnd(pointListArray);
//Points in the array list needs to be in worldspace positions.
vegetationMaskArea.UpdateVegetationMask();
```

The VegetationMaskArea will internally create a object of the type PolygonMaskArea. If you have your own system to manage polygon areas you want to mask you can also do this directly. You need to create a new PolygonMaskArea object, configure it and add it to the static VegetationStudioManager.AddVegetationMask(maskArea); function.
You will be responsible for keeping a reference to the PolygonMaskArea object and remove it and add a new if you want to change it. VegetationStudioManager.RemoveVegetationMask(maskArea);

```
List<Vector3> worldSpaceNodeList = GetWorldSpaceNodePositions();
//Replace GetWorldSpaceNodePositions with your own code to make a list if Vector3
positions in worldspace.
PolygonMaskArea maskArea = new PolygonMaskArea
{
removeGrass = RemoveGrass,
removePlants = RemovePlants,
removeTrees = RemoveTrees,
removeObjects = RemoveObjects,
removeLargeObjects = RemoveLargeObjects,
additionalGrassWidth = AdditionalGrassPerimiter,
additionalPlantWidth = AdditionalPlantPerimiter,
additionalTreeWidth = AdditionalTreePerimiter,
additionalObjectWidth = AdditionalObjectPerimiter,
additionalLargeObjectWidth = AdditionalLargeObjectPerimiter
};
maskArea.AddPolygon(worldSpaceNodeList);
VegetationStudioManager.AddVegetationMask(maskArea);
```

Look in VegetationMaskArea.cs for example on how to add localized vegetation placement from code also.

VEGETATION MASK LINE

The VegetationMaskLine component will handle run-time masking of vegetation. It is designed to be added to GameObjects in the scene and will make the vegetation adapt to them based on the settings. A mask will follow, scale and rotate with the GameObject. It can also be saved with prefabs and instanced at run-time.

In addition to the area defined by the nodes in the component, each vegetation type, Grass, Plants, Trees, Objects and Large Objects can be filtered and can have an additional range outside of the polygon mask area.

Masks are used at spawn time when new areas are loaded and will not affect rendering speed. Masking out vegetation may result in better performance.

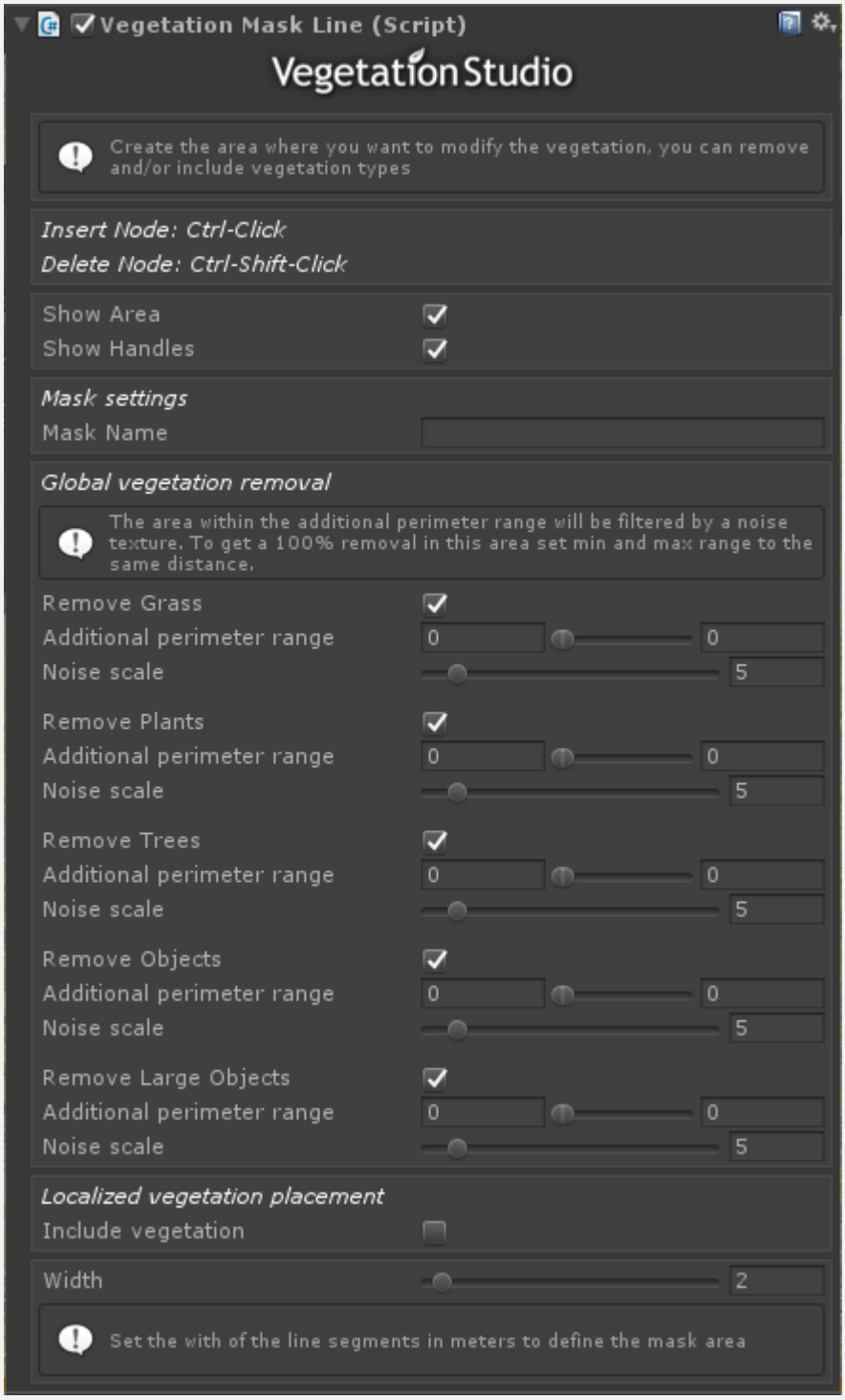

Vegetation Mask Line (Script)
Vegetation Studio
Create the area where you want to modify the vegetation, you can remove and/or include vegetation types
Insert Node: Ctrl-Click
Delete Node: Ctrl-Shift-Click
Show Area
Show Handles
Mask settings
Mask Name
Global vegetation removal
The area within the additional perimeter range will be filtered by a noise texture. To get a 100% removal in this area set min and max range to the same distance.
Remove Grass
Additional perimeter range
Noise scale
Remove Plants
Additional perimeter range
Noise scale
Remove Trees
Additional perimeter range
Noise scale
Remove Objects
Additional perimeter range
Noise scale
Remove Large Objects
Additional perimeter range
Noise scale
Localized vegetation placement
Include vegetation
Width
Set the with of the line segments in meters to define the mask area

Image showing a road masked using a VegetationMaskLineComponent. (Roads by **Sentieri**)

Node editing
Handles
Mask settings
Global vegetation removal
Localized vegetation placement
Width
Script access

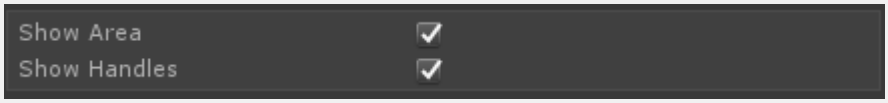
NODE EDITING

You can add or delete nodes direct in the editor. Nodes will follow terrain. Ctrl-Click in terrain to add new nodes. They will be positioned between the 2 closest nodes. Ctrl-Shift-Click to delete nodes.

HANDLES

Show area will draw a line around the polygon area in scene view in the editor.

Show handles will add movement handles to the scene view to move nodes. With high node count polygons (100+) handles at a distance will not show.



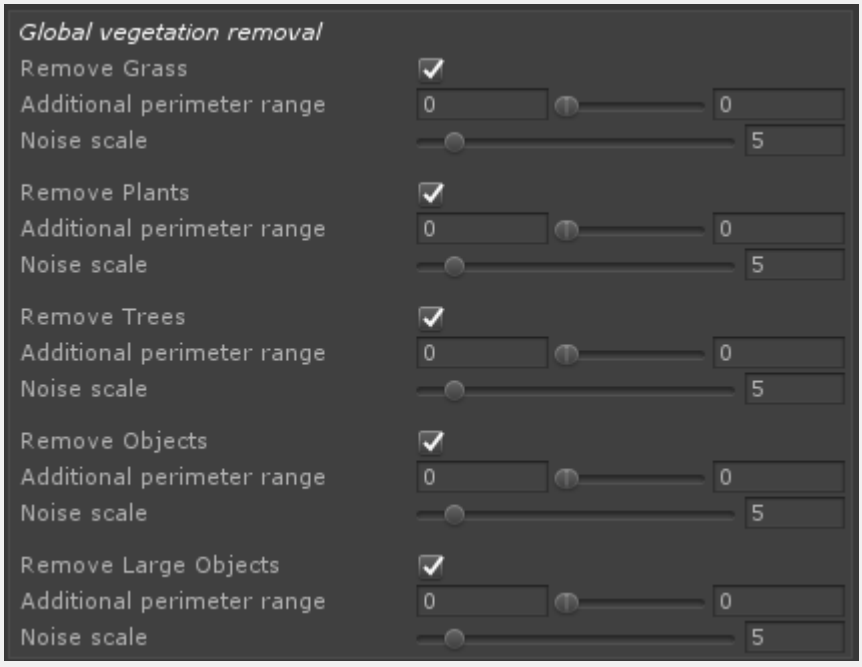
MASK SETTINGS

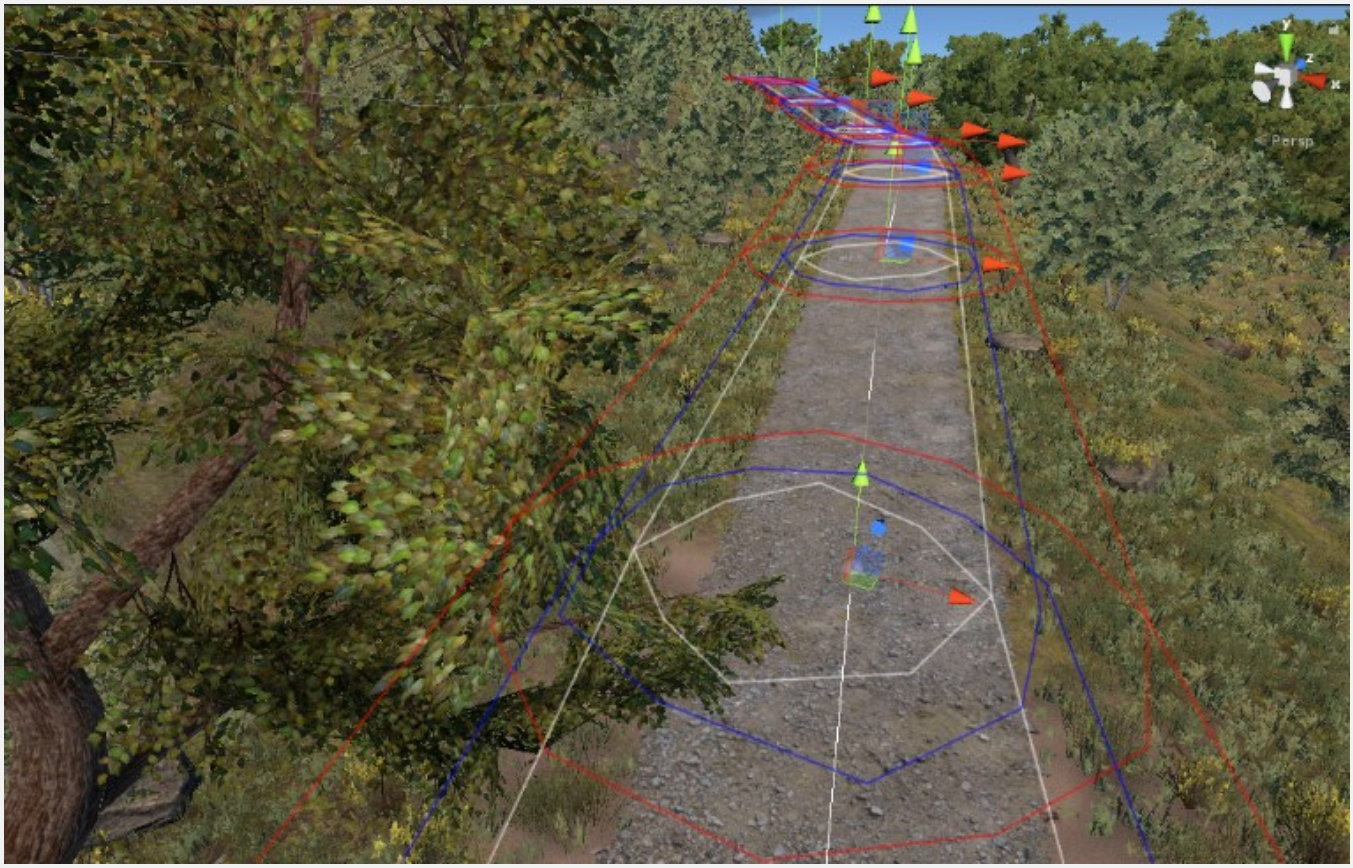
Mask name will show up as a label in the center polygon in sceneview when option is turned on in VegetationStudioManager component.

GLOBAL VEGETATION REMOVAL

In order to remove vegetation within the polygon area enable Remove Grass, Plants, Trees, Objects or Large objects.

Additional perimeter distances is in meters and can be set separately for each category. This will expand the polygon in all directions.





It is possible to set a different additional distance on top of the line width. In this case trees are kept further away from the road.

Plants limited for a distance and grass only removed in road area.

Road masked out with a VegetationMaskLine component. (Roads by **Sentieri**)

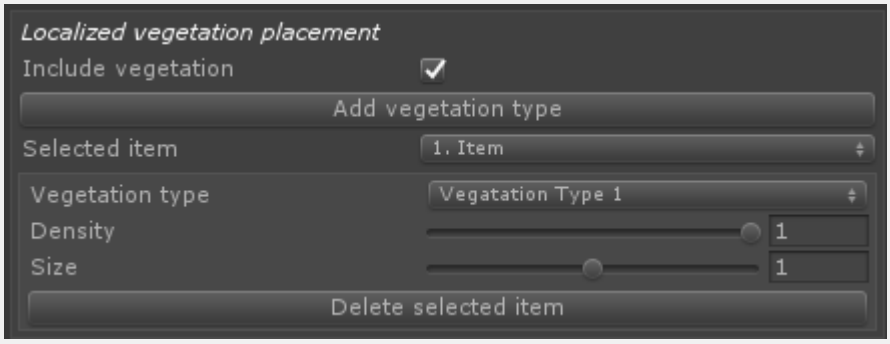
The additional perimeter range has a min/max value. The distance between these is using a perlin noise for the falloff to give a more organic edge to the mask. You can adjust the Noice scale to get a result you like

LOCALIZED VEGETATION PLACEMENT

Localized vegetation placement is used to include a vegetation type in a mask line. This could be used to introduce a new plant as a hedge, plant trees in a row by a road etc. that does not spawn in the rest of the environment. In order to use enable the Include vegetation checkbox and add one or more Vegetation Types. The Vegetation item you want to spawn will have to be set with the same Vegetation Type ID in the Vegetation System component.

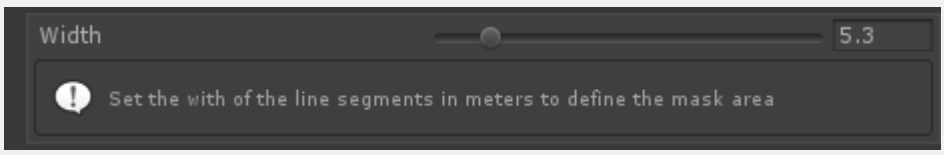
The vegetation item will be spawned inside the polygon with all normal rules set in the Vegetation System inspector.

The Density and size of these rules can be overridden on a mask to mask basis. This can give the effect of plants growing over time etc. These settings can be set run-time. This could allow you to switch plants in a field, make them bigger etc.



WIDTH

Width setting controls the with of the line mask.



SCRIPT ACCESS

The VegetationMaskLine component can be added to any GameObject run-time. The mask settings and points can be changed at any time. The UpdateVegetationMask() function must be called after changes from script.

Available mask settings and default values are:

```
public bool RemoveGrass = true;
public bool RemovePlants = true;
public bool RemoveTrees = true;
public bool RemoveObjects = true;
public bool RemoveLargeObjects = true;
public float AdditionalGrassPerimiter = 0;
public float AdditionalPlantPerimiter = 0;
public float AdditionalTreePerimiter = 0;
public float AdditionalObjectPerimiter = 0;
public float AdditionalLargeObjectPerimiter = 0;
```

Adding a new mask to a gameobject:

```
VegetationMaskLine vegetationMaskLine =
this.gameObject.AddComponent<VegetationMaskLine>();
vegetationMaskLine.RemoveGrass = true;
vegetationMaskLine.AdditionalGrassPerimiter = 5f;
vegetationMaskLine.ClearNodes();
vegetationMaskLine.AddNodesToEnd(pointListArray);
//Points in the array list needs to be in worldspace positions.
vegetationMaskLine.UpdateVegetationMask();
```

The VegetationMaskLine will internally create a object of the type PolygonMaskLine. If you have your own system to manage polygon areas you want to mask you can also do this direct. You need to create a new PolygonMaskLine object, configure it and add it to the static VegetationStudioManager.AddVegetationMask(maskLine); function.
You will be responsible for keeping a reference to the PolygonMaskLine object and remove it and add a new if you want to change it. VegetationStudioManager.RemoveVegetationMask(maskLine);

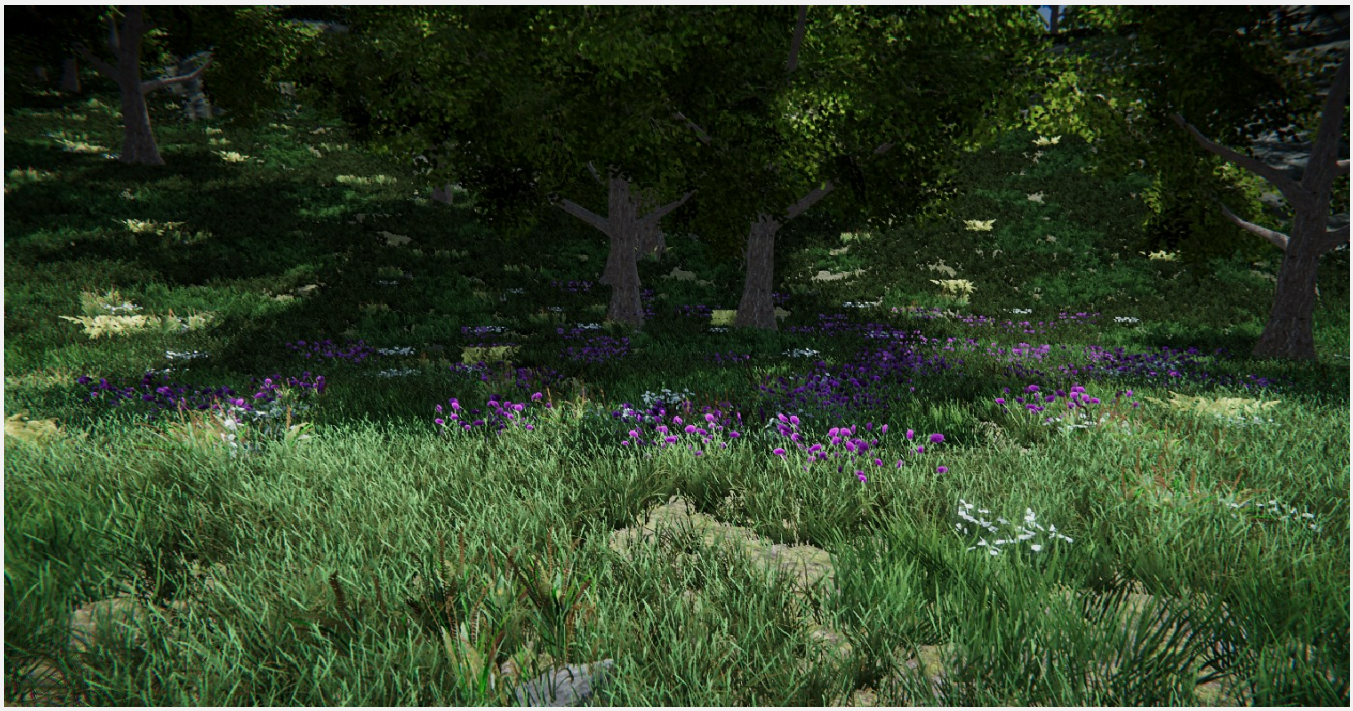
Internally the VegetationMaskLine component will make one PolygonMaskLine object per segment in the line.

```
List<Vector3> worldSpaceNodeList = GetWorldSpaceNodePositions();
//Replace GetWorldSpaceNodePositions with your own code to make a list if Vector3
positions in worldspace.
PolygonMaskLine maskLine = new PolygonMaskLine
{
removeGrass = RemoveGrass,
removePlants = RemovePlants,
removeTrees = RemoveTrees,
removeObjects = RemoveObjects,
removeLargeObjects = RemoveLargeObjects,
additionalGrassWidth = AdditionalGrassPerimiter,
additionalPlantWidth = AdditionalPlantPerimiter,
additionalTreeWidth = AdditionalTreePerimiter,
additionalObjectWidth = AdditionalObjectPerimiter,
additionalLargeObjectWidth = AdditionalLargeObjectPerimiter
};
maskLine.AddPolygon(worldSpaceNodeList);
VegetationStudioManager.AddVegetationMask(maskLine);
```

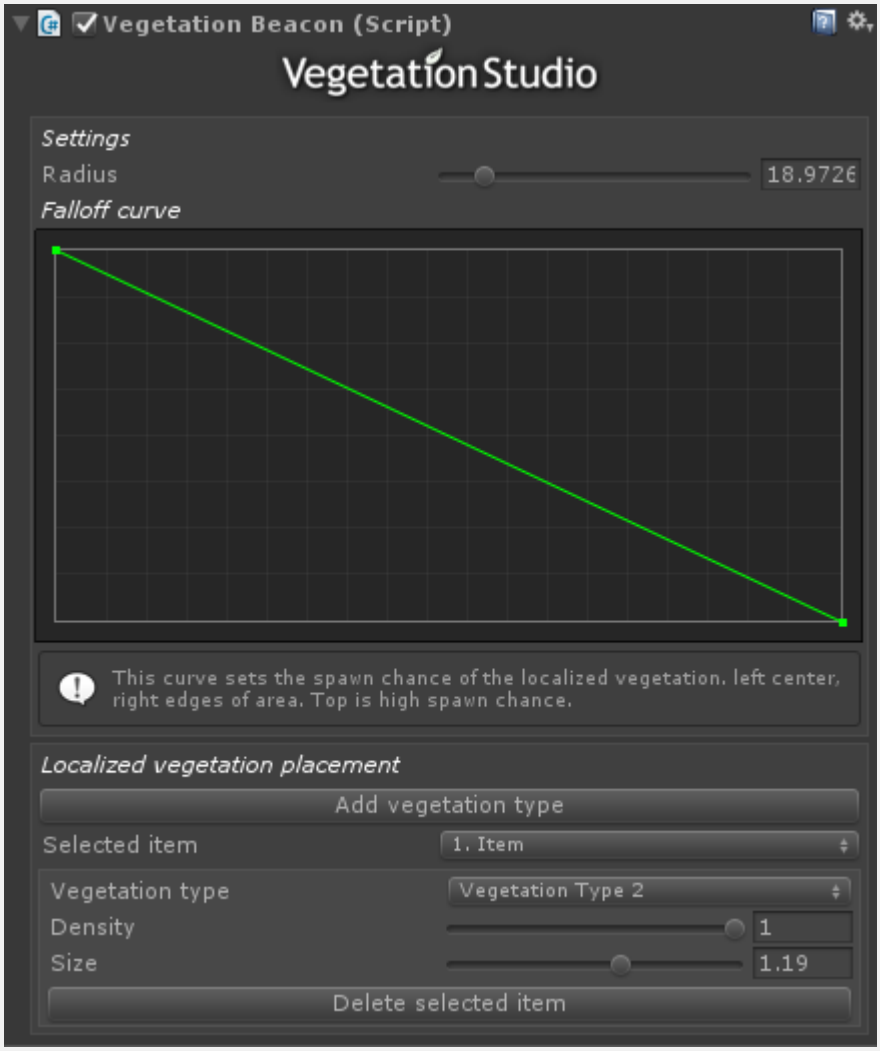
Look in VegetationMaskLine.cs for example on how to add localized vegetation placement from code also.

VEGETATION BEACON

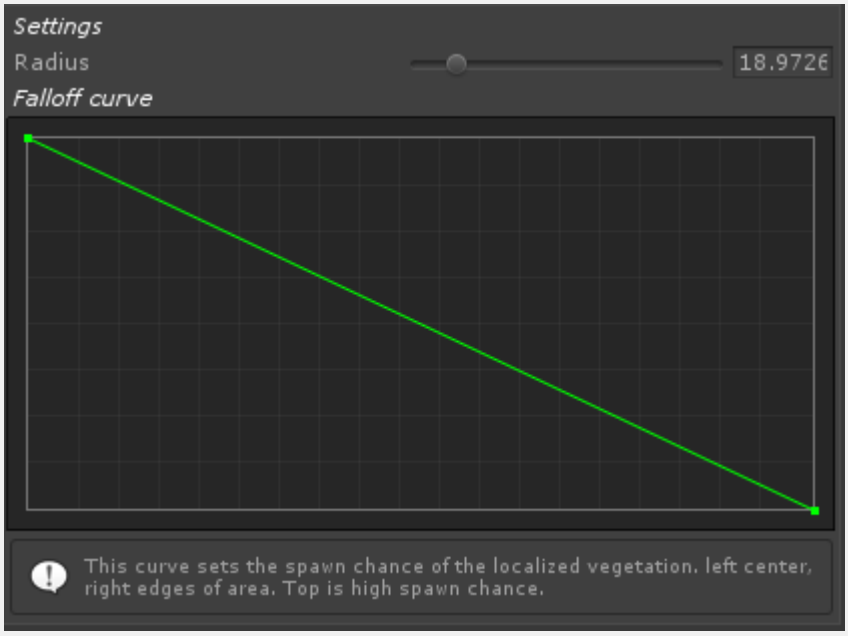
The VegetationBeacon Component is designed to include/attract vegetation to areas. You can add it to any GameObject and save it with a prefab.
You configure radius and a fallout curve. The curve controls the density from the center of the area and out to the edge. This can be used to add trees, plants or objects to an area. The included vegetation will still react to any configured rules, terrain textures, height, steepness, noise etc. And can also be culled by other VegetationMasks.

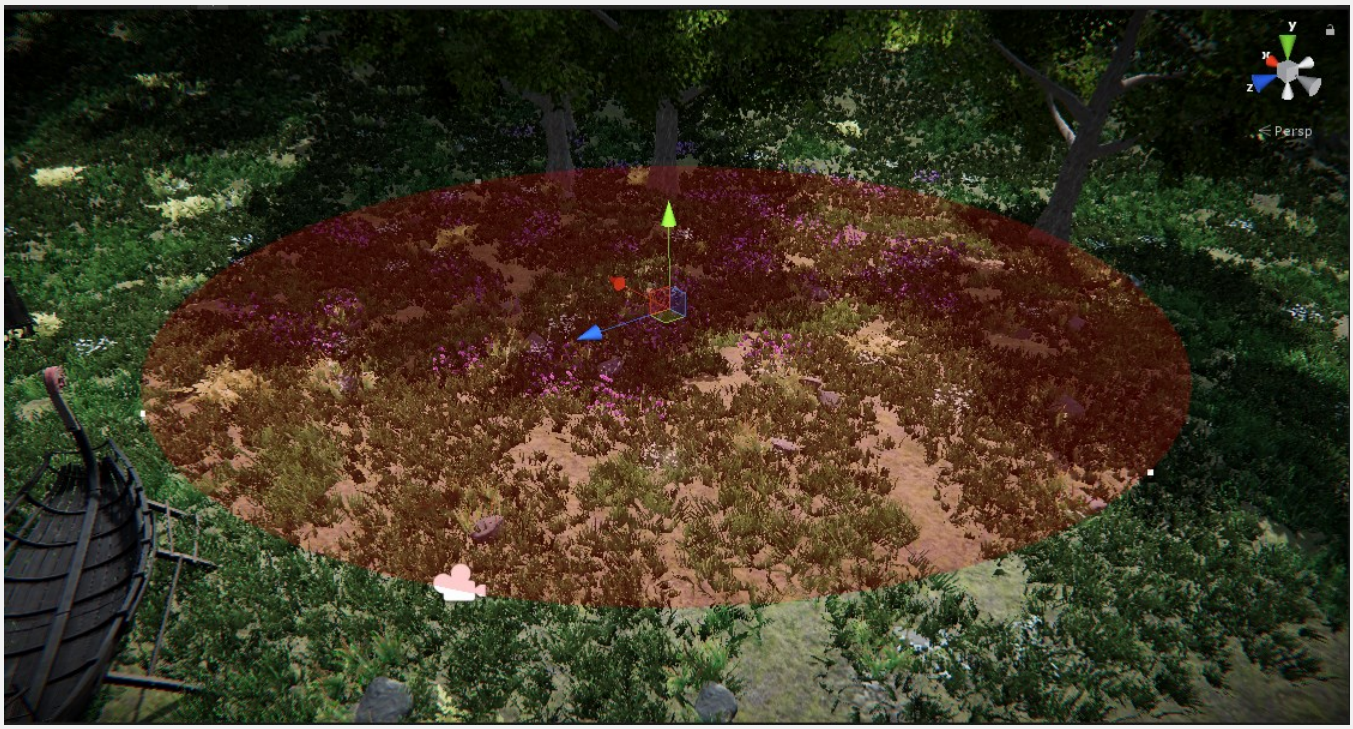


Flowers in the field here is placed using a Vegetation Beacon


Vegetation Beacon (Script)
Vegetation Studio
Settings
Radius
18.9726
Falloff curve
This curve sets the spawn chance of the localized vegetation. left center, right edges of area. Top is high spawn chance.
Localized vegetation placement
Add vegetation type
Selected item
1. Item
Vegetation type
Vegetation Type 2
Density
1
Size
1.19
Delete selected item

SETTINGS





Sceneview Gizmo showing the area/radius of the vegetation beacon

RADIUS

This sets the effect radius of the Vegetation Beacon.

FALLOFF CURVE

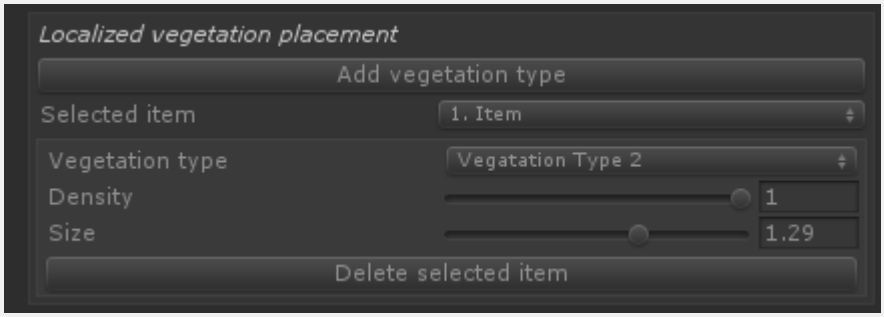
The falloff curves sets the density of the included vegetation types. Left of the curve is the center of the area and right the edges in all directions. Top is 100% of the normal density of the Vegetation Item. Bottom is 0 spawn chance.

LOCALIZED VEGETATION PLACEMENT

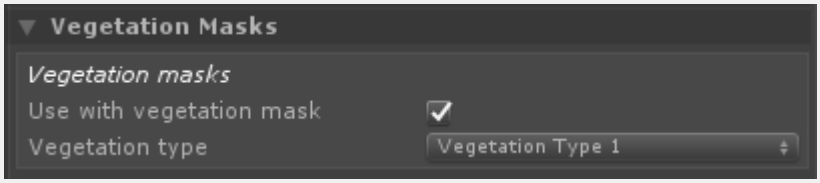
Localized vegetation placement is used to include a vegetation type the beacon area. This could be used to introduce a new plant in a area, flowers in a garden etc. that does not spawn in the rest of the environment. In order to use enable the Include vegetation checkbox and add one or more Vegetation Types. The Vegetation item you want to spawn will have to be set with the same Vegetation Type ID in the Vegetation System component.

The vegetation item will be spawned inside the area with all normal rules set in the Vegetation System inspector.

The density and size of these rules can be overridden on a mask to mask basis. This can give the effect of plants growing over time etc. These settings can be set run-time. This could allow you to switch plants in a field, make them bigger etc.

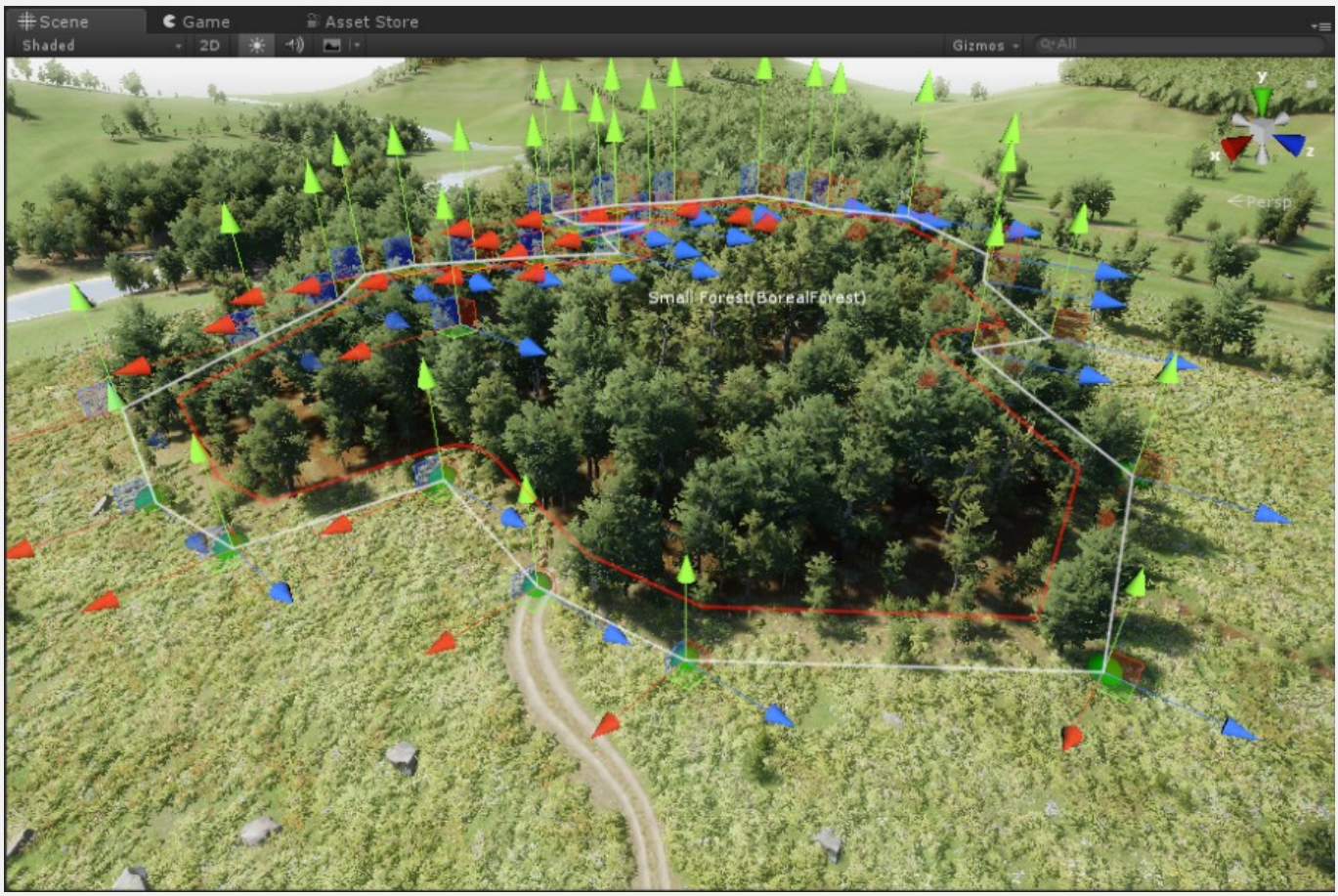


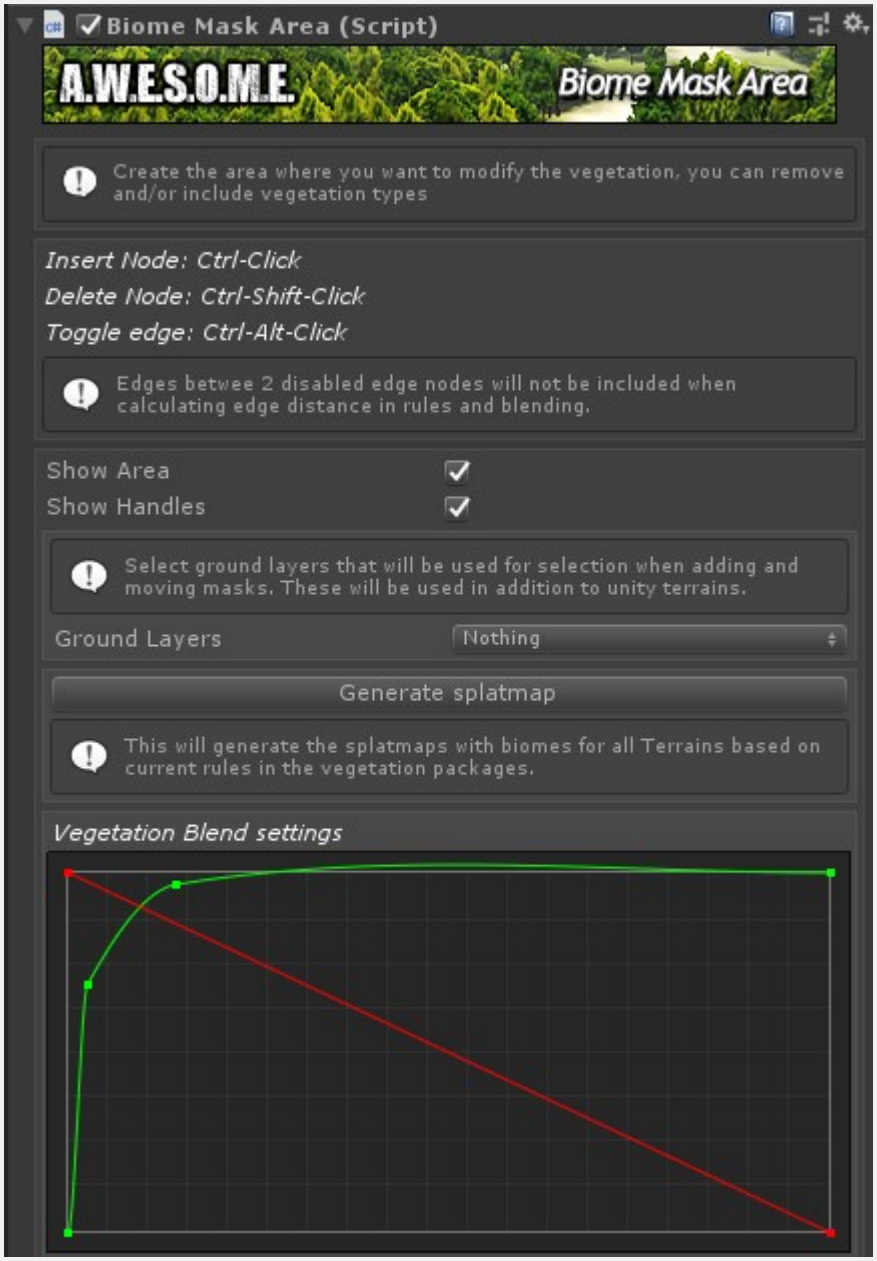
In order to configure a plant to be used for vegetation masks you select the plant in the vegetation system inspector and at the bottom enable the Use Vegetation Mask checkbox and select an ID. Multiple plants can have the same ID.

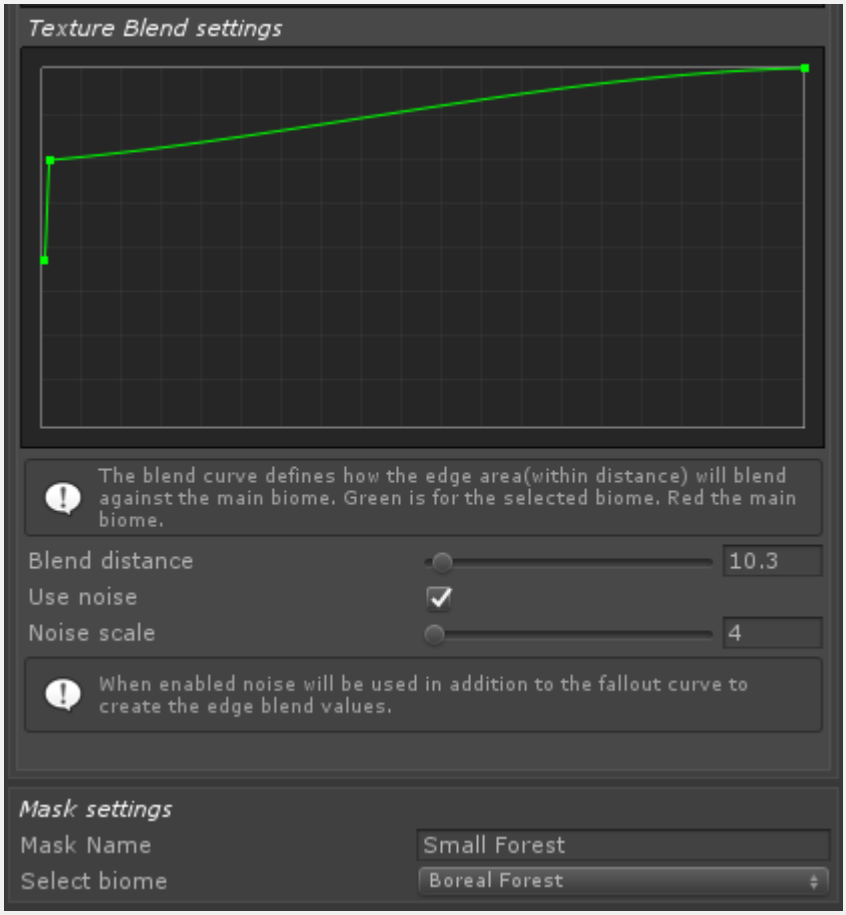

Vegetation Masks
Vegetation masks
Use with vegetation mask
Vegetation type
Vegetation Type 1

BIOME MASK AREA

The biome mask area allows you to define areas on the terrain that will contain a different biome. Create the polygon area and select a BiomeType. This will spawn vegetation from VegetationPackages/Biomes with the same BiomeType added to the VegetationSystemPro component.




Biome Mask Area (Script)
A.W.E.S.O.M.E.
Biome Mask Area
Create the area where you want to modify the vegetation, you can remove and/or include vegetation types
Insert Node: Ctrl-Click
Delete Node: Ctrl-Shift-Click
Toggle edge: Ctrl-Alt-Click
Edges betwee 2 disabled edge nodes will not be included when calculating edge distance in rules and blending.
Show Area
Show Handles
Select ground layers that will be used for selection when adding and moving masks. These will be used in addition to unity terrains.
Ground Layers
Nothing
Generate splatmap
This will generate the splatmaps with biomes for all Terrains based on current rules in the vegetation packages.
Vegetation Blend settings



NODE EDITING

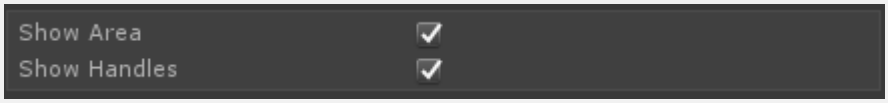
You can add or delete nodes directly in the editor. Nodes will follow terrain. Ctrl-Click in terrain to add new nodes. They will position between the 2 closest nodes. Ctrl-Shift-Click to delete nodes.

HANDLES

Show area will draw a line around the polygon area in scene view in the editor.

Show handles will add movement handles to the scene view. Use them to move nodes. With high

node count polygons (100+) handles at a distance will not show.



GROUND LAYERS

Ground layers sets the layers used as terrain when editing nodes. This is needed for Mesh and Raycast terrains.

VEGETATION BLEND SETTINGS

These 2 curves defines how the Vegetation from the Biome Mask Area blends with the biome under it. This blend happens within blend distance.

TERRAIN BLEND SETTINGS

This curves defines how the textures/splatmap from the Biome Mask Area blends with the biome under it. This blend happens within blend distance.

BLEND DISTANCE

The distance in meters from the biome edge used to blend between the biomes

USE NOISE

Enable noise in the blend area

NOISE SCALE

Scale of the noise.

MASK SETTINGS

MASK NAME

Set the name of the Biome Area Mask. Will show in the sceneview when selected.

SELECT BIOME

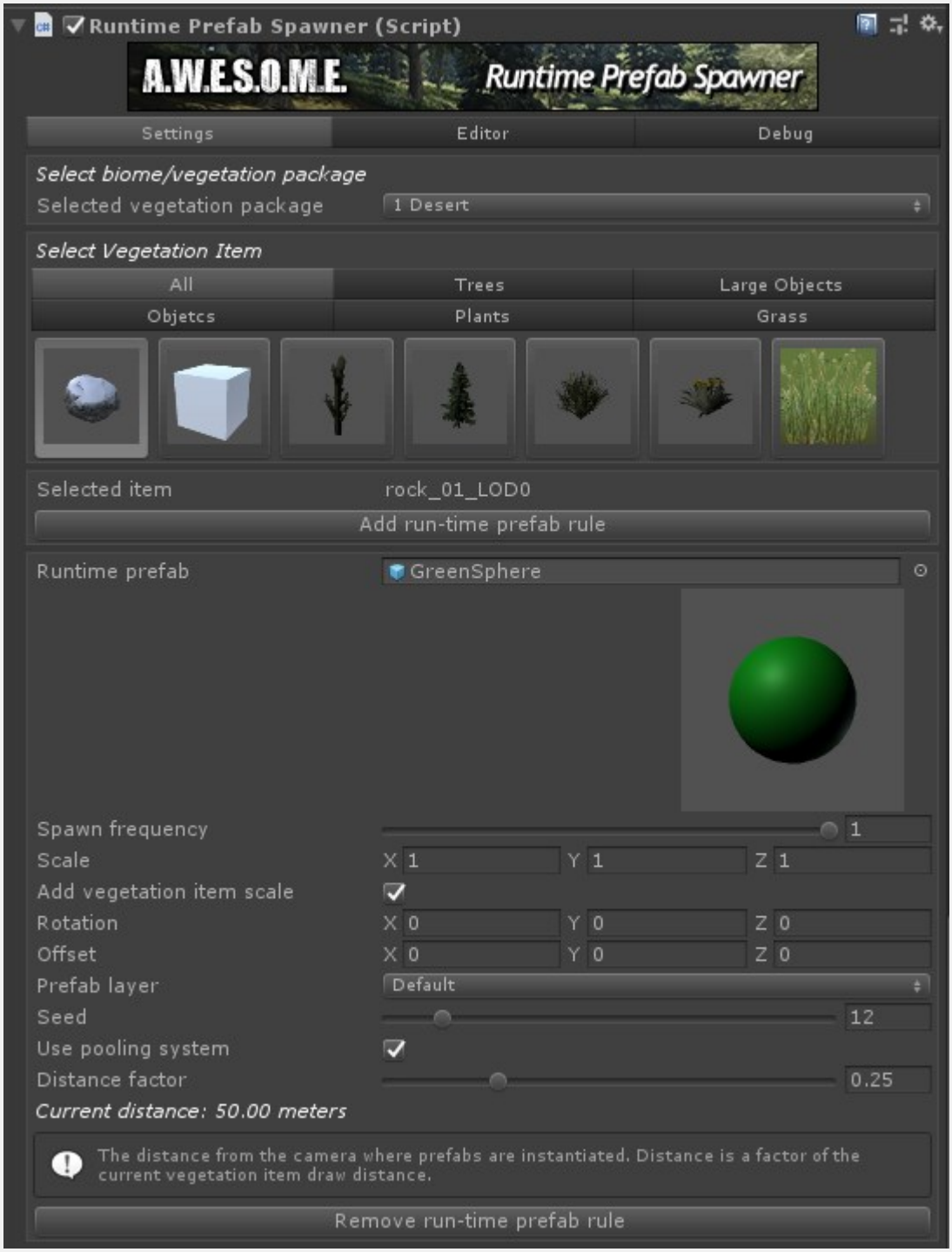
Select what biome will be in the Biome Mask Area

RUNTIME PREFAB SPAWNER

The Runtime Prefab Spawner component is designed to instantiate prefabs related to the trees or objects in Vegetation Studio. It allows you to assign a prefab to a Vegetation Item. When the item is within range of the camera an instance of the prefab is created at the exact location of the item. This item will be removed automatically when the item is out of range again.

The use case for this could be to add effects like falling leaves, insects near flowers, sounds from the old tree, harvesting logic etc. The prefabs can have any scripts attached.

The rules set up in the prefab spawner is saved in the vegetation package.



This approach allows you to add special functionality to large amounts of vegetation items with no extra overhead of culling and processing the effect gameobjects in the hierarchy.

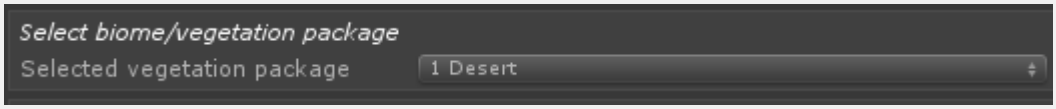
You add it to the GameObject with the VegetationSystem component and configure.

In this example video we added a prefab with a falling leaves particle effect to one of the tree models. When any tree of this type gets within range it will instantiate a copy of the effect with the same position as the tree. When it is out of range it is removed automatically. This will allow for effects on huge amounts of trees or plants with no overhead of culling and gameobject hierarchy handling.

Image showing the falling leaves.

SELECT BIOME/VEGETATION PACKAGE

Select what vegetation package you want to edit rules for.

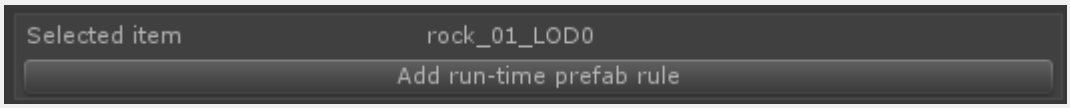


SELECT VEGETATION ITEM

Select the vegetation item you want to add or edit rules for.

ADD RUN-TIME PREFAB RULE

Click this to add a rule to the selected item. A item can have more than one rule.



EDIT RULE SETTINGS

These are the spawing rules for each added prefab. Adjust to get the frequency and position you want.

SPAWN FREQUENCY

Spawn frequency is the chance of a prefab being spawned on a vegetation instance. 1 = 100% of instances.

SCALE

This controls the scale of the prefabs. This overrides any scale set in the transform of the prefab from before.

ADD VEGETATION ITEM SCALE

Trees and rocks have a random scale set on the vegetation item. select this to have the prefab scale with the vegetation item instance.

ROTATION

Rotation in localspace of the vegetation item.

OFFSET

Offset in localspace of the vegetation item

PREFAB LAYER

Here you can set the layer the instantiated prefab will be added to.

SEED

Random seed for selection of what instances that get a prefab spawned.

USE POOLING SYSTEM

By default prefabs will be using the built in pooling system. Prefabs are disabled and enabled before used again. Uncheck this if the prefab can not be pooled.

DISTANCE FACTOR

This sets the distance from camera where the prefab will be created/removed

REMOVE RUN-TIME PREFAB RULE

Click this to remove the prefab rule.

TOUCH REACT SYSTEM PRO

Vegetation Studio has a Touch React system that allows grass and flowers to bend when in contact with selected meshes or colliders in the scene. To enable this add a TouchReactSystem component to a GameObject in the scene. There should be only one of these components in the scene. When adding Vegetation Studio Pro to the scene one is created by default.

If you are not planning to use touch react system just disable the component or remove it.

The touch react capability can be added to Objects or Large Objects spawned by the VegetationSystem component or any GameObject with a collider or Mesh.

It is also possible to do advanced rendering using a custom material to a layer invisible to the main camera. See the Car track guide linked below.

Settings Tab
Editor Tab
Debug Tab
Adding touch react to your scene
Touch React Collider Component
Touch React Mesh Component
Requirements

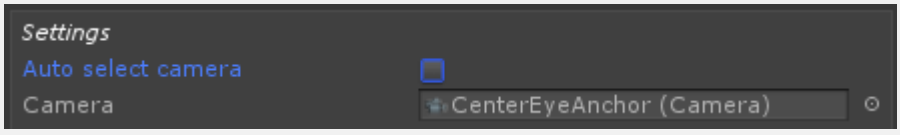
Video showing a car set up with a touch material on a Trail Renderer to create a persistent track in the grass. See this guide for a more detailed look at setting up the car tracks.

By adding a TouchReactCollider component to the boat you can force the grass to only grow up to the boat.

SETTINGS TAB

AUTO SELECT CAMERA

By default Camera.MainCamera is used for touch React area selection. Disable checkbox to select camera manually. The area around the camera is rendered to a TouchReactBuffer that is used by the custom grass shader.



TOUCH REACT LAYER

Select a layer not seen by the game cameras. This layer is used to render meshes and colliders to the touch buffer.

BUFFER RESOLUTION

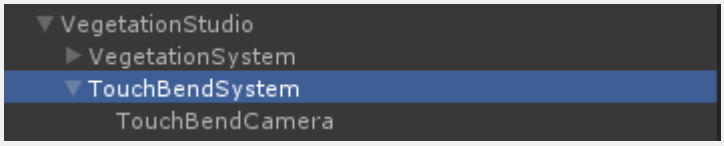
Select the resolution of the touch buffer. Larger buffer gives better resolution on large areas but will take more time to render.

AFFECTED AREA

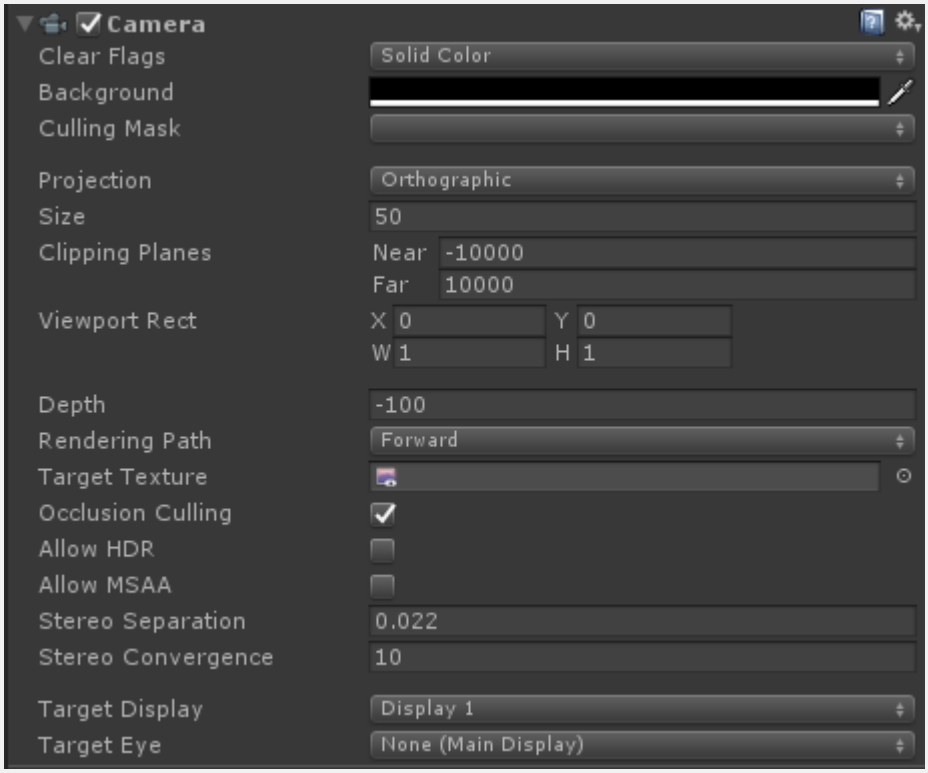
Affected area is the ortho size of the camera used to render the touch buffer to GPU. a size of 50 will affect 25 meters in radius from the camera.

EDITOR TAB

Disable the “Hide TouchReact Camera” checkbox to show the Camera rendering the touch buffer in the inspector hierarchy.



The camera is created and configured by the TouchReactSystemPro component. There should normally be no need to change anything on the camera.



DEBUG TAB

If you enable the “Show colliders/meshes” checkbox everything that will bend the grass will show up as green in the sceneview.

Touch react debug mode enabled and disabled

COLLIDERS AND MESH

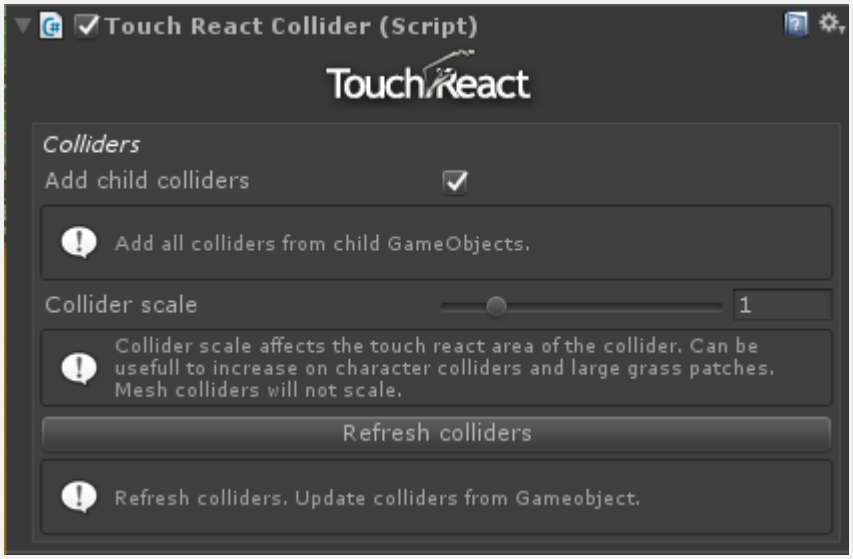
Count of colliders and meshes include all added by normal GameObjects. Vegetation Items rendered instanced to the touch buffer will not show up in the count.

ADDING TOUCH REACT TO YOUR SCENE

NORMAL GAMEOBJECTS

Any GameObject in the scene with a Collider or a MeshFilter can be used with touch react.

TOUCH REACT COLLIDER COMPONENT



ADD CHILD COLLIDERS

With Add child colliders checked the component will add and render all colliders in the GameObject and children to the Touch React buffer.
When disabled only colliders on the GameObject will be used.

COLLIDER SCALE

It can sometimes be useful to scale up the effect of colliders. In cases with many and small colliders like ragdolls you will get better effect with a bigger scale of the colliders rendered to the buffer. To get head and body overlapping etc. Play with the scale until you get the effect you want.

Effect of touch react enabled on a character with a ragdoll and colliders. The scale is increased a bit in order to properly hit the vertexes of the grass

Same scene with touch react turned off. You can almost not see the character in the grass.

REFRESH COLLIDERS

Press refresh colliders if you change or update the colliders run-time.

```
//get a reference to the TouchReactCollider and call
touchReactCollider.RefreshColliders()
//to do the refresh in script.
```

TOUCH REACT MESH COMPONENT

Add the TouchReactMesh collider to any GameObject with a MeshFilter. The mesh in the mesh filter will be rendered to the touch react buffer and grass will bend.

REQUIREMENTS

In order for touch react to work with grass or flowers they need to be using Vegetation Studios custom grass shader. You can add Texture 2D grass, plants or Flowers direct to the Vegetation Studio Component or customize them using the **Grass Patch Generator** that makes mesh patch grass patches with built in LOD.

GRASS PATCH GENERATOR

Grass Patch Generator is a tool to produce mesh grass and plant patches with level of detail (LOD) from standard Texture2D images with alpha.

Size, resolution and a range of settings will be saved with the prefab. The resulting prefab can be used with Vegetation Studio as instanced rendered grass with Touch Bend support. Or used as normal GameObjects in Unity with a LOD Group.

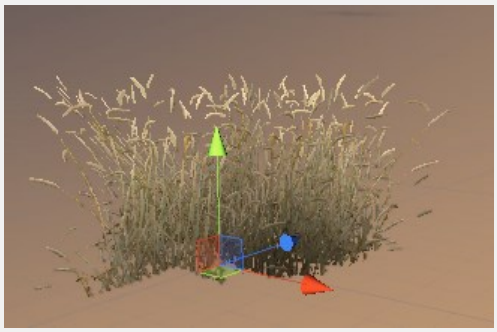
To create a new generator select “Window/AwesomeTechnologies/Add Grass Patch Generator” from the menu in Unity. This will make a new GameObject with a generator component. There is a default grass texture loaded. Add your texture. Set settings as described below in this page. When finished choose one of the 2 options(with and without LOD) to save the prefab. Prefab, mesh asset and Material will be saved in the folder you choose.

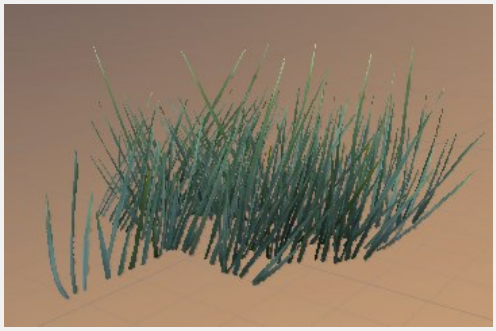
The settings in the box “Shader settings” can be changed runtime in the Vegetation System inspector when used later.

When the prefab is saved the GameObject with the generator is no longer needed and can be removed from the scene.

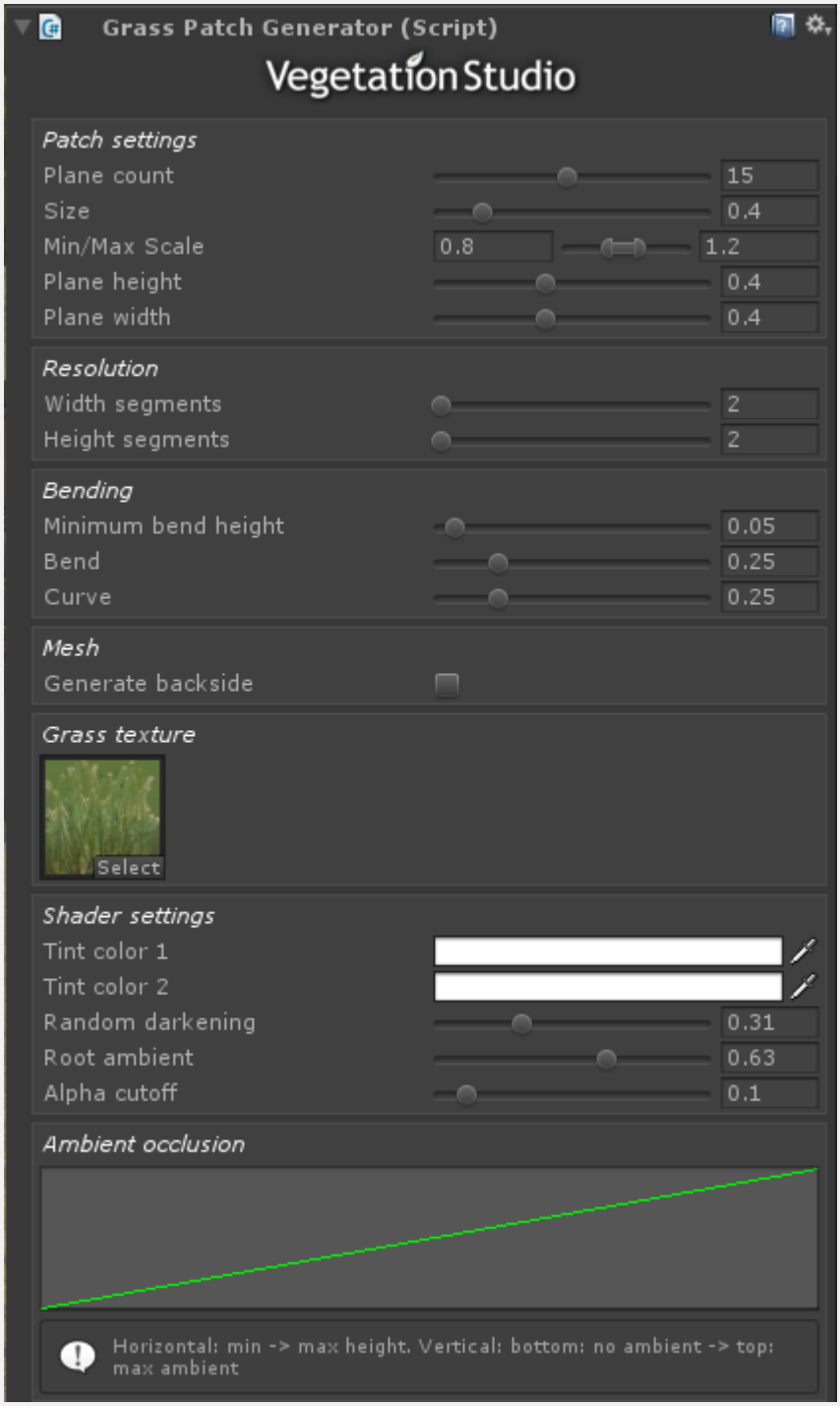
If you want to save the settings for later use, make a prefab of the GrassPatchGenerator object.

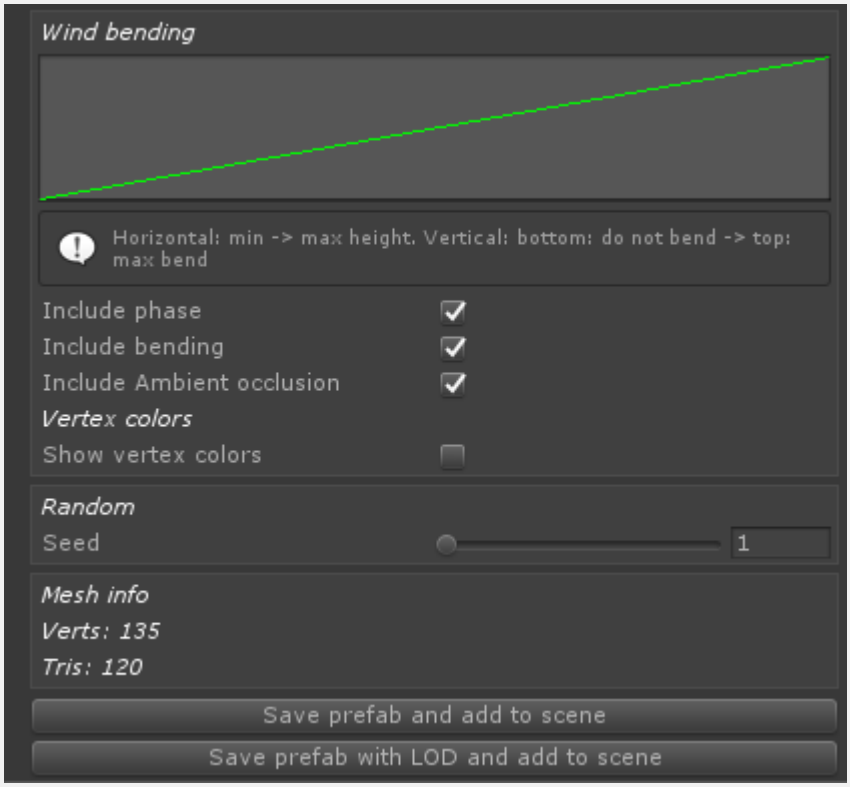
See Guide – **Create a new grass patch** for an example.





Patch Settings
Resolution
Bending
Mesh
Grass texture
Shader Settings
Ambient Occlussion
Wind Bending
Random
Mesh Info
Generate


Grass Patch Generator (Script)
VegetationStudio
Patch settings
Plane count
15
Size
0.4
Min/Max Scale
0.8
1.2
Plane height
0.4
Plane width
0.4
Resolution
Width segments
2
Height segments
2
Bending
Minimum bend height
0.05
Bend
0.25
Curve
0.25
Mesh
Generate backside
Grass texture
Select
Shader settings
Tint color 1
Tint color 2
Random darkening
0.31
Root ambient
0.63
Alpha cutoff
0.1
Ambient occlusion
Horizontal: min -> max height. Vertical: bottom: no ambient -> top: max ambient

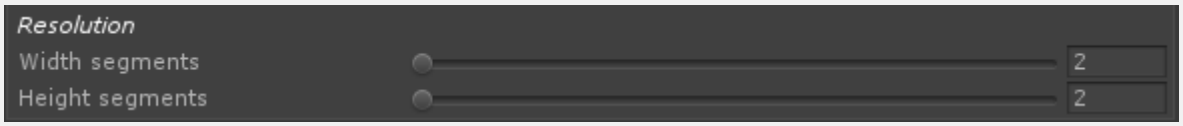


PATCH SETTINGS

- Plane count
  Number of planes used for the grass patch. Higher plane count gives more grass but also a higher polygon mesh.
- Size
  The size of the mesh. This adjust the randomness of the plane center position.
- Min/max scale
  Min/max scale of each individual plane. Add a bigger range for more randomness
- Plane Height
  Base height of each plane. Make sure the height/width aspect fit the texture you are using.
- Plane width
  Base width of each plane. Make sure the height/width aspect fit the texture you are using.

RESOLUTION

- width segments
  Number of width segments for each plane. If you want the planes to curve you need a higher count than 2
- height segments
  Number of width segments for each plane. If you want the planes to bend you need a higher count than 2



BENDING

- Minimum bend height
  This setting will set the minimum height in meters where the planes are allowed to start bending.
- Bend
  Bend amount above the minimum height setting
- Curve
  Curve amount of each plane.

MESH

Enable this setting to generate a backside for the planes in the grass patch. This is not needed for use with the VegetationStudio grass shader.

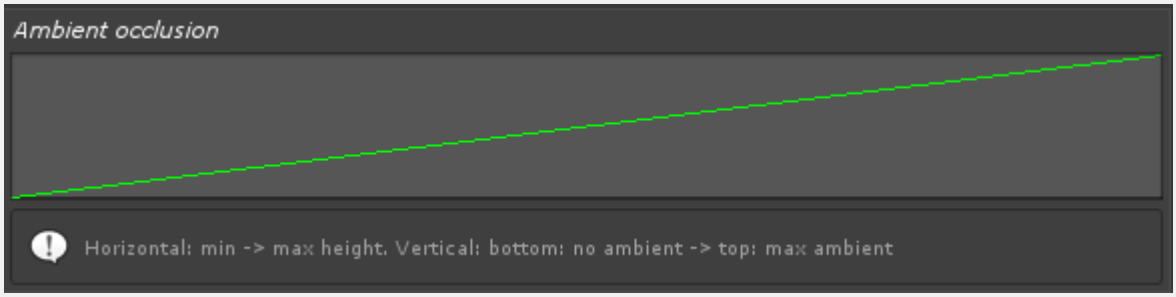
GRASS TEXTURE

Here you assign the grass/plant texture you want to use with the grass patch.

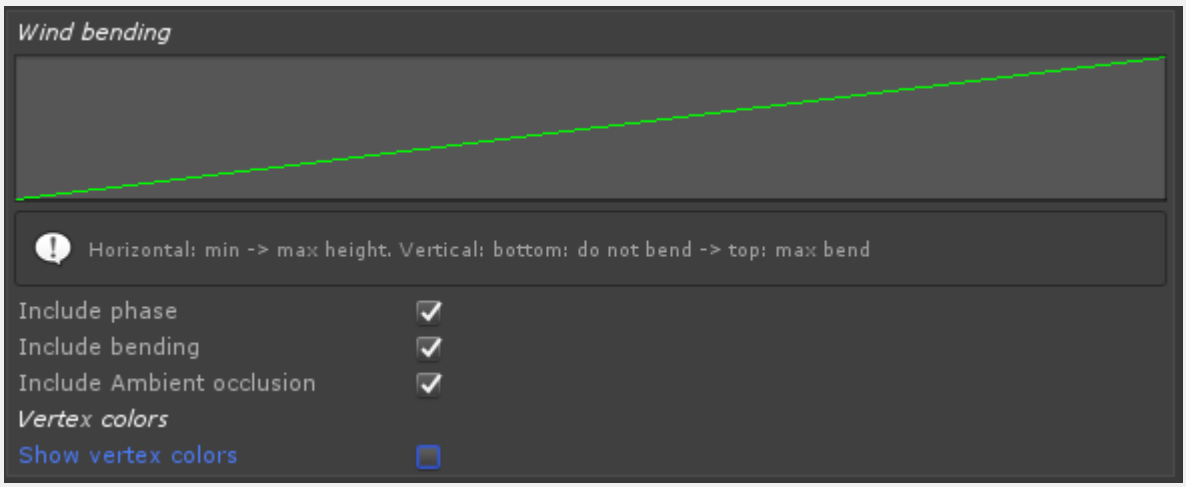
SHADER SETTINGS

These shader settings are the initial settings for the grass patch. They can be adjusted in the VegetationSystem inspector when you add a grass patch to Vegetation Studio.

AMBIENT OCCLUSSION



WIND BENDING



RANDOM

Sets the random seed used to generate all the positions, rotation and size of each plane.

MESH INFO

Size info on the current generated mesh

GENERATE

When you are happy with the patch you can save it to the scene and project. If you select to save with LOD it will automatic generate a LOD for the grass pacth. The LOD is additive and will keep adding more planes on the higher quality LODs up to the max plane count.


Save prefab and add to scene
Save prefab with LOD and add to scene