

# **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 ( A.W.E.S.O.N Vege	etation Stu Profess	Idio sional
	Refresh vegetation	
Settings Vegetation	Cameras Biomes	Terrains Edit Biomes
Environment	Render	Texture Masks
Debug		
Select biome/vegetation package		
Selected vegetation package	1 Default biome	
Select the biome to edit. Chang	es will be happen direct in the scene.	
Select the blome to edit. Chang	es win be nappen uneccin the scene.	
▼ General settings		
Package name	Default biome	
Add Vegetation Items		
Drop a Prefab with the vegetatio initial rules and settings correct		
GRASS GPLANT TREE	🗊 OBJECT 🛛 🗊 LRG OBJ	
Drop a Texture2D to create a ne and settings correct.		
Select Vegetation Item		
	Trees	Large Objects
Objetcs	Plants	Grass
Delete selected ite		Copy selected item
General settings		
<ul> <li>Position</li> </ul>		
Distance falloff		
▶ Colliders		
Noise rules		
Biome area rules		
Concave location rules		
<ul> <li>Terrain texture rules</li> <li>Texture mask rules</li> </ul>		
<ul> <li>Texture mask rules</li> <li>Vegetation mask rules</li> </ul>		
<ul> <li>Terrain source rules</li> </ul>		



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.

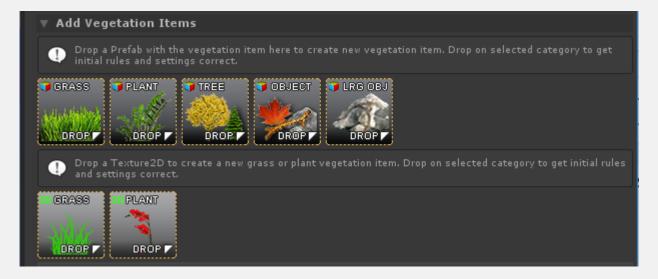




# **ADD VEGETATION ITEMS**

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.

Select Vegetation Item		
All	Trees	Large Objects
Objetcs	Plants	Grass
Delete selected iter	m O	Copy selected item

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**

▼ General settings		
Vegetation type: Objects		
Prefab	ኛ pf_boulder_01_040	0
Name	pf_boulder_01_040	
Enable run-time spawn	$\checkmark$	
Render mode	Instanced	÷
Disable shadows		
Seed		
Render distance: 150		
Render distance factor	· · · · · · · · · · · · · · · · · · ·	
The render distance is calculate	ed from the vegetation distance.	
	Refresh prefab	

### **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**

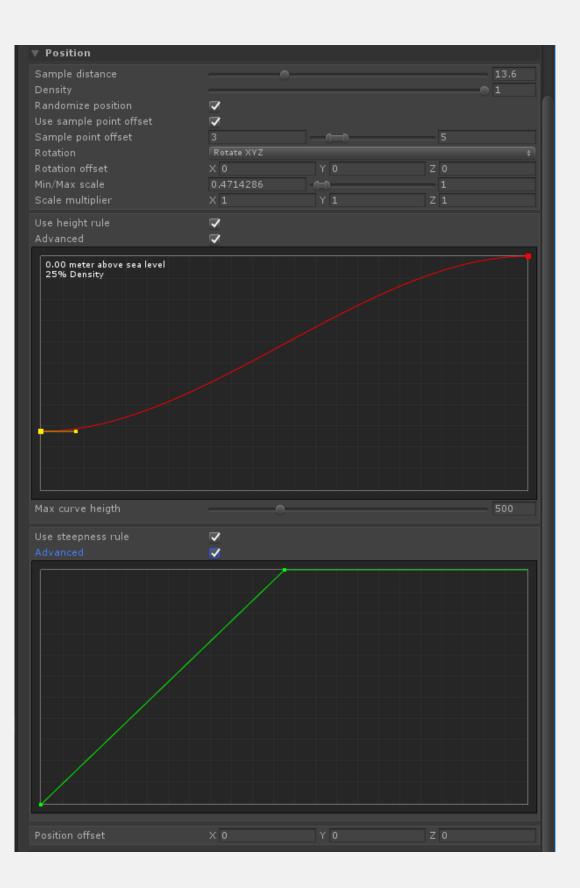
The render distance factor is by default set to 1. You can reduce this to only render this vegetation item a shorter distance from the camera than set as a default distance for the category.

# **POSITION**



<b>v</b> Position			
Sample distance Density Randomize position Use sample point offset Rotation Rotation offset Min/Max scale Scale multiplier	Rotate XVZ X 0 0.4714286 X 1	Y 0 	13.6 1 2 0 1 2 1
Use height rule Advanced Min/Max height	▼ □		1500
Use steepness rule Advanced Min/Max steepness	▼ □ ○		30
Position offset	X 0	Υ 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**

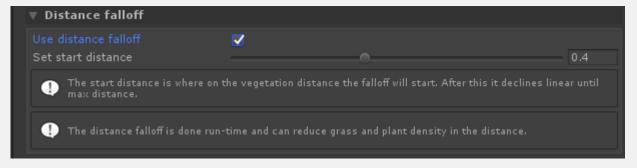
- Simple
- Advanced
- Advanced mode is still under development. Planned finished during the Beta.

#### **MIN/MAX STEEPNESS**

the min and max steepness allowed for the Vegetation Item.

#### **DISTANCE FALLOFF**



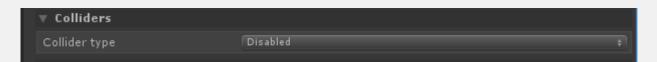


The distance falloff rule is designed for grass. It will based on the current viewpoint reduce the grass density in the distance. This is a good speed increase for 1st person games at low visible difference.

#### **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 lots you configure a single Mes
- 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



▼ Colliders				
Collider type	Capsule			¢
Radius	0.25			
Height	2			
Offset	X 0	Υ 0	Z 0	
Distance factor			0	).15
Current distance: 22.50 meters				
The distance from the camera v distance.	vhere colliders are created	. Distance is a factor of th	e vegetation draw	
Trigger				
Include in NavMesh bake	✓			
NavMesh Obstacle Type	Capsule			
Center	X 0	Υ 0	Z 0	
Radius	0.5			
Height				
Carve	$\checkmark$			

### **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.



▼ Noise rules		
Use perlin noise cutoff Perlin noise cutoff Perlin noise scale Perlin noise offset Inverse perlin noise	✓ → × 0 Y 0 ✓	0.5 5
Use perlin noise density Perlin noise scale Perlin noise offset Inverse perlin noise	✓ → × 0 Y 0 ✓	5
Use perlin noise scale Min/Max scale Perlin noise scale Perlin noise offset Inverse perlin noise	✓     1.3       ●     ×       ×     0       Y     0	5

# **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.



🔻 Biome area rules		
Use biome edge scale rule Affected edge distance Min/Max scale Inverse	✓         0.3         1	10
Use biome edge include rule Max edge distance Inverse		10
() Biome rules are not used with de	fault biome	

# **CONCAVE LOCATION RULES**

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

▼ Concave location rules		
Use concave location rule Min height difference Distance Average		1 3
Inverse		
Average setting sets if average	e or minimum edge samples are used.	

# **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.







🔻 Terrain texture rules			
Use include terrain texture rules	<b>v</b>		
	Add new it	em	
	Delete selecte	d item	
	Texture 1		+
Min/Max Texture Placement Dens	0.1	_(	1
Use exclude terrain texture rules			
	Add new it	em	
	Delete selecte	d item	
Selected texture	Texture 6		÷
Min/Max Texture Placement Dens	0.1	_(	1
Terrain texture rules will only work	for Unity terrains.		
In the case of multiple Unity terra the first terrain.	ins added to the vege	etation system the preview t	extures shown are from

# **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.







▼ Texture mask rules	
Use texture mask include rules	
Select texture mask group	1. Wheat field - RGBAChannel +
	Add new rule
Remove rule	
Select channel	R Channel +
Inverse Min/Max mask density	0.1
	0.1
Use texture mask exclude rules	✓
Select texture mask group	1. Wheat field - RGBAChannel +
Select texture mask group	1. Wheat field - RGBAChannel + Add new rule
Select texture mask group	
Select texture mask group	Add new rule
Remove rule Select channel	Add new rule
Remove rule	Add new rule

# **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.



▼ Vegetation mask rules		
Use with vegetation mask		
Vegetation type	Vegetation Type 1	

# **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.

▼ Terrain source rules		
Use terrain source include rule		
Include Terrain Source ID 1	Include Terrain Source ID 5	
Include Terrain Source ID 2	Include Terrain Source ID 6	
Include Terrain Source ID 3	Include Terrain Source ID 7	
Include Terrain Source ID 4	Include Terrain Source ID 8	
Use terrain source exclude rule		
Exclude Terrain Source ID 1	Exclude Terrain Source ID 5	
Exclude Terrain Source ID 2	Exclude Terrain Source ID 6	
Exclude Terrain Source ID 3	Exclude Terrain Source ID 7	
Exclude Terrain Source ID 4	Exclude Terrain Source ID 8	