



Real Ivy

1.0 Manual

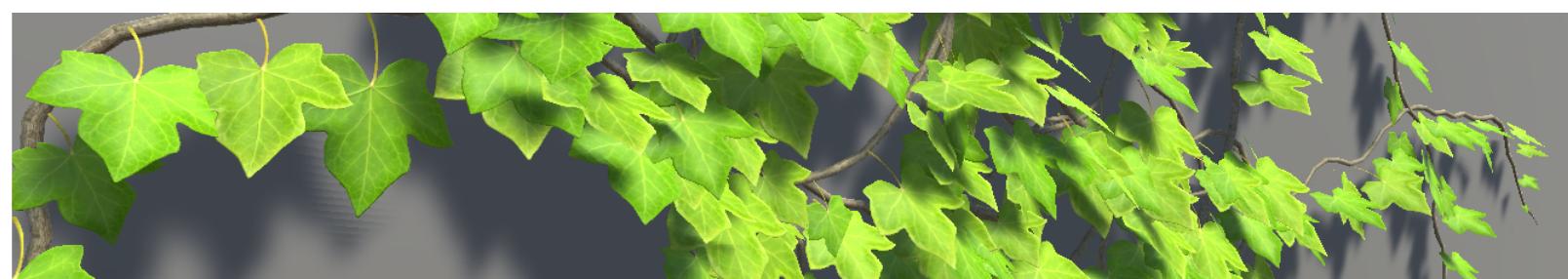
Real Ivy is a Editor tool for Unity. Its purpose is to generate ivy and climbing plants in general in a procedural way, using the colliders found in yours scenes to grow, climb and adapt.

Core workflow

Real Ivy focuses on ease of use, and gives spectacular results with just a few clicks.

1. Choose a preset
2. Place a seed in your scene
3. Click the "Start growth" button
4. Once it's big enough for you, click the "Stop growth" button
5. Make your adjustments in vines shapes, leaves, optimize the mesh or edit manually the branches with the toolset provided.
6. You are done!

Real Ivy allows you to generate plants at runtime! You can pre bake previously generated ivy so it reaches a specific state at the end of the growth, or it can be fully procedural.

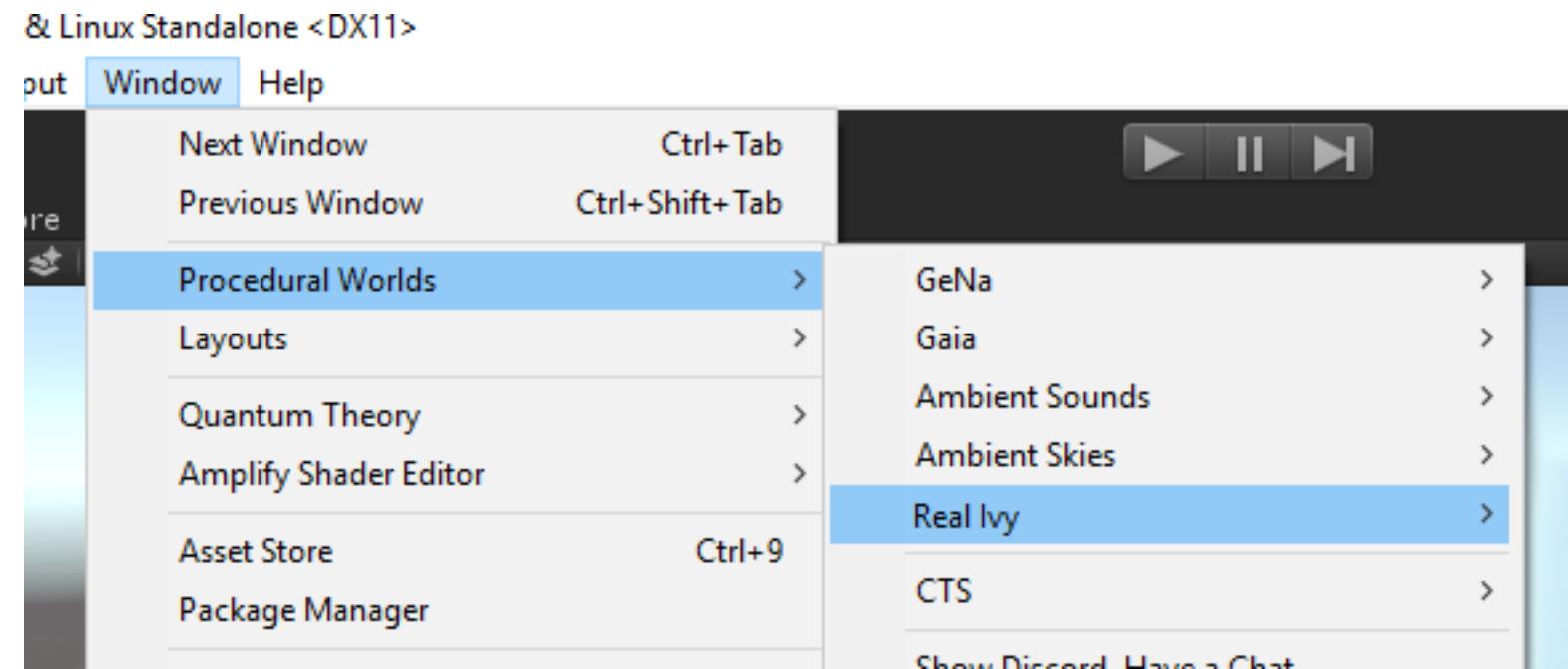


Features

- **Fully customizable look** - Change materials, textures, use atlas textures, change the leaves meshes and sizes, growth distribution, etc.
- **Preset system** - Create your own presets with your customized looks.
Built in high quality presets - Included up to 8 presets with custom shaders and high quality materials.
- **Manual tools** - Polish your work manually with the set of interactive tools.
- **PBR ready mesh** - Compatible with PBR, normal mapping, reflections, etc.
- **Lightmapping UVs** - Secondary UVs can be generated for lightmapping techniques.
- **Optimizable mesh** - You can customize how detailed the output mesh will be.
- **Very friendly UI** - Intuitive interface and workflow, with drag and drop systems and Undo-Redo integration.
- **Runtime behaviors** - Make the ivy grow live during your games. They can be baked or full procedural.

Interface

To use the Real Ivy select "Window/Procedural Worlds/Real Ivy".



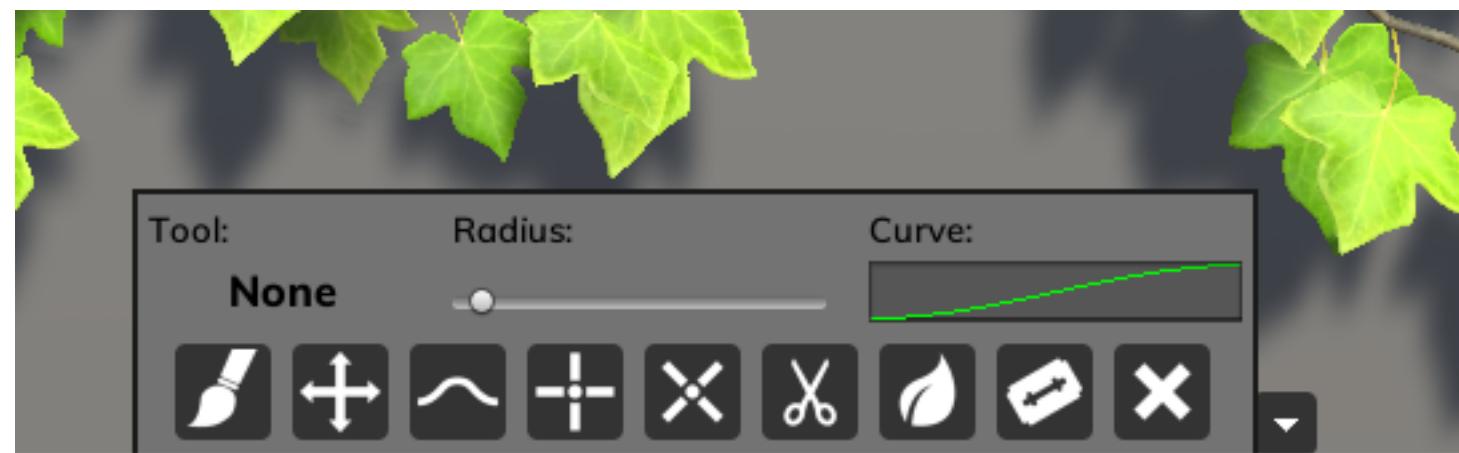
There are three main sections in the UI:

1. Controls - With these buttons you control the behavior of the tool.
2. General settings - General settings - Allows you to customize the look of your ivy such as changing the leaves, the bark material, or selecting another preset etc.
3. Branches, leaves, growth settings - These options control the geometry and shape of the branches, the relative transformation of the leaves, and the growth trajectory, respectively.



Tools panel

A brief explanation of the tools panel, from left to right:



- Paint** - With this you can paint manually over surfaces to create very precise and specific ivies.
- Move** - Use it to move parts of branches away, maybe to avoid interpenetration.
- Smooth** - Sometimes the result has ugly visible corners. Then smooth is a perfect tool to fix quickly those spots.
- Add point** - Use it for add more detail in certain parts.
- Remove point** - Use it to remove points from branches.
- Cut branch** - With this tool you can cut a branch in a specific point, removing everything beyond it.
- Add leave** - Adds leaves in specific points.



Remove leaves - Removes leaves from a branch.



Remove branch - Removes an entire branch.



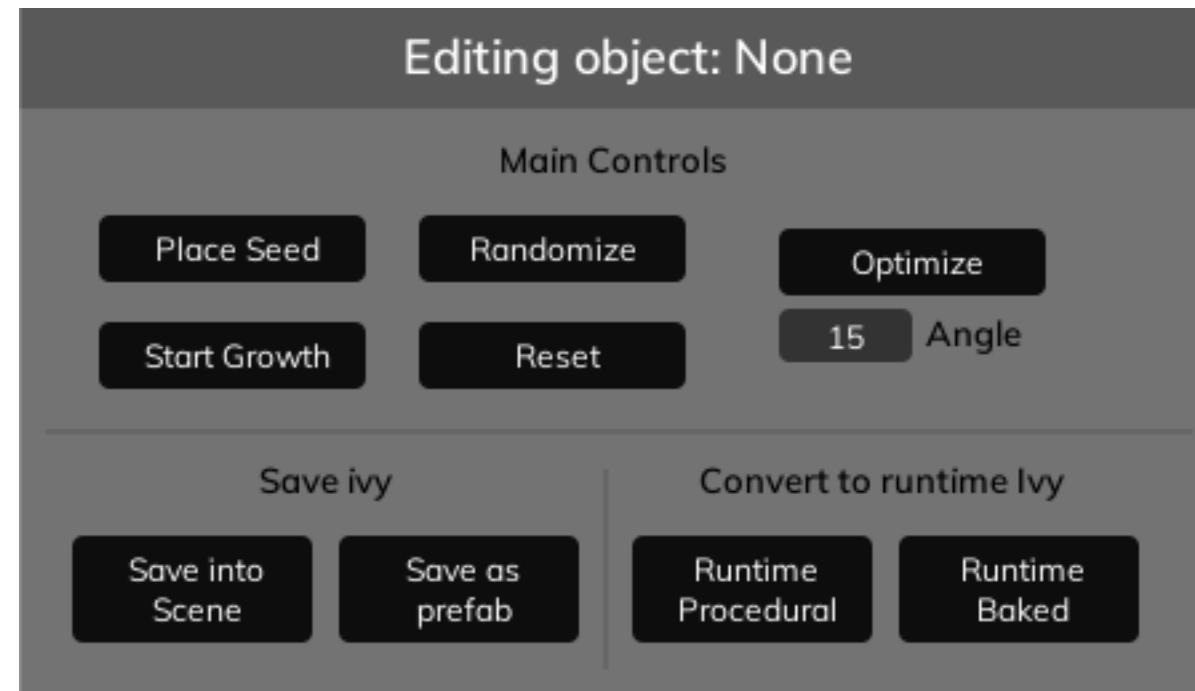
Minimize - Minimizes and restores the panel.

Radius - Some tools uses this value to determine the maximum reach of its influence, such as move and smooth.

Curve - Some tools uses this curve as the decay profile of its influence, such as move and smooth.

Controls

A brief explanation about the controls, from top to bottom:



Save into scene - With this button you can store the current ivy into the scene. The ivy will remain in the scene even if you don't use this button, this button only removes the editability of it saving a bit of memory.

Save as prefab - Allows you to store the current ivy in the project so you can reuse it in different scenes.

Convert to Runtime Procedural - Takes the current ivy preset and position and creates a runtime procedural ivy, that will grow at runtime. The shape of it will be generated at runtime, procedurally.

Convert to Runtime Baked - Takes the current whole ivy and bakes it into a runtime baked ivy, that will grow at runtime and will reach the current state when the growth finishes.

Editing object - Tells you the ivy game object that is being edited at the moment.

Place Seed - After clicking on this, you can go to your scene view and click over a surface to place a seed in that specific point.

Start Growth - This controls whether the ivy should grow or stop.

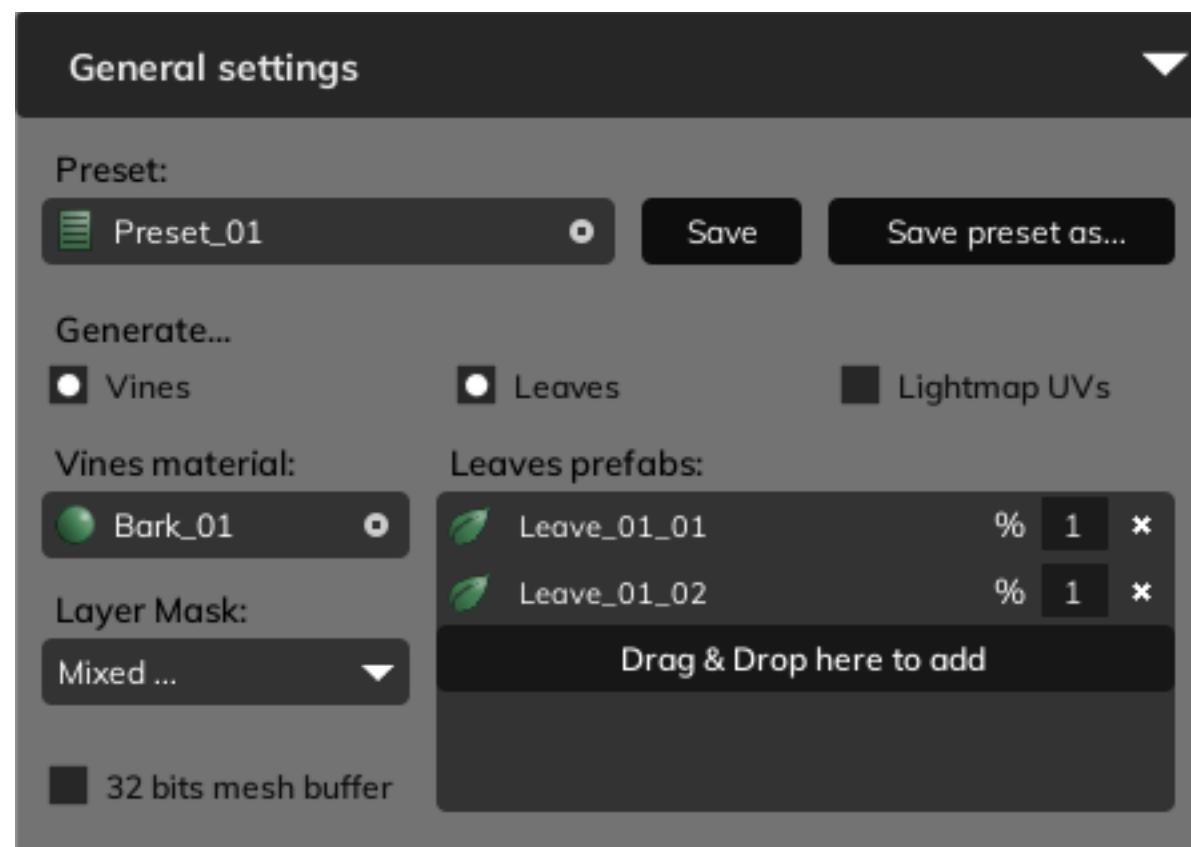
Randomize - Generates a new random seed to make the resultant ivy different from the previous one.

Reset - Delete the current generated ivy, enabling you to start again if the result is not the desired one.

Optimize - Removes edge loops from the geometry of the branches, based on the angle bias just underneath the button.

General Settings

A brief explanation of the general settings, from top to bottom:



Presets - Select a different preset from the project or save your changes. You can create new presets using the button “Save preset as...”

Generate - These controls enable you to determine if vines (branches) or leaves will be generated. Also, you can enable the Lightmap Uvs generation with the last checkbox of the row.

Vines material - For selecting a different material for the bark of the vines.

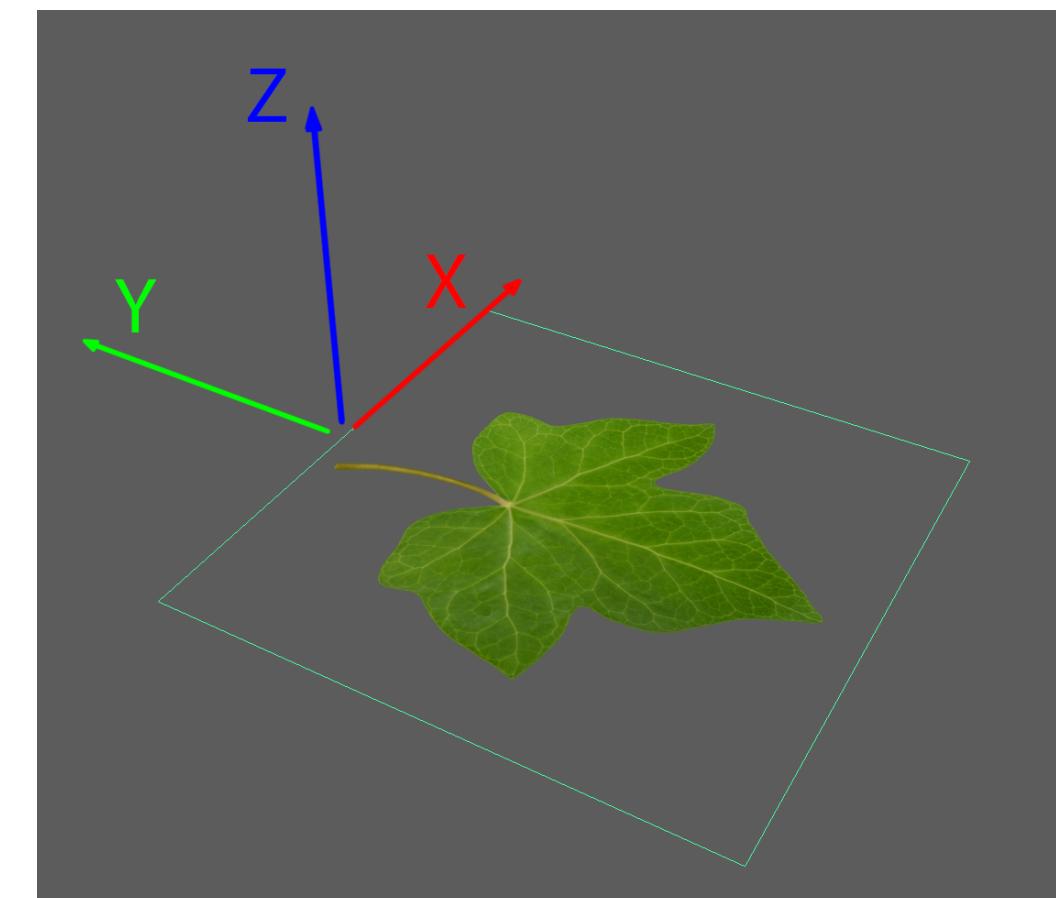
Layer Mask - Determines with which colliders shall the ivy interact in your scenes.

32 bits mesh buffer - Unity's standard meshes use a 16 bit buffer, meaning that the limit of vertices that can contain a single mesh is 65535. With the 32 bit mesh buffer this limit goes up to 4 billion vertices. This could lead to performance issues. Use with caution.

Leave prefabs - The list of prefabs that will be instantiated along the branches. You can add your own by drag and drop in the correct area, as well as delete them and change the proportion of each individually.

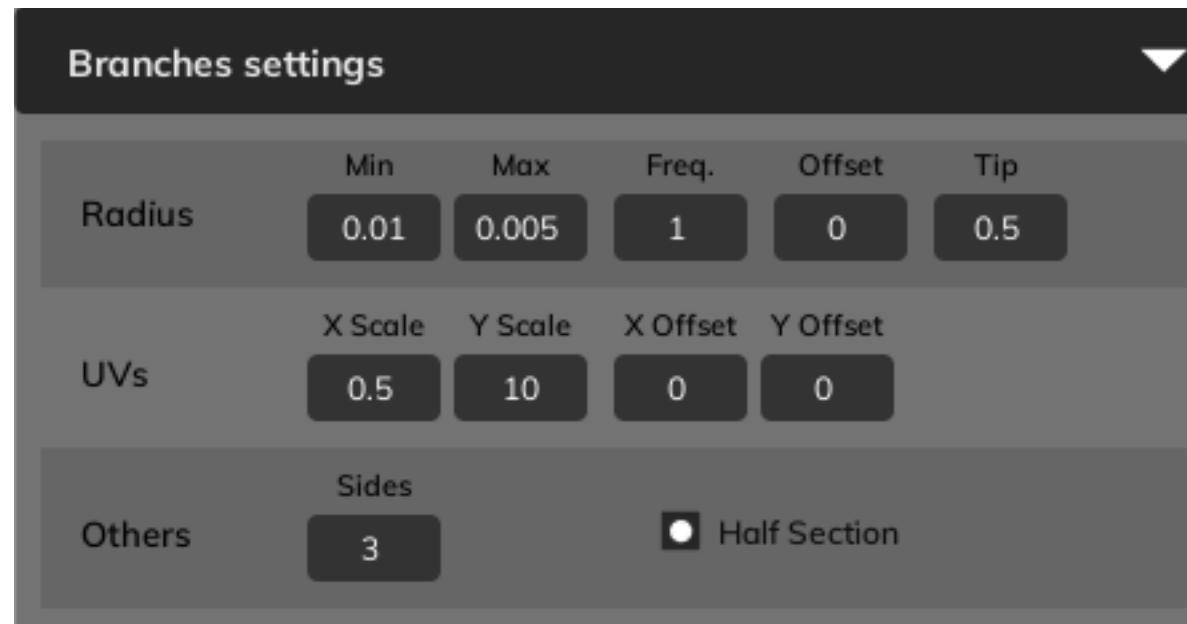
The prefabs must have a mesh renderer and a mesh filter in order to work properly. Everything else as colliders or children will be ignored.

If you're going to use your own meshes for the leaves, we recommend you to keep the geometry as simple as possible. And in order to work properly with the rest of the tool and the custom shaders included, the orientation of the mesh should be like shown in the image below.



Branches settings

A brief explanation of the branches settings, from top to bottom:



Radius / Min and Max - Controls the maximum and the minimum radius the branches will reach, since the radius will vary along the length of the branch.

Radius / Frequency and Offset - Changes the parameters of the radius variation along the length.

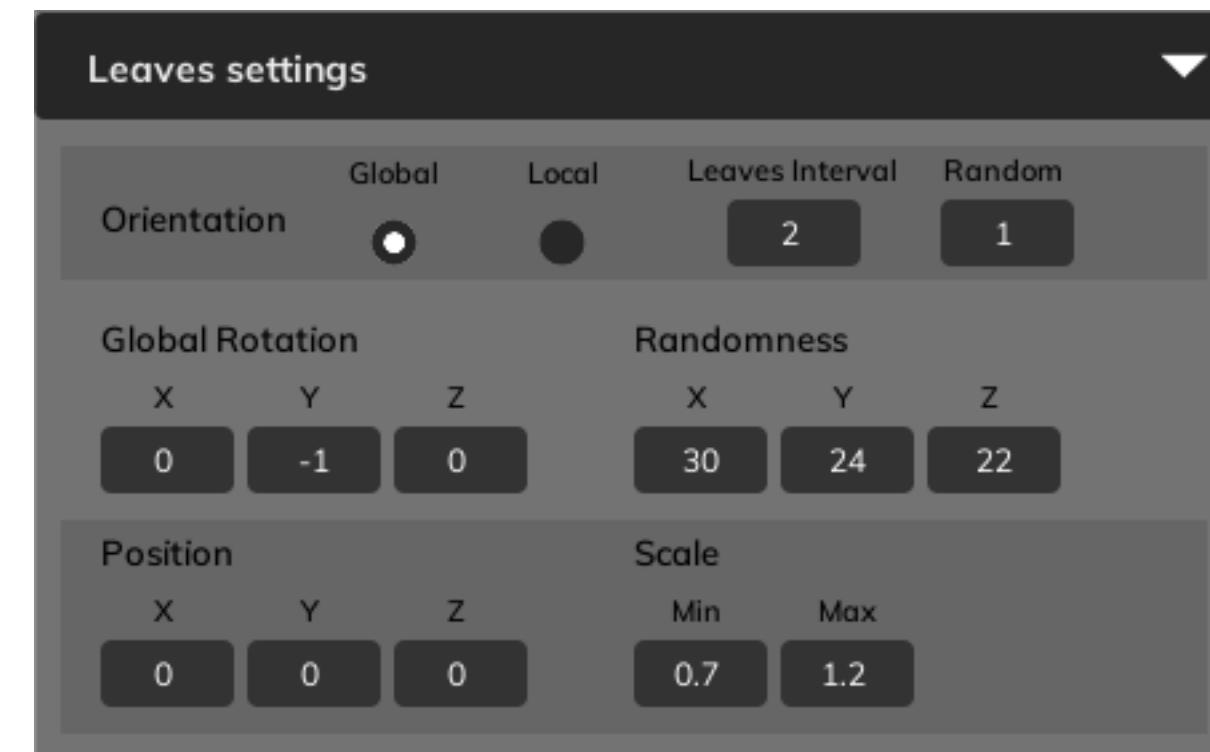
UVs - Standard parameters for UV generation of the branches.

Sides - How many sides will the resultant geometry have.

Half Section - If checked, the section of the branch will be half a circle instead of a full circle. Very useful to save triangles if the Ivy is completely stuck to a wall.

Leaves settings

A brief explanation of the leaves settings, from top to bottom:



Orientation - If set to global, all leaves will point towards the same direction. This is very useful for simulating hanging leaves, very common in nature. If set to local each leave will have its own orientation based on the point of the branch which it belongs to.

Leaves interval - Determines the distance between leaves.

Random - Adds randomness to the interval between leaves.

Rotation (global or local) - Adds rotation to the global or local base rotation.

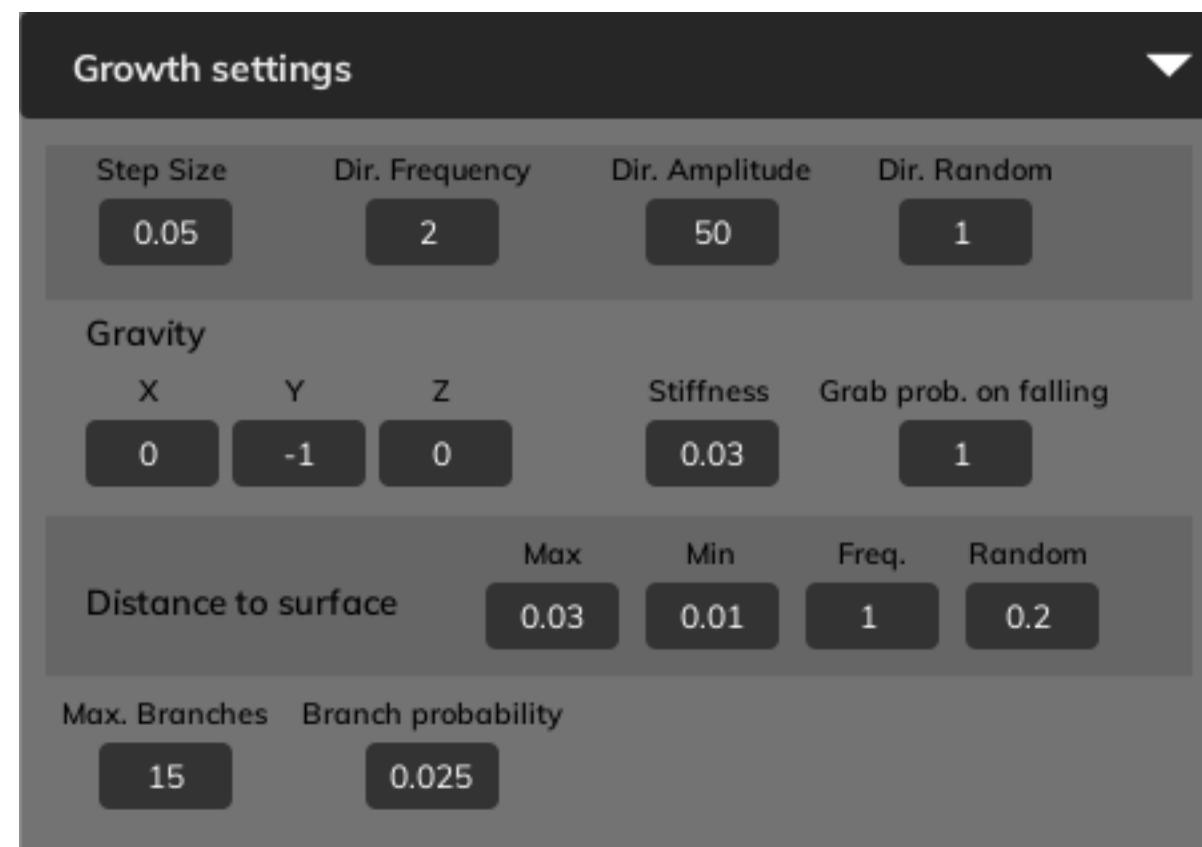
Randomness - Adds randomness to the rotation.

Position - Adds an offset to the position of the leaves.

Scale - Scales the size of the leaves.

Growth settings

A brief explanation of the growth settings, from top to bottom:



Distance to surface - Parameters to control how the ivy approaches and moves away from the surface.

Max. Branches - How many branches as maximum will be generated.

Branch Probability - How easily new branches will spawn during the growth.

Step Size - Determines the size of each step the simulation does to generate new geometry adapting to the environment.

Direction Frequency - Determines how many times the growth will change its direction.

Direction Amplitude - Determines the intensity of the changes in direction.

Direction Random - Adds randomness to the trajectory.

Gravity - The direction of fall when a branch losses surface.

Stiffness - How the ivy will resist the influence of gravity when has lost surface.