Hello,

We are pleased to present **CropCraft PVE Tool**, a conversion tool developed for Unreal Engine. It is designed to simplify the workflow between SpeedTree and the Procedural Vegetation Editor (PVE), and to make preset creation faster and more consistent.

CropCraft PVE Tool focuses on reducing manual work and removing strict naming requirements. By using hierarchy-based structure detection and flexible foliage identification, it allows different SpeedTree setups to be processed without forcing a fixed naming system.

This documentation explains how the tool works, how to use it correctly, and what to expect from the conversion process. The goal is to help you integrate the tool into your workflow with as little friction as possible.

If you have any questions, feedback, or requests, feel free to contact us. We provide ongoing support and continue to improve the tool based on user needs.

We hope that CropCraft PVE Tool will be a useful part of your vegetation workflow.

Best regards,
CropCraft Team

Tool Overview

CropCraft PVE Tool is designed to convert SpeedTree Raw XML files into a format compatible with the Procedural Vegetation Editor (PVE) inside Unreal Engine.

The tool analyzes the data coming from SpeedTree, reconstructs the tree structure, and prepares it for use in the PVE system. This significantly reduces the need for manual preset creation.

How It Works

The tool operates in two main stages:

Structure Detection

The trunk and branch structure of the tree is detected using parent-child relationships found in the XML data.

This system:

- does not rely on naming
- works with different SpeedTree setups
- supports complex multi-level branch structures

Foliage Detection

Foliage placement is determined based on naming.

Supported names:

Twig,Twigs,Foliage,Leaf,Leafs,Frond,Fronds

Any node starting with one of these names is treated as foliage and written into the preset accordingly.

Tool Workflow

The typical workflow is as follows:

1. Export your tree from SpeedTree as Raw XML
2. Open CropCraft PVE Tool inside Unreal Engine
3. Select the XML file
4. Set Preset Folder and Preset Name
5. Assign foliage meshes
6. Run the Convert process

After conversion, the tool:

- generates the required JSON data
- creates a PVE preset asset inside Unreal Engine

Interface Overview

The tool interface is divided into several sections:

Project Setup

- Select the XML file
- Set the output directory

Asset Paths

- Choose the foliage mesh folder
- Assign trunk material

Foliage Mode

Select how foliage is distributed:

- Single
- Mixed
- Layered

Assignment

Define which foliage meshes are used in each zone

Preset Path System

The preset path is generated automatically:

/Game/<Preset Folder>/<Preset Name>

The user only needs to define:

- Preset Folder
- Preset Name

The `/Game/` prefix is added automatically.

Important Notes

- The tool runs only inside Unreal Editor
- Runtime usage is not supported
- Foliage detection depends on naming
- Correct SpeedTree setup is required for best results

Recommended Usage

- Use supported naming for foliage nodes
- Keep your preset folder structure organized
- Choose foliage mode based on your scene needs

SpeedTree Setup

This section explains how to prepare your SpeedTree asset correctly before using CropCraft PVE Tool.

Incorrect setup in SpeedTree may result in missing foliage, incorrect scaling, or incomplete presets.

Required Export Settings

When exporting your tree from SpeedTree, use the following settings:

- **File Type:** SpeedTree Raw XML
- **Grouping:** By Hierarchy
- **Hierarchy Level:** Branch generation count

Make sure the following options are enabled:

- Geometry
- Bones / Skeleton
- Leaf references
- Branch spines
- Vertex blends

These settings are required for the tool to correctly read structure and foliage data.

Foliage Setup (Important)

Foliage placement must follow specific rules in order to be detected correctly.

Do Not Use Embedded Leaf Cards

Leaf cards (plane-based meshes) that are directly attached to branch generators:

❌ may not provide valid data in XML ❌ may not be detected as foliage

Use Separate 3D Nodes

Foliage must be created using separate 3D nodes in SpeedTree.

You can use:

- Twigs
- Small branches
- Little branches
- Any similar 3D generator

The exact node type is not important.

What matters is that foliage is placed as a **separate node**, not embedded into branch geometry.

Naming Rules

Foliage nodes must follow supported naming conventions.

Supported names:

- Twig
- Twigs
- Foliage
- Leaf
- Leafs
- Frond
- Fronds

Any node starting with one of these names will be detected as foliage by the tool.

Spine Length and Foliage Scale

The **spine length** of a foliage node directly affects the size of the foliage in Unreal Engine.

- Short spine → smaller foliage
- Long spine → larger foliage

No Fixed Value

Adjust the spine length based on the foliage mesh you plan to use in Unreal Engine.

This ensures:

- correct scale
- natural distribution
- better visual results

For any questions, feedback, or support requests, please contact:

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