

SPA Materials Baker Plugin

Bake Complex UE Materials into Optimized Texture Maps

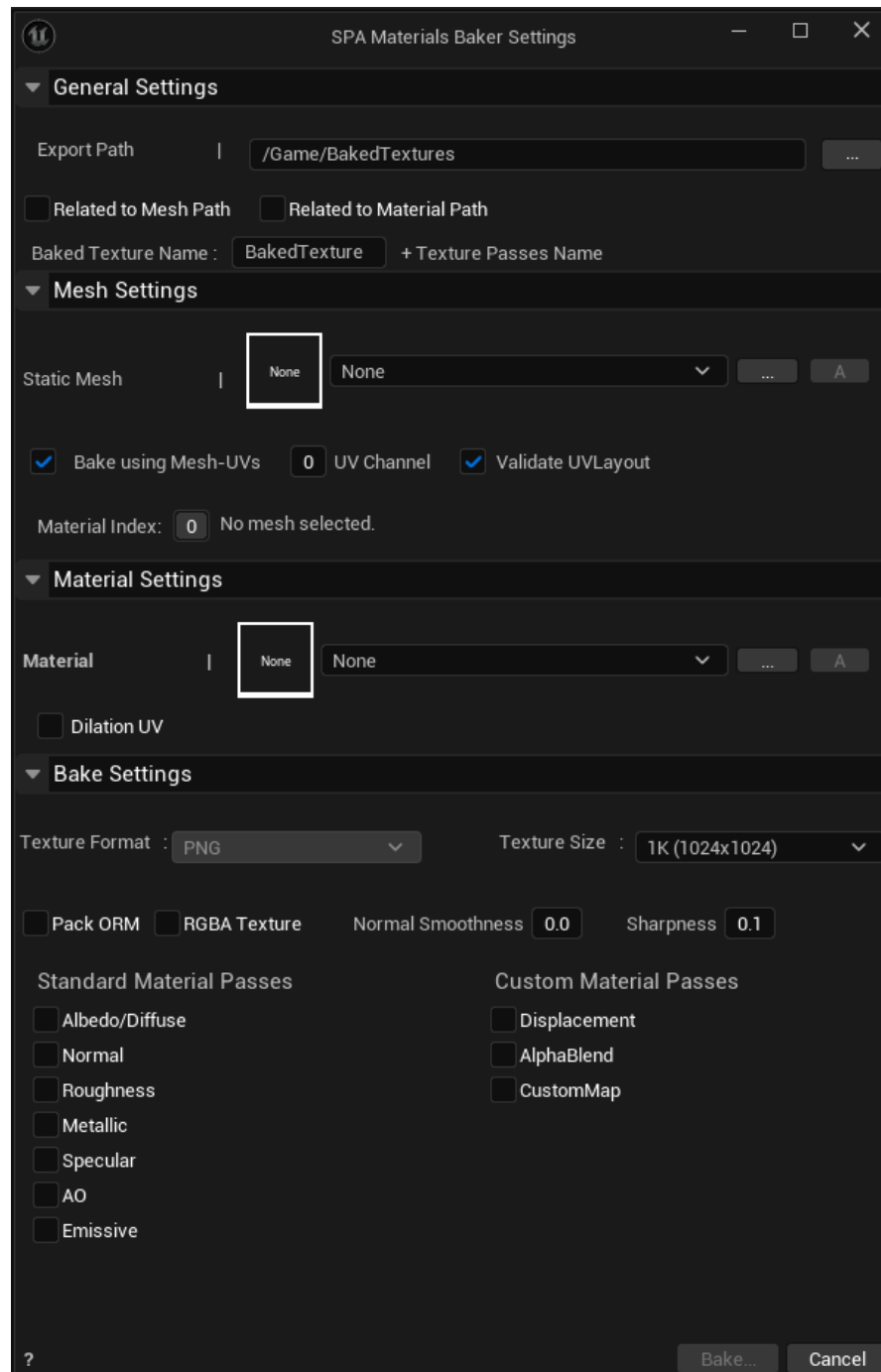


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1. Introduction

SPA Materials Baker is an Unreal Editor plugin that allows users, artists and technical teams to bake texture passes from any material Type onto a mesh-UV channel. It is designed for **asset optimization**, **Increase Framrates** and **Draw calls**, look-dev capture, and preparing textures for LOD, mobile, VR, or external pipelines.

1-1. Features Overview

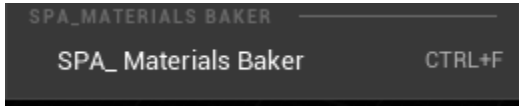
- **Bake standard passes:** Albedo, Normal, Roughness, Metallic, Specular, AO, Emissive.
- **Bake custom passes:** Displacement, AlphaBlend, CustomMap
- **Flexible export:** PNG, resolution scaling, path control
- Options for Pack ORM, RGBA texture, Normal smoothness, Sharpness
- Non-destructive workflow
- Support Fully Dynamic or **world-space** effects (e.g., **world position offset**, **Triplanar**)
- Support VertexPaint

2. Installation

1. Copy the plugin folder into your Unreal project's directory.
2. Enable the plugin from the Unreal Editor Plugin Manager.
3. If needed, restart the editor to activate the plugin.

3. Getting Started

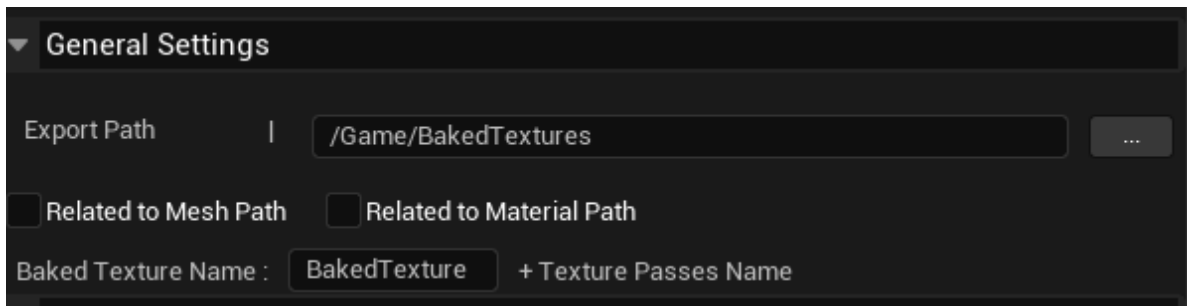
Once installed, open the SPA Materials Baker window from the Unreal Editor toolbar -->>Tools -->> SPA Materials Baker.



You Can Use the Shortcut Anytime You need It by “**CTRL+F**”

3.1 General Settings

Set export path and texture naming convention.

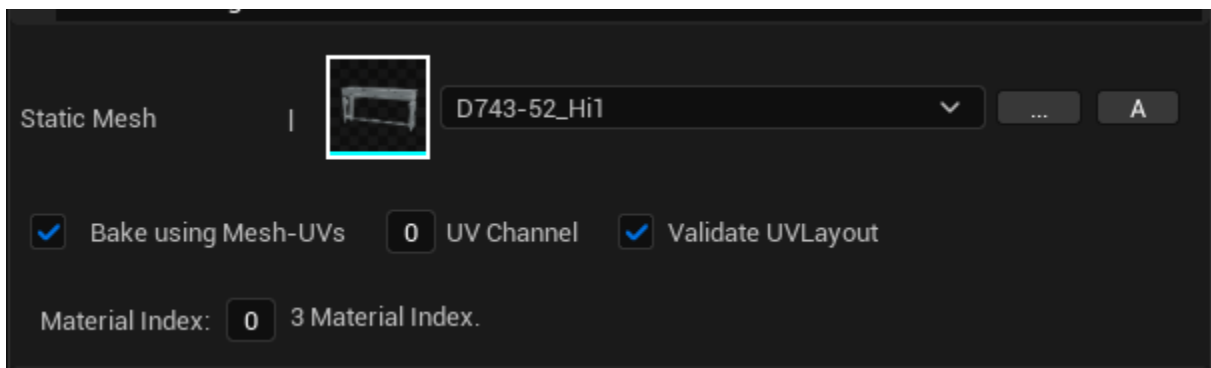


! Notice: You Must Always Choose the Current Game / Content Folder.

By default, Create and Store Baked textures in the “*BakedTextures*” Folder.

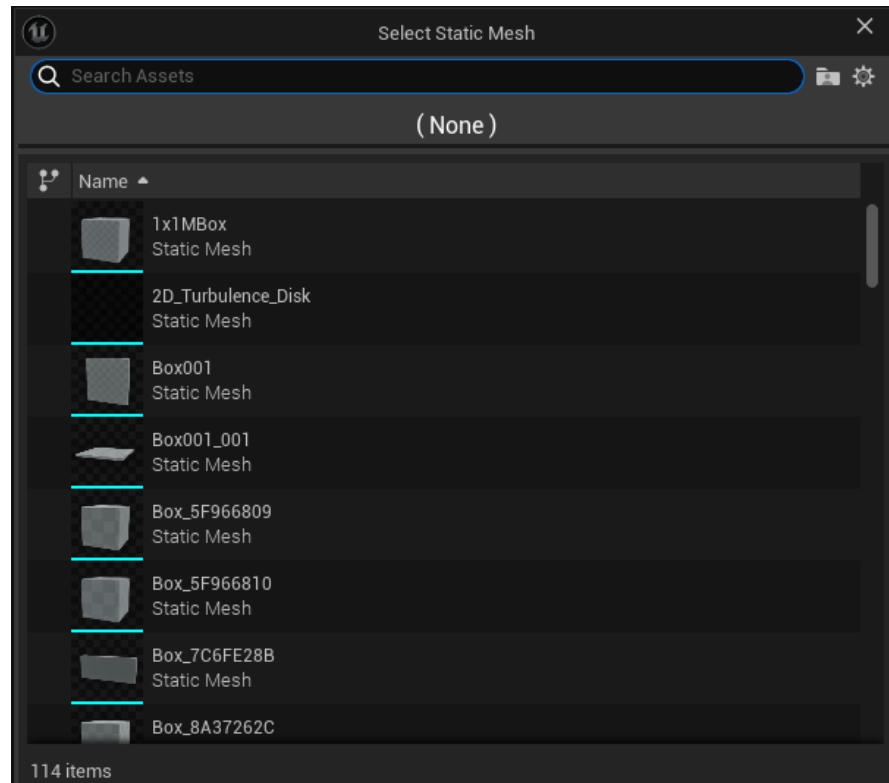
3.2 Mesh Settings

Select the Static Mesh, choose UV channel, and validate UV layout.



You can Assign a Static mesh From Scene by “A” Button. You see a small thumb of selected mesh.

Or selected from dropdown Combo Box or select from Browser ””.

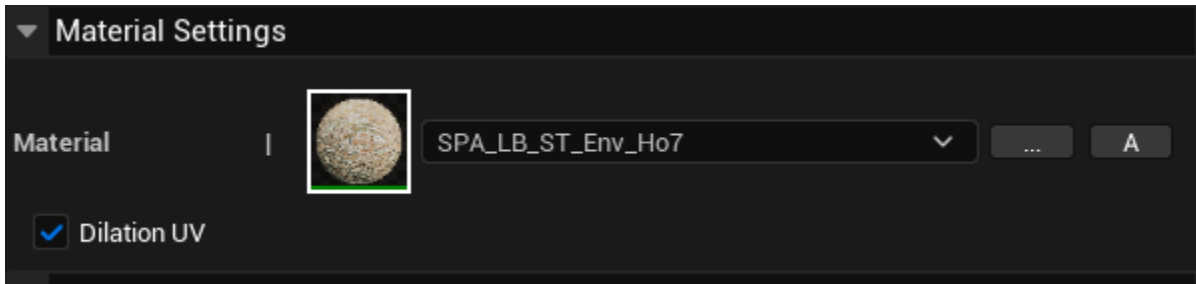


! Notice: Always You can see and choose meshes from the current Game Directory not Engine or Other Folder.

- You Better to check the Validation true, Warn you if your mesh-UV Missing or problem (overlapping or Out of Range).
- You can select your UV Channel if there exist Or Material Indexes.

3.3 Material Settings

Assign the material you want to bake from.

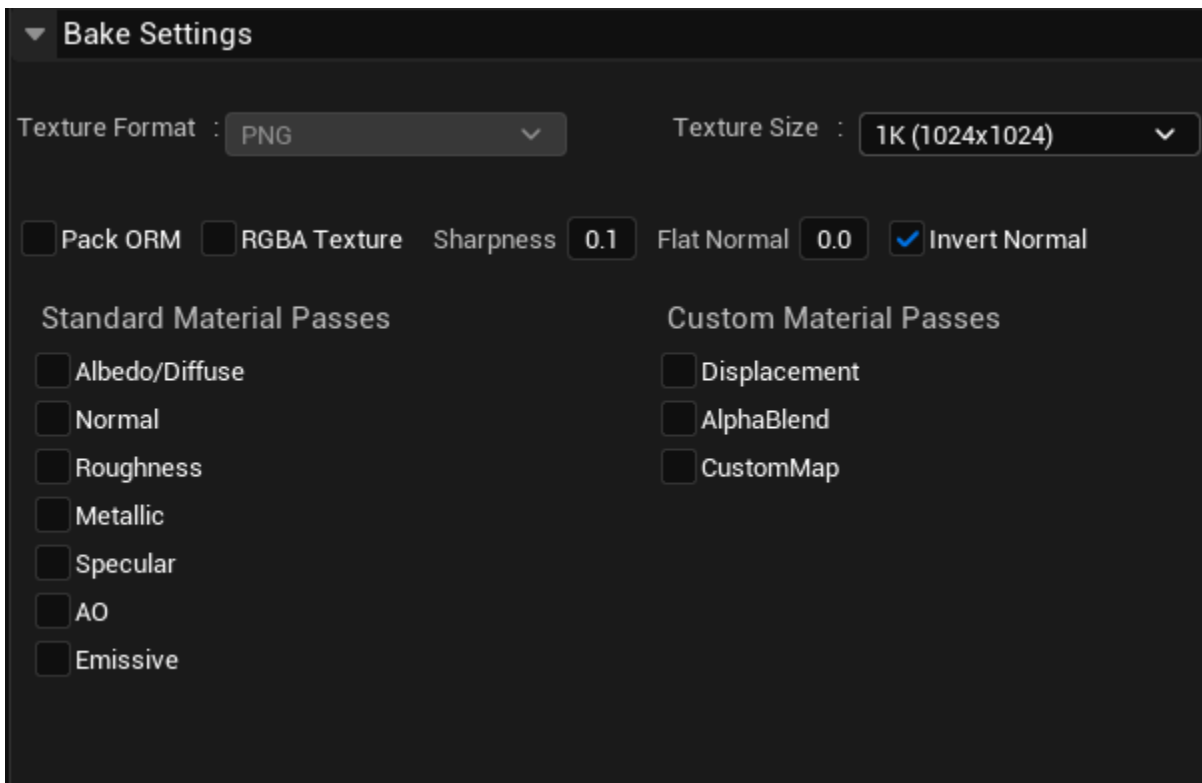


Select Any Type Of materials (no landscape) or pick it from the editor or selected from the list.

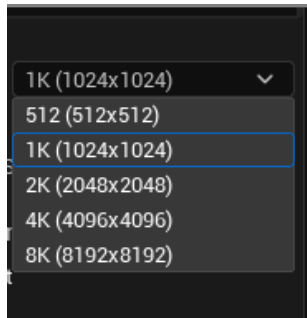
- Dilation UV: it's an Edge Smear Effect or extend pixels from meshes edge seems.

3.4 Bake Settings

Configure texture format, size, and select which passes to bake (Albedo, Normal, Roughness, etc.).

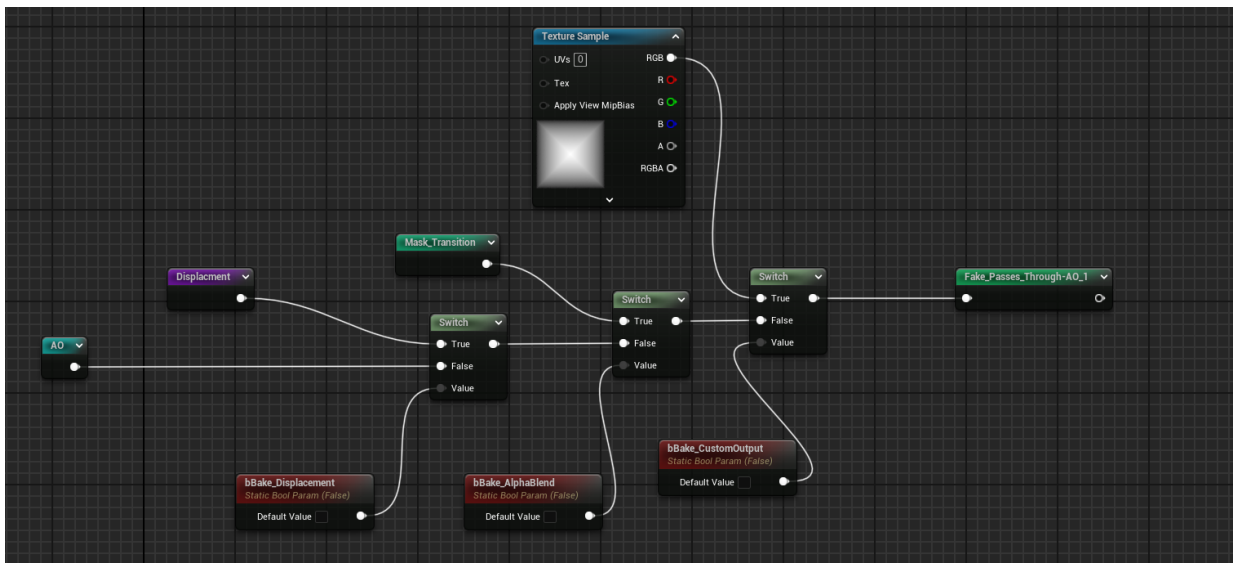


- Current Texture Format Support is PNG.
- You Can Select 1k-2k-4k and 8k all in Power of Two Size.



! Notice: Careful to choose 8k resolution, depend of your pc configuration, might be interrupt or freeze or crash in some case

- **Custom Material Passes:** it's a Fake Passes That's come out through the AO Pass, you can't select AO with Custom Passes and Must Bake the Custom Passes One by One
- Custom Passes Need setup in your Master material



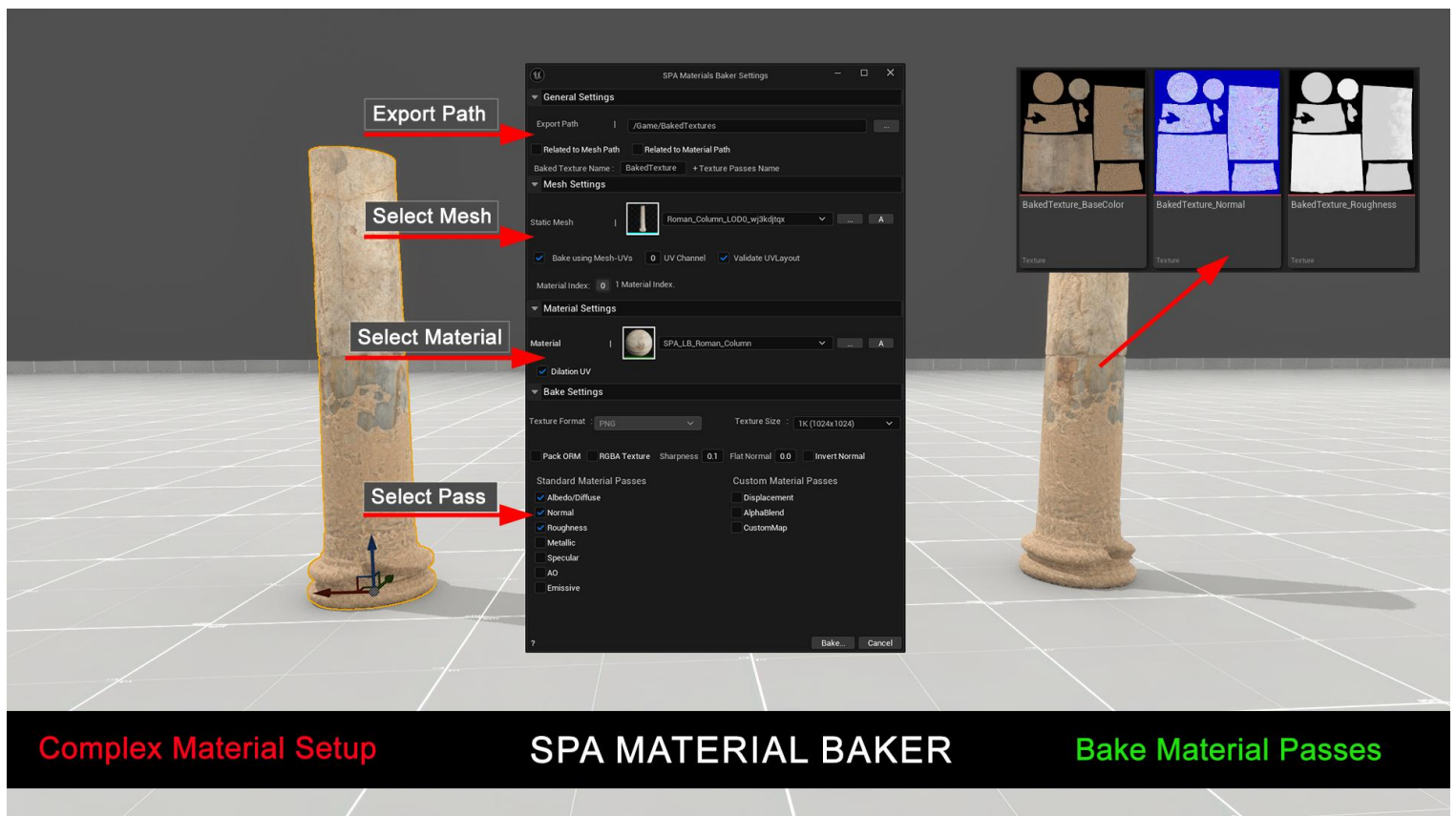
As you see, if need any of custom passes need to define a static bool Params in you material.it should exact name:

(bBake_Displacement – bBake_AlphaBlend _ bBake_CustomOutput)

And then connect it to the **AmbientOcclusion** output node.

4. Workflow

1. Select a Static Mesh and assign a source Material.
2. Choose UV channel and validate layout if needed.
3. Pick bake passes and configure output settings.
4. Click Bake to generate textures into the chosen export path.



5. Troubleshooting

Q: My baked textures are black or empty.

A: Ensure your mesh UVs are valid and material inputs are connected.

Q: Textures look stretched.

A: Use a clean UV channel with no overlaps and contained in 0-1 space.

Q: Exported textures don't appear.

A: Verify export path in General Settings.

Q: Normal map or some dynamic parameters not appear in Baked texture.

A: That is because your mesh has no valid Tangents and normal, Recompute and Bake Again.

6. Limitations

- This plugin, Does not generate simplified materials automatically, only baked textures.
- Some dynamic or world-space effects (e.g., DFAO) may not bake as expected.
- Baking very large meshes or high resolutions may take longer.
- Landscape materials Not Supported yet.
- Decal object not Supported yet.
- Batch baking Not Supported in this version.

Support

Support: Contact [A.sepinood@gmail.com].

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