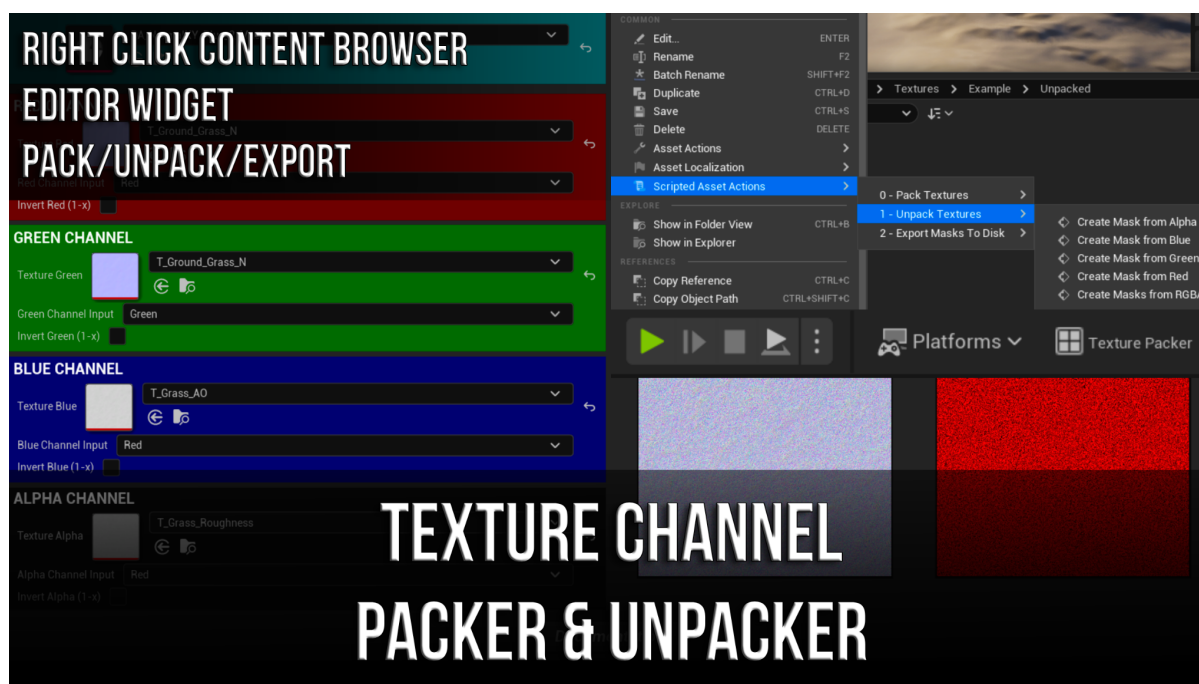


Texture Channel Packer & Unpacker

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1. Overview

The **Texture Channel Packer & Unpacker** tool is designed to **streamline your material workflow** in Unreal Engine by **optimizing texture memory usage**.

It allows you to **pack multiple textures or masks into a single RGBA texture**, **unpack** existing textures back into individual **masks**, and **export channel data to disk**.

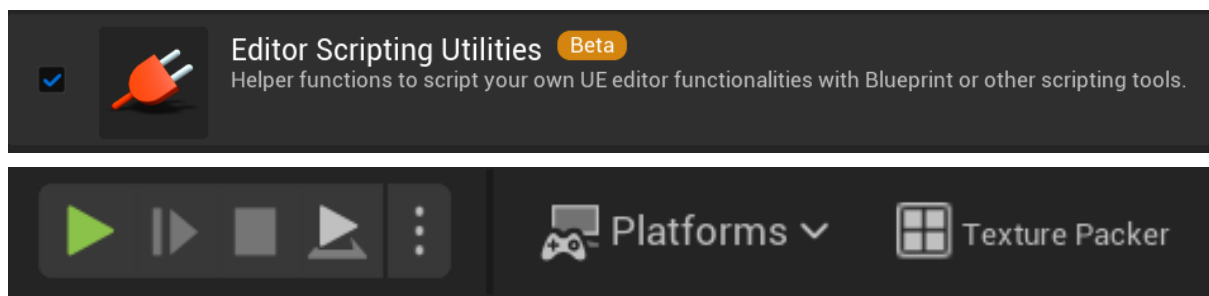
The tool is suitable for both beginners and advanced users, offering **simple presets** as well as **full manual control over channels, compression settings, and texture size**.

2. Key Features

- **Editor Utility Widget:** Visual interface with **live preview**.
- **Scripted Actions:** **Quick right-click** workflow in the **Content Browser**.
- **Presets:** Includes standard packing methods (Masks, Base Color + Mask, Normal + Masks).
- **Toolbar Button:** Button in the toolbar directly in the engine's user interface
- **Normal Material Function:** Includes a Material Function to reconstruct Normal maps from 2 channels.

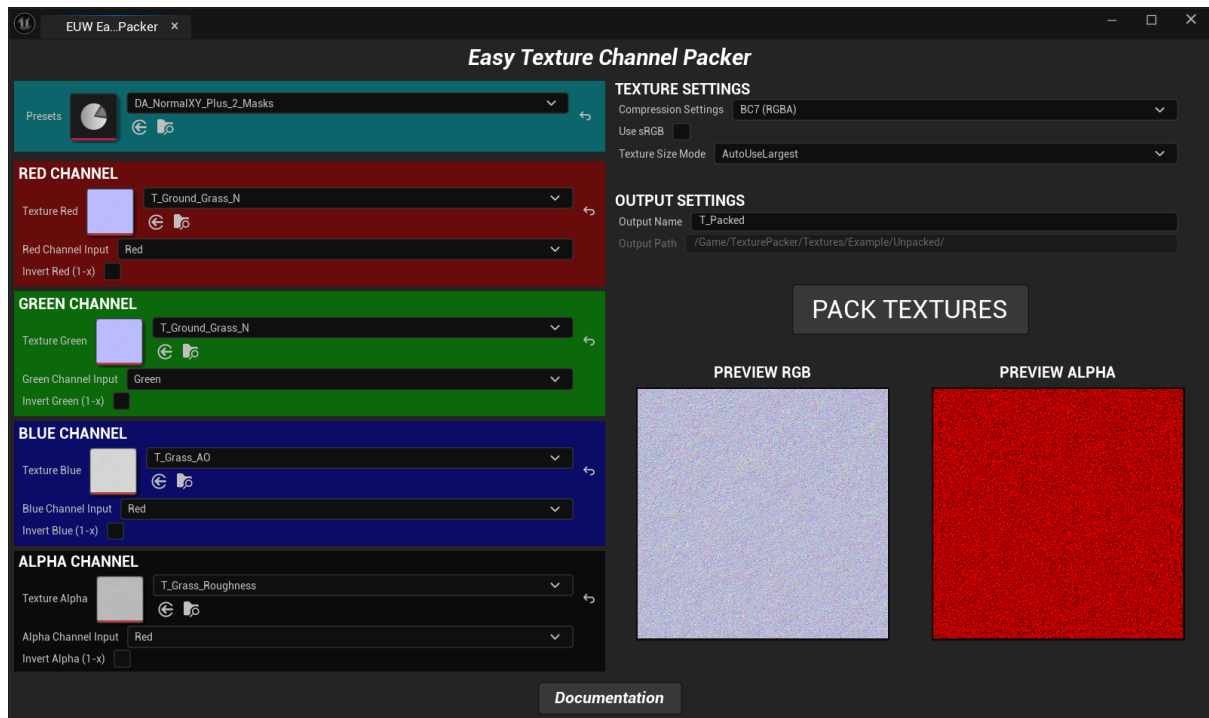
3. Installation & Setup

1. Add the asset pack to your project via the Epic Games Launcher / Fab Library.
2. Enable the **"Editor Scripting Utilities"** plugin if not already enabled (Edit > Plugins).
3. Once installed, a new button **"Texture Packer"** will automatically appear in your main **Level Editor Toolbar**.



4. Using the Editor Utility Widget

Click the **Toolbar button** to open the **main interface**. This is the recommended method for precise control.



4.1. Workflow Editor Utility Widget

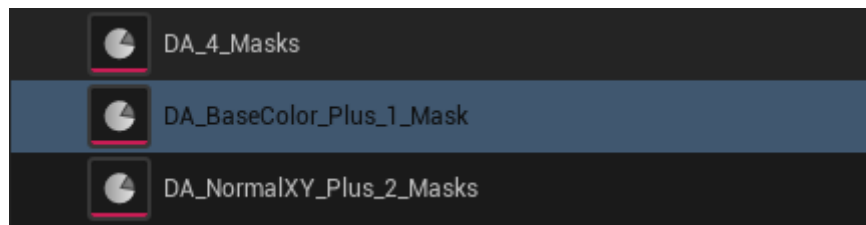
1. **Select a Preset:** Choose one of three presets (*4 Masks*, *BaseColor + Mask*, *Normal + 2 Masks*) to **automatically configure the input slots and compression settings**.
2. **Assign Textures:** Drag and drop your source textures from the Content Browser into the **Input Slots** (Red, Green, Blue, Alpha).
3. **Channel Mapping:** Select which channel of the input texture (R, G, B, or A) should be used.
4. **Invert (Optional):** Check the **Invert** box if you need to flip the values (e.g., change smoothness to roughness).
5. **Texture & Output Settings:** Set your desired output and texture settings.
 - a. Compression Settings
 - b. Use sRGB
 - c. Texture Size Mode
 - i. AutoUseLargest
 - ii. Manual
 - iii. 1024
 - iv. 2048
 - v. 4096
 - d. Output Name
 - e. Output Path: The output path is automatically determined by the paths of the input textures.

6. **Preview:** Check the live preview window at the bottom of the widget to ensure the result looks correct.
7. **Pack Textures**

Note: *When packing Base Colors, ensure that sRGB is disabled on your source texture first, then re-enable it once the packing process is complete. For standard masks, sRGB must also be disabled on the source texture, though naturally, you won't need to re-enable it afterwards.*

4.2. Included Presets

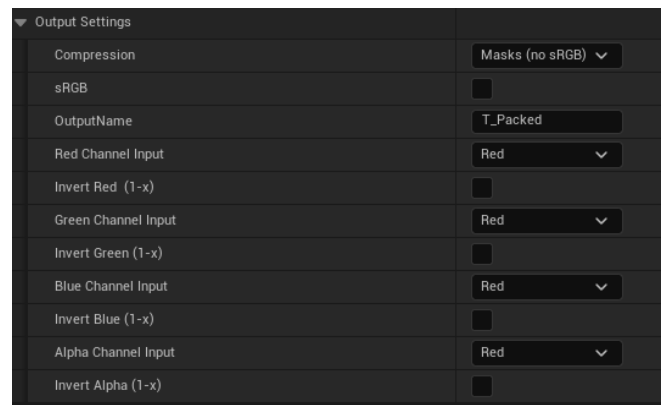
- **DA_4_Masks:** Intended for four masks in one texture (e.g., metallic, roughness, ambient occlusion, height, etc.)
 - Input Channels (RRRR)
 - Compression Settings: Masks (no sRGB)
 - Use sRGB: false
- **DA_BaseColor_Plus_1_Mask:** Keeps the RGB of a diffuse texture and adds a mask (e.g., Opacity or Roughness) into the Alpha channel.
 - Input Channels (RGBA)
 - Compression Settings: Default (BC1 or BC3 with A)
 - Use sRGB: false
- **DA_NormalXY_Plus_2_Masks:** Packs a Normal texture into Red and Green, and allows two additional masks in Blue and Alpha. *Note: Requires the "MF_ConvertPackedNormal" material function.*
 (/Game/TexturePacker/Materials/MaterialFunction/MF_ConvertPackedNormal)



4.3. Creating Custom Presets

You can extend the functionality by adding your **own presets**.

1. Navigate to the /Game/TexturePacker/Data/PackPresets folder.
2. Right-click an existing Preset Data Asset and select Duplicate.
3. Rename it and open it.
4. Adjust the variables (Default Compression, Input mapping, etc.).
5. Your new preset will appear in the dropdown list automatically.



5. Using Scripted Asset Actions

Scripted actions allow you to pack textures, create masks (unpack), and export masks to your hard drive directly in the content browser (so you can edit them in Photoshop or similar software, for example).

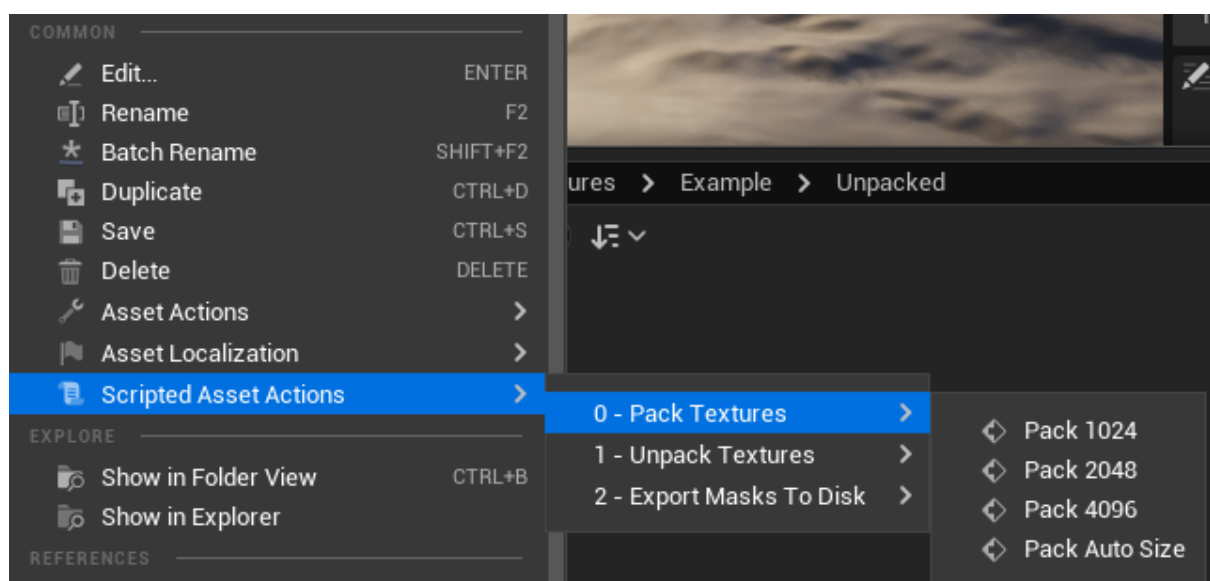
5.1. Workflow Scripted Actions

1. **Select** the **textures** you want to **pack/unpack/export** in the content browser.
2. **Right-click** and go to the “**Scripted Asset Actions**” menu item.
3. Then select your desired action.

Notes:

Textures are created in the **same folder as the selected textures**.

The **order** in which you **selected the textures** determines the **order of the channels in the output texture**.

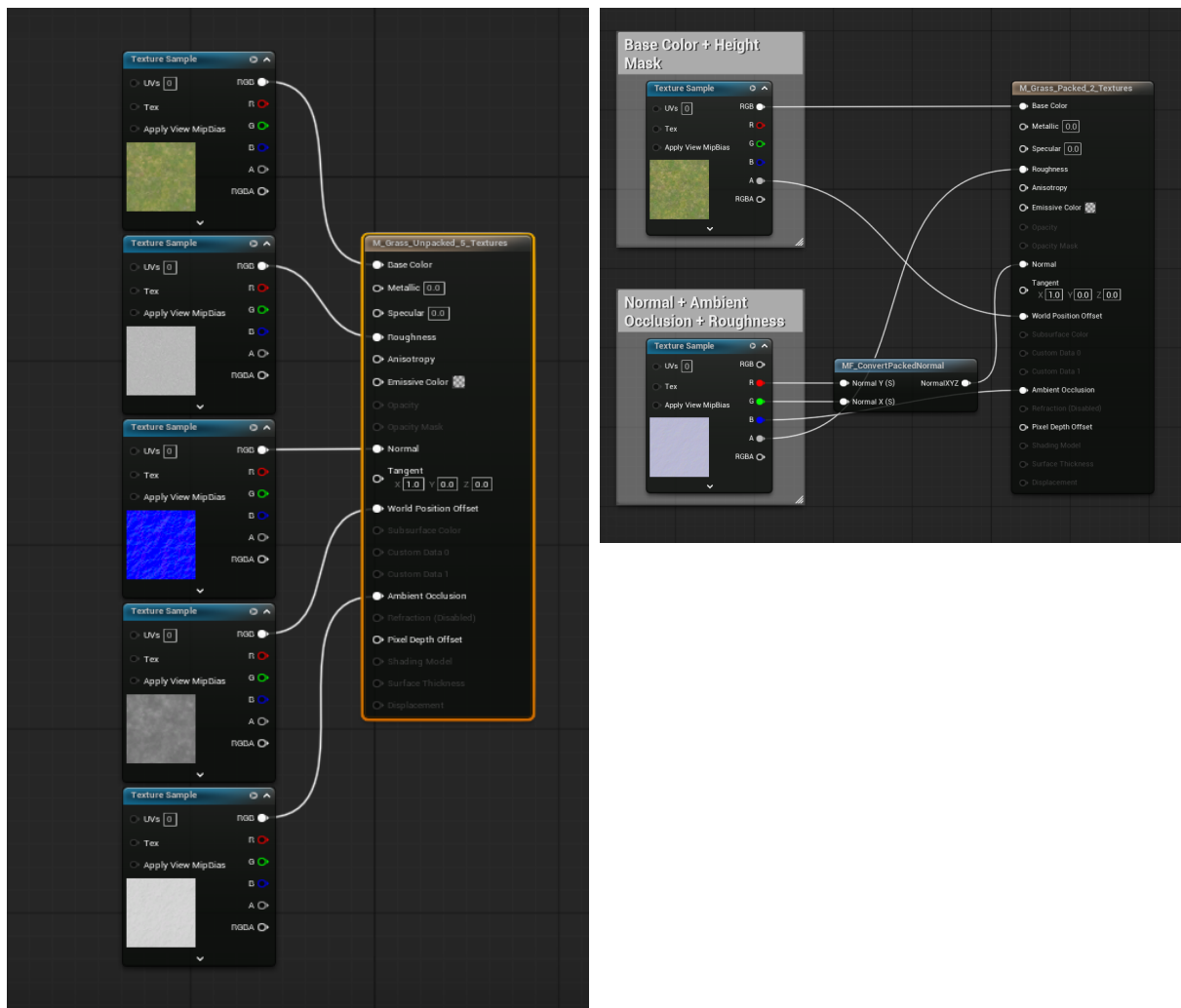


6. Material Examples

This package includes example content to demonstrate the memory savings of channel packing.

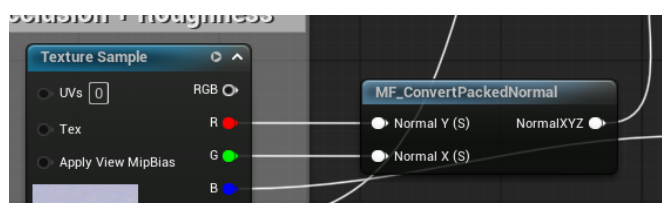
Navigate to /Game/TexturePacker/Materials/Example. You will find two materials comparing the workflow:

1. **Standard Material (M_Grass_Unpacked_5_Textures):** Uses 5 separate texture samplers.
2. **Packed Material (M_Grass_Packed_2_Textures):** Uses **only 2** texture samplers (BaseColor/Alpha + Normal/Masks), significantly reducing memory usage.



6.1. MF_ConvertPackedNormal

When using the "Normal + 2 Masks" preset, the **Blue channel of the Normal map is removed** to make room for another mask. To display the **Normal map correctly** in your material:



1. Open your Material Graph.
2. Add the function *"MF_ConvertPackedNormal"*.
3. Connect your packed texture (RG) into the function input.
4. Connect the output to the Normal slot of the Main Material Node. This mathematically recalculates the missing Z-channel (Blue).