

Polygon Material Painter

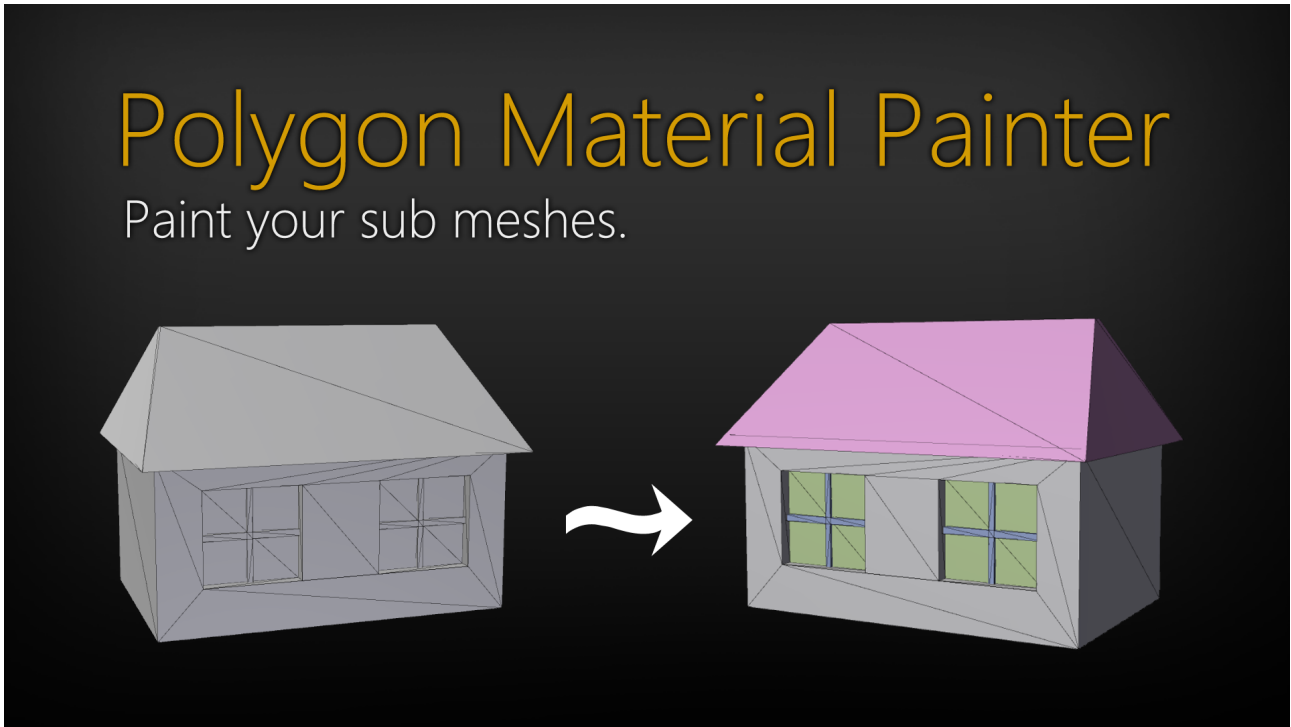
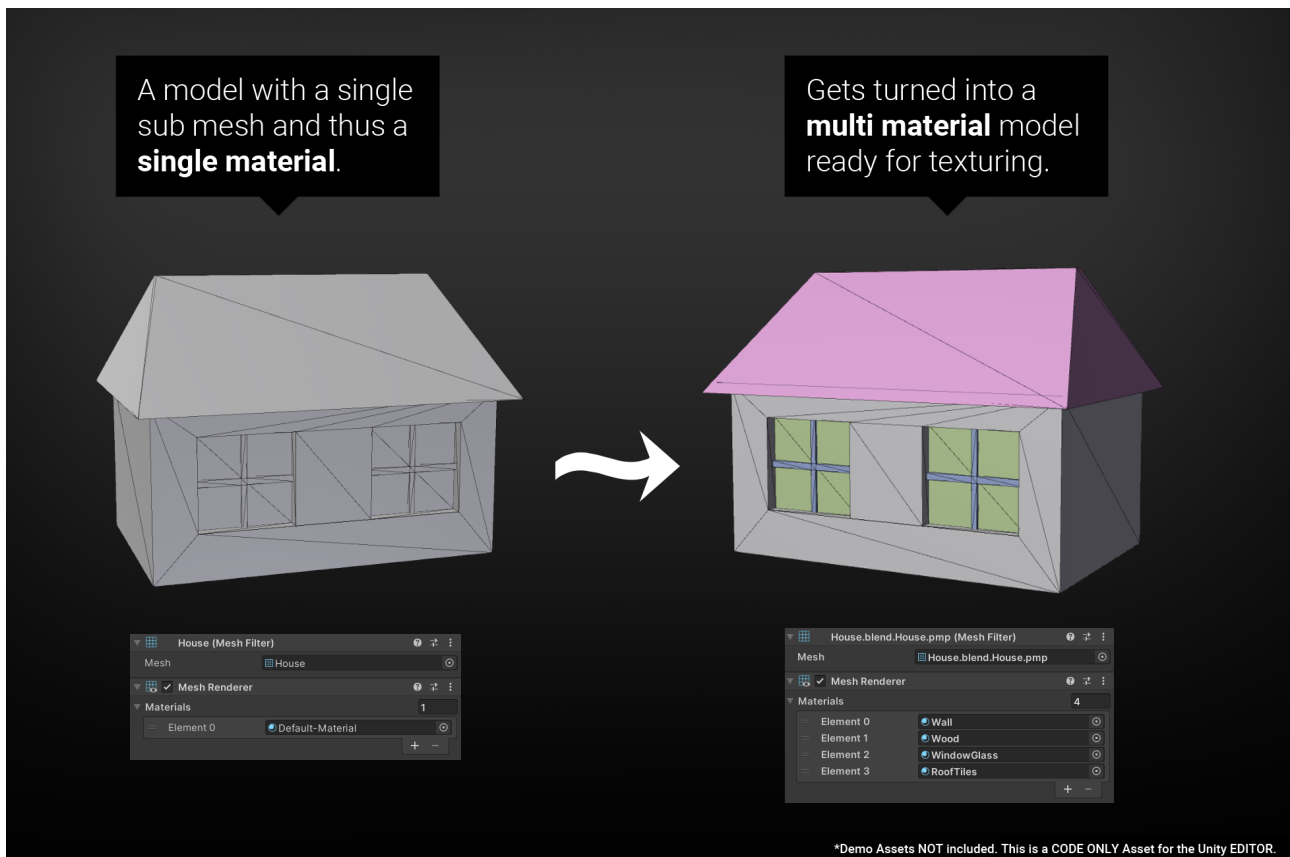


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What's it good for?

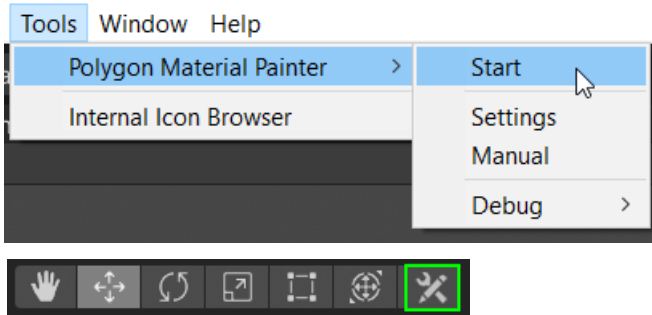
Sometimes meshes are not properly divided into sub meshes. In the example below you can see the model with no sub meshes on the left and proper sub meshes on the right. Sub Meshes allow you to assign different materials on one model. However to edit these sub meshes usually a modelling tool (like Blender) is required. The Polygon Material Painter allows you to do it inside Unity.



Usage

Start the tool

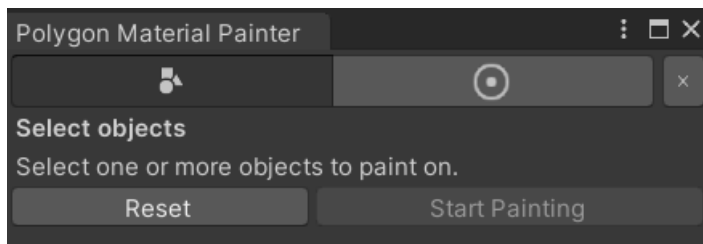
Open the tool via **Tools > Polygon Material Painter > Start** (or via the Tools bar).



Select objects

Usually the tool starts in the „Select Objects“ mode.

Here you should select the object you wish to modify. It is possible to edit multiple objects at the same time.

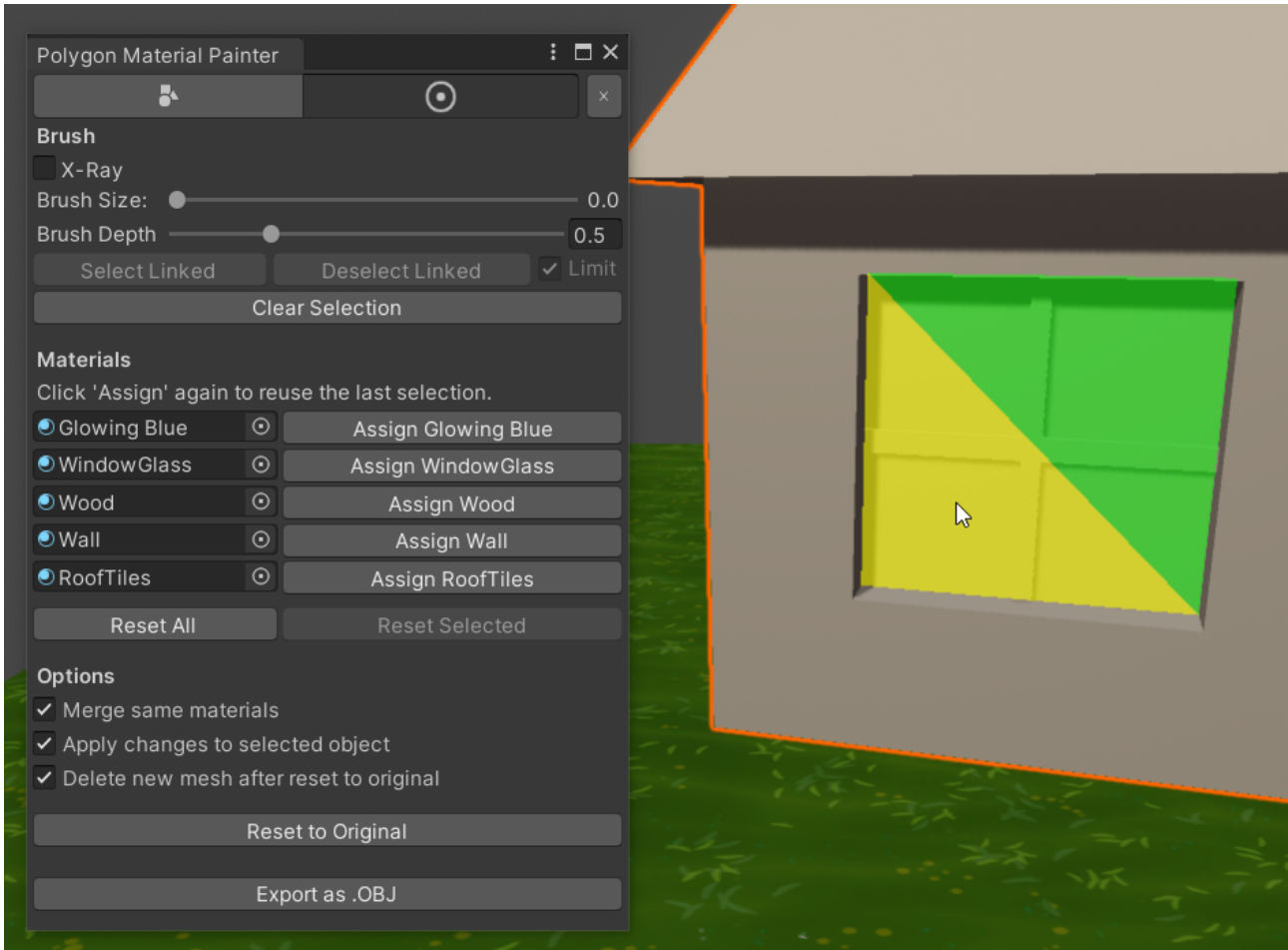


Reset: Clears the current selection, deselects any object and resets all configurations to default.

Start Painting: Switches to the painting mode where you will select the triangles.

Select triangles

Once the object is selected you can start selecting the triangles which you want to assign to a new sub mesh. Simply click or drag your mouse over the object. Press **CTRL** to erase your selection.



X-Ray: X-Ray mode allows you to select front and back facing triangles at the same time.

Brush Size: Reduce the brush size to 0 to select only one triangle at a time.

You can also use **SHIFT + MOUSE WHEEL** to change the brush size.

Personally I mostly use brush size 0 in combination with the „Select Linked“ button (see below).

Brush sizes greater than zero are useful for high poly meshes where selecting single triangles would be too cumbersome.

Brush Depth: Brush depth defines how far into the object the selection will go. This helps to avoid selecting background polygons by accident. If you want infinite depth then simply turn on X-Ray.

Select Linked: Selects all triangles which are connected to the last selected triangle.

In many cases selecting single triangles is a lot of work and actually what you want to select is a part of a mesh which has triangles sharing the same vertices (meaning one triangle is connected to another triangle with at least one shared corner point).

Example: Here we want to select only the seat of the bike.

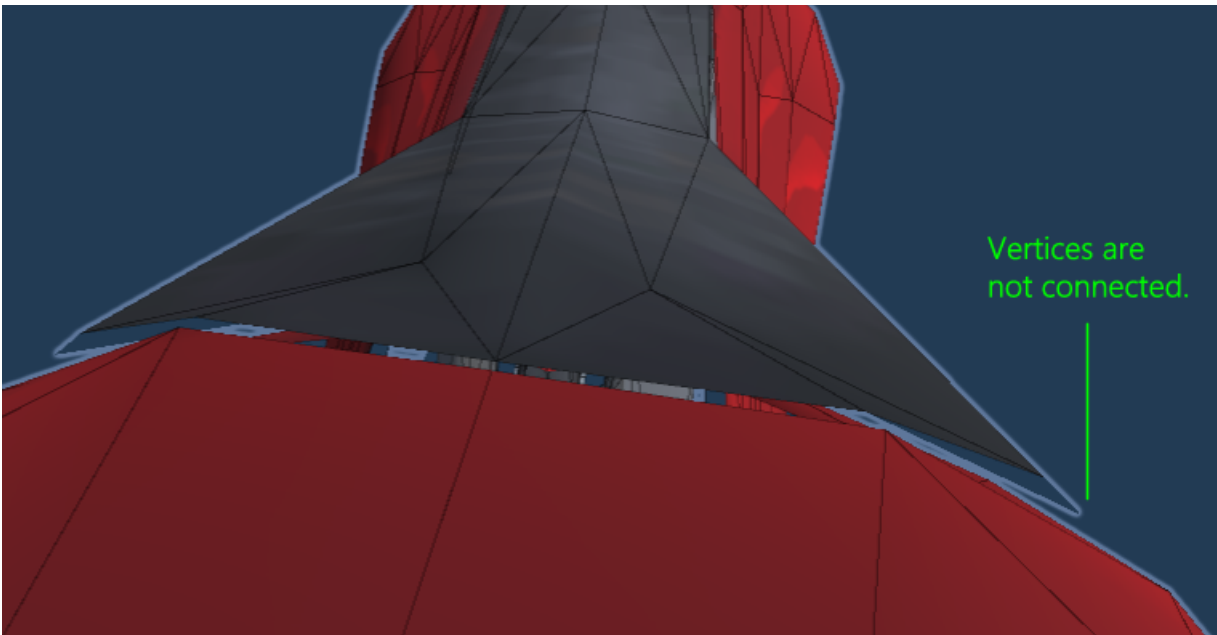
We select only one triangle of the seat and then hit the „Select Linked“ button.



Et voilà, the tool analyzed the mesh and selected only the part we wanted. but HOW?

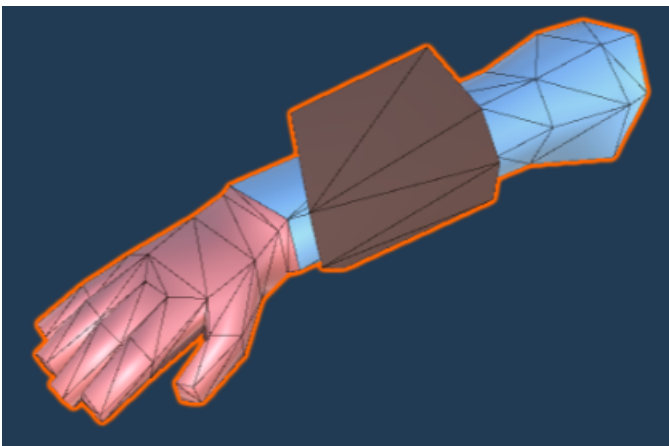


If we look closely we see that the seat mesh actually does NOT connect with the bike body. The tool can use that information.

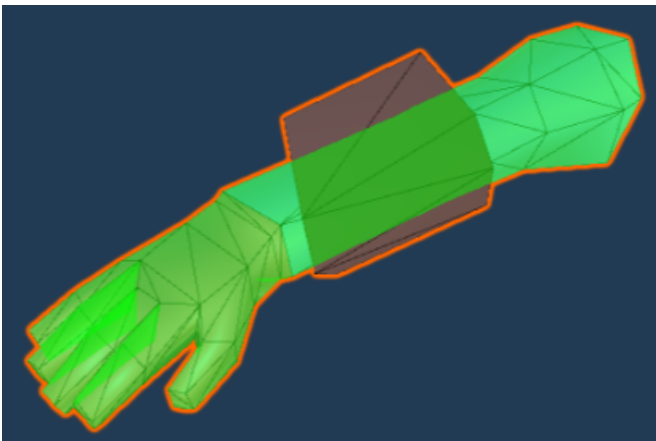


Select Linked > Limit: Enable this to limit the selection to a single sub mesh. It will use the sub mesh of the last selected triangle.

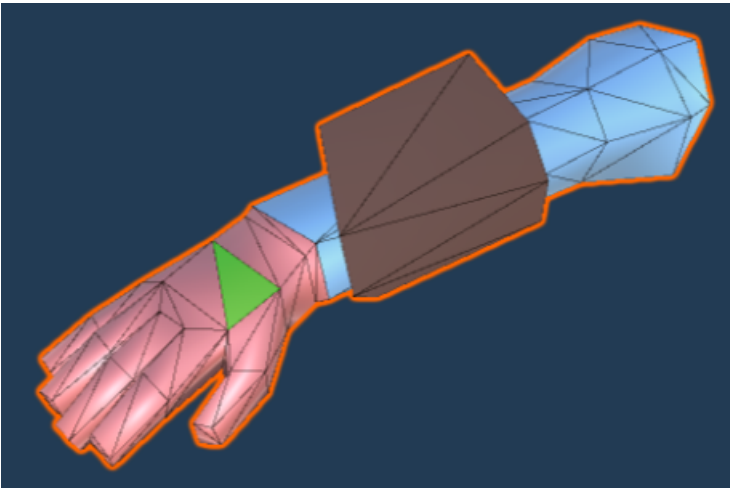
Again this one needs some more explanation. Let's take this mesh for example.



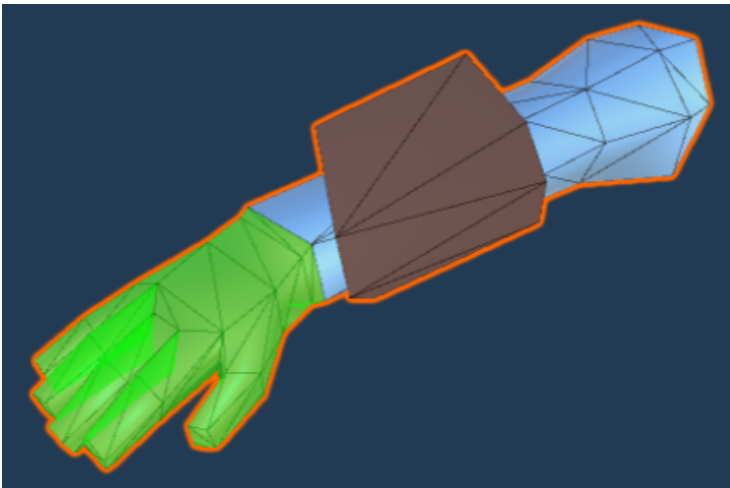
All the arms vertices are connected. If we use „Select Linked“ on it then the whole arm will be selected. Like this:



We can see from the assigned materials that the arm has some sub meshes (one for the arm, one for the hand). Let's enable **Limit** to limit the connected selection to a sub mesh.



This is the result if the „Select Linked“ options is limited to a sub mesh.

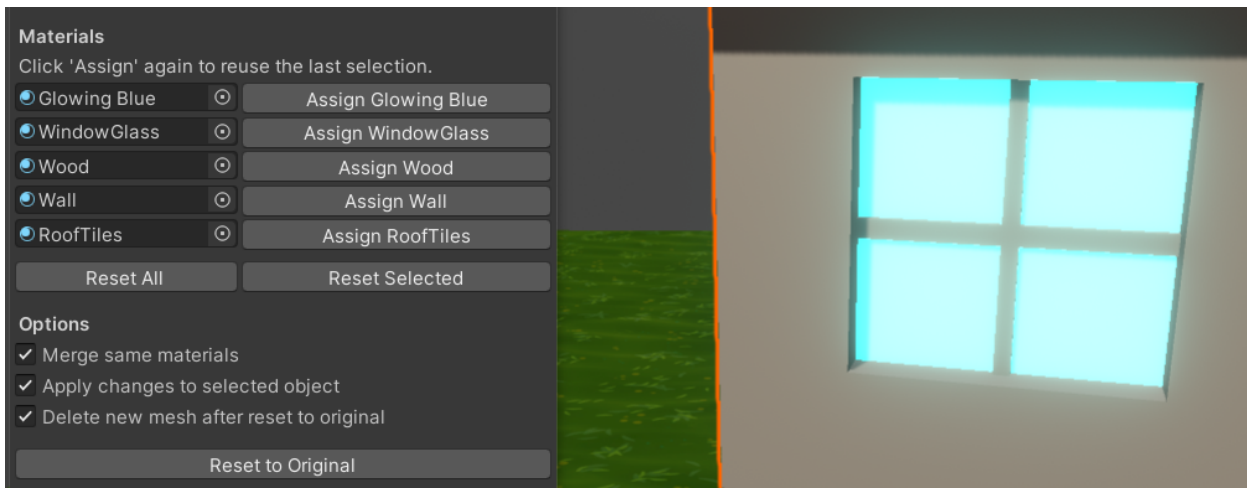


Clear: Clears the current selection.

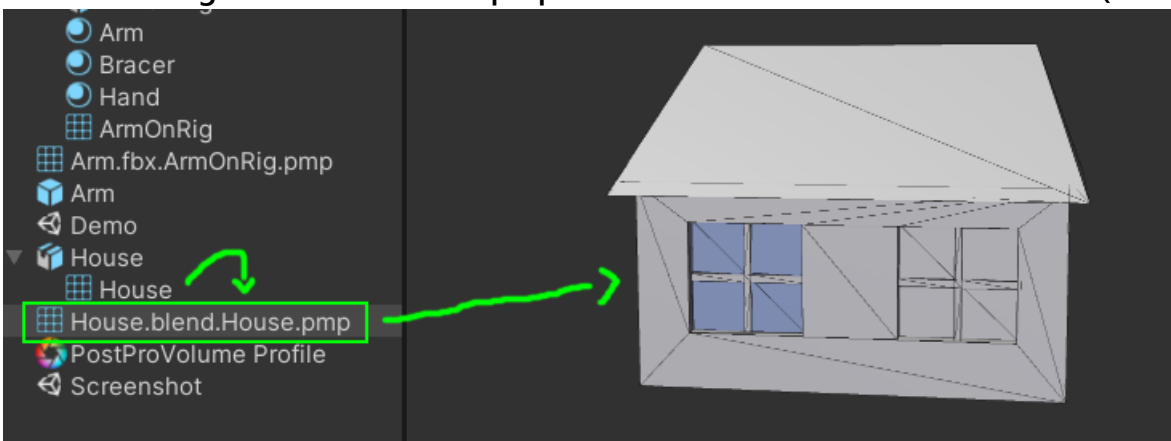


In the **Materials** section you can drop in up to five materials for quick access. Once you have selected the triangles you can hit the „Assign“ button. This will generate a new mesh by copying the original. The copy will have multiple sub meshes.

It will also automatically assign the mesh and material(s) if the „**Apply changes to selected object**“ option is turned on. If turned off then the new mesh will be stored as an asset and the original GameObject will not be modified.



NOTICE: The original mesh will never be changed. Instead the tool generates a new mesh.
Do NOT change the name of the .pmp file! The tool needs that information (see below).



If at some point you wish to go back to the original mesh then you can use the „Reset“ buttons. These will try to find the original mesh (based on the .pmp file name) and revert to it.

It may happen that the tool can not reset automatically. In those cases please search for the original mesh and reassign it to the MeshFilter (or SkinnedMeshRenderer). If you are using a prefab then a handy shortcut is to use „right-click > override > revert“ on the mesh and material properties.

Caveats (please read this)

While the tool does not place any limit on how many different sub meshes you can create it is bad practice to use too many of them. **Each new material assigned will come at a performance cost** and thus slows down your game. That's a general limitation of how these render systems work and has nothing to do with the tool itself. However, the tool makes it easy to draw a LOT of new sub meshes quickly. - „Ye have been warned!!!“

You should keep the „Merge same materials“ option turned on. Only turn it off if really necessary.

Consider using a shader based approach if you need a lot of different textures on a single mesh.

This is NOT a runtime system. It is EDITOR only.