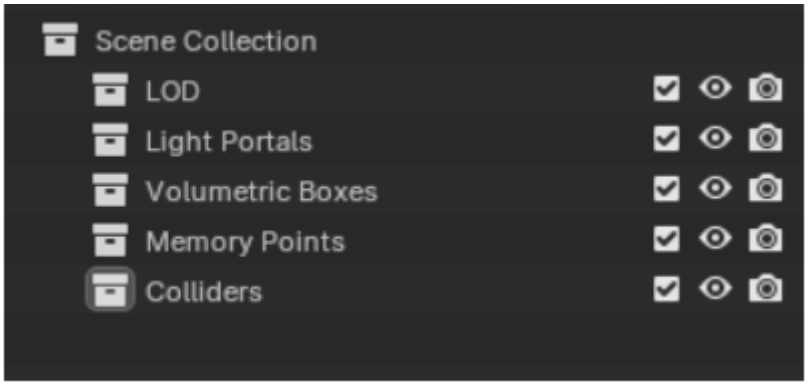
Find help on the FRENCH REFORGER MOD discord if you need ? Check our progress about this wiki here ?

3D Creation

A - Creating the Hierarchy

Start by creating your working hierarchy, right-click → New Collection.



What do these collections mean?

- **LOD**: Contains all the LODs of the object you want to create.
- **Light Portals**: Contains window and door portals, as well as the BSP_n mesh.
- **Volumetric Boxes**: Contains the volumes of the building’s probe volume.
- **Memory Points**: Contains all the portal locations.
- **Colliders**: Contains colliders for object hardness in Arma.
- **Occluders**: Contains the building’s occluders, which help the player avoid loading objects beyond the wall.

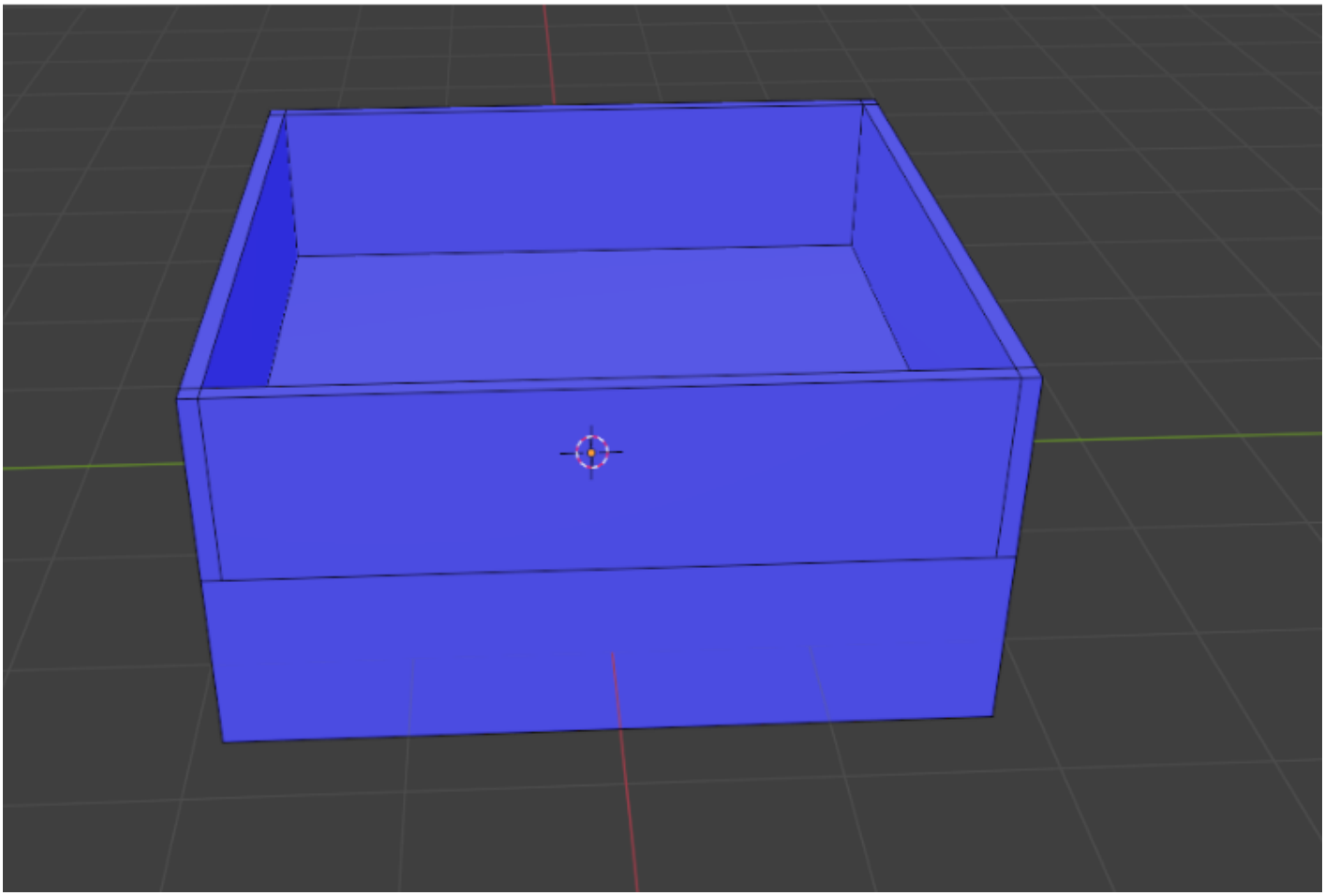
B - Creating the LOD Mesh

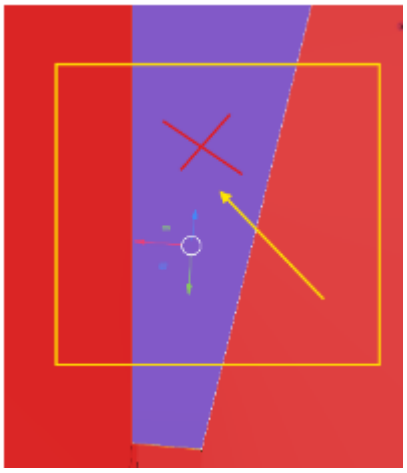
This part will mainly be done in Blender, with an import into the Reforger tool at the end.

1. **Creating the 3D model**
   For building creation, there aren’t necessarily any difficulties; just remember that walls and floors are cubes with one visible face and one invisible face. This setup is essential to prevent collisions and in-game issues.

Example:

I’ve created a wall for the building’s frame by subdividing the edges of the foundation cube. As you can see, one side is split into three faces. Upon closer inspection, there are two faces overlapping inside (one visible and one invisible). **THIS IS NOT GOOD.**





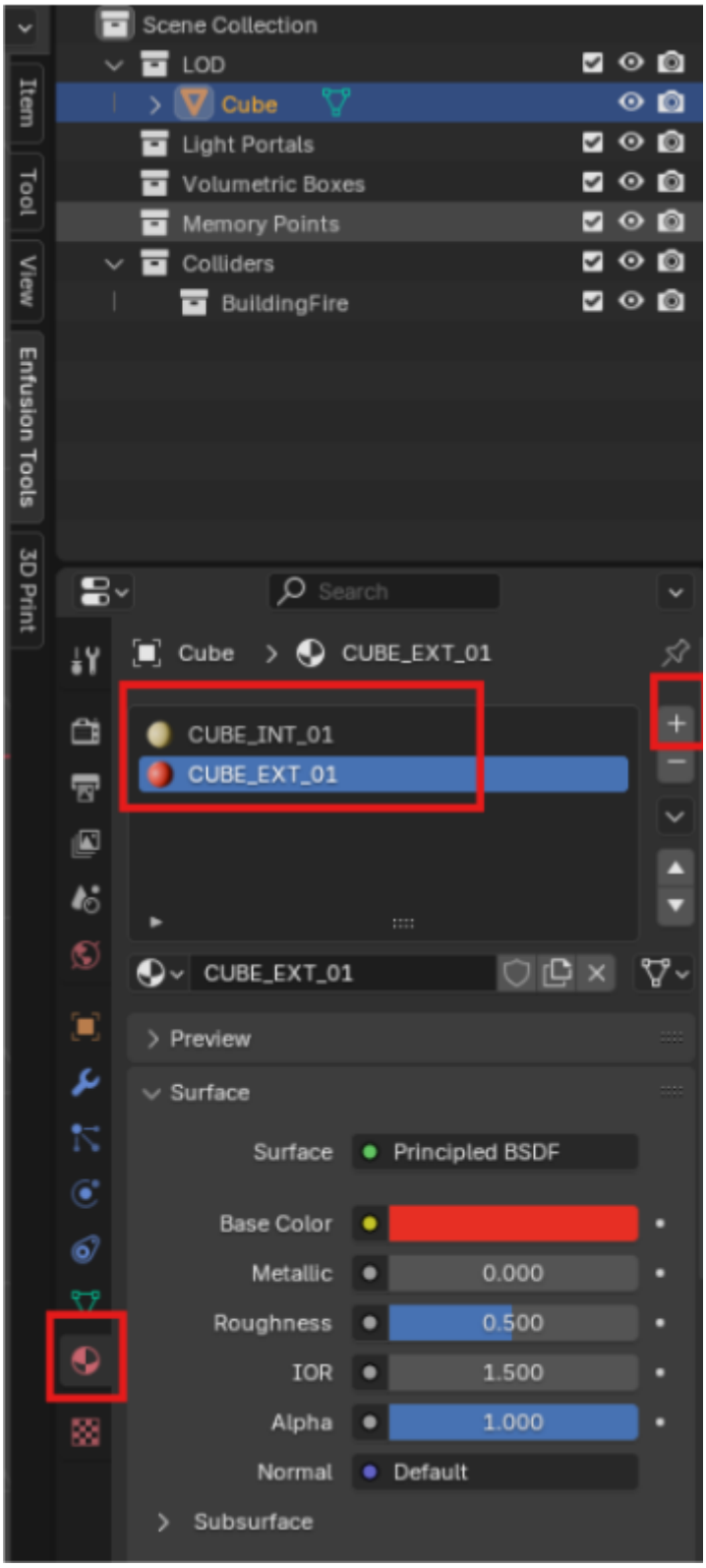
To delete if, select the face -> suppr -> deletefe face

after, you can create interior wall

1. **Adding Materials for MultiMat**

   After creating the interior walls, apply a material (an emat in Reforger), allowing up to 7 textures per material. Apply materials from the bottom up, floor by floor.

   To Create a Material: Go to *Material* → + → name it logically, like `YOUR_OBJECT_NAME_INT_or_EXT_n`.



   To Apply a Material: Select face(s) → Material → check the desired material → Assign.

2. **Adding Door and Window Frames**

   In order to create thsi you will need to get the right dimensions here the wiki from reforger:

Measurement	Small Window	Large Window
Min distance from the floor	169 cm	99 cm

Common dimensions

		Height				
		47	**72**	**118**	**142**	**182***
Width	**70**	70 × 47	70 × 72	-	70 × 142	70 × 182
	90	-	90 × 72	-	90 × 142	90 × 182
	110	-	-	110 × 118	110 × 142	-
	130	-	130 × 72	-	130 × 142	130 × 182
	170	-	170 × 72	-	170 × 142	170 × 182
	195	-	195 × 72	195 × 142	195 × 182	-

* *recommended ceiling height: 330 cm*

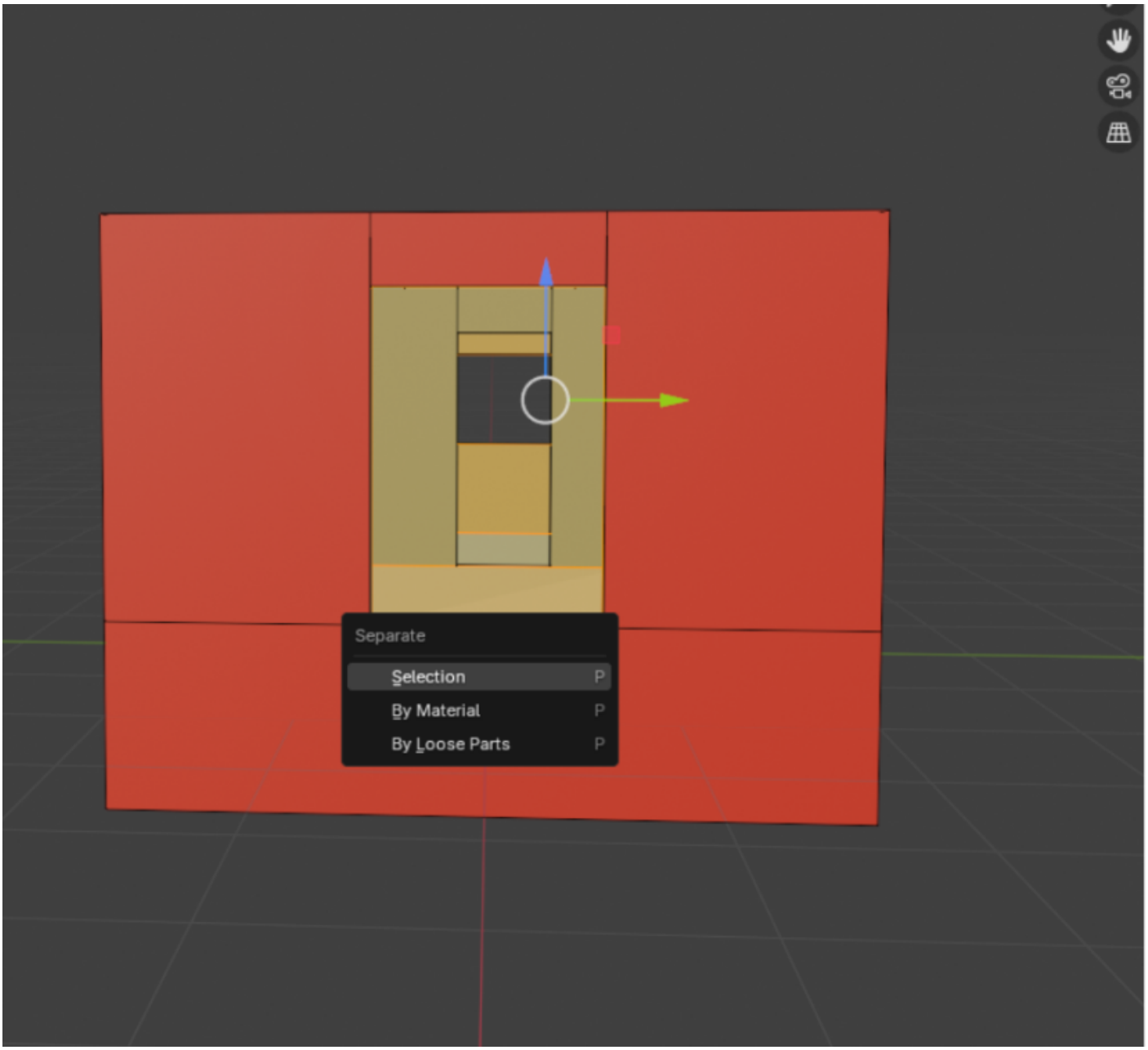
Some other uncommon formats exist, such as e.g 260×230 for the air control tower.

It’s better to create cutouts for doors and windows by defining their dimensions precisely. Two techniques:

- *Boolean Modifier*: Create a cube with the dimensions, place it, then select the primary LOD → Modifier → Boolean → select the cube and apply. This method is fast but can cause complex edge and BSP issues.
- *Subdivision Technique*: For clean frames, subdivide edges to create door/window frames, keeping the edges as simple as possible.

Creating the Box Volume

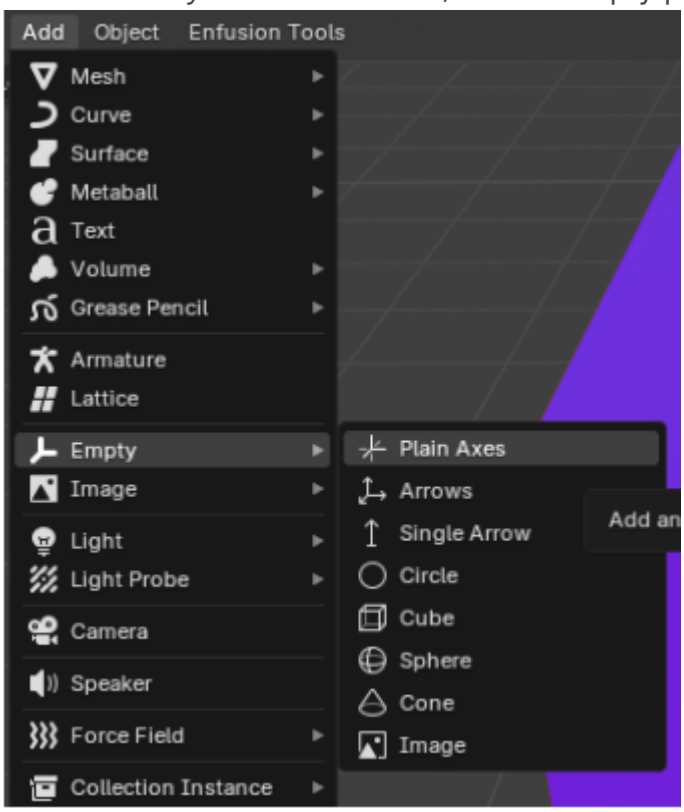
Select all interior building faces, duplicate them, and form a cube with visible exterior faces. Do this floor by floor before adding the roof.



- **Steps**: In *Edit Mode* → Shift + D → Esc → P → Selection. Rename this mesh `BOXVOL_n`, move it to *Volumetric Boxes*, remove its material, and apply *dummyvolume*. Simplify the shape by removing unnecessary edges and points.

Creating Sockets for Portals

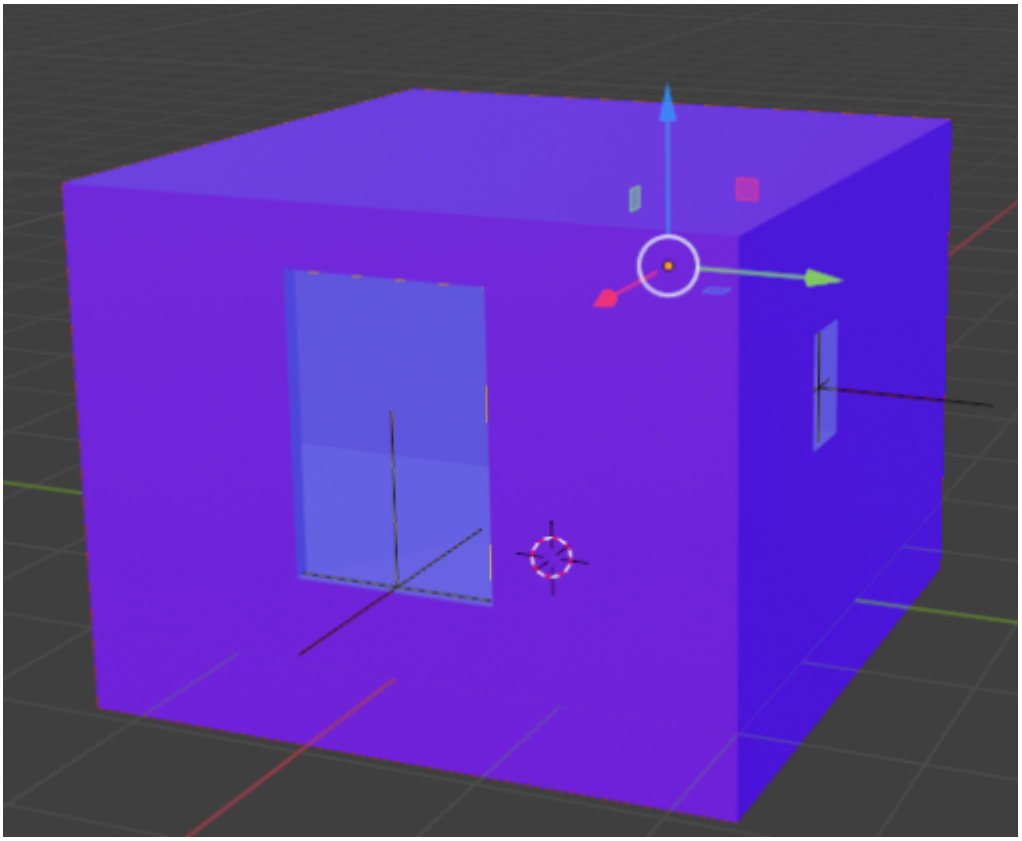
In the *Memory Points* collection, add an empty point.



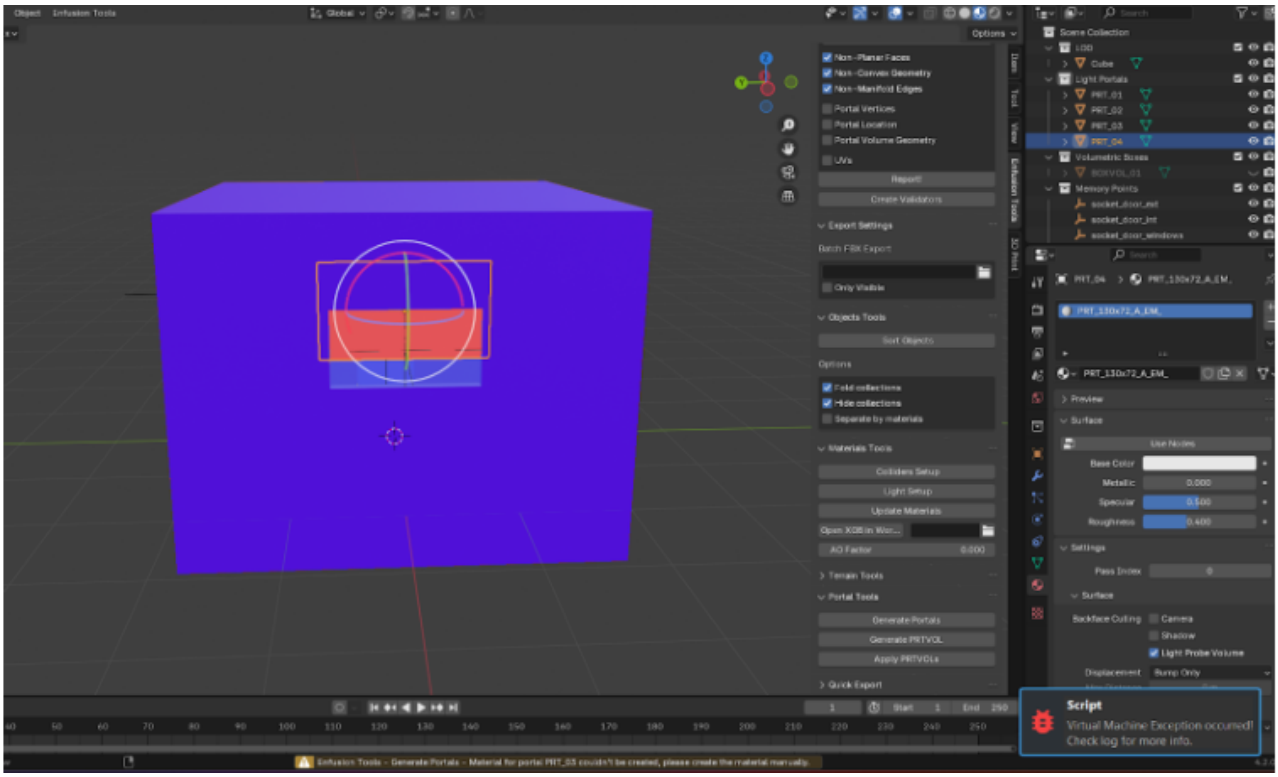
- **Socket Naming Conventions**:
  - `socket_door_ext`: for exterior doors
  - `socket_door_int`: for interior doors

- `socket_window`: for windows

  For doors, try to position them precisely in the center of the frame at ground level, and for windows, ensure they’re centered within their frames.



- Place sockets at the center of door and window frames. Once positioned, click *Enfusion Tool → Generate Portals*. Check the positioning and materials of the generated portals.



PRO TIPS:

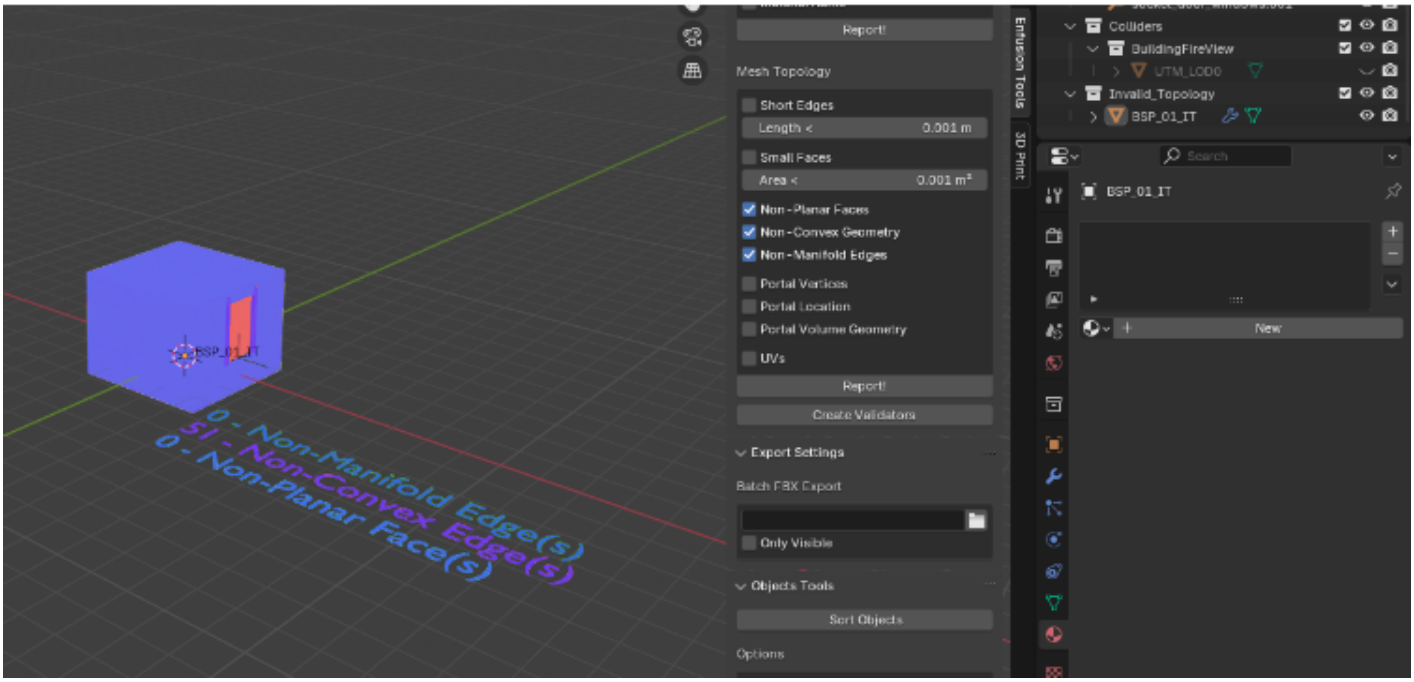
- Sometimes, portals are misaligned, and you can adjust them manually.
- Make sure to place the red faces on the outside.
- Some materials may not generate correctly if the frame dimensions are off, so it’s essential to refer to the available portal that matches the frame size.
- Use only one type of portal for single doors, double windows, etc.

  Finally, the created portals have names like `PRT_DOOR_GARAGE_A_EM_` ending with “_”. Generate a GUID with the Enfusion tool to place it at the end of the material name: go to *Utilities* → *Generate GUID*.

Creating the BSP

BSPs help attenuate sound within the building. Duplicate the LOD, remove excess details, rename it `BSP_n`, and place it in *Light Portals* with *dummyvolume* applied.

BSP Validation: Go to *Enfusion Tool* → *Mesh Topology* → Check “Non-Planar Faces,” “Non-Convex Geometry,” “Non-Manifold Edges” → *Create Validator* (Temporary BSPs appear in *Invalid_Topology*).



PRO TIPS:

- 0 non-manifold edges and non-planar faces.
- Non-convex edges are acceptable.

LOD Verification

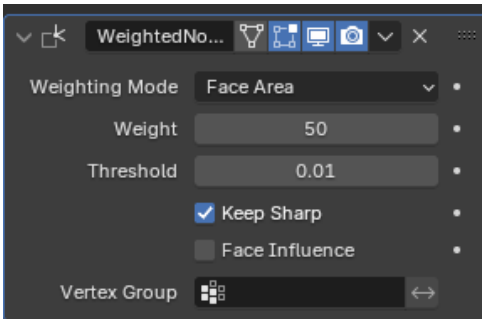
Once all your frames, box volumes, portals, and BSP are correctly set:

- Check between walls to ensure there are no overlapping faces.
- Ensure each face has a maximum of four edges.
- Verify that all faces are oriented in the correct direction.
- Make sure each face has the correct material assigned.
- Confirm that the bottom faces are deleted.
- Dissolve unnecessary edges and reduce the number of points as much as possible.

  Pro tips: This order applies to a single-story building; if additional floors are added, the BSP and box volume setup will differ.

Apply Weighted Normal

Arma doesn't like objects that are too sharp, so just go to your LOD --> modify --> Normals --> Weighted Normal**.**Then click on “keep sharp” and apply this to your LOD.

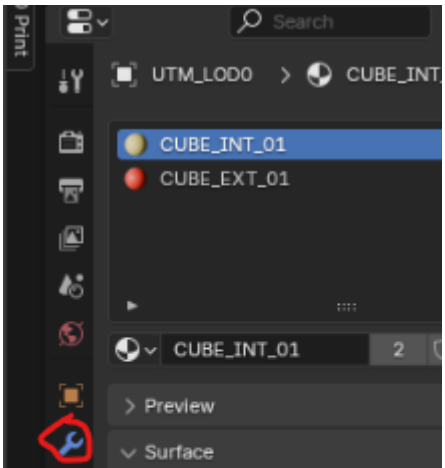


Creating Multiple LODs

Use a mod for LOD separation if desired. Select *LOD0* → *LODs Maker* → *Make Lod Object*.

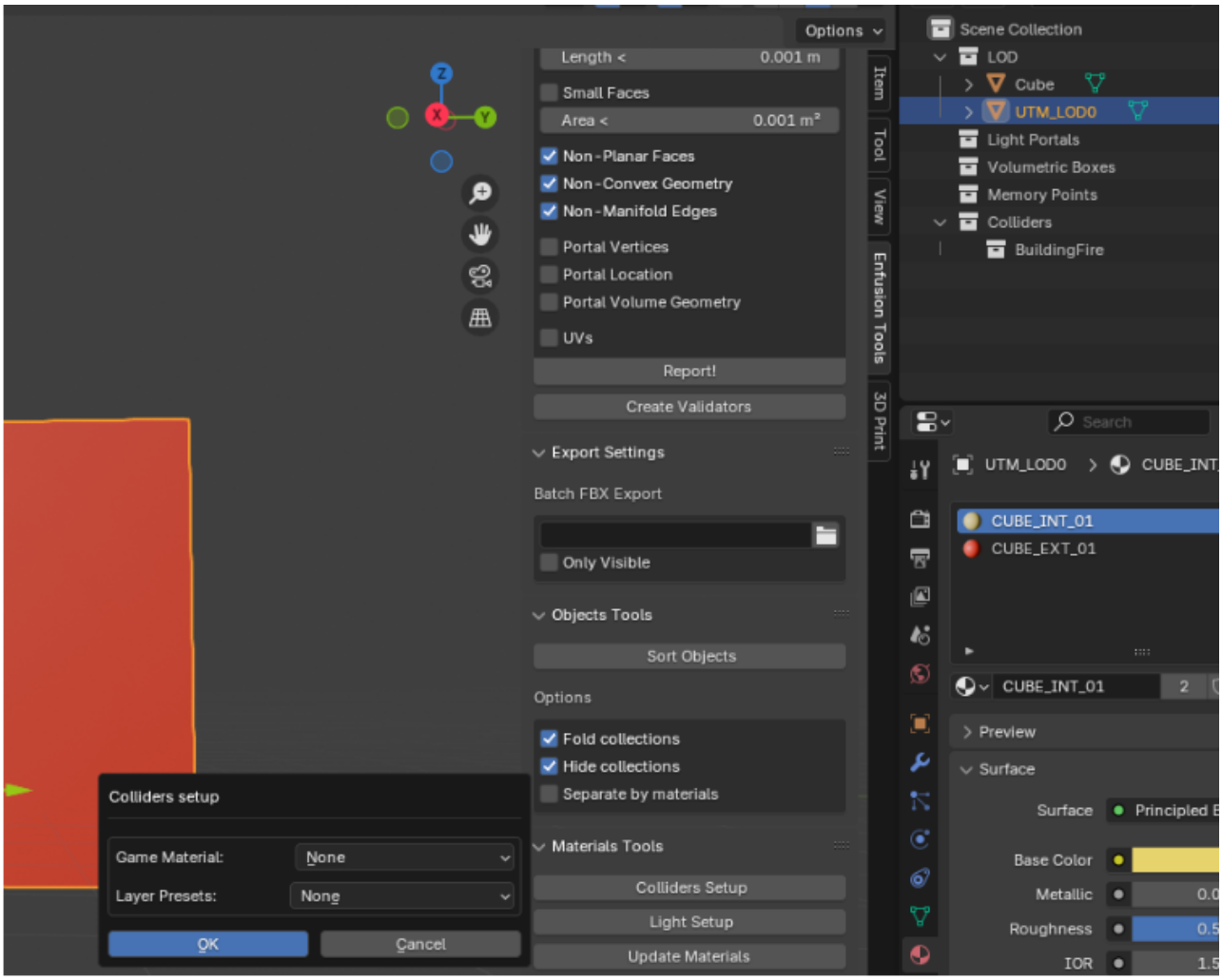
Creating Colliders

Duplicate your *LOD0* mesh in *Object Mode* (Shift + D). Rename it `UTM_LOD0`, try to add an DECIMATE effect on it to reduce a bit some detail in order to make lighter collider (blue wrench)



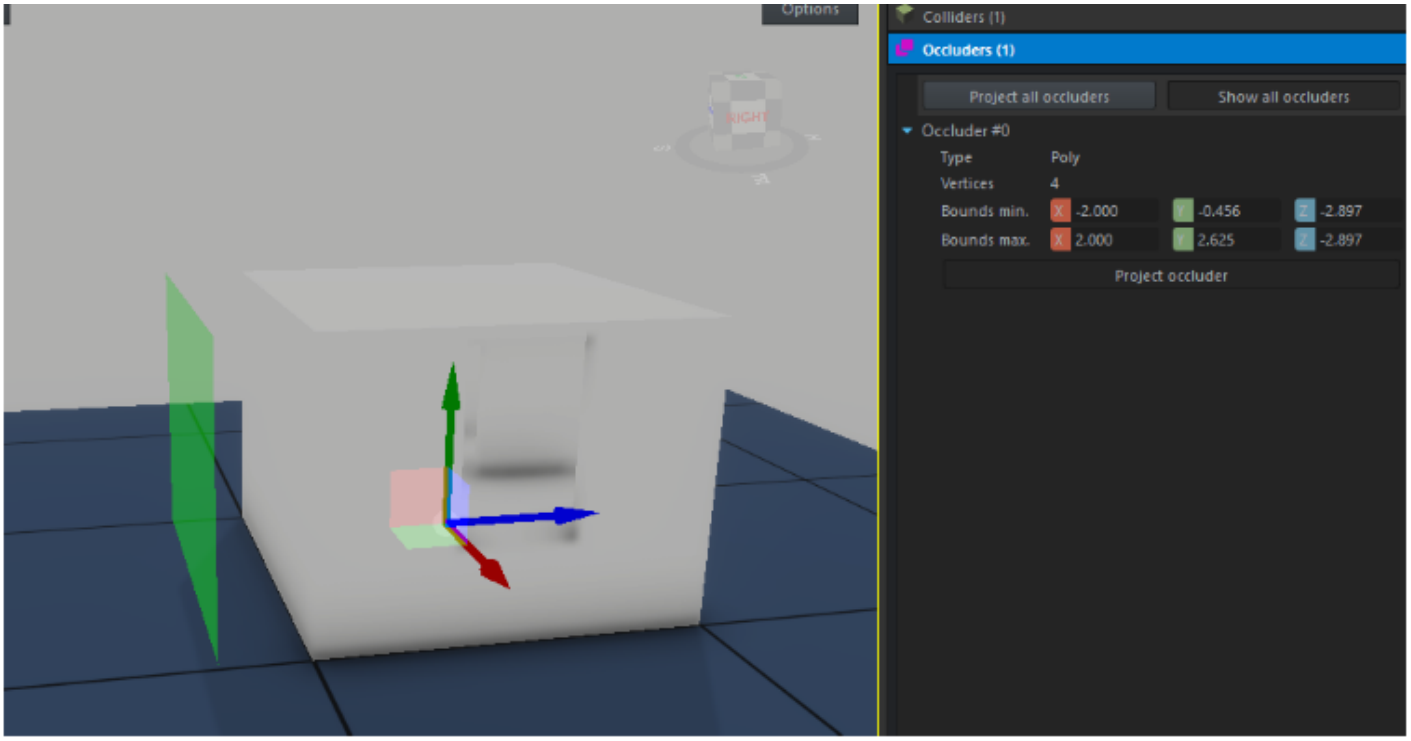
go to *Enfusion Tool → Colliders Setup* to set:

- *Game Material*: Collider material type.
- *Layer Preset*: Specify whether it’s a building, prop, etc.



Creating an Occluder

Create a cube, place it against a solid wall, apply *dummyvolume*, and rename it `occ_n`. Select *Sort Object*.



You will need to do this operation only on the face that are closed (non windows and door)

Export, Import, and 3D Testing

Only once all steps are completed, you can export your building: go to *File* → *Export* → *FBX* → Check *Custom Properties*. Open the Enfusion tool and import it!

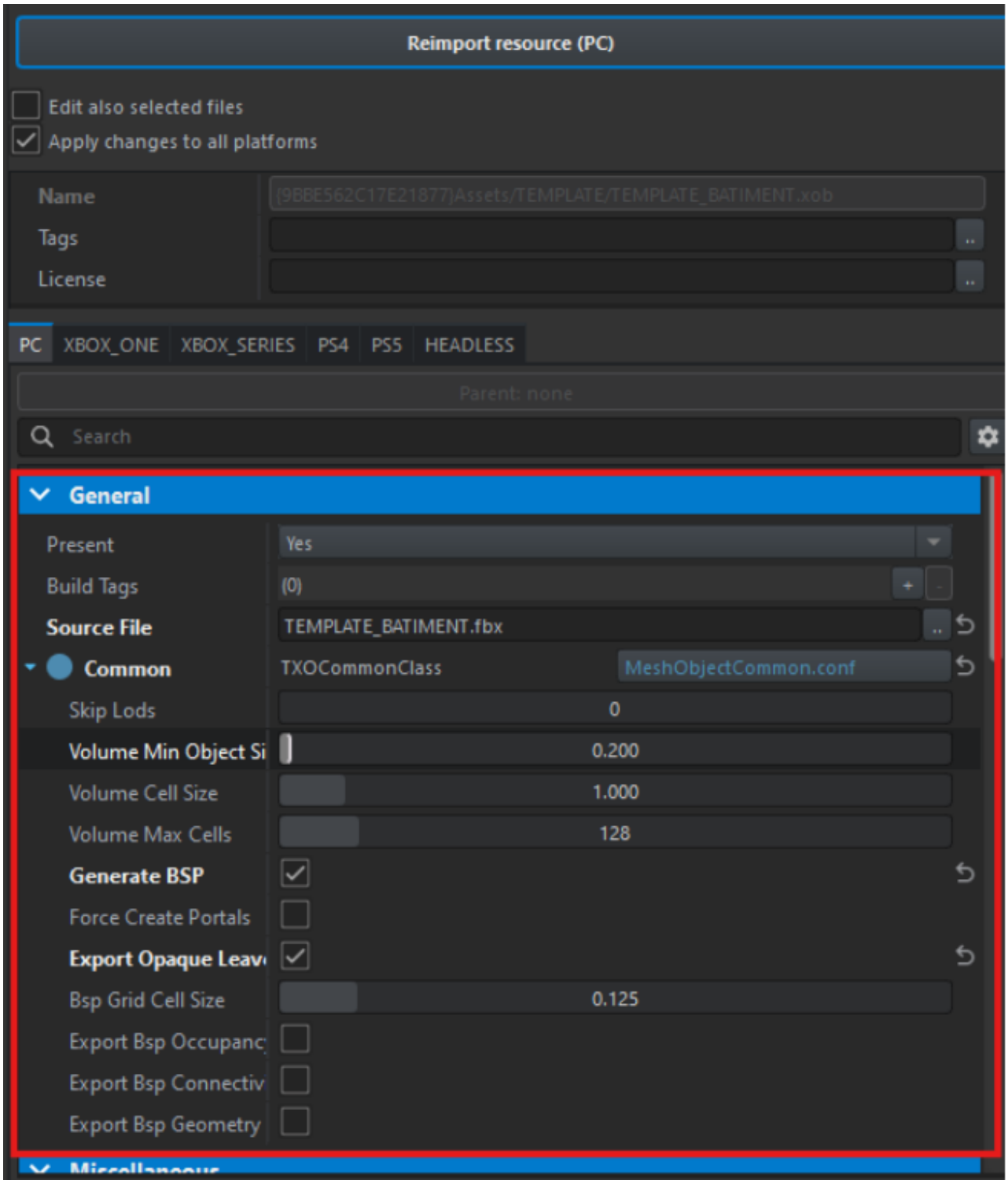
PRO TIPS:

- Keep the directory structure consistent between assets and prefabs, for example, *ASSETS* → *Template* in assets should match *PREFAB* → *Template* in prefabs.

Once imported, select the XOB and adjust the following properties:

- **General** → **Source File** → Select your FBX
- Check **Generate BSP & Export Opaque Leave**
- Uncheck **Merge Tri Meshes** if you have multiple colliders

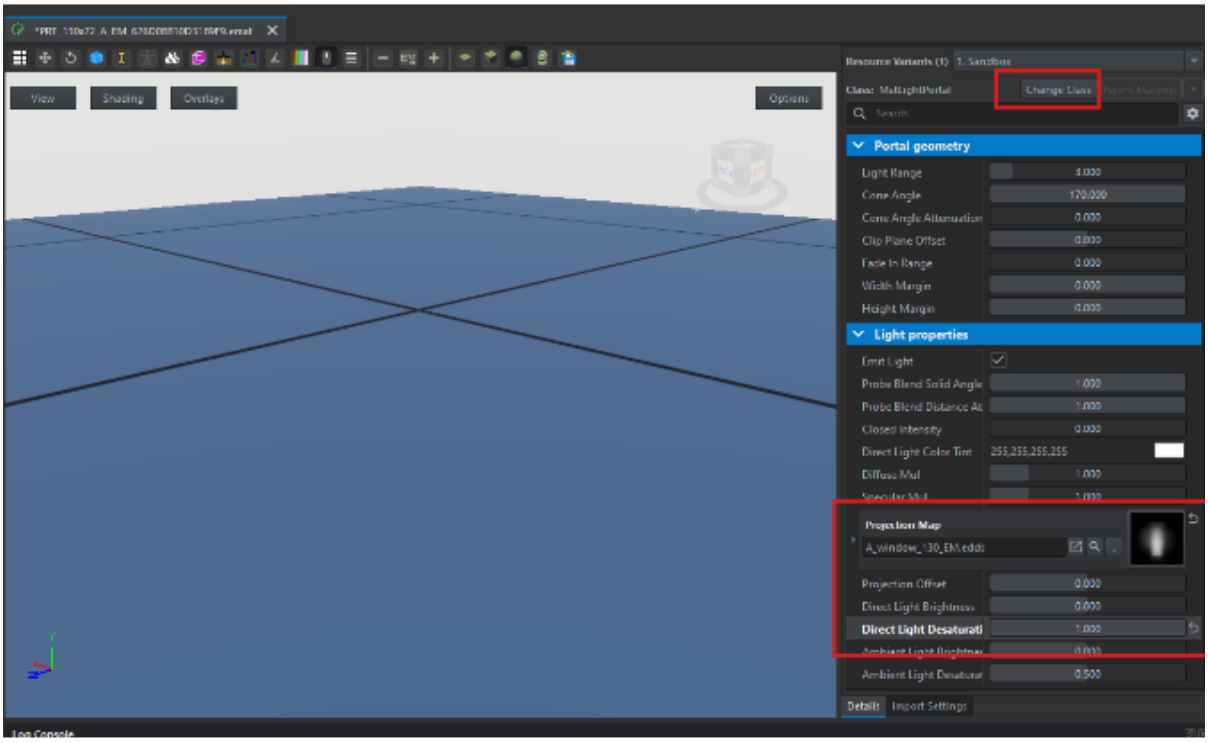
- Click *Import*



PRO TIPS:

- You'll see the texture emats, dummyvolume, and portals.
- After importing the emats, update the portal emats:
  - For each emat starting with `PRT_*`, change its class to **MatLightPortal**.
  - In **Projection Map**, select the correct portal based on the frame.

- Set **Direct Light Desaturation** to 1.



Your 3D model is now ready! Now, it’s time to texture it.

Revision #2

Created 2024-11-07 13:57:27 UTC by Benjamin

Updated 2025-02-24 22:56:02 UTC by Casseburne