swMesh2XML

Version 0.1b
User Guide

This guide is subject to changes when features are added.

Installation

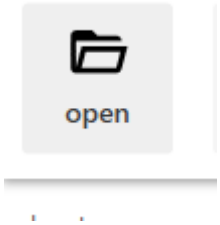
- Extract the zip to a directory of your choice.
- Run swMesh2XML.exe, if you wish, you may create a shortcut to this.

Usage

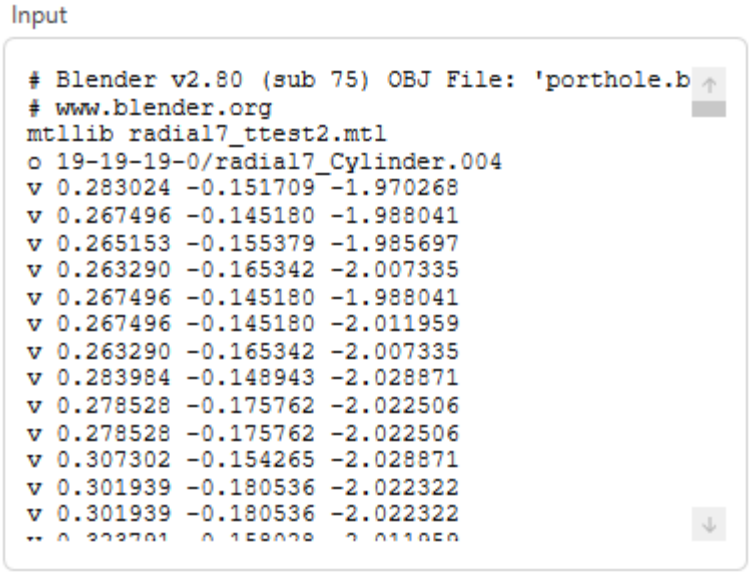
- swMesh2XML is designed to be easy to use.

Selecting an Object to Convert

- Click the 'Open' button in the tor left of the ribbon, then browse to the object file you wish to convert.



- The file will be loaded, and its contents displayed in the 'input' panel, you may make changes here if you forgot to do them when exporting the object.

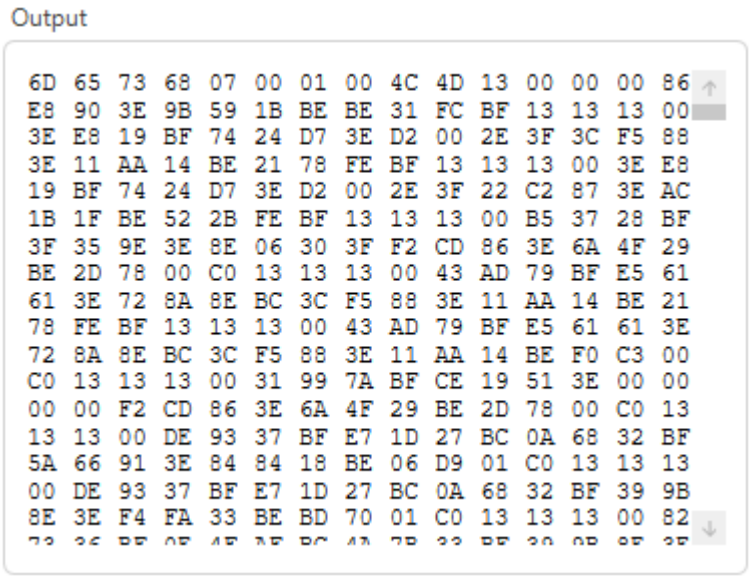


- The title for swMesh2XML will also change to the path of the object opened.

Converting an Object

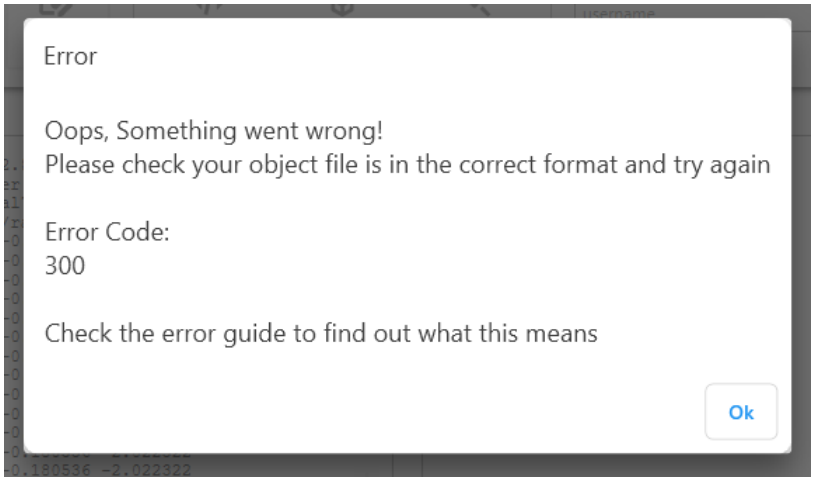
- When you open an object file, the ‘to mesh’ button in the ribbon will become available, Simply click this.

- If your object is formatted correctly for the converter, the mesh output will be displayed in the ‘Output’ panel.



The output to expect if a mesh converts correctly

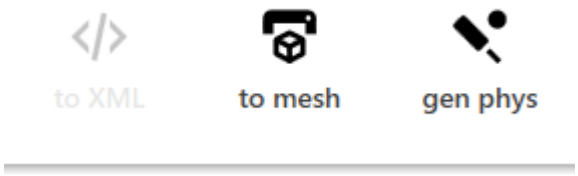
- If your object is not correctly formatted, an error will popup, with an error code. You can look this up in the error guide (distributed with this release or for an always up-to-date version, on github) to find out what is causing it and how to fix it.



An error popup, in this case, the color code is not formatted correctly

Extra Mesh Options

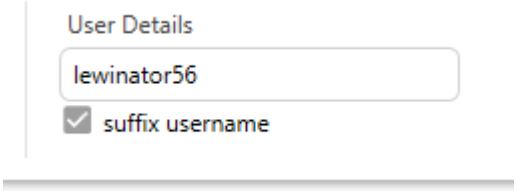
- If your object also requires a .phys file, you can also create this, to do this, you **must** first convert it to a mesh, the 'gen phys' button will then become available.



- Clicking this will open a save dialog, allowing you to save the .phys file where you wish.

Adding Your Own Information to a Mesh

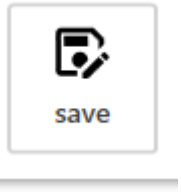
- To make sure that no-one distributes your converted mesh as their own, swMesh2XML allows you to suffix your username (or any other text) onto the end of the generated mesh.
- Type in the details you wish in the 'username' textbox in the 'User Details' section of the ribbon, and check 'suffix username'.



- When the mesh is generated, this will be added onto the end of the file.
- *If you do this **after** converting the object to a mesh, you will need to re-convert it.*

Saving the Converted Mesh

- After you have converted the object to a mesh successfully, to save it, simply click the 'Save' button in the ribbon, this will show a save dialog.



- A popup will show after saving to confirm it was saved successfully.

Issues or Bugs

- If you experience any issues or bugs, please report them on github under the issues section of the repo.

- *For errors which are not in the error guide, please report the error number **and** submit the object file / blend file that caused the error.*

Creating a Mesh

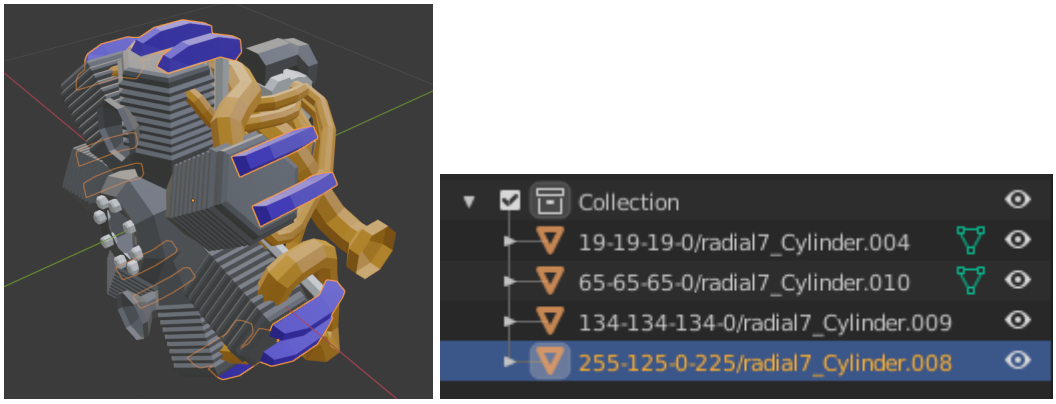
- Any 3D modelling software can be used to create a mesh, however, I recommend blender.

Modelling

- As a guide, Stormworks's models are generally fairly low poly, there is a triangle limit of 21k per mesh, however it is **very** unlikely this will ever be reached.

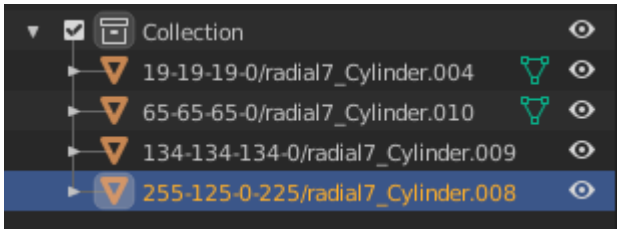
Colors and Shaders

- Each different color or shader part of a model **must** be a separate object in blender.



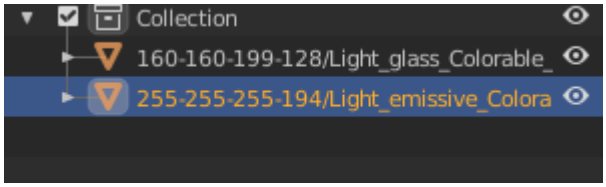
This is colored simply to show the different objects, material colors in blender have no effect on the conversion.

- To assign an in-game color to an object in blender, the object name **must** be prefixed with the color formatted in **R-G-B-A** where R, G, B and A are colors in integers from 0 -255 then followed by a "/". E.g: 255-255-255-255/pole
- *Stormworks reserves certain colors for certain things, these are listed later in this document.*

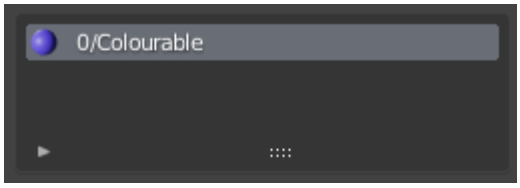


Correctly formatted color names for each object in a mesh

- *Some block types in game require multiple specifically shader-assigned meshes to work properly, for example, lights, which would be set up like this.*



- Stormworks also makes use of different shaders for different material types, the most commonly used will be opaque and glass, however there is also an emissive shader.
- Shaders are determined by the material name for each object in blender.
- To set a shader, the object's material must be prefixed by the shader ID followed by a "/". E.g: 0/paintable



Correctly formatted shader names for the material on one object in blender

- Shader ID's and important colors are listed at the end of this document.
- *Each object in a mesh **must** have a material set **and** named correctly, or will not convert, however, each object **does not** need to have a color explicitly assigned as it will be defaulted to the paintable color if it is not assigned, by the converter.*

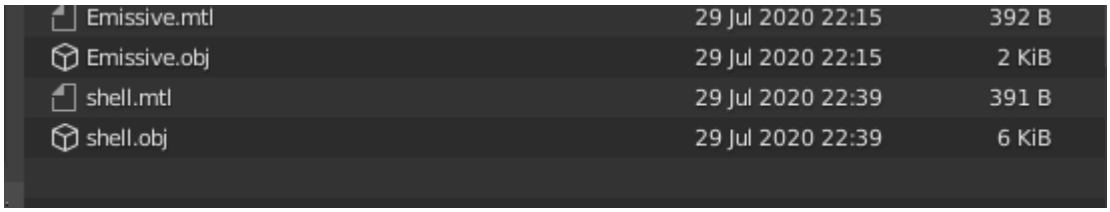
Preparing Your Mesh For Export

- There are a few steps you **must** do before you can export your mesh as an object.
- **Triangulate each object in the mesh**
  - This can be done in blender by selecting the object, hitting 'a' then 'ctrl+t'.
- **Edge split each object in the mesh**
  - This can be done in blender by selecting the object, hitting 'a' then 'space' and typing 'edge split' then 'enter'.
  - *Depending on how your keybinds are set up, space may not bring up the search menu, you can change this under preferences → keybinds.*
  - Alternatively, you can mark hard edges (non-continuous tris) then apply an edge split modifier, this results in a smaller file, however is prone to error unless you are 100% certain as to what you are doing.
- You are now ready to export your mesh as an obj file.

Extra Things to Consider

- *Some blocks in game require multiple meshes assigned to them to work properly, this applies to wheels, lights and propellers (and anything else that*

*moves) so make sure your mesh is designed to fit together with the other bits, these other parts **must** be modelled as separate files.*



The 2 files required for a light block, shell is the opaque casing, Emissive is the glass and emissive part.

- *Your mesh now needs setting up to work with a definition xml file, this is not explained in this guide.*

Shaders And Reserved Colors

Shader IDs

- 0
  Opaque shader, most blocks use this.
- 1
  Glass shader, if you want to have a semi-transparent bit of your block, use this, it is paintable under certain conditions.
- 2
  Emissive shader, if you want an emissive bit of your mesh, use this, it is paintable under certain conditions.

Reserved Colors

- 255, 125, 0, 255
  - This color is the default paintable color for **opaque** meshes, only meshes this color are paintable.
- 255, 255, 255, 194
  - This color is the paintable color for **emissive** meshes, only emissive meshes this color are paintable.
- 160, 160, 199, 128
  - This color is the paintable color for **glass** meshes, only glass meshes this color are paintable.
- *Emissive and glass paintable colors have **only** been tested on lights.*