

Guide to using Blender addons to import and export Dark Forces 3DOs

by Jereth

Blender is free, open-source 3D modelling software and can be downloaded here:

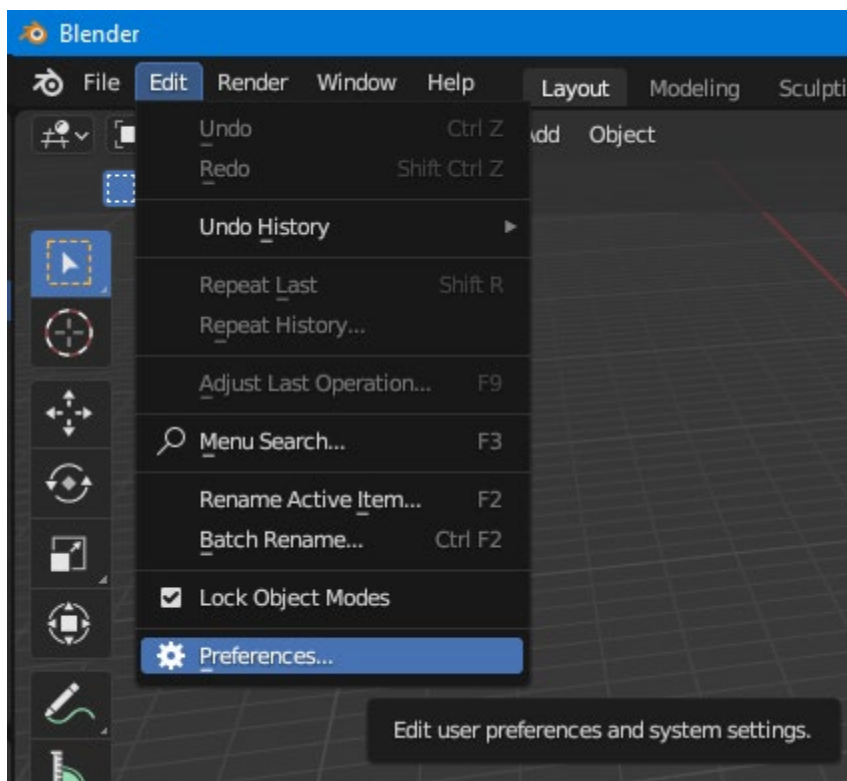
<https://www.blender.org/>

Please note: I have tested and confirmed that the addons work in Blender 2.83 through to Blender 3.6.

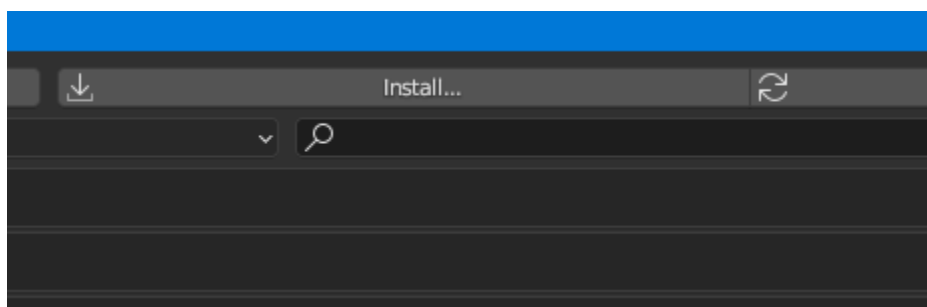
This is *not* a tutorial on how to use Blender to create or edit 3D models. Plenty of these exist on the internet.

INSTALLING THE ADDONS

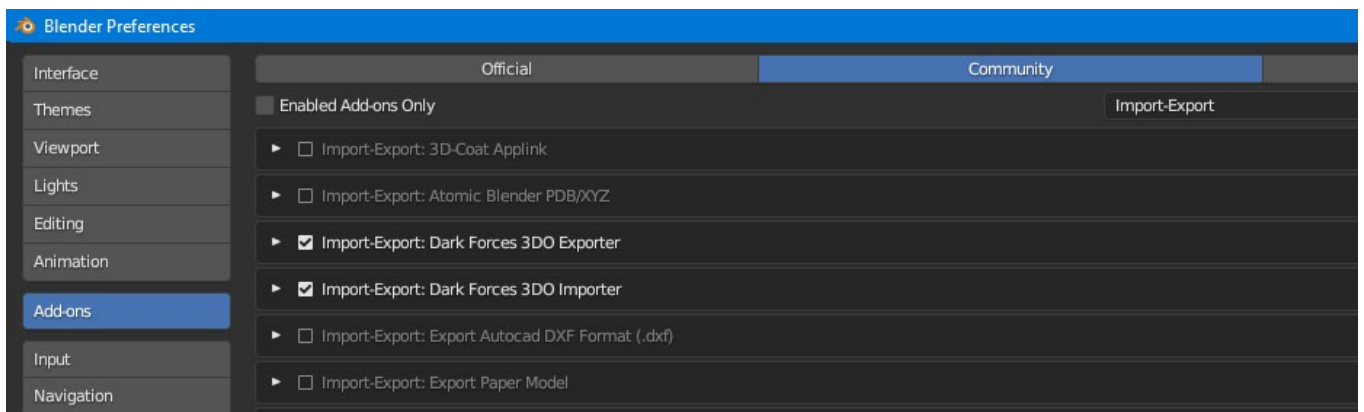
In Blender, go to the Edit menu and select *Preferences*.



From the Preferences menu, select *Add-ons* and then click on the *Install* button to open a file dialog.

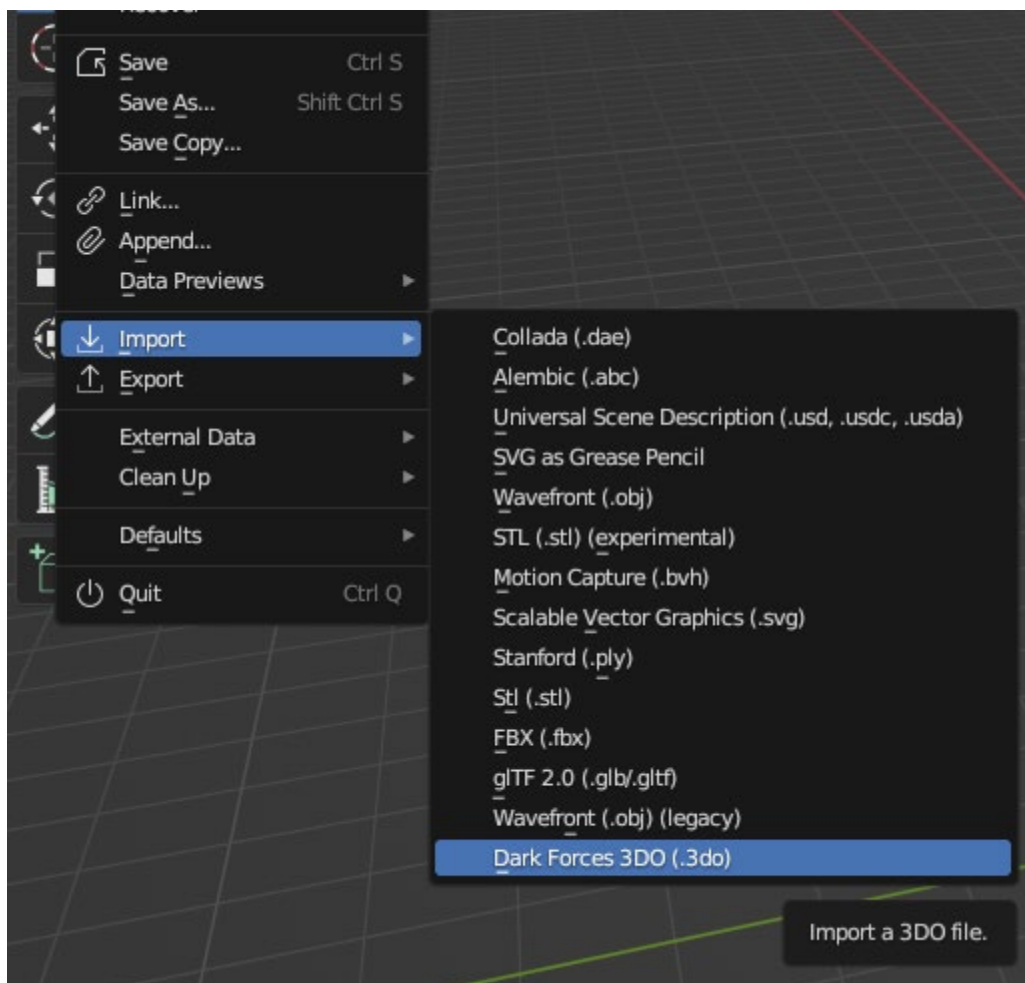


In the dialog, navigate to the ZIP file containing the addons and select it. The addons should then be installed and become available in the list.



Select the checkboxes next to the addons (one for import and one for export) to enable them.

Once enabled, you will be able to use the addons through the File → Import and File → Export menus.



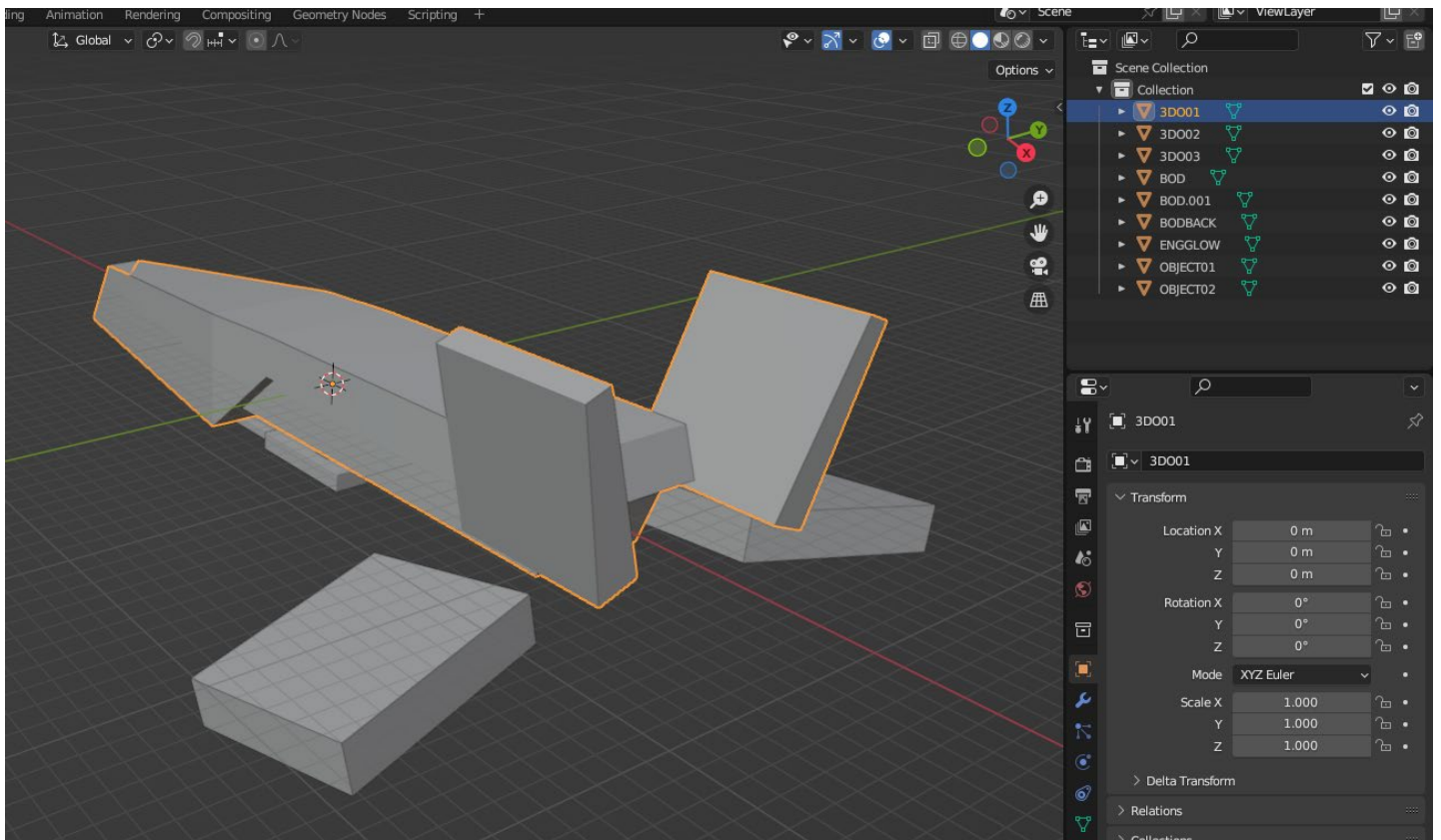
IMPORTING A 3DO INTO BLENDER

Select *Dark Forces 3DO* from the File → Import menu.

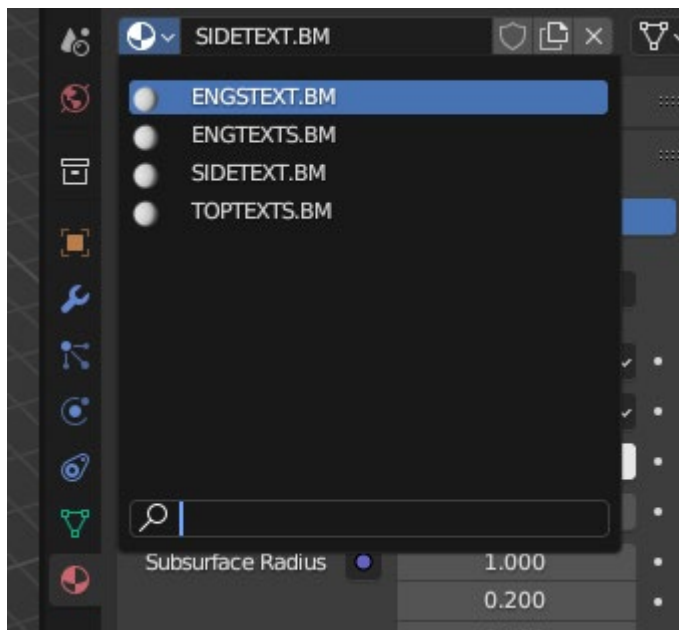
A file dialog will show, allowing you to choose a 3DO file to import. Find the 3DO that you want to import and select it.

The 3DO will be imported.

Each of the 3DO's "objects" is imported as a separate mesh of the same name. Here, with the example of Kyle's ship, there are 9 meshes named 3DO1, 3DO2, 3DO3, BOD, ENGGLOW ...

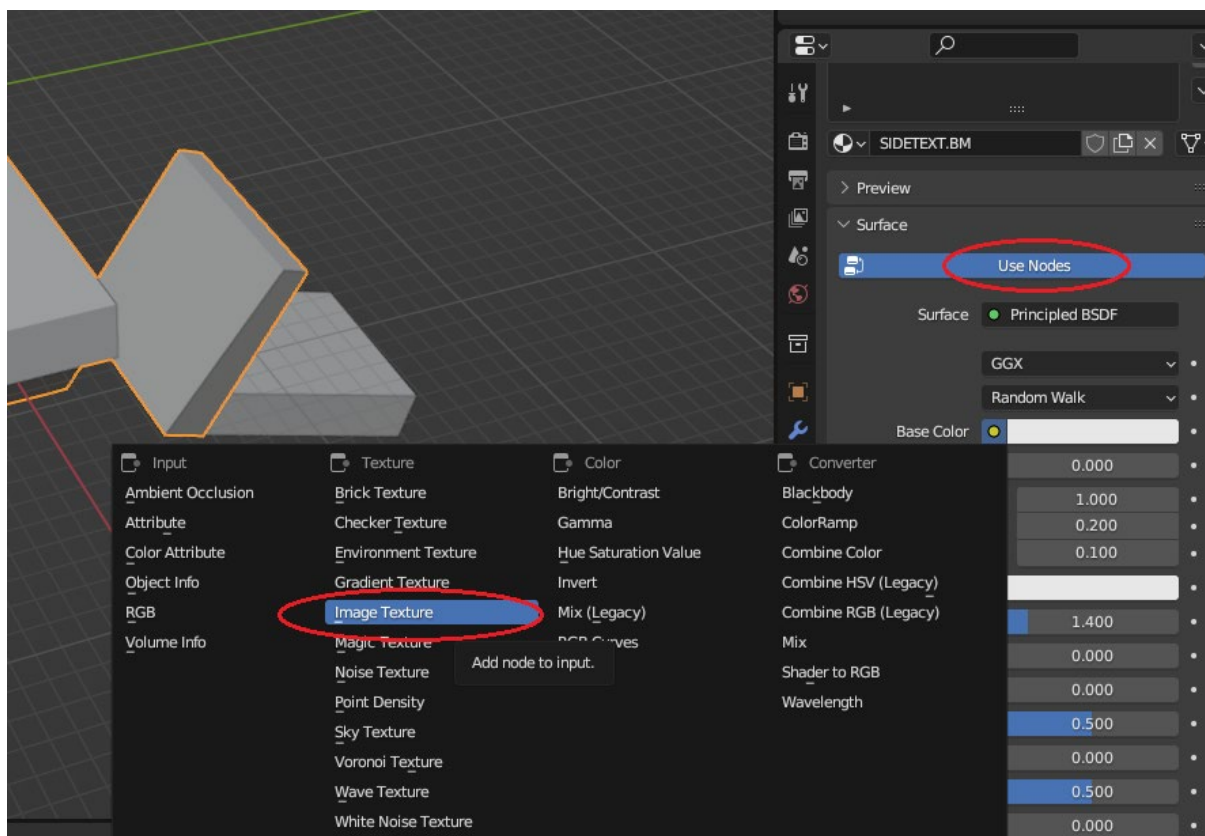


If you imported a textured 3DO, go to the *Materials* and you will see that each texture used on the 3DO has a corresponding material of the same name.

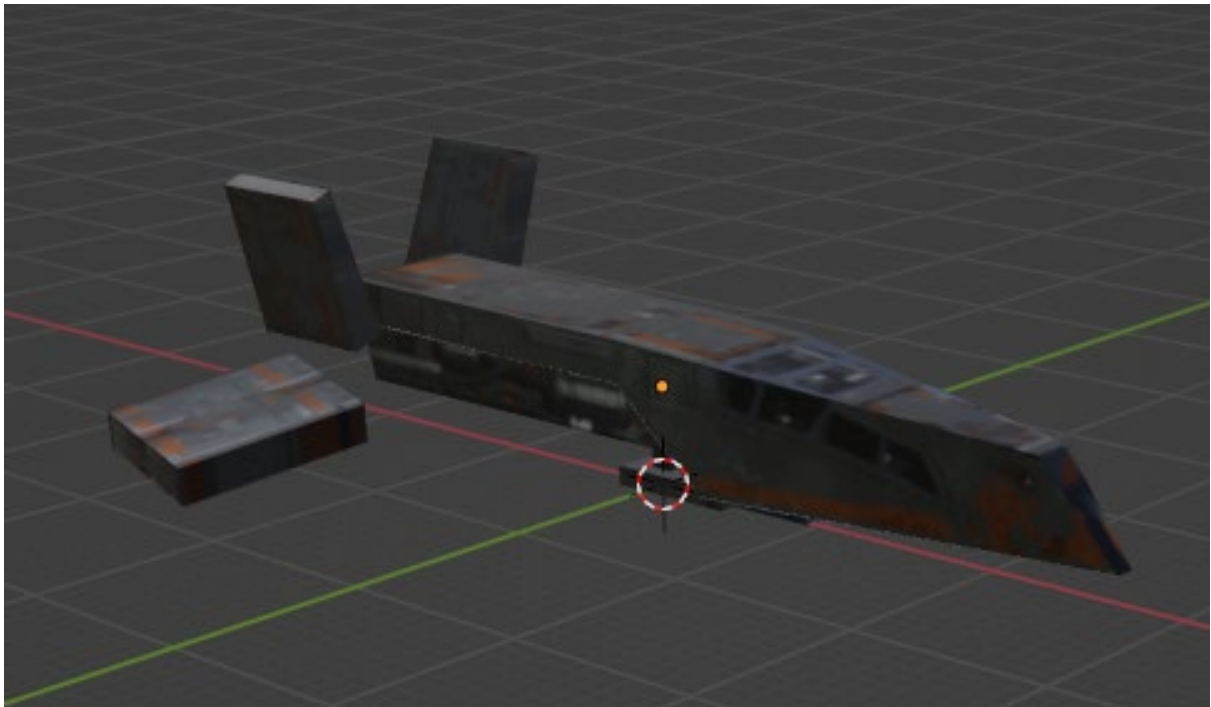


What you want to do next is convert the BMs into an ordinary image format (eg. PNG, JPEG) using one of the available conversion tools out there.

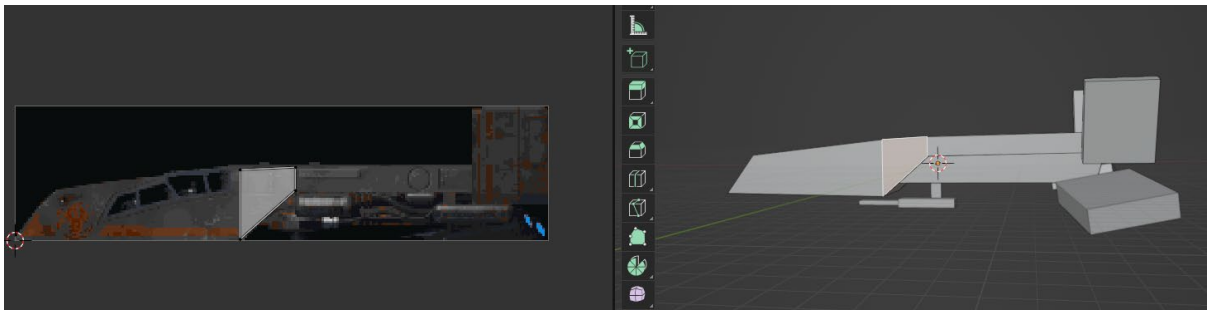
Once you have done that, you can do the following. For each material, select *use nodes* (if not already selected) and then for its *Base Color*, select *Image Texture*.



Then simply open the corresponding image file for each texture. When you have done this, and changed your shading mode to material preview, you will see the textures mapped onto the model.



UVs will be fully imported and ready for you to view (and edit).



EXPORTING A 3DO FROM BLENDER

Important tips

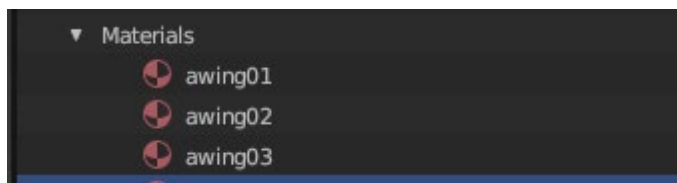
- The exporter will go through your Blender scene and convert *every visible* Mesh into your 3DO. It will ignore lights, cameras and other non-mesh objects. Hidden meshes will be skipped.
- Your meshes can have polygons with any number of vertices/edges. If a mesh consists entirely of four-sided polygons, they will be converted into 3DO quads. Otherwise, polygons will be split as necessary and exported as triangles.
- Each material that you use will be treated as one Dark Forces texture (BM).
- You do not need to be overly concerned with how you apply materials to meshes. Feel free to apply more than one material to a mesh, *however*, in 3DOs each “object” (which is effectively a mesh) can only support *one* texture. Therefore, if you have a mesh which uses 5 materials, it will be split into 5 objects in your 3DO. So for optimisation you should try and avoid creating meshes which use too many materials and *ideally*, you should aim to use one material per mesh. Also see below.
- 3DOs do not support UV coordinates outside the range 0 - 1. Therefore, you should keep your UVs within this range. (Values < 0 or > 1 will be clamped to the range by the game engine.)
- The exporter will convert smooth shading in Blender to GOURTEX shading in the 3DO. Flat shading will be converted to ordinary TEXTURE shading.
- Vanilla Dark Forces has a hardcoded limit on the number of vertices and polygons in a 3DO (about 500). These limits are removed in *The Force Engine* but very complex models may still cause a performance impact, especially in the software renderer.

Preparing for export

The name that you choose for each of your materials will be the name of the corresponding texture in your 3DO file, such that material name “mymat” will become mymat.BM

Make sure that your materials have the correct names that will match your texture (BM) names.

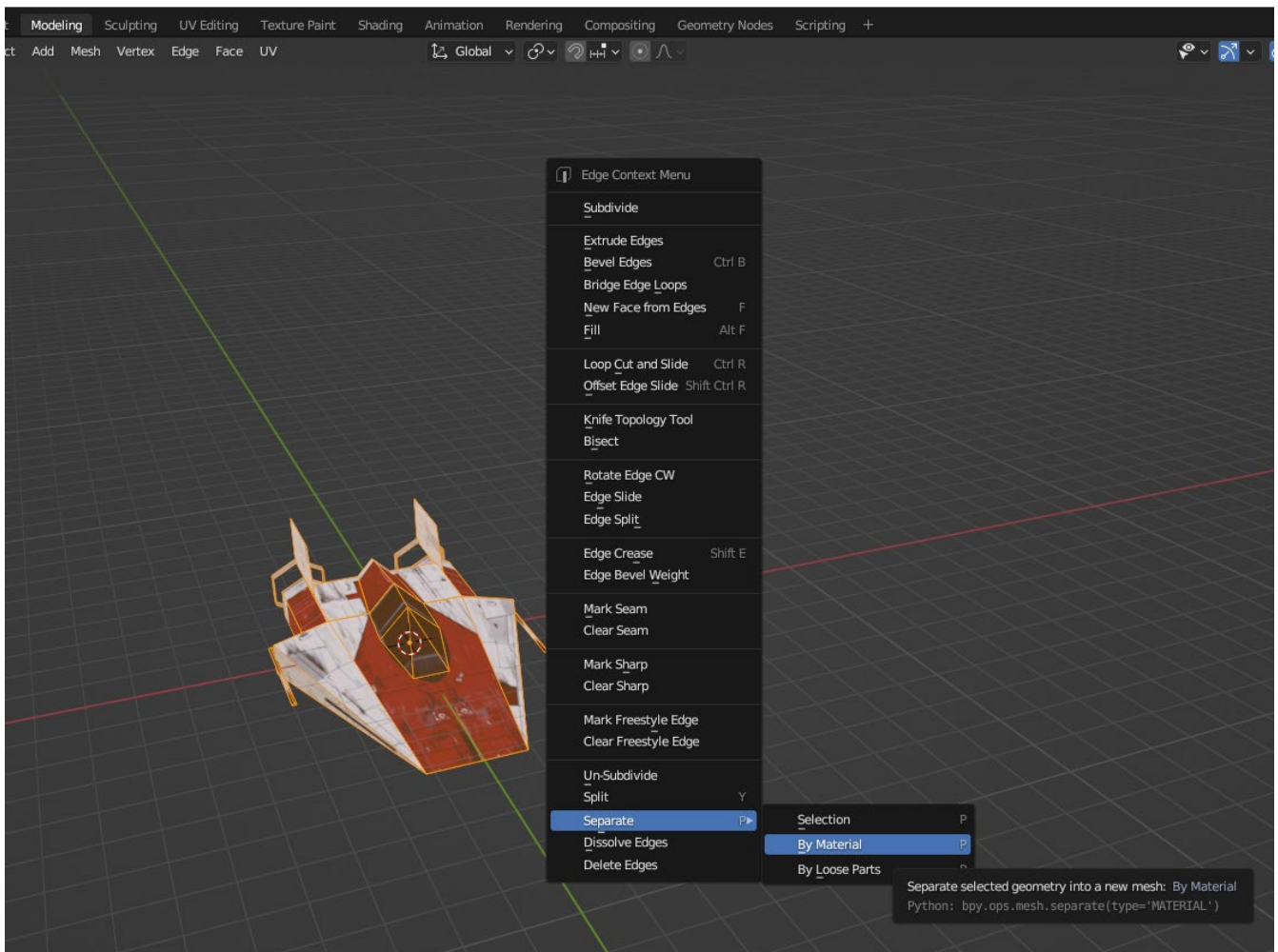
Remember there is an 8-character limit for DOS compatibility.



I recommend you follow this next step to optimise your model for export to 3DO if you have a mesh which uses more than one material.

In the *Modelling* workspace, select your entire mesh.

Then Right-click and in the menu, select *Separate > By Material*



What this will do is split up the mesh into multiple meshes, one per material. Each mesh will then convert directly into one 3DO “object” with a corresponding texture.

To export

Select *Dark Forces 3DO* from the File → Export menu.

A file dialog will show, allowing you to choose an output directory and name for your 3DO file.

If there are no problems, you will find the 3DO file in the directory where you saved it.

Final steps and notes

My addon in its current form will set 3DO polygons to either TEXTURE or GOURTEX shading, corresponding to flat and smooth shading in Blender. If you want to use PLANE (floor/ceiling) shading instead, you will need to manually change this yourself using a text editor.

The exporter will just set the colour of every polygon in the 3DO to a value between 40 and 43 (these are greys in the standard Dark Forces palettes). The colours are ignored if you have a texture mapped 3DO. The exporter isn't really suited to making untextured 3DOs. If anyone wishes to add this support, you are welcome to use my script as a base and modify it.

If all has gone well, you should be able to put the 3DO into your project and run it in Dark Forces or *The Force Engine*. Make sure your textures (BMs) are available too.