

123 Approach to 3D Modeling of Humans and Faces for CNC carvers, and 3D Printers.

BY Jerry Don Gray III

Here is an easy, and realistic way I've found to quickly model people from pictures, and machine them on the CNC router, Mill, or 3d print.

These programs are mainly used to make animated characters for video games, and movies, but can easily make .obj files, which can be read by most 3D capable CAM software, that will open a .STL file.

In fact, I believe MakeHuman can save as .stl file.

This guide does NOT show how to use the individual programs, but which ones are easiest, and fastest for me to learn.

I use 3 programs, which are the easiest to learn, and cheapest that I know of.

I use Vectric Aspire for my CNC CAM, but there are a lot of alternatives, like any of the Vectric products that can import a .stl file, like VCarve pro, and there are other, free alternatives, like Fusion 360 by AutoDesk.

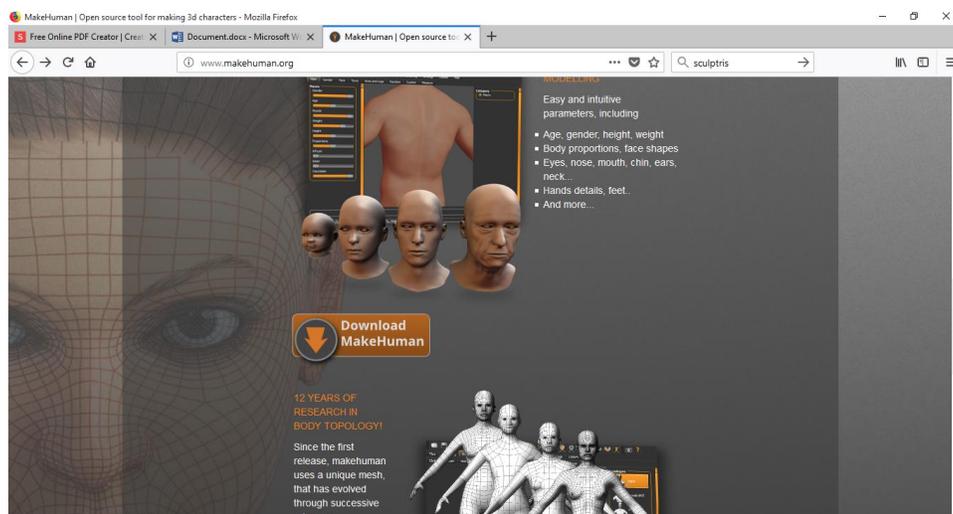
This is mainly to show how I make the models.

First, I downloaded MakeHuman, completely Free, opensource, software from: <http://www.makehuman.org/>

And Sculptris, which is also completely FREE from: www.pixologic.com/sculptris/

I downloaded MakeHuman straight to a USB drive, so I can launch the .exe file on any computer.

Screenshot of MakeHuman.



My work flow for creating a 3D character for machining.

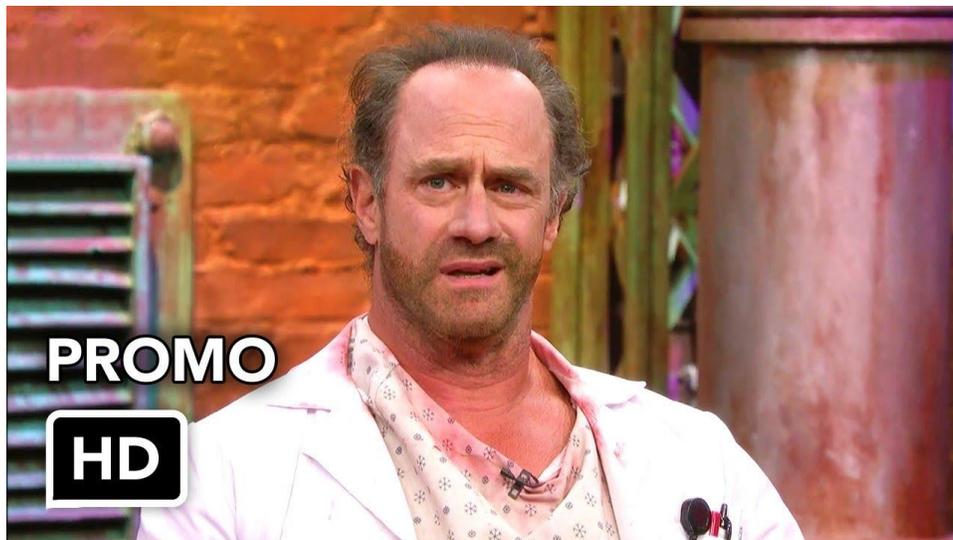
I first load a background image into MakeHuman, so I can match the character's settings to match the reference photo, as close as I can.

There are good Youtube tutorials, for this.

I'm very new to this myself, so this guide is as much for me, as anyone else.

Here is my first attempt at making a TV show Character, from the show HAPPY!

I got this photo from Google:



Here it is loaded in the background, in different poses of the character I quickly made to match photo.



There is a MakeHuman community and Wiki, where you can download clothes, body parts, weapons, hair, etc.

<http://www.makehumancommunity.org/>

http://www.makehumancommunity.org/wiki/Main_Page



When you're happy with the pose, you can export as an .obj file.

Open .obj in Sculptris, or go straight to your
CAM.

You could go straight to your CAM from here, OR open the .obj file in Sculptris, and stretch, mold, and even Brush on textures, such as scales, or feathers, or skin pores, etc.. You can also subdivide for an extremely detailed model.

My Character example, exporting as .obj from MakeHuman:



Open Sculptris.





And Import the .obj file you made with MakeHuman.



Then you can sculpt, add to, texture, and smooth as much as you like.



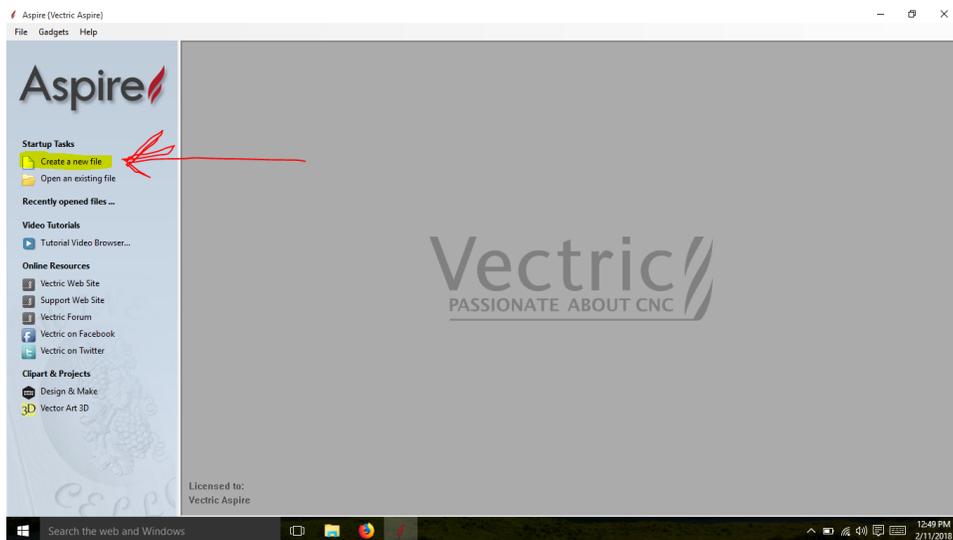
Then you export it again as .obj file, to be Opened by your CAM.

Import into your cam,

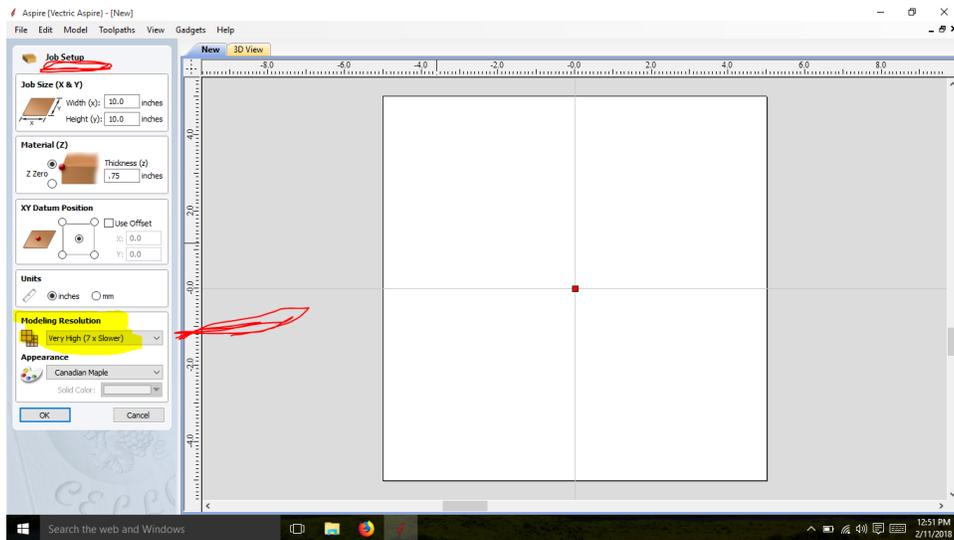
And make any final adjustments you need, then generate your 3D toolpaths, or save as clipart, CAD files, or even bitmap files.

Importing into Vectric as an example:

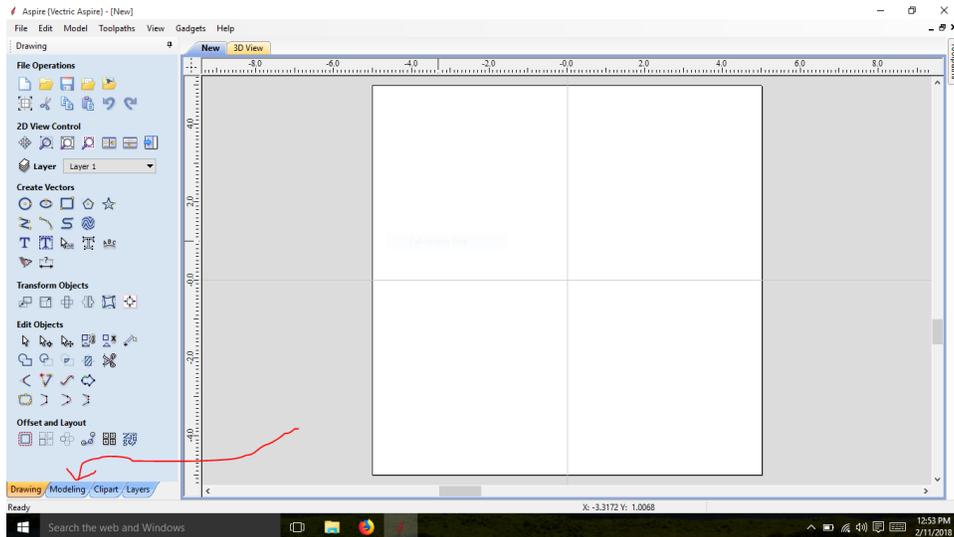
Create new file



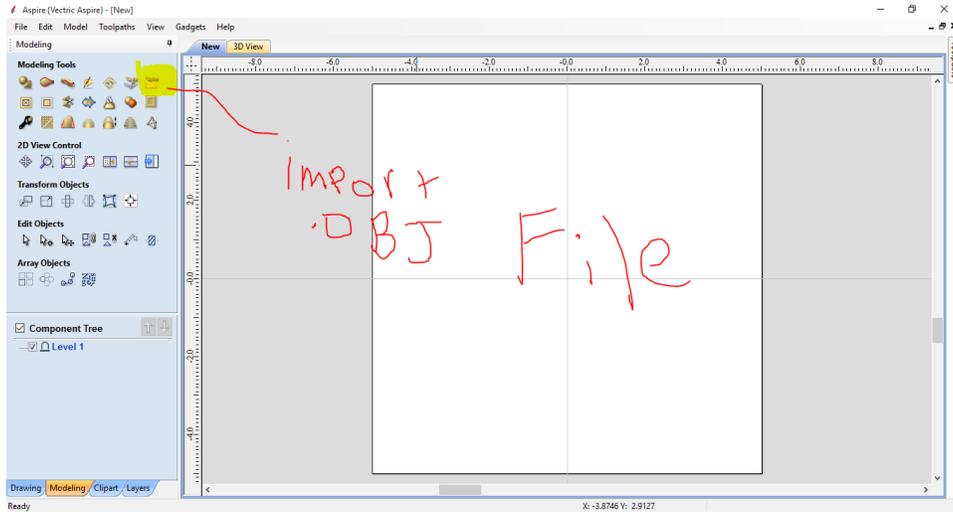
Set up job size



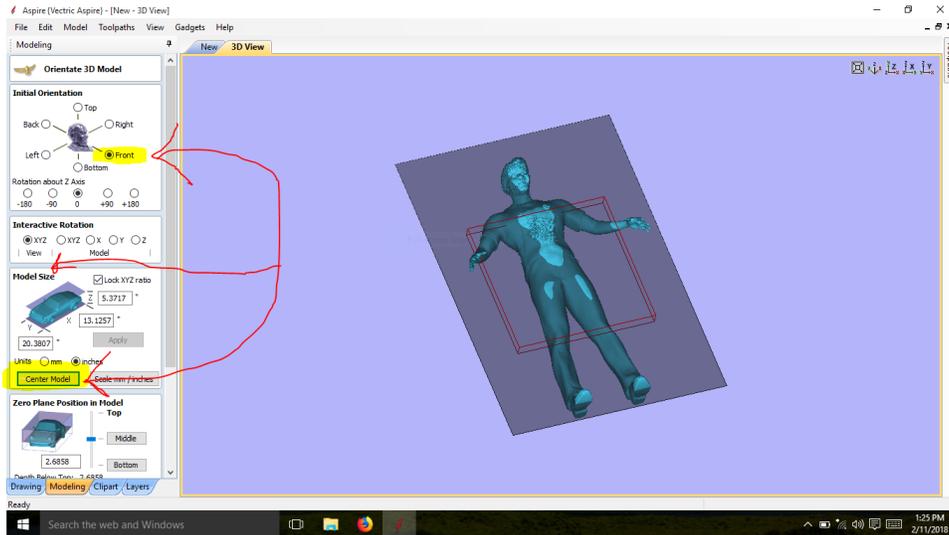
Switch to modeling tab



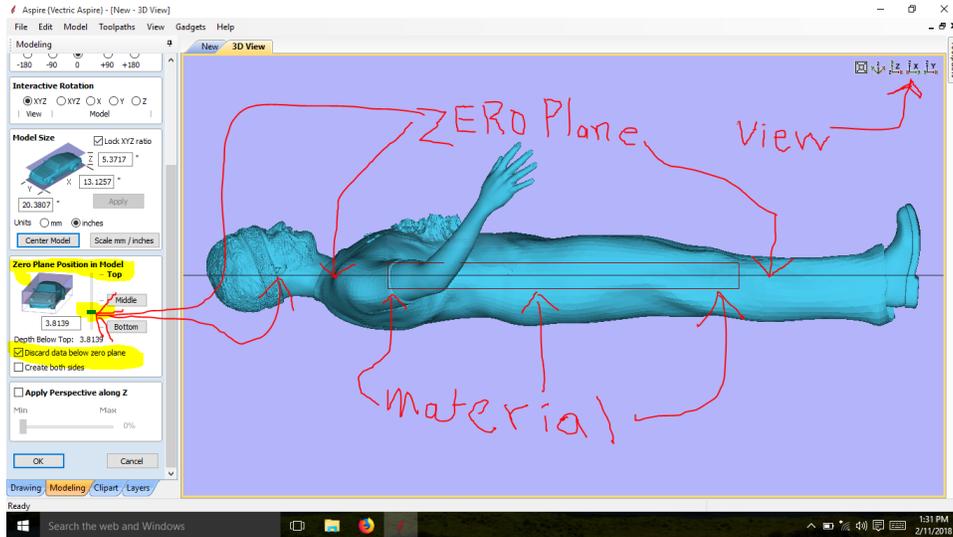
Import .obj file



Position, and resize as you wish.



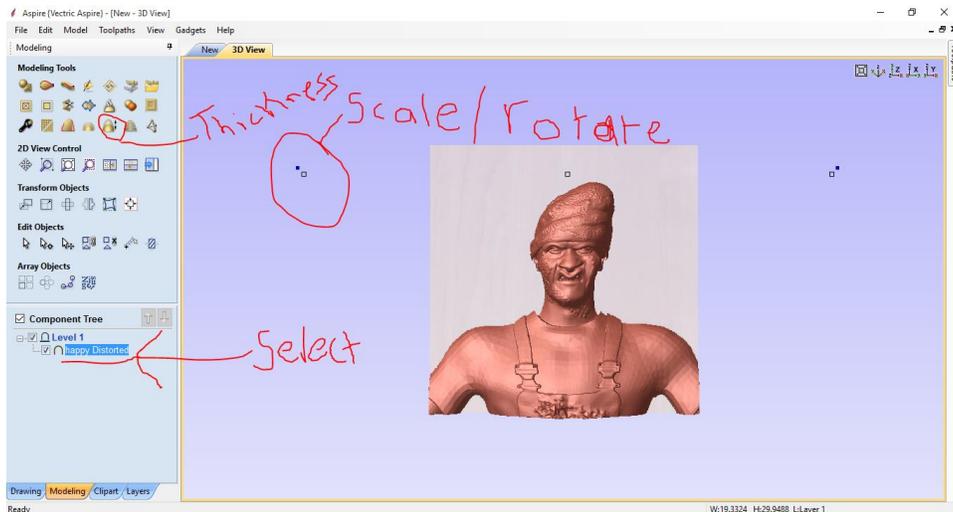
Set depth in Zero Plane. I always discard below Z line.



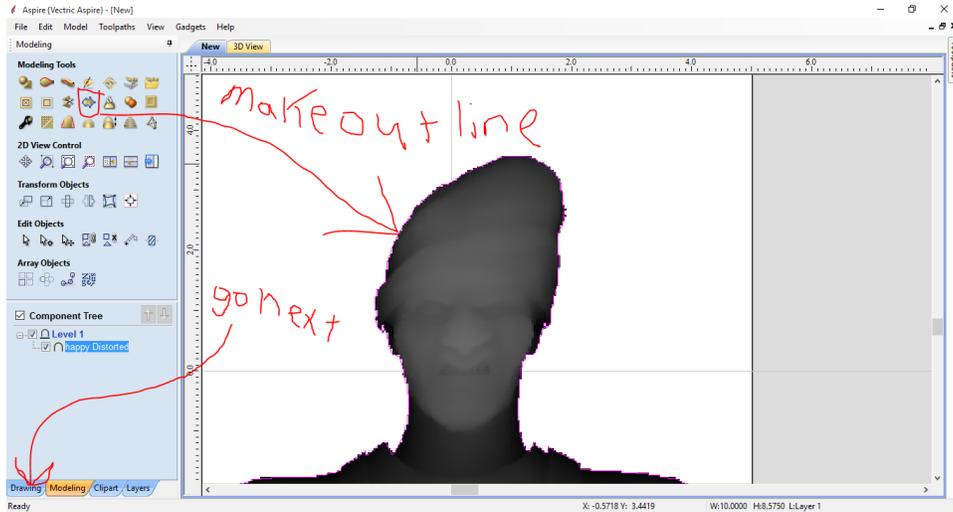
NOTE: you can paste on your over sized model, then reposition later on. For instance, if you only want the head 10" square, which is what I'm going to do here, you position the oversized model at the depth you want, then "paste" it down, and then move the model to where the part you want shows on the material.

Hit the OK button.

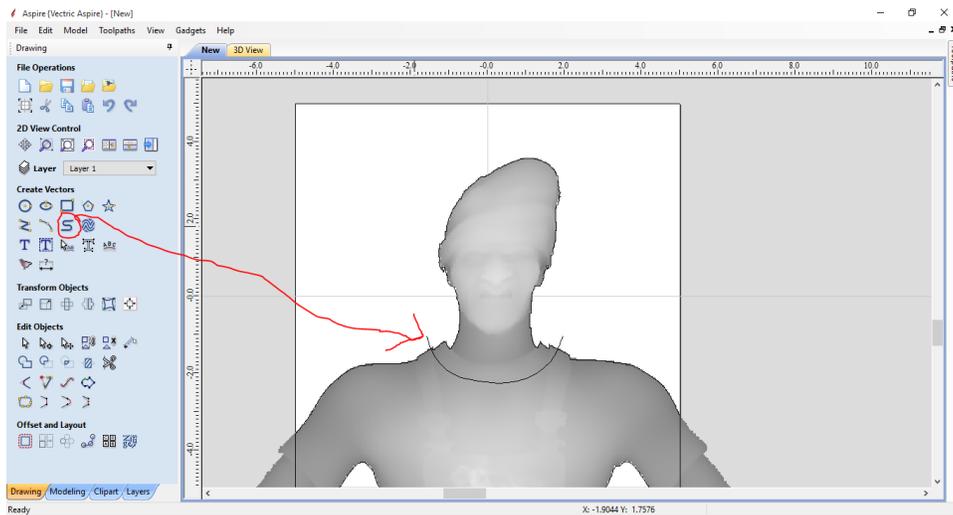
Double click to drag/move/scale/rotate



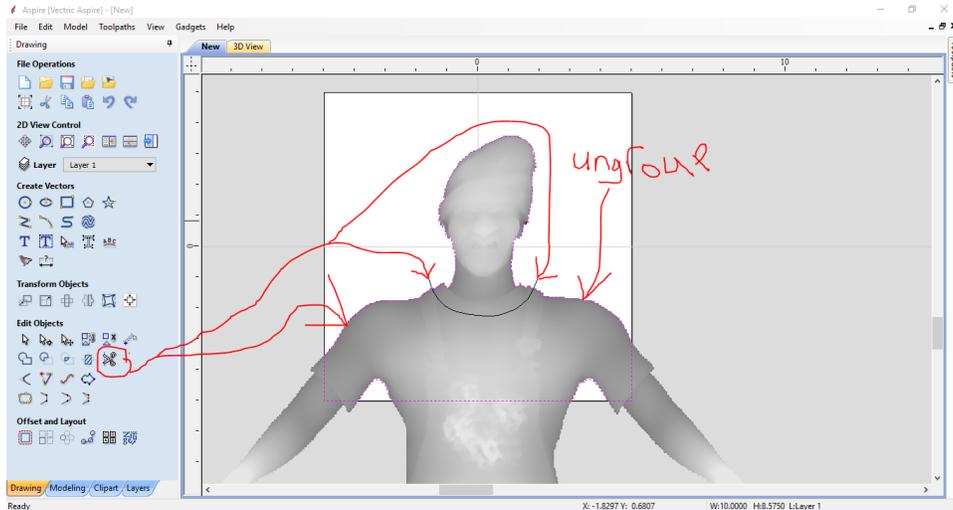
Draw vector around component, then go to DRAWING TAB to draw vector for cutting around head.



Draw smooth vector for TRIMMING.

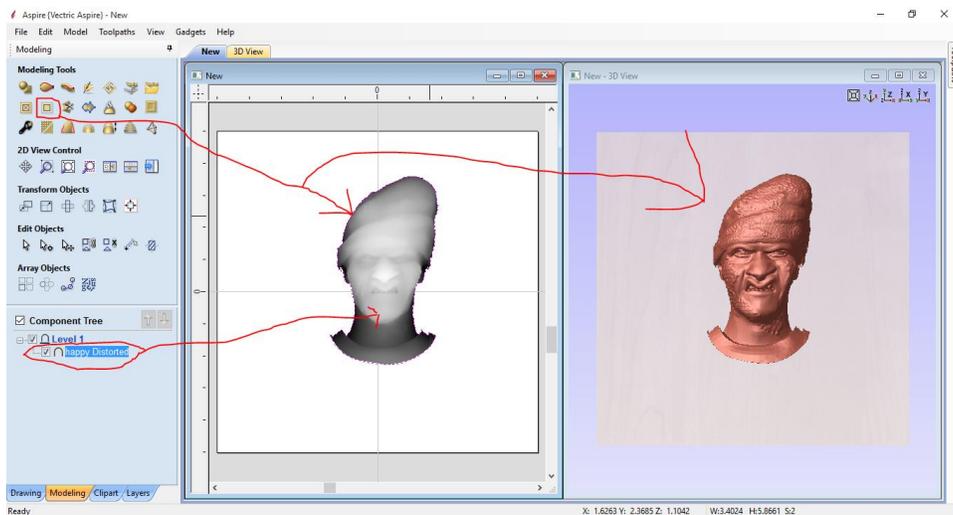


Right click on the Component's outline, vector, and select UNGROUP from the dropdown, then trim, and make sure REJOIN VECTORS is checked.



After the vectors have been Trimmed, go back to the Modeling Tab. Select the component and vector outline, at the same time by holding the shift key while selecting.

Then select the CLEAR COMPONENT OUTSIDE SELECTED VECTOR button.



Resize as desired, and re save the clip art, export as another 3D, or CAD file, or generate your CNC Gcode.



To recap:

1. Make your model in MAKEHUMAN (FREE), and save as .obj
2. Import the .obj in Sculptris (FREE), in order to sculpt, and paint on textures.
3. Import the final .obj file into your CAM, or 3D printing software.

That's it ☐

I hope this helps with your 3D Art.

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