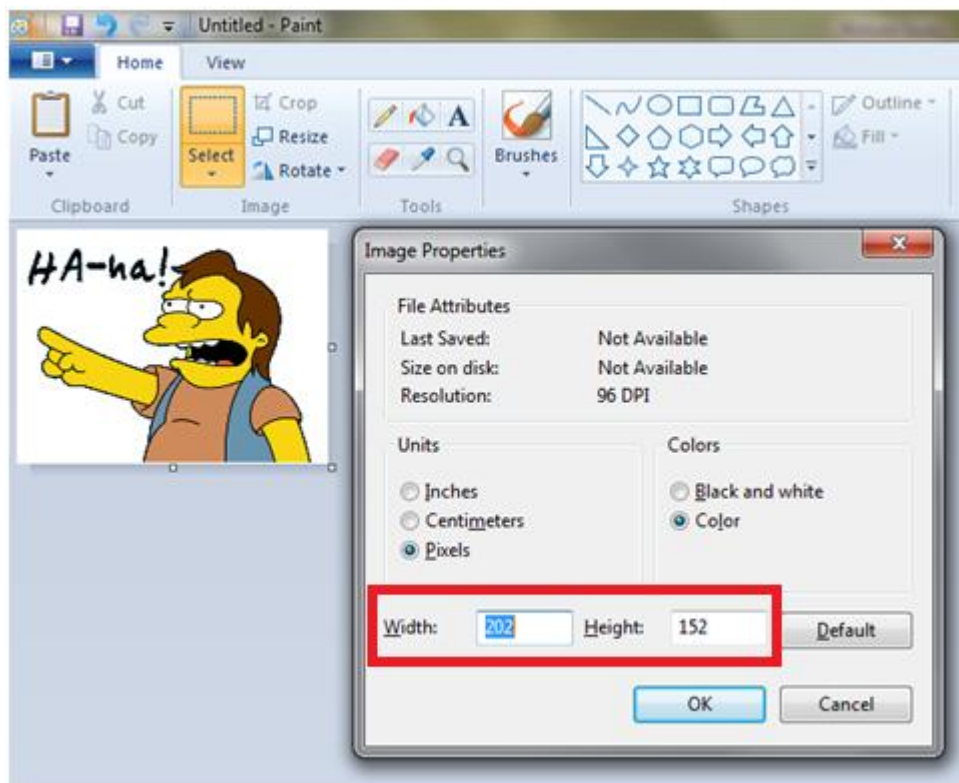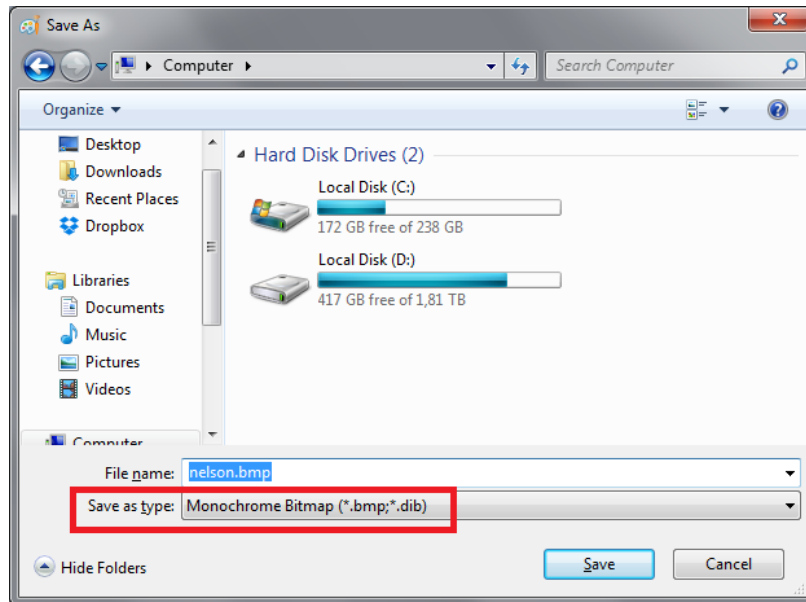# OpenCdNC - How to Print Images

Get any image, any format (yeah, i like Simpsons):
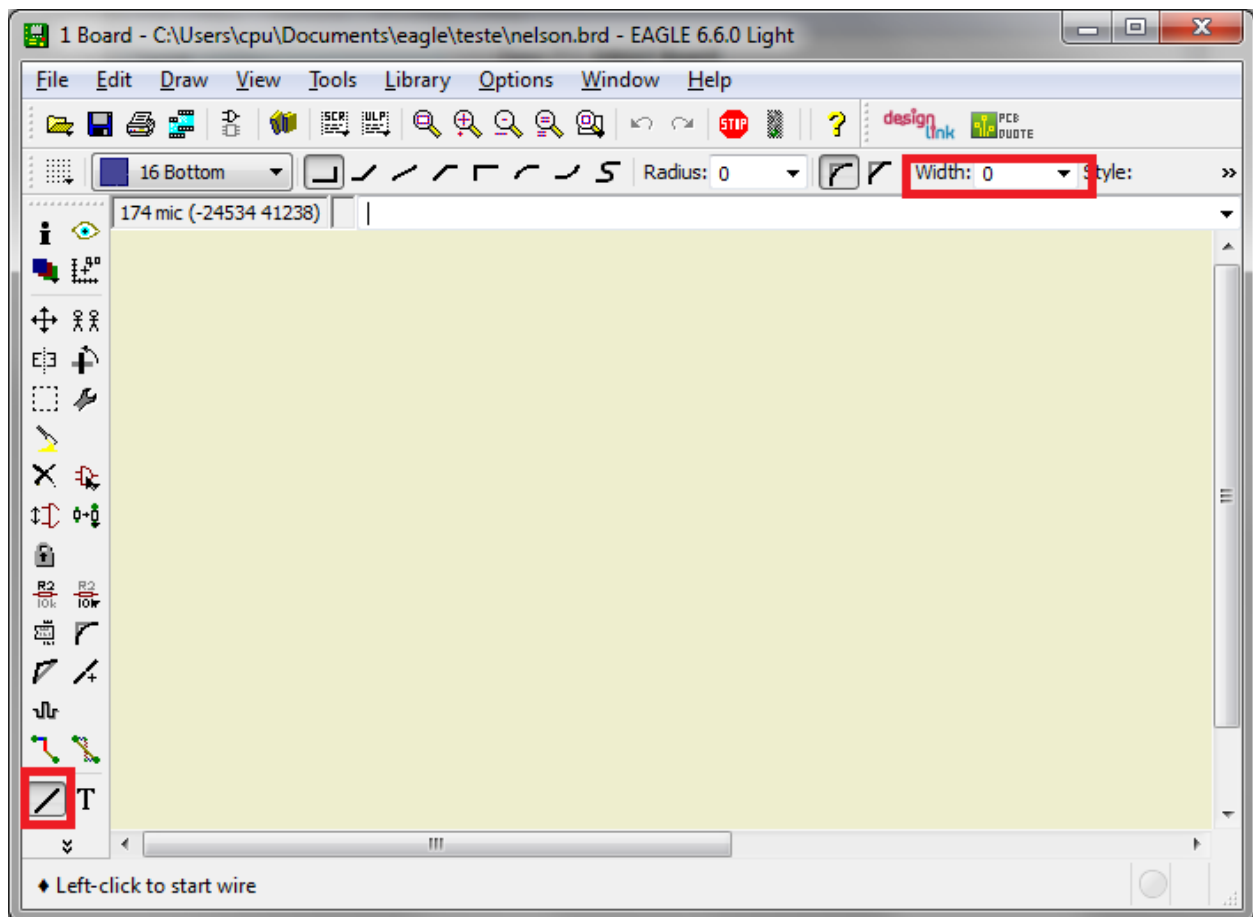

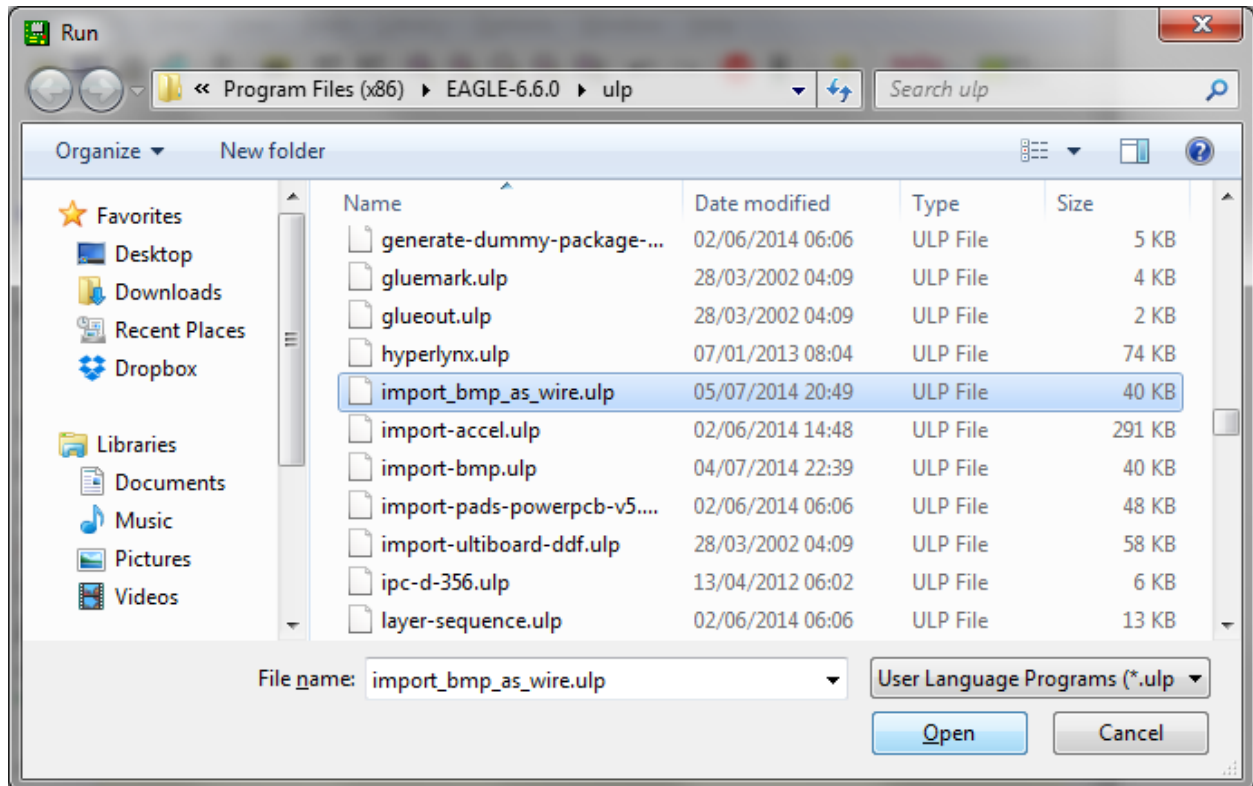Open MS Paint and reduce the image size to something below 300x300 pixels:
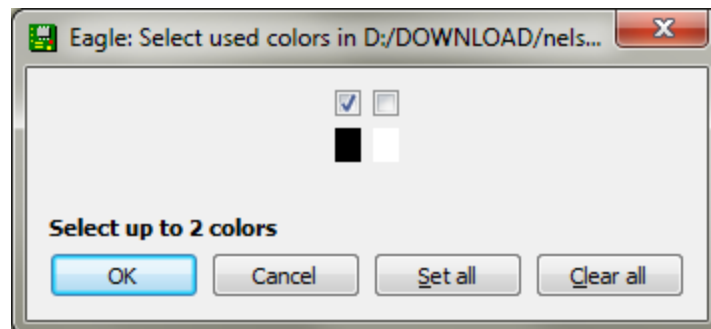
Save as "Monochrome Bitmap":

Open Eagle PCB, create a new board, select the 'wire' tool and set 'Width' to zero:
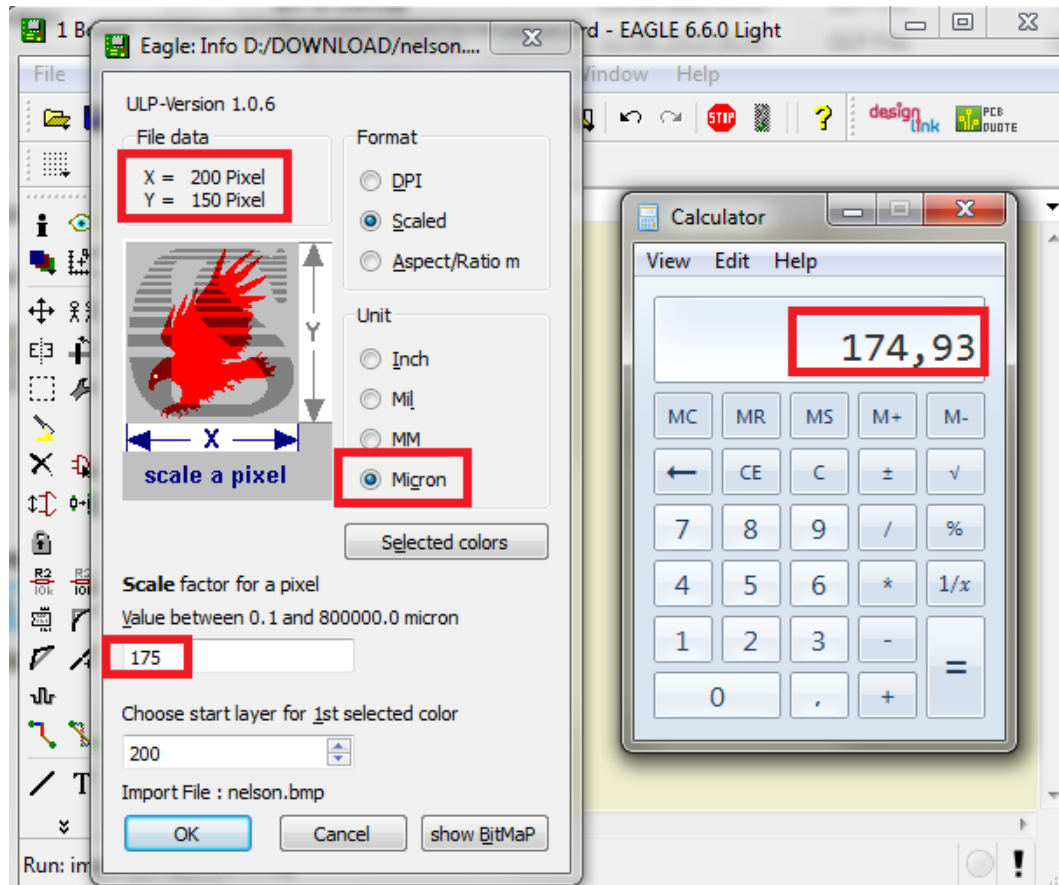
Run my 'import_bmp_as_wire.ulp' script:

Now the wizard start, select your monochromatic image file and at this screen select only black color:

Now the math start and you will understand how and why the image size affect the whole thing (get a cup of tea):


Remember, CNC's precision varies. **MY** CNC have 0.147 mm virtual precision, how i know? From the firmware code you will find "X_CM" and "Y_CM", that is how many steps you need to travel 1 cm. **MY** CNC need 68 steps to travel 1 cm on X axis, and 44 on Y axis (yeah, unfortunately i used 3 different brand cd rom drives, with different motors, consequently different precision, don't do this!).

Now only math, if 68 steps travel 1 cm = 10 mm, how many mm i travel with 1 step? 10/68=0,1470588235294118 mm = 147 micron! This is why **MY** CNC's precision will be different from **YOURS**.

Now you need know the work area of your CNC, mine have 38x35 mm, but lets use just 35x35 mm. If my precision is 147 micron, i can't draw something at 35000 micron position, but at 34986 micron yes, because my steps are of 147 micron, then 35000/147=238.0952380952381 and 238*147 = 34986 micron. Now do 34986/200 and you will get the 174.93 from image, 200 is the major dimension of the image, 200 pixels.

Now click 'ok' and you will get something like this:
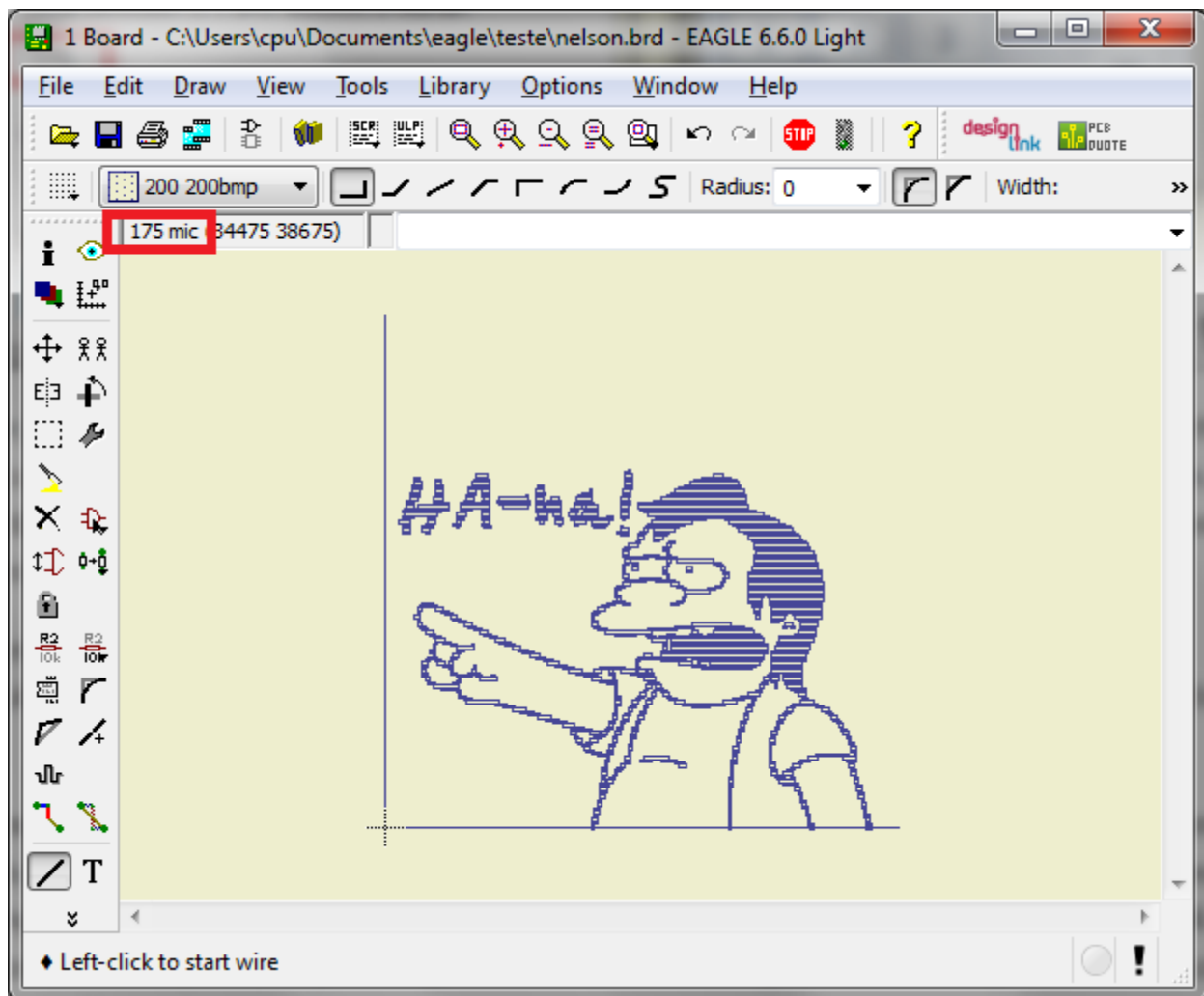
I like to place X and Y lines with the limits of my work area, as you can see, there are space left on Y axis due the 'irregular' image format (200x150), this is why a proportional image would fit better at the work area, like a 200x200 or 150x150.

If you give some zoom in, will see what the script did, many small rectagles, but with 'wire' tool :
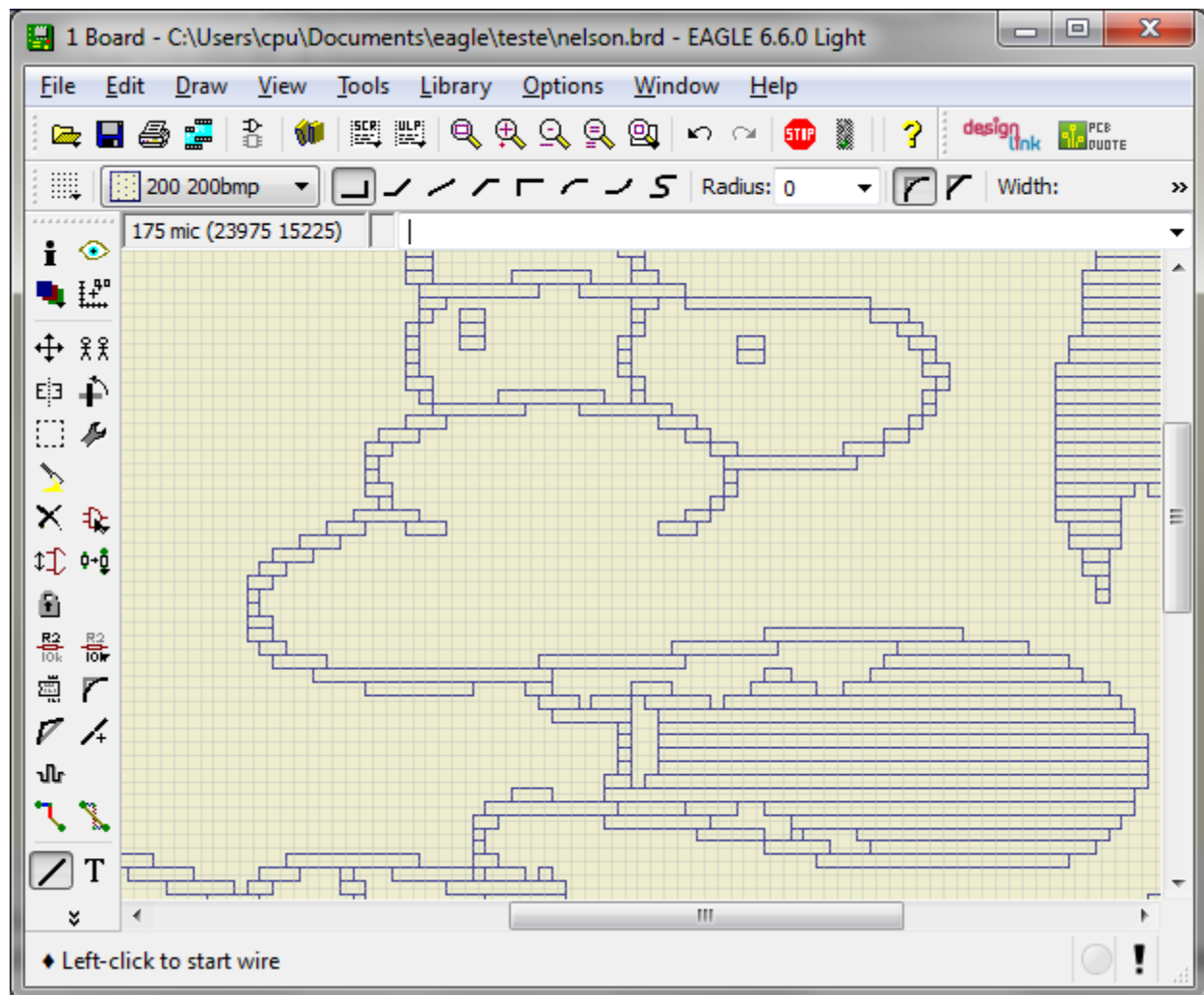
This is why you set the wire radius to zero before run the script, otherwise, you can imagine what you would see at this point! madness!

Now at CAM Processor, select "GERBER_RS274X", set these checkbox and choose a name for the output file:
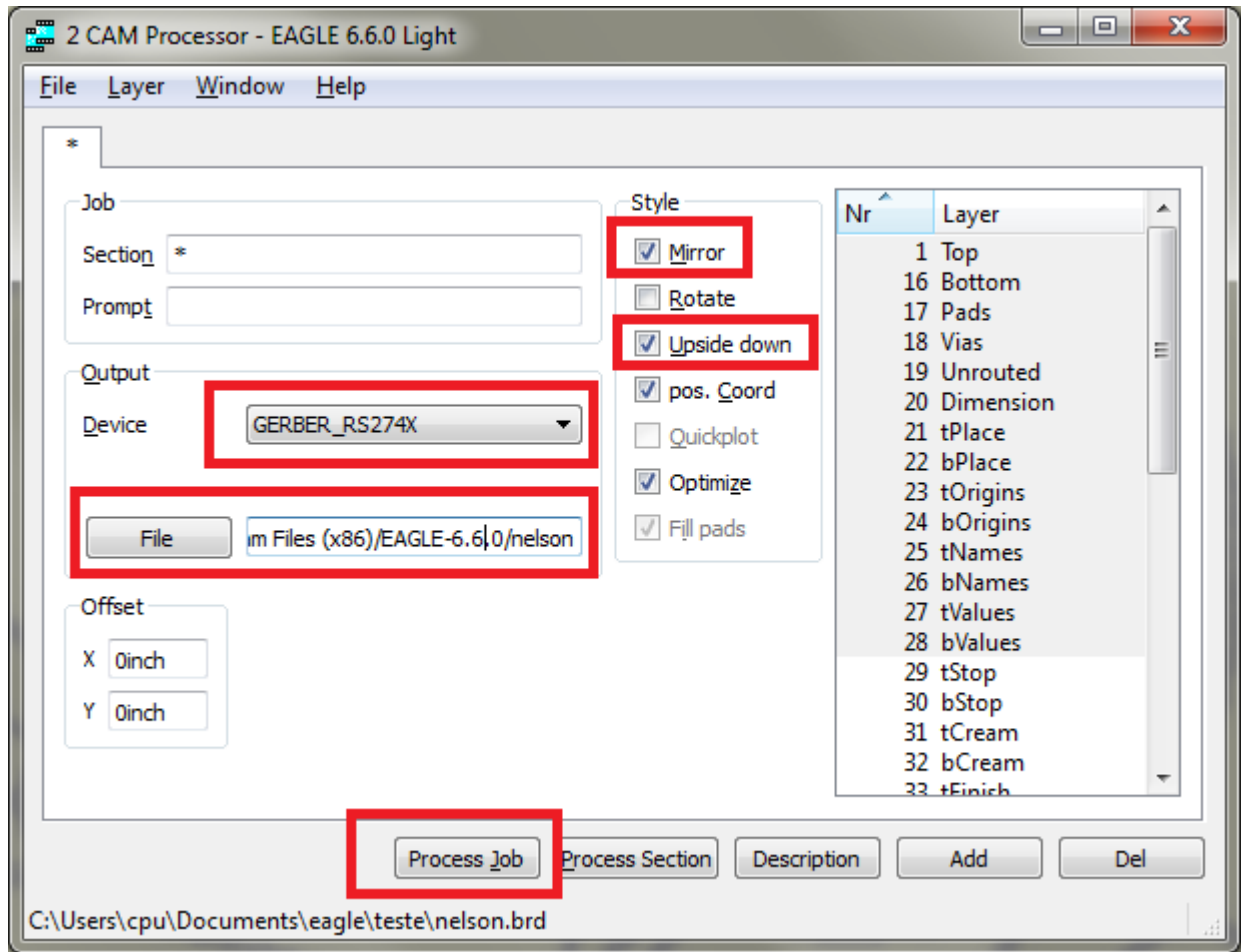
Click at 'Process Job' and wow! job complete! Now you can use this generated file as input for the Software.

All files used in this tutorial are available at the repository:

https://github.com/themrleon/OpenCdNC