Prototyping a Board

Learn how to prototype a board in the Real-Time Water Systems Lab using a monoFab SRM-20 | Desktop Mill by Roland DGA.

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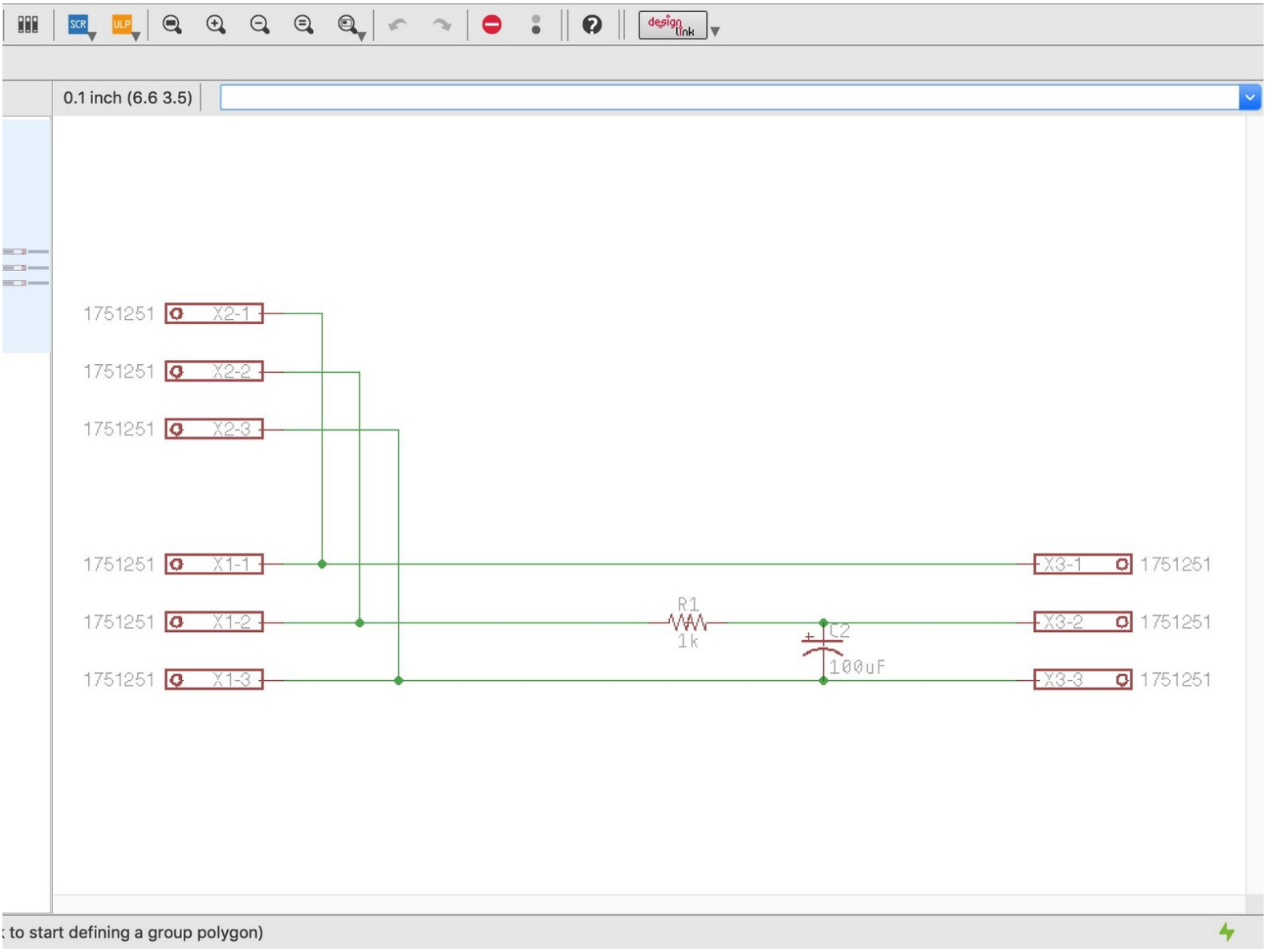
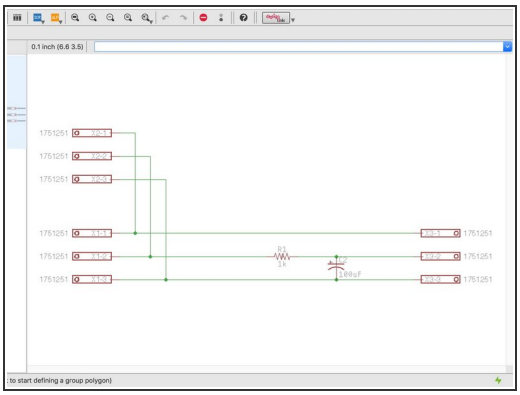
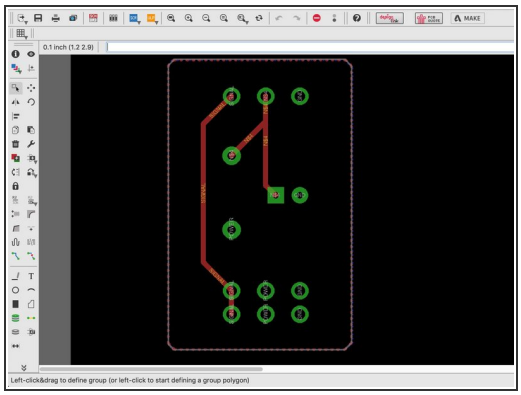
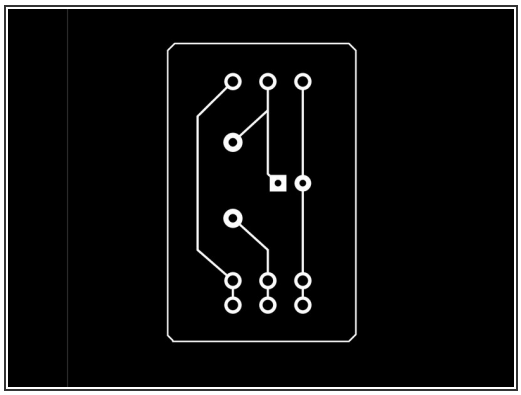
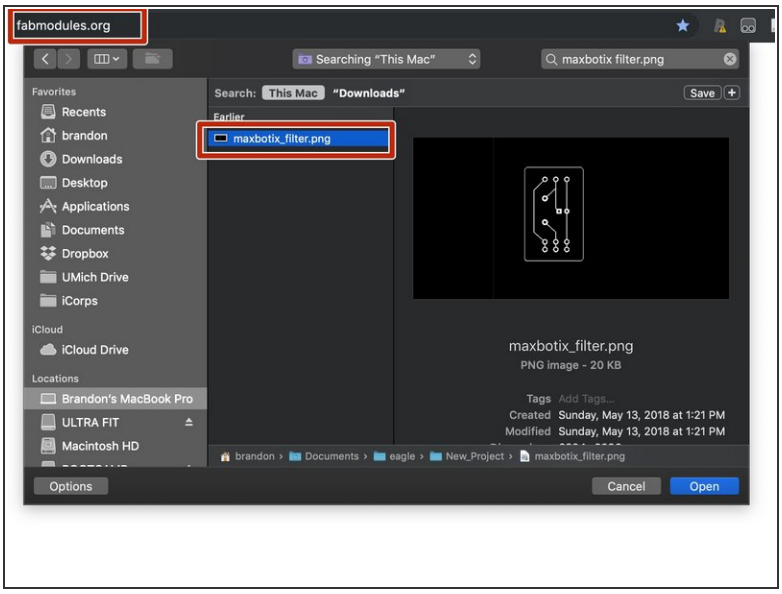


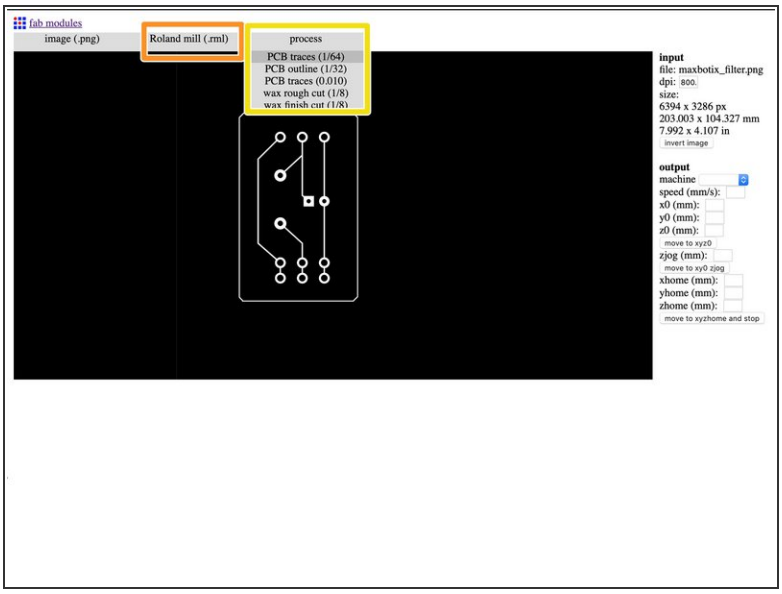
Step 1 — Board layout using EAGLE

- Create the board layout using EAGLE FREE on more information on this step.
- A video tutorial for using EAGLE for a board layout can be found here.
- Remove all the labels and export it as a monochrome image (.png).

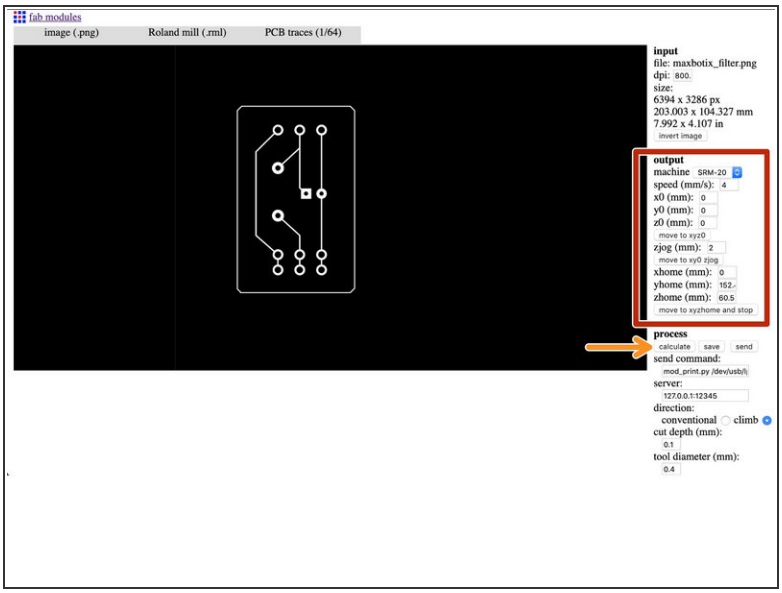
Step 2 — Convert to .rml file

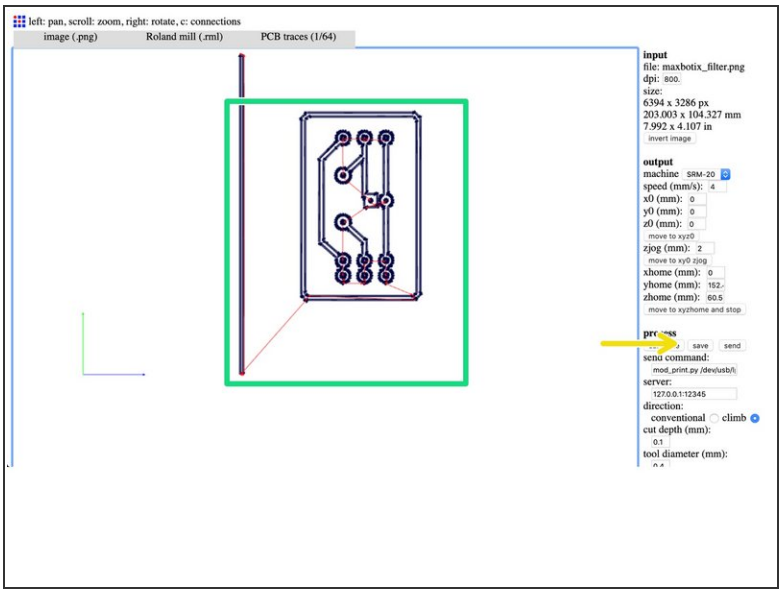




- Upload the image to fabmodules.org.
- Output format for "Roland mill (.rml)".
- The process box is how thick you want the cuts. Select "PCP traces (1/64)".

Step 3 — Setting up the output

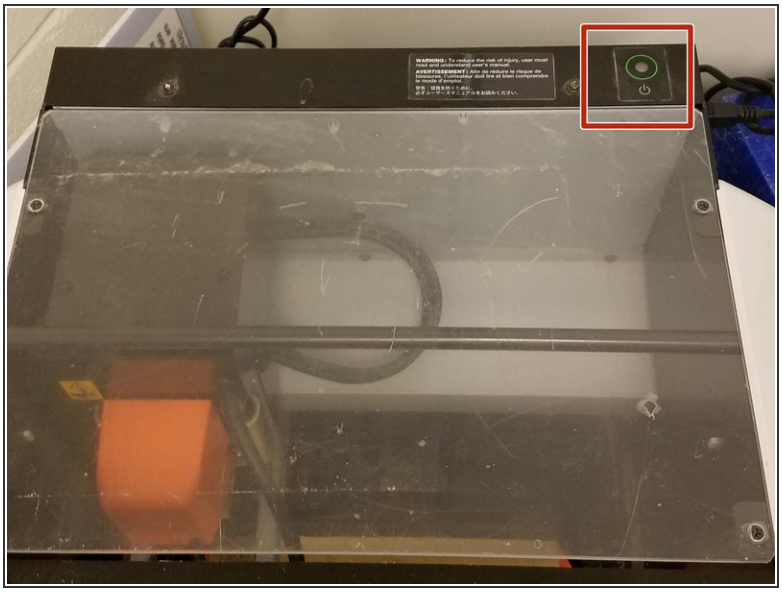




- From the output menu, select the following: Machine: SRM-20, X0: 0, Y0: 0, X0: 0. Leave the rest as default.
- Then select the "calculate" button.
- Next select the "save" button.
- The image shows the cut cut patterns. (The red lines are where the machine is picked up and moved to the next spot to cut.)

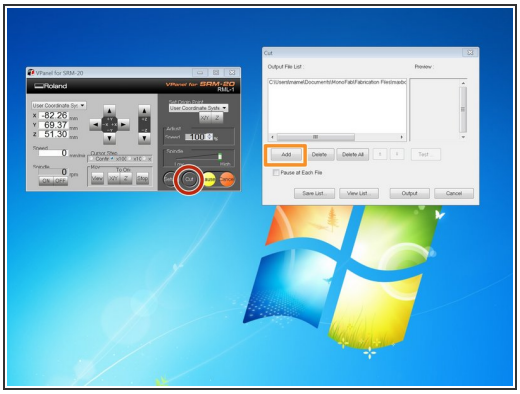
Repeat steps 2 and 3 but with the minor change of selecting "PCB outlines (1/32)" in the "process" option.

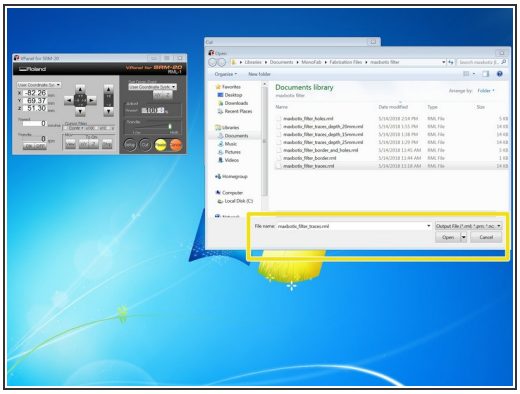
Step 4 — Starting the Roland SRM-20

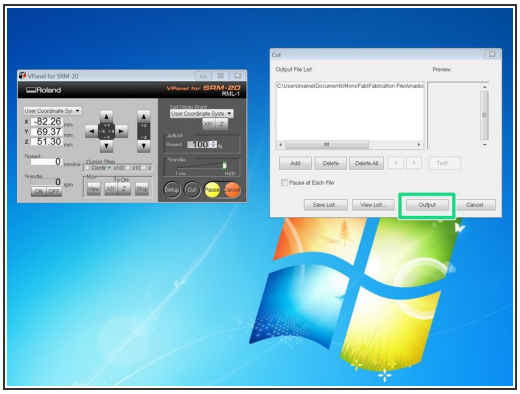


- Push the green button to turn on the Roland SRM-20 and plug the machine's USB into computer. Note: it must be a windows computer.
- Open the program VPanel for SRM-20. You can download the program and manual here.
- Hit the "on" button to run the machine for a minute to allow it to warm up.

Step 5 — Adding file to VPanel

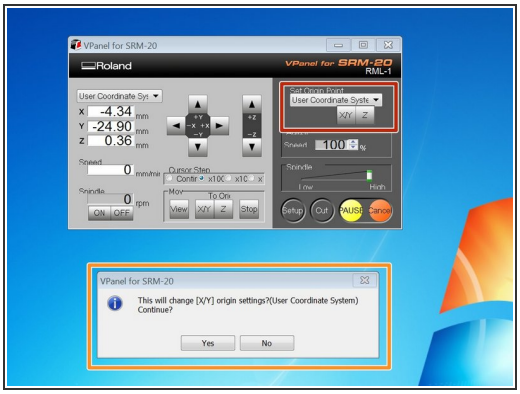


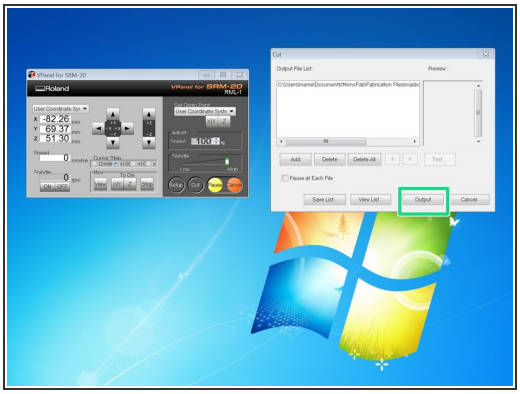




- Select the "cut" button which will bring up a new window.
- Click the "add" button to add a file.
- Add the file and click "open".
- Then select the "output" button.

Step 6 — Setting up the Roland SRM-20





- Set the bit and the material. And set the "home" for xy and for z. See the manual for these instructions.
- Note: you will see this dialog box when you set the "home". Select "yes".
- Note: there is a sacrificial board on top to protect the machine.
- Once everything is ready, select the "output" button. This will begin cutting process.

Click here for a more detailed tutorial from an outside site.