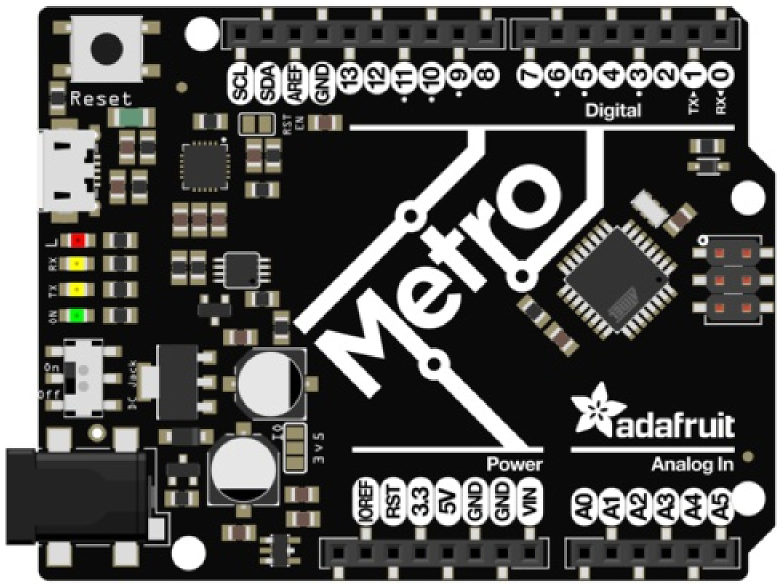
adafruit learning system

Make Beautiful Fritzing Parts with eagle2fritzing

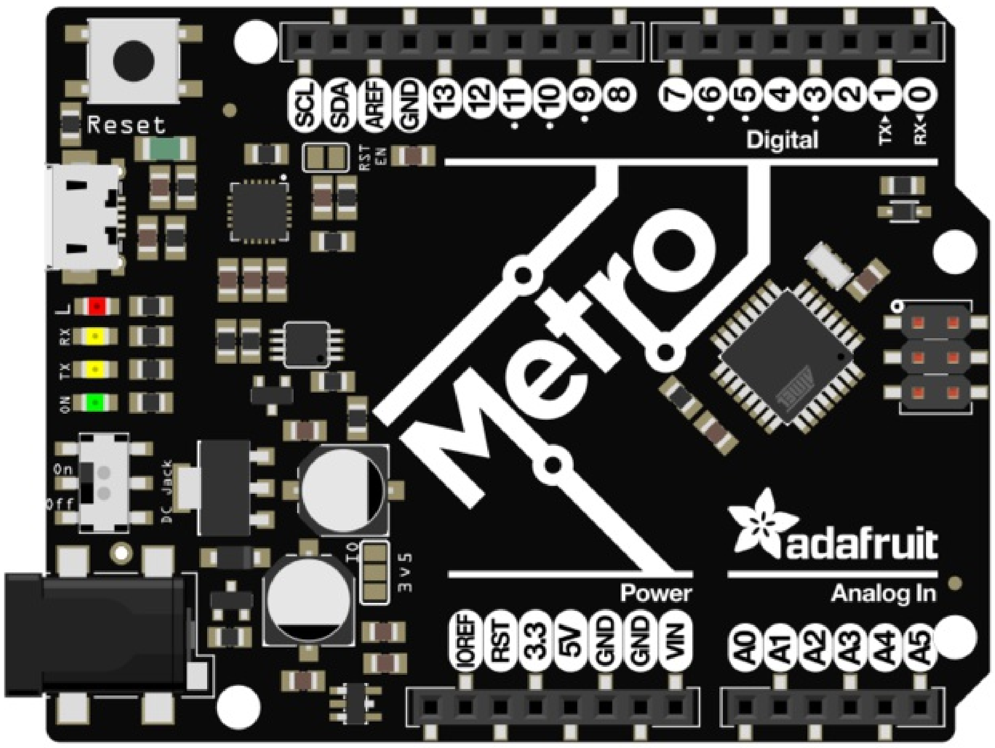
Created by lady ada



Last updated on 2018-08-22 03:54:37 PM UTC

Guide Contents

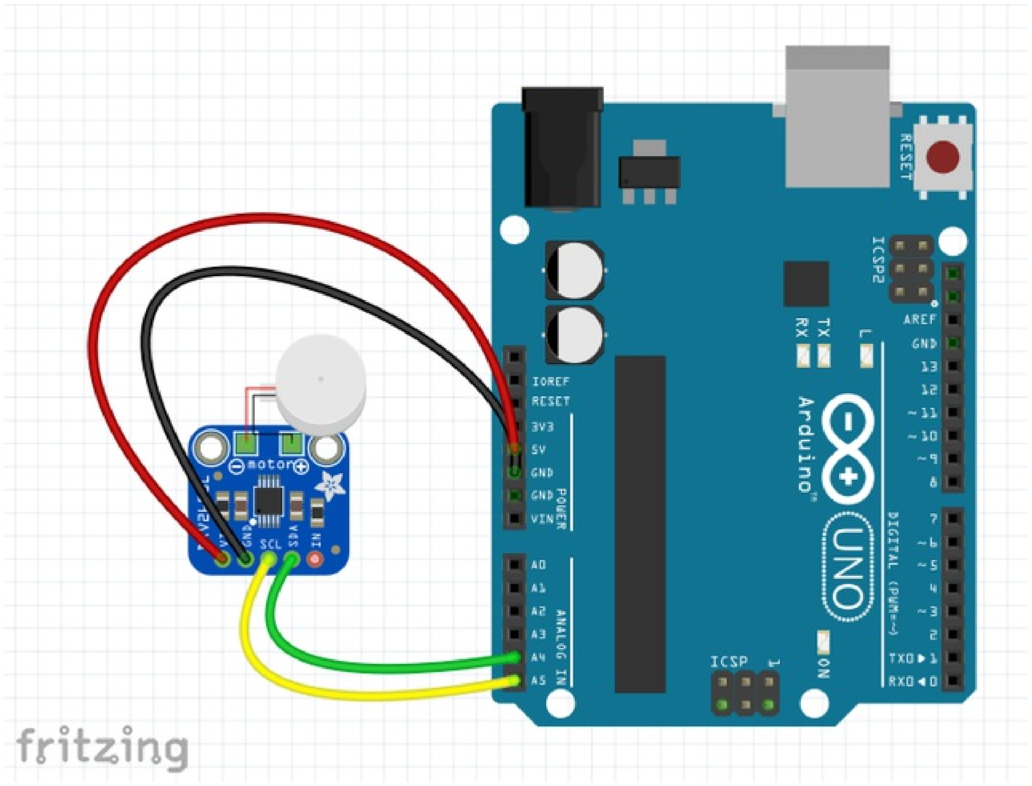
Overview



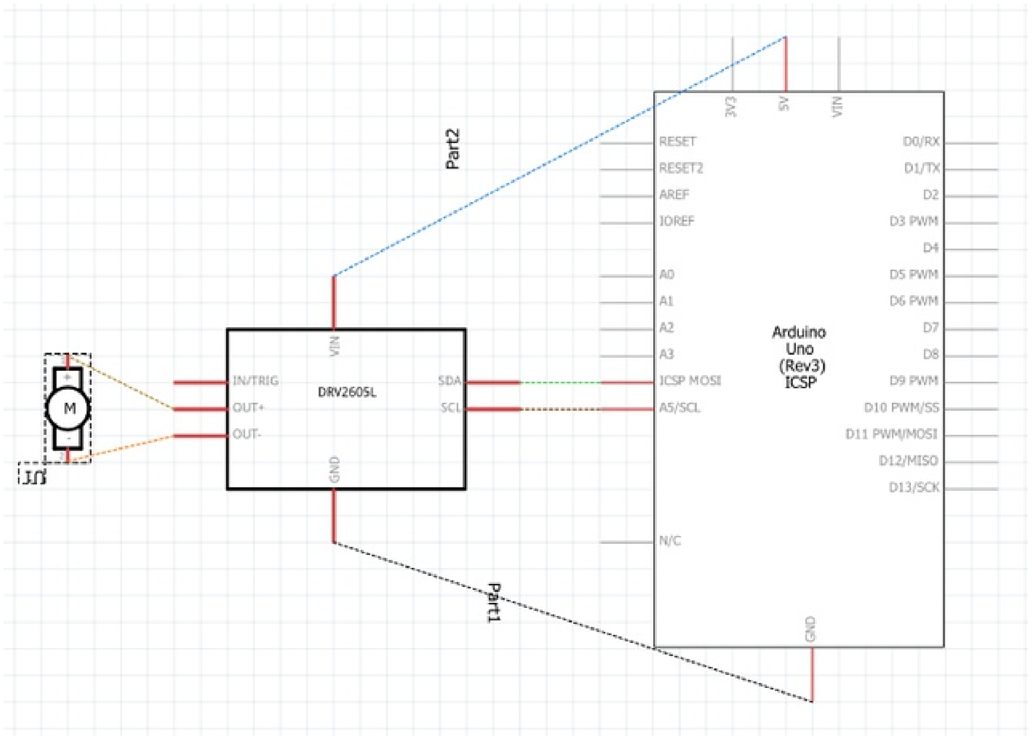
If you design maker hardware - you'll find investing in Fritzing objects to be an excellent method for encouraging projects. It'll also make your documentation look really nice.

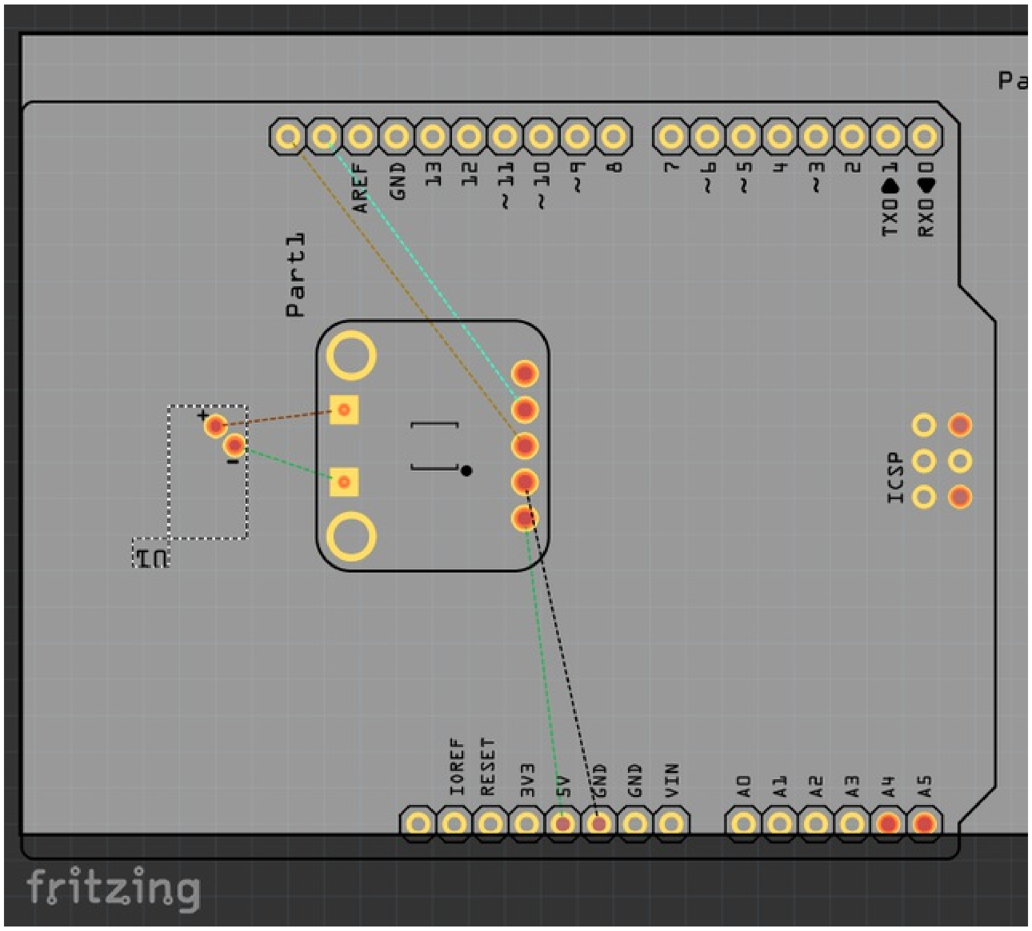
Fritzing is an open source CAD-like graphical software for all operating systems that allows full interaction between breadboard, schematic and PCB views. Customers or other enthusiasts can wire up breadboard diagrams and then turn that into a schematic and even a finished PCB!

For example, here's a demo of the part we'll be making, wired to an Arduino and buzzer in breadboard view:



And the corresponding schematic & PCB views

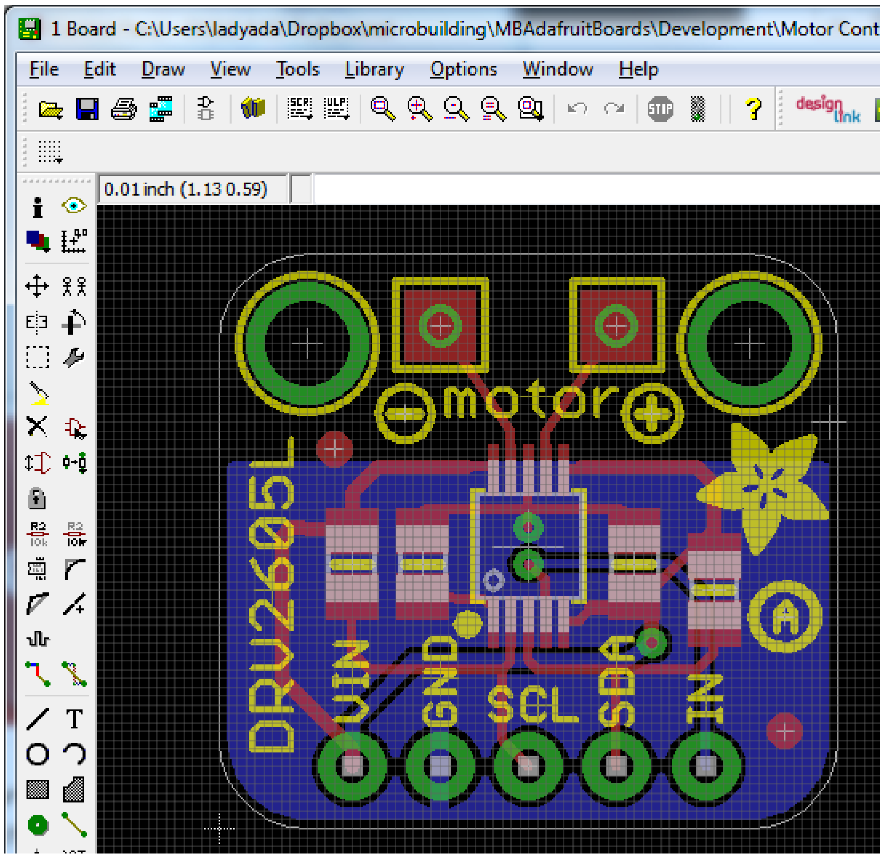




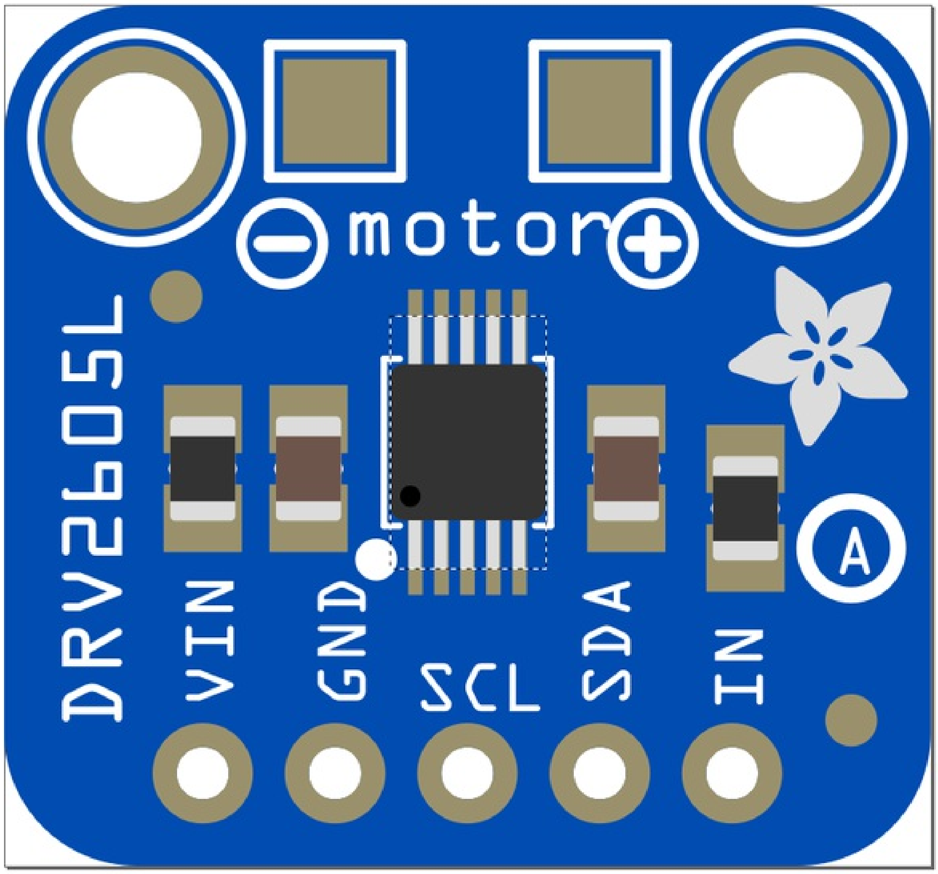
The idea is great but the *making* of those lovely objects is not easy. Here's some tutorials on how to make objects from scratch:

- Sparkfun's Make your own Fritzing Part (https://adafru.it/oEo)
- Details on the Fritzing Parts Editor (https://adafru.it/oEp)
- Fritzing's tutorials (some are out of date) lots of links there too! (https://adafru.it/oEq)

These are all good for making custom parts but wouldn't it be really cool if we could take this:


1 Board - C:\Users\ladyada\Dropbox\microbuilding\MBAdafruitBoards\Development\Motor Cont
File Edit Draw View Tools Library Options Window Help
0.01 inch (1.13 0.59)
motor
DRV2605L
VIN
GND
SCL
SDA
IN

A PCB file in EagleCAD format...and wave a magic wand to turn it into something like this?



A perfect 1:1 part, based on the CAD file?

WELL YOU CAN! (sorta)

Using the fancy eagle2fritzing project by Fritzing team and the excessive effort of PaintYourDragon (https://adafru.it/iPc) who wrassled with the code and got it into a really good spot!

This toolset works with any OS, in theory. Its been tested on Mac OSX and Windows 7 x64 and the tutorial is writted on Win7 so some variation may be required to get it working on your setup. Srsly.

HERE BE DRAGONS! eagle2fritzing can be very nerve-wracking at times. We did get it to generate our lovely parts but time and coaxing is required! It is not for people who are unable to put in the many (possibly frustrating) hours to learn the quirks and tweaks necessary for really advanced usage! We offer absolutely no support what-so-ever for this tutorial, you are on your own....You have been warned!

Get Ready: Download Fritzing

Of course you'll need to download the Fritzing desktop app in order to try out the parts!

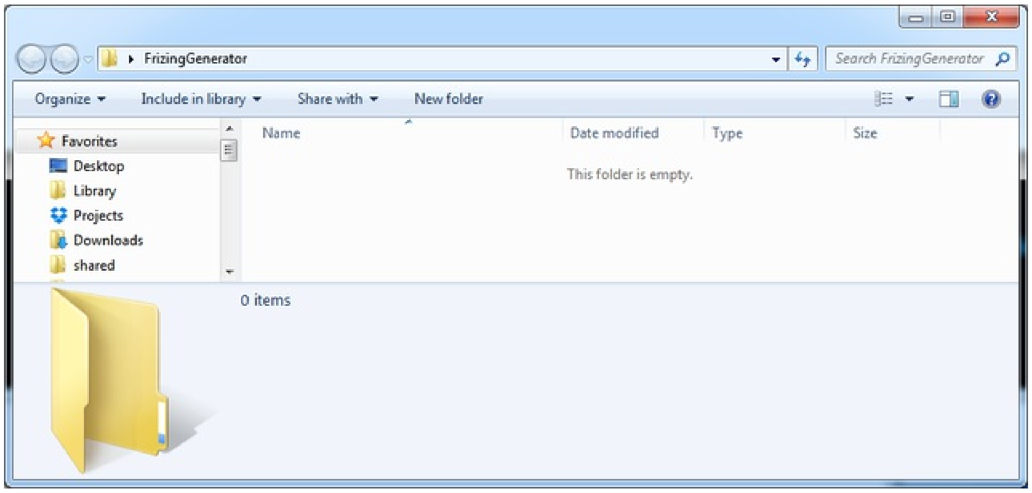
You can download the latest version from http://fritzing.org/download/ (https://adafru.it/oEP)

Get Ready: Git Clone

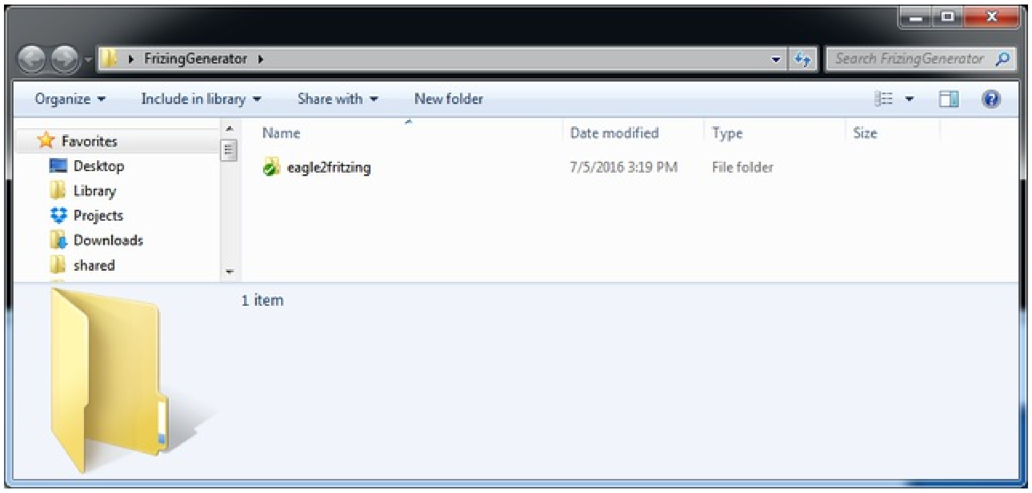
Your first step is to create the directory where you will *work* - its where both code and parts live. This assumes you are using **git** but you could in theory just download them. If you do use git, you can fork and submit pull requests for subparts and more. We don't cover git here, its assumed you know how to use it.

Step 1 Parent folder

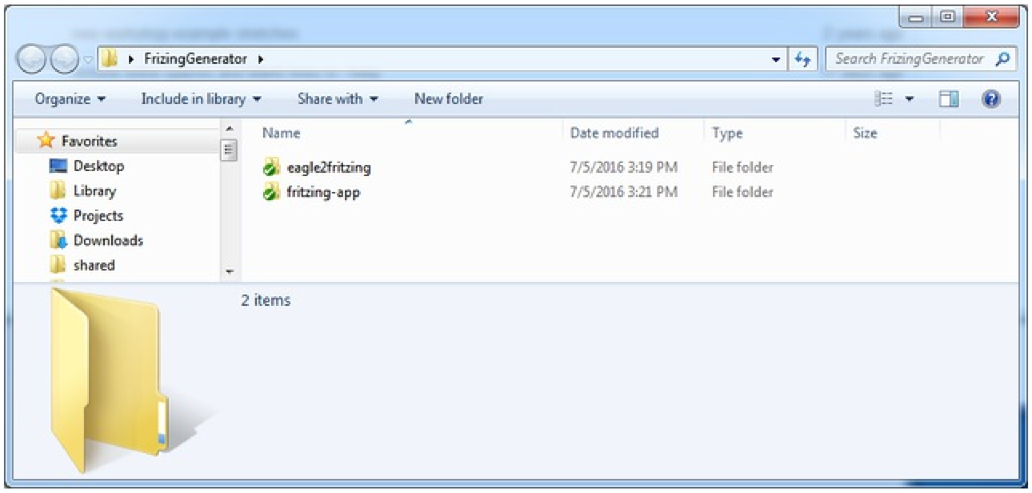
Create a new parent folder anywhere you like



Clone https://github.com/adafruit/eagle2fritzing (https://adafru.it/oEd) into that directory



Clone https://github.com/fritzing/fritzing-app (https://adafru.it/oEe) into the same directory

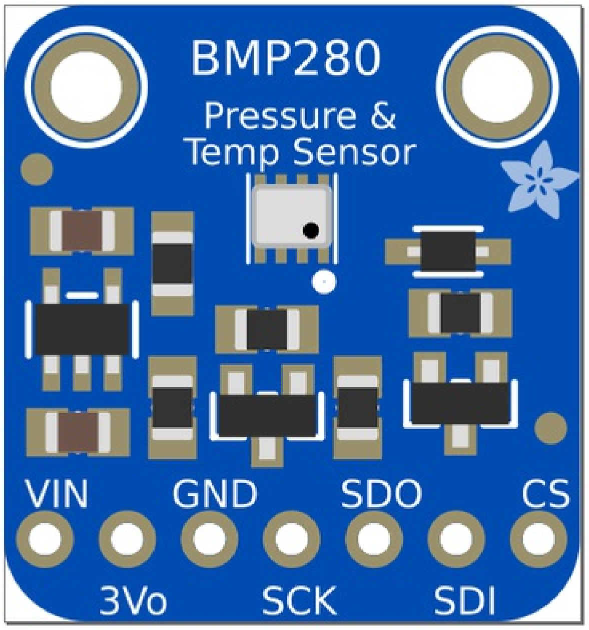


Name	Date modified	Type	Size
eagle2fritzing	7/5/2016 3:19 PM	File folder	
fritzing-app	7/5/2016 3:21 PM	File folder	

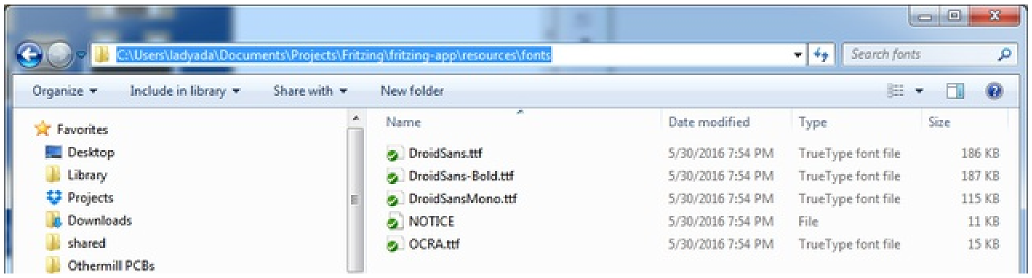
Get Ready: Fonts

A nice realism of the Fritzing converter is it takes all the silkscreen text and orients it in the right location for you and in the right size

However, without the right font, your part will default to a rounded sans serif:



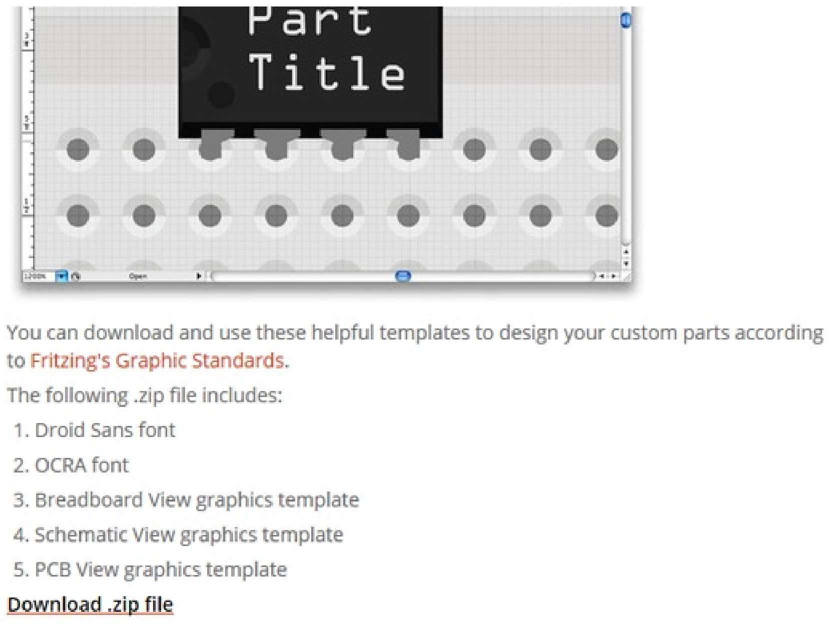
You can find the right fonts in the **fritzing-app/resources/fonts** folder



C:\Users\ladyada\Documents\Projects\Fritzing\fritzing-app\resources\fonts

Name	Date modified	Type	Size
DroidSans.ttf	5/30/2016 7:54 PM	TrueType font file	186 KB
DroidSans-Bold.ttf	5/30/2016 7:54 PM	TrueType font file	187 KB
DroidSansMono.ttf	5/30/2016 7:54 PM	TrueType font file	115 KB
NOTICE	5/30/2016 7:54 PM	File	11 KB
OCRA.ttf	5/30/2016 7:54 PM	TrueType font file	15 KB

You can also download the zip with fonts from http://fritzing.org/fritzings-graphic-standards/download-fonts-and-templates (https://adafru.it/oDm)



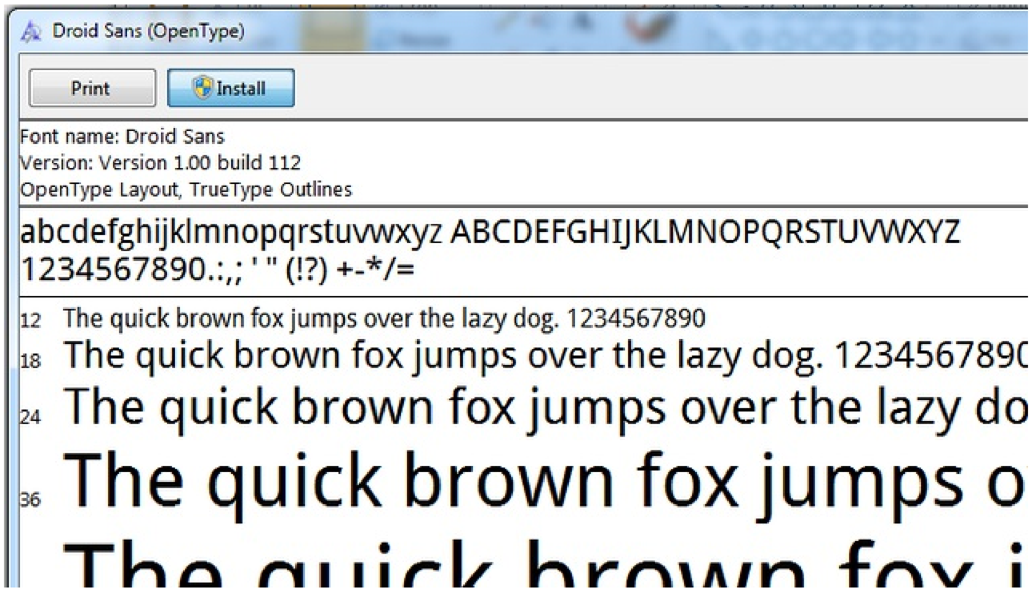
You can download and use these helpful templates to design your custom parts according to Fritzing's Graphic Standards.

The following .zip file includes:

1. Droid Sans font
2. OCRA font
3. Breadboard View graphics template
4. Schematic View graphics template
5. PCB View graphics template

Download .zip file

Install all four TrueType (TTF) fonts!

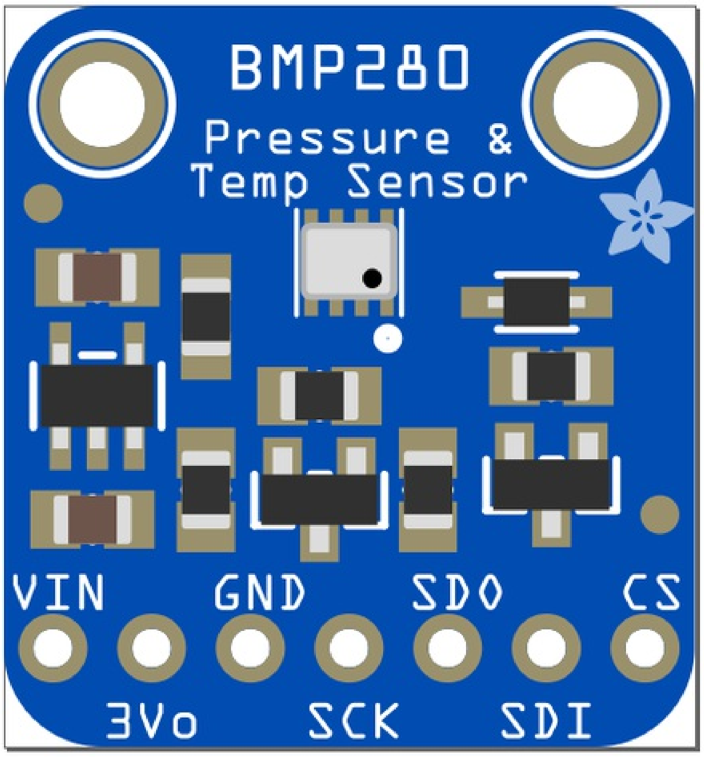


Font name: Droid Sans
Version: Version 1.00 build 112
OpenType Layout, TrueType Outlines

abcdefghijklmnopqrstuvwxyz ABCDEFGHIJKLMNOPQRSTUVWXYZ
1234567890.:,; ' " (!?) +-*/=

12 The quick brown fox jumps over the lazy dog. 1234567890
18 The quick brown fox jumps over the lazy dog. 123456789
24 The quick brown fox jumps over the lazy do
36 The quick brown fox jumps o

You don't have to regenerate the svg, but you may need to restart inkscape


BMP280
Pressure &
Temp Sensor
VIN
GND
SDO
CS
3Vo
SCK
SDI

Get Ready: Inkscape

You will need to edit some SVGs and the best tool we've found for that is Inkscape. You could also use CorelDraw or Illustrator but Inkscape works really well and once you get the flow down is very quick.

You can download it from https://inkscape.org/ (https://adafru.it/oEf)

It's available in binary format for *all operating systems! Yay!*

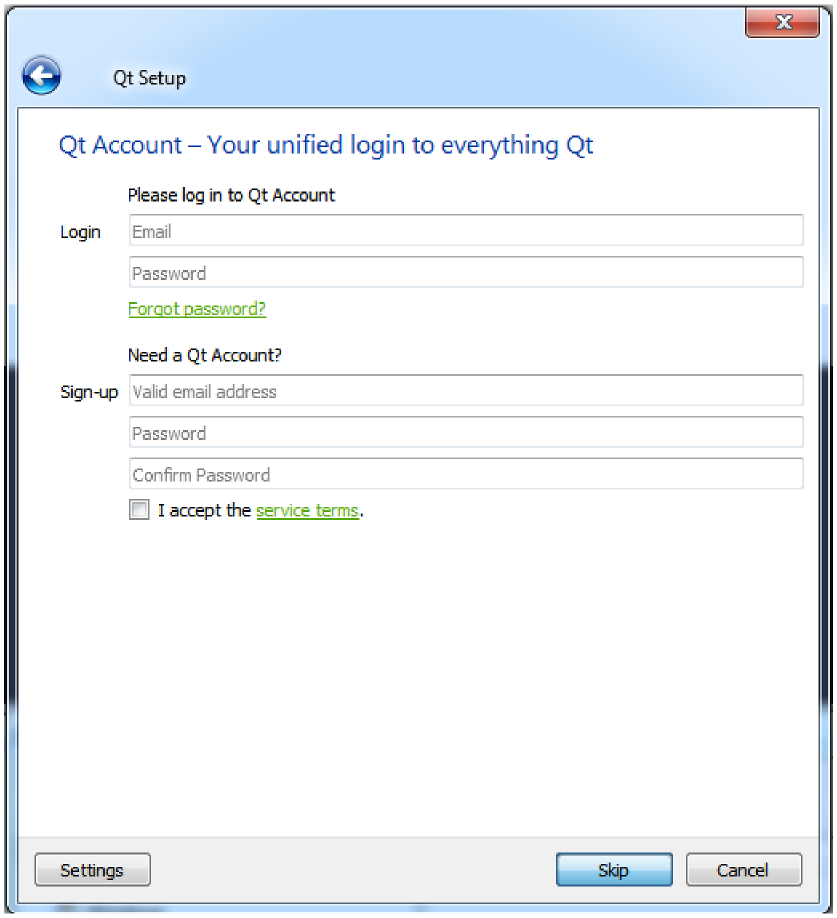
Get Ready: Qt Creator IDE

We have precompiled executables but if you're not using Windows 7 64 bit you may need to recompile the brd2svg program. This program is written in Qt!

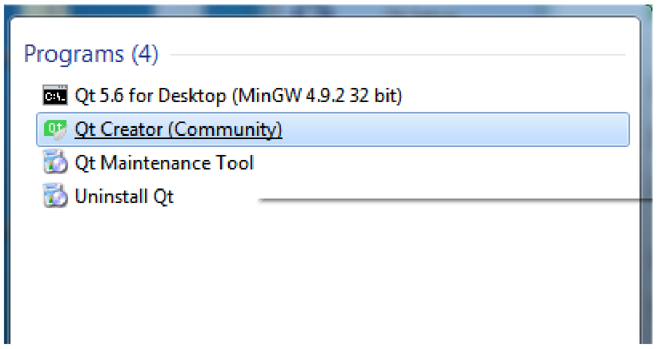
We told you this would be fun right?

You can grab the compiler/IDE from https://www.qt.io/download-open-source/ (https://adafru.it/oEh)

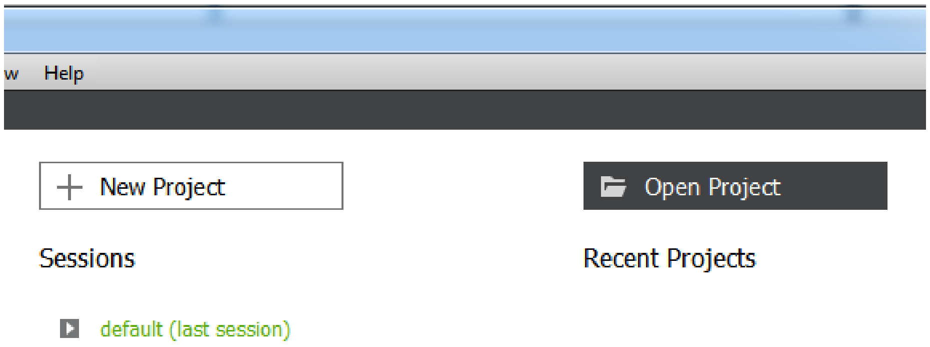
You can skip the Qt account setup part



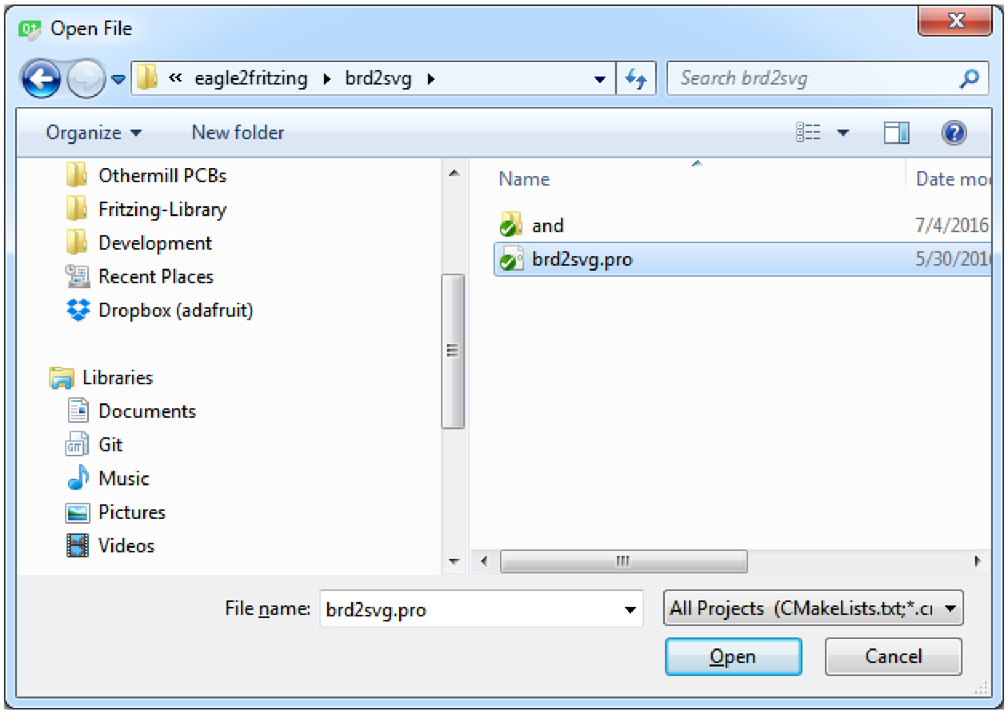
Once installed, run Qt Creator



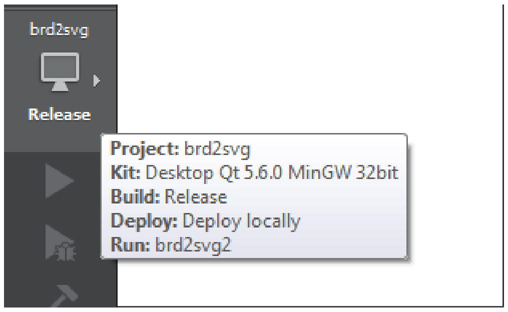
Open up the project:



And open **brd2svg.pro** in the **eagle2fritzing/brd2svg** folder

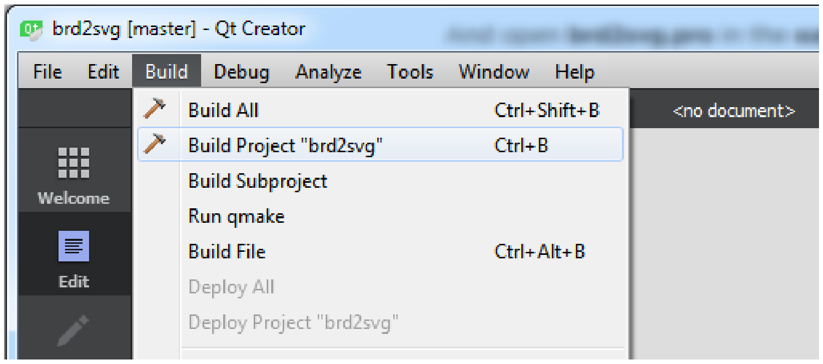


Select **Release build** mode

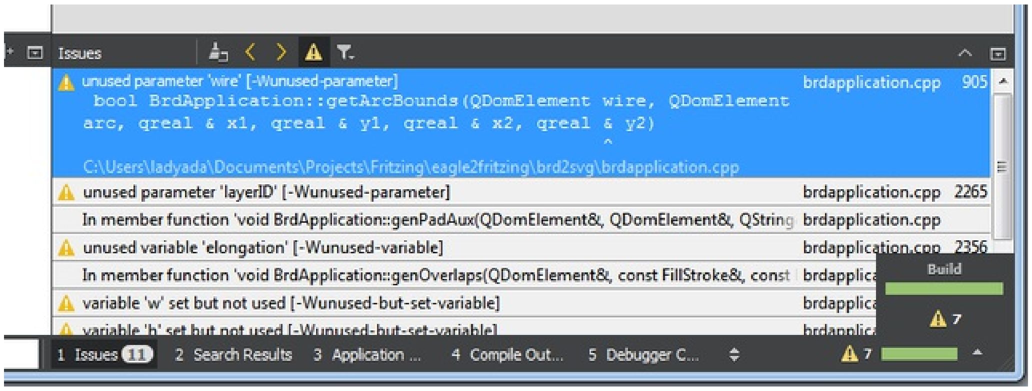


Project: brd2svg
Kit: Desktop Qt 5.6.0 MinGW 32bit
Build: Release
Deploy: Deploy locally
Run: brd2svg2

Build the project

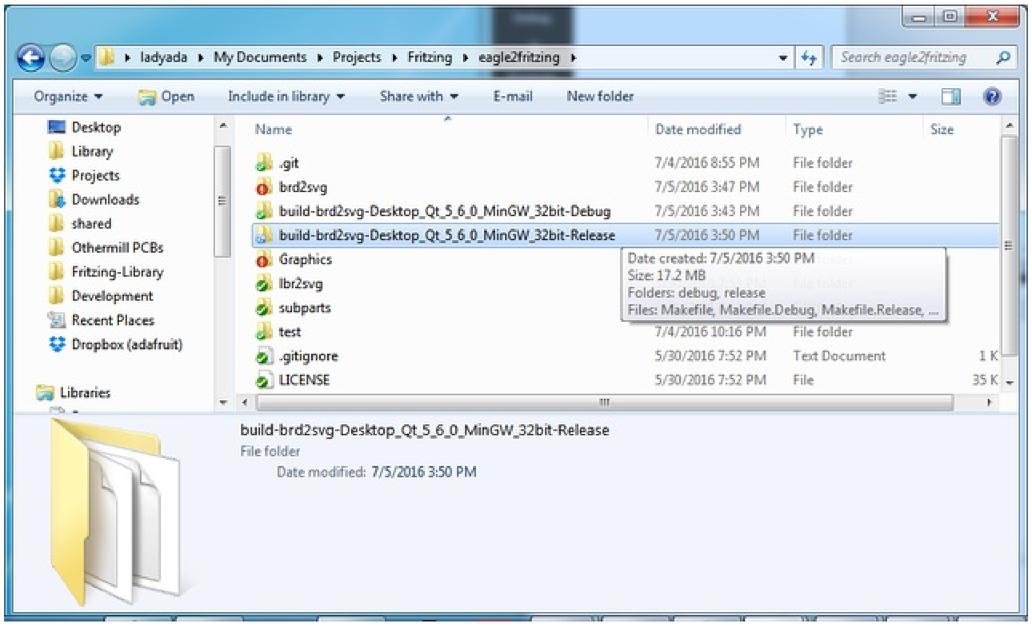


You may get warnings, thats OK - the software is still 'in progess'



```
unused parameter 'wire' [-Wunused-parameter]                                        brdapplication.cpp  905
 bool BrdApplication::getArcBounds(QDomElement wire, QDomElement
arc, qreal & x1, qreal & y1, qreal & x2, qreal & y2)
                                                  ^
C:\Users\ladyada\Documents\Projects\Fritzing\eagle2fritzing\brd2svg\brdapplication.cpp
unused parameter 'layerID' [-Wunused-parameter]                                     brdapplication.cpp  2265
In member function 'void BrdApplication::genPadAux(QDomElement&, QDomElement&, QString  brdapplication.cpp
unused variable 'elongation' [-Wunused-variable]                                    brdapplication.cpp  2356
In member function 'void BrdApplication::genOverlaps(QDomElement&, const FillStroke&, const  brdapplica
variable 'w' set but not used [-Wunused-but-set-variable]                           brdapplica
variable 'h' set but not used [-Wunused-but-set-variable]                           brdapplic
```

Once done you'll have a new build directory:



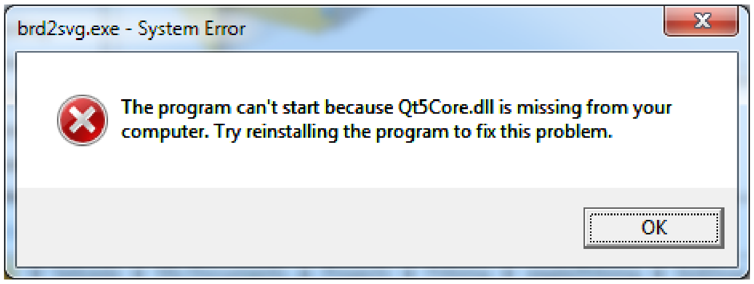
Name	Date modified	Type	Size
.git	7/4/2016 8:55 PM	File folder	
brd2svg	7/5/2016 3:47 PM	File folder	
build-brd2svg-Desktop_Qt_5_6_0_MinGW_32bit-Debug	7/5/2016 3:43 PM	File folder	
build-brd2svg-Desktop_Qt_5_6_0_MinGW_32bit-Release	7/5/2016 3:50 PM	File folder	
Graphics			
lbr2svg			
subparts			
test	7/4/2016 10:16 PM	File folder	
.gitignore	5/30/2016 7:52 PM	Text Document	1 K
LICENSE	5/30/2016 7:52 PM	File	35 K

Date created: 7/5/2016 3:50 PM
Size: 17.2 MB
Folders: debug, release
Files: Makefile, Makefile.Debug, Makefile.Release, ...

build-brd2svg-Desktop_Qt_5_6_0_MinGW_32bit-Release
File folder
Date modified: 7/5/2016 3:50 PM

which inside the **release** directory you'll find your **brd2svg** executable. Drag this into the **eagle2fritzing/brd2svg** directory.

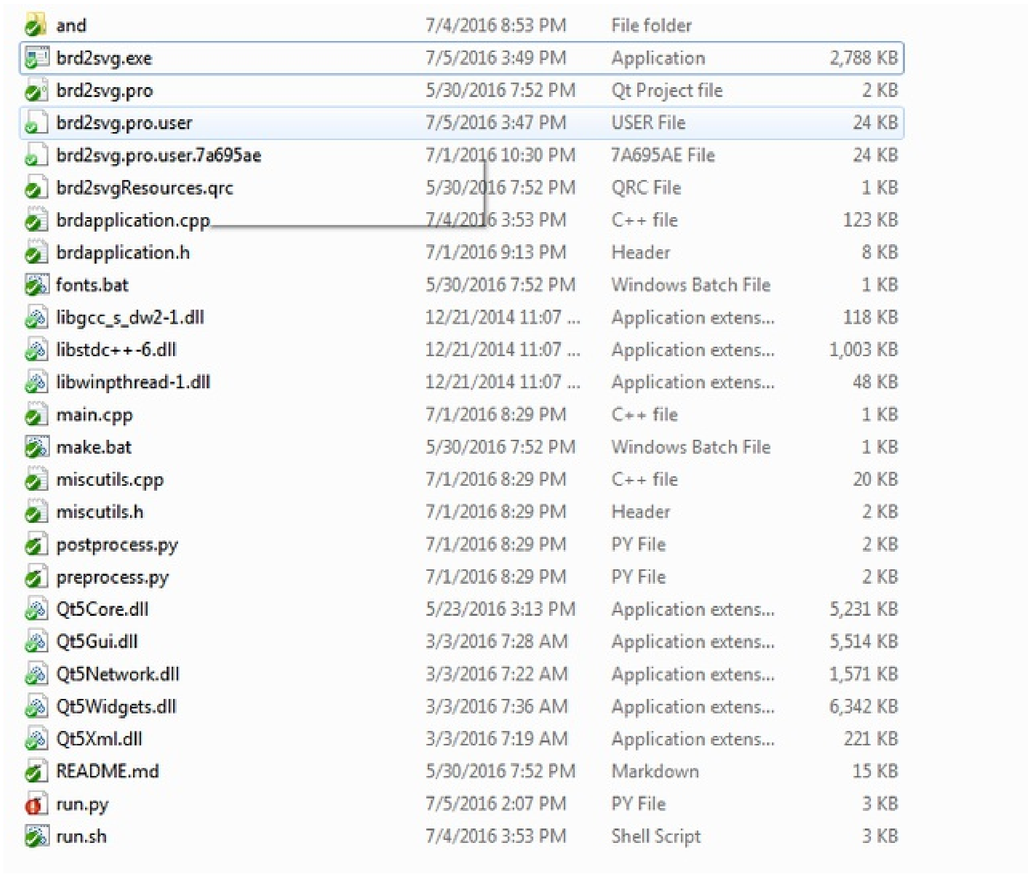
If you run it you may get complaints about missing DLL's


brd2svg.exe - System Error

The program can't start because Qt5Core.dll is missing from your computer. Try reinstalling the program to fix this problem.

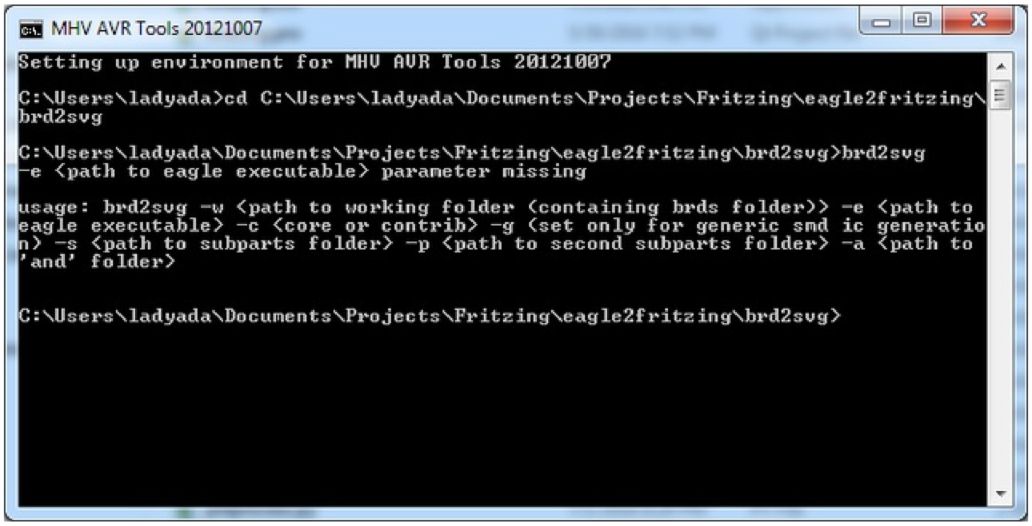
You can find these at **C:\Qt\5.6\mingw49_32\bin**

Just drag one at a time until you can run it without complaint



and	7/4/2016 8:53 PM	File folder	
brd2svg.exe	7/5/2016 3:49 PM	Application	2,788 KB
brd2svg.pro	5/30/2016 7:52 PM	Qt Project file	2 KB
brd2svg.pro.user	7/5/2016 3:47 PM	USER File	24 KB
brd2svg.pro.user.7a695ae	7/1/2016 10:30 PM	7A695AE File	24 KB
brd2svgResources.qrc	5/30/2016 7:52 PM	QRC File	1 KB
brdapplication.cpp	7/4/2016 3:53 PM	C++ file	123 KB
brdapplication.h	7/1/2016 9:13 PM	Header	8 KB
fonts.bat	5/30/2016 7:52 PM	Windows Batch File	1 KB
libgcc_s_dw2-1.dll	12/21/2014 11:07 ...	Application extens...	118 KB
libstdc++-6.dll	12/21/2014 11:07 ...	Application extens...	1,003 KB
libwinpthread-1.dll	12/21/2014 11:07 ...	Application extens...	48 KB
main.cpp	7/1/2016 8:29 PM	C++ file	1 KB
make.bat	5/30/2016 7:52 PM	Windows Batch File	1 KB
miscutils.cpp	7/1/2016 8:29 PM	C++ file	20 KB
miscutils.h	7/1/2016 8:29 PM	Header	2 KB
postprocess.py	7/1/2016 8:29 PM	PY File	2 KB
preprocess.py	7/1/2016 8:29 PM	PY File	2 KB
Qt5Core.dll	5/23/2016 3:13 PM	Application extens...	5,231 KB
Qt5Gui.dll	3/3/2016 7:28 AM	Application extens...	5,514 KB
Qt5Network.dll	3/3/2016 7:22 AM	Application extens...	1,571 KB
Qt5Widgets.dll	3/3/2016 7:36 AM	Application extens...	6,342 KB
Qt5Xml.dll	3/3/2016 7:19 AM	Application extens...	221 KB
README.md	5/30/2016 7:52 PM	Markdown	15 KB
run.py	7/5/2016 2:07 PM	PY File	3 KB
run.sh	7/4/2016 3:53 PM	Shell Script	3 KB

Then from within a terminal command line you can run the tool. It will complain it needs files. This is OK! If you get this warning, you can move to the next step

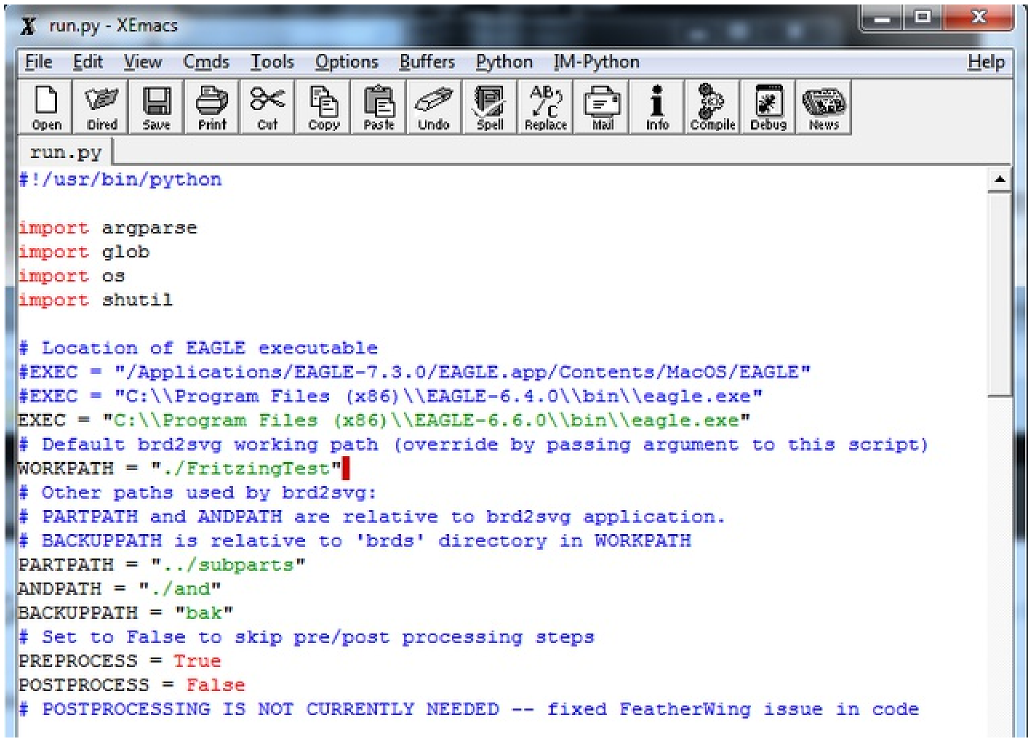


```
Setting up environment for MHV AVR Tools 20121007

C:\Users\ladyada>cd C:\Users\ladyada\Documents\Projects\Fritzing\eagle2fritzing\
brd2svg

C:\Users\ladyada\Documents\Projects\Fritzing\eagle2fritzing\brd2svg>brd2svg
-e <path to eagle executable> parameter missing

usage: brd2svg -w <path to working folder (containing brds folder)> -e <path to
eagle executable> -c <core or contrib> -g <set only for generic smd ic generatio
n> -s <path to subparts folder> -p <path to second subparts folder> -a <path to
'and' folder>


C:\Users\ladyada\Documents\Projects\Fritzing\eagle2fritzing\brd2svg>
```

Get Ready: run.py edits

We have helpers on top of helpers to get the EagleCAD board file -> XML -> FPZ

The runner is a program that will set up your command line and do preprocessing for you. Edit**run.py** in the **brd2svg** directory:


run.py - XEmacs
File Edit View Cmds Tools Options Buffers Python IM-Python Help
Open Dired Save Print Cut Copy Paste Undo Spell Replace Mail Info Compile Debug News
run.py

```
#!/usr/bin/python

import argparse
import glob
import os
import shutil

# Location of EAGLE executable
#EXEC = "/Applications/EAGLE-7.3.0/EAGLE.app/Contents/MacOS/EAGLE"
#EXEC = "C:\\Program Files (x86)\\EAGLE-6.4.0\\bin\\eagle.exe"
EXEC = "C:\\Program Files (x86)\\EAGLE-6.6.0\\bin\\eagle.exe"
# Default brd2svg working path (override by passing argument to this script)
WORKPATH = "./FritzingTest"
# Other paths used by brd2svg:
# PARTPATH and ANDPATH are relative to brd2svg application.
# BACKUPPATH is relative to 'brds' directory in WORKPATH
PARTPATH = "../subparts"
ANDPATH = "./and"
BACKUPPATH = "bak"
# Set to False to skip pre/post processing steps
PREPROCESS = True
POSTPROCESS = False
# POSTPROCESSING IS NOT CURRENTLY NEEDED -- fixed FeatherWing issue in code
```

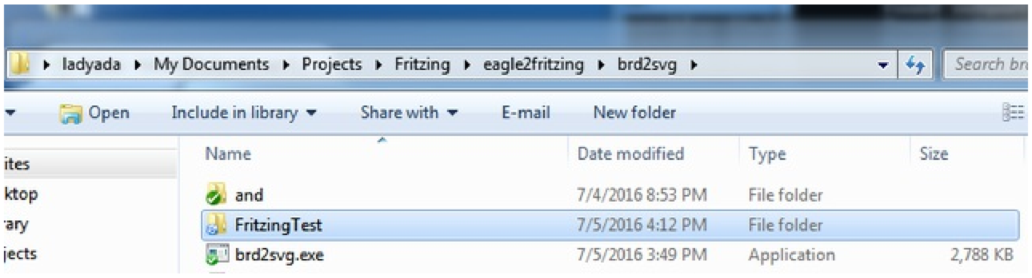
You'll definitely need to edit the **EXECPATH** to where eaglecad lives on your computer

You can also change WORKPATH later if you need

Now, finally, we can run this tool! ARE YOU READY?

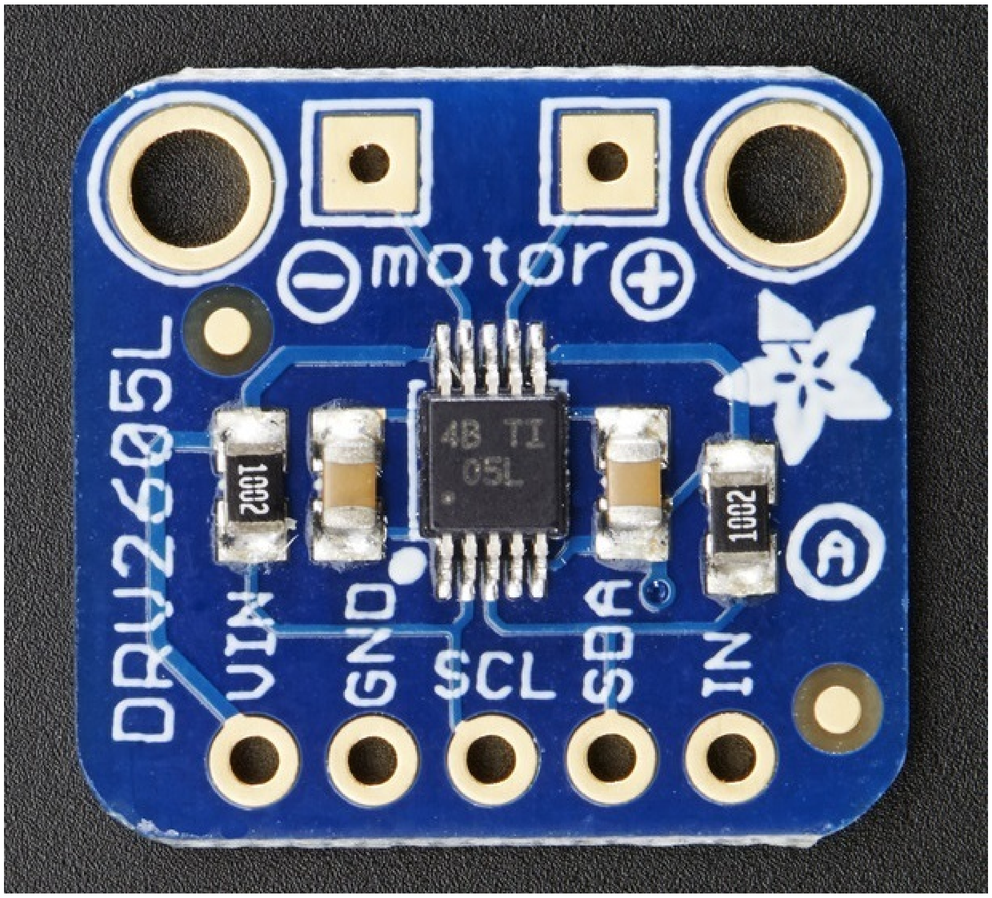
Run!

Create your **FritzingTest** work folder in **brd2svg** and create a **brds** folder inside of that.


ladyada ▸ My Documents ▸ Projects ▸ Fritzing ▸ eagle2fritzing ▸ brd2svg ▸
Search br
Open
Include in library
Share with
E-mail
New folder
ites
ktop
ary
jects

Name	Date modified	Type	Size
and	7/4/2016 8:53 PM	File folder	
FritzingTest	7/5/2016 4:12 PM	File folder	
brd2svg.exe	7/5/2016 3:49 PM	Application	2,788 KB

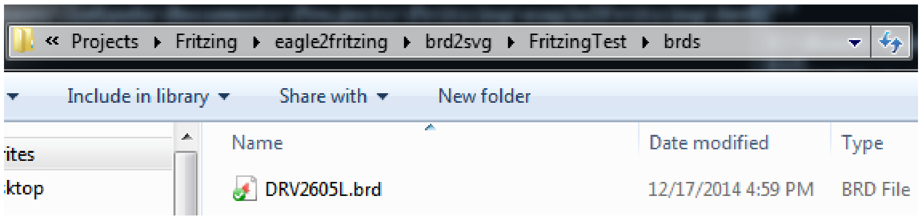
Add a **brd** file, in this case lets do the DRV2605 Breakout:



[The PCB files are in GitHub here (https://adafru.it/oEt)](https://adafru.it/oEt)

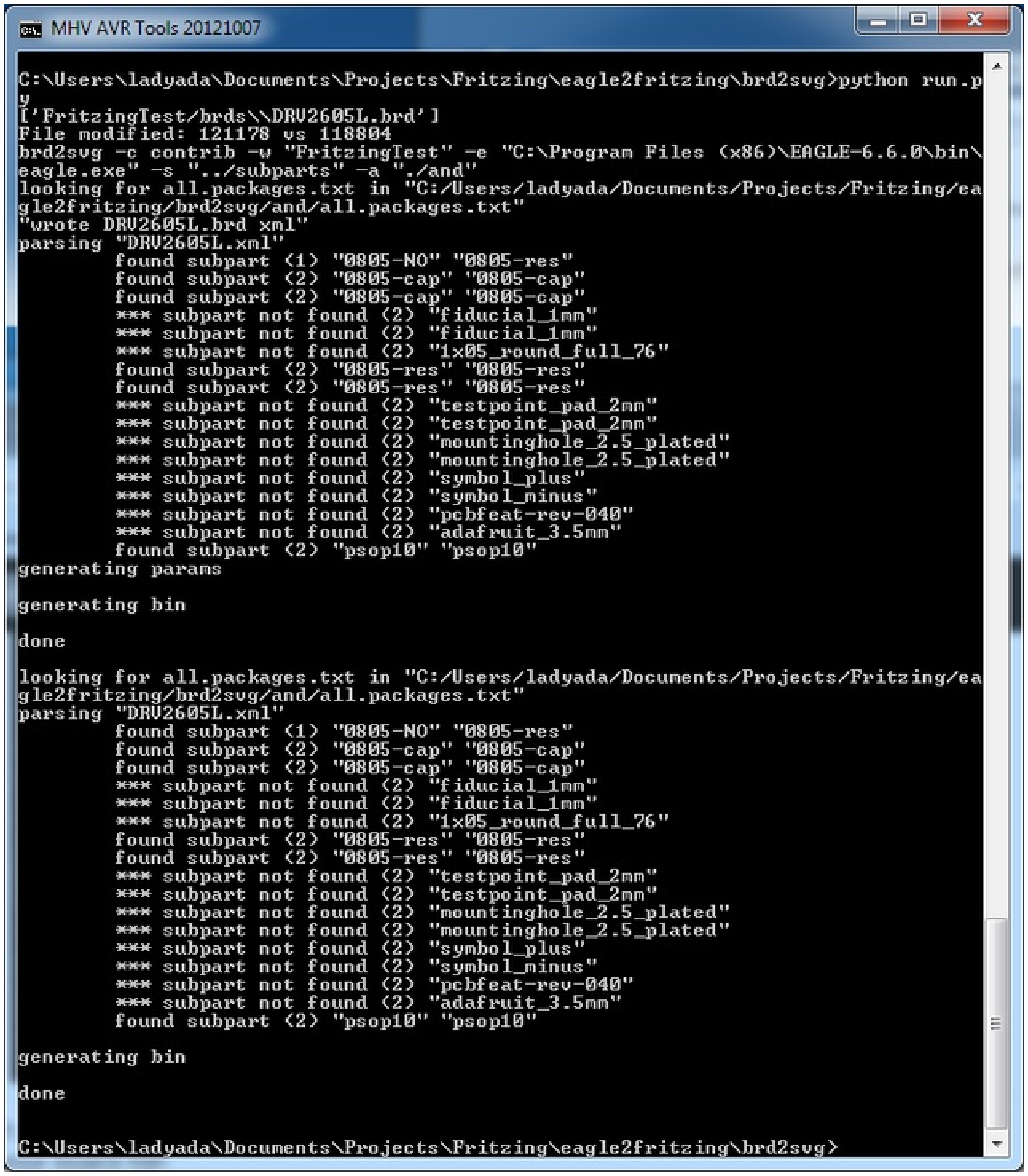
You don't need to add the **SCH** file. Also, note that the board file will be modified so only work on a *copy* of your board file!

Don't have spaces or - or other than A-Z and numeric and _ in the file name, it will avoid parser-choking


« Projects ▸ Fritzing ▸ eagle2fritzing ▸ brd2svg ▸ FritzingTest ▸ brds
Include in library
Share with
New folder
ites
ktop

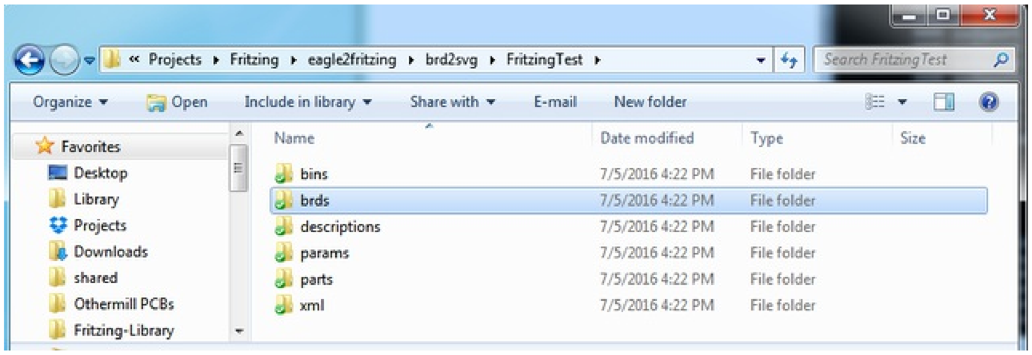
Name	Date modified	Type
DRV2605L.brd	12/17/2014 4:59 PM	BRD File

Run **python run.py** in the brd2svg directory. It will run the preprocessor and application once or twice:



```
C:\Users\ladyada\Documents\Projects\Fritzing\eagle2fritzing\brd2svg>python run.p
y
['FritzingTest/brds\\DRV2605L.brd']
File modified: 121178 vs 118804
brd2svg -c contrib -w "FritzingTest" -e "C:\Program Files (x86)\EAGLE-6.6.0\bin\
eagle.exe" -s "../subparts" -a "./and"
looking for all.packages.txt in "C:/Users/ladyada/Documents/Projects/Fritzing/ea
gle2fritzing/brd2svg/and/all.packages.txt"
"wrote DRV2605L.brd xml"
parsing "DRV2605L.xml"
        found subpart (1) "0805-NO" "0805-res"
        found subpart (2) "0805-cap" "0805-cap"
        found subpart (2) "0805-cap" "0805-cap"
        *** subpart not found (2) "fiducial_1mm"
        *** subpart not found (2) "fiducial_1mm"
        *** subpart not found (2) "1x05_round_full_76"
        found subpart (2) "0805-res" "0805-res"
        found subpart (2) "0805-res" "0805-res"
        *** subpart not found (2) "testpoint_pad_2mm"
        *** subpart not found (2) "testpoint_pad_2mm"
        *** subpart not found (2) "mountinghole_2.5_plated"
        *** subpart not found (2) "mountinghole_2.5_plated"
        *** subpart not found (2) "symbol_plus"
        *** subpart not found (2) "symbol_minus"
        *** subpart not found (2) "pcbfeat-rev-040"
        *** subpart not found (2) "adafruit_3.5mm"
        found subpart (2) "psop10" "psop10"
generating params

generating bin

done

looking for all.packages.txt in "C:/Users/ladyada/Documents/Projects/Fritzing/ea
gle2fritzing/brd2svg/and/all.packages.txt"
parsing "DRV2605L.xml"
        found subpart (1) "0805-NO" "0805-res"
        found subpart (2) "0805-cap" "0805-cap"
        found subpart (2) "0805-cap" "0805-cap"
        *** subpart not found (2) "fiducial_1mm"
        *** subpart not found (2) "fiducial_1mm"
        *** subpart not found (2) "1x05_round_full_76"
        found subpart (2) "0805-res" "0805-res"
        found subpart (2) "0805-res" "0805-res"
        *** subpart not found (2) "testpoint_pad_2mm"
        *** subpart not found (2) "testpoint_pad_2mm"
        *** subpart not found (2) "mountinghole_2.5_plated"
        *** subpart not found (2) "mountinghole_2.5_plated"
        *** subpart not found (2) "symbol_plus"
        *** subpart not found (2) "symbol_minus"
        *** subpart not found (2) "pcbfeat-rev-040"
        *** subpart not found (2) "adafruit_3.5mm"
        found subpart (2) "psop10" "psop10"

generating bin

done

C:\Users\ladyada\Documents\Projects\Fritzing\eagle2fritzing\brd2svg>
```

You'll now have all the part files in **FritzingTest**



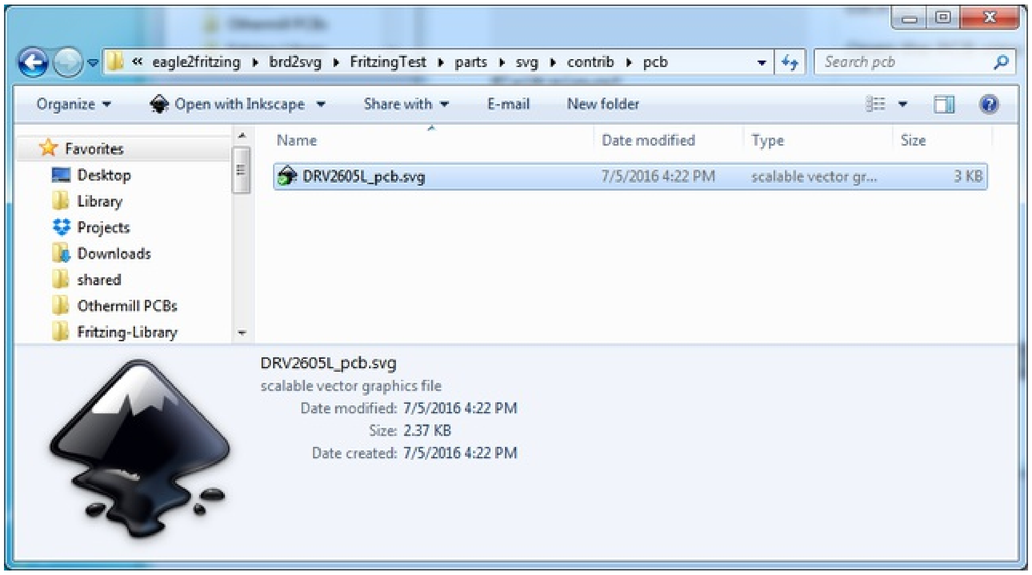
Name	Date modified	Type	Size
bins	7/5/2016 4:22 PM	File folder	
brds	7/5/2016 4:22 PM	File folder	
descriptions	7/5/2016 4:22 PM	File folder	
params	7/5/2016 4:22 PM	File folder	
parts	7/5/2016 4:22 PM	File folder	
xml	7/5/2016 4:22 PM	File folder	

Check and customize PCB View

Fritzing PCB SVGs are very finicky about having the components in the right groups and right group names. Don't ungroup parts, instead try to edit/enter the group to keep the part and group names the same. Breadboard and Schematic are not picky, you can ungroup without issue

We suggest working 'backwards' - getting PCB view to be exactly the way you like, then working back to the breadboard view.

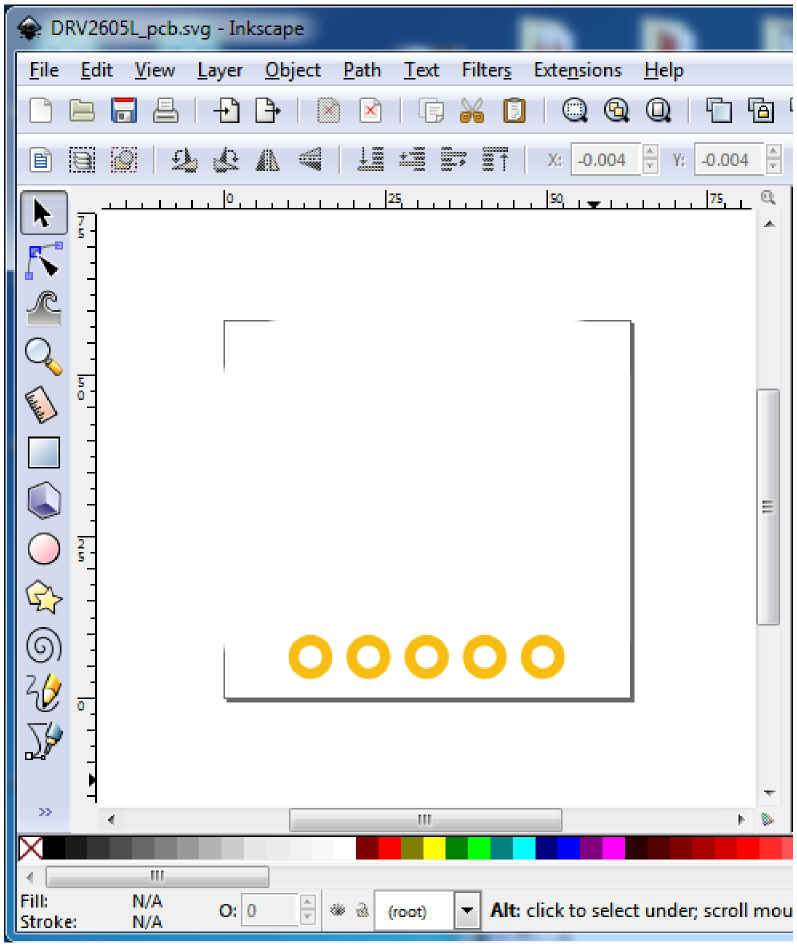
Open the PCB view SVG in the **FritzingTest/parts/svg/contrib/pcb**



Name	Date modified	Type	Size
DRV2605L_pcb.svg	7/5/2016 4:22 PM	scalable vector gr...	3 KB

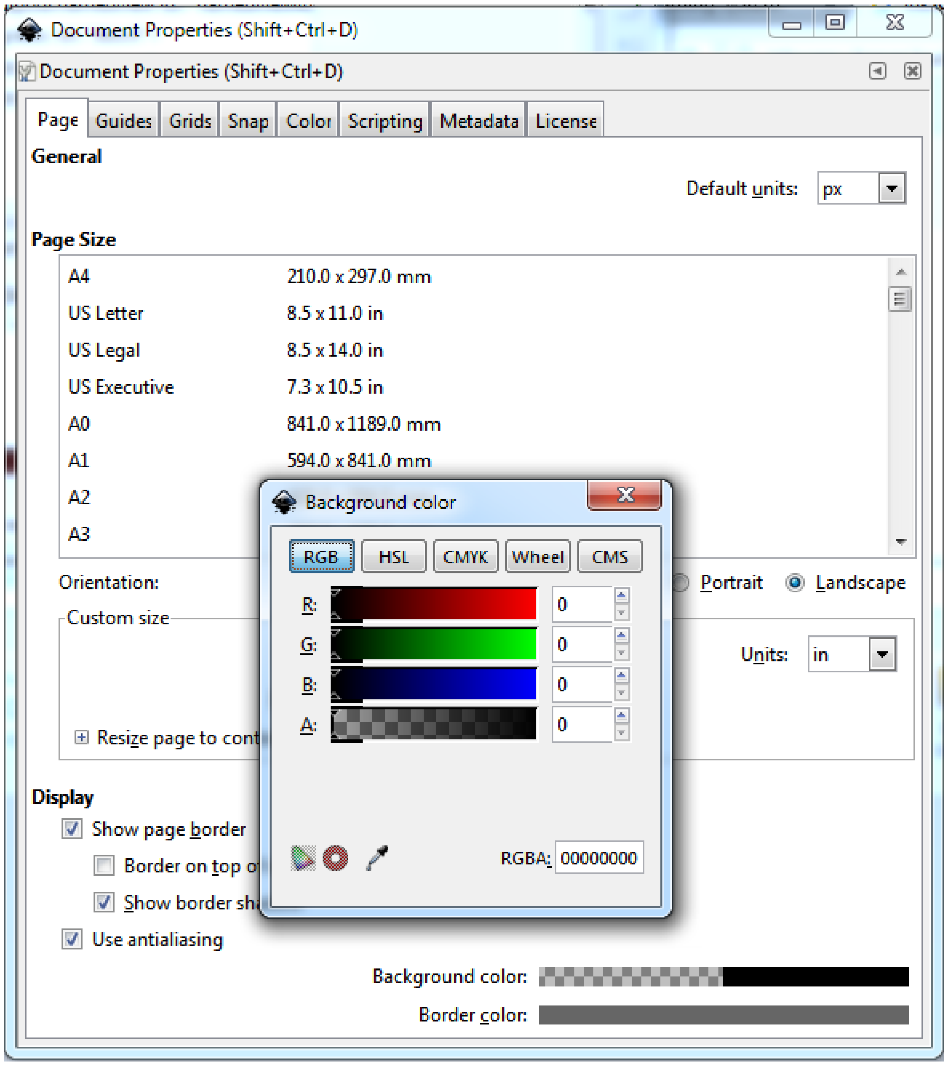
DRV2605L_pcb.svg
scalable vector graphics file
Date modified: 7/5/2016 4:22 PM
Size: 2.37 KB
Date created: 7/5/2016 4:22 PM

It'll look a little like:


DRV2605L_pcb.svg - Inkscape
File Edit View Layer Object Path Text Filters Extensions Help
X: -0.004 Y: -0.004
Fill: N/A
Stroke: N/A
O: 0
(root)
Alt: click to select under; scroll mou

Since the lines are in white, you will want to change the background color. Open up the Document details with **Control-Shift-D**

Select **Background Color** and change it to black



Document Properties (Shift+Ctrl+D)

Page | Guides | Grids | Snap | Color | Scripting | Metadata | License

General

Default units: px

Page Size

A4	210.0 x 297.0 mm
US Letter	8.5 x 11.0 in
US Legal	8.5 x 14.0 in
US Executive	7.3 x 10.5 in
A0	841.0 x 1189.0 mm
A1	594.0 x 841.0 mm
A2	
A3	

Orientation: Portrait [✓ Landscape]

Custom size

Units: in

Resize page to cont

Display

☑ Show page border

☐ Border on top o

☑ Show border sh

☑ Use antialiasing

Background color:

Border color:

Background color

RGB | HSL | CMYK | Wheel | CMS

R: 0

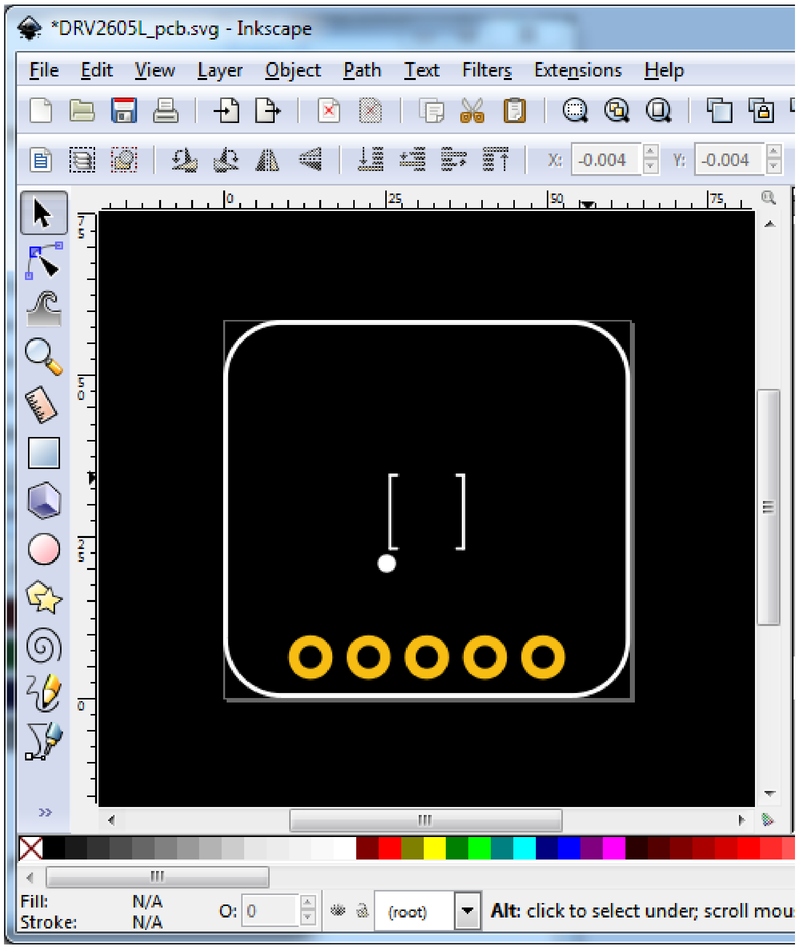
G: 0

B: 0

A: 0

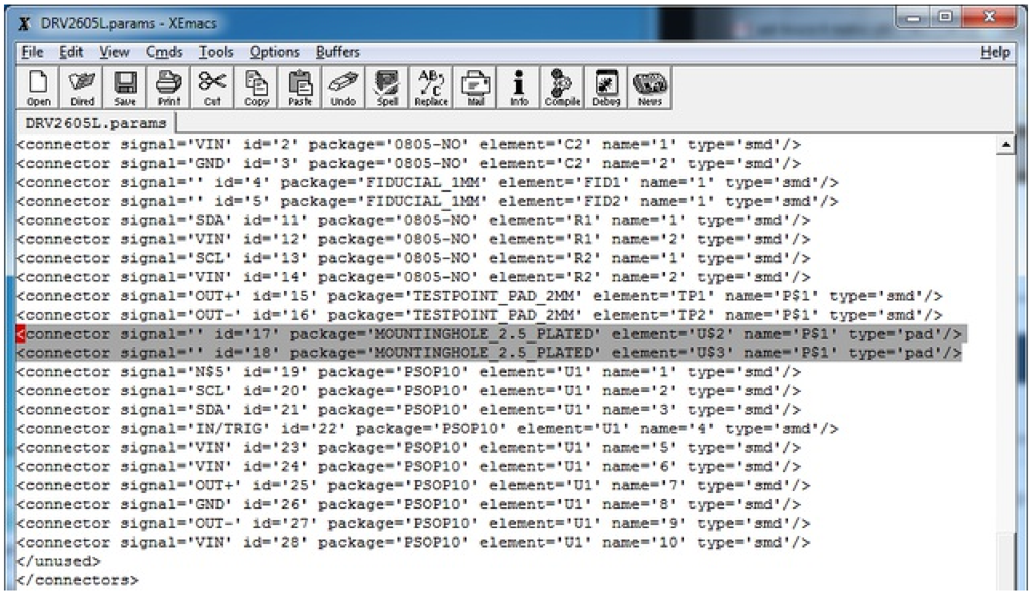
RGBA: 00000000

To see all the outlines:


*DRV2605L_pcb.svg - Inkscape
File Edit View Layer Object Path Text Filters Extensions Help
X: -0.004 Y: -0.004
Fill: N/A
Stroke: N/A
O: 0
(root)
Alt: click to select under; scroll mou

I would like the mounting holes to appear. To do that, you'll need to edit the part parameters and re-run the tool.

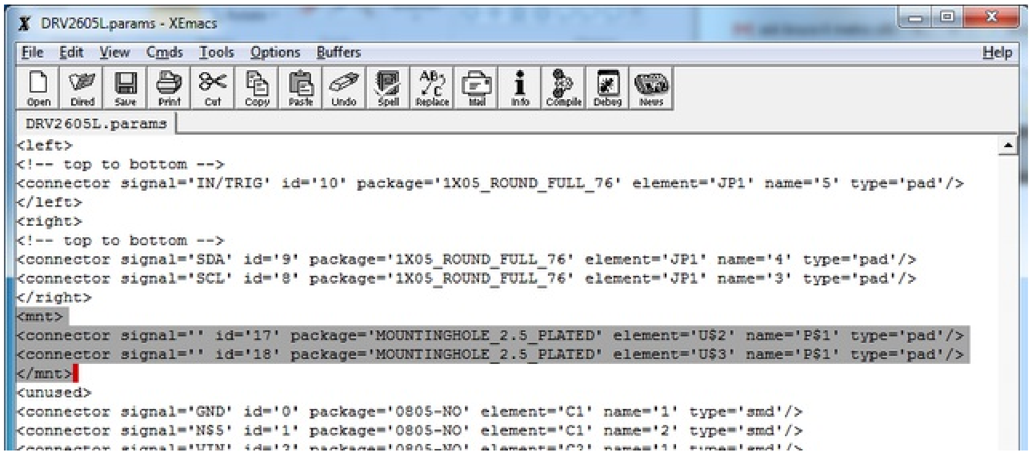
Edit **FritzingTest/params/part.params** and find the **connector** that ties to the mounting holes. The holes aren't actually connectors but this is the easiest way to do it


DRV2605L.params - XEmacs
File Edit View Cmds Tools Options Buffers Help
Open Dired Save Print Cut Copy Paste Undo Spell Replace Mail Info Compile Debug News
DRV2605L.params

```
<connector signal='VIN' id='2' package='0805-NO' element='C2' name='1' type='smd'/>
<connector signal='GND' id='3' package='0805-NO' element='C2' name='2' type='smd'/>
<connector signal='' id='4' package='FIDUCIAL_1MM' element='FID1' name='1' type='smd'/>
<connector signal='' id='5' package='FIDUCIAL_1MM' element='FID2' name='1' type='smd'/>
<connector signal='SDA' id='11' package='0805-NO' element='R1' name='1' type='smd'/>
<connector signal='VIN' id='12' package='0805-NO' element='R1' name='2' type='smd'/>
<connector signal='SCL' id='13' package='0805-NO' element='R2' name='1' type='smd'/>
<connector signal='VIN' id='14' package='0805-NO' element='R2' name='2' type='smd'/>
<connector signal='OUT+' id='15' package='TESTPOINT_PAD_2MM' element='TP1' name='P$1' type='smd'/>
<connector signal='OUT-' id='16' package='TESTPOINT_PAD_2MM' element='TP2' name='P$1' type='smd'/>
<connector signal='' id='17' package='MOUNTINGHOLE_2.5_PLATED' element='U$2' name='P$1' type='pad'/>
<connector signal='' id='18' package='MOUNTINGHOLE_2.5_PLATED' element='U$3' name='P$1' type='pad'/>
<connector signal='N$5' id='19' package='PSOP10' element='U1' name='1' type='smd'/>
<connector signal='SCL' id='20' package='PSOP10' element='U1' name='2' type='smd'/>
<connector signal='SDA' id='21' package='PSOP10' element='U1' name='3' type='smd'/>
<connector signal='IN/TRIG' id='22' package='PSOP10' element='U1' name='4' type='smd'/>
<connector signal='VIN' id='23' package='PSOP10' element='U1' name='5' type='smd'/>
<connector signal='VIN' id='24' package='PSOP10' element='U1' name='6' type='smd'/>
<connector signal='OUT+' id='25' package='PSOP10' element='U1' name='7' type='smd'/>
<connector signal='GND' id='26' package='PSOP10' element='U1' name='8' type='smd'/>
<connector signal='OUT-' id='27' package='PSOP10' element='U1' name='9' type='smd'/>
<connector signal='VIN' id='28' package='PSOP10' element='U1' name='10' type='smd'/>
</unused>
</connectors>
```

Move those out from the `<unused>` XML element into a new element you have to create called something like `<mnt>`

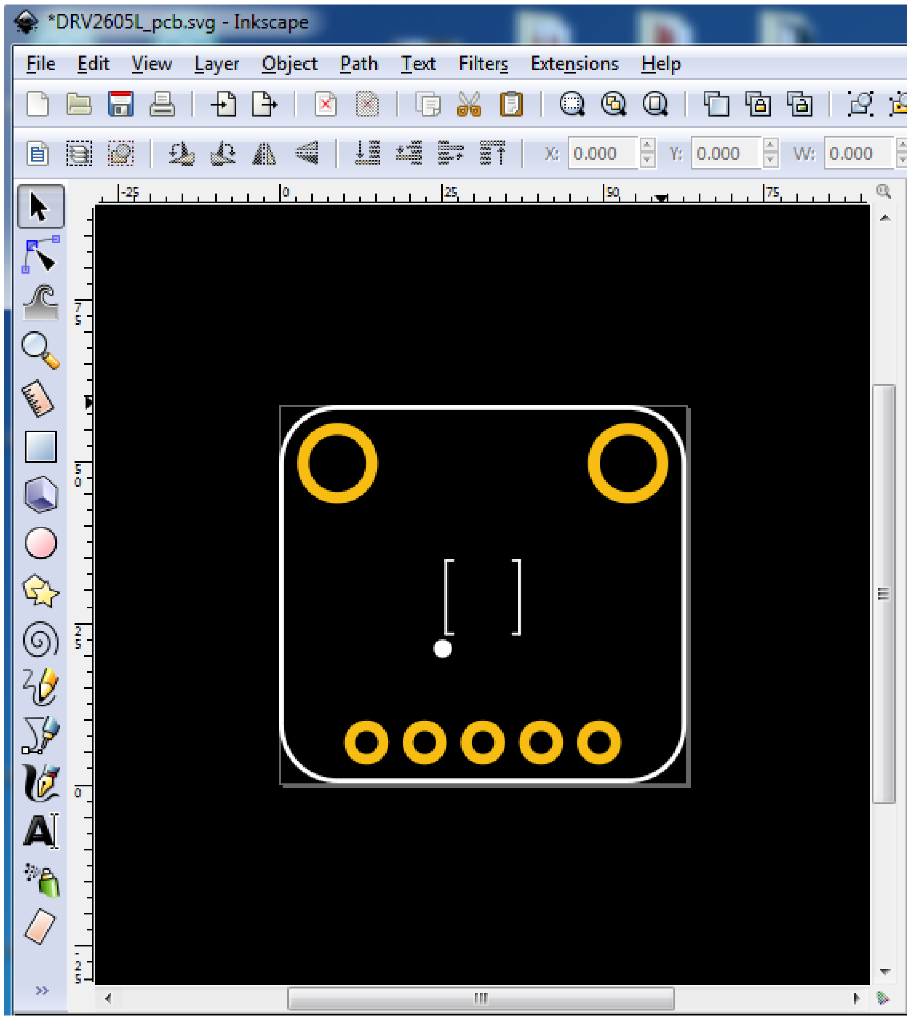
(it can be anything really)



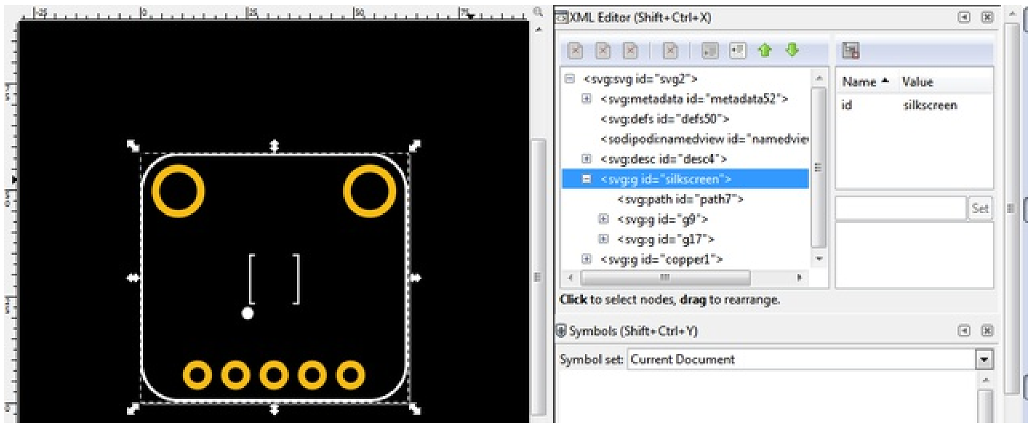
```
<left>
<!-- top to bottom -->
<connector signal='IN/TRIG' id='10' package='1X05_ROUND_FULL_76' element='JP1' name='5' type='pad'/>
</left>
<right>
<!-- top to bottom -->
<connector signal='SDA' id='9' package='1X05_ROUND_FULL_76' element='JP1' name='4' type='pad'/>
<connector signal='SCL' id='8' package='1X05_ROUND_FULL_76' element='JP1' name='3' type='pad'/>
</right>
<mnt>
<connector signal='' id='17' package='MOUNTINGHOLE_2.5_PLATED' element='U$2' name='P$1' type='pad'/>
<connector signal='' id='18' package='MOUNTINGHOLE_2.5_PLATED' element='U$3' name='P$1' type='pad'/>
</mnt>
<unused>
<connector signal='GND' id='0' package='0805-NO' element='C1' name='1' type='smd'/>
<connector signal='N$5' id='1' package='0805-NO' element='C1' name='2' type='smd'/>
```

Save the params file and rerun the tool. It's also good to make a backup in case!

Mounting holes will appear


*DRV2605L_pcb.svg - Inkscape
File Edit View Layer Object Path Text Filters Extensions Help
X: 0.000 Y: 0.000 W: 0.000

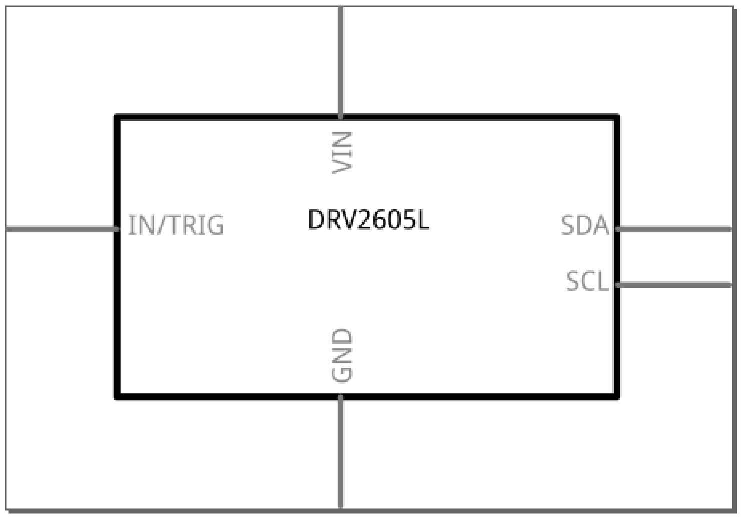
Editing the silkscreen is a little more advanced and isn't covered here. Basically make sure that all the silkscreen is in a group with **id=silkscreen** It's best to use the XML editor, use **Shift-Ctrl-X** to bring it up



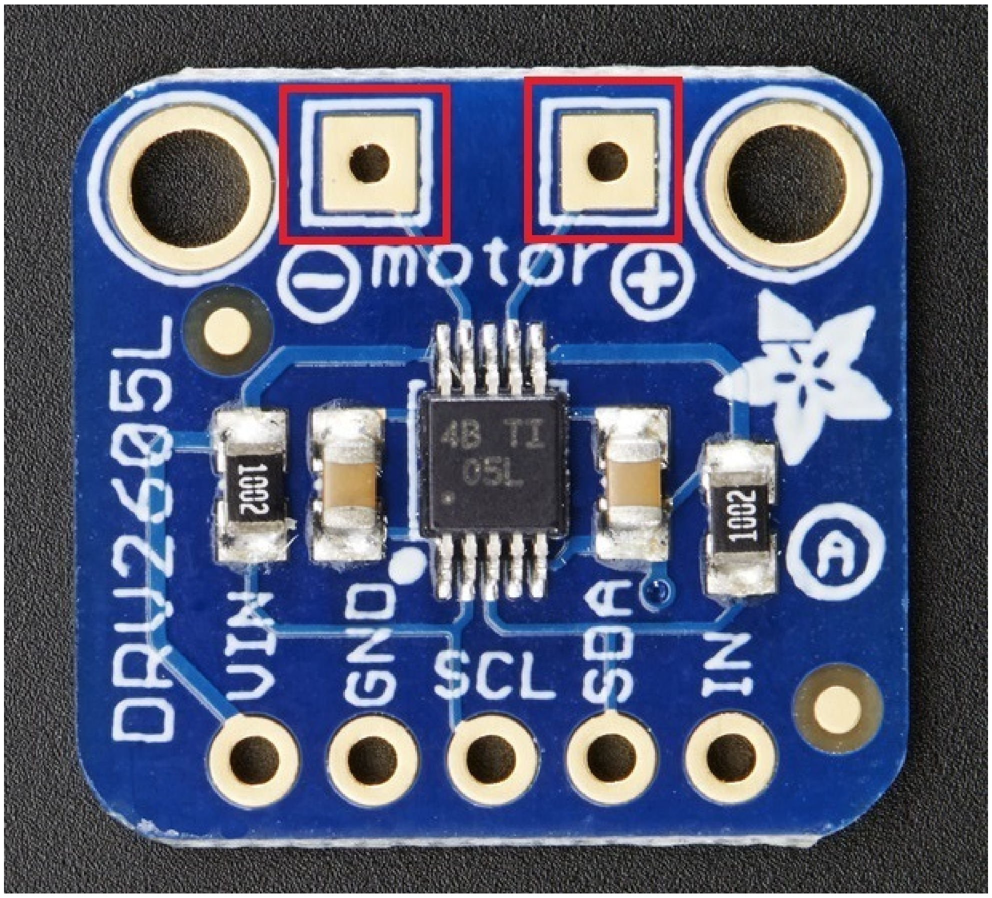
Once you have your PCB SVG in a good spot its a great idea to make a backup. Rerunning the brd2svg tool will OVERWRITE the file! Ideally you would not have to do any edits to the PCB file once params is set

Check and customize Schematic View

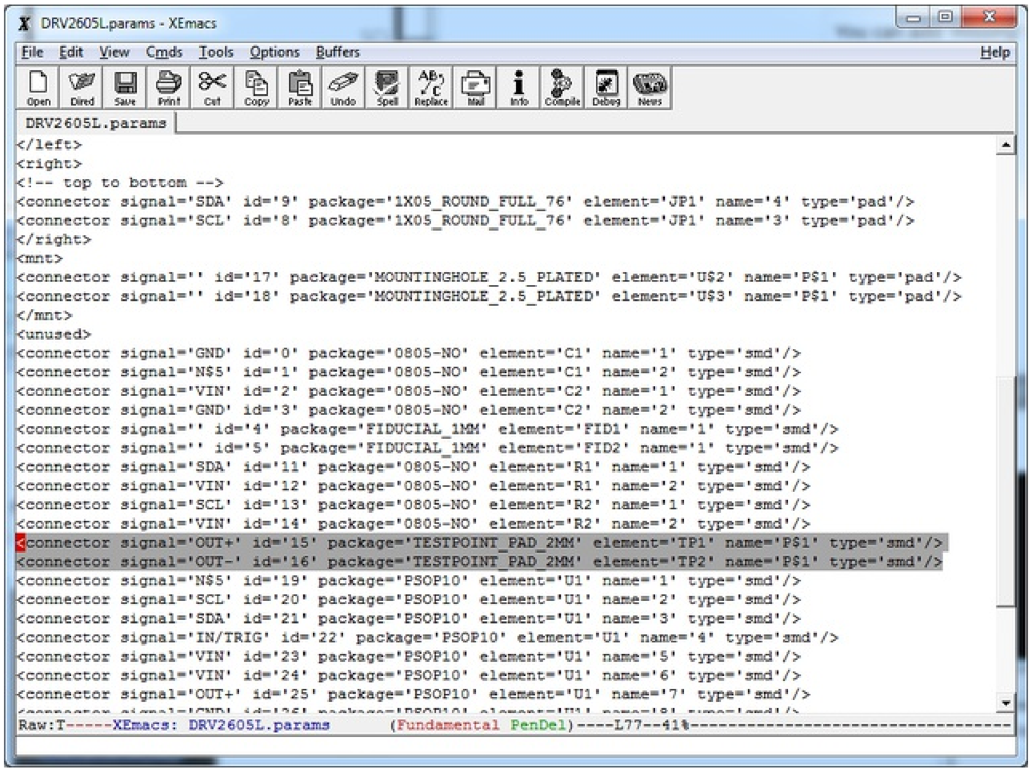
Once PCB view is in a good spot you can check the schematic svg. It is in **FritzingTest\parts\svg\contrib\schematic**



You'll notice that the svg converter is smart enough to make pins for all the **through hole pads** but did not create pins for the SMT motor pins



You can add 'missing' connectors easily. Go to **params** file again to find the two pads that are used for the motor:


DRV2605L.params - XEmacs
File Edit View Cmds Tools Options Buffers Help
Open Dired Save Print Cut Copy Paste Undo Spell Replace Mail Info Compile Debug News
DRV2605L.params

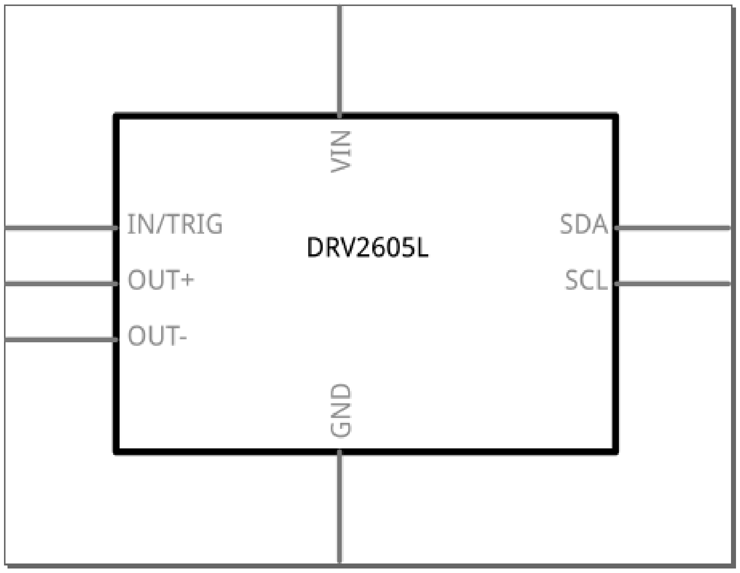
```
</left>
<right>
<!-- top to bottom -->
<connector signal='SDA' id='9' package='1X05_ROUND_FULL_76' element='JP1' name='4' type='pad'/>
<connector signal='SCL' id='8' package='1X05_ROUND_FULL_76' element='JP1' name='3' type='pad'/>
</right>
<mnt>
<connector signal='' id='17' package='MOUNTINGHOLE_2.5_PLATED' element='U$2' name='P$1' type='pad'/>
<connector signal='' id='18' package='MOUNTINGHOLE_2.5_PLATED' element='U$3' name='P$1' type='pad'/>
</mnt>
<unused>
<connector signal='GND' id='0' package='0805-NO' element='C1' name='1' type='smd'/>
<connector signal='N$5' id='1' package='0805-NO' element='C1' name='2' type='smd'/>
<connector signal='VIN' id='2' package='0805-NO' element='C2' name='1' type='smd'/>
<connector signal='GND' id='3' package='0805-NO' element='C2' name='2' type='smd'/>
<connector signal='' id='4' package='FIDUCIAL_1MM' element='FID1' name='1' type='smd'/>
<connector signal='' id='5' package='FIDUCIAL_1MM' element='FID2' name='1' type='smd'/>
<connector signal='SDA' id='11' package='0805-NO' element='R1' name='1' type='smd'/>
<connector signal='VIN' id='12' package='0805-NO' element='R1' name='2' type='smd'/>
<connector signal='SCL' id='13' package='0805-NO' element='R2' name='1' type='smd'/>
<connector signal='VIN' id='14' package='0805-NO' element='R2' name='2' type='smd'/>
<connector signal='OUT+' id='15' package='TESTPOINT_PAD_2MM' element='TP1' name='P$1' type='smd'/>
<connector signal='OUT-' id='16' package='TESTPOINT_PAD_2MM' element='TP2' name='P$1' type='smd'/>
<connector signal='N$5' id='19' package='PSOP10' element='U1' name='1' type='smd'/>
<connector signal='SCL' id='20' package='PSOP10' element='U1' name='2' type='smd'/>
<connector signal='SDA' id='21' package='PSOP10' element='U1' name='3' type='smd'/>
<connector signal='IN/TRIG' id='22' package='PSOP10' element='U1' name='4' type='smd'/>
<connector signal='VIN' id='23' package='PSOP10' element='U1' name='5' type='smd'/>
<connector signal='VIN' id='24' package='PSOP10' element='U1' name='6' type='smd'/>
<connector signal='OUT+' id='25' package='PSOP10' element='U1' name='7' type='smd'/>
Raw:T-----XEmacs: DRV2605L.params      (Fundamental PenDel)----L77--41%-----------------------------------
```

Cut these lines and place them in the group above, in the <left> xml group, that will put the pins on the left side.

Now is also a good time to rearrange the pin orders if you want them to appear in the schematic in a certain location or order

If you have multiple connectors with the same signal (e.g. GND) then the one with the LOWEST id='nn' number is the one that will appear

Rerun the tool to regen the schematic



You *can* hand edit the schematic and move around pins, but you'll need to reassign the pins later, just keep eveything on a 0.1" boundary to keep with convention. Since Fritzing isn't known as a hardcore schematic capture program we don't spend a ton of time on it.

You can edit the name/labels of the pins easily. Just make a backup because you'll rerun the tool to get breadboard view right, which will overwrite your changes! We find it a lot easier to update the signal names directly in EagleCAD, that way you aren't editing signal names in multiple SVGs

Once you have your Schematic SVG in a good spot its a great idea to make a backup. Rerunning the brd2svg tool will OVERWRITE the file! Ideally you would not have to do any edits to the Schematic file once params is set

Check and Customize Breadboard View

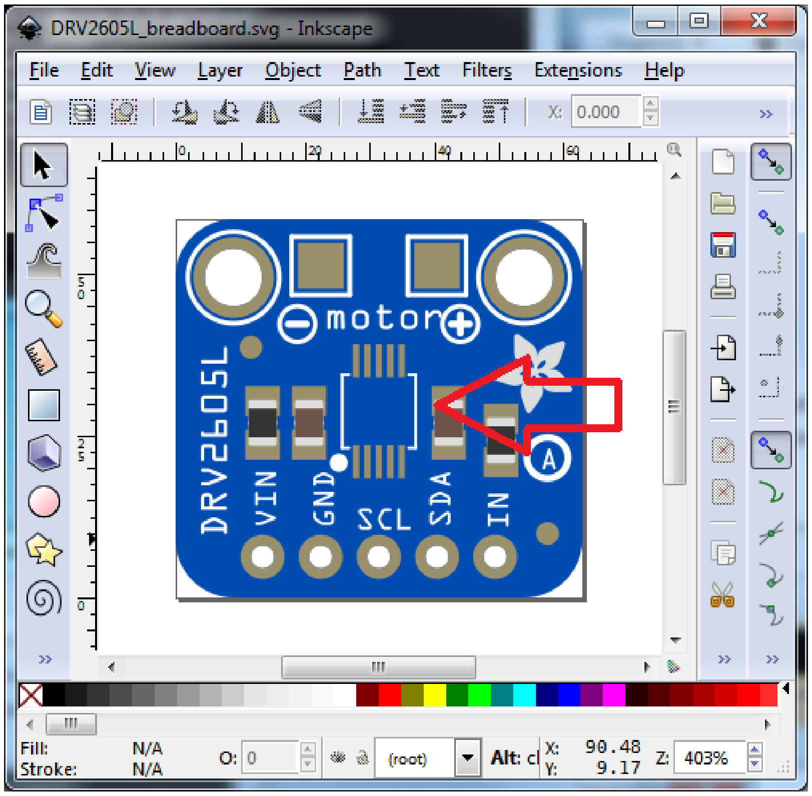
Now you are ready for the real fun - creating the breadboard view!

Open up the SVG in **FritzingTest\parts\svg\contrib\breadboard**

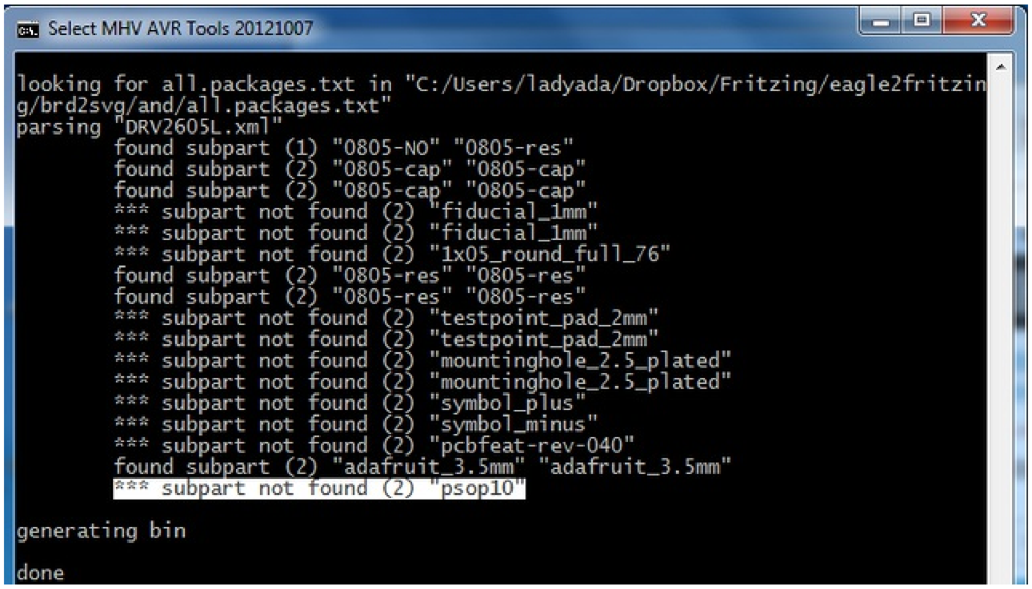
There's a large number of Things That Can Go Wrong. We'll cover as much as we can but you may have to do some of your own experimentation. You'll almost certainly need to do cleanup, but it wont be *too* bad!

Missing Subparts

First thing you'll possibly deal with is missing sub-parts:

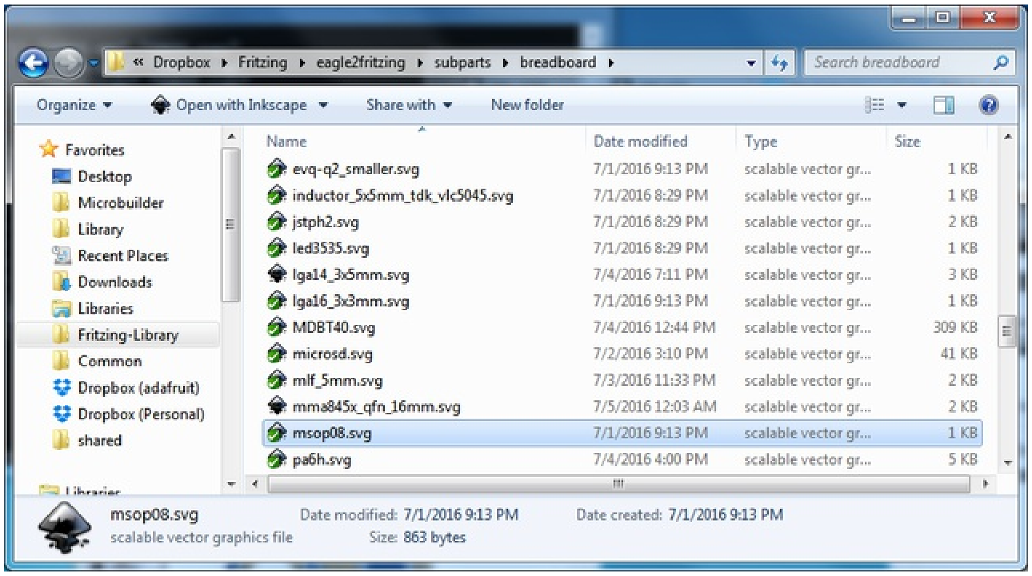

DRV2605L_breadboard.svg - Inkscape
File Edit View Layer Object Path Text Filters Extensions Help
X: 0.000
motor
DRV2605L
VIN
GND
SCL
SDA
IN
A
Fill: N/A
Stroke: N/A
O: 0
(root)
X: 90.48
Y: 9.17
Z: 403%

You can look at the output of **brd2svg** to see which parts were found and which were not



```
Select MHV AVR Tools 20121007

looking for all.packages.txt in "C:/Users/ladyada/Dropbox/Fritzing/eagle2fritzin
g/brd2svg/and/all.packages.txt"
parsing "DRV2605L.xml"
        found subpart (1) "0805-NO" "0805-res"
        found subpart (2) "0805-cap" "0805-cap"
        found subpart (2) "0805-cap" "0805-cap"
        *** subpart not found (2) "fiducial_1mm"
        *** subpart not found (2) "fiducial_1mm"
        *** subpart not found (2) "1x05_round_full_76"
        found subpart (2) "0805-res" "0805-res"
        found subpart (2) "0805-res" "0805-res"
        *** subpart not found (2) "testpoint_pad_2mm"
        *** subpart not found (2) "testpoint_pad_2mm"
        *** subpart not found (2) "mountinghole_2.5_plated"
        *** subpart not found (2) "mountinghole_2.5_plated"
        *** subpart not found (2) "symbol_plus"
        *** subpart not found (2) "symbol_minus"
        *** subpart not found (2) "pcbfeat-rev-040"
        found subpart (2) "adafruit_3.5mm" "adafruit_3.5mm"
        *** subpart not found (2) "psop10"

generating bin

done
```

In this case, **psop10** is the package that was not found. All the sub-components for your design are stored in **eagle2fritzing\subparts**



Name	Date modified	Type	Size
evq-q2_smaller.svg	7/1/2016 9:13 PM	scalable vector gr...	1 KB
inductor_5x5mm_tdk_vlc5045.svg	7/1/2016 8:29 PM	scalable vector gr...	1 KB
jstph2.svg	7/1/2016 8:29 PM	scalable vector gr...	2 KB
led3535.svg	7/1/2016 8:29 PM	scalable vector gr...	1 KB
lga14_3x5mm.svg	7/4/2016 7:11 PM	scalable vector gr...	3 KB
lga16_3x3mm.svg	7/1/2016 9:13 PM	scalable vector gr...	1 KB
MDBT40.svg	7/4/2016 12:44 PM	scalable vector gr...	309 KB
microsd.svg	7/2/2016 3:10 PM	scalable vector gr...	41 KB
mlf_5mm.svg	7/3/2016 11:33 PM	scalable vector gr...	2 KB
mma845x_qfn_16mm.svg	7/5/2016 12:03 AM	scalable vector gr...	2 KB
msop08.svg	7/1/2016 9:13 PM	scalable vector gr...	1 KB
pa6h.svg	7/4/2016 4:00 PM	scalable vector gr...	5 KB

msop08.svg Date modified: 7/1/2016 9:13 PM Date created: 7/1/2016 9:13 PM
scalable vector graphics file Size: 863 bytes

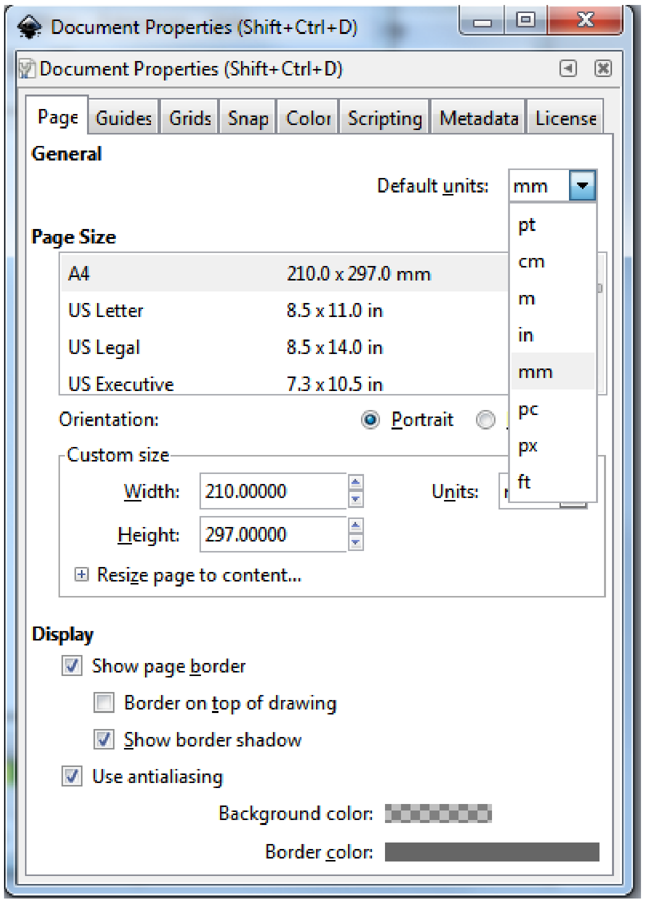
Not surprisingly, they are *also* all SVG! You can see in this example that we have an msop08 which is similar to a psop10 but not quite.

Lets create a new part. You can adjust an old part or start from scratch in Inkscape

You can sometimes recycle subparts from other drawn Fritzing objects, check your Fritzing/parts/svg/core/breadboard (in the install folder) for core items that may have SVGs you can split apart for chips, capacitors, connectors and more!

Create a new SubPart with Inkscape

Start by opening up the Document settings (Ctrl-Shift-D) and setting the default units to mm (or inches on the off chance you have an inches-based part)


Document Properties (Shift+Ctrl+D)

Page | Guides | Grids | Snap | Color | Scripting | Metadata | License

General

Default units: mm

Page Size

A4	210.0 x 297.0 mm
US Letter	8.5 x 11.0 in
US Legal	8.5 x 14.0 in
US Executive	7.3 x 10.5 in

Orientation: Portrait

Custom size

Width: 210.00000

Height: 297.00000

Units:

Resize page to content...

Display

☑ Show page border

☐ Border on top of drawing

☑ Show border shadow

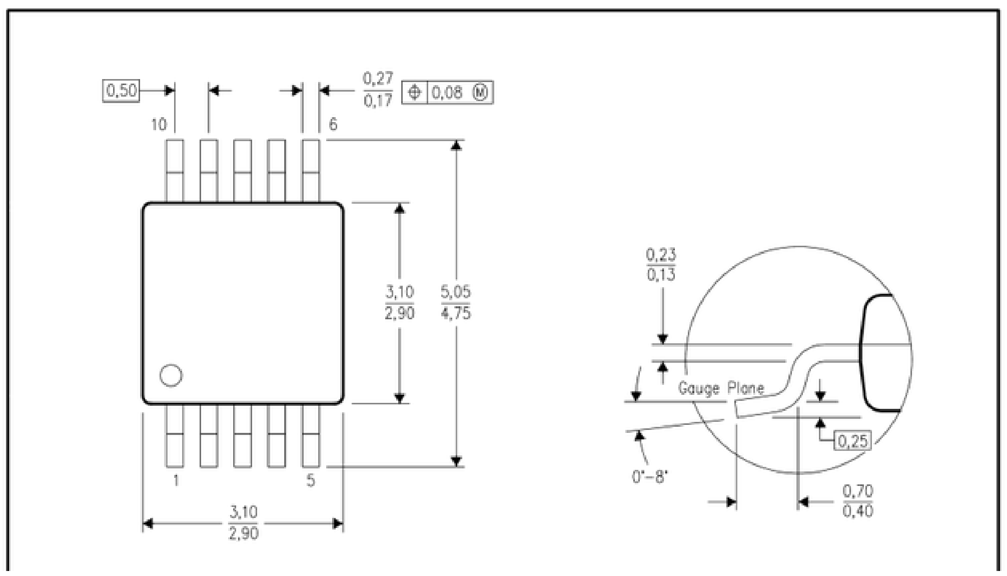
☑ Use antialiasing

Background color:

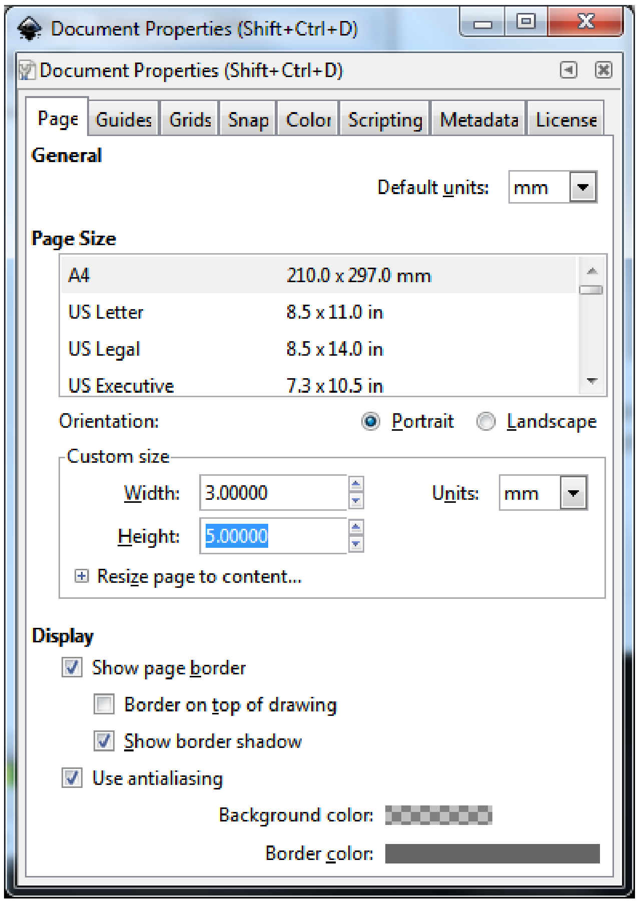
Border color:

Check the datasheet for a diagram, which is handy even if you can't directly use it since it has all the measurements.

DGS (S–PDSO–G10) PLASTIC SMALL–OUTLINE PACKAGE



In this case we see the body is 3mm wide by about 5mm tall, set the size of the document to that size!



Document Properties (Shift+Ctrl+D)

Page | Guides | Grids | Snap | Color | Scripting | Metadata | License

General

Default units: mm

Page Size

A4	210.0 x 297.0 mm
US Letter	8.5 x 11.0 in
US Legal	8.5 x 14.0 in
US Executive	7.3 x 10.5 in

Orientation: [✓ Portrait] Landscape

Custom size

Width: 3.00000 Units: mm

Height: 5.00000

Resize page to content...

Display

☑ Show page border

☐ Border on top of drawing

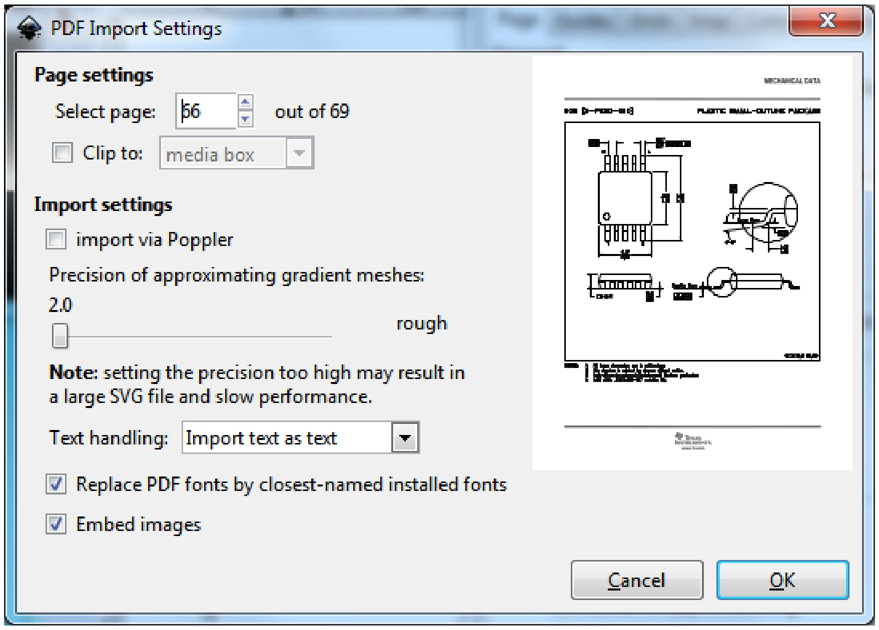
☑ Show border shadow

☑ Use antialiasing

Background color:

Border color:

You can also open up the datasheet in Inkscape (forward it to the right page) and see if you can extract the diagram. This usually doesnt quite work but it can sometimes help to trace out the part



PDF Import Settings

Page settings

Select page: 66 out of 69

☐ Clip to: media box

Import settings

☐ import via Poppler

Precision of approximating gradient meshes:

2.0 rough

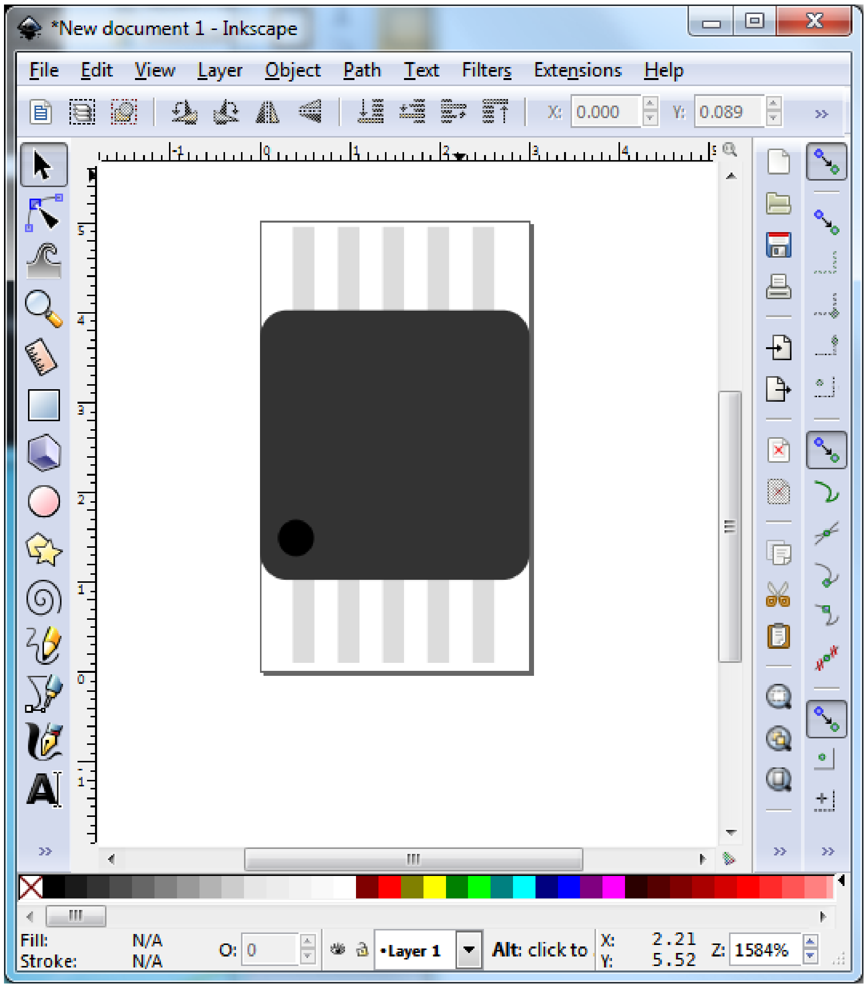
Note: setting the precision too high may result in a large SVG file and slow performance.

Text handling: Import text as text

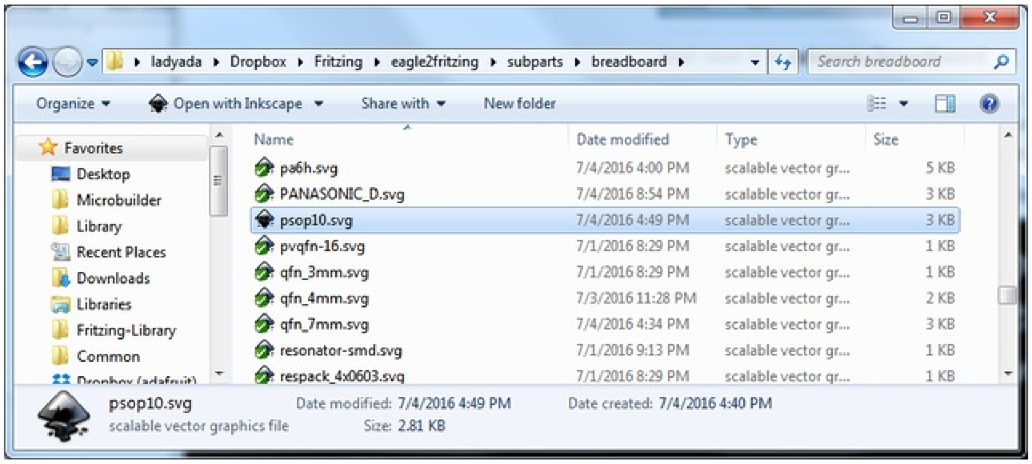
☑ Replace PDF fonts by closest-named installed fonts

☑ Embed images

Anyways, do what you need to in order to draw the part in perfect scale!


*New document 1 - Inkscape
File Edit View Layer Object Path Text Filters Extensions Help
X: 0.000 Y: 0.089
Fill: N/A
Stroke: N/A
O: 0
•Layer 1
Alt: click to
X: 2.21
Y: 5.52
Z: 1584%

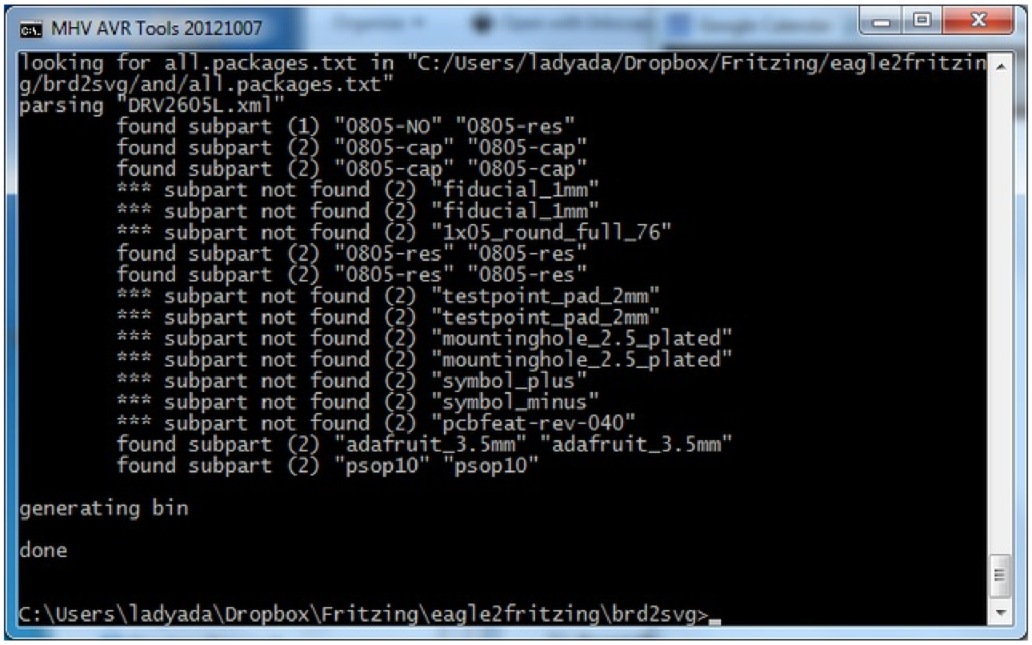
And save it in **subparts/breadboard**


ladyada ▸ Dropbox ▸ Fritzing ▸ eagle2fritzing ▸ subparts ▸ breadboard ▸
Search breadboard
Organize ▾ Open with Inkscape ▾ Share with ▾ New folder
Favorites
Desktop
Microbuilder
Library
Recent Places
Downloads
Libraries
Fritzing-Library
Common
Dropbox (adafruit)

Name	Date modified	Type	Size
pa6h.svg	7/4/2016 4:00 PM	scalable vector gr...	5 KB
PANASONIC_D.svg	7/4/2016 8:54 PM	scalable vector gr...	3 KB
psop10.svg	7/4/2016 4:49 PM	scalable vector gr...	3 KB
pvqfn-16.svg	7/1/2016 8:29 PM	scalable vector gr...	1 KB
qfn_3mm.svg	7/1/2016 8:29 PM	scalable vector gr...	1 KB
qfn_4mm.svg	7/3/2016 11:28 PM	scalable vector gr...	2 KB
qfn_7mm.svg	7/4/2016 4:34 PM	scalable vector gr...	3 KB
resonator-smd.svg	7/1/2016 9:13 PM	scalable vector gr...	1 KB
respack_4x0603.svg	7/1/2016 8:29 PM	scalable vector gr...	1 KB

psop10.svg Date modified: 7/4/2016 4:49 PM Date created: 7/4/2016 4:40 PM
scalable vector graphics file Size: 2.81 KB

Rerun the tool, it will have found that part (if not check spelling and that you put it in the right location!)



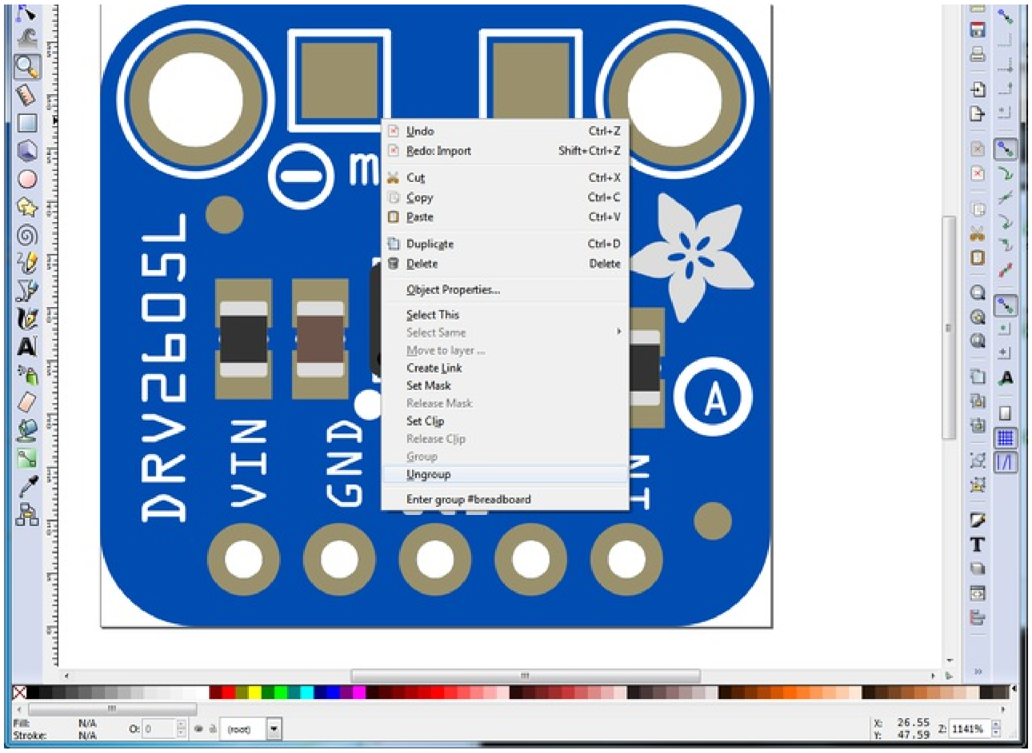
```
looking for all.packages.txt in "C:/Users/ladyada/Dropbox/Fritzing/eagle2fritzin
g/brd2svg/and/all.packages.txt"
parsing "DRV2605L.xml"
        found subpart (1) "0805-NO" "0805-res"
        found subpart (2) "0805-cap" "0805-cap"
        found subpart (2) "0805-cap" "0805-cap"
        *** subpart not found (2) "fiducial_1mm"
        *** subpart not found (2) "fiducial_1mm"
        *** subpart not found (2) "1x05_round_full_76"
        found subpart (2) "0805-res" "0805-res"
        found subpart (2) "0805-res" "0805-res"
        *** subpart not found (2) "testpoint_pad_2mm"
        *** subpart not found (2) "testpoint_pad_2mm"
        *** subpart not found (2) "mountinghole_2.5_plated"
        *** subpart not found (2) "mountinghole_2.5_plated"
        *** subpart not found (2) "symbol_plus"
        *** subpart not found (2) "symbol_minus"
        *** subpart not found (2) "pcbfeat-rev-040"
        found subpart (2) "adafruit_3.5mm" "adafruit_3.5mm"
        found subpart (2) "psop10" "psop10"

generating bin

done

C:\Users\ladyada\Dropbox\Fritzing\eagle2fritzing\brd2svg>
```

Moving Subparts

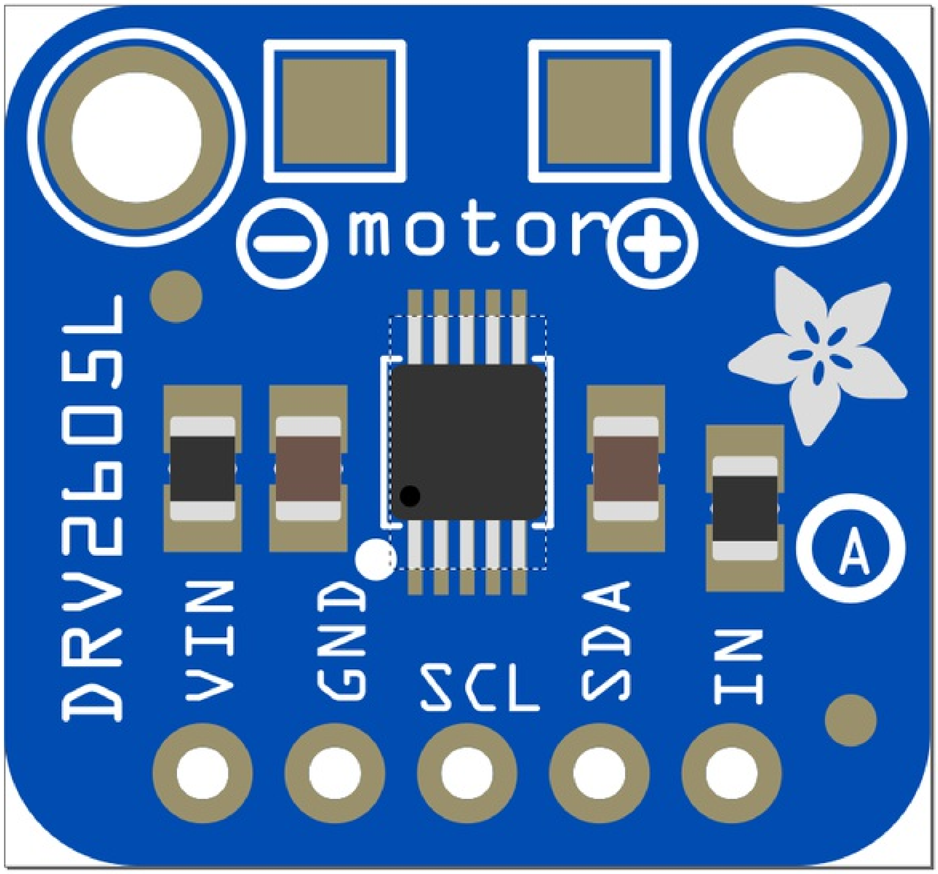
Often times the exact center isn't lined up. However it's very easy to fix.

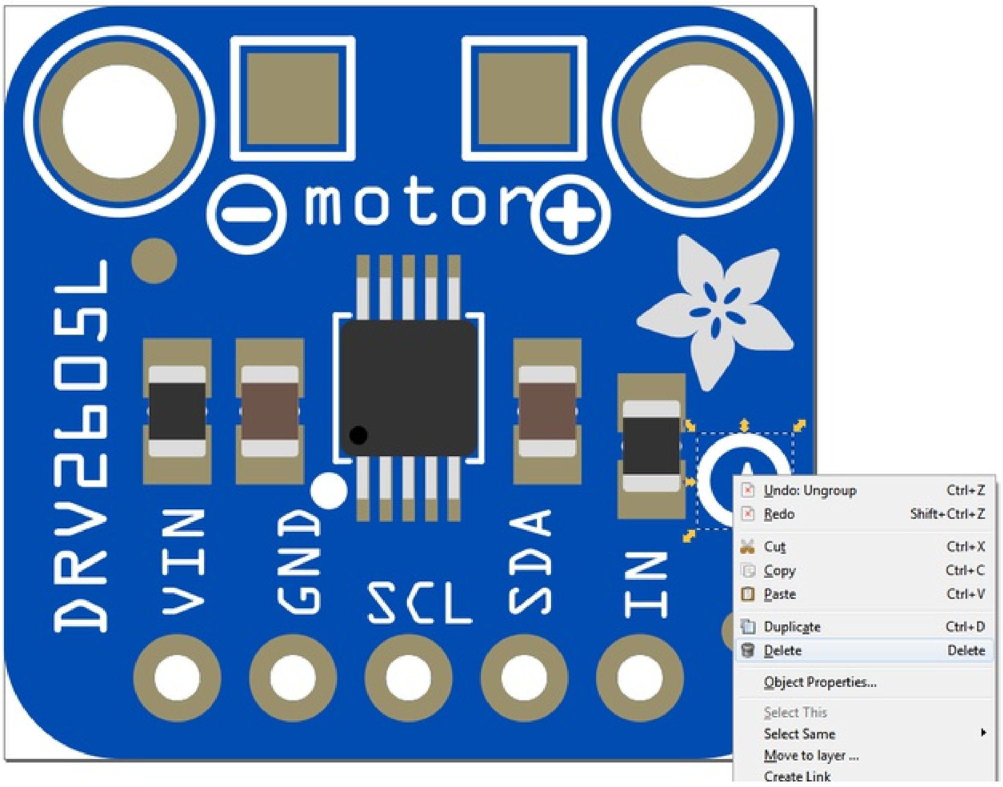
Do this after all subparts are found or alias'd since rerunning the tool will overwrite your breadboard.svg!

Ungroup the object



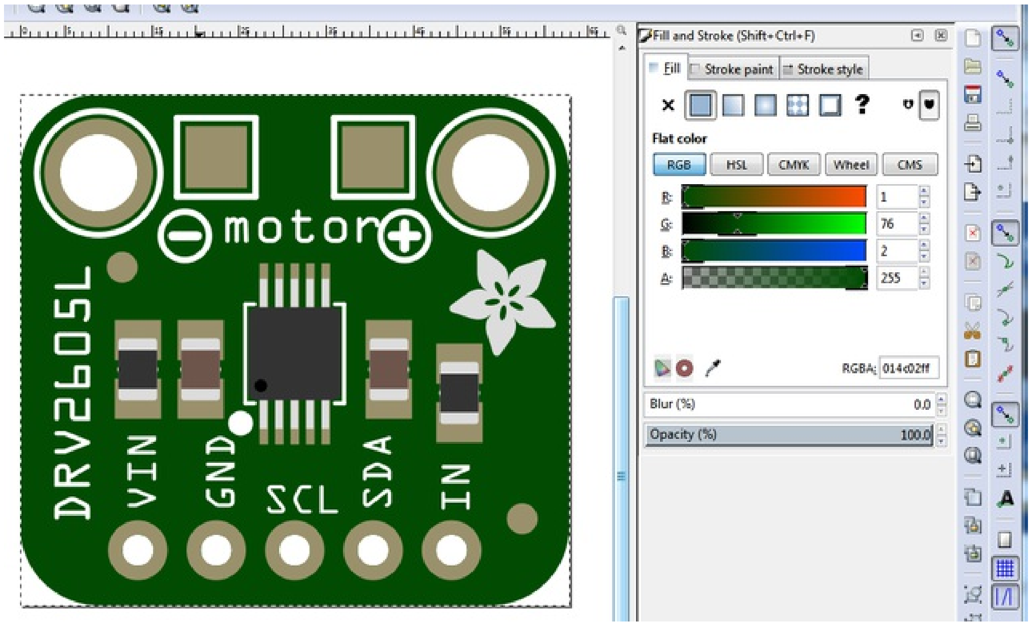
And move or remove anything you want


motor
DRV2605L
VIN
GND
SCL
SDA
IN
A


motor
DRV2605L
VIN
GND
SCL
SDA
IN
Undo: Ungroup Ctrl+Z
Redo Shift+Ctrl+Z
Cut Ctrl+X
Copy Ctrl+C
Paste Ctrl+V
Duplicate Ctrl+D
Delete Delete
Object Properties...
Select This
Select Same
Move to layer ...
Create Link

PCB Color

This is an easy one, but don't forget to change your PCB main polygon to the color you want



R: 1
G: 76
B: 2
A: 255
RGBA: 014c02ff
Blur (%) 0.0
Opacity (%) 100.0

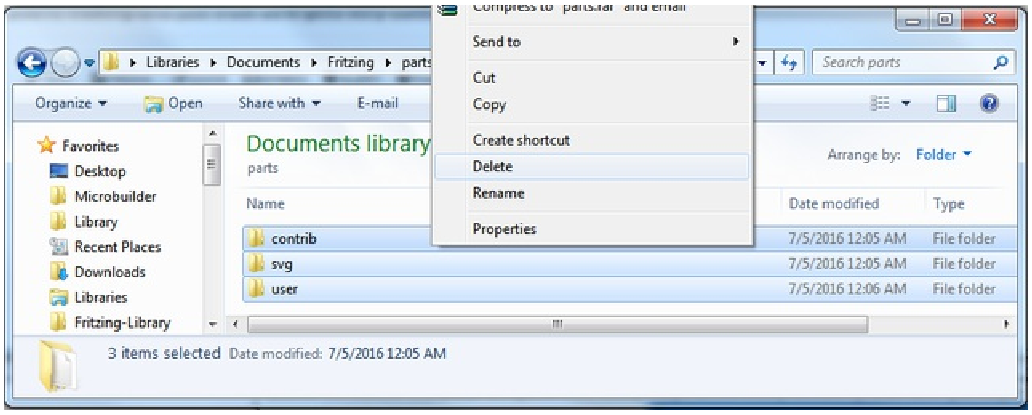
Save a backup once you have made your breadboard image the way you like! Rerunning the tool will regenerate the file and you'll lose all changes

Edit and Fix Fritzing File

OK you are so close to done! Next up we will use the Fritzing Part Editor to really clean it up and fix everything.

In your **Documents/Fritzing/parts** folder is where the Fritzing App stores all your custom parts.

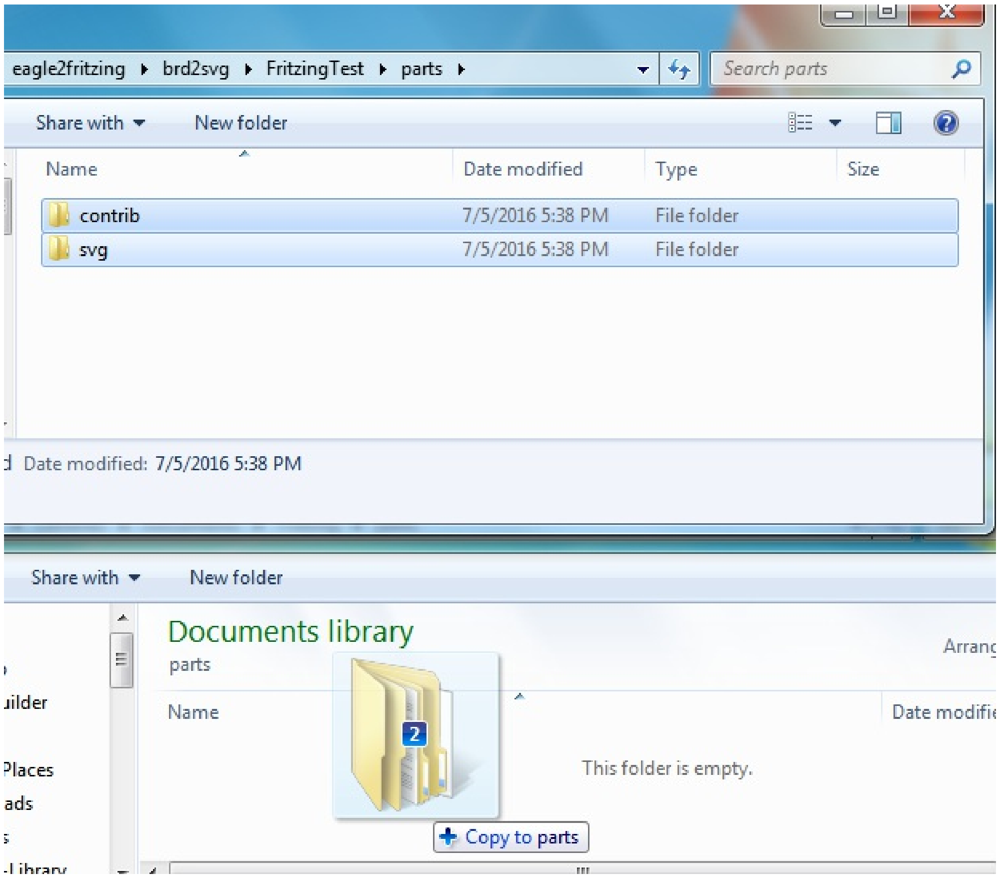
To make it easy and clean to handle revisions we suggest deleting everything in this folder (make a backup) since otherwise you may end up with multiple versions of the file you're making and just trust us it gets very confusing.



Name	Date modified	Type
contrib	7/5/2016 12:05 AM	File folder
svg	7/5/2016 12:05 AM	File folder
user	7/5/2016 12:06 AM	File folder

3 items selected Date modified: 7/5/2016 12:05 AM

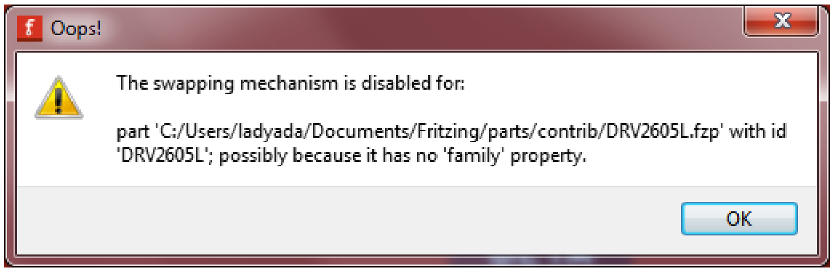
Copy over the **contrib** and **svg** folders from **eagle2fritzing/brd2svg/FritzingTest/parts** into your **Documents/Fritzing/parts** folder



Name	Date modified	Type	Size
contrib	7/5/2016 5:38 PM	File folder	
svg	7/5/2016 5:38 PM	File folder	

Date modified: 7/5/2016 5:38 PM

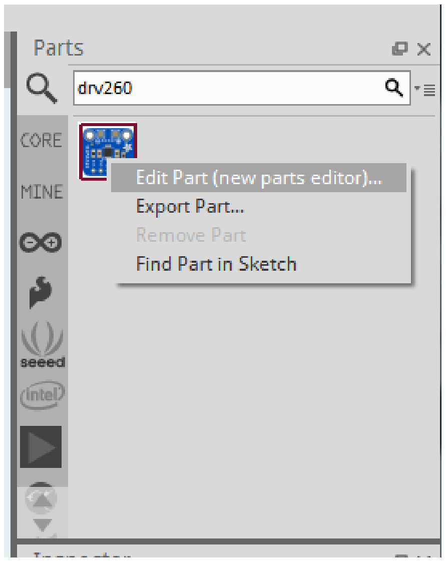
Now start up Fritzing, you'll get a complaint about swapping, just ignore it.



The swapping mechanism is disabled for:

part 'C:/Users/ladyada/Documents/Fritzing/parts/contrib/DRV2605L.fzp' with id 'DRV2605L'; possibly because it has no 'family' property.

Once open, in the **Parts** pane, search for the part and right click to edit

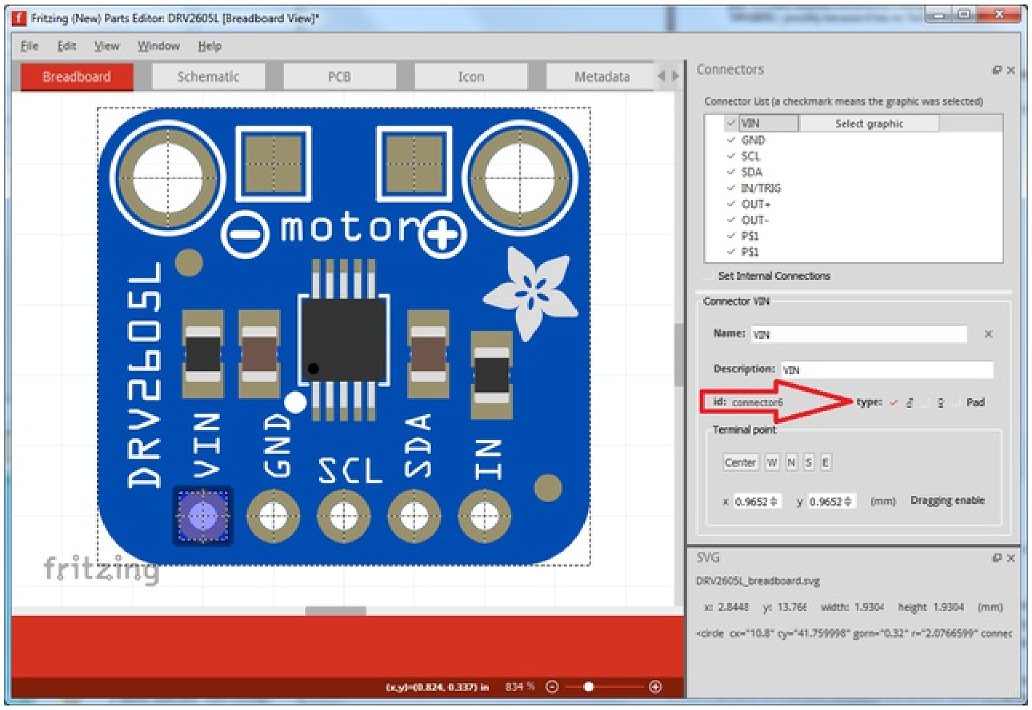


Breadboard Pin Gender

When you edit the part, the first tab is Breadboard view. It should look very familiar!

What's nice is each signal is already in the right hand pane and as you click on it you'll get information about that signal and a highlight of the SVG element that is the contact point

The contacts should all be in the right place. For breadboarding parts I prefer to set the gender of all the pins to **Male** - that way they will 'lock' into a solderless breadboard. Go through all the pads and click male for all **breadboard** pins


Fritzing (New) Parts Editor: DRV2605L [Breadboard View]*
File Edit View Window Help
Breadboard Schematic PCB Icon Metadata
DRV2605L VIN GND SCL SDA IN motor
fritzing

Connectors

Connector List (a checkmark means the graphic was selected)

✓ VIN Select graphic
✓ GND
✓ SCL
✓ SDA
✓ IN/TRIG
✓ OUT+
✓ OUT-
✓ P$1
✓ P$1

Set Internal Connections

Connector VIN

Name: VIN

Description: VIN

id: connector6 type: ✓ male female Pad

Terminal point: Center W N S E

x 0.9652 y 0.9652 (mm) Dragging enable

SVG

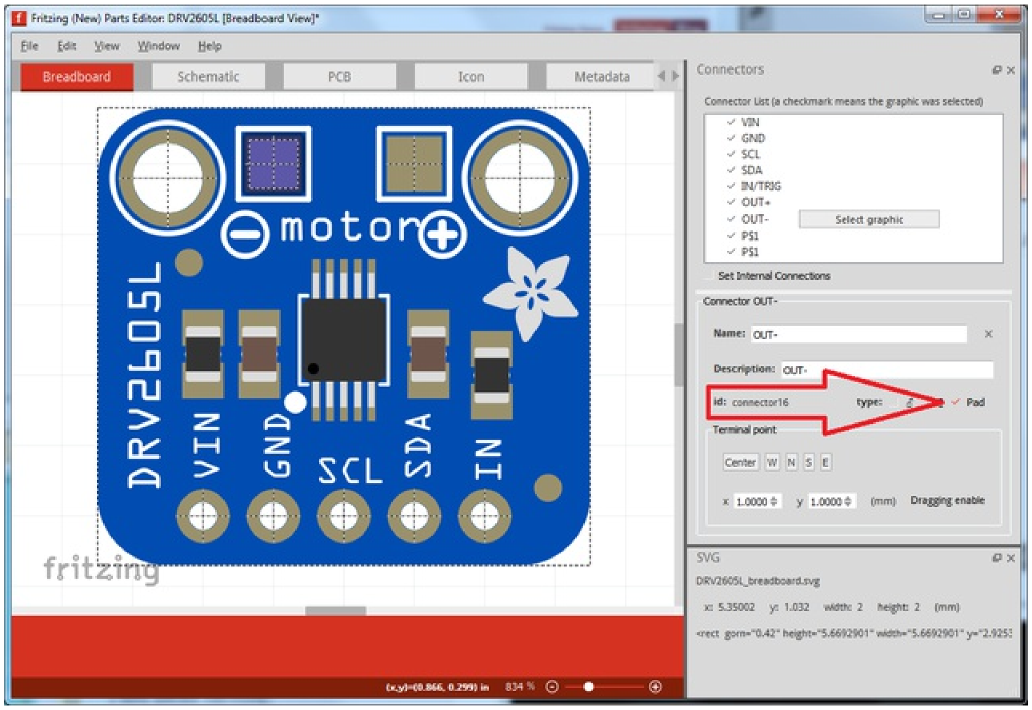
DRV2605L_breadboard.svg

x: 2.8448 y: 13.766 width: 1.9304 height 1.9304 (mm)

<circle cx="10.8" cy="41.759998" gorn="0.32" r="2.0766599" connec

(x,y)=(0.824, 0.337) in 834 %

For the two SMT pads, you can set the connection type to **Pad** so it wont lock into a breadboard


Fritzing (New) Parts Editor: DRV2605L [Breadboard View]*
File Edit View Window Help
Breadboard Schematic PCB Icon Metadata
DRV2605L VIN GND SCL SDA IN motor
fritzing

Connectors

Connector List (a checkmark means the graphic was selected)

✓ VIN
✓ GND
✓ SCL
✓ SDA
✓ IN/TRIG
✓ OUT+
✓ OUT- Select graphic
✓ P$1
✓ P$1

Set Internal Connections

Connector OUT-

Name: OUT-

Description: OUT-

id: connector16 type: male female ✓ Pad

Terminal point: Center W N S E

x 1.0000 y 1.0000 (mm) Dragging enable

SVG

DRV2605L_breadboard.svg

x: 5.35002 y: 1.032 width: 2 height: 2 (mm)

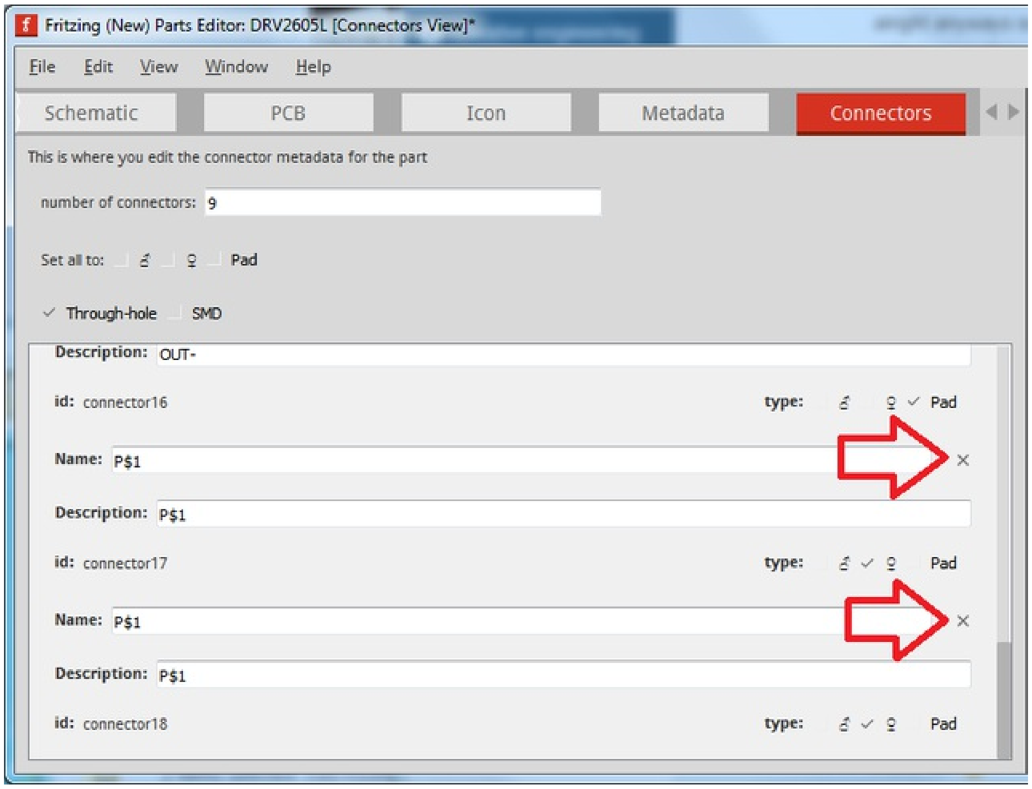
<rect gorn="0.42" height="5.6692901" width="5.6692901" y="2.925

(x,y)=(0.866, 0.299) in 834 %

There's also the extra mounting hole pads. They're not actually pads but its how we got them to appear in the breadboard view. To fix that...

Removing Extra Connections

You can remove the extra connectors from within the **Connectors** tab. Scroll to the bottom and carefully remove the correct connections!


Fritzing (New) Parts Editor: DRV2605L [Connectors View]*

File Edit View Window Help

Schematic | PCB | Icon | Metadata | Connectors

This is where you edit the connector metadata for the part

number of connectors: 9

Set all to: ♂ ♀ Pad

✓ Through-hole SMD

Description: OUT-

id: connector16 type: ♂ ♀ ✓ Pad

Name: P$1

Description: P$1

id: connector17 type: ♂ ✓ ♀ Pad

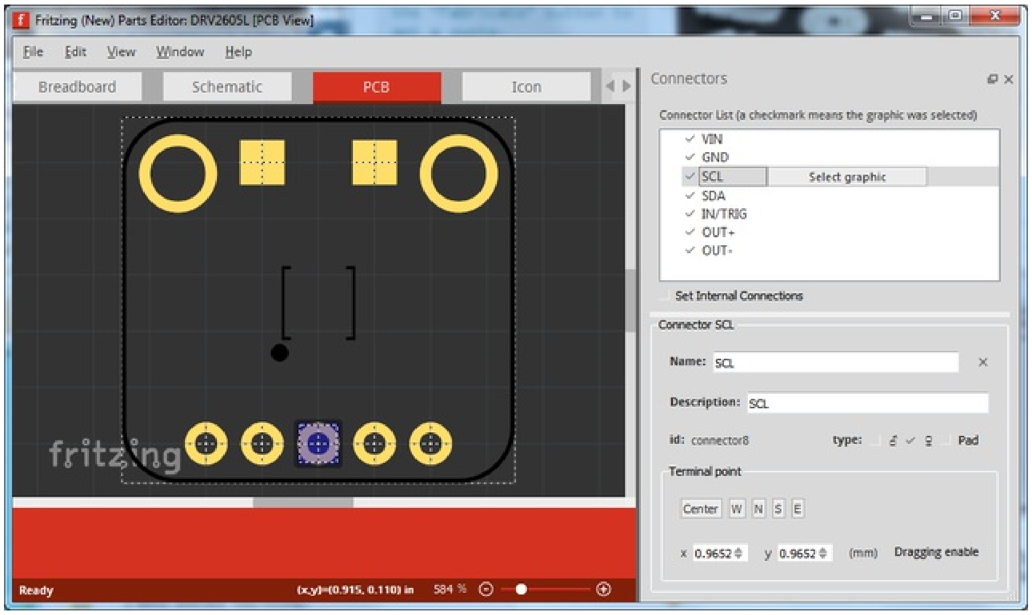
Name: P$1

Description: P$1

id: connector18 type: ♂ ✓ ♀ Pad

PCB View Review

You can now go through PCB view, check every connection and make sure they go to the right pad. If they're wrong use the **Select Graphic** button next to the connection in the Connector List to click on the SVG element that is the connection for that signal.


Fritzing (New) Parts Editor: DRV2605L [PCB View]

File Edit View Window Help

Breadboard | Schematic | PCB | Icon

Connectors

Connector List (a checkmark means the graphic was selected)

✓ VIN
✓ GND
✓ SCL Select graphic
✓ SDA
✓ IN/TRIG
✓ OUT+
✓ OUT-

Set Internal Connections

Connector SCL

Name: SCL

Description: SCL

id: connector8 type: ♂ ✓ ♀ Pad

Terminal point

Center W N S E

x 0.9652 y 0.9652 (mm) Dragging enable

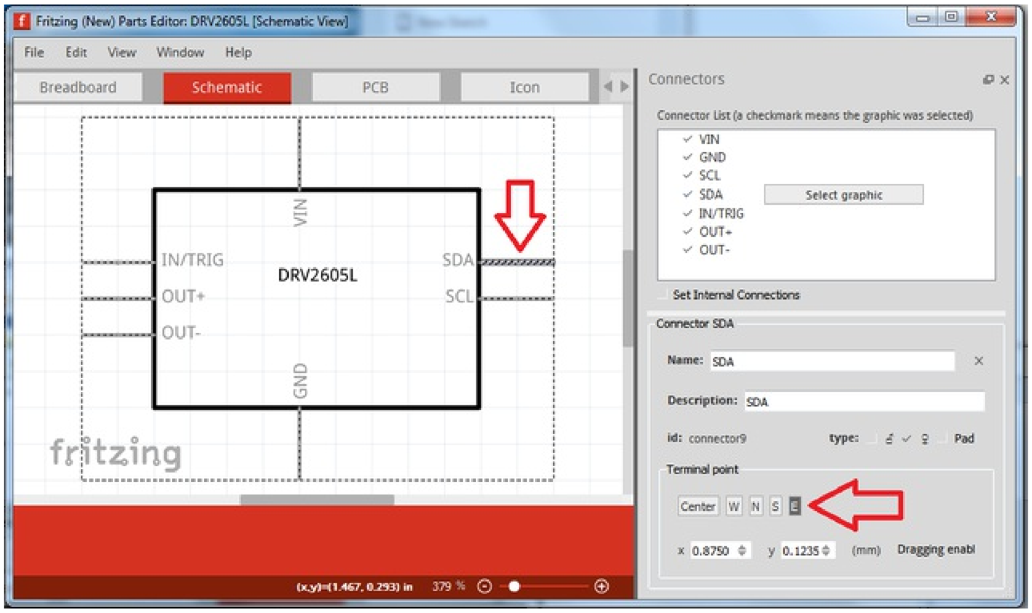
Ready (x,y)=(0.915, 0.110) in 584 %

Note that the OUT- and OUT+ end up as pads on the PCB, not sure there's a way around this in order to keep the schematic and breadboard view connections. Fritzing isn't a hardcore CAD package, tradeoffs abound!

Schematic View Review

You can also review the Schematic view. Go through each connection in the schematic and verify its correct

One thing I've noticed if you've made hand edits to the schematic SVG (and even if you haven't) it's nice to select the terminal point for each connection

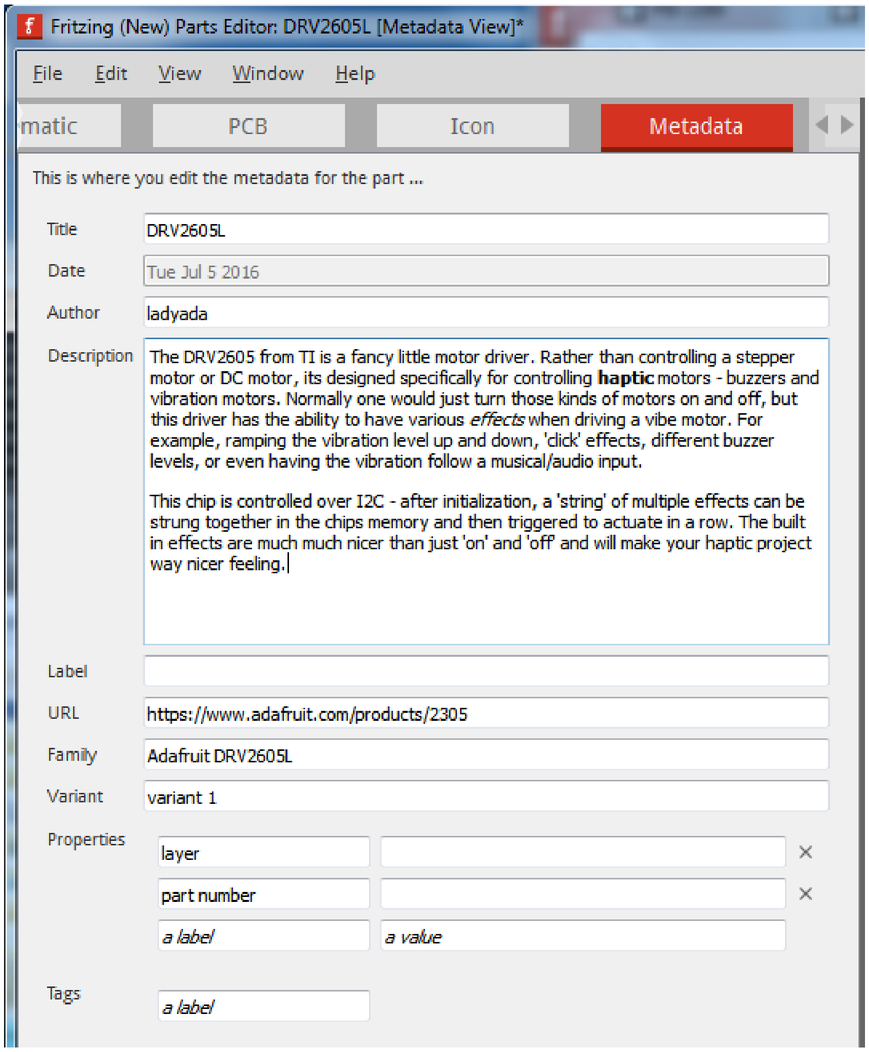

Fritzing (New) Parts Editor: DRV2605L [Schematic View]
File Edit View Window Help
Breadboard Schematic PCB Icon
VIN
IN/TRIG
OUT+
OUT-
DRV2605L
SDA
SCL
GND
fritzing
Connectors
Connector List (a checkmark means the graphic was selected)
VIN
GND
SCL
SDA
IN/TRIG
OUT+
OUT-
Select graphic
Set Internal Connections
Connector SDA
Name: SDA
Description: SDA
id: connector9
type: Pad
Terminal point
Center W N S E
x 0.8750 y 0.1235 (mm) Dragging enabl
(x,y)=(1.467, 0.293) in 379 %

- For all the connections on the **right side** use **East**
- For all the connections on the **left side** use **West**
- For all the connections on the **top side** use **North**
- For all the connections on the **bottom side** use **South**

This will make wires that connect to the terminals come out of the end of the pin for a nice look!

Metadata

Finally, put in the meta data for the part, including a description, URL, part number, etc!

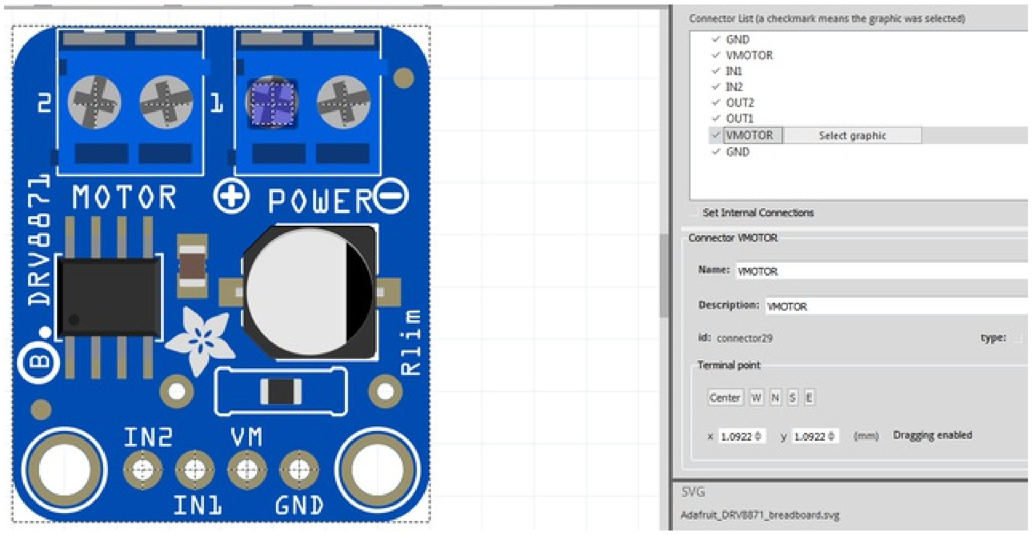

Fritzing (New) Parts Editor: DRV2605L [Metadata View]*
File Edit View Window Help
matic PCB Icon Metadata

This is where you edit the metadata for the part ...

Title	DRV2605L
Date	Tue Jul 5 2016
Author	ladyada
Description	The DRV2605 from TI is a fancy little motor driver. Rather than controlling a stepper motor or DC motor, its designed specifically for controlling **haptic** motors - buzzers and vibration motors. Normally one would just turn those kinds of motors on and off, but this driver has the ability to have various *effects* when driving a vibe motor. For example, ramping the vibration level up and down, 'click' effects, different buzzer levels, or even having the vibration follow a musical/audio input. This chip is controlled over I2C - after initialization, a 'string' of multiple effects can be strung together in the chips memory and then triggered to actuate in a row. The built in effects are much much nicer than just 'on' and 'off' and will make your haptic project way nicer feeling.
Label	
URL	https://www.adafruit.com/products/2305
Family	Adafruit DRV2605L
Variant	variant 1
Properties	layer
	part number
	a label *a value*
Tags	*a label*

Terminal Blocks

Since we use terminal blocks a lot, this will come up from time to time. After adding the terminal block to the param file so they show up as a connection, you'll get them in the breadboard view but the connection point is the screw on top



Connector List (a checkmark means the graphic was selected)

- ✓ GND
- ✓ VMOTOR
- ✓ IN1
- ✓ IN2
- ✓ OUT2
- ✓ OUT1
- ✓ VMOTOR Select graphic
- ✓ GND

Set Internal Connections

Connector VMOTOR

Name: VMOTOR

Description: VMOTOR

id: connector29 type:

Terminal point

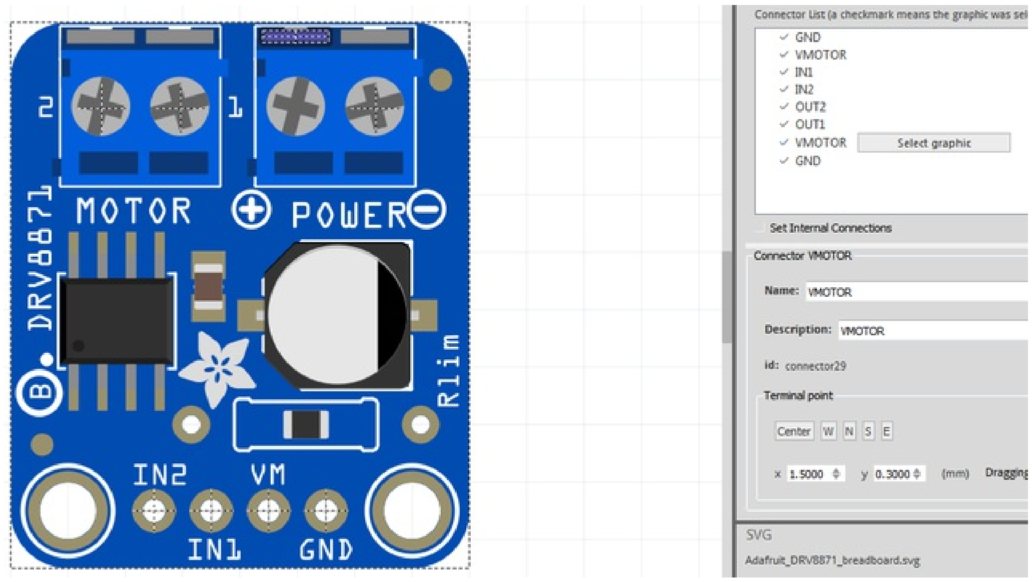
Center W N S E

x 1.0922 y 1.0922 (mm) Dragging enabled

SVG

Adafruit_DRV8871_breadboard.svg

Use the **Select graphic** button to select the output port of the terminal block instead:



Connector List (a checkmark means the graphic was sel

- ✓ GND
- ✓ VMOTOR
- ✓ IN1
- ✓ IN2
- ✓ OUT2
- ✓ OUT1
- ✓ VMOTOR Select graphic
- ✓ GND

Set Internal Connections

Connector VMOTOR

Name: VMOTOR

Description: VMOTOR

id: connector29

Terminal point

Center W N S E

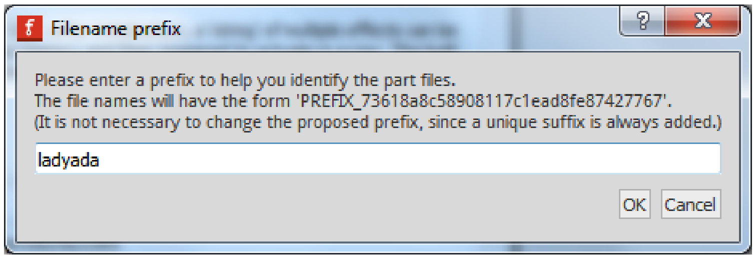
x 1.5000 y 0.3000 (mm) Dragging

SVG

Adafruit_DRV8871_breadboard.svg

Test, Export, and Re-Edit Part

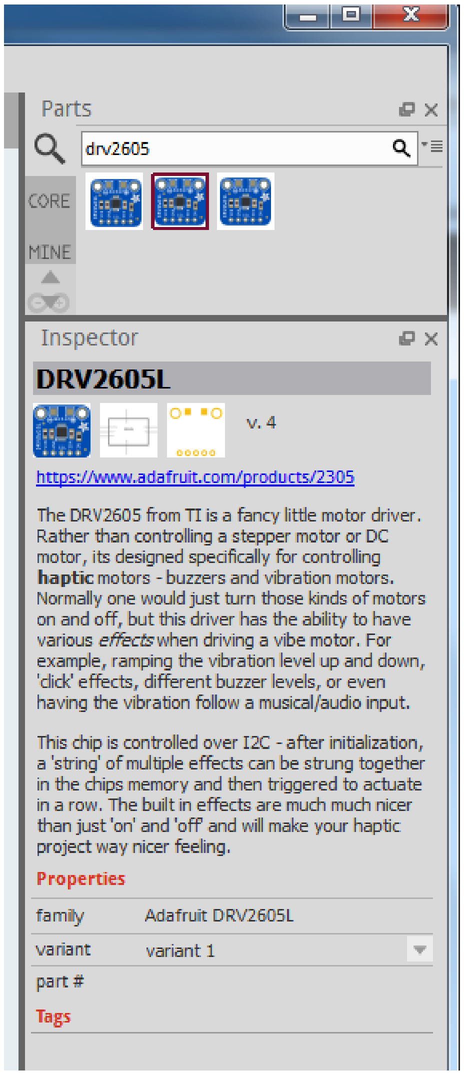
Finally, save your part and give it a prefix for parts that you've made (you can use anything to help you identify it)



Please enter a prefix to help you identify the part files.
The file names will have the form 'PREFIX_73618a8c58908117c1ead8fe87427767'.
(It is not necessary to change the proposed prefix, since a unique suffix is always added.)

ladyada

Close the parts editor and in the **parts** tab *do another search* to find your part again, you may have multiple versions so locate the final part you worked on



DRV2605L

v. 4

https://www.adafruit.com/products/2305

The DRV2605 from TI is a fancy little motor driver. Rather than controlling a stepper motor or DC motor, its designed specifically for controlling **haptic** motors - buzzers and vibration motors. Normally one would just turn those kinds of motors on and off, but this driver has the ability to have various *effects* when driving a vibe motor. For example, ramping the vibration level up and down, 'click' effects, different buzzer levels, or even having the vibration follow a musical/audio input.

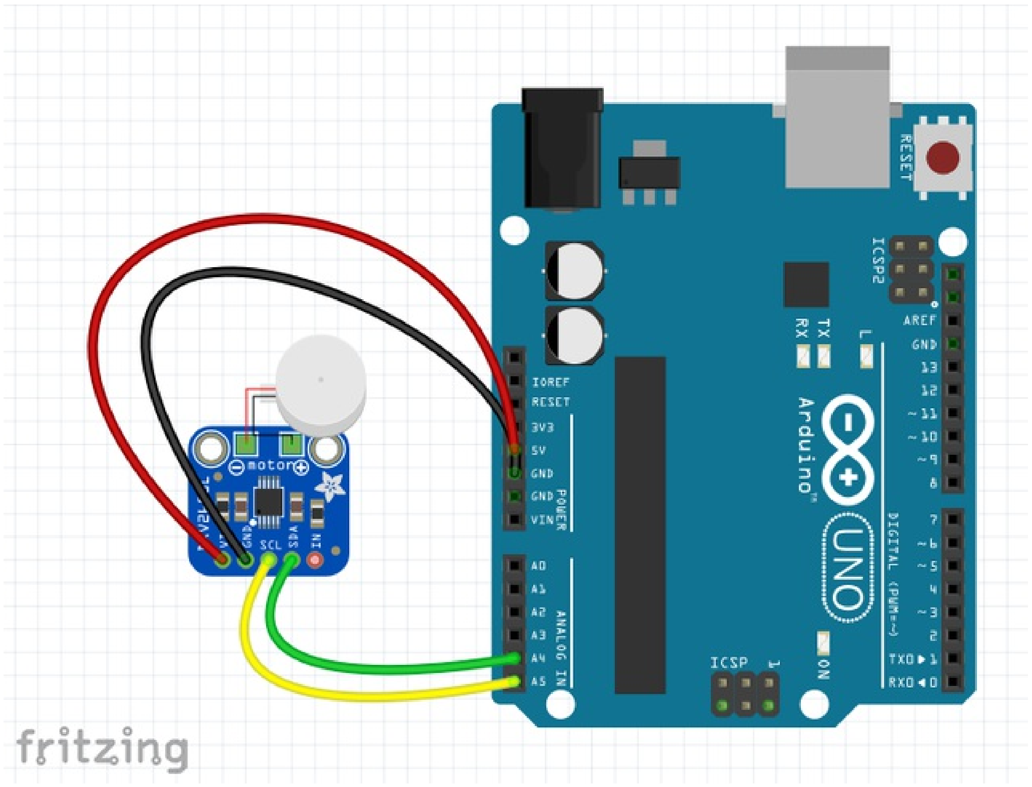
This chip is controlled over I2C - after initialization, a 'string' of multiple effects can be strung together in the chips memory and then triggered to actuate in a row. The built in effects are much much nicer than just 'on' and 'off' and will make your haptic project way nicer feeling.

Properties

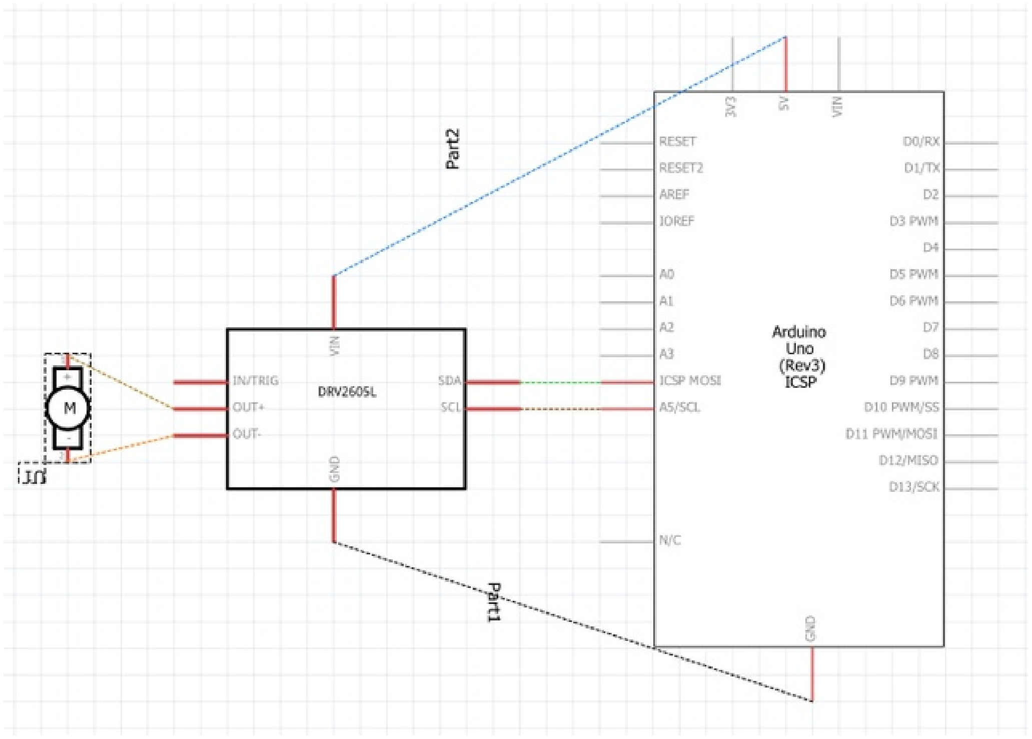
family	Adafruit DRV2605L
variant	variant 1
part #	

Tags

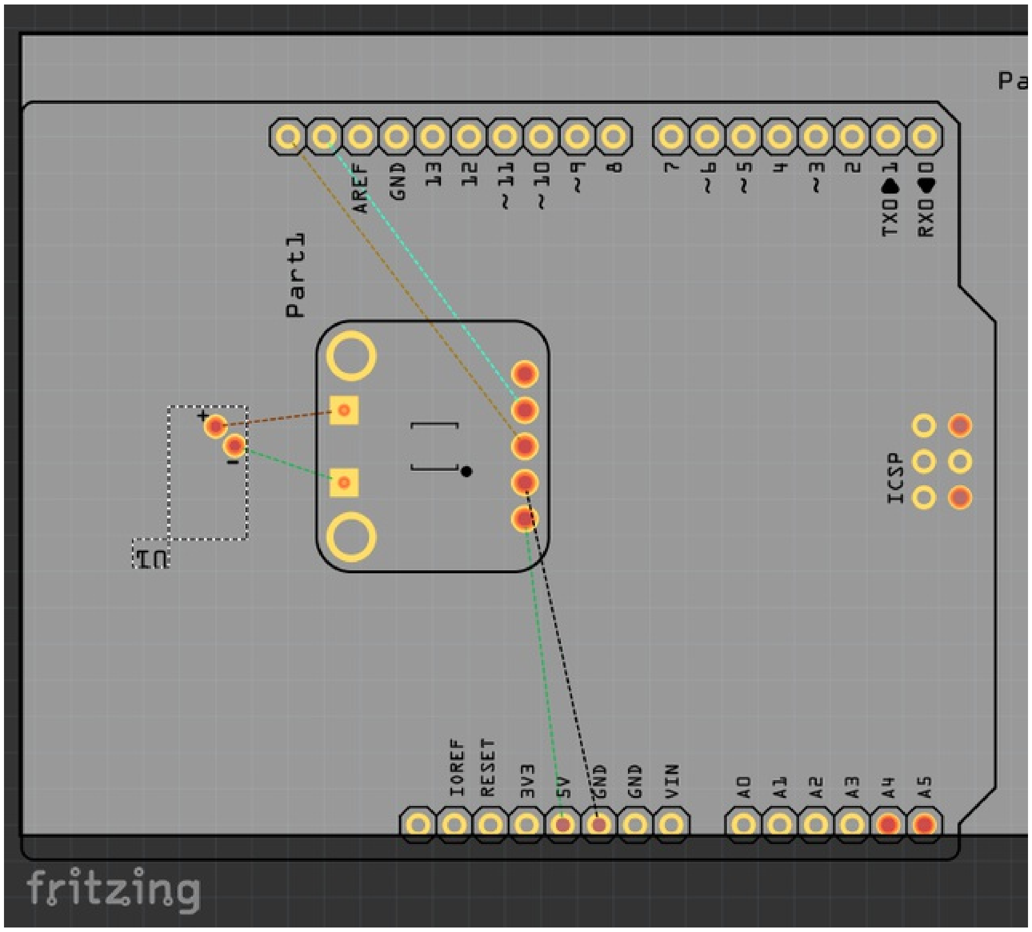
You can now try out your part, try connecting it to various other devices to make a circuit that uses all the pads



Be sure to also check out the schematic view (looks like the UNO has a weird icsp mistake but the DRV2605L is right!)



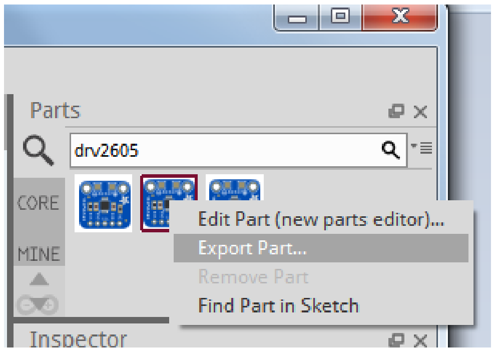
and the PCB view



You can still continue to edit the part, and do *most* anything that doesnt require editing a raw svg

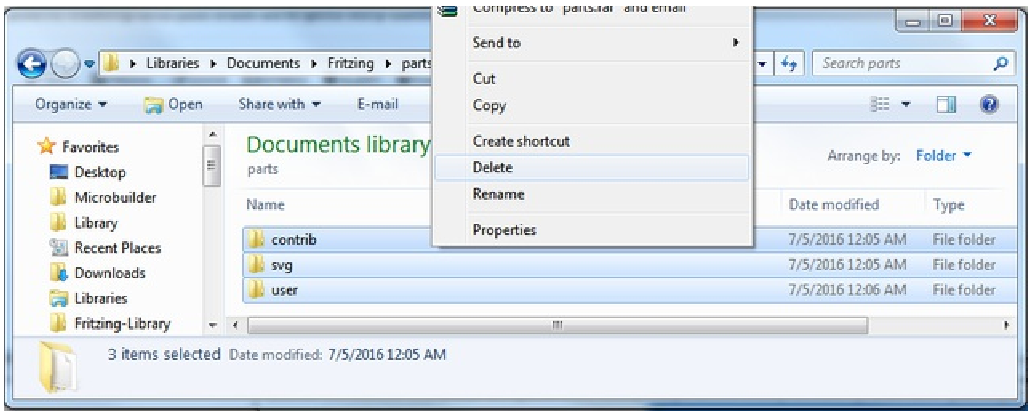
Export Fritzing Part

Right click to export it

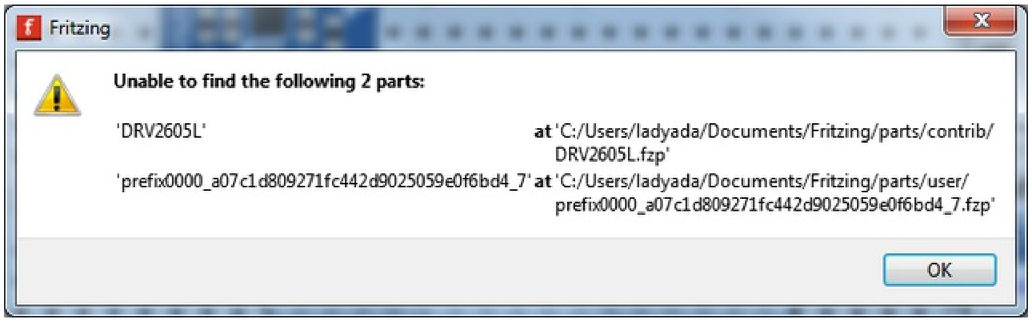


Save it somewhere safe!

Now quit Fritzing and re-delete all the subfolders in your **Documents/Fritzing/parts** folder again



Now that you've cleared out all your partial edits, you can relaunch Fritzing. You'll get complaints that files are missing, that's OK! Just ignore them



Fritzing

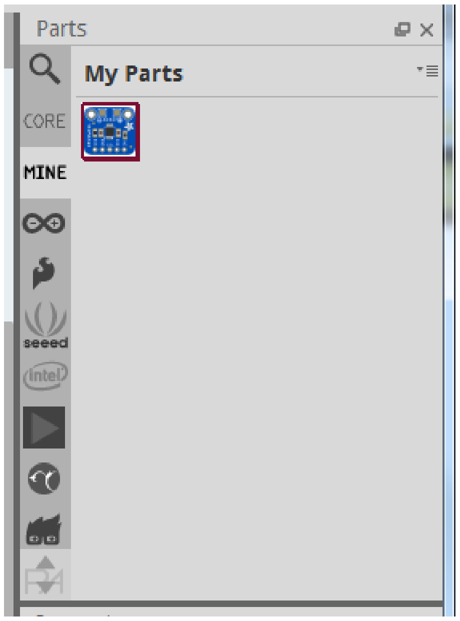
Unable to find the following 2 parts:

'DRV2605L' **at** 'C:/Users/ladyada/Documents/Fritzing/parts/contrib/DRV2605L.fzp'

'prefix0000_a07c1d809271fc442d9025059e0f6bd4_7' **at** 'C:/Users/ladyada/Documents/Fritzing/parts/user/prefix0000_a07c1d809271fc442d9025059e0f6bd4_7.fzp'

OK

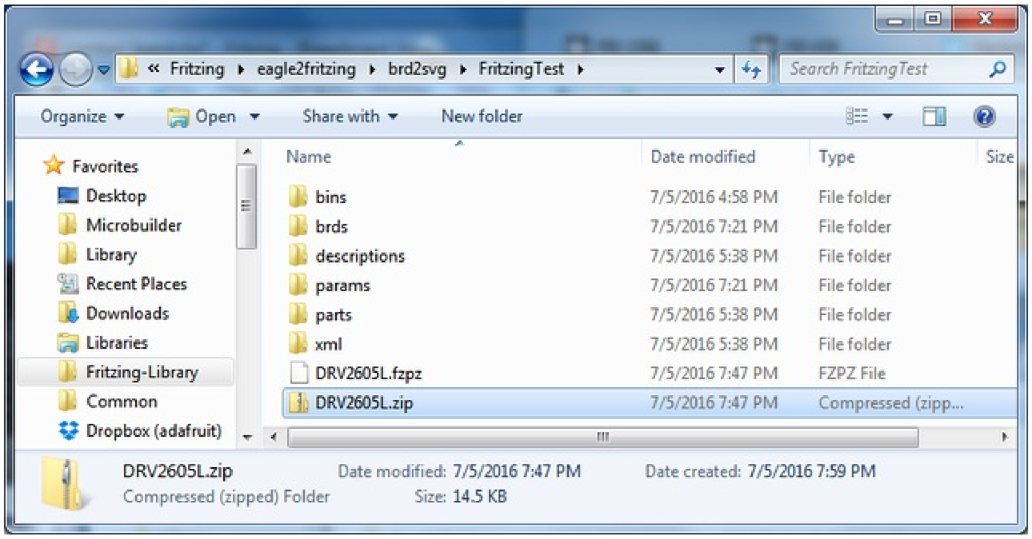
Open that **fpzp** file you saved earlier, the part will now appear in your **My Parts** bin!



Editing Post-Creation

OK so after some time you realize you want to tweak something with the part. **You don't have to start over!**

Export the part to a **fzpz** file, copy it and rename the copy with **.zip** instead of **.fzpz**


« Fritzing ▸ eagle2fritzing ▸ brd2svg ▸ FritzingTest ▸

Name	Date modified	Type	Size
bins	7/5/2016 4:58 PM	File folder	
brds	7/5/2016 7:21 PM	File folder	
descriptions	7/5/2016 5:38 PM	File folder	
params	7/5/2016 7:21 PM	File folder	
parts	7/5/2016 5:38 PM	File folder	
xml	7/5/2016 5:38 PM	File folder	
DRV2605L.fzpz	7/5/2016 7:47 PM	FZPZ File	
DRV2605L.zip	7/5/2016 7:47 PM	Compressed (zipp...	

DRV2605L.zip Date modified: 7/5/2016 7:47 PM Date created: 7/5/2016 7:59 PM
Compressed (zipped) Folder Size: 14.5 KB

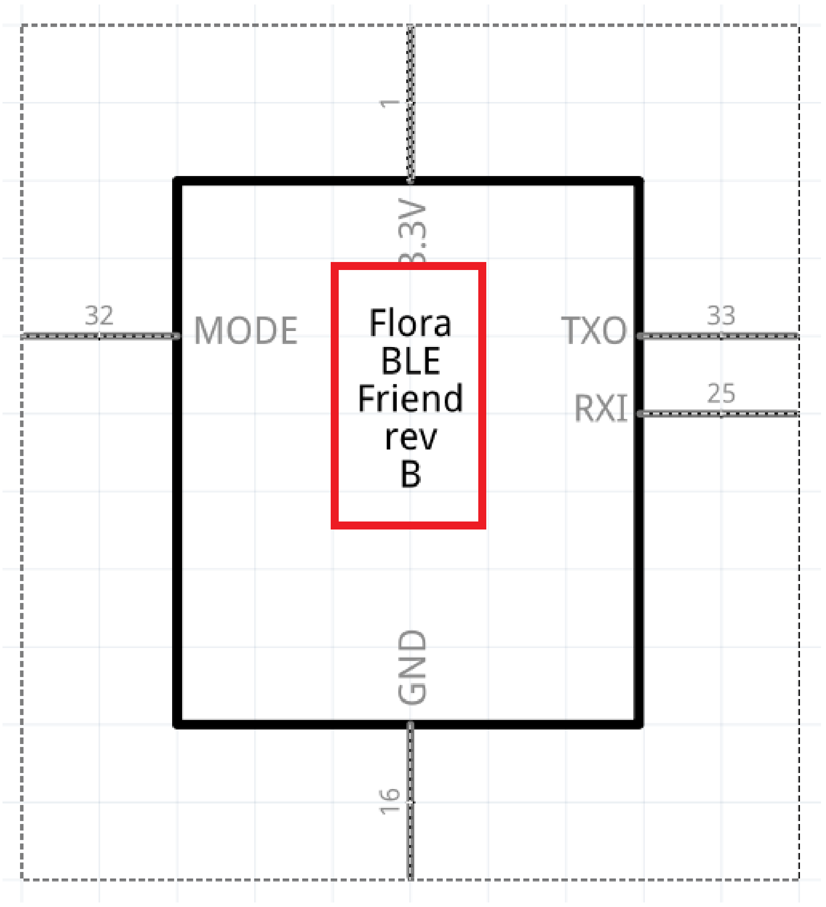
Inside, you'll find all those SVGs again! You can edit the svg carefully and place it back in the zip, then rename it to .fzpz again.

You may need to remove the part from your **My Parts** bin and re-import it. You may also need to delete all the parts from your **Documents/Fritzing/parts** folder since Fritzing throws a fit if you have two parts with the same name

Best Practices!

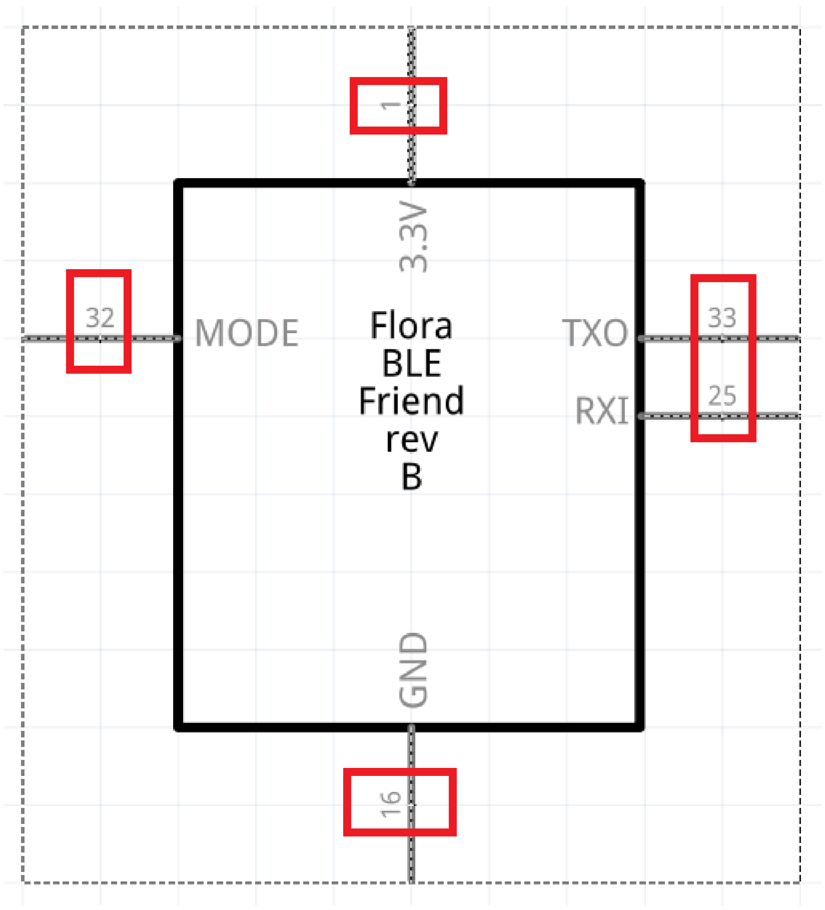
Rename file before conversion!

The text inside of the schematic view will match the file name, you can edit this later in Inkscape but its nicer to do it beforehand so rename it to something nice like 'Adafruit Flora Bluefruit' (no revision number, etc)



Remove pin numbers

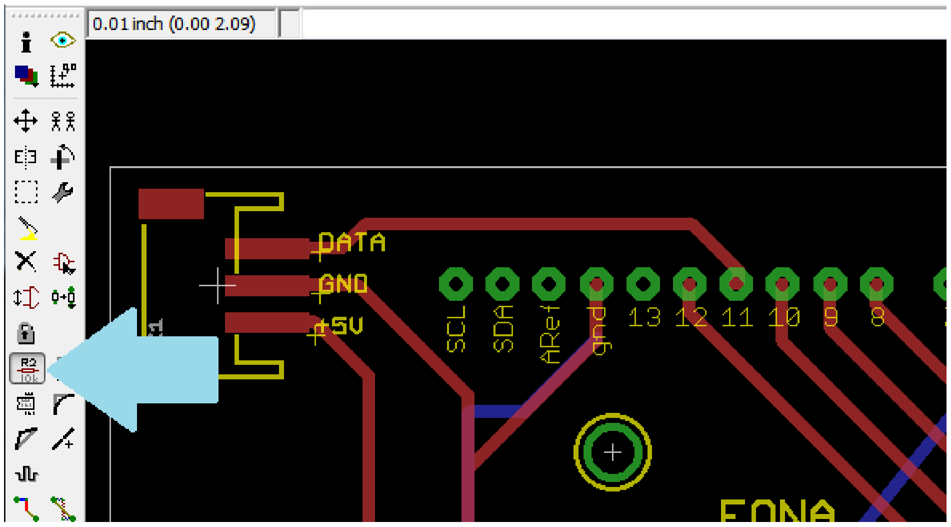
For some reason sometimes schematic view has pin/id numbers on the schematic. You can ungroup and just remove these

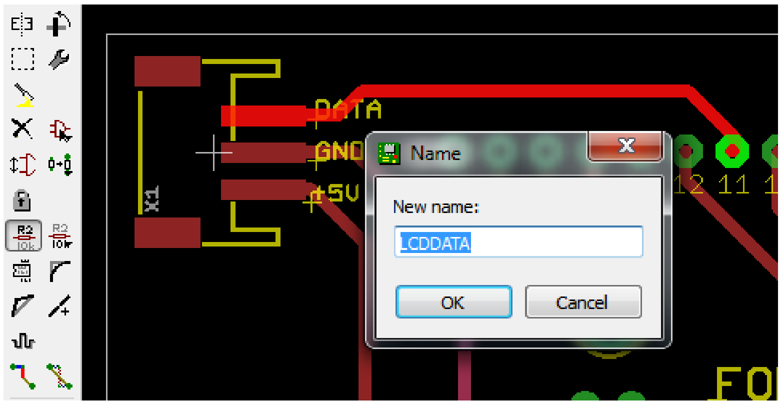


Rename Signals in Eagle

Instead of changing the names of signals in Inkscape/Fritzing you can just do it in EagleCAD

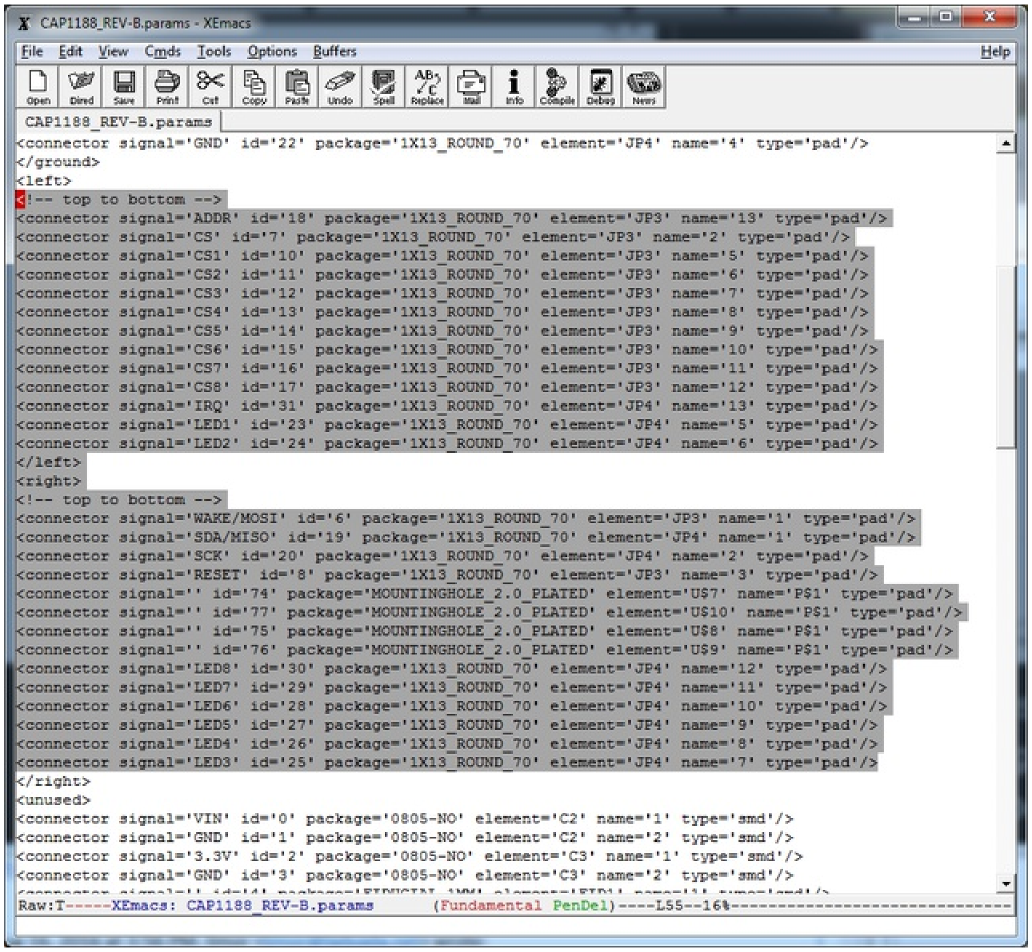
Ideally, rename signals so that they match what the silkscreen says





Rearrange pins in schematic

After you run the **run.py** generator once, you will create a **params** file in **FritzingTest/params** - its a text file, just open with any text editor. This is the file that is used to create the schematic and such. Once it is generated, you can edit it. This is good for *rearranging pins* in the schematic. Say if you want to make all the inputs on the left, and the outputs on the right, find the **<left></left>** and **<right></right>** section. Each line indicates a signal, you can copy and paste to move signals from side to side. You can also move pins up to the top (**<power></power>**) or bottom (**<ground><ground>**)


CAP1188_REV-B.params - XEmacs
File Edit View Cmds Tools Options Buffers Help
Open Dired Save Print Cut Copy Paste Undo Spell Replace Mail Info Compile Debug News
CAP1188_REV-B.params

```
<connector signal='GND' id='22' package='1X13_ROUND_70' element='JP4' name='4' type='pad'/>
</ground>
<left>
<!-- top to bottom -->
<connector signal='ADDR' id='18' package='1X13_ROUND_70' element='JP3' name='13' type='pad'/>
<connector signal='CS' id='7' package='1X13_ROUND_70' element='JP3' name='2' type='pad'/>
<connector signal='CS1' id='10' package='1X13_ROUND_70' element='JP3' name='5' type='pad'/>
<connector signal='CS2' id='11' package='1X13_ROUND_70' element='JP3' name='6' type='pad'/>
<connector signal='CS3' id='12' package='1X13_ROUND_70' element='JP3' name='7' type='pad'/>
<connector signal='CS4' id='13' package='1X13_ROUND_70' element='JP3' name='8' type='pad'/>
<connector signal='CS5' id='14' package='1X13_ROUND_70' element='JP3' name='9' type='pad'/>
<connector signal='CS6' id='15' package='1X13_ROUND_70' element='JP3' name='10' type='pad'/>
<connector signal='CS7' id='16' package='1X13_ROUND_70' element='JP3' name='11' type='pad'/>
<connector signal='CS8' id='17' package='1X13_ROUND_70' element='JP3' name='12' type='pad'/>
<connector signal='IRQ' id='31' package='1X13_ROUND_70' element='JP4' name='13' type='pad'/>
<connector signal='LED1' id='23' package='1X13_ROUND_70' element='JP4' name='5' type='pad'/>
<connector signal='LED2' id='24' package='1X13_ROUND_70' element='JP4' name='6' type='pad'/>
</left>
<right>
<!-- top to bottom -->
<connector signal='WAKE/MOSI' id='6' package='1X13_ROUND_70' element='JP3' name='1' type='pad'/>
<connector signal='SDA/MISO' id='19' package='1X13_ROUND_70' element='JP4' name='1' type='pad'/>
<connector signal='SCK' id='20' package='1X13_ROUND_70' element='JP4' name='2' type='pad'/>
<connector signal='RESET' id='8' package='1X13_ROUND_70' element='JP3' name='3' type='pad'/>
<connector signal='' id='74' package='MOUNTINGHOLE_2.0_PLATED' element='U$7' name='P$1' type='pad'/>
<connector signal='' id='77' package='MOUNTINGHOLE_2.0_PLATED' element='U$10' name='P$1' type='pad'/>
<connector signal='' id='75' package='MOUNTINGHOLE_2.0_PLATED' element='U$8' name='P$1' type='pad'/>
<connector signal='' id='76' package='MOUNTINGHOLE_2.0_PLATED' element='U$9' name='P$1' type='pad'/>
<connector signal='LED8' id='30' package='1X13_ROUND_70' element='JP4' name='12' type='pad'/>
<connector signal='LED7' id='29' package='1X13_ROUND_70' element='JP4' name='11' type='pad'/>
<connector signal='LED6' id='28' package='1X13_ROUND_70' element='JP4' name='10' type='pad'/>
<connector signal='LED5' id='27' package='1X13_ROUND_70' element='JP4' name='9' type='pad'/>
<connector signal='LED4' id='26' package='1X13_ROUND_70' element='JP4' name='8' type='pad'/>
<connector signal='LED3' id='25' package='1X13_ROUND_70' element='JP4' name='7' type='pad'/>
</right>
<unused>
<connector signal='VIN' id='0' package='0805-NO' element='C2' name='1' type='smd'/>
<connector signal='GND' id='1' package='0805-NO' element='C2' name='2' type='smd'/>
<connector signal='3.3V' id='2' package='0805-NO' element='C3' name='1' type='smd'/>
<connector signal='GND' id='3' package='0805-NO' element='C3' name='2' type='smd'/>
Raw:T-----XEmacs: CAP1188_REV-B.params      (Fundamental PenDel)----L55--16%------------------------------
```