Your first laser project

# Context

The purpose of this tutorial is to provide a “next step” after your induction.

The tutorial provides a **very** simplified file preparation workflow, as the focus is on re-enforcing the overall workflow described in the induction and going deeper into the details of using Ruby.

This tutorial uses:

* A preload file – *First project.svg*
* Inkscape – free to download and install, already installed on the [Makerspace laptops](https://discourse.southlondonmakerspace.org/t/laptops/23125)
* Ruby – installed on the Laser PC (very difficult to install on your own laptop)

If anyone would like to provide instructions for doing the file preparation steps in Adobe Illustrator or CorelDRAW, I’m happy to add them to the tutorial.

# Step 1: File preparation

See the visual guide at the end of this document. I kept the images separate to keep the text compact.

1. **Open *First project.svg* in Inkscape**
2. **Type your name**
   1. Select the Text tool
   2. Double click on *YourName* to select all the text
   3. Type your name to replace YourName
3. **Adjust the layout**Only if the offset around your name doesn’t join all the letters together well.
   1. Select all the letters or just those that don’t join
   2. Reduce space between letters until they are fairly close together, but not touching
4. **Position the loop**
   1. Select both circles
   2. Move them to overlap it appropriately with the first letter of your name
5. **Save the file to preserve an editable version**The next step will destroy the editable text, so you want to keep a version that you can change if you need to.
   1. File / Save as - YourName edit file
6. **Save the file for final editing for laser cutting**This will give you a file to import into Ruby
   1. File / Save As – *YourName* cut file
7. **Prepare the text for cutting and engraving**The current file is not suitable for Ruby.  
   You want the letters to be engraved fully, so you need a red fill (Ruby default for engrave).
   1. Use the arrow tool to select the text
   2. Change the fill colour to red (left click on palette at the bottom of the screen)
   3. Change the stroke colour to None (shift click on the X in the palette)
8. **Merge the keyring hole with the offset**
   1. Select the offset outline
   2. Path / Object to path
   3. Shift + click on the outer circle of the keyring hole so that it and the offset are selected
   4. Path / Union
9. **Set the outline for cutting**
   1. Select the outline and the inner circle
   2. Set the fill to None
   3. Set the stroke to black (Ruby default for cut)
10. **Adjust the outline**Depending on the letters of your name, you may have strange paths or tiny holes in the outline.
    1. Select the outline
    2. Use the Zoom tool to zoom in on parts for adjusting/deleting
    3. Use the Edit paths by nodes tool to select and adjust/delete nodes
11. **Adjust the page**You should make the page the same size as the object as this makes it easier to work with in Ruby
    1. Select the keyring outline
    2. File / Document properties
    3. Resize page to content
    4. Resize page to drawing or selection
12. **Save**

You now have 3 files:

* *First project.svg* – unchanged
* *YourName edit file.svg* – editable version (change text, text layout and position of the ring)
* *YourName cut file.svg* – ready for Ruby

# Step 2: Review your induction

1. Download the induction presentation (See the Laser Induction PDF link on the [Laser Tool Page](https://discourse.southlondonmakerspace.org/t/laser-cutter-trotec-speedy-300/14)) and refresh your memory of the overall workflow
2. Make sure you have your Ruby password (you can’t recover it unassisted)
3. Put your edit and your cut files on a memory stick
4. Book the laser

# Step 3: Cut and engrave

1. **Prepare the laser**
   1. Perform all the maintenance steps
2. **Activate Ruby**
   1. Open Ruby from the Start menu
   2. Make sure it is active in the Notification icon
   3. Login
3. **Design (import the cut file)**
   1. Go to the Design screen
   2. Import design
   3. Select and open your file
   4. Select the file on the left sidebar
   5. Because you made all the necessary changes in Inkscape, there is nothing more for you to do on this screen
   6. Create job
4. **Prepare (to cut and engrave)**
   1. Position the sheet or scrap of 3mm ply
   2. Focus the laser
   3. Align the keyring with the cross hairs (the origin is top left)
   4. Choose the material - First project 3mm
   5. Push to laser
5. **Produce**
   1. Press Play
6. **Extension activities**Without going all the way back to Inkscape (i.e. staying in Ruby):
   1. Adjust the engrave setting so that the text is much lighter
   2. Adjust the text fill and stroke (outline) so that the text outline is engraved at 1mm thickness, but not the inside of the text. You’ll need to use this tool on the Design screen 
   3. Engrave AND cut the offset (this will give you a sort of bevelled edge around the outside of the object)
7. **Wrap up**
   1. Perform maintenance
   2. Tap fob
   3. Logout of Ruby
   4. Shut down laser
   5. Shut down Laser PC

# Visual guide to file preparation

Logo

Description automatically generated

1. Open First project.svg in Inkscape

Logo, company name

Description automatically generated

2. Type your name

A screenshot of a computer

Description automatically generated with medium confidence

3. Adjust the layout

Logo, company name

Description automatically generated

4. Position the loop

Logo, company name

Description automatically generated Graphical user interface, application

Description automatically generated

7. Prepare the text for cutting and engraving

Logo, company name

Description automatically generated

Logo, company name

Description automatically generated

8. Merge the keyring hole with the offset

Logo, company name

Description automatically generated

Logo, company name

Description automatically generated

9. Set the outline for cutting

A picture containing icon

Description automatically generated

10. Adjust the outline

Shape

Description automatically generated 

11. Adjust the page