Re: Inkscape Gcode tools plug-in English support forum

#43 ☐ **Nick** » 25 мар 2010, 13:01
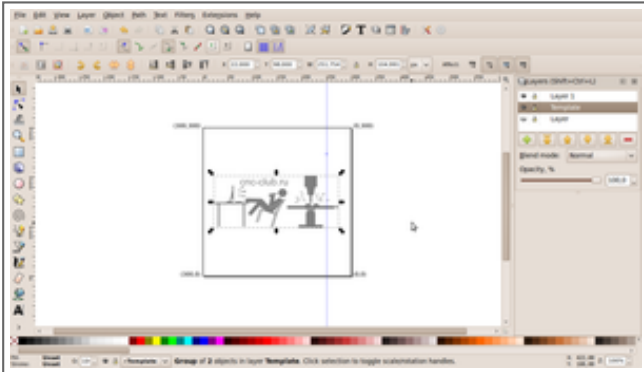
Gcode tools ver. 1.2 Area processing tutorial

At this tutorial I'll explain how to make area cutting G-code of the path using Gcode tools and Inkscape.

1. First of all we will need a path. You can draw it by yourself, or download from the internet.
I've chosen cnc-club logo. If you want you can get it here:
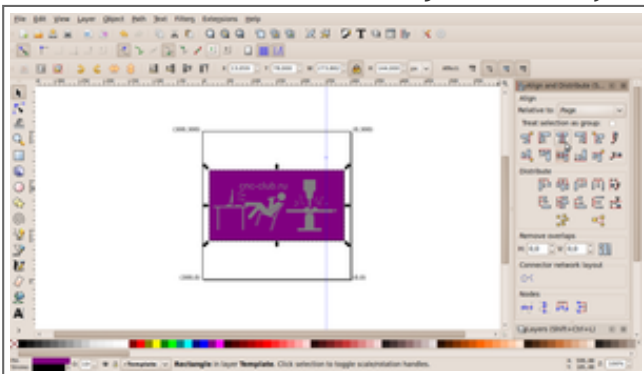
📎 **logo_0002.svg**
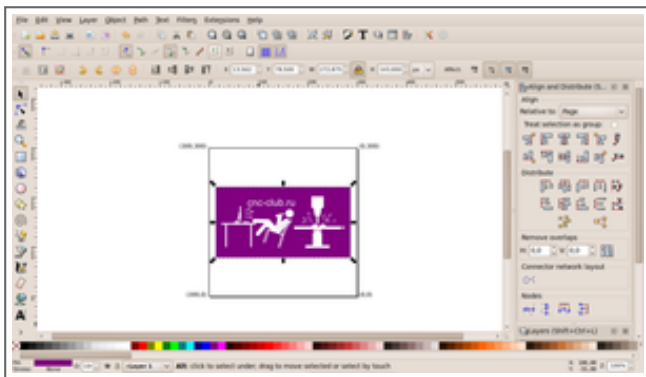(19.08 Кб) Скачиваний: 1640

2. If your drawing consists not only from paths you should convert it to paths. (It may not contain some groups, ellipsis, texts, rectangles etc.). To do this select your drawing, check the status bar, if it says that selection contains Groups do Object - >Ungroup (Ctrl+Shift+G). If it contains text, or other geometry except paths do Path -> Object to path (Shift+Ctrl+C). Repeat this until status bar will say something like "5 objects of type **Path** in Layer...". Notice that when you convert Text to path it will create a Group with letters, so you will need to ungroup them.

3. Unite all paths into one path (Ctrl+"+").

4. I want cnc-club logo to offset from the surface so I'll need to cut the area outside the logo. Draw a rectangle, put it behind of your path (End or Page Down) and make it align to the center of the path (select path and Rectangle Ctrl+Shift+A and choose Center objects vertically and Center objects horizontally).

5. Subtract path from rectangle (Ctrl+"-").

6. Now we have a path of which area we want to cut.
Next we need to calculate paths that will cover the area (these paths will be the cutter's trajectory).
Go to Extensions -> Gcode tools ...
Fill in Tool diameter in the Preferences tab
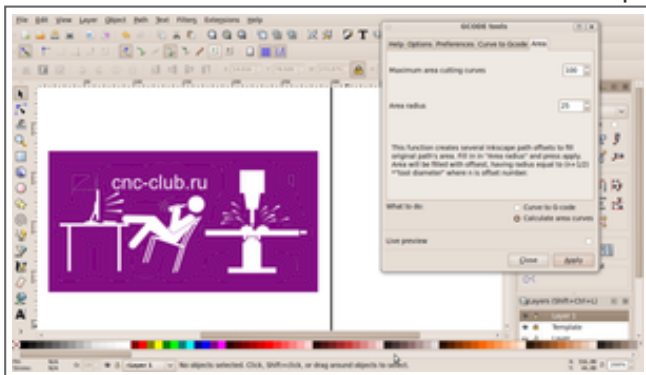Then go to Area tab, and fill in Area radius. What is Area radius or how can it been calculated?
First of all Area radius must be in px (pixels) no mater which units you have been selected!
There some ways to calculate Area radius:

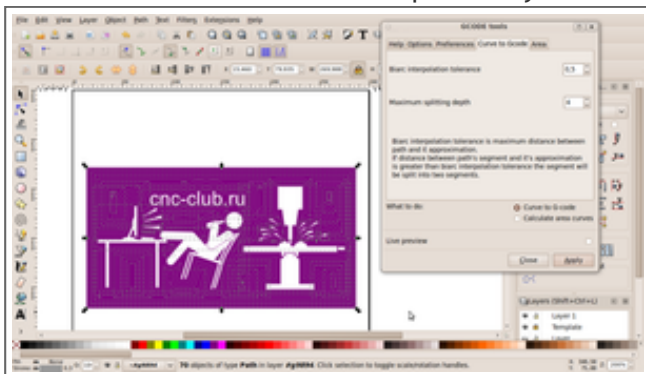- The easies way is: find the thickest part of the path and measure it by eye (Joke)
- The second easies way is: find the thickest part of the path and measure it with Bizier tool. When you draw a path with the Bizier tool status bar shows it last segment length.
- The hardest way is: convert path to dynamic offset (Ctlr+J), then press F2 and move the control point to make your path disappear. Then press Ctrl+Shif+X to open XML editor and find there inkscape:radius parameter, it's value is the exact value that you'll need

So anyway fill in Area radius.
Choose **Calculate Area curves** at the bottom and press Apply.

Sometimes it's better to convert path to dynamic offset before doing Calculate Area curves.
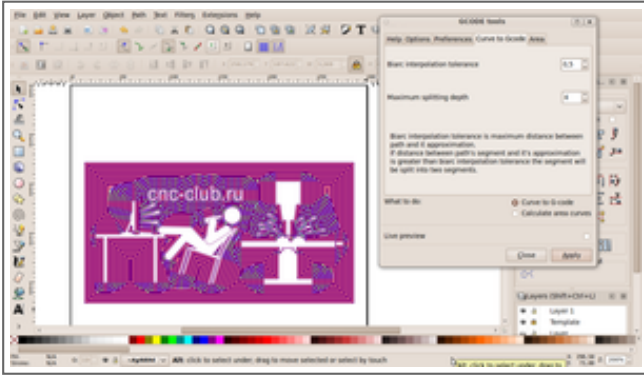

7. After applying Calculate area curves you should have a new group containing paths that cover the area of the

source path. But unfortunately this paths cat contain some errors.

To correct the errors go into the group (double click on the group), select all objects (Ctrl+A) convert them to Paths (shift+Ctrl+C). Brake paths apart (Ctrl+Shift+K) to delete some unnecessary paths and correct others.
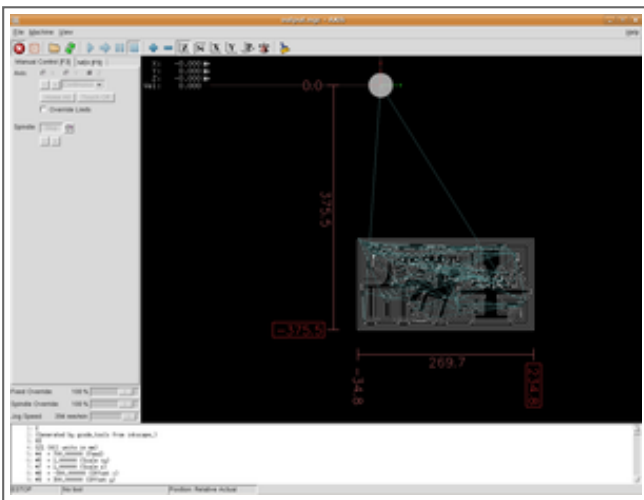
8. All is ready to convert paths to Gcode. Select the paths that we've got, do Extensions -> Gcode tools... Go to Preferences tab fill in cutter parameters, directory and filename for in which you want Gcode to be exported. Then go to Path to Gcode tab, fill in tolerance and maximum subdivision parameters. (Notice number of subdivisions means means number of iterative subdivisions not number of segvenst that you'll get from one segment. So you cat get up to 2^n segment from one segment.)

Choose Path to Gcode at the bottom. Press apply.

What you'll get: a group will be added to the drawing which shows cutter's working trajectory, and of cause a file in specified directory which will contain Gcode.
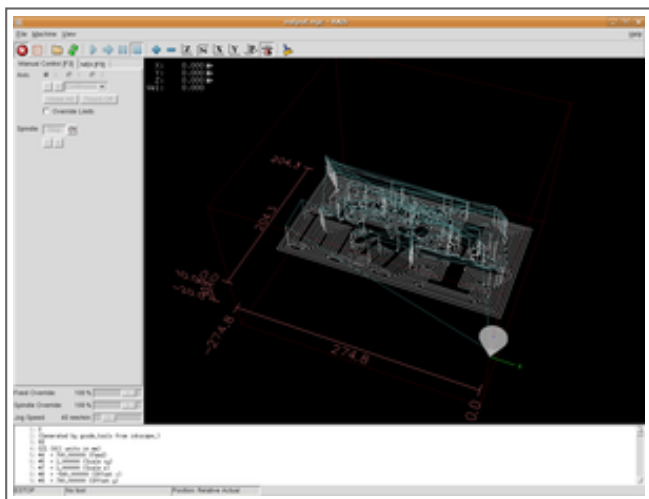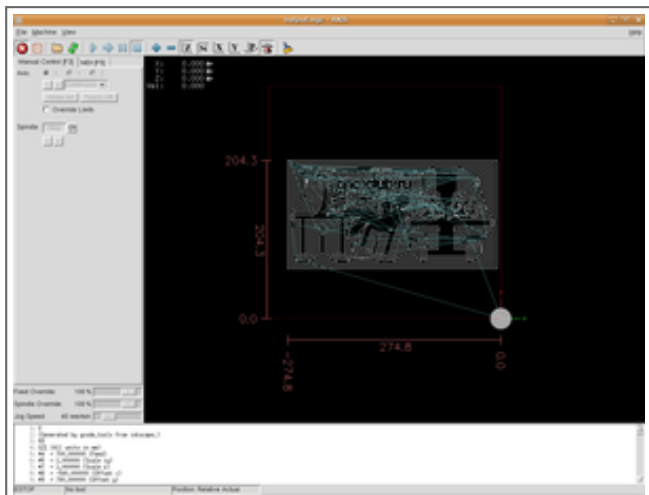
Let's check the results:

Everything is nice except that I missed the working area of my cutter 😑 but do not worry if you have not chosen "Generate not parametric code" it is very easy to correct the situation. Just correct first lines in the Gcode file:

КОД: ВЫДЕЛИТЬ ВСЁ • РАЗВЕРНУТЬ

```
#4  = 4.000000 (Feed)
#5  = 0.900000 (Scale xy)
#7  = 1.000000 (Scale z)
#8  = 0.000000 (Offset x)
#9  = 0.000000 (Offset y)
#10 = 0.000000 (Offset z)
#11 = 5.000000 (Safe distanse)
```
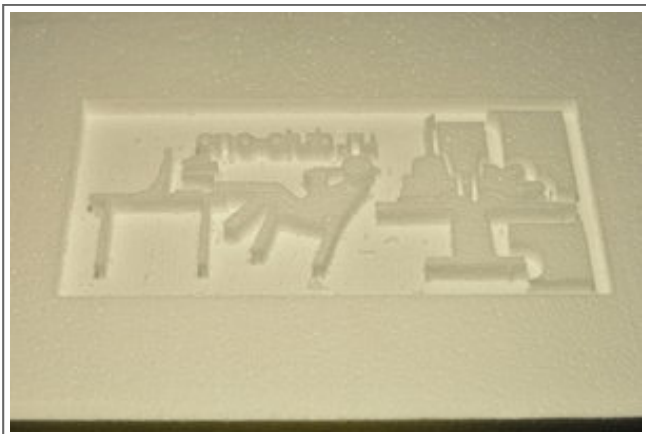
And situation solved 😬.

Here are the results of cutting this Gcode on my hobby router:

Unfortunately it was the first run of my router and almost at the end of cutting one coupling broke down, so this cutting is unfinished 😡.

Material is foam (it was the first run 😬).

Cutting time with maximum cutting speed 7mm per second is about 18 minutes. Dimensions are about 270x140mm, tool diameter 3.2mm.

Use the Console, Luke.

Nick
Мастер

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