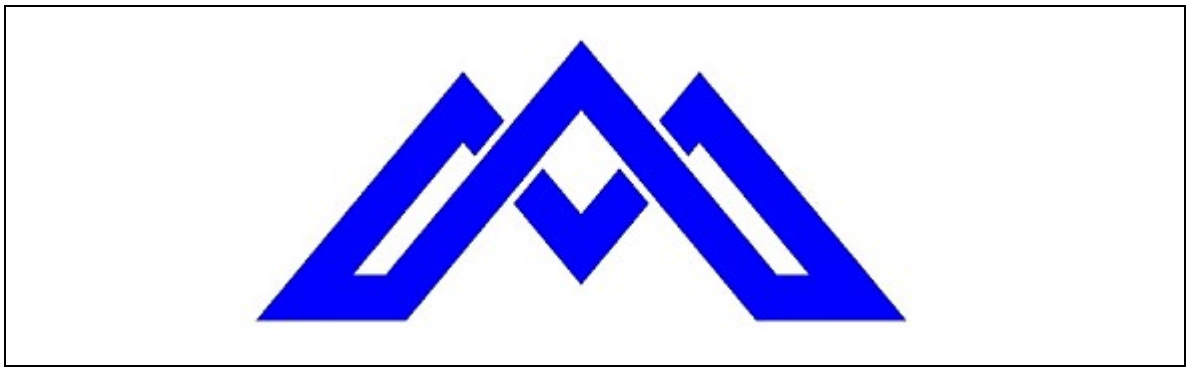
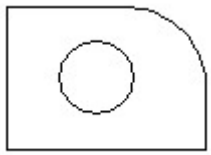
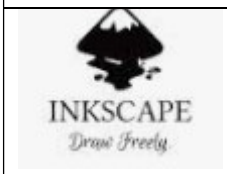


IKOCAM by IKODB

IKODB creates sophisticated connected and embedded devices for diverse markets by blending world-class software development services, engineering expertise and intuitive user experience design. We provide expert software development, UX design and related product development services across many high-performance industries from oil to manufacturing

Introduction

- IKOCAM generates perfect toolpaths for plasma, oxyfuel, waterjet, laser
- Automatic generation and simple manipulation of lead-ins and lead-outs
- Automatic kerf (offset) compensation.
- Import of DXF, SVG and BMP files

	AutoCAD **DXF** (Drawing Interchange Format, or Drawing Exchange Format) is a CAD data file format developed by Autodesk for enabling data interoperability between AutoCAD and other programs.
	Scalable Vector Graphics (**SVG**) is an Extensible Markup Language (XML)-based vector image format for two-dimensional graphics with support for interactivity and animation. The SVG specification is an open standard developed by the World Wide Web Consortium (W3C) since 1999. See inkskape.org
	The BMP (photo, picture) file format, also known as bitmap image file, device independent bitmap (DIB) file format and bitmap, is a raster graphics image file format used to store bitmap digital images, independently of the display device (such as a graphics adapter), especially on Microsoft Windows. The BMP file format is capable of storing two-dimensional digital images both monochrome and color, in various color depths, and optionally with data compression, alpha channels, and color profiles.

IKOCAM will allow the **nesting** of parts and has features for copying, duplicating, rotating and mirroring parts IKOCAM will show cutter paths, rapid moves

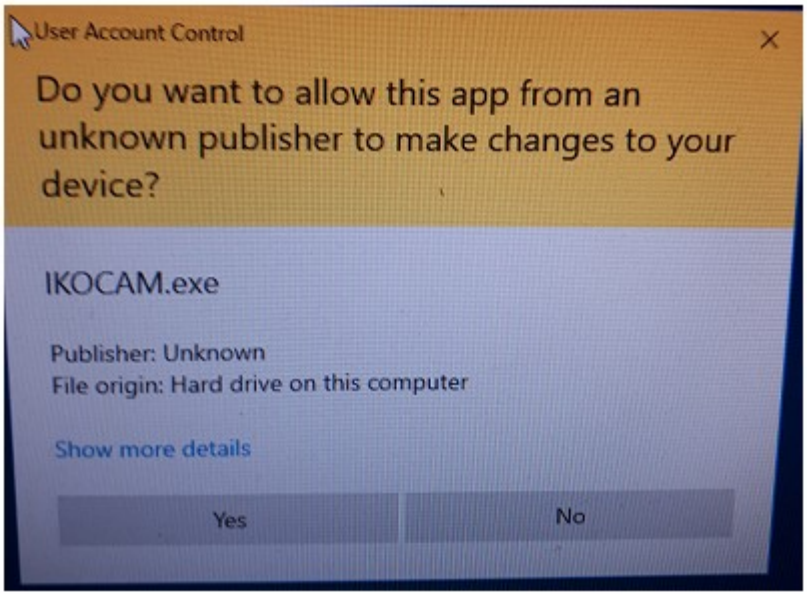
Disclaimer

IKODB Inc. and its affiliates are not responsible for the safe installation and use of this product. Always be careful! If you do not understand and agree with all of the above, please do not use this product.

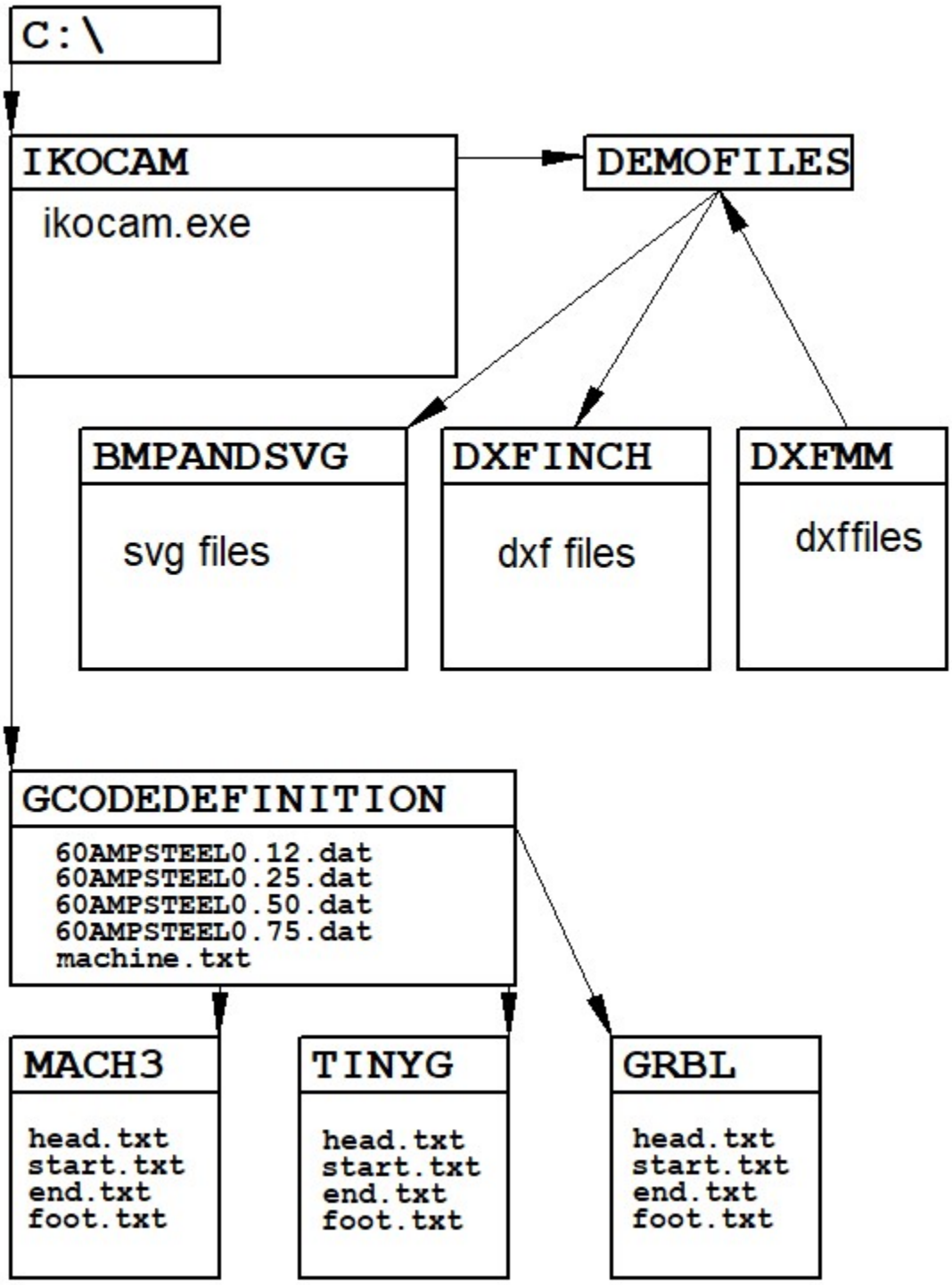
System requirements

1. Windows Version 7, 8, or 10 (32 or 64 Bit)
2. Intel I5 processor (or equivalent), or better
3. At least 4GB of RAM
4. A separate graphics card is preferred for processing larger files

Installation



After setup is done on your C: hard disk will be created C:\IKOCAM folder and subfolders. Keep program there because it will be easier to install future version, and also, easier to backup program to usb stick. IKOCAM will not alter any of your windows system/ files, so just physical copy of this folder will work as backup.

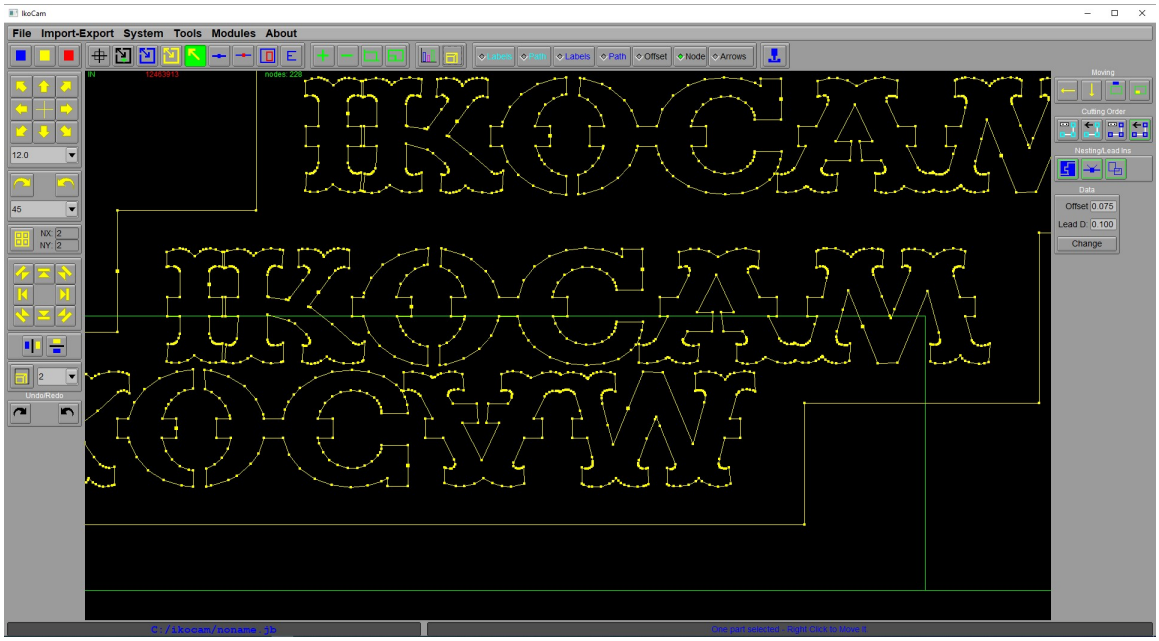

C:\
IKOCAM
ikocam.exe
DEMOFILES
BMPANDSVG
svg files
DXFINCH
dxf files
DXFMM
dxffiles
GCODEDEFINITION
60AMPSTEEL0.12.dat
60AMPSTEEL0.25.dat
60AMPSTEEL0.50.dat
60AMPSTEEL0.75.dat
machine.txt
MACH3
head.txt
start.txt
end.txt
foot.txt
TINYG
head.txt
start.txt
end.txt
foot.txt
GRBL
head.txt
start.txt
end.txt
foot.txt

Launching the software

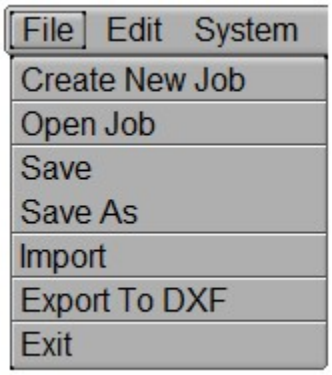
To RUN program double click **on ikocam.exe** which is found in **C:\IKOCAM** folder or double click **on icon created on your desktop**

When you start the program, you will see the drawing workspace. From here you can either open an existing file, or simply convert DXF, SVG or BMP file

Native file format for IKOCAM has jb extension.

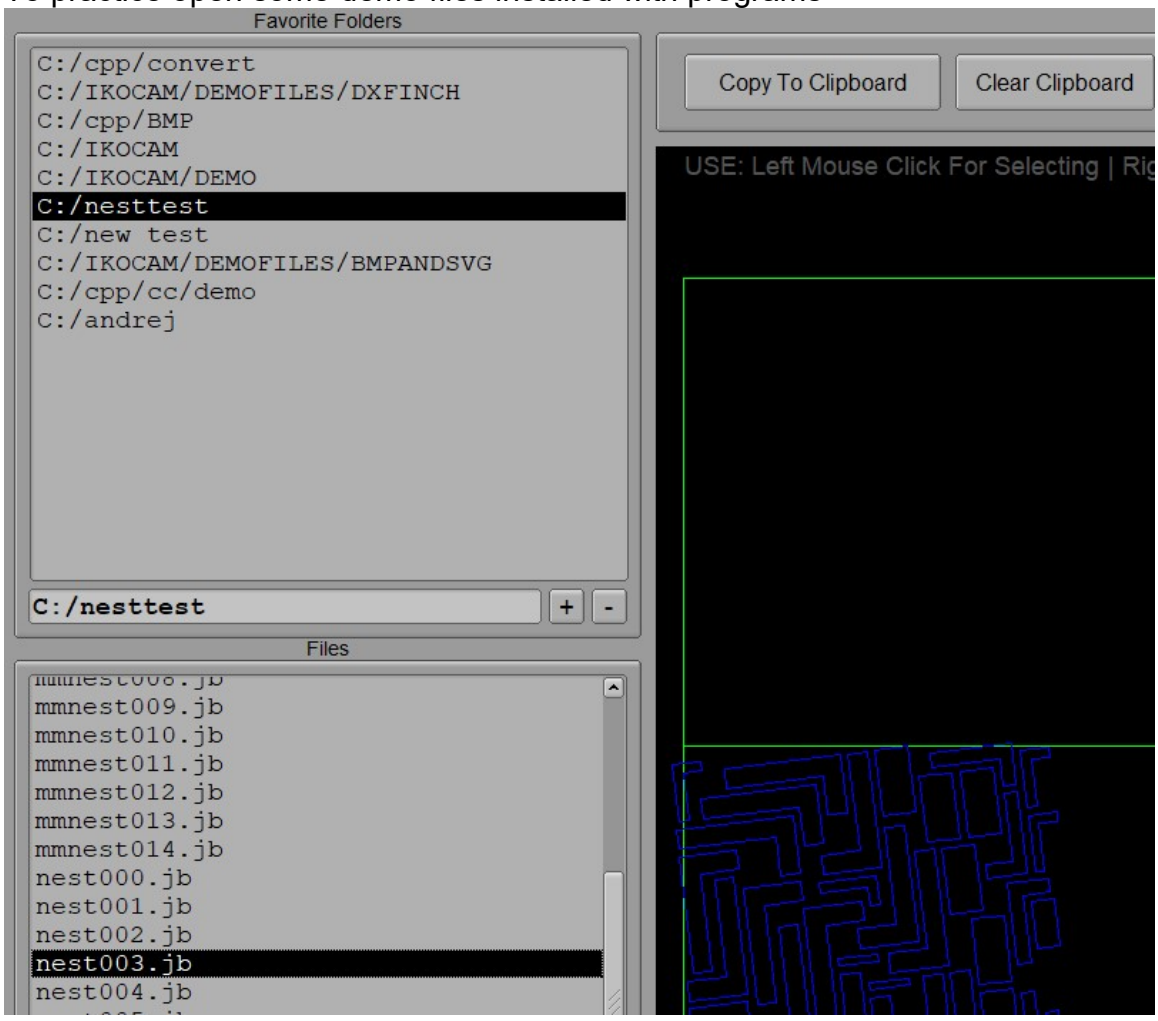


Opening, Saving and Appending Files



The File menu presents the following commands:
New Job – create a new empty jb file
Open - Open existing jb file
Save and Save As
Import
Export To DXF

To practice open some demo files installed with programs

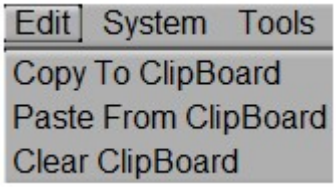


Top list box is a list of favorite folders. It will be edited automatically, but you can edit it manually using + and - buttons:

On the right side (black area) is file preview. You can zoom by rolling mouse button. Click right mouse button and drag to translate drawing.

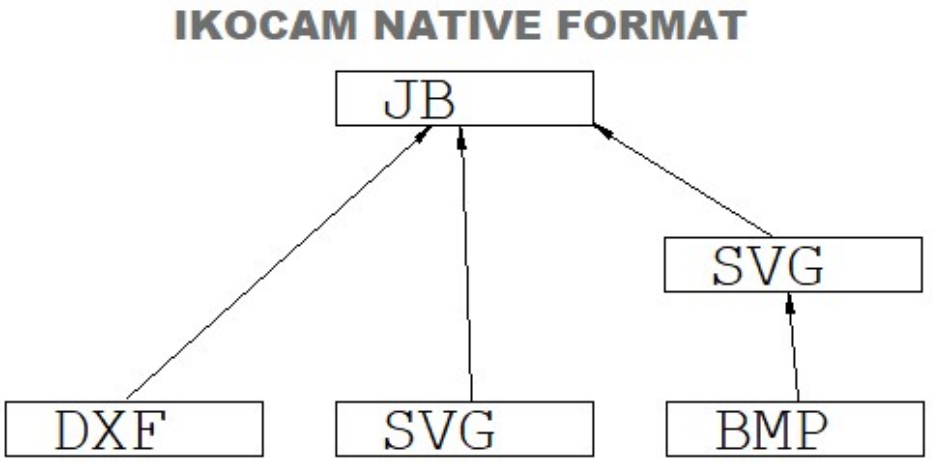
Also, you can select parts from different file and copy them to clipboard:

Once, you close this form, you can use File Menu to paste copied parts into opened file:



Steps

1. Create your part/design in either a CAD package or INKSCAPE
2. Import the drawing into the CAM program
3. Preview the generated G-code in a GCODE viewer
4. Once the code has been verified open the G-code file in your CNC control program and run the program to create the part.

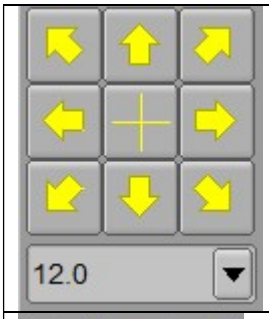
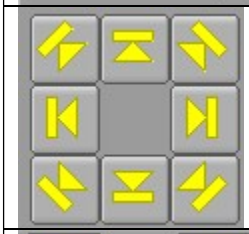
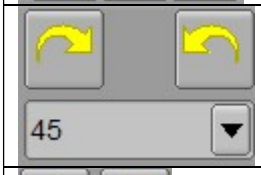


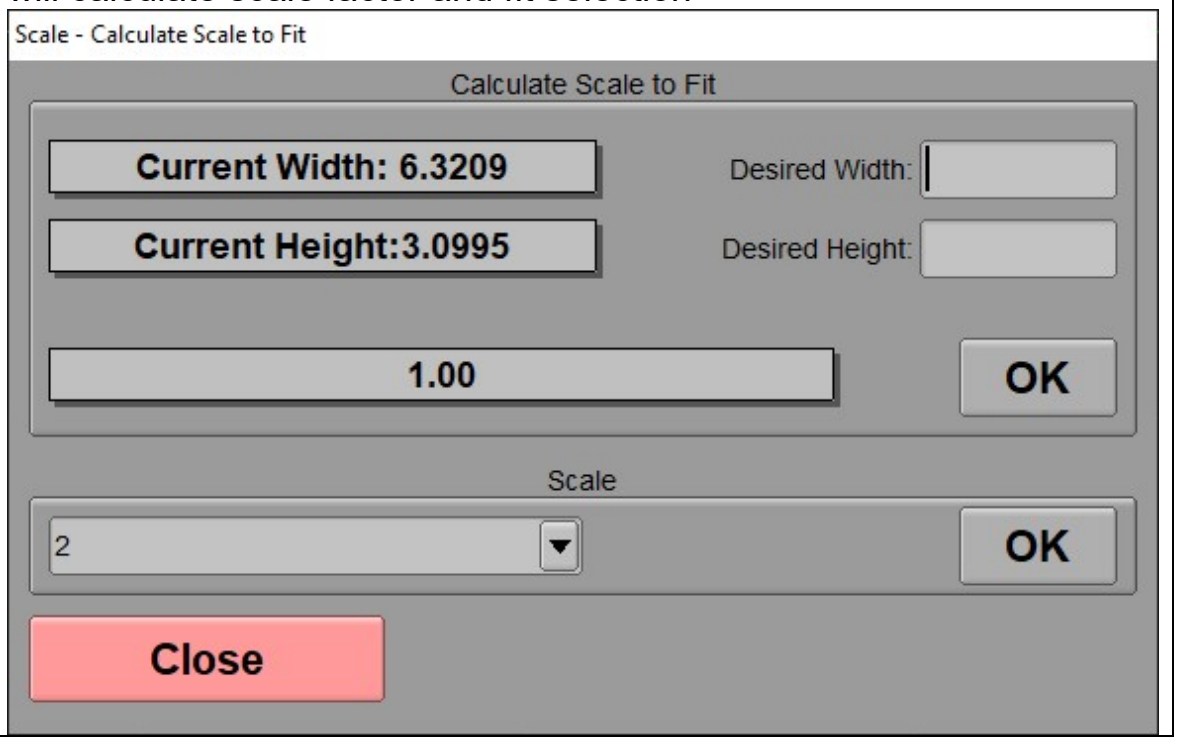
Radio Buttons Bar

A radio button or option button is a graphical control element that allows the user to choose only one of a predefined set of mutually exclusive options which is highlighted green.

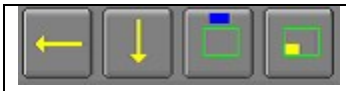
	Center view
	Mouse click down, then drag and release, so you can zoom to certain area
	Mouse clik down, then drag and release to deselect by rectangle
	Mouse clik down, then drag and release to select by rectangle
	**Select a part. Hold down and drag to move selected part**
	Edit LeadIn position
	Remove Node
	Remove Polyline
	Edit Polyline

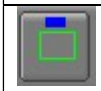
You may move selected part using arrow keys on keyboard, or rotate it by pressing PgUp PgDn kays. That is slow, but if you want to speed up use Alt for faster, Ctrl for more faster and Shift for fastest operation.

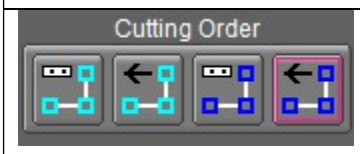
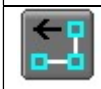
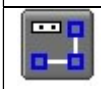
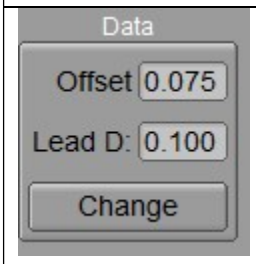
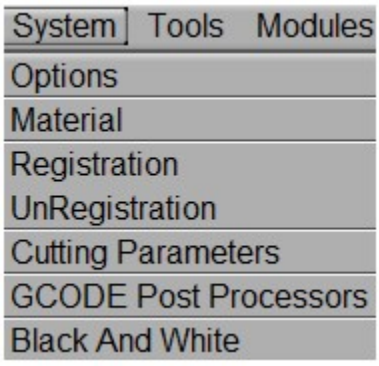
	Move selected parts Use dropdown to adjust moving step
	Duplicate selected parts and move
	Rotate selected parts Use dropdown to adjust rotating angle
	Mirror Vertical – Mirror Horizontal (selected parts)
	Array Grid (selected parts)
	Scale (selected parts)
	Deselect All Sellect All Ctrl-A Delete Selected Ctrl-Del
	Zoom In Zoom Out You can also ZoomIn, ZoomOut by rolling your midlle mouse button, and centerZoom by clicking it Zoom to Parts Size Zoom To Table Size

	Statistics for Pricing Jobs - After clicking this button you will se a dialog. Just close it. All data are in clipboard already, so you can paste it into excel and calculate price por cutting
	Scale to Fit Calculator - On this picture we can see that selection width is 7.0721 inches, and we want to make it 10 inches, Program will calculate scale factor and fit selection 

Light blue represents inside cuts (rarely used)
Blue represent parts (outside cuts). (more often used)

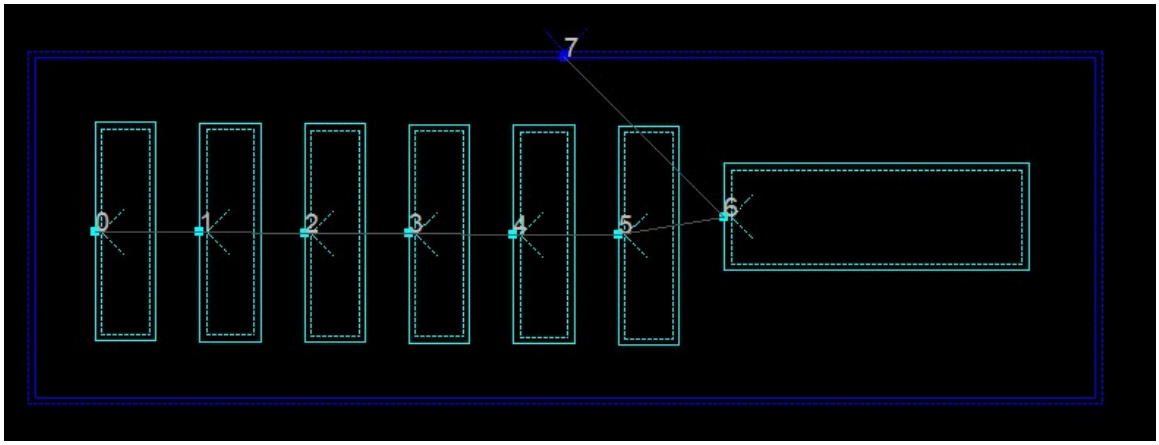


	 Slide Left
	 Drop Down
	 Move selected parts on to the top side of the table (so you can start

	nesting)  Move selected parts to origin (0,0)
	 Manual Cutouts Reordering  Automatic Cutouts Reordering  Manual Parts Reordering  **Automatic Reordering Parts**
	If you want to preview offset line, but you are not sure what material, and plasma unit will be used then click Plasma to preset average, otherwise choose material and plasma unit by clicking green button.
	Set material size

Drawing

Light blue color represent inside cut, and they are always CCW (counterclockwise), Blue color represent outside cut ant it is CW (clockwise), White color represent open polylines. Yellow on drawing or icons means SELECTED



Big green rectangle represent table, and smaller green rectangle represent material.

Offset or Kerf

Cutting kerf is the width of a cut. It is the result of material removal during the cutting process. **Offset** = kerf/2

Almost all cutting mechanisms leave a cutting kerf, e.g laser cutting, plasma cutting and other thermal cutting methods. But also mechanical cutting processes like sawing.

Each cutting process removes a different amount of material, or kerf. The more precise processes, like waterjet and laser, remove a smaller amount of kerf, which is one of the reasons they can be more precise! A typical example shown here is for 1/2” thick mild steel.

Typical Kerf Width for 1/2” thick C.S.:

Plasma: 0.150”
Oxy-Fuel: 0.045”
Waterjet: 0.035”
Laser: 0.025”

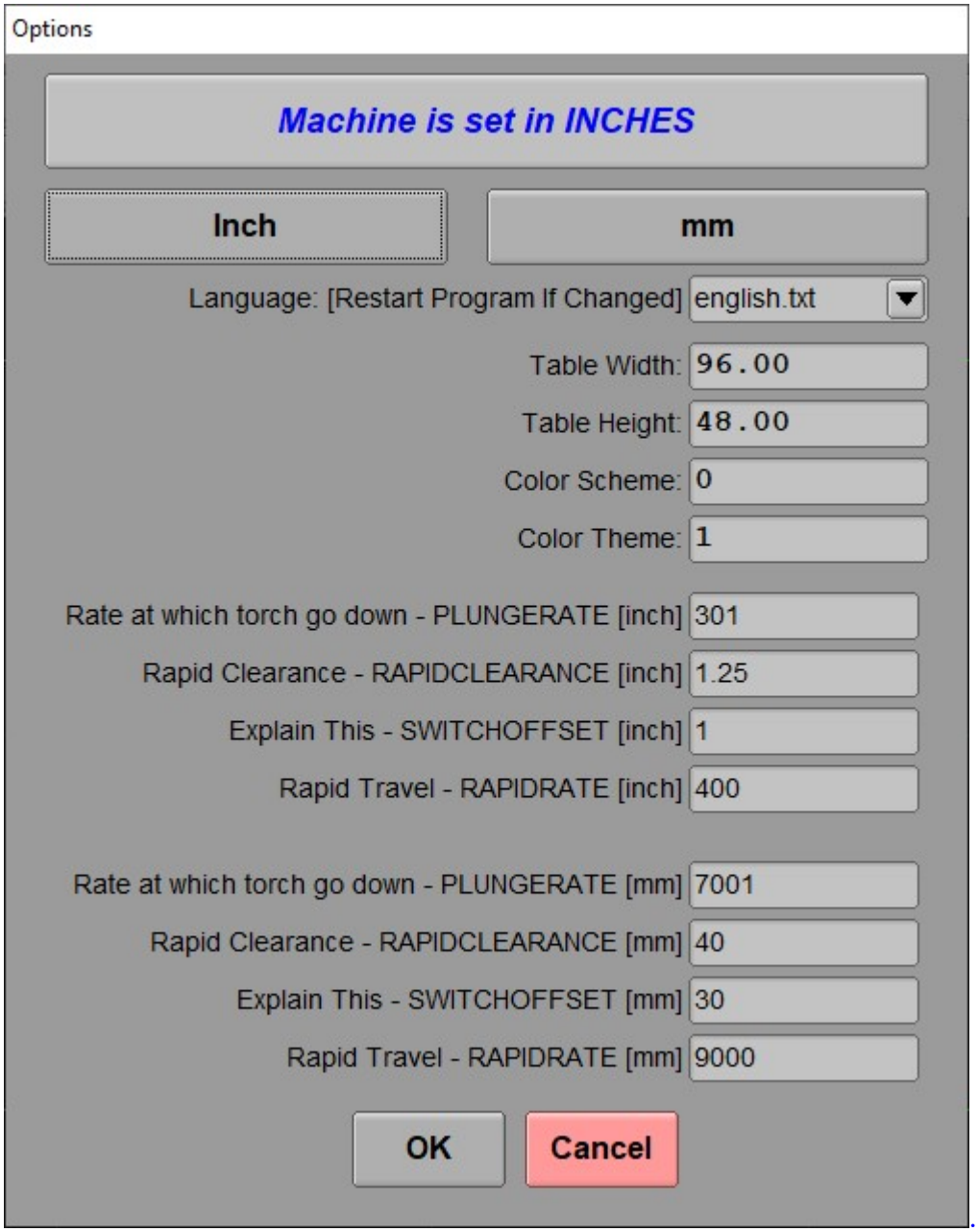
To calculate offset divide by 2.

Options

At first run program will show option dialog. Choose inches or mm, and enter table size, then press OK

On System menu Options choice

When you click OK program will die, and you have to restart it

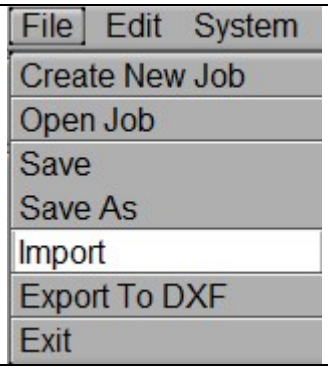


Converting Files

There is 4 different file types that works with IKOCAM;

1. jb – job native IKOCAM format
2. DXF
3. SVG
4. BMP

DXF, SVG and BMP file can be converted to jb using Import-Export / Convert menu item:



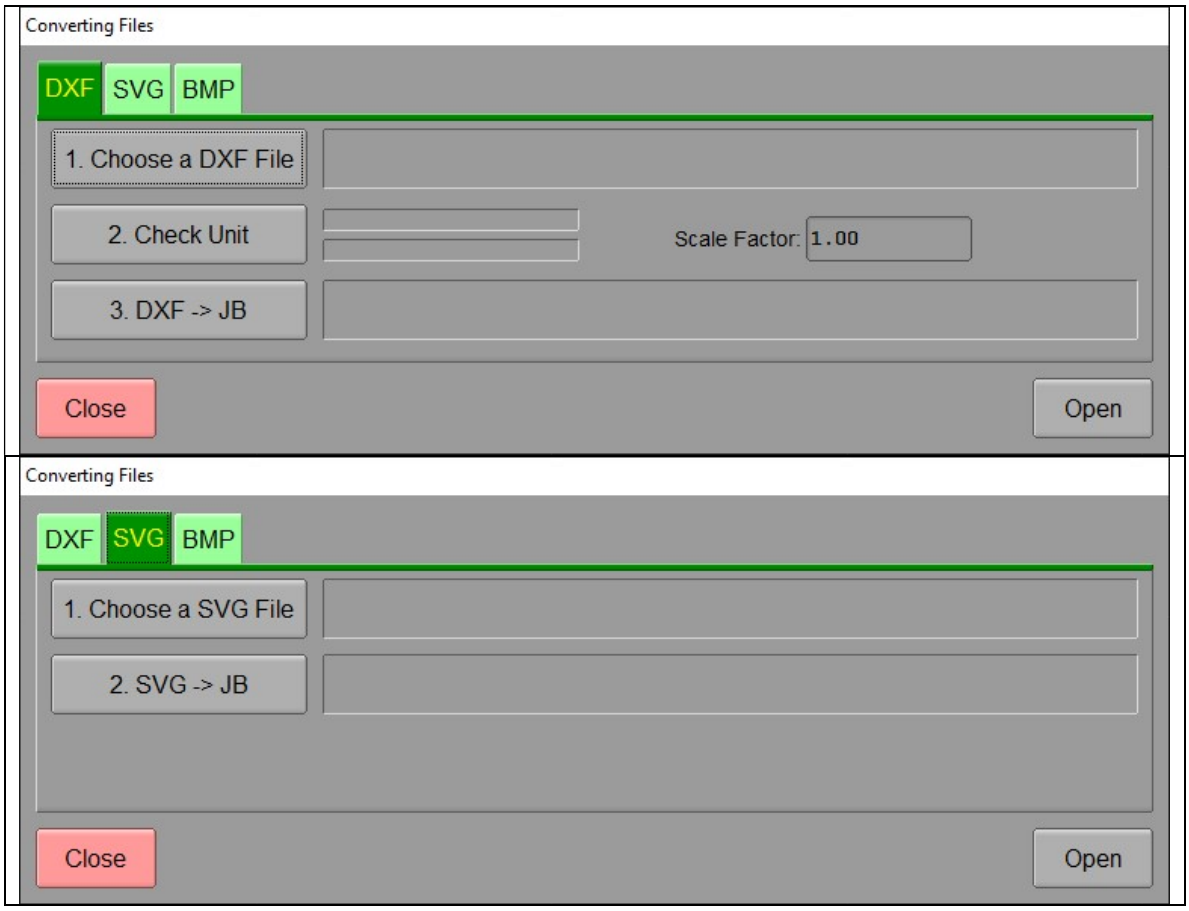
Then dialog like this will show. You choose type of the file you are converting by pressing green tab at the top.

DXF Files:

1. First choose a DXF file then
2. Check Unit If your table is set to work in inces and DXF file is in mm program will warn you and calculate scale factor
3. Then press DXF -> JB

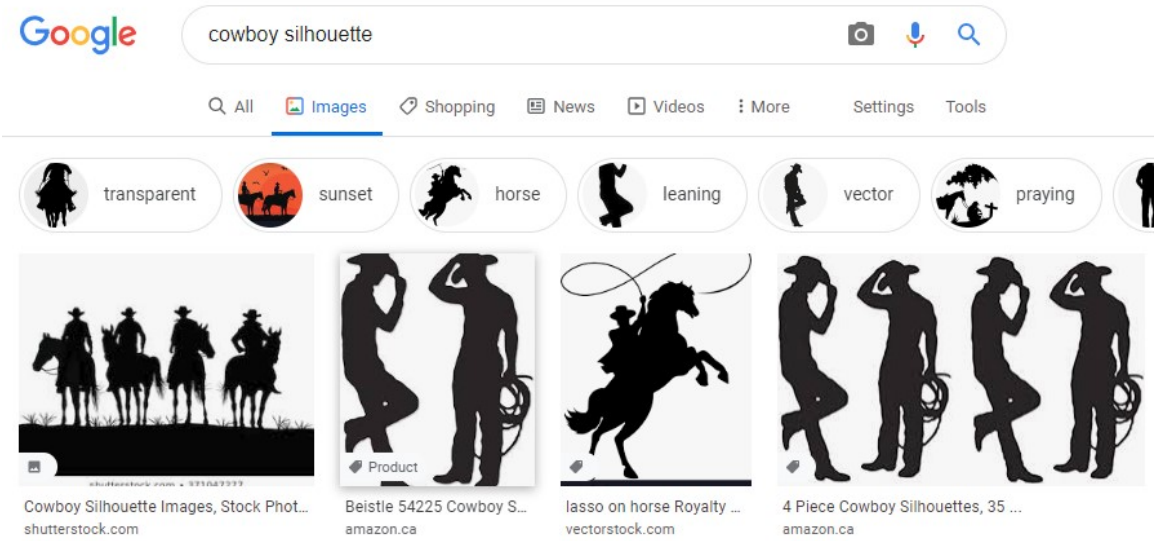
File is converted to native IKOCAM format
You can convert as many files as you want, just repeat steps 1 2 and 3

Converting SVG or BMP files is similar …

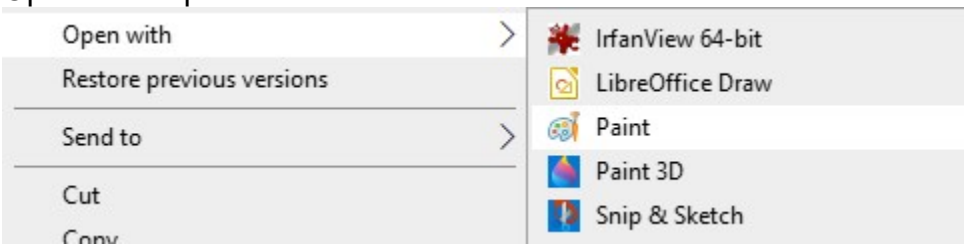

Converting Files
DXF
SVG
BMP
1. Choose a DXF File
2. Check Unit
Scale Factor:
1.00
3. DXF -> JB
Close
Open
Converting Files
DXF
SVG
BMP
1. Choose a SVG File
2. SVG -> JB
Close
Open

Converting Images

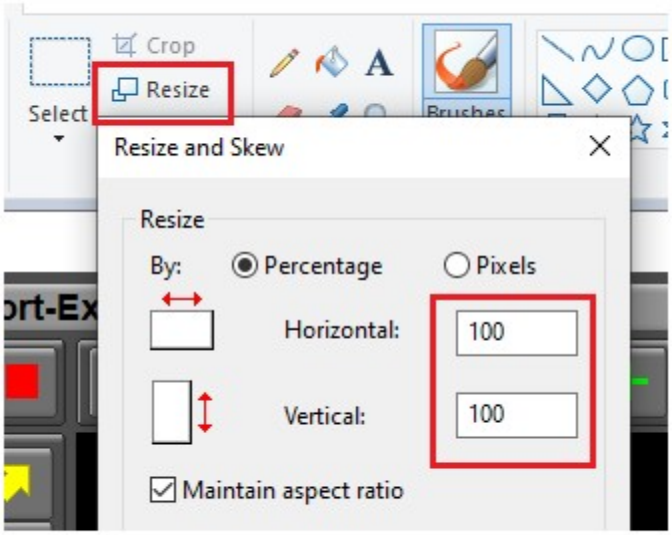
Search google images for**: cowboy silhouette**:



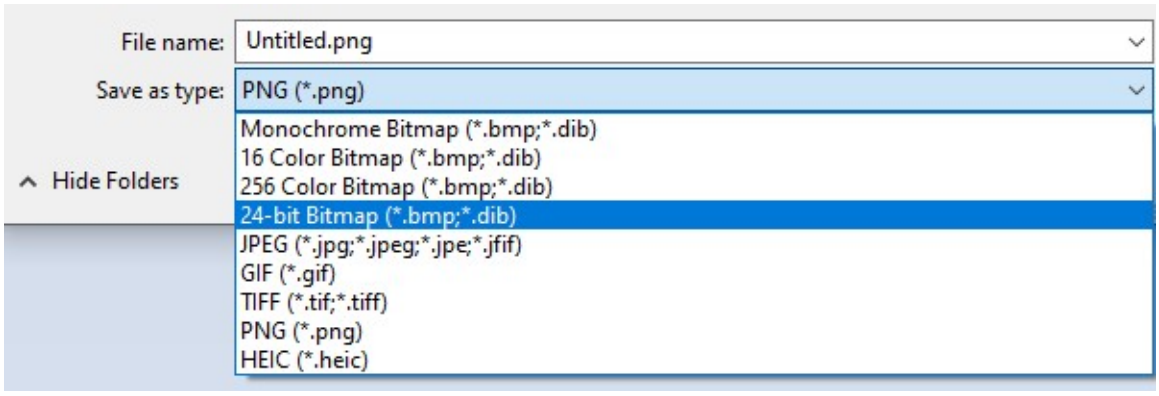
Save it on your C:\mypictures folder.
Open saved pictures with PAINT

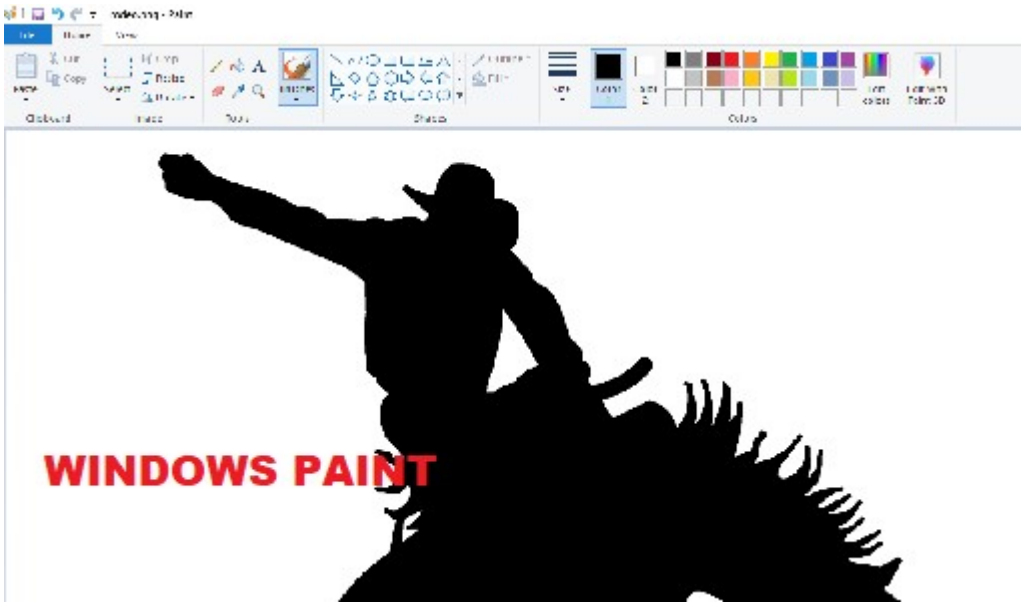


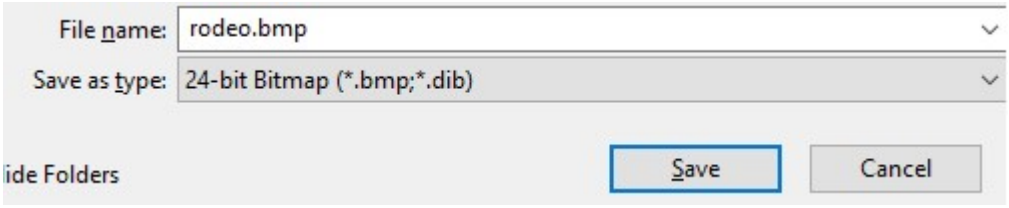
Resize down image to fit screen,

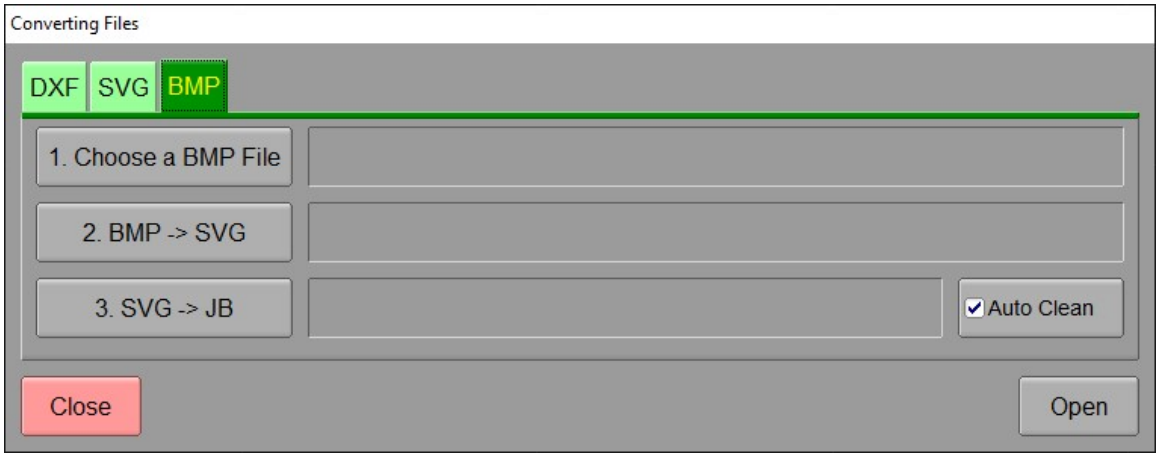


then save it as 24 bit BLACK and WHITE Bitmap.

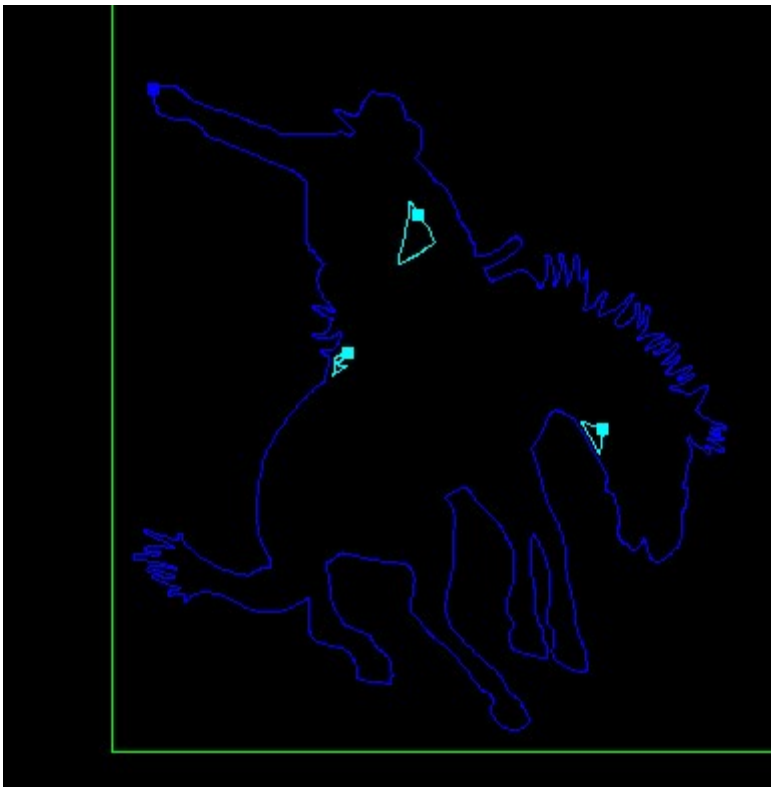




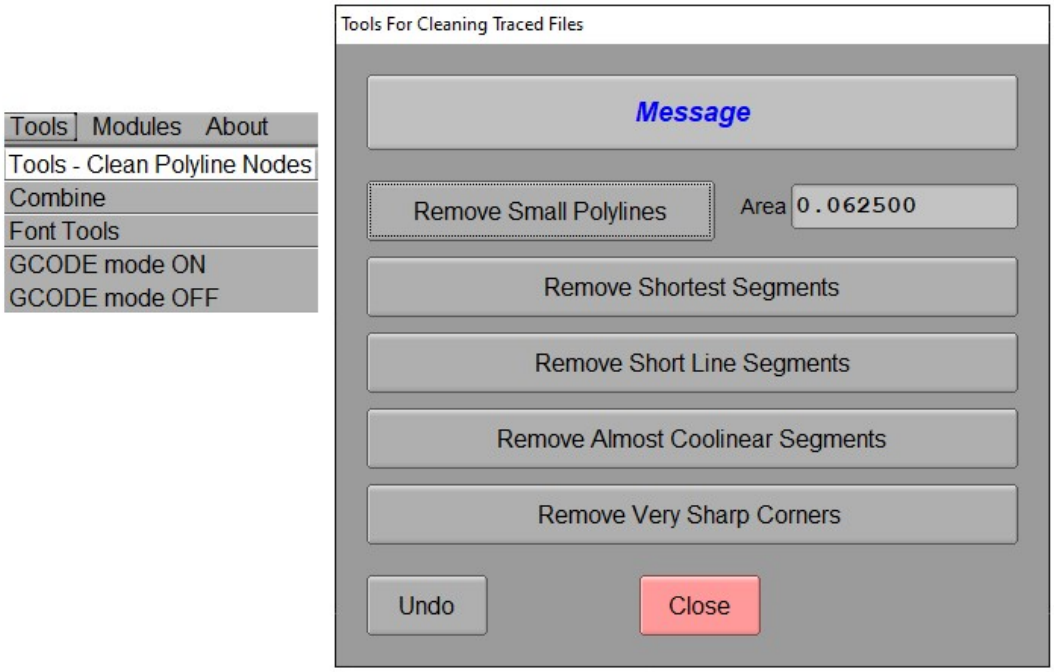




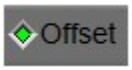
Open created file and you will see hat it is converted to vector format.



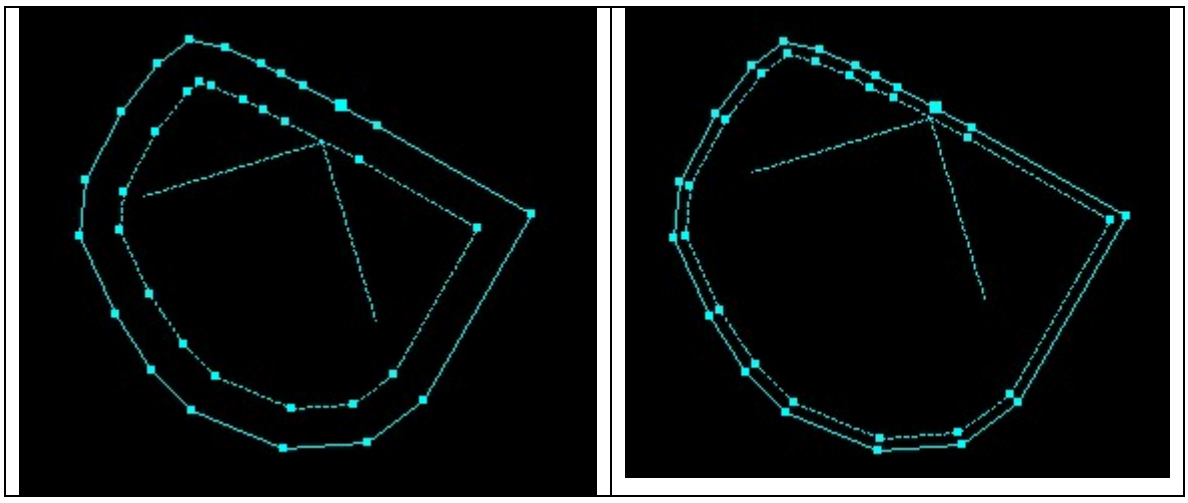
Then, on Tools menu you can remove polyline with small area, and remove short segments. If you checked Auto Clean checkbox you don't have to do next step.



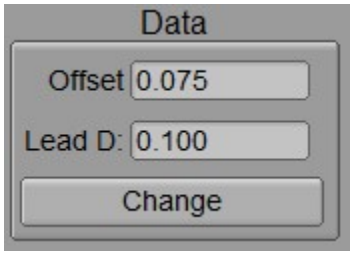
1. Remove Small Polylines
2. Remove Short Line Segments (press this couple of times, and watch results) If you go to much use UNDO button
3. Remove Almost Coolinear Line Segments
4. Remove Very Sharp Corners
5. Set Lead Ins - recalculate leadins to better position

Then turn offset on 

and check drawing



Depending on your drawing you may wish to go with smaller offset, and smaller lead ins distance, or you may cancel it.



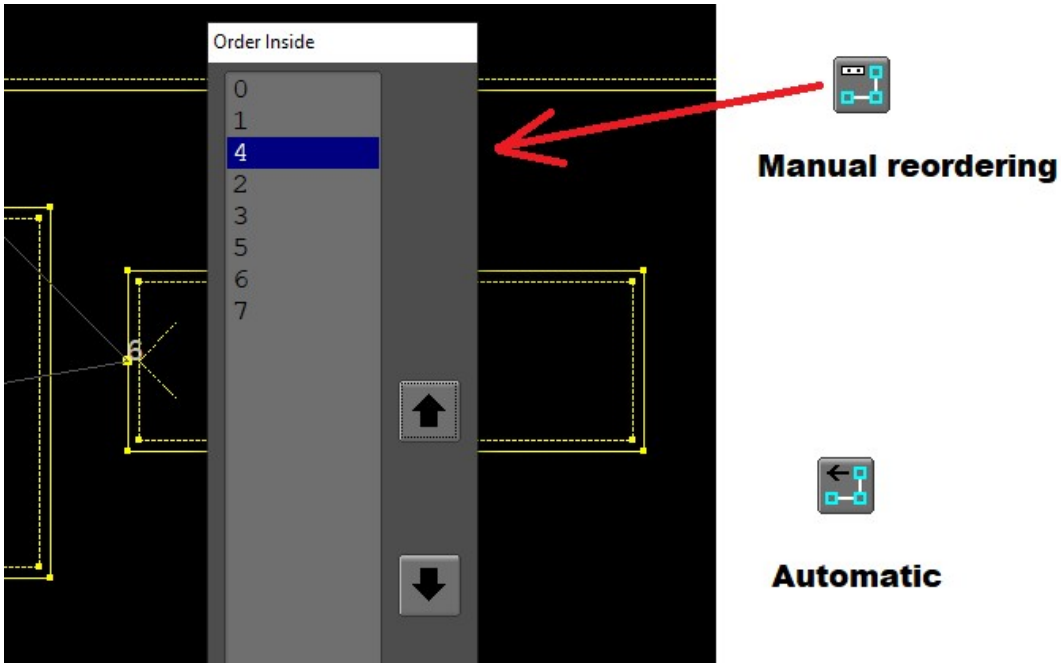
Then you may use this tools to manually edit:

Edit Lead In position

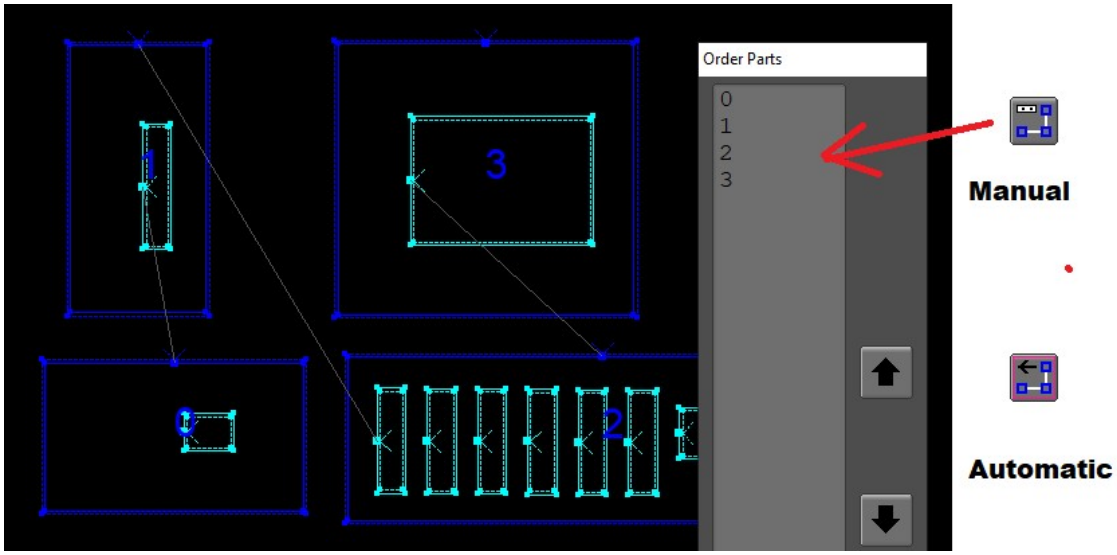
Remove a Node

Remove small polyline

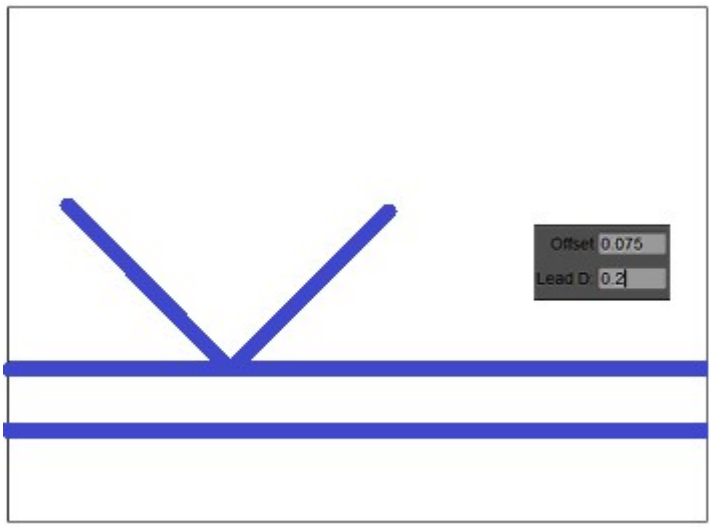
Reordering polylines inside a part

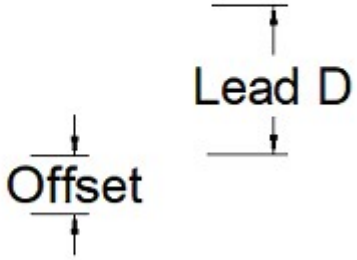


Reordering Parts



Offset (KERF) and Lead Distance





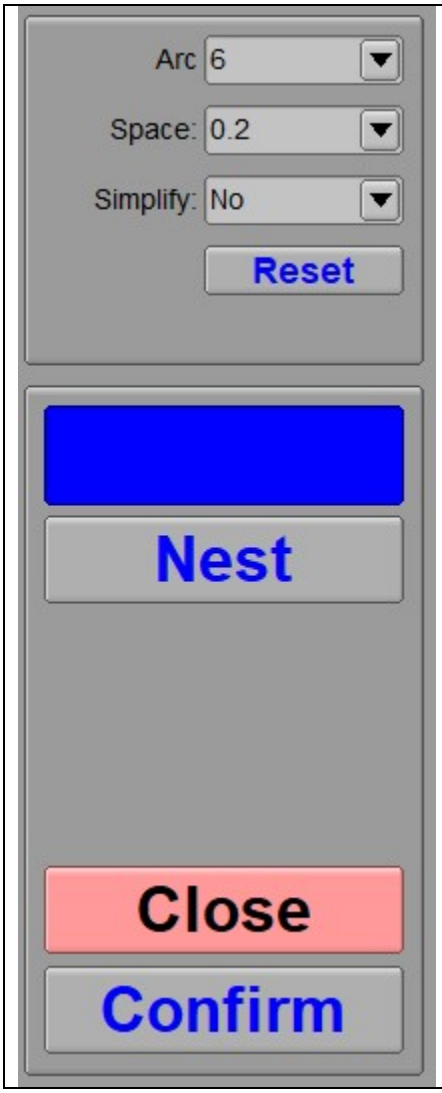
Nesting

Open a file

Duplicate parts

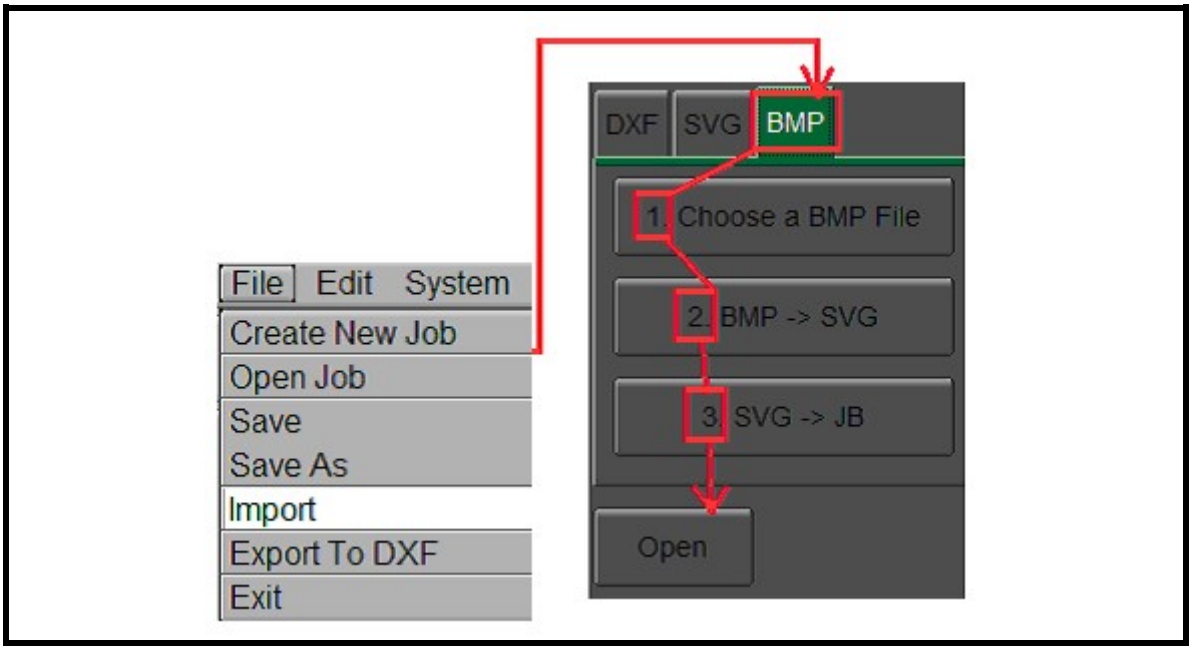
Click: 

If you are nesting a file that is created from BMP (traced) Set Symplify to Yes, otherwise just click Nest wait and Confirm

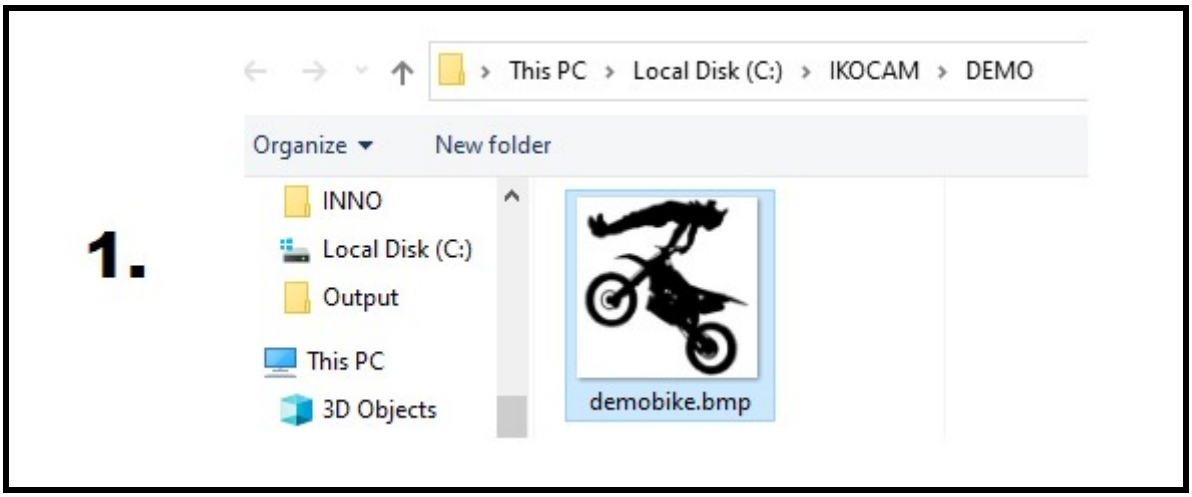


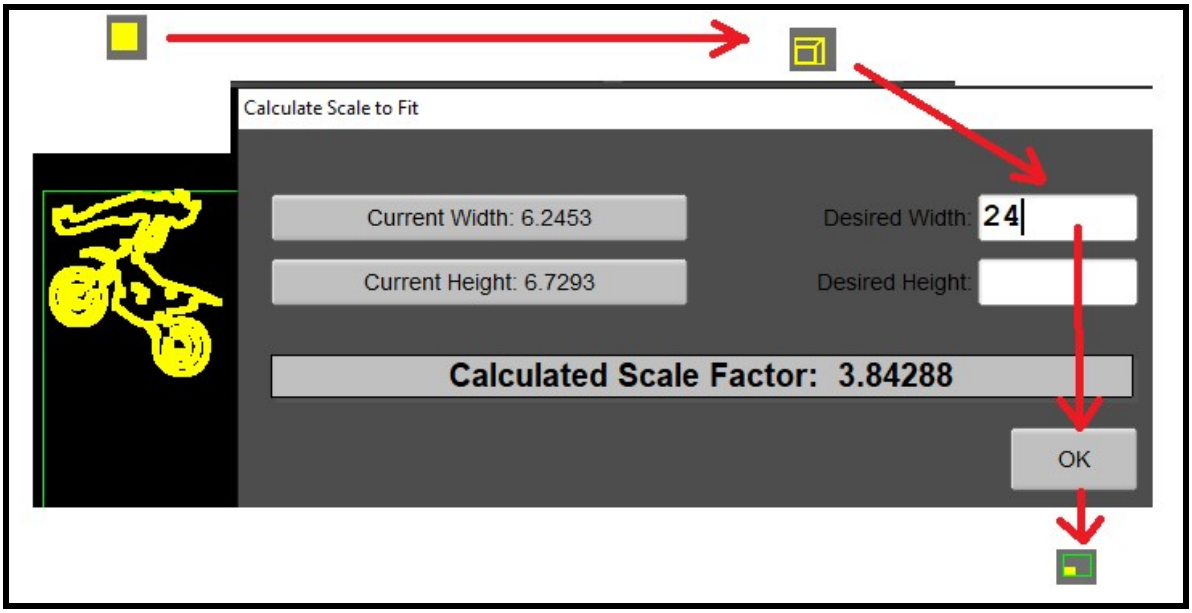
	**Recalculate Lead In positions**
	**Check por possible overlaps**
	**Automatic Parts Ordering**

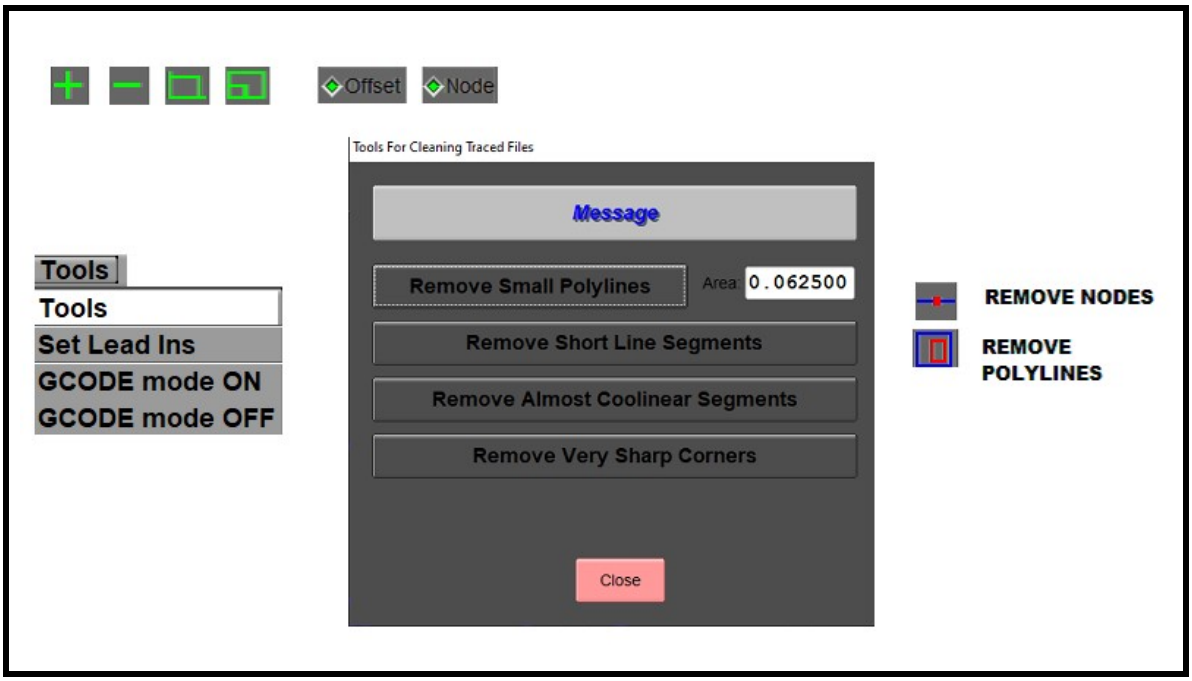
PRACTICE 1



1.


This PC
Local Disk (C:)
IKOCAM
DEMO
Organize
New folder
INNO
Local Disk (C:)
Output
This PC
3D Objects
demobike.bmp

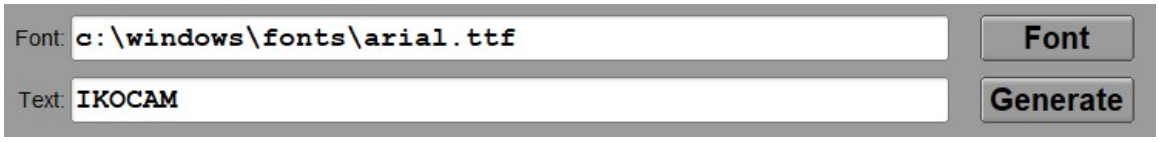

Calculate Scale to Fit
Current Width: 6.2453
Desired Width:
24
Current Height: 6.7293
Desired Height:
Calculated Scale Factor: 3.84288
OK



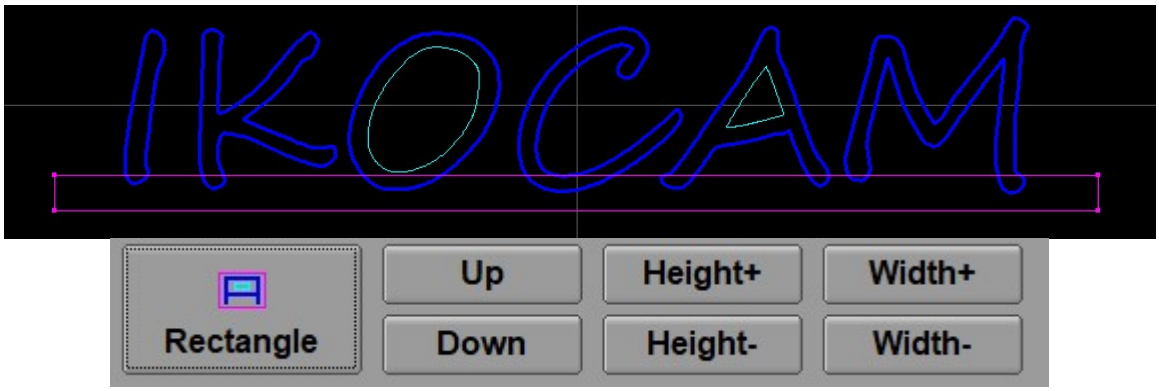
- Remove Small Polylines
- Remove Short Line Segments (press this couple of times, and watch results) If you go to much use UNDO button
- Remove Almost Coolinear Line Segments (press this couple of times)
- Remove Very Sharp Corners (press this couple of times)
- Set Lead Ins - recalculate leadins to better position

Font Tools

Choose Font and press Generate



First Scenario	

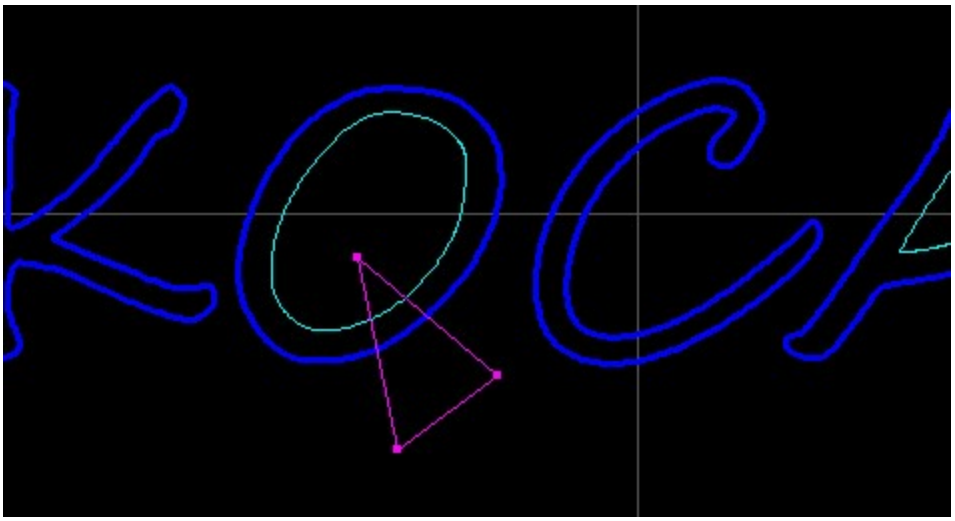


Click Rectangle and use Up, Down … buttonts to bring pink rectangle to this position:

Then press OK button

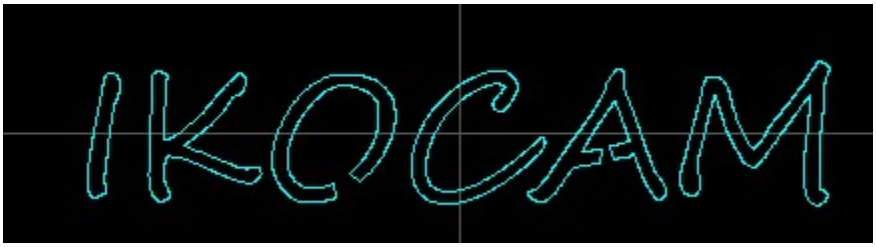
Second Scenario	

Choose Editing: 



Draw pink polyline. To close polyline press <ENTER> or just click on first point.

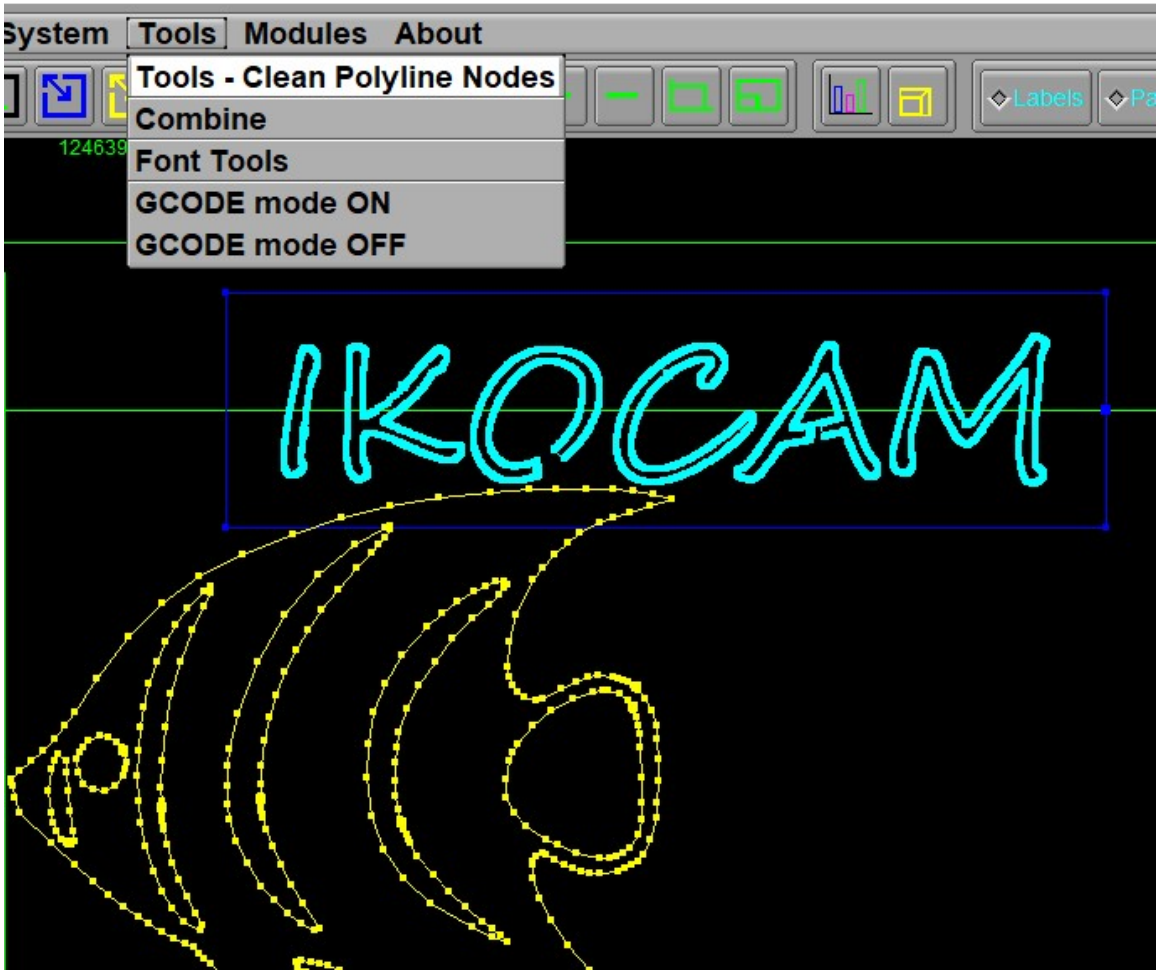
Click 



Then, Click Rectangle, and resize it:

Press OK

So, now you have it in main window:



Use Tools – Clean Polyline nodes

If you already have some parts **opened and cleaned,** select them. If they are selected cleaning tools will not apply to those. It will clean only **UNSELECTED**

After cleaning move it to right position and combine with other parts.

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