Introduction to LightBurn software

Instructor: Whoever

What is LightBurn?

LightBurn is the software ETA uses to control our new lasers.

- **IMPORT** shapes and arrange them. Some shape creation (lines or images) can be done in LightBurn, but this is best program that can export lines and images. *
- **CREATE** you laser plan.
  - Set cutting/engraving speed and power parameters.
  - Determine order of cutting/engraving objects.
- **ALIGN** your design and your material in the laser.
- **CHECK** you cut using Frame
- **START** your cutting/engraving job.

* LightBurn can import the following:
  Image files: .bpm, .jpg, .jpeg, .png, .gif, .tif, .tiff, .tga
  Vector Files: .ai, .pdf, .sc, dxf, .hpgl, .plt, .rd, .scpro, .svg, .lmrn

Q&A

Q: Why LightBurn/ what happened to RetinaEngrave
A: LightBurn enables you to access the full features available in the controllers of our new lasers. It's better than RetinaEngrave and easier to use.

Q: Can I run LightBurn on my own computer?
A: Yes, but you'll need to buy a license to use it for more than 30 days. One license can be used on up to two computers.
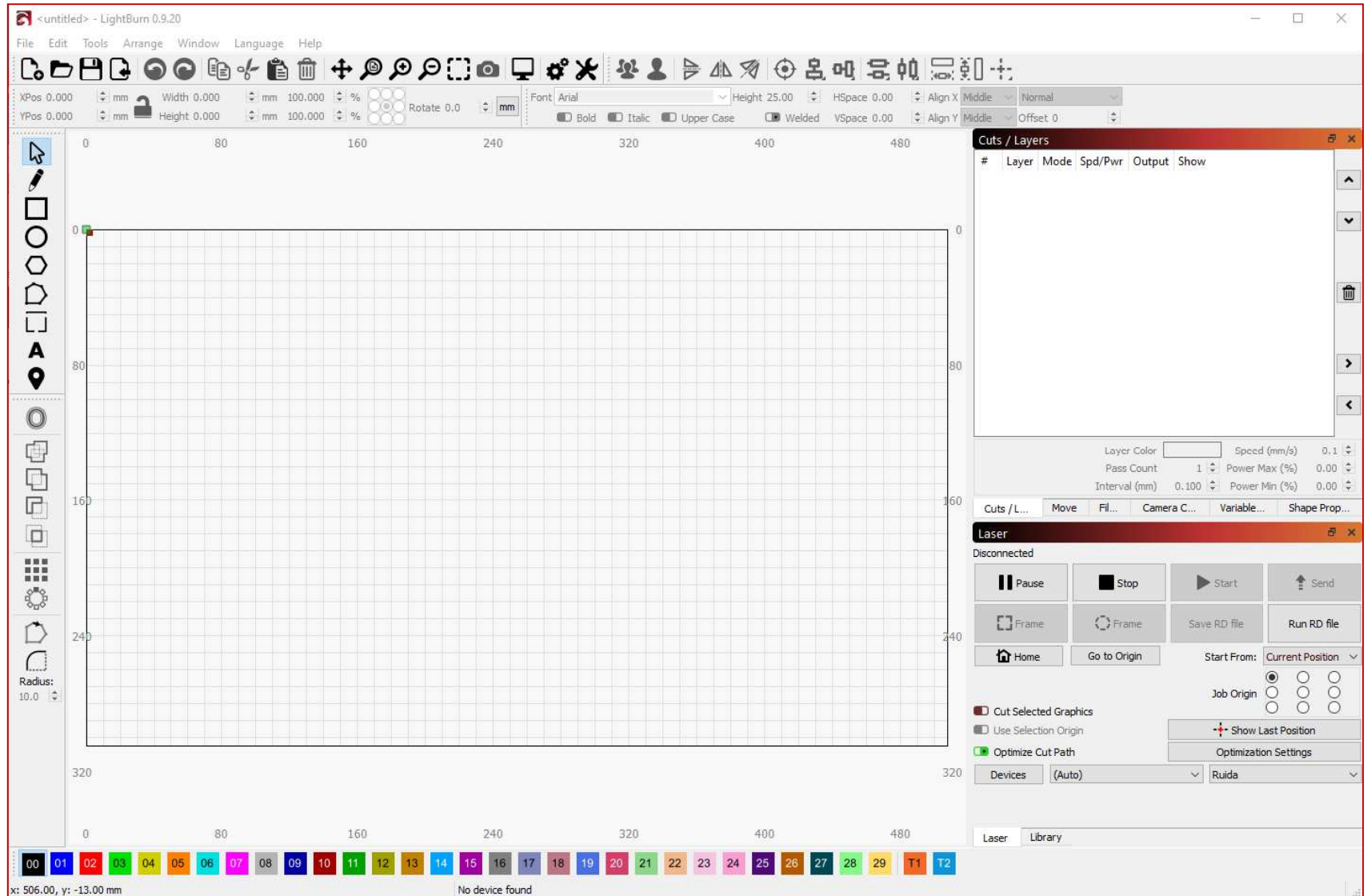
Q: Do I need to do all my project work on the computers conenctd to the lasers?
A: No, LightBurn is also available on the workstations in the ETA studio. It's best to prep there to give osthers access to the lasers.
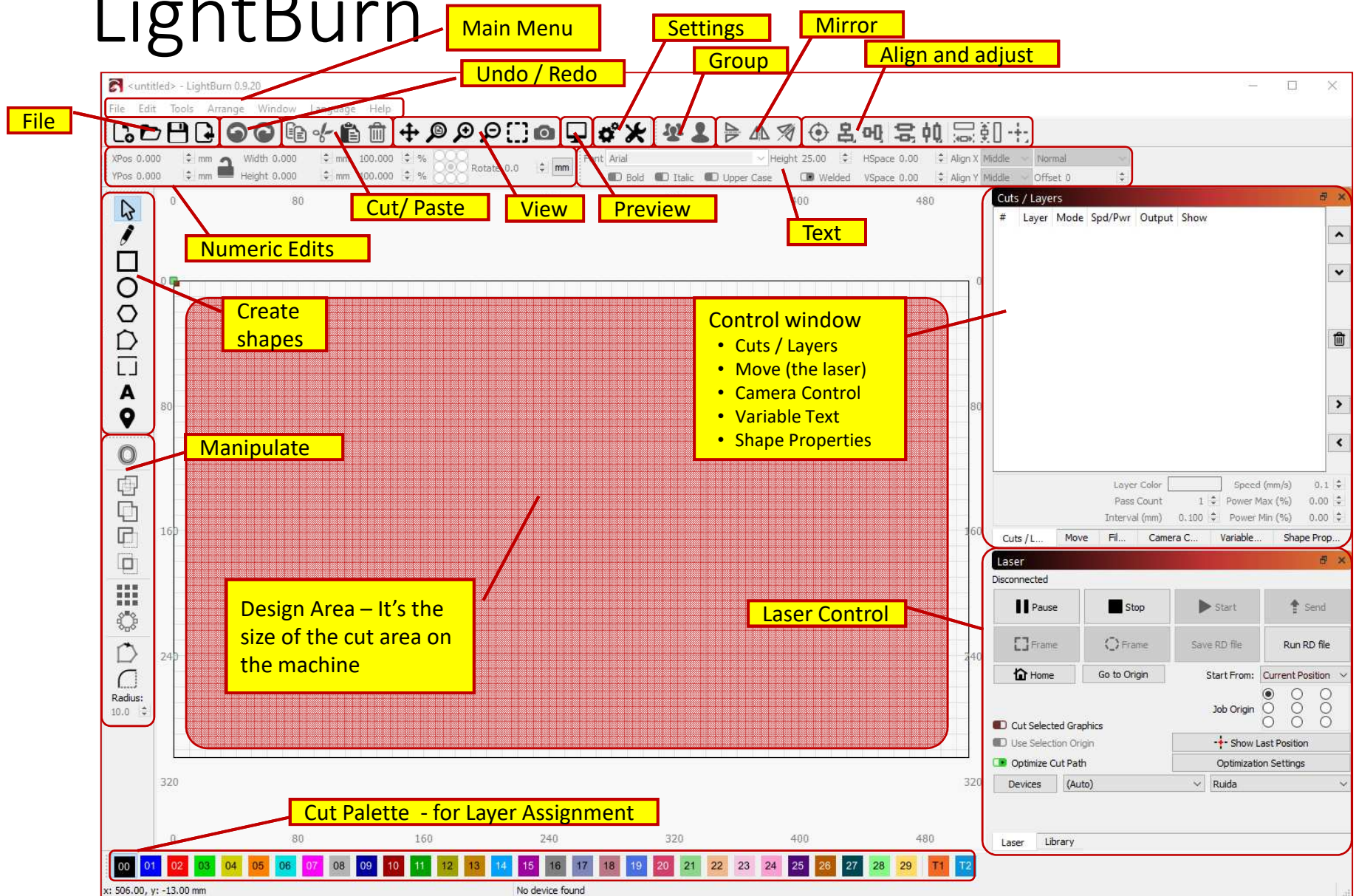
Q: Can I still use Inkscape?
A: Yes, but you'll need to export your project and import into LightBurn to get it onto the laser.
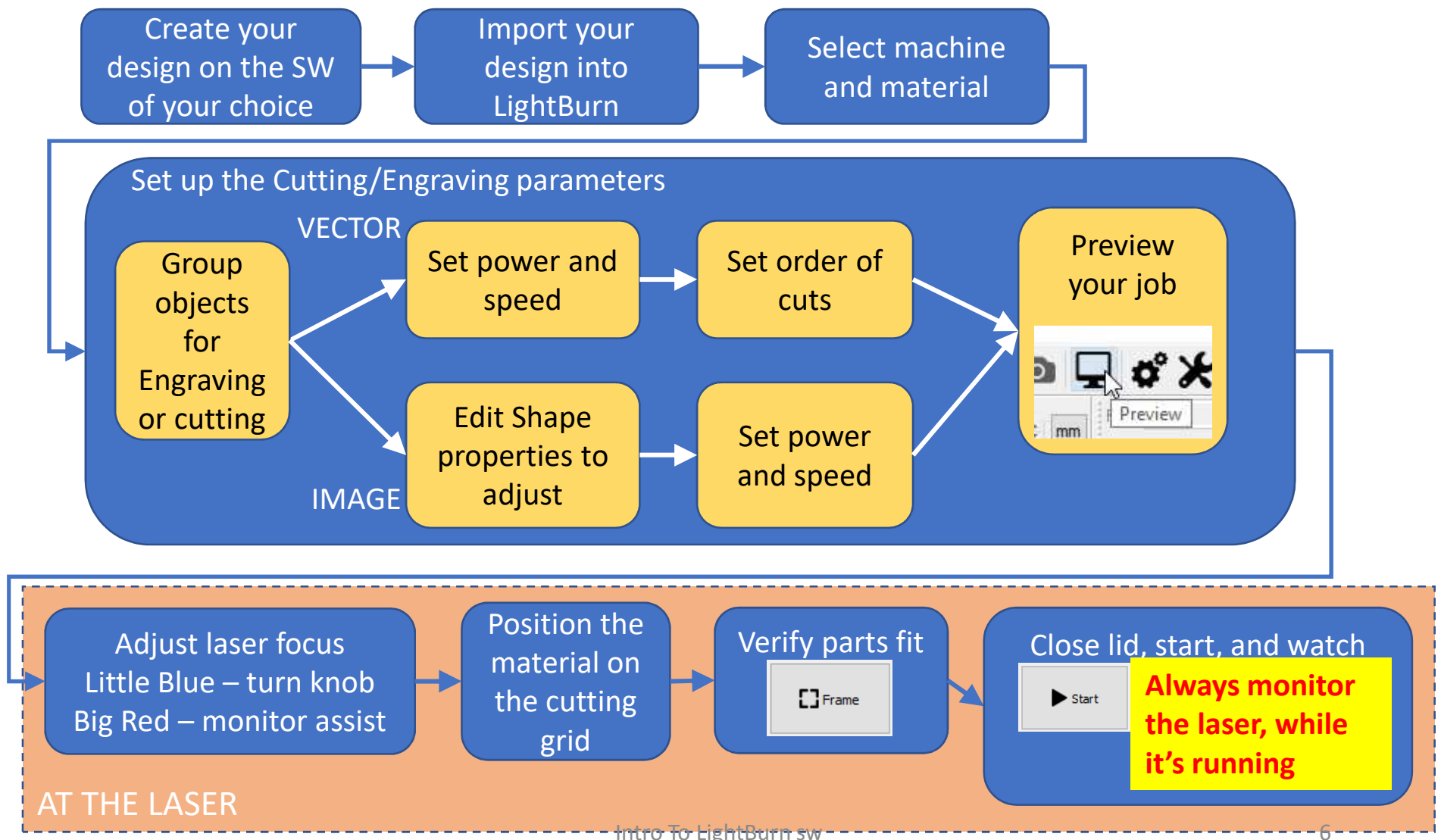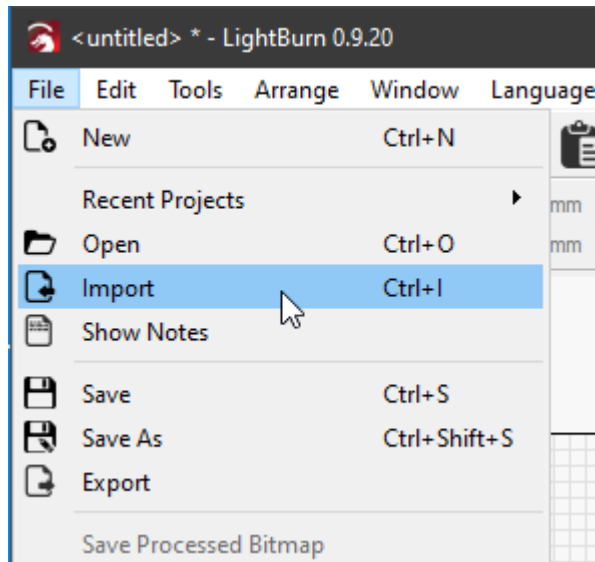
The LightBurn Screen

LightBurn

Main Menu

Settings

Mirror

Group

Align and adjust

Undo / Redo

File

Cut/ Paste

View

Preview

Numeric Edits

Text

Create shapes

Control window
• Cuts / Layers
• Move (the laser)
• Camera Control
• Variable Text
• Shape Properties

Manipulate

Design Area – It's the size of the cut area on the machine

Laser Control

Cut Palette - for Layer Assignment

Typical Laser Workflow

Create your design on the SW of your choice → Import your design into LightBurn → Select machine and material →

Set up the Cutting/Engraving parameters

VECTOR

Group objects for Engraving or cutting → Set power and speed → Set order of cuts → Preview your job

IMAGE

Edit Shape properties to adjust → Set power and speed → Preview your job

Preview your job

AT THE LASER

Adjust laser focus
Little Blue – turn knob
Big Red – monitor assist → Position the material on the cutting grid → Verify parts fit [ ] Frame → Close lid, start, and watch ▶ Start
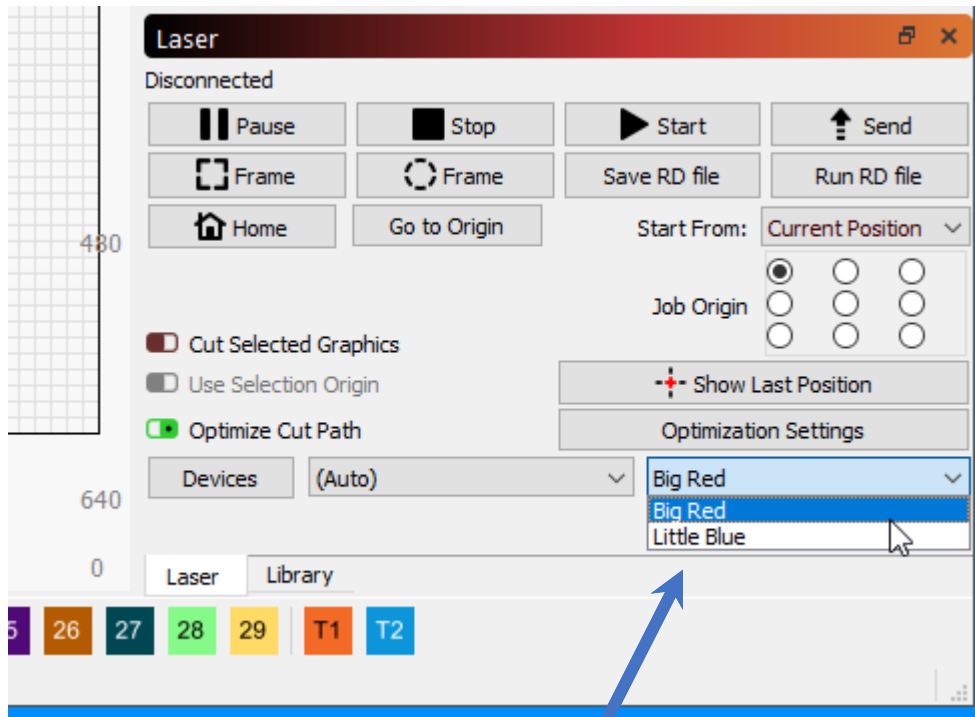
Always monitor the laser, while it's running

Import your design

1. File Menu
2. Import
3. Select your file

OR

Drag and drop you file onto the design area.

Select machine

If the Laser tab or window is not visible, turn it on from the Window menu
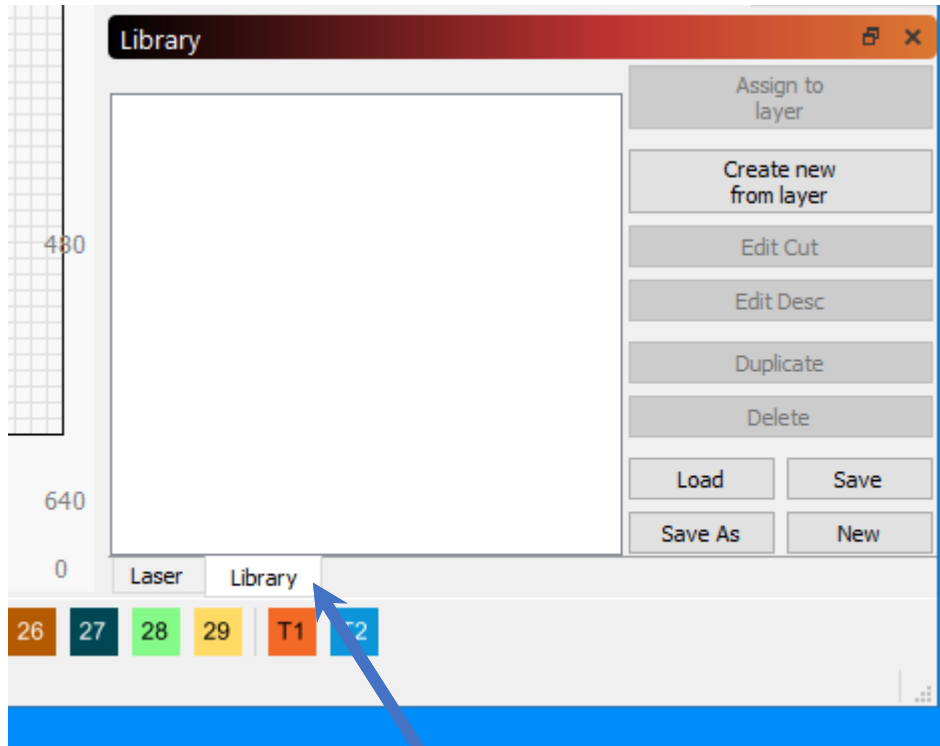

Select the Laser tab, then machine from the drop down in the laser control window. The size of the design space will change to match the laser you selected.

Select material

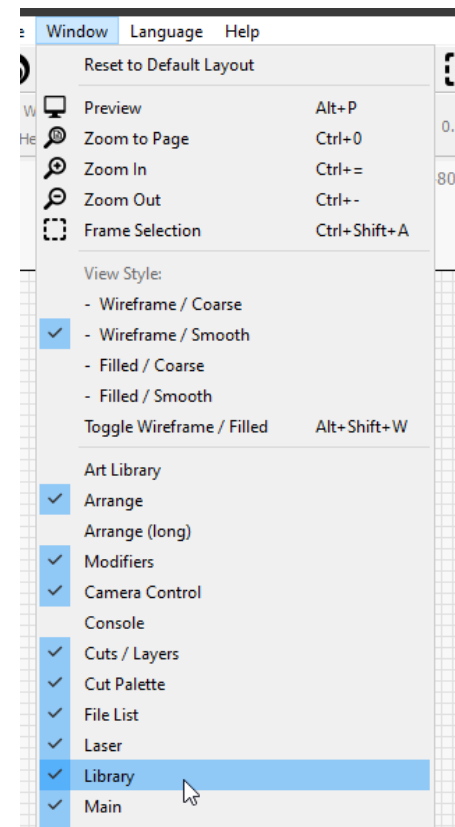If the Library tab or window is not visible, turn it on from the Window menu
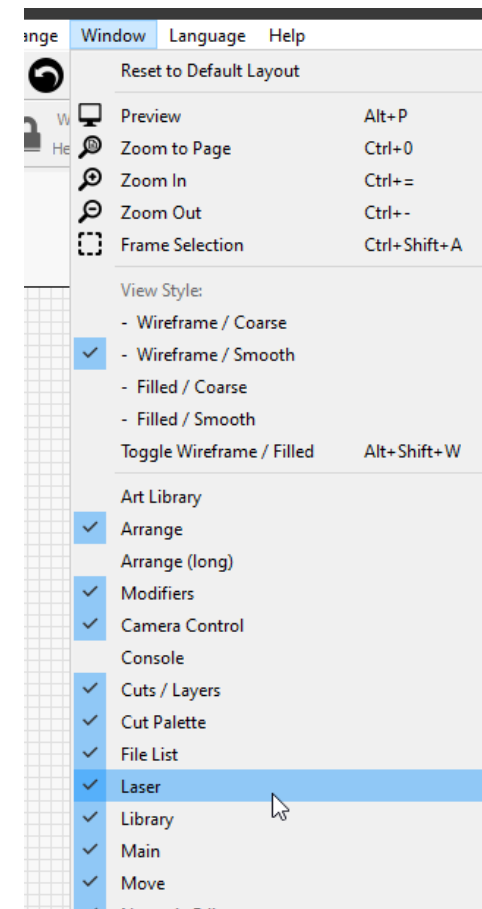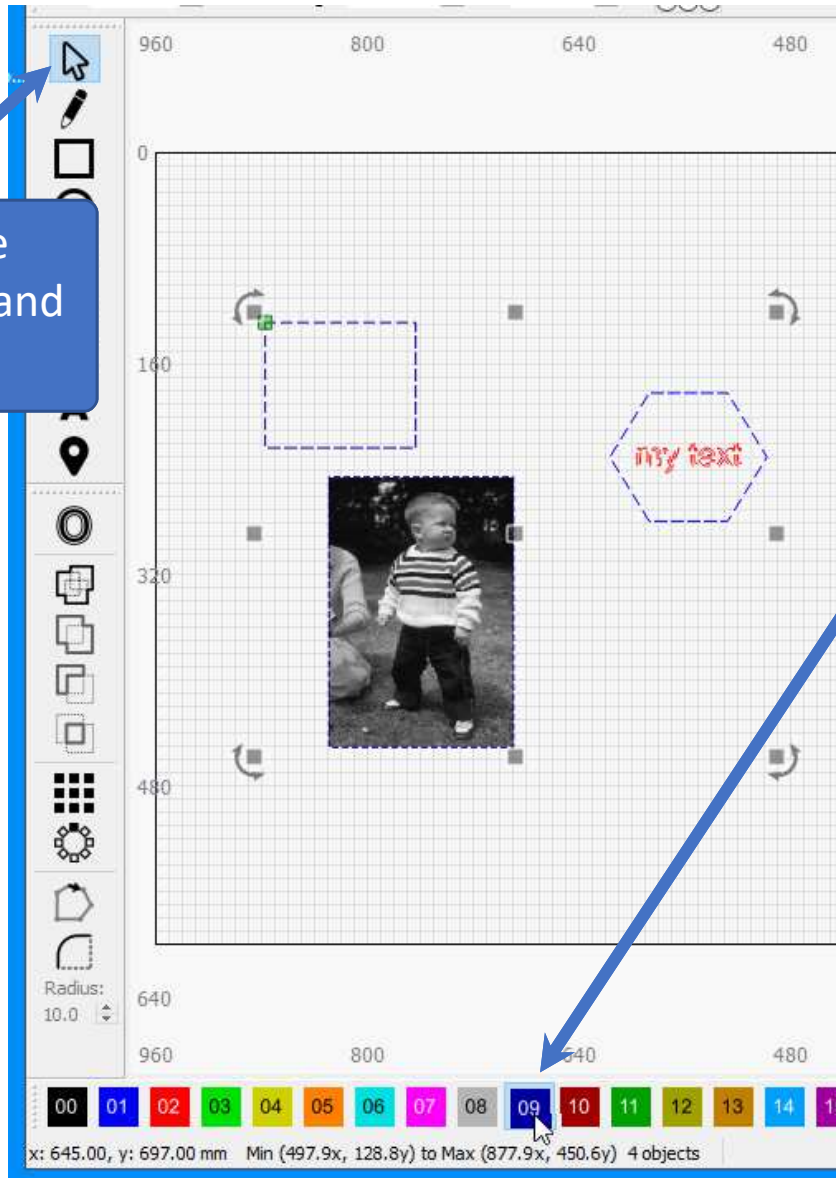
Select the Library tab, then …

Assigning objects to layers


Be sure to use object select and move mode

1. Select one or more objects that you want to use the same cutting parameters on.
2. Select a Layer (your choice) from the "Layer Palette" and the lines of the objects will change to that color

Selecting multiple objects

Boxing from the left only selects shapes fully enclosed

Boxing from right selects all shapes with any bit in the box

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Set Power and speed
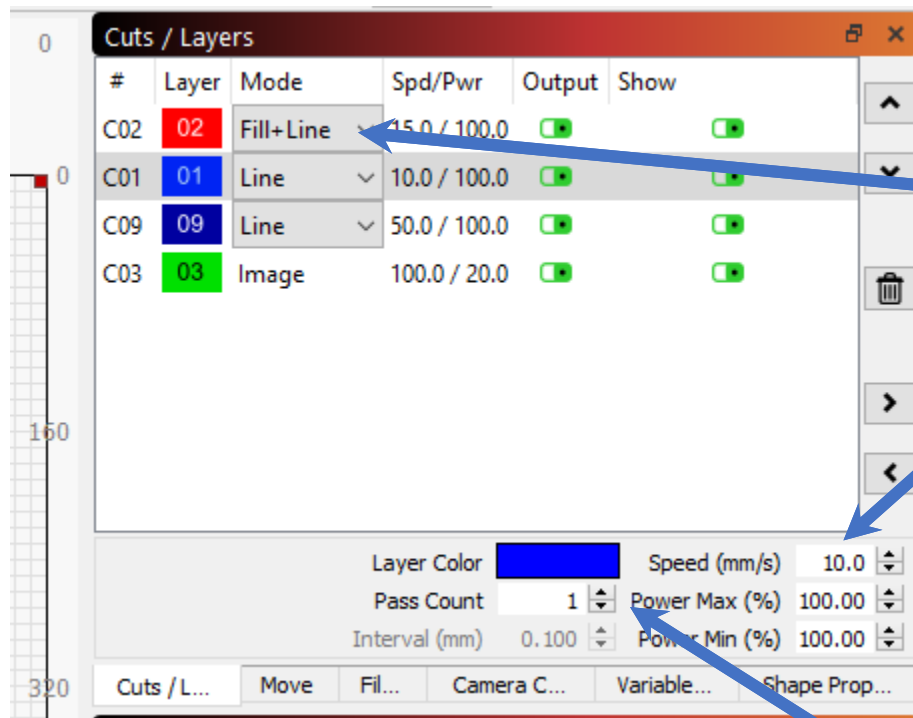
1. Select a layer.
2. Select the mode – Applies to all shapes on the layer. LB will select "Image" for image shapes.
3. Select the cutting speed and power. Consult BARN recommendations, use the material library, or make your own test cuts. The min power is the lowest it will go to as it slows down at corners. If you get burned corners, reduce this.

4. Select the number of passes the laser will make.

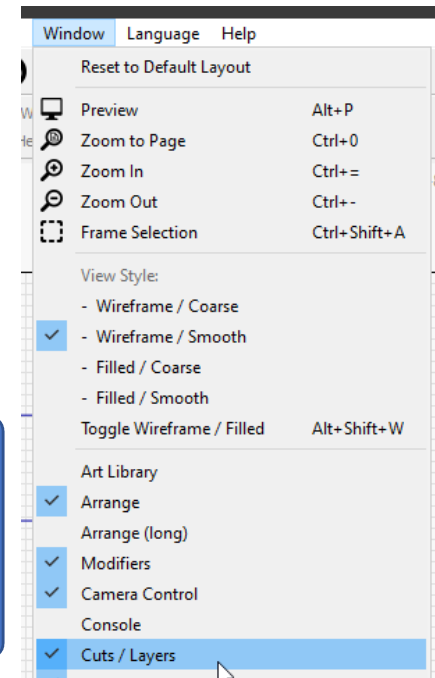If the Cuts/Layers tab or window is not visible, turn it on from the Window menu

Cutting order... Too many ways
Most used – Cuts/Layers
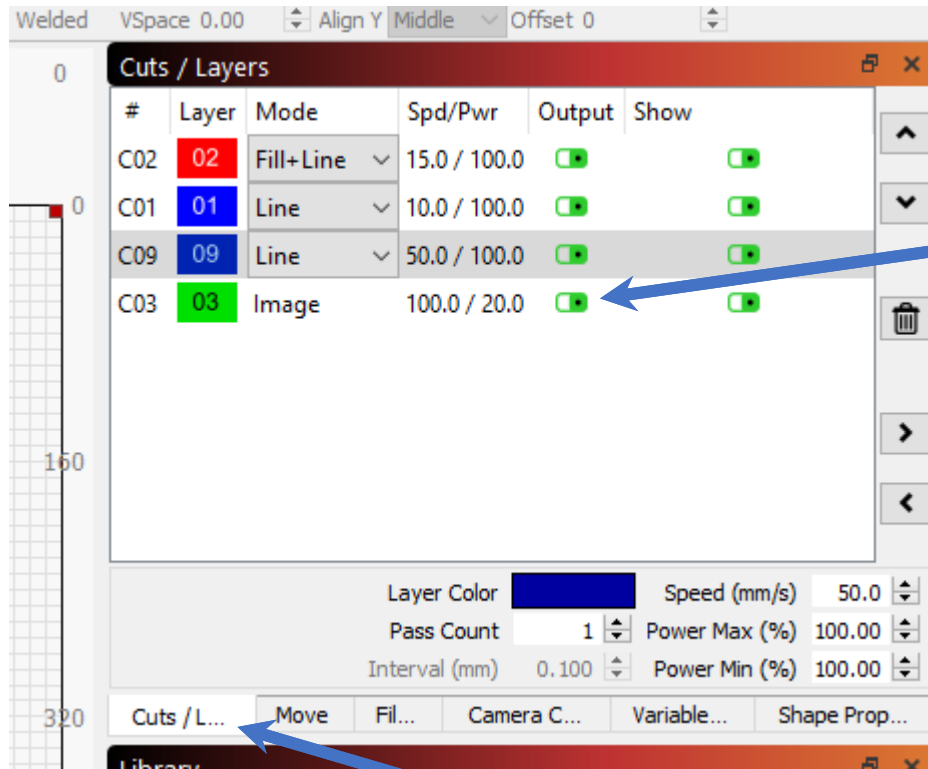
Most common - priority by layer order
- Move a layer up or down in priority with these arrow buttons
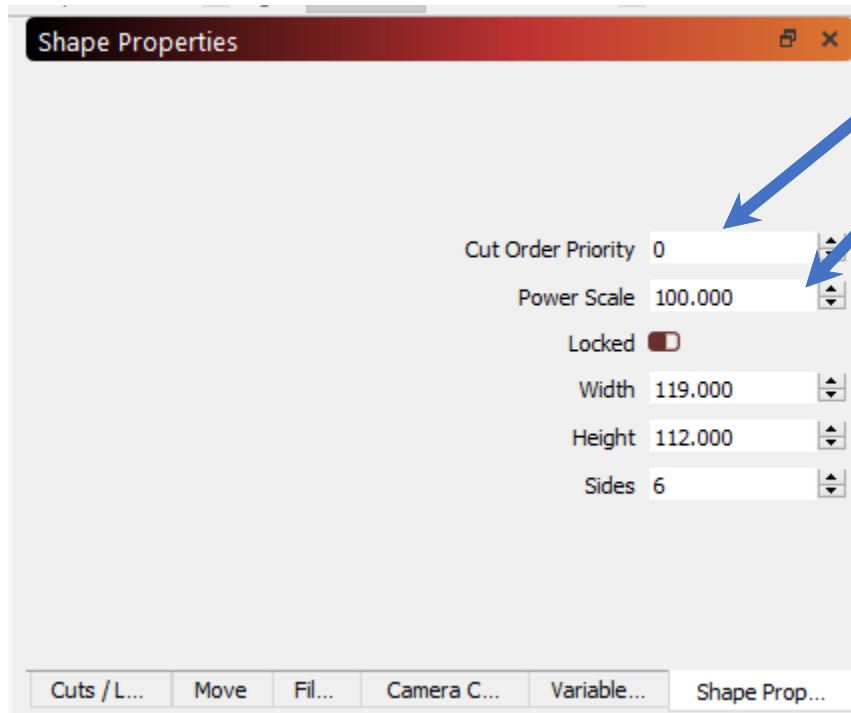- Turning off "Output" means it wont's be cut

If the cuts/Layers tab or window is not visible, turn it on from the Window menu
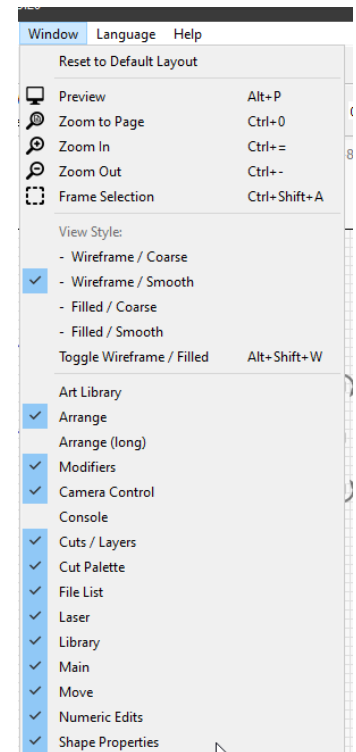
Cutting order... Too many ways
Shape Properties

Shape Properties

Cut Order Priority: 0

Power Scale: 100.000

Locked

Width: 119.000

Height: 112.000

Sides: 6

Cuts / L... | Move | Fil... | Camera C... | Variable... | **Shape Prop...**

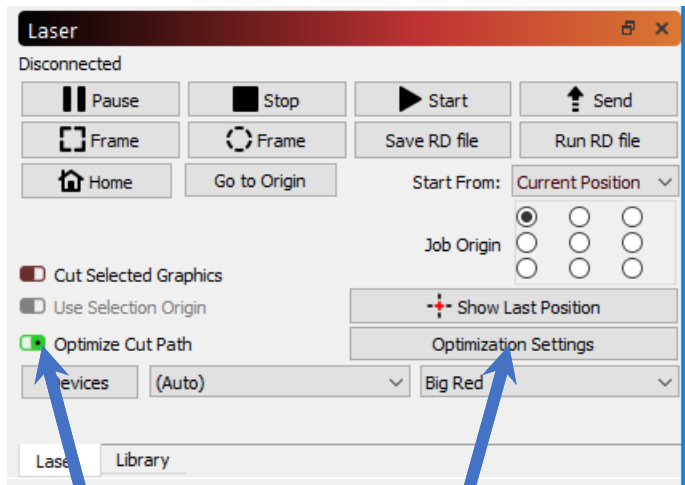Usually used to set priority of shapes within a single layer
- Give a Cut priority here.
- You can also scale the layers power setting for each shape
- menu items in this window change based on the shape selected.

If the Shape Properties tab or window is not visible, turn it on from the Window menu

Window   Language   Help

Reset to Default Layout

Preview   Alt+P
Zoom to Page   Ctrl+0
Zoom In   Ctrl+=
Zoom Out   Ctrl+-
Frame Selection   Ctrl+Shift+A

View Style:
- Wireframe / Coarse
✓ - Wireframe / Smooth
- Filled / Coarse
- Filled / Smooth
Toggle Wireframe / Filled   Alt+Shift+W

Art Library
✓ Arrange
Arrange (long)
✓ Modifiers
✓ Camera Control
Console
✓ Cuts / Layers
✓ Cut Palette
✓ File List
✓ Laser
✓ Library
✓ Main
✓ Move
✓ Numeric Edits
✓ Shape Properties

Cutting order... Too many ways
Optimization Settings

Laser

Disconnected

Pause	Stop	Start	Send
Frame	Frame	Save RD file	Run RD file
Home	Go to Origin		

Start From: Current Position

Job Origin

☐ Cut Selected Graphics
☐ Use Selection Origin
☑ Optimize Cut Path

Show Last Position
Optimization Settings

Devices (Auto) Big Red

Laser | Library

Cut Optimization Settings - LightBurn 0.9.20   ? ✕

These are optional, and can be re-ordered.

Order by Layer	Order by Layer	
Order by Group	Order by Priority	Remove
Order by Priority		

☑ Cut inner shapes first
☐ Cut in direction order
☑ Reduce travel moves
☐ Hide backlash
☐ Reduce direction changes
☑ Choose best starting point
☑ Choose corners, if possible
☑ Choose best direction
☑ Remove overlapping lines

Set as Defaults

LightBurn will select an optimized cut order if it can. This window sets it.
- LightBurn optimization can be turned off. We like it left on.
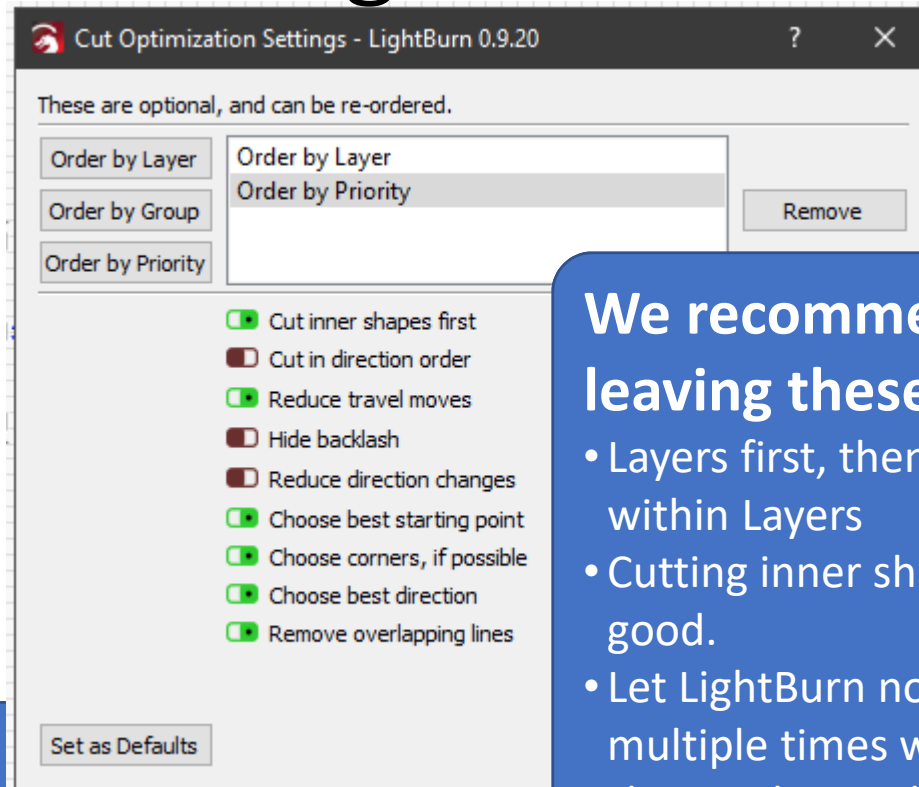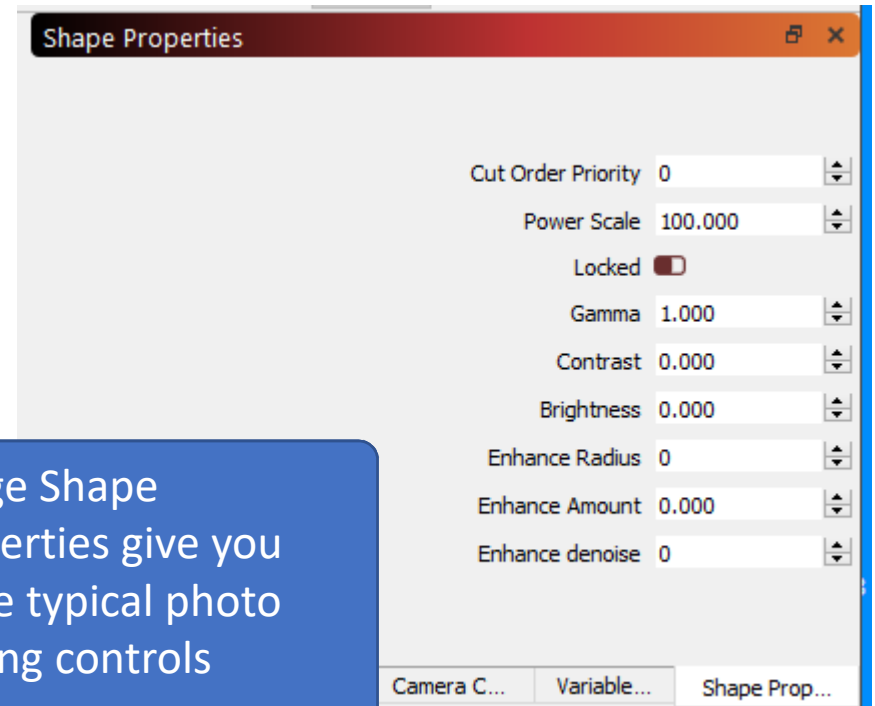
We recommend leaving these alone!
- Layers first, then priority within Layers
- Cutting inner shapes first is good.
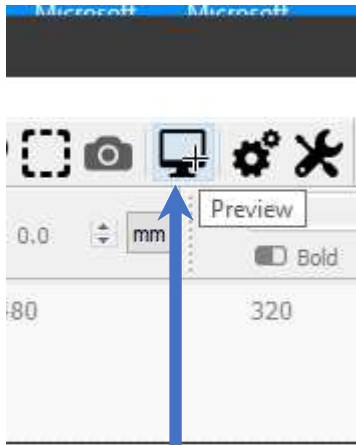- Let LightBurn not cut multiple times when shapes share edges.

Images

Picture files are converted to B&W when they are imported

Image Shape Properties give you some typical photo editing controls

Shape Properties

Cut Order Priority	0
Power Scale	100.000
Locked	
Gamma	1.000
Contrast	0.000
Brightness	0.000
Enhance Radius	0
Enhance Amount	0.000
Enhance denoise	0

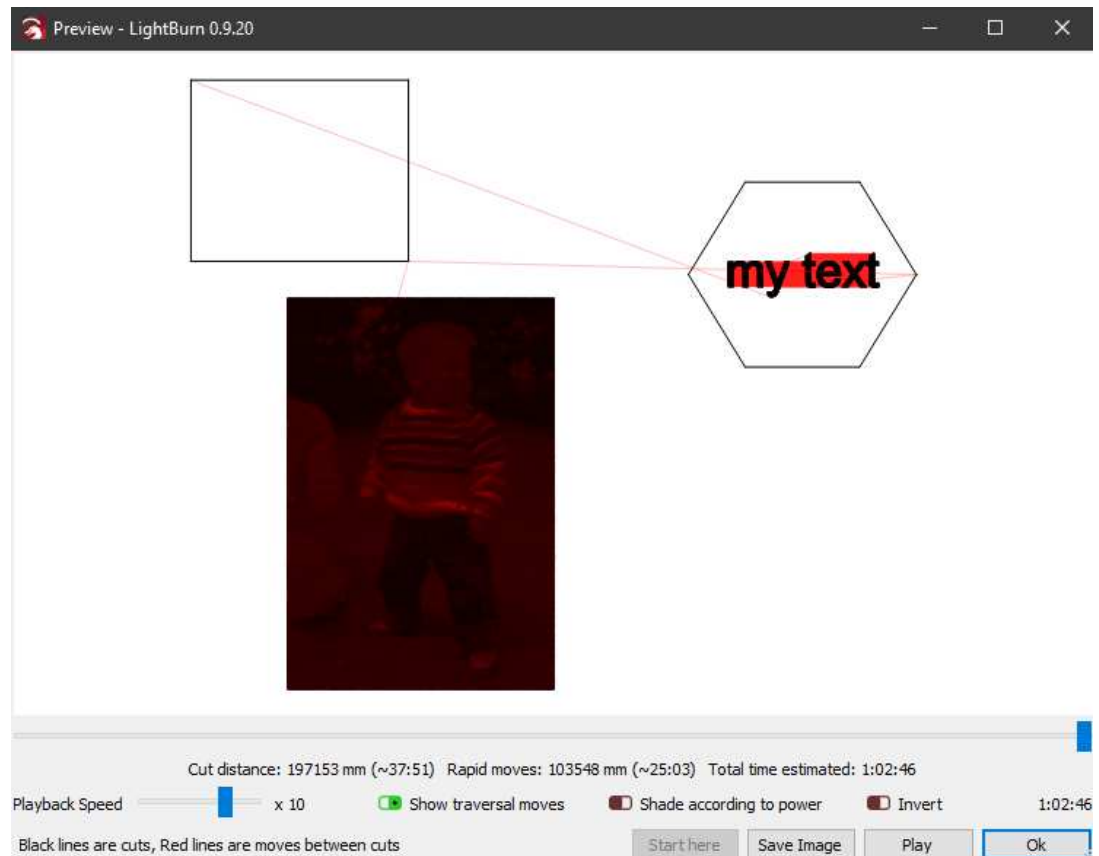Camera C...   Variable...   Shape Prop...

We have a lot to learn about engraving images, so the info here is pretty lean. If you learn some things tell us so we can add here and share with other members.

Preview your cutting

Select the Preview icon on the tool bar, or right click on the design space and select Preview.

Cut distance: 197153 mm (~37:51) Rapid moves: 103548 mm (~25:03) Total time estimated: 1:02:46

Playback Speed ———— x 10   Show traversal moves   Shade according to power   Invert   1:02:46

Black lines are cuts, Red lines are moves between cuts   Start here   Save Image   Play   Ok

The preview window will show you the order of cuts, and the total cutting time.
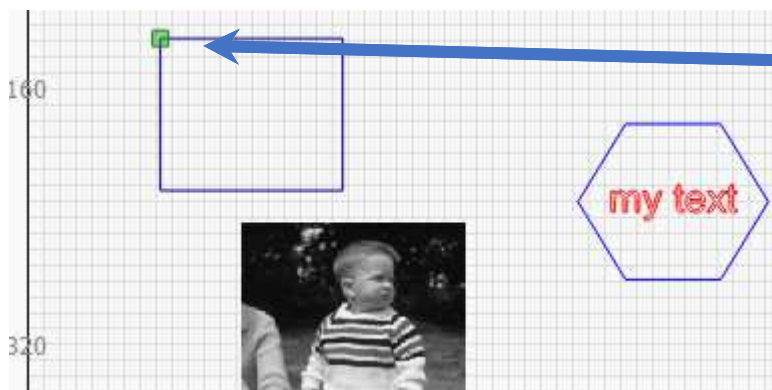
Place your material on the bed
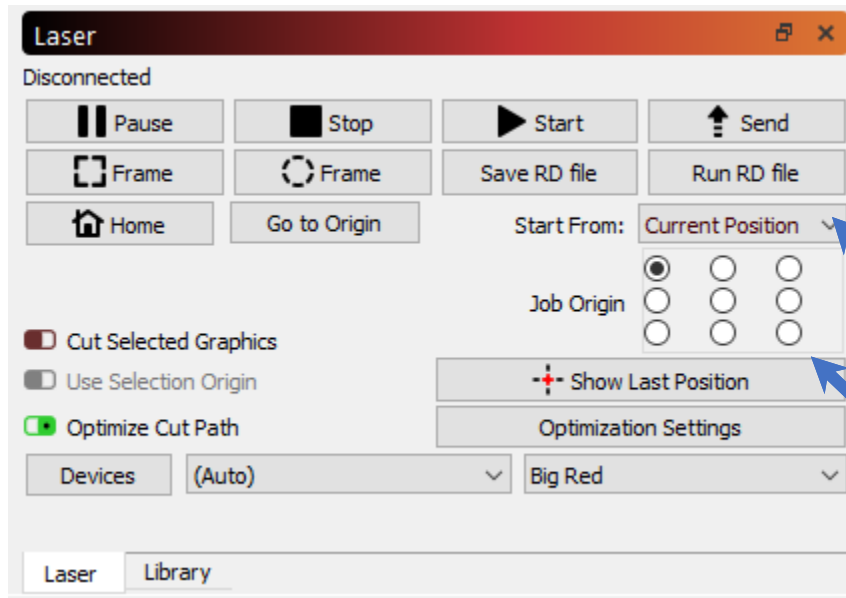
You need to tell LightBurn where to start cutting from This is done in the Laser window.

- We recommend moving the laser to the back left corner of the material, and the following settings
- Start from "Current position" (the place where you just positioned the laser).
- Then select the "Job Origin"" to match which corner of the material you moved the laser to.
- LightBurn will put a little green square on the design to show where the laser will start.
- The Next step (Frame) will tell you if you got everything right.

Focus

Place your material on the cutting grid so that it is under the laser cutting head (you might need to move the laser over the top of your material – use the buttons on the laser control panel – you can't grab the laser and move it like on the old FS laser.

BIG RED

This laser "autofocuses" by moving the material bed up and down. We are still developing procedures that will be sure the laser doesn't accidentally crash into itself while moving the bed.

SO… Ask a monitor to help you with the focusing step on Big Red.

LITTLE BLUE

This laser focus is adjusted by moving the med up and down (not fussing with the lens like the old FS laser). There is a knob inside the laser – front right corner – that moves the bed up and down.

1. Move the bed down so your material can be placed under the nozzle.
2. Move the bed up until the nozzle is 6mm from the surface of your material. There is a piece is 6mm plywood to use as a gauge. The setting in not too fussy. You can see when the nozzle just about touches.

Frame
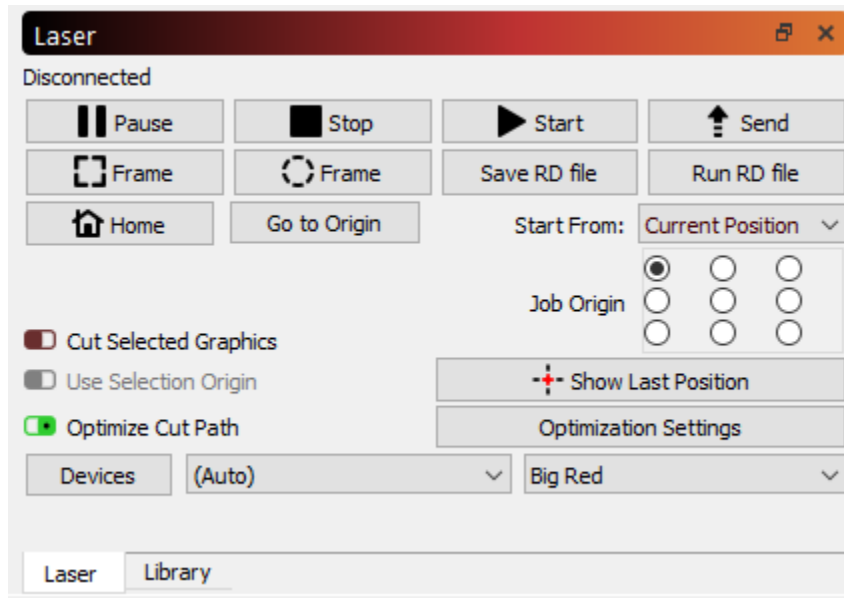
When you click one of the two frame buttons, the laser will move around the outside of the area where the cuts will take place. If the laser traces off your material, something needs to be changed.

The laser traces a rectangle that encloses all the cuts to be made.

The laser traces a "rubber band line" around the shapes it will cut.

Tips for working with imported shapes

- Imported shapes that are more than just an outline (example, square with a hole in it) are imported as separate shapes. It's important to group them all together if you want to move them easily.
- Be careful when grabbing objects to move them. If you grab a corner or side handle, it's easy to accidentally stretch or shrink a shape.
- The "Numeric edits" window lets you set the sixe of objects, or rotate them a specific amount.
- if you are cutting multiple parts on one piece of material, adding a rectangle the size of your raw material gives you a guide for packing them in. You can rotate and flip them to pack closer together.

Downloading LightBurn

You can run LightBurn on your own computer. Go to
https://lightburnsoftware.com/ and follow the "Download/Trial" link.
The software is free for 30days.

Installation – When you first run LightBurn, it wants you to connect it to a Device.
1. Select "Create Manually".
2. Scroll down and select "Ruida" from the controller list, hit "Next".
3. Select "Serial/USB", hit Next.
4. A. Name your printer "Little Blue", or "Big Red" – or whatever you want.
   B. enter the X and Y dimensions (300 x 500 for little Blue, 600 x 960 for Big Red). Then hit Next.
5. Click the button for "Right Rear" as the origin of the laser, hit Next.
6. Hit finish. You are ready to go.
7. You can add another device (or edit the one you created) by clicking on the "devices" button in the Laser window. If you have two or more devices, you can select which to use in this window.
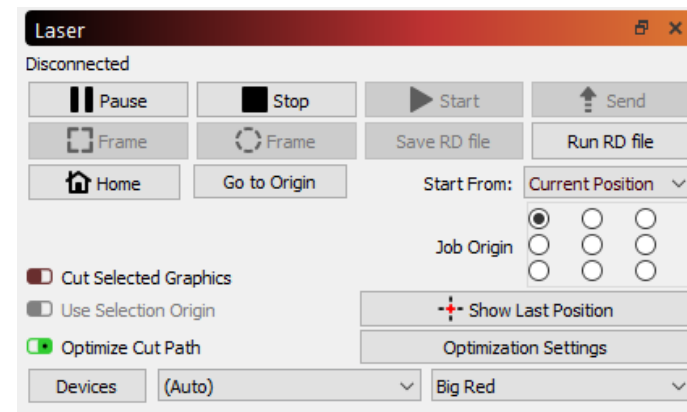
Topics

Important windows

       Cuts / Layers

       Shape Properties

       images - ?

       Laser

       Move

       Material library

Appendices

       Downloading LightBurn

       Vector design programs