

*LightBurn Software*

© *LightBurn Software, LLC*

*For LightBurn 1.6 and older*

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# 1. Home

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# LIGHTBURN

BETTER SOFTWARE FOR LASER CUTTERS

Welcome to the LightBurn Docs!

Please use the search bar at the top of the page or click the closest match below to find information on the tool or topic you'd like to learn about.

You can make LightBurn feature requests on our [suggestion site](#).

## Disclaimer and Safety

### Troubleshooting

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- [Connection Problems](#)
- [Job Quality](#)
- [LightBurn Editor FAQ](#)
- [GRBL Errors](#)
- [License Activation and Management](#)

### Beginner Pathway

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- [Installing LightBurn](#)
- [Adding Your Laser to LightBurn](#)
- [How to Use LightBurn](#)
- [Zooming, Panning, and Selection](#)
- [Getting Started: Making a Simple Project](#)
- [Coordinates, Device Origin, and Job Origin - Placing your work](#)

### Primary Documentation

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- [Instructions on Commonly Used LightBurn Features](#)
- [Cool Tricks and Usability Tips](#)
- [Working With Fusion 360](#)
- [LightBurn Bridge Docs](#)
- [Using a Rotary](#)
- [Galvo Docs](#)

If you need to read our documentation in a different language, you can use [Google Translate](#) to translate this website into your preferred language.

For your convenience, we have shortcuts to Google translate for [Spanish \(Español\)](#), [German \(Deutsch\)](#), [Italian \(Italiano\)](#), [Chinese \( \)](#), and [French \(Français\)](#).

[Download PDF Version](#)

## 2. How the License Works

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### 2.1 How the LightBurn License Works

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A LightBurn license is a digital key used to unlock the software for permanent use.

Every new license comes with a year of free updates from the date you first activate it. After a year, you'll still be able to use **any version** of LightBurn released before your license expired, but you'll need to **renew** your key in order to continue receiving updates for another year. If you renew *before* your key expires, you'll receive an additional two months on your one-year renewal.

The version you need depends on the type of controller used by your laser. LightBurn supports three device types: GCode, DSP, and Galvo.

- **LightBurn Core** supports GCode-based devices, and replaces the old LightBurn GCode license.
- **LightBurn Pro** supports *both* DSP and Galvo devices, in addition to GCode-based devices. This replaces the old LightBurn DSP and LightBurn Galvo licenses.

If you started with a license that supports one type of device, and now need to use LightBurn with a different type, you can **add support** for the new device type to your existing key. Please note that adding support for additional devices *does not renew your key*.

A LightBurn license automatically comes with 3 seats, meaning you can activate it on three computers at one time. You can use our **License Portal** to view and remove activations on your key, freeing up activations in use on old or inoperable computers so you can activate on new ones.

If you already have a key, you can purchase additional seats **here**. If you would like to purchase a new key with more seats than the default of 3, or are interested in a *Floating* license setup, see our **Educational and Volume Licensing** page.

If you sell your laser and wish to sell your license along with it, that is permitted. Please note that it is *not permitted* to sell part of your license to someone else.

Have questions? Visit our **FAQ** or contact us at [support@lightburnsoftware.com](mailto:support@lightburnsoftware.com)

## 2.2 Licensing FAQ

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### Is a LightBurn license a subscription?

No. You pay once, and the software will work forever as long as you have your license key.

### Which version do I need?

LightBurn supports three device types: GCode, DSP, and Galvo.

- **LightBurn Core** supports GCode-based devices, and replaces the old LightBurn GCode license.
- **LightBurn Pro** supports *both* DSP and Galvo devices, in addition to GCode-based devices. This replaces the old LightBurn DSP and LightBurn Galvo licenses.

If you're not sure what type of license you need, see [Which Version Do I Need?](#)

### Can I use the same license key on any operating system?

Yes, the same key can be used to activate LightBurn on Windows, MacOS, or Linux.

### How many computers can I use it on?

A LightBurn License automatically comes with 3 seats, meaning you can activate LightBurn on 3 computers at one time. You can use our [License Portal](#) to manage your activations.

If you'd like to activate LightBurn on more than 3 computers, you can purchase additional seats for your license [here](#). The cost of each additional seats depends on your license type.

If you would like to purchase a new key with more seats than the default of 3, or are interested in a *Floating* license setup, see our [Educational and Volume Licensing](#) page.

### Does the license expire?

No, but your license's update period has an expiration date — a year from when you first activated it. When the update period ends, the key is still valid, but you won't be able to use any version of LightBurn released after the end of the update period. Any version released *before* the key expired will continue to work.

### My license expired, how do I revert to a compatible version of LightBurn?

To download and revert to a version of LightBurn compatible with your key, visit [Releases](#).

### How do renewals work?

If your key has expired, a renewal will add a year of updates, starting from the date you purchase the renewal.

If you renew *before* your key expires, the renewal period will be extended starting from the date your key was set to expire. You'll also receive an additional two months on your one-year renewal.

### How much is it to renew?

The price to renew your license's update period and receive another year of software updates is \$30. Renew your license [here](#).

### ❓ renewals cost more if I have more than 3 seats on my license?

No. The price of a renewal is the same regardless of the number of seats on your license.

### ❓ Can I add support for a new type of laser to my existing key?

Yes, you can **add support** for new device types to your existing key.

Please note that adding support for additional devices *does not renew your key*.

### ❓ Will I lose support for other devices when upgrading?

No. A license upgrade adds supported device types to your key, but doesn't take any away.

### ❓ Does adding support for a different device type renew my key?

No. Adding support for a different device type does not renew your key, or affect your key's update period in any way.

### ❓ I already have a LightBurn license. Can I try a different version before upgrading?

Yes. If you are already have a LightBurn license, but would like to try it with a device type your key does not currently support, go to **Help → License Management** and click **Deactivate License**, then **Extend Trial**.

### ❓ How do I know when my upgrade has been applied?

Our systems are fully automated, and all upgrades are processed promptly. However, LightBurn will need to contact our licensing server to register any upgrade, and it can take up to 24 hours for LightBurn to sync with the server. You can force LightBurn to check back in by deactivating and then reactivating your key in the License Management window.

### ❓ How do I know if my license supports my laser?

If you've already activated your license, but aren't sure if it supports your type of laser, go to **Help → License Management** to see a list of device types supported by your license.

If you're unsure whether your laser is one of the types listed, see [Which Version Do I Need?](#)

If you're unable to connect to your laser even though it is supported by your license, see [Troubleshooting: Connection Problems](#).

### ❓ Can I transfer my key to another user?

Yes. You are free to transfer your key to another user, or sell it along with your laser. The recipient will need to contact us with the key in order for us to transfer it to their email address, granting them access to our License Portal.

Please note that selling or sharing individual seats on your license key is *not permitted*. Keys must be transferred in their entirety, including all seats.

## Primary Docs

## 2.3 License Management

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The license system used by LightBurn has a **web portal** where you can view the computers activated on your license, deactivate unused computers, or process an **Offline Activation**.

If you purchased your key from LightBurn directly, you will have access to this portal. If you purchased from a 3<sup>rd</sup> party vendor, we will need to assign your license key to your email address for you to gain access. Contact us at [support@lightburnsoftware.com](mailto:support@lightburnsoftware.com) with your full name and license key to have us do so.

### Accessing the License Portal

#### New Cryptlex Web Portal

The Cryptlex web portal has been updated. The old URL (<http://lightburn.cryptlex.app>) will continue to work through August 31, 2024. Please update any bookmarks to reflect the new URL.

The first time you use the portal you will need to enter the email address assigned to your key and request a password reset.

Follow these instructions to access the License Portal:

1. Go to <https://lightburn.customer.cryptlex.com/>.
2. Click **Forgot Password**.
3. Enter the email address where you received your license key, and click **Send Reset Link**.
4. You will receive an email from Cryptlex with a password reset link.
5. Follow the link, choose your new password, then log in.

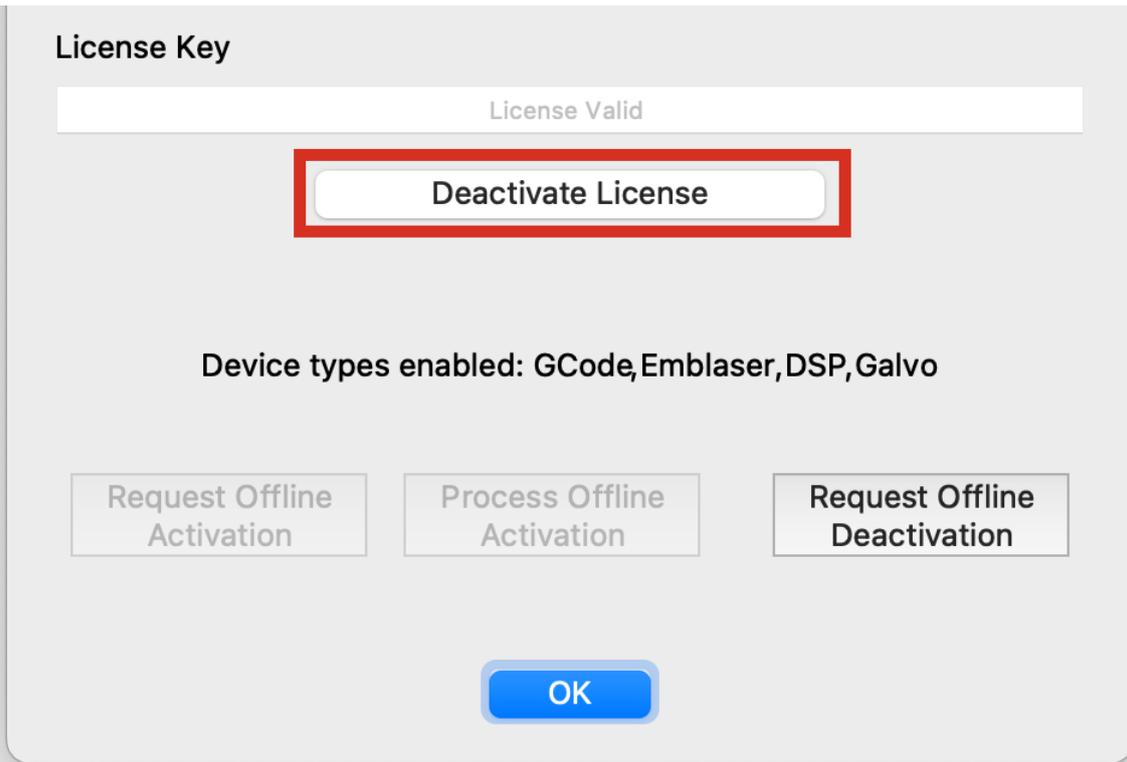
#### Note

If you do not see an email from Cryptlex, check your Promotions or Spam folders — the password reset email sometimes ends up there. If you still cannot find it, your email provider might be blocking the email from ever reaching you. Contact us at [support@lightburnsoftware.com](mailto:support@lightburnsoftware.com) to have us reassign your key to an address under a different provider. Gmail accounts work well.

### Removing an Old Computer From Your Key

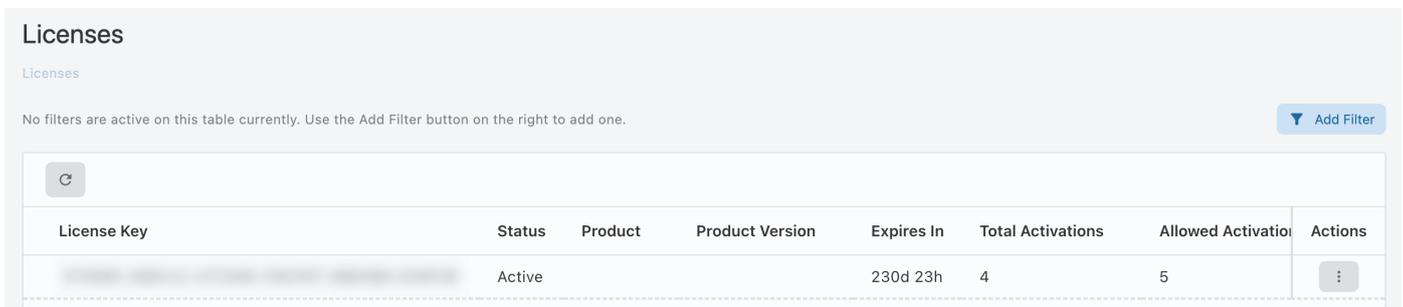
If you still have access to the computer you wish to remove from your license:

1. Open LightBurn on that computer and go to **Help → License Management**.
2. Click **Deactivate License**.

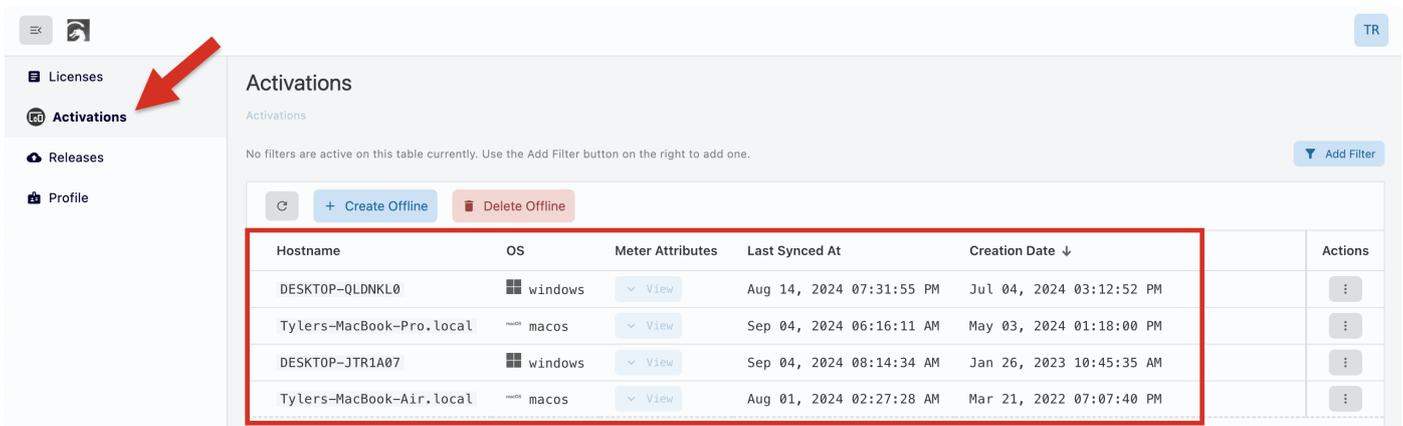


If you no longer have access to the computer you wish to remove:

1. Log in to the [License Portal](#). On the main screen you will see any licenses associated with your email address.



2. Click on **Activations** in the left sidebar to view a list of computers assigned to your license key, when they were last used (**Last Synced At**), and when they were first activated (**Creation Date**).



3. Click the three dot icon to the right of any computer in the list, to show the option to **Delete** that computer, removing the license from that computer, and freeing up the license seat for use on another machine.

Creation Date ↓	Actions
Jul 04, 2024 03:12:52 PM	⋮
May 03, 2024 01:18:00 PM	🗑 Delete
Jan 26, 2023 10:45:35 AM	⋮

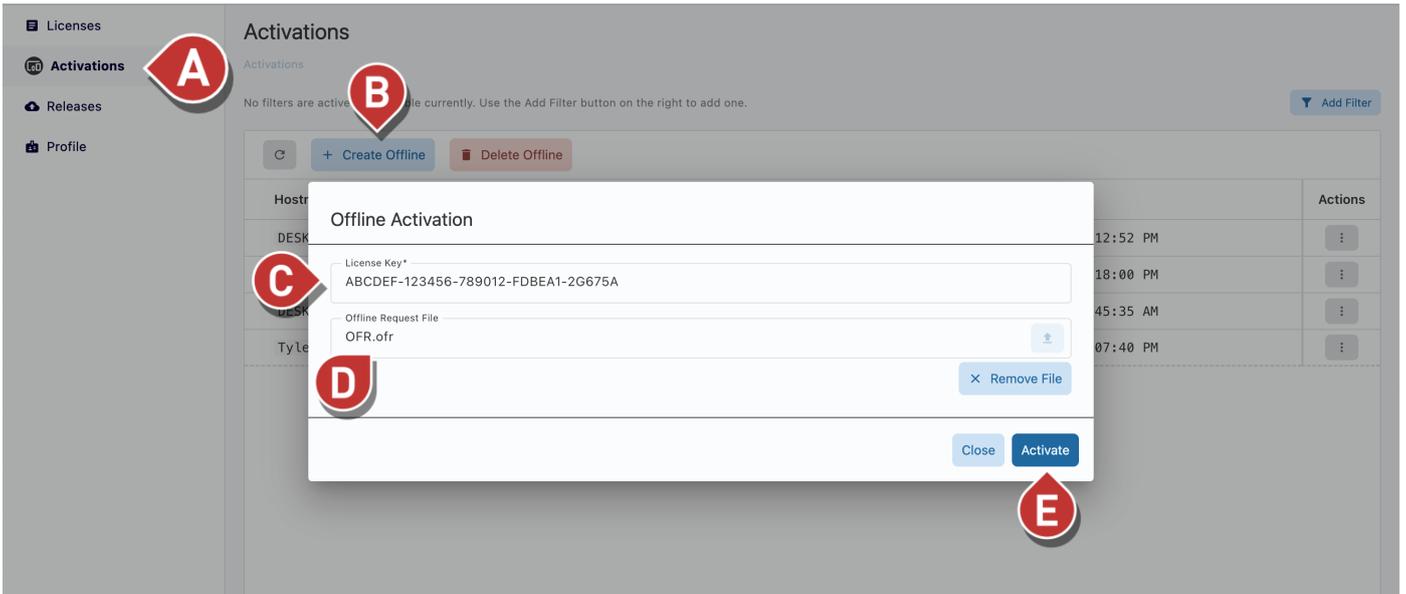
### Processing an Offline Activation

Follow the steps below to activate LightBurn on a computer without access to the internet.

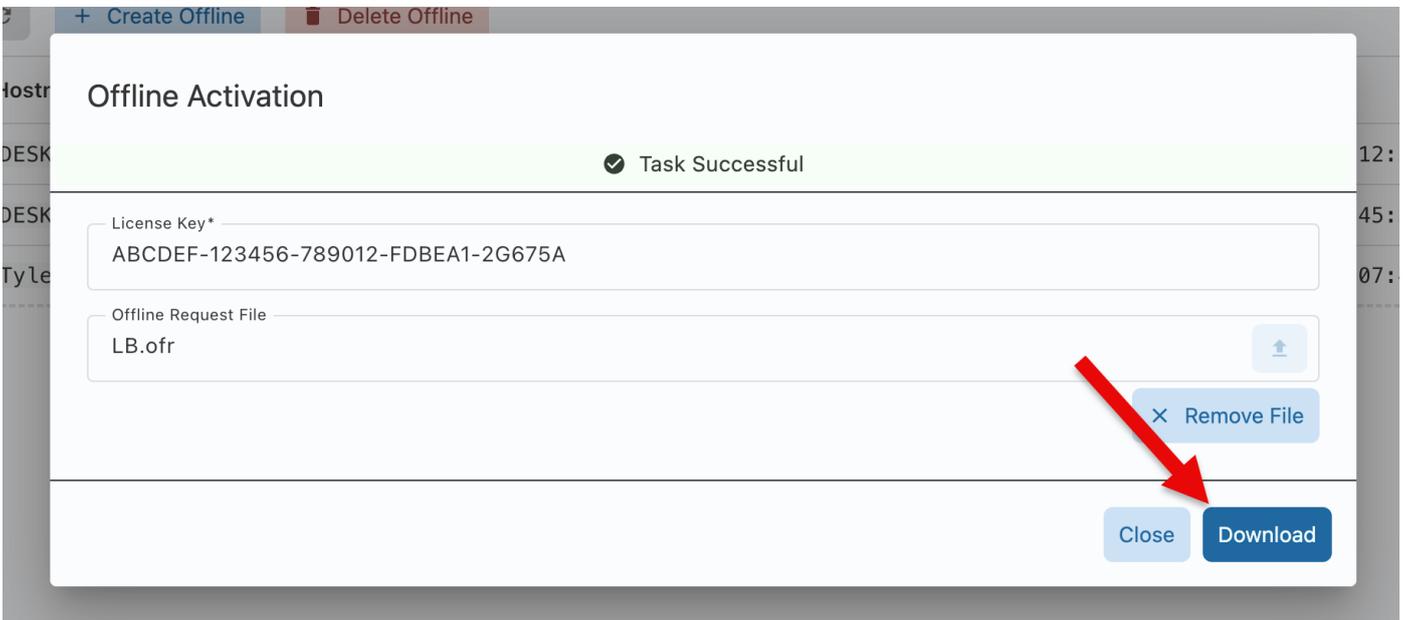
1. Enter your license key in the **License Management** window.
2. Click **Request Offline Activation**.

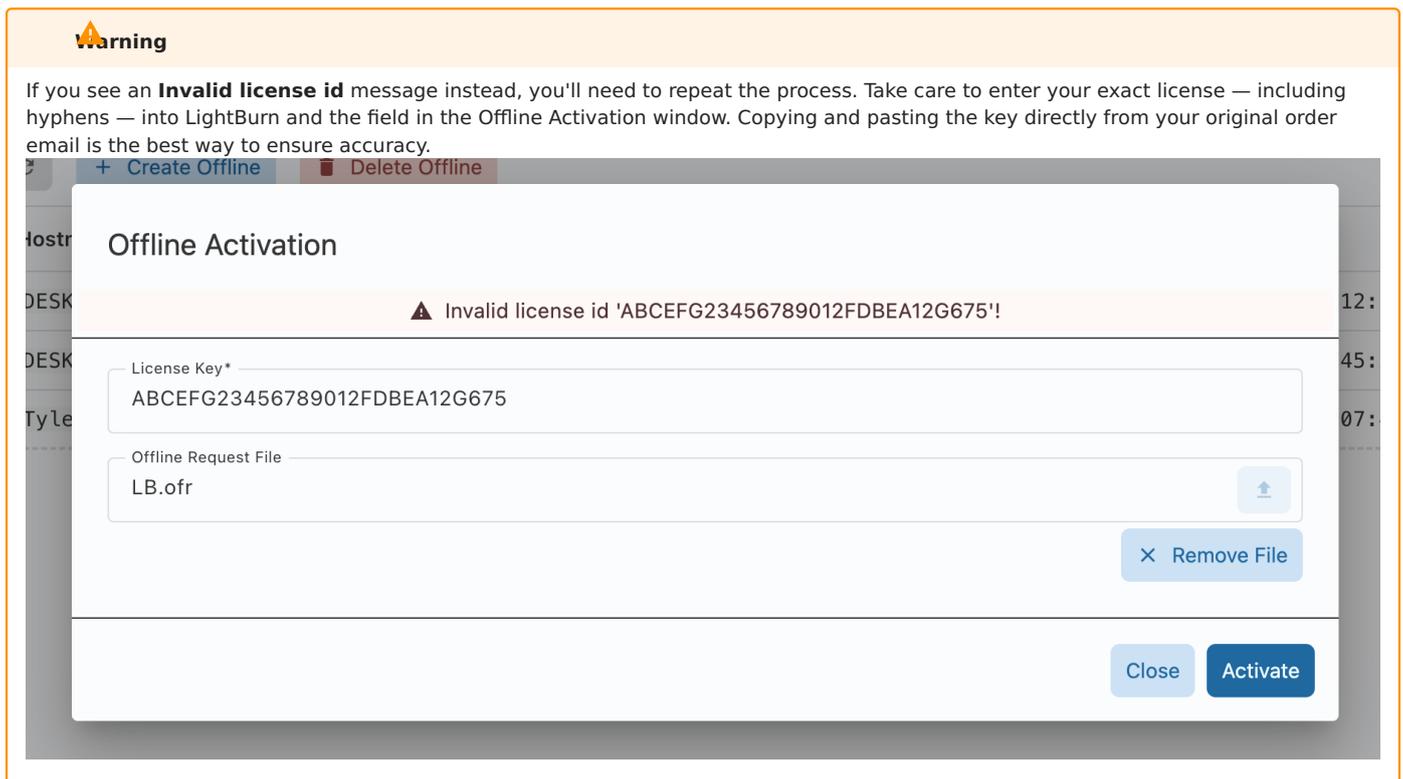
The screenshot shows a window titled "License Key" with a text input field containing a license key. Below the input field are several buttons: "Activate License", "Buy LightBurn", "Extend Trial", "Request Offline Activation" (highlighted with a red box), "Process Offline Activation", "Request Offline Deactivation", and "Quit".

3. You'll be asked to save a file with an `.ofr` extension that contains the machine fingerprint as an offline request. Save and copy that file to a USB flash drive and bring it to a machine with a network connection.
4. Log in to the [License Portal](#) on the machine with a network connection.
  - a. While viewing your license in the portal, click **Activations**.
  - b. Click **Create Offline**.
  - c. Paste your key into the **License Key** field.
  - d. Click in the **Offline Request** field to open your system's file browser, navigate to the location the `.ofr` file is saved, and select it.
  - e. Click **Activate**.



5. You'll see **Task Successful** if you entered everything properly. Click **Download** to download the .dat response file.





6. Transfer the .dat file back to the offline computer by USB flash drive.
7. On the offline computer, in the License Management window in LightBurn, click **Process Offline Activation**.



8. Navigate to the location the .dat response file is saved and select it, completing the Offline Activation process.

If you're not comfortable performing all of the above steps yourself, email us at [support@lightburnsoftware.com](mailto:support@lightburnsoftware.com), with the .ofr file and license key, and we will process the file and return the .dat response file for you to use to complete the activation.

 **Warning**

It is not possible to complete this process for a Trial ID. LightBurn must connect to the internet once to activate a trial, after which you are free to take your computer back offline.

## 2.4 System Locked and Floating License Setup

*System Locked* and *Floating* licenses are advanced licensing setup options, often required for installations of LightBurn in shared spaces such as school computer labs.

A System Locked license is locked to the computer it is activated on, allowing all users on the same computer to use the same license without sharing login info. Any LightBurn key can be set up as System Locked.

A Floating license is managed by our license server, allowing the license to be allocated when a LightBurn session is started and released when the session is closed. This is intended for environments such as school computer labs where a greater number of computers will need to be activated than instances of LightBurn will be used at once. Your key must be specially tagged as a Floating type in order to utilize this setup option.

See our [Educational and Volume Licensing](#) calculator or contact us via [email](#) if you would like to learn more about volume licensing options.

### 2.4.1 System Locked License Setup

#### Windows

1. Make sure LightBurn is installed and **activated** as normal, then close out of the program, or the rest of the process will not work.
2. Open up a **Command Prompt** window:
  - a. Click the **Start** menu, then type "CMD".
  - b. Windows will automatically find the **Command Prompt** app as the best match. Right-click it and select **Run as administrator**.
3. Type the following into the command prompt:

```
cd "c:\program files\LightBurn"
```

4. Next, type the following into the command prompt:

```
LightBurn -l (license key code here)
```

#### Note

Enter a lowercase *letter L*, and *not* the number 1. Enter your key, without the parentheses, where it says "(license key code here)".

#### Mac

1. Make sure LightBurn is installed and **activated** as normal, then close out of the program, or the rest of the process will not work.
2. Open up a **Terminal** window.
  - a. Press **⌘ + Space** then type "Terminal".
  - b. Click Terminal to open it.
3. Type the following:

```
cd /Applications/LightBurn.app/Contents/MacOS
sudo ./LightBurn -l (license key code here)
```

#### Note

Enter a lowercase *letter L*, and *not* the number 1. Enter your key, without the parentheses, where it says "(license key code here)".

Once you've completed this process, all users on the same computer will be able to use LightBurn without activating the key individually.

### 2.4.2 Floating License Setup

#### Activation

In order to set up a Floating license, first follow the above instructions on setting up a **System Locked** license.

#### Tip

Once you've run the command line process successfully on one system, you can copy the "lightburn.ldata" file from the LightBurn program folder on that system to the same location on other systems you want to use the license, so you can avoid having to type the command line on the rest.

#### Network Restrictions

LightBurn will need to maintain a constant connection with the external license server to verify licenses. If you are experiencing difficulties with a license not being verified, your network may be restricting LightBurn's access.

To ensure LightBurn can contact the license server, *whitelist* [api.cryptflex.com](https://api.cryptflex.com) for port **443**.

It is also possible to configure LightBurn to access the network through a proxy. You can append the proxy connection address using `-p ProxyString`.

The proxy format is:

```
[protocol://][username:password@]machine[:port]
```

Examples of valid proxy strings:

```
http://127.0.0.1:8000/  
http://user:pass@127.0.0.1:8000/  
socks5://127.0.0.1:8000/
```

### 2.4.3 Troubleshooting

The most common error we see in this process is not running an admin command shell — if you just run it in user mode, it doesn't have permission to create a file in the Program Files folder.

- On Windows, make sure to right-click and select **Run as administrator** when opening the **Command Prompt** app.

- On MacOS, make sure to include **sudo** when entering the command to activate the key.

The second most common error we see is mis-entering the license key or command prompt entries. Our instructions show the command line like this:

```
LightBurn -l (license key code here)
```

That is "LightBurn", followed by a minus sign and a lower-case letter L, a space, then your license key (without the parentheses around it).

Here is an example entry using a fake key:

```
LightBurn -l ABCDEF-123456-789012-FDBEA1-2G675A
```

safety

## 3. Disclaimer and Safety

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### **WARNING**

LASERS USE INTENSE BEAMS OF LIGHT, INCLUDING LIGHT THAT MAY NOT BE VISIBLE.

IMPROPER USE OF LIGHTBURN SOFTWARE WITH ANY DEVICE MAY BE DANGEROUS AND COULD RESULT IN PERSONAL INJURY, DEATH, OR PROPERTY DAMAGE. ALWAYS FOLLOW THE DEVICE MANUFACTURER'S INSTRUCTIONS AND GUIDELINES.

ALWAYS WEAR PROPER EYE PROTECTION WHEN USING YOUR LASER.

### **WARNING**

DO NOT LEAVE A LASER UNATTENDED WHILE IN OPERATION.

**Troubleshooting**

## 4. Troubleshooting

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If you're having trouble using LightBurn, our troubleshooting resources are a great place to start looking for help with common problems and frequently asked questions. You can also [email support](#), and talk with LightBurn staff and users on [our forum](#).

Over time, we will be adding more troubleshooting resources. We'll try to keep links consistent, but if a link to a specific troubleshooting resource changes, you'll always be able to find it from this page. If you can't find what you're looking for, you can contact our documentation team by clicking the envelope icon next to any header and let us know.

### 4.1 What's Wrong?

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Choose a category below for more help.

**Connection Problems**

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Get help connecting your laser to a computer and sending jobs to it.

**Job Quality**

---

Resources to help you figure out why your laser's output doesn't look how you expect.

**LightBurn Editor FAQ**

---

Frequently asked questions about creating and editing designs in LightBurn.

**GRBL Errors**

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Resources to help you understand GRBL-specific errors.

**License Activation and Management**

---

Solutions to common License Activation and Management issues.

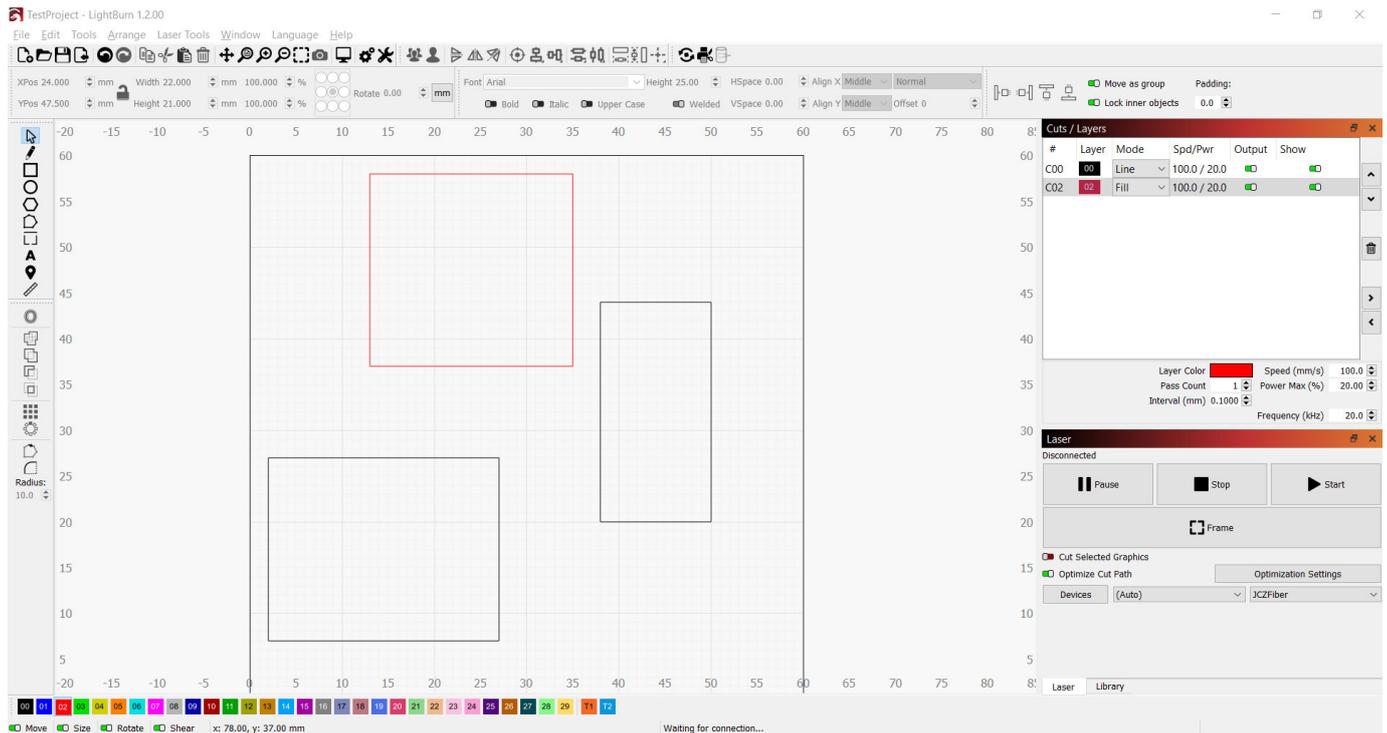
## 5. Beginner Docs

Beginner Docs

First Steps

### 5.1 What Is LightBurn?

LightBurn is a layout, editing, and control software for your laser cutter. LightBurn talks directly to your laser without the use of additional software.



With LightBurn you can:

- Import artwork in a variety of common vector graphic and image formats (including AI, PDF, SVG, DXF, PLT, PNG, JPG, GIF, and BMP)
- Arrange, edit, and even create new vector shapes within the editor, with powerful features like offsetting, boolean operations, welding, and node editing
- Apply settings like power, speed, number of passes, cut order, brightness & contrast, dithering mode, and much more
- Send the result directly to your laser cutter

LightBurn is a native application written for Windows, macOS, and Linux.

## 5.2 Beginner Walkthrough

Beginner Docs

First Steps

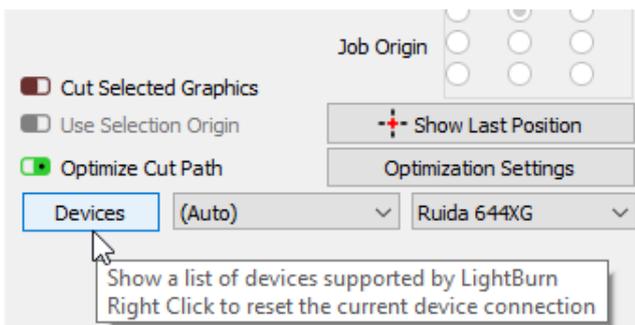
### 5.2.1 Adding & Configuring for Beginners

LightBurn can't control every laser, but it can talk to a number of different types of laser controllers, all of which use different ways of communicating, and have different abilities and settings.

This step tells LightBurn what type of laser you have.

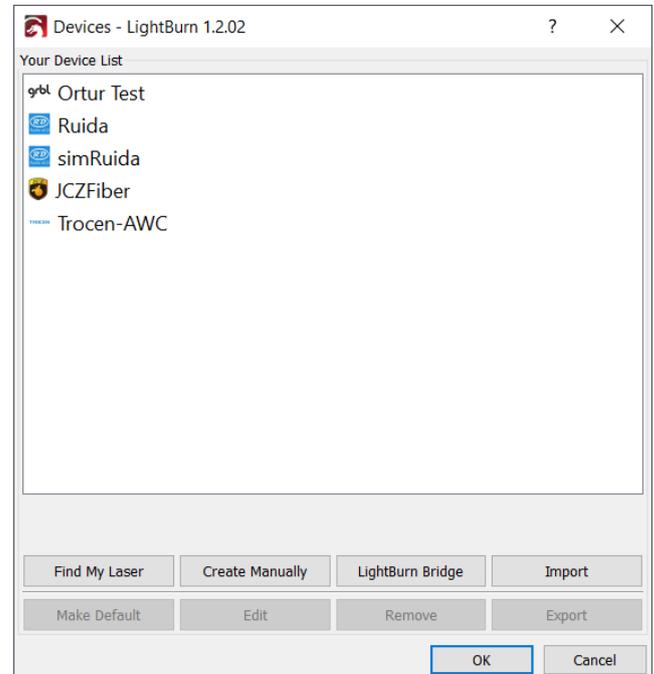
If you've never configured a device in LightBurn, you'll be brought here automatically when you run the software. It is important that you pick *something* because the interface in LightBurn will change depending on the capabilities of the laser you choose. If you don't have a laser to connect to yet, you can [create a placeholder device](#).

If you've done this before but want to change your laser or add a new one, click the **Devices** button in the **Laser Window** to bring up the devices list.



LightBurn can also be configured to control more than one laser, and there are settings stored for each device. If you don't pick one, we have nowhere to put these settings, and a number of features within LightBurn will not work until this is set up.

### The Devices Window



This is the Devices window in LightBurn. Here you will see a list of all the laser devices you've added to LightBurn, or an empty list when you're first starting.

The simplest way to proceed is to click **Find My Laser** and let LightBurn locate and identify your laser. If that doesn't work, your laser may connect with Ethernet, or if you have a Marlin device, you'll need to use **Create Manually**. If you're using a LightBurn Bridge device, you can use the **LightBurn Bridge** setup.

- **Find My Laser**
- **Create Manually**
- **LightBurn Bridge**

You can also import and export laser configurations to move them between computers using the **Export** button on this page from the source computer and then import it to the new install using the **Import** button. Exporting will create a `.lbdev` (LightBurn device) file which contains all of the device specific information LightBurn needs to import that machine's profile into the new computer.



You can import a LightBurn Device profile by dragging and dropping it into the LightBurn window.

### What if I don't have a laser yet?

You don't ever need to connect a laser to LightBurn to use it, but LightBurn will not run without a device profile configured, because it needs a place to store some settings, and wants to know what options to show you in the interface. If you use a laser that accepts files on a USB drive for example, LightBurn needs to know which controller it uses so it can produce the correct output files.

To start using LightBurn without a laser, use [Create Manually](#) and configure the things you can, and guess at whatever you don't know. When you finally do get your laser, you can come back to this screen, select the 'dummy' profile you set up, and click [Remove](#) . Then you can follow the setup steps here for real this time and use your laser!

### Configuring

If you have a GCode controller—particularly if you also use your system as a CNC or 3D printer—there may be additional configuration required.

- [Common GRBL setups](#)

If you have a Ruida DSP controller and are configuring from scratch, read here:

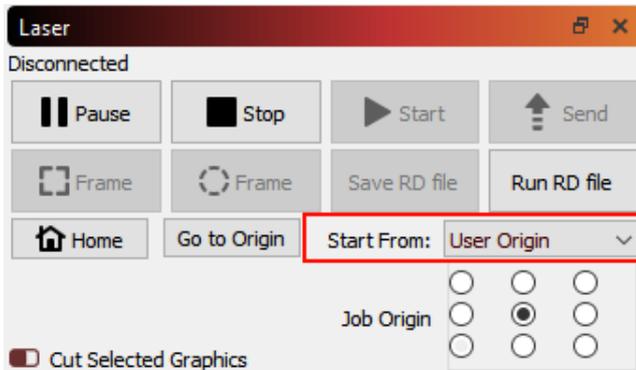
- [Configuring a Ruida](#)

If you're using a galvo laser, start here:

- [Configuring A Galvo](#)

## 5.2.2 Coordinates and Job Origin

There are a few ways to tell LightBurn where to output your project within the work area of your machine, each available in the **Start From** menu in the **Laser** window.



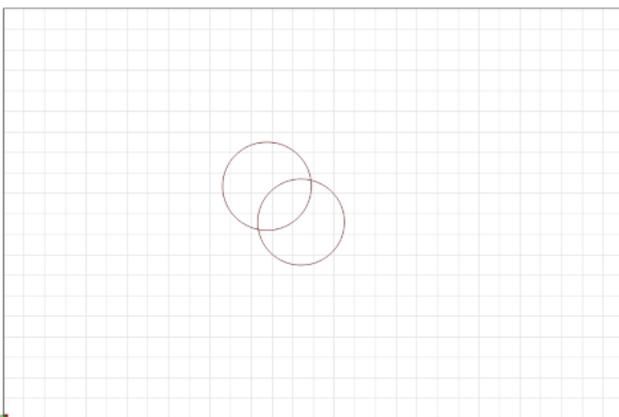
### Absolute Coordinates

**Absolute Coordinates** is the simplest option. The grid you see in the main editing window of LightBurn represents your machine's physical work area. Anything you place in the LightBurn grid will be output in the corresponding location in your machine's work area.

#### Note

Using absolute positioning requires a laser with homing switches and a fixed origin. If you have a small diode laser that does not have homing switches, you will need to manually home the machine. See: [Machines without homing sensors / limit switches](#).

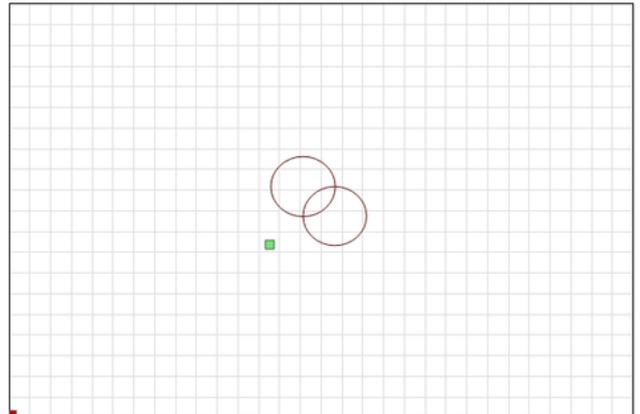
In the image below, the two circles placed in the middle of the LightBurn grid will be cut in the middle of the machine work area. The green square in the lower left of the image represents the **Job Origin**, and the red square in the same place shows the **Machine Origin**. When using Absolute Coordinates these are always in the same place.



### Current Position

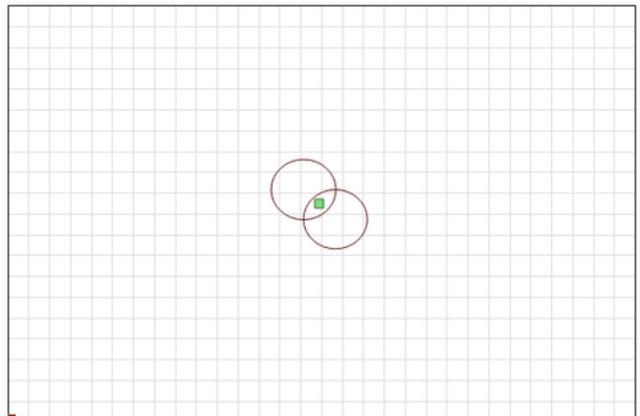
With **Current Position** selected, your job outputs relative to the current position of the laser head when you hit the **Start** button. The **Job Origin** control in the **Laser** window tells LightBurn how to orient output relative to the laser head.

In this image, we're starting from the Current Position, with the Job Origin set to the *lower left*:



Notice that the green Job Origin indicator has moved. This represents the position of the laser when you start the job, so the laser is going to move slightly up and to the right from wherever it is, cut the two circles, and go back to where it started.

Now imagine that you want to etch this two-circle pattern onto a coaster or a phone case. Lining it up from the *lower left* is not easy. If you change the Job Origin setting to *center*, you get this instead:



The job will be centered around the current position of the laser head. If you position the laser head directly over the center of the item you want to etch, the output will be centered on the item.

### User Origin

**User Origin** works almost exactly the same as **Current Position**, except that the starting location is *programmable*. To set a User Origin, you must first jog your laser to the location you want your job to start from, then set the origin.

Some lasers with digital displays, such as those with Ruida controllers, have an **Origin** button which you press to set the origin. GCode-based systems use the **Set Origin** button in the **Move** window in LightBurn to do the same thing.

After setting the origin, you are free to move your laser around the workspace. With User Origin selected as the **Start From** mode, the laser will move back to that programmed location and start the project from there.

As with Current Position, the **Job Origin** setting determines how output will be oriented relative the user-defined origin.

### Finish Position

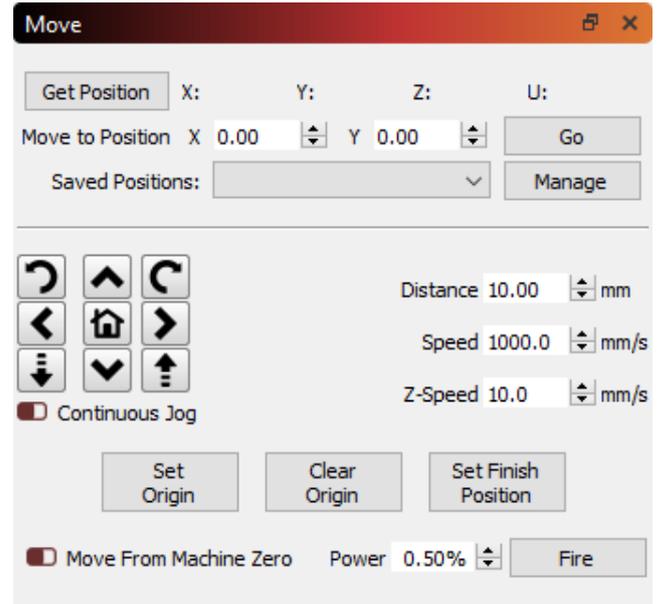
#### Note

The **Finish Position** option is only available for GCode-based controllers. DSP controllers manage this internally.

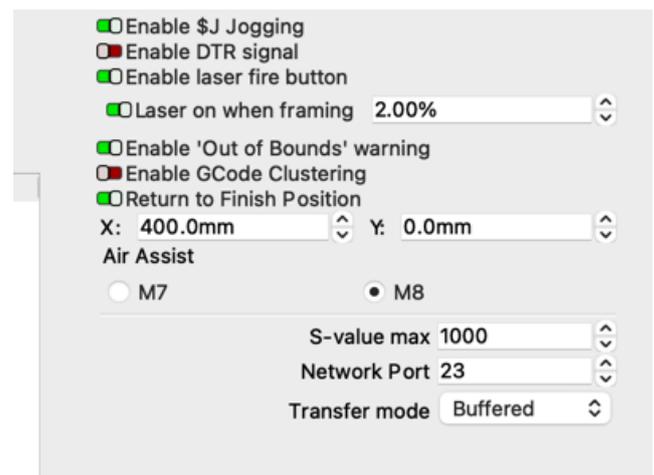
LightBurn allows you to control where you want the head of the laser to return after a job is finished. By default, it will return to 0,0, but this is not always optimal for all machines.

To change your laser's Finish Position, go to the **Move** window and use the arrows to position your laser head wherever you would like it to return to after the job is finished, then click the **Set Finish Position** button. Your machine will now remember that spot for future jobs. Finish Position can be adjusted at any time by repeating the above steps for a new location.

Using **Finish Position** requires that the job is running in **Absolute Coords** or **User Origin** mode. Finish position does not work when using **Current Position**.



Users with GCode-based lasers can also adjust or disable the Finish Position in the **Device Settings** window.



### 5.2.3 Basic Usage: The Essentials

So far we've done a [brief introduction to the UI](#) and covered [zooming, panning, and selecting](#).

The next things we'll cover are:

- [Creating Shapes](#)
- [Importing Artwork](#)
- [Moving and Sizing Artwork](#)
- [Grouping](#)
- [Cut Layer Settings](#)
- [Controlling the Laser](#)

#### Creating Shapes

LightBurn's [shape creation tools](#) let you create simple shapes. Choose a tool from the left toolbar, like the ellipse, rectangle, or polygon tools. With a tool selected, left-click in the workspace and drag the mouse to adjust the size of the shape you're creating. While dragging, the Shift key will force the shape to have the same width and height, so you get circles and squares instead of ellipses and rectangles. The Ctrl key causes the shape to be centered on the starting point, instead of dragging it out from corner to corner. Release the mouse button to finalize the shape.

For text, select the text tool, then click in the edit window to place the cursor. Type your text, and press the Esc key when finished.

#### Importing Artwork

The [shape creation tools](#) let you make simple shapes in LightBurn, like circles, rectangles, text, and polygons, and also give you the ability to edit and adjust them, but LightBurn isn't intended to be a complete artist package or dimensioned modeling tool. For that, you would use external software like CorelDraw, Adobe Illustrator, Inkscape, or AutoCAD. Photo or image manipulation software such as Photoshop or GIMP can be used to create or manipulate image files.

When you have artwork ready in one of these programs, the next step is to import it into LightBurn to adjust the settings. LightBurn can import the following file types:

##### Vector / mixed formats:

- .ai - Adobe Illustrator
- .svg - Scalable Vector Graphics
- .dxf - AutoCAD Drawing Exchange Format
- .pdf - Adobe Portable Document Format
- .plt / .hpgl - Plotter / Hewlett-Packard Graphics Language

##### Image formats:

- .png - Portable Network Graphics
- .jpg / .jpeg - Joint Photographic Experts Group format
- .bmp - Windows Bitmap
- .gif - Graphics Interchange Format

- .tif / .tiff - Tagged Image File Format

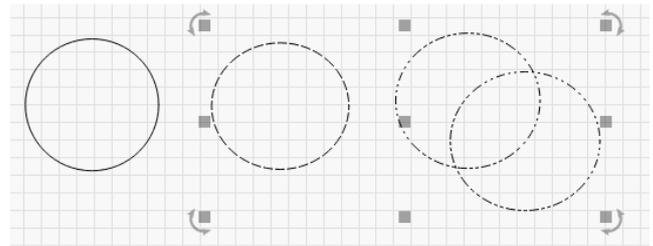
Note that not all features of every format will be supported. Vector graphics formats in particular are incredibly complex, and using more advanced features, like pattern fills, masking, gradients, and so on will not necessarily translate well when importing. LightBurn cares about shape outlines - if you want artwork to include the advanced features, the best option is usually exporting as a high-DPI image.

You can import files into LightBurn in several different ways:

-  Clicking the Import button on the main toolbar
- Using the File > Import option from the main menu
- Pressing the Import keyboard shortcut (Ctrl + I)
- Dragging a file from the Windows Explorer or MacOS Finder into LightBurn
- Copying and Pasting an image from a browser window into LightBurn

#### Moving and Sizing Artwork

Once you have your artwork in LightBurn, the next step is usually placing or sizing it. When one or more items are selected, you'll see various "tool handles" appear around the outside of the selection, like this:



In the image above, you can see 9 gray squares, and four arrows. If you hover your mouse over any of them, the cursor will change to indicate the kind of operation that tool performs - resizing, moving, or rotating.

Grabbing any of the four corners will let you resize the artwork from that corner, and defaults to uniform resizing with the opposite corner as the anchor point. Holding the Ctrl key (or Command on Mac) switches the anchor point to the center, so the object center remains in place when resizing. Holding the Shift key allows you to resize the width and height independently, instead of locking them together.

Grabbing any of the four side handles will let you adjust the width or height of the selection, and the Ctrl (or Command) key switches to center anchor just as it does with corner sizing. When moving, the status bar shows both the absolute position of the selection being moved, and the relative distance it has moved.

The center handle is for moving the selection, though you can also click and drag any edge of any shape to do this as well. When moving a selection, holding the Shift key constrains the movement to be horizontal, vertical, or diagonal.

The four rotate handles allow you to rotate the object freely using the mouse. While rotating, the relative rotation is

displayed in the status bar. Holding the Ctrl key (Command on Mac) snaps the rotation to the nearest 5 degrees, holding Shift will snap to 15 degrees, and holding Ctrl+Shift snaps to 45 degrees.

You can also move, rotate, and resize artwork using the **Numeric Edits Toolbar**.

### Grouping

When you create shapes in LightBurn, they're independent of other shapes you create. Sometimes it's handy to be able to treat a collection of things as a single unit, to make sure they keep their relative position and size when you're moving them around. In LightBurn, this is called a Group. If you select two or more shapes and click the 'Group' button

() , or press **(^ Ctrl) + (G)**, you'll create a new object that contains the original shapes. To un-group the objects so you can edit the individual parts, select a group of shapes

and click the un-group button () , or **(^ Ctrl) + (U)**.

You can tell if a shape is in a group or not based on how it looks when selected.

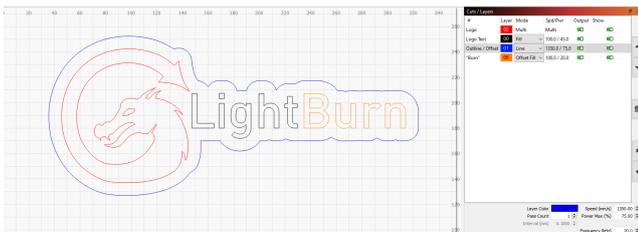


Ungrouped objects are displayed with a simple dash pattern when selected, like the single circle above on the left. A grouped shape shows a repeating dot-dot-dash pattern when selected, shown on the three smaller circles above on the right.

### Cut Layer Settings

Artwork imported from vector files assigns shapes to layers in LightBurn based on the colors of the vectors in the original file. If you create your files with this in mind, it can save you time.

Layers in LightBurn are used to assign different settings to the shapes in your design. For example:



In the above design, black could be used for a solid, dark engraving, blue could be a very light engraving with an outline to add definition to the text, and red would be a slow,

high-power cutting layer. The final output to the laser might look like this:

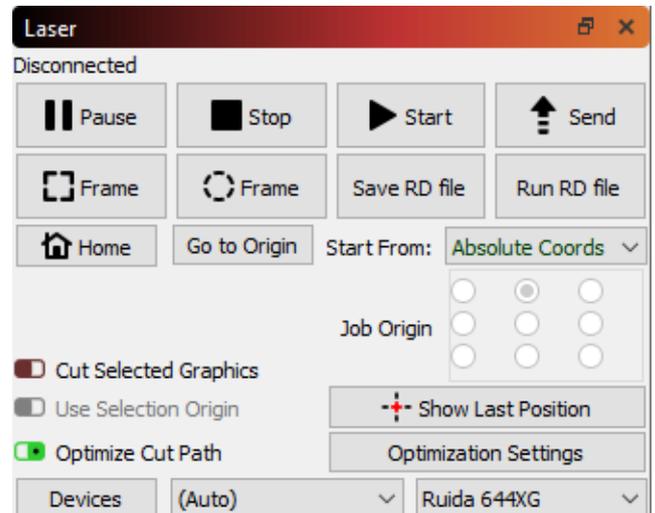


The information shown in the Cuts / Layers window is just the basics. You can see the full set of options for a layer by double-clicking the entry in the layer list to bring up the **Cut Settings window**.

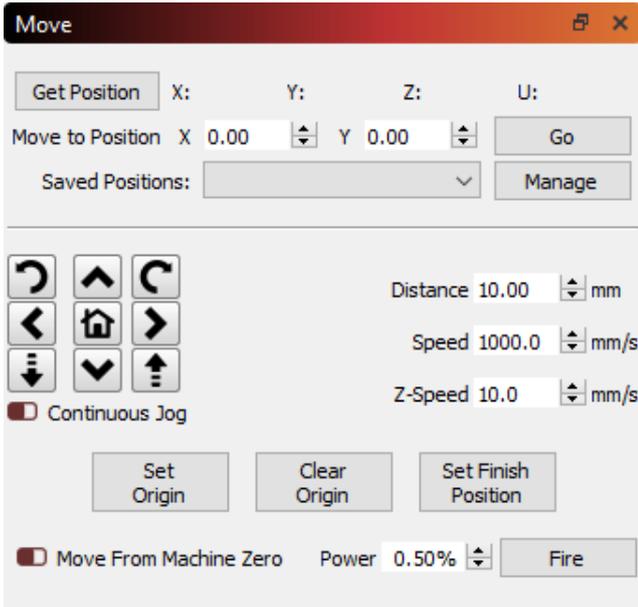
### Controlling the Laser

There are two windows primarily used to control the laser:

The **Laser Window**, shown in the lower right of the display by default, lets you select your laser, start, stop, or pause a job, frame the design (move the laser head around the boundary of your design to test alignment), and more. These options can vary based on the type of laser you're using.



The **Move Window**, docked behind the Cuts / Layers window by default, gives you jog buttons and positioning control, and the 'Speed' value there is used when framing or jogging the laser in LightBurn.

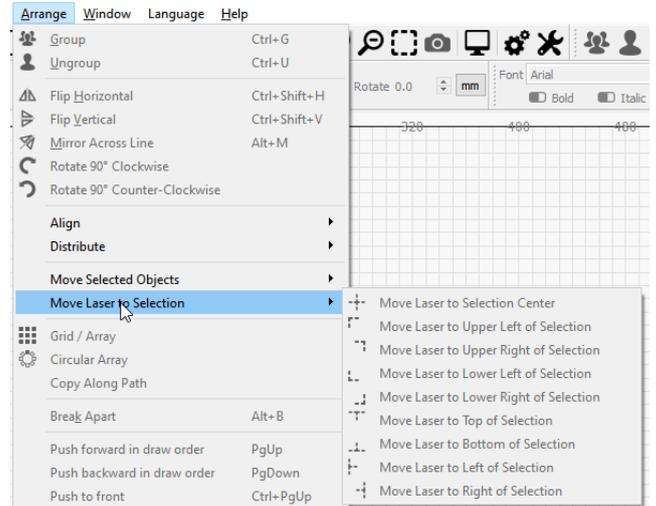


There are a couple other methods for moving the laser that are noteworthy:

- The Click-to-Position tool (  ) on the Creation Tools toolbar lets you click anywhere in the workspace and LightBurn will jog the laser to that point.
- Note that this assumes that your laser has been properly homed - Some DIY-style machines do not have homing

switches, so using any form of absolute positioning in LightBurn requires extra steps.

- The number pad arrow keys can be used to jog the laser after clicking in the edit window (workspace).
- The Arrange menu and arrangement tools can be used to move the laser relative to artwork in the workspace.



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## 5.2.4 Making a Simple Project

We're going to go step-by-step through creating a small, simple project in LightBurn, from start to finish, to show you how to use a few of the basic editing tools, and give you a feel for how things work.

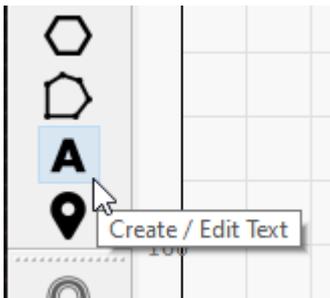
Before you start, make sure you have a laser set up in LightBurn (see [Adding your Laser](#)).

This project will be a simple name tag, cut out around the letters, ideally made from thin wood or acrylic, but a piece of cardboard will do.



### Creating the text

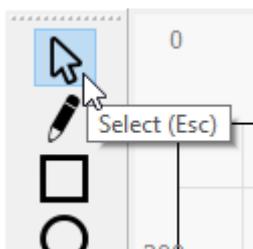
With LightBurn running, and an empty project, click the Create Text button shown below. It normally lives along the left side of the main window:



Next, click the mouse somewhere in the middle of the Edit window (the workspace) to get a cursor, then type your name:

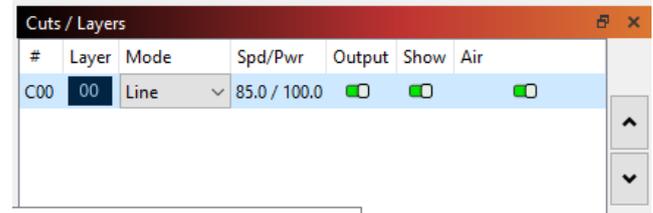


Click the 'Select' tool button on the top left of the edit window, or press **ESC** twice (once to finish entering text, and again to exit text entry and go back to selection mode).



When you finish the text, you'll see an entry appear in the **Cuts / Layers** list on the upper right of the display. This is the

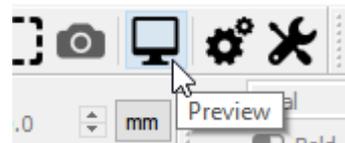
"layer" that your text is on, and it holds the settings that will be sent to the laser for all the objects on this layer:



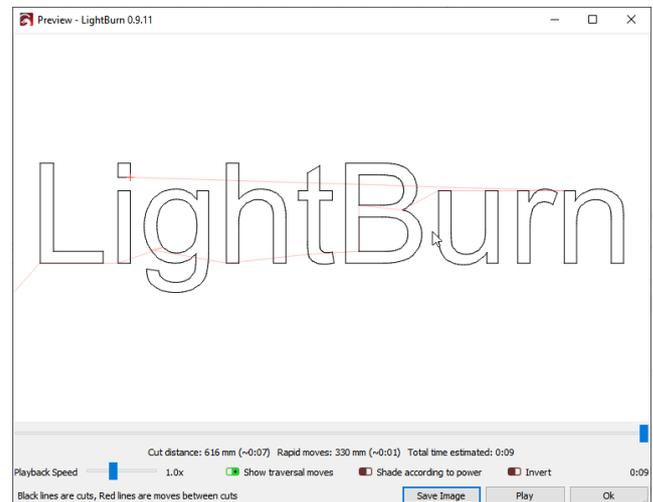
This tells us that the shapes on this layer will be drawn as lines, with 100 mm/sec speed, and 20% power. Depending on your settings, the '100.0' might be different - Diode lasers are less powerful than CO2 lasers, and run slower, so they tend to use mm/minute as units, so the same default value would display as 6000 mm/min. If you have your units set to Inches, you might see 3.9 in/sec, or 236 in/min.

### Previewing

To see how the laser will run your project, click the **Preview** button in the middle of the main toolbar:



The preview window will pop up, showing the completed job, like this:

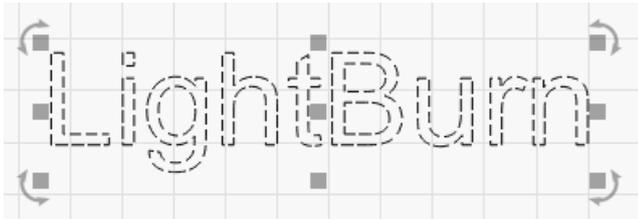


The lighter red lines are showing the laser moving between the shapes (traversal moves), and the black lines are where the laser will burn. Click the 'Play' button and you can watch a simulation of how the laser will run the job. You can also grab the slider and drag it around to see the cut at different points in time. Spot checking the output like this is a good habit to get into, because you'll likely spot mistakes before you burn the project for real, saving time and material. Click the 'OK' button to close the preview.

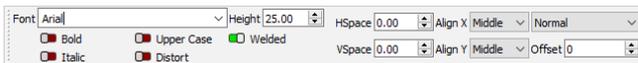
For more information on the preview window see its page here [Preview Window](#)

### Changing text properties

Make sure you're still in Selection mode - the 'Select' tool should be highlighted. Click the name, or click and drag a rectangle around it to select it. When it's selected, it will be drawn as animated dashes instead of solid lines, and handles will appear around the selection to let you change the size, position, or orientation.



The options in the Text Toolbar at the top will activate, like this:



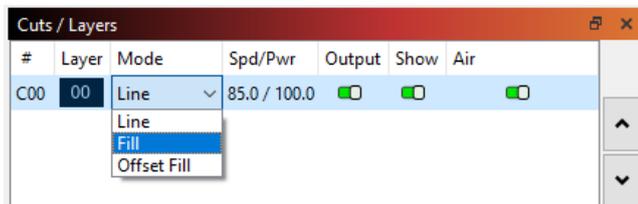
Click the drop down for the font, and change it to anything you like. While you are choosing, the changes will be displayed in real time in the edit window. You can change the height, make it bold or italic, and adjust spacing here too.

### Undo / Redo

If you make a change you don't like, you can undo it by clicking the Undo button on the toolbar (or pressing **^ Ctrl** + **Z**, or Edit > Undo in the menu). If you decide you liked it after all, you can also Redo (**^ Ctrl** + **⇧ Shift** + **Z** / **\* Cmd** + **⇧ Shift** + **Z**). Undo and Redo in LightBurn are unlimited - the undo system doesn't reset unless you create a new file or close the program.

### Changing the Layer settings

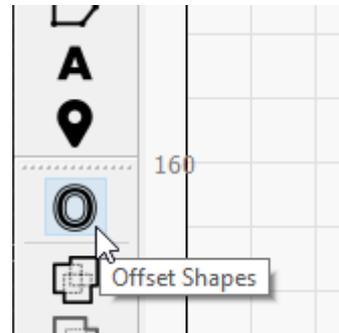
Rather than outline the text, we're going to change it to be solid filled. In the Cuts / Layers window, click where it says 'Line' and change it to 'Fill', like this:



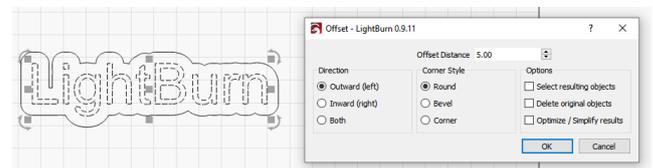
You'll notice that the display in the edit window hasn't changed, but if you run the preview again, it looks quite different. By default, the view in LightBurn shows outlines only, not fills, because it's much faster, and it prevents things from being hidden behind solid shapes that might still be run on the laser.

### Adding an outline: The Offset tool

With the text selected, click the 'Offset' button on the left toolbar, shown here:

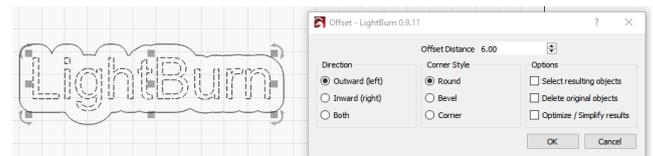


The Offset options window will appear, and you should see something like this:



The offset tool creates a new shape by outlining the shapes in your selection at a given distance, either inward, outward, or both, and merging the result. If you point the mouse at the 'Offset Distance' value, you can scroll the mouse wheel to change the number and watch the result change on the fly. You can also click the box and just enter a number as well.

Make the Offset Distance value large enough that there are no internal gaps in the outline - Notice the gap above between the L and the next letter is gone in the version below:



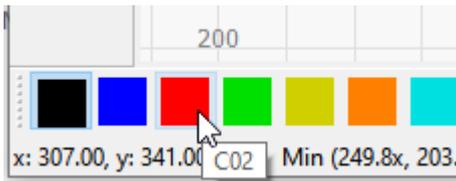
When you're happy with the result, click 'OK'.

### Changing Layers

Now, use the left mouse button to click the new outline you just made, so it is the only thing selected, like this:



Then, click the Red button in the color palette at the bottom of the display:



The outline will turn red, and you should see two entries in your Cuts / Layers list, like this:

#	Layer	Mode	Spd/Pwr	Output	Show
C00	Black	Fill	100.0 / 20.0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
C02	Red	Line	100.0 / 20.0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

The first, the black layer, is the fill for your text, and the second red layer is for the outline cut.

### Speed and Power

This is where things get a little tricky in terms of you being able to follow along. Speed and power settings vary quite a bit between lasers, and LightBurn supports a lot of different types of machines. It also depends on the kind of material you're using - cutting through  $\frac{1}{8}$ " basswood uses much less power than cutting through  $\frac{1}{4}$ " plywood or acrylic. For right now we'll assume  $\frac{1}{8}$ " (3 mm) plywood and give some guesses for settings, but you'll probably have to change them.

To start with, click the black color entry in the Cuts / Layers window. Below the list of layers you'll see the Cut Info window, containing something like this:

Cut Info	
Layer Color	Speed (mm/s) 100.0
Pass Count 1	Power Max (%) 20.00
Interval (mm) 0.100	Power Min (%) 10.00
	Material (mm) 0.0

For the text, you want enough power to engrave into the material you're using, but not too deep.

- If you have a CO<sub>2</sub> laser, use 200 mm/sec, 15% power (both Power Min and Power Max - more on this later) and leave everything else.
- If you have a diode laser, use 50 mm/sec (or 3000 mm/min), and 50% power.

Understand that this is a rough starting point, and you will probably need to change this later.

Now, click the red entry in the Cuts / Layers window. This is going to be what cuts through the material to cut out the shape. Cutting requires more power and much less speed.

- For a CO<sub>2</sub> laser, set 15 mm/sec, 75% power (again for both min and max power)

- For a diode laser, use 2 mm/sec (120 mm/min), and 100% power. Depending on the strength of the diode you have, you might need to go slower than this, or use more passes by setting the Pass Count value higher.

Again, these are guesses, but they're a starting point.

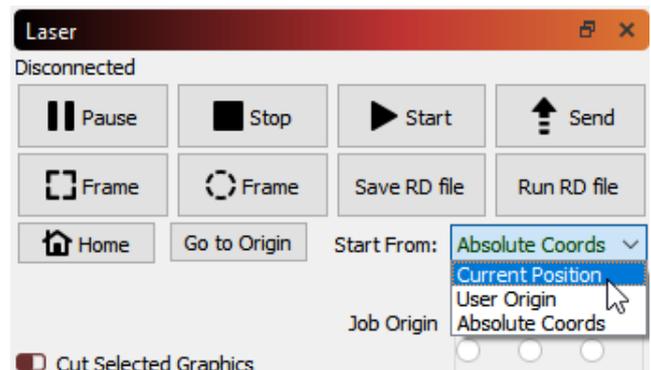
Open the Preview window again (Alt+P, or click the Preview button), then drag the progress slider from left to right to watch how the job will run. You'll see the text engrave first, followed by the outline cut. If you don't see those things, check the settings again, and verify that you have the first layer (black) set to Fill, and the second layer (red) set to Line.

### Positioning the Job on the Laser

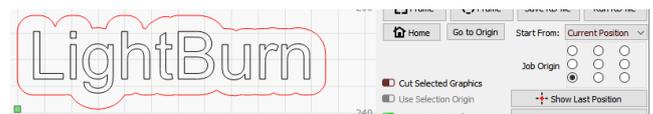
When sending this to the laser, there are a couple of different ways that it can be positioned, and the one you choose may depend on the kind of hardware you have. If you have a small diode laser that does not have homing switches, you will likely want to run the job using the 'Current Position' mode. For now, that's what we'll recommend for everyone, since it's easy.

If you have an Ortur Laser Master, or other small laser that *does* have homing switches enabled, you will likely find 'Absolute Coords' to be the simpler setting to use - this means that wherever you place your work in LightBurn is exactly where it will go on the laser.

In the Laser window, which is in the lower-right of the main window by default, look for the 'Start From' drop down box, and choose 'Current Position' or 'Absolute Coords'. If you see 'Controller Setting' in this window, it means you have a Trocen Controller, and the start position is set from the controller menus, not from software. Don't sweat it for now.



If you used 'Current Position' mode, you'll see the 9-dot "Job Origin" control under it activate, and you should see a green square on your design in the same spot indicated by Job Origin control, like this:



In the above image, the Job Origin is set to the lower-left, and that's where the green origin square is on the design. That green square represents the position of the laser before

you start the job, so the design is going to end up above and to the right of wherever the laser is when we press Start.

Put a piece of material in the bed of the laser, and use the arrow keys on the laser controller (if you have that) to move the head of the laser to the lower-left corner of the material. If your laser controller doesn't have arrows, click an empty spot in the edit window, then use the arrows on the Number Pad of your keyboard to jog the laser around instead.

When you think it's lined up, press the button labeled 'Frame'. The head of the laser will move in a rectangle around where the job will go. If you need to adjust anything, do so, then Frame again.

If you only have the option for 'Controller Setting' in the above window, when you position the laser in the lower corner of the material, press the button labeled 'Origin' on the controller panel to tell the controller this is where you'd like the job to start.

When everything is lined up, close the lid on the laser (or if you don't have one, put on your safety glasses), then press the Start button.

If anything goes wrong, hit the Stop button to abort the job, but if not, let it finish. When it completes, have a look at how things ended up - if the engraving of the name is too deep or too dark, you can increase the speed or reduce the power (or both). If the cut didn't go all the way through, reduce the

speed or increase the power (or both). If you don't move your part, you can run the cut again (possibly with new settings) without having to use a new piece of material..

### Results and Next Steps

When it's done, hopefully it looks like something like this:



That's it for this quick tutorial - It's only meant to be a starting point, but hopefully it was enough to give you a little foundation, and a taste of how things work.

### Next Steps:

We recommend going through some of our "LightBurn Basics" tutorials on YouTube, and we have a great project tutorial that's a little more in depth called the "WIFI QR Code tutorial" that covers more ground, including importing.

- [LightBurn YouTube channel](#)

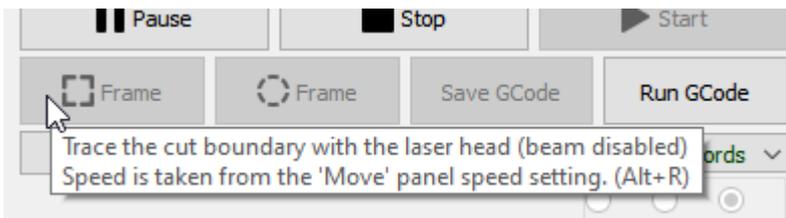
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## 5.3 LightBurn UI Tour

If you've never used LightBurn before, the main window might seem a little intimidating. Try not to let it scare you - we'll break out the important sections to start with. LightBurn also has some features to make it easier to learn:

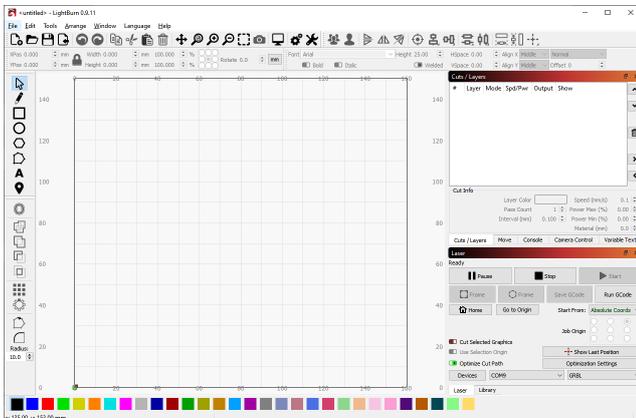
- Tool tips: If you hover the mouse over a control, you'll see a small bit of text pop up that describes that button or feature, like this:



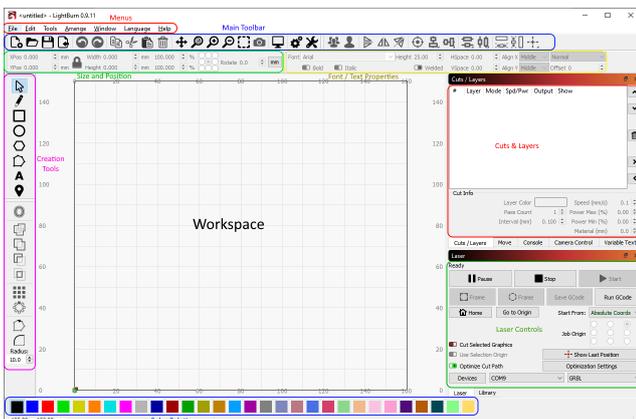
If you hover the mouse over something and press the **F1** key (help), LightBurn will launch the help page for that feature in your browser. Most of the panels and buttons on the main window of LightBurn will do this.

### 5.3.1 The Main Window

This is the default layout for the main LightBurn window:



Here it is again, with the sections labeled:



Open Image

It's worth noting that along the very bottom of the main display is a status bar that will occasionally show information like an automatic backup in progress, position of the cursor, laser connecting, and so on.

The main sections of the user interface are all linked as chapters, so you can skip around as needed. It's a big application but you don't need to know all of it to use it well!

**The Main Window**

**Menus**

**Main Toolbar**

**Creation & Modifier Tools**

**Color Palette**

**Tool Layers**

**Cuts & Layers**

**Size, Position, Numeric Edits**

**Font & Text**

**Laser Window**

**Workspace / Edit Window**

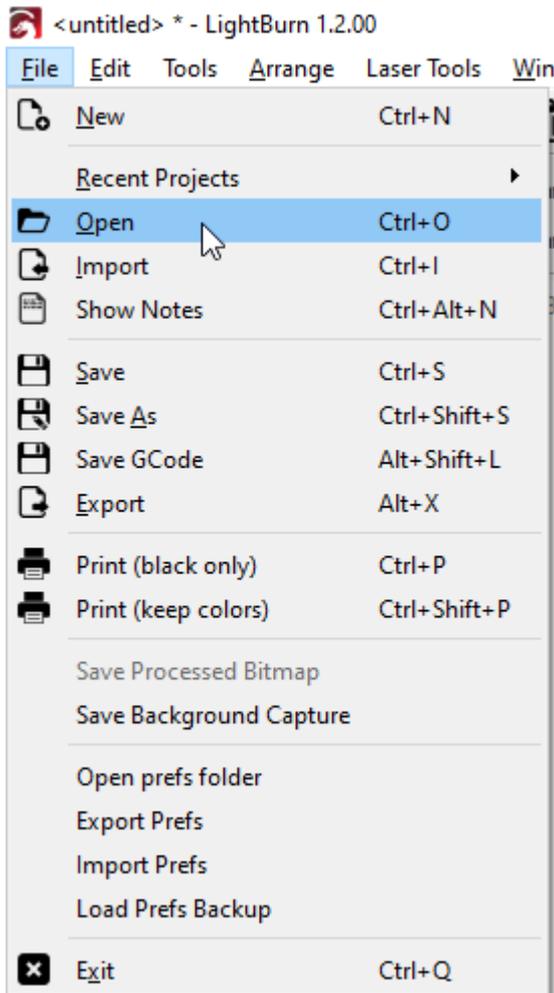
For a full list of the windows and dockables in LightBurn, see the [section on the user interface](#).

These are the windows you will use most commonly, though there are others. If you ever close one accidentally and want it back, go to the menu bar, click the **Window** menu, or just

right-click an empty space on the toolbar, and re-enable the window you want back.

### 5.3.2 Menus

Almost all desktop software uses menus in some form. The menu bar at the top of the main window gives you access to almost every feature available in LightBurn.



Depending on the operating system you're using the menus might appear a little differently, and some features may be removed if your laser doesn't support them.

If a feature has a shortcut, it will be shown next to it in the menu, as shown above. Learning the shortcuts for the features you use most often will make using LightBurn much faster, and sometimes there are even 'shorter' shortcuts - you can find these in the help menu under Help > Quick Help and Notes.

See [Menus](#) for detailed information.

### 5.3.3 Main Toolbar

The main toolbar in LightBurn gives you quick access to commonly used functions for opening or importing files, saving, using the clipboard (copy & paste), moving or zooming the view. Right beside it is the Arrangement

toolbar, containing some commonly used arrangement tools for arranging and aligning shapes.



If you aren't sure what a button is for, hover the mouse over it and it will tell you:



See [Main Toolbar](#) and [Arrangement Toolbar](#) for detailed information.

### 5.3.4 Creation & Modifier Tools

The shape creation tools are normally arranged vertically, but we're showing them sideways here. By default, these are docked along the left side of the work space for quick access.



The first tool, 'Select' is probably the one you'll use most, and is the default tool chosen when LightBurn starts. The others are used to create basic shapes like circles and rectangles, text, and lines, and there are few for modifying shapes in more complicated ways, like merging shapes, or creating lots of copies of shapes.

See [Creation Tool](#) and [Modifier Tool](#) for detailed information.

### 5.3.5 Color Palette

The color palette lives along the bottom of the main window by default, though a common alternative is docking it next to the creation tools along the left.



Lasers don't print in color, so these colors are used to assign different kinds of operations to the shapes in your design. A common convention is to use bright red for cuts, though how you use the colors is up to you.

With nothing selected in the workspace, click a color entry and subsequent new shapes will be created in that color. If you have something selected, clicking a color entry will apply that color to the shapes in your selection. The colors currently in use in your design will also appear as entries in the **Cuts / Layers** window, where you can choose the operations that each color will represent.

See [Layer Colors](#) for detailed information.

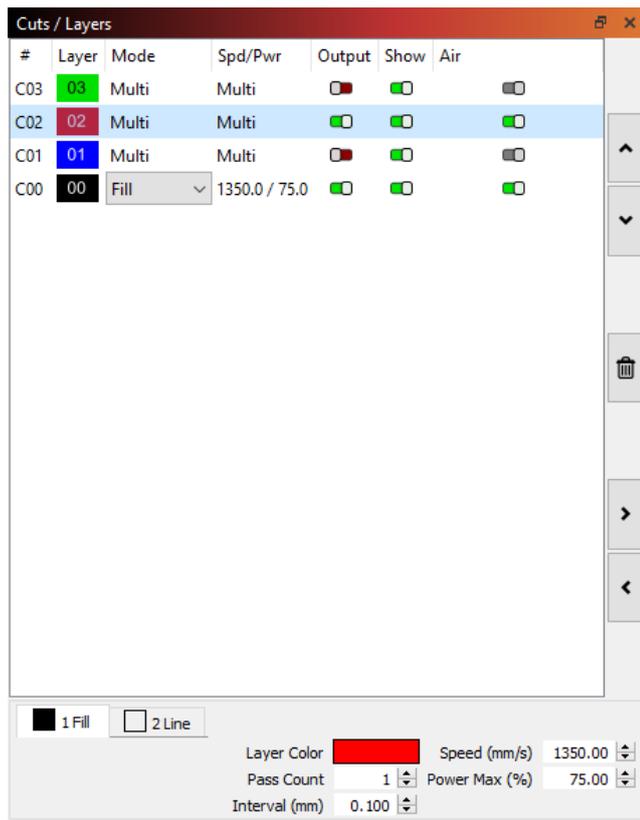
### Tool Layers

There are two special layers at the end of the cut palette, labeled **T1** and **T2**. These are **Tool Layers** and are used for creating non-output shapes in your designs. These layers have no cut parameters and will never be output to the laser. For example you could use them for:

- Indicating pre-determined material size and position on your machine
- Guide-lines for aligning shapes
- **Apply Path to Text** (without the path being output)
- **Image Masking**

### 5.3.6 Cuts / Layers

The **Cuts / Layers** window shows the colors currently in use in your design, and lets you quickly access the settings assigned to each color.



The first column shows the name you've assigned to this layer, followed by the color, then the Mode (Line, Fill, both, or Image). Then the speed and power are displayed, followed by the options to enable or disable sending this layer to the laser, or displaying it in the workspace.

Underneath the layer list you can see and change the basic settings for the currently selected layer. **Double-clicking** an entry in the layer list, it will bring up a larger **Cut Settings Editor** with a more complete set of options.

See [Cuts / Layers Window](#) for detailed information.

### 5.3.7 Size and Position / Numeric Edits

The **Numeric Edits** toolbar lets you resize, position, and rotate shapes, and change the unit of measure.

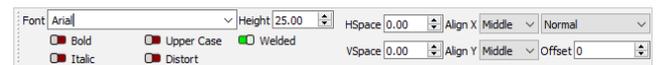


The **Lock** button can be used to maintain the aspect ratio of your objects when changing the size, and the 9-dot control lets you choose the positioning and sizing origin point. The number entry boxes accept equations and units as well--e.g. entering 5 mm, 5in, 5", or 5 \* 3 mm will be processed into the correct result.

See [Numeric Edits Toolbar](#) for detailed information.

### 5.3.8 Fonts and Text Controls

The font and text toolbar will activate when the **Create Text** tool is used or when text objects are selected.

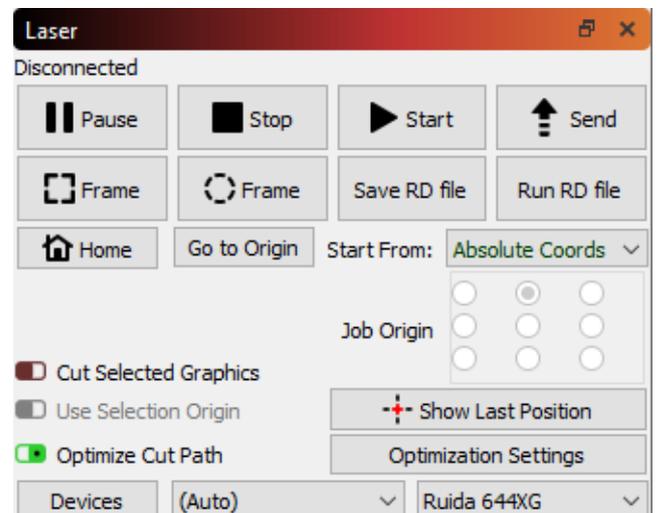


This toolbar lets you change the font, size, spacing, alignment, and automatic character welding settings. The **Fonts and Text** toolbar also includes settings for variable text, e.g. serial numbers, dates, and data tables read from CSV files.

See [Fonts and Text](#) for detailed information.

### 5.3.9 Laser Window

The **Laser** Window is used to select the active machine, test the framing (the artwork's outer bounds), run and stop the machine, and choose the file processing, order, and artwork positioning within the workspace.



Note that this window may look different for you depending on the type of laser chosen and the options it supports, and some options will be hidden if you are in 'Beginner Mode'.

See [Laser Window](#) for detailed information.

### 5.3.10 Workspace / Edit Window

The **workspace**, or edit window, is the drawing area where your design is laid out. The size of the border and grid within the workspace represents the available work area on your machine. The artwork arranged and displayed within the

workspace will be processed and sent to your machine for production.

**Next Step:** [Zooming, Panning, and Selection](#)

## 5.4 Feature Comparison

<b>Feature</b>	<b>LightBurn</b>	<b>RDWorks</b>	<b>LaserCAD</b>	<b>AutoLaser</b>	<b>LaserWeb</b>
Windows 7, 8, 10	*	*	*	*	*
Mac OSX	*				*
Linux	*				*
64-bit native application	*				
Drag & Drop	*				
Copy & Paste with system clipboard	*				
Undo / Redo	Unlimited	20 steps	Unlimited	30 steps	no
User support forum	*				
CorelDraw macro	*	*	*	*	
Rectangular array tool	*	*	*	*	
Circular array tool	*				
Illustrator import (AI)	*	*	*	*	
PDF import	*			*	
SVG Import	*			*	*
DXF import	*	*	*	*	*
Support for DXF instances	*				
Specify cut start point & direction	*	*	*	*	
Mixed manual / automatic cut order	*				
Automatic Inside / outside cut order	*	*	*	*	
Ruida controller support	*	*			
Trocen controller support	*		*		
TopWisdom controller support	*			*	

Feature	LightBurn	RDWorks	LaserCAD	AutoLaser	LaserWeb
GCode controller support	*				*
Integrated webcam support for job placement	*				
Print & Cut registration mark support	*	* (requires RDV controller)			
<b>Image operations</b>					
Image dither modes	7	2	0	2	0
Halftone image generation	*	*		*	
Transparent bitmap support	*				
Brightness / Contrast image controls	*	*	*	*	
Image edge enhancement	*				
Vectorize image (trace)	*	*		*	
Crop / Mask images	*				
<b>Vector Operations</b>					
Create and edit vector graphics in-app	*	*	*	*	
Vector shape node-level editing	*	*	*	*	
Automatic text welding	*				
Boolean operations (union, subtract, weld)	*				
Shape offsetting	*	* (poor)	* (poor)	* (poor)	
Welded offsets	*				
Multiple offset corner types (round / sharp / beveled)	*				
Use objects as guides	*				

<b>Feature</b>	<b>LightBurn</b>	<b>RDWorks</b>	<b>LaserCAD</b>	<b>AutoLaser</b>	<b>LaserWeb</b>
Create rectangles with rounded corners	*				
Fillet shape corners	*				
Multiple object selection modes (crossing, enclosing)	*				
Fully simulated preview	*	*			
<b>Text / Font Operations</b>					
TrueType font support	*	*	*	*	
SHX font support	*	*	*	*	
Apply text to curved path	*				
Bend text	*				
<b>Engraving operations</b>					
Ramp generation (for stamp making)	*	*	*	*	
Material Settings Library	*	*			
Rotary engraving support	*	*	*	*	*
Tool path preview	*	*	*	*	*
Move laser to graphic position	*				
Move graphic to laser position	*				
Jog laser by clicking in page	*				
Jog laser with numeric keypad	*				*

## 6. Primary Docs

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### 6.1 Tips and Tricks

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LightBurn has a decent number of user interface tricks that aren't always obvious, so we're listing many of them here. We also have a [LightBurn HotKey reference guide here](#).

#### 6.1.1 Tool Tips

Nearly everything in LightBurn has pop-up text that will tell you what the control is for and sometimes gives additional help, like this:

#### 6.1.2 Topic-Aware Help

If you point the mouse cursor at a button or window and press **F1** (help), LightBurn will launch your browser and open the documentation on the relevant help page for that control. This works for nearly all controls on the main window.

#### 6.1.3 Reset the Window Layout

Sometimes a window gets moved off the screen or positioned in a way that makes it hard to find or move. You can reset the window layout in LightBurn in two different ways:

- In the Window menu, choose "Reset to default layout". This will undock all windows, and re-dock them in the default order.
- If that doesn't do it, restart LightBurn while holding **Shift** - this skips restoring the saved window layout, and always works.

#### 6.1.4 Reset to Default Settings

To completely reset LightBurn's settings:

1. Open LightBurn
2. Go to **File** → **Open Prefs Folder**
3. Close LightBurn
4. Delete the contents of the prefs folder, which should contain a pair of files called `prefs.ini` and `prefs.old`
5. Re-open LightBurn. All settings should be reset to default, and all devices will be removed.

#### 6.1.5 Edit Window Shortcuts

The edit window has a number of single-key shortcuts that are only active when you have clicked in the edit window. They are:

- **H** — flip selection horizontally
- **V** — flip selection vertically

- **L**, **R**, **T**, **B** — Align the selected objects by Left, Right, Top, or Bottom edges
- **C** — Align the selected objects along their vertical centerlines
- **E** — Align the selected objects along their horizontal centerlines
- **P** — Move the selection to the center of the page
- Arrow keys — Move the selection (**Shift** and **Ctrl** adjust the size of the move)
- **,** (comma) and **.** (decimal), usually under **<** and **1**, are rotated 90° counterclockwise and clockwise
- Holding Shift while pressing **,** (comma) and **.** (period/decimal) will rotate 45°
- **Tab** — Select the next shape in the shape list
- Number pad arrows — Jog the laser

#### 6.1.6 Framing Mode Nudging

While framing, the keyboard can be used to make minor adjustments to your graphics. Use the arrow keys to move your graphics 1 mm at a time. For additional nudge options, please see [Framing](#).

#### 6.1.7 Equation Support in Number Boxes

The position, width, and height boxes in LightBurn will accept not just numbers, but also measurements and equations. All of these are valid:

- 50 mm, 5 cm
- 10 in, 10"
- 2 ft, 2'
- 10.25 / 2
- (10+2) \* 4 + 1 in

You can also use the constants  $e$  and  $\pi$ , and functions like `sin`, `cos`, `tan`, `sqrt`, `abs`, `atan`, `log`, `pow`, and more.

#### 6.1.8 Copy & Paste from Other Applications

LightBurn can paste data in known formats from other applications.

- An image copied from a browser can be pasted into LightBurn
- Text copied from anywhere can be pasted into LightBurn
- Shapes copied from Inkscape can be pasted into LightBurn

### 6.1.9 Drag & Drop from the File Browser

Files in any format supported by LightBurn can be dragged into LightBurn from your file browser (Windows file explorer, or Finder on macOS).

### 6.1.10 Automatic File Backups

LightBurn by default will save backups of whatever file you are working on. If you have previously saved the file as a LightBurn project, the backup will be stored in the same folder, with the same name, but with "\_backup" appended to it.

If you haven't saved the file with a name yet, LightBurn will store the backups for it in your Documents folder with the name "AutoSave\_xxxx" where the x's are a random string of characters. If LightBurn crashes, you can usually open the most recent of these files to recover your work.

### 6.1.11 Auto-Start a Job on Send

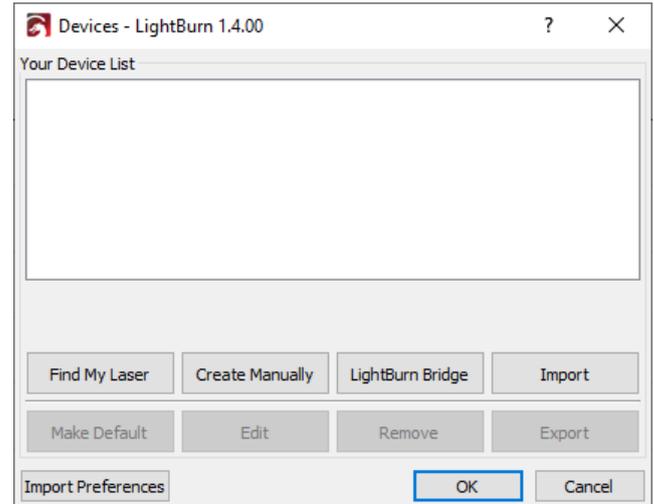
Hold the **Shift** key when you click the **Send** button in LightBurn, and LightBurn will automatically run the file on the laser when the transfer is completed. This is useful if you are sending very complex or large files, and want to be certain that the transfer completes before the job starts running, but saves you from having to press **Start** on the controller.

### 6.1.12 Pause and Stop from the Keyboard

While your laser is running, you can use your keyboard's **Pause** key to pause the laser and **Ctrl + Break** to stop it. **Break** is typically on the same key as **Pause**, but more compact keyboards may not have this key.

### 6.1.13 Setting up a New Computer

Setting up a new computer can be a pain—especially if you've put a lot of time and effort into adding machines and configuring your LightBurn installation exactly how you like it. To avoid repeating all that work, you can export your preferences on your old computer using **File → Export Prefs**, and then import them on your new computer using **File → Import Prefs**. Starting in version 1.3, there is also an **Import Prefs** button in the **Devices** window if no lasers have been added—this lets you import preference files when you first open a fresh installation of LightBurn.

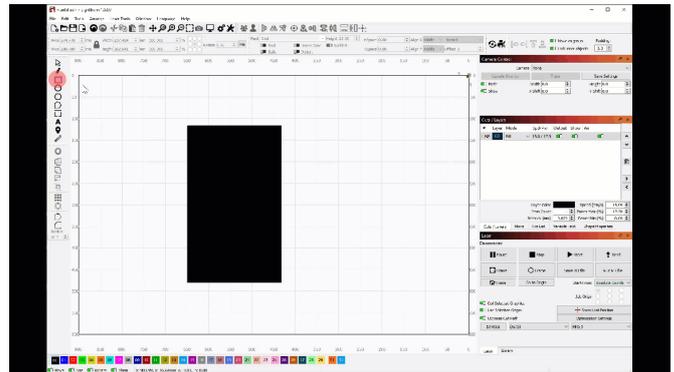


### 6.1.14 Alignment Guides

#### LightBurn 1.5 and higher

[Click here for a video overview](#)

While dragging to draw, move, or scale objects, holding **Alt** will produce alignment guides for edges and midpoints of existing objects.



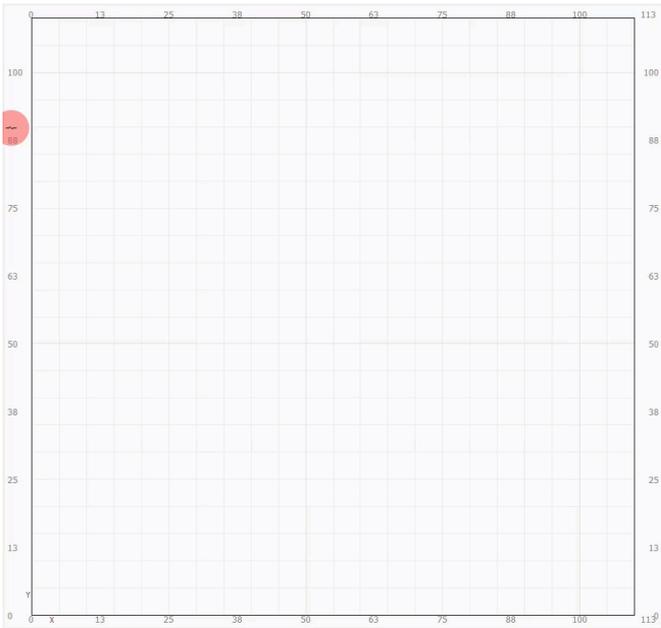
Using Alignment Guides by holding down **Alt** while drawing

### 6.1.15 Draggable Guidelines

#### LightBurn 1.5 and higher

[Click here for a video overview](#)

Horizontal and vertical guidelines can now be created by dragging from the ruler area of the LightBurn workspace. Guidelines can be treated like any other line. Guidelines can be locked to avoid accidentally moving them.



You can also make guidelines of any shape by drawing objects and adding them to one of the **Tool Layers**

## 6.2 Installation & Licensing

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[Beginner Docs](#)[Installation](#)

### Installation & Setup

#### COMPUTER REQUIREMENTS

Current versions of LightBurn run on the following operating systems:

- 64-bit Windows 7.0 or later
- macOS 10.13 or later
- 64-bit Ubuntu Linux 20.04 or later

LightBurn does not require a powerful computer for most work, although more memory is helpful for designs with a lot of images. As with most things, a faster computer will make it easier to work with large images or complex graphics.

#### Support for older operating systems

Previous versions of LightBurn going back to version 0.6 are archived on [our website](#).

- macOS users running versions older than 10.13 should download [LightBurn 1.6.03](#), which supports macOS 10.11 or newer.
- Users limited to 32-bit versions of Windows should download [LightBurn 1.5.06](#), which is the final 32-bit release of LightBurn.
- Ubuntu 18.04 users unable to upgrade to a more recent operating system should download [LightBurn 1.2.01](#), which is the last release compatible with Ubuntu 18.04.
- LightBurn 1.7 will be the final LightBurn version available for Linux.

#### DOWNLOAD LIGHTBURN

To ensure you get the most recent version of LightBurn, download LightBurn directly from the Download / Trial page at [lightburnsoftware.com](#). On this page, you'll find links to download the current version of LightBurn, as well as links to previous versions of the software and public beta versions.

When you've completed the download, you should see the file in your "Downloads" folder or a manually selected folder.

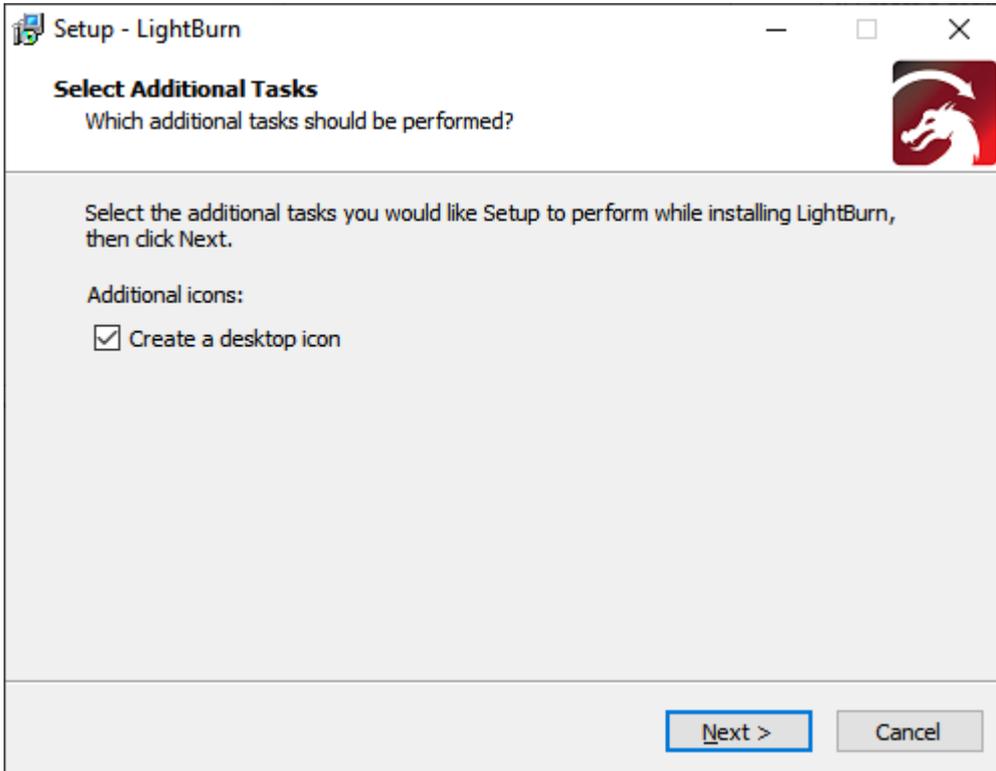
**INSTALLATION DIRECTIONS**

Choose your operating system below for additional installation help.



[Windows Installation](#)[macOS Installation](#)[Linux Installation](#)

Launch the installer by double-clicking it. Windows may ask if you trust us first.



Click Next, then click **Install**. The installation will proceed. When it completes, you'll see this:

