

## Lightburn - Configuring Operations

Working in Lightburn is easier if we understand that it is actually two softwares in one - a light graphic design program, and laser control software in one.

On the left side of the screen are your design tools. On the right are tools to control the laser, moving it around, choosing the coordinate system, and assigning settings to features of your design.

Before attempting to understand the coordinates and job origin, it is important to understand the “movement” tab of Lightburn, that will allow you to move the laser head around the work area, along with manually setting an “origin” point, a “finish point” and optionally fire the laser at low settings to be able to see precisely where it is positioned.

### **Coordinates vs. Job Origin**

A combination of coordinates and job origin are used to control where on the work area the laser will attempt to begin (and optionally end) your job.

The laser will 1)move to the origin point based on the job coordinates, then 2)perform the operation based on the job origin.

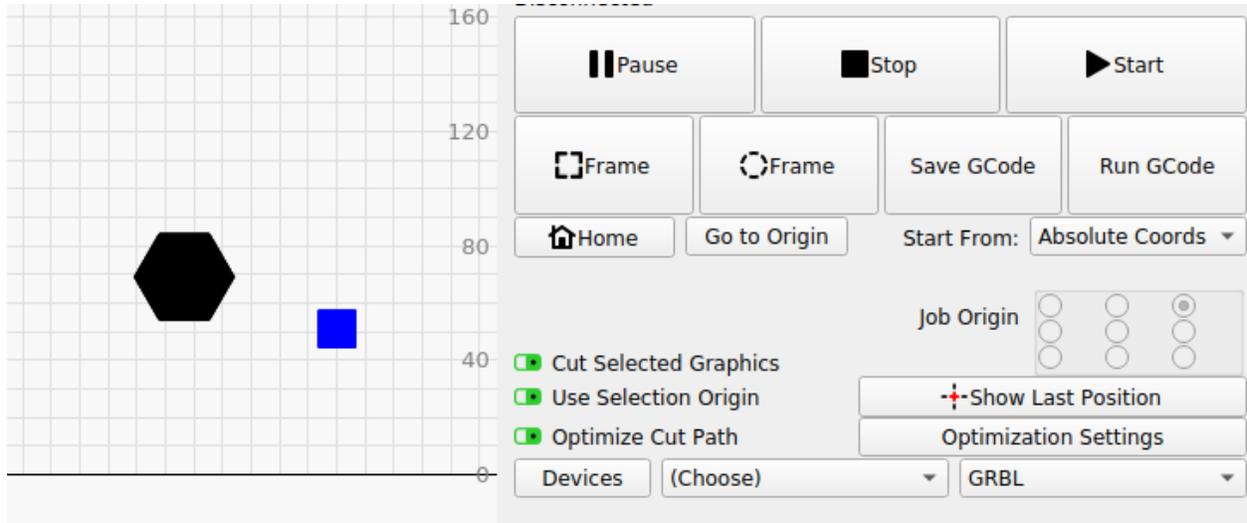
Note that in the work area, the job origin is marked by a green dot, and that dot will reposition as the job origin is changed to the various options of the 9-point grid.

There are three options for Coordinates.

Work Area - the simplest. This will direct the laser to cut everything based on the home position of the machine. In other tools this is called “machine coordinate system”. With this option selected you will note that the job origin picker is disabled, and the green dot is set to the home position of the work area.

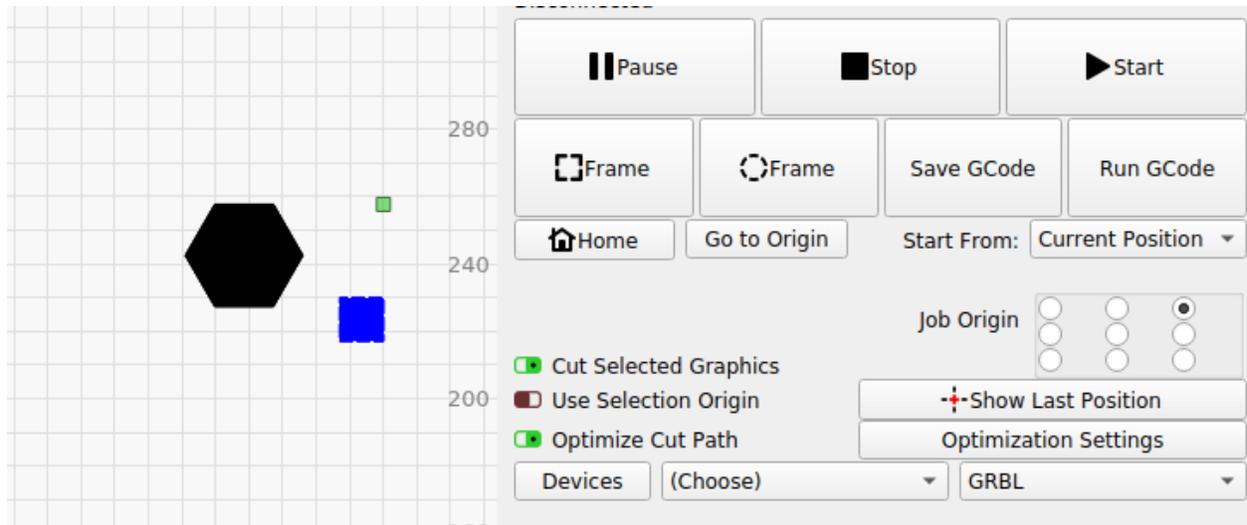
With “absolute coordinates” selected, the “job origin” selector is disabled, since the job origin is always the home position of the machine.

**Lesson:** Use “absolute coordinates” to position operations where you want them to be relative to the home position.



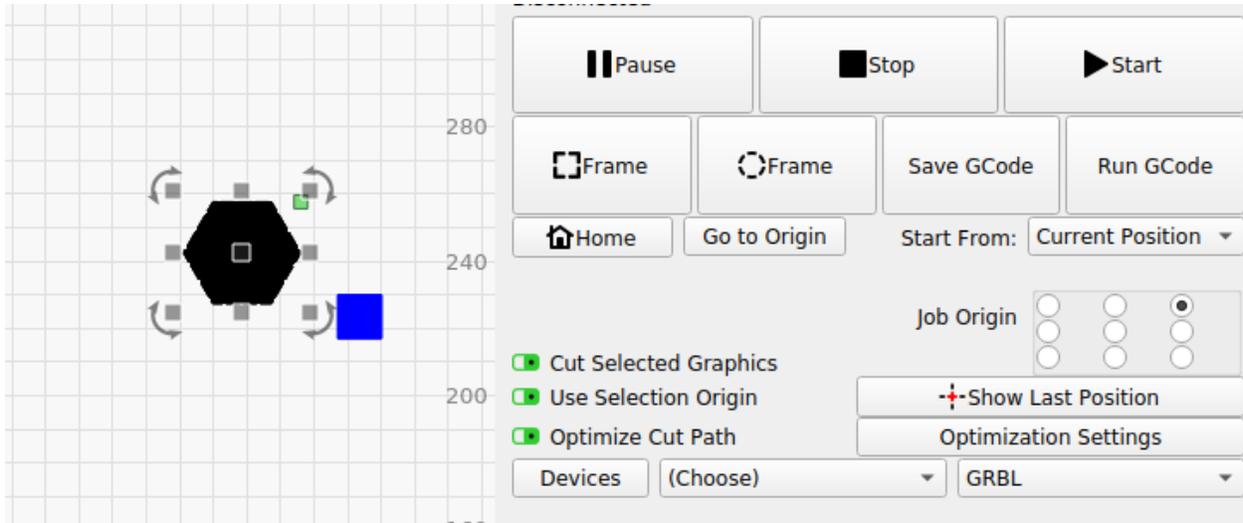
Current Position - the laser will begin its operation from wherever it is currently positioned. In this case the job origin is very important to know if the laser will cut to the left, right, top or bottom of the current position.

Note that in “current position” the job origin selected will apply to ALL shapes on the viewport - even if the shapes output is turned off. In this example the job origin applies to both the hexagon and the box - even though we only want to cut the hexagon:



It is advisable to use the combination of “Cut Selected Graphics” and “Use Selection Origin” with “Current Position” to ensure predictable results.

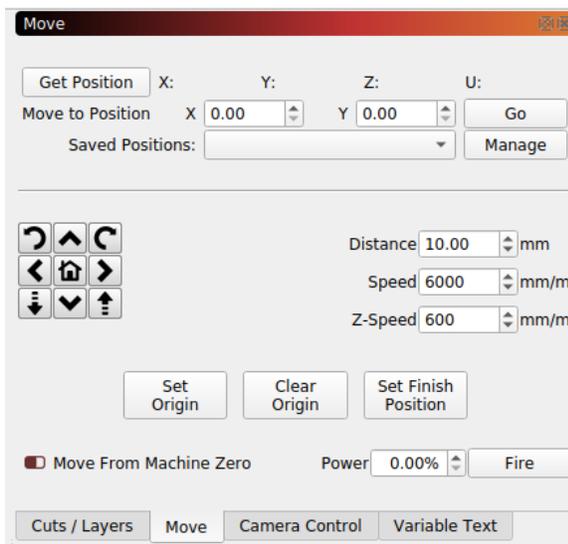
In the example below, we want to have the laser start from the top/right position of the selected graphic (the hexagon). The blue square is ignored, and does not affect the Job Origin, because “Use Selection Origin” is selected.



**Lesson:** Cut a round shape out, use current position to cut a keyhole shape exactly in the middle of it.

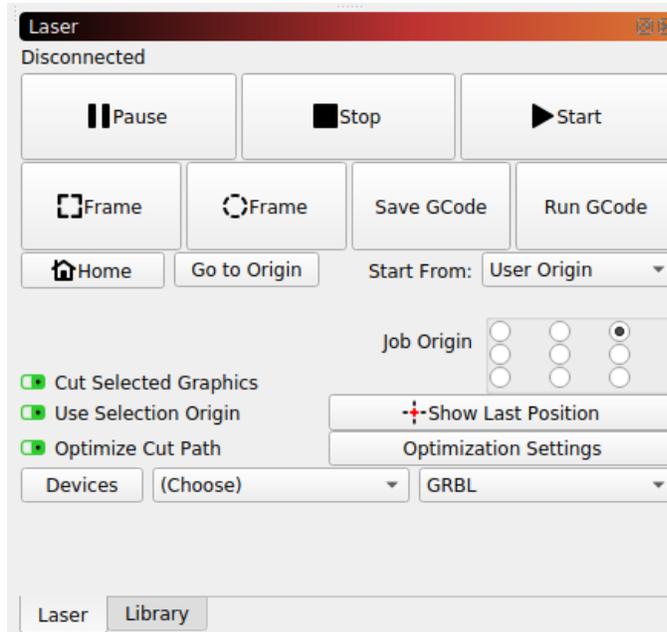
User Position - the laser will cut from a position set deliberately by the user in the “move” tab of the laser control panel. Like the “current position” option, it is important to understand the relationship between the coordinates and job origin.

User origin is the most confusing but potentially the most versatile coordinate system, being a combination of “absolute coordinates” and “current position”. It allow the user to set a position that acts very much like the home position in “absolute coordinates”



To use it, move the laser in the “move” controller to the start position, and select “set origin”. So long as “user origin” is selected, all operations will be relative to that user origin point, and you can always return the laser to that origin point using the “go to origin” button in the controller.

(Note that you also have an option to set the Finish Position - a place the laser should move to when operations are complete. With this option, you can do more complex operations such as cutting relative to a user position, the following up with another operation based on the Finish Position by switching to “current position”)



Where is this useful? Let's do an exercise.

1. Create a box using the “absolute work area” option.
2. Use the positioning to place the laser precisely in the center of the box
3. Use “current position” to burn an icon in the center of the box (don't forget to check the “use selection origin” switch)
4. Set the center of the box as the “origin”
5. Use “user origin” to put additional centered graphics in the box.