

Using the Universal Laser Systems VLS2.3DT Lasercutter

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Introduction

The lasercutter appears to most software as a printer named VLS2.3DT. When you print your image, the job is queued to the UCP (Universal Control Panel). The UCP is used to setup and control the lasercutter.

Pure red lines (RGB = 255,0,0 or #FF0000) less than 0.072 points are considered cut lines. The laser will cut these lines out of the material. Anything else will be treated as a 1000 dpi image as etched into the material.

Making Jigsaw Puzzles

Before you start, print the image you wish to turn into a puzzle. You can print on laser, ink jet, or photo paper and use an adhesive spray to attach either a thin plywood or very heavy cardstock. Use of cardboard is NOT recommended. Or you can print on adhesive photo paper with a peel-off back.

If using Windows, right click on the file and select Open With Photos. When the photo appears, click on the 3 dots at the top of the screen and select Print. For largest image, Set Photo Size to "Full page" and set Fit to "Shrink to fit". Click the Print button.

Affix the photo to a 12" x 12" sheet of thin plywood (or very heavy cardstock). If using adhesive spray, protect table top with acrylic sheet. Using a small drill bit, drill a small hole through the plywood at each corner of the photo. These are necessary to align the laser when the photo is face down on the cutting table.

Measure the dimensions of your photo. This will determine the parameters you enter into the puzzle generator.

1. Search the web for "Jigsaw Puzzle Generator SVG". This document assumes you are using: <https://zvika benhaim.appspot.com/software/jigsaw-svg/>
2. Set the number of pieces desired. Best to keep the number of pieces under 10.
3. Set the dimensions of each piece in pixels. The default of 100 x 80 produces pieces approximately 1.5 x 1.25 inches each. Setting piece dimensions to 96 x 96 produces pieces approximately 1 in square.
4. Note the resulting size (in pixels). Divide by 96 to convert to inches and ensure your picture will overlap the puzzle area.
5. Click the Generate button.
6. Click the Download button. The file will be saved in your download folder as Jigsaw.svg
7. Close or minimize the browser.
8. Open the Jigsaw.svg file in Illustrator.

9. Select File > Document Setup and set the units to inches.
10. Select View > Rulers > Show Rulers to display the rulers.
11. Click on the black background in the middle of a puzzle piece.
12. Change the color to White (RGB = 255,255,255 or #FFFFFF).
13. Click on one of the remaining black tabs.
14. Change the color to White (#RGB = 255,255,255 or #FFFFFF).
15. Select all
16. Set the Stroke Size to 0.072 pts at the top of the screen.
17. Verify the Stroke color is Red (RGB = 255,0,0 or #FF0000)
18. Select Window > Transform to display the dimensions of the jigsaw rectangle.
19. Set the size of the rectangle to something half inch less than the size of the photo. For example if the photo is 8X10 inches, set the rectangle to 7.5 x 9.5 inches.
20. Save file under another name of your choosing.
21. Print to VLS2.3DT. Check "Ignore artboards."
22. Exit or minimize Illustrator.
23. Open the UCP and follow the steps described above. Be sure to correctly set the material and thickness.
24. Place your image face down on the bed of the laser cutter.
25. Click on the 4 outside corners of the puzzle box to ensure the rectangle fits within the 4 drill holes that indicate the corners of the photo. If not, you can resize the puzzle SVG file in Illustrator and print again.
26. Be sure the alignment is as square as possible.
27. Once satisfied, set the material and thickness and burn away.

Using the UCP

These instructions apply to any operation with the lasercutter regardless of the program used to create and "print" the image.

1. Click on the *UCP icon* on the desktop to open the Universal Control Panel
2. The name of your print file should appear at the top of the screen. Note: previous jobs remain in the queue. Use the arrow icons to scroll through the file names.
3. Click the *Settings* button.
4. Select the *Material* as appropriate.
5. Use the digital caliper to measure the thickness (in mm) of the metal.
6. Set the *Thickness*.
7. Click the *Apply* button.
8. Click the *OK* button.
9. Click the *Focus View icon* (next to the magnifying glass icon).
10. Click on the top left corner of your image on the screen. The laser will position to that location.
11. Open the lid. Place material under the beam. Align material with the hex grid for straightness.
12. Click on the bottom right corner of your image. Verify that your image will fit on the material.

13. If not, resize the image in Illustrator and “Print” again.
14. Close the lid.
15. Ensure that the exhaust filter is turned on. (Power switch located in the rear.)
16. Click the green *Start Arrow* to begin the engraving.
17. When finished, open the lid and remove the item. Then close the lid.
18. If finished with the cutter, turn off the exhaust filter and lasercutter.