Create SVG file for Sand-Carving or CNC or 3D Model

Inkscape software · https://djcs.art/docs/create-svg-file-for-sand-carving-for-cnc/

This is not an official description of Inkscape, but a description of the features of Inkscape as they are used in our business.

The SVG file we discuss will be used in our business for sand-carving, 3D models, and CNC. Each application has unique requirements that will be applied to the finished SVG file described in this article.

The first thing to realize is that Inkscape will save a file with vector and path information, images, text, and native objects as an SVG file. Our experience is that text objects and image objects will need special consideration when printing the file for sand carving or importing the file for CNC or 3D modeling.

We start with an existing SVG file or create an SVG from a JPG or PNG file. Our objective for the SVG file is to print to a transparent sheet for the sand-carving or import it to our CNC-type machine (Shaper Origin) or import it to Blender for 3D modeling.

Inkscape SVG File Objects

Inkscape file with 3 objects.

You can't tell the difference between each object, is it a vector object, is it text, or is it an image?

Creating svg file

The SELECTION (S) tool was used to select the first object which is text. You can change the font characteristics by using the EDIT TEXT OBJECTS tool (T).

You will notice the transformation handled (double-ended arrows) and a dotted box around the object. These are visible only when you are using the Selection (S) tool.

In the present state, this text is not usable for our intended SVG file. It could be used for sand-carving as it is printed directly on a transparent sheet and the black text would be against a transparent background (transparency sheet).

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The second object is an image. You can not edit the contents of the image in Inkscape., but you can scale and rotate. You can use it for cloning and the spray tool, but that is outside the scope of this article.

You will notice the transformation handled (double-ended arrows) and a dotted box around the object. These are visible only when you are using the Selection (S) tool. The image can be scaled and rotated with this tool.

This image object is not usable for our intended use of the SVG file. Again, it could be used for sand-carving as it is printed directly on a transparent sheet. We do need only black and transparent for the sand carving design, so there is more work needed if this is used.

Creating svg file

The 3rd object is the vector object in this file. This is the type of object that will be usable for sand-carving, Shaper Origin CNC, and 3D modeling.

You will notice the transformation handled (double-ended arrows) and a dotted box around the object. These are visible only when you are using the Selection (S) tool. We'll soon see there are more operations we can perform on the vector object other than scale and rotate as noted by the transformation handles (doubled-ended arrows).

Changing to the Node tool (N), to select the text object you will see that the surrounding box does not have the transformation handles. You can not rotate or scale the text object with Node Tool (N).

There is a single diamond-shaped handle (lower right corner) that will allow you to adjust the containing box for the text if there are spaces between the words. For this article, all we will use is the knowledge that the text object can not be modified by the Node tool (N) and is not recognized as a vector object by the Shaper Origin or 3D modeling.

Selecting the image file with the Node tool (N) does not show much of the containing box. There is a dashed line around the image. In this illustration, it is hard to see.

What we need to know is the Node tool (N) does not operate on the image object.

With the image file embedded in your file, it can be a reference or the source for a Trace Bitmap operation.

Selecting the vector object provides different results than previously experienced.

The node handles allow you to adjust the position on individual vertices that make up the object.

This is the content we want for our SVG project files. to import for 3D models and Shaper Origin CNC.

Text used for 3D modeling and Shaper Origin CNC must be converted to path. This makes the text compatible with our CNC workflow and 3D animation workflow.

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Prepare SVG FIle for Correct Workflow

As noted at the beginning we have three workflows that use the SVG file;

- 3D Modeling (Modify SVG file for Blender)
- Shaper Origin CNC
- Sand-Carving

The article links are provided in the list above. These articles will detail the next steps needed to finalize the SVG for use in the related workflows.