Work Example — Making Wooden Tags (Inkscape)

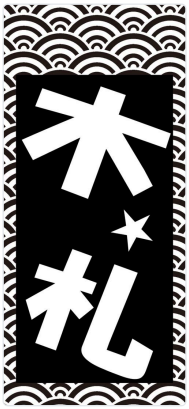
RSD-SUNMAX Series
SUNMAX LASER

About this document: This is an English translation of the Japanese original prepared by SUNMAX LASER for reference purposes. In case of any discrepancy, the Japanese original shall prevail. Specifications are subject to change without notice.

Work Example — Making Wooden Tags (Inkscape)

- This document assumes that the laser machine has been set up correctly.
- This document assumes that RDWorksV8, the control software for the RSD-SUNMAX series, has been installed correctly.
- This document uses Inkscape 1.4.

— The image below shows the finished product created by following this document. —



1. About Wooden Tags

Ready-made wooden tag blanks are available in several sizes and materials. Instead of using ready-made blanks, you can also cut wooden boards to produce tags in any shape and size you like. Engraving may be done on both faces or on one face only.

2. About Inkscape

Inkscape is open-source vector graphics editing software.

Unlike Adobe Illustrator, it is not intended for producing printed matter, but it can be used to create outline data for a laser machine.

Because it is free software, there is no introduction cost as there is with Adobe Illustrator or CorelDRAW, so you can get started easily.

There are also many articles about it on the Internet, so if you have trouble with an operation there is a good chance you will find a solution.

Note that although Inkscape can open Adobe Illustrator *.ai files and CorelDRAW *.cdr files, it cannot save data in *.ai or *.cdr format. When creating outline data for a laser machine, save in *.dxf format.

In addition, Inkscape's import accuracy for *.ai and *.cdr files is not very good. For *.ai, versions 9.0 and later are supported; for *.cdr, versions 7 through X4 are supported. If Inkscape cannot import an *.ai or *.cdr file correctly, use other software to convert the file to a different format and then import it.

> **Caution:** The following points require attention when making wooden tags.
>
> - The workpiece must be positioned precisely. Even a slight tilt or offset will noticeably degrade the quality of the product and make it unacceptable as merchandise. For this reason, a positioning jig must be installed on the work table. Make the positioning jig to suit the shape being processed. However, when the tags are cut out of a large wooden board rather than using ready-made blanks, and only one face is engraved, the outline and the interior design are processed at the same time, so strict alignment is not required.
> - Laser processing works by burning the material with heat. Therefore, depending on the laser power setting, light-colored materials will take on a scorched tone. To avoid this, cover the material with water-dampened paper before engraving; this reduces the scorching.
> - When cutting tags out of a large wooden board rather than using ready-made blanks, the outline is cut at high power, so the cut edge will be scorched. If the scorched color is a problem, sand the edge with abrasive paper to polish it.

2-1 Downloading and Installing Inkscape

Download Inkscape from the Inkscape website (https://inkscape.org/ja/).

Download the "Current Stable Version".

Once downloaded, double-click the msi file to run it. The installer is in English, but there is no need to change any settings; simply click "Next" and "Install" and the software will be installed automatically.

2-2 About Typefaces

OpenType and TrueType fonts installed in Windows can be used.

You can also register and use OpenType and TrueType fonts as Inkscape-specific typefaces without installing them in Windows.

2-3 About Japanese Pattern (Wagara) Data

Wooden tags sometimes have a pattern in the background. Pattern data can be created yourself as outline data using software such as Inkscape or Adobe Illustrator.

Alternatively, various websites publish free data on the Internet, which you can download and use.

Free data is provided in file formats such as *.ai, *.svg, and *.eps in most cases. Inkscape does not support the *.eps format. Use *.ai or *.svg. Data is also sometimes distributed as image data such as *.jpg or *.png; image data is not unusable, but it is not convenient, so it is normally not used. As a rule, download *.ai or *.svg.

Examples of sites offering free materials that may be used commercially

Petit Sozai	https://www.petit-sozai.com/archives/3161
Ikiya	http://www.ikiya.jp/crest/download.html
GAHAG | Copyright-free photo and illustration collection	https://gahag.net/?s=%E5%92%8C%E6%9F%84
illustAC	https://www.ac-illust.com/main/search_result.php?word_id=13&word=%E5%92%8C%E6%9F%84&search_word=%E5%92%8C%E6%9F%84+%E3%83%A2%E3%83%8E%E3%82%AF%E3%83%AD+%E3%83%91%E3%82%BF%E3

2-4 Note

If you already use Adobe Illustrator or CorelDRAW, there is almost no advantage in deliberately using Inkscape.

Inkscape is used here purely in the context of creating laser processing data with free software.

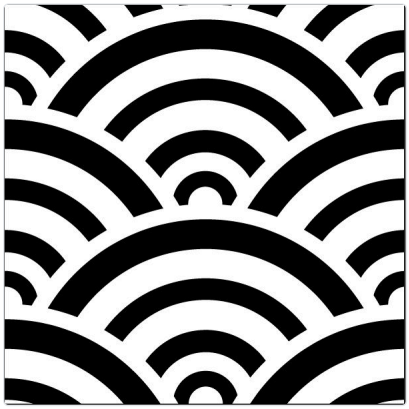
3. Creating the Data in Inkscape

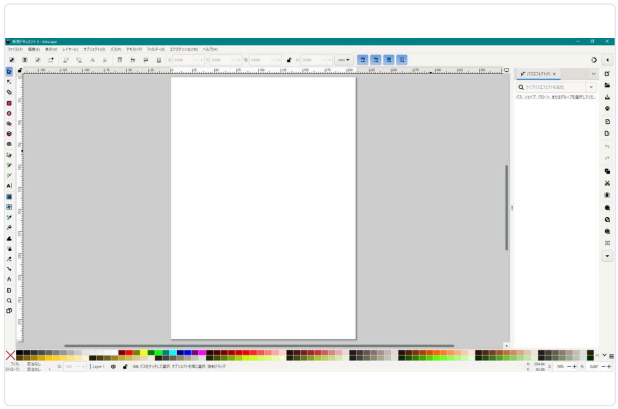
Create the wooden tag using the following procedure.

We will use the data (ai) file shown below, downloaded from a free-materials site.

The wooden tag size is 25 x 55.

1. Start Inkscape

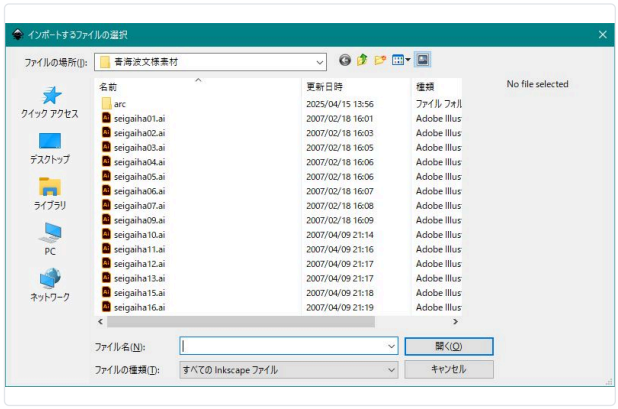




2. Import the pattern data

From the menu, click "File" - "Import".

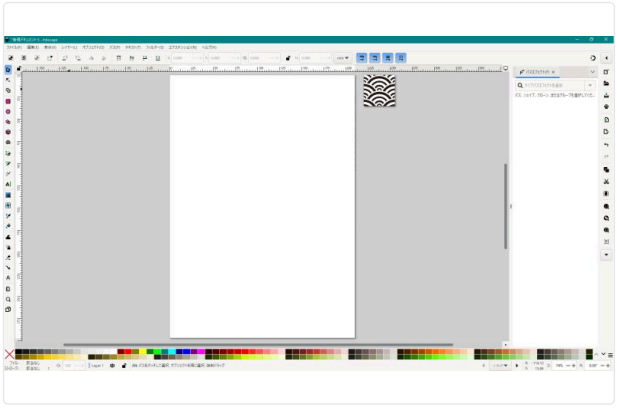
When you click "Import", the "Select file to import" dialog appears; specify the data you want to use.



The "PDF Import Settings" dialog appears.

There is nothing in particular that needs to be changed; click OK.

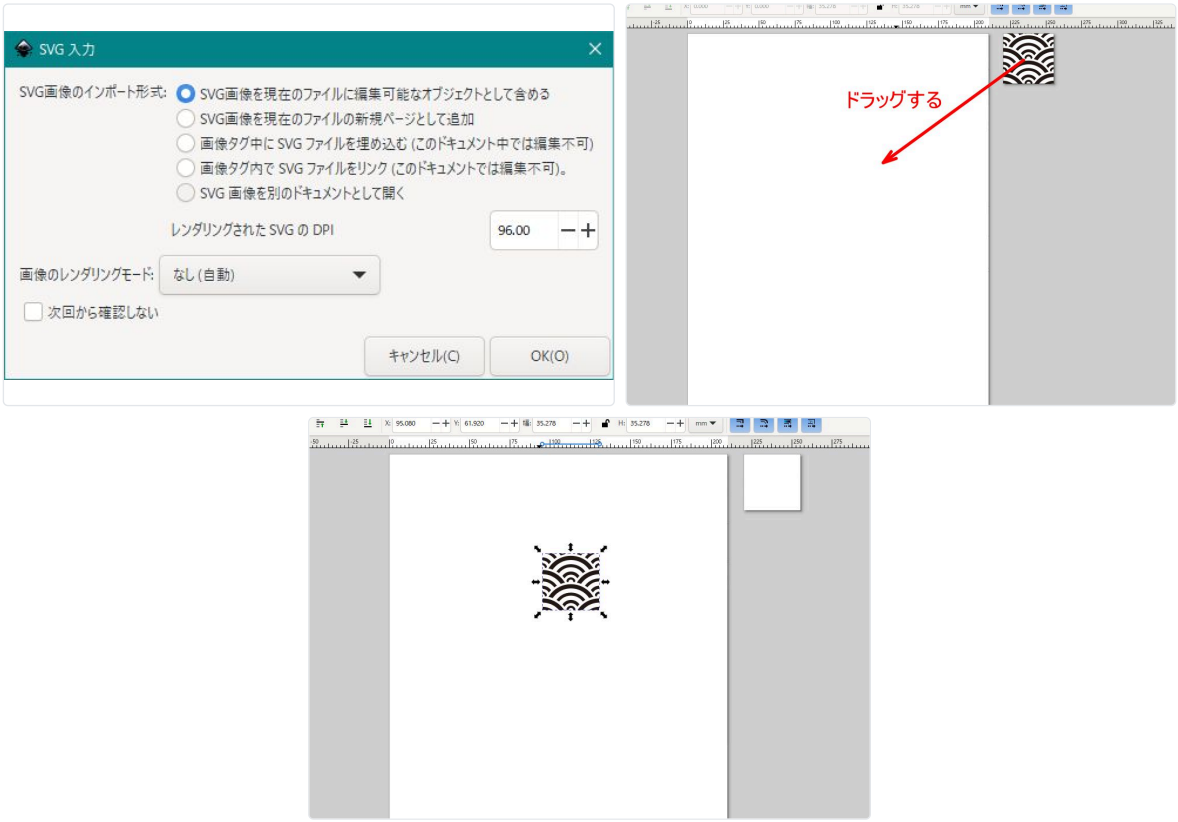
When you click OK, the result looks like the figure below.



The above behavior applies when the file being imported is *.ai. For an *.svg file, the "SVG Input" dialog appears instead of the "PDF Import Settings" dialog.

For *.svg files as well, there is nothing in particular that needs to be changed; simply click OK.

3. Drag the imported data out of the box with the mouse and move it onto the workspace



4. Check the imported data

Because the processing data is to be created as monochrome data (engraving the white or the black areas), check the colors used in the imported data.

If you create the background data yourself, use only the two colors white (#FFFFFF) and black (#000000).

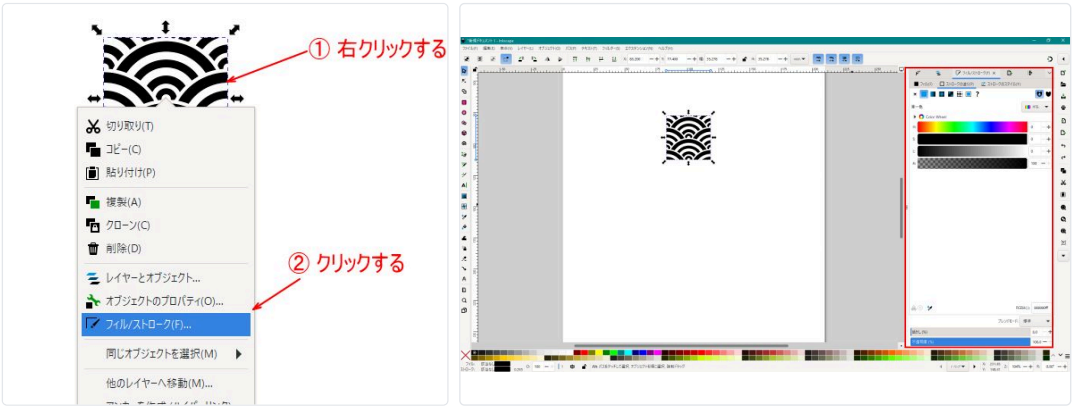
Data obtained from the Internet or elsewhere is not necessarily monochrome, and even if it is monochrome, it is not necessarily made with pure white and black.

To check or change the colors of the data, right-click on the object to display the menu, then click "Fill and Stroke".

When you click "Fill and Stroke", the "Fill and Stroke" tab appears in the right-hand panel.

Use the tabs of the Fill and Stroke panel to set the object's stroke and fill.

"Fill" sets the fill color, "Stroke paint" sets the outline color, and "Stroke style" sets the shape of the outline.



Data obtained from outside sources can be built in many different ways, so it is not possible to give a single blanket explanation of what to do. The following is given as an example.

Set the fill color on the "Fill" tab. Set it to black. Click the "Fill" tab to display the fill settings, click "Flat color", and then set RGBA near the bottom to "000000ff". The fill color is now black.

Next, change the outline. Depending on how the data was built, the outline may not be needed.

If the outline is not needed, set "Stroke paint" to "No paint".

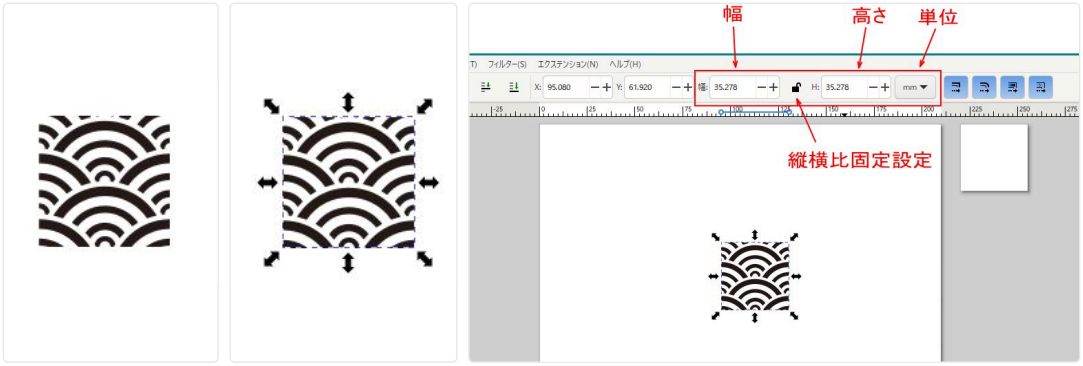
If the outline is needed, set "Stroke paint" to "Flat color" and set the line color to black (000000ff) or white (ffffffff).

5. Resize the data

The imported data is not intended specifically for wooden tags, so its size may not be appropriate.

For this data, we will make each piece 1 cm square and tile it to cover the size of the wooden tag.

Select the data you dragged in. Clicking the data selects it. The selected state is shown below.



Not selected　Selected

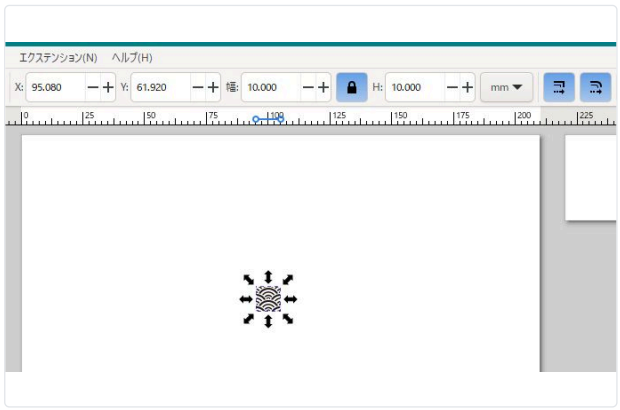
With the imported data selected, change its size. Set the width and height to 10 mm. If the units are not mm, change them to mm.

Clicking the lock aspect ratio setting changes the lock icon.

- When it looks like this, the aspect ratio is not locked.

- When it looks like this, the aspect ratio is locked. If you change either the width or the height, the other is automatically scaled by the same factor so that the aspect ratio is preserved.

The data is now 10 mm x 10 mm.

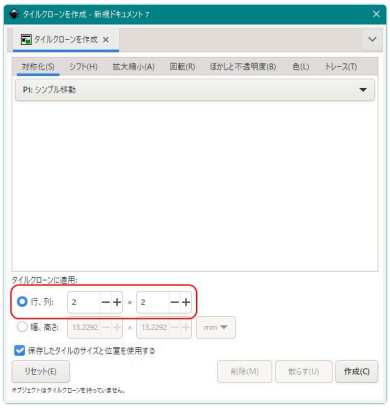


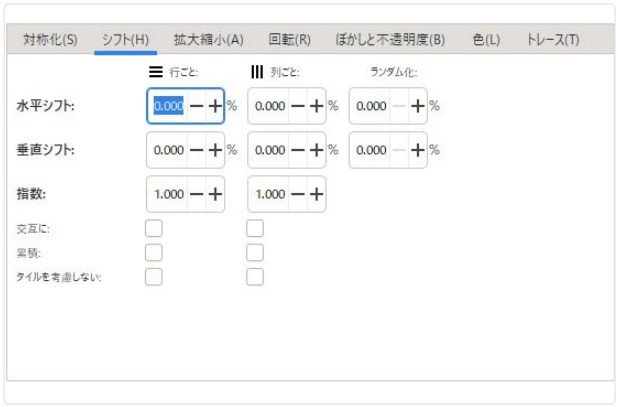
6. Tile the data

The wooden tag is assumed to be 25 x 55 mm, so tile the imported data over an area at least that large. Arrange it as a 3 x 6 array (30 x 60 mm).

To create the array, click "Edit" - "Clone" - "Create Tiled Clones" on the menu.

The "Create Tiled Clones" dialog appears. Set the rows and columns. Here, the rows are 6 and the columns are 3.





> **Caution:** If you have used tiled clones for another job, the previous settings may still be in place, so check them.

Make sure the "Shift" tab is set as shown below.

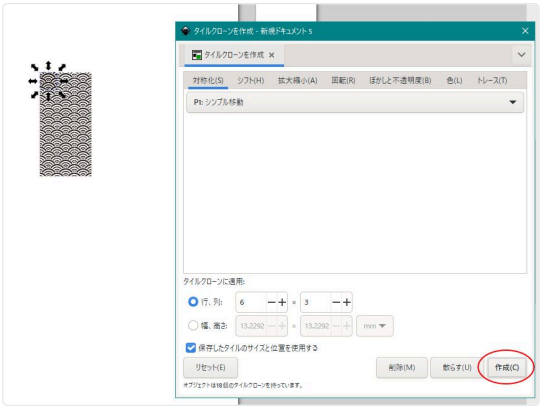
"Scale" tab

"Rotation" tab

"Blur & opacity" tab

"Color" tab

"Trace" tab



Click "Create" to generate the array.

The "Tiled Clones" dialog does not close when you click the "Create" button. If the data lies behind the "Tiled Clones" dialog, you will not be able to see the result, so move the "Tiled Clones" dialog aside to check it.

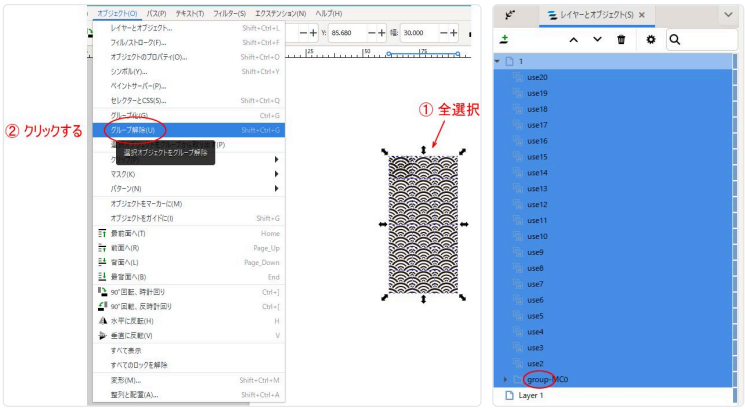
Once the data has been arrayed correctly, click the ✕ button on the "Tiled Clones" dialog to close the dialog.

If you want to correct the array, change the settings and click "Create"; the changes are applied.

7. Ungroup

After tiling, ungroup the objects.

Enclose the whole area by dragging with the mouse, then click "Object" - "Ungroup" on the menu. Depending on the data, the grouping may be nested, so perform "Ungroup" several times until no grouped objects remain.



You can check whether any grouped objects remain with "Fill and Stroke". With an object selected, click "Object" - "Fill and Stroke" on the menu, and the "Layers and Objects" tab appears in the right panel.

An object list is displayed. If it contains an entry such as "group...", a grouped object still exists and must be ungrouped.

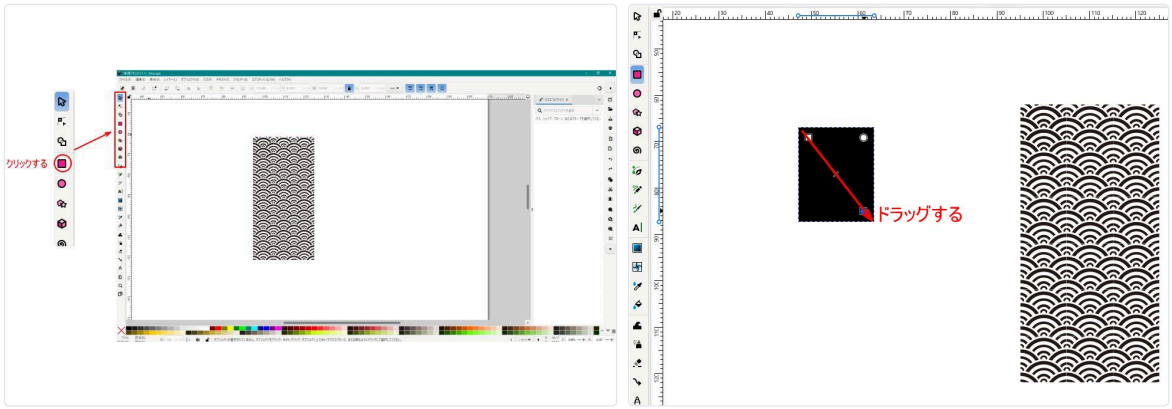
Repeat "Ungroup" until no "group..." entries appear in the list.

8. Create data at the wooden tag size

Once the background data has been tiled, create a rectangle at the size of the wooden tag.

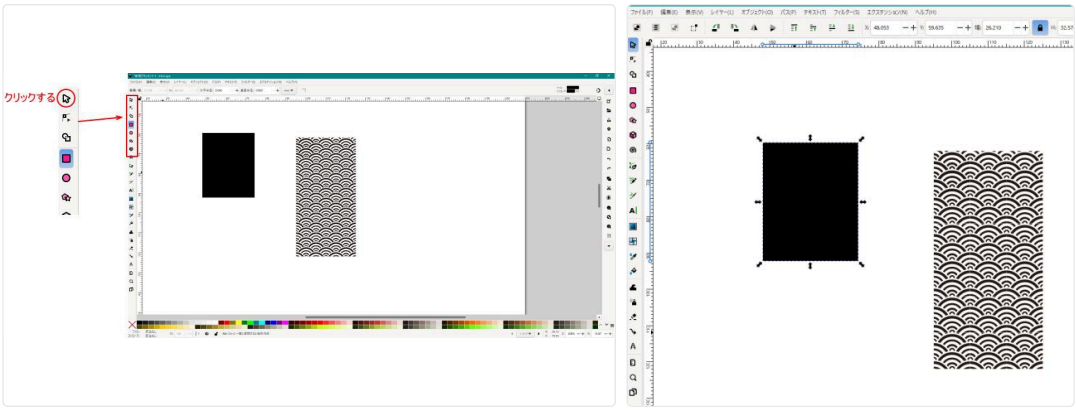
First, create a 25 x 55 mm rectangle.

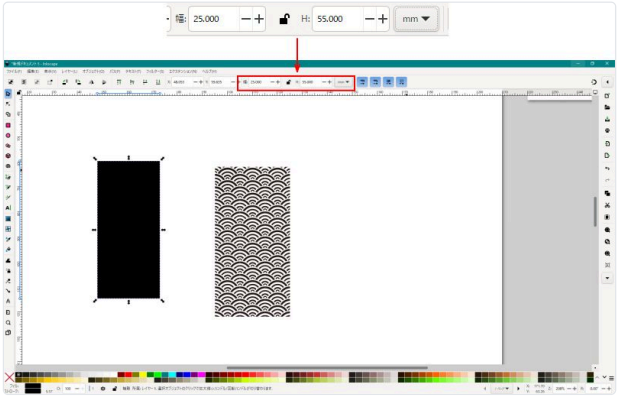
To create a rectangle object, click the "Rectangle Tool" button on the toolbar at the left and drag diagonally in the work area. The position does not matter.



* The shape and appearance of the rectangle that is drawn vary with the Inkscape settings. It may not be filled as shown in the figure above.

Once you have created one rectangle, click the "Selector" button on the toolbar at the left to leave rectangle mode.

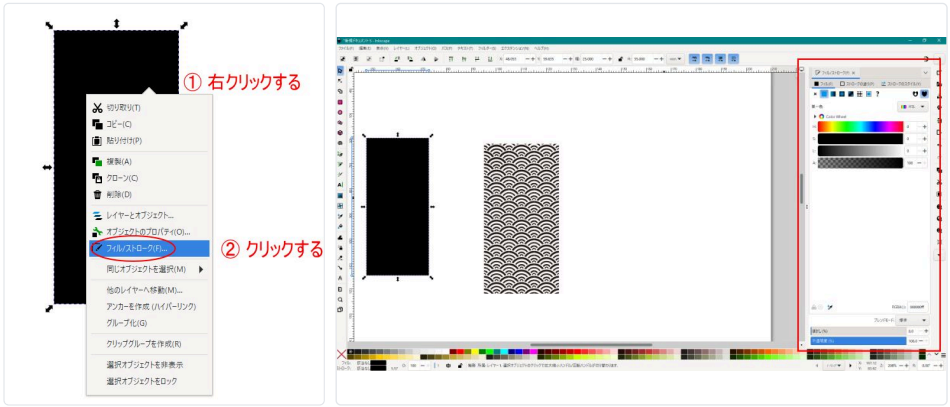




Then click the rectangle you created to select it.

Set the size of the rectangle to the size of the wooden tag.

Once the rectangle is at the size of the wooden board, right-click on the rectangle object to display the menu, then click "Fill and Stroke".



When you click "Fill and Stroke", the "Fill and Stroke" tab appears in the right panel.

First, set the rectangle's fill to none: click the "Fill" tab and click the ✕ ("No paint") button. (If it is already set to no fill, this step is not necessary.)

Next, set the stroke paint to a flat color. (If it is already set to "Flat color", this step is not necessary.)

Finally, on the "Stroke style" tab, set the stroke width to 0.01 mm.

The rectangle now appears as shown below.

Finally, move the rectangle object to the very front of the stacking order. With the rectangle object still selected, click "Object" - "Raise to Top" on the menu.

* If the wooden tag is not a plain rectangle but a rounded rectangle, create rounded-rectangle data.

To make a rounded rectangle, first create a rectangle object, then work with the circular node at the upper right of the object. When you click the node it turns blue; drag it up or down with the mouse to change the corner radius (R).

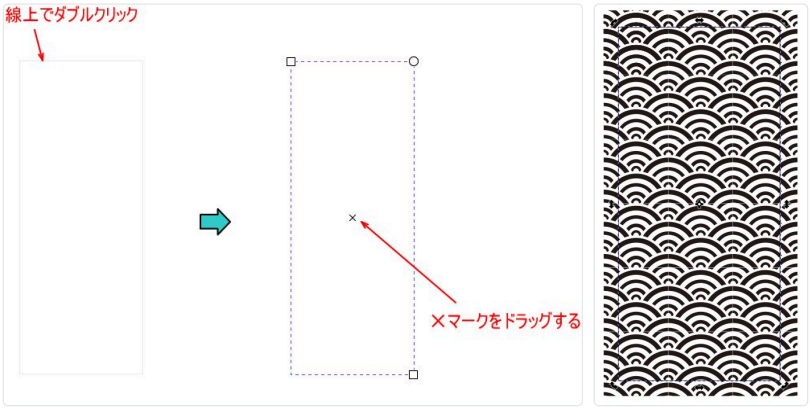
If you want to set the R value numerically instead of by mouse, enter it in the "Ry" (vertical radius) field.

9. Move the rectangle into the proper position

Drag the rectangle object so that it overlaps the pattern. Adjust its position so that the pattern sits where you want it. Double-clicking on the outline of the rectangle object displays an × mark at its center; drag that mark to move the object.

Overlay the objects.

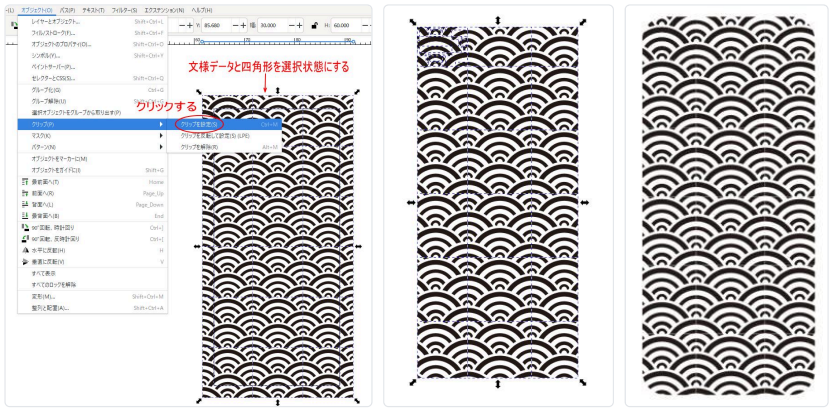
The portion of the pattern inside the rectangle becomes the background of the wooden tag.



10. Set the clip

Once the rectangle is positioned, select the rectangle object together with the pattern data, then click "Object" - "Clip" - "Set Clip" on the menu.

When the clip is set, the pattern data is trimmed to the size of the rectangle.



11. Group the background data

Select all of the pattern data and click "Object" - "Group" on the menu to group it.

If you used a rounded rectangle, the result looks like the figure below.

Even when the wooden tag has a shape other than a rectangle, follow the same procedure.

12. Create the design data for the wooden tag

Once the background data is ready, lay the design data on top of it.

The important point here is deciding whether to engrave the black areas or the white areas of the background data. In this example, black is set as the area to be engraved.

First, place a black rectangle over the area where the text will go. Because the text is to be raised (engraved in relief), the area where the text goes is made black, the engraved color.

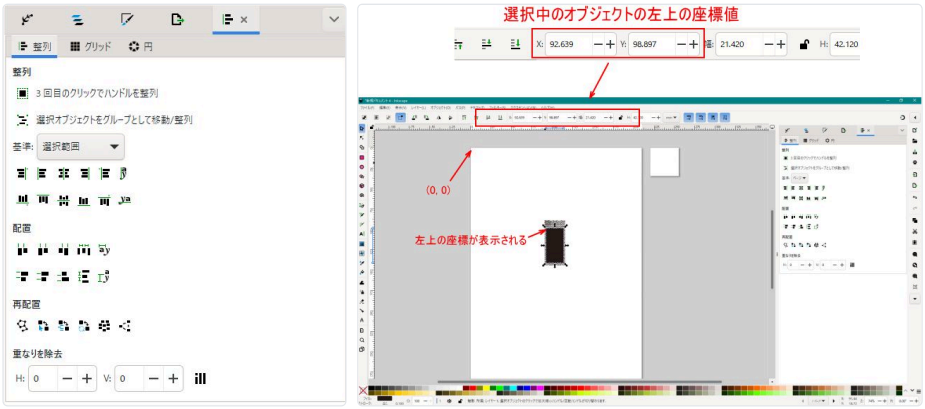
To align the objects, select both the pattern data and the added rectangle, then click "Object" - "Align and Distribute" on the menu.

When you click it, the "Align and Distribute" tab appears in the right-hand panel; use the "Align" tab to align the objects.

If you want to enter object coordinates numerically, select the object and set the X and Y values on the toolbar. In Inkscape, the coordinate origin of an object is its upper left corner, and the origin of the work area is also its upper left corner.

When multiple objects are selected, the coordinates shown are those of the upper-left-most position of all the selected objects.

Changing the values moves the selected object to the position you set.

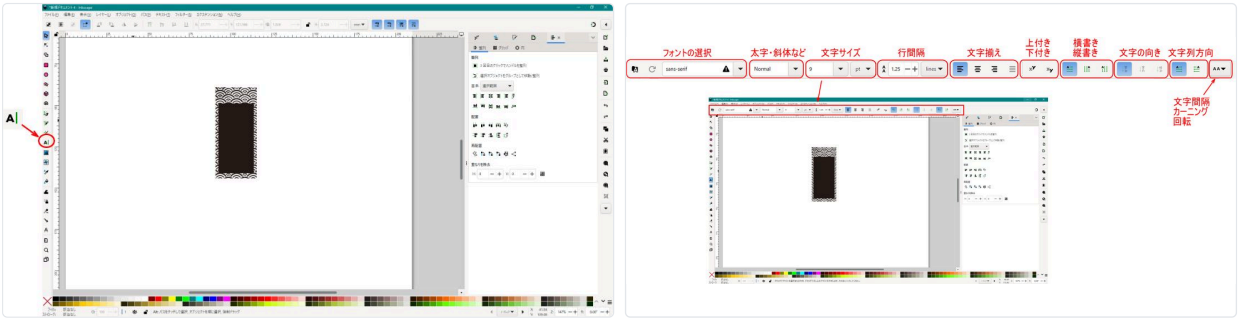


Next, add the text. Adding a family crest or similar element is also a good idea.

To enter text, click the text tool button on the left toolbar.

After clicking it, click in the work area to add a text string. Set the font and other text properties on the toolbar.

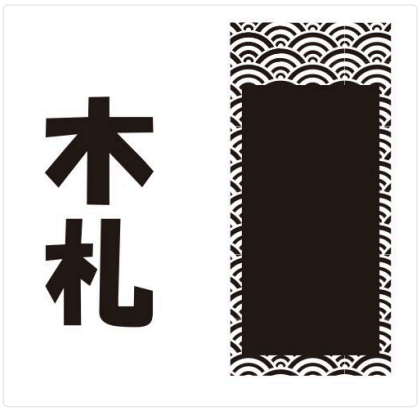
> **Caution:** Notes on fonts
>
> - When creating a text string, first set it as horizontal text and change its size to determine the approximate character size; then switch to vertical text if required. If you enlarge the character size while vertical text is set, the text string may not be displayed.
> - As a rule, create the data roughly while it is still a text string, then convert it to outlines and make fine adjustments afterward.

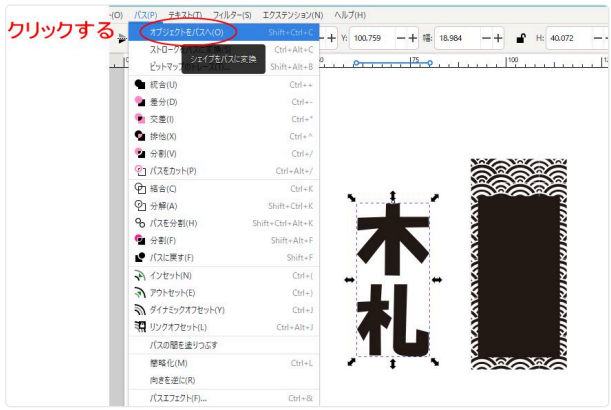


> **Caution:**
>
> - The font selection list does not show file names. For this reason, you cannot look fonts up by font name the way you would in typical Japanese-language software. Also, if a font name contains Japanese characters, the list display may show garbled characters.
> - If the selected font does not contain the characters used in the text string, the default font is substituted.

As an example, create a text object reading "木札" (wooden tag).

Next, convert the text object to a path. Once converted, the text object becomes outline strokes. Select the text object and click "Path" - "Object to Path" on the menu to convert it to outlines.

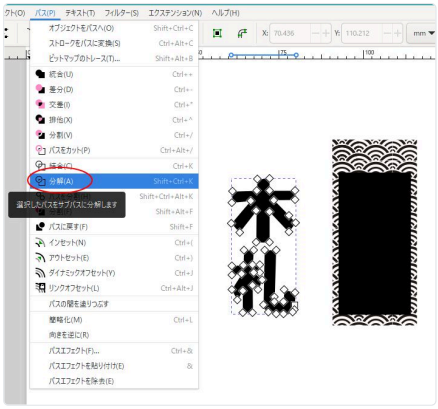


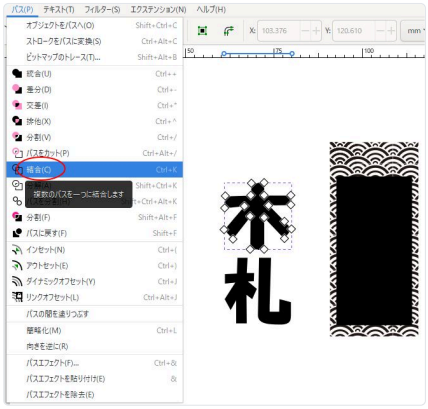


Once the text has been converted to paths, prepare it so that each character can be moved and edited individually.

First, select the entire path-converted text string, then click menu "Path" - "Break Apart".

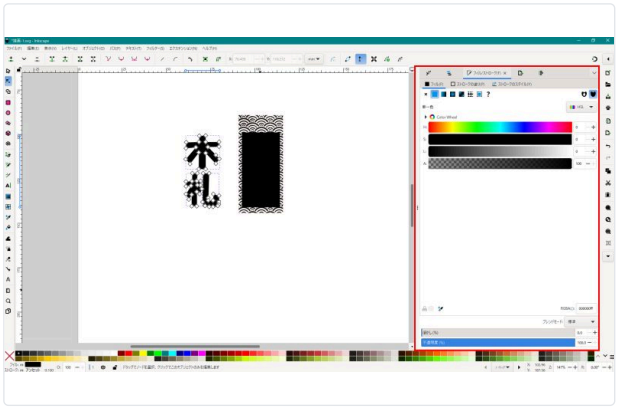
Next, select the characters one at a time and combine the paths of each character with menu "Path" - "Union". Do this for every character.





After combining each character, change the color. Because the background of the text is a black rectangle, set the text color to white. To set the fill color of the objects to white, select the entire path-converted text string, right-click to display the menu, and click "Fill and Stroke".

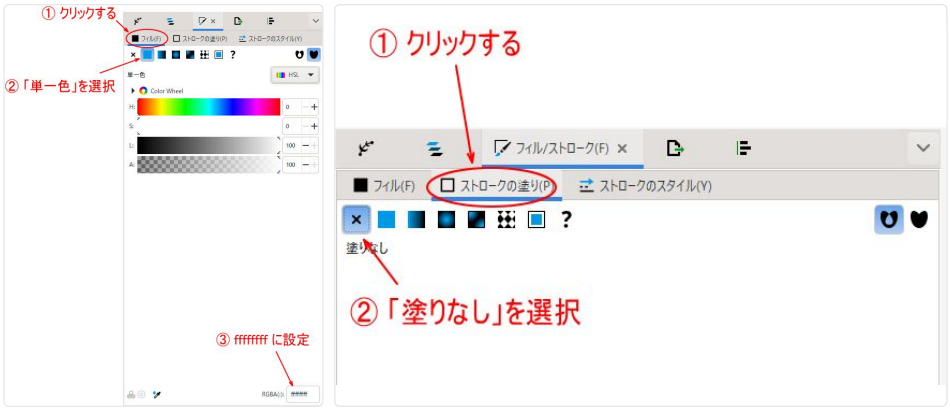
Clicking "Fill and Stroke" displays the "Fill and Stroke" tab in the right panel.
On the "Fill" tab, click "Flat color" and set RGBA to "ffffffff".

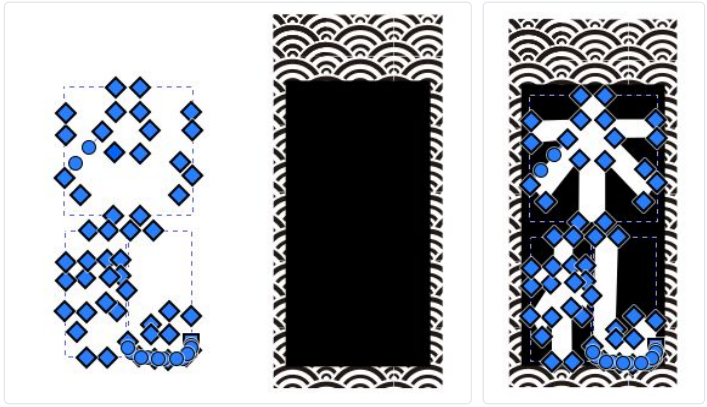


First, on the "Fill" tab, set the fill color of the text string to white.

Next, set "Stroke paint" to no paint.

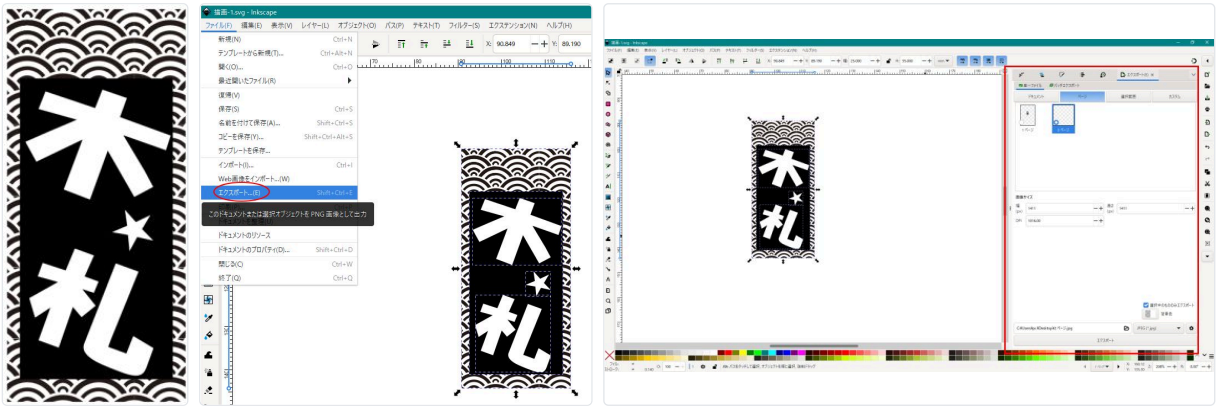
Once these settings are made, place the text over the rectangle in the appropriate position.





After moving the text into position, transform the characters and add other characters or artwork to build up the design.
You can edit the design using menu "Object" - "Transform" or the tools on the left toolbar.

Sample used in this guide



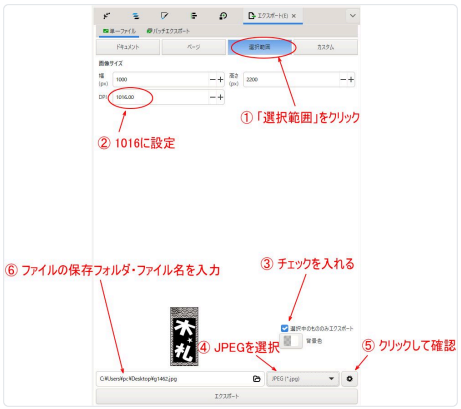
13. Save the data

When the design data is complete, save it to a file.
First, select the design, then click menu "File" - "Export".

Clicking Export displays the "Export" tab in the right panel.

Configure the export screen as shown in the figure below.

For item ⑤, "Click to check": clicking this button displays "Export Format Options".
On this screen, confirm that the image quality is "100" and that Progressive is "unchecked". If different settings are shown, change them accordingly.



When the settings are complete, click "Export".

This completes the creation of the data. It can now be imported into RDWorksV8 or LaserWorkV6 for engraving.

4. Importing into the Control Software

Import the saved jpeg file into RDWorksV8 (RSD-SUNMAX-RD series) or LaserWorkV6 (RD-SUNMAX-LT6040ST908).

After importing, use the control software to add the cutting data for the hole through which the string will be threaded.
If you also want to cut out the shape of the wooden tag, add that cutting data in the control software as well.