

Making a Seamless Pattern

1. Copy the code for the design from <http://steamcoded.org/lessons/pattern.svg.txt>
Paste it into an editor and save the file as `pattern.svg`
2. Looking at the code you can see a definition for a symbol with `id="i1"`.
A `<use>` element references the `i1` id with attribute `xlink:href="#i1"`
3. In the definitions section on the line after the `</symbol>` and before the `</defs>` add a `<pattern>` element with `id="p1"` and attributes as shown:
`<pattern id="p1" width="4961" height="3508" patternUnits="userSpaceOnUse">`
4. Put the ending `</pattern>` on the next line
5. Inside the `<pattern>` element, add a `<use>` element referencing the `"i1"` symbol and set the width and height attributes to 1/2 of the symbol size, then move it to the lower right part of the rectangle by using a transform attribute
`<use width="2480.5" height="1754" xlink:href="#i1" transform="translate(2480.5,1754)" />`
6. Outside the `<defs>` section, replace the `<use>` element with a `<rect>` element that is filled with the pattern as shown
`<rect width="100%" height="100%" style="fill:url(#p1);" />`
7. Add to the pattern definition by copying the `<use>` element inside the pattern and paste it on the next line, then change the transform attribute to reflect it along the y-axis – this is done by multiplying all the x-values by `-1`.
`transform="translate(2480.5,1754) scale(-1,1)"`
8. Copy the `<use>` element of step 7 and paste it on the next line, then change the transform attribute to reflect it along the x-axis – this is done by multiplying all the y-values by `-1`.
`transform="translate(2480.5,1754) scale(1,-1)"`
9. Copy the `<use>` element of step 8 and paste it on the next line, then change the transform attribute to reflect it along both the x and y axes
`transform="translate(2480.5,1754) scale(-1,-1)"`
10. Change the SVG `viewBox` attribute from `"0 0 4961 3508"` to `"0 0 9922 7016"` to double the size of the rectangle and image. Note: $4961*2=9922$ and $3508*2=7016$
11. Try 3 times and 4 times
12. To fill the screen and not just the image, change the rectangle attributes as shown
`<rect x="-100%" y="-100%" width="300%" height="300%" style="fill:url(#p1);" />`