

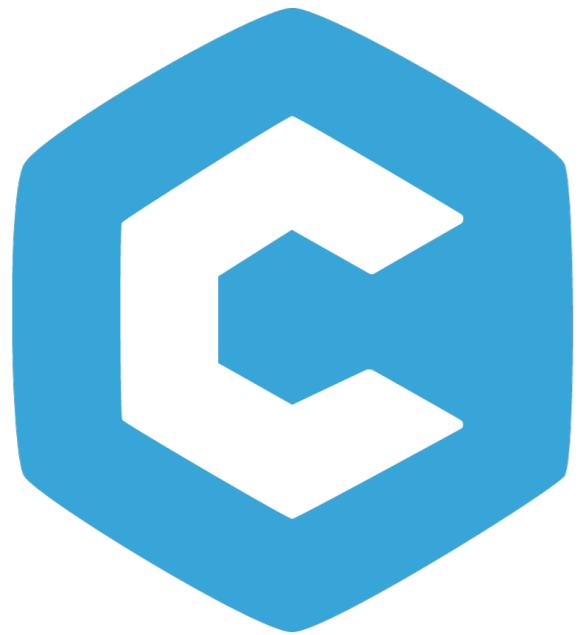
SVG

How to have fun making
your site look hot!

github.com/ryanhagerty/svg-hot

RYAN HAGERTY

Front-End Developer



CHROMATIC

chromaticsites.com

A close-up photograph of a pepperoni pizza. The pizza is covered in melted cheese and numerous round pepperoni slices. The crust is visible around the edges. The text is overlaid on the upper portion of the pizza.

@hotpizzas

WHAT
IS'
SVA?

**SCALEABLE
VECTOR
GRAPHICS**

WHAT IS IT USED FOR?



UI ICONS



sweyda.com

ILLUSTRATIONS



github.com/jasonlong/geo_pattern

PATTERNS

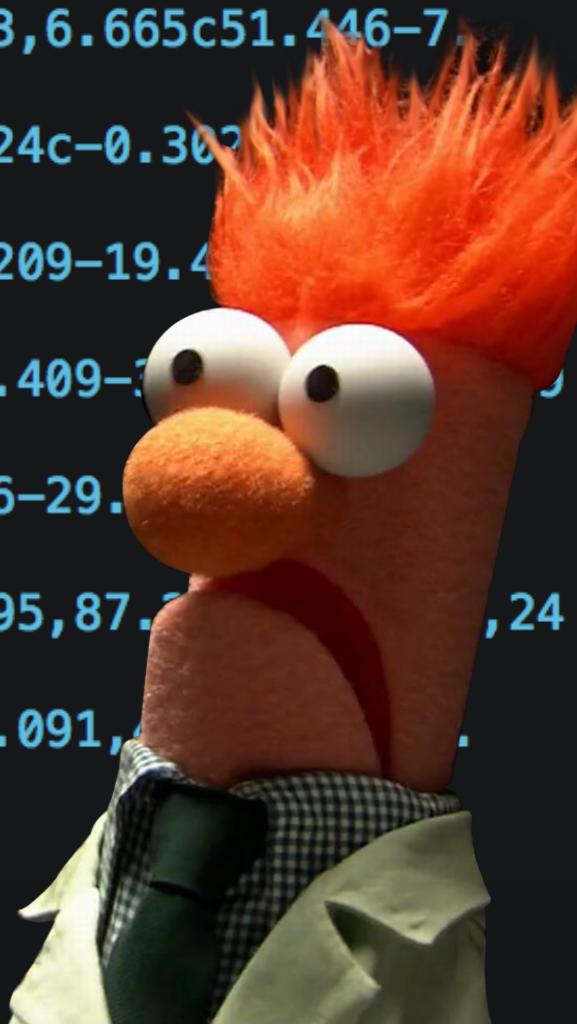
```
<svg>
  <rect x="0" y="0" width="250" height="200"
    fill="#ff0000" />
</svg>
```



<circle> <ellipse> <line> <polyline> <polygon> <path>

EASY

```
2
3 <?xml version="1.0" encoding="iso-8859-1"?>
4 <!-- Generator: Adobe Illustrator 19.0.0, SVG Export Plug-In . SVG Version: 6.00 Build 0)
-->
5 <svg version="1.1" id="Capa_1" xmlns="http://www.w3.org/2000/svg" xmlns:xlink="http://www.
w3.org/1999/xlink" x="0px" y="0px"
6   viewBox="0 0 502.641 502.641" style="enable-background:new 0 0 502.641 502.641;" xml:
space="preserve">
7   <path style="fill:#010002;" d="M494.812,235.513c-15.207-36.929-43.94-55.674-85.442-55.
674c0,0-27.244,0-49.742,0
8     c8.413-19.004,17.774-46.571,17.774-79.79c0-9.103-0.712-18.551-2.438-28.171c-6.536-38
.612-32.895-59.147-70.364-55.027
9     c-14.841,1.704-19.931,15.79-32.227,49.936c-10.203,28.301-24.181,67.064-44.457,98.233
10    c-14.905,22.908-41.459,40.984-63.763,52.115v-2.826H0V458.21h164.197v-13.439c25.842-1
.273,40.531-0.518,43.983,0.582
11    l29.379,17.062l21.959,13.697c21.334,11.497,114.649,12.597,154.663,6.665c51.446-7.
507,63.871-49.677,64.389-51.489
12    C482.625,417.311,518.022,291.834,494.812,235.513z M447.572,422.424c-0.302
787,24.03-38.072,28.366
13    c-43.055,6.407-122.91,2.524-134.753-3.128c0.086,0.065-19.478-12.209-19.4
36.908-20.73
14    c-8.564-2.869-27.977-3.193-54.164-2.028V252.036c26.446-10.699,67.409-3
.415
15    c22.347-34.298,37.059-75.088,47.801-104.92c0,0,9.47-23.577,11.756-29.
086,25.367,9.081,28.732,28.56
16    c1.337,7.636,1.855,15.207,1.855,22.52c0,48.34-24.828,86.822-25.195,87.5
.957l105.826,0.043
17    c28.301,0,45.428,11.023,55.631,35.743C481.05,286.722,457.754,387.091,
424z"/>
18 </svg>
```



DON'T PANIC!

WHAT
MAKES
SVG
GREAT?

SCALE



BROWSER SUPPORT

IE / Edge	Firefox	Chrome	Safari	Opera	iOS Safari *	Opera Mini *	Android Browser *	Chrome for Android
		31						
		36						
		37						
8		39						
9		40						
10	31	42	7					
11	38	43	7.1					
Edge	39	44	8	30	8.4	8	40	42
	40	45	9	31	9			
	41	46		32				
	42	47						

RESOLUTION INDEPENDENCE



JPG



SVG

PERFORMANCE!

*SMALL FILE SIZE**

DELIVER GZIP SVG

(saves 20-80% of file size)

htaccess:

```
<IfModule mod_deflate.c>
  AddType image/svg+xml svg svgz
  AddEncoding gzip svgz
</IfModule>
```

DO WHAT YOU WANT!

CHANGE THE CODE TO:

Alter color

Change shape

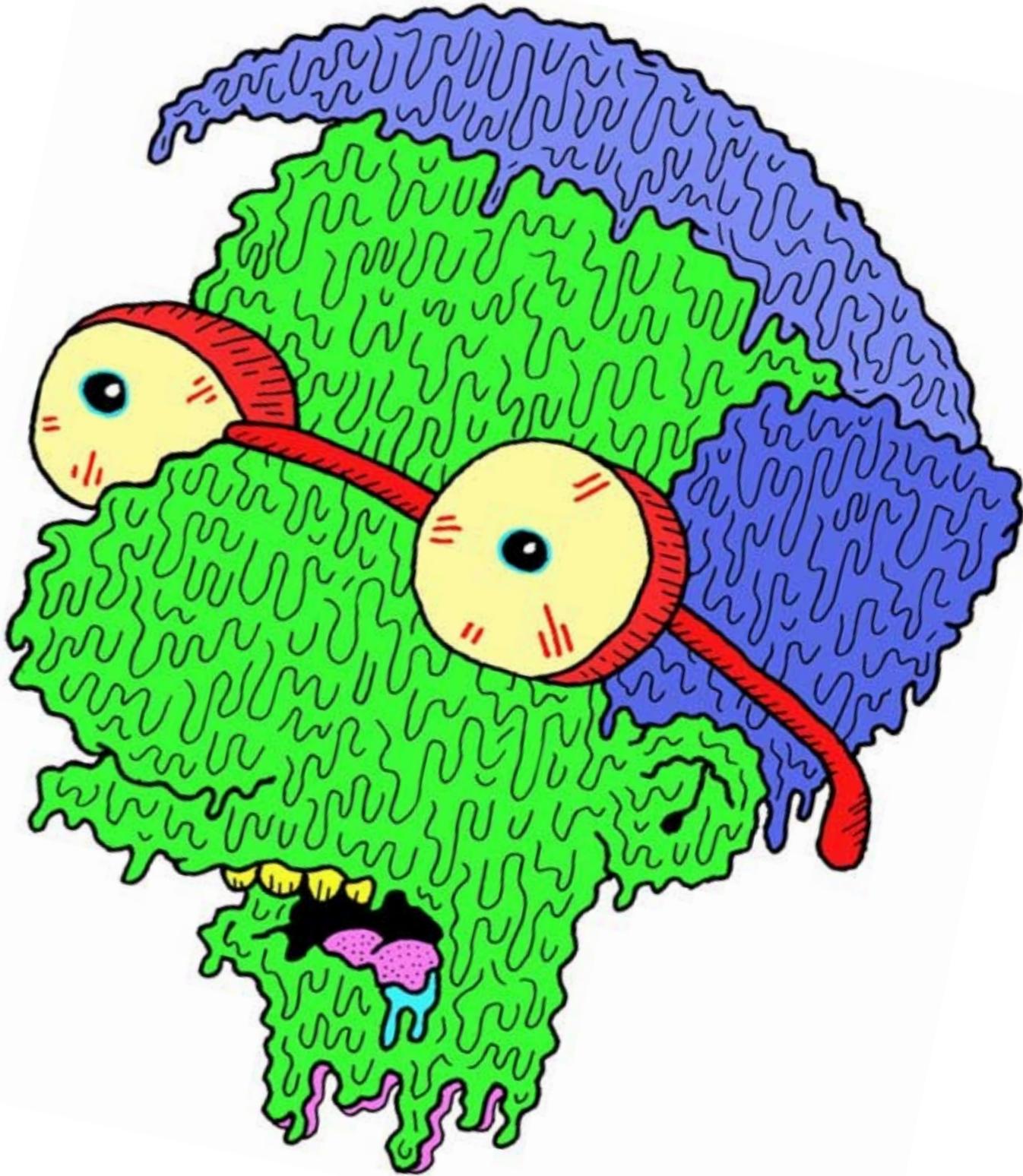
Mask it

Animate it

More

WHAT'S THE CATCH?

SVG
is
WEIRD



sam taylor

Sizing / Coordinate system

Half-pixel antialiasing

Strange height issues

Viewbox fun



github.com/emilbjorklund/svg-weirdness/

**EXPORT
FROM
ILLUSTRATOR**

FREE ALTERNATIVE

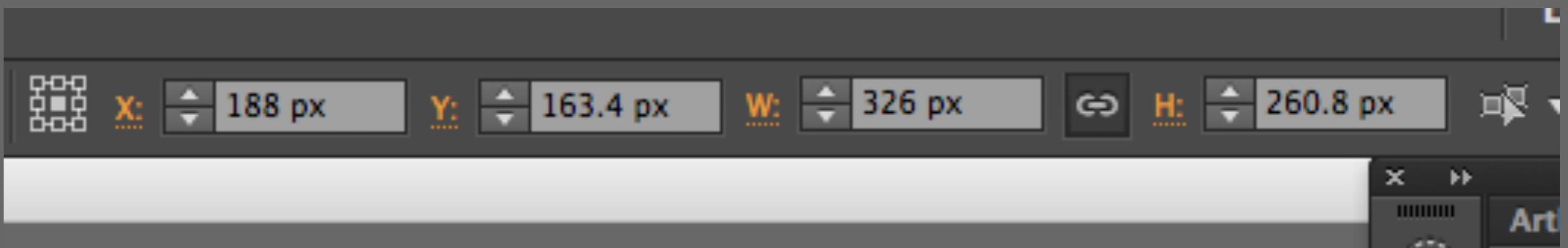


Inkscape

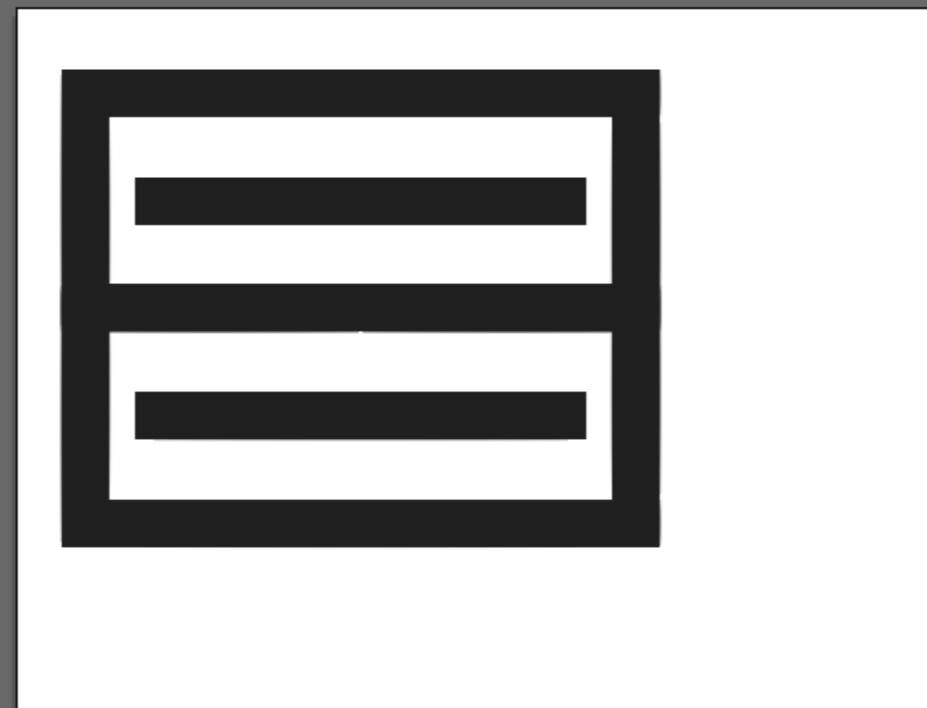
inkscape.org/en/

PREP TIPS!

FIX FRACTIONS FOR CLEAN LINES



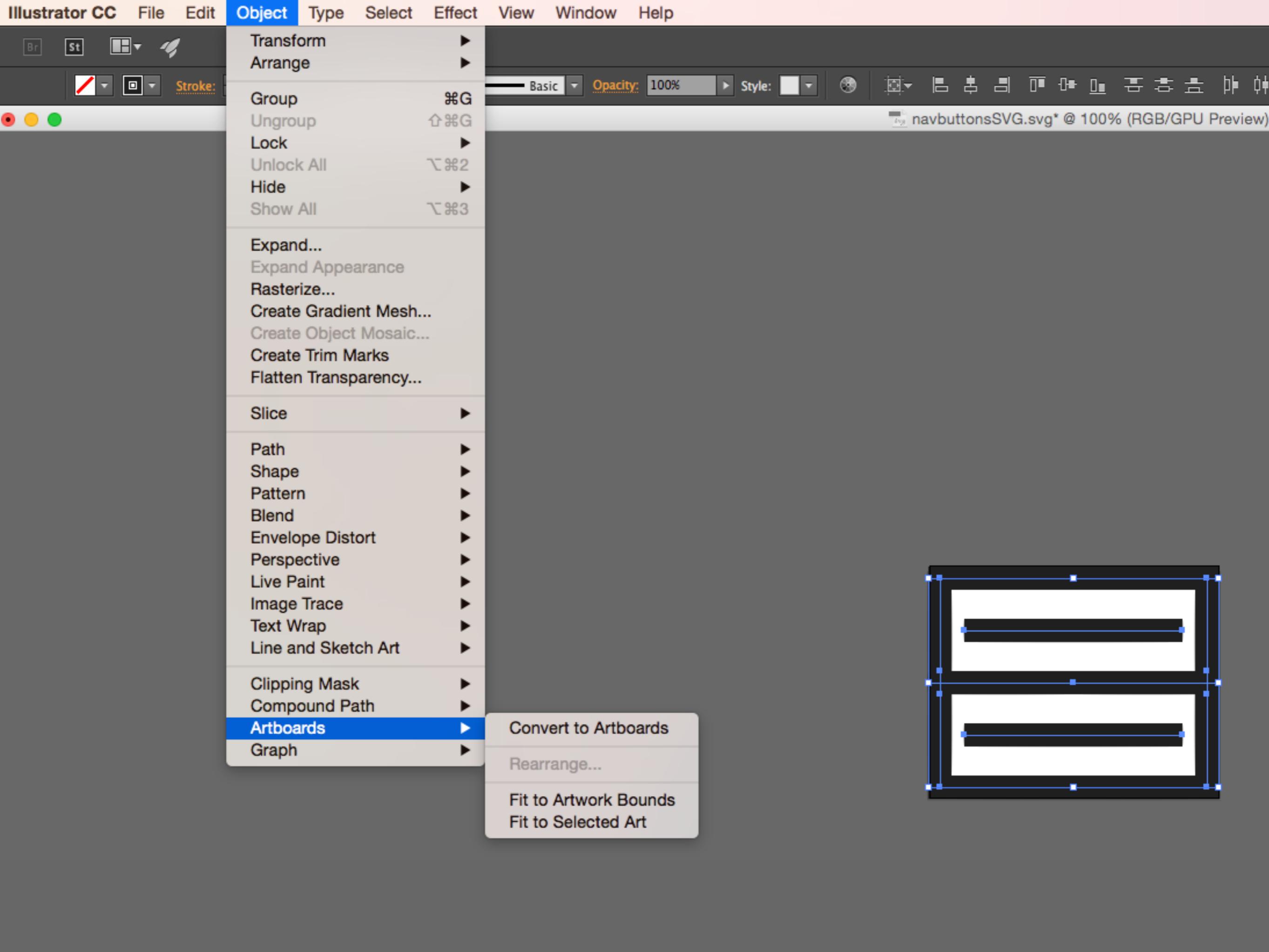
CROP TO CLIPBOARD!



250 x 200 box artwork

```
<svg version="1.1" id="hamburger2" xmlns="  
http://www.w3.org/2000/svg" xmlns:xlink="  
http://www.w3.org/1999/xlink" x="0px" y="0px"  
viewBox="25 -33 502 383" enable-background="new 25 -  
33 502 383" xml:space="preserve">
```

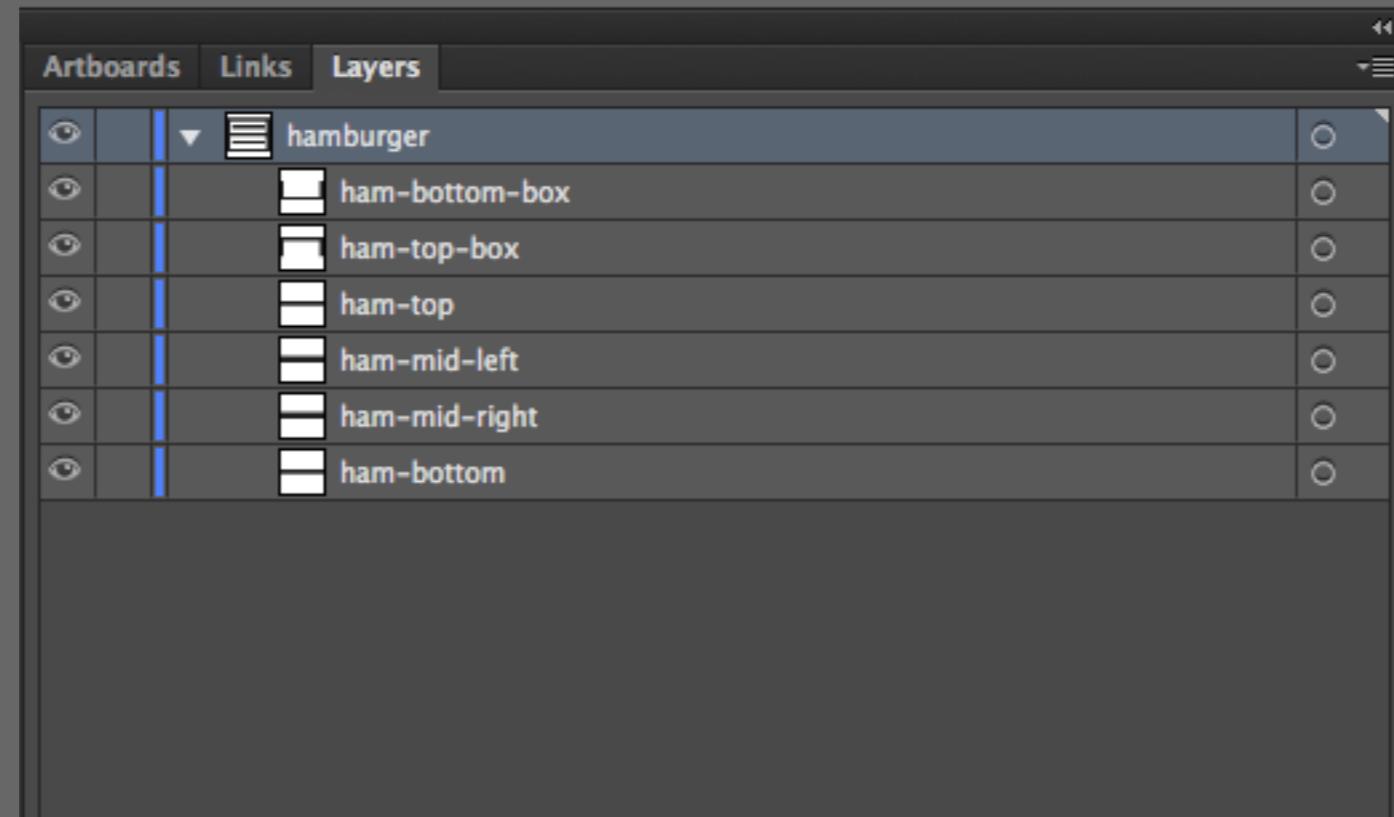
Your artboard is your viewBox.



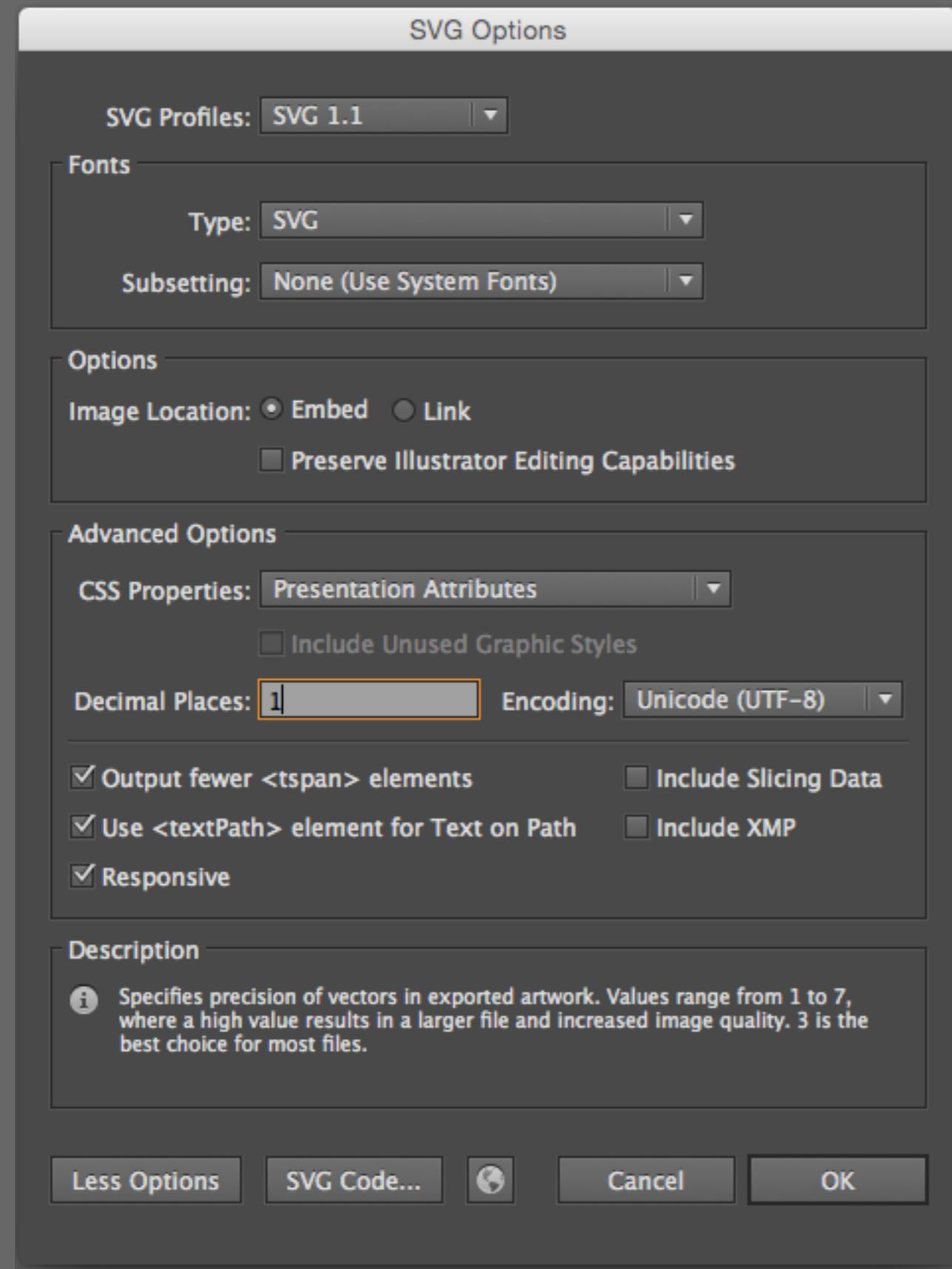
```
<svg version="1.1" id="hamburger" xmlns="  
http://www.w3.org/2000/svg" xmlns:xlink="  
http://www.w3.org/1999/xlink" x="0px" y="0px"  
"  
viewBox="0 0 250 200" enable-background="  
new 0 0 250 200" xml:space="preserve">
```

Your artboard is your viewBox.

LAYER NAMES ARE PASSED TO YOUR SVG

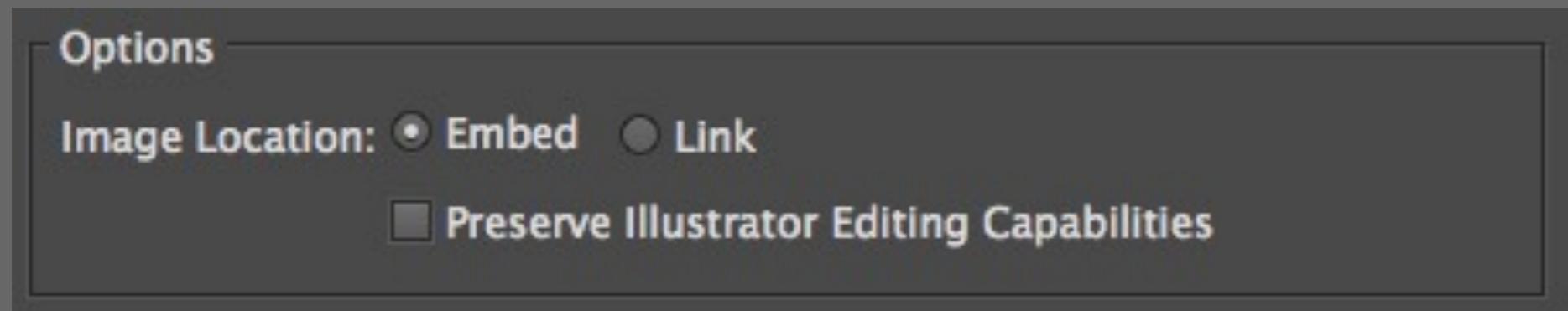


```
<line id="ham-bottom" fill="none" stroke="#202020" stroke-width="20" stroke-miterlimit="10" x1="56" y1="145" x2="244" y2="145" />
<line id="ham-mid-right" fill="none" stroke="#202020" stroke-width="20" stroke-miterlimit="10" x1="150" y1="100" x2="275" y2="100"/>
<line id="ham-mid-left" fill="none" stroke="#202020" stroke-width="20" stroke-miterlimit="10" x1="25" y1="100" x2="150" y2="100"/>
```

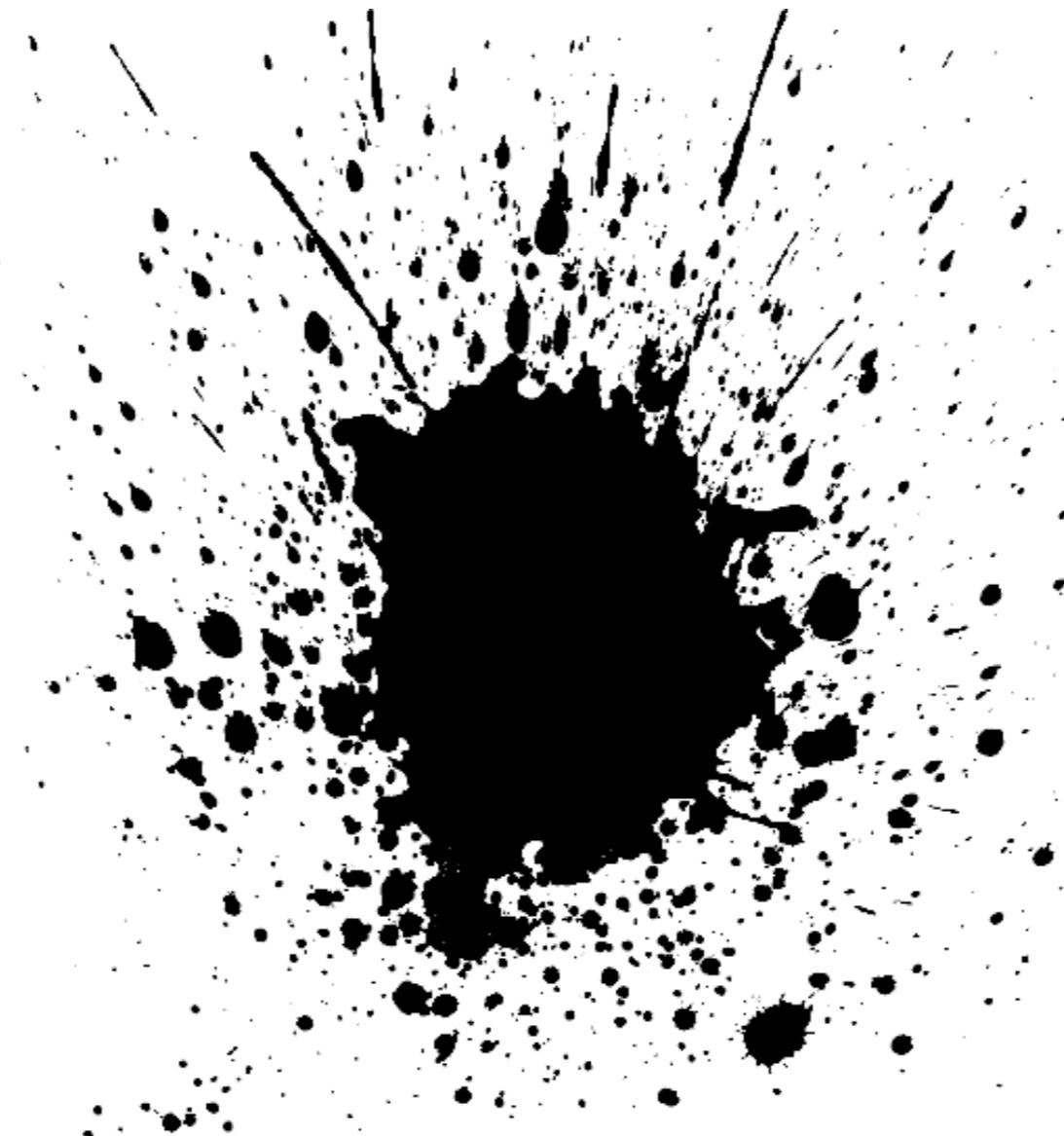


File >
Save As >
File Format: SVG

PAY ATTENTION TO THESE OPTIONS



COMPLEXITY OF PATHS



2038

```
<path fill-rule="evenodd" clip-rule="evenodd" d="M97.2,523.3c0.8-0.3,2.4-0.1,1.8,1.3C98.2,526.1,.2,524,97.2,523.3z"/>
```

283kW

YOU PROMISED THIS WOULD BE FUN.

DISPLAYING YOUR SVG

<OBJECT>

```
<object type="image/svg+xml" data="logo.svg">
  
</object>
```

<EMBED>

<embed src="logo.svg"/>

<|IMG>

```

```

CSS BACKGROUND IMAGE

```
79 <div class="logo">  
80  .logo {  
81    display: block;  
82    width: 250px;  
83    height: 200px;  
84    background: url(logo.svg);  
85    background-size: 250px 200px;  
86  }  
87
```

INLINE IS AWESOME!

Manipulate individual parts with CSS

Filters

Clips & Masks

One less request

INLINE CAN BE NOT SO AWESOME.

DIFFICULT TO CACHE

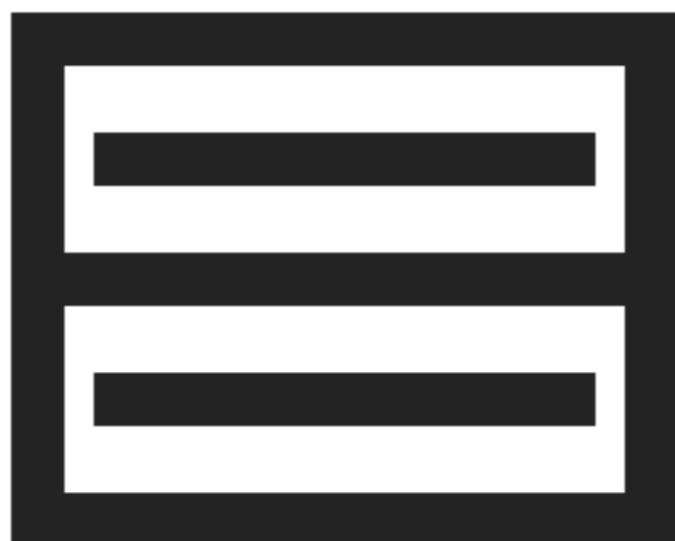
Use ~4KB Rule.

calendar.perfplanet.com/2011/why-inlining-everything-is-not-the-answer/

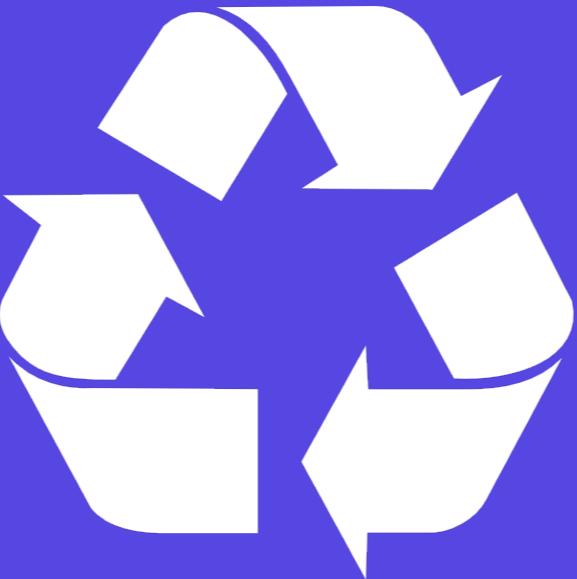
```
    class="container">
<div class="nav-button">

<svg version="1.1" id="hamburger" xmlns="http://www.w3.org/2000/svg"
      xmlns:xlink="http://www.w3.org/1999/xlink" x="0px" y="0px"
      viewBox="25 0 250 200" enable-background="new 25 0 250 200"
      xml:space="preserve">
<line id="ham-bottom" fill="none" stroke="#202020" stroke-width="20"
      stroke-miterlimit="10" x1="56" y1="145" x2="244" y2="145" />
<line id="ham-mid-right" fill="none" stroke="#202020" stroke-width="20"
      stroke-miterlimit="10" x1="150" y1="100" x2="275" y2="100"/>
<line id="ham-mid-left" fill="none" stroke="#202020" stroke-width="20"
      stroke-miterlimit="10" x1="25" y1="100" x2="150" y2="100"/>
<line id="ham-top" fill="none" stroke="#202020" stroke-width="20"
      stroke-miterlimit="10" x1="56" y1="55" x2="244" y2="55" />
<polyline id="ham-top-box" fill="none" stroke="#202020" stroke-width="20"
      stroke-miterlimit="10" points="35,110 35,10
      265,10 265,110 "/>
<polyline id="ham-bottom-box" fill="none" stroke="#202020" stroke-width="20"
      stroke-miterlimit="10" points="265,90 265,190
      35,190 35,90 "/>
</svg>

</div>
...
```



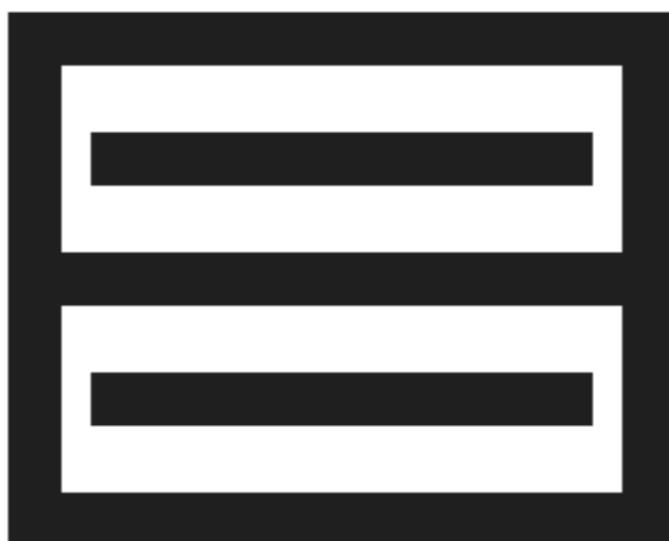
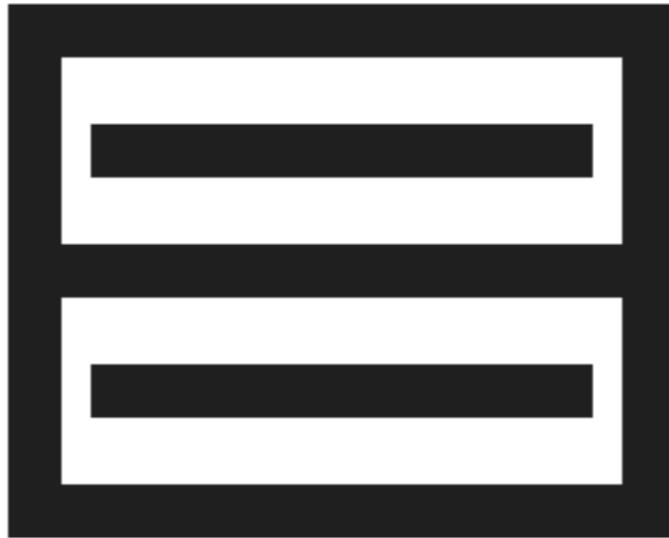
inline.html



SVG SYMBOLS

Reduce — Reuse — Recycle!

```
<svg version="1.1" id="hamburger" xmlns="  
http://www.w3.org/2000/svg" xmlns:xlink="  
http://www.w3.org/1999/xlink" x="0px" y="0px"  
viewBox="25 0 250 420">  
  <symbol id="hamburger-symbol">  
    <line id="ham-bottom" fill="none" stroke="#"  
#202020" stroke-width="20" stroke-  
  
    <use xlink:href="#hamburger-symbol" x="0" y=  
"0"  
width="275" height="200" />  
    <use xlink:href="#hamburger-symbol" x="0" y=  
"220"  
width="275" height="200" />  
  </symbol>  
</svg>
```



ANIMATING YOUR SVG

SMIL

```
<animate  
xlink:href="#hamburger"  
attributeName="x"  
from="00"  
to="250"  
dur="5s"  
begin="click"  
repeatCount="2"  
fill="freeze"  
id="hamburger-animation" />
```

TLDR; ABANDONED.

[blogs.adobe.com/dreamweaver/2015/06/
the-state-of-svg-animation.html](http://blogs.adobe.com/dreamweaver/2015/06/the-state-of-svg-animation.html)

JAVASCRIPT / GREENSOCK

The screenshot shows the official website for GreenSock. At the top, there's a navigation bar with links for Learning, Blog, Licensing, About, Events, and a "Login / Sign Up" button. Below the navigation is a main header featuring the GreenSock logo (a cartoon character in a superhero pose) and the text "GreenSock Engaging the Internet". To the right of the logo are menu items for Products, Examples, Support, and Club GreenSock, along with a search icon. A large central banner has a yellow ribbon with the word "HTML5" and features the Internet Explorer logo followed by the word "Compatibility". Below this banner, a main headline reads "Ultra high-performance, professional-grade animation for the modern web". Underneath the headline are three buttons: "LEARN ABOUT GSAP", "DOWNLOAD GSAP" (which is highlighted in green), and "VIEW DOCS". At the bottom of the page, there are three smaller callout boxes: one for "DrawSVGPlugin", one showing a progress bar, and one with text about "whiz-bang effects".

GreenSock
Engaging the Internet

Products Examples Support Club GreenSock

Learning Blog Licensing About Events Login / Sign Up

HTML5

e Compatibility

Ultra high-performance, professional-grade animation for the modern web

LEARN ABOUT GSAP DOWNLOAD GSAP VIEW DOCS

DrawSVGPlugin

ming. You've got to deliver some whiz-bang effects that...

CSS!

```
/* Animate your SVG. */
#ham-top-box,
#ham-bottom-box {
    display: none;
}

#hamburger #ham-top,
#hamburger #ham-bottom {
    transition: 0.2s ease-in-out;
}

#hamburger:hover #ham-top {
    transform: translate(0px, -10px);
}

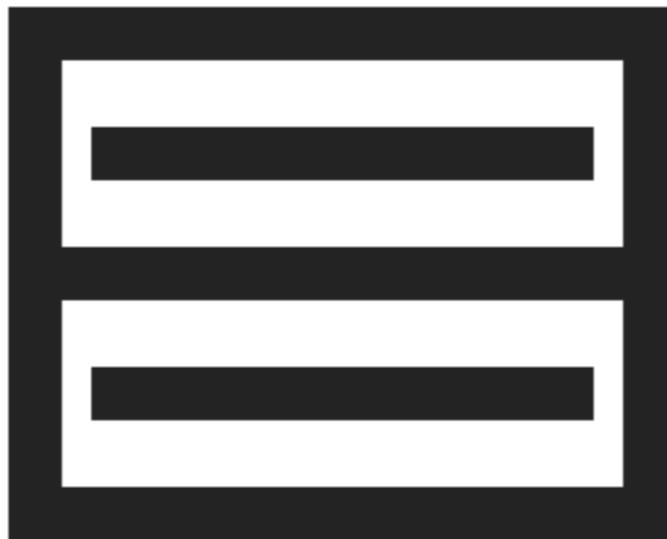
#hamburger:hover #ham-bottom {
    transform: translate(0px, 10px);
}
```

Fun intensifies.

ANIMATING THE CLOSE BUTTON

```
34 /* Close button animation. */
35 #ham-top,
36 #ham-bottom {
37   transform: rotate(0deg) translate(0px, 0px);
38   transform-origin: center center;
39 }
40
41 #hamburger.open #ham-top,
42 #hamburger.open #ham-bottom {
43   transition: 0.3s 0.3s ease-in-out;
44 }
45
46 #hamburger.open #ham-top {
47   transform: translate(0px, 45px) rotate(-135deg);
48 }
49
50 #hamburger.open #ham-bottom {
51   transform: translate(0px, -45px) rotate(135deg);
52 }
53
```

ANIMATING LINE STROKE



css-tricks.com/svg-line-animation-works/

animate-line.html

```
54 /* Line stroke animation. */
55 #ham-mid-right {
56   stroke-dasharray: 125;
57   stroke-dashoffset: 30;
58   transition: 0.3s ease-out;
59 }
60
61 #ham-mid-left {
62   stroke-dasharray: 125;
63   stroke-dashoffset: -30;
64   transition: 0.3s ease-out;
65 }
66
67 #hamburger.open #ham-mid-right {
68   stroke-dashoffset: -105;
69 }
70
71 #hamburger.open #ham-mid-left {
72   stroke-dashoffset: 105;
73 }
74
75 #ham-top-box,
76 #ham-bottom-box {
77   stroke-dashoffset: 440;
78   stroke-dasharray: 440;
79   transition: 0.6s 0.1s ease-out;
80 }
81
82 #hamburger.open #ham-top-box,
83 #hamburger.open #ham-bottom-box {
84   stroke-dashoffset: 0;
85 }
```

SVG FILTERS

CSS

```
#hamburger {  
    transition: -webkit-filter 0.5s ease-in-out;  
}  
#hamburger.open {  
    -webkit-filter: blur(30px);  
}  
#hamburger.close {  
    -webkit-filter: blur(0px);  
}
```

Shorthand for SVG filters

Poor IE Support
(not even partial support for Edge)

FILTER IN YOUR SVG

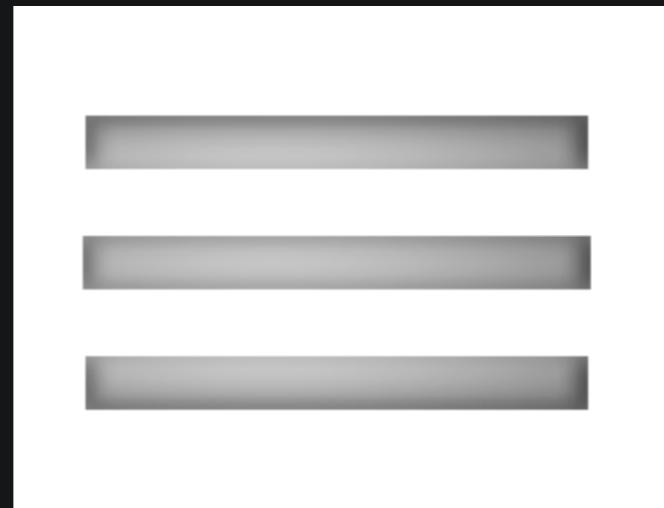
Great browser support

Can combine filters

www.w3schools.com/svg/svg_filters_intro.asp

```
<filter id="filter">
  <feGaussianBlur in="SourceAlpha" stdDeviation="4"
    result="blur1"/>
  <feSpecularLighting result="specOut" in="blur1"
    specularExponent = "20" lighting-color = "#bbbbbb">
    <fePointLight x="125" y="100" z="200" />
  </feSpecularLighting>
  <feComposite in = "SourceGraphic" in2="specOut"
    operator="arithmetic" k1="0" k2="1" k3="1" k4="0" />
</filter>

<g filter = "url(#filter)">
```



MASKS AND CLIPPING

MASKS

```
<defs>
  <mask id="mask">
    <ellipse cx="50%" cy="50%" rx="25%" ry="25%" fill="white" ></
      ellipse>
  </mask>
</defs>

<image xlink:href="images/dca2015-logo.png" width="223" height="223"
  mask="url(#mask)"></image>
</svg>
```

CLIPPING

You can also define clipping via CSS

```
clip-path: circle(cx="0.5" cy="0.5" r="1");
```

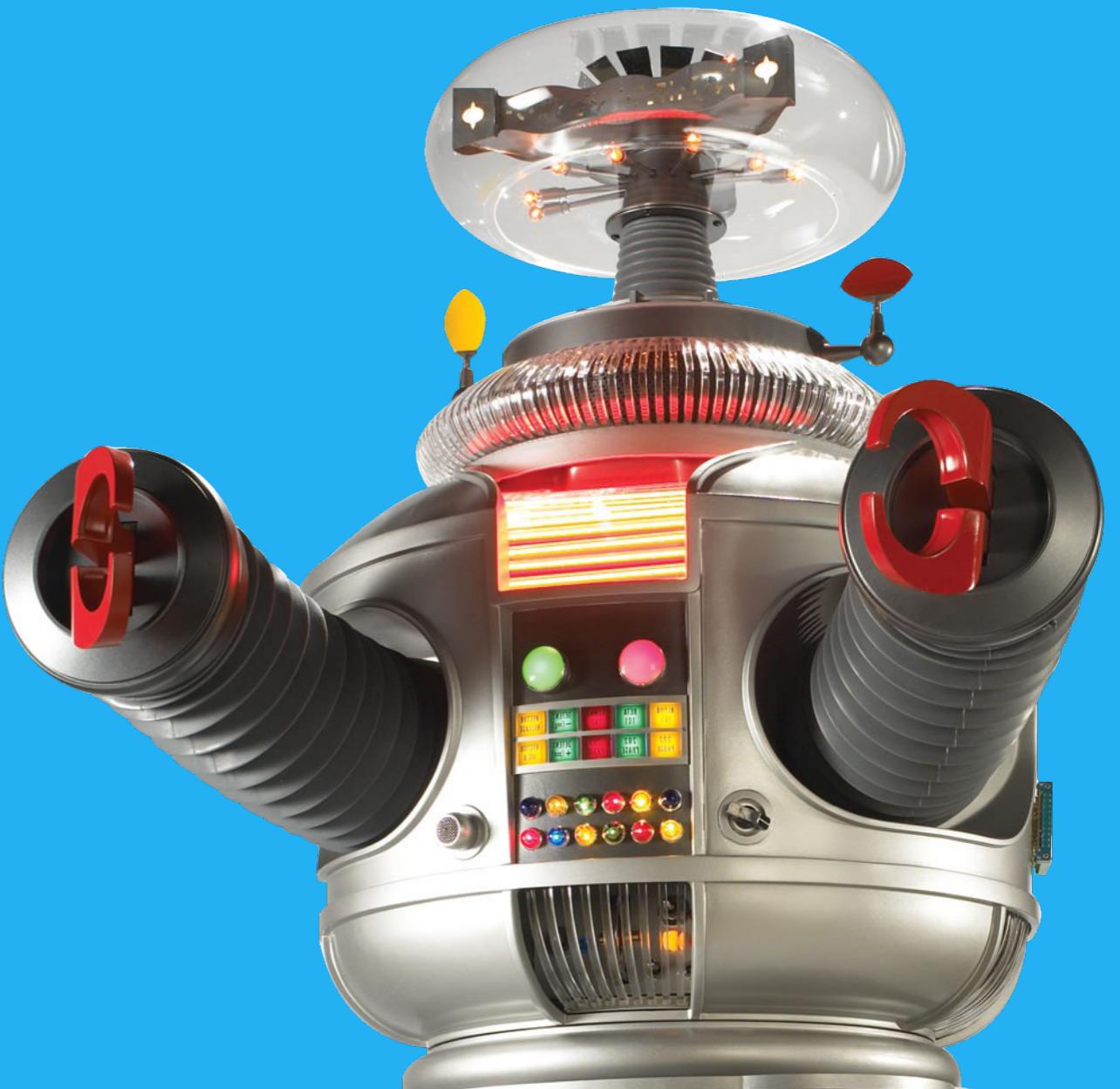
CLIPPING

```
<clippath id="clipping" clipPathUnits="objectBoundingBox">
  <circle cx="0.5" cy="0.5" r="1" />
</clippath>
```

```
87 /* Clipping and Masks. */
88 .clipping {
89   position: absolute;
90   z-index: -1;
91   top: 0;
92   background: dodgerblue;
93   width: 250px;
94   height: 200px;
95   -webkit-clip-path: url(#clipping);
96 }
```

DANGER!
THE COORDINATE SYSTEM

userSpaceOnUse
objectBoundingBox



```
<clippath id="clipping" clipPathUnits="objectBoundingBox">  
  <circle cx="0.5" cy="0.5" r="1" />  
</clippath>
```

clipping.html

THANK YOU!

github.com/ryanhagerty/svg-hot

@hotpizzas

@ChromaticSites