

SVG анимация

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Как анимировать SVG?



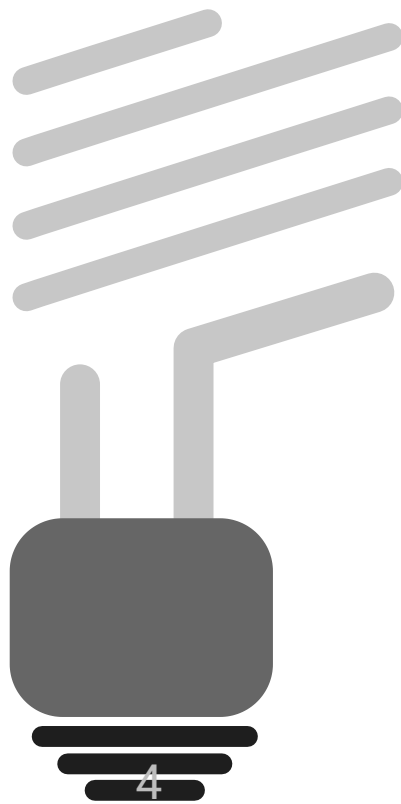
CSS анимация

```
//CSS

svg {
  cursor: pointer;
}
.lamp-line {
  stroke-width: 60px;
  transition: 0.5s;
}
.ligth {
  opacity: 0;
  transition: 0.5s;
}
svg:hover .ligth {
  opacity: 0.5;
}
svg:hover .lamp-line {
  stroke-width: 85px;
  stroke: orange;
}
```

```
//HTML

<svg>
  <circle
    class="ligth"
    cx="879.5" cy="879.5" r="879.5"
    fill="#f0fc03"
  />
  <path
    class="lamp-line"
    d="..."
    stroke="#C7C7C7"
  />
  <path
    class="lamp-line"
    d="..."
    stroke="#C7C7C7"
  />
  ...
</svg>
```



CSS анимация

stroke-dasharray



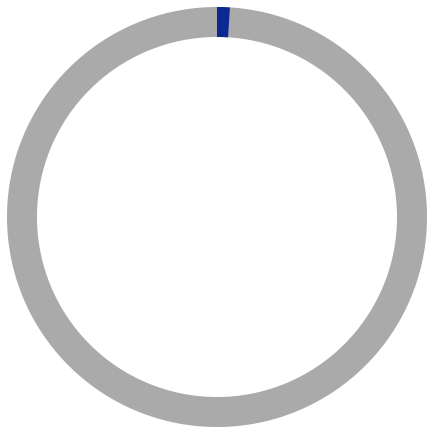
```
<svg>
  <path
    stroke-dasharray="10 5"
    d="M0 10H215"
    stroke="#000"
    stroke-width="20"
  />
</svg>
```

stroke-dashoffset



```
<svg>
  <path
    stroke-dasharray="10 5"
    stroke-dashoffset="10"
    d="M0 10H215"
    stroke="#000"
    stroke-width="20"
  />
</svg>
```

CSS анимация



```
.svg-animation {  
  stroke-dasharray: 613px;  
  animation: circle 5s infinite;  
}  
@keyframes circle {  
  from {  
    stroke-dashoffset: 613px;  
  }  
  to: {  
    stroke-dashoffset: 0px;  
  }  
}
```



```
<svg>  
  <path d="M3312.6 10C3387.39 161.495 3095.65 -26.9925" />  
  ...  
</svg>
```

```
<svg>  
  <polygon points="279.1,160.8 195.2,193.3 174.4,280.8 117.6" />  
  ...  
</svg>
```


JS анимация

- GreenSock
- SVG.js
- Snap.svg
- Bonsai.js
- Paper.js
- vivus



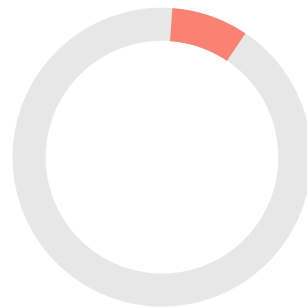
Synchronized Multimedia Integration Language (SMIL) анимация

```
<svg>
  <animateTransform ... />
  <animateMotion ... />
  <animate ... />
</svg>
```

```
<svg>
  <rect>
    <animate ... />
  </rect>
  //
  <rect id="rect" />
  <animate xlink:href="#rect" ... />
</svg>
```

SMIL анимация

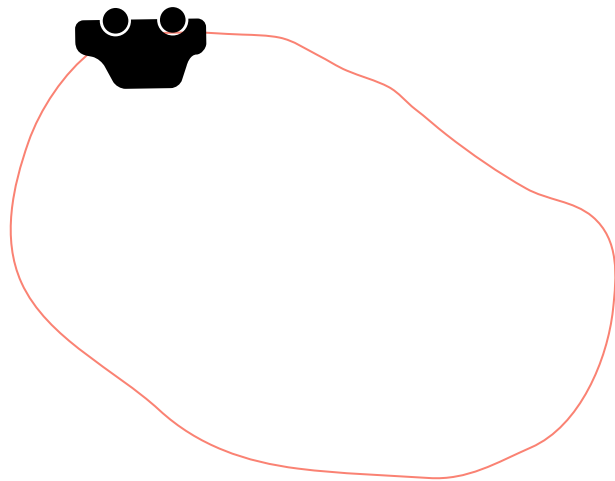
```
<svg>
  <path d="M20.201,5.169c-8.254,0-14.946..." />
  <path d="M26.013,10.047l11.654-2.866c-2.198-1...">
    <animateTransform
      attributeName="transform"
      type="rotate"
      begin="0s"
      from="0 20 20"
      to="360 20 20"
      dur="1.5s"
      repeatCount="indefinite"
    />
  </path>
</svg>
```



```
type="translate | scale | rotate | skewX | skewY"
```

SMIL анимация

```
<svg>
  <path
    stroke="#FA8273"
    d="M202.4,58.3c-13.8,0.1-33.3,0.4-44.8 ..."
  />
  <g id="car">
    <path d="M234.4,182.8c-3.5,0-6.4,2.9-6.4,6.4c0 ..." />
    <circle cx="234.4" cy="189.2" r="2.8" />
    <path d="M275,171.4c-2.8-0.7-5.2-3-6.3-5.1l-3 ..." />
    ...
  </g>
  <animateMotion
    xlink:href="#car"
    dur="3s"
    begin="0s"
    repeatCount="indefinite"
    rotate="auto"
    path="M202.4,58.3c-13.8,0.1-33.3,0.4-44.8 ..."
  />
</svg>
```



```

<svg>
  <rect id="greenRect" fill="#8DDE8C" ... />
  <rect id="redRect" fill="#FA8273" ... />
  <animate
    id="greenRectAnim"
    xlink:href="#greenRect"
    attributeName="height"
    begin="0s"
    dur="3s"
    repeatCount="indefinite"
    from="100"
    to="0"
  />
  <animate
    id="redRectAnim"
    xlink:href="#redRect"
    attributeName="x"
    begin="0s"
    dur="3s"
    repeatCount="indefinite"
    from="0"
    to="75"
  />
  ...
</svg>

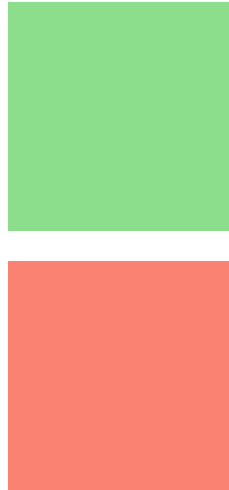
```

```

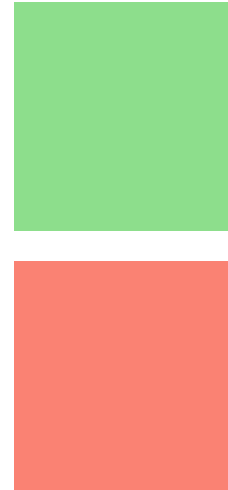
begin="0s"
begin="0s;1s;3s;4s;"
//
begin="click"
begin="click+2s"
begin="redRect.click"
begin="redRect.click+2s"
//
begin="redRectAnim.begin+2s"
begin="redRectAnim.end+2s"
begin="redRectAnim.end-2s"
begin="redRectAnim.repeat(2)"

```

```
begin="click"  
begin="greenRect.click+1s"
```



```
begin="click"  
begin="greenRectAnim.end-1s"
```



SMIL анимация



```
<svg>
  <circle>
    <animate
      attributeName="cy"
      begin="click"
      dur="2s"
      repeatCount="1"
      values="-100; 100; 0; 100"
      keyTimes="0; 0.5; 0.7; 1"
      fill="freeze"
    />
  </circle>
</svg>
```


SMIL анимация

```
calcMode="linear | discrete | paced | spline"
```

linear

discrete

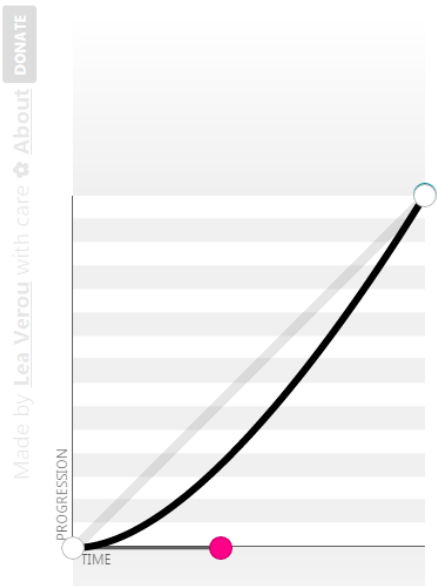
paced



```
keySplines="0.42 0 1 1; 0 0 0.59 1;"
```

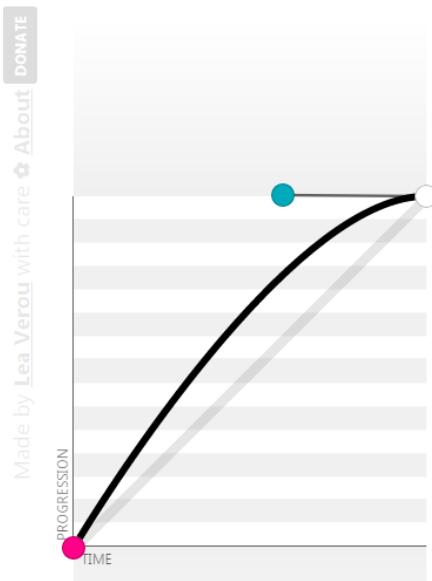
keySplines generator

ease-in



cubic-bezier(.42,0,1,1)

ease-out

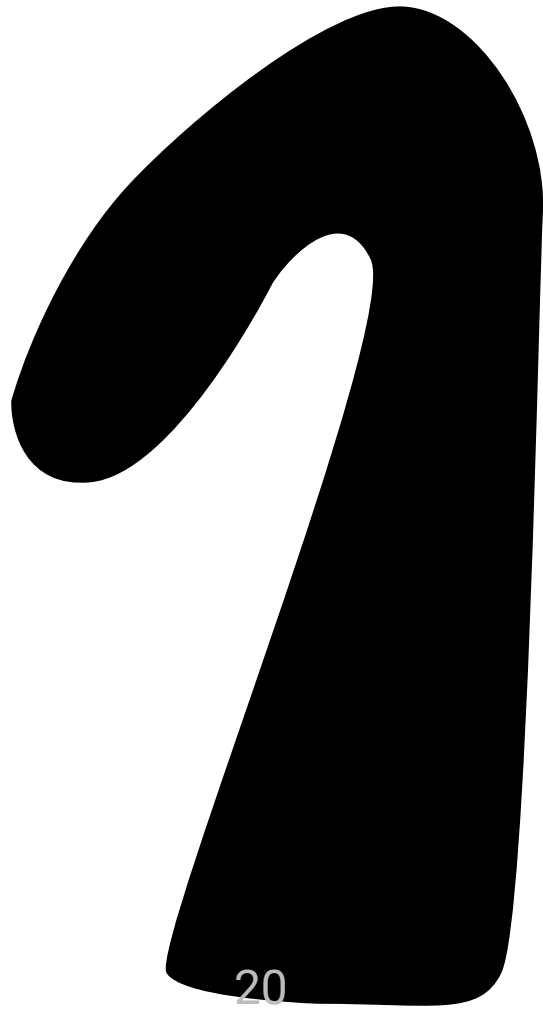


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cubic-bezier(0,0,.59,1)

```
<svg>
  <circle id="greenBall" r="30" cx="50" cy="50" fill="#8DDE8C" />
  <animate
    xlink:href="#greenBall"
    attributeName="cy"
    from="50"
    to="250"
    dur="3s"
    begin="click"
    calcMode="spline"
    values="50; 250; 120; 250; 170; 250; 210; 250"
    keyTimes="0; 0.15; 0.3; 0.45; 0.6; 0.75; 0.9; 1"
    keySplines="0.42 0 1 1;
               0 0 0.59 1;
               0.42 0 1 1;
               0 0 0.59 1;
               0.42 0 1 1;
               0 0 0.59 1;
               0.42 0 1 1"
    fill="freeze"
  \>
</svg>
```







1 2 3 4 5

```
<svg>
  <path id="number" d="M143.07 855.383C26.0536 866.86 -0.559192 ..."/>
  <animate
    xlink:href="#number"
    attributeName="d"
    begin="0s"
    repeatCount="indefinite"
    dur="4s"
    values="
      M143.07 855.383C26.0536 866.86 -0.559192 ...;
      M258.165 747.9C142.165 728.7 -52.8357 ...;
      M165.486 698.5C49.4863 679.3 -44.2378 ...;
      ...
      M143.07 855.383C26.0536 866.86 -0.559192 ...;
    "
  />
</svg>
```

Спасибо за внимание!

