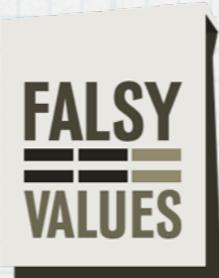


fabric.js

Building a canvas library



Warsaw ♥ 2011

who is kangax?

kangax.com

www.kangax.com
Create your Flash banner with FlashBannerNow.com

||:|| [HOLLAX](#) ||:|| [BOLLAX](#) ||:|| [TOLLAX](#) ||:|| [KOLLAX](#) ||:|| [FUNTAX](#) ||:||
[HOTAX](#) ||:||

U R Visitor No:

004748 10 58 AM 23

[Erotic Bikney](#)
[Towel Dog](#) ||:|| [Cristmas Gals](#) ||:|| [StrawBerry](#) ||:|| [Telugu Calendar 2011](#) ||:|| [New Year 2011](#) ||:|| [Imagination Pics](#)



Disclaimer : All the pictures and material on this blog a

CLICK ON ANY HOT HEROIN FOR MORE PICS AND PICK UP

who is kangax?

perfectionkills.com

Perfection Kills by kangax
EXPLORING JAVASCRIPT BY EXAMPLE

How ECMAScript 5 still does n

- Why subclass an array?
- Naive approach
- Problems with naive approach
- Special nature of arrays
- Function objects and [[Construct]]
- The importance of array special behavior
- Existing solutions
- ECMAScript 5 accessors to the rescue
- [[Class]] limitations
- Does [[Class]] matter?
- Wrappers. Direct property injection.
- Wrappers. Prototype chain injection.
- Summary

Subclassing an array in Javascript has never been a trivial edition of the language — ECMAScript 5 — still **does no**

fabric.js

ES5 compat tables

| THIS BROWSER | IE 8 | IE 9 |
|-------------------------|------|---------|
| Object.create | Yes | No |
| Object.defineProperty | Yes | Yes [1] |
| Object.defineProperties | Yes | No |
| Object.getPrototypeOf | Yes | No |

Common Feature Tests

Features:

| Name | Value |
|---|-------|
| IS_ELEMENT_TAGNAME_UPPERCASED | TRUE |
| ARRAY_PROTOTYPE_SLICE_CAN_CONVERT_NODELIST_TO_ARRAY | TRUE |
| WINDOW_EVAL_EVALUATES_IN_GLOBAL_SCOPE | TRUE |
| IS_EVENT_METAKEY_PRESENT | TRUE |
| IS_EVENT RELATEDTARGET_PRESENT | TRUE |
| IS_EVENT_PREVENTDEFAULT_PRESENT | TRUE |

HTML minifier

PrototypeJS

DOMLint

Game Plan

- * History
- * Why fabric?
- * How it works. Features.
- * Canvas libraries
- * Future plans

History

printio.ru

Printio

Войти / Забыли пароль? / Регистрация

Главная Магазин Дизайн Профиль Мой магазин Корзина (0 руб)

+ Добавить клип-арт + Добавить фото с компьютера

Цвет объекта: Прозрачность объекта: 100 % ↓ Правка ↓ Добавить текст

Редактировать текст

Cochin ↓ T ↓

Rock n Roll...

Rock n Roll...

Щёлкните на картинку, чтобы добавить её на предмет. Или просто перетащите.

| | | |
|--|--|--|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

126 / 295

History

printio.ru



- * All Javascript, no Flash
- * Free drawing
- * Vectors & images
- * Performance

Canvas vs SVG

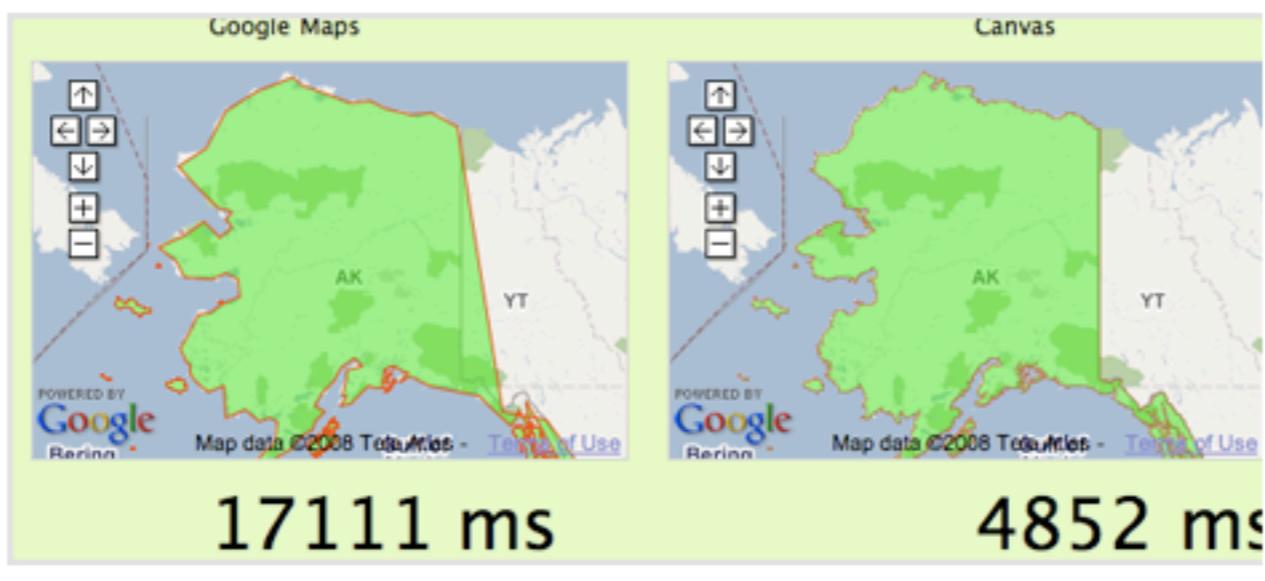
Tuesday, June 24th, 2008

Rendering performance in Canvas compared to SVG and VML

Category: [Canvas](#), [Performance](#)

Just after I posted about Ernest's [canvas experiment with photos](#) he put something else up that [tests the performance of rendering polygons with Canvas](#) compared to other techniques.

The [demo](#) lets you run a live test, and view saved tests, comparing the Google Maps interface, which "currently draws polygons using VML for Internet Explorer, SVG for Firefox and image retrieval for Safari and Firefox linux."



Why fabric?

Canvas API ~~sucks~~ is too low level

There was an excruciating need for
interactive object model
for canvas element

Why fabric?

native

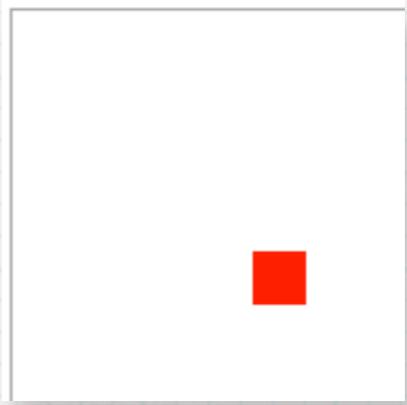
```
var canvasEl = document.getElementById('canvas');
var ctx = canvasEl.getContext('2d');
ctx.strokeStyle = '';
ctx.fillStyle = 'red';
ctx.fillRect(100, 100, 20, 20);
```

fabric

```
var canvas = new fabric.Element('canvas');

var rect = new fabric.Rect({
  top: 100,
  left: 100,
  fill: 'red',
  width: 20,
  height: 20
});

canvas.add(rect);
```



Why fabric?

native

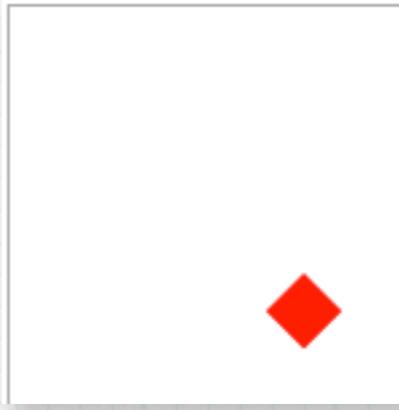
```
var canvasEl = document.getElementById('canvas');
var ctx = canvasEl.getContext('2d');
ctx.strokeStyle = '';
ctx.fillStyle = 'red';
ctx.save();
ctx.translate(100, 100);
ctx.rotate(Math.PI / 180 * 45);
ctx.fillRect(-10, -10, 20, 20);
ctx.restore();
```

fabric

```
var canvas = new fabric.Element('canvas');

var rect = new fabric.Rect({
  top: 100,
  left: 100,
  fill: 'red',
  width: 20,
  height: 20,
  angle: 45
});

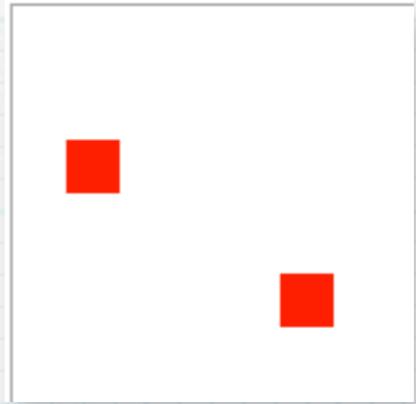
canvas.add(rect);
```



Why fabric?

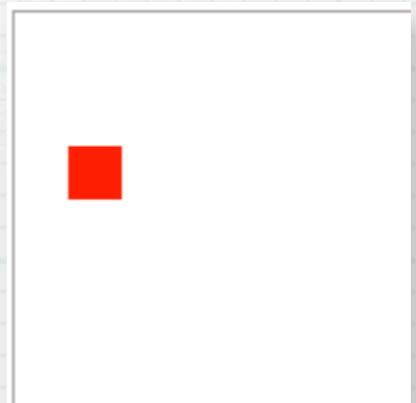
native

```
ctx.fillRect(20, 50, 20, 20);
```



fabric

```
rect.set('left', 20).set('top', 50);  
canvas.renderAll();
```



Why fabric?

native

```
ctx.fillRect(20, 50, 20, 20);  
  
ctx.clearRect(0, 0, ctx.canvas.width, ctx.canvas.height);  
ctx.fillRect(20, 50, 20, 20);
```



fabric

```
rect.set('left', 20).set('top', 50);  
canvas.renderAll();
```



Demo

Demo of a [Fabric.js](#) — interactive object model on top of canvas element.

Opacity: Color: `rgb(25!`
FPS: 111

The demo interface features a central canvas area where a black and white tiger illustration is positioned. A red text box containing the text "Hello world!" is overlaid on the tiger. Both the tiger and the text box are surrounded by a blue selection frame with handles at each corner and midpoint. Below the canvas, a text input field contains "Hello world!" with several styling options: `Italic`, `Underline`, `Linethrough`, `Overline`, and `Shadow`. At the bottom of the interface, there are two columns of buttons for various actions: "Rasterize canvas to image", "Clear canvas", "Remove selected object/group", "Lock horizontal movement", "Lock vertical movement", and "Lock scaling". To the right of the canvas, there are sections for adding simple shapes (Rectangle, Circle, Triangle), images (Image 1, Image 2), and SVG shapes (Image (1 path), Gradient (1 path), Gradient (1 path), Gradient (1 path), 36 paths, 41 paths, 54 paths, 57 paths, 65 paths, 87 paths, 90 paths, HTML5 logo (96 paths), 133 paths, 141 paths, 167 paths, 174 paths, 202 paths, 224 paths, 226 paths, 237 paths, 280 paths, 321 paths, 363 paths, 404 paths, 404 paths, 444 paths, 448 paths, 464 paths, 562 paths, 563 paths, 674 paths, 710 paths, 758 paths, 778 paths, 832 paths, 850 paths, 936 paths, 1018 paths, 1066 paths, 1126 paths, 1197 paths, 1215 paths, 1424 paths, 1515 paths, 1652 paths, 1868 paths, 1944 paths, 1948 paths, 1972 paths, 2208 paths, 2394 paths, 2499 paths, 2742 paths, 3103 paths, 3566 paths, 3685 paths, 3921 paths, 4418 paths, 4583 paths, 4768 paths, 8325 paths, 9663 paths, 12361 paths, 12604 paths, 12866 paths, 13905 paths, 14174 paths, 17059 paths, 19035 paths, 19271 paths, 22375 paths, 29303 paths, 41787 paths).

Add simple shapes to canvas:
`Rectangle` `Circle` `Triangle`

Add images to canvas:
`Image 1` `Image 2`

Add SVG shapes to canvas:
`Image (1 path)` `Gradient (1 path)`
`Gradient (1 path)` `Gradient (1 path)` `36 paths`
`41 paths` `54 paths` `57 paths` `65 paths`
`87 paths` `90 paths` `HTML5 logo (96 paths)`
`133 paths` `141 paths` `167 paths` `174 paths`
`202 paths` `224 paths` `226 paths` `237 paths`
`280 paths` `321 paths` `363 paths` `404 paths`
`404 paths` `444 paths` `448 paths` `464 paths`
`562 paths` `563 paths` `674 paths` `710 paths`
`758 paths` `778 paths` `832 paths` `850 paths`
`936 paths` `1018 paths` `1066 paths`
`1126 paths` `1197 paths` `1215 paths`
`1424 paths` `1515 paths` `1652 paths`
`1868 paths` `1944 paths` `1948 paths`
`1972 paths` `2208 paths` `2394 paths`
`2499 paths` `2742 paths` `3103 paths`
`3566 paths` `3685 paths` `3921 paths`
`4418 paths` `4583 paths` `4768 paths`
`8325 paths` `9663 paths` `12361 paths`
`12604 paths` `12866 paths` `13905 paths`
`14174 paths` `17059 paths` `19035 paths`
`19271 paths` `22375 paths` `29303 paths`
`41787 paths`

Canvas complexity (number of paths): **1868**

Hello world! `Italic` `Underline` `Linethrough` `Overline` `Shadow`

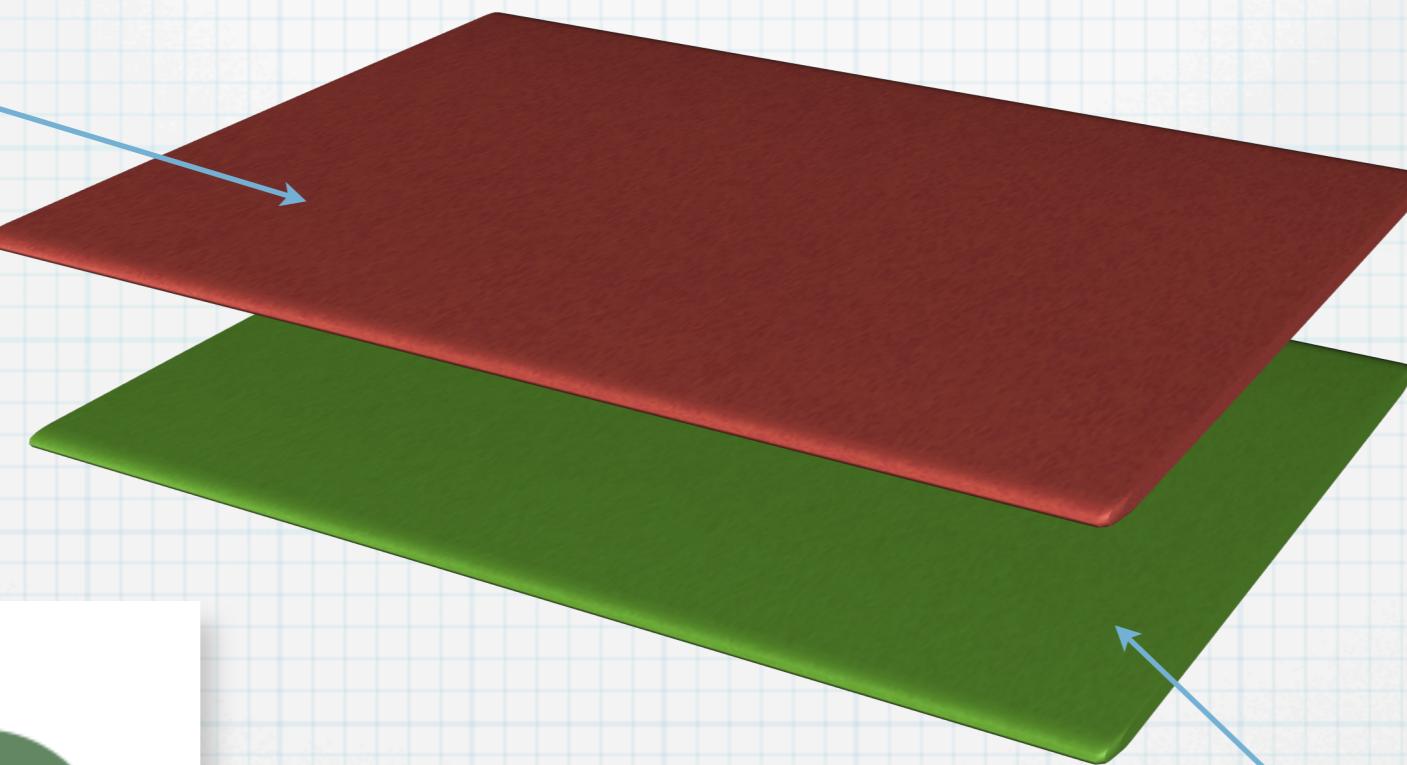
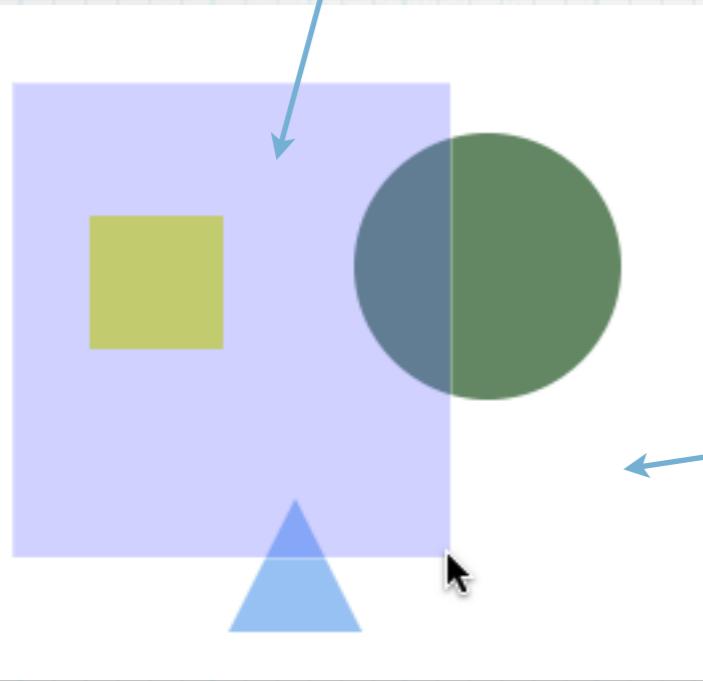
`Rasterize canvas to image`
`Clear canvas`
`Remove selected object/group`
`Lock horizontal movement`
`Lock vertical movement`
`Lock scaling`

<http://kangax.github.com/fabric.js/test/demo>

Under the hood

Upper <canvas>

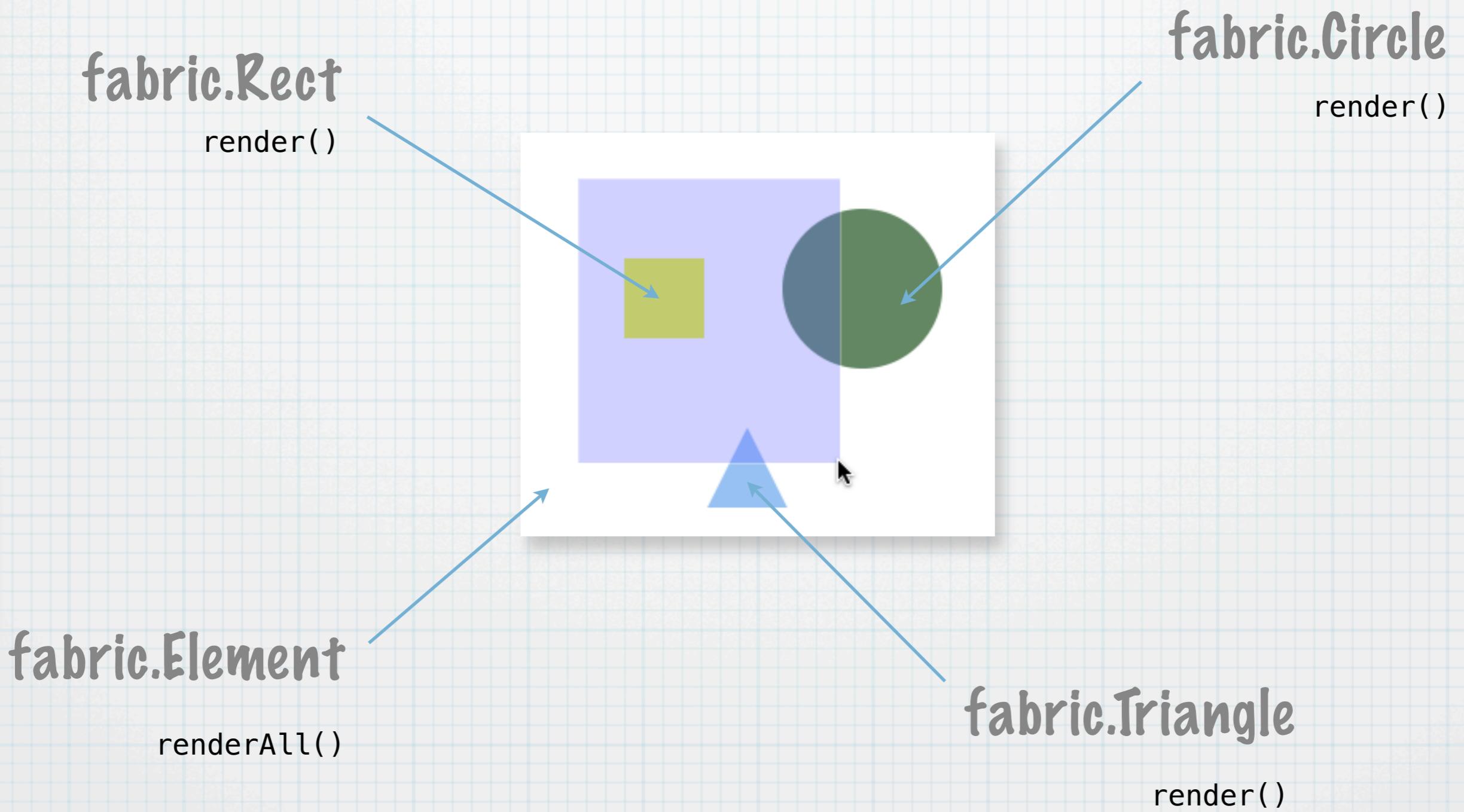
Group selection



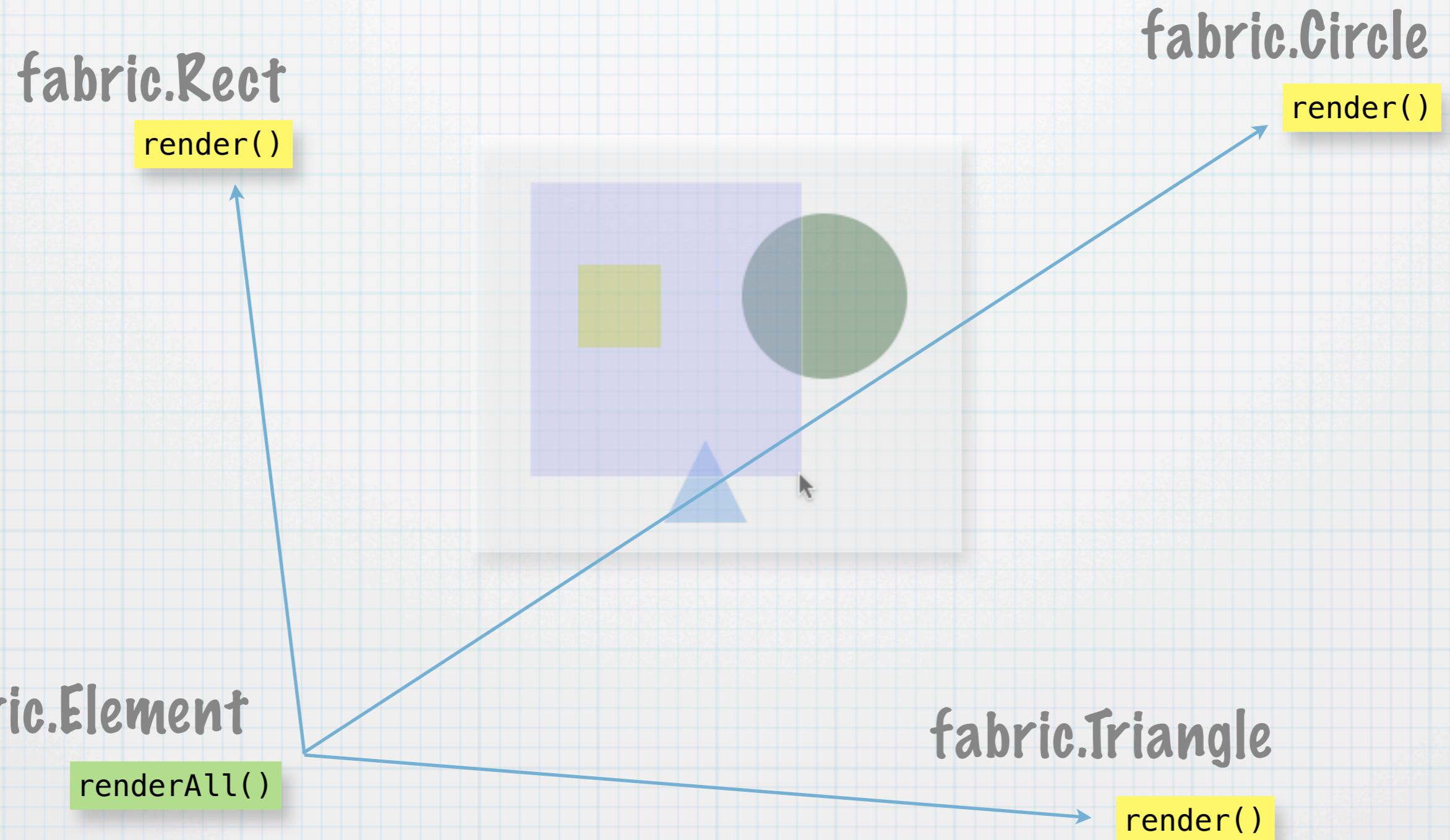
Lower <canvas>

All objects

Under the hood



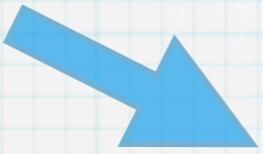
Under the hood



Under the hood

Root "class". 2D objects

`fabric.Object`



Container

`fabric.Element`

Concrete "subclasses"

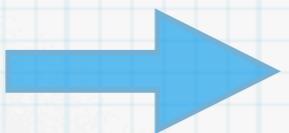
`fabric.Line`
`fabric.Circle`
`fabric.Triangle`
`fabric.Ellipse`
`fabric.Rect`
`fabric.Polyline`
`fabric.Polygon`
`fabric.Group`
`fabric.Text`
`fabric.Image`
`fabric.Path`

`fabric.Color`
`fabric.Point`
`fabric.Intersection`

Under the hood

Root "class". 2D objects

`fabric.Object`



clone
cloneAsImage
complexity
get
getCenter
getWidth
getElement
getHeight
intersectsWithObject
isActive
isType
scale
scaleToHeight
scaleToWidth
set
setActive
setElement
straighten
toDataURL
toJSON
toGrayscale
...

Inherited by all subclasses

Features — Animation

fabric.util.animate



fxCenterObjectV
fxCenterObjectH
fxStraightenObject
fxRemove

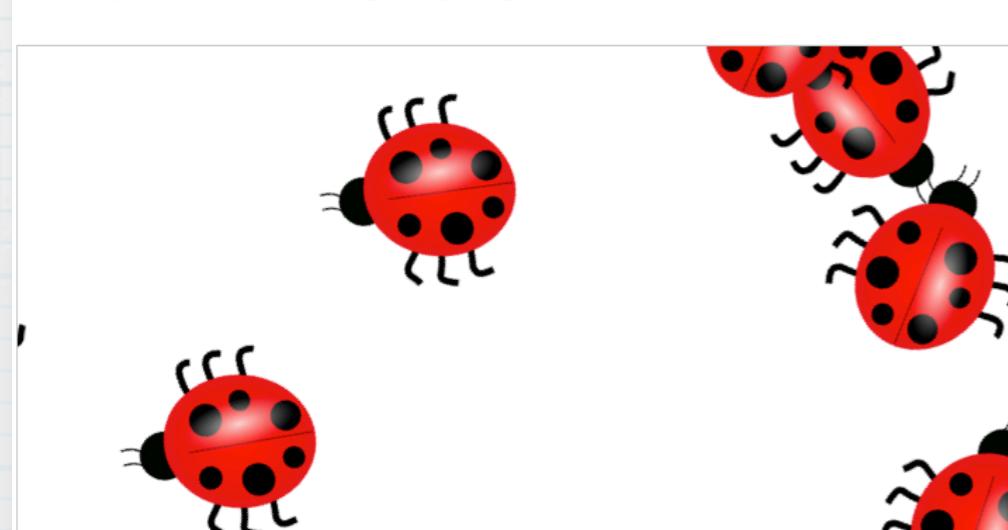
...

```
fxCenterObjectV: function (...) {  
    ...  
  
    fabric.util.animate({  
  
        startValue: object.get('top'),  
        endValue: this.getCenter().top,  
  
        duration: this.FX_DURATION,  
  
        onChange: function(value) {  
            object.set('top', value);  
            _this.renderAll();  
            onChange();  
        },  
        onComplete: function() {  
            object.setCoords();  
            onComplete();  
        }  
    });  
    ...  
}
```

Features — Animation

Or just use new, fancy `window.requestAnimationFrame`

Fabric.js demos · **Sliding ladybugs**



```
(function animate() {
    canvas.forEachObject(function(obj) {
        obj.left += (obj.movingLeft ? -1 : 1);
        obj.top += 1;
        if (obj.left > 900 || obj.top > 500) {
            canvas.remove(obj);
        } else {
            obj.setAngle(obj.getAngle() + 2);
        }
    });
    canvas.renderAll();
    window.requestAnimationFrame(animate);
})();
```

Features — Events

object:scaled

object:selected

object:moved

group:modified

group:selected

before:group:destroyed

after:group:destroyed

mouse:up

selection:cleared

path:created

```
fabric.util.observeEvent('object:moved', function(e) {  
  var activeObject = e.memo.target;  
  console.log(activeObject.left, activeObject.top);  
});
```

Will be made more consistent!

Features — Text

fontsize

fontweight

fontfamily

fontStyle

textDecoration

textShadow

lineHeight

backgroundColor

strokeStyle

strokeWidth

```
var myText = new fabric.Text('Hello world', {  
  fontfamily: 'delicious'  
});  
canvas.add(myText);
```



Will be made more consistent!

Features — Text

* Multiline support

*Lorem ipsum dolor sit amet,
consectetur adipisicing elit,
sed do eiusmod tempor incididunt
ut labore et dolore magna aliqua.
Ut enim ad minim veniam,
quis nostrud exercitation ullamco
laboris nisi ut aliquip ex ea commodo consequat.*

text aligning coming soon

Features — Text

- * Multiline support
- * Relies on Cufon.js

`fillText/strokeText` are supported by:

Chr | Saf 3.2 | Saf 4 | Saf 5 | Op 9.64 | Op 10.10 | Op 10.50 | Op 11 | FF 3 | FF 3.5 | FF 3.6 | FF 4

fillText

Hello world

strokeText

Hello world

fillText with serif font

Hello world

fillText with different color

Hello world

fillText with remote font

Hello world

fillText with shadow

Hello world

fillText with custom style

Hello world

http://kangax.github.com/jstests/canvas_fillText_test

Features — Text

- * Multiline support
- * Relies on Cufon.js
- * Renders using any OTF, TTF, etc. font

| | |
|---------------------------|----------------|
| Helvetica | |
| Geneva | |
| Verdana | |
| Monaco | |
| Myriad Pro | |
| Lucida Grande | |
| Delicious 500 | (Только Англ.) |
| CA BND Web Bold 700 | (Только Англ.) |
| Impact | |
| DejaVu Serif 400 | |
| Georgia | |
| Hoefer Text | |
| Cochin | |
| Tallys 400 | (Только Англ.) |
| Courier New | |
| Andale Mono | |
| <i>OdessaScript 500</i> | |
| Gothic | |
| Entient German Gothic 400 | (Только Англ.) |
| Marker Felt | |

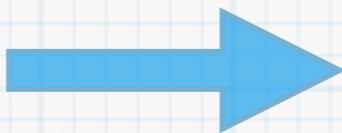
Each font is a JS file with glyph definitions

Features — SVG Parser

Q: How to render SVG shapes on canvas?

A: Transform them to **fabric objects**.

Features — SVG Parser



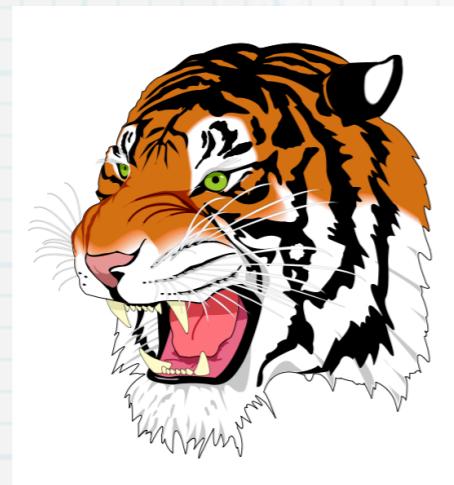
```
<path d="M-122.304 84.285C-122.304  
84.285 -122.203 86.179 -123.027  
86.16C-123.851 86.141 -140.305  
38.066 -160.833 40.309C-160.833  
40.309 -143.05 32.956 -122.304  
84.285z" />
```

Step 1



```
{  
  path: [  
    [ "M", -122.304, 84.285 ],  
    [ "C", -122.304, 84.285,  
      -122.203, 86.179,  
      -123.027, 86.16 ],  
    [ "C", -123.851, ... ],  
    [ ... ],  
    ...  
}
```

Features — SVG Parser



```
{  
  path: [  
    [ "M", -122.304, 84.285 ],  
    [ "C", -122.304, 84.285,  
      -122.203, 86.179,  
      -123.027, 86.16 ],  
    [ "C", -123.851, ... ],  
    [ ... ],  
    ...  
  ]  
}
```

Step 2



```
case 'C': // bezierCurveTo, absolute  
  x = current[5];  
  y = current[6];  
  controlX = current[3];  
  controlY = current[4];  
  ctx.bezierCurveTo(  
    current[1] + l,  
    current[2] + t,  
    controlX + l,  
    controlY + t,  
    x + l,  
    y + t  
  );  
  break;
```

Canvas libraries

| Name | Size (KB) | Unit tests | Dependencies | IE support | SVG Parser | Documentation | Maintained | Project page |
|-------------------------------|-----------|------------|--------------|------------|------------|---------------|------------|---|
| canto.js | 56 | ✓ | | | | | | http://code.google.com/p/canto-js/ |
| fabric.js | 97 | ✓ | | ✓ | ✓ | ✓ | | http://github.com/kangax/fabric.js/ |
| gury.js | 10 | ✗ | | | | ✓ | | http://github.com/rsandor/gury/blob/master/ |
| CAKE | 211 | ✗ | | | | | | http://code.google.com/p/cakejs/ |
| Mootools Canvas Library (MCL) | 8 | | Mootools | | | | | http://forvar.de/js/mcl/ |
| HTML 5 Canvas Library | 12 | | | | | | | https://canvastoolkit.codeplex.com/ |
| Layered Canvas Library (LCL) | 21 | ✗ | | | | | | http://code.google.com/p/layered-canvas/ |
| Artisan.js | 17 | ✗ | | | | | | http://github.com/davidbrooks/Artisan |
| canvg | 78.3 | ✓ | | | ✓ | ✗ | | http://code.google.com/p/canvg/ |
| burst | 56 | | | | ✓ | | ✗ | http://github.com/F1LT3R/burst |
| easel.js | 65 | ✗ | | ✗ | ✗ | ✓ | | http://easeljs.com/ |

<http://goo.gl/CCRRT>

Canvas libraries

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|-------------------------------|-----------|------------|--------------|------------|------------|---------------|------------|---|
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| fabric.js | 97 | ✓ | | ✓ | ✓ | ✓ | | http://github.com/kangax/fabri |
| gury.js | 10 | ✗ | | | | ✓ | | http://github.com/rsandor/gury |
| CAKE | 211 | ✗ | | | | | | http://code.google.com/p/cake |
| Mootools Canvas Library (MCL) | 8 | | Mootools | | | | | http://forvar.de/js/mcl/ |
| HTML 5 Canvas Library | 12 | | | | | | | https://canvastoolkit.codeplex |
| Layered Canvas Library (LCL) | 21 | ✗ | | | | | | http://code.google.com/p/layer |
| Artisan.js | 17 | ✗ | | | | | | http://github.com/davidbrooks |
| canvg | 78.3 | ✓ | | | ✓ | ✗ | | http://code.google.com/p/canv |
| burst | 56 | | | | | ✓ | ✗ | http://github.com/F1LT3R/bur |
| easel.js | 65 | ✗ | | ✗ | ✗ | ✓ | | http://easeljs.com/ |

canvg

The only other library with (good) SVG parser
But no object model

Canvas libraries

| Name | Size (KB) | Unit tests | Dependencies | IE support | SVG Parser | Documentation | Maintained | Project page |
|-------------------------------|-----------|------------|--------------|------------|------------|---------------|------------|---|
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| gury.js | 10 | ✗ | | | | ✓ | | http://github.com/rsandor/gury |
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| HTML 5 Canvas Library | 12 | | | | | | | https://canvastoolkit.codeplex |
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| canvg | 78.3 | ✓ | | | ✓ | ✗ | | http://code.google.com/p/canv |
| burst | 56 | | | ✗ | ✓ | ✓ | ✗ | http://github.com/F1LT3R/bur |
| easel.js | 65 | ✗ | | ✗ | ✗ | ✓ | | http://easeljs.com/ |

burst

Lots of features but completely abandoned

Canvas libraries

| Name | Size (KB) | Unit tests | Dependencies | IE support | SVG Parser | Documentation | Maintained | Project page |
|-------------------------------|-----------|------------|--------------|------------|------------|---------------|------------|---|
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| CAKE | 211 | ✗ | | | | | | http://code.google.com/p/cake |
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| Layered Canvas Library (LCL) | 21 | ✗ | | | | | | http://code.google.com/p/layer |
| Artisan.js | 17 | ✗ | | | | | | http://github.com/davidbrooks |
| canvg | 78.3 | ✓ | | | ✓ | ✗ | | http://code.google.com/p/canv |
| burst | 56 | | | | | ✓ | | http://github.com/F1LT3R/bur |
| easel.js | 65 | ✗ | | ✗ | ✗ | ✓ | | http://easeljs.com/ |

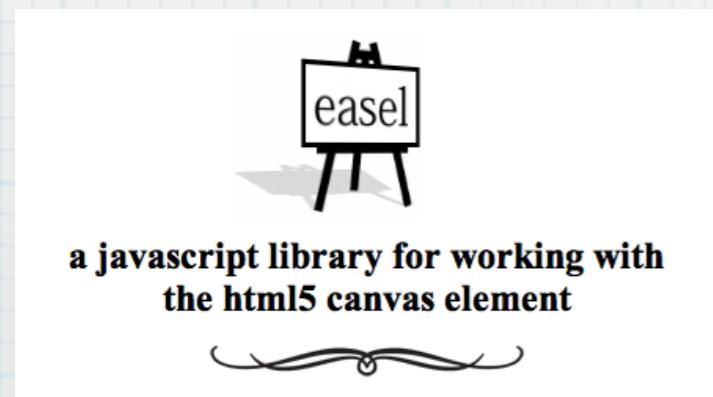
Unit Tests

Hard to come across a library that has them

Canvas libraries

| Name | Size (KB) | Unit tests | Dependencies | IE support | SVG Parser | Documentation | Maintained | Project page |
|-------------------------------|-----------|------------|--------------|------------|------------|---------------|------------|---|
| canto.js | 56 | ✓ | | | | | | http://code.google.com/p/canto |
| fabric.js | 97 | ✓ | | ✓ | ✓ | ✓ | | http://github.com/kangax/fabric |
| gury.js | 10 | ✗ | | | | ✓ | | http://github.com/rsandor/gury |
| CAKE | 211 | ✗ | | | | | | http://code.google.com/p/cake |
| Mootools Canvas Library (MCL) | 8 | | Mootools | | | | | http://forvar.de/js/mcl/ |
| HTML 5 Canvas Library | 12 | | | | | | | https://canvastoolkit.codeplex.com |
| Layered Canvas Library (LCL) | 21 | ✗ | | | | | | http://code.google.com/p/layer |
| Artisan.js | 17 | ✗ | | | | | | http://github.com/davidbrooks |
| canvg | 78.3 | ✓ | | | ✓ | ✗ | | http://code.google.com/p/canvg |
| burst | 56 | | | | ✓ | ✓ | | http://github.com/F1LT3R/burst |
| easel.js | 65 | ✗ | | ✗ | ✗ | ✓ | | http://easeljs.com/ |

easel.js



Probably the most active, similar, and promising alternative.
But no unit tests or SVG parser :(

Fabric use cases

- * Collages mouse-based interactions built in
- * Basic games might be overkill for static charts
- * Charts
- * Basic drawing (paintbrush, diagrams)
- * Display SVG where unsupported (Android)

What can you build?

mustachified.com

No nonsense, easy way to add mustache, beard, hats, glasses to your pictures and photos.

① Upload photo...

or just drag image onto the page

② Pimp it!



Future plans

- * Smaller footprint
- * Better docs, tutorials
- * Custom builder
- * fabric-to-SVG
- * Touch compatible (iOS)

Smaller footprint

Fabric 0.2.5

102 KB — minified

33 KB — minified + compressed

jQuery 1.6.1

91 KB — minified

32 KB — minified + compressed

Can do even better — optional **json2.js**, **cufon.js** + custom builder

Smaller footprint

with Cufon

102 KB — minified

33 KB — minified + compressed



without cufon.js

86 KB — minified

29 KB — minified + compressed



without json2.js

JSON missing in FF 3, SF 3.2, OP 10.1, IE 7

82 KB — minified

25 KB — minified + compressed

Docs, Tests

1000+ tests ATM

Class `fabric.Circle`

[Class Index](#) | [File Index](#)

Extends `fabric.Object`.
`Circle`
Defined in: `circle.class.js`.

Class Summary

| | |
|--|------------------------------|
| | <code>fabric.Circle()</code> |
|--|------------------------------|

Field Summary

| | |
|----------|--|
| <static> | <code>fabric.Circle.ATTRIBUTE_NAMES</code> List of attribute names to account for when parsing SVG element (used by <code>fabric.Circle.fromElement</code>) |
| | <code>type</code> |

Fields borrowed from class `fabric.Object`:

`FX_DURATION`, `FX_TRANSITION`, `includeDefaultValues`, `MIN_SCALE_LIMIT`,
`NUM_FRACTION_DIGITS`, `options`, `rotate`, `stateProperties`

Method Summary

| | |
|----------|---|
| | <code>complexity()</code> Returns complexity of an instance |
| <static> | <code>fabric.Circle.fromElement(element, options)</code> Returns <code>fabric.Circle</code> instance from an SVG element |
| <static> | <code>fabric.Circle.toObject(object)</code> Returns <code>fabric.Circle</code> instance from an object representation |
| | <code>initialize(options)</code> Constructor |
| | <code>toObject()</code> Returns object representation of an instance |

Methods borrowed from class `fabric.Object`:

`callSuper`, `clone`, `cloneAsImage`, `drawBorders`, `drawCorners`, `fxRemove`, `fxStraighten`, `getAngle`, `getCenter`, `getHeight`, `getWidth`, `hasStateChanged`, `intersectsWithObject`,
`intersectsWithRect`, `isActive`, `isContainedWithinRect`, `isType`, `render`, `saveState`, `scale`,
`scaleToHeight`, `scaleToWidth`, `set`, `setActive`, `setAngle`, `setCoords`, `setOpacity`, `setOptions`,
`setSourcePath`, `straighten`, `toDatalessObject`, `toDataURL`, `toggle`, `toGrayscale`, `toJSON`, `toString`,
`transform`

Classes

- `global`
- `Array`
- `fabric`
- `fabric.Circle`
- `fabric.Color`
- `fabric.Element`
- `fabric.Element#cache`
- `fabric.Ellipse`
- `fabric.Group`
- `fabric.Image`
- `fabric.Intersection`
- `fabric.Line`
- `fabric.Object`
- `fabric.Path`
- `fabric.PathGroup`
- `fabric.Point`
- `fabric.Polygon`
- `fabric.Polyline`
- `fabric.Rect`
- `fabric.Text`
- `fabric.Triangle`
- `fabric.util`
- `fabric.util.array`
- `fabric.util.object`
- `fabric.util.string`
- `Function`
- `String`

Fabric.js unit tests

Mozilla/5.0 (Macintosh; Intel Mac OS X 10_6_7) AppleWebKit/534.29 (KHTML, like Gecko) Chrome

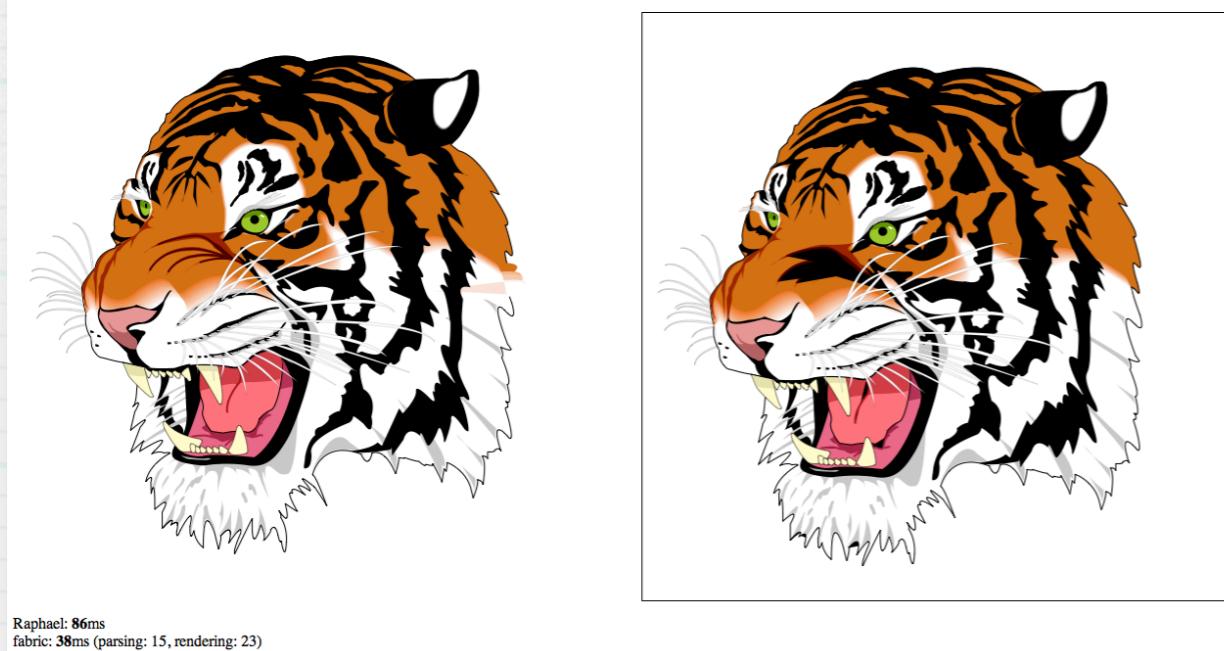
1. `fabric.util module: fabric.util.toFixed (0, 9, 9)`
2. `fabric.util module: fabric.util.removeFromArray (0, 7, 7)`
3. `fabric.util module: fabric.util.degreesToRadians (0, 5, 5)`
4. `fabric.util module: fabric.util.getRandomInt (0, 102, 102)`
5. `fabric.util module: fabric.util.falseFunction (0, 2, 2)`
6. `fabric.util module: String.prototype.trim (0, 2, 2)`
7. `fabric.util module: fabric.util.string.camelize (0, 10, 10)`
8. `fabric.util module: fabric.util.string.capitalize (0, 8, 8)`
9. `fabric.util module: fabric.util.object.extend (0, 7, 7)`
10. `fabric.util module: fabric.util.object.clone (0, 4, 4)`
11. `fabric.util module: Function.prototype.bind (0, 6, 6)`
12. `fabric.util module: fabric.util.getById (0, 4, 4)`
13. `fabric.util module: fabric.util.toArray (0, 7, 7)`
14. `fabric.util module: fabric.util.createElement (0, 8, 8)`
15. `fabric.util module: fabric.util.addClass (0, 5, 5)`
16. `fabric.util module: fabric.util.wrapElement (0, 8, 8)`

<http://kangax.github.com/fabric.js/docs>

http://kangax.github.com/fabric.js/test/unit/suite_runner

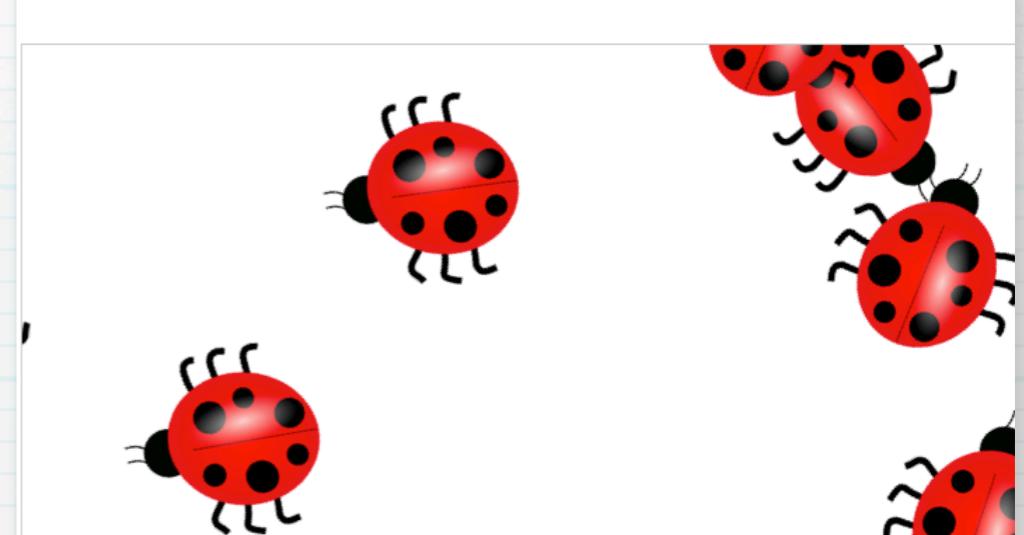
Demos, Benchmarks

Rendering a complex shape (2510 paths)



Raphael: 86ms
fabric: 38ms (parsing: 15, rendering: 23)

Fabric.js demos · **Sliding ladybugs**



[http://kangax.github.com/fabric.js/test/
raphael_vs_fabric/complex_shape](http://kangax.github.com/fabric.js/test/raphael_vs_fabric/complex_shape)

<http://kangax.github.com/fabric.js/demos>

Supported browsers

- * Firefox 2+
- * Safari 3+ (& Mobile Safari)
- * Opera 9.64+
- * Chrome (all versions should work)
- * IE9+ (IE7 & 8 via excanvas.js)

Thank you!

Questions?

<http://spkr8.com/t/7582>

github.com/kangax/fabric.js

@fabric.js

@kangax