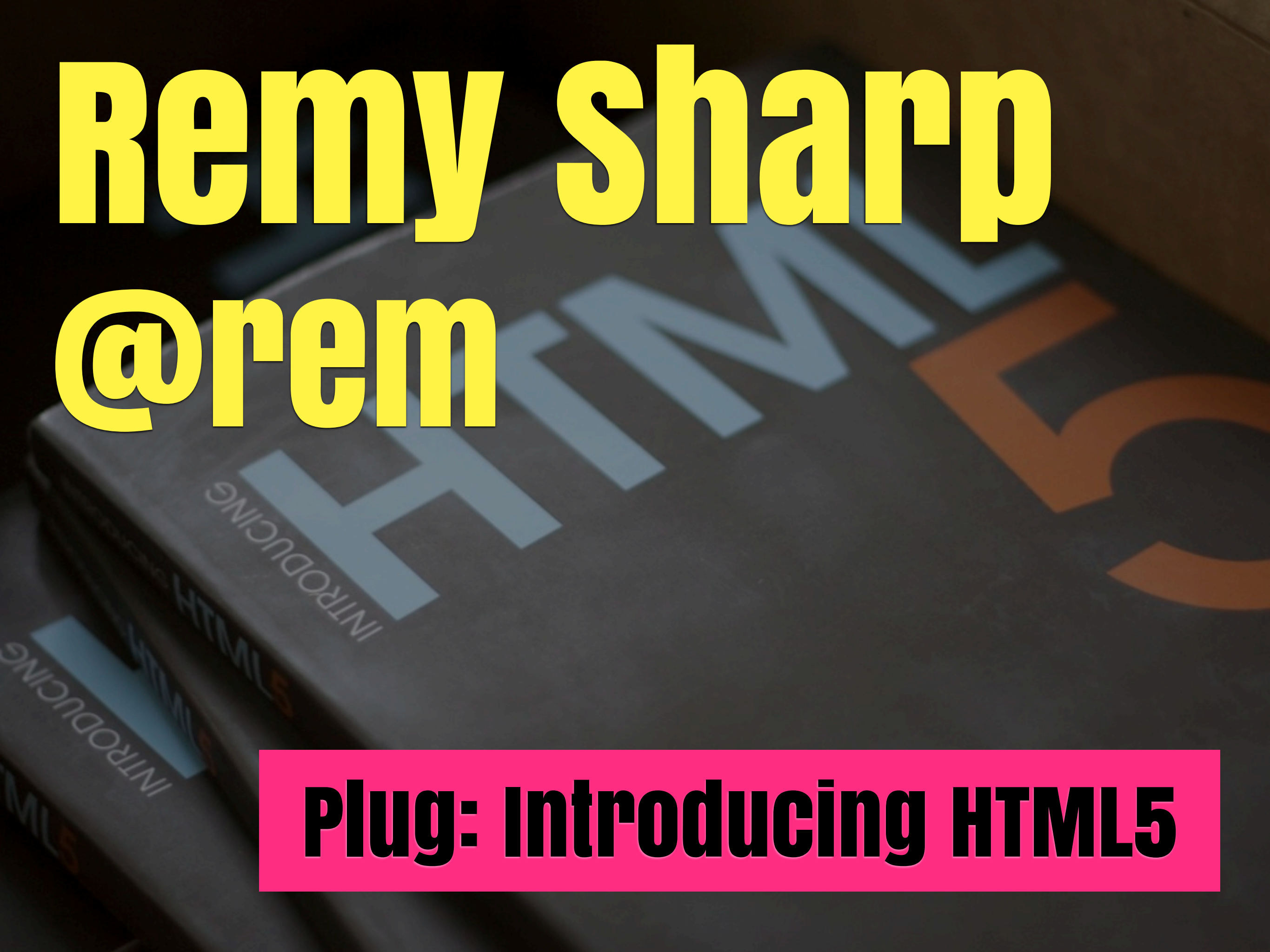


HTML5

Huh, what is it good for?

Remy Sharp @rem

The background of the slide features a stack of books. The top book is clearly visible and has the title 'Introducing HTML5' printed on its cover in a light blue font. The books are slightly offset, creating a sense of depth. The overall color palette is dark, with the yellow text providing a strong contrast.

Plug: Introducing HTML5

it's more than

- HTML

- New HTML5
elements

- Buzzword

- Simple
doctype

```
<!doctype html>
<html lang="en">
<head>
  <meta charset="utf-8">
  <title>My HTML5 page</title>
  <style>
  body {
    font-family: sans-serif;
  }
</style>
</head>
<body>
<article>
  <h1>My story</h1>
  <p>With JavaScript</p>
</article>
<script src="funky.js"></script>
<script>
makeFunky(document.querySelector('article'));
</script>
</body>
</html>
```

<!doctype html>

<style> <script>

<article>

JavaScript

- **Offline**

- **App cache**

- **WebStorage**

- **WebSQL**

- **IndexedDB**

- **Multimedia**

- **Video & Audio**

● **X-domain
messaging**

● **CORS**

● **File API**

● **Drag & Drop**

● **History API**

● **Lots, lots
more.**

JavaScript

JavaScript

- **Drawing**
- **Offline**
- **URLs**
- **Real-time**

**When can I
use "HTML5"?**



remy/inliner at master - Git



<https://github.com/remy/inliner>

Node utility to inline images, CSS and JavaScript for a web page - useful for mobile sites — [Read more](#)

click here to add a homepage

SSH

HTTP

Git Read-Only

git@github.com:remy/inliner.git



Read+Write access

reverting back to online jQuery. Closes #7



remy (author)

2 days ago

inliner /

name	age	message
 bin/	May 16, 2011	fixed up binary [remy]
 .gitignore	May 15, 2011	ignore file [remy]
 README.md	3 days ago	Updated docs [remy]
 inliner.js	2 days ago	reverting back to online jQuery. Closes #7 [remy]
 jquery.min.js	3 days ago	including local jQuery to allow for offline inline..
 package.json	2 days ago	reverting back to online jQuery. Closes #7 [remy]



Search

Home Profile Messages Who To Follow

rem

What's happening?

Timeline @Mentions Retweets Searches Lists

 **emma Boulton** Emma Boulton
Getting flashbacks to 2007 and my old life at the BBC, as I write a report on online news consumption.
45 seconds ago

 **danwrong** Dan Webb
Ha! Got two passes to a preview screening of Attack The Block in SF on wednesday night. Anyone want to join me?
3 minutes ago

 **emma Boulton** Emma Boulton
Hungry people of the internet, I present to you, 5 min cup cake in a mug: howto.wired.com/wiki/Make_Cake... (via @aexmo)
6 minutes ago

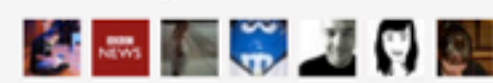
 **txsharp** Tristan Sharp
Call me what you like, just make sure you don't forget dim as Ive just realised why every second home in Brighton has an "open house" banner
8 minutes ago

 **mollydotcom** Molly E. Holzschlag

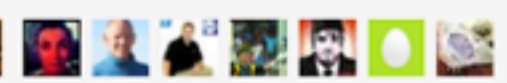
Your Tweets 14,206

 1 hour ago: It appears to have stopped raining in Bergen. People look confused.

Following 98



Followers 14,075



Favorites 1,196

★ **gekitsu** @rem FYI when you're doing your demos you can edit the java script li...

Listed 1,687

Recently listed in: [jscript-gurus](#), [People-I-Retweet](#), [Nosailor](#), [developer](#), [web](#)

Trends

United Kingdom · [change](#)

- #baftas
- #whydosomegirls
- #20bandsilove
- Lauren Socha Abramovich
- Alex Kingston
- Robert Sheehan
- Jasminator Party
- Hiddink
- Nabi Muhammad SAW

Who to follow

Suggestions for you · [view all](#)

-  **Disney** · Follow
Disney
Promoted
-  **emilytoop** · Follow
Emily Toop
-  **dhh** · Follow
DHH
-  **__DavidFlanagan** · Follow
David Flanagan

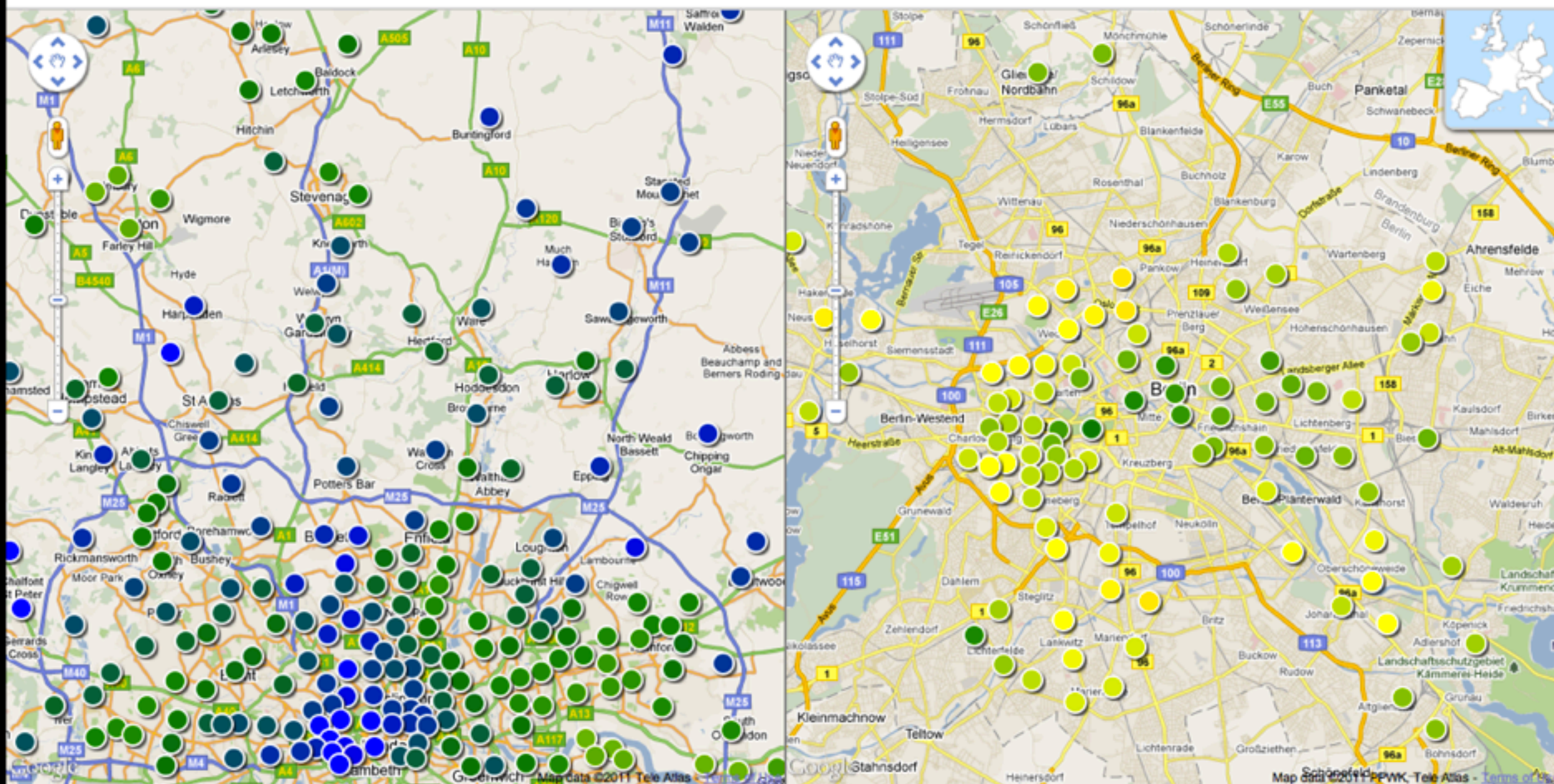
[Refresh suggestions](#)
[Browse interests](#) · [Find friends](#)



A Tale Of Two Cities

London vs. Berlin

Price: £10k - £4,888k
€11k - €5,605k



**Making it
work in
the "other"
browser**

polyfills

will/might save you

**A shim that mimics a future
API providing a fallback to
older browsers**

<http://goo.gl/0Z9eI>

Tools

Modernizr to detect support

yepnode.js to conditionally load

(available as part of Modernizr)

Tools

```
Modernizr.load({  
  test: Modernizr.geolocation,  
  nope: 'geo-polyfill.js',  
  complete: initMyGeoApp  
});
```


oh, and learn JavaScript



Galvinas

Han Solo of HTML5



```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="utf-8" />
<title>Canvas</title>
</head>
<body>
  <canvas></canvas>
</body>
</html>
```

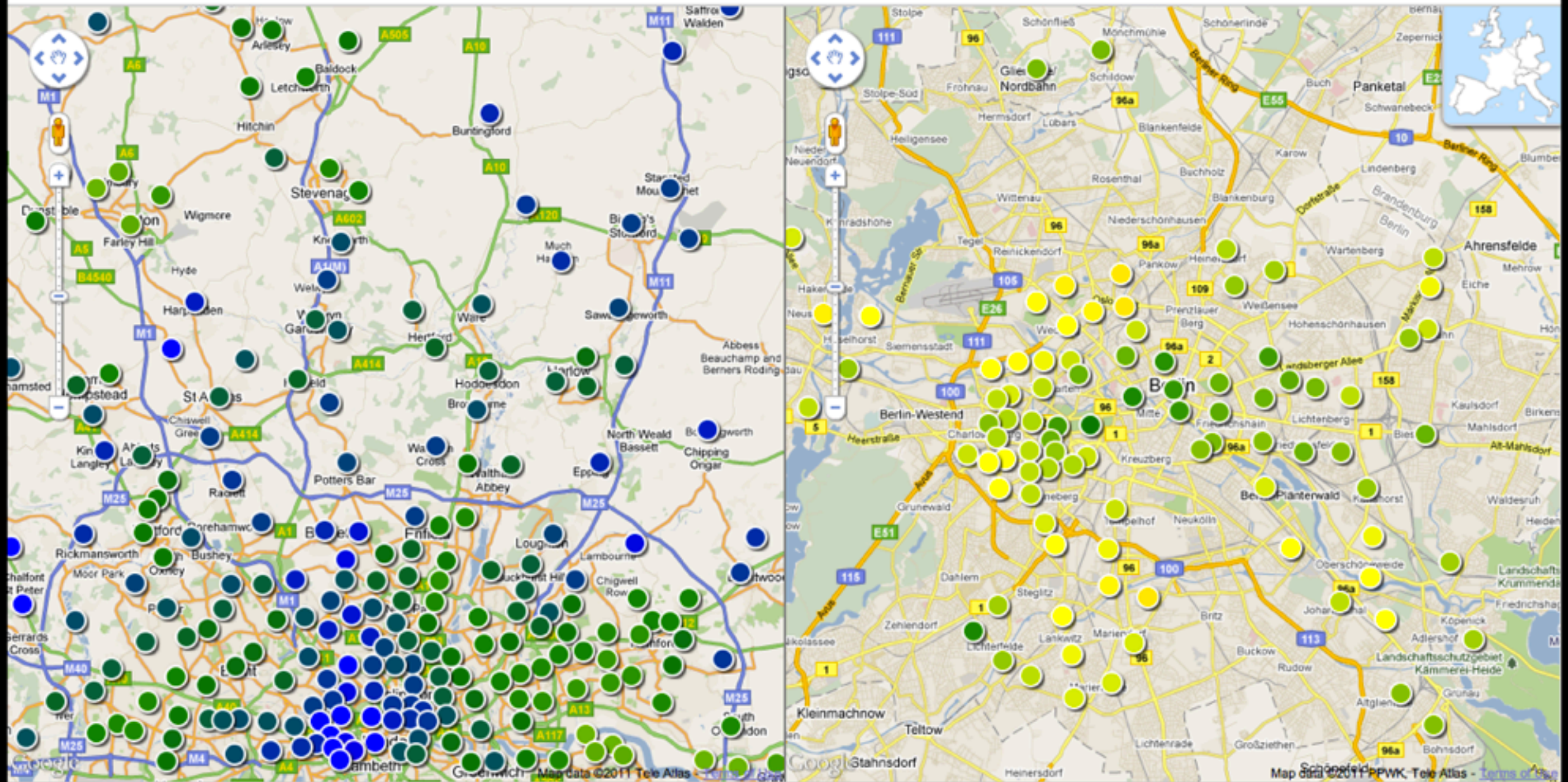

2D API

```
ctx = canvas.getContext( '2d' )
```


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€11k - €5,605k



● **Gradients**

● **Pixel manipulation**

● **Paths**

● **Shadows**

● **Export to data url**

● **State saving**

gradients



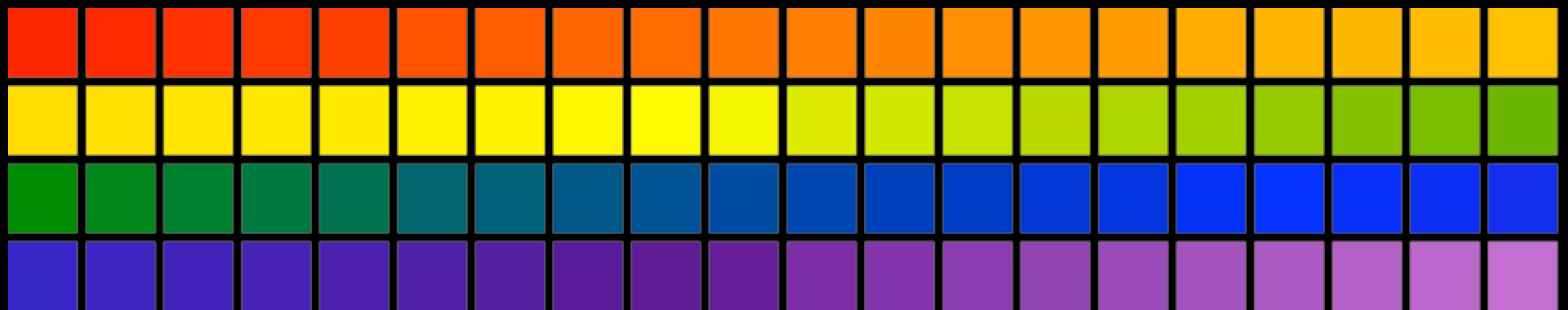
Gradients

```
var rainbow = ctx.createLinearGradient(0, 0, w, h),  
    colours = {  
      0: 'red',  
      0.167: 'orange',  
      0.333: 'yellow',  
      // etc  
    };
```

```
for (var key in colours) {  
  rainbow.addColorStop(key, colours[key]);  
}
```

```
ctx.fillStyle = rainbow;  
ctx.fillRect(0, 0, w, h);
```

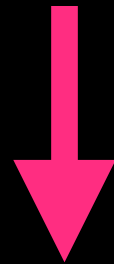
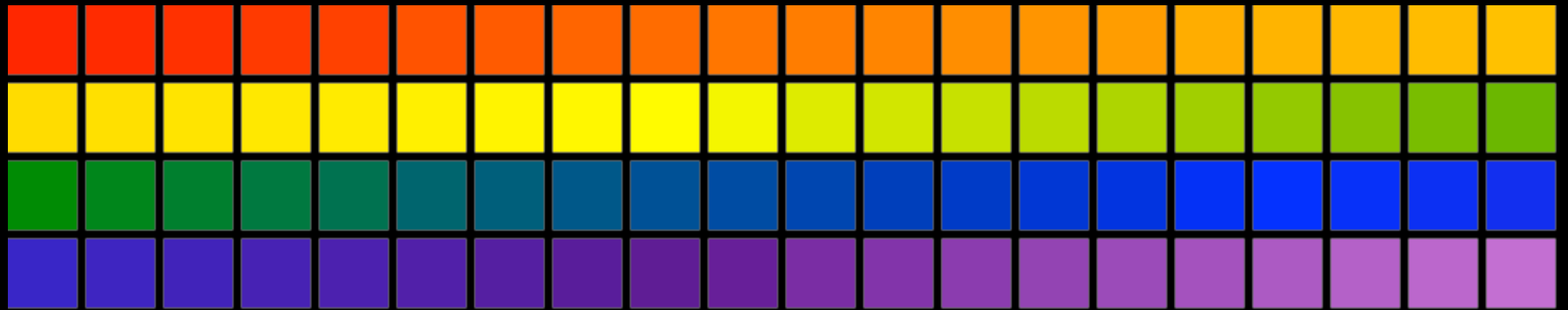
Pixel Pushing



Pixel Pushing

```
var pixels = ctx.getImageData(0, 0, w, h),  
    len = pixels.data.length;  
  
for (var i = 0; i < len; i += 4) {  
    var rgb = 'rgb(' + // ←  
    [  
        pixels.data[i],    // red  
        pixels.data[i+1],  // green  
        pixels.data[i+2]   // blue  
    ].join(',') + ')';  
}
```

Shadows & Paths

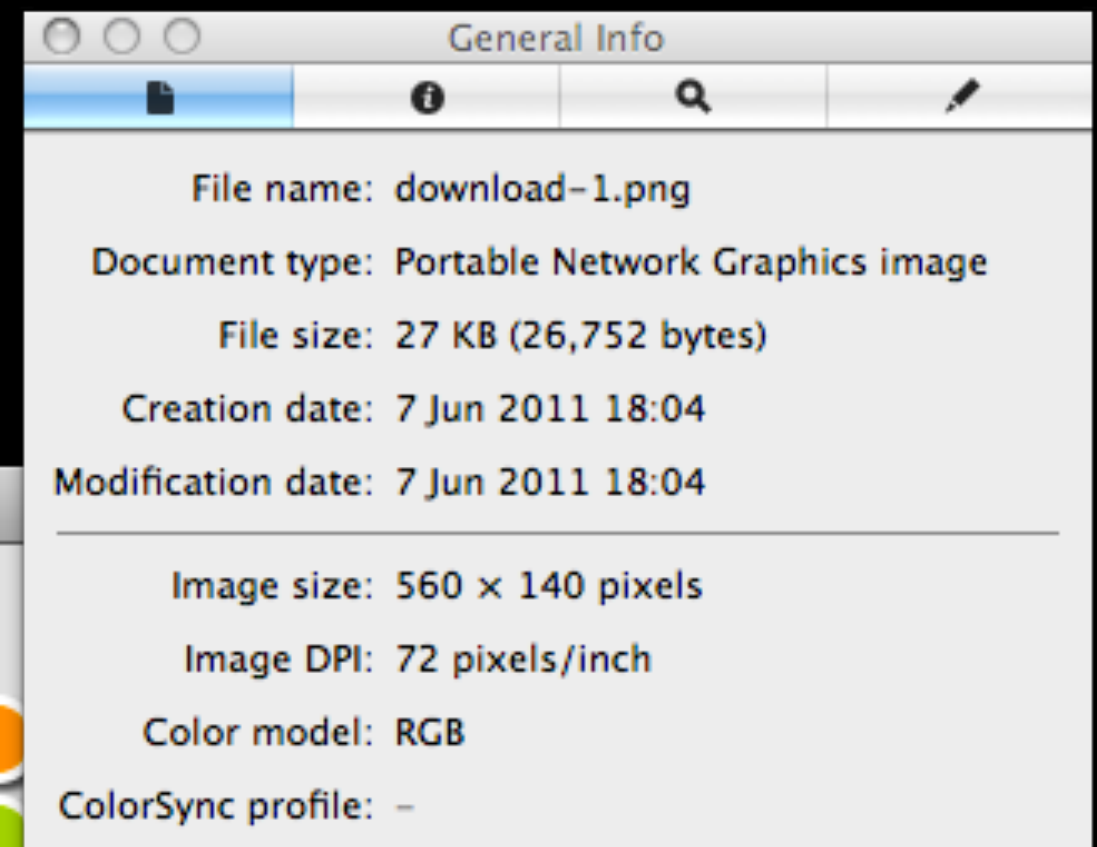
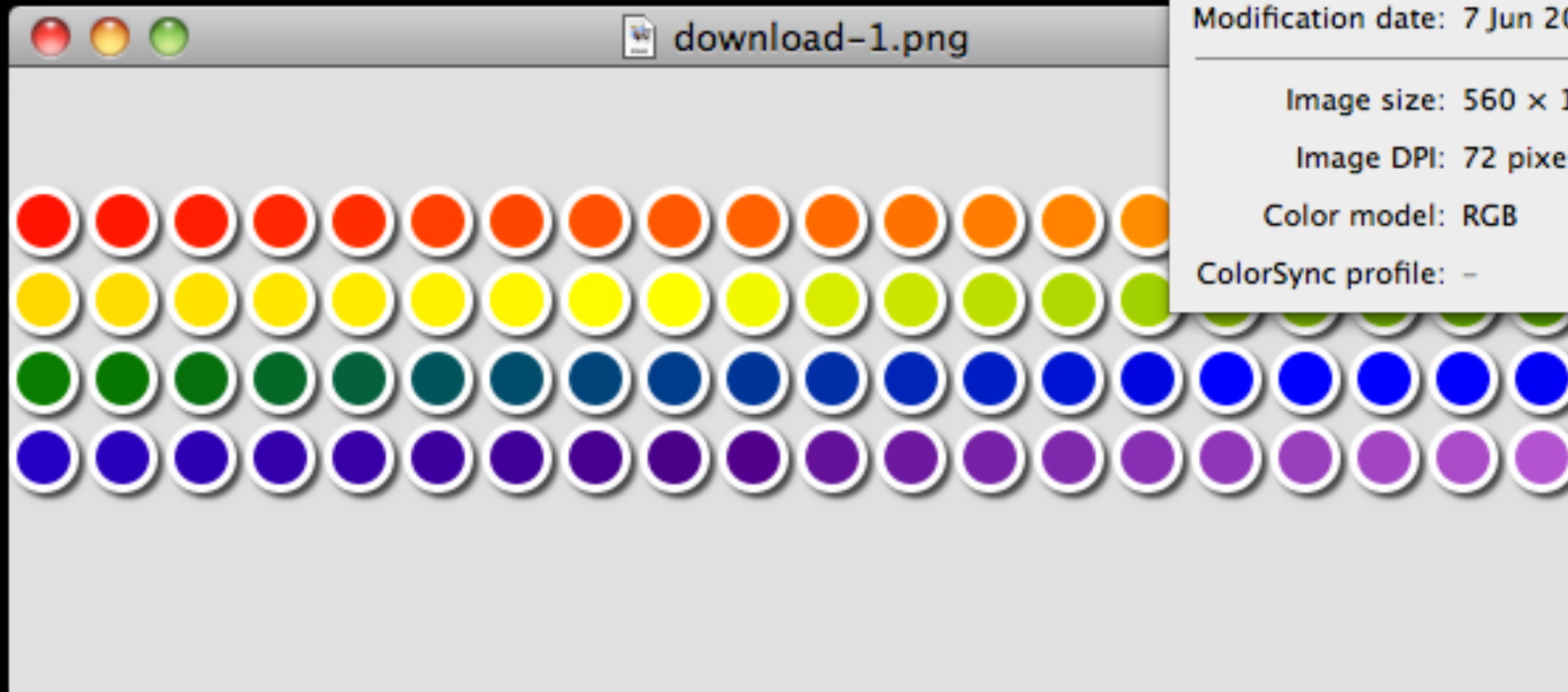


shadows

```
ctx.shadowBlur = 2;  
ctx.shadowOffsetX = 2;  
ctx.shadowOffsetY = 2;  
ctx.shadowColor = 'rgba(0,0,0,.7)';
```

Paths

```
var pinsize = 26,  
    pinedge = pinsize * 0.1,  
    centre = pinsize/2,  
    radius = centre - pinedge,  
    circle = Math.PI * 2;  
  
ctx.fillStyle = rgb; // from our pixel  
ctx.beginPath();  
ctx.arc(centre, centre, // ←  
        radius, 0, circle, true);  
ctx.closePath();  
ctx.fill();
```

Export



```
ctx.canvas.toDataURL('image/png')
```

```
data:image/png;base64,...
```



context . canvas

**All context contain back-
reference to it's canvas**

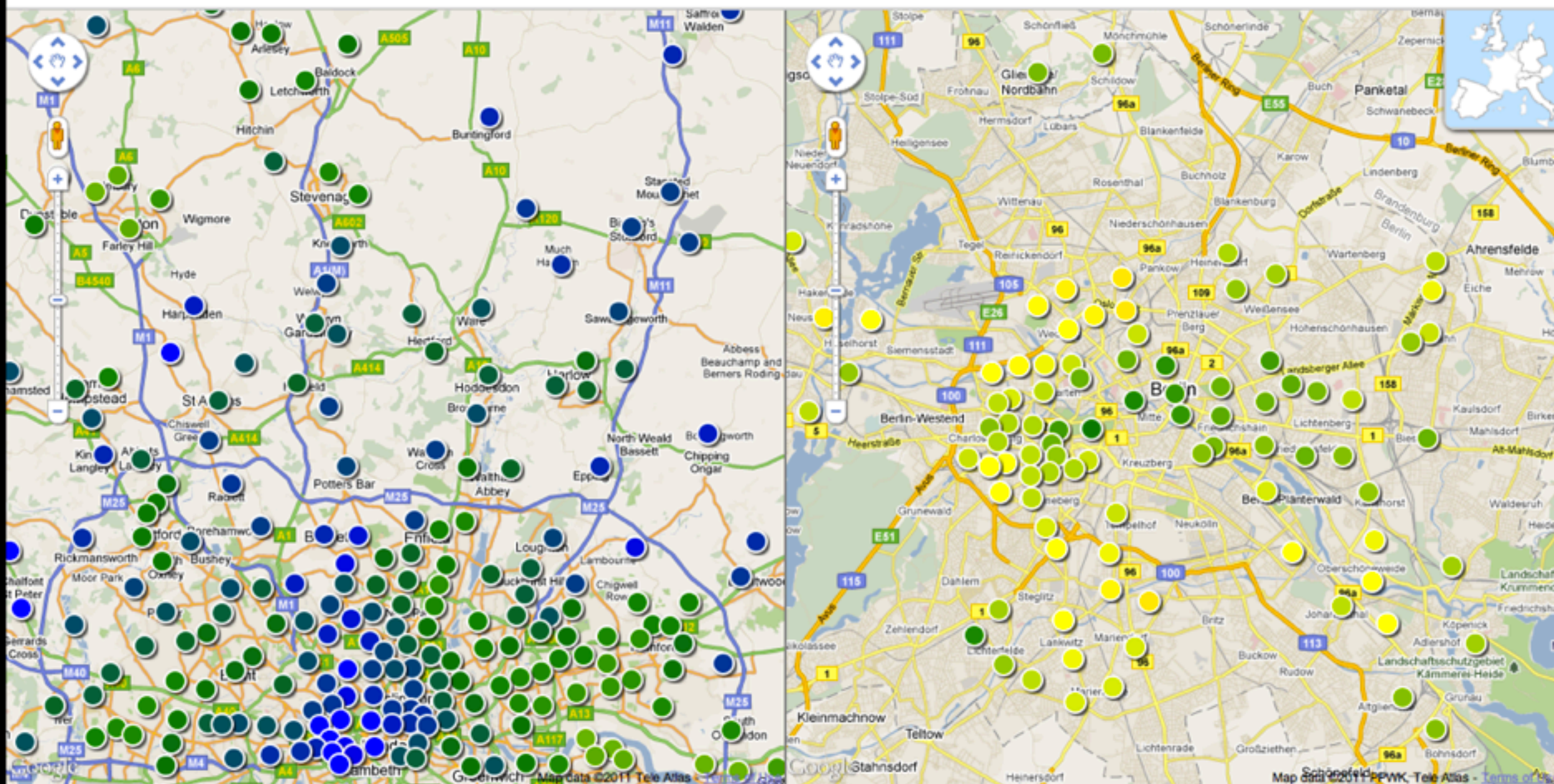
state saving

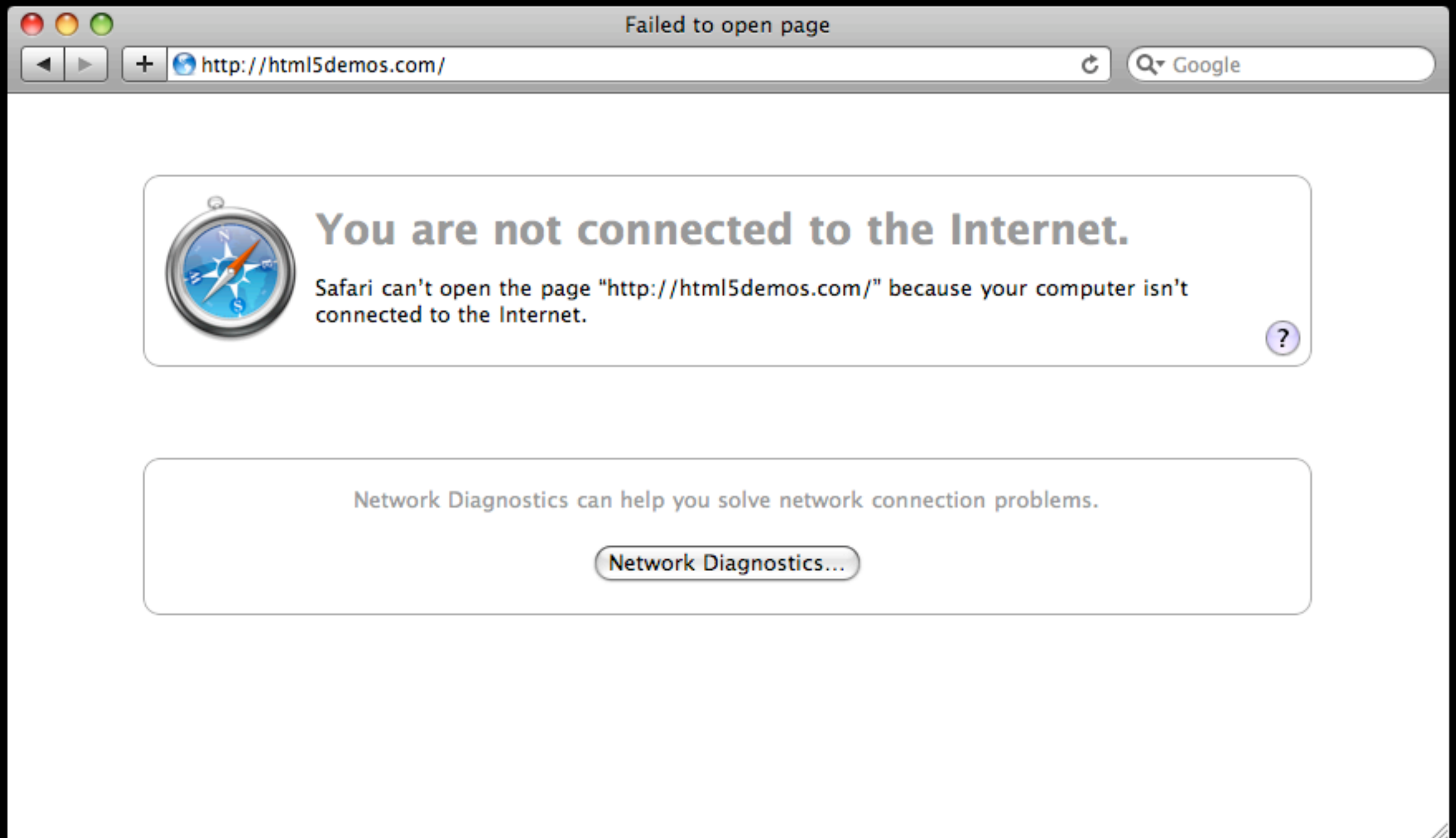
```
pinctx.fillStyle = '#fff';  
pinctx.save();  
pinctx.fillStyle = '#f00';  
// do something  
pinctx.restore();  
// now fillStyle is #fff
```


A Tale Of Two Cities

London vs. Berlin

Price: £10k - £4,888k
€11k - €5,605k





offline Applications

Using a Manifest

```
<!DOCTYPE html>  
<html manifest="my.appcache">  
  <body>  
    <!-- my page -->  
  </body>  
</html>
```

my-appcache

CACHE MANIFEST

app.html

css/style.css

js/app.js

#version 13

The Manifest

1. serve as text/manifest, by adding to mime.types:

`text/cache-manifest appcache`

Firefox caching

```
<IfModule mod_expires.c>
```

```
ExpiresActive on
```

```
ExpiresByType text/cache-manifest
```

```
↪ "access plus 0 seconds"
```

```
</IfModule>
```


The Manifest

2. First line must be:

CACHE MANIFEST

The Manifest

3. Including page is implicitly included in the cache.

The Manifest

**4. Two futher namespaces:
NETWORK & FALLBACK**

CACHE MANIFEST

CACHE:

app.js

app.css

index.html

NETWORK:

http://*

https://*

FALLBACK:

/ offline.html

what to cache

CACHE MANIFEST

```
CACHE:  
app.js  
app.css  
index.html
```

```
NETWORK:  
http://*  
https://*
```

```
FALLBACK:  
/ offline.html
```


**App cache
requires all
resources are
accounted for.**

CACHE MANIFEST

CACHE:

app.js

app.css

index.html

NETWORK:

http://*

https://*

FALLBACK:

/ offline.html

**Requests for
files not found
in the cache,
are directed
to offline.html
(when offline).**

CACHE MANIFEST

CACHE:

app.js

app.css

index.html

NETWORK:

http://*

https://*

FALLBACK:

/ offline.html

CACHE MANIFEST

CACHE:

app.js

app.css

index.html

NETWORK:

http://*

https://*

FALLBACK:

/ offline.html

The Manifest

**5. Include some versioning to
cache bust your manifest**

version 16

JavaScript console - for debu x

offline.jsconsole.com

```
> :help

i :load <url> - to inject new DOM
:load <script_url> - to inject external library
load also supports following shortcuts:
jquery, underscore, prototype, mootools, dojo, rightjs, coffeescript, yui.
eg. :load jquery
:listen [id] - to start remote debugging session
:clear - to clear the history (accessed using cursor keys)
:about

Directions to inject JS Console in to any page (useful for mobile debugging)
```

Elements Resources Network Scripts Timeline Profiles Audits Console Search Resources

Frames
 (http://offline.jsconsole.com/)

Databases

Local Storage
 offline.jsconsole.com

Session Storage
 offline.jsconsole.com

Cookies

Application Cache
 offline.jsconsole.com

No Application Cache information available.

UNCACHED

When your app updates

```
applicationCache.onUpdateReady = function () {  
    if (confirm("New version ready. Refresh?")) {  
        // reload  
        window.location = window.location;  
    }  
};
```




Do offline last



web storage

<http://www.flickr.com/photos/ph0t0s/64821154>

Key / value pair

- `localStorage`, persistent
- `sessionStorage`, temporary
- Extremely simple to use
- Storage events

```
sessionStorage.name = '@rem';  
  
// page is reloaded  
var name = sessionStorage.name;  
if (name !== undefined) {  
    alert('Welcome back ' + name);  
}
```

```
sessionStorage.name = '@rem';
```

```
// page is reloaded  
var name = sessionStorage.name;  
if (name !== undefined) {  
    alert('Welcome back ' + name);  
}
```

```
sessionStorage.name = '@rem';  
  
// page is reloaded  
var name = sessionStorage.name;  
if (name !== undefined) {  
    alert('Welcome back ' + name);  
}
```


**storage
coerces to
string**

string

```
var sess = sessionStorage;
```

```
sess.data = JSON.stringify(data);
```

string

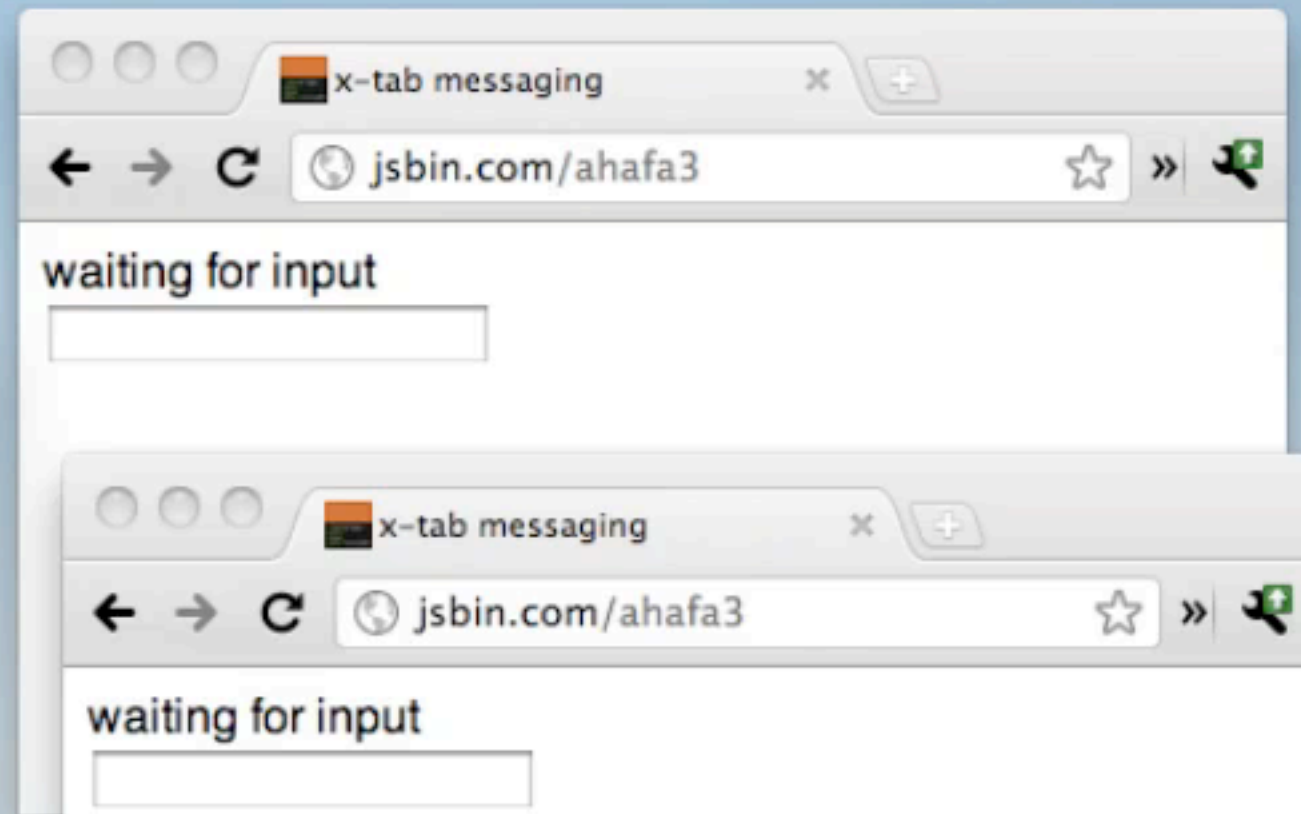
```
var sess = sessionStorage;
```

```
sess.data = JSON.stringify(data);
```

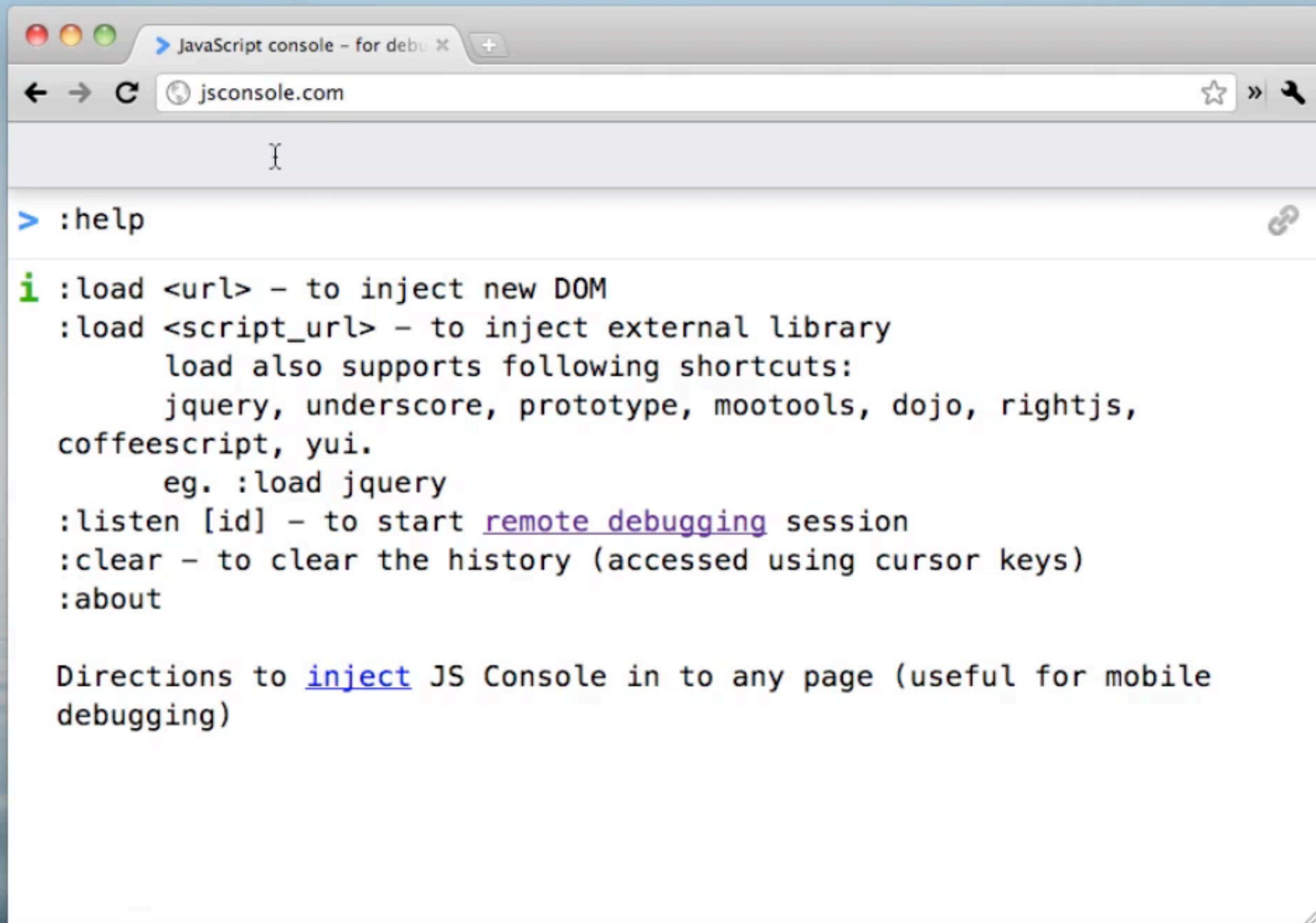
```
var data = JSON.parse(  
    sess.data || '{}' // or empty obj  
);
```

Events

```
window.onstorage = function(e) {  
    // e.key  
    // e.newValue  
    // e.oldValue  
    // e.url  
};
```



URLS



History API

```
history.pushState(obj, title, url);
```

```
window.onpopstate = fn;
```

Detection

**!! (window.history &&
history.pushState)**

Polyfill

History.js

<https://github.com/balupton/history.js>

hashchange

```
window.onhashchange = function(e) {  
    // user went back or forward  
    // now read location.hash  
};
```

server sent Events

"push based XHR"

Prerequisites

- **Persistent connection support**
(event based are favourable: ie. node, twisted, etc)
- **Support in browser*** but we can fix that :)
- **If not native, fails over to polling**

Limitations

- **Same origin rules**
- **No support in Firefox or IE**
- **Read only**

Usage

```
var es = new EventSource(url);

es.onopen = function () {
    console.log('open stream');
};

es.onmessage = function (event) {
    console.log('got message: ' + event.data);
};
```

server code

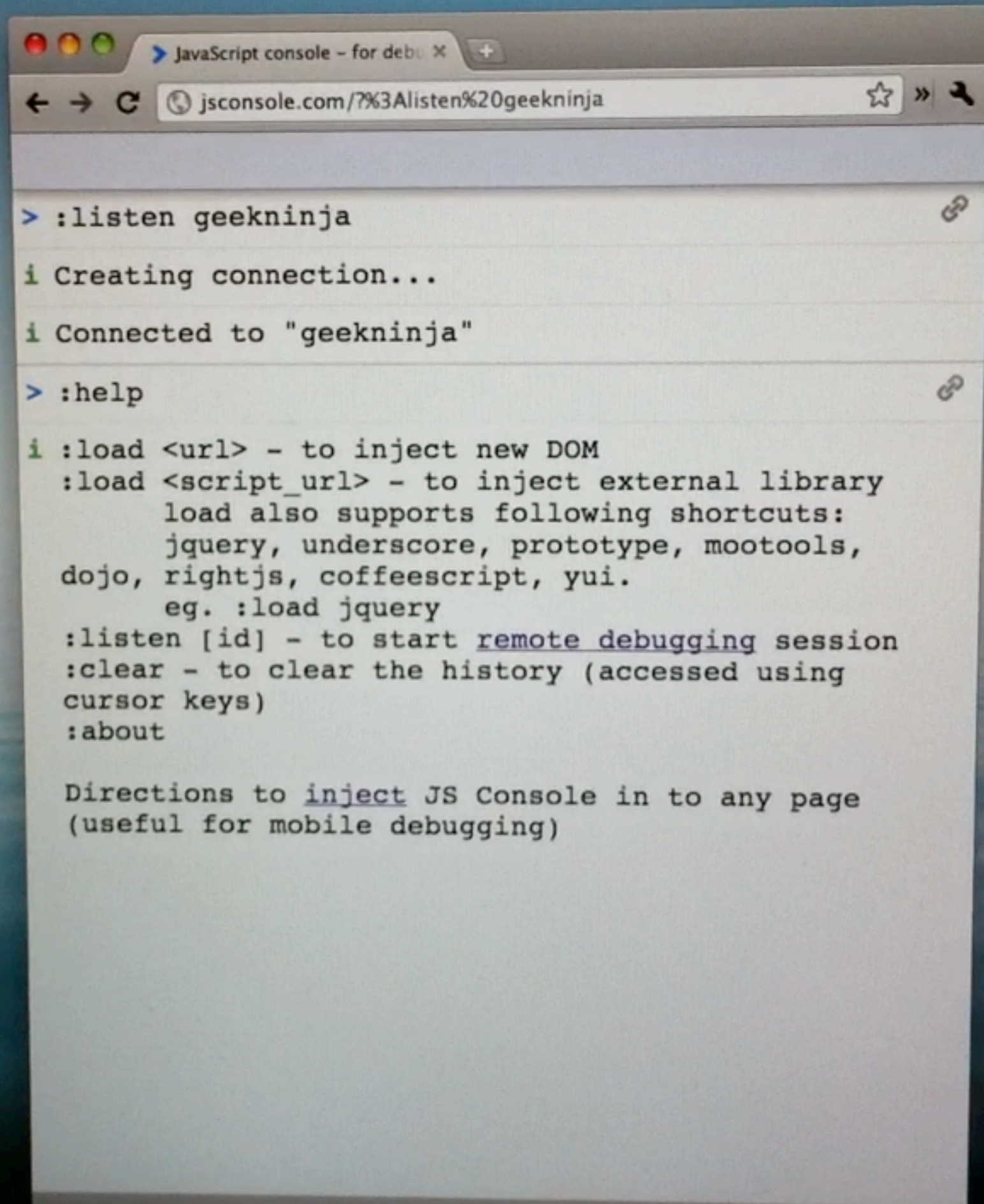
```
app.get('/sse', function (req, res) {  
  connections.push(res);  
  
  res.writeHead(200, {  
    'Content-Type': 'text/event-stream',  
    'Cache-Control': 'no-cache'  
  });  
  res.write('eventId:0\n\n');  
});
```

Using Connect

server code

```
connections.forEach(function (c) {  
  c.write('data: ' + JSON.stringify(req.body) + '\n\n');  
});
```

`req.body` is an object of key/values



Web sockets

Two way real-time comms



<http://www.flickr.com/photos/44442915@N00/4960579336>

In a nutshell

- **Persistent connection**
- **Tiny chunks of data exchanged**
- **Bi-directional & no origin rules**

some Uses

- **chat / "hello world"**
- **streaming data like stock share prices**
- **Multi-player game state**
- **Google Wave** remember? :)

Native or polyfilled

IE6✓ : ' (

http://github.com/gimite/web-socket-js/

The screenshot shows a web browser window displaying the GitHub repository page for `gimite/web-socket-js`. The browser's address bar shows the URL `http://github.com/gimite/web-socket-js/`. The GitHub interface includes a top navigation bar with the GitHub logo, user profile for 'remy' (39), and links for 'Dashboard', 'Inbox' (5), 'Account Settings', and 'Log Out'. Below this is a secondary navigation bar with links for 'Explore GitHub', 'Gist', 'Blog', 'Help', and a search bar. The repository header shows the repository name 'gimite / web-socket-js' with icons for 'Watch', 'Fork', and 'Download Source', along with statistics for 392 watchers and 17 forks. A tabbed interface below the header shows 'Source' as the active tab, with other tabs for 'Commits', 'Network (17)', 'Issues (0)', 'Downloads (0)', 'Wiki (1)', and 'Graphs'. The 'Source' tab displays the repository's description: 'HTML5 Web Socket implementation powered by Flash — Read more'. Below the description is a section for cloning the repository, showing the 'HTTP' and 'Git Read-Only' options with the URL `http://github.com/gimite/web-socket-js.git`. A message indicates that this URL has 'Read-Only' access. The 'Merging.' section shows a commit by 'gimite (author)' on May 15, 2010, with a commit hash of `e5c19418fd4e70f28d36`. The commit details show the tree hash `d5fb35fe2bd72b8cc9f8`, the parent hash `3d40bf70fb8b79da656a`, and the previous parent hash `cf78327047756c039088`. The 'web-socket-js /' section displays a table of files in the repository.

name	age	message	history
<code>.gitignore</code>	August 10, 2009	Initial version. Checked only with Chrome. [gimite]	
<code>FABridge.js</code>	August 10, 2009	Initial version. Checked only with Chrome. [gimite]	
<code>README.txt</code>	January 24, 2010	Referring to latest spec. [gimite]	
<code>WebSocketMain.js</code>	May 15, 2010	Initial version. Checked only with Chrome. [gimite]	

```
var url = 'ws://node.remysharp.com:8000',  
    conn = new WebSocket(url);
```

```
conn.onopen = function () {  
    conn.send('@rem says Hi!');  
};
```

```
conn.onmessage = function (event) {  
    console.log(event.data);  
};
```

```
var url = 'ws://node.remysharp.com:8000',  
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```

```
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    conn.send('@rem says Hi!');  
};
```

```
conn.onmessage = function (event) {  
    console.log(event.data);  
};
```

Demo

jsbin.com/uwomu6

questions?

@rem

remy@leftlogic.com