JavaScript Debugging

JavaScript <u>runs</u> in the browser so it must be debugged in the browser

Firebug was the trailblazer for debuggers

It's the original Firefox add-on

Needed to be installed

But now merged with built-in Firefox tools

But all browsers have debuggers baked in

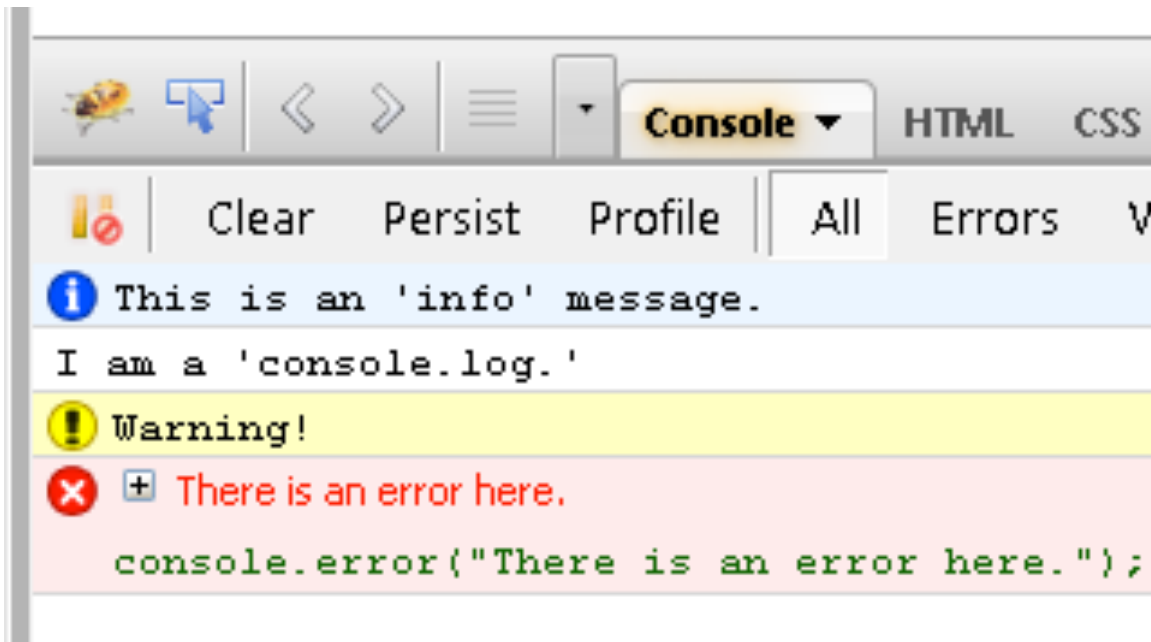- No need for installs and extra packages

Option - Cmd - i

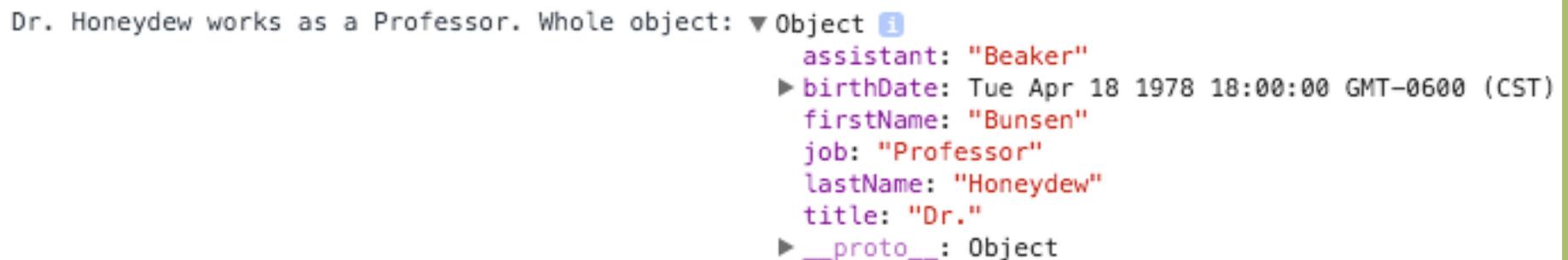**F12**

We can send messages to the console

```
console.info("This is an 'info' message.");
console.log("I am a 'console.log.'");
console.warn("Warning!");
console.error("There is an error here.")
```

```
console.log(
  "%s %s works as a %s. Whole object: %o",
  person.title, person.lastName,
  person.job, person);
```

- %s - string
- %f - floating point number
- %d or %i - integer
- %o - Expandable DOM object
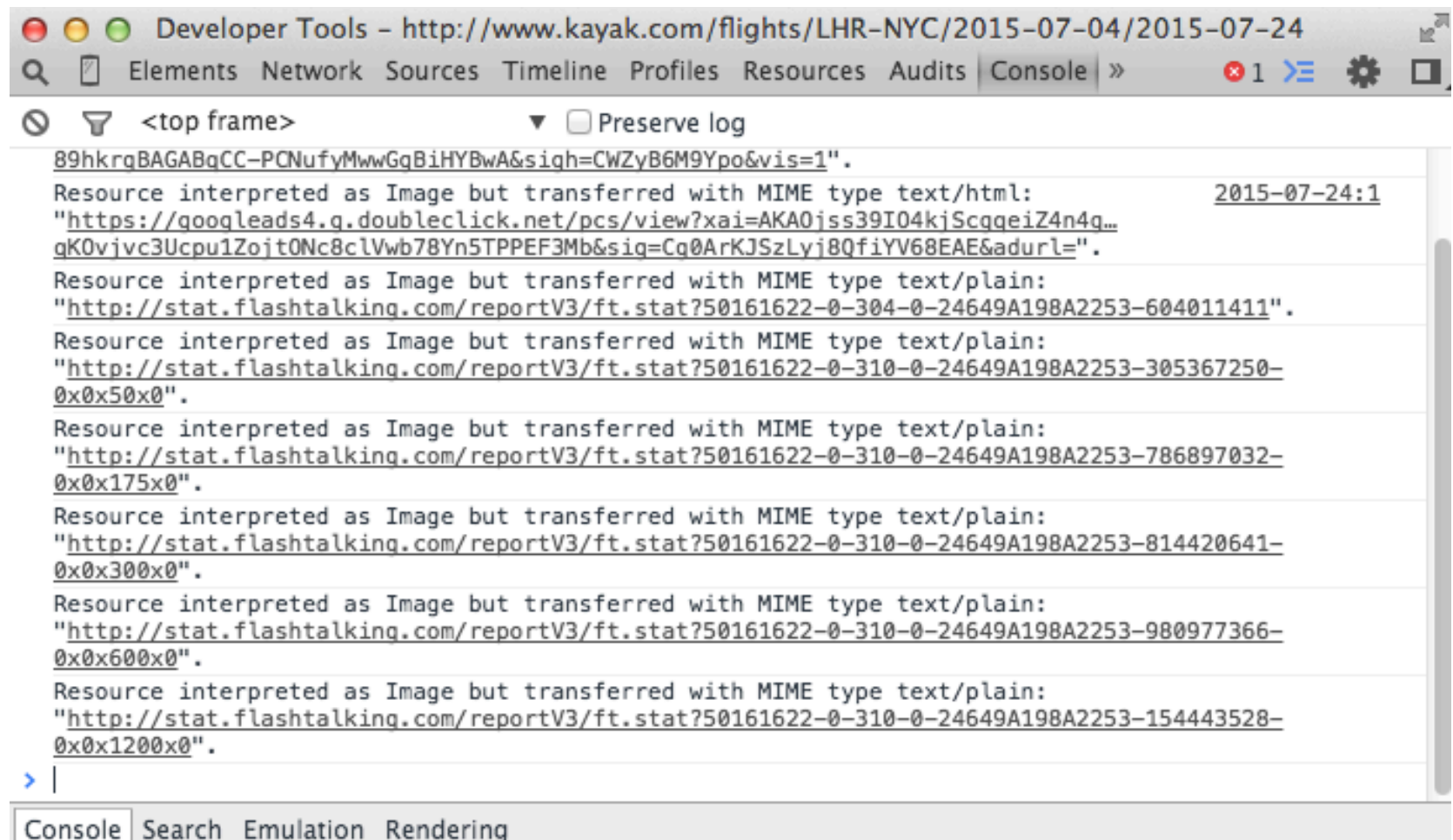- %O - Expandable JavaScript object

console.log
can format

```
Dr. Honeydew works as a Professor. Whole object: ▼Object ℹ
                                              assistant: "Beaker"
                                            ▶ birthDate: Tue Apr 18 1978 18:00:00 GMT-0600 (CST)
                                              firstName: "Bunsen"
                                              job: "Professor"
                                              lastName: "Honeydew"
                                              title: "Dr."
                                            ▶ __proto__: Object
```

All Browsers Tools Work Pretty Much Alike

- Let's see how Chrome works differently. This'll give us clues as to how the others work

Application shows memory storage

Like cookies, local & session storage

Debugging JavaScript

Find all JavaScript source under Sources

Click "pretty print" to de-minify the code.

Set breakpoints by clicking a line number

Read or edit variables

Continue

Step over

Step into

Step out

Developer Tools - https://www.kayak.com/flights/NYC-LHR/2017-07-04/2017-07-24

Elements   Console   Sources   Network   Timeline   Profiles   Application   Security   Audits »

Sources »

horizon.js?v=92…3ade:formatted × »

```
2142        this.questions[a] = b;
2143        d.question.answer(a, b)
2144  }
2145  );
2146  createComponentClass = function(a) {   a = "base.results
2147      if (3 === arguments.length && "object" === typeof arg
2148          var b = arguments[2];   b = undefined
2149          d.events.when(arguments[1], function(c) {
2150              f(a, b, c)   a = "base.results.Rail", b = unde
2151          })
2152      } else
2153          f.apply(this, arguments)   arguments = ["base.res
2154
2155
2156  define("R9.common.Component", e.extend({}, d.Component.
2157      parentClass: "BaseClass"
2158  )
2159  dow.R9, window.jQuery, window.base2.Base);
2160  ion(c, e) {
2161  publish("authentication", {
2162      url: "common/authentication/DialogContainer",
2163      formToken: null,
2164      userInfo: null,
2165      cached_params: null,
2166
```

Line 2147, Column 9

▶ Call Stack

▼ Scope

▼ Local
    a: "base.results.Rail"
  ▼ arguments: Arguments[2
      0: "base.results.Rail
    ▶ 1: Object
    ▶ callee: (a)
      length: 2
    ▶ Symbol(Symbol.iterato
    ▶ __proto__: Object
    b: undefined
  ▼ this: Object
    ▶ Admin: Object
    ▶ Analytics: Object
    ▶ Common: Object
    ▶ CompareTo: Object
    ▶ Component: [base2.Bas
    ▶ ComponentManager: Obj
    ▶ DatePicker: Object

top
www.kayak.co
    flights/NYC-
        2017-07-2
    kimg/logos
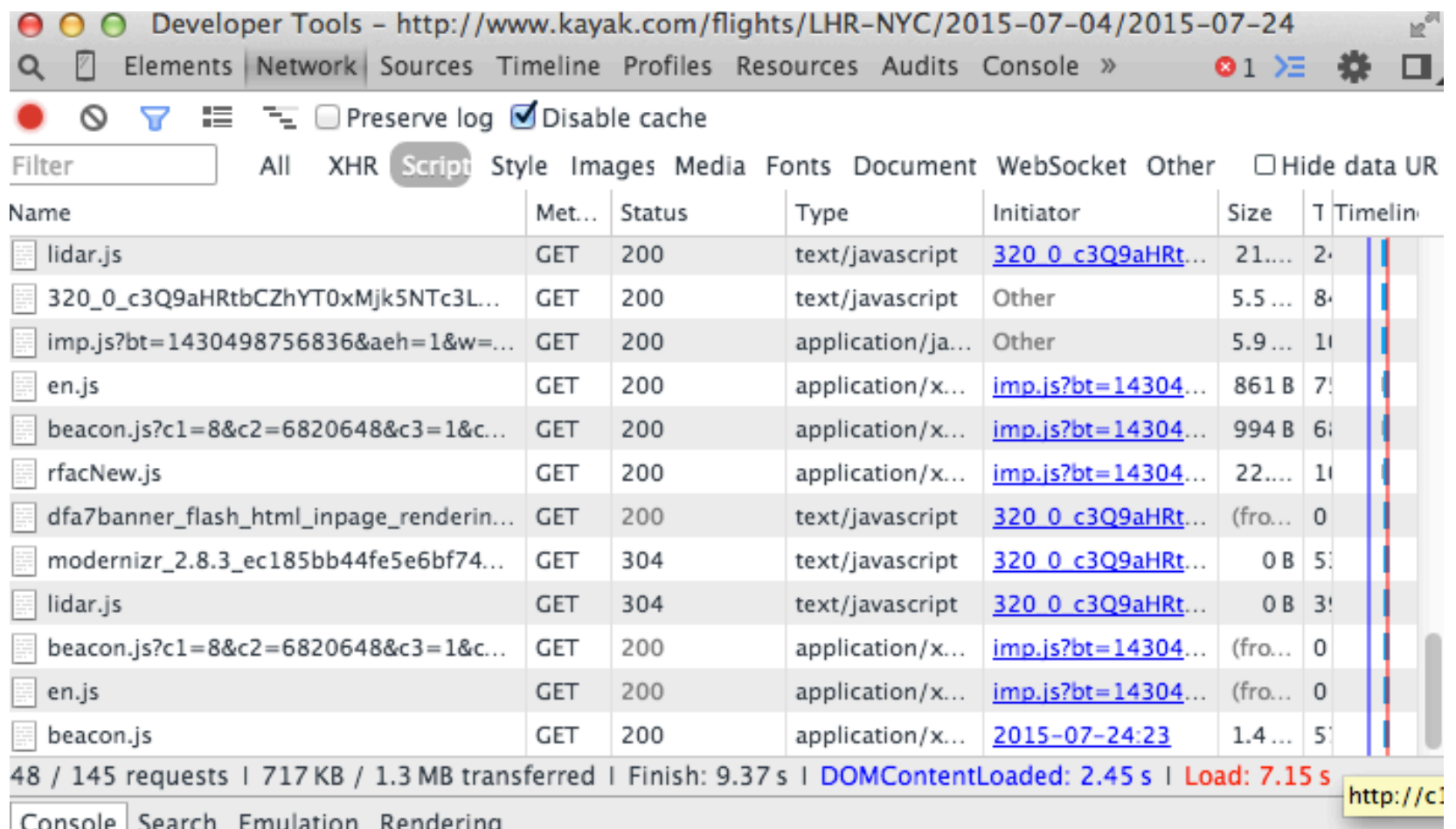   res
(no domain)
a1.r9cdn.net
Desktop

Timeline and Profiles are for performance

They allow watching the speed and memory usage of your page
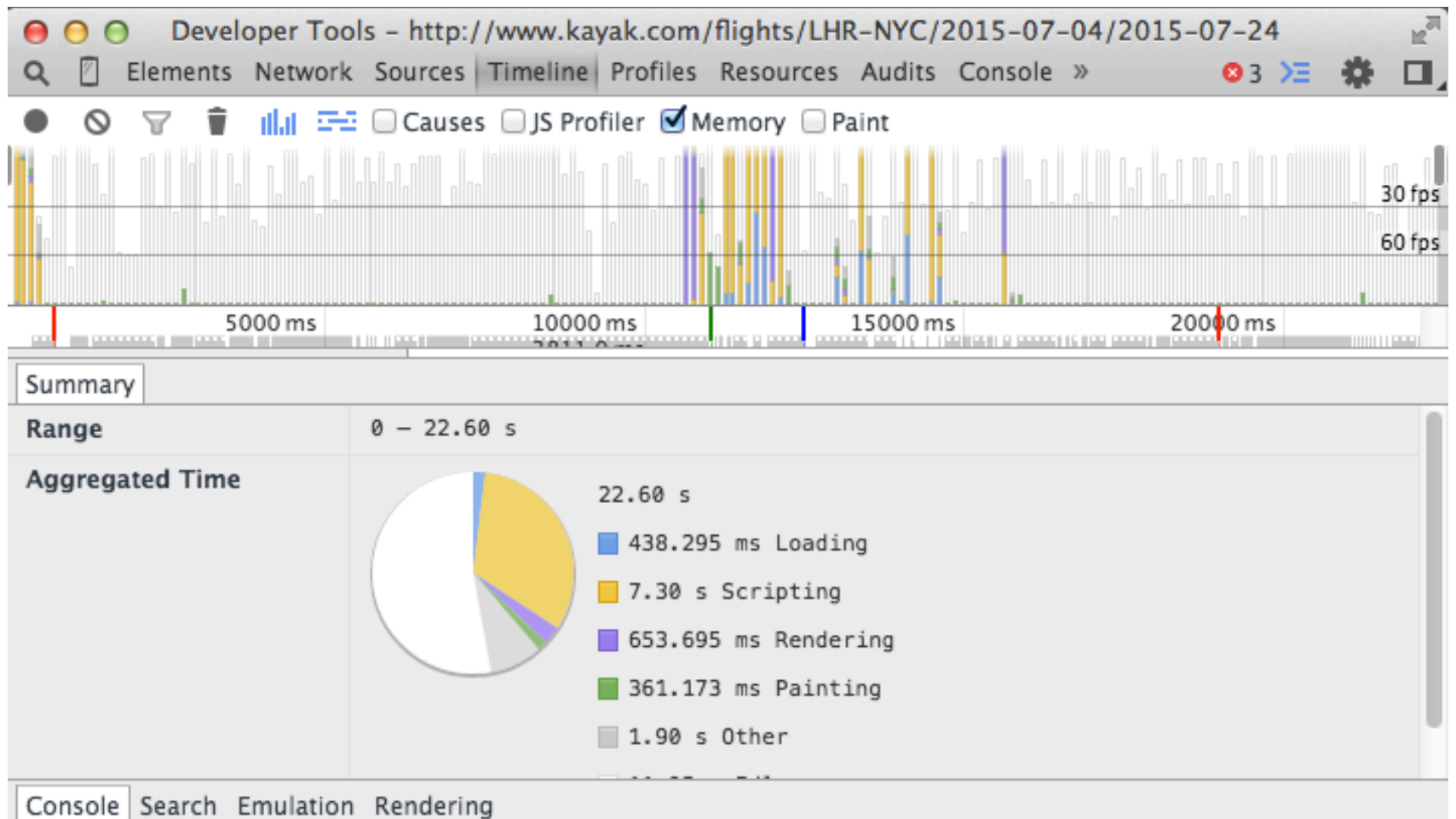
Examine traffic on the Network tab

Shows each resource requested, its HTTP method, result, type, and speed

Sometimes your files aren't re-read from the server. You can force it!

- In developer tools go ...
- Settings (gear)
- General
- Check "Disable cache (while DevTools is open)"
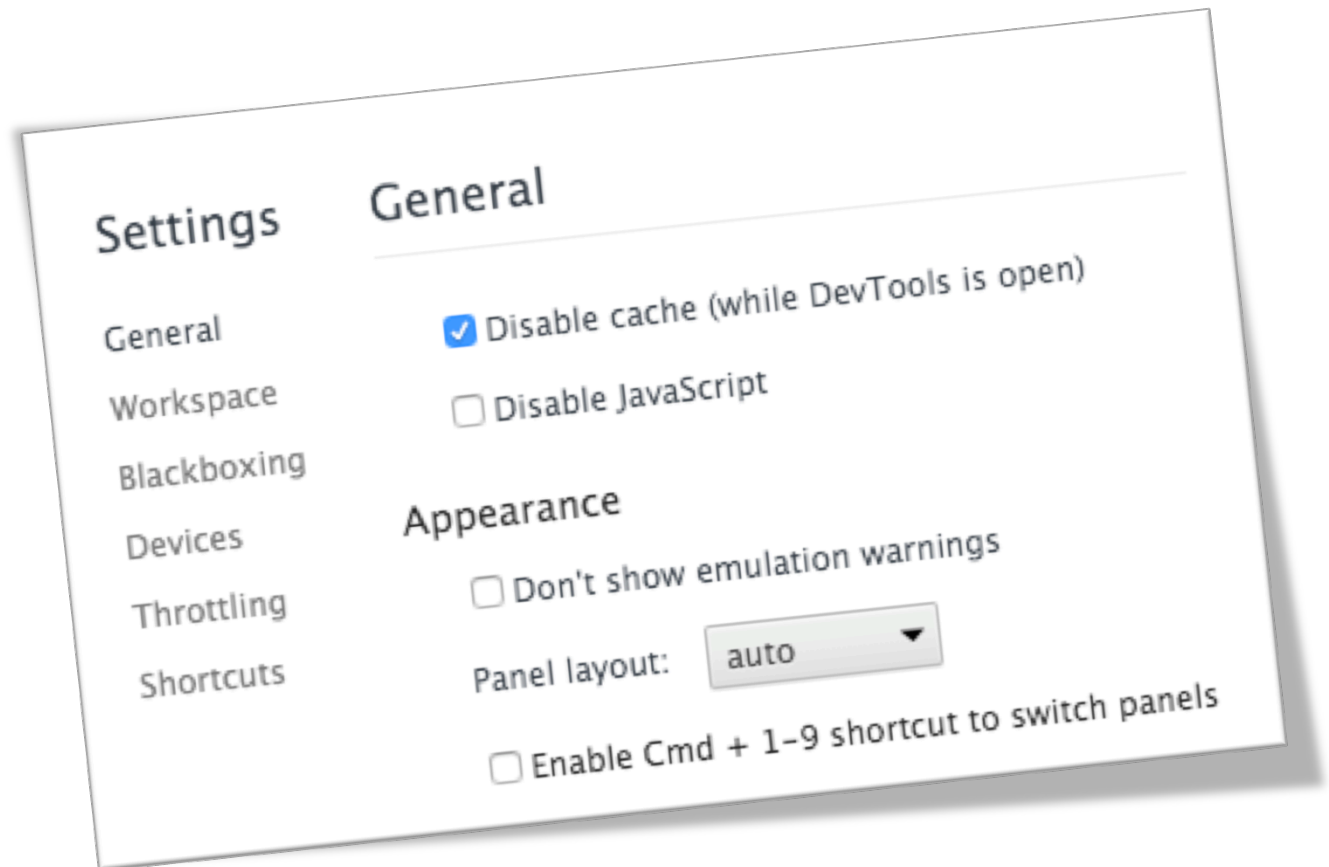
tl;dr

- JavaScript debugging <u>must</u> be done in the browser
- Firebug is available for Firefox
- All browsers have their own debugging tools
- Fortunately they all behave pretty much the same way and all have
  - DOM inspection
  - CSS debugging
  - JavaScript debugging
  - Network analysis