Inspecting the Developer Tools

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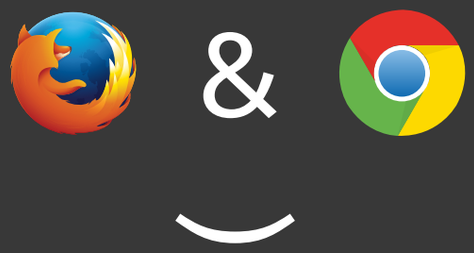


Code App, Level Up 3 / 04.03.2016 / The Faculty of Computer Science and Engineering, Skopje

About me

- UI design / front-end development / UX @ netcetera
- Member of Free Software Macedonia
- Part of the Front-End meet ups @ Hacklab KIKA in Skopje
- Part of the Macedonian Mozilla community

What's in this talk?

- Developer Tools - what and why?
- Overview of some of the Firefox and Chrome Developer Tools and their panels
- ... and what can we do with them to speed up our workflow
- ... or to learn how our page works

So what are the DevTools exactly?

Visual and on-demand tools that help you build and debug your webpage

DevTools give us control over the building blocks of every web page

What can we do with the DevTools?

- Manipulate the DOM tree
- Manipulate the CSS styles
- Debug JavaScript: find and fix errors
- Analyze performance - loading time of scripts
- Test the responsivity of a web page
- **Learn how our webpage works, so we can know how to make it better!**

Disclaimer: Automatic save-to-disk is not possible

- ...unless we set up some kind of authoring and saving tools
- Firefox: Scratchpad, Style Editor etc for writing.
  Add-ons for saving: Firediff and others.
- Chrome: Enabling Workspaces

A bit of history

- 2001 - Netscape Navigator 7 had a JavaScript debugger called Venkman. It couldn't inspect the DOM or show network traffic.
- 2005 - Microsoft Issues IE Developer Toolbar in 2005. DOM inspector and styles
- 2006 - Firebug for Mozilla Firefox - second generation of devtools: has DOM and styles inspector and JavaScript console and debugger
- A few years later Google Chrome and its Developer Tools came around

Finding the devtools in the browser

Right-click menu (context menu) and choose the options:
Inspect Element, or just Inspect

Shortcuts: **F12, ctrl+shift+i**
cmd instead of ctrl for Mac users

The DOM tree

On the GUI:

1. First panel: “Inspector” on FF, “Elements” on Chrome
2. Easy to see on which element I am focused on
3. HTML breadcrumbs
4. Searching for nodes in the HTML tree (ctrl+f)
5. Simulate mobile devices (ctrl+shift+m on both browsers)
6. 3D View on Firefox

Actions:

Edit the DOM: add and delete nodes, change text and attributes

Chrome

2. 5. 1.

Elements Console Sources Network Timeline Profiles Resources Security Audits

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
▶ <head profile="http://gmpg.org/xfn/11">…</head>
▼ <body cz-shortcut-listen="true">
  ▶ <script type="text/javascript">…</script>
… ▶ <div id="wrapper">…</div>
  ▶ <div id="sk2-footer" style="color:#FFF; background-color:#444;
  padding: 3px 2px 3px 2px; border-top: #888 solid 1px;">…</div>
    <script src="http://www.google-analytics.com/urchin.js" type=
    "text/javascript">
    </script>
    <script type="text/javascript">
    _uacct = "UA-3586722-1";
    urchinTracker();
    </script>
    <div id="overlay" style="display: none;"></div>
  ▶ <div id="lightbox" style="display: none;">…</div>
  </body>
</html>
```

Styles Computed Event Listeners DOM Breakpoints Properties

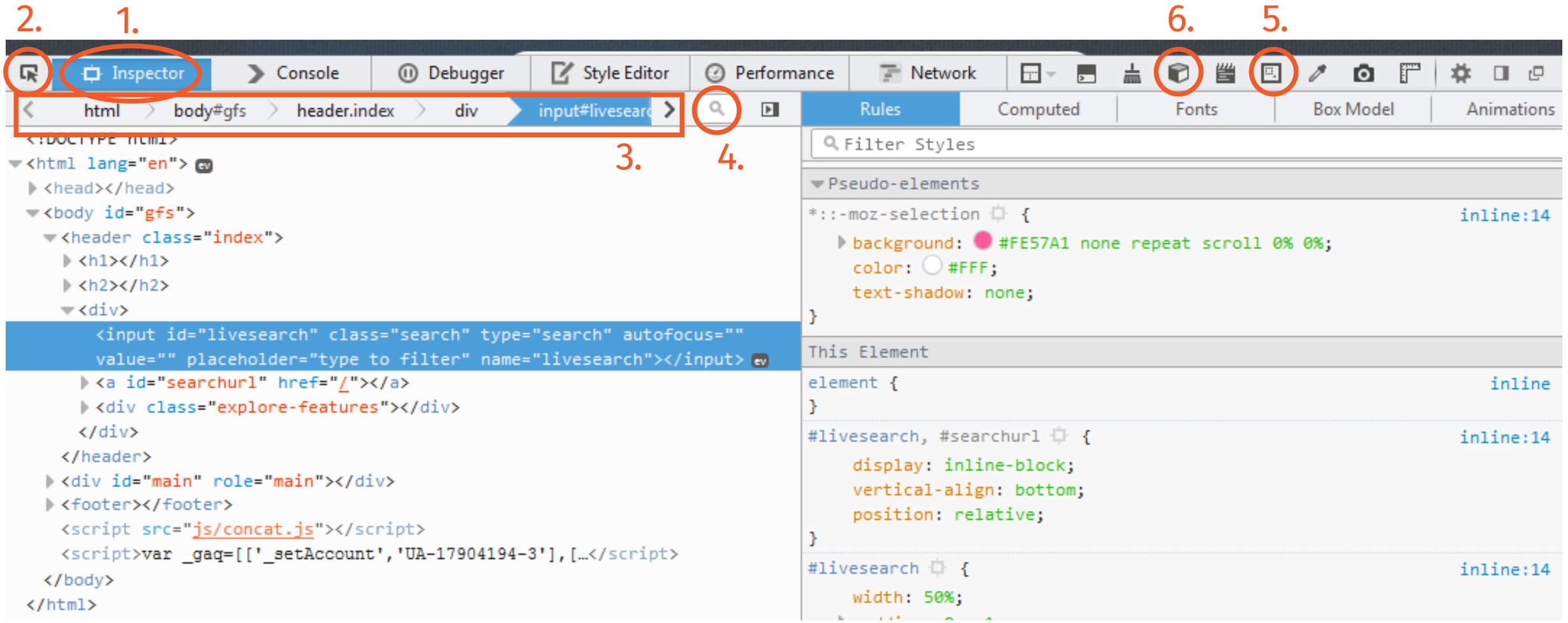
Filter

```
element.style {
}

media="screen"                                  www.softwareishard.com/
#wrapper {                                      style.css:30
   margin:▶0 auto;
   text-align: left;
   width: 760px;
   background:▶ #FFFFFF;
   font-size: 0.9em;
   line-height: 1.6em;
   padding:▶20px 10px 0 10px;
}

media="screen"                                  www.softwareishard.com/
* {                                             style.css:9
   padding:▶0;
   margin:▶0;
}

div {                                           user agent stylesheet
   display: block;
}

Inherited from body

media="screen"                                  www.softwareishard.com/
body {                                          style.css:10
   padding:▶0px;
   text-align: left;
   font-family: Verdana, Geneva, Arial, Helvetica, sans-
      serif;
   font-size: small;
   color: #222222;
   line-height: 150%;
   background:▶ #4A525A;
   background-color: #fff;
}
```

3.

html body div#wrapper

Firefox


2.
1.
6.
5.
Inspector
Console
Debugger
Style Editor
Performance
Network
html
body#gfs
header.index
div
input#livesearc
3.
4.
Rules
Computed
Fonts
Box Model
Animations
Filter Styles
<!DOCTYPE html>
<html lang="en">
<head></head>
<body id="gfs">
<header class="index">
<h1></h1>
<h2></h2>

<input id="livesearch" class="search" type="search" autofocus=""
value="" placeholder="type to filter" name="livesearch"></input>

</header>

<footer></footer>
<script src="js/concat.js"></script>
<script>var _gaq=[['_setAccount','UA-17904194-3'],[…</script>
</body>
</html>
Pseudo-elements
*::-moz-selection {
inline:14
background: #FE57A1 none repeat scroll 0% 0%;
color: #FFF;
text-shadow: none;
}
This Element
element {
inline
}
#livesearch, #searchurl {
inline:14
display: inline-block;
vertical-align: bottom;
position: relative;
}
#livesearch {
inline:14
width: 50%;

CSS Modification

- Inspect styles applied to an element
- Understanding how cascading and inheritance works
- Editing CSS / Designing in the browser
- Ctrl+click on a color value and that will take you to the file where it is defined

Rules | Computed | Fonts | Box Model | Animations

Filter Styles

```
element {                                                    inline
}
#ghx-header h2 {                                             batch.css:88
  color: #333;
  font-size: 20px;
  font-weight: normal;
  line-height: 1.5;
  margin: 0px;
  word-wrap: break-word;
}
h1:first-child, h2:first-child, h3:first-child, h4:first-    batch.css:23
child, h5:first-child, h6:first-child {
    margin-top: 0px;
}
p:first-child, ul:first-child, ol:first-child, dl:first-
child, h1:first-child, h2:first-child, h3:first-child,
h4:first-child, h5:first-child, h6:first-child, blockquote:
pre:first-child, form.aui:first-child, table.aui:first-chil
.aui-tabs:first-child, .aui-panel:first-child, .aui-group:f
{
    margin-top: 0px;
```

Firefox

Rules | Computed | Fonts | Box Model | Animations

Filter Styles | Browser styles

color	#333
font-family	Arial,sans-serif
font-size	20px
font-weight	400
line-height	30px
margin-bottom	0px
margin-left	0px
margin-right	0px
margin-top	0px
padding-bottom	0px
padding-left	0px
padding-right	0px
padding-top	0px
text-transform	none
word-wrap	break-word

Styles | Computed | Event Listeners | DOM Breakpoints | Properties

Filter

```
element.style {
}
.index>div {                                              (index):14
   padding:▶2rem 0;
}
* {                                                       (index):14
   -moz-box-sizing: border-box;
   -webkit-box-sizing: border-box;
   box-sizing: border-box;
}
div {                                          user agent stylesheet
   display: block;
}
```

Inherited from `header.index`

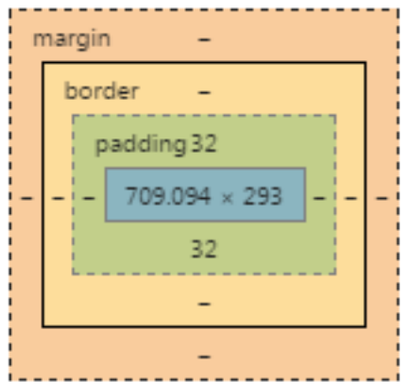
```
.index {                                                  (index):14
   text-shadow: 1px 1px 1px #0c0d0d;
}
.index, .text-center {                                    (index):14
   text-align: center;
}
```

Inherited from `body#gfs`

```
body, button, input, select, textarea {                   (index):14
   font-family: sans-serif;
   color: #e3d7bf;
```

Chrome

Styles | Computed | Event Listeners | DOM Breakpoints | Properties



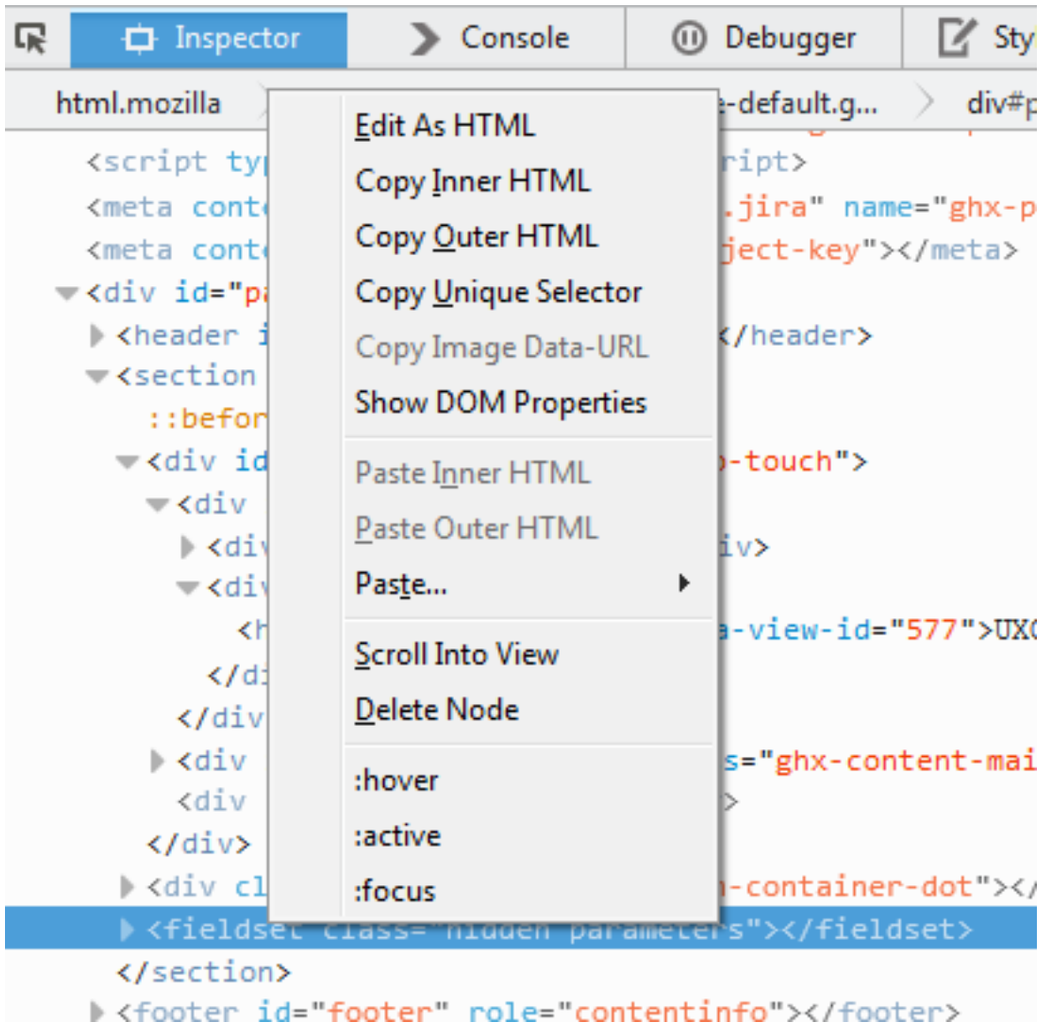
Filter — Show all

box-sizing	border-box
color	rgb(227, 215, 191)
display	block
font-family	sans-serif
font-size	16px
font-style	normal
font-variant	normal
font-weight	normal
height	357px
line-height	24px
padding-bottom	32px
padding-left	0px
padding-right	0px
padding-top	32px
text-align	center

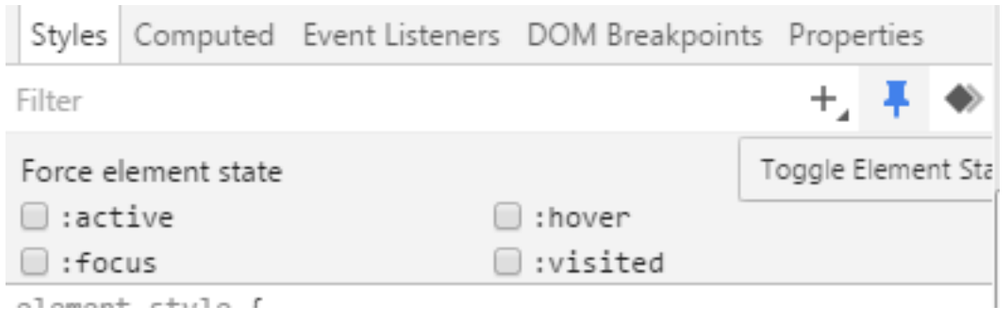
CSS Modification

Pseudo classes

Firefox



Chrome



CSS Modification

The preprocessor workflow - Experimental in Chrome, but by default it shows the file names where the style comes from

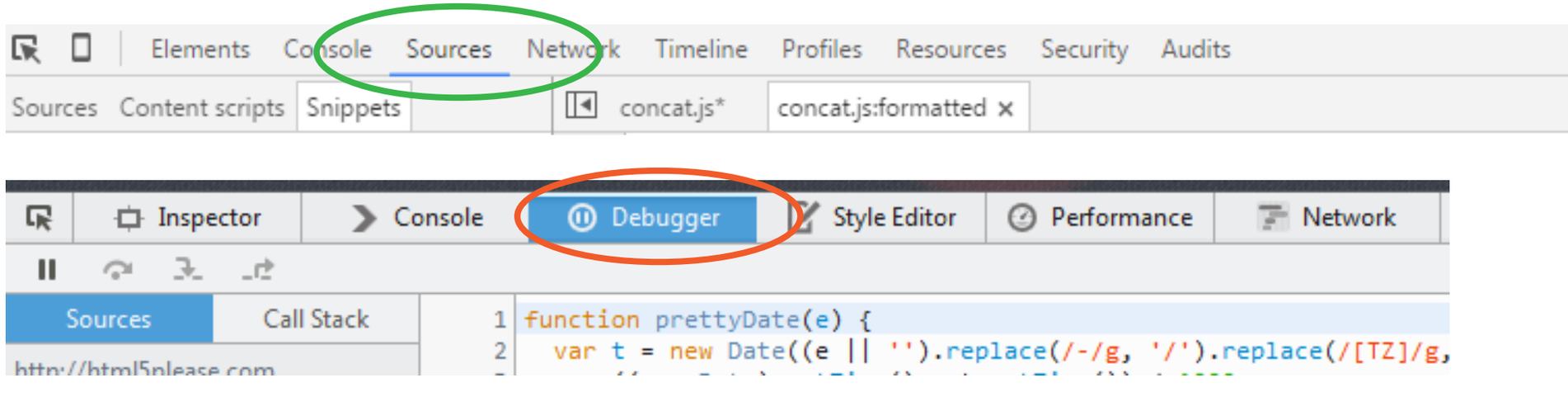
Chrome

Debugging scripts

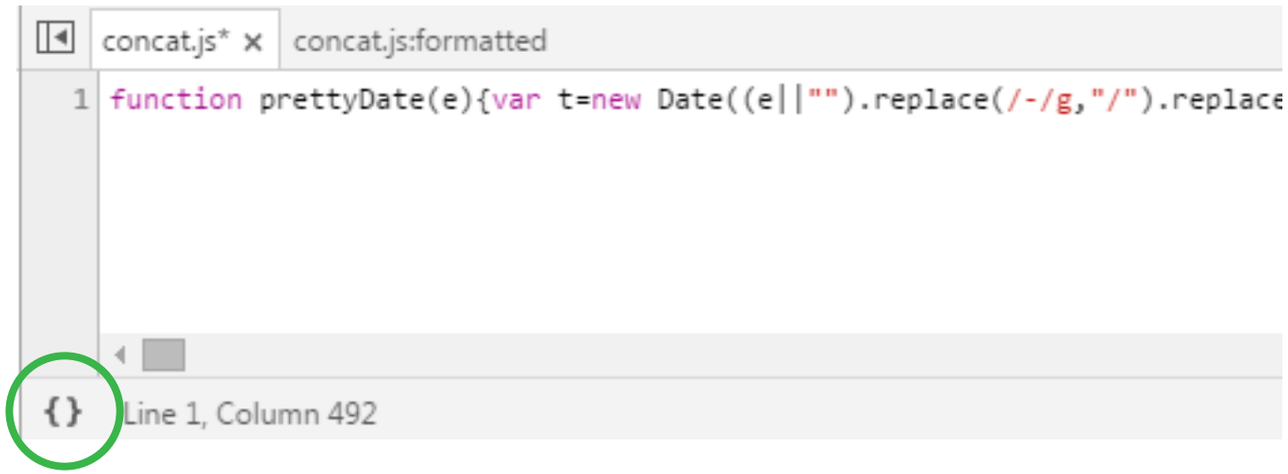
- Debugging stands for finding and fixing logic in our code.
- Pause running JavaScript at various points so you can determine its progress or examine its variable values.
- no need to use brute force alerts like: alert("ok so far");

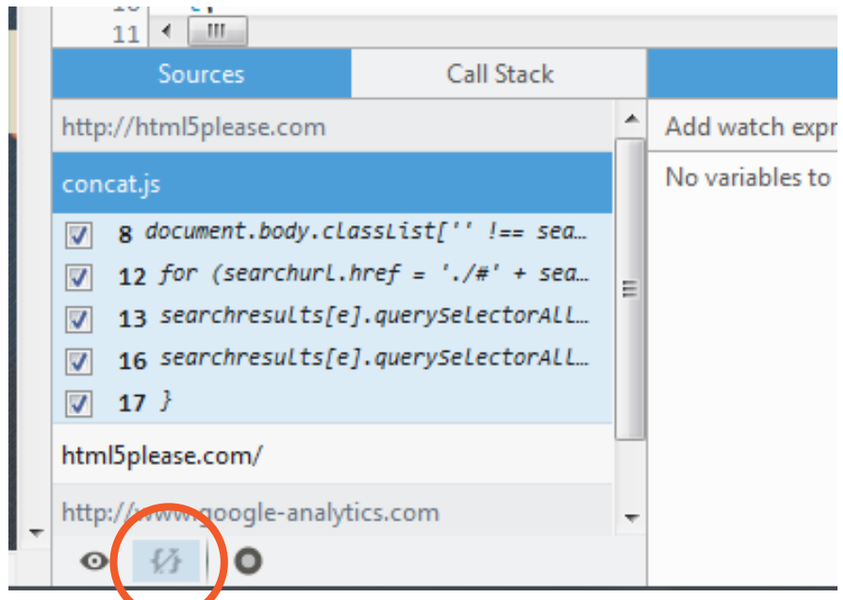
JS in the DevTools

Sources tab in Chrome and Debugger tab in FF



Prettify the JS





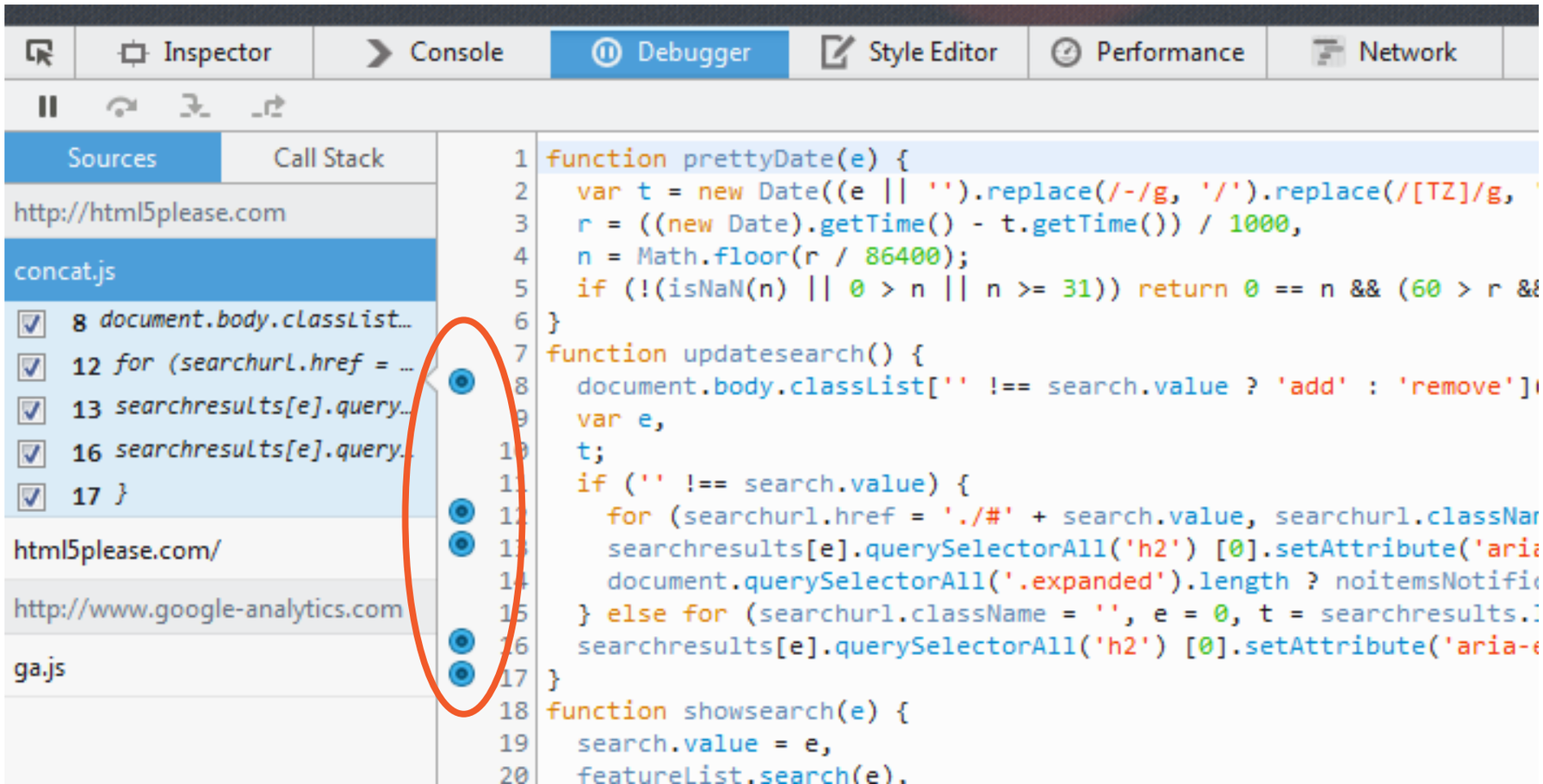
Breakpoints: Quintessential feature of debuggers

1. Find the line of source you want to investigate

2. Set a breakpoint

3. Run the program

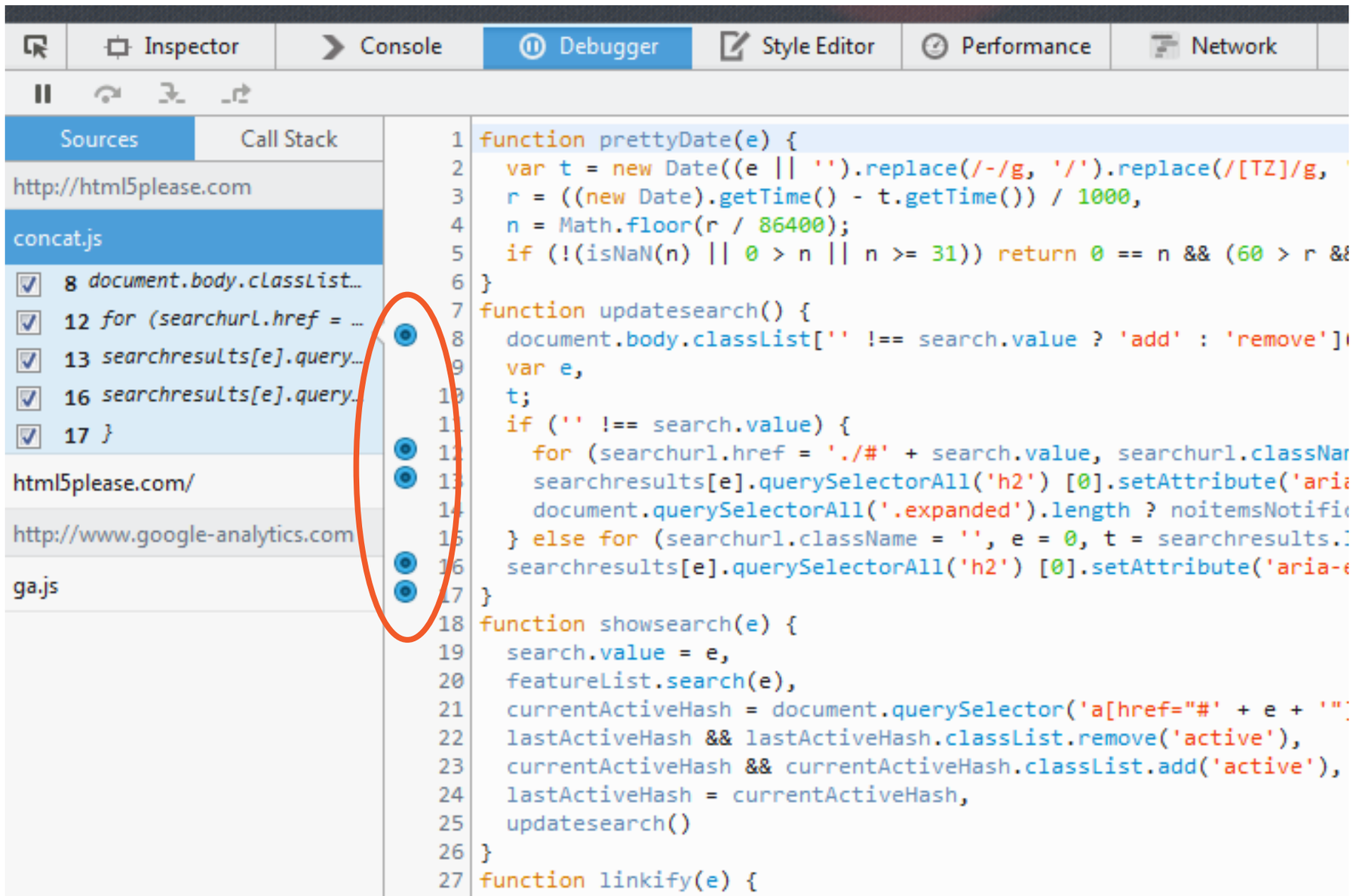
4. Debugger stops the execution at that point, you poke around



Types of breakpoints and how to use them

- Locate a specific method with ctrl+shift+o in Chrome / ctrl + d in FF
- Add breakpoint in the JS (or debugging inside-out)

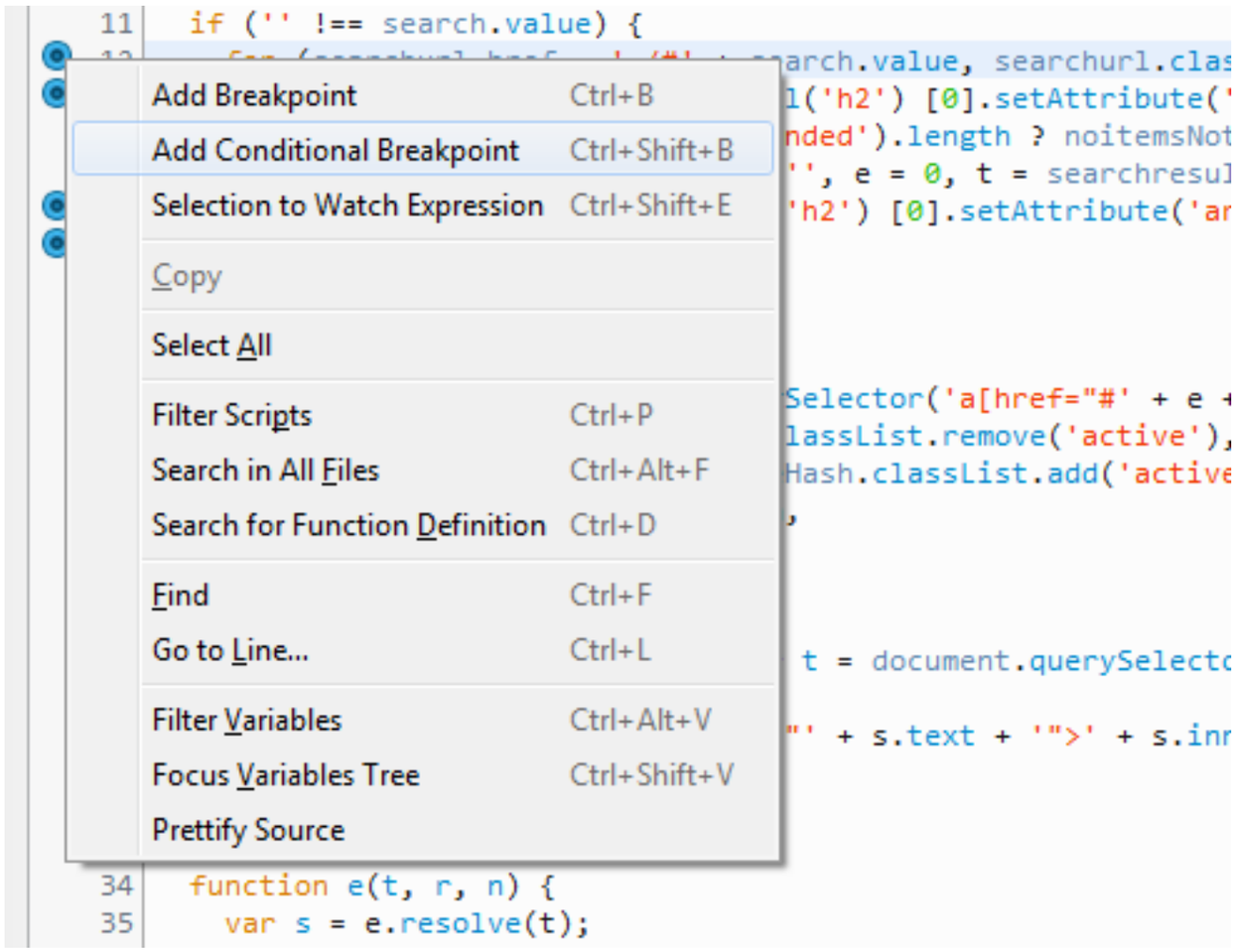
Firefox



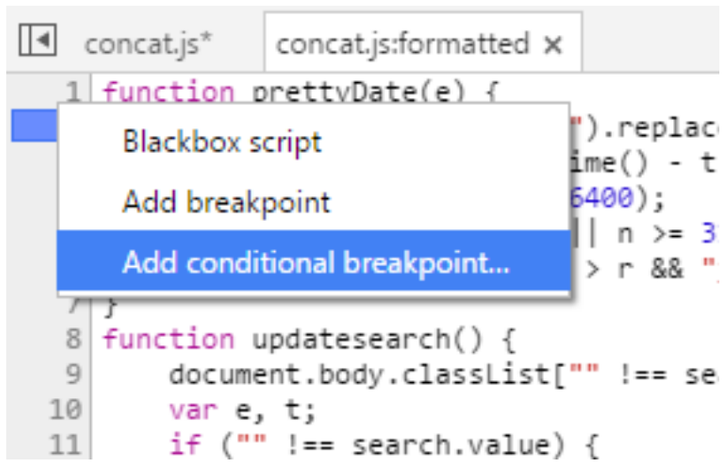
Types of breakpoints and how to use them

Add conditional breakpoint

Firefox



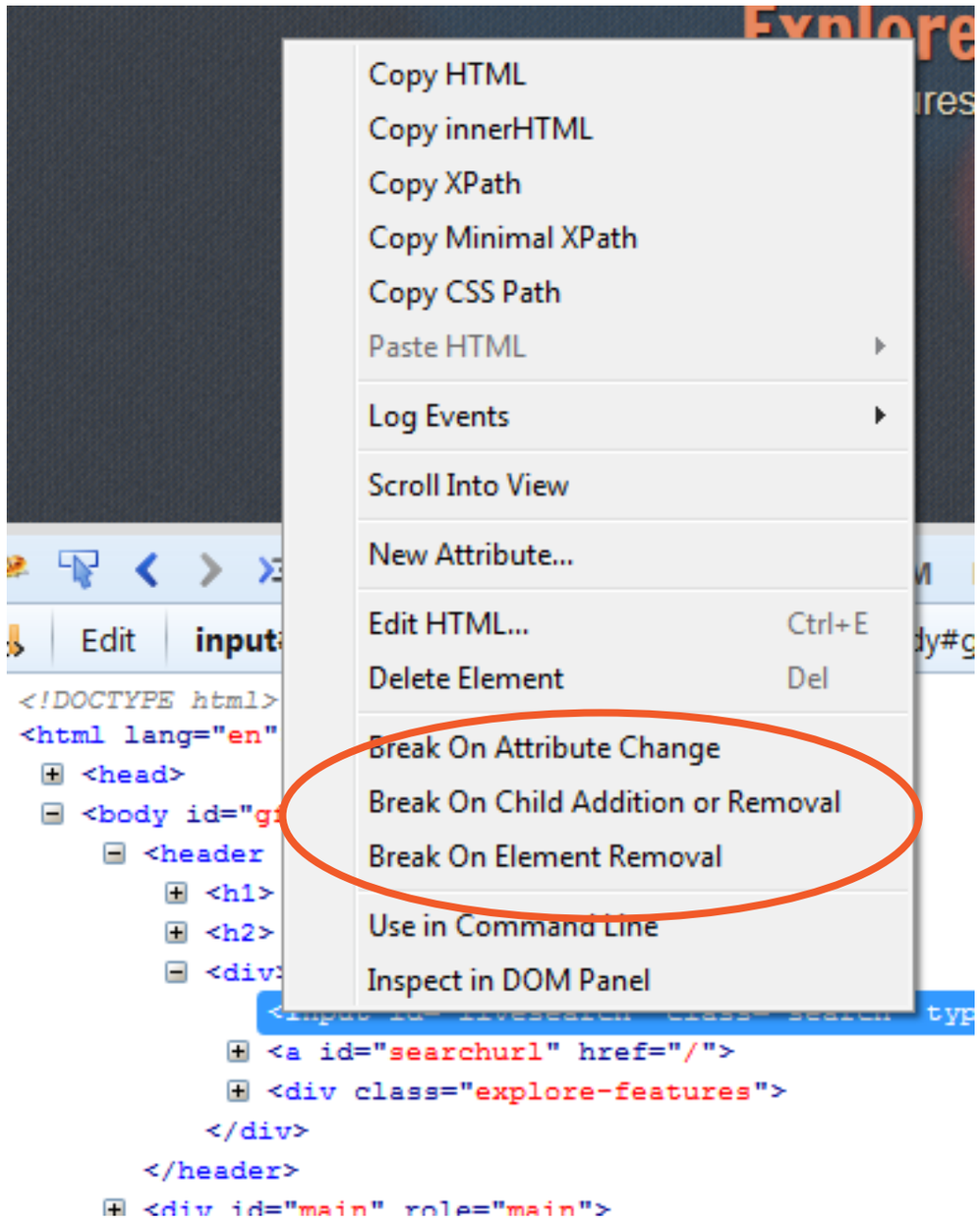
Chrome



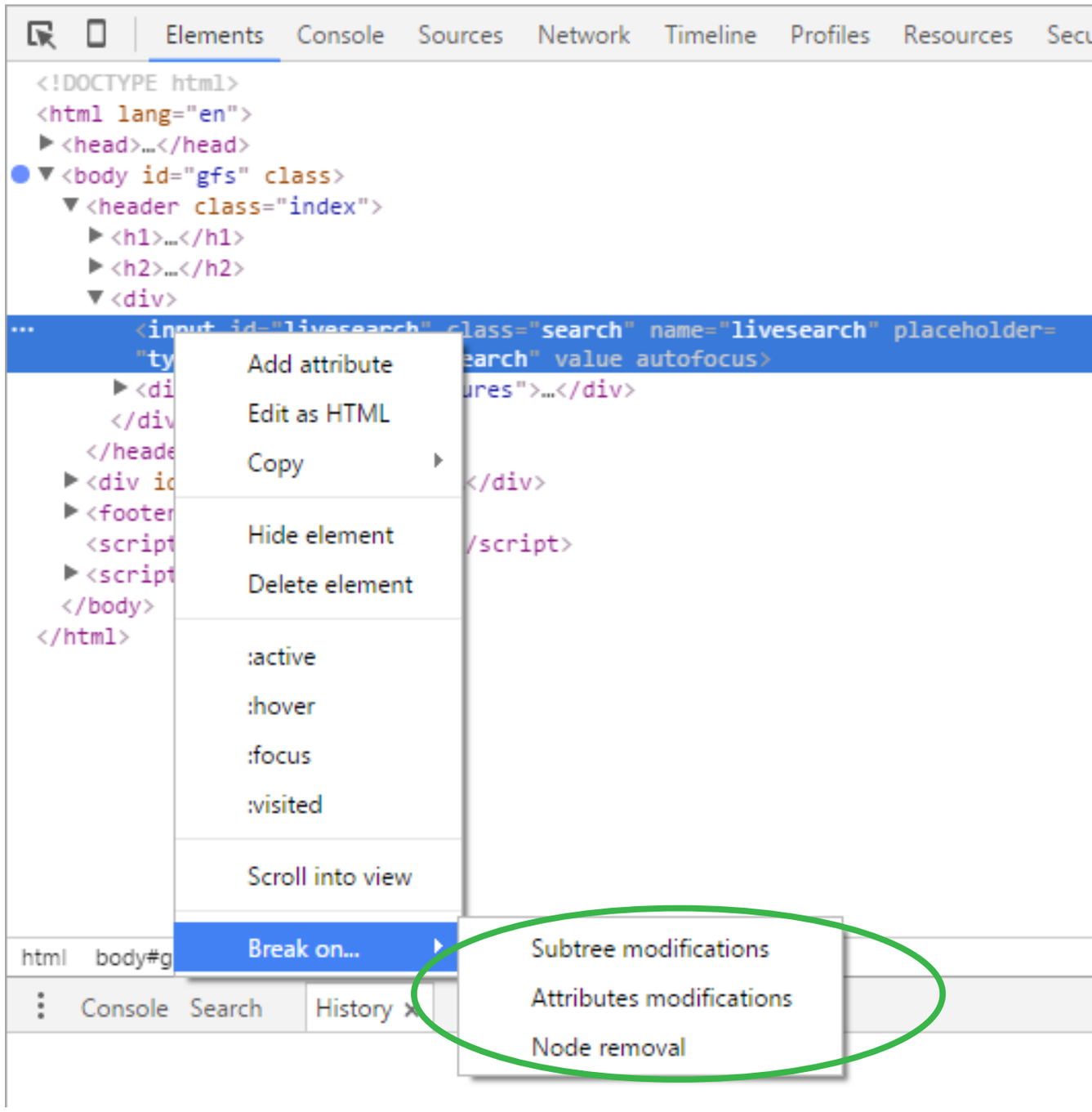
Types of breakpoints and how to use them

Add DOM breakpoint (or debugging outside-in)

Firefox

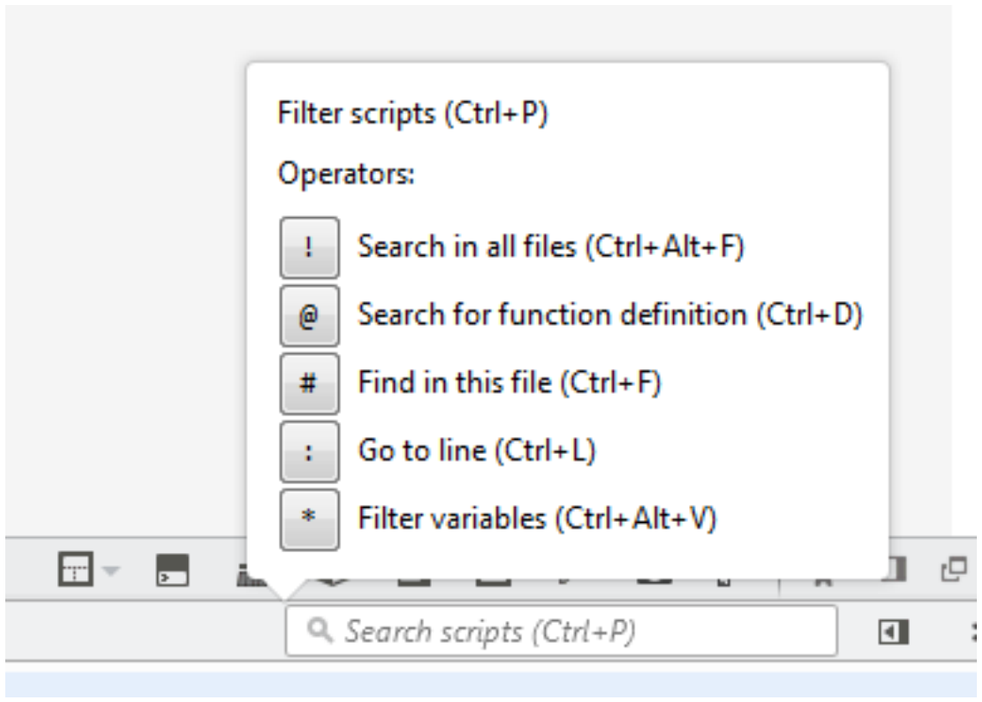


Chrome



Shortcuts

Firefox



Chrome

Ctrl+o gives the list of files that are available for that particular project (also css)

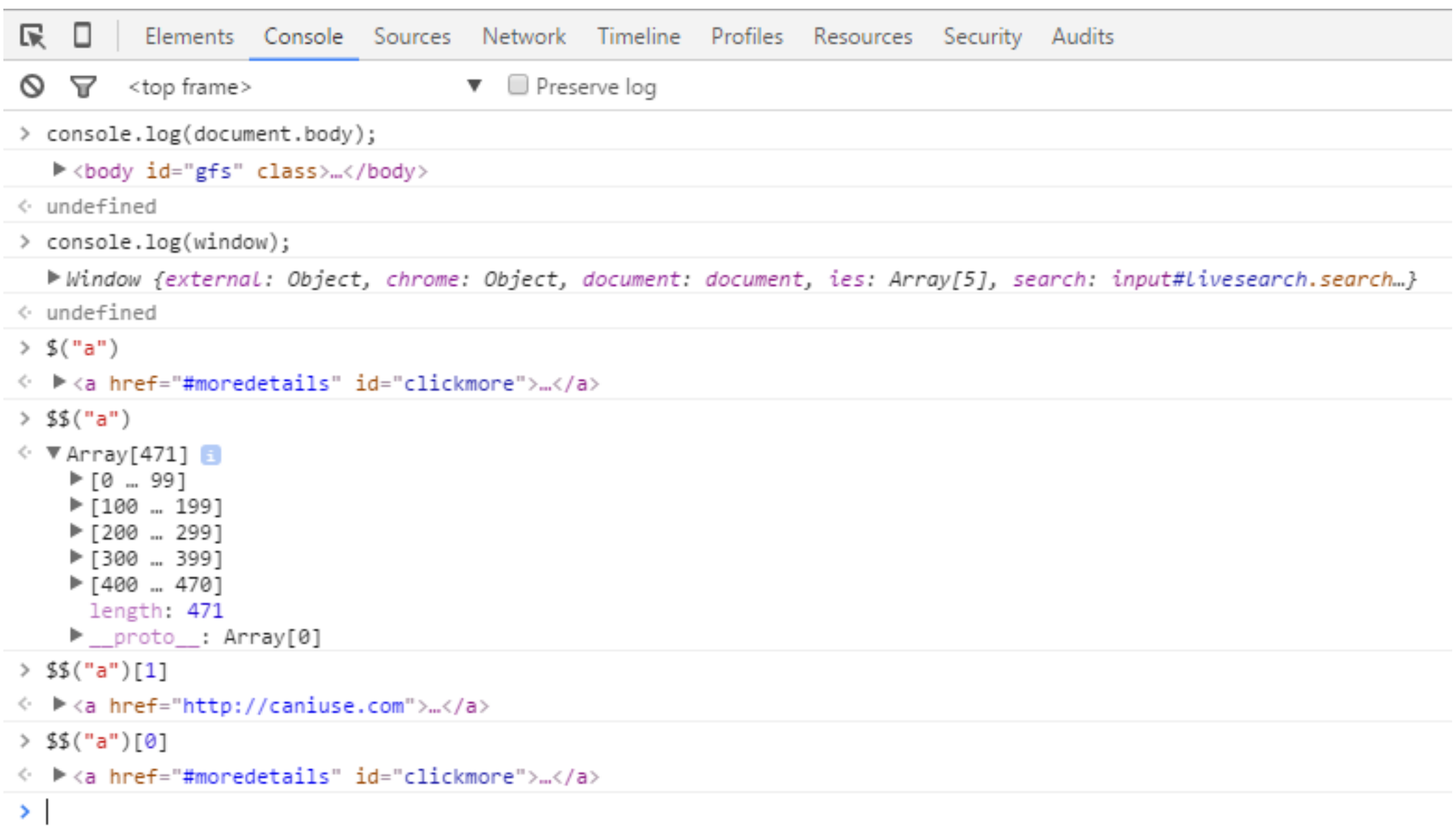
Ctrl+l go to line

Ctrl+f= searches for every instance o f a method or variable name

Using the console

Console lets you use standard JavaScript statements and Console-specific commands while a page is live in the browser to help you debug the page.

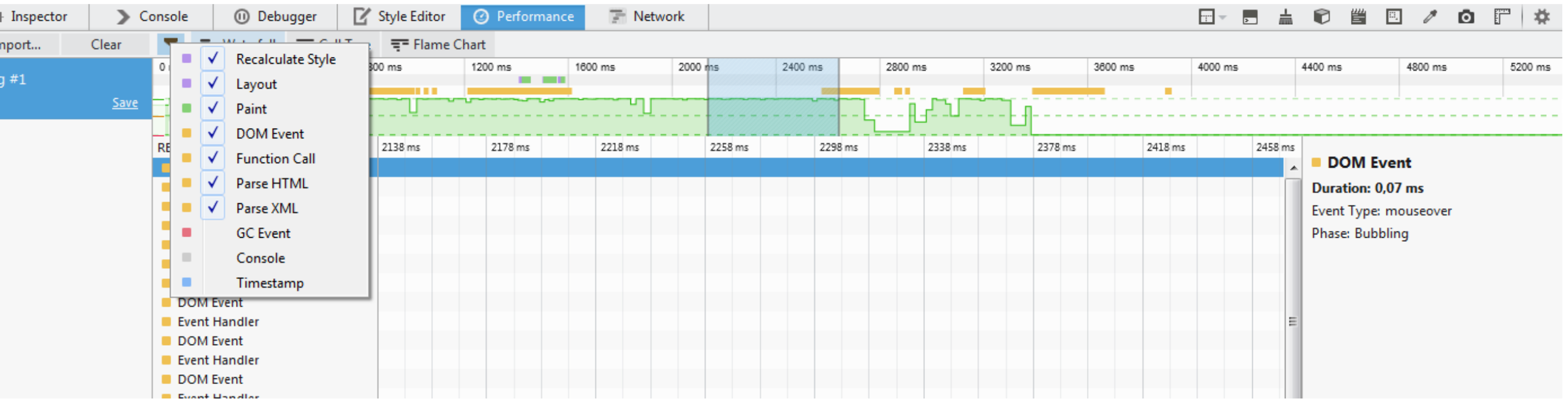
Chrome



Performance

Every marker in the timeline represents the type of work a browser is doing at a particular point of time

Firefox



Styling and layout

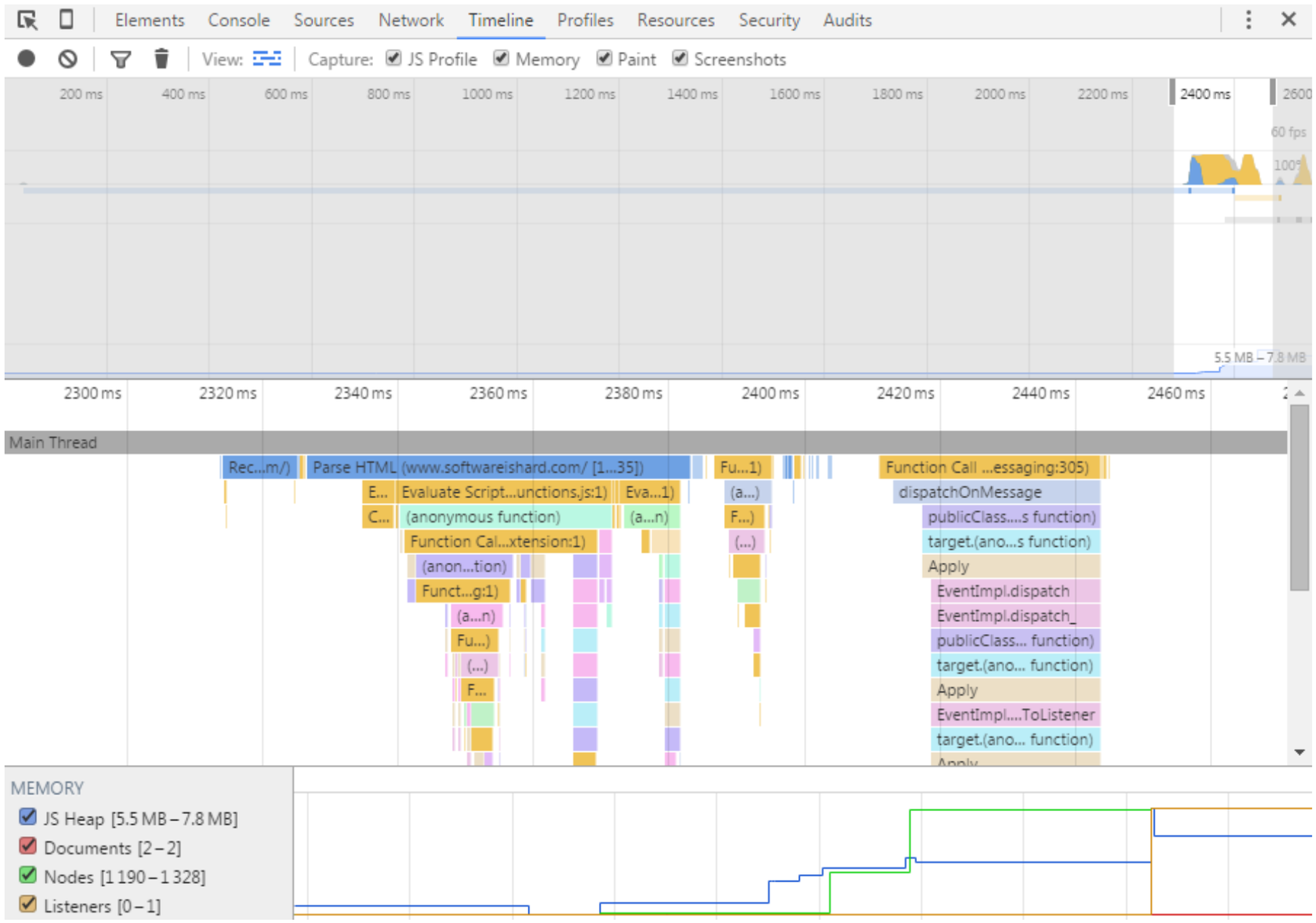
Actual painting on the screen

Computation, typically JS

Performance

Every marker in the timeline represents the type of work a browser is doing at a particular point of time

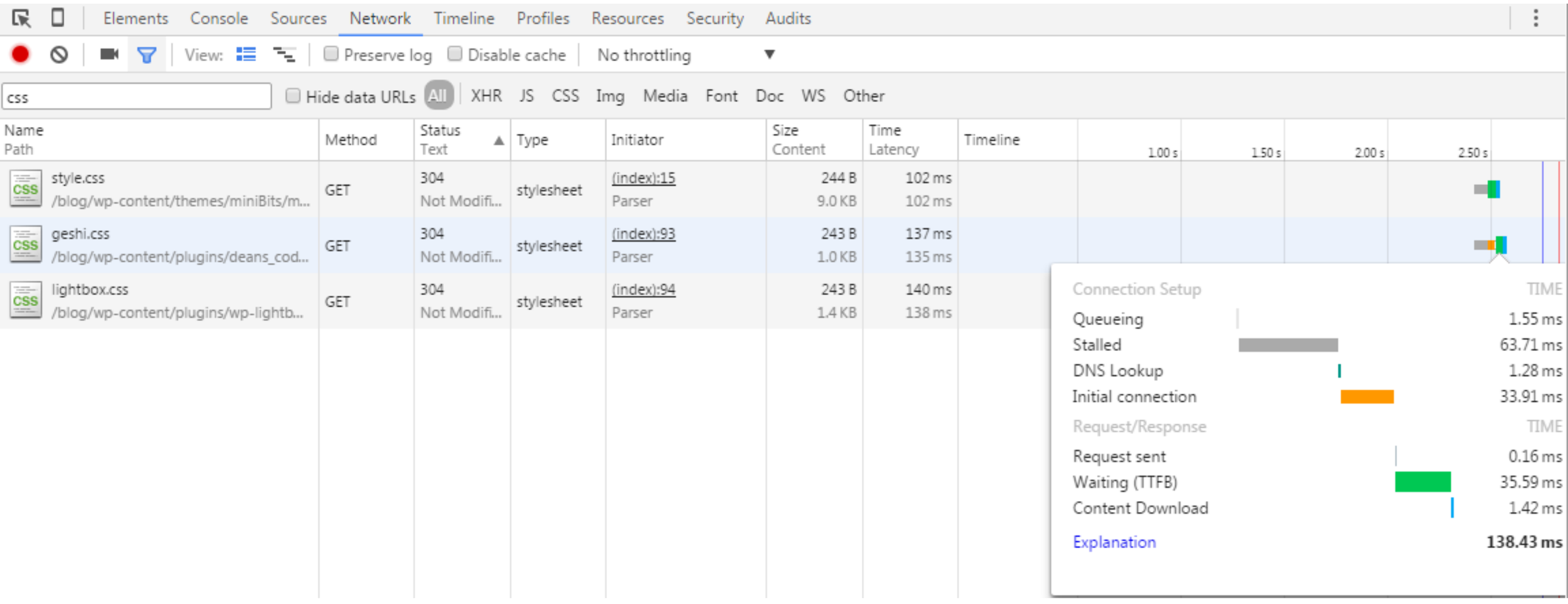
Chrome



Network

Record + Details View
Check the request method types
Analyse response headers
Filter and search for particular resource and analyze its performance

Chrome



Network

Record + Details View
Check the request method types
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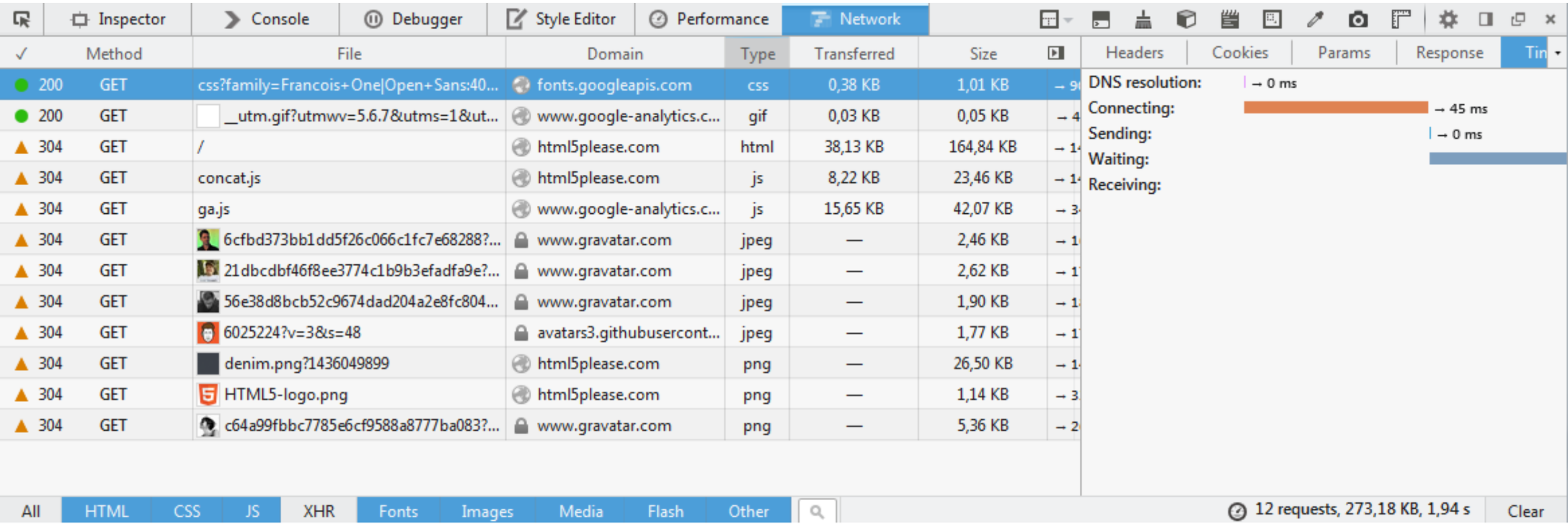
Filter and search for particular resource and analyze its performance

Firefox



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