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Google Chrome Developer Tools

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Agenda

- What is Chrome Developer Tools?
- Project history
- Developer Tools overview
- Story 1: Debugging JavaScript
- Story 2: Identifying performance issues
- Story 3: Understanding memory usage
- Developer Tools internal design
- Links & How to contribute
- Q&A

What is Chrome Developer Tools?




- It is to Chrome what Firebug is to Firefox
- It is not a Firebug port for Chrome though
- It is a part of standard Chrome distribution
- It is WebKit Web Inspector, working on top of V8 JavaScript engine in the Chrome multi-process architecture

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Project history









Chrome v1

-  **Elements**
-  **Resources**
-  **Console**










Chrome v3

-  Elements
-  Resources
-  Console
-  **Scripts**
-  **CPU Profiler**

Chrome v4

-  Elements
-  Resources
-  Console
-  Scripts
-  CPU Profiler
-  **Timeline**
-  **Heap Profiler**
-  **Storage**

Chrome v5 (Beta)

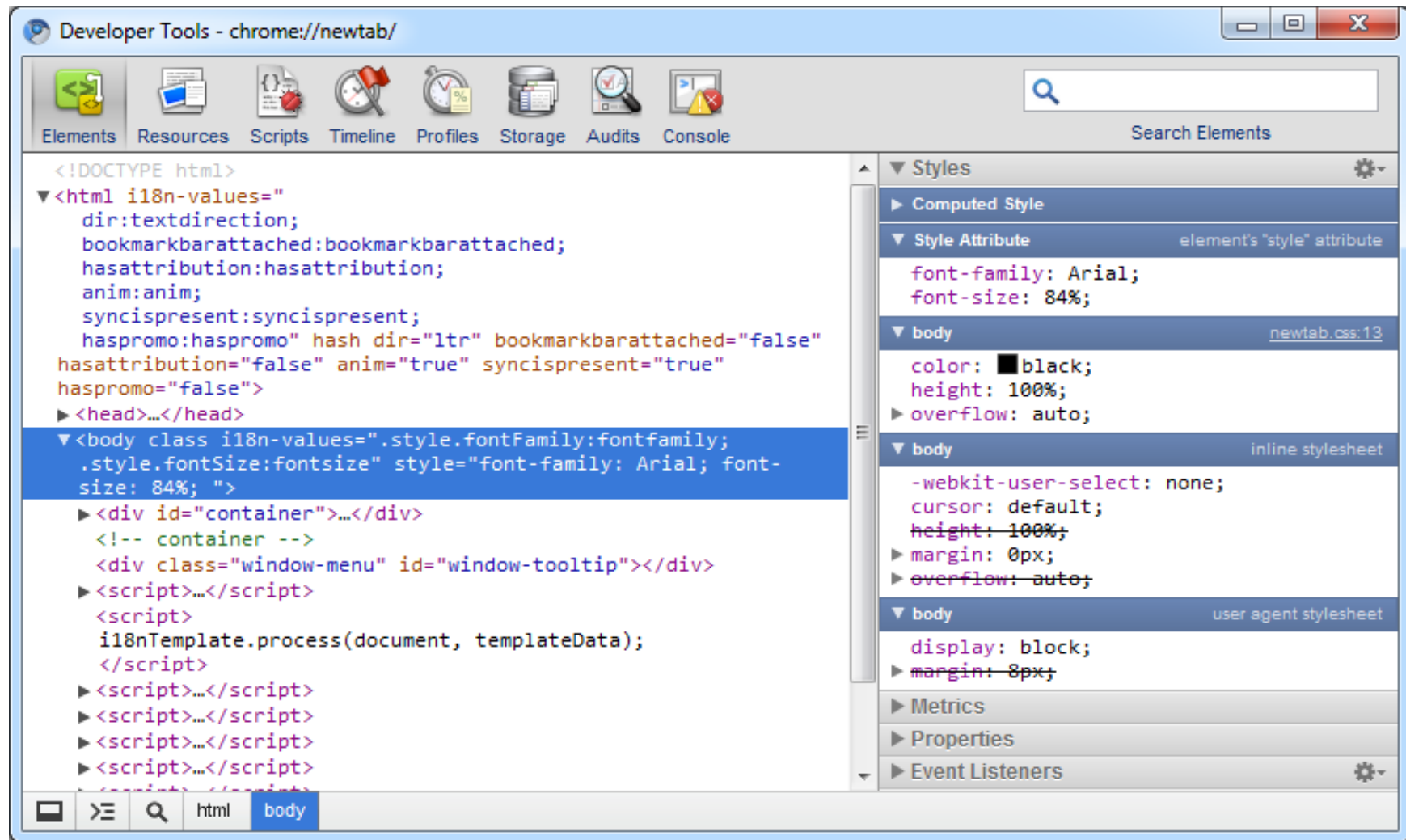
-  Elements
-  Resources
-  Console
-  Scripts
-  CPU Profiler
-  Timeline
-  Heap Profiler
-  Storage
-  **Audits**

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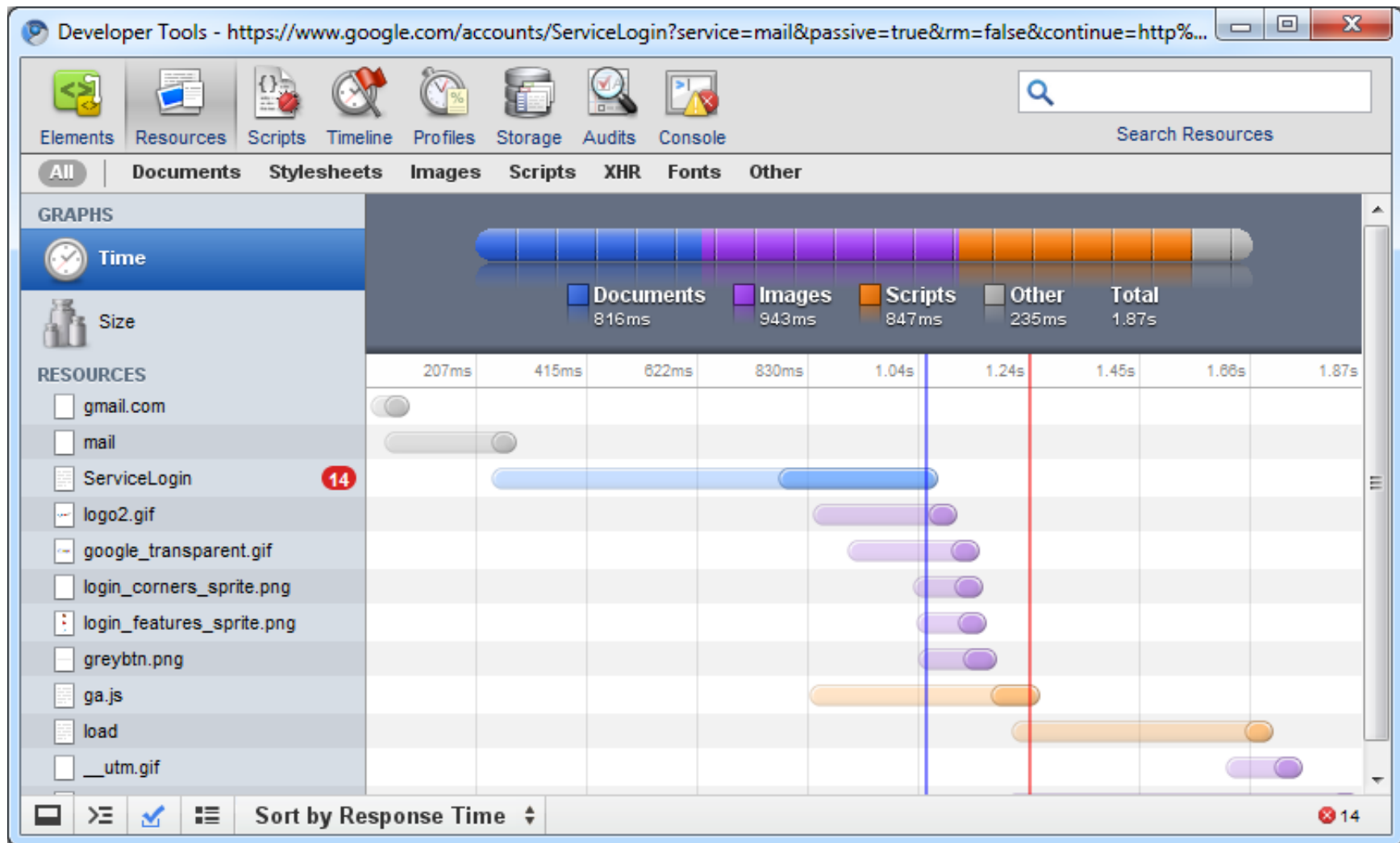
Developer Tools overview

Elements Panel



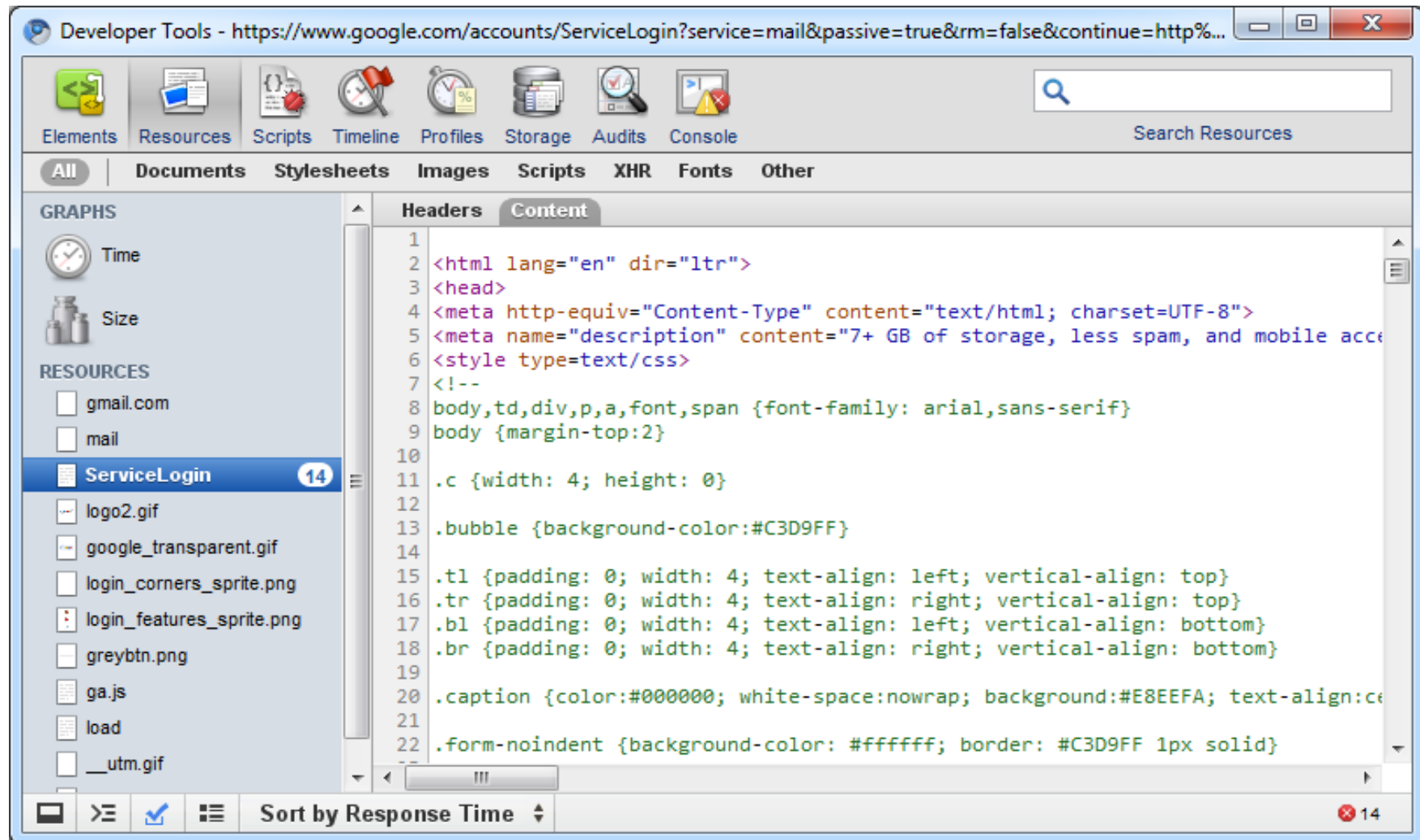
Developer Tools overview

Resources Panel



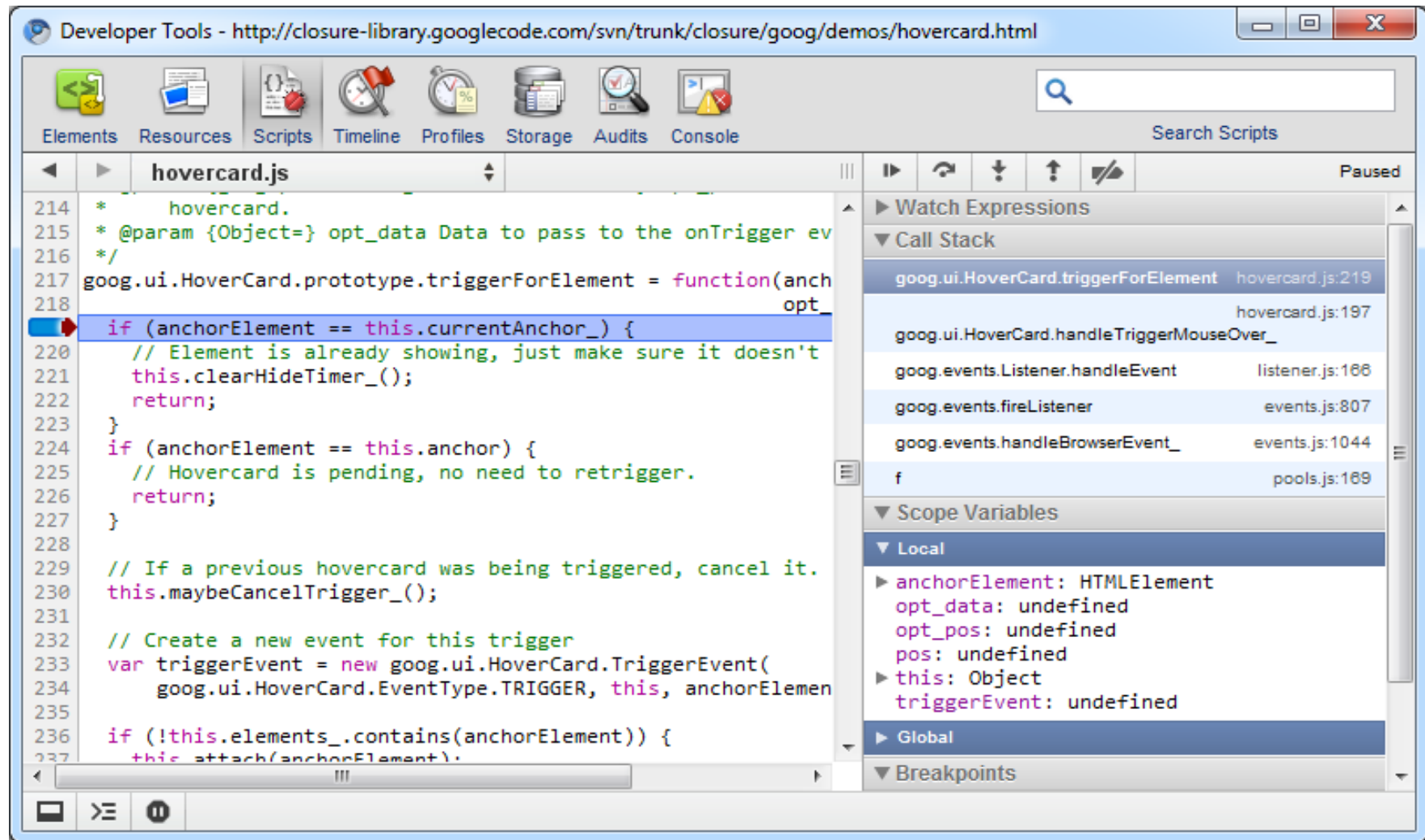
Developer Tools overview

Resources Panel. Content



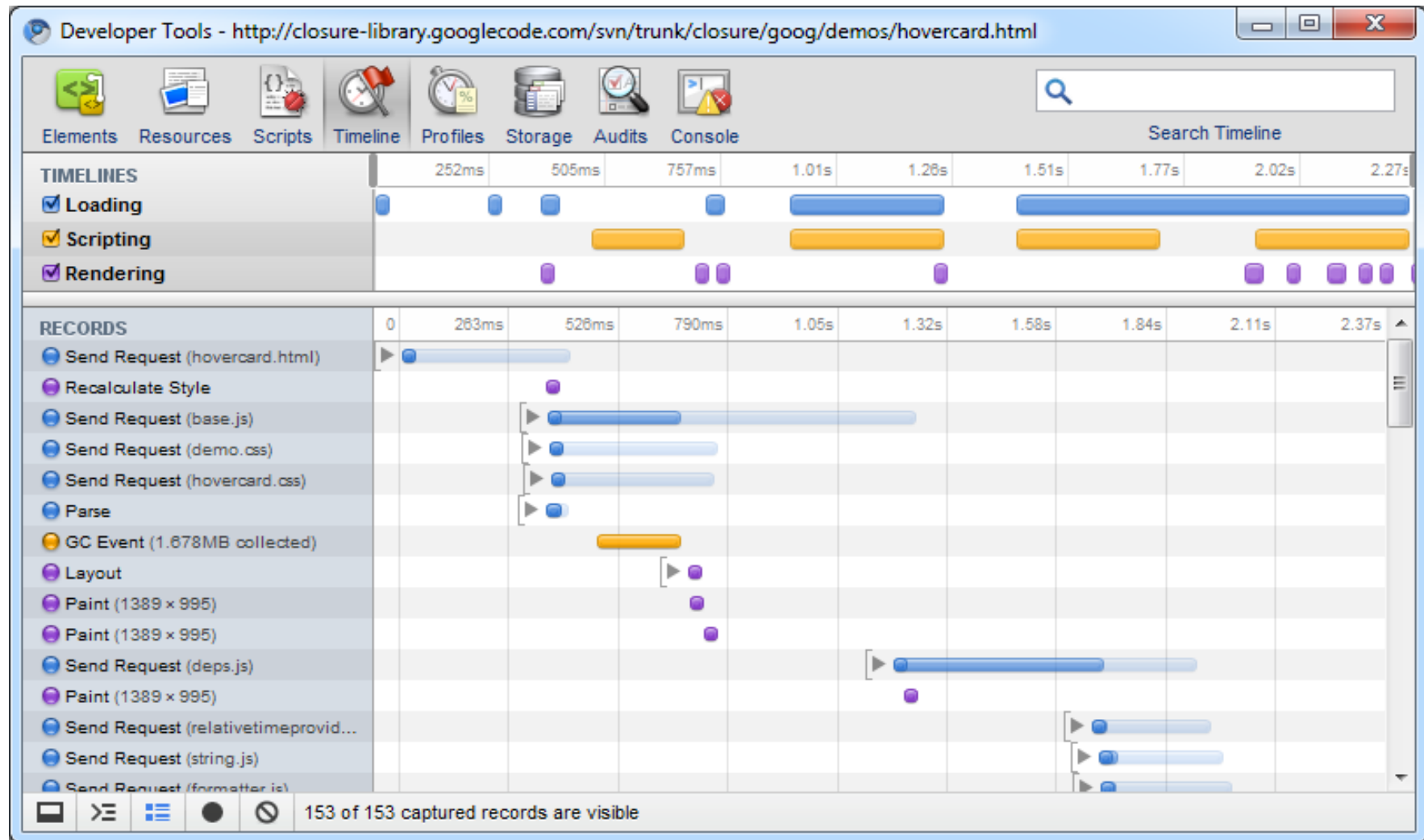
Developer Tools overview

Scripts Panel



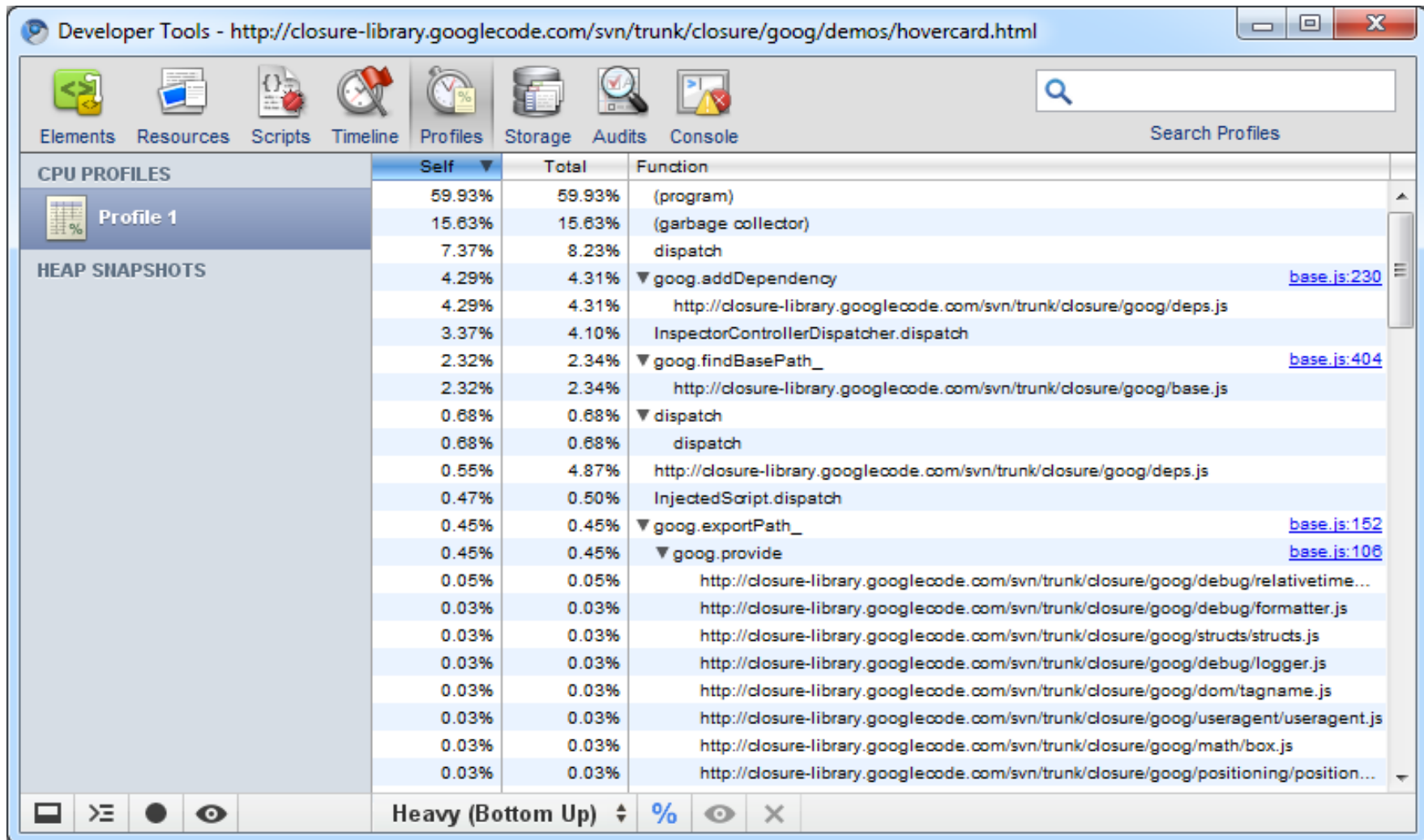
Developer Tools overview

Timeline Panel



Developer Tools overview

Profiles Panel. CPU



The screenshot shows the Chrome Developer Tools interface with the CPU Profiles panel selected. The browser window title is "Developer Tools - http://closure-library.googlecode.com/svn/trunk/closure/goog/demos/hovercard.html". The top toolbar includes icons for Elements, Resources, Scripts, Timeline, Profiles, Storage, Audits, and Console. The Profiles panel shows a table of CPU profiles for "Profile 1". The table has columns for "Self", "Total", and "Function". The functions listed include (program), (garbage collector), dispatch, goog.addDependency, goog.findBasePath_, and goog.exportPath_. The bottom status bar indicates "Heavy (Bottom Up)" and shows a percentage icon.

Self	Total	Function
59.93%	59.93%	(program)
15.63%	15.63%	(garbage collector)
7.37%	8.23%	dispatch
4.29%	4.31%	▼ goog.addDependency base.js:230
4.29%	4.31%	http://closure-library.googlecode.com/svn/trunk/closure/goog/deps.js
3.37%	4.10%	InspectorControllerDispatcher.dispatch
2.32%	2.34%	▼ goog.findBasePath_ base.js:404
2.32%	2.34%	http://closure-library.googlecode.com/svn/trunk/closure/goog/base.js
0.68%	0.68%	▼ dispatch
0.68%	0.68%	dispatch
0.55%	4.87%	http://closure-library.googlecode.com/svn/trunk/closure/goog/deps.js
0.47%	0.50%	InjectedScript.dispatch
0.45%	0.45%	▼ goog.exportPath_ base.js:152
0.45%	0.45%	▼ goog.provide base.js:106
0.05%	0.05%	http://closure-library.googlecode.com/svn/trunk/closure/goog/debug/relativeTime...
0.03%	0.03%	http://closure-library.googlecode.com/svn/trunk/closure/goog/debug/formatter.js
0.03%	0.03%	http://closure-library.googlecode.com/svn/trunk/closure/goog/structs/structs.js
0.03%	0.03%	http://closure-library.googlecode.com/svn/trunk/closure/goog/debug/logger.js
0.03%	0.03%	http://closure-library.googlecode.com/svn/trunk/closure/goog/dom/tagname.js
0.03%	0.03%	http://closure-library.googlecode.com/svn/trunk/closure/goog/useragent/useragent.js
0.03%	0.03%	http://closure-library.googlecode.com/svn/trunk/closure/goog/math/box.js
0.03%	0.03%	http://closure-library.googlecode.com/svn/trunk/closure/goog/positioning/position...

Developer Tools overview

Profiles Panel. Heap

The screenshot shows the Chrome Developer Tools interface with the Profiles panel open. The left sidebar shows 'CPU PROFILES' and 'HEAP SNAPSHOTS'. Under 'HEAP SNAPSHOTS', 'Snapshot 1' is selected. The main panel displays a table of heap data for Snapshot 1, comparing it to Snapshot 1 (0% difference).

Constructor	Count	Size	± Count	± Size
(code)	5041	1.158MB	0	0B
(closure)	5402	868.36KB	0	0B
Object	3599	787.80KB	0	0B
String	17194	500.66KB	0	0B
(anonymous)	21	76.95KB	0	0B
(global property)	2511	19.62KB	0	0B
Array	184	8.19KB	0	0B
Object	21		0	
HTMLImageElement	1		0	
(roots)	1		0	
goog.structs.SimplePool	1		0	
HTMLInputElement	1		0	
goog.structs.Map	1		0	
HTMLFormElement	1		0	
goog.debug.Logger	1		0	
goog.ui HoverCard	1		0	

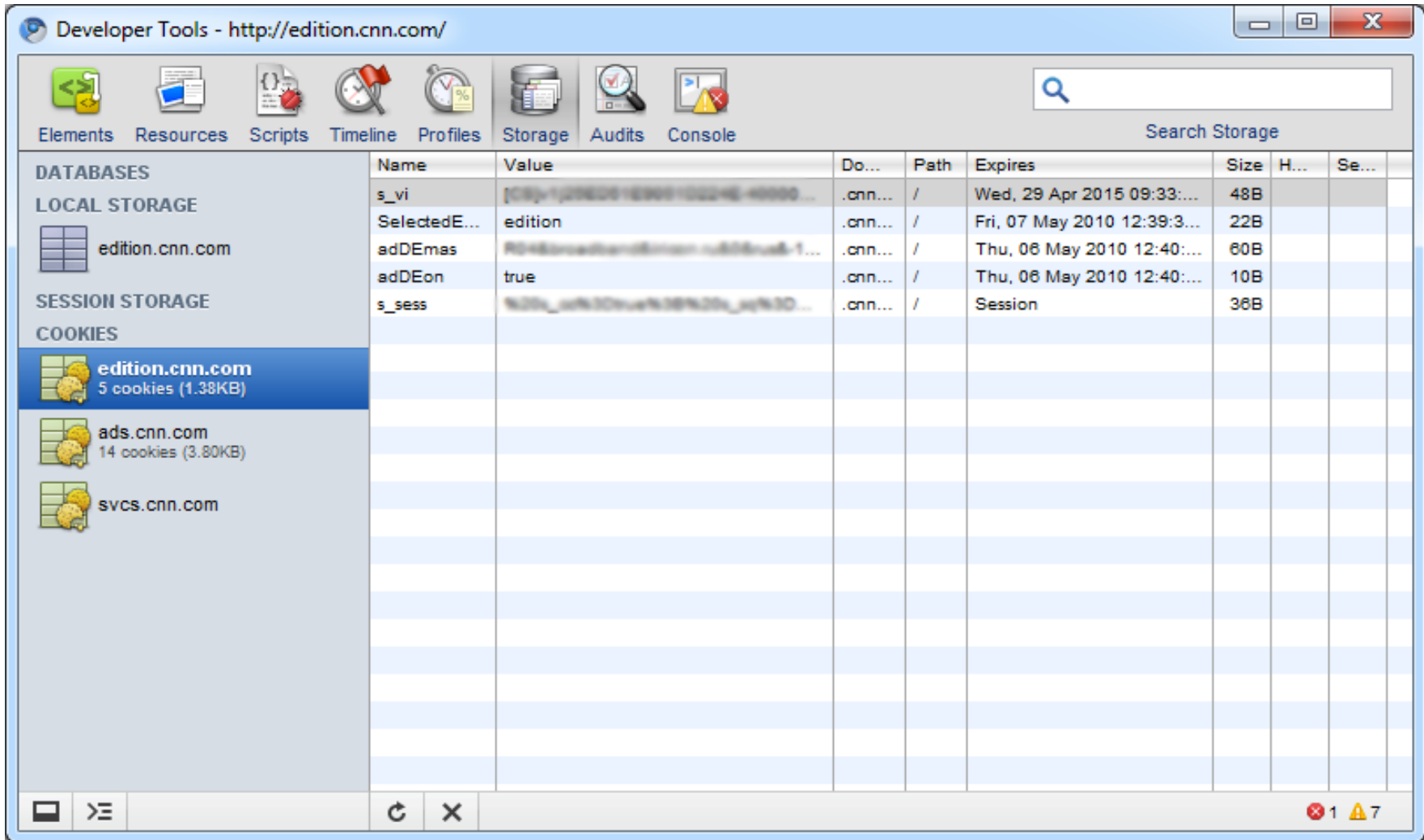
Summary statistics for Snapshot 1:

Category	Count	Size
Code	5041	1.158MB
Objects	29261	2.301MB
Total	34302	3.460MB

Compared to Snapshot 1: 0%

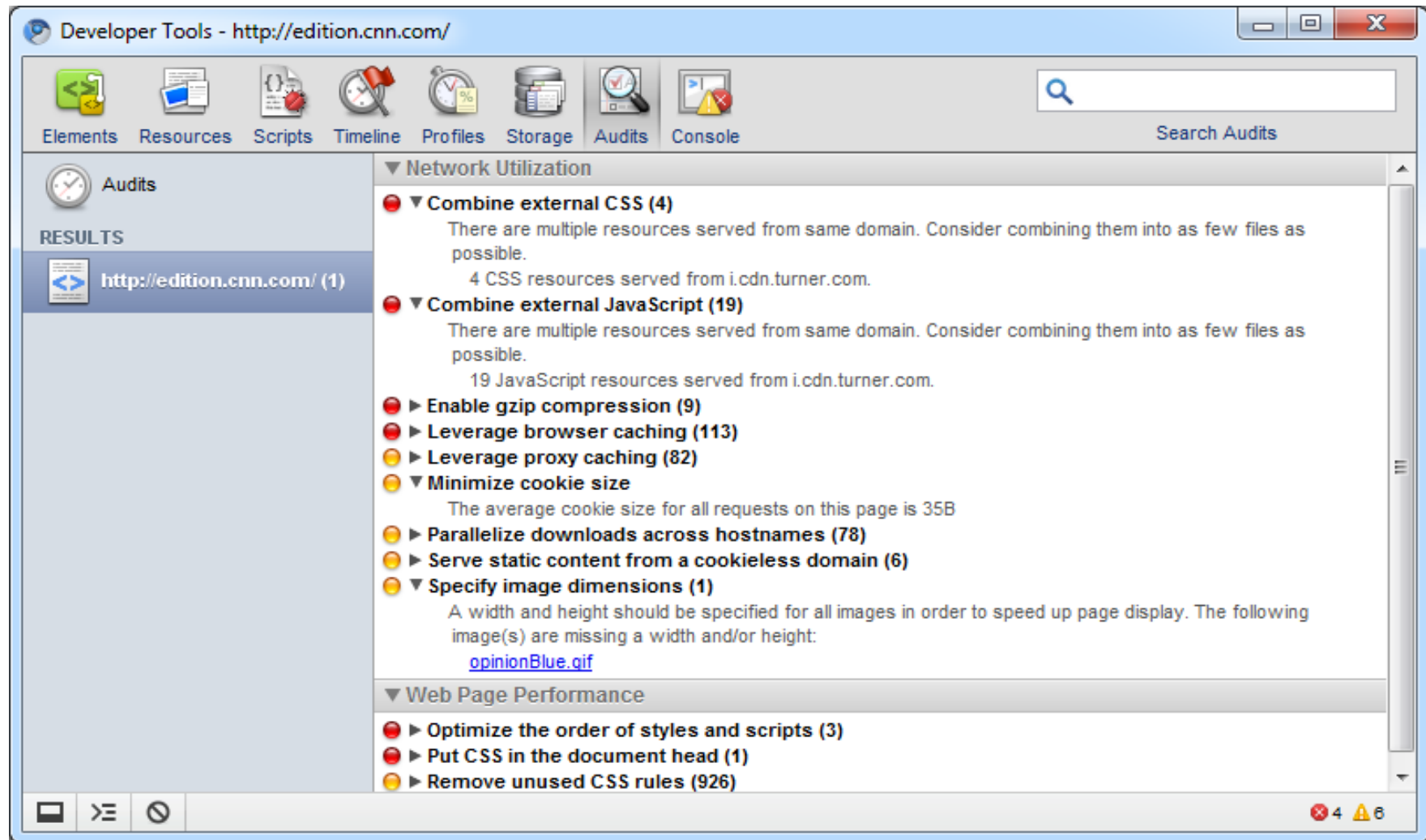
Developer Tools overview

Storage Panel



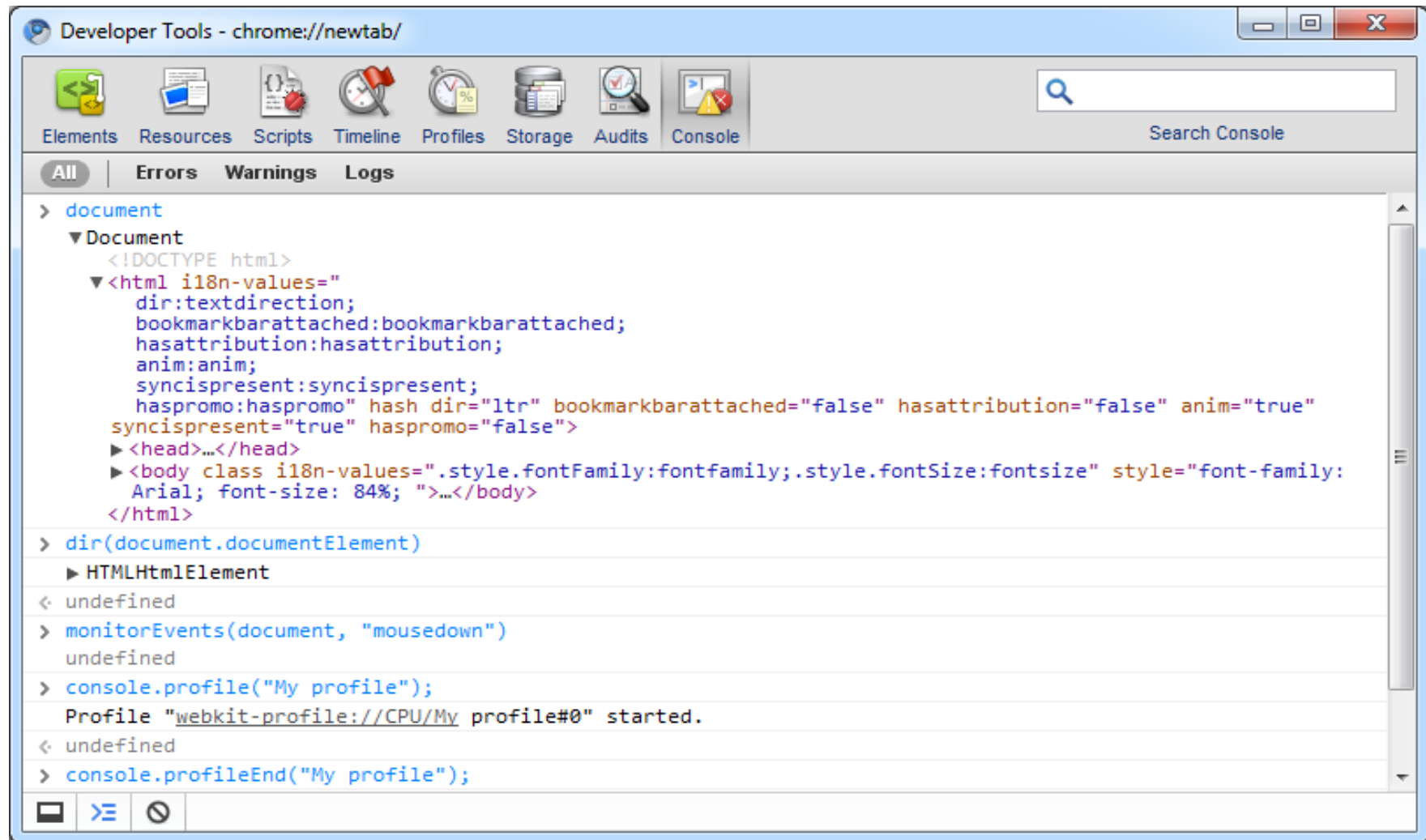
Developer Tools overview

Audits Panel



Developer Tools overview

Console Panel



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Story 1: Debugging JavaScript

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Story 2: Identifying performance issues

...going beyond JavaScript

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Story 3: Understanding memory usage

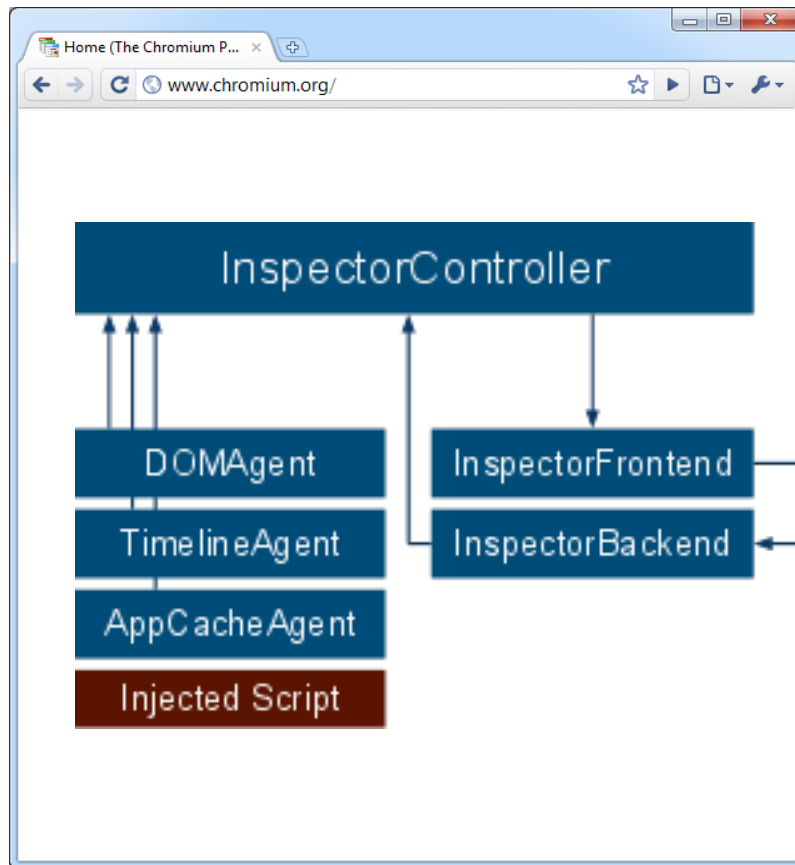
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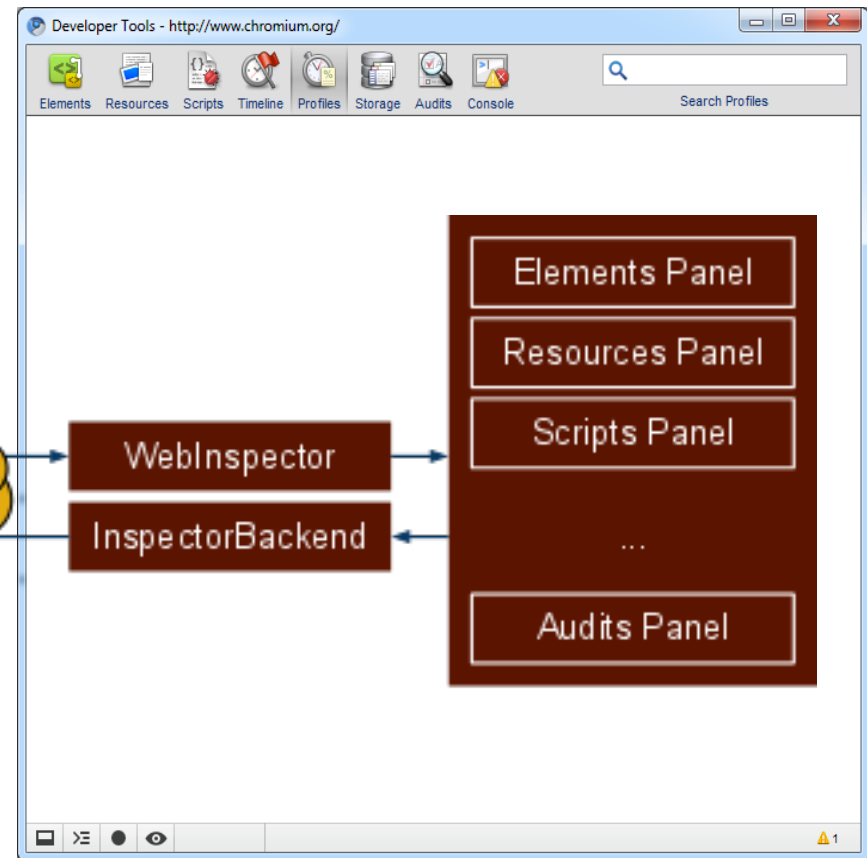
Developer Tools internal design

- Development process
 - Open Source
 - WebKit ("upstream")
 - V8
 - Chromium ("downstream")
- Dependency updates
 - Daily WebKit updates
 - Regular V8 updates
- Early access & release channels
 - Stable, Beta, Dev

Developer Tools internal design



Inspected Page



Frontend Page

Links

- <http://chromium.org/devtools>
- <http://chromium.org>
- <http://webkit.org>

How to contribute

- <http://crbug.com>
- <http://webkit.org/new-inspector-bug>
- <irc://irc.freenode.net/#webkit-inspector>

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