Logging Usage of AJAX Applications With the "UsaProxy" HTTP Proxy

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- Approaches for User Activity Logging
- UsaProxy: A Web 2.0 Approach to Proxy-based Logging
- Typical Log Output
- Preparing a Gmail User Test
- Conclusion

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Approaches for User Activity Logging

- Client-based: Installation of special logging software on the client machine
  ...but this will not work for analysing the behaviour of arbitrary visitors of a site
- Server-based: Analysis of all HTTP requests made by the client
  ...but this will not work with many AJAX applications, where a click might not necessarily result in an HTTP request
- Proxy-based: All HTTP traffic passes through an HTTP proxy
  ...but how can we observe e.g. the user's mouse movements on the proxy?

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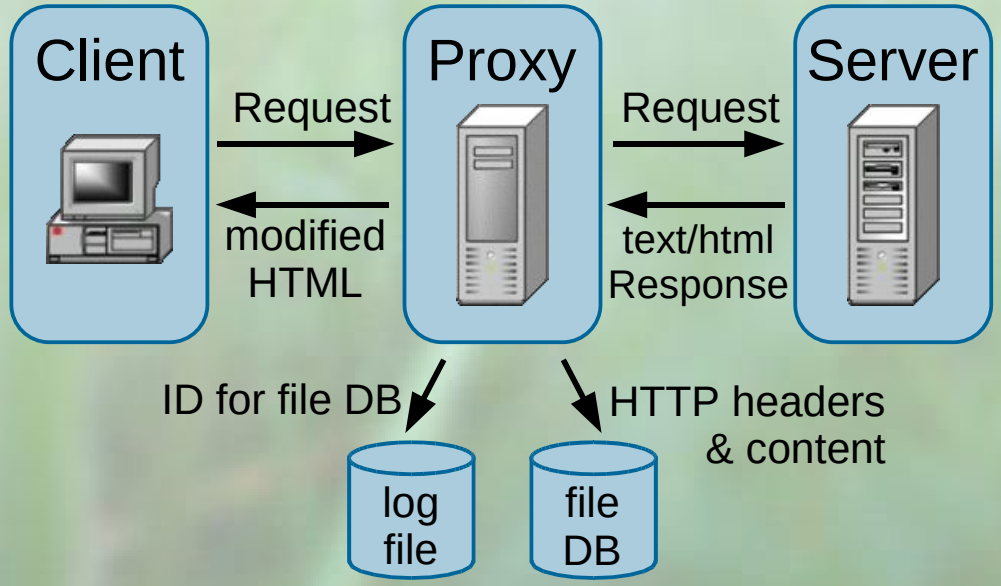
UsaProxy: A Web 2.0 Approach to Proxy-based Logging

- The proxy modifies "text/html" responses before passing them on to the client.
- The modification causes the proxy's logging JavaScript code to be loaded by the browser.
- The JavaScript code is executed on the client to log user behaviour
- HTTP requests and responses are recorded by the proxy



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Typical Log Output

- Unprecedented level of detail for a solution without installation of client-side software
- Can determine which parts of the page were viewed
- Info about click/hover coordinates and the involved DOM element – also works for dynamically generated elements

```
141.84.8.77 2005-10-25,11:5:57 http://www.kiko.com/ serverdata 12
141.84.8.77 2005-10-25,11:5:58 http://www.kiko.com/ load width=1280;height=867
141.84.8.77 2005-10-25,11:6:2 http://www.kiko.com/ mousemove x=672;y=7
141.84.8.77 2005-10-25,11:6:2 http://www.kiko.com/ mouseover x=731;y=457
                              target=link:http://www.kiko.com/ contact.htm+linktext:Contact
141.84.8.77 2005-10-25,11:6:6 http://www.kiko.com/ click x=815;y=231 target=id:SPAN16
141.84.8.77 2005-10-25,11:6:37 http://www.kiko.com/app.htm?use auth=678397351 mousemove
                              x=849;y=352
141.84.8.77 2005-10-25,11:6:37 http://www.kiko.com/app.htm?use auth=678397351 mouseover x=472;y=296
                              target=id:DIV144
141.84.8.77 2005-10-25,11:6:37 http://www.kiko.com/app.htm?use auth=678397351 mouseover x=161;y=229
                              target=id:left bar
141.84.8.77 2005-10-25,11:6:38 http://www.kiko.com/app.htm?use auth=678397351 click x=147;y=183
                              target=unknown:scrollbar
141.84.8.77 2005-10-25,11:6:50 http://www.kiko.com/app.htm?use auth=678397351 focus
141.84.8.77 2005-10-25,11:6:56 http://www.kiko.com/app.htm?use auth=678397351 keypress key=T
141.84.8.77 2005-10-25,11:47:45 http://de.wikipedia.org/wiki/Hauptseite scrolledTo y=399
```


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Preparing a Gmail User Test

- Primary effort: Analyse AJAX application
  - Find log entries which map to task start/end
  - Find DOM elements for interesting UI actions
- Two possible approaches
  - Perform a sample session – usually faster, but may cause problems in some cases
  - Analyse DOM tree of running AJAX application, e.g. with Firefox DOM Inspector
- Problem: Proxy does not support HTTPS at the moment, so temporarily disable proxy for login

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Conclusion

- Detailed tracking of user interaction without client-side software installation
- Can also be adapted for server-side operation, to require no client reconfiguration at all
- Fully automatic, no manual preparation of websites for a user test
- Works well with Gmail and other AJAX applications

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Questions / Demo

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http://atterer.net/uni.html
http://fnuked.de/usaproxy/