

78 - GOOGLE HACKING

To Infinity and Beyond – A Tool Story

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Stach & Liu, LLC
www.stachliu.com



Agenda

OVERVIEW

- Introduction/Background
- Advanced Attacks
 - Google/Bing Hacking
- Advanced Defenses
 - Google/Bing Hacking Alerts
- Other OSINT Attack Techniques
- Future Directions



Goals

DROPKNOWLEDGE ON YOU

- To improve Google Hacking
 - Attacks and defenses
 - Advanced tools and techniques
- To think differently about exposures in publicly available sources
- To blow your mind!



Introduction/ Background

GETTING UP TO SPEED





Open Source Intelligence

SEARCHING PUBLIC SOURCES

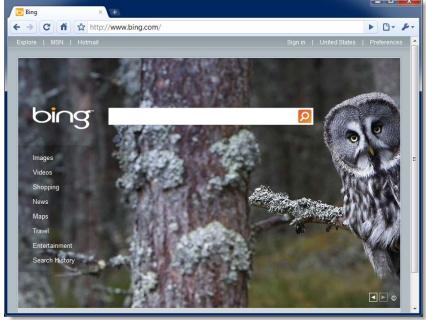
OSINT – is a form of intelligence collection management that involves finding, selecting, and acquiring information from *publicly available* sources and analyzing it to *produce actionable intelligence*.



Google/Bing Hacking

SEARCH ENGINE ATTACKS







Google/Bing Hacking

SEARCH ENGINE ATTACKS

Bing's source leaked!

```
class Bing {
   public static string Search(string query)
   {
     return Google.Search(query);
   }
}
```





Attack Targets

GOOGLE HACKING DATABASE

- Advisories and Vulnerabilities (215)
- Error Messages (58)
- Files containing juicy info (230)
- Files containing passwords (135)
- Files containing usernames (15)
- Footholds (21)
- Pages containing login portals (232)

- Pages containing network or vulnerability data (59)
- Sensitive Directories (61)
- Sensitive Online Shopping Info (9)
- Various Online Devices (201)
- Vulnerable Files (57)
- Vulnerable Servers (48)
- Web Server Detection (72)





Attack Targets

GOOGLE HACKING DATABASE

Old School Examples

- Error Messages
 - filetype:asp + "[ODBC SQL"
 - "Warning: mysql_query()" "invalid query"
- Files containing passwords
 - inurl:passlist.txt





Quick History

GOOGLE HACKING RECAP

Dates	Event
2004	Google Hacking Database (GHDB) begins
May 2004	Foundstone SiteDigger v1 released
2005	Google Hacking v1 released by Johnny Long
Jan. 2005	Foundstone SiteDigger v2 released
Feb. 13, 2005	Google Hack Honeypot first release
Jan. 10, 2005	MSNPawn v1.0 released
Dec. 5, 2006	Google stops issuing Google SOAP API keys





Quick History

GOOGLE HACKING RECAP

Dates	Event
Mar. 2007	Bing disables inurl: link: and linkdomain:
Nov. 2, 2007	Google Hacking v2 released
Mar. 2008	cDc Goolag - gui tool released
Sept. 7, 2009	Google shuts down SOAP Search API
Nov. 2009	Binging tool released
Dec. 1, 2009	FoundStone SiteDigger v 3.0 released
2010	Googlag.org disappears





Advanced Attacks

WHAT YOU SHOULD KNOW





Diggity Toolkit

STACH & LIU TOOLS

Google Diggity

- Uses Google AJAX API
 - Not blocked by Google bot detection
 - Does not violate Terms of Service
- Can leverage Google custom search

Bing Diggity

- Uses Bing 2.0 SOAP API
- Company/Webapp Profiling
 - Enumerate: URLs, IP-to-virtual hosts, etc.
- Bing Hacking Database (BHDB)
 - Vulnerability search queries in Bing format



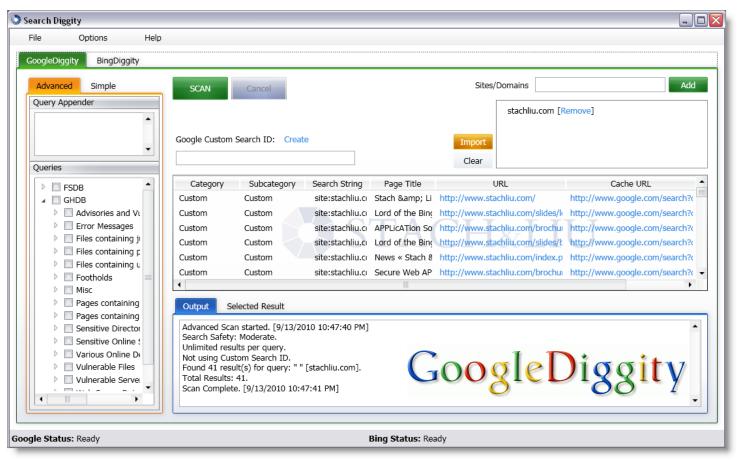






Google Diggity

DIGGITY TOOLKIT

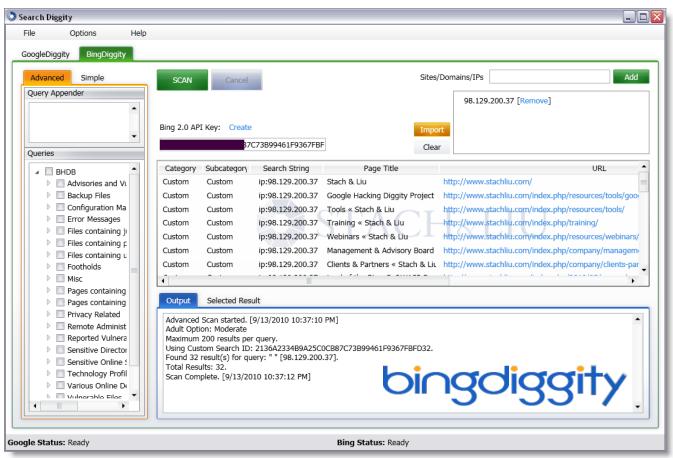






Bing Diggity

DIGGITY TOOLKIT





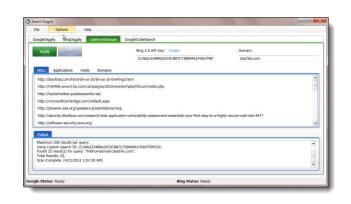


SearchDiggity Updates

STACH & LIU TOOLS

New Features

- Auto-update for dictionaries
 - Will begin updating google/bing dorks
- Output formats
 - Now also XLS and HTML exports
- Help File chm file added



New Tool Tabs

- Bing LinkFromDomain Footprinting
 - Leverages linkfromdomain: directive to identify external links
 - Identify other apps, hosts, domains potentially belonging to target
- Google Code Search Diggity
 - Identifies code vulnerabilities within open source projects





Auto-Update Feature

SLDB UPDATES

SLDB Updates in Progress

- Example: SharePoint Google Dictionary
 - http://www.stachliu.com/resources/tools/sharepoint-hacking-diggity-project/#SharePoint GoogleDiggity Dictionary File







Auto-Update Feature

THIRD-PARTY INTEGRATION

New maintainers of the GHDB - 09 Nov 2010

• http://www.exploit-db.com/google-hacking-database-reborn/

Google Hacking Database Reborn

9th November 2010 - by admin

The incredible amount of information continuously leaked onto the Internet, and therefore accessible by Google, is of great use to penetration testers around the world. Johnny Long of Hackers for Charity started the Google Hacking Database (GHDB) to serve as a repository for search terms, called Google-Dorks, that expose sensitive information, vulnerabilities, passwords, and much more.



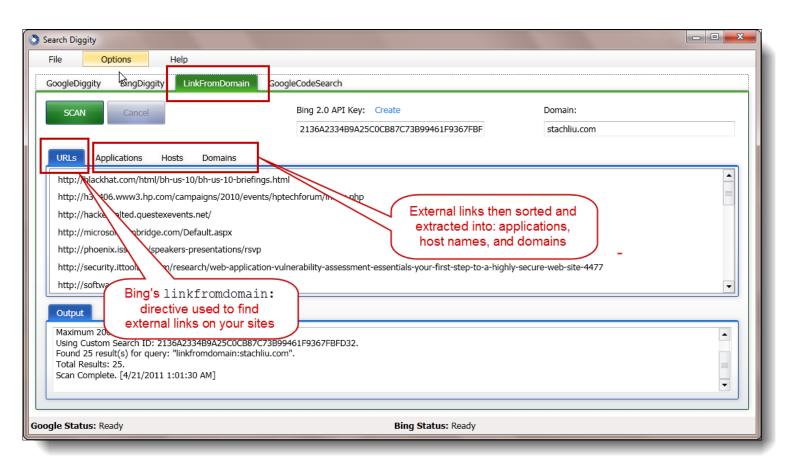
As Johnny is now pursing his mission in Uganda, he has graciously allowed us at The Exploit Database to pick up where the GHDB left off and resurrect it. It is with great excitement that we announce that the GHDB is now being hosted by us and actively maintained again. This will allow us to tie the GHDB directly into our database of exploits providing the most current information possible.





Bing LinkFromDomain

DIGGITY TOOLKIT







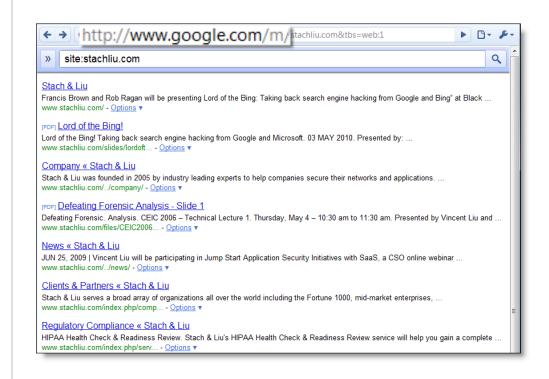
GoogleScrape Diggity

DIGGITY TOOLKIT

GoogleScrape Diggity

- Uses Google mobile interface
 - Light-weight, no advertisements
 - Violates Terms of Service
- Bot detection avoidance
 - Distributed via proxies
 - Spoofs User-agent and Referer headers
 - Random &userip= value
 - Across Google servers









Bing Hack Database

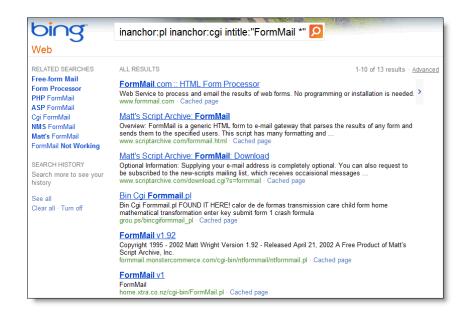
ATTACK QUERIES

BHDB – Bing Hacking Data Base

- First ever Bing hacking database
- Bing hacking limitations
 - Disabled inurl:, link: and linkdomain: directives in March 2007
 - No support for ext:, allintitle:, allinurl:
 - Limited filetype: functionality
 - Only 12 extensions supported

Example - Bing vulnerability search:

- GHDB query
 - "allintitle:Netscape FastTrack Server Home Page"
- BHDB version
 - intitle: "Netscape FastTrack Server Home Page"



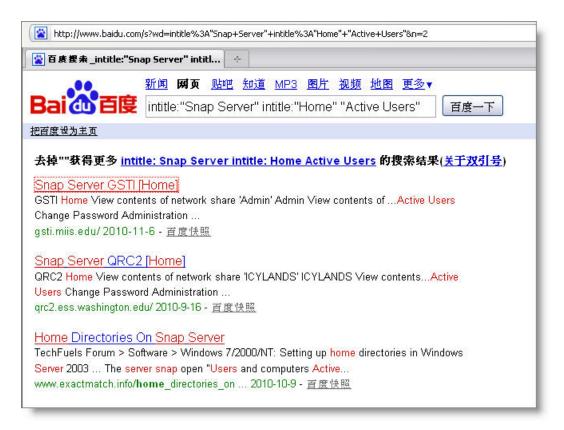




BaiduDiggity

CHINA SEARCH ENGINE

COMING SOON!







BaiduDiggity

CHINA SEARCH ENGINE

Fighting back





NEW GOOGLE HACKING TOOLS

DEMO





Traditional Defenses

GOOGLE HACKING DEFENSES

- "Google Hack yourself" organization
 - Employ tools and techniques used by hackers
 - Remove info leaks from Google cache
 - Using Google Webmaster Tools
- Regularly update your robots.txt.
 - Or robots meta tags for individual page exclusion
- Data Loss Prevention/Extrusion Prevention Systems
 - Free Tools: OpenDLP, Senf
- Policy and Legal Restrictions





Traditional Defenses

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Advanced Defenses

PROTECT YO NECK





Existing Defenses

"HACKYOURSELF"

- ✓ Tools exist
- Convenient
- Real-time updates
- Multi-engine results
- * Historical archived data
- Multi-domain searching





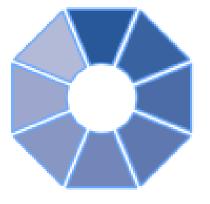


Advanced Defenses

NEW HOT SIZZLE

Stach & Liu now proudly presents:

- Google Hacking Alerts
 - SharePoint Hacking Alerts 118 dorks
- Bing Hacking Alerts





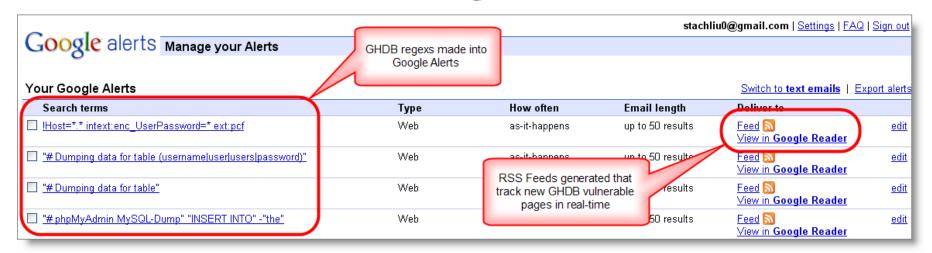


Google Hacking Alerts

ADVANCED DEFENSES

Google Hacking Alerts

- All hacking database queries using Google alerts
- Real-time vuln updates to >2400 hack queries via RSS
- Organized and available via Google reader importable file







Google Hacking Alerts

ADVANCED DEFENSES







Bing Hacking Alerts

ADVANCED DEFENSES

Bing Hacking Alerts

- Bing searches with regexs from BHDB
- Leverage &format=rss directive to turn into update feeds
- Real-time vuln updates to >900 Bing hack queries via RSS







Bing/Google Alerts

LIVE VULNERABILITY FEEDS

World's Largest Live Vulnerability Repository

Daily updates of ~3000 new hits per day







Bing/Google Alerts

THICK CLIENTS TOOLS

Google/Bing Hacking Alert Thick Clients

- Google/Bing Alerts RSS feeds as input
- Allow user to set one or more filters
 - e.g. "yourcompany.com" in the URL
- Several thick clients being released:
 - Google Desktop Gadget
 - OS independent client
 - Droid app (coming soon)





ADVANCED DEFENSE TOOLS





New Defenses

"GOOGLE/BING HACK ALERTS"

- ✓ Tools exist
- ✓ Convenient
- ✓ Real-time updates
- ✓ Multi-engine results
- ✓ Historical archived data
- ✓ Multi-domain searching





Other OSINT Attacks

WHAT YOU SHOULD KNOW





Google Apps Explosion

SO MANY APPLICATIONS TO ABUSE

Google alerts

Google reader



Google custom search









Google calendar

Google news



Google docs

Google Insights for Search



Google blogs

Google maps







Google Code Search

VULNS IN OPEN SOURCE CODE

- Regex search for vulnerabilities in public code
- Example: SQL Injection in ASP querystring
 - select. *from. *request \. QUERYSTRING





GOOGLE CODE SEARCH HACKING

DEMO

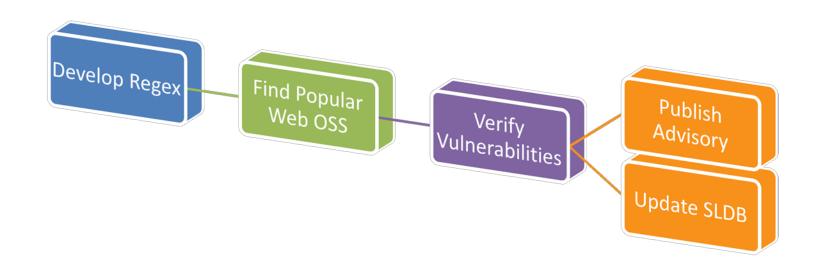






Google Code Search

VULNS IN OPEN SOURCE CODE



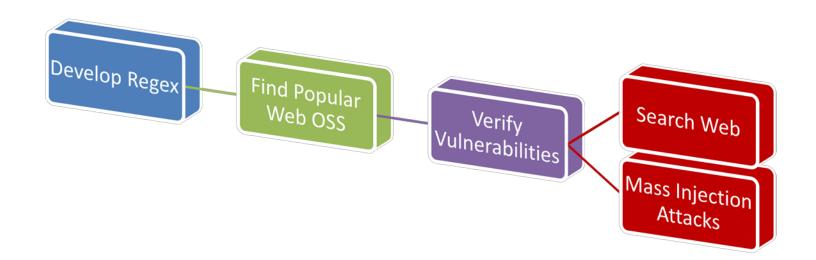






Google Code Search

VULNS IN OPEN SOURCE CODE







Black Hat SEO

SEARCH ENGINE OPTIMIZATION

- Use popular search topics du jour
- Pollute results with links to badware
- Increase chances of a successful attack

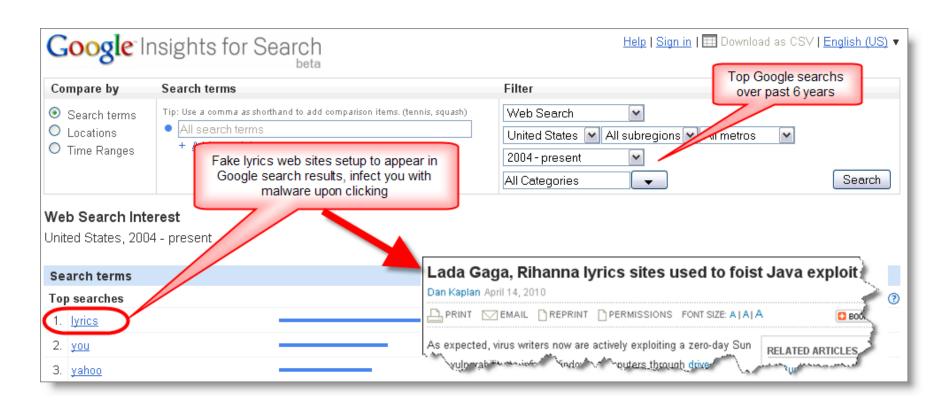








BLACK HAT SEO RECON

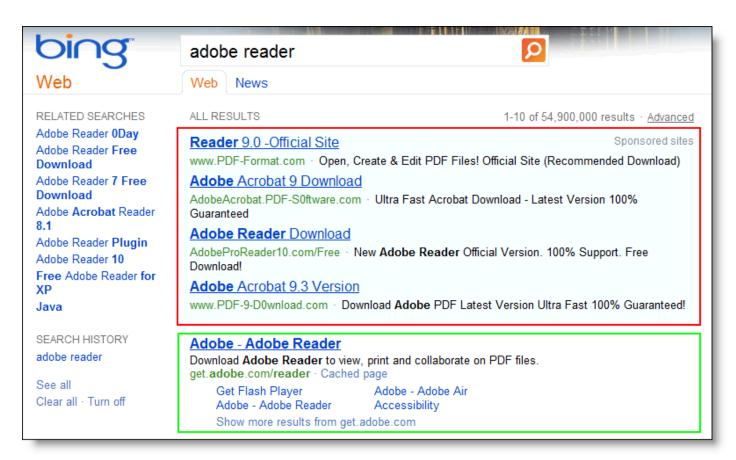






Malware Ads

BLACK HAT ADS







Defenses

BLACKHAT SEO DEFENSES

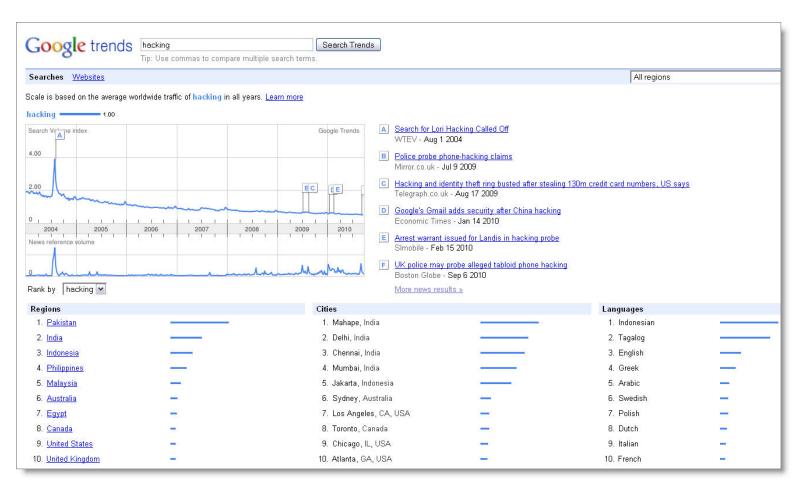
- Malware Warning Filters
 - Google Safe Browsing
 - Microsoft SmartScreen Filter
 - Yahoo Search Scan
- Sandbox Software
 - Sandboxie (sandboxie.com)
 - Dell KACE Secure Browser
 - Office 2010 (Protected Mode)
 - Adobe Reader Sandbox (Protected Mode)
- No-script and Ad-block browser plugins







OTHER INTERESTING

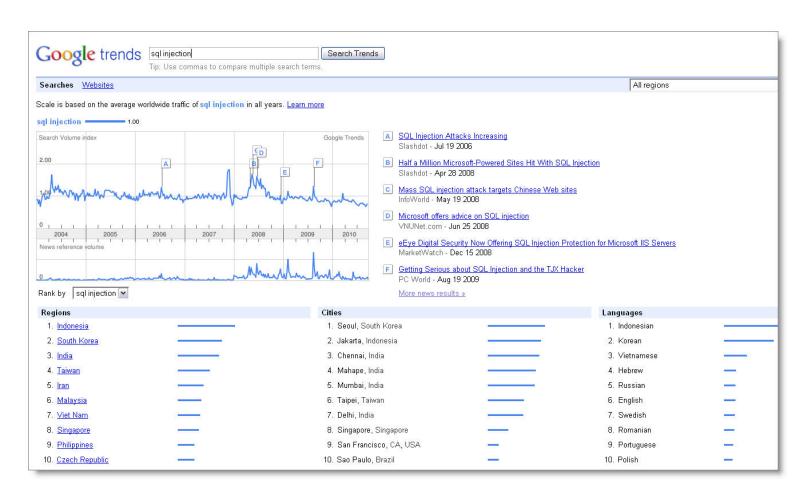








OTHER INTERESTING

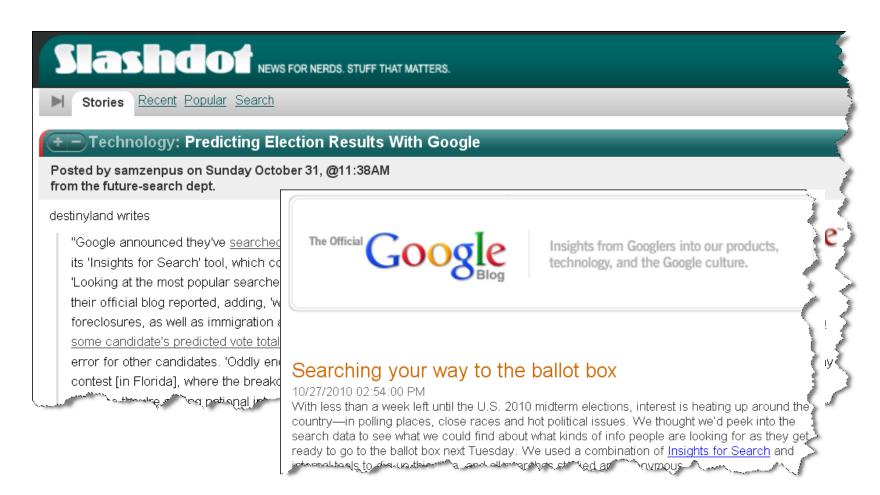








PREDICTING ELECTIONS







Mass Injection Attacks

MALWARE GONE WILD

Malware Distribution Woes

 Popular websites victimized, become malware distribution sites to their own customers

Massive Malware Hits Media Web Sites

Security researchers estimate that roughly 7,000 Web pages were compromised in a SQL injection attack this week, including *The Wall Street Journal* and *Jerusalem Post*.

By Mathew J. Schwartz, InformationWeek June 10, 2010

URL: http://www.informationweek.com/storp/obow/Article/ibtml/2article/ID=225600247

"Every time I load Jpost site, I get nas on Tuesday, referring to the Jerusaler

Sure enough, the Web sites of the *Jer* and the Association of Christian Schosites serving malware to viewers.

From: www.itworld.com

Mass Web attack hits Wall Street Journal, Jerusalem Post

by Robert McMillan

June 9, 2010 —Internet users have been hit by a widespread Web attack that has compromised thousands of Web sites, including Web pages belonging to the Wall Street Journal and the Jerusalem Post.

Estimates of the total number of compromised Web sites vary between 7,000 and 114,000, according to security experts. Other compromised sites include servicewomen.org and intijops.org.





Mass Injection Attacks

MALWARE GONE WILD

Malware Distribution Woes

 Popular websites victimized, become malware distribution sites to their own customers





Future Direction

PREDICTIONS





Predictions

FUTURE DIRECTIONS

Data Explosion

- More data indexed, searchable
- Real-time, streaming updates
- Faster, more robust search interfaces

Google Involvement

- Filtering of search results
- Better GH detection and tool blocking

Renewed Tool Dev

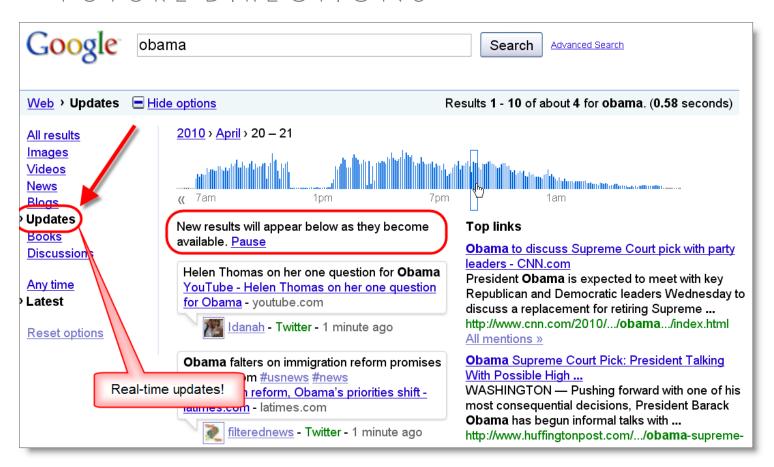
- Google Ajax API based
- Bing/Yahoo/other engines
 - Search engine aggregators
- Google Code and Other Open Source Repositories
 - MS CodePlex, SourceForge, ...
- More automation in tools
 - Real-time detection and exploitation
 - Google worms





Real-time Updates

FUTURE DIRECTIONS

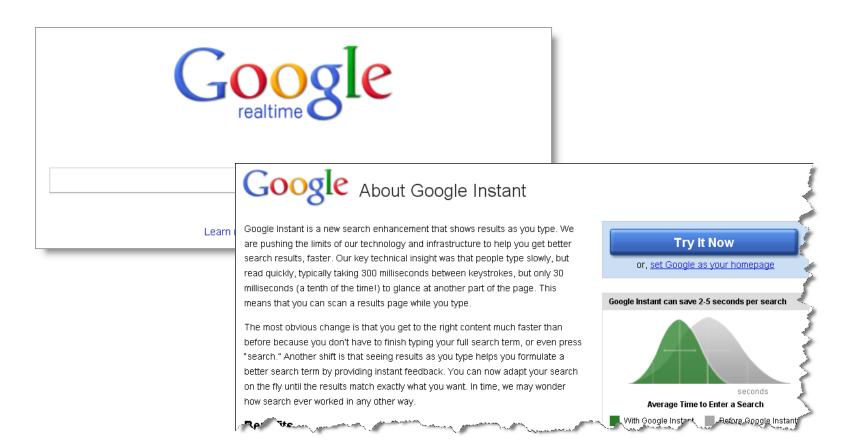






Predictions Update

GOOGLE REALTIME/INSTANT





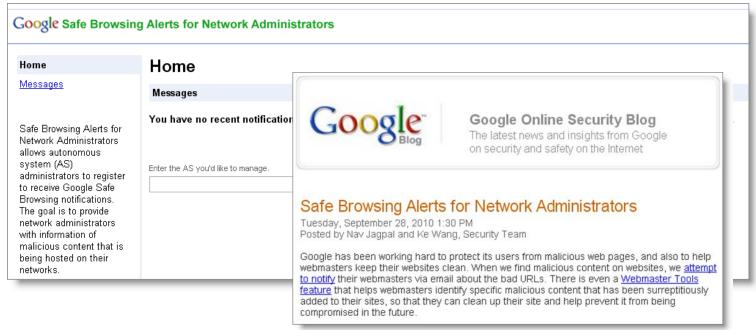


Predictions Update

SEEMS STRANGELY FAMILIAR

Google Safe Browsing Alerts for Network Administrators

- Google's new service which greatly resembles MalwareDiggity
- Imitation is the sincerest form of flattery...

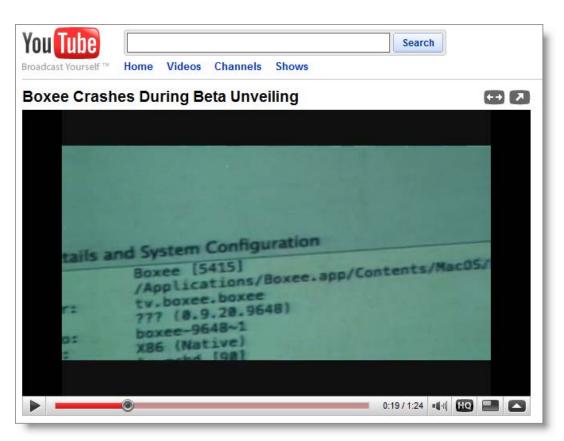






Youtube Info Leak

YOUTUBE + SENSITIVE INFO DISCLOSURE







Questions? Ask us something We'll try to answer it.

For more info:

Email: contact@stachliu.com Project: diggity@stachliu.com

Stach & Liu, LLC www.stachliu.com



Thank You

Stach & Liu Google Hacking Diggity Project info: http://www.stachliu.com/index.php/resources/tools/google-hacking-diggity-project/

