# Hack In The Box 2012

Killing a bounty program, Twice.

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05/2012

### # whoami | presentation

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Founder & CEO

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### # whoami | presentation

#### Nir Goldshlager

Senior Web Applications Researcher



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### Reasons for bug bounty

- Money
- ✓ Credit



#### Reasons for bug bounty

- Money
- Credit
- Okay, mostly credit, they don't pay much :P



### **Bug bounty programs**

1995 – Netscape

2004 – Firefox

2005 - ZDI

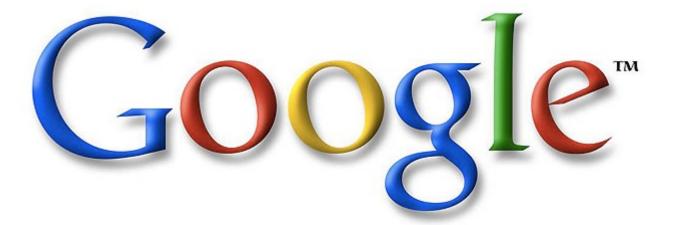
2007 - Pwn2own

**2010** – Google

2011 – Facebook



## Know your enemy



## Know your enemy

#### Nope. Your enemies might be:

- Masato Kinugawa
- Neal Poole
- Nils Juenemann
- Szymon Gruszecki
- Wladimir Palant





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#### Learn your target Overview

#### Spy on their blogs

New bugs – new ideas to detect different vulnerabilities.

#### Learn the company

- Unchecked services
  - Successful acquisitions
  - Untested/Less secured web applications
- Multi vector
  - Unknown vectors / logical techniques
- Repetitive of weak spots



#### Learn the company

- Successful acquisitions
   http://en.wikipedia.org/wiki/List\_of\_acquisitions\_by\_Google
  - New services Knol(???), Friends Connect
  - Subdomains
  - Learn all the functions of the application you are going to test
- Multi vector
  - Unknown vectors / logical techniques
- Repetitive of weak spots



- Successful acquisitions
   http://en.wikipedia.org/wiki/List of acquisitions by Google
- More than 1 acquisition per week since 2010!



#### Approach

Logical / mixed issues



## XSS for fun and ... profit?

- XSS is not just for account hijacking
- Trusted website, runs malicious javascript....
  - Client Side Exploit anyone?

#### Convention

- Calender
   Google.com/calender
- Friends Connect google.com/friendconnect
- Knol Google.com/knol
- Analytics
   Google.com/analytics
- Blogger Google.com/blogger



## **Google Support Overview**

#### Convention

- Knol
  - Google.com/knol
  - No
- Friends Connect

Support.google.com/friendconnect

Calendar

Support.google.com/calendar

Analytics

Support.google.com/analytics

Blogger

Support.google.com/blogger

Admob

Support.google.com/admob



#### Google Calendar Stored XSS

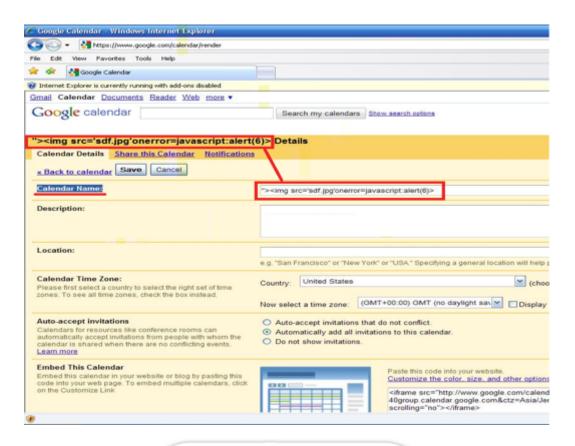


- General Attacks against Google Calendar.
- Going Deep Into the Application.
- What we found.
- We need to find a way to trigger it for REMOTE users.



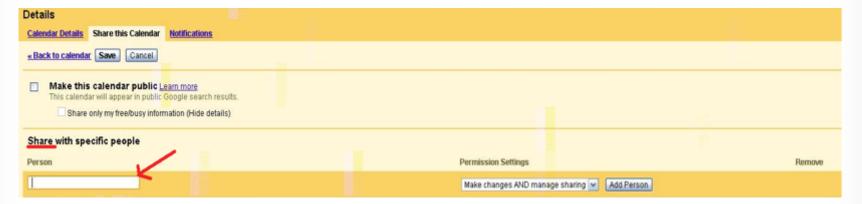
### Stored XSS (Error based)

"Self" Xss Payload



- Changing the attack vector
- Resolving the Self XSS Issue By using the Sharing Option

#### The Sharing process:



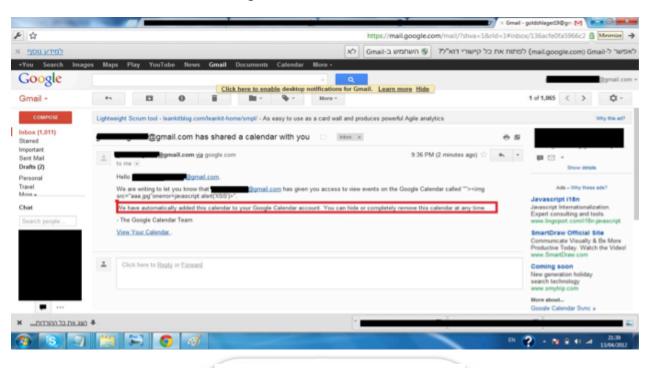
Wait, HOUSTON WE HAVE A PROBLEM!!!

user must delete his calendar 1-5 times.

How can we force our Target to delete our malicious calendars?



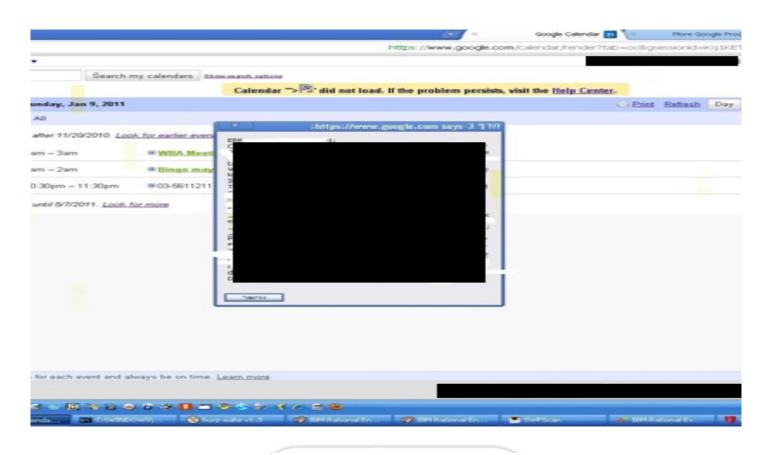
- Resolving the problem: No sharing limit.
- Users gets email for each share & our Calendar Is added Automatically to the victim account.



- Calendar SPAM !!!
- After the user deletes 1-5,
   Error occurred
- Error Message Details:
- Calendar (calendar name)
   not load, After that a Stored
   XSS will be trigger<sup>©</sup>



Game over! Achievement unlocked.



#### Google Analytics – Stored XSS



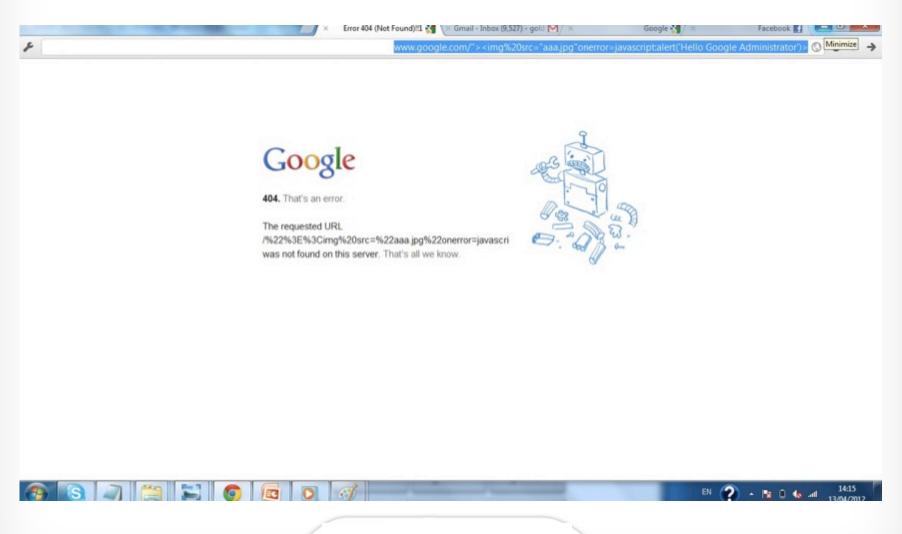
#### In-page analytics doesn't escape incoming requests:

 Meaning, an attacker can send XSS to the administrator by sending a URL

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 Meaning, an attacker can send XSS to the administrator by sending a URL

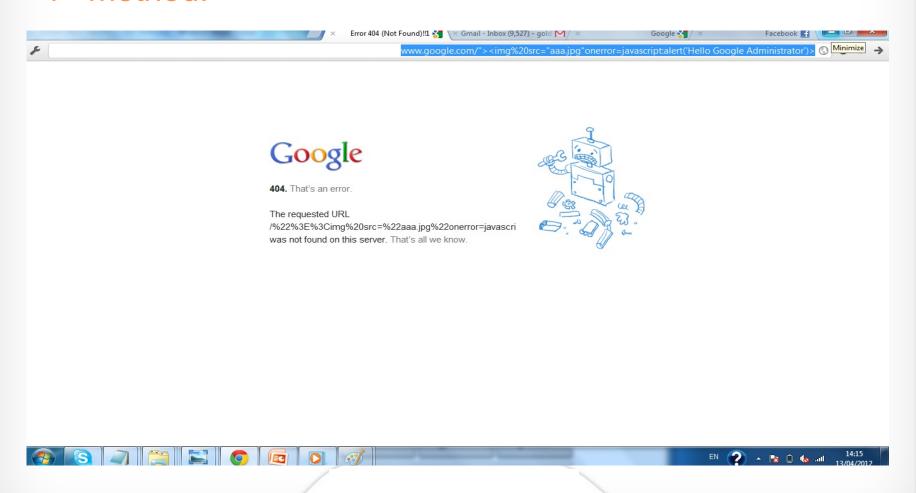




#### Let's exploit this vulnerability in 2 creative ways:

- In-Page Analytics When the administrator logins. Ouch.
- Sharing Infect ourselves and share our Analytics with the victim (direct link to in-page analytics)

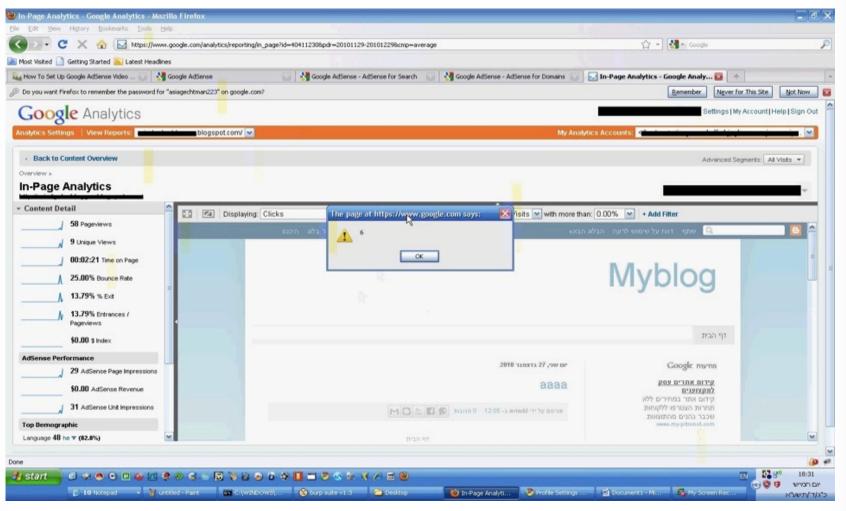
1st method:



Let's wait for our administrator to login

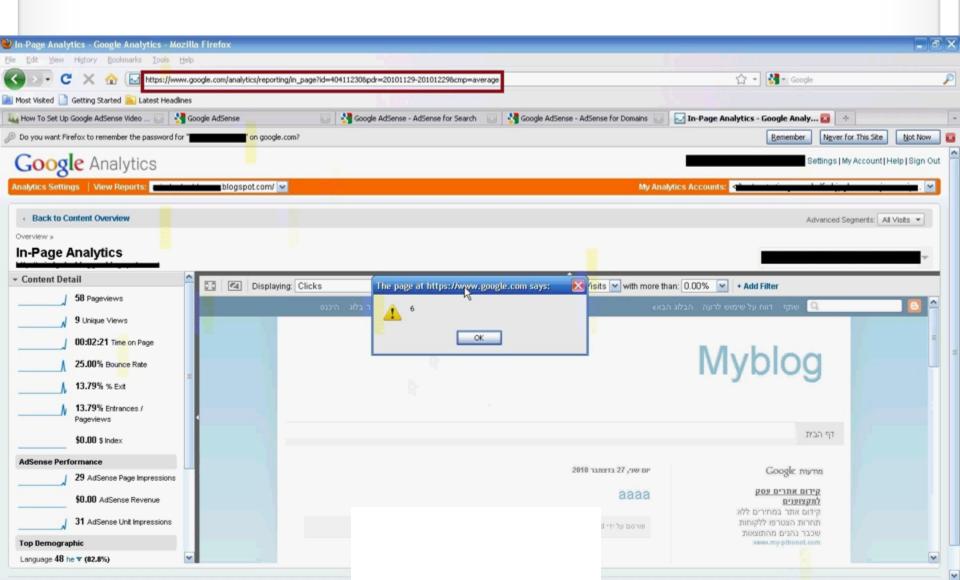
#### Let's wait for our administrator to login

Achievement unlocked, we can run JS on any web administrator using Analytics



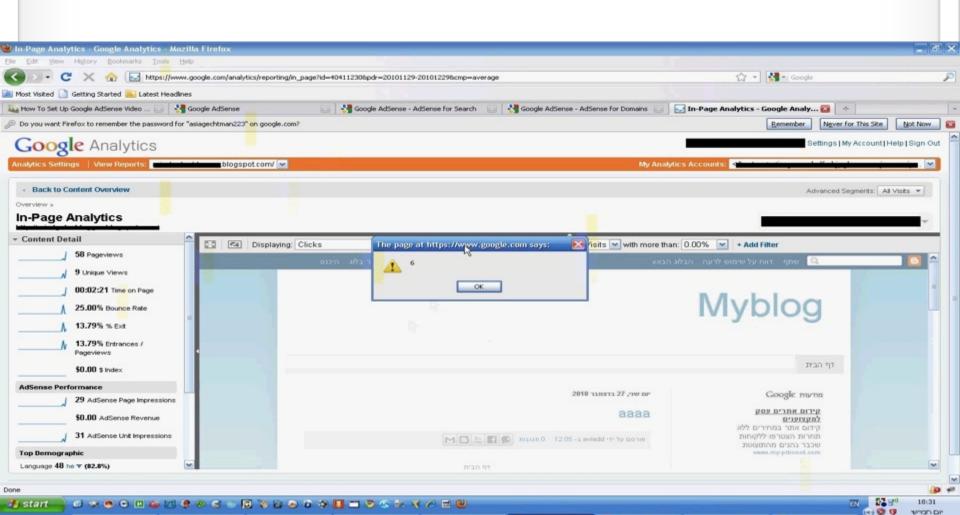
- Second method : Sharing with the victim our analytics
- We will add the victim with read-only permission and will submit the link for google.com/analytics account with our ID

# **Google Analytics**



# **Google Analytics**

Game over. Achievement unlocked



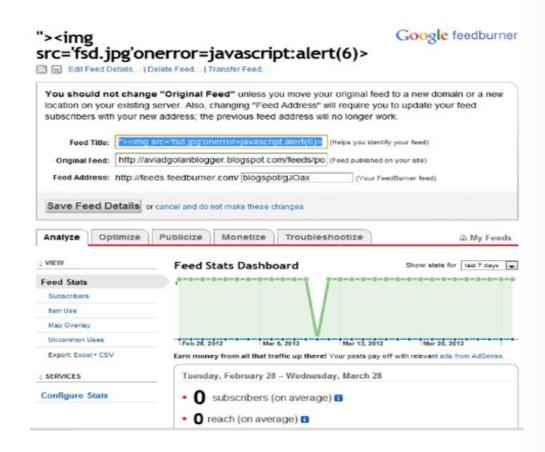
### Google FeedBurner Stored XSS



FeedBurner provides custom <u>RSS</u> feeds and management tools to <u>bloggers</u>, <u>podcasters</u> and other web-based content publishers

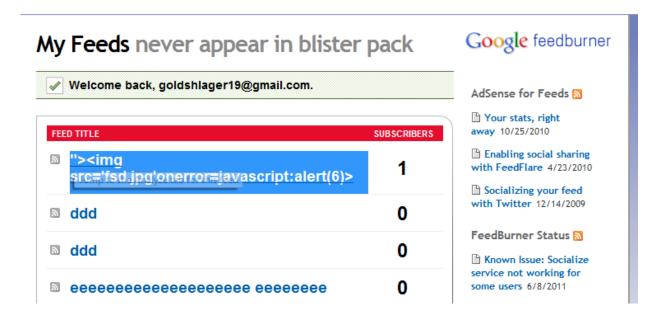
#### Google Feedburner Stored XSS

Feed title is "vulnerable" to an XSS



### Google Feedburner Stored XSS

Wait, Nothing Happened here!!!, There is "NO" XSS



### Google Feedburner Stored XSS

Lets look closer on the features of FeedBurner App



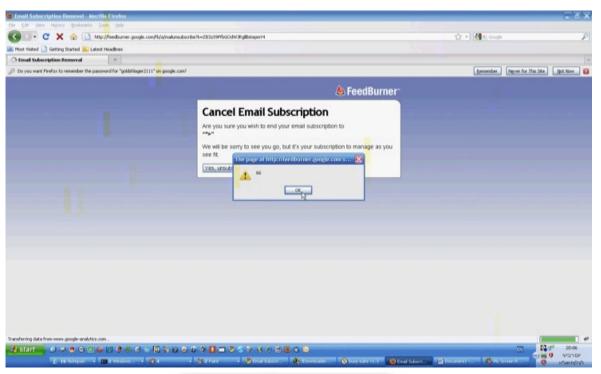
#### Google Feedburner Unsubscribe XSS

- We already know that there is a Subscription feature in Feed burner, Right???
- What about Unsubscribe option, Maybe this can help us?



#### Google Feedburner Unsubscribe XSS

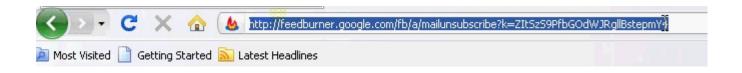
When the victim will decide to unsubscribe from the malicious feed burner a stored xss will be run on his client.



#### Google Feedburner Unsubscribe XSS

#### Lets Exploit it with two methods:

- Victim subscribe to the service & Later unsubscribe from the malicious FeedBurner.
- 2. Attacker Send a malicious unsubscribe link to the victim (Victim dont need to be subscribe to the malicious feed).



Meet your new best friend:



The target approved our request.

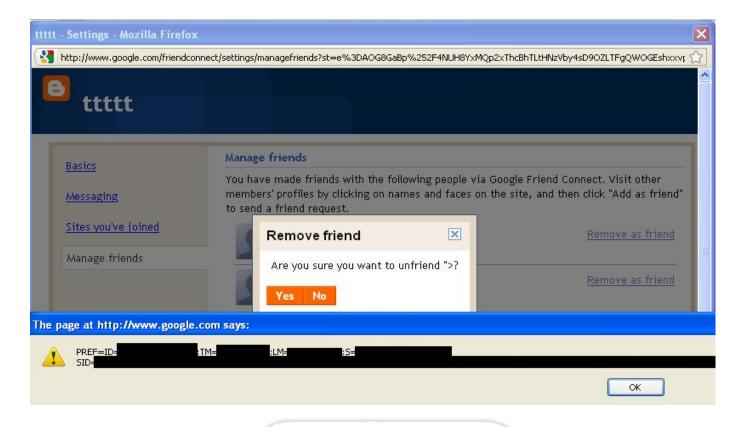
The target approved our request.

Now, let's force him to delete us, not before we're going to change our name to:



#### After User delete:

Achievement Unlocked.



### Permission bypass – Google Knol

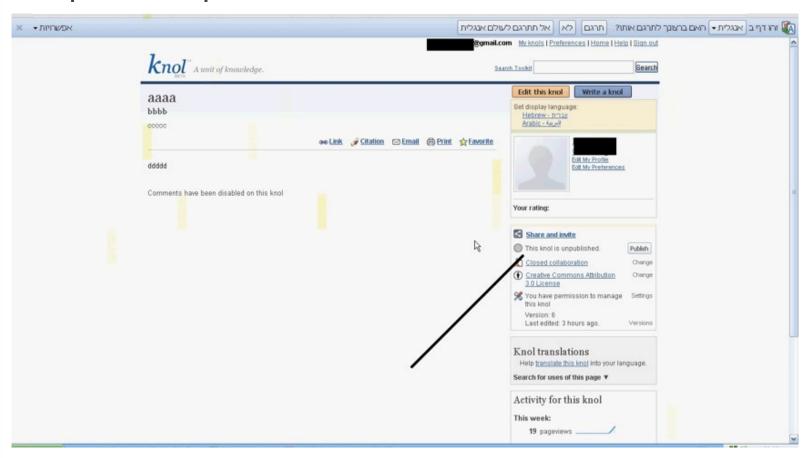


Knol is an online knowledge Portal

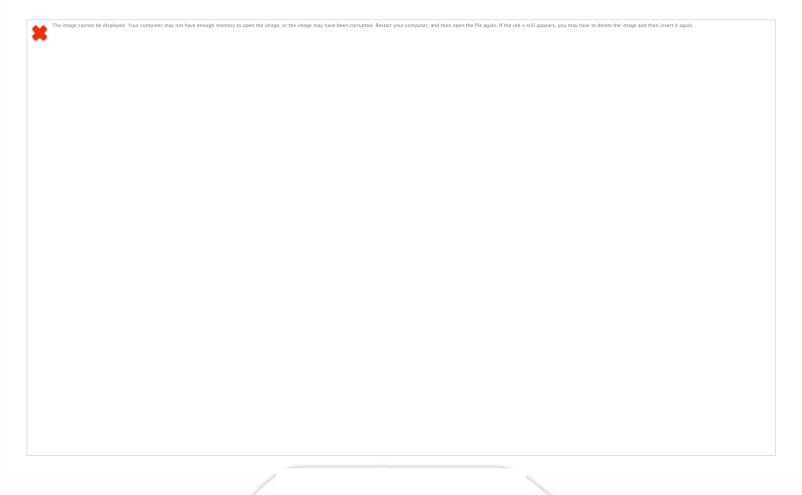
- Privacy in Google Knol
- Function: Publish, Unpublished Docs



Example of Unpublished document:



This document isn't accessible via direct URL



Google Validate Permission,
Block us from viewing the
unpublished
Document

What can we do ????

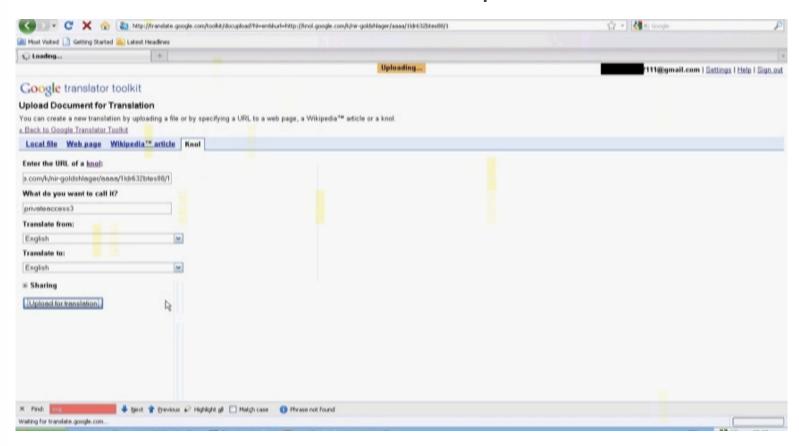


Lets meet our new friend ©

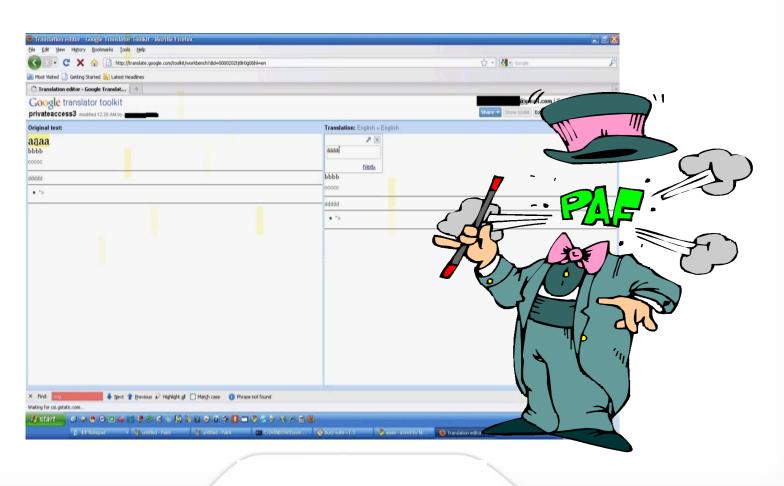
#### Google Knol Translator Toolkit



Attacker Provide the url of the Unpublished Doc



#### And magic happens



# Google Affiliate Network – Stored XSS + Administrator Priv!



What Is Google Affiliate Network??

Google Affiliate Network is a free program that makes it easy for website publishers to connect with quality advertisers and get rewarded for driving conversions.

- Discover high-performing advertisers
- Save time with a speedy and intuitive interface
- Track conversions and access real-time reporting
- Enjoy local payments via your AdSense account
- VIP and Rising Star status for top publishers

#### The goals:

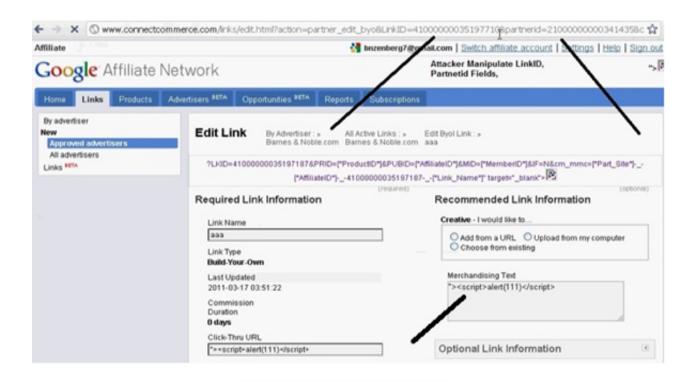
- XSS an account.
- Gaining Administrator Privilege





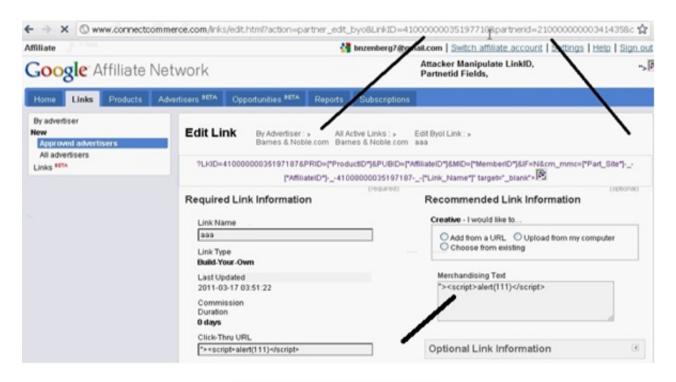
#### First Attack:

ConnectCommerce->Performics->DoubleClick->Google;

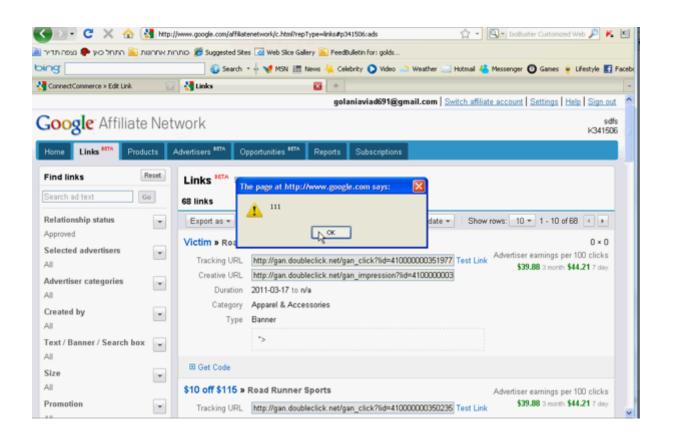


#### First Attack:

Manipulating Parameters on connectcommerce.com domain in order to Inject XSS Payload on google.com Domain



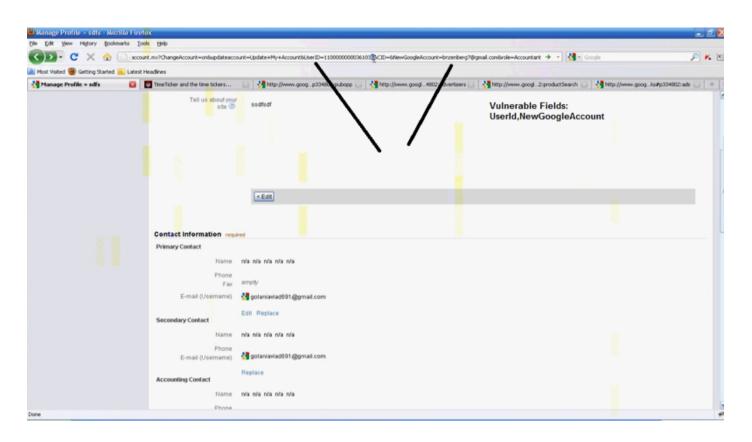
PoC: Stored XSS from Google.com Domain



#### Second attack??

Manipulate, Gaining administrator privilege on any Google Affiliate account.

Manipulate UserID, Email fields



### Game Over 3133.7\$!!!!!



#### Google Picnik – Local File Inclusion



### Google Picnik

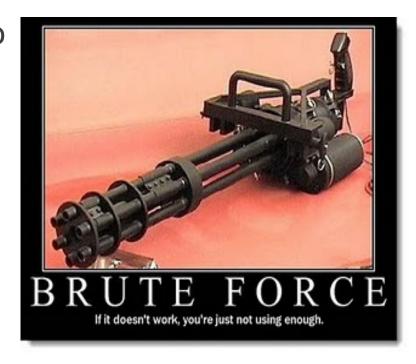
Picnik.com seems to be Secure

So what is the way to crack the lock?



### Google Picnik

- Execute a BruteForce to Files, Dir Attack
- Execute a Sub domainBrute Force Attack
- 3. Port Scanning



# Google Picnik

Treasure Found!!!!!!

Result:

Sub domain: vpn.picnik.com



## Picnik Whols vpn









#### Site report for vpn.picnik.com

#### Home Download Now! Report a Phish Top Reporters Phishiest Countries Phishiest Hosters

Netcraft Toolbar

Most Popular Websites





Site	http://vpn.picnik.com	Last reboot	unknown W Uptime graph
Domain	picnik.com	Netblock owner	Google Inc.
IP address	70.32.137.5	Site rank	unknown
Country	■US	Nameserver	ns1.google.com
Date first seen	June 2011	DNS admin	dns-admin@google.com
Domain Registrar	unknown	Reverse DNS	locke.picnik.com
Organisation	unknown	Nameserver Organisation	Google Inc., Please contact contact- admin@google.com 1600 Amphitheatre Parkway, United States
Check another		Netcraft Site Report Gadget	+ Google™  [More Netcraft Gadgets]

- So what was the story of vpn picnik?,
- Someone installed by mistake a older version of phpList in Picnik vpn sub domain



- So what was the story of vpn picnik?,
- Someone installed by mistake a older version of phpList in Picnik vpn sub domain
- No way!!! With Default Password
   ?



### What Is phpList???



phplist is open source email application & suffers from well known Vulnerabilities



#### phpList 2.10.8 Local File Inclusion

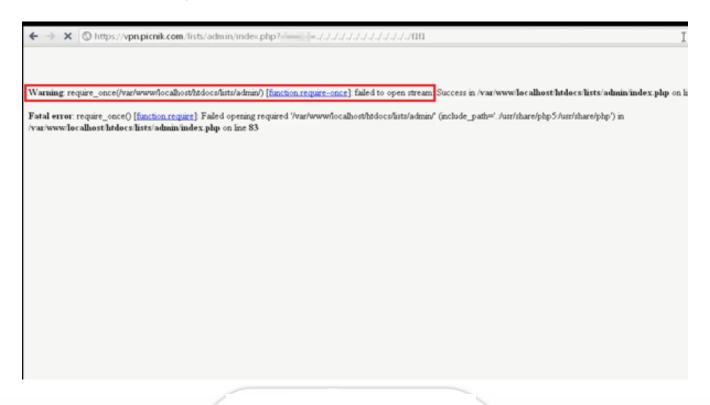
Authored by AmnPardaz Security Research Team | Site bugreport.ir

phpList version 2.10.8 suffers from a local file inclusion vulnerability.

tags | exploit, local, file inclusion MD5 | 59485f67bcd2e29afa9a1d268c69cc7a Posted Jan 15, 2009

Download | Favorite | Comments (0)

File Inclusion vulnerability that allow me to get a Shell with a leet bounty \$3133,7



#### Game Over



Google Security Team security@google.com

to me 🔻

Hey Nir

Congratulations! We determined this was was exploitable and could have led to full server compromise -- \$3133.70

Cheers, Adam



The Picnik is over

### Summary

- Out-Of-The-Box (Hack-In-The-Box) Thinking
- Think different
- Information gathering
- Mixed services
- Permissions

### Reference

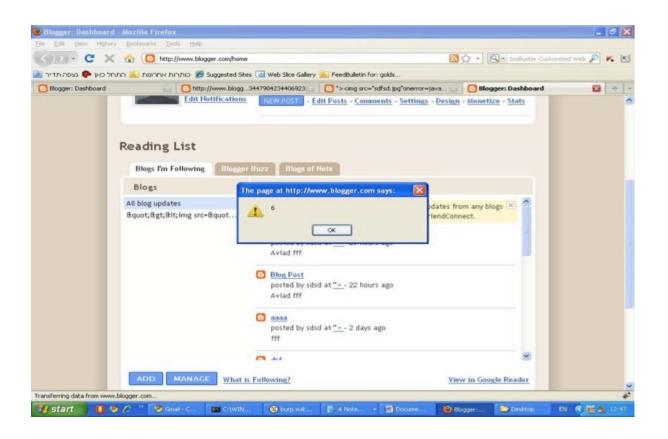
- http://www.nirgoldshlager.com/2011/03/blogger-get-administrator-privilegeon.html - Blogger admin privileges bypass
- <a href="http://www.google.com/about/company/rewardprogram.html">http://www.google.com/about/company/rewardprogram.html</a> Google Reward program
- <a href="http://www.google.com/about/company/halloffame.html">http://www.google.com/about/company/halloffame.html</a> Google Hall of Fame
- <a href="http://www.slideshare.net/michael\_coates/bug-bounty-programs-for-the-web">http://www.slideshare.net/michael\_coates/bug-bounty-programs-for-the-web</a> Michael Coates Bug Bounty Program OWASP 2011

### One more

Maybe it's not a good idea to follow our blogs

### One more

### Maybe it's not a good idea to follow our blogs



# Okay okay, one more

Blogger video...

**HPP Attack** 

Join us tonight at Hack-In-The-Empire event For invites: RSVP@zimperium.com Subject: HITE Invite



# Thank you!

Itzhak "Zuk" Avraham - @IHackBanMe Nir Goldshlager - @NirGoldshlager

