WordPress Site Security & Backups

Better safe than sorry

WordPress Usage Statistics

- 58% of all websites whose CMS we know
- 27% of all websites are running WordPress
- 22 out of every 100 new domains in the US launches with WordPress
- Projected 300-500 Million WordPress sites by 2025

What is CMS Security

- CMS security is a multifaceted hardening of your CMS site.
- This means guarding the CMS backend login page to keep crackers and automated cracking bots out.
- It means being able to identify when someone or something is trying to break into your site or compromise your CMS by inserting malicious files, and stopping them by dropping their connection and banning their IP address, essentially blocking them from future malicious intent.

How do the hackers hack WP?

- Hackers upload contaminated files via FTP or other method.
 - To deal with contaminated file, we must first be able to identify the files.
 - Identification requires file scanning and verification processing that can verify the integrity of CMS site files.
 - When contaminated files are found, we have to have clean backup versions so we can revert back to them.
- Cracking of the login username and password.
 - In this case, the rule of right is to strengthen the password.
 - I also recommend that you implement security plugins and change the WordPress login process.
- Malicious access to the core files.
 - Caused by exploiting code vulnerabilities in Themes, Plugins and WP core files.
 - In this case its up to the site admin to keep up on plugin updates and WordPress core updates and implement updates ASAP.

Web Malware Stats

- 403 Million unique variants of malware in 2011 (Symantec)
 - 140% growth since 2010
- 81% increase in malicious web-based attacks between 2010-2011

WordPress – Vulnerable to Link Injection

Link Injection

- Hacker bots look for known exploits (SQL injection, folder permissions, etc.)
 - Exploits (weaknesses) allows them to insert spam files/ link into WordPress Themes, plugins, and core files

How To Secure WordPress Sites

- Keep your site and systems up to date
 - Keep your Themes up to date
 - Keep your Plugins up to date
 - Keep your WordPress core up to date
- Salt your keys
- Delete any WP Admin Account named "admin"
- Harden file and folder permissions
- Harden passwords force strong passwords
- Restrict file access
- Limit Admin accounts
- Perform Frequent Backups
- Routinely Scan site for malware

WordPress Security

- Keep your WP sites and all its components up to date
- Use Secret Keys a secret key is a hashing salt that inserts random elements into your password, making it harder to hack
- Delete the "admin" user account, after you create a new user with Administration privileges.
 - This is an old note. WP has not used the Admin account in a long time. (There used to be a user named "admin" created when you created a WP site)
- Restrict key File and folder permissions
 - Files set to 644
 - Folders set to 755

Keep your WordPress environment updated

- Each time a security issue pops up, a patch is on its way, meaning that keeping a website up and running securely is a continuous commitment. Having all your files updated to their latest available version is an excellent way to increase the security of your WordPress website.
- From WordPress 3.7+, minor and security updates happen automagically in your WordPress installation, while to perform major updates to WordPress core files, plugins and themes you'll need to either perform them via your dashboard or FTP.
- When talking about keeping all your files updated, there's more than just security enhancements like improved performances, bug fixes, better compatibility and new features.

Don't use "Admin" as your administrator username

"Admin" is the most common username for WordPress admin users. Everybody knows this, thus hackers. To make their life a little more complicated, you should prefer any other username over "admin" and pick one with capital letters. Since you already have a WordPress website, you should now:

Move the wp-config.php file

- WordPress (via plugins) has the ability to move the wp-config.php file to one directory above the WordPress root.
- Moving it out of the root folder makes it nearly impossible for anyone (the hackers, crackers, and bots) to access it.

Lock down WP Login and WP Admin

- Add the code below to wp-config.php to force SSL (https) on login
 - Define)'FORCE_SSL_LOGIN', true);
- Add code below to wp_config.php to force SSL (https)
 on all admin pages
 - Define('FORCE_SSL_ADMIN', true);

Lock Down WP Login and WP Admin

- Create an .htaccess file in your wp-admin directory
- Add the following code to it

```
AuthUserFile /dev/null
```

AuthGroupFile /dev/null

AuthType Basic

order denyAllow

deny from all

#IP address to Whitelist – may not be relevant

#Allow from 67.120.83.59

Keep Your Guard Up At All Times

- Keep your computer up to date
 - If your web host isn't keeping their servers and software up to date, get a better host
- Install Anti-virus on your client computers
- Use a firewall
- Backup your File System and Database (often)
- Have a disaster recovery plan & Practice using it
 - Practice your disaster recovery plan until you feel comfortable with it.
 - Consider have periodic drills and keep the plan current, upgrading software and processes when necessary

Increase WordPress Login Password Security – Force & Enforce Strong Password

"(ALLOWING) Weak passwords have always made WordPress blogs and websites an easy target for hackers and users will always use easy passwords unless there are policies which they have to adhere to."

Robert Abela 2014

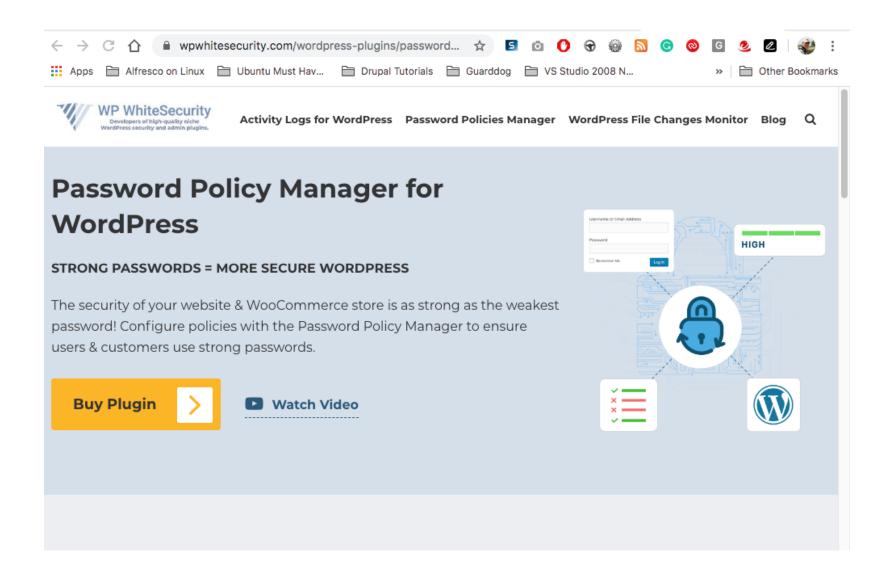
WordPress Allows Weak Passwords

- By default WordPress does not have any built in tools that allow you to enforce passwords policies.
- It only has a strength indicator, but that does not stop users from using weak passwords.
- The best way to ensure all your users uses strong WordPress passwords is by configuring password policies with a plugin that forces users to adhere a strong password policy.

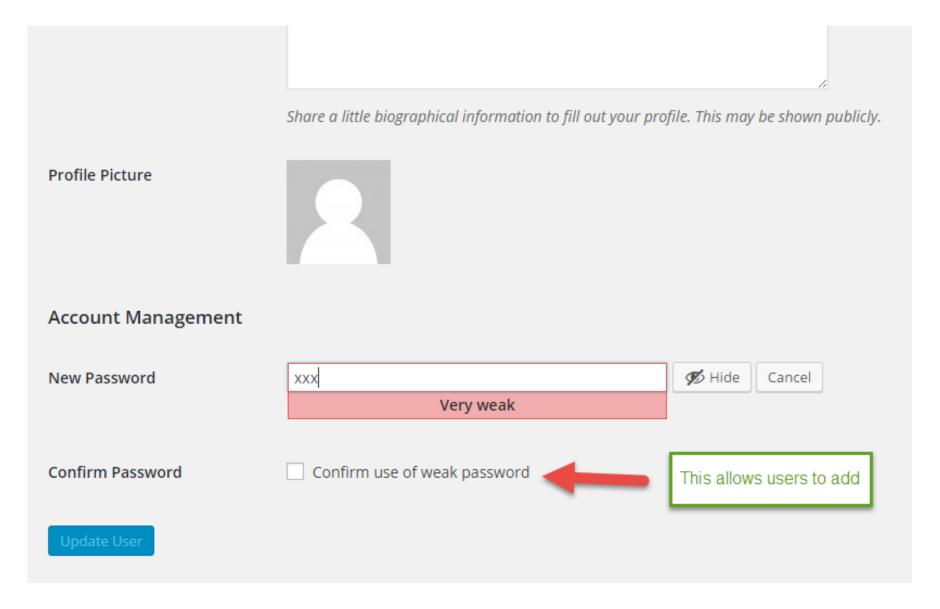
Pick strong passwords (long, with numbers, capital letters, and symbols)

- Long story short: passwords are vital to your WordPress security. That's why you need to start using passwords that have the following features:
- have no words in it to prevent dictionary attack
- have symbols and numbers in it
- be at least 15 characters long

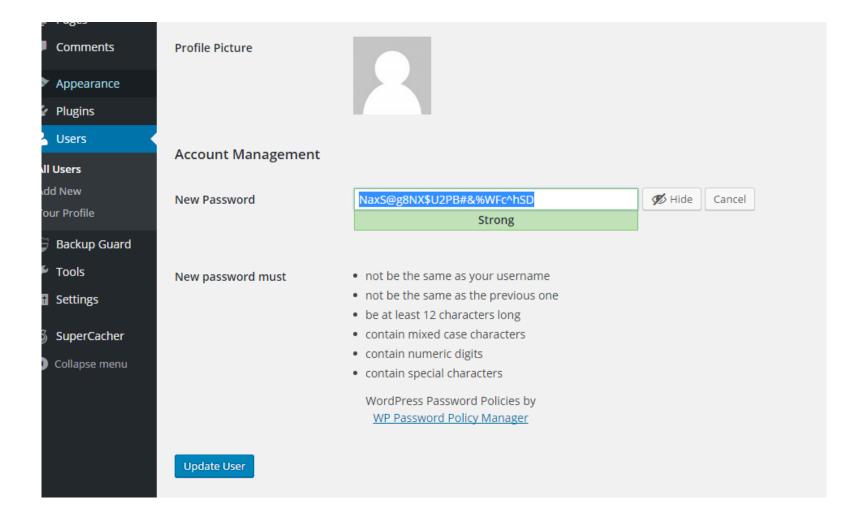
Password Policy Managers Are not Free



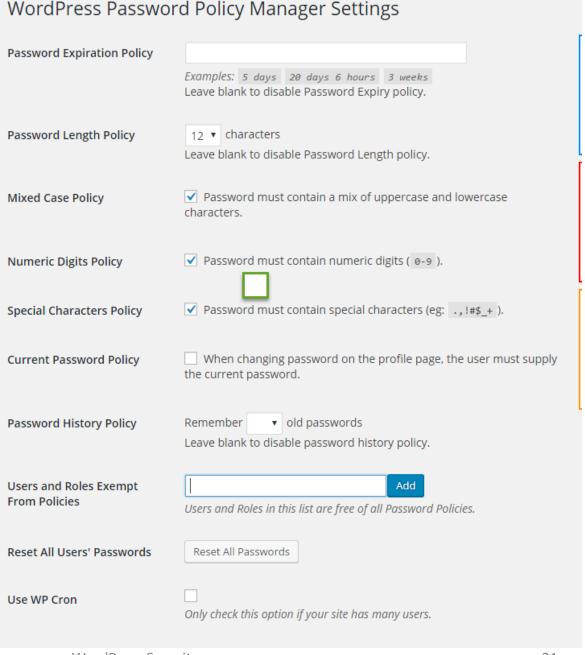
Default WordPress Allows Weak Passwords



WordPress with a Password Policy Manager Prevents Weak Passwords



The better Login policy managers allow you to configure the password – How many character, must contain # of digits or special characters.



WP Security Plugin List

- WordFence Login Security
- WordFence Security Firewall & Malware Scan
- All In One WP Security and Firewall
- Sucuri Security Auditing, Malware, Scanner and Security Hardening
- BullitProof Security
- Login Security Recaptcha
- Defender WordPress Security, Malware Detection and Firewall
- iThemes Security (formerly Better WP Security)

Types of Security

- Password Requirements Manage and configure Password Requirements for users.
- Two Factor Authentication (2FA)
- 404 Detection Automatically block users snooping around for pages to exploit.
- Banned Users Block specific IP addresses and user agents from accessing the site
- File Change Detection Monitor the site for unexpected file changes.
- Local Brute Force Protection Protect your site against attackers that try to randomly guess login details to your site.
- Scan for Malware

Two-Factor Authentication Plugins

- Two-Factor Authentication, (aka Two-Step Verification, 2FA) is an additional layer of security you can add to your WordPress login page.
- With 2FA it is virtually impossible for attackers to login to your WordPress, even if they guess your user's password.
- Two-factor authentication is also good to help mitigate WordPress brute force attacks.

Two Factor Authentication Plugins

Purpose - Secure WordPress login with Two Factor Authentication - supports WP, Woo + other login forms, HOTP, TOTP (Google Authenticator, Authy, etc.)

Two Factor Authentication Google Authenticator
WordFence Login Security

Two Factor Authentication Plugin



Two Factor Authentication

Install Now

Secure WordPress login with Two Factor
Authentication - supports WP, Woo + other
login forms, HOTP, TOTP (Google
Authenticator, Authy, etc.)

More Detai

By David Nutbourne + David Anderson, original plugin by Oskar Hane



,000+ Active Installations

Last Updated: 2 months ac

Compatible with your version of WordPres

Google Autenticator



Google Authenticator – WordPress Two Factor Authentication (2FA)

Install Now

More Details

Simple & Easy 2FA setup with any App supporting TOTP algorithm like Google, Authy, LastPass Authenticator & other 2FA methods.

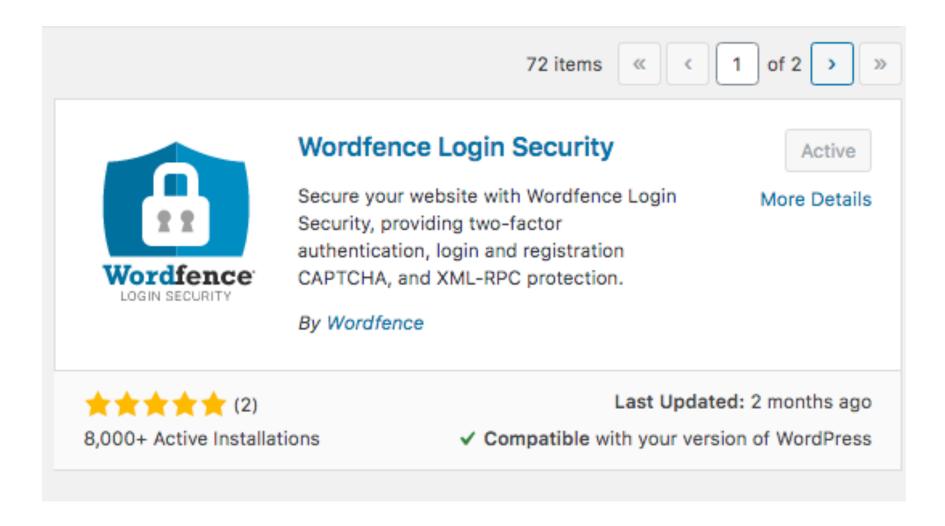
By miniOrange



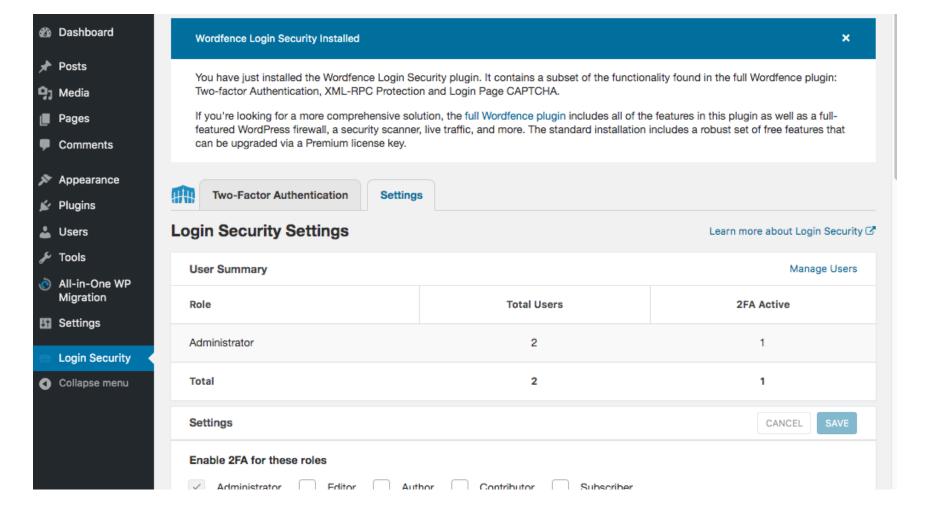
Last Updated: 4 days ago

✓ Compatible with your version of WordPress

WordFence Login Security – Offers 2FA



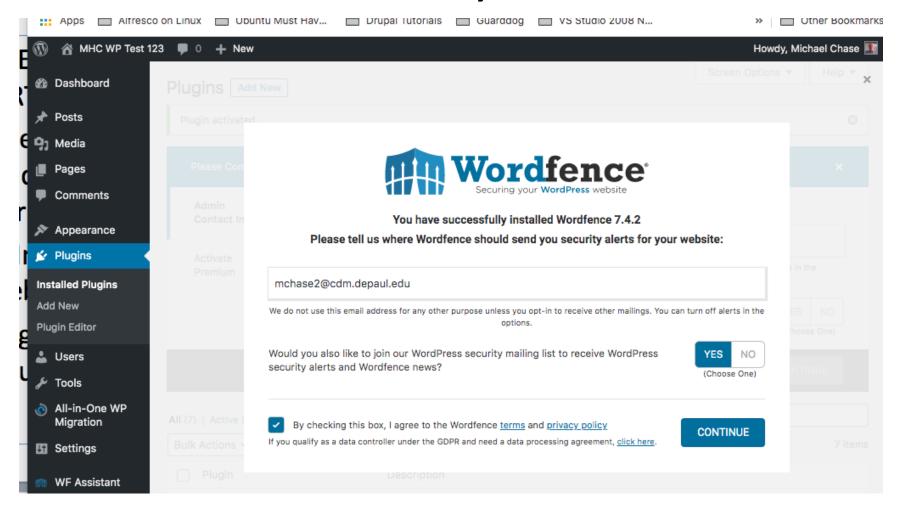
WordFence Login Security – 2FA Easy to setup and configure



All-in-one WP Security Plugin

- COMPREHENSIVE, EASY TO USE, STABLE AND WELL SUPPORTED WORDPRESS SECURITY PLUGIN
- WordPress itself is a very secure platform. This
 plugin adds extra security and firewall to your site
 by enforcing good security practices.
- The All In One WordPress Security plugin will take your website security to a whole new level.
- This plugin is designed and written by experts and is easy to use and understand.

Register the Website and Get Notified of Security Issues



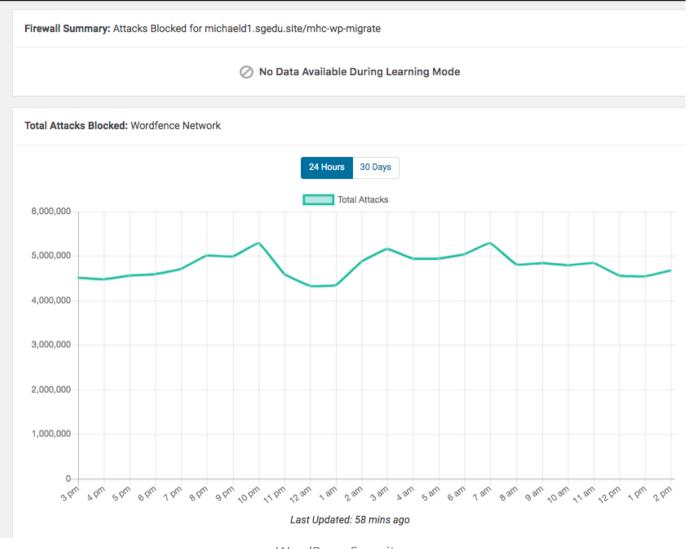
All-in-one WP Security Plugin

- It reduces security risk by checking for vulnerabilities, and by implementing and enforcing the latest recommended WordPress security practices and techniques.
- All In One WP Security also uses an unprecedented security points grading system to measure how well you are protecting your site based on the security features you have activated.
- The All In One WordPress Security plugin doesn't slow down your site and it is 100% free.

All-in-one WP Security Dashboard

To make your site as secure as possible, take a moment to optimize the Wordfence Web Application Firewall: CLICK HERE TO CONFIGURE DISMISS If you cannot complete the setup process, click here for help. Do you want Wordfence to stay up-to-date automatically? Yes, enable auto-update. | No thanks. Wordfence Dashboard Learn more about the Dashboard 2 Wordfence Protection Activated Premium Protection Disabled 48% As a free Wordfence user, you are currently using the Community version of the Threat Defense Feed, Premium users are protected by an additional 1 firewall rules and malware signatures. Upgrade Firewall Scan to Premium today to improve your WAF Currently in Learning Mode Detection of security issues protection. Manage Firewall Manage Scan UPGRADE TO PREMIUM LEARN MORE Wordfence Central Status Notifications Wordfence Central allows you to manage Wordfence No notifications received on multiple sites from one location. It makes security monitoring and configuring Wordfence easier.

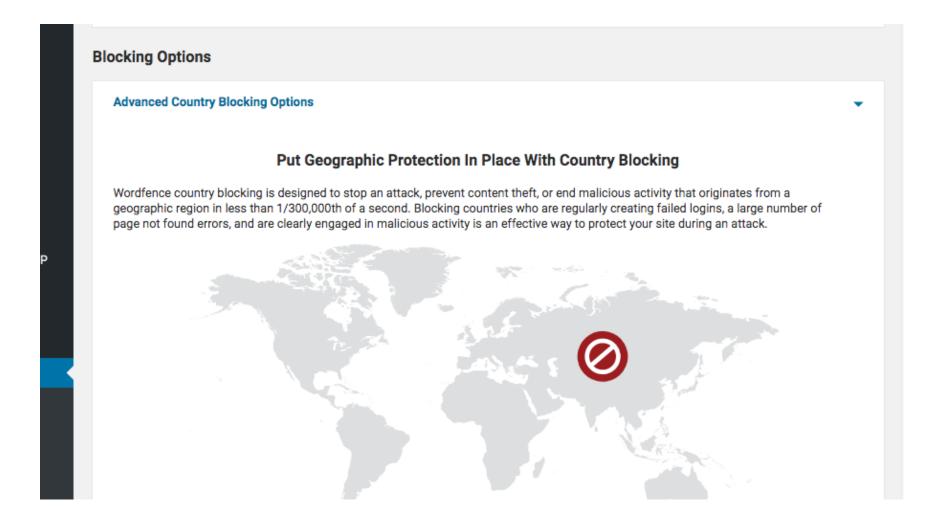
More WordFence Dashboard



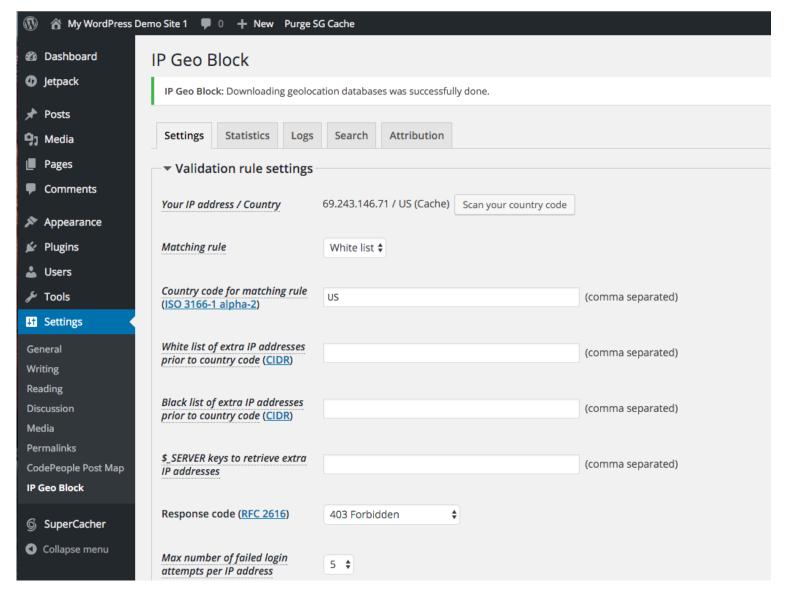
IP Geo Block with Zero Day Exploit Protection

- There are some cases of a site being infected.
 - The first one is the case that contaminated files are uploaded via FTP or some kind of up-loaders. In this case, scanning and verifying integrity of files in your site is useful to detect the infection.
 - The second one is cracking of the login username and password. In this case, the rule of right is to strengthen the password.
 - The third one is caused by malicious access to the core files.
 - The major issue in this case is that a plugin or theme in your site can potentially has some vulnerability such as XSS, CSRF, SQLi, LFI and so on.
 - For example, if a plugin has vulnerability of Local File Inclusion (LFI), the attackers can easily download the wp-config.php without knowing the username and password by simply hitting wp-admin/admin-ajax.php?action=show&file=../wp-config.php on their browser.
- For these cases, the protection based on the IP address is not a perfect solution for everyone.
- But for some site owners or some certain cases such as 'zero-day attack', combination with WP-ZEP can still reduce the risk of infection against the specific attacks.
- That's why this plugin is here.

Like most advanced options, Country blocking is not free with WordFence



IP Geo Block Dashboard



Country Codes – For Blocking Countries



Not used: not used in ISO 3166-1 in deference to intergovernmental intellectual property organisation names.

Unassigned: free for assignment by the ISO 3166/MA only.

Officially assigned code elements [edit]

The following is a complete list of the 249 current officially assigned ISO 3166-1 alpha-2 codes, with the following columns:

- Code ISO 3166-1 alpha-2 code
- Country name English short country name officially used by the ISO 3166 Maintenance Agency (ISO 3166/MA)^[15]
- Year Year when alpha-2 code was first officially assigned (1974, first edition of ISO 3166)
- ccTLD Corresponding country code top-level domain (note that some are inactive); exceptions where another ccTLD is assigned for the country are shown in parentheses
- ISO 3166-2 Corresponding ISO 3166-2 codes
- Notes Any unofficial notes

Code +	Country name +	Year 	ccTLD \$	ISO 3166-2 ÷	Notes
AD	Andorra	1974	.ad	ISO 3166-2:AD	
AE	United Arab Emirates	1974	.ae	ISO 3166-2:AE	
AF	Afghanistan	1974	.af	ISO 3166-2:AF	
AG	Antigua and Barbuda	1974	.ag	ISO 3166-2:AG	
AI	Anguilla	1983	.ai	ISO 3166-2:AI	AI previously represented French Afar and Issas
AL	Albania	1974	.al	ISO 3166-2:AL	
AM	Armenia	1992	.am	ISO 3166-2:AM	
AO	Angola	1974	.ao	ISO 3166-2:AO	
AQ	Antarctica	1974	.aq	ISO 3166-2:AQ	Covers the territories south of 60° south latitude Code taken from name in French: Antarctique
AR	Argentina	1974	.ar	ISO 3166-2:AR	
AS	American Samoa	1974	.as	ISO 3166-2:AS	
AT	Austria	1974	.at	ISO 3166-2:AT	
AU	Australia	1974	.au	ISO 3166-2:AU	Includes the Ashmore and Cartier Islands and the Coral Sea Islands
AW	Aruba	1986	.aw	ISO 3166-2:AW	
	Read televale	0004		100 0400 0:43	An and an arrangement of Finland

Additional Web Resources

Security Related Articles

- http://codex.wordpress.org/Hardening_WordPress
- http://blog.sucuri.net/2012/04/lockdown-wordpress-a-security-webinar-with-dre-armeda.html
- http://blog.sucuri.net/2012/04/ask-sucuri-how-to-stop-the-hacker-and-ensure-your-site-is-locked.html
- http://blog.sucuri.net/2012/04/ask-sucuri-what-should-i-know-when-engaging-a-web-malware-company.html

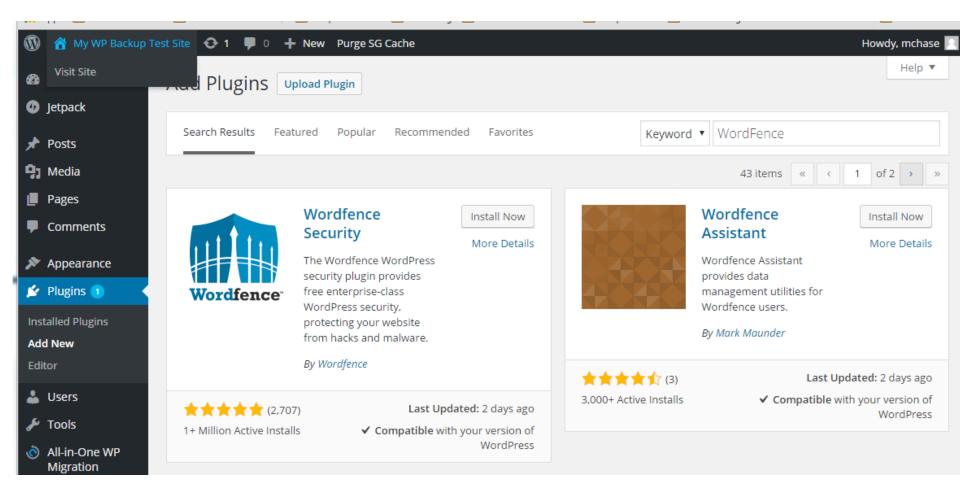
Clean a Hacked Site

- http://codex.wordpress.org/FAQ_My_site_was_hacked
- http://www.marketingtechblog.com/wordpress-hacked/

Support Forums

- Hacked: http://wordpress.org/tags/hacked
- Malware: http://wordpress.org/tags/malware

Wordfence & Wordfence Assistant



Wordfence – Free version is limited

- Its worth installing just for the security scan
- Its complicated to learn and use
- Be patient and take your time and always install the additional assistant plugin – so you can get in if and when you lock yourself out of the site

Wordfence Assistant Why does this additional plugin exist?

- In rare cases, Wordfence users can accidentally lock themselves out of their system.
- Wordfence provides a built-in user-friendly system to regain access to your website which allows site administrators to send themselves an unlock email which contains a link that unlocks their website.
- Because Wordfence has become so popular, we see edge cases where systems administrators no longer have access to their old email address or the email unlock does not work for another reason.
- To help unlock sites with that problem, we've provided this plugin which you can install after you've removed Wordfence from your system.
- You can use this plugin to modify the Wordfence data in your database and disable the Wordfence firewall so that if you reinstall Wordfence the firewall won't lock you out again.
- You can also use this plugin to delete all Wordfence data.

WordFence Scan

To make your site as secure as possible, take a moment to optimize the wordfence web Application Firewall:

Click here to configure.

Dismiss

If you cannot complete the setup process, click here for help.



Wordfence Scan



You have not set an administrator email address to receive alerts for Wordfence. Please click here to go to the Wordfence Options Page and set an email address where you will receive security alerts from this site.

Use My Email Address

Dismiss

Learn more about scanning

Start a Wordfence Scan

Click to kill the current scan.

 Read our scanning documentation. You can also start the tour again, subscribe to get WordPress Security Alerts and Product News or visit our support website help. Love Wordfence? You can help by doing two simple things: Go to WordPress.org now and give this plugin a 5★ rating. Blog about Wordfence and link to the plugin page or www.wordfence.com. Spreading the word helps us keep the best features free.

Scan Summaru

sean samma g		
[Jun 22 23:02:21] Scanning comments for URL's in Google's Safe Browsing List	Secure.	1
[Jun 22 23:02:21] Scanning for weak passwords	Secure.	ı
[Jun 22 23:02:21] Scanning DNS for unauthorized changes	Secure.	ı
[Jun 22 23:02:21] Scanning to check available disk space	Secure.	ı
[Jun 22 23:02:21] Scanning for old themes, plugins and core files	Problems found.	ı
[Jun 22 23:02:22] Scanning for admin users not created through WordPress	Secure.	ı
[Jun 22 23:02:22] Scan complete. You have 15 new issues to fix. See below.	Scan Complete.	

Volume running the Wordfance Community Scan signatures

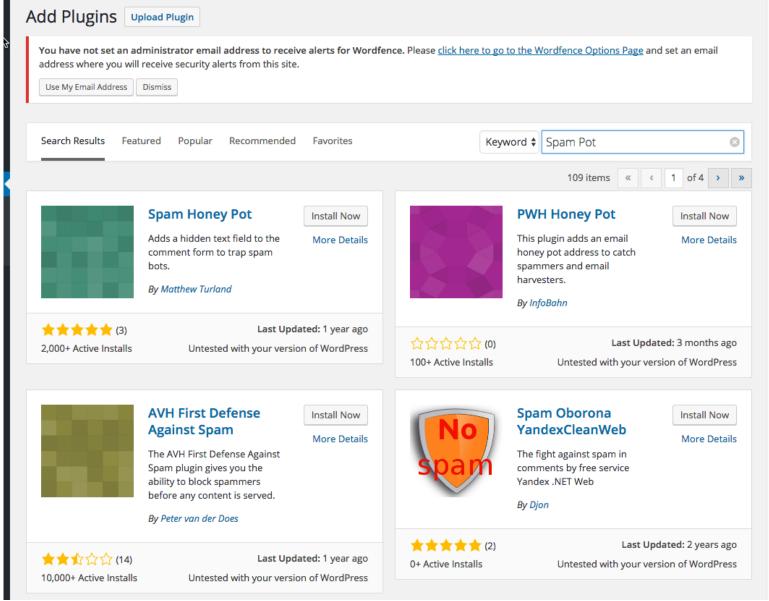
WordFence – Issue alters

you have fixed all the issues below, you can <u>click here to mark all new issues as fixed</u>. You can also <u>ignore all new issues</u> which will exclude all issues listed below from future scans.

Bulk operation»»

SEVERITY	ISSUE					
	security updates from Wo	ion: 4.5.2				
	The Plugin "Akismet" needs an upgrade.					
	Plugin Name:	Akismet				
	Plugin Website:	http://akismet.com/				
	Current Plugin Version: 3.1.10					
	New Plugin Version: 3	3.1.11				
	Severity:	Critical				

Spam Honey Pot



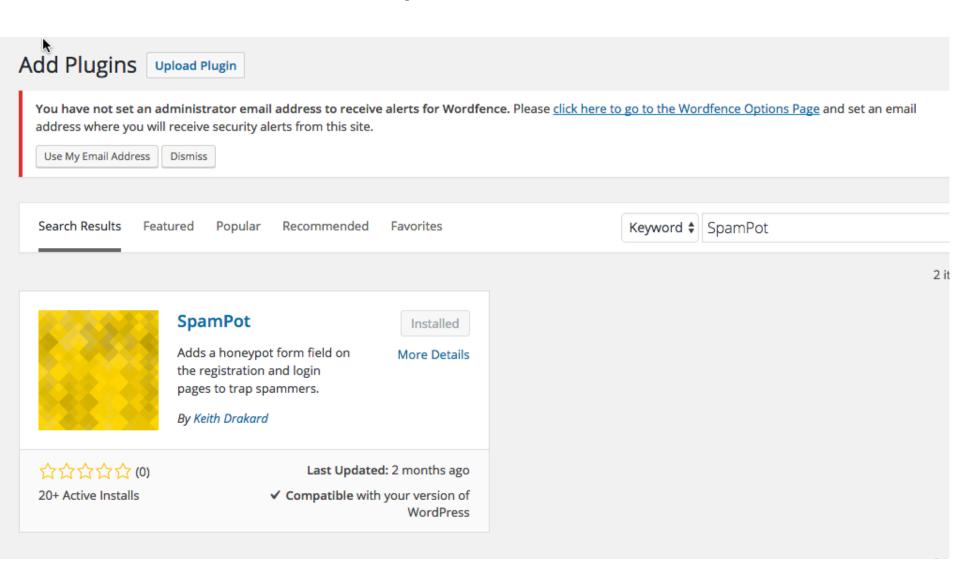
SpamPot Plugin

Blocks spam signups by adding an invisible field to your registration and login forms, and switching its id with the real username or email form field.

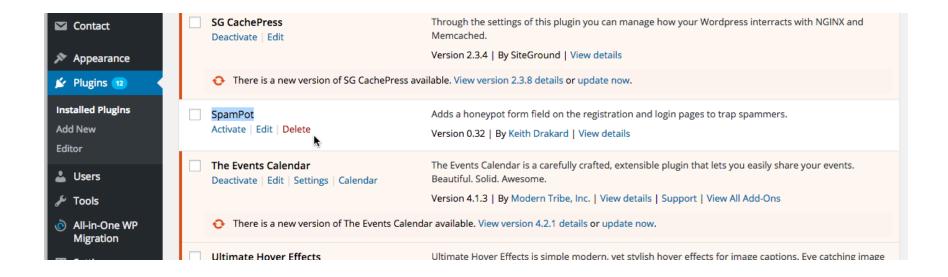
When spam bots blindly fill the "required" fake field in, WP will redirect them to an error message and not let them register or login.

No 3rd party service, no intrusive captchas.

SpamPot



SpamPot On WP Site



WordPress Site Backups

- Its important to make and store site backups during site development
- It's embarrassing to kill your site the day before its due, while adding that last plugin, and not having a way to recover a working version.
- WordPress offers many different plugins for site backups and disaster recovery
- Your web host also offers a backup and restore service (usually its an extra cost)

About Plugin Backups

- Backup and restore plugins that run from within the WordPress admin dashboard are not the best solution
 - If you kill your site and can not login, so what if you have a backup, you can not login to restore the site
 - You will end up deleting the site, re-creating it, installing the backup plugin, and then use the last backup to restore the site. This takes a lot of time and energy

Additional Plugin Backup Issues

- Most free backup plugins only backup to the Web Host server.
- All our Service learning sites are on a shared web host. If you use one of these backup plugins, you will use up our free space and shut us down.
- If you use a backup plugin, use one like ALL IN ONE MIGRATION, which copies the backup to your desktop computer, not the Web Host server file system.

WordPress Backup Plugins

- UpdraftPlus Backup and Restoration
- WP-DB-Backup
- Duplicator
- BackUpWordPress
- WordPress Backup to Dropbox
- All In One Migration

 Do not use Revisor – communication with GIT shuts our SiteGround down

UpdraftPlus Backup and Restoration

- UpdraftPlus Backup and Restoration is one of the most popular free backup plugins available for WordPress.
 - With more than half a million installs and an extraordinarily favorable 4.9 (out of a possible five) star rating, it should definitely make your shortlist.
- You can use Updraft to back up your files to the cloud via Amazon S3, as well as other popular online file storage solutions including Google Drive, Dropbox, Rackspace Cloud.
 - You can also backup your files to the server of your choice with an FTP transfer.
 (DO NOT BACKUP TO SITEGROUND, please)
- UpdraftPlus is also offered as a premium version.
 - Premium gives you a gigabyte of backup storage on the
 - Updraft Vault, additional backup options (including Microsoft OneDrive, SCP, WebDAV, and OpenStack Swift), secure FTP, the ability to clone databases, automatic backup when updating WordPress themes, and the ability to send backups to remote destinations.
 - The premium version costs between \$70 and \$145, depending on the number of sites.

WP-DB-Backup Database only backup, not Files

- Very little is written about WP-DB-Backup on its plugin page. However, its lack of a thorough marketing message apparently hasn't diminished its popularity.
 - The plugin has been downloaded more than half a million times and enjoys a 4.6 star rating.
- WP-DB-Backup, as the name implies, backs up your database, not your files. If you want your files backed up as well, you'll need to look for an alternative solution.

Duplicator

- Duplicator is a backup solution that not only backs up your data, but also duplicates your entire WordPress site.
- This is a powerful backup solution. Maybe that's why the plugin has been installed more than half a million times and currently enjoys a 4.9 star rating.
- This plugin gives you the opportunity to migrate, copy, or clone your entire site from one location to another, which is a great solution if you're looking for complete redundancy in the event that you need a failover option if your primary site goes down.
- Just make sure you do not store the backup file on the SiteGround server.

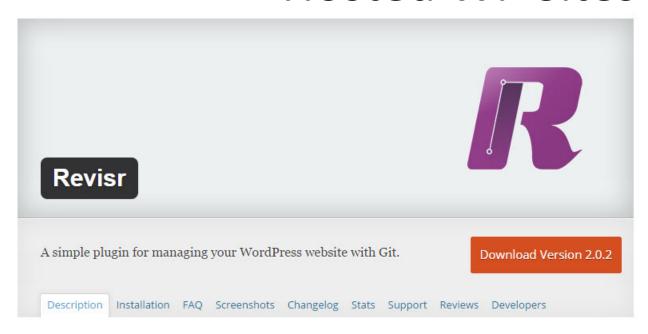
BackUpWordPress

- The appropriately named BackUpWordPress is another excellent option if you're looking for a free WordPress backup system.
 - It's been installed more than 200,000 times, and enjoys a 4.7 (out of a possible
 star rating.
- This plugin requires PHP version 5.3.2 or later.
 - It's not too likely that your WordPress installation is using an old version of PHP, but you'll want to ensure that your version is compliant with this plugin before you install it.
- BackUpWordPress will back up your entire site, including your files and your database, at a schedule that suits your needs.
 - It requires no setup and works on low memory
 - This is an excellent advantage if you're operating on a shared host environment.
- The plugin also gives you the option to use zip and mysqldump for faster backups. That can be a significant benefit if time is of the essence.
- The plugin offers numerous extensions for various cloud storage services, such as Dropbox and Google Drive.
 - You can also purchase a bundle option that will enable you to back up your files to multiple locations. This additional option is highly recommended.

WordPress Backup to Dropbox

- You won't be surprised to learn that WordPress Backup to Dropbox is a backup solution that works with Dropbox.
- It's also a popular solution with more than 100,000 installations.
- With this backup, you'll obviously need a Dropbox account for your backup.
 - That will cost money if your backup is more than 2Gb. Setup is easy you just authorize the plugin with Dropbox. Once that's completed, your backups are fully automated.
- This plugin requires PHP version 5.2.16 or higher with cURL support. Check with your host administrators to check you have the required versions installed.
- The tool also claims to have premium options available for people who need additional functionality, and also offers support for multiple languages.

DO NOT USE – Revisor for any DePaul Web Hosted WP Sites



Revisr allows you to manage your WordPress website with a Git repository. With Revisr, you can:

- Track changes to your entire WordPress installation, or just the parts that you prefer
- Commit changes from within the WordPress dashboard
- Backup or restore your entire website in seconds
- Set up daily or weekly automatic backups
- · Optionally push or pull changes to a remote repository, like Bitbucket or Github
- Test changes out before deploying them to another server
- Revert your website files and/or database to an earlier version
- Quickly discard any unwanted changes

Requires: 3.9.2 or higher Compatible up to: 4.4.4 Last Updated: 7 months ago Active Installs: 2.000+



Revisor works with GIT. Using this plugin will shut us down on SiteGround.

It uses a tremendous amount of communication between the website and GIT and uses up our bandwidth allocation and SiteGround turns us off.

Ratings

Do Use – All In One Migration for WP Site Backups (covered in Migration Lecture)



GitHub

- Consider backing up and providing versioning of your WordPress site by establishing a GitHub repository
- Setting up the repo is complex, and you must take extra steps to secure the WP database and configuration settings