

Developers & Security

My 2 paisa's based on decade and half of my experience

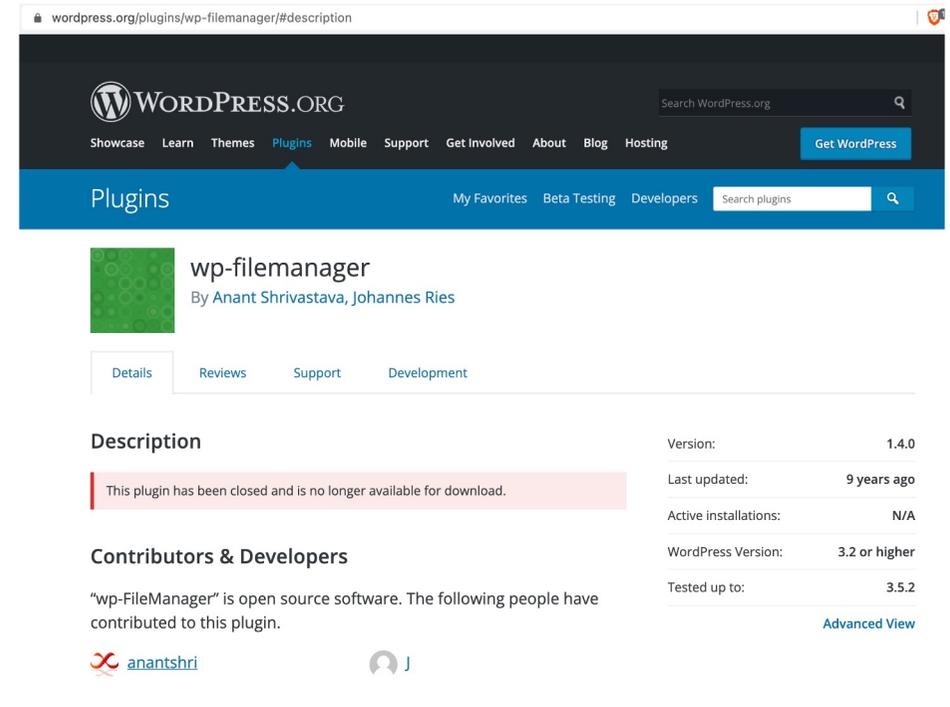
Anant Shrivastava
Cyfinoid Research

Anant Shrivastava

- Chief researcher @ Cyfinoid Research
- 15+ yrs of corporate exposure
- **Speaker / Trainer:** BlackHat, c0c0n, nullcon, RootConf, RuxCon
- **Project Lead:**
 - Code Vigilant (code review project)
 - Hacking Archives of India,
 - TamerPlatform (Android Security)
- (@anantshri on social platforms) <https://anantshri.info>

Why my thoughts matter

- Been a **Developer/Maintainer** of a moderately successful wordpress plugin.
- Closed plugin 9 years ago coz of other commitments and ...
- Faced non responsible disclosure
- So fixed the bug and then called it quits



The screenshot shows the WordPress.org plugin page for 'wp-filemanager'. The page header includes the WordPress logo and navigation links like 'Showcase', 'Learn', 'Themes', 'Plugins', 'Mobile', 'Support', 'Get Involved', 'About', 'Blog', and 'Hosting'. The plugin title is 'wp-filemanager' by 'Anant Shrivastava, Johannes Ries'. Below the title are tabs for 'Details', 'Reviews', 'Support', and 'Development'. The 'Description' section contains a red warning box: 'This plugin has been closed and is no longer available for download.' To the right, a table lists plugin metadata: Version: 1.4.0, Last updated: 9 years ago, Active installations: N/A, WordPress Version: 3.2 or higher, and Tested up to: 3.5.2. The 'Contributors & Developers' section mentions that 'wp-FileManager' is open source and lists 'anantshri' as a contributor.



The screenshot shows an exploit-db entry for a local file download vulnerability in wp-filemanager. The entry includes the following details:

- Title: Wordpress wp-FileManager Local File Download Vulnerability
- Author: ByEge
- Download: <http://wordpress.org/extend/plugins/wp-filemanager/>
- Test Platform: Linux
- Images: <http://j1305.hizliresim.com/19/f/n0xxf.jpg>
- Vuln. Plat.: Web Application

The entry also includes a Google Dorks search query and a test command:

```
Google Dorks: inurl:wp-content/plugins/wp-filemanager/  
Test : http://server/wp-content/plugins/wp-filemanager/incl/libfile.php?path=../../&filename=wp-config.php&action=download
```

Finally, there is an exploit-db note:

```
# Exploit-DB Note:  
# In order for this to work, the "Allow Download" setting must be checked in the FileManager's settings.
```

Why my thoughts matter

- **Maintained** a custom Debian based distribution single handedly since 2012-2018
- Next version to come out soon TamerPlatform.
- The entire infrastructure and related setup was handled as primary **dev + admin**

The screenshot shows the website androidtamer.com with a navigation menu including "Blog", "How to Contribute", "Download", "Learn Android Security", and "Resources". A red box highlights the text: "Android Tamer is a Virtual / Live Platform for Android Security professionals." Below this, a paragraph states: "This Environment allows people to work on large array of android security related task's ranging from Malware Analysis, Penetration Testing and Reverse Engineering." A central image shows a desktop environment with a terminal window open, displaying a list of tools and services such as "Development", "Dynamic Analysis", "Forensics", "Manual Analysis", "Penetration Testing", "Reporting", "Reverse Engineering", "Rom Development", "Android A/V/D Manager", "Android Debug Bridge", "Android SDK Manager", "Android Studio", "Android Tamer Tools Help", "AndroidTamer Website", "Log Off User", "ShutDown", "Synaptic Package Manager", and "Terminal". The desktop background features the "TAMER" logo with an Android robot icon. To the right of the website screenshot, there are statistics: "chat on freenode", "downloads 40k", and a list of events: "DEFCON DEMOLABS 17", "BlackHat Arsenal 2017", "BlackHat Arsenal 2016", and "BlackHat Arsenal 2015". Below these is a "LATEST ANDROID I" section featuring a tweet from "Android Tamer @AndroidTamer" dated 10/17/17, which mentions "Magisk" and "android customization world b Information security folks." with a link to a tweet from "topjohnwu/881152".

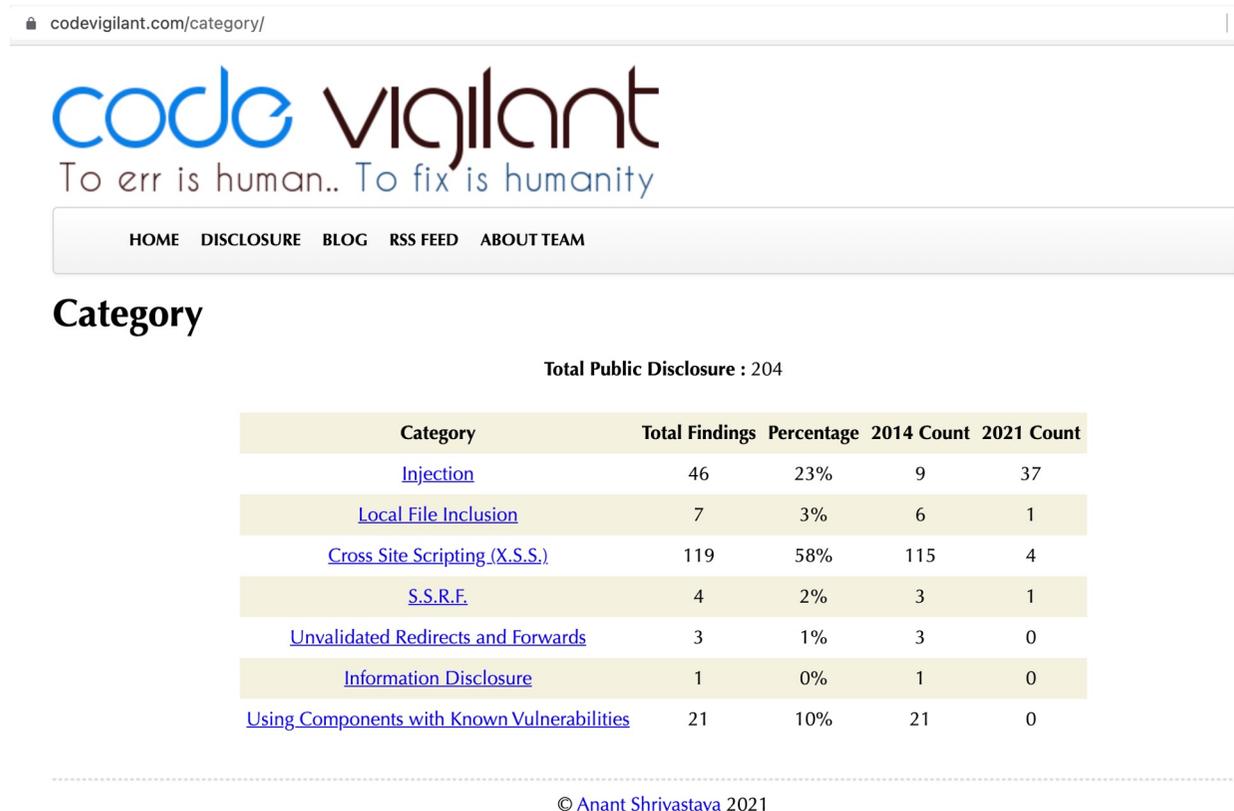
Why my thoughts matter

- Run a static code analysis project called codevigilant
- As of now focused on PHP mainly wordpress plugin and themes
- 200+ public disclosures,
- 150+ to be disclosed.
- Lots under validation process

Built and Maintained

Backend, automation, website

Disclosure process, co-ordination



Why my thoughts matter

- Building a fully static HTML CSS only website
- Website heavily data driven
- Specific aim to not use Javascript at all in website directly
- Coding my own hugo theme as well as writing custom wrappers

hackingarchivesofindia.com

Hackers of India

[Home](#) [Timeline](#) [About](#) [RoadMap](#)

This site is a humble attempt to find the OG's of Indian Hacking Scene, and preserve the details for future generations. Front page consist of a Word Cloud with highlights based on number of talks captured in the system. We are working on adding more conferences in the list regularly [Refer Roadmap](#)

Full timeline is available at [Timeline page](#)

This site currently lists **985** entries by **542** unique individuals

As of Now I have details from : [Blackhat \(221\)](#) [C0c0n \(217\)](#) [Nullcon \(147\)](#) [Hitbsecconf \(68\)](#) [Clubhack \(57\)](#) [Groundzerosummit \(54\)](#) [Defcon \(51\)](#) [Securitybyte \(26\)](#) [Hacklu \(19\)](#) [Deepsec \(18\)](#) [Rootcon \(17\)](#) [Phdays \(15\)](#) [Brucon \(10\)](#) [Malcon \(8\)](#) [Troopers \(8\)](#) [44con \(7\)](#) [Cansecwest \(6\)](#) [Grrcon \(6\)](#) [Owasppappsecindia \(6\)](#) [Hackfest \(5\)](#) [Appsecdayaustralia \(4\)](#) [Hackinparis \(4\)](#) [Syscan \(4\)](#) [Ekoparty \(3\)](#) [Pacsec \(1\)](#). Refer [roadmap](#) for further plans.

Hackers of India

[Saumil Shah \(52\)](#), [Shreeraj Shah \(28\)](#), [Nikhil Mittal \(24\)](#),
[Rahul Sasi \(21\)](#), [Ajit Hatti \(19\)](#), [Ajin Abraham \(18\)](#), [Vivek Ramachandran \(18\)](#),
[Aseem Jakhar \(17\)](#), [Lavakumar Kuppan \(16\)](#),
[Anant Shrivastava \(15\)](#), [Aditya K Sood \(14\)](#), [Jayesh Chauhan \(13\)](#),
[Ravishankar Borgaonkar \(13\)](#), [Nishant Sharma \(12\)](#), [Ankur](#)

Why my thoughts matter

- Running my own collection of websites (~15+) on Wordpress self hosted since 2007
- Maintained entire offensive, defensive and operations network for an infosec company for 6+ years single handedly
- Build automations and supporting various opensource projects via time, effort, money, documentation etc.

Why my thoughts matter

Worked at



Spoken / Trained at



Developers and Security

My 2 Paisa's based on decade and half of my experience of
Development / Administration / Infosec

Software eating the world

https://www.wsj.com/articles/SB10001424053111903480904576512250915629460

WSJ, A NEWS CORP COMPANY ▼

70.61 0.56% ▼

S&P 500 4555.94 0.46% ▼

Nasdaq 14425.19 0.56% ▼

U.S. 10 Yr 4/32 Yield 1.835% ▲

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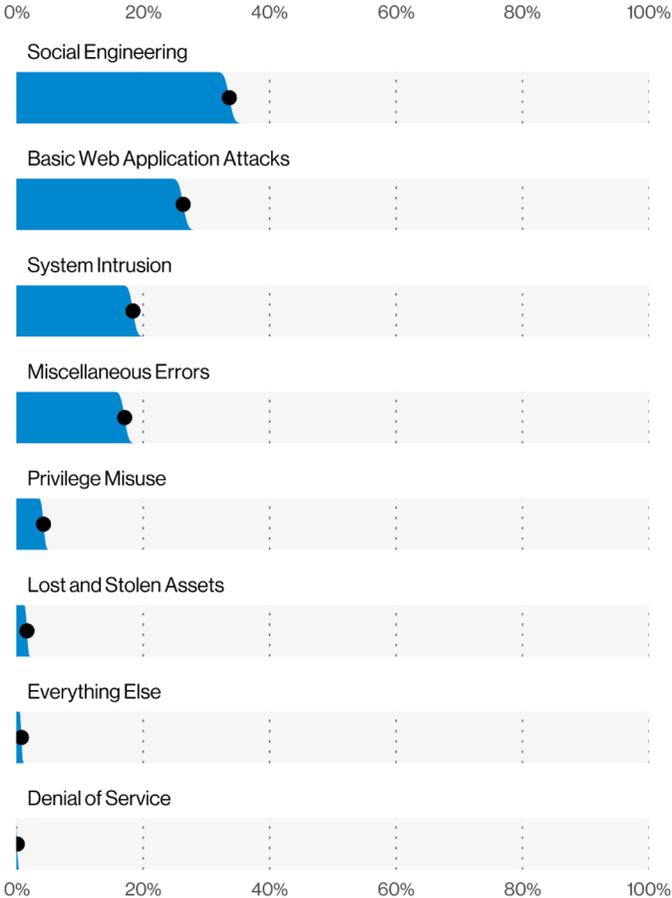
Why Software Is Eating The World

By Marc Andreessen

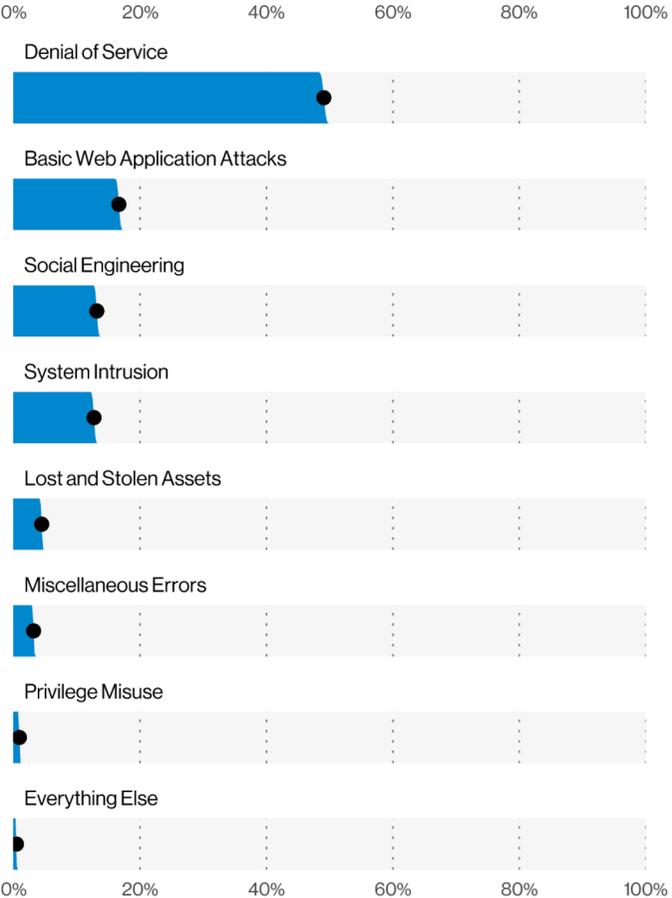
August 20, 2011

Data Breach Investigation Report 2021

- Web applications are primary technical cause of breaches
- 2011 to 2021 : 10 years things have flipped

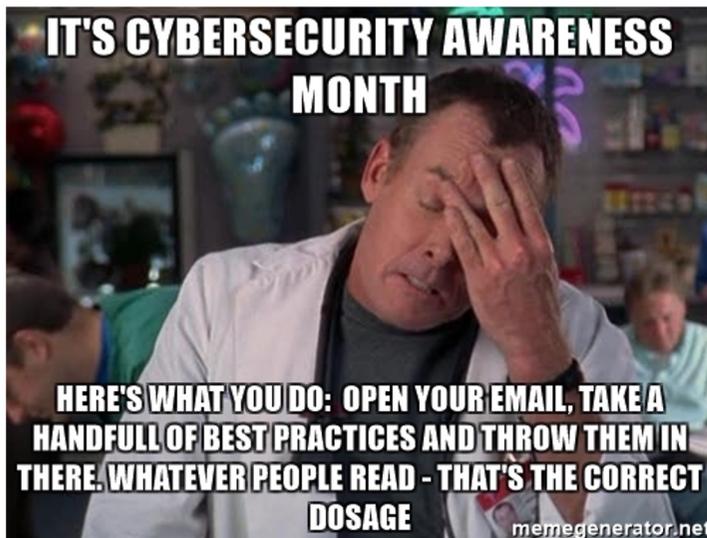


Patterns in breaches (n=5,275)



Patterns in incidents (n=29,206)

The mess of misunderstanding



PICTURES IN BOXES

How to move forward



Cultural Aspect

- Automation alone will not solve the problems
- Encourage security mindset especially if outside sec team
- Cultivate/Identify common goals for greater good
- Build allies (security champions) in company
- Focus on collaboration and inclusive culture
- Avoid Blame Game



Security team should try to eliminate the need of dedicated security team

Collaboration is the key

Defenders Assemble

- Defenders need to focus energy and work together
- Orgs sponsor defense tools and support public collaboration
- Appreciate the firefighters but also appreciate those who don't let the fire start
- Take care of yourself : It's a never-ending war don't focus on the battle only
- Focus on detection and containment
- Assume breach will happen: what happens after, that makes the difference

Refer: <https://medium.com/@johnlatwc/the-githubification-of-infosec-afbdfaad1d1R>



ATT&CK[®]



DEFEND[™]

Developers have a more ingrained role to play

- Security is considered an art and not a science
- Security needs to be commoditized and converted to science
- How do you do it
- Exactly how dev's have done this with infrastructure
 - From manual and long drawn process we have reached to
 - All codified near instantaneous infrastructure deployments

DevOps needs to eat security

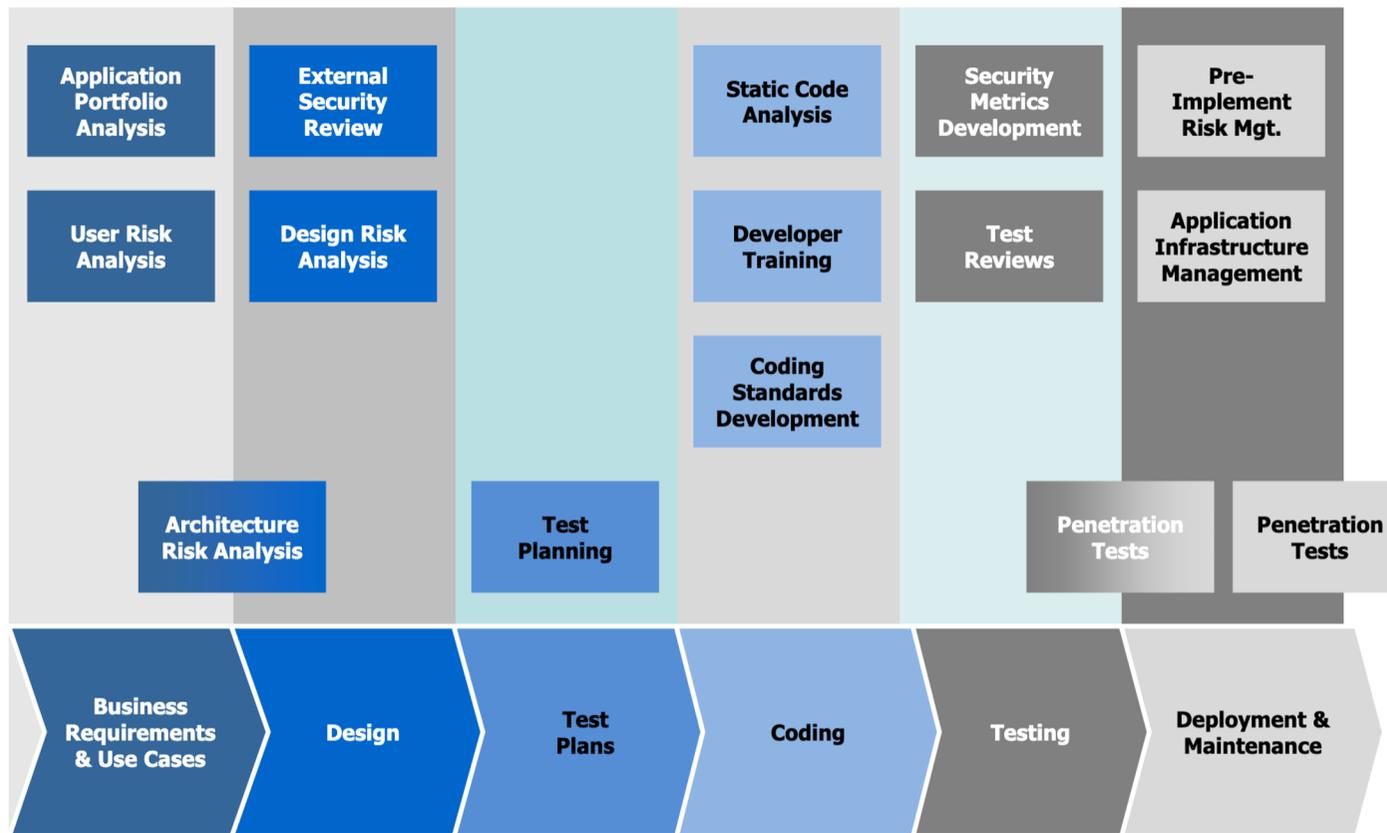
- DevSecOps as a term should not have existed but its here and people use it.
- Eat “security art” and make it “security science”
 - Automatable
 - Documented
 - Testable
 - Repeatable

its may not be 100% possible but it is achievable in high 90's

Developers to take full ownership

- No one and I repeat no one other than dev knows code better
- Leverage security team and support function:
 - Take inputs from them as early and as often as possible
 - Take final ownership of product in your hand
- If security team acts as bottleneck they are doing it wrong

World needs more stable and secure software



Eoin Keary & Jim Manico

[https://owasp.org/www-pdf-archive/Jim_Manico_\(Hamburg\)_-_Securiing_the_SDLC.pdf](https://owasp.org/www-pdf-archive/Jim_Manico_(Hamburg)_-_Securiing_the_SDLC.pdf)

Collaboration in action



Anant Shrivastava @anantshri · Jan 17

I am going to talk with a group of web app developers in a few days. seeking inputs from various infosec professionals what is the one thing you would like me to tell them (it could be a learning, a request, suggestion) all thoughts welcome abuse/absurdity totally not welcome.

[Show this thread](#)



35



9



31

Impressions ⓘ

10,819

New followers ⓘ

0

Profile visits ⓘ

53

<https://twitter.com/anantshri/status/1483031251439464448>

Mix bag of responses

- Some responses specifically asking devs to do this or that
- Lots of suggestions to follow secure early or put security in early stages.
- Unsurprisingly lots spooked with third party dependencies
- But a common theme emerged in all these tweets especially from veterans of this field.

Embrace your power



Simon Bennetts
@psiinon

Replying to @anantshri

"You are responsible for the security of your app. Security people can help you, but you need to build and maintain them to be secure". Oh, and @zapproxy can help a _lot_



4:55 PM · Jan 17, 2022 · Twitter Web App

1 Retweet 1 Quote Tweet 12 Likes



Jim Manico
@manicode

Replying to @abhaybhargav @anantshri and 7 others

In all seriousness, listen to developer needs carefully and address them from a security perspective. Developers are highly intelligent engineers and trust them to do good once you provide good information on how to fix and prevent AppSec issues.

12:04 AM · Jan 19, 2022 · Twitter for Mac

6 Likes



Glenn Pegden - 📧 📧 📧 📧
@GlennPegden

Replying to @GlennPegden and @anantshri

The InfoSec community who encourage a myth that security is a complex discipline that needs dedicated security specialists to do anything security related. This is nonsense, most devs and testers can quickly match the skills of a junior pentester if given a little help

6:30 PM · Jan 17, 2022 · TweetDeck

1 Retweet 4 Likes



Glenn Pegden - 📧 📧 📧 📧
@GlennPegden

Replying to @GlennPegden and @anantshri

Finally, don't let Security "own" your stuff, they may want to police it and be a blocker, but by taking ownership of your own security, you can encourage them out of the way of your delivery pipeline and assist you rather than slow you down

6:48 PM · Jan 17, 2022 · TweetDeck

2 Likes

Lots of other useful advices



Bharadwaj Machiraju
@tunnelshade_

Replying to @anantshri

Question and understand the why's of their infosec professionals' recommendations (when possible)

This improves the game of both teams eg. devs learn bug patterns which they can avoid/look for in PRs and security teams learn interesting ways to fix in nuanced environments

6:38 PM · Jan 17, 2022 · Twitter for iPhone

3 Likes



Sandesh Anand
@JubbaOnJeans

Replying to @anantshri @manicode and 7 others

Security is not a point in time activity. So, get into the mindset of thinking of security as long as you are building something

8:37 PM · Jan 17, 2022 · Twitter Web App

4 Likes



Rishi Narang
@oufsec

Replying to @anantshri

- accountable for what you develop
- preempt the use (+ abuse) cases.
- hash the secrets & encrypt data in transit
- client side security controls can/will be tampered.
- don't trust browsers. If it can be hacked today, it will be hacked tomorrow.
- peer review.

6:16 AM · Jan 18, 2022 · Twitter for iPhone

1 Like



Veronica
@verovaleros

Replying to @anantshri

1. Do not develop your own protocols
2. Encoding is not encryption
3. Use HTTPS

4:33 PM · Jan 17, 2022 · Twitter Web App

2 Retweets 17 Likes

Some very creative ideas



Robin
@digininja

Replying to @digininja and @anantshri

Slight off topic, but if they can get QA at least partially trained in security then they will get a huge win. QA love tickbox checks and automation, they may not understand why a single quote causing an error is a critical finding, but they'll be very good at testing for it

4:44 PM · Jan 19, 2022 · TweetDeck

1 Like



ScottG @scott44017 · Jan 17
Replying to @anantshri

ONE thing is to see/hear from the team what SECURITY CONTROLS and PROCESSES that they perform or are performed by others to their code, software components and platforms.

Think of this a review of their architecture and sdlc process to find things that matter to them

1 4



ScottG @scott44017 · Jan 17
From this I would lead to a couple owasp items:

1. Proactive Controls
2. ASVS
3. Owasp Integration standards

Much depends on app and team.

A Good read here owasp.org/www-project-in...

3 4



ScottG @scott44017 · Jan 17
ASVS level 1 is a good starting point from security pov for development requirements or testing/validating checks

owasp.org/www-project-ap...

Can be used at either stage in lifecycle effectively

1

Did we forgot dependency tracking



Glenn Pegden - 📧 📄 ©️
@GlennPegden

Replying to @GlennPegden and @anantshri

Plan ahead. Dependency management is a nightmare, but think about how one small just crucial security fix in a component use use could impact your stack. Is it safe to update and rebuild everything or have you relied on pinned versions and custom forks that break updating

6:34 PM · Jan 17, 2022 · TweetDeck

2 Likes



AMol NAIk
@amolnaik4

Replying to @anantshri @manicode and 7 others

a request: plan for upgrading code dependencies regularly without breaking the app

4:36 PM · Jan 17, 2022 · Twitter Web App

6 Likes



Teri Radichel #cloudsecurity #cybersecurity
@TeriRadichel

Replying to @anantshri

So much more than one. But include with this: Every line of code is a potential bug. Use abstraction. I have more blogs like this coming based on what I see on pentests and 25 years of dev. Maybe another book coming.

```
if isinstance(v,dict):printdict(v,tabs);return
if (len(str(v)) > 0 and str(v) != '[]' and v != None:
    print(tabs + k.strip() + ": " + str(v).strip());
#else:
    #print(k)
return
instance(v,str):
if not isinstance(k,list):
    if isinstance(v,dict): printdict(v,tabs);return
    if isinstance(v,list): printlist(v,tabs);return
    print(k + ":")
    if isinstance(k[v], dict):printdict(k[v],tabs); return
    if isinstance(k[v], list):printlist(k[v],tabs); return
else: print(tabs + v);return;
```

medium.com

Every Line of Code is a Potential Bug

How to reduce the chances of a security flaw in your application with the principle of abstraction

Some basic ideas to kickstart the brain

- Use customizable tools like semgrep
- Learn how to test the vulnerabilities
- Try to find bug as close to writing code as you can

IDE Plugin > git commit hook > CI tool

Quick References

- <https://owasp.org/www-project-application-security-verification-standard/>
- <https://owasp.org/www-project-proactive-controls/>
- <https://owasp.org/www-project-integration-standards/>
- <https://owasp.org/www-project-spotlight-series/>

Important points recap

- Developers are the best judge of how the code gets changed
- Security teams can help but they cant take ownership
- Pick tools that work for you and automate sec stuff

Thanks

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EMAIL ADDRESS