

Trainee Program Cyber Test path final evaluation, CTF

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Black-Box Assessment of Isolated Host

Disclaimer

By proceeding with this penetration testing, the owner confirms that a signed waiver grants permission for testing aimed at identifying vulnerabilities in the specified security application or website. Furthermore, the owner assumes all business continuity risks associated with this testing.

Document Revision History

Version	Modification	Date	Author	Organization
1.0	Penetration Testing	May 3, 2025	Joshua Ortiz	Contractor
TBD	Reviewed and updated the report	TBD	Joshua Ortiz	Contractor

Executive Summary

The Penetration Team performed vulnerability testing on an isolated host, following the OWASP Top 10 and CWE (Common Weakness Enumeration) methodologies. The purpose of this testing is to evaluate the overall security posture of the system, analyzed from a black-box perspective. This includes determining common attack patterns and identifying vulnerable areas in the internal and external interfaces that threat actors might compromise.

Assessment checklist

Vulnerability Name
Information Disclosure
Brute-Force Attacks:
SQL Injection (SQLi)
Manual Content Analysis
Web Application Footprinting
Page Source Analysis
Directory Enumeration/Brute-Forcing
Username Enumeration





Detection & Analysis

Information Gathering

We first tried to connect to a remote server at IP address 142.93.65.26 using SSH on the standard port 22.

Initial Result: The remote server refused our connection.

We figured the user probably wanted to get into the remote system via SSH to browse files, run commands, or look for security weaknesses.

The OpenSSH-server was running on our local machine but was disabled and not active.

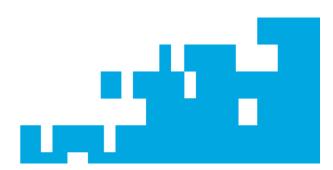
So, we tried to start the local SSH service using sudo systemctl start ssh. As you know, the sudo command is needed because this requires administrator privileges.

After that, we made sure the local SSH service would automatically start every time the system boots by using sudo systemctl enable SSH. The system confirmed this by saying it created some links to make that happen.

Despite getting our local SSH service running, when we tried again to connect to the remote server at 142.93.65.26 on port 22 with the same command, the connection was still refused.

The initial Connection refused wasn't because our local SSH client was broken or because our local SSH service was messing with outgoing connections. The problem was that our local SSH server wasn't even turned on to listen for incoming connections in the first place.

Connection refused after making sure our local SSH was fine strongly suggests the issue is on the remote end (142.93.65.26). The most likely reasons for this are:



- **Firewall Blocking:** There might be a firewall on the remote server (or somewhere in between us) that's blocking connections on port 22.
- Wrong Port: It's less common for the default SSH, but the SSH server on the remote
 machine might be listening on a different port.

Exposed Credentials

We started by trying to get the SSH service running. First, we used systemctl start ssh to start it. Then, we ran systemctl status ssh to confirm that the service was indeed enabled and actively running. After verifying that the local SSH service was up, we tried to connect again. However, when that still didn't work, we started to check the network ports.

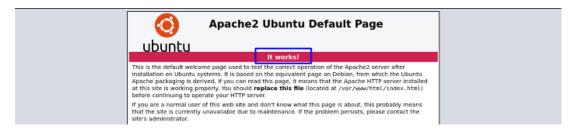
```
| Clochua⊕ kali)-[~]
| $ ssh Jochua⊕142.93.65.26
| ssh: connect to host 142.93.65.26 port 22: Connection refused
| Clochua⊕ kali)-[~]
| $ service ssh status
| o ssh.service - OpenBSD Secure Shell server
| Loaded: loaded (/usr/lib/systemd/system/ssh.service; disabled; preset: disabled)
| Active: inactive (dead)
| Docs: man:sshd(8)
| man:sshd_config(5)
```

```
Jochua® kali)-[~]
$ sudo nmap -p- 142.93.65.26
Starting Nmap 7.95 ( https://nmap.org ) at 2025-05-03 10:53 EDT
Stats: 0:00:18 elapsed; 0 hosts completed (1 up), 1 undergoing SYN Stealth Scan SYN Stealth Scan Timing: About 3.78% done; ETC: 11:01 (0:07:38 remaining)
Stats: 0:00:18 elapsed; 0 hosts completed (1 up), 1 undergoing SYN Stealth Scan SYN Stealth Scan Timing: About 3.79% done; ETC: 11:01 (0:07:36 remaining)
Stats: 0:02:06 elapsed; 0 hosts completed (1 up), 1 undergoing SYN Stealth Scan SYN Stealth Scan Timing: About 69.93% done; ETC: 10:56 (0:00:55 remaining)
Nmap scan report for 142.93.65.26
Host is up (0.00044s latency).
Not shown: 65534 filtered tcp ports (no-response)
PORT STATE SERVICE
80/tcp open http
Nmap done: 1 IP address (1 host up) scanned in 164.19 seconds
```





We identified the active open ports and found port 80 was open, so we started accessing the system through the web interface.



Manual Content Analysis

As part of our penetration testing process, we needed to analyze the content of various .txt files. To achieve this, we employed a two-step approach. First, we used the curl command to fetch the content of a web page and save it into a file named output.txt. Subsequently, we used the cat command to display the contents of output.txt on the terminal, allowing us to manually review it for host details, sensitive information, or any interesting comments.

```
(Jochua⊗kali)-[~]
 -$ gedit output.txt
Command 'gedit' not found, but can be installed with: sudo apt install gedit
Do you want to install it? (N/y)y
sudo apt install gedit
[sudo] password for Jochua:
The following packages were automatically installed and are no longer required:
  firebird3.0-common
                              libc++abi1-19
                                                        libflac12t64
                                                                            libgles1
                                                        libfmt9
                             libconfig++9v5
                                                        libgeos3.13.0
                                                                            libglvnd-dev
                              libconfig9 libgl1-mesa-dev libgtksourceview-3.0-1 libdirectfb-1.7-7t64 libglapi-mesa libgtksourceview-3.0-cd
  libbfio1
                                                                            libgtksourceview-3.0-common
  libc++1-19
                              libegl-dev
                                                        libgles-dev
                                                                            libgtksourceviewmm-3.0-0v5
Use 'sudo apt autoremove' to remove them.
```



Page Source Analysis

An examination was performed of the HTML source for hidden information and attack vectors, specifically looking for:

Unusual Text/Comments: To uncover sensitive data, internal paths, or application hints.

Hidden Files/Directories: By analyzing links, scripts, images, CSS, and forms for non-standard references, inspecting Cookies, Local Storage, and Session Storage in developer tools for sensitive data like session IDs or API keys.

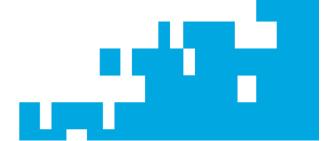
JavaScript Analysis: Reviewing endpoints, credentials, and XSS potential (AJAX requests, sensitive data use).

CSS Analysis: Briefly check for unusual comments or information leaks in class names.

Meta Tags: Examining for clues about the page or underlying technology.









Directory Enumeration/Brute-Forcing

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During directory enumeration using Gobuster, we observed the following HTTP status codes for potentially interesting paths:

Wordpress (Status: 301 Moved Permanently): This suggests the presence of a WordPress installation. The 301 redirect indicates that the resource has permanently moved to http://142.93.65.26/wordpress/, which was later explored.

Javascript (Status: 301 Moved Permanently): This directory likely contains JavaScript files used by the website and has also been permanently redirected to http://142.93.65.26/javascript/. The contents of this directory were forbidden.

Server-status (Status: 403 Forbidden): This path corresponds to an Apache module that typically provides server statistics. The 403 Forbidden status code indicates that access to this page is restricted.

```
A Not secure 142.93.65.26/wordpress/index.php/feed/

| Security | Comments |
```

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Web Application Footprinting

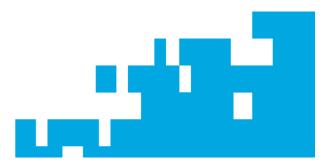
We began to systematically explore the target host, breaking down its structure by identifying various directories and files. Our approach involved using the dirb tool with the common wordlist against the target IP address HTTP://142.93.65.26. This allowed us to discover potential hidden or unlinked parts of the web application.

This process was part of web application foot printing, where we actively map out the structure and content of the target. By employing dirb for directory and file discovery, our goal is to uncover directories and files that might not be obvious or directly accessible from the main website.

Ultimately, by identifying a broader range of files and directories, we are expanding our attack surface mapping, gaining a deeper of the potential areas we are approaching for vulnerabilities and exposures during our penetration testing.

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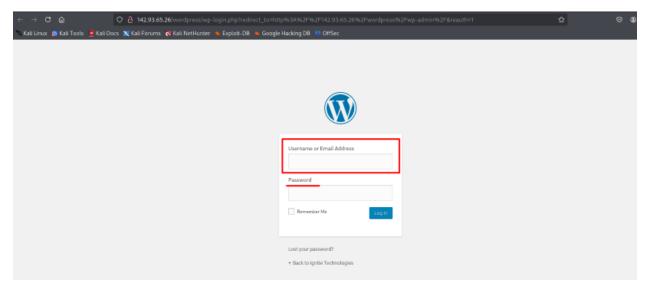






Brute-Forcing a Web Login Form

Through the web footprinting techniques we implemented, we identified the administrative portal. We are now preparing to initiate a brute-force attack, starting with a password list comprised of commonly used passwords incorporating numbers and a variety of characters, as part of our penetration testing.









```
- 3 hydra -1 admin -9 movdlist.txt 142.93.65.26 http-post-fors "Awardpress/Ap-login.php:log-"USER"Spad-"PASS":ERROR_IDENTIFIER"
hydra -0.1 admin -9 movdlist.txt 142.93.65.26 http-post-fors "Awardpress/Ap-login.php:log-"USER"Spad-"PASS":ERROR_IDENTIFIER"
hydra -0.1 color -0.2 base do not use in military or secret service organizations, or for illegal purpose (this is mon-binding, these *** ignore laws and ethics anyway).

hydra (https://github.com/vambauser-thc/thc-bydra) starting at 2825-85-83 is:lai:c4

loaling attacking http-post-form: /142.93.65.26 login: admin passand: asset

[80][http-post-form] host: 142.93.65.26 login: admin passand: asset

[80][http-
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After downloading wp-login.html, we analyze its HTML source code using command-line tools like cat, less, and grep, or by opening it in a text editor. We looked for the structure of the login form, any linked JavaScript, comments, and meta information. While we would us LLP find stored passwords directly on this page, it provides context about the login process and the client-side code involved.

Username Enumeration

http://142.93.65.26/wordpress/author/someusername/



During the assessment of the isolated host, we attempted username enumeration techniques to identify valid user accounts. These attempts were conducted by WordPress.

Also, this involved a detailed examination of accessible PHP files to identify potential vulnerabilities such as injection, cross-site scripting (XSS), file inclusion, and insecure deserialization. Directory traversal techniques were employed to map the application's structure and identify any exposed or misconfigured directories that could reveal sensitive information or provide unauthorized access.

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Remediation:

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Likelihood: LowImpact: LowSeverity: LowCVSS score: 3.8

CVSS Link: Common Vulnerability Scoring System Version 3.8 Calculator

Common Vulnerability Scoring System Version 3.1 Calculator

Conclusion

During the recent penetration testing of an isolated host, we identified and analyzed its exposures and vulnerabilities. Although only one open port was discovered, further vulnerability testing was conducted within the defined rules of engagement. We have developed remediation steps to establish a robust security posture for the organization.

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