DoS/DDoS Pentest

2024-04-18 – 2:05:40 AM

Group IA08 – Spring 2024

fpt university – captsone project

TABLE OF CONTENTS

1 Penetration Testing Scope Statement

● Risk Classifications

Level	Score	Description
Critical	**10**	The vulnerability poses an immediate threat to the organization. Successful exploitation may permanently affect the organization. Remediation should be immediately performed.
High	**7-9**	The vulnerability poses an urgent threat to the organization, and remediation should be prioritized.
Medium	**4-6**	Successful exploitation is possible and may result in notable disruption of business functionality. This vulnerability should be remediated when feasible.
Low	**1-3**	The vulnerability poses a negligible/minimal threat to the organization. The presence of this vulnerability should be noted and remediated if possible.
Informational	**0**	These findings have no clear threat to the organization, but may cause business processes to function differently than desired or reveal sensitive information about the company.

● Exploitation Likelihood Classifications

Likelihood	Description
Likely	Exploitation methods are well-known and can be performed using publicly available tools. Low-skilled attackers and automated tools could successfully exploit the vulnerability with minimal difficulty.
Possible	Exploitation methods are well-known, may be performed using public tools, but require configuration. Understanding of the underlying system is required for successful exploitation.
Unlikely	Exploitation requires deep understanding of the underlying systems or advanced technical skills. Precise conditions may be required for successful exploitation.

● Business Impact Classifications

Impact	Description
Major	Successful exploitation may result in large disruptions of critical business functions across the organization and significant financial damage.
Moderate	Successful exploitation may cause significant disruptions to non-critical business functions.
Minor	Successful exploitation may affect few users, without causing much disruption to routine business functions.

● Remediation Difficulty Classifications

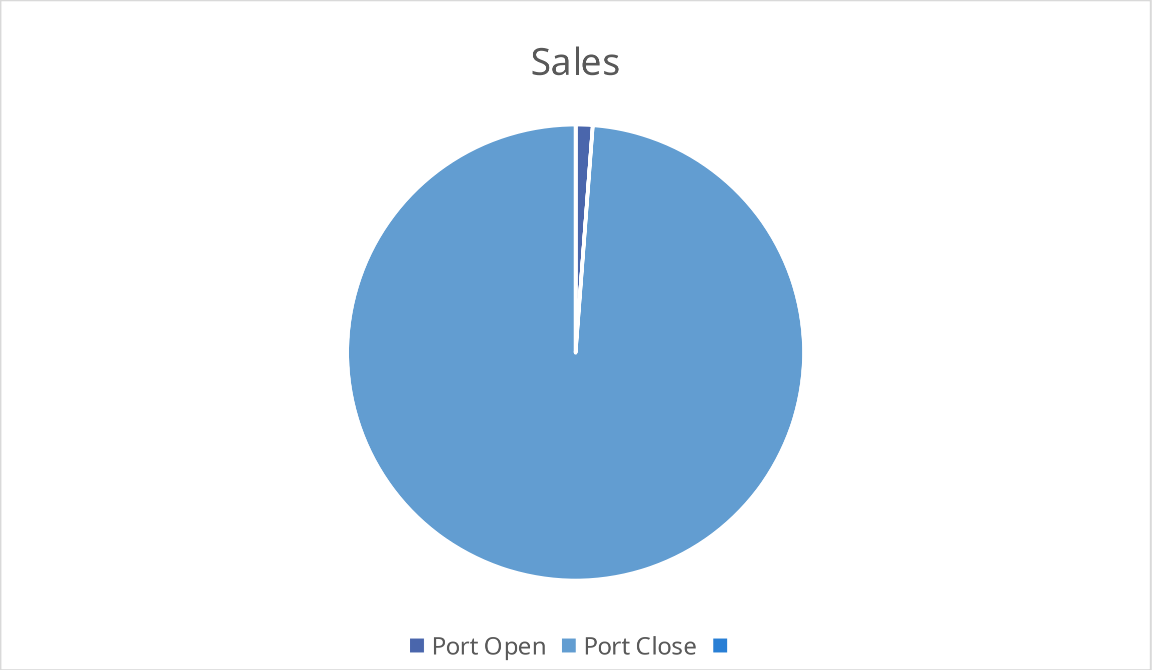
Difficulty	Description
Hard	Remediation may require extensive reconfiguration of underlying systems that is time consuming. Remediation may require disruption of normal business functions.
Moderate	Remediation may require minor reconfigurations or additions that may be time-intensive or expensive.
Easy	Remediation can be accomplished in a short amount of time, with little difficulty.

2 Report Summary

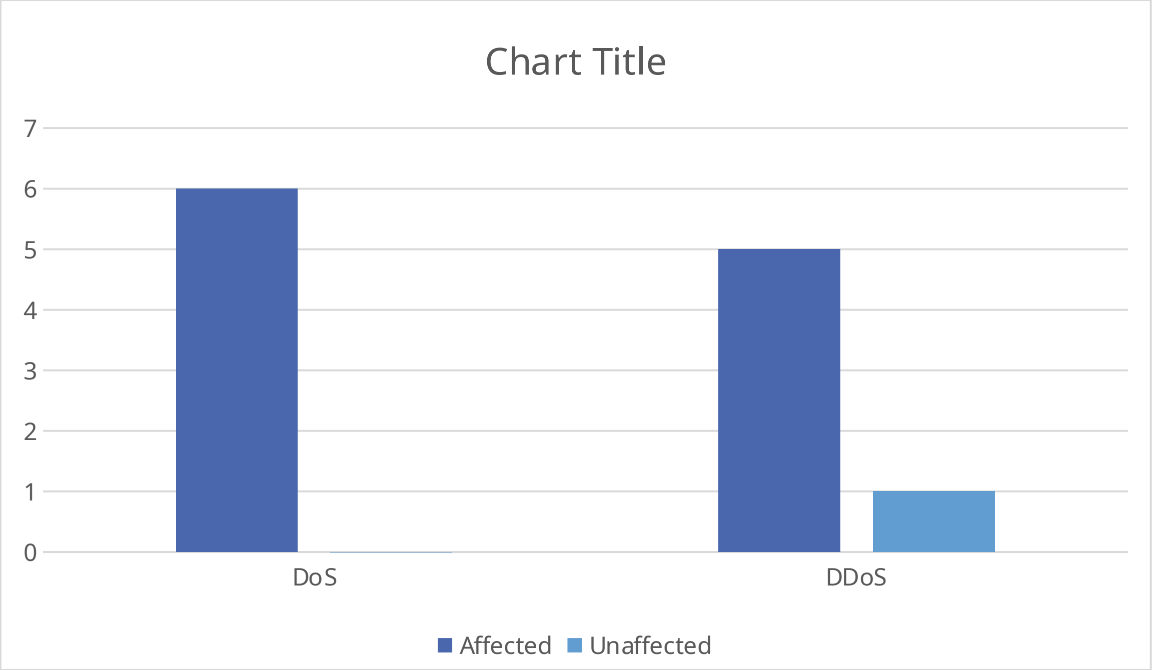
This section contains quick summary of performed on 192.168.133.130

Reconnaissance

Number or port open:



DoS and DDoS Pentest Summary



Attack type	DoS	DDoS
Layer 3		
ICMP Flood	Affected	Affected
Layer 4		
TCP Reset Flood	Affected	Affected
TCP SYN FIN Flood	Affected	Unaffected
TCP PUSH ACK Flood	Affected	Unaffected
TCP FIN Flood	Affected	Affected
UDP Flood	Affected	Affected
Layer 7		

3 Recommendation

1. TCP Reset flood:

- Enable SYN cookies on the server to mitigate SYN flood attacks
- Implement rate limiting for TCP connections
- Use a load balancer or reverse proxy to distribute traffic across multiple servers
- Upgrade network infrastructure to handle higher bandwidth and connection rates

2. TCP: SYN FIN Flood:

- Configure firewall rules to block SYN-FIN packets
- Implement TCP stack hardening techniques on the server
- Use a DDoS mitigation service or appliance to filter malicious traffic

3. TCP: PUSH ACK Flood:

- Configure firewall rules to block PUSH-ACK packets
- Implement rate limiting for TCP connections
- Use a DDoS mitigation service or appliance to filter malicious traffic

4. TCP: FIN flood:

- Configure firewall rules to block FIN packets without an established connection
- Implement TCP stack hardening techniques on the server
- Use a DDoS mitigation service or appliance to filter malicious traffic

5. UDP Flood:

- Implement rate limiting for UDP traffic
- Use a DDoS mitigation service or appliance to filter malicious traffic
- Upgrade network infrastructure to handle higher bandwidth and packet rates

4 Reconnaissance Pentest Activities

- **Scanner:** nmap
- **Scanned time:** undefined

Each port Information:

Port	21	
Service	Name	ftp
	Product	vsftpd
	Version	2.3.4

Port	22	
Service	Name	ssh
	Product	OpenSSH
	Version	4.7p1 Debian 8ubuntu1

Port	23	
Service	Name	telnet
	Product	Linux telnetd
	Version	

Port	25	
Service	Name	smtp
	Product	Postfix smtpd
	Version	

Port	53	
Service	Name	domain
	Product	ISC BIND
	Version	9.4.2

Port	80	
Service	Name	http
	Product	Apache httpd
	Version	2.2.8

Port	139	
Service	Name	netbios-ssn
	Product	Samba smbd
	Version	3.X - 4.X

Port	445	
Service	Name	netbios-ssn
	Product	Samba smbd
	Version	3.0.20-Debian

Port	512	
Service	Name	exec
	Product	netkit-rsh rexecd
	Version	

Port	513	
Service	Name	login
	Product	OpenBSD or Solaris rlogind
	Version	

Port	1099	
Service	Name	java-rmi
	Product	GNU Classpath grmiregistry
	Version	

Port	1524	
Service	Name	bindshell
	Product	Metasploitable root shell
	Version	

Port	3306	
Service	Name	mysql
	Product	MySQL
	Version	5.0.51a-3ubuntu5

Port	5432	
Service	Name	postgresql
	Product	PostgreSQL DB
	Version	8.3.0 - 8.3.7

Port	5900	
Service	Name	vnc
	Product	VNC
	Version	

Port	6667	
Service	Name	irc
	Product	UnrealIRCd
	Version	

Port	8009	
Service	Name	ajp13
	Product	Apache Jserv
	Version	

Port	8180

Service	Name	http
	Product	Apache Tomcat/Coyote JSP engine
	Version	1.1

5.1 DoS Pentest Activities

Layer 3:

Flood Attacks:

Types of attack		ICMP Flood
Used service		HPing3
Status		Success
Describe	Average Ping	2.335 ms
	Max Ping	7.267 ms
	Packet Loss Percentage	11.7647 %

Layer 4:

Flood Attacks:

Types of attack		TCP Reset Flood
Used service		HPing3
Status		Success
Describe	Average Ping	4.882 ms
	Max Ping	11.274 ms
	Packet Loss Percentage	35.2941 %

Flood Attacks:

Types of attack	TCP SYN FIN Flood
Used service	HPing3

Status		Success
Describe	Average Ping	4.765 ms
	Max Ping	12.655 ms
	Packet Loss Percentage	35.2941 %

Flood Attacks:

Types of attack		TCP PUSH ACK Flood
Used service		HPing3
Status		Success
Describe	Average Ping	3.523 ms
	Max Ping	11.098 ms
	Packet Loss Percentage	17.6471 %

Flood Attacks:

Types of attack		TCP FIN Flood
Used service		HPing3
Status		Success
Describe	Average Ping	4.713 ms
	Max Ping	16.012 ms
	Packet Loss Percentage	29.4118 %

Flood Attacks:

Types of attack		UDP Flood
Used service		HPing3
Status		Success
Describe	Average Ping	2.94 ms
	Max Ping	16.299 ms

	Packet Loss Percentage	11.7647 %

Layer 7:

Flood Attacks:

Types of attack		GET Flood
Used service		MHDDoS
Status		Failure
Describe	Average Ping	0.181 ms
	Max Ping	0.291 ms
	Packet Loss Percentage	0 %

Flood Attacks:

Types of attack		POST Flood
Used service		MHDDoS
Status		Failure
Describe	Average Ping	0.271 ms
	Max Ping	0.427 ms
	Packet Loss Percentage	0 %

Flood Attacks:

Types of attack		GET Method with more header
Used service		MHDDoS
Status		Failure
Describe	Average Ping	0.16 ms
	Max Ping	0.295 ms
	Packet Loss Percentage	0 %

Flood Attacks:

Types of attack		HEAD Flood
Used service		MHDDoS
Status		Failure
Describe	Average Ping	0.143 ms
	Max Ping	0.212 ms
	Packet Loss Percentage	0 %

Flood Attacks:

Types of attack		Null UserAgent Flood
Used service		MHDDoS
Status		Failure
Describe	Average Ping	0.282 ms
	Max Ping	0.417 ms
	Packet Loss Percentage	0 %

Flood Attacks:

Types of attack		Random Cookie Flood
Used service		MHDDoS
Status		Failure
Describe	Average Ping	0.208 ms
	Max Ping	0.322 ms
	Packet Loss Percentage	0 %

Flood Attacks:

Types of attack	Slowloris
Used service	MHDDoS

Status		Failure
Describe	Average Ping	0.302 ms
	Max Ping	0.397 ms
	Packet Loss Percentage	0 %

Layer 7:

Other Attacks:

Types of attack		Sends HTTP packets with high byte
Used service		MHDDoS
Status		Failure
Describe	Average Ping	0.114 ms
	Max Ping	0.12 ms
	Packet Loss Percentage	0 %

Other Attacks:

Types of attack		Reading data slowly
Used service		MHDDoS
Status		Failure
Describe	Average Ping	0.114 ms
	Max Ping	0.117 ms
	Packet Loss Percentage	0 %

Other Attacks:

Types of attack		Bypasses normal AntiDDoS
Used service		MHDDoS
Status		Failure
Describe	Average Ping	0.113 ms

	Max Ping	0.12 ms
	Packet Loss Percentage	0 %

5.2 DDoS Pentest Activities

Layer 3:

Flood Attacks:

Types of attack		ICMP Flood
Used service		HPing3
Status		Success
Describe	Average Ping	4.711 ms
	Max Ping	14.864 ms
	Packet Loss Percentage	47.0588 %

Layer 4:

Flood Attacks:

Types of attack		TCP Reset Flood
Used service		HPing3
Status		Success
Describe	Average Ping	5.623 ms
	Max Ping	15.029 ms
	Packet Loss Percentage	52.9412 %

Flood Attacks:

Types of attack		TCP SYN FIN Flood

Used service		HPing3
Status		Failure
Describe	Average Ping	10.601 ms
	Max Ping	39.51 ms
	Packet Loss Percentage	5.88235 %

Flood Attacks:

Types of attack		TCP PUSH ACK Flood
Used service		HPing3
Status		Success
Describe	Average Ping	4.349 ms
	Max Ping	17.48 ms
	Packet Loss Percentage	11.7647 %

Flood Attacks:

Types of attack		TCP FIN Flood
Used service		HPing3
Status		Success
Describe	Average Ping	1.017 ms
	Max Ping	2.746 ms
	Packet Loss Percentage	35.2941 %

Flood Attacks:

Types of attack		UDP Flood
Used service		HPing3
Status		Success
Describe	Average Ping	49.666 ms

	Max Ping	630.723 ms
	Packet Loss Percentage	23.5294 %

Layer 7:

Flood Attacks:

Types of attack		GET Flood
Used service		MHDDoS
Status		Failure
Describe	Average Ping	0.219 ms
	Max Ping	0.35 ms
	Packet Loss Percentage	0 %

Flood Attacks:

Types of attack		POST Flood
Used service		MHDDoS
Status		Failure
Describe	Average Ping	0.738 ms
	Max Ping	1.186 ms
	Packet Loss Percentage	0 %

Flood Attacks:

Types of attack		GET Method with more header
Used service		MHDDoS
Status		Failure
Describe	Average Ping	1.086 ms
	Max Ping	1.538 ms
	Packet Loss Percentage	0 %

Flood Attacks:

Types of attack		HEAD Flood
Used service		MHDDoS
Status		Success
Describe	Average Ping	0.268 ms
	Max Ping	0.479 ms
	Packet Loss Percentage	28.57142857142857 %

Flood Attacks:

Types of attack		Null UserAgent Flood
Used service		MHDDoS
Status		Success
Describe	Average Ping	1.534 ms
	Max Ping	2.383 ms
	Packet Loss Percentage	28.57142857142857 %

Flood Attacks:

Types of attack		Random Cookie Flood
Used service		MHDDoS
Status		Success
Describe	Average Ping	1.104 ms
	Max Ping	1.521 ms
	Packet Loss Percentage	25 %

Flood Attacks:

Types of attack		Slowloris

Used service		MHDDoS
Status		Success
Describe	Average Ping	0.844 ms
	Max Ping	1.074 ms
	Packet Loss Percentage	25 %

Layer 7:

Other Attacks:

Types of attack		Sends HTTP packets with high byte
Used service		MHDDoS
Status		Failure
Describe	Average Ping	0.23 ms
	Max Ping	0.331 ms
	Packet Loss Percentage	0 %

Other Attacks:

Types of attack		Reading data slowly
Used service		MHDDoS
Status		Failure
Describe	Average Ping	0.364 ms
	Max Ping	1.023 ms
	Packet Loss Percentage	0 %

Other Attacks:

Types of attack	Bypasses normal AntiDDoS
Used service	MHDDoS
Status	Failure

Describe	Average Ping	0.478 ms
	Max Ping	0.982 ms
	Packet Loss Percentage	0 %