Task 1

Task 1 :Scan Your Local Network for Open Ports

1.Insta l Nmap from official website.

I complete installation

2.Find your local IP range (e.g., 192.168.1.0/24).

```
C:\WINDOWS\system32\

C:\Users\Asus>ipconfig

Windows IP Configuration


Ethernet adapter Ethernet:

   Media State . . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :

Ethernet adapter Ethernet 4:

   Connection-specific DNS Suffix  . :
   Link-local IPv6 Address . . . . . : fe80::127a:499d:be32:7d77%21
   IPv4 Address. . . . . . . . . . . : 192.168.56.1
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . :

Wireless LAN adapter Local Area Connection* 1:

   Media State . . . . . . . . . . . : Media disconnected
```

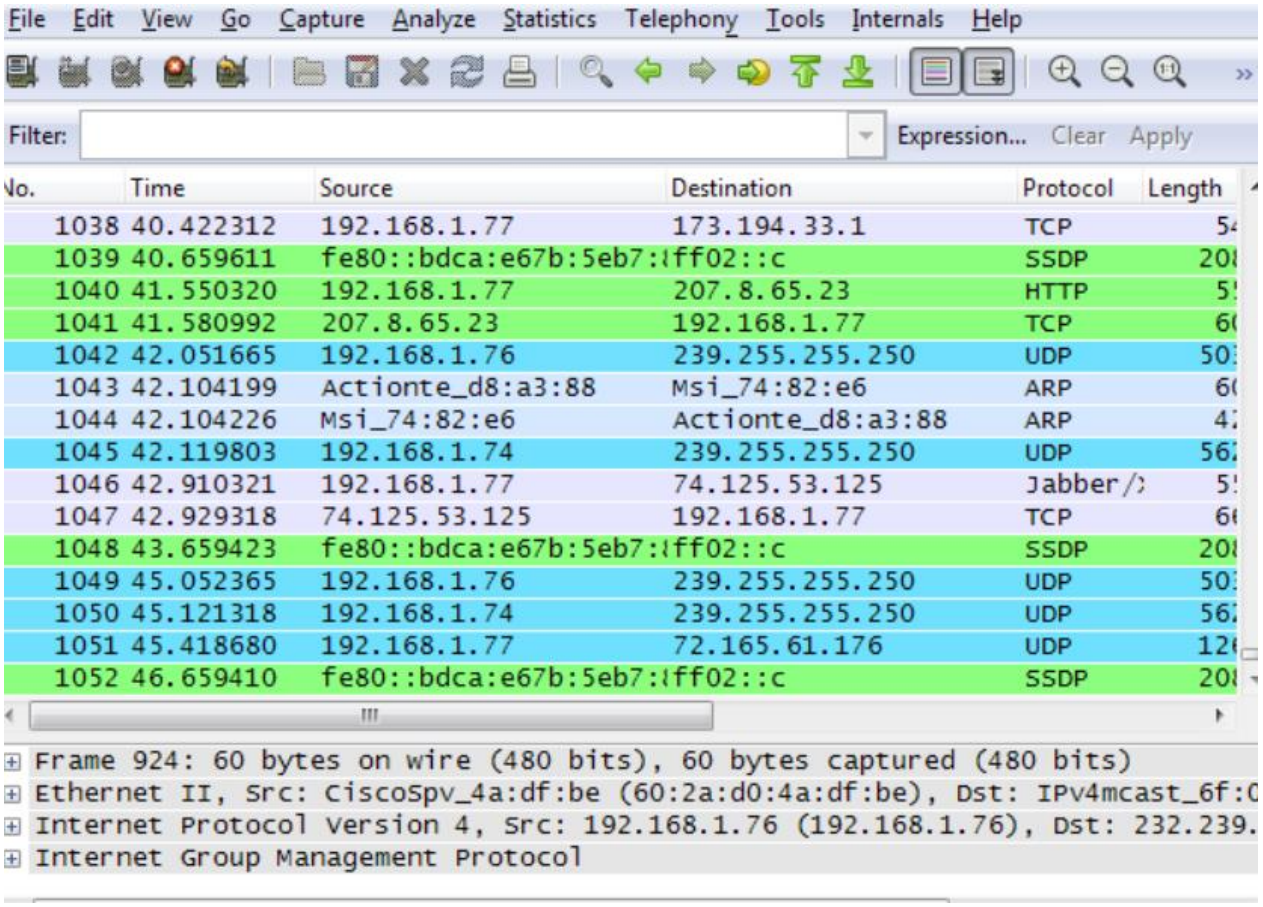
3.Run: nmap -sS 192.168.1.0/24 to perform TCP SYN scan.

```
Not shown: 994 closed ports
PORT     STATE    SERVICE
135/tcp  open     msrpc
139/tcp  open     netbios-ssn
445/tcp  open     microsoft-ds
514/tcp  filtered shell
902/tcp  open     iss-realsecure
912/tcp  open     apex-mesh
```

4.Note down IP addresses and open ports found.

Yes I note down

5.Optionally analyze packet capture with Wireshark.



6.Research common services running on those ports.

Yes I notes few protocol in show above

7.Identify potential security risks from open ports.

Show any port are risk provide to system or not

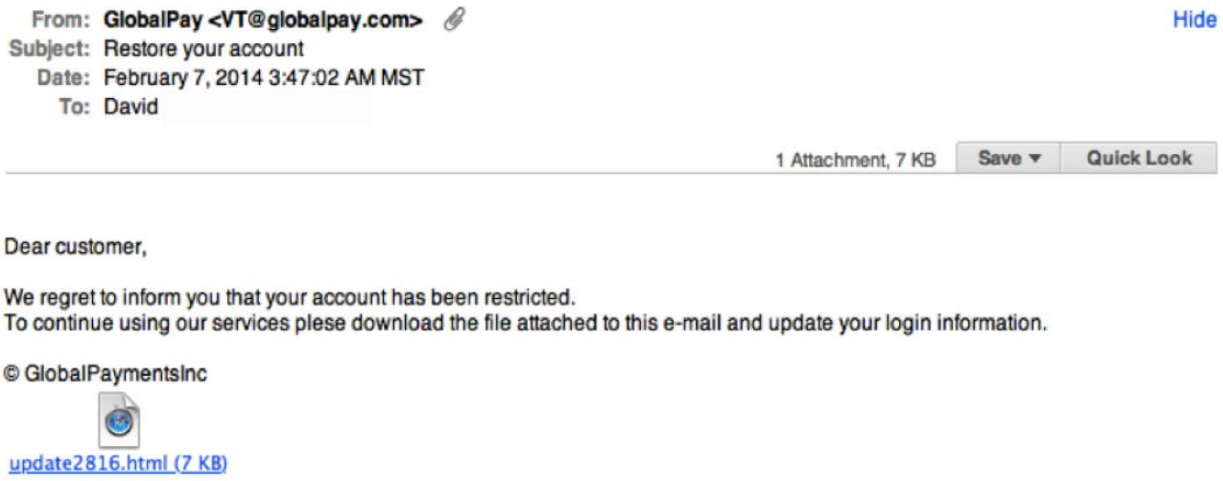
If yes → close, block, or secure it.

8.Save scan results as a text or HTML file.

Name	Filter
Ethernet broadcast	eth.addr == ff:ff:ff:ff:ff:ff
No ARP	not arp
IPv4 only	ip
IPv4 address 192.0.2.1	ip.addr == 192.0.2.1
IPv4 address isn't 192.0.2.1 (don't use != for this!)	!(ip.addr == 192.0.2.1)
IPv6 only	ipv6
IPv6 address 2001:db8::1	ipv6.addr == 2001:db8::1
IPX only	ipx
TCP only	tcp
UDP only	udp
Non-DNS	!(udp.port == 53 || tcp.port == 53)
TCP or UDP port is 80 (HTTP)	tcp.port == 80 || udp.port == 80
HTTP	http
No ARP and no DNS	not arp and !(udp.port == 53)
Non-HTTP and non-SMTP to/from 192.0.2.1	ip.addr == 192.0.2.1 and not tcp.port in {80 25}

Task 2: Analyze a Phishing Email Sample

1.Obtain a sample phishing email (many free samples online).



From: GlobalPay <VT@globalpay.com>
Subject: Restore your account
Date: February 7, 2014 3:47:02 AM MST
To: David

Hide

1 Attachment, 7 KB | Save ▾ | Quick Look

Dear customer,

We regret to inform you that your account has been restricted.
To continue using our services plese download the file attached to this e-mail and update your login information.

© GlobalPaymentsInc

update2816.html (7 KB)

2.Examine sender's email address for spoofing.

```
Delivered-To: david@example.com
Received: by 10.76.84.202 with SMTP id d10csp3498721oab;
        Fri, 07 Feb 2014 03:47:15 -0700 (MST)
X-Received: by 10.152.35.5 with SMTP id h5mr9284714lab.49.1391765235143;
        Fri, 07 Feb 2014 03:47:15 -0700 (MST)
Return-Path: <VT@globalpay.com>
Received: from mail.fakeglobalpay.com (unknown [203.0.113.42])
        by mx.example.com with ESMTP id abc123xyz456
        for <david@example.com>;
        Fri, 07 Feb 2014 03:47:02 -0700 (MST)
Authentication-Results: mx.example.com;
       spf=fail (example.com: domain of VT@globalpay.com does not designate
       dkim=fail header.i=@globalpay.com;
       dmarc=fail (p=REJECT) header.from=globalpay.com
From: GlobalPay <VT@globalpay.com>
To: David
Subject: Restore your account
Date: Fri, 07 Feb 2014 03:47:02 -0700
Message-ID: <20140207034702.VT12345@globalpay.com>
MIME-Version: 1.0
Content-Type: multipart/mixed; boundary="phishing-boundary"
Content-Disposition: inline
X-Mailer: PhishMailer 1.0
```

3.Check email headers for discrepancies (using online header analyzer).

Delivery Information

- ✖ DMARC Compliant
  - ✔ SPF Alignment
  - ✖ SPF Authenticated
  - ✖ DKIM Alignment
  - ✖ DKIM Authenticated

Header Name	Header Value
Delivered-To	david@example.com
X-Received	by 10.152.35.5 with SMTP id h5mr9284714lab.49.1391765235143; Fri, 07 Feb 2014 03:47:15 -0700 (MST)
Return-Path	<VT@globalpay.com>
Authentication-Results	mx.example.com; spf=fail (example.com: domain of VT@globalpay.com does not designate 203.0.113.42 as permitted sender) smtp.mailfrom=VT@globalpay.com; dkim=fail header.i=@globalpay.com; dmarc=fail (p=REJECT) header.from=globalpay.com
From	GlobalPay <VT@globalpay.com>
To	David
Subject	Restore your account
Date	Fri, 07 Feb 2014 03:47:02 -0700
Message-ID	<20140207034702.VT12345@globalpay.com>
MIME-Version	1.0
Content-Type	multipart/mixed; boundary="phishing-boundary"
Content-Disposition	inline
X-Mailer	PhishMailer 1.0

4.Identify suspicious links or attachments.

https://tinyurl.com/mhswfafx

5.Look for urgent or threatening language in the email body.

https://www.virustotal.com

It checks if the URL is malicious.

6.Note any mismatched URLs (hover to see real link).

- *"Account suspended"*
- *"Pay now or lose access"*
- *"Immediate action required*

7.Verify presence of speling or grammar errors.

- *Broken English*
- *Spelling errors*

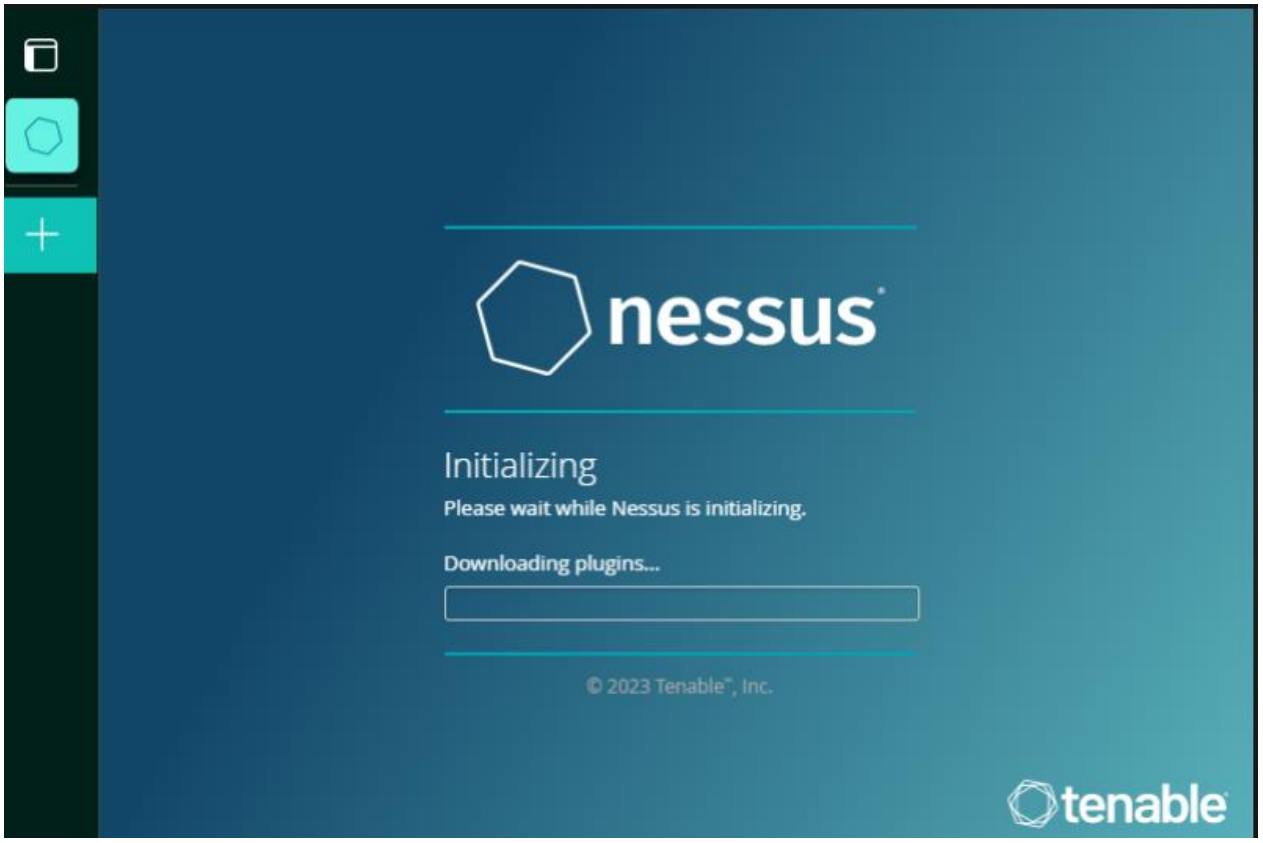
- *Misused punctuation*

8.Summarize phishing traits found in the email.

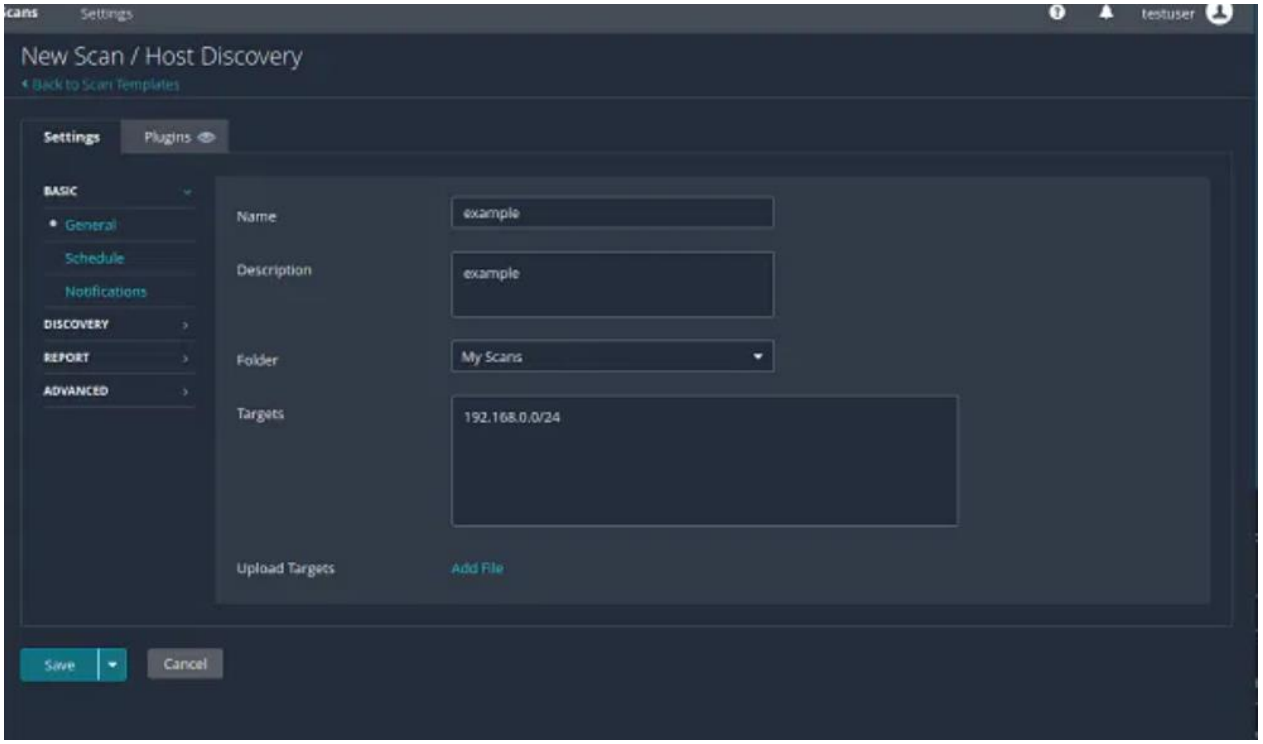
- **Fake Sender Address:**
- From: security@apple-support.com → looks like Apple, but not real.
- **Spoofed Links:**
- Link: http://apple.secure-login-update.com (not real Apple site)
- **Header Analysis:**
- SPF: fail
- DKIM: not signed
- **Urgent Language:**
- “Your account will be locked in 24 hours.”
- **Spelling/Grammar Errors:**
- “acount” instead of “account”
- “safely verify you information”
- **Suspicious Attachment:**
- Invoice.html → may contain malicious code

Task 3: Perform a Basic Vulnerability Scan on Your *PC.*

1.Install OpenVAS or Nessus Essentials.



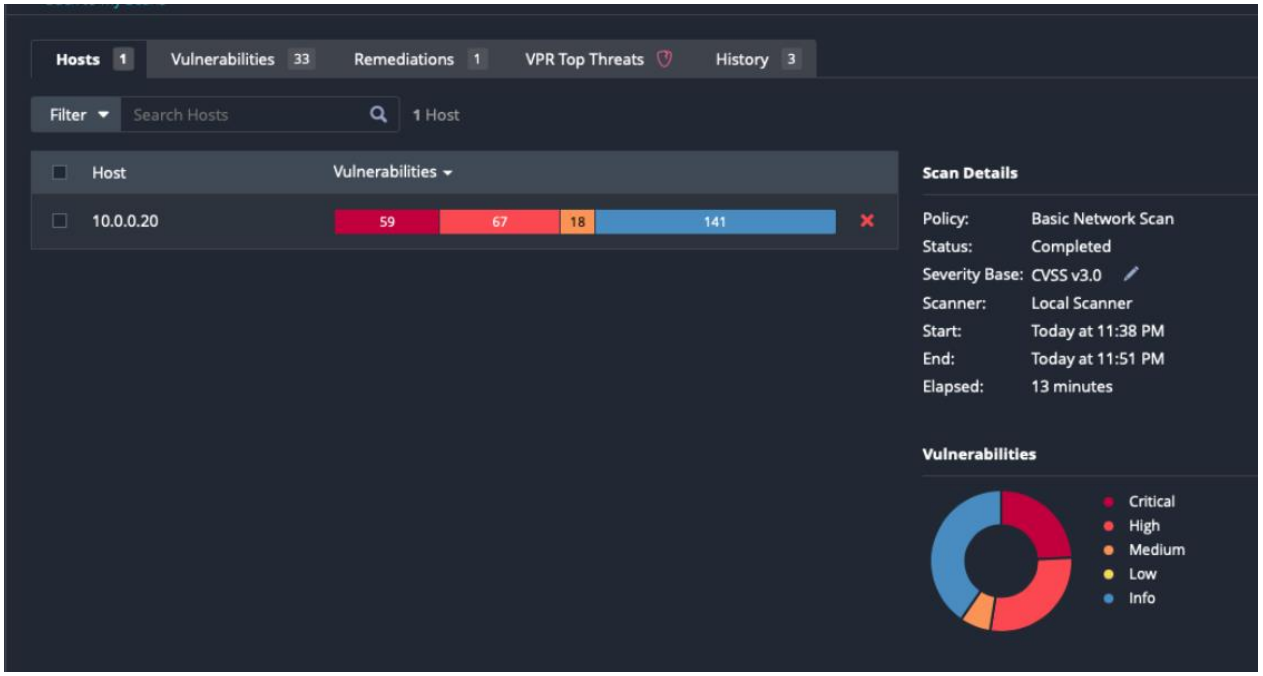
2.Set up scan target as your local machine IP or localhost



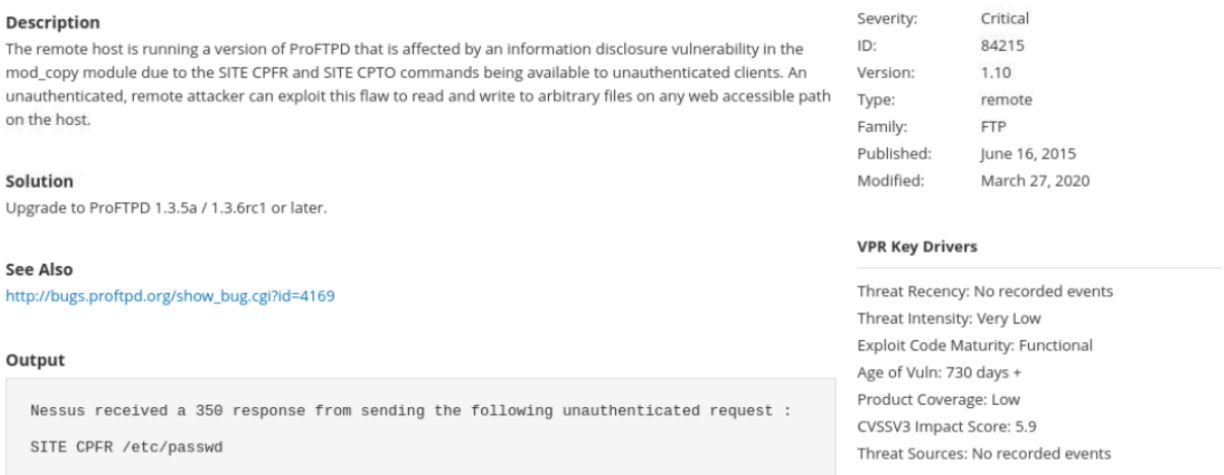
3.Start a full vulnerability scan.

4.Wait for scan to complete (may take 30-60 mins).

5.Review the report for vulnerabilities and severity



6.Research simple fixes or mitigations for found vulnerabilities.



Description

The remote host is running a version of ProFTPD that is affected by an information disclosure vulnerability in the mod_copy module due to the SITE CPFR and SITE CPTO commands being available to unauthenticated clients. An unauthenticated, remote attacker can exploit this flaw to read and write to arbitrary files on any web accessible path on the host.

Solution

Upgrade to ProFTPD 1.3.5a / 1.3.6rc1 or later.

See Also

http://bugs.proftpd.org/show_bug.cgi?id=4169

Output

```
Nessus received a 350 response from sending the following unauthenticated request :

SITE CPFR /etc/passwd
```

Severity: Critical
ID: 84215
Version: 1.10
Type: remote
Family: FTP
Published: June 16, 2015
Modified: March 27, 2020

VPR Key Drivers

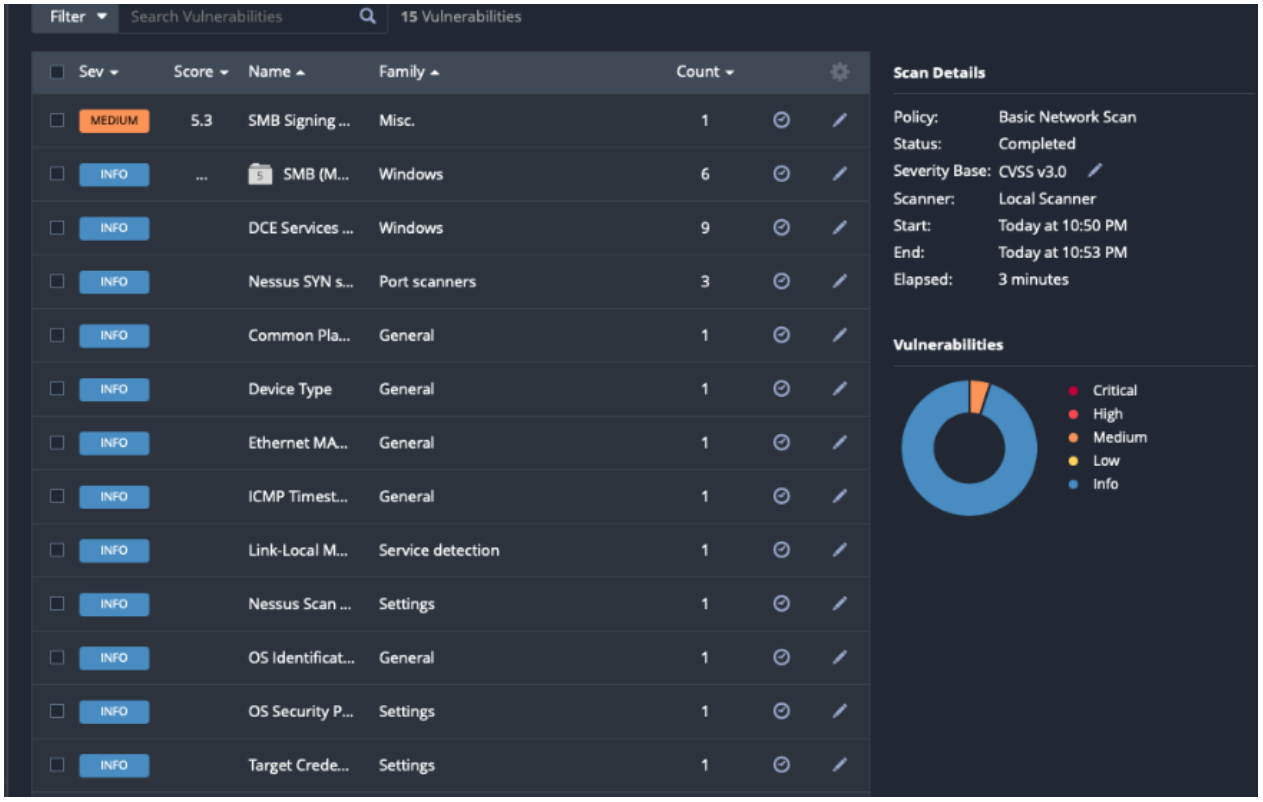
Threat Recency: No recorded events
Threat Intensity: Very Low
Exploit Code Maturity: Functional
Age of Vuln: 730 days +
Product Coverage: Low
CVSSV3 Impact Score: 5.9
Threat Sources: No recorded events

7.Document the most critical vulnerabilities.

File Edit View

```
Description:
The system has Server Message Block version 1 (SMBv1) protocol enabled. SMBv1 is an outdated file-sharing protocol that is vulnerable to remote c
execution (RCE) attacks. Notably, it was exploited in the WannaCry ransomware attack.

Affected Operating Systems:
- Windows 7
- Windows 8.1
- Windows Server 2008
- Windows Server 2012

Impact:
If SMBv1 is not disabled, attackers can:
- Remotely execute code
- Spread malware like worms/ransomware
- Compromise multiple systems over the network

Evidence Found:
- Port 445 detected as open
- SMB version 1.0 confirmed active by Nessus

Remediation:
To disable SMBv1 on Windows:

PowerShell Command:
Set-SmbServerConfiguration -EnableSMB1Protocol $false

Additional Tips:
- Restart the system after running the command
- Confirm by checking SMB status:
  Get-SmbServerConfiguration | Select EnableSMB1Protocol

Final Note:
Disabling SMBv1 is a critical step in hardening your system against modern cyber threats. Always prefer SMBv2 or SMBv3 for secure file sharing.
```

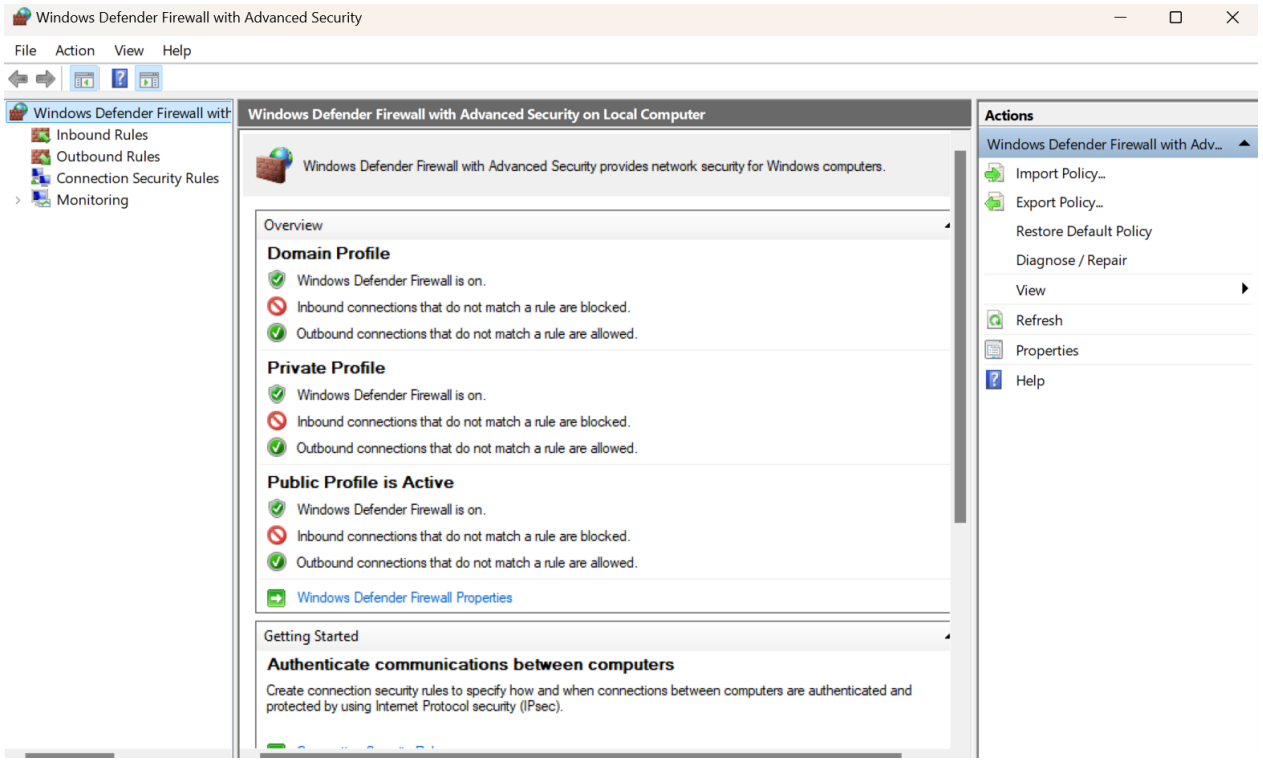
8.Take screenshots of the scan results.



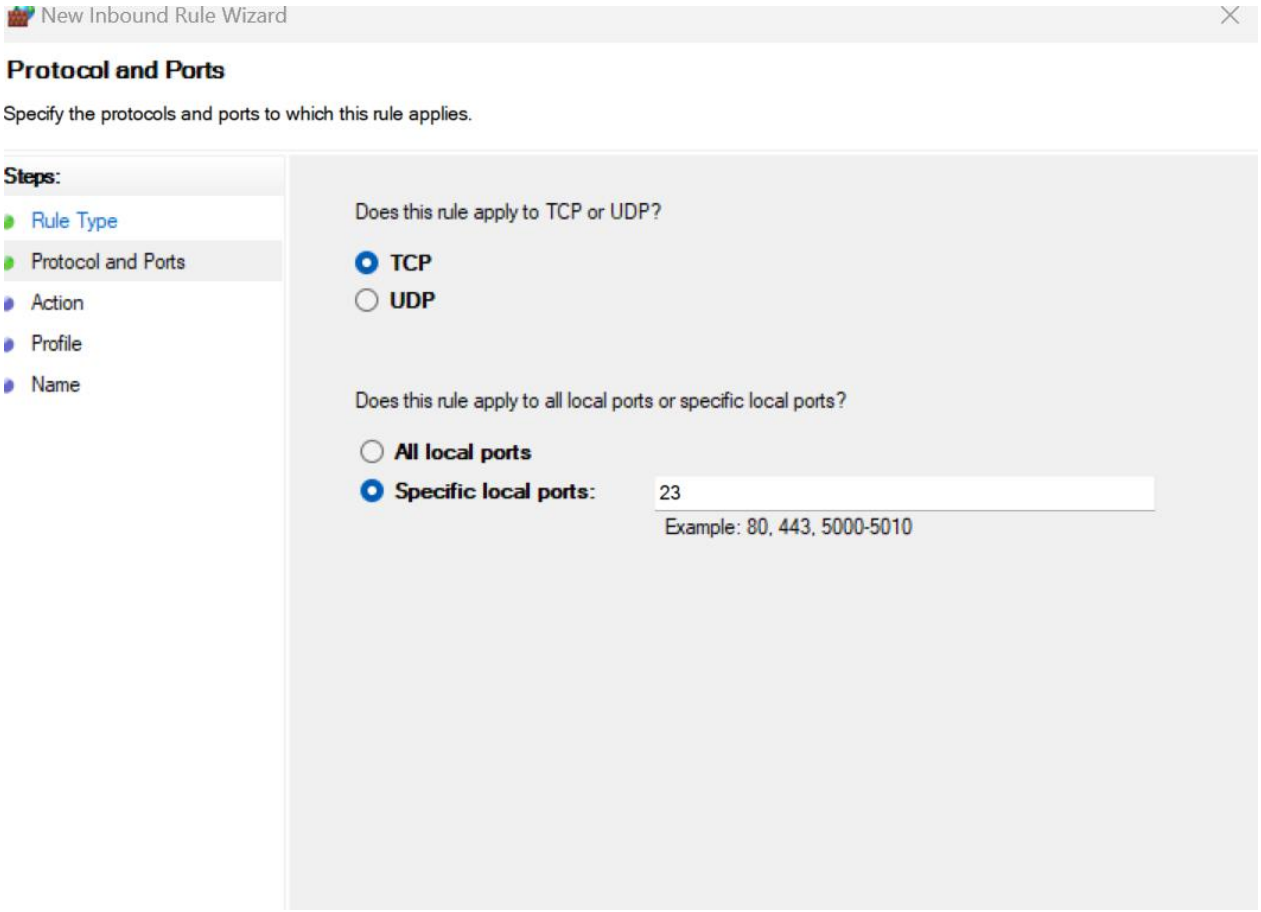
Task 4: *Setup and Use a Firewall on Windows/Linux*

1.Open firewall configuration tool (Windows Firewa l or terminal for UFW).

2.List current firewall rules.



3.Add a rule to block inbound traffic on a specific port (e.g., 23 for Telnet).



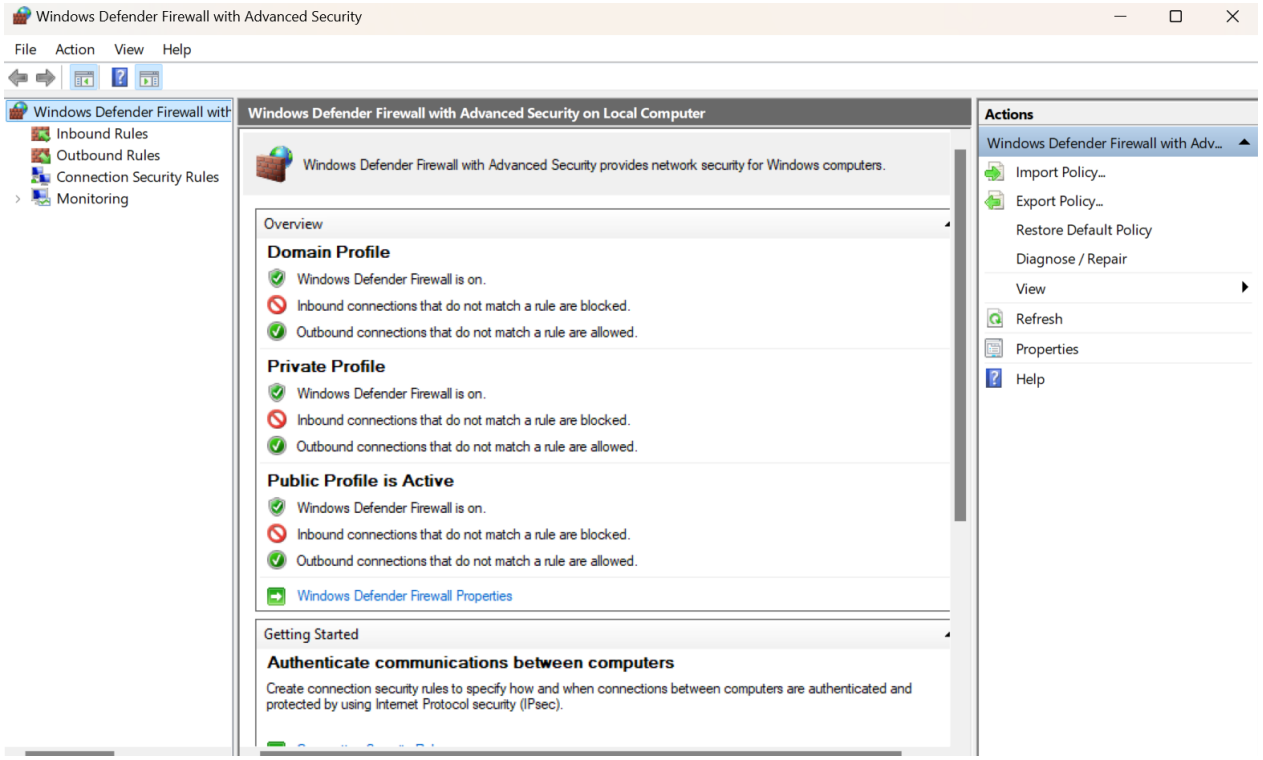
4.Test the rule by attempting to connect to that port localy or remotely.

```
TCP    127.0.0.1:49707        127.0.0.1:49706        ESTABLISHED     6212
TCP    127.0.0.1:49723        127.0.0.1:49724        ESTABLISHED     6212
TCP    127.0.0.1:49724        127.0.0.1:49723        ESTABLISHED     6212
TCP    192.168.111.1:139      0.0.0.0:0              LISTENING       4
TCP    192.168.213.186:139    0.0.0.0:0              LISTENING       4
TCP    192.168.226.1:139      0.0.0.0:0              LISTENING       4
TCP    [::]:135               [::]:0                 LISTENING       1324
TCP    [::]:445               [::]:0                 LISTENING       4
TCP    [::]:7680              [::]:0                 LISTENING       13620
TCP    [::]:8834              [::]:0                 LISTENING       6212
TCP    [::]:49664             [::]:0                 LISTENING       656
TCP    [::]:49665             [::]:0                 LISTENING       992
TCP    [::]:49666             [::]:0                 LISTENING       1344
TCP    [::]:49667             [::]:0                 LISTENING       2084
TCP    [::]:49668             [::]:0                 LISTENING       3508
```

5.Add rule to allow SSH (port 22) if on Linux.

```
ubuntu@linuxopsys:~$ sudo ufw status verbose
Status: active
Logging: on (low)
Default: deny (incoming), allow (outgoing), disabled (routed)
New profiles: skip

To                         Action      From
--                         ------      ----
22                         ALLOW IN    Anywhere
22 (v6)                    ALLOW IN    Anywhere (v6)
```

6.Remove the test block rule to restore original state.



Go back to **Inbound Rules**, find `Block Telnet`, right-click → **Delete**

7.Document commands or GUI steps used.

Blocked TCP port 23 using Windows Firewall Advanced Settings

8.Summarize how firewal filters traffic

Windows Firewall **filters** traffic based on **rules**: allow/block specific **ports, IPs, apps**, etc.

Task 5: *Capture and Analyze Network Traffic Using Wireshark.*

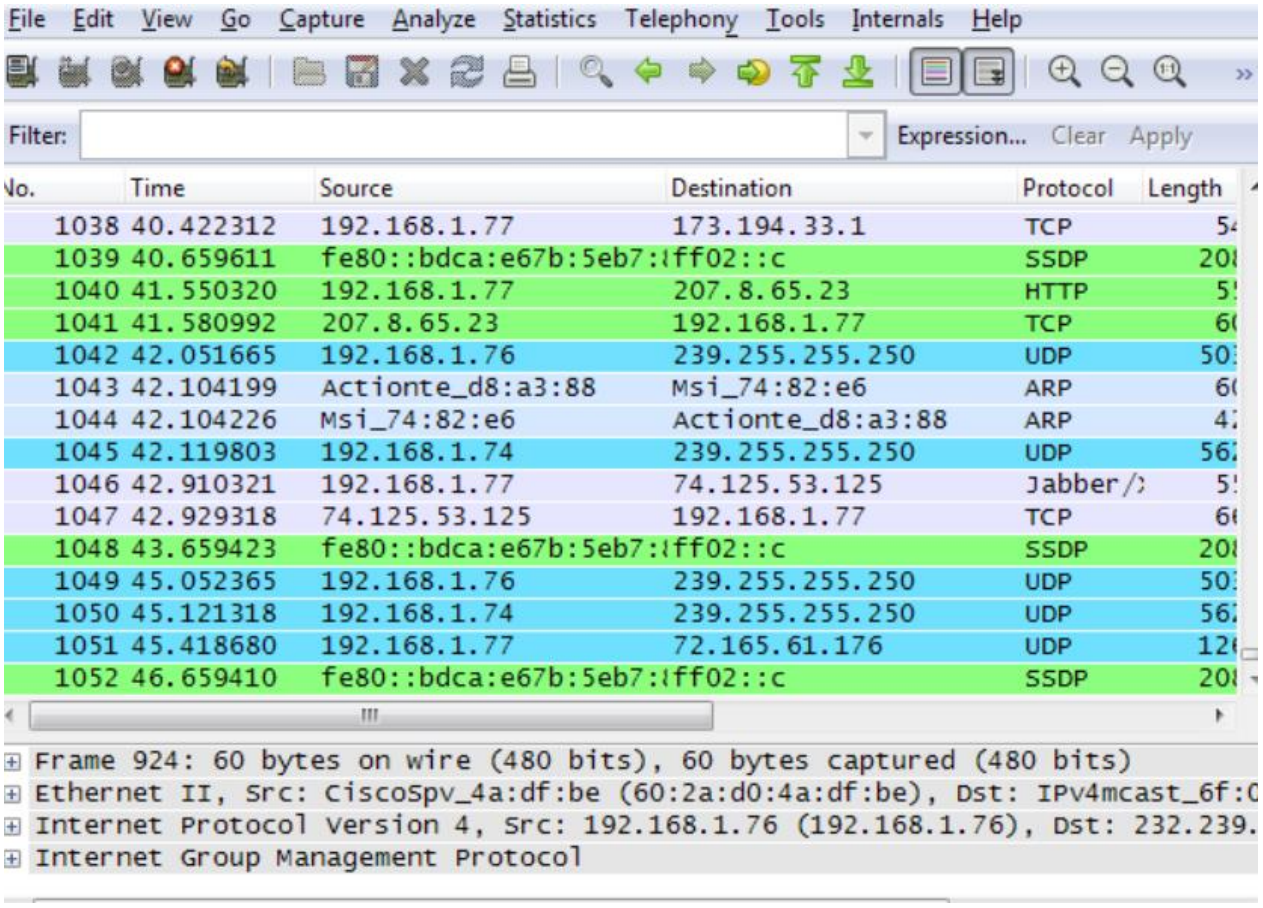
1.Install Wireshark.

2.Start capturing on your active network interface.

3.Browse a website or ping a server to generate traffic

4.Stop capture after a minute.

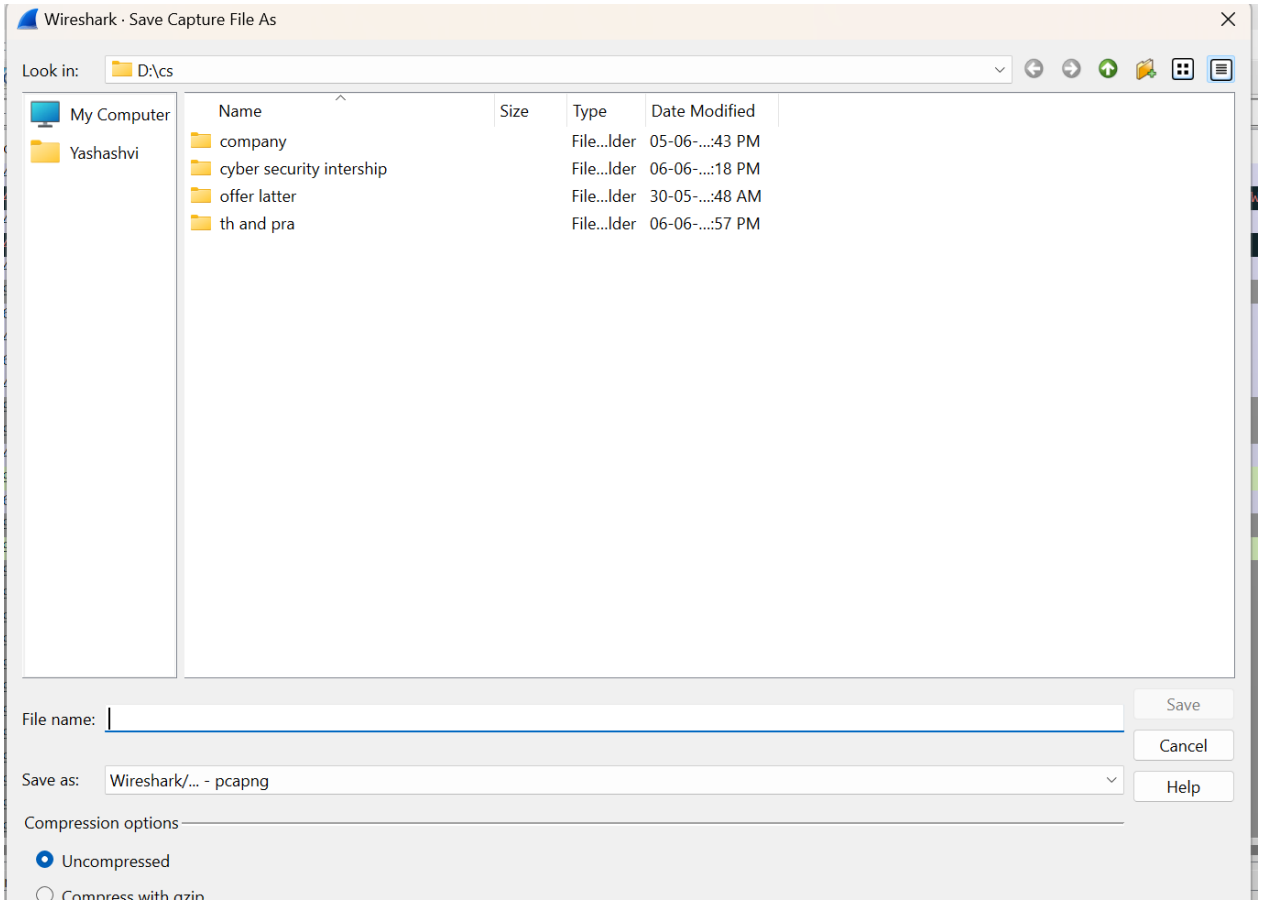
5.Filter captured packets by protocol (e.g., HTTP, DNS, TCP).



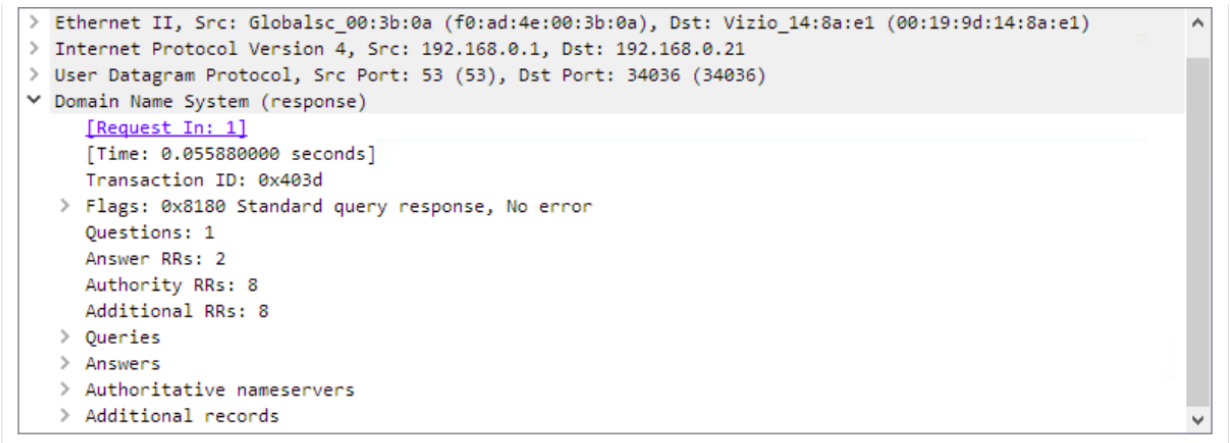
6.Identify at least 3 different protocols in the capture.

http,ssdp,arp

7.Export the capture as a .pcap file.



8.Summarize your findings and packet details



```
> Ethernet II, Src: Globalsc_00:3b:0a (f0:ad:4e:00:3b:0a), Dst: Vizio_14:8a:e1 (00:19:9d:14:8a:e1)
> Internet Protocol Version 4, Src: 192.168.0.1, Dst: 192.168.0.21
> User Datagram Protocol, Src Port: 53 (53), Dst Port: 34036 (34036)
v Domain Name System (response)
    [Request In: 1]
    [Time: 0.055880000 seconds]
    Transaction ID: 0x403d
  > Flags: 0x8180 Standard query response, No error
    Questions: 1
    Answer RRs: 2
    Authority RRs: 8
    Additional RRs: 8
  > Queries
  > Answers
  > Authoritative nameservers
  > Additional records
```

Task 6 : Create a Strong Password and Evaluate Its Strength

1.Create multiple passwords with varying complexity.

2.Use uppercase, lowercase, numbers, symbols, and length variations.

Password	*Description*
hello123	*Simple lowercase + numbers*
Hello123	*Added uppercase*
Hello@123	*Added special symbol*
H3lL0@2025!	*Mixed complex + longer*
A$tr0n0mY!@#	*Strong password with symbols*
qwerty	*Common weak password*
P@ssw0rd	*Looks strong, but commonly used*

3.Test each password on password strength checker.

https://password.kaspersky.com

https://howsecureismypassword.net

4.Note scores and feedback from the tool.

Password	*Time to Crack (approx)*	*Feedback*
hello123	*Few seconds*	*Too simple*
Hello123	*2 minutes*	*Better, but still weak*
Hello@123	*20 minutes*	*Acceptable, not very strong*
H3lL0@2025!	*Centuries*	*Very strong*
A$tr0n0mY!@#	*Billions of years*	*Excellent password*
qwerty	*Instant*	*Extremely weak*

5.Identify best practices for creating strong passwords.

- *Long (at least 12+ characters)*
- *Uses uppercase + lowercase + numbers + symbols*
- *Avoid common patterns (like 123, password, qwerty)*
- *Not based on dictionary words*
- *Not reused on multiple sites*

6.Write down tips learned from the evaluation.

- *Use random phrases or passphrases (e.g., Sun$etRun@2025!)*
- *Replace letters with symbols or numbers (like o → 0, a → @)*
- *Use password managers to generate/store strong passwords*
- *Don’t write passwords on paper*

7.Research common password attacks (brute force, dictionary).

Attack Type	*Description*
Brute Force	*Tries every combination (slow but effective)*
Dictionary Attack	*Uses a list of common words/passwords*
Phishing	*Tricks user into revealing password*
Credential Stuffing	*Reuses leaked passwords on other sites*

8.Summarize how password complexity affects security..

Simple passwords (like hello123) are cracked in seconds using brute force or dictionary attacks.
Complex passwords (like A$tr0n0mY!@#) resist brute force because of longer length and randomness.
Using common passwords, even with symbols (P@ssw0rd), is risky. Attackers guess them easily.
The more unique and random, the better.