NMAP & WIRESHARK

Powerful Tools for Network Security and Analysis

part 1

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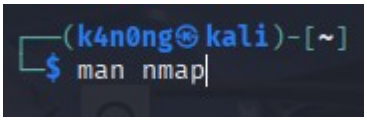
NMAP & WIRESHARK

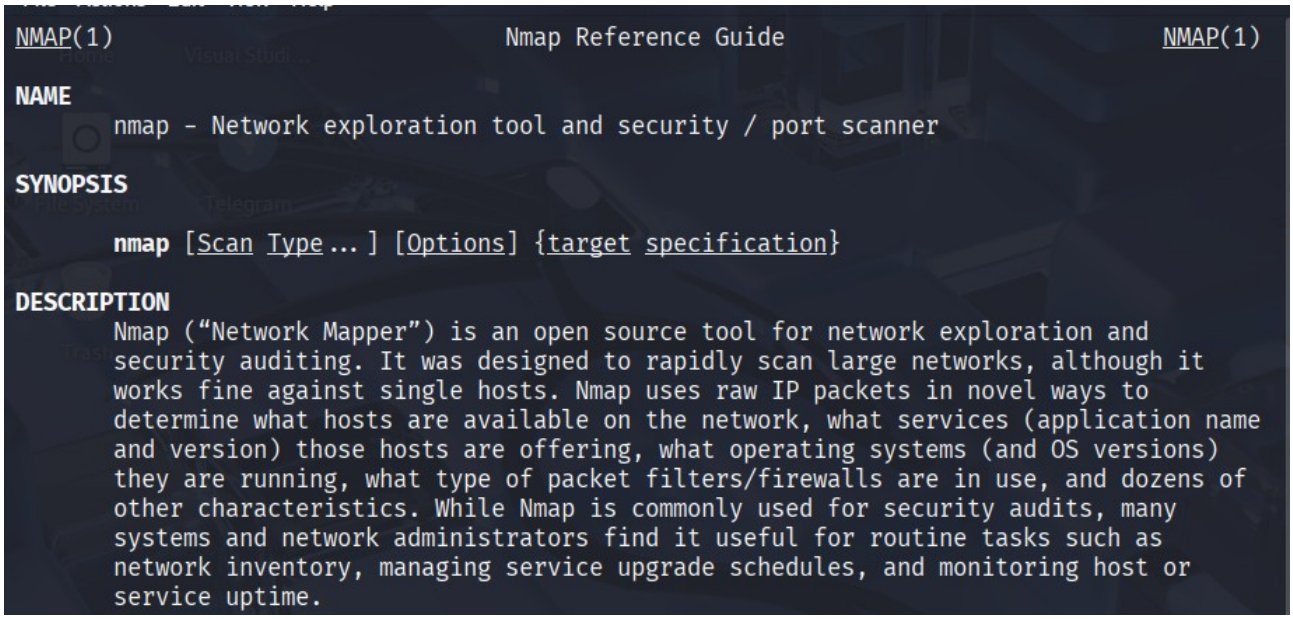
Basic Nmap:

Nmap is a network mapper that has emerged as one of the most popular, free network discovery tools on the market. Nmap is now one of the core tools used by network administrators to map their networks. The program can be used to find live hosts on a network, **perform port scanning**, ping sweeps, OS detection, and version detection.

A number of recent cyberattacks have re-focused attention on the type of network auditing that Nmap provides. Analysts have pointed out that the recent Capital One hack, for instance, **could have been detected sooner** if system administrators had been monitoring connected devices. In this guide, we'll look at what Nmap is, what it can do, and explain how to use the most common commands.

Kali> man nmap





What is Nmap?

Nmap is Used to Scan:

- Enterprise-scale networks
- Small business networks
- Connected devices
- IoT devices and traffic

At its core, Nmap is a network scanning tool that uses IP packets to identify all the devices connected to a network and to provide information on the services and operating systems they are running.

The program is most commonly used via a command-line interface (though GUI front-ends are also available) and is available for many different operating systems such as Linux, FreeBSD, and Gentoo. Its popularity has also been bolstered by an active and enthusiastic user support community.

Nmap was developed for enterprise-scale networks and can scan through thousands of connected devices. However, in recent years Nmap is being increasingly used by smaller companies. The rise of the IoT, in particular, now means that the networks used by these companies have become more complex **and therefore harder to secure**.

This means that Nmap is now **used in many website monitoring tools** to audit the traffic between web servers and IoT devices. The recent emergence of IoT botnets, like Mirai, has also stimulated interest in Nmap, not least because of its ability to interrogate **devices connected via the UPnP protocol** and to highlight any devices that may be malicious.

Nmap provides information on:

1. Every active IP so you can determine if an IP is being used by a legitimate service or an external attacker.
2. Your network as a whole, including live hosts, open ports, and the OS of every connected device.
3. Vulnerabilities — scan your own server to simulate the process that a hacker would use to attack your site.

- Basic scan:

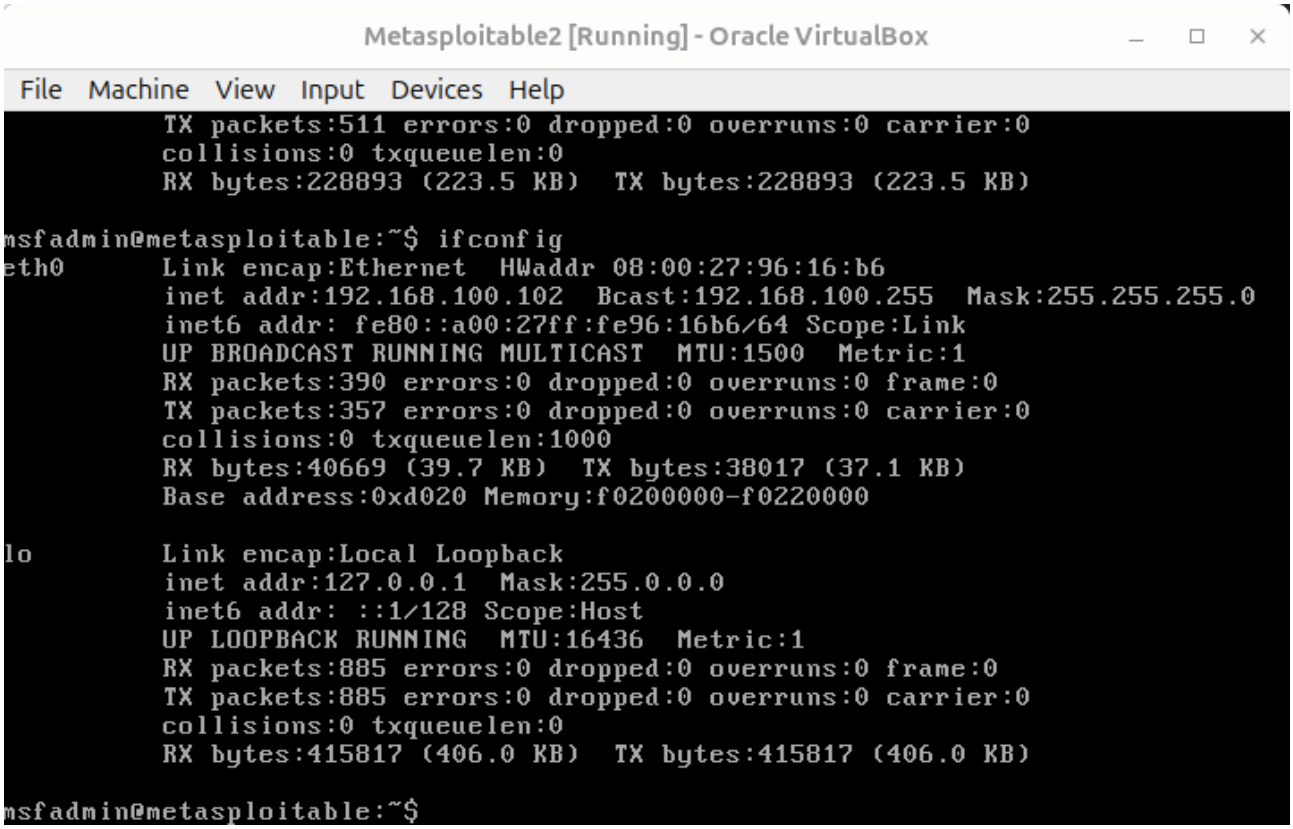
kali> nmap google.com

```
┌──(k4n0ng㉿kali)-[~]
└─$ nmap google.com
Starting Nmap 7.95 ( https://nmap.org ) at 2025-08-09 10:06 EDT
Nmap scan report for google.com (74.125.68.113)
Host is up (0.033s latency).
Other addresses for google.com (not scanned): 74.125.68.139 74.125.68.102 74.125.68.138 74.125.68.101 74.125.68.1
00 2404:6800:4003:c02::8a 2404:6800:4003:c02::64 2404:6800:4003:c02::66 2404:6800:4003:c02::71
rDNS record for 74.125.68.113: sc-in-f113.1e100.net
Not shown: 998 filtered tcp ports (no-response)
PORT    STATE SERVICE
80/tcp  open  http
443/tcp open  https
```

kali> nmap google.com facebook.com

```
┌──(k4n0ng㉿kali)-[~]
└─$ nmap google.com facebook.com
Starting Nmap 7.95 ( https://nmap.org ) at 2025-08-09 10:07 EDT
Nmap scan report for google.com (74.125.68.101)
Host is up (0.033s latency).
Other addresses for google.com (not scanned): 74.125.68.100 74.125.68.102 74.125.68.139 74.125.68.138 74.125.68.
113 2404:6800:4003:c02::8a 2404:6800:4003:c02::8b 2404:6800:4003:c02::66 2404:6800:4003:c02::71
rDNS record for 74.125.68.101: sc-in-f101.1e100.net
Not shown: 998 filtered tcp ports (no-response)
PORT    STATE SERVICE
80/tcp  open  http
443/tcp open  https

Nmap scan report for facebook.com (57.144.160.1)
Host is up (0.037s latency).
Other addresses for facebook.com (not scanned): 2a03:2880:f350:1:face:b00c:0:25de
rDNS record for 57.144.160.1: edge-star-mini-shv-02-sin2.facebook.com
Not shown: 998 filtered tcp ports (no-response)
PORT    STATE SERVICE
80/tcp  open  http
443/tcp open  https
```

- Use metasploit for testing:



Because it has a lot of vulnerability and weakness.

kali> nmap 192.168.100.102

```
┌──(k4n0ng㉿kali)-[~]
└─$ nmap 192.168.100.102
Starting Nmap 7.95 ( https://nmap.org ) at 2025-08-09 10:08 EDT
Nmap scan report for 192.168.100.102
Host is up (0.00013s latency).
Not shown: 977 closed tcp ports (reset)
PORT     STATE SERVICE
21/tcp   open  ftp
22/tcp   open  ssh
23/tcp   open  telnet
25/tcp   open  smtp
53/tcp   open  domain
80/tcp   open  http
111/tcp  open  rpcbind
139/tcp  open  netbios-ssn
445/tcp  open  microsoft-ds
512/tcp  open  exec
513/tcp  open  login
514/tcp  open  shell
1099/tcp open  rmiregistry
1524/tcp open  ingreslock
2049/tcp open  nfs
2121/tcp open  ccproxy-ftp
3306/tcp open  mysql
5432/tcp open  postgresql
5900/tcp open  vnc
6000/tcp open  X11
6667/tcp open  irc
8009/tcp open  ajp13
8180/tcp open  unknown
MAC Address: 08:00:27:96:16:B6 (PCS Systemtechnik/Oracle VirtualBox virtual NIC)
```

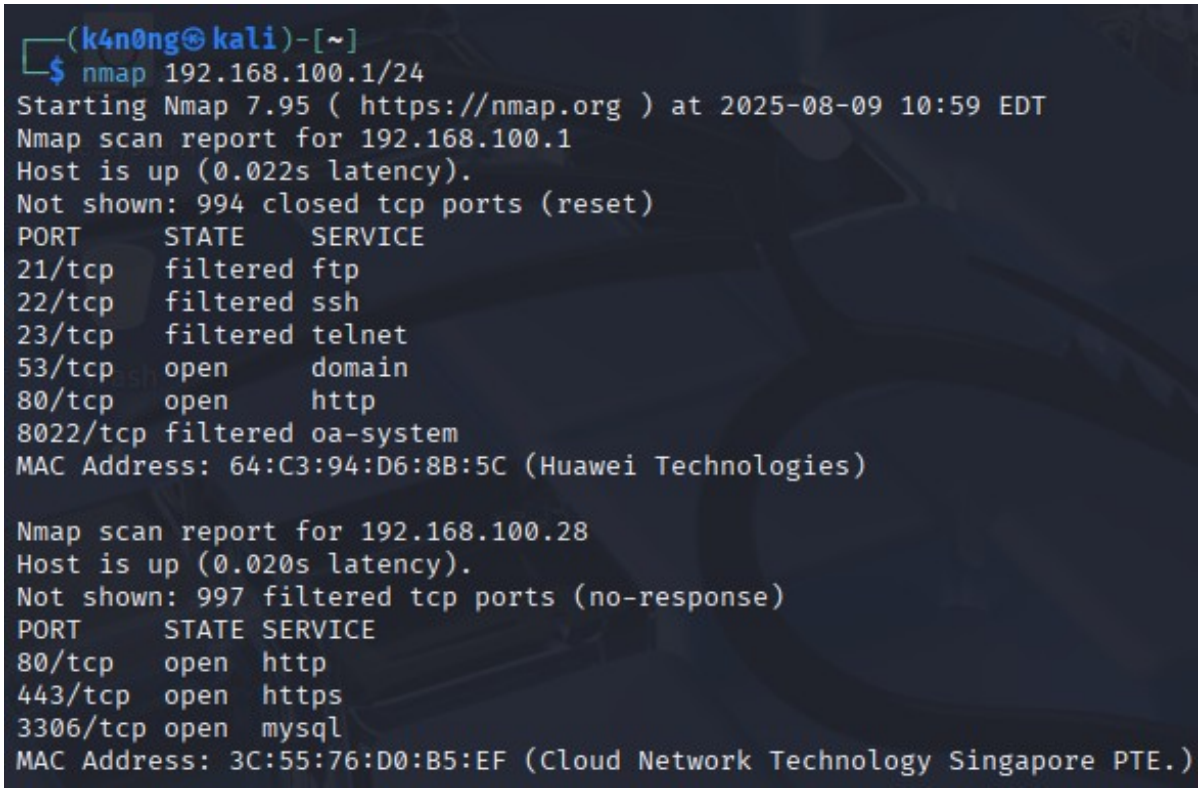
scan single target.

Kali> nmap 192.168.100.102 192.168.100.110 192.168.100.97

```
┌──(k4n0ng㉿kali)-[~]
└─$ nmap 192.168.100.102 192.168.100.97 192.168.100.109
Starting Nmap 7.95 ( https://nmap.org ) at 2025-08-09 10:11 EDT
Nmap scan report for 192.168.100.102
Host is up (0.00031s latency).
Not shown: 977 closed tcp ports (reset)
PORT     STATE SERVICE
21/tcp   open  ftp
22/tcp   open  ssh
23/tcp   open  telnet
25/tcp   open  smtp
53/tcp   open  domain
80/tcp   open  http
111/tcp  open  rpcbind
139/tcp  open  netbios-ssn
445/tcp  open  microsoft-ds
512/tcp  open  exec
513/tcp  open  login
514/tcp  open  shell
1099/tcp open  rmiregistry
1524/tcp open  ingreslock
2049/tcp open  nfs
2121/tcp open  ccproxy-ftp
3306/tcp open  mysql
5432/tcp open  postgresql
5900/tcp open  vnc
6000/tcp open  X11
6667/tcp open  irc
8009/tcp open  ajp13
8180/tcp open  unknown
MAC Address: 08:00:27:96:16:B6 (PCS Systemtechnik/Oracle VirtualBox virtual NIC)

Nmap scan report for 192.168.100.97
Host is up (0.00035s latency).
All 1000 scanned ports on 192.168.100.97 are in ignored states.
Not shown: 1000 filtered tcp ports (no-response)
MAC Address: 8C:8D:28:F4:83:96 (Intel Corporate)

Nmap scan report for 192.168.100.109
Host is up (0.000011s latency).
All 1000 scanned ports on 192.168.100.109 are in ignored states.
Not shown: 1000 closed tcp ports (reset)
```

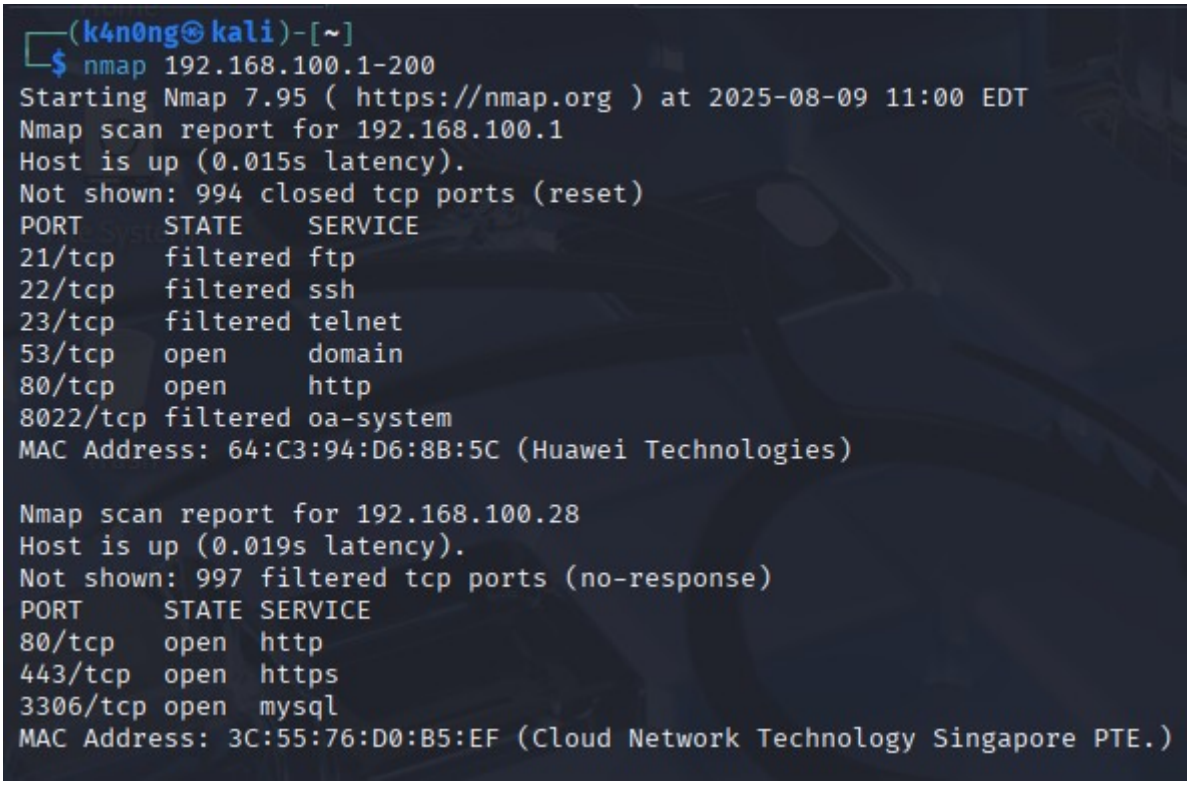
scan multiple hosts.

kali> nmap 192.168.100.1/24



is used to **scan a local network** to discover **which devices (IP addresses) are active** and gather basic information about them. Scan an IP Range or subnet.

kali> nmap 192.168.100.1-200



The command use to scan from IP 192.168.100.1 until 192.168.100.200

kali> nmap 192.168.100.97,102,109

```
┌──(k4n0ng㉿kali)-[~]
└─$ nmap 192.168.100.97,102,112
Starting Nmap 7.95 ( https://nmap.org ) at 2025-08-09 11:01 EDT
Nmap scan report for 192.168.100.97
Host is up (0.000097s latency).
All 1000 scanned ports on 192.168.100.97 are in ignored states.
Not shown: 1000 filtered tcp ports (no-response)
MAC Address: 8C:8D:28:F4:83:96 (Intel Corporate)

Nmap scan report for 192.168.100.102
Host is up (0.00021s latency).
Not shown: 977 closed tcp ports (reset)
PORT     STATE SERVICE
21/tcp   open  ftp
22/tcp   open  ssh
23/tcp   open  telnet
25/tcp   open  smtp
53/tcp   open  domain
80/tcp   open  http
111/tcp  open  rpcbind
139/tcp  open  netbios-ssn
445/tcp  open  microsoft-ds
512/tcp  open  exec
513/tcp  open  login
514/tcp  open  shell
1099/tcp open  rmiregistry
1524/tcp open  ingreslock
2049/tcp open  nfs
2121/tcp open  ccproxy-ftp
3306/tcp open  mysql
5432/tcp open  postgresql
5900/tcp open  vnc
6000/tcp open  X11
6667/tcp open  irc
8009/tcp open  ajp13
8180/tcp open  unknown
MAC Address: 08:00:27:96:16:B6 (PCS Systemtechnik/Oracle VirtualBox virtual NIC)

Nmap scan report for 192.168.100.112
Host is up (0.0000050s latency).
All 1000 scanned ports on 192.168.100.112 are in ignored states.
Not shown: 1000 closed tcp ports (reset)
```

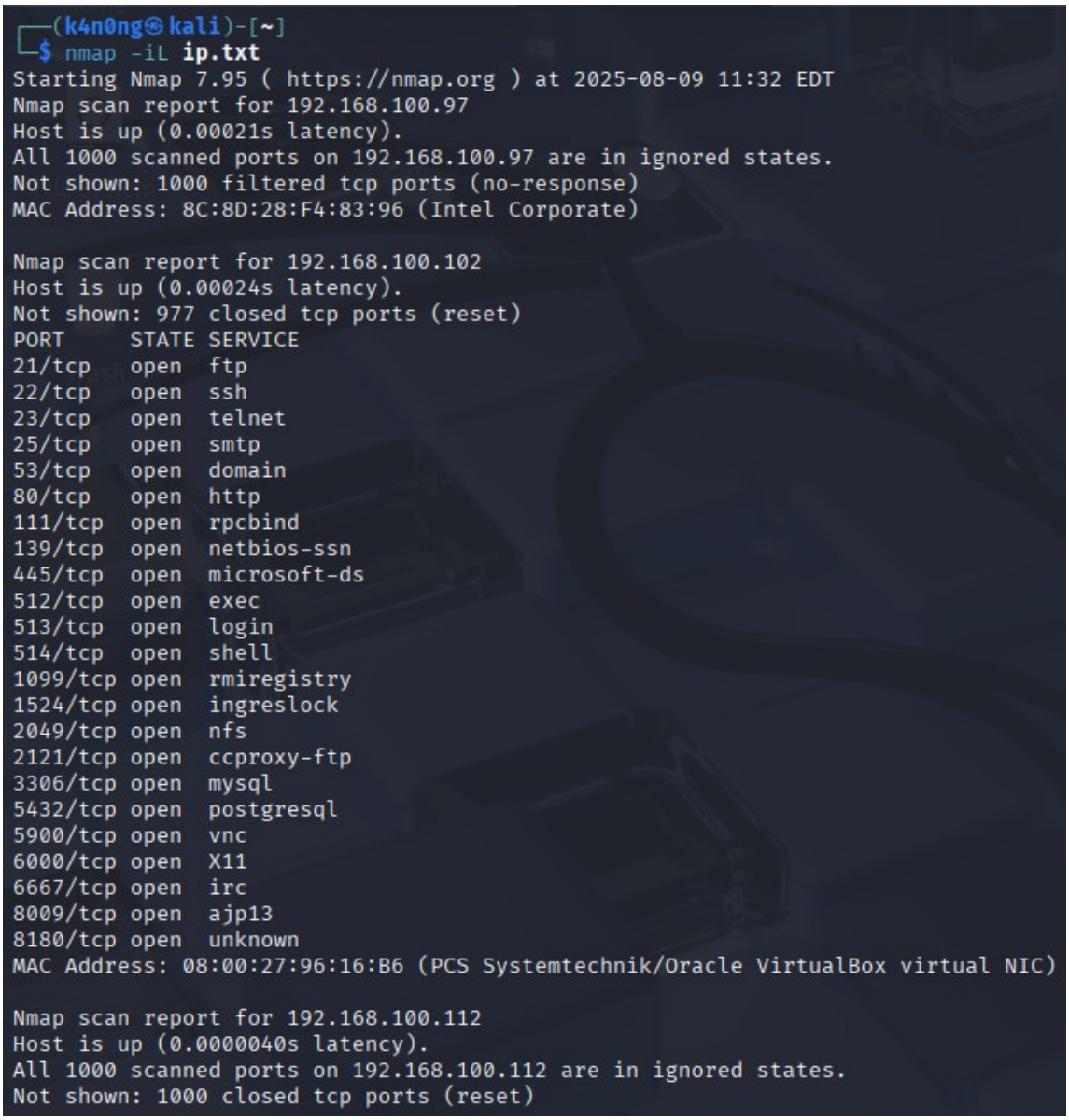
kali> vim ip.txt

```
┌──(k4n0ng㉿kali)-[~]
└─$ vim ip.txt
```

```
192.168.100.97
192.168.100.102
192.168.100.112
~
```

```
┌──(k4n0ng㉿kali)-[~]
└─$ cat ip.txt
192.168.100.97
192.168.100.102
192.168.100.112
```

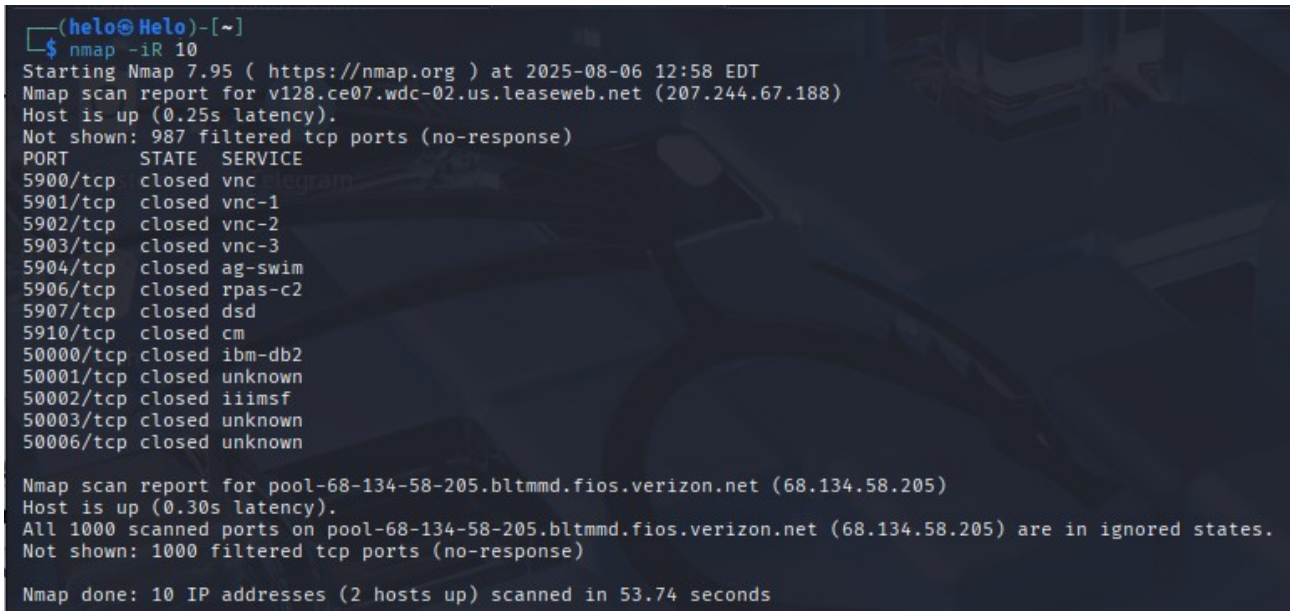
kali> nmap -iL ip.txt



-iL ip.txt: This option tells Nmap to **read input from a file**. In this case:

- ip.txt should contain a **list of IP addresses** or **hostnames** (one per line).
- Nmap will scan **each host listed** in that file.

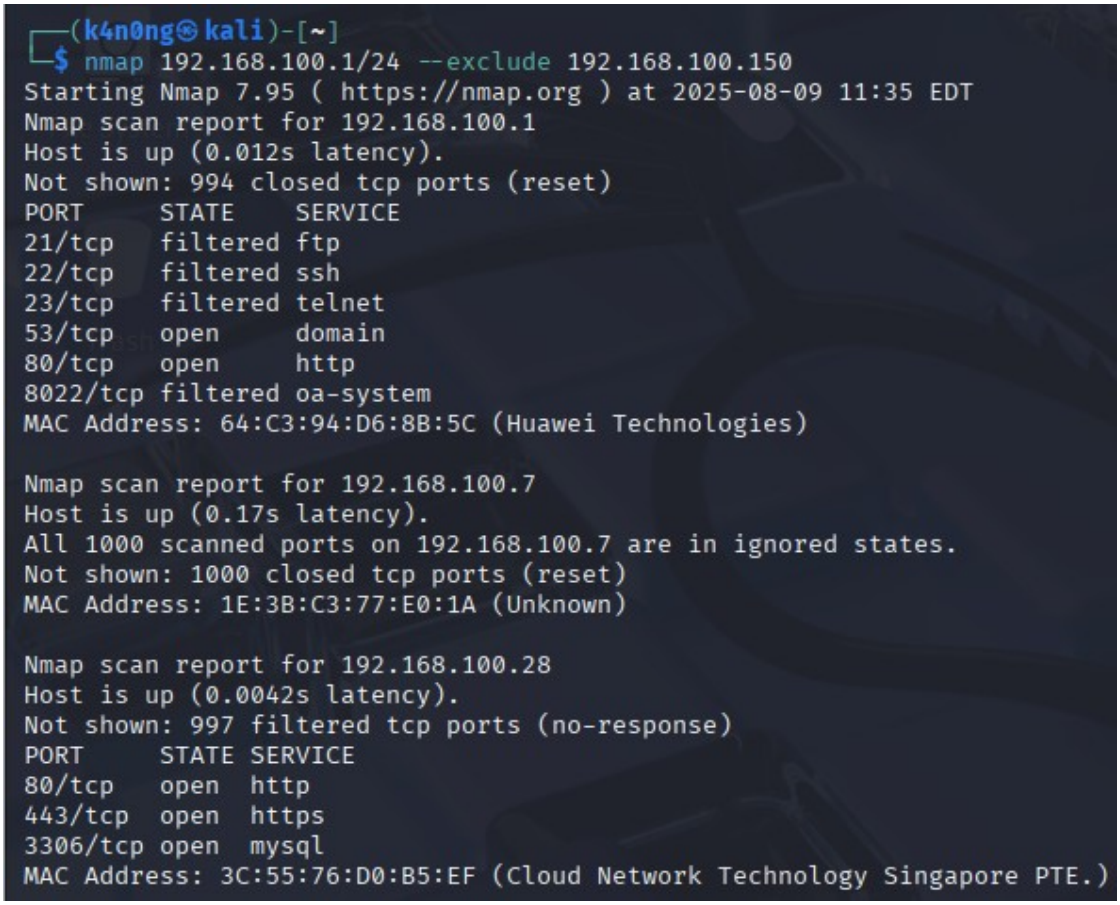
Kali> nmap -iR 10



-iR 10:

- -iR stands for **"input random"**.
- 10 tells Nmap to **pick 10 random IP addresses** across the Internet.
- Nmap will scan each of those 10 IPs as if they were manually entered.

Kali> nmap 192.168.100.1/24 --exclude 192.168.100.150



kali> nmap 192.168.1/24 --exclude 192.168.100-200

```
┌──(k4n0ng㉿kali)-[~]
└─$ nmap 192.168.100.1/24 --exclude 192.168.100.100-250
Starting Nmap 7.95 ( https://nmap.org ) at 2025-08-09 11:37 EDT
Nmap scan report for 192.168.100.1
Host is up (0.0073s latency).
Not shown: 994 closed tcp ports (reset)
PORT     STATE    SERVICE
21/tcp   filtered ftp
22/tcp   filtered ssh
23/tcp   filtered telnet
53/tcp   open     domain
80/tcp   open     http
8022/tcp filtered oa-system
MAC Address: 64:C3:94:D6:8B:5C (Huawei Technologies)

Nmap scan report for 192.168.100.28
Host is up (0.014s latency).
Not shown: 997 filtered tcp ports (no-response)
PORT     STATE SERVICE
80/tcp   open  http
443/tcp  open  https
3306/tcp open  mysql
MAC Address: 3C:55:76:D0:B5:EF (Cloud Network Technology Singapore PTE.)
```

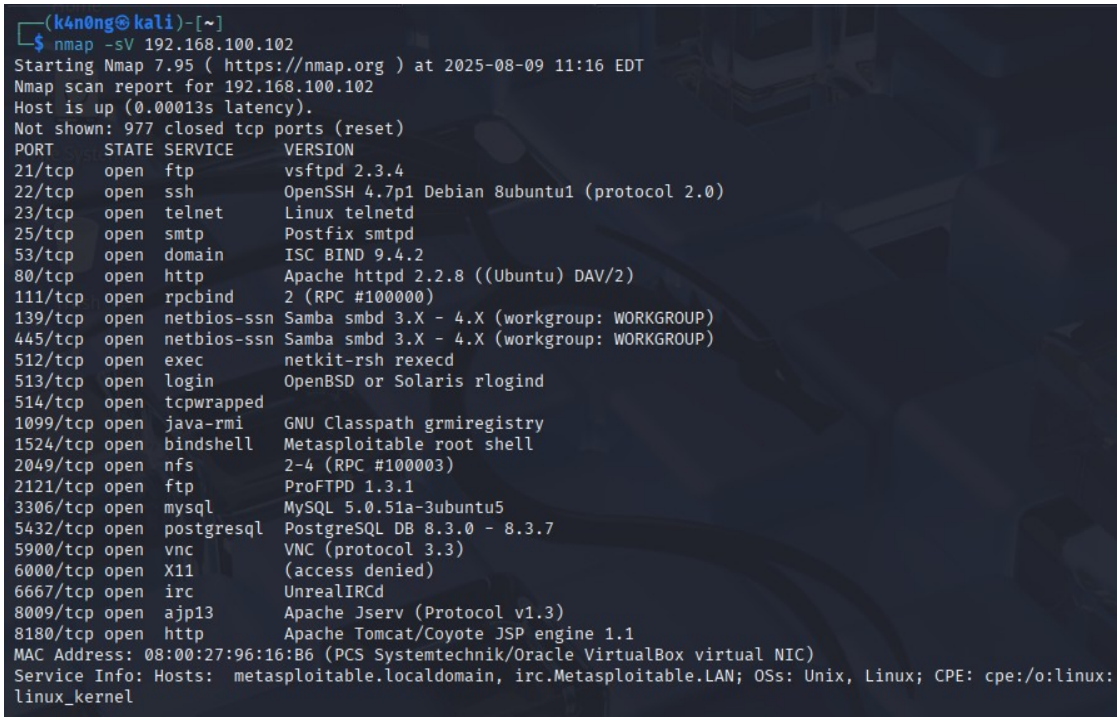
- **192.168.1.0/24**: This tells Nmap to scan **all 256 IPs** from 192.168.1.0 to 192.168.1.255.
- --**exclude**: This tells Nmap to **skip** specific IPs.
- **192.168.1.100-192.168.1.200**: Exclude **all IPs in this range**.

kali> nmap 192.168.1/24 –excludefile ip.txt

```
┌──(k4n0ng㉿kali)-[~]
└─$ nmap 192.168.100.1/24 -excludefile ip.txt
Starting Nmap 7.95 ( https://nmap.org ) at 2025-08-09 11:42 EDT
Nmap scan report for 192.168.100.1
Host is up (0.12s latency).
Not shown: 994 closed tcp ports (reset)
PORT     STATE    SERVICE
21/tcp   filtered ftp
22/tcp   filtered ssh
23/tcp   filtered telnet
53/tcp   open     domain
80/tcp   open     http
8022/tcp filtered oa-system
MAC Address: 64:C3:94:D6:8B:5C (Huawei Technologies)

Nmap scan report for 192.168.100.7
Host is up (0.023s latency).
All 1000 scanned ports on 192.168.100.7 are in ignored states.
Not shown: 1000 closed tcp ports (reset)
MAC Address: 1E:3B:C3:77:E0:1A (Unknown)
```

- 192.168.1.0/24: Tells Nmap to scan all 256 IPs in that subnet (from .0 to.255).
- --excludefile ip.txt: Tells Nmap to **exclude all IP addresses listed in the ip.txt file** from the scan.

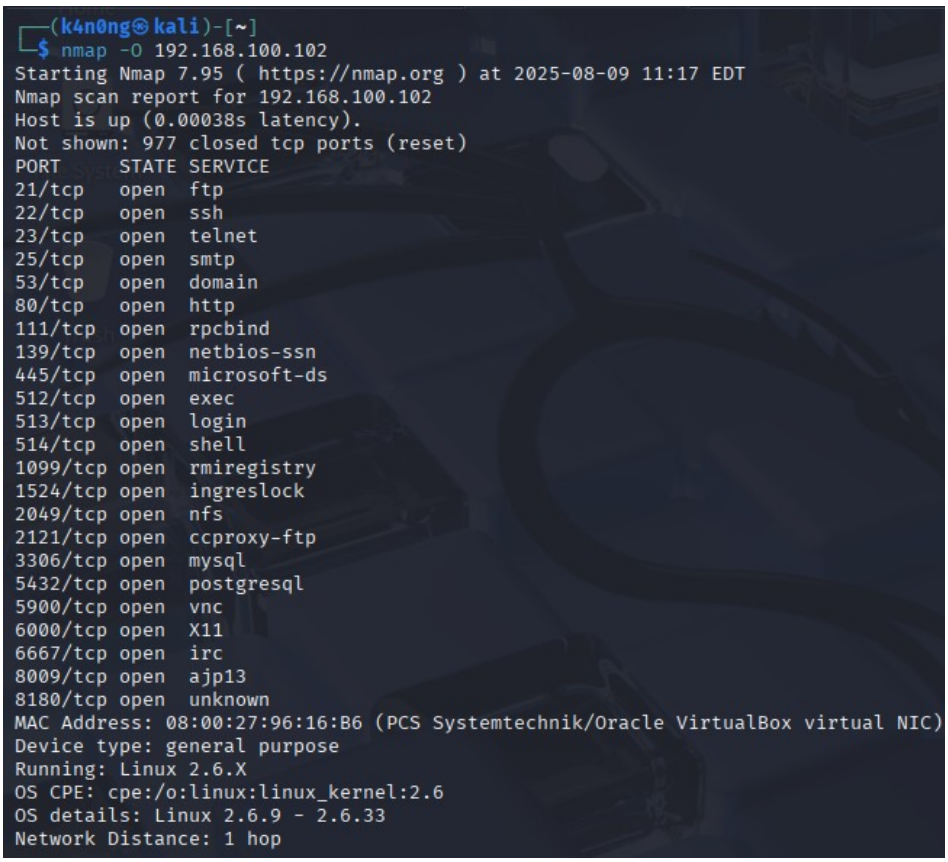
Kali> nmap -sV 192.168.100.102



```
┌──(k4n0ng㉿kali)-[~]
└─$ nmap -sV 192.168.100.102
Starting Nmap 7.95 ( https://nmap.org ) at 2025-08-09 11:16 EDT
Nmap scan report for 192.168.100.102
Host is up (0.00013s latency).
Not shown: 977 closed tcp ports (reset)
PORT     STATE SERVICE     VERSION
21/tcp   open  ftp         vsftpd 2.3.4
22/tcp   open  ssh         OpenSSH 4.7p1 Debian 8ubuntu1 (protocol 2.0)
23/tcp   open  telnet      Linux telnetd
25/tcp   open  smtp        Postfix smtpd
53/tcp   open  domain      ISC BIND 9.4.2
80/tcp   open  http        Apache httpd 2.2.8 ((Ubuntu) DAV/2)
111/tcp  open  rpcbind     2 (RPC #100000)
139/tcp  open  netbios-ssn Samba smbd 3.X - 4.X (workgroup: WORKGROUP)
445/tcp  open  netbios-ssn Samba smbd 3.X - 4.X (workgroup: WORKGROUP)
512/tcp  open  exec        netkit-rsh rexecd
513/tcp  open  login       OpenBSD or Solaris rlogind
514/tcp  open  tcpwrapped
1099/tcp open  java-rmi    GNU Classpath grmiregistry
1524/tcp open  bindshell   Metasploitable root shell
2049/tcp open  nfs         2-4 (RPC #100003)
2121/tcp open  ftp         ProFTPD 1.3.1
3306/tcp open  mysql       MySQL 5.0.51a-3ubuntu5
5432/tcp open  postgresql  PostgreSQL DB 8.3.0 - 8.3.7
5900/tcp open  vnc         VNC (protocol 3.3)
6000/tcp open  X11         (access denied)
6667/tcp open  irc         UnrealIRCd
8009/tcp open  ajp13       Apache Jserv (Protocol v1.3)
8180/tcp open  http        Apache Tomcat/Coyote JSP engine 1.1
MAC Address: 08:00:27:96:16:B6 (PCS Systemtechnik/Oracle VirtualBox virtual NIC)
Service Info: Hosts:  metasploitable.localdomain, irc.Metasploitable.LAN; OSs: Unix, Linux; CPE: cpe:/o:linux:
linux_kernel
```

- Service Version Detection
Detects service versions running on open ports

kali> nmap -O 192.168.100.102



```
┌──(k4n0ng㉿kali)-[~]
└─$ nmap -O 192.168.100.102
Starting Nmap 7.95 ( https://nmap.org ) at 2025-08-09 11:17 EDT
Nmap scan report for 192.168.100.102
Host is up (0.00038s latency).
Not shown: 977 closed tcp ports (reset)
PORT     STATE SERVICE
21/tcp   open  ftp
22/tcp   open  ssh
23/tcp   open  telnet
25/tcp   open  smtp
53/tcp   open  domain
80/tcp   open  http
111/tcp  open  rpcbind
139/tcp  open  netbios-ssn
445/tcp  open  microsoft-ds
512/tcp  open  exec
513/tcp  open  login
514/tcp  open  shell
1099/tcp open  rmiregistry
1524/tcp open  ingreslock
2049/tcp open  nfs
2121/tcp open  ccproxy-ftp
3306/tcp open  mysql
5432/tcp open  postgresql
5900/tcp open  vnc
6000/tcp open  X11
6667/tcp open  irc
8009/tcp open  ajp13
8180/tcp open  unknown
MAC Address: 08:00:27:96:16:B6 (PCS Systemtechnik/Oracle VirtualBox virtual NIC)
Device type: general purpose
Running: Linux 2.6.X
OS CPE: cpe:/o:linux:linux_kernel:2.6
OS details: Linux 2.6.9 - 2.6.33
Network Distance: 1 hop
```

Operating Systemdetection and Attempts to detect the OS of the target machine.

kali> nmap -A 192.168.100.102

```
┌──(k4n0ng㉿kali)-[~]
└─$ nmap -A 192.168.100.102
Starting Nmap 7.95 ( https://nmap.org ) at 2025-08-09 11:21 EDT
Nmap scan report for 192.168.100.102
Host is up (0.00045s latency).
Not shown: 977 closed tcp ports (reset)
PORT     STATE SERVICE     VERSION
21/tcp   open  ftp         vsftpd 2.3.4
| ftp-syst:
|   STAT:
| FTP server status:
|      Connected to 192.168.100.112
|      Logged in as ftp
|      TYPE: ASCII
|      No session bandwidth limit
|      Session timeout in seconds is 300
|      Control connection is plain text
|      Data connections will be plain text
|      vsFTPd 2.3.4 - secure, fast, stable
|_End of status
|_ftp-anon: Anonymous FTP login allowed (FTP code 230)
22/tcp   open  ssh         OpenSSH 4.7p1 Debian 8ubuntu1 (protocol 2.0)
| ssh-hostkey:
|   1024 60:0f:cf:e1:c0:5f:6a:74:d6:90:24:fa:c4:d5:6c:cd (DSA)
|_  2048 56:56:24:0f:21:1d:de:a7:2b:ae:61:b1:24:3d:e8:f3 (RSA)
23/tcp   open  telnet      Linux telnetd
25/tcp   open  smtp        Postfix smtpd
```

```
Network Distance: 1 hop
Service Info: Hosts:  metasploitable.localdomain, irc.Metasploitable.LAN; OSs: Unix, Linux; CPE: cpe:/o:linux:
linux_kernel

Host script results:
| smb-os-discovery:
|   OS: Unix (Samba 3.0.20-Debian)
|   Computer name: metasploitable
|   NetBIOS computer name:
|   Domain name: localdomain
|   FQDN: metasploitable.localdomain
|_  System time: 2025-08-09T11:21:27-04:00
| smb-security-mode:
|   account_used: guest
|   authentication_level: user
|   challenge_response: supported
|_  message_signing: disabled (dangerous, but default)
|_clock-skew: mean: 1h00m00s, deviation: 2h00m00s, median: 0s
|_nbstat: NetBIOS name: METASPLOITABLE, NetBIOS user: <unknown>, NetBIOS MAC: <unknown> (unknown)
|_smb2-time: Protocol negotiation failed (SMB2)

TRACEROUTE
HOP RTT     ADDRESS
1   0.45 ms 192.168.100.102
```

- Aggressive Scan (combines version, OS, script scanning)

- Enables OS detection, version detection, script scanning, and traceroute

Kali> nmap -v 192.168.100.102

```
┌──(k4n0ng㉿kali)-[~]
└─$ nmap -v 192.168.100.102
Starting Nmap 7.95 ( https://nmap.org ) at 2025-08-09 11:26 EDT
Initiating ARP Ping Scan at 11:26
Scanning 192.168.100.102 [1 port]
Completed ARP Ping Scan at 11:26, 0.12s elapsed (1 total hosts)
Initiating Parallel DNS resolution of 1 host. at 11:26
Completed Parallel DNS resolution of 1 host. at 11:26, 0.01s elapsed
Initiating SYN Stealth Scan at 11:26
Scanning 192.168.100.102 [1000 ports]
Discovered open port 80/tcp on 192.168.100.102
Discovered open port 22/tcp on 192.168.100.102
Discovered open port 21/tcp on 192.168.100.102
Discovered open port 53/tcp on 192.168.100.102
Discovered open port 23/tcp on 192.168.100.102
Discovered open port 139/tcp on 192.168.100.102
```

```
PORT     STATE SERVICE
21/tcp   open  ftp
22/tcp   open  ssh
23/tcp   open  telnet
25/tcp   open  smtp
53/tcp   open  domain
80/tcp   open  http
111/tcp  open  rpcbind
139/tcp  open  netbios-ssn
445/tcp  open  microsoft-ds
512/tcp  open  exec
513/tcp  open  login
514/tcp  open  shell
1099/tcp open  rmiregistry
1524/tcp open  ingreslock
2049/tcp open  nfs
2121/tcp open  ccproxy-ftp
3306/tcp open  mysql
5432/tcp open  postgresql
5900/tcp open  vnc
6000/tcp open  X11
6667/tcp open  irc
8009/tcp open  ajp13
8180/tcp open  unknown
MAC Address: 08:00:27:96:16:B6 (PCS Systemtechnik/Oracle VirtualBox virtual NIC)
```

- Scan with Verbose Output
adds verbosity, shows scan progress.

KalI> nmap -vv 192.168.100.102

```
┌──(k4n0ng㉿kali)-[~]
└─$ nmap -vv 192.168.100.102
Starting Nmap 7.95 ( https://nmap.org ) at 2025-08-09 11:53 EDT
Initiating ARP Ping Scan at 11:53
Scanning 192.168.100.102 [1 port]
Completed ARP Ping Scan at 11:53, 0.05s elapsed (1 total hosts)
Initiating Parallel DNS resolution of 1 host. at 11:53
Completed Parallel DNS resolution of 1 host. at 11:53, 0.00s elapsed
Initiating SYN Stealth Scan at 11:53
Scanning 192.168.100.102 [1000 ports]
Discovered open port 5900/tcp on 192.168.100.102
Discovered open port 23/tcp on 192.168.100.102
Discovered open port 111/tcp on 192.168.100.102
```

```
PORT     STATE SERVICE      REASON
21/tcp   open  ftp          syn-ack ttl 64
22/tcp   open  ssh          syn-ack ttl 64
23/tcp   open  telnet       syn-ack ttl 64
25/tcp   open  smtp         syn-ack ttl 64
53/tcp   open  domain       syn-ack ttl 64
80/tcp   open  http         syn-ack ttl 64
111/tcp  open  rpcbind      syn-ack ttl 64
139/tcp  open  netbios-ssn  syn-ack ttl 64
445/tcp  open  microsoft-ds syn-ack ttl 64
512/tcp  open  exec         syn-ack ttl 64
513/tcp  open  login        syn-ack ttl 64
```

kali> nmap -T4 192.168.100.102

```
┌──(k4n0ng㉿kali)-[~]
└─$ nmap -T4 192.168.100.102
Starting Nmap 7.95 ( https://nmap.org ) at 2025-08-09 11:55 EDT
Nmap scan report for 192.168.100.102
Host is up (0.000087s latency).
Not shown: 977 closed tcp ports (reset)
PORT     STATE SERVICE
21/tcp   open  ftp
22/tcp   open  ssh
23/tcp   open  telnet
25/tcp   open  smtp
53/tcp   open  domain
```

- **T0 (Paranoid):** Waits a long time between probes, sends packets slowly to avoid detection. Used against IDS/IPS systems to sneak in.
- **T1 (Sneaky):** Slower than default but less than paranoid. Still tries to avoid detection.
- **T2 (Polite):** Reduces bandwidth and load, nice to network admins, still reasonably fast.
- **T3 (Normal):**
  Default timing, balanced for most situations.
- **T4 (Aggressive):** Speeds up scanning, assumes stable network and no IDS/IPS issues. May cause dropped packets or detection. Fast scan(recommand).
- **T5 (Insane):** Max speed, can flood network and cause problems or get blocked quickly.

We can combine this with all scan.

Option	Example	Description
-T0	nmap 192.168.1.1 –T0	Paranoid (0) Intrusion Detection System evasion
-T1	nmap 192.168.1.1 –T1	Sneaky (1) Intrusion Detection System evasion
-T2	nmap 192.168.1.1 –T2	Polite (2) slows down the scan to useless bandwidth and use less target machine resources
-T3	nmap 192.168.1.1 –T3	Normal (3) which is default speed
-T4	nmap 192.168.1.1 –T4	Aggressive (4) speeds scans; assumes you are on a reasonably fast and reliable network
-T5	nmap 192.168.1.1 –T5	Insane (5) speeds scan

kali> nmap -v -p- 192.168.100.102

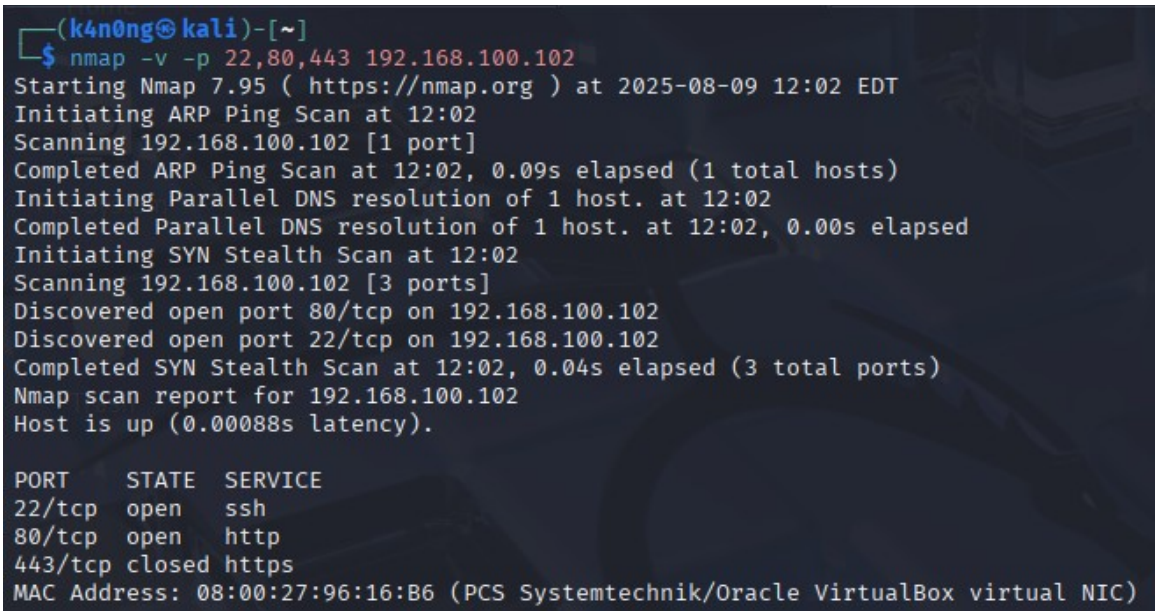
```
┌──(k4n0ng㉿kali)-[~]
└─$ nmap -v -p- 192.168.100.102
Starting Nmap 7.95 ( https://nmap.org ) at 2025-08-09 12:00 EDT
Initiating ARP Ping Scan at 12:00
Scanning 192.168.100.102 [1 port]
Completed ARP Ping Scan at 12:00, 0.05s elapsed (1 total hosts)
Initiating Parallel DNS resolution of 1 host. at 12:00
Completed Parallel DNS resolution of 1 host. at 12:00, 0.10s elapsed
Initiating SYN Stealth Scan at 12:00
Scanning 192.168.100.102 [65535 ports]
Discovered open port 53/tcp on 192.168.100.102
Discovered open port 445/tcp on 192.168.100.102
Discovered open port 139/tcp on 192.168.100.102
```

```
PORT      STATE SERVICE
21/tcp    open  ftp
22/tcp    open  ssh
23/tcp    open  telnet
25/tcp    open  smtp
53/tcp    open  domain
80/tcp    open  http
111/tcp   open  rpcbind
139/tcp   open  netbios-ssn
445/tcp   open  microsoft-ds
512/tcp   open  exec
513/tcp   open  login
514/tcp   open  shell
```

- Scan all TCP ports (1–65535) on the IP.

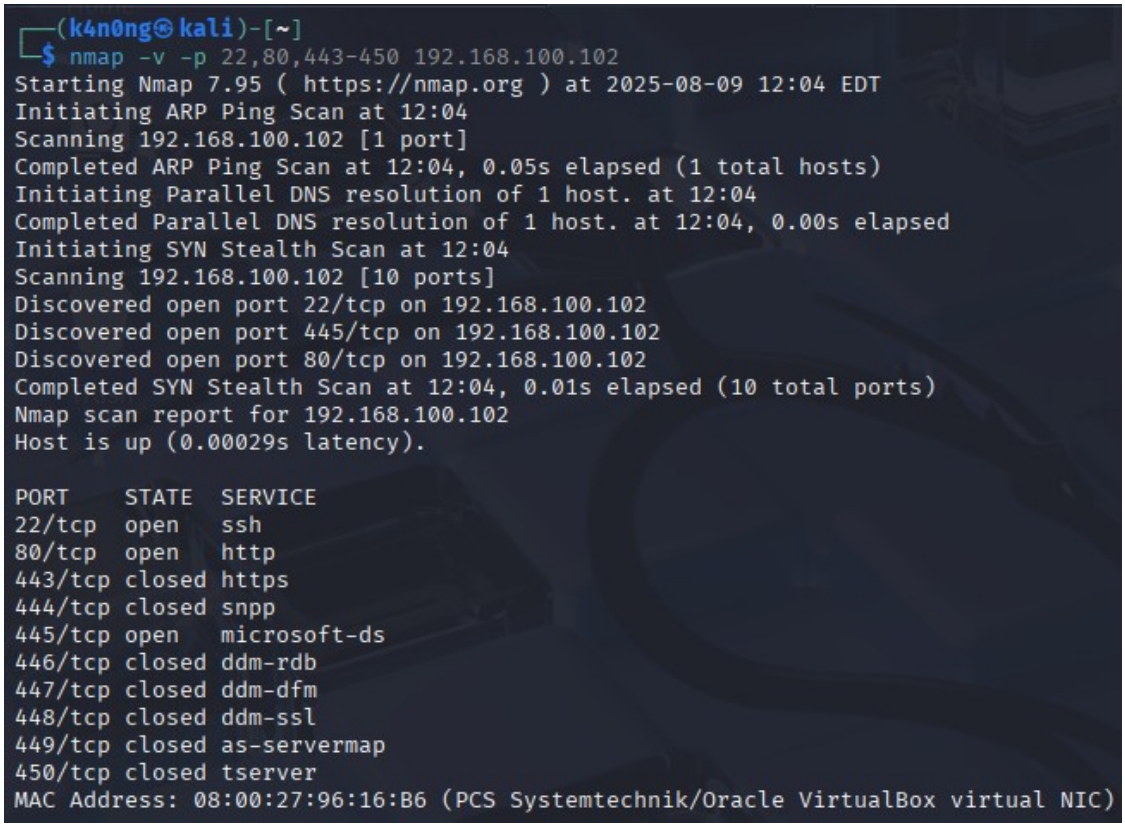
-p- means "scan all 65535 TCP ports".

Kali> nmap -v -p 22,80,443 192.168.100.102



Scans only SSH (22), HTTP (80), and HTTPS (443).

kali> nmap -v -p 80,443-450 192.168.100.102

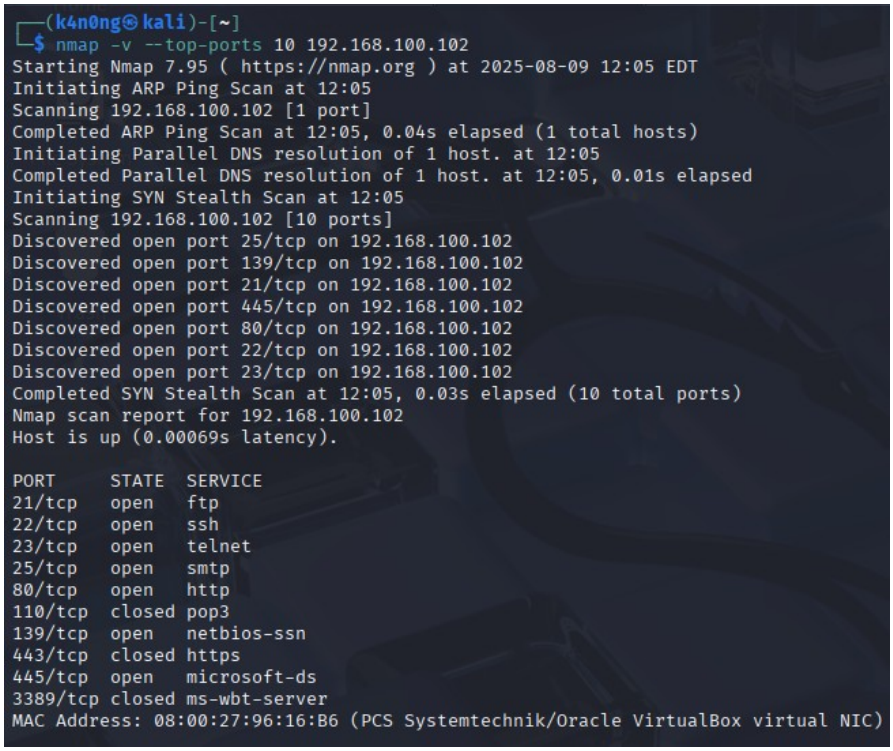


- **`-v`**: Enables **verbose mode**, showing more detailed progress and results.
- **`-p 80,443-450`**: Tells Nmap to scan:

  + Port **80** (HTTP),

  + Ports **443 to 450** (a small range starting with HTTPS and nearby ports).

Kali> nmap -v --top-ports 10 192.168.100.102



- `-v`: Enables **verbose mode** (you get more details during the scan).
- `--top-ports 10`: Tells Nmap to scan the **10 most commonly used TCP ports**, based on statistical data.

- more command:

kali> nmap -v -sV --top-ports 10 192.168.100.102

Add service/version detection.

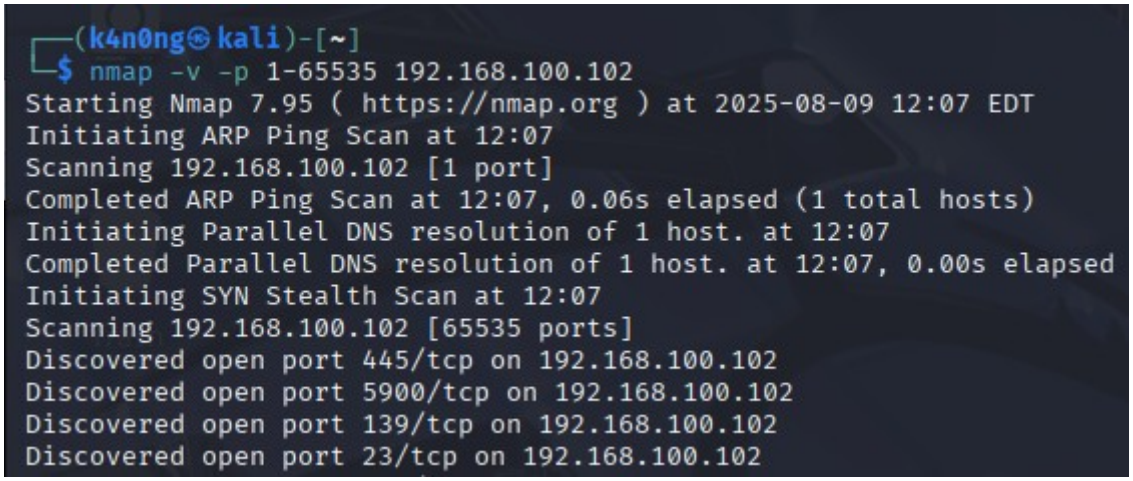
Kali> nmap -v -A --top-ports 10 192.168.100.102

Add OS detection and traceroute.

Kali> nmap -v --top-ports 10 192.168.100.102 -oN top10-scan.txt

Save output.

Kali> nmap -v -p 1-65535



```
PORT      STATE SERVICE
21/tcp    open  ftp
22/tcp    open  ssh
23/tcp    open  telnet
25/tcp    open  smtp
53/tcp    open  domain
80/tcp    open  http
111/tcp   open  rpcbind
139/tcp   open  netbios-ssn
445/tcp   open  microsoft-ds
512/tcp   open  exec
513/tcp   open  login
514/tcp   open  shell
1099/tcp  open  rmiregistry
1524/tcp  open  ingreslock
2049/tcp  open  nfs
2121/tcp  open  ccproxy-ftp
3306/tcp  open  mysql
3632/tcp  open  distccd
5432/tcp  open  postgresql
5900/tcp  open  vnc
6000/tcp  open  X11
6667/tcp  open  irc
6697/tcp  open  ircs-u
8009/tcp  open  ajp13
8180/tcp  open  unknown
8787/tcp  open  msgsrvr
35583/tcp open  unknown
43906/tcp open  unknown
45622/tcp open  unknown
58633/tcp open  unknown
MAC Address: 08:00:27:96:16:B6 (PCS Systemtechnik/Oracle VirtualBox virtual NIC)
```

kali> nmap -v -p http 192.168.100.102

```
┌──(k4n0ng㉿kali)-[~]
└─$ nmap -v -p http 192.168.100.102
Starting Nmap 7.95 ( https://nmap.org ) at 2025-08-09 12:10 EDT
Initiating ARP Ping Scan at 12:10
Scanning 192.168.100.102 [1 port]
Completed ARP Ping Scan at 12:10, 0.05s elapsed (1 total hosts)
Initiating Parallel DNS resolution of 1 host. at 12:10
Completed Parallel DNS resolution of 1 host. at 12:10, 0.02s elapsed
Initiating SYN Stealth Scan at 12:10
Scanning 192.168.100.102 [2 ports]
Discovered open port 80/tcp on 192.168.100.102
Completed SYN Stealth Scan at 12:10, 0.02s elapsed (2 total ports)
Nmap scan report for 192.168.100.102
Host is up (0.00042s latency).

PORT     STATE  SERVICE
80/tcp   open   http
8008/tcp closed http
MAC Address: 08:00:27:96:16:B6 (PCS Systemtechnik/Oracle VirtualBox virtual NIC)
```

kali> nmap -v -p http* 192.168.100.102

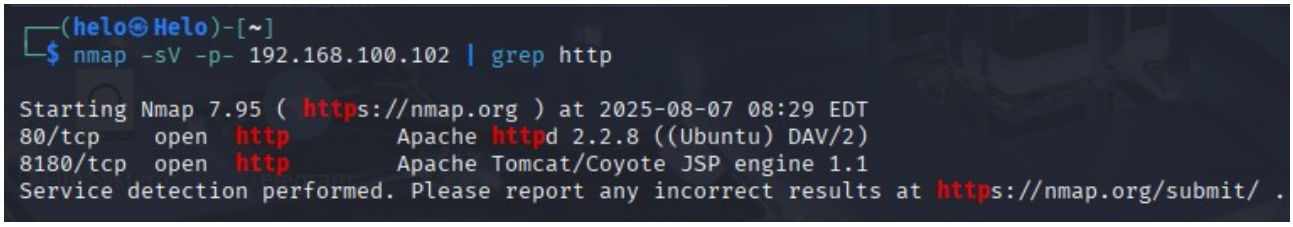
```
┌──(k4n0ng㉿kali)-[~]
└─$ nmap -v -p http* 192.168.100.102
Starting Nmap 7.95 ( https://nmap.org ) at 2025-08-09 12:10 EDT
Initiating ARP Ping Scan at 12:10
Scanning 192.168.100.102 [1 port]
Completed ARP Ping Scan at 12:10, 0.04s elapsed (1 total hosts)
Initiating Parallel DNS resolution of 1 host. at 12:10
Completed Parallel DNS resolution of 1 host. at 12:10, 0.03s elapsed
Initiating SYN Stealth Scan at 12:10
Scanning 192.168.100.102 [12 ports]
Discovered open port 80/tcp on 192.168.100.102
Completed SYN Stealth Scan at 12:10, 0.01s elapsed (12 total ports)
Nmap scan report for 192.168.100.102
Host is up (0.00026s latency).

PORT     STATE  SERVICE
80/tcp   open   http
280/tcp  closed http-mgmt
443/tcp  closed https
591/tcp  closed http-alt
593/tcp  closed http-rpc-epmap
4180/tcp closed httpx
8000/tcp closed http-alt
8008/tcp closed http
8080/tcp closed http-proxy
8443/tcp closed https-alt
8990/tcp closed http-wmap
8991/tcp closed https-wmap
MAC Address: 08:00:27:96:16:B6 (PCS Systemtechnik/Oracle VirtualBox virtual NIC)
```

kali> nmap -v -p 80,443,8080,8000,8443 --script http-title 192.168.100.102

```
┌──(k4n0ng㉿kali)-[~]
└─$ nmap -v -p 80,443,8080,8443 --script http-title 192.168.100.102
Starting Nmap 7.95 ( https://nmap.org ) at 2025-08-09 13:02 EDT
NSE: Loaded 1 scripts for scanning.
NSE: Script Pre-scanning.
Initiating NSE at 13:02
Completed NSE at 13:02, 0.00s elapsed
Initiating ARP Ping Scan at 13:02
Scanning 192.168.100.102 [1 port]
Completed ARP Ping Scan at 13:02, 0.06s elapsed (1 total hosts)
Initiating Parallel DNS resolution of 1 host. at 13:02
Completed Parallel DNS resolution of 1 host. at 13:02, 0.02s elapsed
Initiating SYN Stealth Scan at 13:02
Scanning 192.168.100.102 [4 ports]
Discovered open port 80/tcp on 192.168.100.102
Completed SYN Stealth Scan at 13:02, 0.03s elapsed (4 total ports)
NSE: Script scanning 192.168.100.102.
Initiating NSE at 13:02
Completed NSE at 13:02, 0.06s elapsed
Nmap scan report for 192.168.100.102
Host is up (0.00070s latency).

PORT     STATE  SERVICE
80/tcp   open   http
|_http-title: Metasploitable2 - Linux
443/tcp  closed https
8080/tcp closed http-proxy
8443/tcp closed https-alt
MAC Address: 08:00:27:96:16:B6 (PCS Systemtechnik/Oracle VirtualBox virtual NIC)
```

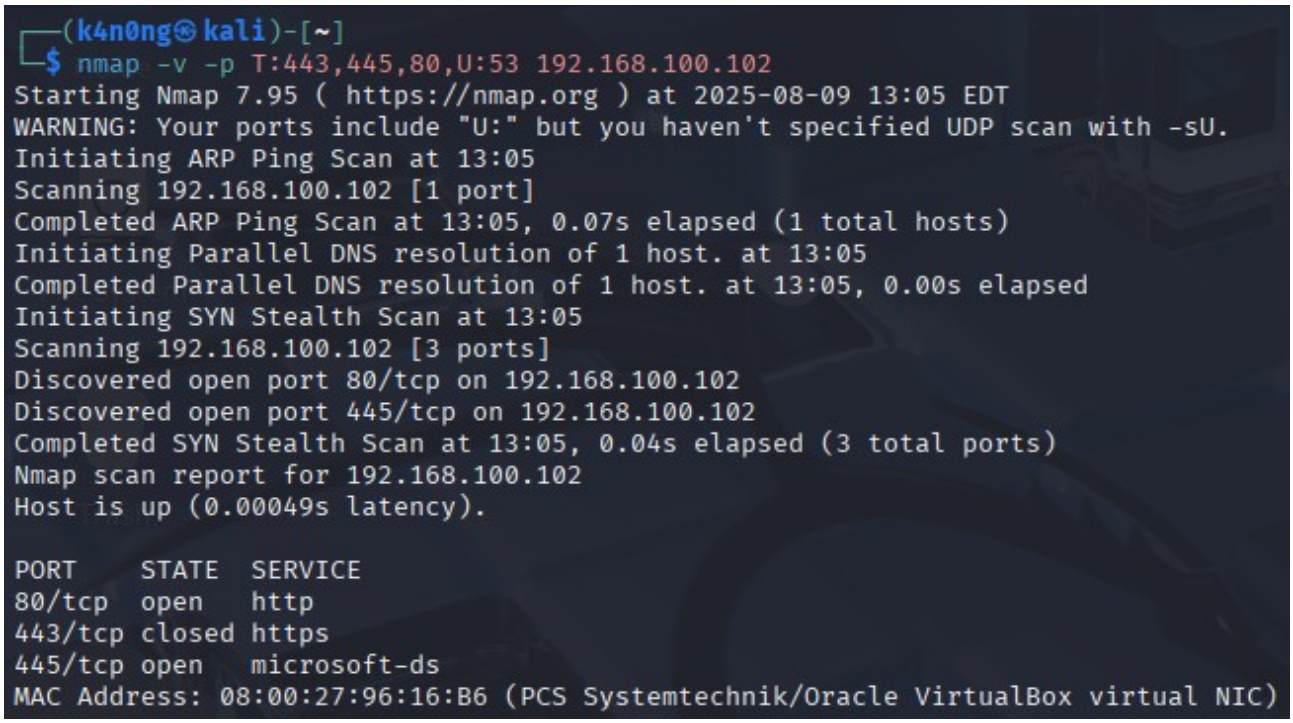
Use Nmap's `--script` to detect HTTP services (optional).
This will also show the title of web pages, helping identify running HTTP services.

Kali> nmap -sV -p- 192.168.100.102 | grep http



-p-: Scans all 65535 ports
-sV: Detects services
g**rep http**: Filters results to only show HTTP-related ones.

Kali> nmap -v -p T:443,445,80,U:53 192.168.100.102



- **-v**: Verbose mode - shows more output during the scan.
- **`-p T:443,445,80,U:53`**:
  - `T:` prefix specifies **TCP ports**: `443 (HTTPS)`, `445 (SMB)`, `80 (HTTP)`
  - `U:` prefix specifies **UDP port**: `53 (DNS)`

kali> nmap -v -sS -sU -p T:443,445,80,U:53 192.168.100.102

```
┌──(k4n0ng㉿kali)-[~]
└─$ nmap -v -sS -sU -p T:443,445,80,U:53 192.168.100.102
Starting Nmap 7.95 ( https://nmap.org ) at 2025-08-09 13:06 EDT
Initiating ARP Ping Scan at 13:06
Scanning 192.168.100.102 [1 port]
Completed ARP Ping Scan at 13:06, 0.09s elapsed (1 total hosts)
Initiating Parallel DNS resolution of 1 host. at 13:06
Completed Parallel DNS resolution of 1 host. at 13:06, 0.00s elapsed
Initiating SYN Stealth Scan at 13:06
Scanning 192.168.100.102 [3 ports]
Discovered open port 445/tcp on 192.168.100.102
Discovered open port 80/tcp on 192.168.100.102
Completed SYN Stealth Scan at 13:06, 0.04s elapsed (3 total ports)
Initiating UDP Scan at 13:06
Scanning 192.168.100.102 [1 port]
Discovered open port 53/udp on 192.168.100.102
Completed UDP Scan at 13:06, 0.24s elapsed (1 total ports)
Nmap scan report for 192.168.100.102
Host is up (0.00061s latency).

PORT    STATE  SERVICE
80/tcp  open   http
443/tcp closed https
445/tcp open   microsoft-ds
53/udp  open   domain
MAC Address: 08:00:27:96:16:B6 (PCS Systemtechnik/Oracle VirtualBox virtual NIC)
```

This command To properly scan both TCP and UDP ports, use.

- **-sS**: TCP SYN scan (stealthy and fast)
- **-sU**: Enables UDP scan (required for U: ports to be scanned)
- **-p**: Lists TCP and UDP ports explicitly

kali> nmap -v -sU -p T:443,445,80,U:53 192.168.100.102

```
┌──(k4n0ng㉿kali)-[~]
└─$ nmap -v -sU -p T:443,445,80,U:53 192.168.100.102
Starting Nmap 7.95 ( https://nmap.org ) at 2025-08-09 13:07 EDT
WARNING: Your ports include "T:" but you haven't specified any TCP scan type.
Initiating ARP Ping Scan at 13:07
Scanning 192.168.100.102 [1 port]
Completed ARP Ping Scan at 13:07, 0.07s elapsed (1 total hosts)
Initiating Parallel DNS resolution of 1 host. at 13:07
Completed Parallel DNS resolution of 1 host. at 13:07, 0.00s elapsed
Initiating UDP Scan at 13:07
Scanning 192.168.100.102 [1 port]
Discovered open port 53/udp on 192.168.100.102
Completed UDP Scan at 13:07, 0.14s elapsed (1 total ports)
Nmap scan report for 192.168.100.102
Host is up (0.00050s latency).

PORT   STATE SERVICE
53/udp open  domain
MAC Address: 08:00:27:96:16:B6 (PCS Systemtechnik/Oracle VirtualBox virtual NIC)
```

kali> nmap -v -sS 192.168.100.102

```
┌──(k4n0ng㉿kali)-[~]
└─$ nmap -v -sS 192.168.100.102
Starting Nmap 7.95 ( https://nmap.org ) at 2025-08-09 13:09 EDT
Initiating ARP Ping Scan at 13:09
Scanning 192.168.100.102 [1 port]
Completed ARP Ping Scan at 13:09, 0.28s elapsed (1 total hosts)
Initiating Parallel DNS resolution of 1 host. at 13:09
Completed Parallel DNS resolution of 1 host. at 13:09, 0.00s elapsed
Initiating SYN Stealth Scan at 13:09
Scanning 192.168.100.102 [1000 ports]
Discovered open port 23/tcp on 192.168.100.102
Discovered open port 53/tcp on 192.168.100.102
Discovered open port 22/tcp on 192.168.100.102
Discovered open port 21/tcp on 192.168.100.102
```

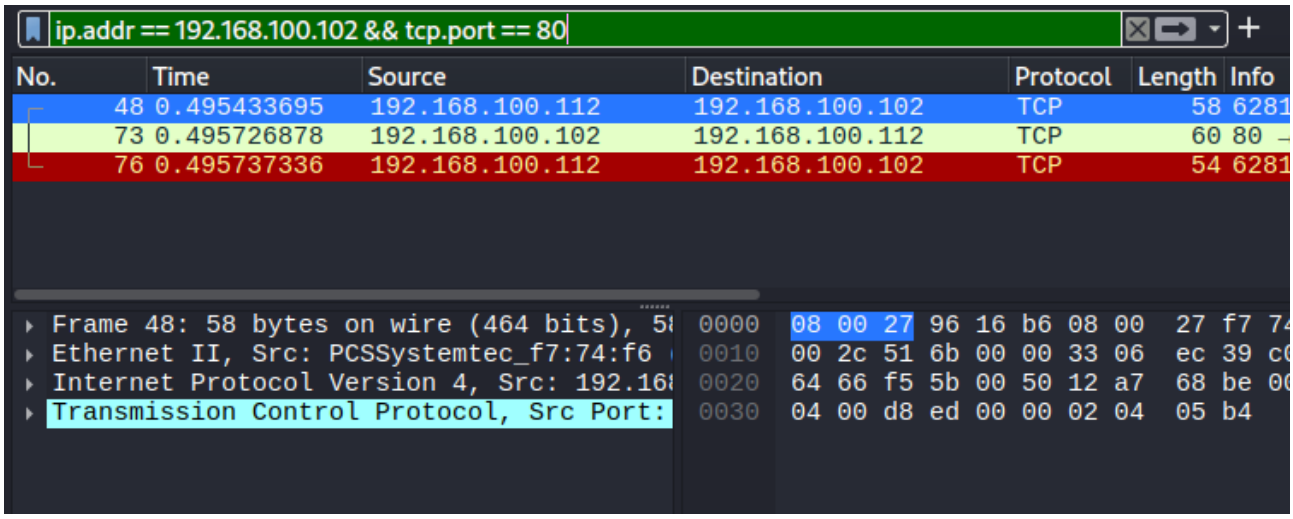
```
PORT     STATE SERVICE
21/tcp   open  ftp
22/tcp   open  ssh
23/tcp   open  telnet
25/tcp   open  smtp
53/tcp   open  domain
80/tcp   open  http
111/tcp  open  rpcbind
139/tcp  open  netbios-ssn
445/tcp  open  microsoft-ds
512/tcp  open  exec
513/tcp  open  login
514/tcp  open  shell
1099/tcp open  rmiregistry
1524/tcp open  ingreslock
2049/tcp open  nfs
```

- -sS: TCP SYN scan (stealthy and fast).
- -v: Enables verbose mode, so Nmap provides more detailed output.

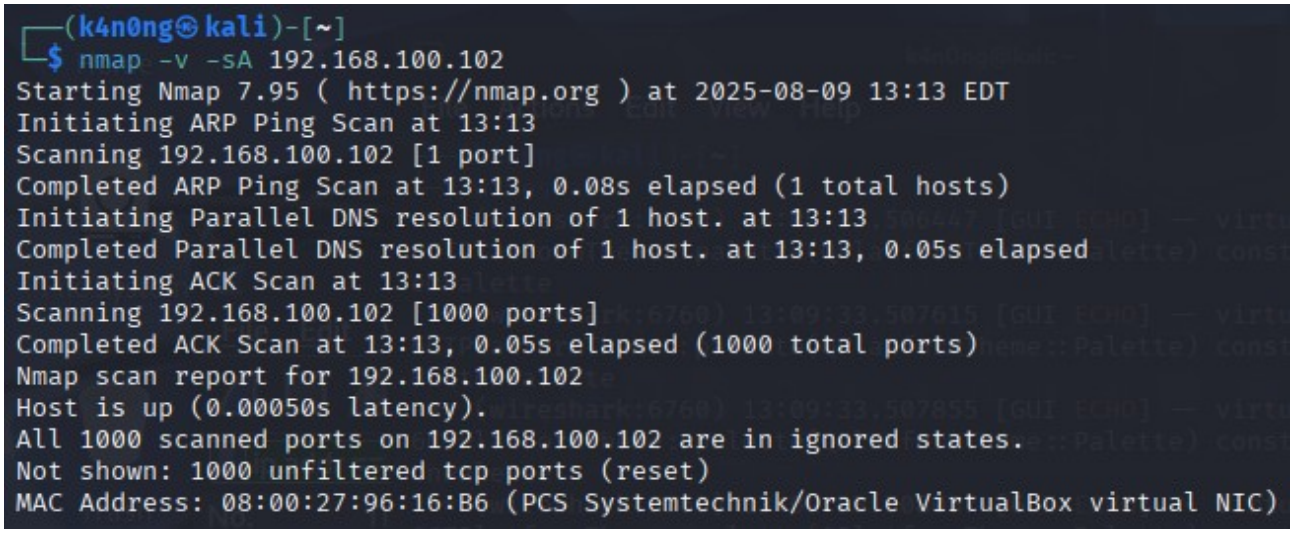
- after this we open wireshark
kali> wireshark

```
┌──(k4n0ng㉿kali)-[~]
└─$ wireshark
 ** (wireshark:6760) 13:09:33.506447 [GUI ECHO] -- virtual const QPalette* Qt
6CTPlatformTheme::palette(QPlatformTheme::Palette) const QPlatformTheme::Syst
emPalette
 ** (wireshark:6760) 13:09:33.507615 [GUI ECHO] -- virtual const QPalette* Qt
6CTPlatformTheme::palette(QPlatformTheme::Palette) const QPlatformTheme::Tool
ButtonPalette
 ** (wireshark:6760) 13:09:33.507855 [GUI ECHO] -- virtual const QPalette* Qt
6CTPlatformTheme::palette(QPlatformTheme::Palette) const QPlatformTheme::Butt
onPalette
```

wireshark> ip.addr == 192.168.100.102 && tcp.port == 80

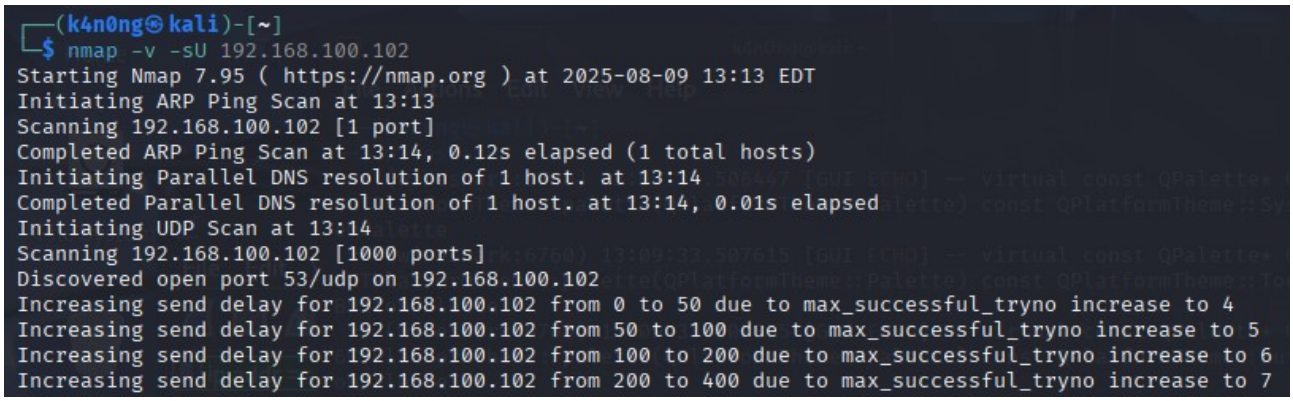


kali> nmap -v -sA 192.168.100.102



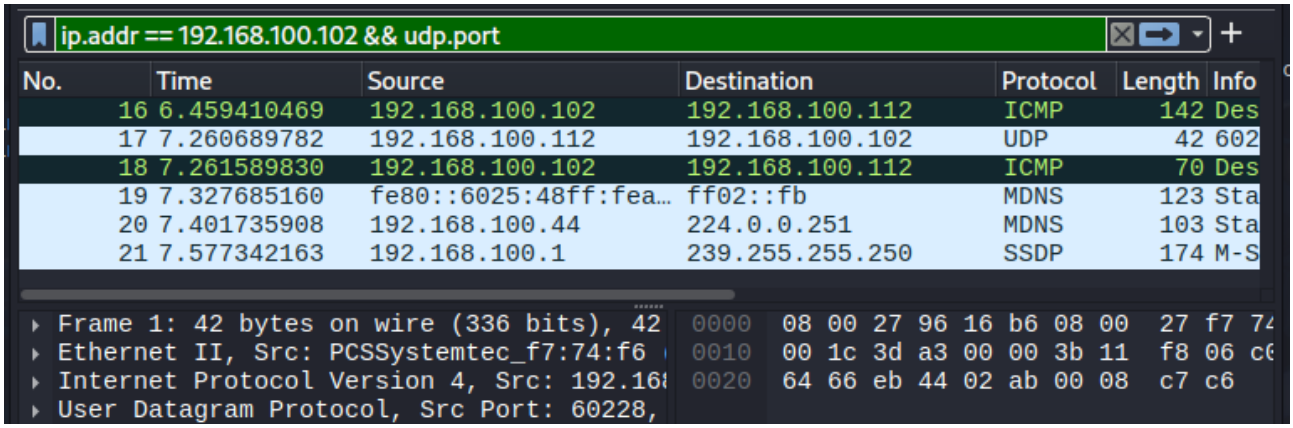
- -sA: Uses an ACK scan, which sends TCP ACK packets to determine firewall rules — not whether the port is open or closed.

Kali> nmap -v -sU 192.168.100.102

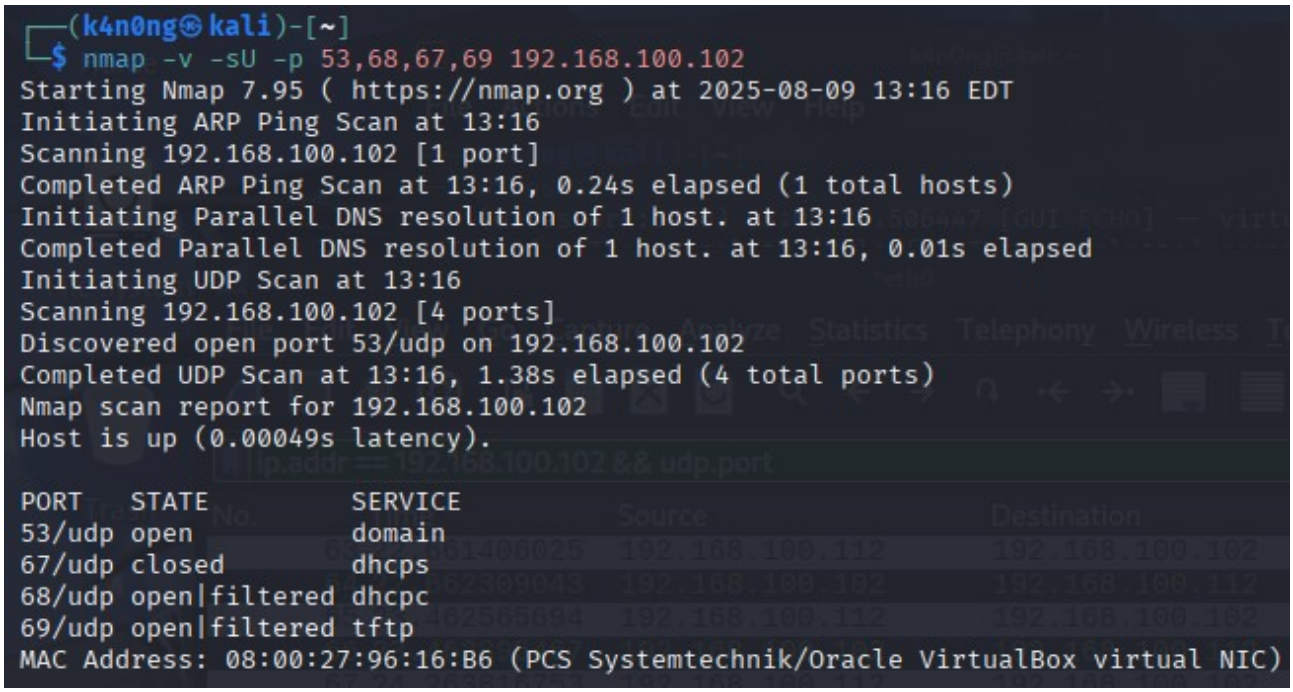


-sU: Enables UDP scan (required for `U:` ports to be scanned)

wireshark> ip.addr == 192.168.100.102 && udp.port



kali> nmap -v -sU -p 53,68,67,69 192.168.100.102



- **`-v`**: Enables verbose mode for detailed output.
- **`-sU`**: Specifies a **UDP scan** (instead of the default TCP).
- **`-p 53,68,67,69`**: Scans **UDP ports**:
  - `53` → **DNS**
  - `67` → **DHCP server**
  - `68` → **DHCP client**
  - `69` → **TFTP (Trivial File Transfer Protocol)**

kali> nmap -v -sS -sU -p T:80,443,U:53,67,68,69 192.168.100.102

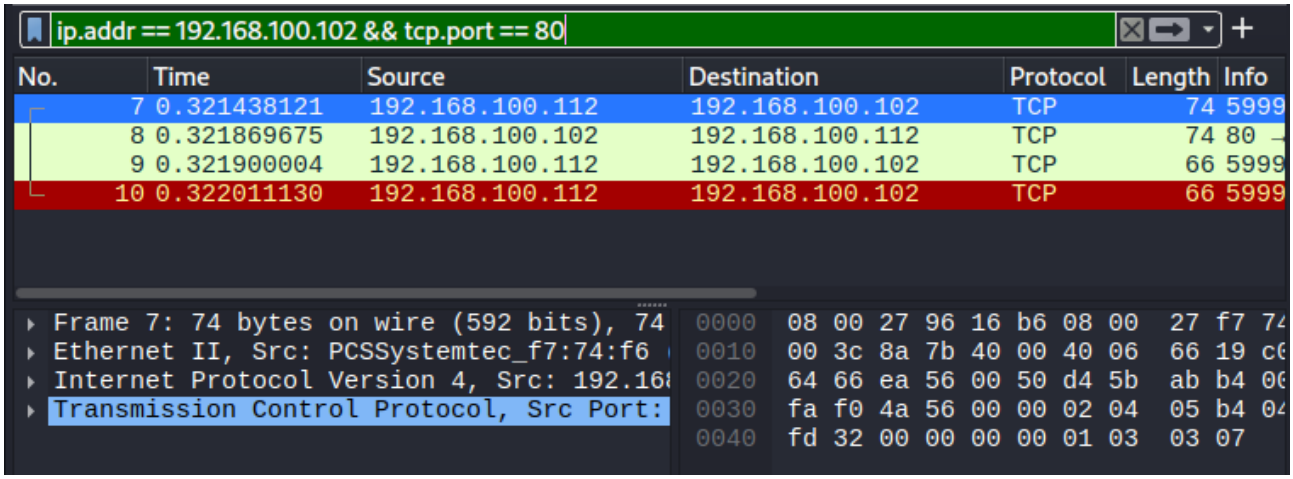
```
┌──(k4n0ng㉿kali)-[~]
└─$ nmap -v -sS -sU -p T:80,443,U:53,68,67,69 192.168.100.102
Starting Nmap 7.95 ( https://nmap.org ) at 2025-08-09 13:17 EDT
Initiating ARP Ping Scan at 13:17
Scanning 192.168.100.102 [1 port]
Completed ARP Ping Scan at 13:17, 0.07s elapsed (1 total hosts)
Initiating Parallel DNS resolution of 1 host. at 13:17
Completed Parallel DNS resolution of 1 host. at 13:17, 0.00s elapsed
Initiating SYN Stealth Scan at 13:17
Scanning 192.168.100.102 [2 ports]
Discovered open port 80/tcp on 192.168.100.102
Completed SYN Stealth Scan at 13:17, 0.13s elapsed (2 total ports)
Initiating UDP Scan at 13:17
Scanning 192.168.100.102 [4 ports]
Discovered open port 53/udp on 192.168.100.102
Completed UDP Scan at 13:17, 1.50s elapsed (4 total ports)
Nmap scan report for 192.168.100.102
Host is up (0.00054s latency).

PORT    STATE         SERVICE
80/tcp  open          http
443/tcp closed        https
53/udp  open          domain
67/udp  closed        dhcps
68/udp  open|filtered dhcpc
69/udp  open|filtered tftp
MAC Address: 08:00:27:96:16:B6 (PCS Systemtechnik/Oracle VirtualBox virtual NIC)
```

Scan Both TCP and UDP Together**.**

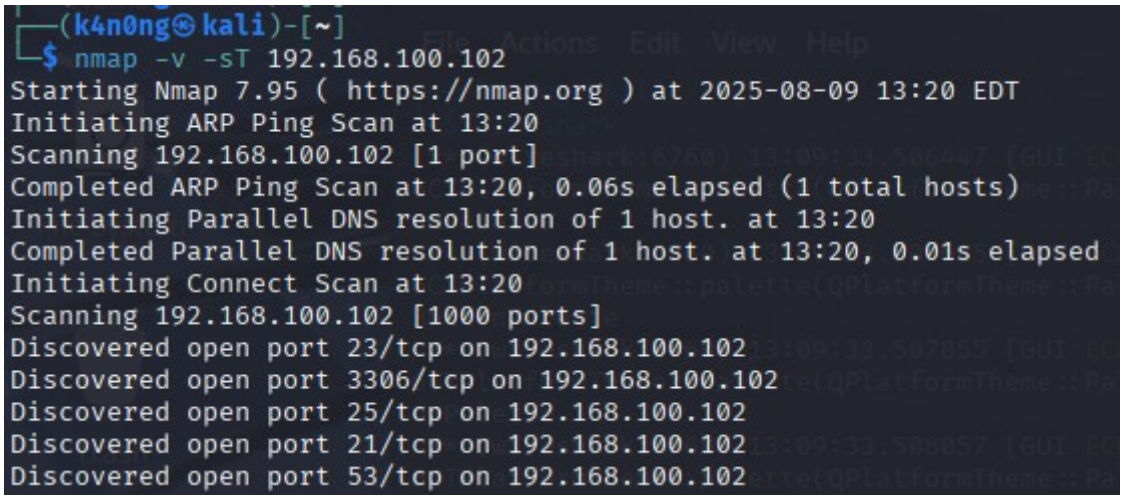
Kali> nmap -v -sT -p 80 192.168.100.102

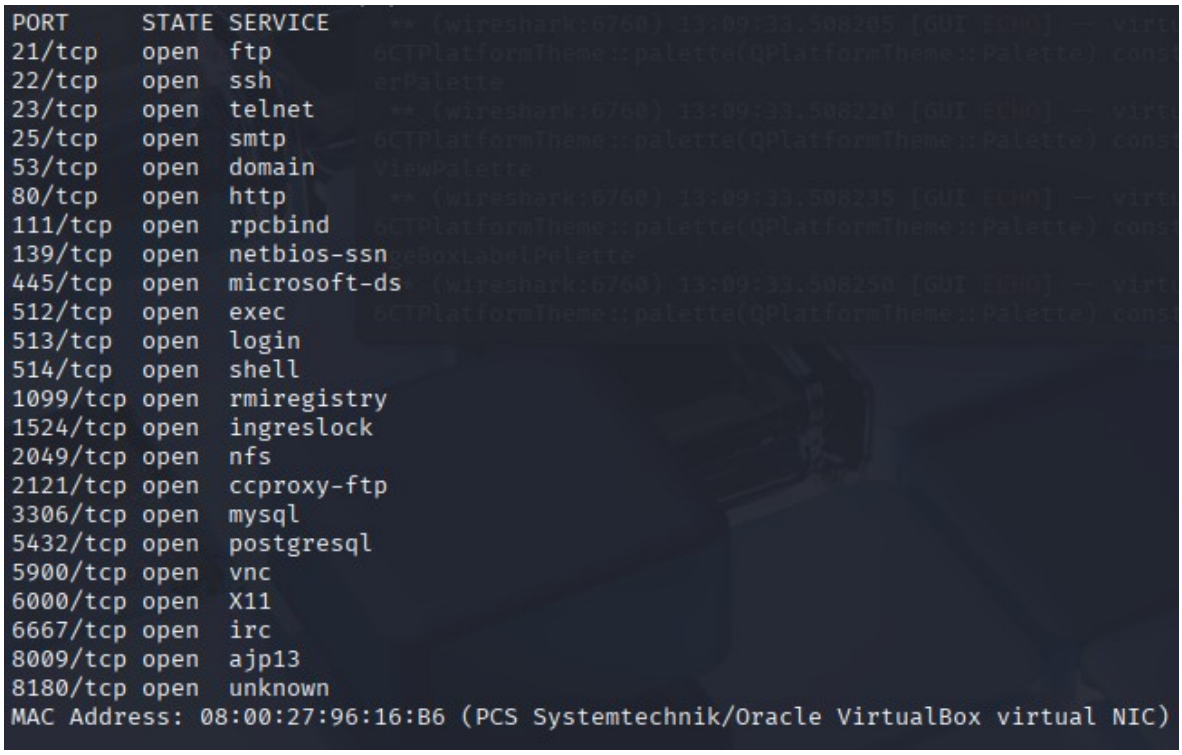
```
┌──(k4n0ng㉿kali)-[~]
└─$ nmap -v -sT -p 80 192.168.100.102
Starting Nmap 7.95 ( https://nmap.org ) at 2025-08-09 13:18 EDT
Initiating ARP Ping Scan at 13:18
Scanning 192.168.100.102 [1 port]
Completed ARP Ping Scan at 13:18, 0.08s elapsed (1 total hosts)
Initiating Parallel DNS resolution of 1 host. at 13:18
Completed Parallel DNS resolution of 1 host. at 13:18, 0.01s elapsed
Initiating Connect Scan at 13:18
Scanning 192.168.100.102 [1 port]
Discovered open port 80/tcp on 192.168.100.102
Completed Connect Scan at 13:18, 0.00s elapsed (1 total ports)
Nmap scan report for 192.168.100.102
Host is up (0.00073s latency).

PORT   STATE SERVICE
80/tcp open  http
MAC Address: 08:00:27:96:16:B6 (PCS Systemtechnik/Oracle VirtualBox virtual NIC)
```

wireshark> ip.addr == 192.168.100.102 && tcp.port == 80



kali> nmap -v -sT 192.168.100.102





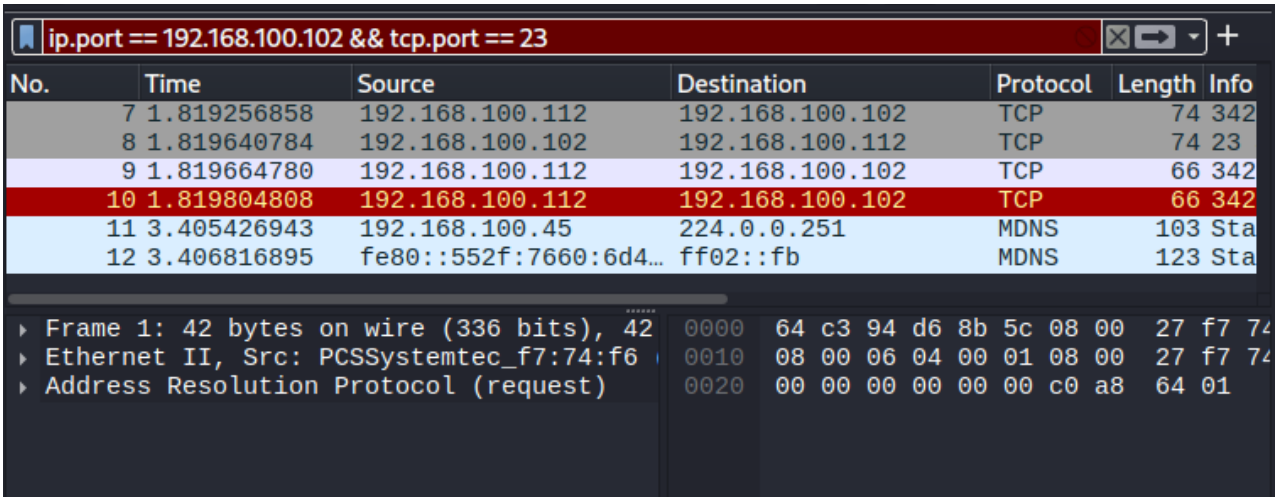
- **-sT**: **TCP Connect Scan** (also called a "full-open scan").

Kali> nmap -v -sT 192.168.100.102 -p 23

```
┌──(helo㉿Helo)-[~]
└─$ nmap -v -sT 192.168.100.102 -p 23
Starting Nmap 7.95 ( https://nmap.org ) at 2025-08-07 11:10 EDT
Initiating ARP Ping Scan at 11:10
Scanning 192.168.100.102 [1 port]
Completed ARP Ping Scan at 11:10, 0.11s elapsed (1 total hosts)
Initiating Parallel DNS resolution of 1 host. at 11:10
Completed Parallel DNS resolution of 1 host. at 11:10, 0.03s elapsed
Initiating Connect Scan at 11:10
Scanning 192.168.100.102 [1 port]
Discovered open port 23/tcp on 192.168.100.102
Completed Connect Scan at 11:10, 0.00s elapsed (1 total ports)
Nmap scan report for 192.168.100.102
Host is up (0.0010s latency).

PORT   STATE SERVICE
23/tcp open  telnet
MAC Address: 08:00:27:96:16:B6 (PCS Systemtechnik/Oracle VirtualBox virtual NIC)
```

-p 23 : Scans **only port 23**, which is usually used by the **Telnet** service.

wireshark> ip.port == 192.168.100.102 && tcp.port == 23

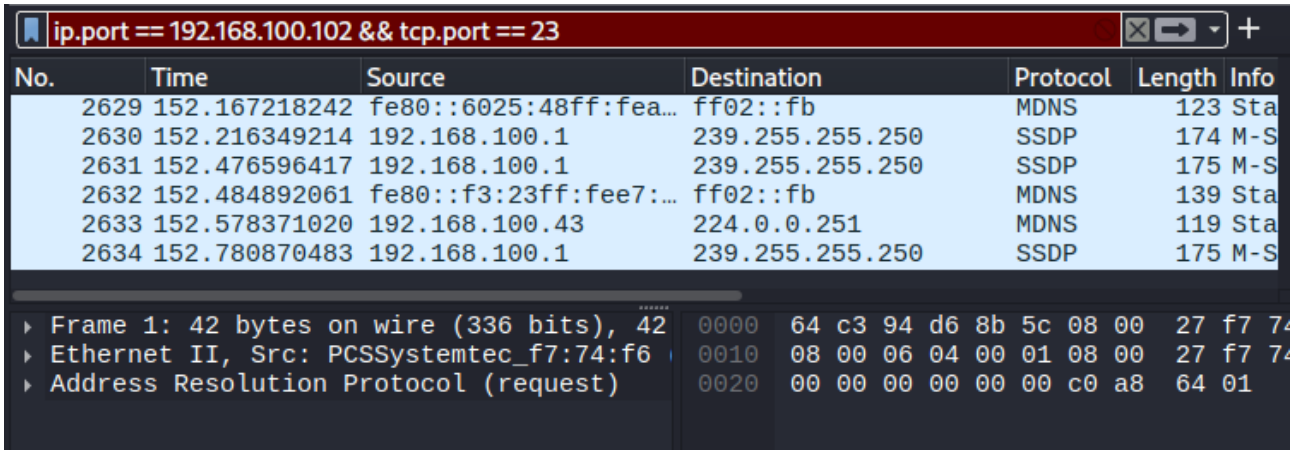


kali> nmap -v -sT -sV 192.168.100.102

```
┌──(k4n0ng㉿kali)-[~]
└─$ nmap -v -sT -sV 192.168.100.102
Starting Nmap 7.95 ( https://nmap.org ) at 2025-08-09 13:24 EDT
NSE: Loaded 47 scripts for scanning.
Initiating ARP Ping Scan at 13:24
Scanning 192.168.100.102 [1 port]
Completed ARP Ping Scan at 13:24, 0.06s elapsed (1 total hosts)
Initiating Parallel DNS resolution of 1 host. at 13:24
Completed Parallel DNS resolution of 1 host. at 13:24, 0.01s elapsed
Initiating Connect Scan at 13:24
Scanning 192.168.100.102 [1000 ports]
Discovered open port 139/tcp on 192.168.100.102
Discovered open port 53/tcp on 192.168.100.102
Discovered open port 22/tcp on 192.168.100.102
```

```
PORT     STATE SERVICE     VERSION
21/tcp   open  ftp         vsftpd 2.3.4
22/tcp   open  ssh         OpenSSH 4.7p1 Debian 8ubuntu1 (protocol 2.0)
23/tcp   open  telnet      Linux telnetd
25/tcp   open  smtp        Postfix smtpd
53/tcp   open  domain      ISC BIND 9.4.2
80/tcp   open  http        Apache httpd 2.2.8 ((Ubuntu) DAV/2)
111/tcp  open  rpcbind     2 (RPC #100000)
139/tcp  open  netbios-ssn Samba smbd 3.X - 4.X (workgroup: WORKGROUP)
445/tcp  open  netbios-ssn Samba smbd 3.X - 4.X (workgroup: WORKGROUP)
512/tcp  open  exec        netkit-rsh rexecd
513/tcp  open  login
514/tcp  open  tcpwrapped
1099/tcp open  java-rmi    GNU Classpath grmiregistry
1524/tcp open  bindshell   Metasploitable root shell
2049/tcp open  nfs         2-4 (RPC #100003)
2121/tcp open  ftp         ProFTPD 1.3.1
3306/tcp open  mysql       MySQL 5.0.51a-3ubuntu5
5432/tcp open  postgresql  PostgreSQL DB 8.3.0 - 8.3.7
5900/tcp open  vnc         VNC (protocol 3.3)
6000/tcp open  X11         (access denied)
6667/tcp open  irc         UnrealIRCd
8009/tcp open  ajp13       Apache Jserv (Protocol v1.3)
8180/tcp open  http        Apache Tomcat/Coyote JSP engine 1.1
MAC Address: 08:00:27:96:16:B6 (PCS Systemtechnik/Oracle VirtualBox virtual NIC)
Service Info: Hosts:  metasploitable.localdomain, irc.Metasploitable.LAN; OSs: Unix, Linux; CPE: cpe:/o:linux:
linux_kernel
```

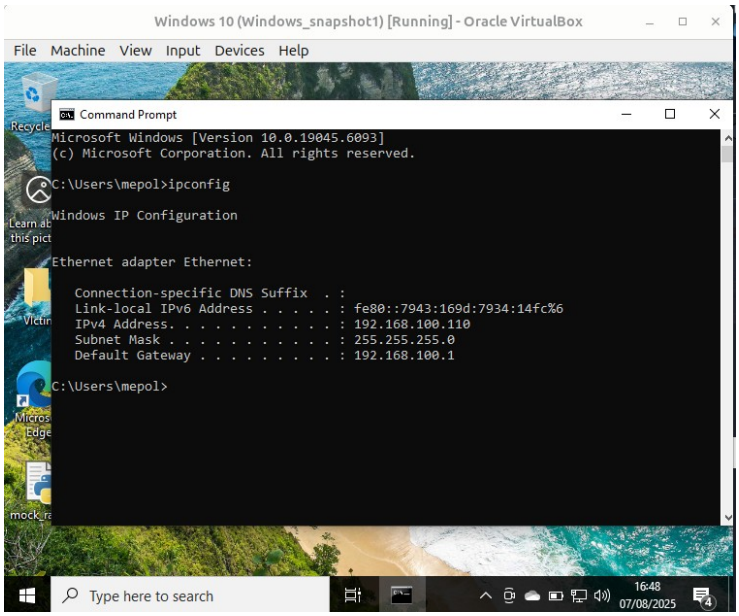
is used to perform a **TCP Connect Scan** with **version detection** on the target IP `192.168.100.102`, and provides **verbose output**.



-sT: **TCP Connect Scan** – uses full TCP handshake to detect open ports.

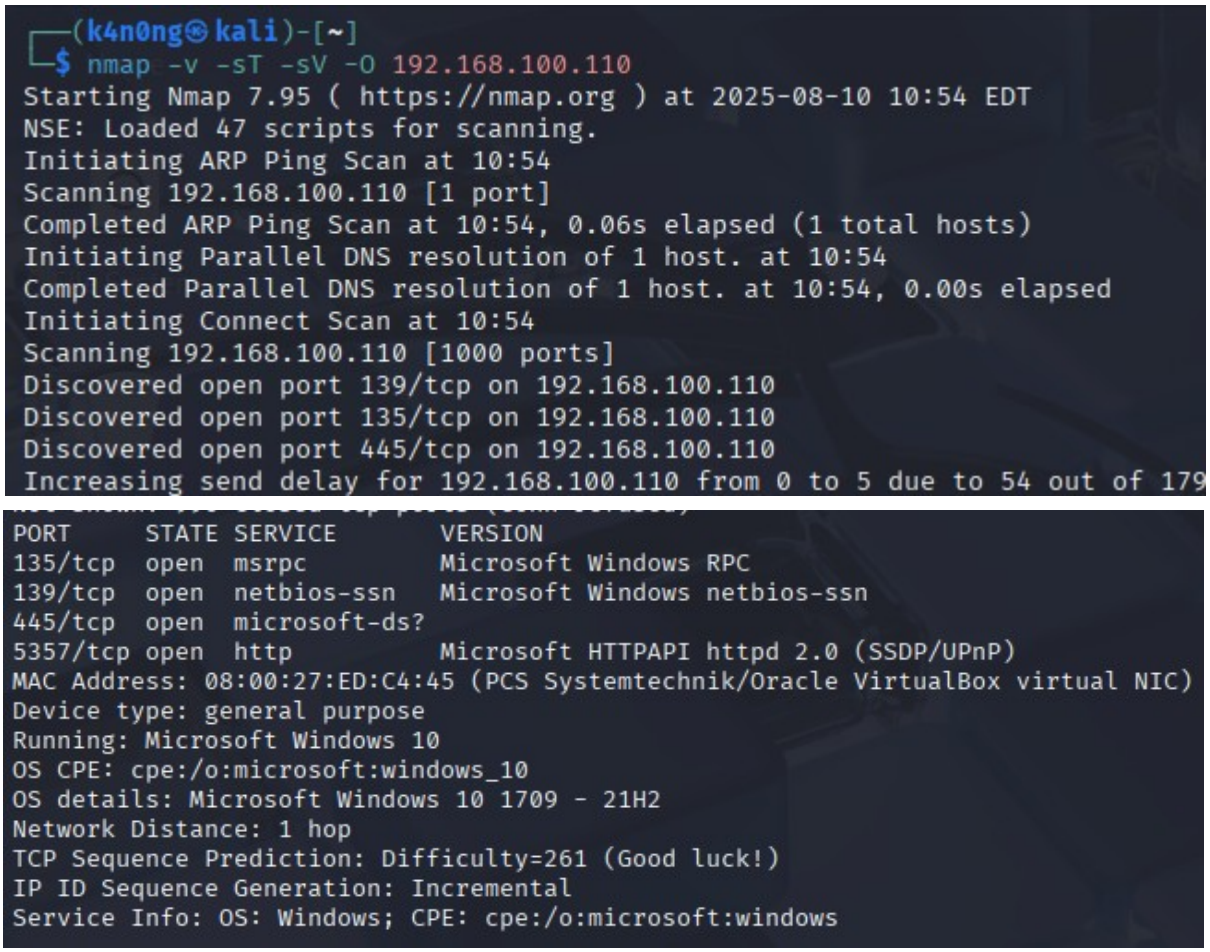
-sV: **Service/version detection** – tries to determine software versions.

- Open the windows10:



we already closed firewall.

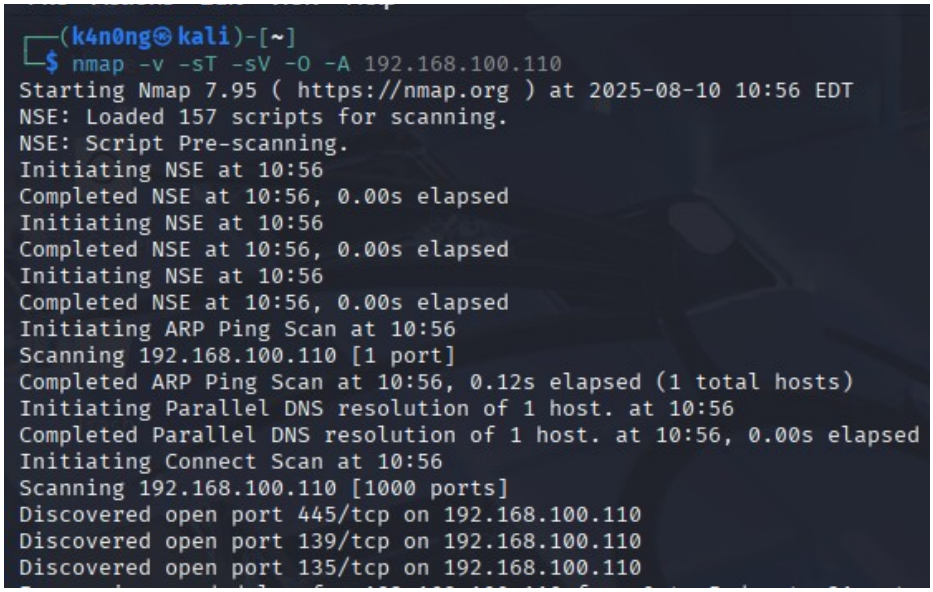
Kali> nmap -v -sT -sV -O 192.168.100.110

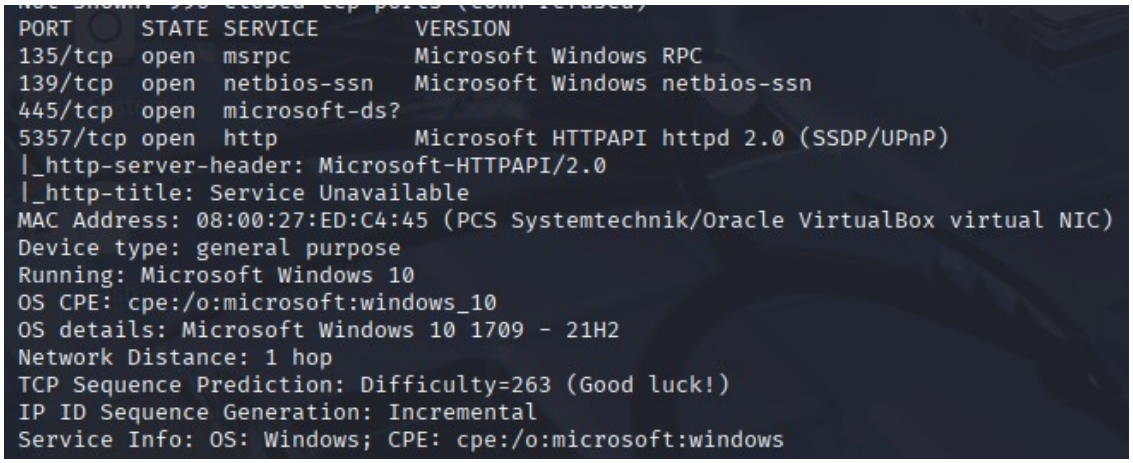


- **-v**: **Verbose mode**: Provides more detailed output. You'll see progress and additional information during the scan.

- **-sT**: **TCP connect scan**: Nmap completes the full TCP 3-way handshake (SYN → SYN-ACK → ACK). This is less stealthy than SYN scan (-sS) but doesn't require raw packet privileges (can be run without root).
- **-sV**: **Service version detection**: Nmap attempts to determine the version of services running on open ports (e.g., Apache 2.4.41, OpenSSH 8.2p1).
- **-O**: **Enable OS detection**: Nmap tries to guess the operating system of the target based on TCP/IP stack fingerprinting.

Kali> nmap -v -sT -sV -O -A 192.168.100.110





- -A : **Aggressive mode**: Enables a suite of advanced features:
  - OS detection (-O)
  - Version detection (-sV)
  - Script scanning (--script=default)
  - Traceroute (--traceroute)

1. Overview of Nmap

- Nmap is used to provide detailed, real-time information about networks and devices connected to them.

- It helps administrators and users understand their network infrastructure, identify vulnerabilities, and protect against potential threats.

2. Primary Uses of Nmap (Three Core Processes)

a. First Use: Detailed Information on Active IPs

- Nmap provides detailed information about every active IP address on your network.
- **Process**:
    - Each IP can be scanned to determine its purpose.
    - This allows administrators to check whether an IP is being used by a legitimate service or by an external attacker.
- Helps in identifying unauthorized access or malicious activity.

b. Second Use: Network-wide Information

- Nmap provides comprehensive information about the entire network.
    - It generates a list of live hosts (active devices) and open ports.
    - It identifies the operating system (OS) of each connected device.
- **Applications**:
    - **Ongoing System Monitoring**: Tracks network activity and ensures everything is functioning as expected.
    - **Penetration Testing**: Used alongside tools like the **Metasploit Framework** to probe network vulnerabilities and repair them.
    - Example: Nmap can help identify open ports that could be exploited by attackers.

c. Third Use: Website Security

- Nmap is valuable for users looking to protect personal and business websites.
- **Process**:
    - Scanning your own web server (especially if hosted from home) simulates how a hacker might attack your site.
    - By "attacking" your own site in this way, you can identify security vulnerabilities before they are exploited by actual attackers.
- Proactive security testing to strengthen defenses.

3. Key Takeaways

1. **Network Inventory and Security**: Nmap helps administrators manage and secure their networks by providing detailed information about active IPs, live hosts, open ports, and connected devices.
2. **Integration with Other Tools**: Nmap can work alongside frameworks like Metasploit to perform advanced penetration testing and vulnerability assessment.

3. **Website Protection**: Nmap enables users to simulate attacks on their own websites, helping them identify and fix security weaknesses proactively.

Run a ping Scan

1. Overview of Ping Scan

- One of the basic functions of Nmap is to identify active hosts (devices) on your network.
- Nmap performs this by conducting a **ping scan**, which detects all IP addresses currently online without sending any packets directly to those hosts.
    - A ping scan is a non-intrusive way to discover active devices on a network.

Kali> nmap -sP 192.168.100.1/24 (old syntax)

```
┌──(k4n0ng㉿kali)-[~]
└─$ nmap -sP 192.168.100.1/24
Starting Nmap 7.95 ( https://nmap.org ) at 2025-08-10 10:59 EDT
Nmap scan report for 192.168.100.1
Host is up (0.0028s latency).
MAC Address: 64:C3:94:D6:8B:5C (Huawei Technologies)
Nmap scan report for 192.168.100.28
Host is up (0.10s latency).
MAC Address: 3C:55:76:D0:B5:EF (Cloud Network Technology Singapore PTE.)
Nmap scan report for 192.168.100.33
Host is up (0.10s latency).
MAC Address: 9A:6E:94:6A:3F:15 (Unknown)
Nmap scan report for 192.168.100.36
Host is up (0.10s latency).
MAC Address: EE:E1:81:11:CE:AF (Unknown)
```

kali> nmap -sn 192.168.100.1/24 (New syntax)

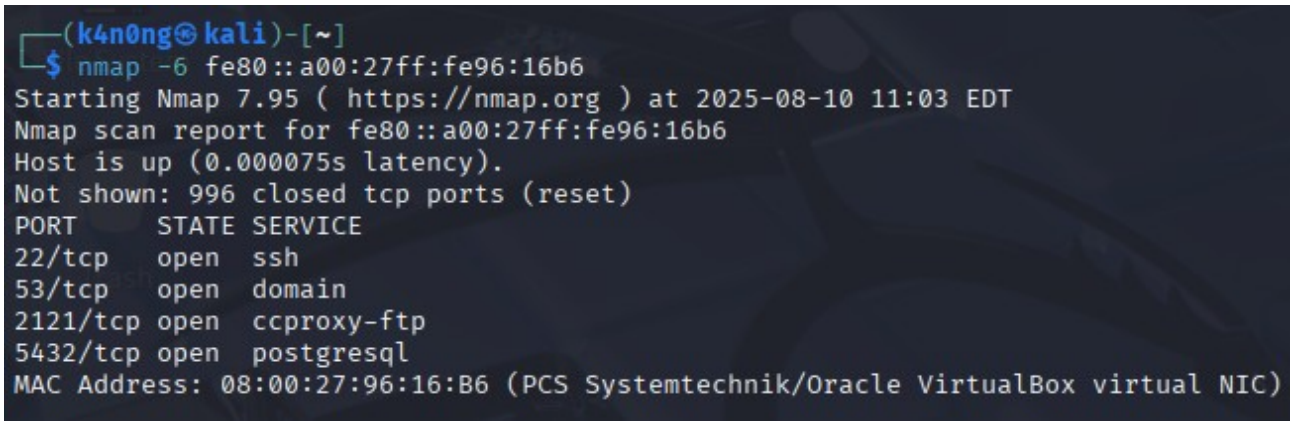
```
┌──(k4n0ng㉿kali)-[~]
└─$ nmap -sn 192.168.100.1/24
Starting Nmap 7.95 ( https://nmap.org ) at 2025-08-10 11:00 EDT
Nmap scan report for 192.168.100.1
Host is up (0.0076s latency).
MAC Address: 64:C3:94:D6:8B:5C (Huawei Technologies)
Nmap scan report for 192.168.100.28
Host is up (0.14s latency).
MAC Address: 3C:55:76:D0:B5:EF (Cloud Network Technology Singapore PTE.)
Nmap scan report for 192.168.100.33
Host is up (1.1s latency).
MAC Address: 9A:6E:94:6A:3F:15 (Unknown)
Nmap scan report for 192.168.100.43
Host is up (0.10s latency).
MAC Address: 02:F3:23:E7:98:B6 (Unknown)
```

- **`-sn`** (Ping Scan): Skips port scanning and only checks which hosts are up.
- **`192.168.100.1/24`**: Scans the IP range `192.168.100.0` to `192.168.100.255`.
- Nmap will send **ICMP Echo Request** and sometimes **ARP requests** (on local LAN) to identify live devices.
- Output will list each detected host and its IP (and sometimes hostname + MAC address).

Scan an IPV6 Target

The -6 parameter is used to perform a scan of IP version 6 target.

Kali> nmap -6 fe80::a00:27ff:fe96:16b6



End Part 1

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