Nmap Scanning Project

Objective:

Identify the operating system, running services, and potential vulnerabilities on the target IP **192.168.88.123**to understand its infrastructure and assess security measures.

Tools Used:

- Nmap (Network mapper)
- Kali Linux (running on VirtualBox)
- Target: local machine with IP 192.168.174.123

Methodology:

1. Ping Scan:

- Purpose: Verify if the target is active on the network.
- Command: nmap -sn 192.168.174.123
- Process: Sends ICMP echo requests to check if the host is up.

2. Port Scan:

I. To scan all 65535 ports
   - Purpose: Identify open ports on the target system.
   - Command: nmap -p- 192.168.88.123
   - Process: Scans all 65535 ports for open or filtered states.

II. To scan multiple specific ports
   - Purpose: Identify specific open ports on the target system
   - Command: nmap -p 22,80,443 192.168.88.123
   - Process: Scans port no 22,80,443 ports for open or filtered states

III. To scan a range of ports
   - Purpose: Identify the specific range of open ports on the target system.
   - Command: nmap -p 1-1535 192.168.88.123
   - Process: Scans only port 1 to port 1535 for open or filtered states.

3. UDP Port Scan:

- Purpose: Discover open UDP ports on the target.
- Command: nmap -sU 192.168.88.123
- Process: Scans for active UDP-based services which are often missed by standard TCP scans.

4. Service Version Detection:

- Purpose: Identify active services and their versions to understand the target's network landscape.
- Command: nmap -sV 192.168.88.123
- Process: This command scans open ports and attempts to determine the version of services running on them.

5. OS Detection:

- Purpose: Identify the target's operating system for further exploitation or system analysis.
- Command: nmap -O 192.168.88.123
- Process: Uses TCP/IP stack fingerprinting to guess the operating system.

6. Firewall/IDS Detection:

- Purpose: Detect the presence of firewalls or intrusion detection systems (IDS) that may block scanning attempts. –
- Command: nmap --script firewall-bypass 192.168.88.123
- Process: Executes scripts designed to identify and attempt to bypass firewall rules.

7. Aggressive Scan:

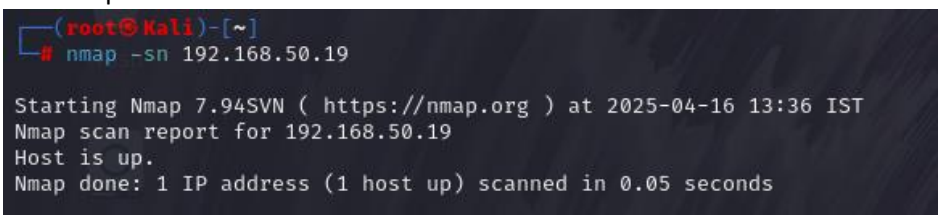
- Purpose: Perform a comprehensive scan combining service detection, OS detection, and traceroute.
- Command: nmap -A 192.168.88.123
- Process: This command conducts a detailed assessment by combining multiple scanning techniques.

8. Vulnerability Scan:

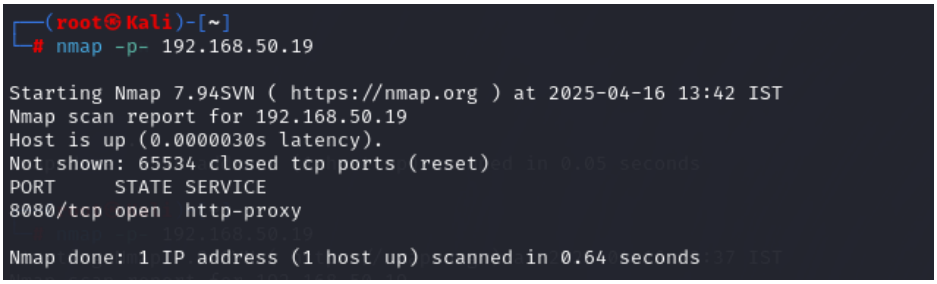
- Purpose: Identify known vulnerabilities in detected services.
- Command: nmap --script=vuln 192.168.88.123
- Process: Runs Nmap's vulnerability detection scripts to find potential weaknesses.

Findings:

1. Ping Scan (nmap -sn 192.168.50.19)
   - Host is up and reachable on the network.

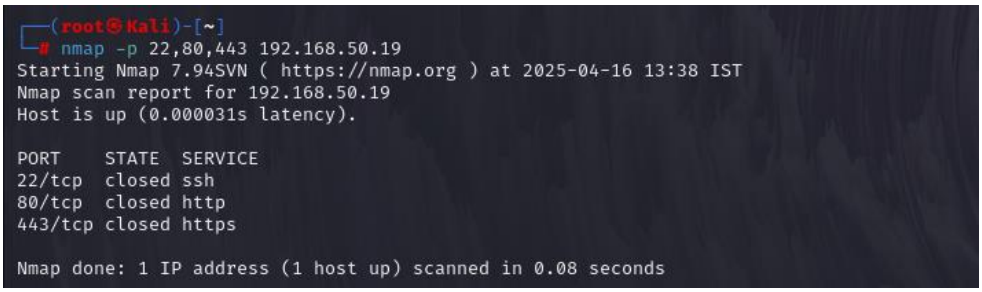


2. Port Scan (nmap -p- 192.168.50.19)
   I. Port Scan (nmap -p- 192.168.50.19)
   - All 65,535 TCP ports are closed. No active services detected on any port.



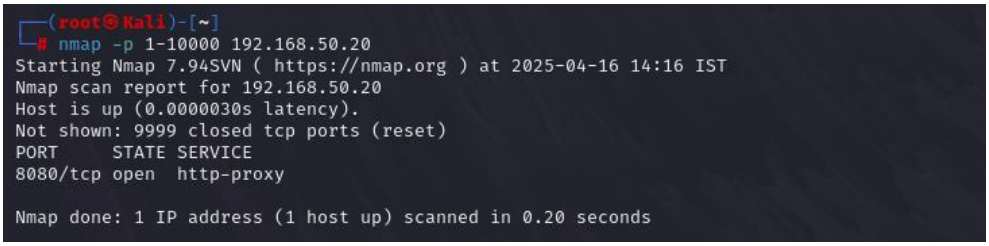
II. Specific Port Scan (nmap -p 22,80,443 192.168.50.19)

- Common service ports (SSH, HTTP, HTTPS) are closed. No services are running on ports 22, 80, or 443.



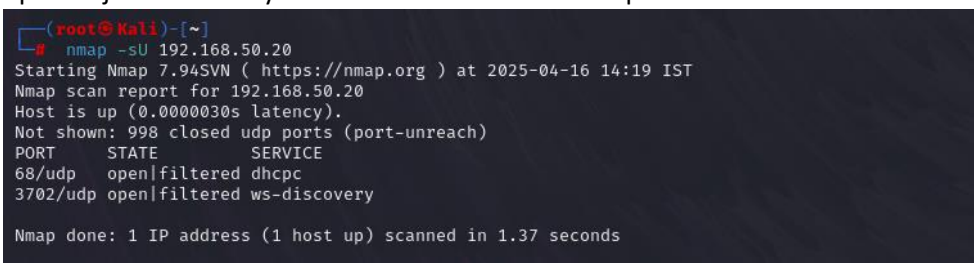
III. Port Range Scan (nmap -p 1-10000 192.168.50.20)

- Host is up with low latency. Port **8080/tcp** is open and running **http-proxy**. All other ports in the range are closed.



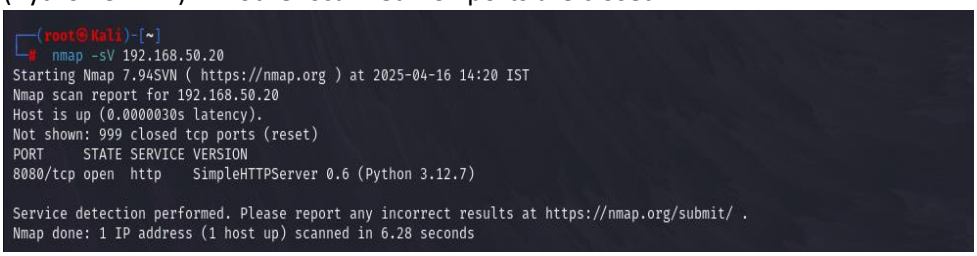
3. UDP Port Scan (nmap -sU 192.168.50.20)

- Host is up with low latency. Ports **68/udp (dhcpc)** and **3702/udp (ws-discovery)** are in an *open|filtered* state, meaning Nmap couldn't determine whether they are truly open or just filtered by a firewall. All other 998 UDP ports are closed.

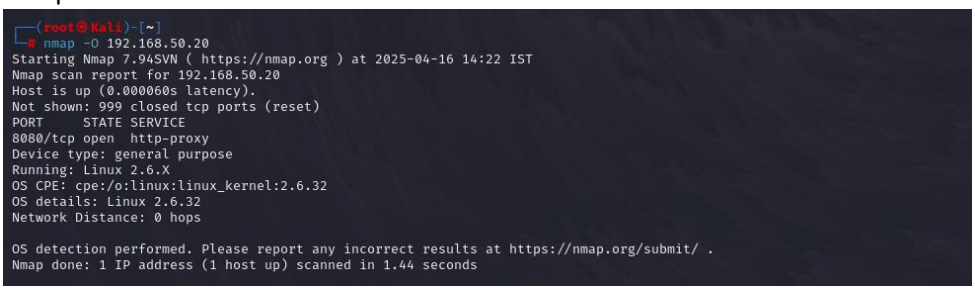


4. Service Version Detection (nmap -sV 192.168.50.20)

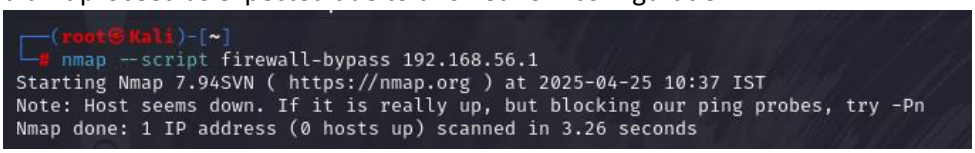
- Host is up with low latency. Port **8080/tcp** is open, running **SimpleHTTPServer 0.6** (Python 3.12.7). All other scanned TCP ports are closed.



5. OS Detection (nmap -O 192.168.50.20)
    - Host is up with low latency. The device is running **Linux 2.6.32**. It is detected as a general-purpose Linux system with the Linux kernel version 2.6.X. All other scanned TCP ports are closed.

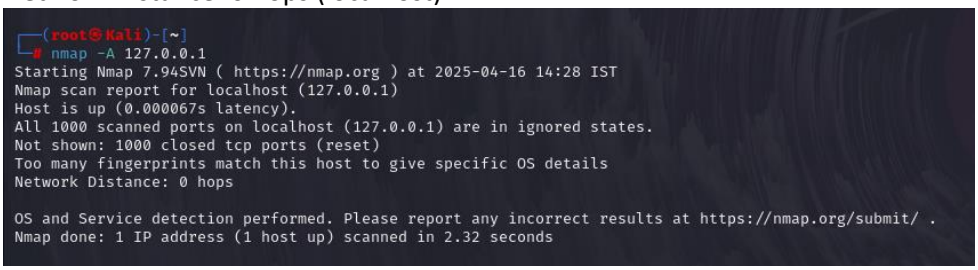


6. Firewall Bypass Script (nmap --script firewall-bypass 192.168.56.1)
    - Host seems down, possibly due to blocking ICMP (ping) requests or firewall restrictions. To bypass this, use the **`-Pn`** option to assume the host is up. The scan didn't proceed as expected due to this network configuration.



7. Aggressive Scan (nmap -A 127.0.0.1)

    - Host is up (0.000067s latency).
    - All 1000 TCP ports on 127.0.0.1 are in ignored states.
    - No open ports detected (all ports closed or filtered).
    - OS Detection: Too many fingerprints match this host, unable to specify OS.
    - Network Distance: 0 hops (localhost).



8. Vulnerability Scan (nmap --script=vuln 127.0.0.1)

- Host is up (0.0000020s latency).
- All 1000 TCP ports on 127.0.0.1 are in ignored states.
- No open ports detected (all ports closed or filtered).
- No vulnerabilities found (since no open ports were detected).