Esercizio nmap

-Host discovery

Settando le due macchine virtuali (kali e metaspoitable) su rete interna con relativi indirizzi ip: 192.168.50.100 e 192.168.50.101 , vado a fare un host discovery sulla rete 192.168.50.0/24 con nmpap, usando il comando : nmap -sn 192.168.50.0/24 . Nmap riconosce 2 host, le macchine precedentemente settate.

```
┌──(kali㉿kali)-[~]
└─$ nmap -sn 192.168.50.0/24
Starting Nmap 7.93 ( https://nmap.org ) at 2023-05-18 08:17 EDT
Nmap scan report for 192.168.50.100
Host is up (0.00028s latency).
Nmap scan report for 192.168.50.101
Host is up (0.00059s latency).
Nmap done: 256 IP addresses (2 hosts up) scanned in 20.12 seconds
```

-Scansione TCP sulle porte well-known

Con il comando: nmap -sT -p 0-1023 192.168.50.101, vado a fare una scansione tcp sulle porte well-known. Di seguito il report della scansione.

Fonte scan: 192.168.50.100

Target scan: 192.168.50.101

Tipo di scan: -sT (TCP SCAN) sulle porte 0-1023

Risultato: 12 servizi attivi

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
515/tcp	open	shell

```
┌──(kali㉿kali)-[~]
└─$ nmap -sT -p 0-1023 192.168.50.101
Starting Nmap 7.93 ( https://nmap.org ) at 2023-05-18 08:30 EDT
Nmap scan report for 192.168.50.101
Host is up (0.0015s latency).
Not shown: 1012 closed tcp ports (conn-refused)
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

Nmap done: 1 IP address (1 host up) scanned in 13.51 seconds
```

-Scansione SYN sulle porte well-known

Con il comando: nmap -sS -p 0-1023 192.168.50.101, vado a fare una scansione Syn sulle porte well-known. Di seguito il report della scansione.

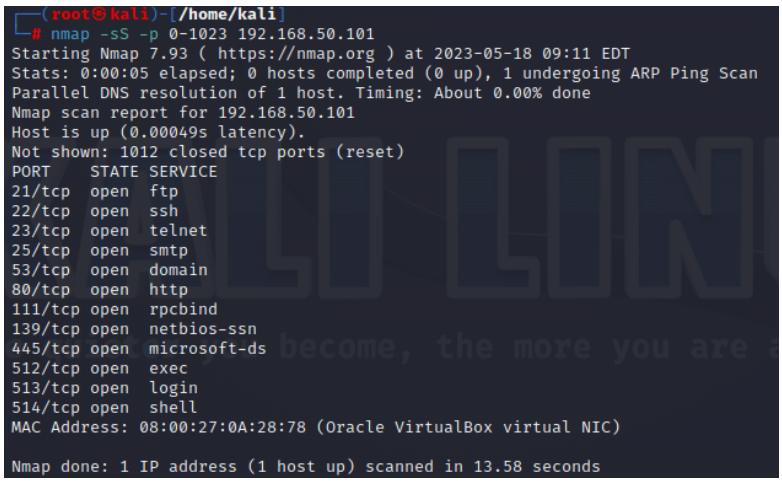
Fonte scan: 192.168.50.100

Target scan: 192.168.50.101

Tipo di scan: -sS (SYN SCAN) sulle porte 0-1023

Risultato: 12 servizi attivi

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



-Scansione con switch <<-A>> sulle porte well-known

Con il comando: nmap -a -p 0-1023 192.168.50.101, vado a fare una scansione approfondita sulle porte well-known. Di seguito il report della scansione.

Fonte scan: 192.168.50.100

Target scan: 192.168.50.101

Tipo di scan: -A sulle porte 0-1023

Risultato: 12 servizi attivi

PORT	STATE	SERVICE	VERSION
21/tcp	open	ftp	Vstpd 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	amba smbd 3.0.20-Debian (workgroup: WORKGROUP)
512/tcp	open	exec	netkit-rsh rexecd
513/tcp	open	Login?	
514/tcp	open	shell	Netkit rshd

Altre info riportate nella scansione:

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

Service Info: Host: metasploitable.localdomain; OSs: Unix, Linux; CPE: cpe:/o:linux:linux_kernel

Host script results:

| smb-security-mode:

| account_used: <blank>

| authentication_level: user

| challenge_response: supported

|_ message_signing: disabled (dangerous, but default)

|_nbstat: NetBIOS name: METASPLOITABLE, NetBIOS user: <unknown>, NetBIOS MAC: 000000000000 (Xerox)

| smb-os-discovery:

| OS: Unix (Samba 3.0.20-Debian)

| Computer name: metasploitable

| NetBIOS computer name:

| Domain name: localdomain

| FQDN: metasploitable.localdomain

|_ System time: 2023-05-18T09:25:35-04:00

|_smb2-time: Protocol negotiation failed (SMB2)

|_clock-skew: mean: 1h59m58s, deviation: 2h49m42s, median: -1s

TRACEROUTE

HOP RTT ADDRESS

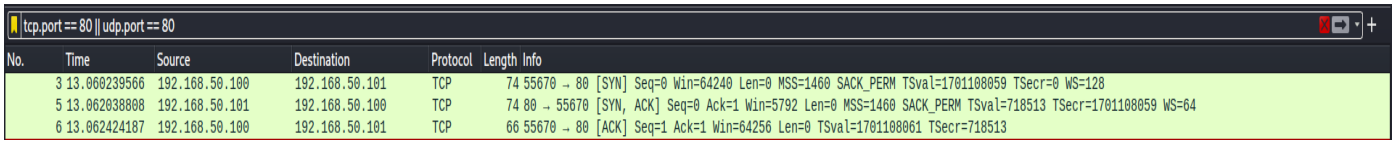
1 0.92 ms 192.168.50.101

```
111/tcp open  rpcbind     2 (RPC #100000)
| rpcinfo:
|   program version    port/proto  service
|   100000  2            111/tcp   rpcbind
|   100000  2            111/udp   rpcbind
|   100003  2,3,4       2049/tcp   nfs
|   100003  2,3,4       2049/udp   nfs
|   100005  1,2,3      41533/tcp   mountd
|   100005  1,2,3      47963/udp   mountd
|   100021  1,3,4      55670/udp   nlockmgr
|   100021  1,3,4      58679/tcp   nlockmgr
|   100024  1          36211/udp   status
|_  100024  1          58430/tcp   status
139/tcp open  netbios-ssn Samba smbd 3.X - 4.X (workgroup: WORKGROUP)
445/tcp open  netbios-ssn Samba smbd 3.0.20-Debian (workgroup: WORKGROUP)
512/tcp open  exec        netkit-rsh rexecd
513/tcp open  login?
514/tcp open  shell       Netkit rshd
MAC Address: 08:00:27:0A:28:78 (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
Service Info: Host:  metasploitable.localdomain; OSs: Unix, Linux; CPE: cpe:/o:linux:linux_kernel

Host script results:
| smb-security-mode:
|   account_used: <blank>
|   authentication_level: user
|   challenge_response: supported
|_  message_signing: disabled (dangerous, but default)
|_nbstat: NetBIOS name: METASPLOITABLE, NetBIOS user: <unknown>, NetBIOS MAC: 000000000000 (Xerox)
```

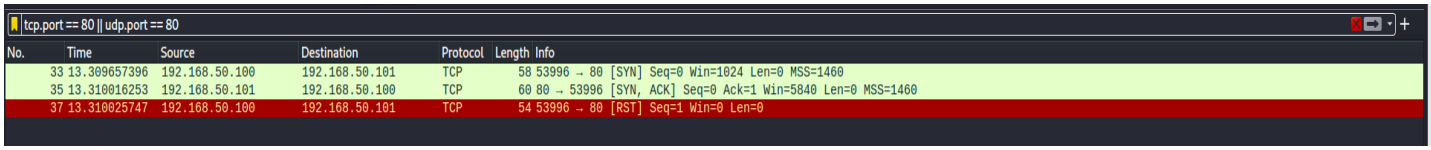
```
| smb-os-discovery:
|   OS: Unix (Samba 3.0.20-Debian)
|   Computer name: metasploitable
|   NetBIOS computer name:
|   Domain name: localdomain
|   FQDN: metasploitable.localdomain
|_  System time: 2023-05-18T09:25:35-04:00
|_smb2-time: Protocol negotiation failed (SMB2)
|_clock-skew: mean: 1h59m58s, deviation: 2h49m42s, median: -1s

TRACEROUTE
HOP RTT     ADDRESS
1   0.92 ms 192.168.50.101

OS and Service detection performed. Please report any incorrect results at https://nmap.org/submit/ .
Nmap done: 1 IP address (1 host up) scanned in 90.10 seconds
```

Differenze tra scansione completa TCP e SYN

Con l'utilizzo di Wireshark vado ad intercettare le richieste inviate dalla macchina sorgente. Con la scansione completa TCP, notiamo che si va a creare il canale di comunicazione completo del three-way handshake. Nella foto che segue sono andato a filtrare una specifica porta, in questo caso porta 80, per andare a vedere come avviene la comunicazione SYN, SYN-ACK e ACK.



Invece con la scansione SYN, la comunicazione non si completa e il three-way handshake non viene portato a termine. Infatti come si vede nella prossima foto, lo scambio avviene con SYN, SYN ACK e RST, interrompendo la connessione con RST.



LA differenza sta nel fatto che nella scansione TCP si crea il canale di comunicazione, mentre col SYNK si interrompe poco prima di crearla, non concludendo il three-way handshake.