W11D1 - Pratica

Epic Education Srl

Simulazione fase di raccolta informazioni pt. 2

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Sintesi esecutiva

Questo documento riassume i risultati delle scansioni condotte sulla macchina *Metasploitable* utilizzando Nmap, eseguite in due diverse configurazioni di rete (due macchine nella stessa rete vs. due macchine su reti separate). L'obiettivo è identificare le porte aperte e i servizi esposti e rilevare le differenze dei risultati tra le due configurazioni di rete.

Tecniche di scansione usate:

- OS fingerprint
- Syn Scan
- TCP connect
- Version detection

Perimetro

Il target prefissato è la macchina Metasploitable

Panoramica delle vulnerabilità

Sono state identificate le seguenti porte aperte con i relativi servizi

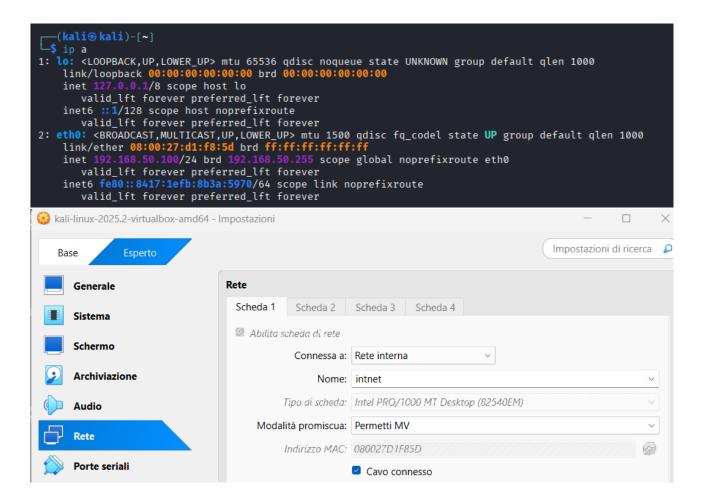
Port		Service	
21	tcp	ftp	
22	tcp	ssh	
23	tcp	telnet	
25	tcp	smtp	
53	tcp	domain	
80	tcp	http	
111	tcp	rpcbind	
139	ton	netbios-	
139	tcp	ssn	
445	tcp	netbios-	
443		ssn	
512	tcp	exec	
513	tcp	login	
514	tcp	shell	
1099	tcp	java-rmi	
1524	tcp	bindshell	
2049	tcp	nfs	
2121	tcp	ccproxy- ftp	
3306	tcp	mysql	
5432	tcp	postgresql	
5900	tcp	vnc	
6000	tcp	X11	
6667	tcp	irc	
8009	tcp	ajp13	
8180	tcp	http	

1 Tecniche di scansione con Nmap su reti diverse

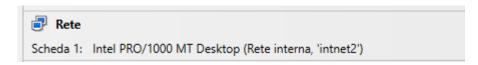
1.1 Configurazione rete

Il target e l'attaccante sono su due reti diverse

Kali



Metasploitable



pfSense

```
Pfsense [In esecuzione] - Oracle VirtualBox
File Macchina Visualizza Inserimento Dispositivi
inter an option: ip a
/irtualBox Virtual Machine - Netgate Device ID: b89a44e26dddc234c26c
** Welcome to pfSense 2.7.2-RELEASE (amd64) on pfSense ***
WAN (wan)
                    -> vtnet0
                                      -> v4/DHCP4: 192.168.1.6/24
LAN (lan)
                    -> vtnet1
                                      -> v4: 192.168.50.1/24
                                      -> v4: 192.168.51.1/24
NOKALI (opt1)
                    -> vtnet2
 Rete
 Scheda 1: Rete paravirtualizzata (Scheda con bridge, Realtek RTL8821CE 802.11ac PCIe Adapter)
 Scheda 2: Rete paravirtualizzata (Rete interna, 'intnet')
 Scheda 3: Rete paravirtualizzata (Rete interna, 'intnet2')
```

```
(kali⊗ kali)-[~]
$ traceroute 192.168.51.101
traceroute to 192.168.51.101 (192.168.51.101), 30 hops max, 60 byte packets
1 pfSense.home.arpa (192.168.50.1) 0.860 ms 0.737 ms 0.676 ms
2 192.168.51.101 (192.168.51.101) 3.252 ms 3.101 ms 3.039 ms
```

1.2 OS fingerprint

nmap -O 192.168.51.101

```
-(kali⊛kali)-[~]
$ nmap -0 192.168.51.101
Starting Nmap 7.95 ( https://nmap.org ) at 2025-09-16 16:05 EDT
Nmap scan report for 192.168.51.101
Host is up (0.0028s latency).
Not shown: 977 closed tcp ports (reset)
PORT
          STATE SERVICE
21/tcp
22/tcp
          open ftp
          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
Device type: general purpose
Running: Linux 2.6.X
OS CPE: cpe:/o:linux:linux_kernel:2.6
OS details: Linux 2.6.15 - 2.6.26 (likely embedded)
Network Distance: 2 hops
OS detection performed. Please report any incorrect results at https://nmap.org/submit/ .
Nmap done: 1 IP address (1 host up) scanned in 2.10 seconds
```

1.3 Syn scan

nmap -sS -v 192.168.51.101

```
-(kali⊛kali)-[~]
$ nmap -sS -v 192.168.51.101
Starting Nmap 7.95 ( https://nmap.org ) at 2025-09-16 16:07 EDT
Initiating Ping Scan at 16:07
Scanning 192.168.51.101 [4 ports]
Completed Ping Scan at 16:07, 0.02s elapsed (1 total hosts)
Initiating Parallel DNS resolution of 1 host. at 16:07
Completed Parallel DNS resolution of 1 host. at 16:07, 0.00s elapsed
Initiating SYN Stealth Scan at 16:07
Scanning 192.168.51.101 [1000 ports]
Discovered open port 23/tcp on 192.168.51.101
Discovered open port 3306/tcp on 192.168.51.101
Discovered open port 139/tcp on 192.168.51.101
Discovered open port 111/tcp on 192.168.51.101
Discovered open port 22/tcp on 192.168.51.101
Discovered open port 21/tcp on 192.168.51.101
Discovered open port 445/tcp on 192.168.51.101
Discovered open port 5900/tcp on 192.168.51.101
Discovered open port 53/tcp on 192.168.51.101
Discovered open port 25/tcp on 192.168.51.101
Discovered open port 80/tcp on 192.168.51.101
Discovered open port 2121/tcp on 192.168.51.101
Discovered open port 5432/tcp on 192.168.51.101
Discovered open port 6667/tcp on 192.168.51.101
Discovered open port 8009/tcp on 192.168.51.101
Discovered open port 6000/tcp on 192.168.51.101
Discovered open port 514/tcp on 192.168.51.101
Discovered open port 1099/tcp on 192.168.51.101
Discovered open port 8180/tcp on 192.168.51.101
Discovered open port 513/tcp on 192.168.51.101
Discovered open port 512/tcp on 192.168.51.101
Discovered open port 2049/tcp on 192.168.51.101
Discovered open port 1524/tcp on 192.168.51.101
Completed SYN Stealth Scan at 16:07, 0.34s elapsed (1000 total ports)
Nmap scan report for 192.168.51.101
Host is up (0.0065s latency).
Not shown: 977 closed tcp ports (reset)
```

```
STATE SERVICE
21/tcp
           open ftp
22/tcp
           open
                  ssh
23/tcp
                  telnet
           open
25/tcp
           open
                  smtp
53/tcp
          open
                  domain
80/tcp
          open
                  http
111/tcp open
139/tcp open
                  rpcbind
                  netbios-ssn
445/tcp open
512/tcp open
513/tcp open
514/tcp open
1099/tcp open
                  microsoft-ds
                  exec
                  login
                  shell
                  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
Read data files from: /usr/share/nmap
Nmap done: 1 IP address (1 host up) scanned in 0.43 seconds
Raw packets sent: 1004 (44.152KB) | Rcvd: 1001 (40.120KB)
```

1.4 TCP connect

nmap -sT 192.168.51.101

```
-(kali⊛kali)-[~]
$ nmap -sT 192.168.51.101
Starting Nmap 7.95 ( https://nmap.org ) at 2025-09-16 16:10 EDT
Nmap scan report for 192.168.51.101
Host is up (0.0029s latency).
Not shown: 977 closed tcp ports (conn-refused)
         STATE SERVICE
PORT
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
514/tcp open
               login
               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
Nmap done: 1 IP address (1 host up) scanned in 0.49 seconds
```

1.5 Version detection

nmap -sV 192.168.51.101

```
(National Content of the Content of
```

1.6 Report

nmap -oA versione -sV 192.168.51.101 && xsltproc versione.xml -o versione.html

IP target: 192.168.51.101

Address

192.168.51.101 (ipv4)

Ports

The 977 ports scanned but not shown below are in state: ${f closed}$

977 ports replied with: reset

Port		State (toggle closed [0] filtered [0])	Service	Reason	Product	Version	Extra info
21	tcp	open	ftp	syn-ack	vsftpd	2.3.4	
22	tcp	open	ssh	syn-ack	OpenSSH	4.7p1 Debian 8ubuntu1	protocol 2.0
23	tcp	open	telnet	syn-ack	Linux telnetd		
25	tcp	open	smtp	syn-ack	Postfix smtpd		
53	tcp	open	domain	syn-ack	ISC BIND	9.4.2	
80	tcp	open	http	syn-ack	Apache httpd	2.2.8	(Ubuntu) DAV/2
111	tcp	open	rpcbind	syn-ack		2	RPC #100000
139	tcp	open	netbios- ssn	syn-ack	Samba smbd	3.X - 4.X	workgroup: WORKGROUP
445	tcp	open	netbios- ssn	syn-ack	Samba smbd	3.X - 4.X	workgroup: WORKGROUP
512	tcp	open	exec	syn-ack	netkit-rsh rexecd		
513	tcp	open	login	syn-ack			

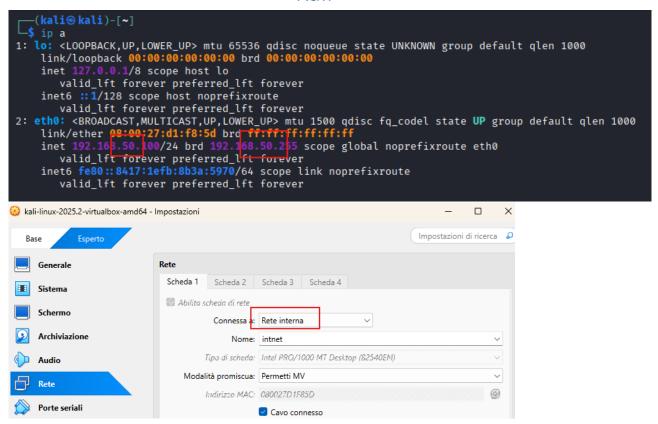
514	tcp	open	shell	syn-ack	Netkit rshd		
1099	tcp	open	java-rmi	syn-ack	GNU Classpath grmiregistry		
1524	tcp	open	bindshell	syn-ack	Metasploitable root shell		
2049	tcp	open	nfs	syn-ack		2-4	RPC #100003
2121	tcp	open	ccproxy- ftp	syn-ack			
3306	tcp	open	mysql	syn-ack	MySQL	5.0.51a- 3ubuntu5	
5432	tcp	open	postgresql	syn-ack	PostgreSQL DB	8.3.0 - 8.3.7	
5900	tcp	open	vnc	syn-ack	VNC		protocol 3.3
6000	tcp	open	X11	syn-ack			access denied
6667	tcp	open	irc	syn-ack	UnrealIRCd		
8009	tcp	open	ajp13	syn-ack	Apache Jserv		Protocol v1.3
8180	tcp	open	http	syn-ack	Apache Tomcat/Coyote JSP engine	1.1	

2 Tecniche di scansione con Nmap sulla stessa rete

2.1 Configurazione rete

Il target e l'attaccante sono sulla stessa rete

Kali

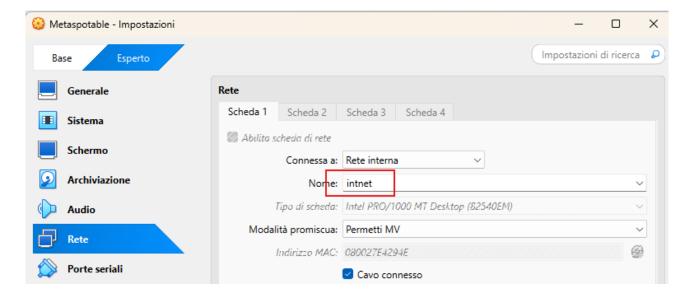


Metasploitable

```
msfadmin@metasploitable:~$ ip a

1: lo: <LOOPBACK,UP,LOWER_UP> mtu 16436 qdisc noqueue
    link/loopback 00:00:00:00:00 brd 00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever

2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast qlen 1000
    link/ether 08:00:27:e4:29:4e brd ff:ff:ff:ff:ff
    inet 192.168.50.101/24 brd 192.168.50.255 scope global eth0
    inet6 fe80::a00:27ff:fee4:294e/64 scope link
    valid_lft forever preferred_lft forever
```



Prova che le due macchine comunicano e percorso dei pacchetti

2.2 OS fingerprint

nmap -O 192.168.50.101

```
OS detection performed. Please report any incorrect results at https://nmap.org/submit/ .
Nmap done: 1 IP address (1 host up) scanned in 14.83 seconds
```

2.3 Syn scan

nmap -sS -v 192.168.50.101

```
–(kali⊛kali)-[~]
$ nmap -sS -v 192.168.50.101
Starting Nmap 7.95 ( https://nmap.org ) at 2025-09-17 08:23 EDT
Initiating ARP Ping Scan at 08:23
Scanning 192.168.50.101 [1 port]
Completed ARP Ping Scan at 08:23, 0.05s elapsed (1 total hosts)
Initiating Parallel DNS resolution of 1 host. at 08:23
Completed Parallel DNS resolution of 1 host. at 08:24, 13.01s elapsed
Initiating SYN Stealth Scan at 08:24
Scanning 192.168.50.101 [1000 ports]
Discovered open port 445/tcp on 192.168.50.101
Discovered open port 21/tcp on 192.168.50.101
Discovered open port 111/tcp on 192.168.50.101
Discovered open port 23/tcp on 192.168.50.101
Discovered open port 25/tcp on 192.168.50.101
Discovered open port 22/tcp on 192.168.50.101
Discovered open port 139/tcp on 192.168.50.101
Discovered open port 53/tcp on 192.168.50.101
Discovered open port 5900/tcp on 192.168.50.101
Discovered open port 80/tcp on 192.168.50.101
Discovered open port 3306/tcp on 192.168.50.101
Discovered open port 6667/tcp on 192.168.50.101
Discovered open port 2049/tcp on 192.168.50.101
Discovered open port 6000/tcp on 192.168.50.101
Discovered open port 1099/tcp on 192.168.50.101
Discovered open port 1524/tcp on 192.168.50.101
Discovered open port 513/tcp on 192.168.50.101
Discovered open port 8180/tcp on 192.168.50.101
Discovered open port 2121/tcp on 192.168.50.101
Discovered open port 512/tcp on 192.168.50.101
Discovered open port 514/tcp on 192.168.50.101
Discovered open port 8009/tcp on 192.168.50.101
Discovered open port 5432/tcp on 192.168.50.101
Completed SYN Stealth Scan at 08:24, 0.50s elapsed (1000 total ports)
Nmap scan report for 192.168.50.101
Host is up (0.00046s 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
                domain
         open
80/tcp
                http
         open
111/tcp open
                rpcbind
139/tcp open
445/tcp open
                netbios-ssn
                microsoft-ds
512/tcp open
                exec
513/tcp open
514/tcp open
                login
                shell
1099/tcp open
                rmiregistry
1524/tcp open
                ingreslock
2049/tcp open
2121/tcp open
                ccproxy-ftp
3306/tcp open
                mysql
5432/tcp open
                postgresal
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:E4:29:4E (PCS Systemtechnik/Oracle VirtualBox virtual NIC)
Read data files from: /usr/share/nmap
Nmap done: 1 IP address (1 host up) scanned in 13.67 seconds
Raw packets sent: 1001 (44.028KB) | Rcvd: 1001 (40.120KB)
```

2.4 TCP connect

nmap -sT 192.168.50.101

```
[ (kali⊛ kali)-[~]

$ nmap -sT 192.168.50.101
Starting Nmap 7.95 ( https://nmap.org ) at 2025-09-17 08:25 EDT
Nmap scan report for 192.168.50.101
Host is up (0.0055s latency).
Not shown: 977 closed tcp ports (conn-refused)
         STATE SERVICE
PORT
21/tcp
          open ftp
22/tcp
          open ssh
23/tcp
                telnet
          open
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
513/tcp open
                exec
                login
514/tcp open
               shell
1099/tcp open
                rmiregistry
1524/tcp open
                ingreslock
2049/tcp open
2121/tcp open
               nfs
                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
MAC Address: 08:00:27:E4:29:4E (PCS Systemtechnik/Oracle VirtualBox virtual NIC)
Nmap done: 1 IP address (1 host up) scanned in 13.24 seconds
```

2.5 Version detection

nmap -sV 192.168.50.101

```
(kali⊕ kali)-[~]

$ nmap -sV 192.168.50.101
Starting Nmap 7.95 ( https://nmap.org ) at 2025-09-17 08:26 EDT
Nmap scan report for 192.168.50.101
Host is up (0.0010s latency).
Not shown: 977 closed tcp ports (reset)
PORT STATE SERVICE VERSION
21/tcp
             open ftp
                                          vsftpd 2.3.4
22/tcp
23/tcp
             open ssh
                                          OpenSSH 4.7p1 Debian 8ubuntu1 (protocol 2.0)
                                         Linux telnetd
Postfix smtpd
             open telnet
25/tcp
             open
                      smtp
                                         ISC BIND 9.4.2
Apache httpd 2.2.8 ((Ubuntu) DAV/2)
53/tcp
             open
                       domain
80/tcp
              open
                      rpcbind 2 (RPC #100000)
netbios-ssn Samba smbd 3.X - 4.X (workgroup: WORKGROUP)
netbios-ssn Samba smbd 3.X - 4.X (workgroup: WORKGROUP)
111/tcp open
139/tcp open
445/tcp
             open
512/tcp open
513/tcp open
514/tcp open
                                         netkit-rsh rexecd
                      login?
                      shell
                                         Netkit rshd
1099/tcp open
                                         GNU Classpath grmiregistry
                       java-rmi
1524/tcp open
                       bindshell
                                         Metasploitable root shell
2049/tcp open
2121/tcp open
                                         2-4 (RPC #100003)
ProFTPD 1.3.1
MySQL 5.0.51a-3ubuntu5
                      ftp
3306/tcp open
                      mvsal
                                         PostgreSQL DB 8.3.0 - 8.3.7
VNC (protocol 3.3)
5432/tcp open
                      postgresql
5900/tcp open
                                         (access denied)
UnrealIRCd
6000/tcp open
                       X11
6667/tcp open
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:E4:29:4E (PCS Systemtechnik/Oracle VirtualBox virtual NIC)
Service Info: Hosts: metasploitable.localdomain, irc.Metasploitable.LAN; OSs: Unix, Linux; CPE: cpe:/o:linux:linux_kernel
Service detection performed. Please report any incorrect results at https://nmap.org/submit/ . Nmap done: 1 IP address (1 host up) scanned in 66.26 seconds
```

3 Differenze

3.1 OS fingerprint

Confrontando i due test le porte rilevate sono rimaste le stesse, ma nella configurazione con rete singola è stato rilevato il MAC Address, è cambiato il numero di hope che il pacchetto ha dovuto attraversare e il tempo impiegato.

```
2 RETI

6667/tcp open irc
86809/tcp open ajp13
8180/tcp open unknown
Bevice type: general purpose
Running: linux 2.6.X
0S CPE: cpe:/o:linux:linux.kernel:2.6
0S Getails: linux 2.6.5
Network Distance: 2 hops

OS details: linux 2.6.5

OS details: linux 2.6.3

OS details: linux 2.6.4

OS details: linux 2.6.3

OS details: li
```

3.2 Syn scan

Confrontando i due test le porte rilevate sono rimaste le stesse, ma nella configurazione con rete singola è stato rilevato il MAC Address, è cambiato il numero di pacchetti inviati e il tempo impiegato.

```
Read data files from: /usr/share/nmap
Nmap done: 1 IP address (1 host up) scanned in 0.43 seconds
Raw packets sent: 1004 (44.152KB) | Rcvd: 1001 (40.120KB)

REET

MAC Address: 08:00:27:E4:29:4E (PCS Systemtechnik/Oracle VirtualBox virtual NIC)

Read data files from: /usr/share/nmap
Nmap done: 1 IP address (1 host up) scanned in 13.67 seconds
Raw packets sent: 1001 (44.028KB) | Rcvd: 1001 (40.120KB)
```

3.3 TCP connect

Confrontando i due test le porte rilevate sono rimaste le stesse, ma nella configurazione con rete singola è stato rilevato il MAC Address, è cambiato il tempo impiegato.

```
2 RETI

MAC Address: 08:00:27:E4:29:4E (PCS Systemtechnik/Oracle VirtualBox virtual NIC)

Nmap done: 1 IP address (1 host up) scanned in 0.49 seconds

Nmap done: 1 IP address (1 host up) scanned in 13.24 seconds
```

3.4 Version detection

Confrontando i due test le porte rilevate sono rimaste le stesse, ma nella configurazione con rete singola è stato rilevato il MAC Address, è cambiato il tempo impiegato.

```
IRETE

| IRETE | IRETE | | IRETE | IRETE
```