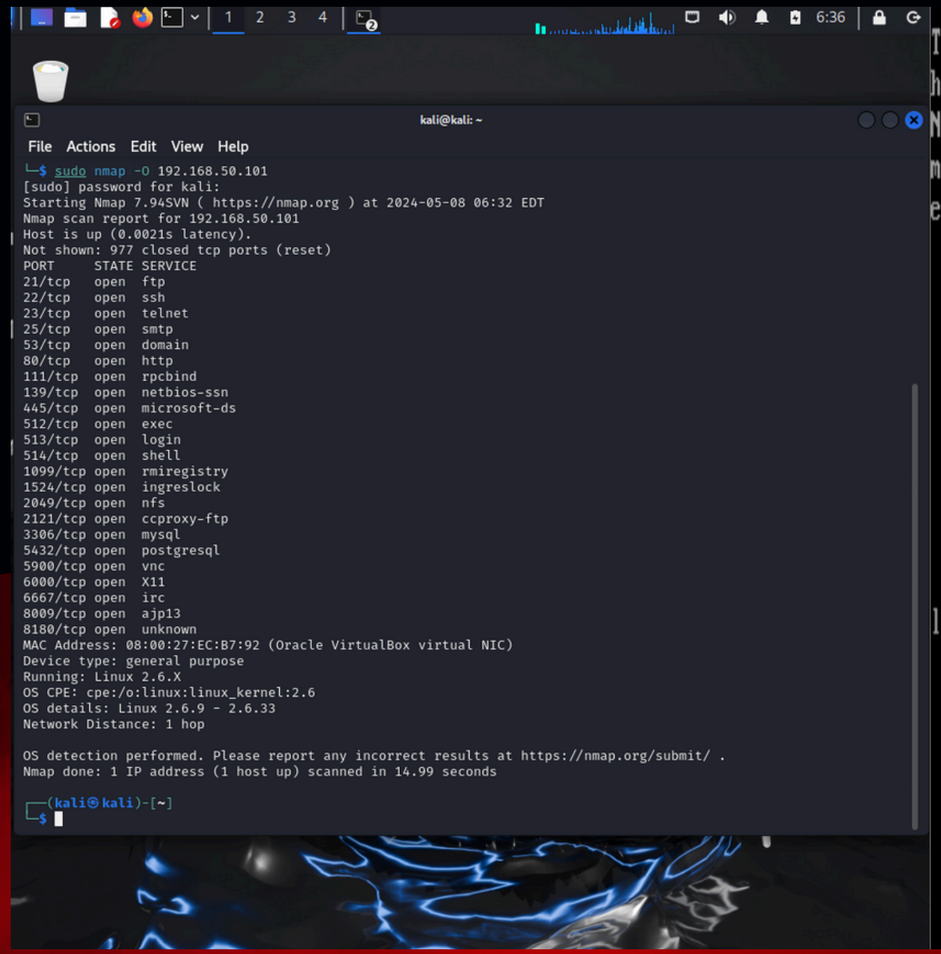
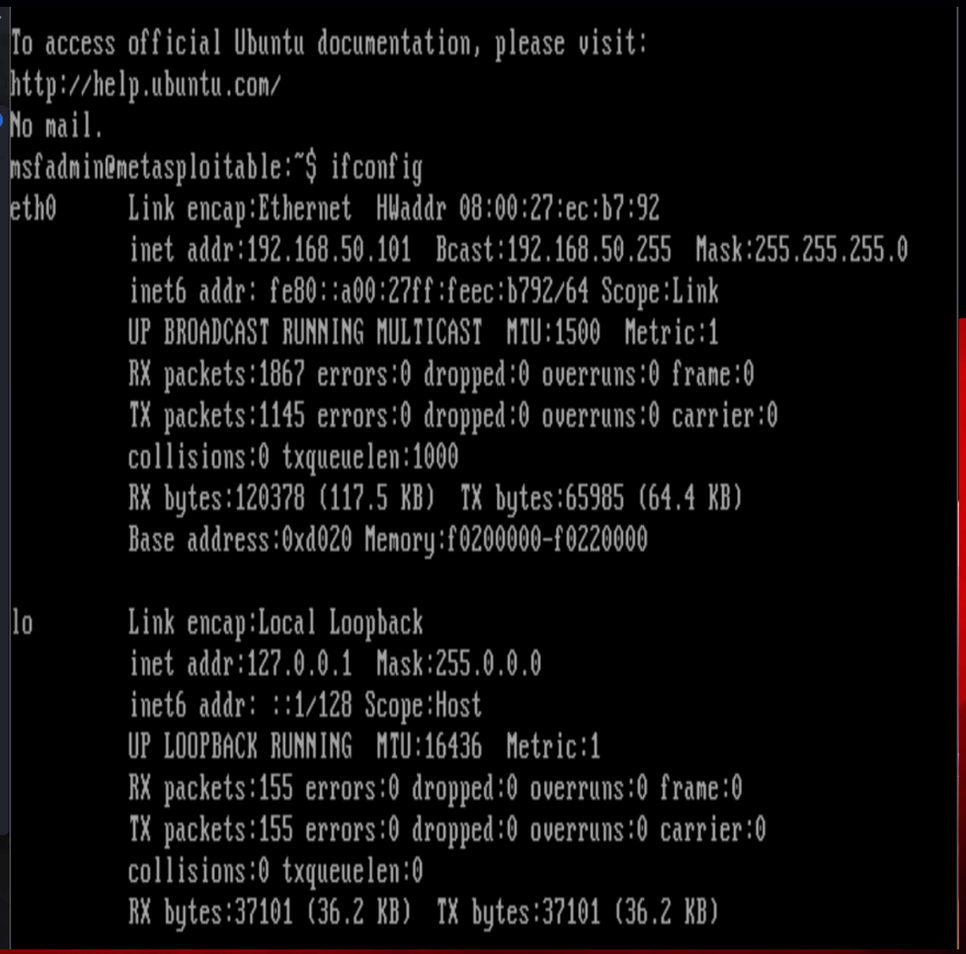
EPICODE S5-L3

Tecniche di scansione con Nmap Si richiede allo studente di effettuare le seguenti scansioni sul target Metasploitable:

- **OS fingerprint.**
- **Syn Scan**
- **TCP connect - trovate differenze tra i risultati della scansioni TCP connect e SYN?**
- **Version detection. E la seguente sul target Windows 7:**
- **OS fingerprint.**





Attraverso il comando *-O* andiamo ad analizzare il sistma operativo dell'indirizzo IP target (in questo caso Metasploitable) e come si può vedere otteniamo una risposta corretta, l'OS della macchina target è Linux 2.6

File Actions Edit View Help

```
┌──(kali㉿kali)-[~]
└─$ sudo nmap -sS 192.168.50.101
Starting Nmap 7.94SVN ( https://nmap.org ) at 2024-05-08 06:37 EDT
Nmap scan report for 192.168.50.101
Host is up (0.0016s 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:EC:B7:92 (Oracle VirtualBox virtual NIC)

Nmap done: 1 IP address (1 host up) scanned in 13.46 seconds

┌──(kali㉿kali)-[~]
└─$
```

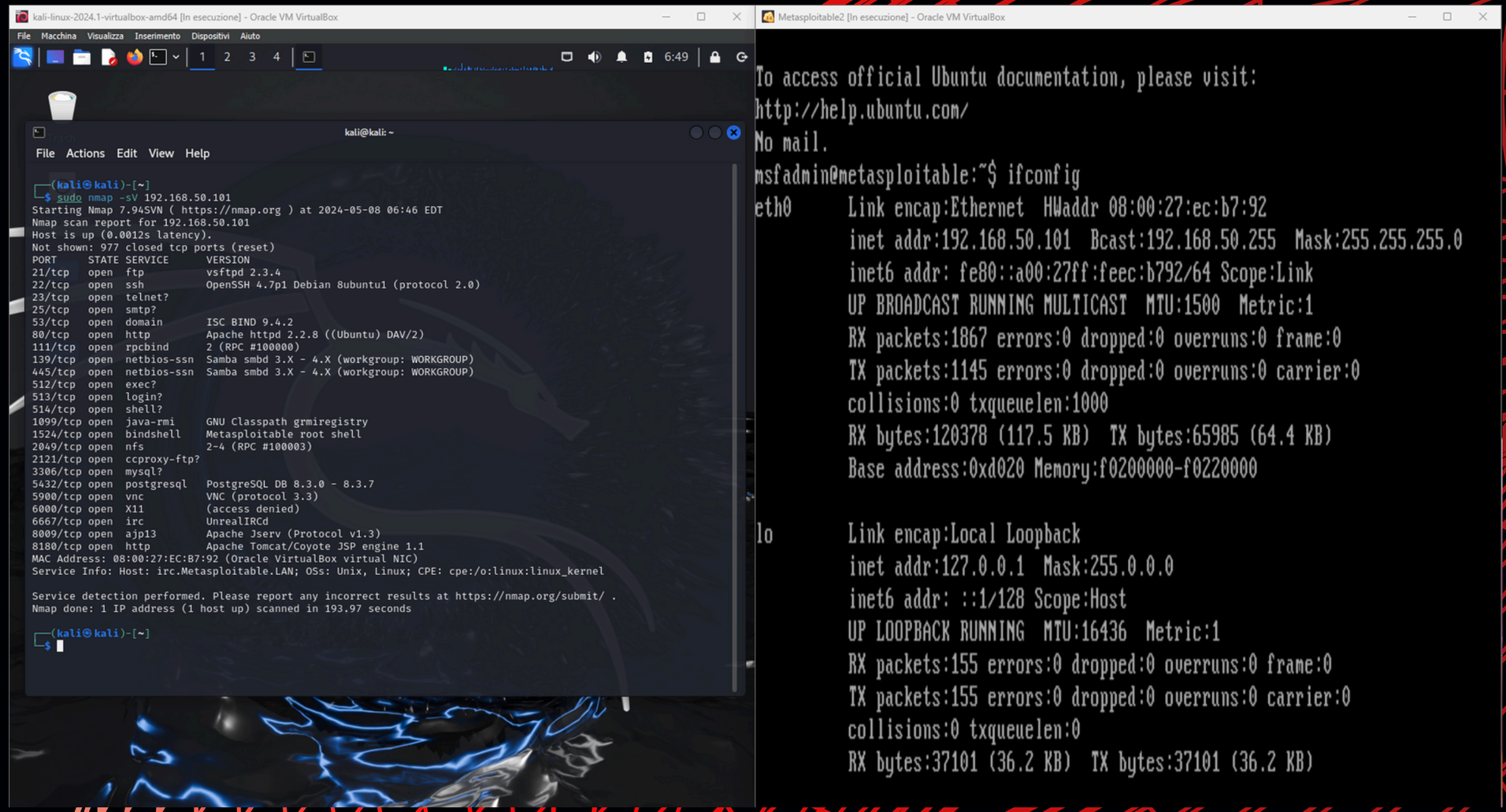
```
msfadmin@metasploitable:~$ ifconfig
eth0      Link encap:Ethernet  HWaddr 08:00:27:ec:b7:92
          inet addr:192.168.50.101  Bcast:192.168.50.255  Mask:255.255.255.0
          inet6 addr: fe80::a00:27ff:feec:b792/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:1867 errors:0 dropped:0 overruns:0 frame:0
          TX packets:1145 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:120378 (117.5 KB)  TX bytes:65985 (64.4 KB)
          Base address:0xd020 Memory:f0200000-f0220000

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:16436  Metric:1
          RX packets:155 errors:0 dropped:0 overruns:0 frame:0
          TX packets:155 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:37101 (36.2 KB)  TX bytes:37101 (36.2 KB)
```

```
┌──(kali㉿kali)-[~]
└─$ sudo nmap -sT 192.168.50.101
Starting Nmap 7.94SVN ( https://nmap.org ) at 2024-05-08 06:39 EDT
Nmap scan report for 192.168.50.101
Host is up (0.0059s latency).
Not shown: 977 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
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:EC:B7:92 (Oracle VirtualBox virtual NIC)

Nmap done: 1 IP address (1 host up) scanned in 14.27 seconds

┌──(kali㉿kali)-[~]
└─$
```

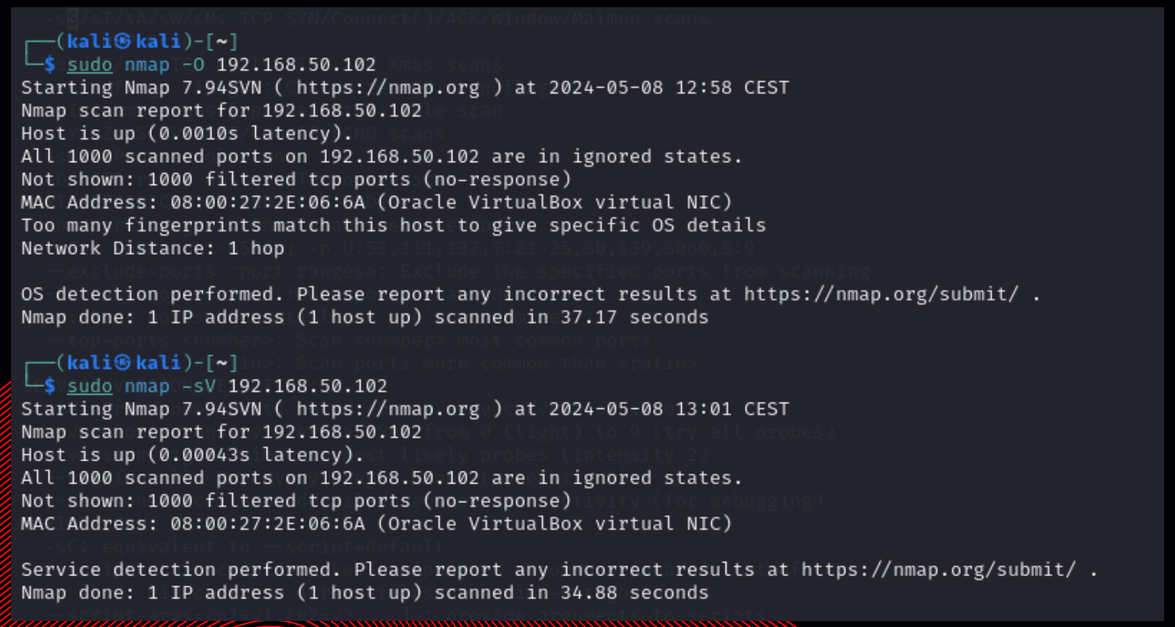
```
eth0      Link encap:Ethernet  HWaddr 08:00:27:ec:b7:92
          inet addr:192.168.50.101  Bcast:192.168.50.255  Mask:255.255.255.0
          inet6 addr: fe80::a00:27ff:feec:b792/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:1867 errors:0 dropped:0 overruns:0 frame:0
          TX packets:1145 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:120378 (117.5 KB)  TX bytes:65985 (64.4 KB)
          Base address:0xd020 Memory:f0200000-f0220000

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:16436  Metric:1
          RX packets:155 errors:0 dropped:0 overruns:0 frame:0
          TX packets:155 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:37101 (36.2 KB)  TX bytes:37101 (36.2 KB)
```

Se il comando *-sS* svolge una scansione attraverso l'invio di un pacchetto SYN di sincronizzazione (primo step di una three way handshake), il comando *-sT* effettua una connessione TCP completa, impiegando più tempo ma di solito ottenendo risultati più accurati.

Come è possibile vedere i comandi *-sS* e *-sT* producono lo stesso risultato. Questo avviene perché anche con l'invio del solo pacchetto SYN iniziale, senza quindi una 3WH completa otteniamo tutte le informazioni necessarie, e nel nostro caso non dobbiamo preoccuparci di congestionare reti o di eventuali sistemi di monitoraggio.



Con il comando *-sV* andiamo ad eseguire una scansione della versione dei servizi attivi sulle porte aperte



```
┌──(kali㉿kali)-[~]
└─$ sudo nmap -O 192.168.50.102
Starting Nmap 7.94SVN ( https://nmap.org ) at 2024-05-08 12:58 CEST
Nmap scan report for 192.168.50.102
Host is up (0.0010s latency).
All 1000 scanned ports on 192.168.50.102 are in ignored states.
Not shown: 1000 filtered tcp ports (no-response)
MAC Address: 08:00:27:2E:06:6A (Oracle VirtualBox virtual NIC)
Too many fingerprints match this host to give specific OS details
Network Distance: 1 hop

OS detection performed. Please report any incorrect results at https://nmap.org/submit/ .
Nmap done: 1 IP address (1 host up) scanned in 37.17 seconds

┌──(kali㉿kali)-[~]
└─$ sudo nmap -sV 192.168.50.102
Starting Nmap 7.94SVN ( https://nmap.org ) at 2024-05-08 13:01 CEST
Nmap scan report for 192.168.50.102
Host is up (0.00043s latency).
All 1000 scanned ports on 192.168.50.102 are in ignored states.
Not shown: 1000 filtered tcp ports (no-response)
MAC Address: 08:00:27:2E:06:6A (Oracle VirtualBox virtual NIC)

Service detection performed. Please report any incorrect results at https://nmap.org/submit/ .
Nmap done: 1 IP address (1 host up) scanned in 34.88 seconds
```

Dalla figura a sinistra possiamo notare che i due comandi nmap verso la macchina windows ottengono risultati incompleti, questo potrebbe essere causato dal firewall attivo sulla macchina

Con l’utilizzo del timing Template *T 1*, eseguiamo una scansione molto più discreta in modo da eludere il firewall e poter ottenere comunque informazioni riguardo la macchina target.

```
┌──(kali㉿kali)-[~]
└─$ sudo nmap -O 192.168.50.102
Starting Nmap 7.94SVN ( https://nmap.org ) at 2024-05-08 12:49 CEST
Nmap scan report for 192.168.50.102
Host is up (0.00040s latency).
Not shown: 990 closed tcp ports (reset)
PORT      STATE SERVICE
135/tcp   open  msrpc
139/tcp   open  netbios-ssn
445/tcp   open  microsoft-ds
5357/tcp  open  wsdapi
49152/tcp open  unknown
49153/tcp open  unknown
49154/tcp open  unknown
49155/tcp open  unknown
49156/tcp open  unknown
49157/tcp open  unknown
MAC Address: 08:00:27:2E:06:6A (Oracle VirtualBox virtual NIC)
Device type: general purpose
Running: Microsoft Windows 7|2008|8.1
OS CPE: cpe:/o:microsoft:windows_7::- cpe:/o:microsoft:windows_7::sp1 cpe:/o:microsoft:windows_server_2008::sp
1 cpe:/o:microsoft:windows_server_2008:r2 cpe:/o:microsoft:windows_8 cpe:/o:microsoft:windows_8.1
OS details: Microsoft Windows 7 SP0 - SP1, Windows Server 2008 SP1, Windows Server 2008 R2, Windows 8, or Wind
ows 8.1 Update 1
Network Distance: 1 hop

OS detection performed. Please report any incorrect results at https://nmap.org/submit/ .
Nmap done: 1 IP address (1 host up) scanned in 33.32 seconds
```

Possiamo notare che avendo disattivato il firewall sulla macchina windows, riusciamo ad utilizzare liberamente i comandi di nmap e riceviamo le informazioni di cui abbiamo bisogno per un possibile attacco

```
┌──(kali㉿kali)-[~]
└─$ sudo nmap -sV 192.168.50.102
Starting Nmap 7.94SVN ( https://nmap.org ) at 2024-05-08 12:52 CEST
Nmap scan report for 192.168.50.102
Host is up (0.00047s latency).
Not shown: 990 closed tcp ports (reset)
PORT      STATE SERVICE      VERSION
135/tcp   open  msrpc        Microsoft Windows RPC
139/tcp   open  netbios-ssn  Microsoft Windows netbios-ssn
445/tcp   open  microsoft-ds Microsoft Windows 7 - 10 microsoft-ds (workgroup: WORKGROUP)
5357/tcp  open  http         Microsoft HTTPAPI httpd 2.0 (SSDP/UPnP)
49152/tcp open  msrpc        Microsoft Windows RPC
49153/tcp open  msrpc        Microsoft Windows RPC
49154/tcp open  msrpc        Microsoft Windows RPC
49155/tcp open  msrpc        Microsoft Windows RPC
49156/tcp open  msrpc        Microsoft Windows RPC
49157/tcp open  msrpc        Microsoft Windows RPC
MAC Address: 08:00:27:2E:06:6A (Oracle VirtualBox virtual NIC)
Service Info: Host: MZ-PC; OS: Windows; CPE: cpe:/o:microsoft:windows

Service detection performed. Please report any incorrect results at https://nmap.org/submi
Nmap done: 1 IP address (1 host up) scanned in 73.75 seconds
```

```
┌──(kali㉿kali)-[~]
└─$ sudo nmap -sS 192.168.50.102
Starting Nmap 7.94SVN ( https://nmap.org ) at 2024-05-08 12:51 CEST
Nmap scan report for 192.168.50.102
Host is up (0.00028s latency).
Not shown: 990 closed tcp ports (reset)
PORT      STATE SERVICE
135/tcp   open  msrpc
139/tcp   open  netbios-ssn
445/tcp   open  microsoft-ds
5357/tcp  open  wsdapi
49152/tcp open  unknown
49153/tcp open  unknown
49154/tcp open  unknown
49155/tcp open  unknown
49156/tcp open  unknown
49157/tcp open  unknown
MAC Address: 08:00:27:2E:06:6A (Oracle VirtualBox virtual NIC)

Nmap done: 1 IP address (1 host up) scanned in 18.71 seconds
```

REALIZZATO DA

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