Nmap

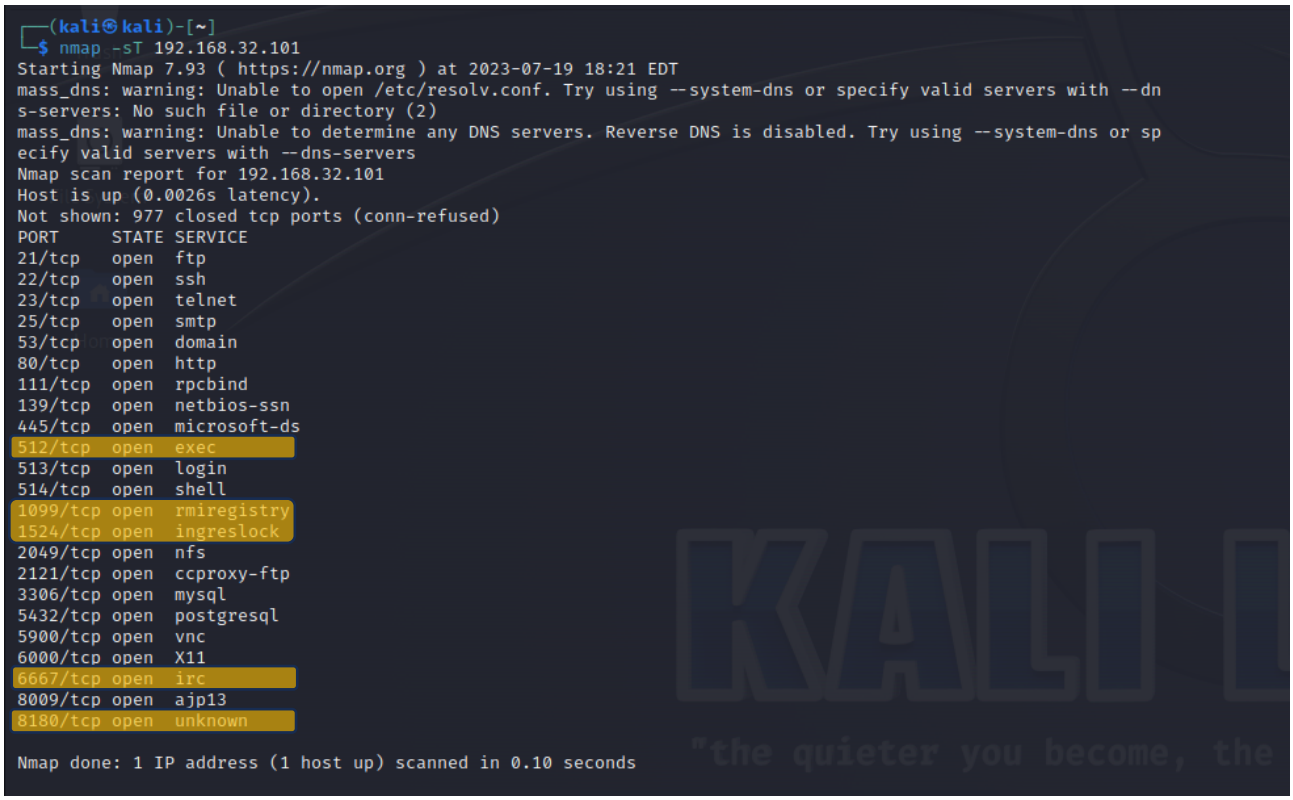
Scansione della macchina Metasploitable (ip 192.168.32.101) da Kali Linux (ip 192.168.32.100).

SCANSIONE TCP DELLE PORTE

nmap -sT

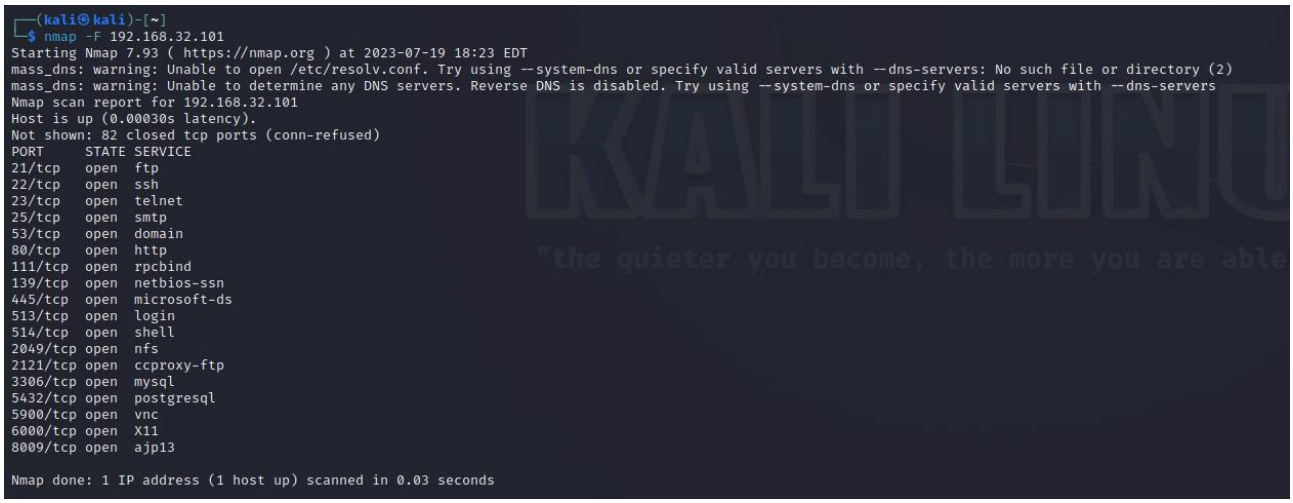
Questo switch conclude il three-way-handshake ed esegue una scansione TCP di tutte le porte well-known.

In evidenza le porte non scansionate nella scansione fast con lo switch -F.



nmap -F

Questo switch esegue una scansione fast su un numero inferiore di porte rispetto allo switch -sT.
Come nel caso dello switch -sT, anche qua viene concluso il three-way handshake.



nmap -sS

Questo switch richiede di essere eseguito da utente admin.

Esegue una scansione SYN, che significa che NON conclude il three-way-handshake, e scansiona tutte le porte well-known come lo switch -sT. In evidenza le porte non scansionate nella scansione fast con lo switch -F (possiamo notare che sono le stesse porte scansionate utilizzando lo switch -sT).

nmap -A

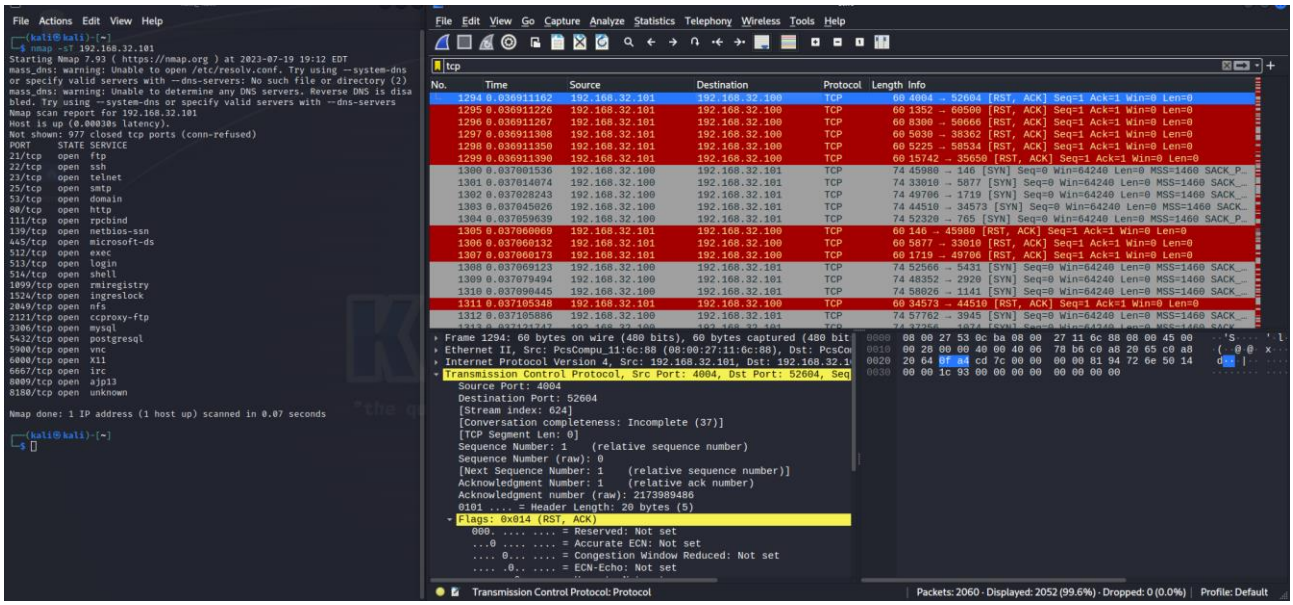
Scansione aggressiva, restituisce ulteriori informazioni, come il tempo di esecuzione della scansione, informazioni sull'host e sullo stato dei servizi attivi su ciascuna porta.

```
nmap -A 192.168.32.101

Starting Nmap 7.93 ( https://nmap.org ) at 2023-07-19 18:56 EDT

mass_dns: warning: Unable to open /etc/resolv.conf. Try using --system-dns or specify valid servers with --dns-
servers: No such file or directory (2)

mass_dns: warning: Unable to determine any DNS servers. Reverse DNS is disabled. Try using --system-dns or specify
valid servers with --dns-servers

Stats: 0:00:16 elapsed; 0 hosts completed (1 up), 1 undergoing Service Scan

Service scan Timing: About 91.30% done; ETC: 18:56 (0:00:02 remaining)

Stats: 0:00:26 elapsed; 0 hosts completed (1 up), 1 undergoing Service Scan

Service scan Timing: About 95.65% done; ETC: 18:56 (0:00:01 remaining)

Nmap scan report for 192.168.32.101

Host is up (0.00024s latency).

Not shown: 977 closed tcp ports (conn-refused)

PORT     STATE SERVICE     VERSION

21/tcp   open  ftp         vsftpd 2.3.4

|_ftp-anon: Anonymous FTP login allowed (FTP code 230)

| ftp-syst:

|   STAT:

| FTP server status:

|      Connected to 192.168.32.100

|      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

22/tcp   open  ssh         OpenSSH 4.7p1 Debian 8ubuntu1 (protocol 2.0)

| ssh-hostkey:

|   1024 600fcfe1c05f6a74d69024fac4d56ccd (DSA)

|_  2048 5656240f211ddea72bae61b1243de8f3 (RSA)

23/tcp   open  telnet      Linux telnetd

25/tcp   open  smtp        Postfix smtpd

|_smtp-commands: metasploitable.localdomain, PIPELINING, SIZE 10240000, VRFY, ETRN, STARTTLS, ENHANCEDSTATUSCODES,
8BITMIME, DSN

53/tcp   open  domain      ISC BIND 9.4.2

| dns-nsid:

|_  bind.version: 9.4.2

80/tcp   open  http        Apache httpd 2.2.8 ((Ubuntu) DAV/2)
```

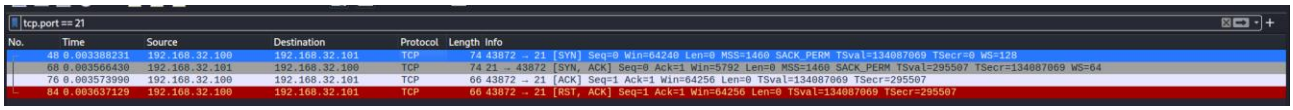
```
|_http-server-header: Apache/2.2.8 (Ubuntu) DAV/2
|_http-title: Metasploitable2 - Linux
111/tcp  open  rpcbind     2 (RPC #100000)
| rpcinfo:
|   program version    port/proto  service
|   100000  2            111/tcp   rpcbind
|   100000  2            111/udp   rpcbind
|   100003  2,3,4       2049/tcp   nfs
|   100003  2,3,4       2049/udp   nfs
|   100005  1,2,3      41410/tcp   mountd
|   100005  1,2,3      48914/udp   mountd
|   100021  1,3,4      42863/tcp   nlockmgr
|   100021  1,3,4      45225/udp   nlockmgr
|   100024  1          43466/udp   status
|_  100024  1          59242/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
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
| mysql-info:
|   Protocol: 10
|   Version: 5.0.51a-3ubuntu5
|   Thread ID: 11
|   Capabilities flags: 43564
|   Some Capabilities: Speaks41ProtocolNew, LongColumnFlag, Support41Auth, SupportsTransactions,
SwitchToSSLAfterHandshake, ConnectWithDatabase, SupportsCompression
|   Status: Autocommit
|_  Salt: f=:LQ3GL'~fb;?is)nph
5432/tcp open  postgresql  PostgreSQL DB 8.3.0 - 8.3.7
|_ssl-date: 2023-07-19T22:57:19+00:00; -2s from scanner time.
| ssl-cert: Subject: commonName=ubuntu804-base.localdomain/organizationName=OCOSA/stateOrProvinceName=There is no
such thing outside US/countryName=XX
| Not valid before: 2010-03-17T14:07:45
|_Not valid after:  2010-04-16T14:07:45
5900/tcp open  vnc         VNC (protocol 3.3)
| vnc-info:
|   Protocol version: 3.3
|   Security types:
```

```
|_    VNC Authentication (2)
6000/tcp open  X11         (access denied)
6667/tcp open  irc         UnrealIRCd
8009/tcp open  ajp13       Apache Jserv (Protocol v1.3)
|_ajp-methods: Failed to get a valid response for the OPTION request
8180/tcp open  http        Apache Tomcat/Coyote JSP engine 1.1
|_http-title: Apache Tomcat/5.5
|_http-favicon: Apache Tomcat
Service Info: Hosts:  metasploitable.localdomain, irc.Metasploitable.LAN; OSs: Unix, Linux; CPE:
cpe:/o:linux:linux_kernel


Host script results:
|_clock-skew: mean: 1h19m58s, deviation: 2h18m34s, median: -2s
| smb-os-discovery:
|   OS: Unix (Samba 3.0.20-Debian)
|   Computer name: metasploitable
|   NetBIOS computer name:
|   Domain name: localdomain
|   FQDN: metasploitable.localdomain
|_  System time: 2023-07-19T18:56:41-04:00
|_smb2-time: Protocol negotiation failed (SMB2)
|_nbstat: NetBIOS name: METASPLOITABLE, NetBIOS user: <unknown>, NetBIOS MAC: 000000000000 (Xerox)
| smb-security-mode:
|   account_used: <blank>
|   authentication_level: user
|   challenge_response: supported
|_  message_signing: disabled (dangerous, but default)


Service detection performed. Please report any incorrect results at https://nmap.org/submit/ .
Nmap done: 1 IP address (1 host up) scanned in 128.77 seconds
```

Scansione TCP completa con switch -sT e cattura dei pacchetti con Wireshark



Vediamo i pacchetti su una porta aperta, la porta 21:



<u>Step 1:</u>

da Kali a Metasploitable `192.168.32.100 192.168.32.101`

SYN Seq=0 `21 [SYN] Seq=0`

<u>Step 2:</u>

da Metasploitable a Kali `192.168.32.101 192.168.32.100`

SYN, ACK Seq=0, Ack=1 `[SYN, ACK] Seq=0 Ack=1`

<u>Step 3:</u>

da Kali a Metasploitable `192.168.32.100 192.168.32.101`

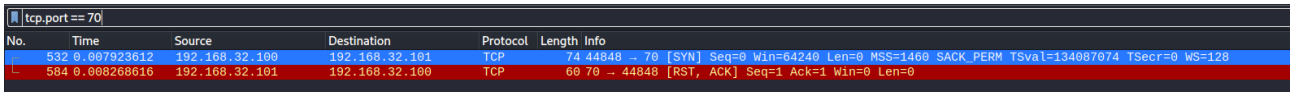
ACK Seq=1, Ack=1 `21 [ACK] Seq=1 Ack=1`

<u>Step 4 (chiusura connessione con flag RST a three-way handshake concluso):</u>

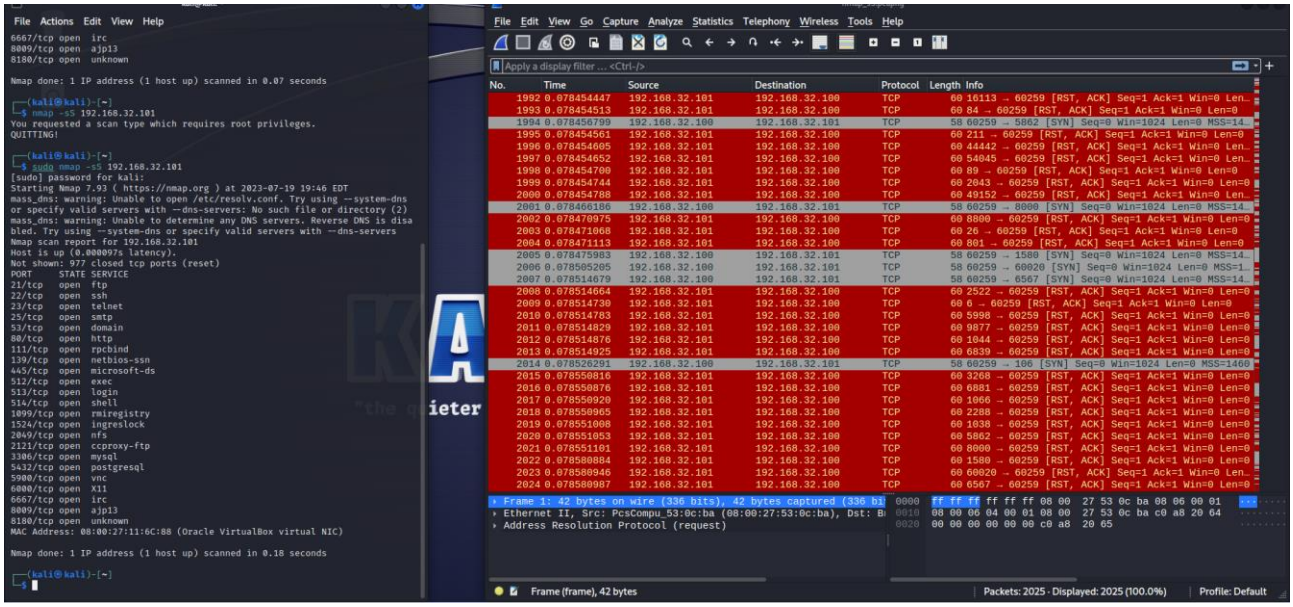
da Kali a Metasploitable `192.168.32.100 192.168.32.101`

RST, ACK Seq=1, Ack=1 `21 [RST, ACK] Seq=1 Ack=1`

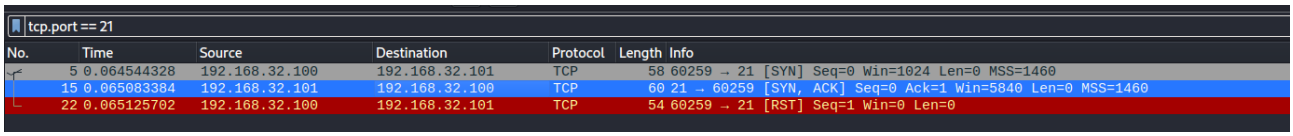
In caso di porta chiusa, come la 70, vediamo che il target chiude la comunicazione inviando il flag ACK, RST:



Scansione TCP SYN con switch -sS e cattura dei pacchetti con Wireshark



Prendendo sempre in esame la porta 21, notiamo che rispetto all'altra comunicazione, qui manca lo step in cui l'host (Kali) invia il flag ACK per chiudere il three-way handshake. In questo caso, dopo lo step SYN, ACK la comunicazione viene chiusa direttamente dall'host con il flag RST.



In caso di porta chiusa, anche qui la 70, non c'è differenza rispetto allo switch -sT. Anche qui è il target a chiudere la comunicazione con lo step RST, ACK: