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# Top 10 NMAP Widely Used Commands



One may be curious to understand how the network intruder to know what ports are open on a computer? Or maybe how they detect which services are running in the system that too without any prior permission from the network administrator.

Well, anyone can do this stuff and even more than that with the help of Nmap tool which is one of the best Port Scanner used by many experts in network security, network researchers and administrators.

#### Suggested Read: 19 Useful NMAP Commands You Should Know

There are plenty of scanning techniques that can be used in Nmap. This article is intended to provide a the basic overview on top 10 Nmap scanning techniques.

- 1. TCP Connect Scan (-sT)
- 2. TCP SYN Scan (-sS)
- 3. Version Detection (-sV)
- 4. UDP Scan (-sU)
- 5. OS Fingerprinting (-0)

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- 6. Scan OS Information (-A)
- 7. Scan Top Ports (-F)
- 8. Scan Targets from a File (-iL)
- 9. TCP ACK Scan (-sA)
- 10. Ping Scan (-sP)

## [#1] – TCP Connect Port Scan

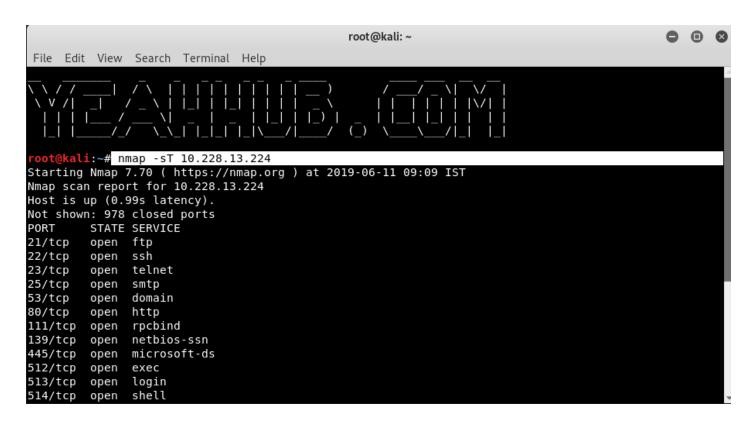
**Syntax:** nmap -sT <IP Address>

TCP connect scan is the default TCP scan type when SYN scan is not an option. This is the case when a user does not have raw packet privileges or is scanning IPv6 networks.

The TCP Connect Scan is a simple probe that attempts to directly connect to the remote system without using any stealth







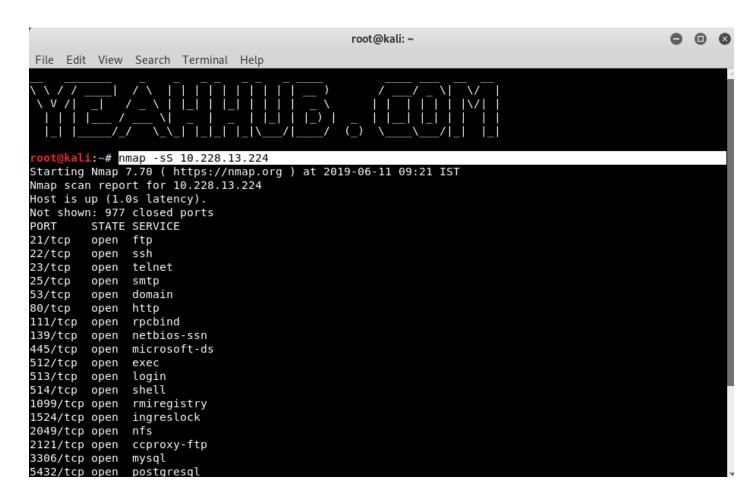
## [#2] - TCP SYN Port Scan

Syntax: nmap -sS <IP Address>

This type of scan won't establish a TCP connection. It will scan by sending a SYN flag packet and if the port is open, then a SYN/ACK will be send back as a response by the target machine, thus result in a half embryo connection.

Since a full connection wont establish, the connection info will not be logged by the Firewalls/IDSs and hence it is widely known as Stealth scan. If a RST pack is received as a response, then probably the post

is closed.

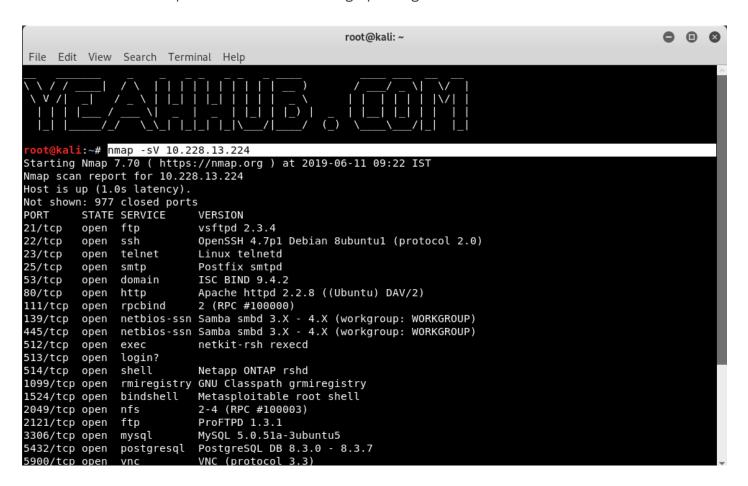


## [#3]- Version Scan

**Syntax:** nmap -sV <IP Address>

Version Detection collects information about the specific service running on an open port, including the product name and version number.

This information can be used in determining an entry point for an attack. The -sV option enables version detection, and the -A option enables both OS fingerprinting and version detection

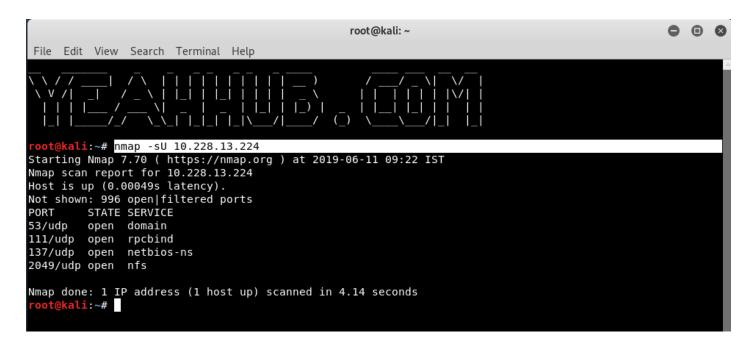


## [#4] – UDP Port Scan

```
Syntax: nmap -sU <IP Address>
```

UDP scan works by sending a UDP packet to the targeted port. If no response is received, then the port will be considered as Open | filtered.

Filtered because some firewalls wont respond to the blocked UDP ports. If the port is closed, then an ICMP response (ICMP port unreachable error type 3, code 3) will be send by the target device.



# [#5] – OS Fingerprinting

**Syntax:** nmap -0 <IP Address>

With -O (Capital O) or -osscan-guess, you can easily detect the target Operating System behind it using TCP/IP stack fingerprinting. Nmap sends a series of TCP and UDP packets to the remote host and examines the responses. After performing dozens of tests, Nmap compares the results to its database and prints out the OS details if there is a match.

```
root@kali: ~
File Edit View Search Terminal Help
 oot@kali:~# nmap -0 10.228.13.224
Starting Nmap 7.70 ( https://nmap.org ) at 2019-06-11 09:23 IST
Nmap scan report for 10.228.13.224
Host is up (0.11s latency).
Not shown: 977 closed ports
PORT
        STATE SERVICE
21/tcp open ftp
22/tcp
        open ssh
        open telnet
23/tcp
25/tcp
        open smtp
        open domain
53/tcp
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
Aggressive OS guesses: Actiontec MI424WR-GEN3I WAP (98%), DD-WRT v24-sp2 (Linux 2.4.37) (98%), Linux
3.2 (97%), Linux 4.4 (97%), Microsoft Windows XP SP3 or Windows 7 or Windows Server 2012 (96%), Mic
rosoft Windows XP SP3 (96%), BlueArc Titan 2100 NAS device (91%), Pirelli DP-10 VoIP phone (88%)
No exact OS matches for host (test conditions non-ideal).
OS detection performed. Please report any incorrect results at https://nmap.org/submit/ .
Nmap done: 1 IP address (1 host up) scanned in 18.45 seconds
 oot@kali:~#
```

## [#6] - Scan OS Information

**Syntax:** nmap -A <IP Address>

With Nmap, you can detect which OS and version is running on the remote host. To enable OS & version detection, script scanning and traceroute, you can use "-A" option with NMAP.

This type of scan uses the ACK flags. Unlike other scans, ACK scan is not used to determine whether the port is Open or Closed.

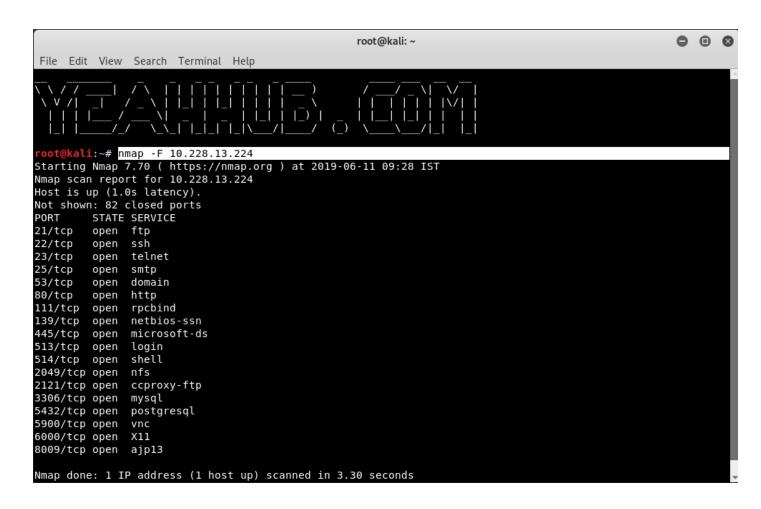
It is used to map out firewall rule-sets, determining whether they are stateful or not and which ports are filtered. Stateful Firewalls, will respond with a RST packet as the sequence is not in order.

```
root@kali: ~
File Edit View Search Terminal Help
 oot@kali:~# nmap -A 10.228.13.224
Starting Nmap 7.70 ( https://nmap.org ) at 2019-06-11 09:27 IST
Nmap scan report for 10.228.13.224
Host is up (0.034s latency).
Not shown: 977 closed ports
PORT
        STATE SERVICE
                          VERSION
21/tcp open ftp
                          vsftpd 2.3.4
 ftp-anon: Anonymous FTP login allowed (FTP code 230)
 ftp-bounce: bounce working!
 ftp-syst:
   STAT:
  FTP server status:
      Connected to 10.228.13.93
      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 4.7pl Debian 8ubuntul (protocol 2.0)
 ssh-hostkey:
   1024 60:0f:cf:e1:c0:5f:6a:74:d6:90:24:fa:c4:d5:6c:cd (DSA)
   2048 56:56:24:0f:21:1d:de:a7:2b:ae:61:b1:24:3d:e8:f3 (RSA)
23/tcp open telnet
                          Linux telnetd
25/tcp
        open smtp
                          Postfix smtpd
smtp-commands: metasploitable.localdomain, PIPELINING, SIZE 10240000, VRFY, ETRN, STARTTLS, ENHANC
```

# [#7] - Scan Top Ports (Fast Mode)

```
Syntax: nmap -F <IP Address>
```

Instead of scanning as many ports as the default scan does, the fast scan only scans a few.



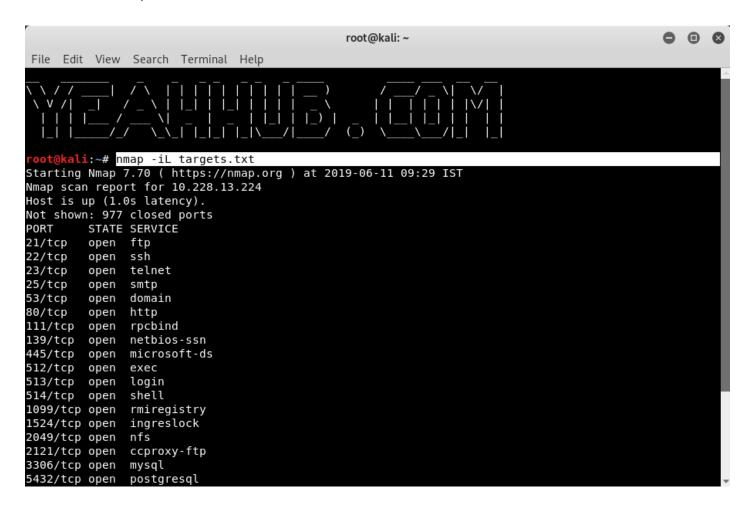
Using "**-top-ports**" parameter along with a specific number also lets you scan the top X most common ports for that host.

**Example:** nmap -top-ports 20 10.228.13.224

# [#8] – Scan Targets from a File

**Syntax:** nmap -iL targets.txt

In this case, Nmap is also useful to read files that contain hosts and IP addresses inside.

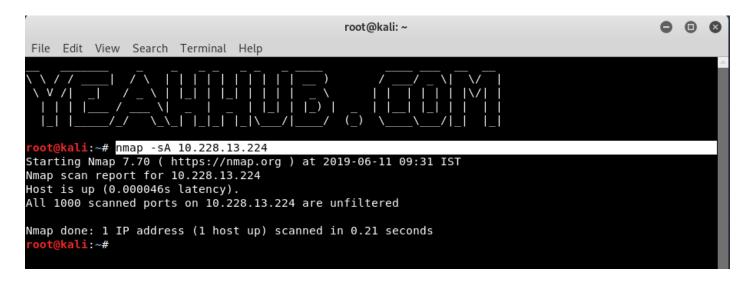


## [#9] – TCP ACK Port Scan

**Syntax:** nmap -sA <IP Address>

This type of scan uses the ACK flags. Unlike other scans, ACK scan is not used to determine whether the port is Open or Closed.

It is used to map out firewall rule-sets, determining whether they are stateful or not and which ports are filtered. Stateful Firewalls, will respond with a RST packet as the sequence is not in order.



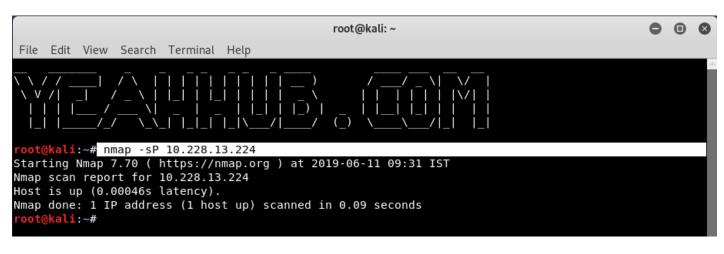
# [#10] - Ping Scan

```
Syntax: nmap -sP <IP Address>
```

This types of scan is used to detect which computers or devices are online, rather than which ports are open.

In this, Nmap sends an ICMP ECHO REQUEST packet to the destination system. If an ICMP ECHO REPLY is received, the system is considered as up, and ICMP packets are not blocked.

If there is no response to the ICMP ping request, Nmap will try a "TCP Ping", to determine whether ICMP is blocked, or if the host is really not online.

















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