Network Scanning Practicals:

Open a blank terminal in kali linux, and type the follows:
netdiscover

Or
netdiscover —i <interface name>
Or
netdiscover —r <network range you want to scan>

Ex:
netdiscover —i eth0
netdiscover —r 192.168.0.0/24
Ping Sweeping techniques for Network Scanning with nmap
Open a blank terminal and type

nmap -sn 192.168.0.0/24

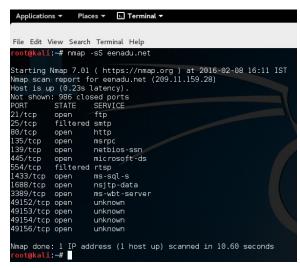
Port Scanning Practical:

Regular Scan (syn stealth scan or half open scan):

nmap <target ip or domain>

Ex: nmap 192.168.0.100 or nmap -sS example.com or nmap -sS 192.168.0.100 or nmap -sS example.com

```
Applications ▼ Places ▼ E Terminal ▼
File Edit View Search Terminal Help
        @kali:~# nmap eenadu.net
Starting Nmap 7.01 ( https://nmap.org ) at 2016-02-08 16:20 IST Nmap scan report for eenadu.net (209.11.159.28) Host is up (0.23s latency). Not shown: 986 closed ports PORT STATE SERVICE 21/tcp open ftp 25/tcp open smtp 80/tcp open http
                 open
open
 .35/tcp
.39/tcp
                 open
                                    netbios-ssn
                  open netblos-ssn
open microsoft-ds
filtered rtsp
open ms-sql-s
open nsjtp-data
open ms-wbt-server
  54/tcp
 1433/tcp open
1688/tcp open
3389/tcp open
49152/tcp open
                                    unknown
49153/tcp open
49154/tcp open
                                    unknown
 Vmap done: 1 IP address (1 host up) scanned in 17.72 seconds
root@kali:~#
```

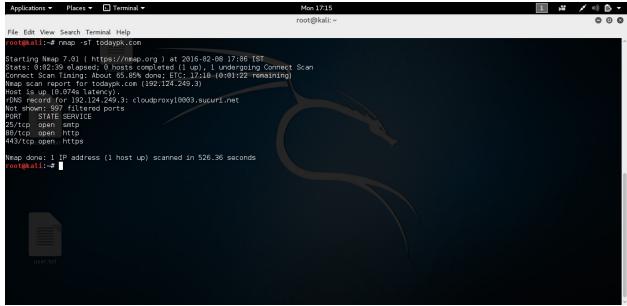


Note: Even if you take a domain name nmap won't scan the website it will scan the computer (server) hosting that website.

TCP connect scan (Full Connect Scan):

nmap -sT <target ip or domain>

Ex: nmap -sT example.com or nmap -sT 192.168.0.100



OS Detection Scan:

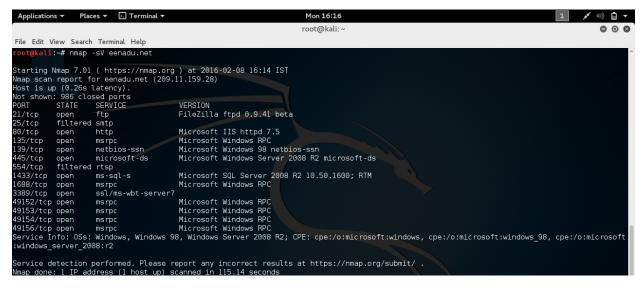
Nmap -O <target ip or domain>

Ex: nmap -O example.com or nmap -O 192.168.0.100



Service detection scan or version detection scan:

Ex: nmap -sV example.com or nmap -sV 192.168.0.100



UDP port scan:

Nmap -sU <target ip or domain>

Ex: nmap -sU example.com or nmap -sU 192.168.0.100

Custom port scanning:

Nmap -p <port range> <target ip or domain>

Ex: nmap -p 80 example.com or nmap -p 80-85 192.168.0.100 or

nmap -p 80,81,85,21,443 49.204.90.43

You can add –v at the end of any command to see the verbose (in detailed) information.

Aggressive scan:

Nmap -A <target ip of domain>

Ex: nmap -A example.com or nmap -A 192.168.0.100 -v



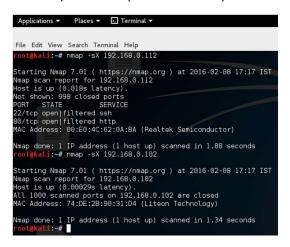
```
5 ...
6 21.00 ms ix-4-2.tcorel.CXR-Chennai.as6453.net (180.87.36.9)
7 57.58 ms if-5-2.tcorel.SVW-Singapore.as6453.net (180.87.36.9)
8 57.58 ms if-11-2.tharl.SVQ-Singapore.as6453.net (180.87.98.37)
9 57.58 ms ae-6.r00.sngpsi05.sg.bb.gin.ntt.net (129.250.8.241)
10 57.61 ms ae-10.r20.sngpsi05.sg.bb.gin.ntt.net (129.250.7.18)
11 229.50 ms ae-8.r22.snjsca04.us.bb.gin.ntt.net (129.250.7.18)
12 233.90 ms ae-40.r02.snjsca04.us.bb.gin.ntt.net (129.250.3.48)
12 233.91 ms xe-0-7-03.r02.snjsca04.us.ce.gin.ntt.net (128.241.219.186)
14 229.58 ms 205.234.0.170
15 234.42 ms 209.11.159.28

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 136.33 seconds
rootgkali:-#
```

XMAS scan (FIN, PSH, URG Flags):

Nmap -sX <target ip or domain>

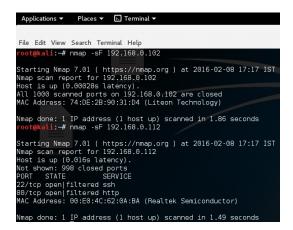
Ex: nmap -sX example.com or nmap -sX 192.168.0.100 -v



FIN scan (FIN Flag):

Nmap -sF <target ip or domain>

Ex: nmap -sF example.com or nmap -sF 192.168.0.100 -v



NULL scan (No Flags)

Nmap -sN <target ip or domain>

Ex: nmap -sN example.com or nmap -sN 192.168.0.100 -v

```
Applications Places Terminal Help
root@kali~# nmap -sN 192.168.0.102

Starting Nmap 7.01 ( https://nmap.org ) at 2016-02-08 17:17 IST
Nmap scan report for 192.168.0.102
Host is up (0.00038s latency).
All 1000 scanned ports on 192.168.0.102 are closed
MAC Address: 74:DE:28:90:31:D4 (Liteon Technology)

Nmap done: 1 IP address (1 host up) scanned in 2.15 seconds
root@kali~# nmap -sN 192.168.0.112

Starting Nmap 7.01 ( https://nmap.org ) at 2016-02-08 17:18 IST
Nmap scan report for 192.168.0.112
Host is up (0.018s latency).
Not shown: 998 closed ports
PORT STATE SERVICE
22/tcp open[filtered ssh
80/tcp open[filtered http
MAC Address: 00:E0:4C:62:0A:BA (Realtek Semiconductor)
Nmap done: 1 IP address (1 host up) scanned in 1.43 seconds
root@kali~# I
```

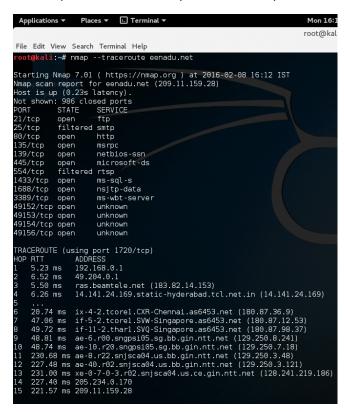
If you get any error saying host may be down or disabled icmp try adding -Pn to the command

Ex: nmap -sT -Pn example.com

You can also perform traceroute scan with nmap

Nmap --traceroute <target ip or domain>

Ex: nmap --traceroute example.com or nmap --traceroute 192.168.0.100 -v



Installing Nessus Vulnerability Scanner In Kali Linux

Step 1: search for "obtain an activation code" in google

Step 2: click on the first link

Step 3: Go for home license and register.

Step 4: After registering download linux nessus version .deb package(32 or 64bit)

Step 5: Go to download location and execute

dpkg -i <filename.deb>

Configuring Nessus IN kali linux

Step 1: execute

/etc/init.d/nessusd start

and then go to your favorite browser and open

https://127.0.0.1:8834/

Step 2: enter Activation Code if it is asking you.

Step 3: Create username and password in the next prompt.

Step 4: Download nessus plugins by clicking the button.

Step 5: wait till the process completes (completion depends on your internet speed) once completed your nessus in ready to go.

Enumeration Practicals:

Netbios Enumeration:

In windows execute the following command in terminal

nbtstat -A

```
G:\Users\SAM>nbtstat -A 192.168.1.7

Ethernet:
Node IpAddress: [169.254.185.160] Scope Id: []

Host not found.

Ethernet 2:
Node IpAddress: [169.254.123.0] Scope Id: []

Host not found.

Local Area Connection:
Node IpAddress: [192.168.1.4] Scope Id: []

NetBIOS Remote Machine Name Table

Name Type Status

KUMAR <00> UNIQUE Registered
KUMAR <20> UNIQUE Registered
KUMAR7 <00> GROUP Registered
KUMAR7 <1C> GROUP Registered
MUMAR7 <1C> GROUP Registered
KUMAR7 <1C> GROUP REGISTERED
```

The above command will disclose the connected devices NETBIOS names to the attacker

nbtstat -c

```
G:\Users\SAM>nbtstat -c
Ethernet:
Node IpAddress: [169.254.185.160] Scope Id: []
   No names in cache
Ethernet 2:
Node IpAddress: [169.254.123.0] Scope Id: []
   No names in cache
Local Area Connection:
Node IpAddress: [192.168.1.4] Scope Id: []
                  NetBIOS Remote Cache Name Table
                                     Host Address
                                                     Life [sec]
       Name
                          Type
    KUMAR
                   <20> UNIQUE
                                         192.168.1.7
                                                              444
    KUMAR7
                         GROUP
                                         192.168.1.7
                                                              389
                   < 00>
G:\Users\SAM>
```

To see the cached information of NETBIOS

SMB Enumeration with SMBCLIENT TOOL

smbclient -L <target ip> -N

```
root@kali:~# smbclient -L 192.168.1.16 -N
Domain=[KUMAR7] OS=[Windows Server 2003 R2 3790 Service Pack 2] Server=[Windows Server 2003 R2 5.2]
         Sharename
                             Type
                                         Comment
         C$
                             Disk
                                         Default share
         Share
                             Disk
          IPC$
                             IPC
                                         Remote IPC
         ADMIN$
                             Disk
                                         Remote Admin
         SYSV0L
                             Disk
                                         Logon server share
NETLOGON Disk Logon server share
Domain=[KUMAR7] OS=[Windows Server 2003 R2 3790 Service Pack 2] Server=[Windows Server 2003 R2 5.2]
         Server
                                   Comment
         KUMAR
         Workgroup
                                   Master
         KUMAR7
                                   KUMAR
```

For Linux Enumeration:

enum4linux -v <target ip>

Nmap enumeration commands:

Execute locate *.nse | grep enum

To findout the enumeration scripts of nmap and use them as enumerator like below example

nmap --script=<script name> --script-args=unsafe=1 <target ip>

```
oot@kali:~# nmap -p445 192.168.0.132 --script=smb-mbenum.nse
Starting Nmap 6.47 ( http://nmap.org ) at 2015-08-05 15:17 IST
Nmap scan report for 192.168.0.132
Host is up (0.00025s latency).
PORT STATE SERVICE
445/tcp open microsoft-ds
MAC Address: 08:00:27:82:FF:00 (Cadmus Computer Systems)
Host script results:
  smb-mbenum:
    DFS Root
      KUMAR 5.2
    Domain Controller
      KUMAR 5.2
    Master Browser
      KUMAR 5.2
    Server service
      KUMAR 5.2
    Time Source
      KUMAR 5.2
    Windows NT/2000/XP/2003 server
      KUMAR 5.2
    Workstation
      KUMAR 5.2
Nmap done: 1 IP address (1 host up) scanned in 0.36 seconds
```

SMB Protocol Logged On users Enumeration With NMAP Scripts

```
root@kali:~# nmap -p445 192.168.0.132 --script=smb-enum-sessions.nse
Starting Nmap 6.47 ( http://nmap.org ) at 2015-08-05 15:10 IST
Nmap scan report for 192.168.0.132
Host is up (0.00020s latency).
PORT STATE SERVICE
445/tcp open microsoft-ds
MAC Address: 08:00:27:82:FF:00 (Cadmus Computer Systems)
Host script results:
| smb-enum-sessions:
| Users logged in
| KUMAR7\Administrator since <unknown>
Nmap done: 1 IP address (1 host up) scanned in 0.29 seconds
```

SMB Protocol Shares Enumeration With NMAP Script

```
kali:~# nmap --script=smb-enum-shares.nse 192.168.0.132 -p445,139
Starting Nmap 6.47 ( http://nmap.org ) at 2015-08-05 15:07 IST
Nmap scan report for 192.168.0.132
Host is up (0.00028s latency).
PORT STATE SERVICE
139/tcp open netbios-ssn
445/tcp open microsoft-ds
MAC Address: 08:00:27:82:FF:00 (Cadmus Computer Systems)
Host script results:
  smb-enum-shares:
    ADMIN$
       Anonymous access: <none>
      Current user ('guest') access: <none>
      Anonymous access: <none>
      Current user ('guest') access: <none>
    IPC$
      Anonymous access: READ <not a file share>
      Current user ('guest') access: READ <not a file share>
    NETLOGON
      Anonymous access: <none>
      Current user ('guest') access: READ
      Anonymous access: <none>
      Current user ('guest') access: READ
    Share
      Anonymous access: <none>
      Current user ('guest') access: READ
Nmap done: 1 IP address (1 host up) scanned in 0.63 seconds
```

SSH Protocol Algorithms Enumeration With NMAP script

```
li: # nmap --script=ssh2-enum-algos.nse 192.168.0.131 --open -p22
Starting Nmap 6.47 ( http://nmap.org ) at 2015-08-05 15:05 IST
Nmap scan report for 192.168.0.131
Host is up (0.00021s latency).
PORT STATE SERVICE
22/tcp open ssh
  ssh2-enum-algos:
     kex_algorithms: (7)
           ecdh-sha2-nistp256
           ecdh-sha2-nistp384
           ecdh-sha2-nistp521
           diffie-hellman-group-exchange-sha256
diffie-hellman-group-exchange-sha1
           diffie-hellman-group14-shal
diffie-hellman-group1-shal
     server_host_key_algorithms: (3)
ssh-rsa
           ssh-dss
           ecdsa-sha2-nistp256
     encryption_algorithms: (13)
aes128-ctr
           aes192-ctr
           aes256-ctr
           arc four 256
           arcfour128
           aes128-cbc
           3des-cbc
           blowfish-cbc
cast128-cbc
           aes192-cbc
           aes256-cbc
           arc four
     rijndael-cbc@lysator.liu.se
mac_algorithms: (11)
```