Scanning Networks

Tools:

Nmap, Netdiscover, Masscan, and Apache2

Download:

This all tools are pre-installed in pentesting linux distro

NMAP: https://nmap.org/download

Masscan: https://github.com/robertdavidgraham/masscan

Netdiscover: https://github.com/netdiscover-scanner/netdiscover

Apache 2: https://httpd.apache.org/download.cgi

- **Performing network scanning and device discovery**

Nmap :Network mapper

Syntax: nmap [options] [target(url) or (ip)]

NOTICE:

Here we are using the metasploitable machine as a target because we don’t have any right or permissions to pentesting on any website available on internet

Some are the organization is provide websites for penetration tester to penetrate on it like acunetix,portswwiger etc..

But Metasploitable is vulnerable machine and the website is also configured in it so we get all on one plateform

Metasploitable IP [10.0.2.4] :different for all device

```
To access official Ubuntu documentation, please visit:
http://help.ubuntu.com/
No mail.
msfadmin@metasploitable:~$ ifconfig
eth0      Link encap:Ethernet  HWaddr 08:00:27:6c:25:8e
          inet addr:10.0.2.4  Bcast:10.0.2.255  Mask:255.255.255.0
          inet6 addr: fe80::a00:27ff:fe6c:258e/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:28 errors:0 dropped:0 overruns:0 frame:0
          TX packets:58 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:3882 (3.7 KB)  TX bytes:6168 (6.0 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:92 errors:0 dropped:0 overruns:0 frame:0
          TX packets:92 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:19393 (18.9 KB)  TX bytes:19393 (18.9 KB)

msfadmin@metasploitable:~$
```

Nmap results :

Results of nmap for metasploitable

Command : nmap -sV -sC -A -p- -v 10.0.2.4

[-sV service version detection

-sC default script scan

-A- aggressive scan

-p- scanning all ports

-v verbose]

Syntax:

```
┌─[root@warmachine]─[/]
└──╼ #nmap -sC -sV -A -p- -v 10.0.2.4
```

Scanning:

```
┌─[root@warmachine]─[/]
└──╼ #nmap -sC -sV -A -p- -v 10.0.2.4
Starting Nmap 7.92 ( https://nmap.org ) at 2023-01-05 20:34 IST
NSE: Loaded 155 scripts for scanning.
NSE: Script Pre-scanning.
Initiating NSE at 20:34
Completed NSE at 20:34, 0.00s elapsed
Initiating NSE at 20:34
Completed NSE at 20:34, 0.00s elapsed
Initiating NSE at 20:34
Completed NSE at 20:34, 0.00s elapsed
Initiating ARP Ping Scan at 20:34
Scanning 10.0.2.4 [1 port]
Completed ARP Ping Scan at 20:34, 0.19s elapsed (1 total hosts)
Initiating Parallel DNS resolution of 1 host. at 20:34
Completed Parallel DNS resolution of 1 host. at 20:34, 0.11s elapsed
Initiating SYN Stealth Scan at 20:34
Scanning 10.0.2.4 [65535 ports]
```

Open ports:

```
Initiating SYN Stealth Scan at 20:34
Scanning 10.0.2.4 [65535 ports]
Discovered open port 139/tcp on 10.0.2.4
Discovered open port 3306/tcp on 10.0.2.4
Discovered open port 53/tcp on 10.0.2.4
Discovered open port 80/tcp on 10.0.2.4
Discovered open port 22/tcp on 10.0.2.4
Discovered open port 5900/tcp on 10.0.2.4
Discovered open port 21/tcp on 10.0.2.4
Discovered open port 445/tcp on 10.0.2.4
Discovered open port 25/tcp on 10.0.2.4
Discovered open port 23/tcp on 10.0.2.4
Discovered open port 111/tcp on 10.0.2.4
Discovered open port 6667/tcp on 10.0.2.4
Discovered open port 1524/tcp on 10.0.2.4
Discovered open port 6000/tcp on 10.0.2.4
Discovered open port 512/tcp on 10.0.2.4
Discovered open port 3632/tcp on 10.0.2.4
Discovered open port 6697/tcp on 10.0.2.4
Discovered open port 57519/tcp on 10.0.2.4
Discovered open port 59315/tcp on 10.0.2.4
Discovered open port 34014/tcp on 10.0.2.4
Discovered open port 513/tcp on 10.0.2.4
Discovered open port 5432/tcp on 10.0.2.4
Discovered open port 8009/tcp on 10.0.2.4
Discovered open port 8180/tcp on 10.0.2.4
Discovered open port 2121/tcp on 10.0.2.4
Discovered open port 1099/tcp on 10.0.2.4
Discovered open port 60859/tcp on 10.0.2.4
Discovered open port 2049/tcp on 10.0.2.4
Discovered open port 8787/tcp on 10.0.2.4
Discovered open port 514/tcp on 10.0.2.4
Completed SYN Stealth Scan at 20:35, 65.28s elapsed (65535 total ports)
```

We scan all 65535 ports and get the all open ports from 0 to 65535

Service and Service version:

```
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 10.0.2.15
|      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 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
| sslv2:
|   SSLv2 supported
|   ciphers:
|     SSL2_DES_64_CBC_WITH_MD5
|     SSL2_RC2_128_CBC_WITH_MD5
|     SSL2_RC4_128_EXPORT40_WITH_MD5
|     SSL2_DES_192_EDE3_CBC_WITH_MD5
|     SSL2_RC2_128_CBC_EXPORT40_WITH_MD5
|_    SSL2_RC4_128_WITH_MD5
|_smtp-commands: metasploitable.localdomain, PIPELINING, SIZE 10240000, VRFY, ETRN, STARTTLS, ENHANCEDSTATUSCODES, 8BITMIME, DSN
|_ssl-date: 2023-01-05T15:02:53+00:00; -5m11s from scanner time.
```

```
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
| http-methods:
|_   Supported Methods: GET HEAD POST OPTIONS
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      38683/udp   mountd
|   100005  1,2,3      59315/tcp   mountd
|   100021  1,3,4      34014/tcp   nlockmgr
|   100021  1,3,4      39176/udp   nlockmgr
|   100024  1          59164/udp   status
|_  100024  1          60859/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       OpenBSD or Solaris rlogind
514/tcp   open  tcpwrapped
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
```

```
3306/tcp  open  mysql       MySQL 5.0.51a-3ubuntu5
| mysql-info:
|   Protocol: 10
|   Version: 5.0.51a-3ubuntu5
|   Thread ID: 8
|   Capabilities flags: 43564
|   Some Capabilities: SwitchToSSLAfterHandshake, ConnectWithDatabase, SupportsCompression, Speaks41ProtocolNew, Support41Auth, LongColumnFlag, Su
pportsTransactions
|   Status: Autocommit
|_  Salt: QAlqg2buHE_2z0~NGZo>
3632/tcp  open  distccd     distccd v1 ((GNU) 4.2.4 (Ubuntu 4.2.4-1ubuntu4))
5432/tcp  open  postgresql  PostgreSQL DB 8.3.0 - 8.3.7
| ssl-date: 2023-01-05T15:02:53+00:00; -5m11s from scanner time.
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
6697/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-methods:
|_  Supported Methods: GET HEAD POST OPTIONS
|_http-title: Apache Tomcat/5.5
|_http-server-header: Apache-Coyote/1.1
|_http-favicon: Apache Tomcat
8787/tcp  open  drb         Ruby DRb RMI (Ruby 1.8; path /usr/lib/ruby/1.8/drb)
34014/tcp open  nlockmgr    1-4 (RPC #100021)
57519/tcp open  java-rmi    GNU Classpath grmiregistry
59315/tcp open  mountd      1-3 (RPC #100005)
60859/tcp open  status      1 (RPC #100024)
```

We got the sevices and the versions of service are running on different ports

Port /Services

21:ftp

22:ssh

23:telnet

25:smtp

53:domain

80:http

111:rpcbind

130:netbios-ssn

445:netbios-ssn

512:exec

513:login

514:tcpwrapped

1099:java-rmi

1524:bindshell

2049:nfs

2121:ftp

3306:mysql

Os Detection:

```
MAC Address: 08:00:27:6C:25:8E (Oracle VirtualBox virtual NIC)
No exact OS matches for host (If you know what OS is running on it, see https://nmap.org/submit/ ).
TCP/IP fingerprint:
OS:SCAN(V=7.92%E=4%D=1/5%OT=21%CT=1%CU=41404%PV=Y%DS=1%DC=D%G=Y%M=080027%TM
OS:=63B6E7D9%P=x86_64-pc-linux-gnu)SEQ(SP=C9%GCD=1%ISR=C9%TI=Z%CI=Z%II=I%TS
OS:=5)OPS(O1=M5B4ST11NW5%O2=M5B4ST11NW5%O3=M5B4NNT11NW5%O4=M5B4ST11NW5%O5=M
OS:5B4ST11NW5%O6=M5B4ST11)WIN(W1=16A0%W2=16A0%W3=16A0%W4=16A0%W5=16A0%W6=16
OS:A0)ECN(R=Y%DF=Y%T=40%W=16D0%O=M5B4NNSNW5%CC=N%Q=)T1(R=Y%DF=Y%T=40%S=O%A=
OS:S+%F=AS%RD=0%Q=)T2(R=N)T3(R=Y%DF=Y%T=40%W=16A0%S=O%A=S+%F=AS%O=M5B4ST11N
OS:W5%RD=0%Q=)T4(R=Y%DF=Y%T=40%W=0%S=A%A=Z%F=R%O=%RD=0%Q=)T5(R=Y%DF=Y%T=40%
OS:W=0%S=Z%A=S+%F=AR%O=%RD=0%Q=)T6(R=Y%DF=Y%T=40%W=0%S=A%A=Z%F=R%O=%RD=0%Q=
OS:)T7(R=Y%DF=Y%T=40%W=0%S=Z%A=S+%F=AR%O=%RD=0%Q=)U1(R=Y%DF=N%T=40%IPL=164%
OS:UN=0%RIPL=G%RID=G%RIPCK=G%RUCK=G%RUD=G)IE(R=Y%DFI=N%T=40%CD=S)

Uptime guess: 0.000 days (since Thu Jan  5 20:37:52 2023)
Network Distance: 1 hop
TCP Sequence Prediction: Difficulty=201 (Good luck!)
IP ID Sequence Generation: All zeros
Service Info: Hosts:  metasploitable.localdomain, irc.Metasploitable.LAN; OSs: Unix, Linux; CPE: cpe:/o:linux:linux_kernel
```

We got the os of target

Os:Linux

Host and Traceroute:

```
Host script results:
|_smb2-time: Protocol negotiation failed (SMB2)
| nbstat: NetBIOS name: METASPLOITABLE, NetBIOS user: <unknown>, NetBIOS MAC: <unknown> (unknown)
| Names:
|   METASPLOITABLE<00>   Flags: <unique><active>
|   METASPLOITABLE<03>   Flags: <unique><active>
|   METASPLOITABLE<20>   Flags: <unique><active>
|   WORKGROUP<00>        Flags: <group><active>
|_  WORKGROUP<1e>        Flags: <group><active>
|_clock-skew: mean: 1h09m51s, deviation: 2h30m02s, median: -5m11s
| smb-security-mode:
|   account_used: <blank>
|   authentication_level: user
|   challenge_response: supported
|_  message_signing: disabled (dangerous, but default)
| smb-os-discovery:
|   OS: Unix (Samba 3.0.20-Debian)
|   Computer name: metasploitable
|   NetBIOS computer name:
|   Domain name: localdomain
|   FQDN: metasploitable.localdomain
|_  System time: 2023-01-05T10:02:50-05:00

TRACEROUTE
HOP RTT      ADDRESS
1   12.94 ms 10.0.2.4
```

We got the host and traceroute

We got the nsb,os name ,domain and domain name and ip address

Masscan: Faster network scanning

Syntax: masscan [target] [option]

Command :masscan <ip> -p 0-65535 -v –rate 10000 -oG masscan_result.txt

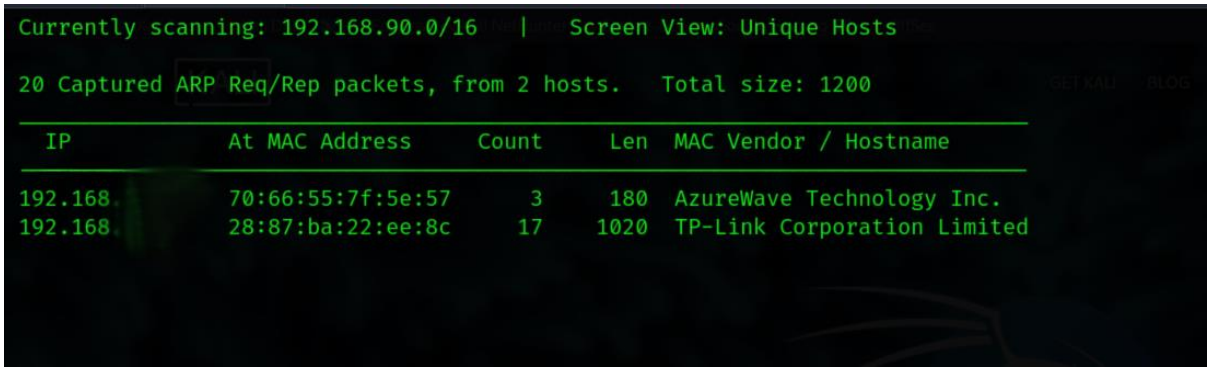
-p<port> , -v<verbose> , --rate<speed> -oG <output format >

```
┌──(root㉿kali)-[/]
└─# masscan 192.168.[redacted] -p 0-65535 -v --rate 10000 -oG masscan_result.txt
[-] pcap: failed to load: libpcap.so
[-] pcap: failed to load: libpcap.A.dylib
[-] pcap: failed to load: libpcap.dylib
[-] pcap: failed to load: libpcap.so.0.9.5
[-] pcap: failed to load: libpcap.so.0.9.4
[+] pcap: found library: libpcap.so.0.8
[+] interface = eth0
[+] if(eth0): pcap: libpcap version 1.10.1 (with TPACKET_V3)
[+] if(eth0): successfully opened
[+] interface-type = 1
if:eth0: type=ethernet(1)
[+] source-mac = 08-00-27-af-24-27
[+] source-ip = 192.168.[redacted]
[+] router-ip = 192.168.[redacted]
[+] arp: 192.168.[redacted] == 28-87-ba-22-ee-8c
[+] router-mac-ipv4 = 28-87-ba-22-ee-8c
Starting masscan 1.3.2 (http://bit.ly/14GZzcT) at 2023-01-06 03:24:56 GMT
Initiating SYN Stealth Scan
Scanning 1 hosts [65536 ports/host]
[+] starting transmit thread #0
[+] starting throttler: rate = 10000.00-pps
[+] starting receive thread #0
[+] waiting for threads to finish
[+] transmit thread #0 complete  0:00:00 remaining, found=11
[+] exiting transmit thread #0                    und=11
[+] exiting receive thread #0                    found=11
[+] all threads have exited
```

```
┌──(root㉿kali)-[/]
└─# cat masscan_result.txt
# Masscan 1.3.2 scan initiated Fri Jan  6 03:24:56 2023
# Ports scanned: TCP(65536;0-65535) UDP(0;) SCTP(0;) PROTOCOLS(0;)
Timestamp: 1672975497   Host: 192.168.[redacted] ()  Ports: 1043/open/tcp//unknown//
Timestamp: 1672975497   Host: 192.168.[redacted] ()  Ports: 445/open/tcp//microsoft-ds//
Timestamp: 1672975505   Host: 192.168.[redacted] ()  Ports: 60859/open/tcp//unknown//
Timestamp: 1672975512   Host: 192.168.[redacted] ()  Ports: 60860/open/tcp//unknown//
Timestamp: 1672975517   Host: 192.168.[redacted] ()  Ports: 49668/open/tcp//unknown//
Timestamp: 1672975521   Host: 192.168.[redacted] ()  Ports: 7680/open/tcp//unknown//
Timestamp: 1672975523   Host: 192.168.[redacted] ()  Ports: 9013/open/tcp//unknown//
Timestamp: 1672975523   Host: 192.168.[redacted] ()  Ports: 1042/open/tcp//unknown//
Timestamp: 1672975524   Host: 192.168.[redacted] ()  Ports: 9012/open/tcp//unknown//
Timestamp: 1672975526   Host: 192.168.[redacted] ()  Ports: 139/open/tcp//netbios-ssn//
Timestamp: 1672975533   Host: 192.168.[redacted] ()  Ports: 135/open/tcp//epmap//
# Masscan done at Fri Jan  6 03:25:50 2023
```

Netdiscover : Scan the whole network

Command :netdiscover



- **launch a website on the personal system using the Apache2 server**

In this we are going with the default apache server which is pre-installed in kali linux

Apache server

Starting apache server

Command :service apache2 start

```
┌──(root㉿kali)-[/]
└─# service apache2 start
```

Cheking Status:

Command:service apache2 status

```
┌──(root㉿kali)-[/]
└─# service apache2 status
● apache2.service - The Apache HTTP Server
     Loaded: loaded (/lib/systemd/system/apache2.service; disabled; vendor preset: disabled)
     Active: active (running) since Thu 2023-01-05 21:17:47 IST; 43s ago
       Docs: https://httpd.apache.org/docs/2.4/
    Process: 2888 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SUCCESS)
   Main PID: 2911 (apache2)
      Tasks: 7 (limit: 4611)
     Memory: 20.4M
        CPU: 3.040s
     CGroup: /system.slice/apache2.service
             ├─2911 /usr/sbin/apache2 -k start
             ├─2916 /usr/sbin/apache2 -k start
             ├─2917 /usr/sbin/apache2 -k start
             ├─2918 /usr/sbin/apache2 -k start
             ├─2919 /usr/sbin/apache2 -k start
             ├─2920 /usr/sbin/apache2 -k start
             └─2921 /usr/sbin/apache2 -k start

Jan 05 21:17:39 kali systemd[1]: Starting The Apache HTTP Server...
Jan 05 21:17:47 kali apachectl[2898]: AH00558: apache2: Could not reliably determine the server's fully qualified domain name, using 127.0.1.1. Set the 'Serv>
Jan 05 21:17:47 kali systemd[1]: Started The Apache HTTP Server.
lines 1-21/21 (END)
```

We also have to start mysql server

Command :service mysql start

```
┌──(root㉿kali)-[/]
└─# service mysql start
```

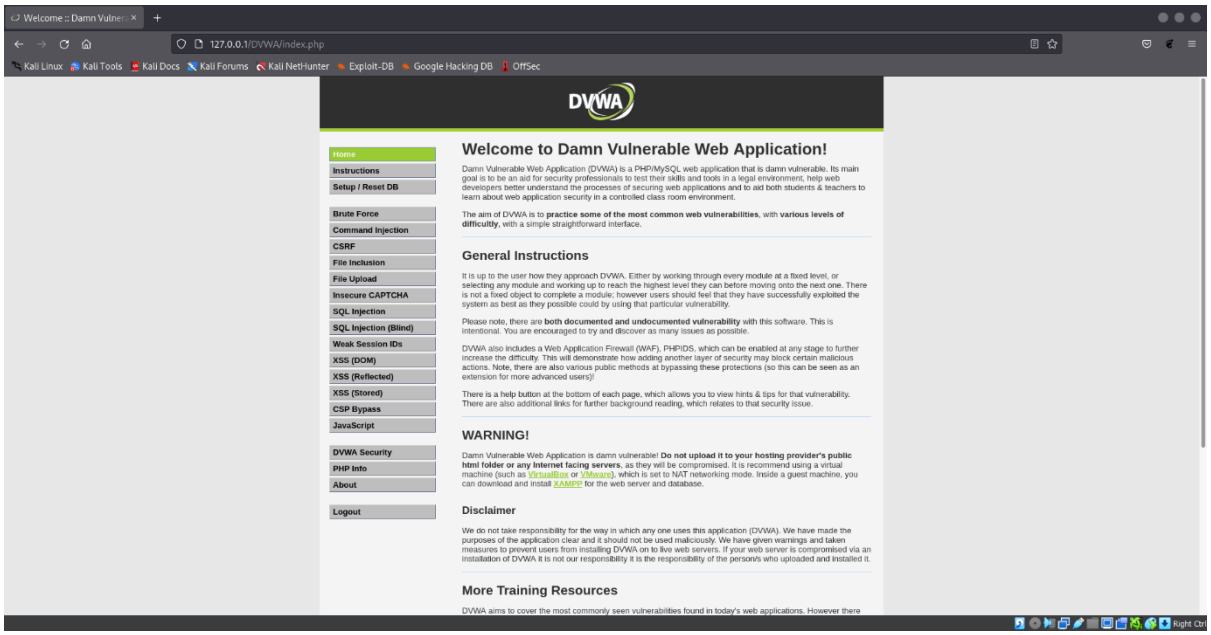
Cheking status

Command :service mysql status

```
┌──(root㉿kali)-[/]
└─# service mysql status
● mariadb.service - MariaDB 10.6.7 database server
     Loaded: loaded (/lib/systemd/system/mariadb.service; disabled; vendor preset: disabled)
     Active: active (running) since Thu 2023-01-05 21:22:24 IST; 2min 35s ago
       Docs: man:mariadbd(8)
             https://mariadb.com/kb/en/library/systemd/
    Process: 3033 ExecStartPre=/usr/bin/install -m 755 -o mysql -g root -d /var/run/mysqld (code=exited, status=0/SUCCESS)
    Process: 3034 ExecStartPre=/bin/sh -c systemctl unset-environment _WSREP_START_POSITION (code=exited, status=0/SUCCESS)
    Process: 3036 ExecStartPre=/bin/sh -c [ ! -e /usr/bin/galera_recovery ] && VAR= ||   VAR=`cd /usr/bin/..; /usr/bin/galera_recovery`; [ $? -eq 0 ]   && sy>
    Process: 3078 ExecStartPost=/bin/sh -c systemctl unset-environment _WSREP_START_POSITION (code=exited, status=0/SUCCESS)
    Process: 3080 ExecStartPost=/etc/mysql/debian-start (code=exited, status=0/SUCCESS)
   Main PID: 3066 (mariadbd)
     Status: "Taking your SQL requests now..."
      Tasks: 11 (limit: 4611)
     Memory: 92.8M
        CPU: 12.566s
     CGroup: /system.slice/mariadb.service
             └─3066 /usr/sbin/mariadbd

Jan 05 21:22:24 kali mariadbd[3066]: Version: '10.6.7-MariaDB-3'  socket: '/run/mysqld/mysqld.sock'  port: 3306  Debian buildd-unstable
Jan 05 21:22:24 kali systemd[1]: Started MariaDB 10.6.7 database server.
Jan 05 21:22:24 kali /etc/mysql/debian-start[3082]: Upgrading MySQL tables if necessary.
Jan 05 21:22:26 kali /etc/mysql/debian-start[3086]: Looking for 'mysql' as: /usr/bin/mysql
Jan 05 21:22:26 kali /etc/mysql/debian-start[3086]: Looking for 'mysqlcheck' as: /usr/bin/mysqlcheck
Jan 05 21:22:26 kali /etc/mysql/debian-start[3086]: This installation of MariaDB is already upgraded to 10.6.7-MariaDB.
Jan 05 21:22:26 kali /etc/mysql/debian-start[3086]: There is no need to run mysql_upgrade again for 10.6.7-MariaDB.
Jan 05 21:22:26 kali /etc/mysql/debian-start[3086]: You can use --force if you still want to run mysql_upgrade
Jan 05 21:22:27 kali /etc/mysql/debian-start[3094]: Checking for insecure root accounts.
Jan 05 21:22:28 kali /etc/mysql/debian-start[3098]: Triggering myisam-recover for all MyISAM tables and aria-recover for all Aria tables
lines 1-28/28 (END)
```

We have configure our web on localhost. For access web we have to type [127.0.0.1/DVWA/] in web browser url.



- **get the output of the network scanning and device discovery tools into the specified format.**

We can get the different types of options for saving the results in different format

-o=saving output

Command :nmap -sC -sV -A -o , nmap -sC -sV -A -oA

```
┌─[root@warmachine]─[/]
└──╼ #nmap -sC -sV  -v 10.0.2.4 -o /nmap_results
Warning: The -o option is deprecated. Please use -oN
Starting Nmap 7.92 ( https://nmap.org ) at 2023-01-05 20:57 IST
NSE: Loaded 155 scripts for scanning.
NSE: Script Pre-scanning.
```

Result file :nmap_results

```
┌─[root@warmachine]─[/]
└──╼ #ls
bin   dev  home        initrd.img.old  lib32  libx32  mnt          opt   root  sbin  sys  usr  vmlinuz
boot  etc  initrd.img  lib             lib64  media   nmap_results  proc  run   srv   tmp  var  vmlinuz.old
```

```
nmap_results
# Nmap 7.92 scan initiated Thu Jan  5 20:57:13 2023 as: nmap -sC -sV -v -o /nmap_results 10.0.2.4
Nmap scan report for 10.0.2.4
Host is up (0.020s latency).
Not shown: 977 closed tcp ports (reset)
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 10.0.2.15
|      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 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, ENHANCEDSTATUSCODES, 8BITMIME, DSN
| sslv2:
|   SSLv2 supported
|   ciphers:
|     SSL2_RC2_128_CBC_EXPORT40_WITH_MD5
|     SSL2_DES_64_CBC_WITH_MD5
|     SSL2_RC4_128_WITH_MD5
|     SSL2_DES_192_EDE3_CBC_WITH_MD5
|     SSL2_RC4_128_EXPORT40_WITH_MD5
|_    SSL2_RC2_128_CBC_WITH_MD5
| ssl-date: 2023-01-05T15:11:03+00:00; -16m38s from scanner time.
```

This create the files in different files simple,xml,gnmap

```
┌─[root@warmachine]─[/]
└──╼ #nmap -sC -sV  -v 10.0.2.4 -oA /nmap_results_2
Starting Nmap 7.92 ( https://nmap.org ) at 2023-01-05 20:59 IST
NSE: Loaded 155 scripts for scanning.
NSE: Script Pre-scanning.
Initiating NSE at 20:59
Completed NSE at 20:59, 0.00s elapsed
```

```
┌─[root@warmachine]─[/]
└──╼ #ls
bin   etc         initrd.img.old  lib64   mnt                  nmap_results_2.nmap  nmap_results.nmap  proc  sbin  tmp  vmlinuz
boot  home        lib             libx32  nmap_results         nmap_results_2.xml   nmap_results.xml   root  srv   usr  vmlinuz.old
dev   initrd.img  lib32           media   nmap_results_2.gnmap nmap_results.gnmap   opt                run   sys   var
┌─[root@warmachine]─[/]
└──╼ #
```

Simple file

```
nmap_results_2.nmap ×
# Nmap 7.92 scan initiated Thu Jan  5 20:59:19 2023 as: nmap -sC -sV -v -oA /nmap_results_2 10.0.2.4
Nmap scan report for 10.0.2.4
Host is up (0.010s latency).
Not shown: 977 closed tcp ports (reset)
PORT     STATE SERVICE     VERSION
21/tcp   open  ftp         vsftpd 2.3.4
| ftp-syst:
|   STAT:
| FTP server status:
|      Connected to 10.0.2.15
|      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
|_ftp-anon: Anonymous FTP login allowed (FTP code 230)
22/tcp   open  ssh         OpenSSH 4.7p1 Debian 8ubuntu1 (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
|_ssl-date: 2023-01-05T15:11:55+00:00; -17m52s from scanner time.
| sslv2:
|   SSLv2 supported
|   ciphers:
|     SSL2_RC4_128_WITH_MD5
|     SSL2_RC2_128_CBC_EXPORT40_WITH_MD5
|     SSL2_RC4_128_EXPORT40_WITH_MD5
|     SSL2_RC2_128_CBC_WITH_MD5
|     SSL2_DES_192_EDE3_CBC_WITH_MD5
|_    SSL2_DES_64_CBC_WITH_MD5
| smtp-commands: metasploitable.localdomain, PIPELINING, SIZE 10240000, VRFY, ETRN, STARTTLS, ENHANCEDSTATUSCODES, 8BITMIME, DSN
```

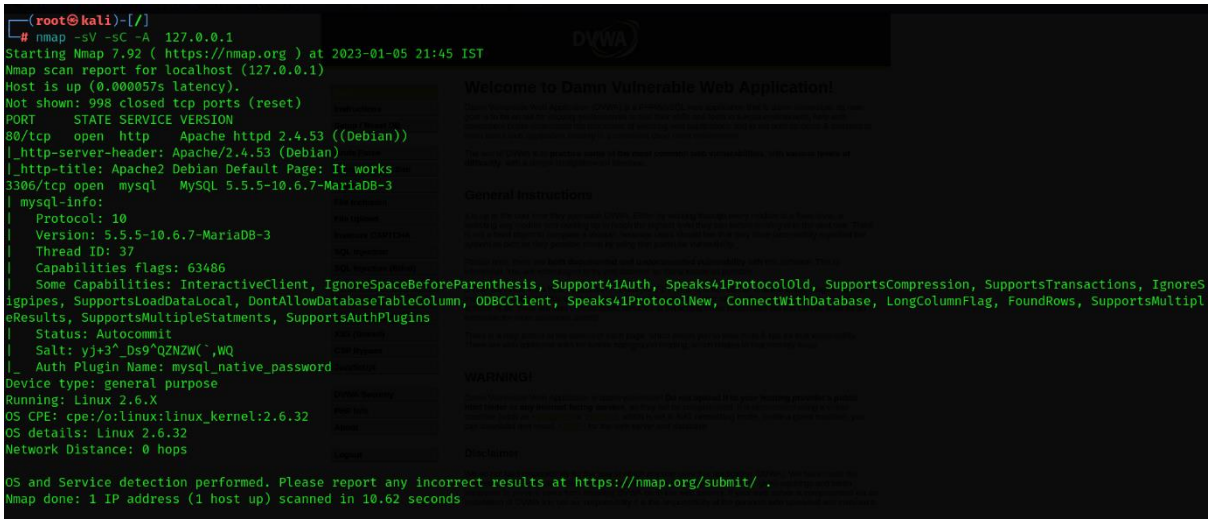
Xml file


```xml
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE nmaprun>
<?xml-stylesheet href="file:///usr/bin/../share/nmap/nmap.xsl" type="text/xsl"?>
<!-- Nmap 7.92 scan initiated Thu Jan  5 20:59:19 2023 as: nmap -sC -sV -v -oA /nmap_results_2 10.0.2.4 -->
<nmaprun scanner="nmap" args="nmap -sC -sV -v -oA /nmap_results_2 10.0.2.4" start="1672932559" startstr="Thu Jan  5 20:59:19 2023" version="7.92" xmloutputversion="1.05">
<scaninfo type="syn" protocol="tcp" numservices="1000"
 services="1,3-4,6-7,9,13,17,19-26,30,32-33,37,42-43,49,53,70,79-85,88-90,99-100,106,109-111,113,119,125,135,139,143-144,146,161,163,179,199,211-212,222,254-256,259,264,280,301,306,311,34
 >
<verbose level="1"/>
<debugging level="0"/>
<taskbegin task="NSE" time="1672932560"/>
<taskend task="NSE" time="1672932560"/>
<taskbegin task="NSE" time="1672932560"/>
<taskend task="NSE" time="1672932560"/>
<taskbegin task="NSE" time="1672932560"/>
<taskend task="NSE" time="1672932560"/>
<taskbegin task="ARP Ping Scan" time="1672932560"/>
<hosthint><status state="up" reason="arp-response" reason_ttl="0"/>
<address addr="10.0.2.4" addrtype="ipv4"/>
<address addr="08:00:27:6C:25:8E" addrtype="mac" vendor="Oracle VirtualBox virtual NIC"/>
<hostnames>
</hostnames>
</hosthint>
<taskend task="ARP Ping Scan" time="1672932560" extrainfo="1 total hosts"/>
<taskbegin task="Parallel DNS resolution of 1 host." time="1672932560"/>
<taskend task="Parallel DNS resolution of 1 host." time="1672932560"/>
<taskbegin task="SYN Stealth Scan" time="1672932560"/>
<taskend task="SYN Stealth Scan" time="1672932562" extrainfo="1000 total ports"/>
<taskbegin task="Service scan" time="1672932562"/>
<taskend task="Service scan" time="1672932574" extrainfo="23 services on 1 host"/>
<taskbegin task="NSE" time="1672932574"/>
<taskend task="NSE" time="1672932587"/>
<taskbegin task="NSE" time="1672932587"/>
<taskend task="NSE" time="1672932589"/>
<taskbegin task="NSE" time="1672932589"/>
```


Gnmap file

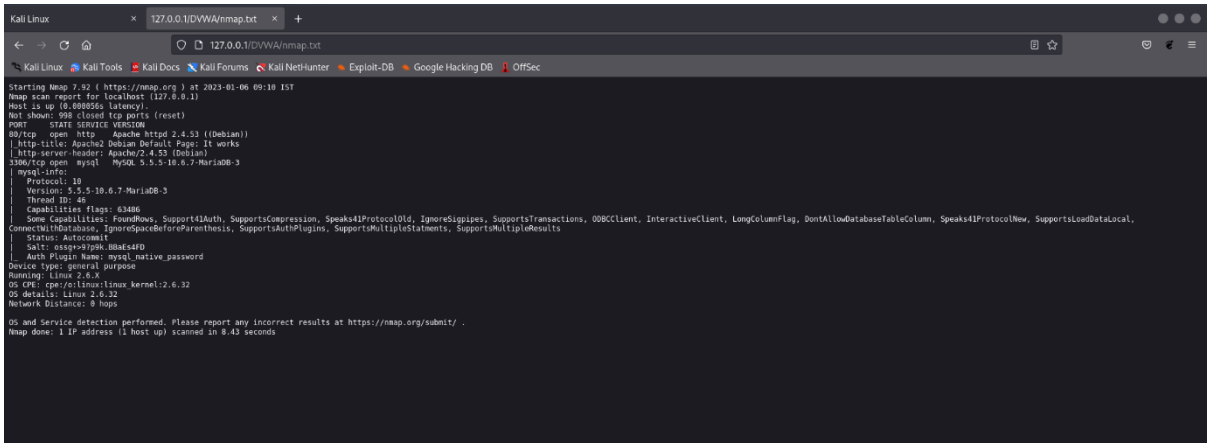

```
nmap_results_2.gnmap
# Nmap 7.92 scan initiated Thu Jan  5 20:59:19 2023 as: nmap -sC -sV -v -oA /nmap_results_2 10.0.2.4
# Ports scanned:
 TCP(1000;1,3-4,6-7,9,13,17,19-26,30,32-33,37,42-43,49,53,70,79-85,88-90,99-100,106,109-111,113,119,125,135,139,143-144,146,161,163,179,199,211-212,222,254-256,259,264,280,301,306,311,340,36
 UDP(0;) SCTP(0;) PROTOCOLS(0;)
Host: 10.0.2.4 ()   Status: Up
Host: 10.0.2.4 ()   Ports: 21/open/tcp//ftp//vsftpd 2.3.4/, 22/open/tcp//ssh//OpenSSH 4.7p1 Debian 8ubuntu1 (protocol 2.0)/, 23/open/tcp//telnet//Linux telnetd/, 25/open/tcp//smtp//-
 Postfix smtpd/, 53/open/tcp//domain//ISC BIND 9.4.2/, 80/open/tcp//http//Apache httpd 2.2.8 ((Ubuntu) DAV|2)/, 111/open/tcp//rpcbind//2 (RPC #100000)/, 139/open/tcp//netbios-ssn//Samba
 smbd 3.X - 4.X (workgroup: WORKGROUP)/, 445/open/tcp//netbios-ssn//Samba smbd 3.0.20-Debian (workgroup: WORKGROUP)/, 512/open/tcp//exec//netkit-rsh rexecd/, 513/open/tcp//login?///, 514/-
 open/tcp//tcpwrapped///, 1099/open/tcp//java-rmi//GNU Classpath grmiregistry/, 1524/open/tcp//bindshell//Metasploitable root shell/, 2049/open/tcp//nfs//2-4 (RPC #100003)/, 2121/open/tcp//-
 ftp//ProFTPD 1.3.1/, 3306/open/tcp//mysql//MySQL 5.0.51a-3ubuntu5/, 5432/open/tcp//postgresql//PostgreSQL DB 8.3.0 - 8.3.7/, 5900/open/tcp//vnc//VNC (protocol 3.3)/, 6000/open/tcp//X11//-
 (access denied)/, 6667/open/tcp//irc//UnrealIRCd/, 8009/open/tcp//ajp13//Apache Jserv (Protocol v1.3)/, 8180/open/tcp//http//Apache Tomcat|Coyote JSP engine 1.1/   Ignored State: closed
 (977)
# Nmap done at Thu Jan  5 20:59:49 2023 -- 1 IP address (1 host up) scanned in 29.75 seconds
```

- **The out-of-the-network scanning and device discovery tools on the web page hosted on the Apache2 server**



- **Automate the process of embedding the network scanning and device discovery output result into the active web page.**

Open browser and visit your nmap result file



● **Access the webpage within the network with the result of network scanning and device discovery updated every 10 minutes with the time stamp**

We can achieve automation using crontab in linux

Crontab

Commands: crontab -l

Crontab -e

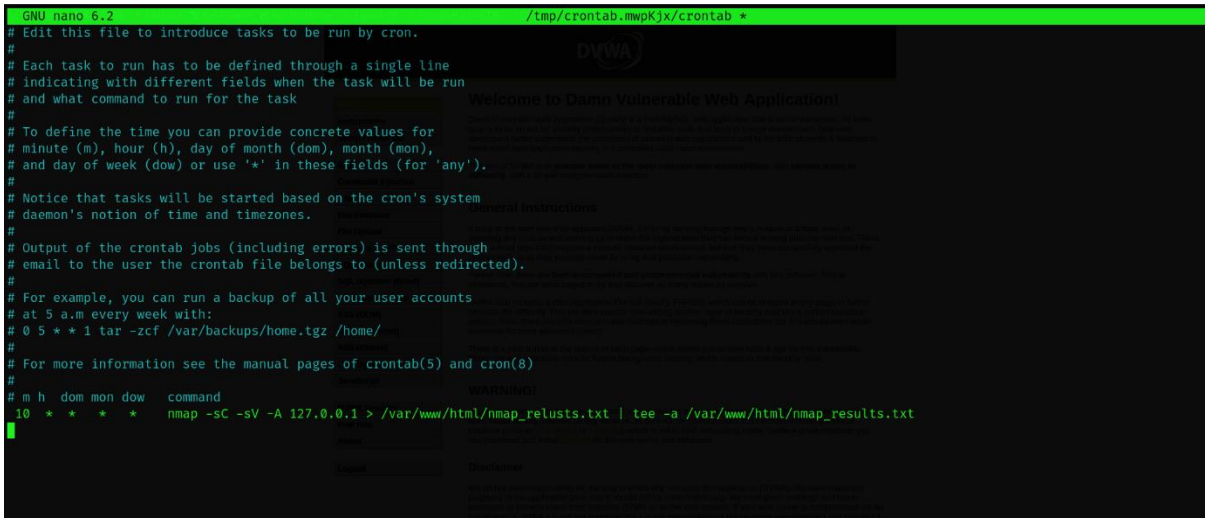
Crontab -e for crating new task

```
┌──(root㉿kali)-[/]
└─# crontab -e
```

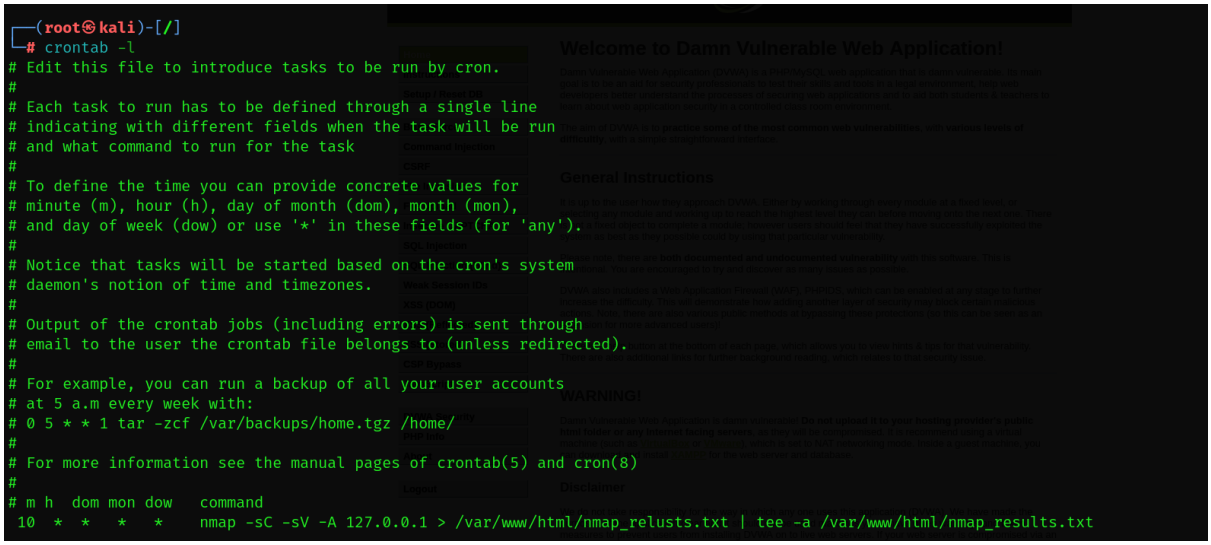
m(minute), h(hour), dom (day of month),mon (month), dow(day of weak)

command:

nmap -sC -sV -A 127.0.0.1 > /var/www/html/nmap_results.txt | tee -a /var/www/html/nmap_results.txt



List of crontab



Crontab installing…

```
┌──(root㉿kali)-[/]
└─# crontab -e
crontab: installing new crontab
```

Output:

```
┌──(root㉿kali)-[/var/www/html]
└─# ls
DVWA  index.html  index.nginx-debian.html  nmap_relusts.txt  nmap_results.txt

┌──(root㉿kali)-[/var/www/html]
└─# cat nmap_relusts.txt
Starting Nmap 7.92 ( https://nmap.org ) at 2023-01-06 09:10 IST
Nmap scan report for localhost (127.0.0.1)
Host is up (0.000056s latency).
Not shown: 998 closed tcp ports (reset)
PORT     STATE SERVICE VERSION
80/tcp   open  http    Apache httpd 2.4.53 ((Debian))
|_http-title: Apache2 Debian Default Page: It works
|_http-server-header: Apache/2.4.53 (Debian)
3306/tcp open  mysql   MySQL 5.5.5-10.6.7-MariaDB-3
| mysql-info:
|   Protocol: 10
|   Version: 5.5.5-10.6.7-MariaDB-3
|   Thread ID: 46
|   Capabilities flags: 63486
|   Some Capabilities: FoundRows, Support41Auth, SupportsCompression, Speaks41ProtocolOld, IgnoreSigpipes, SupportsTransactions, ODBCClient,
adDataLocal, ConnectWithDatabase, IgnoreSpaceBeforeParenthesis, SupportsAuthPlugins, SupportsMultipleStatments, SupportsMultipleResults
|   Status: Autocommit
|   Salt: ossg+>9?p9k.BBaEs4FD
|_  Auth Plugin Name: mysql_native_password
Device type: general purpose
Running: Linux 2.6.X
OS CPE: cpe:/o:linux:linux_kernel:2.6.32
OS details: Linux 2.6.32
Network Distance: 0 hops

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 8.43 seconds
```