

# Lab05 Attack and Defence

Prepared By Professor Sean He



Ubuntu [Running] - Oracle VM VirtualBox



File Machine View Input Devices Help

Ubuntu 12.04 LTS ubuntu12 tty1

ubuntu12 login:



General



System



Display



Storage



Audio



Network



Serial Ports



USB



Shared Folders



User Interface

## Network

Adapter 1

Adapter 2

Adapter 3

Adapter 4

☒ Enable Network Adapter

Attached to: NAT Network

Name: NatNetwork



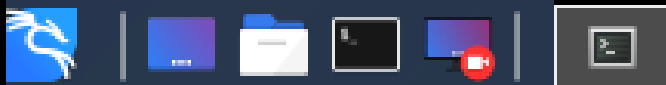
Advanced

Adapter Type: Intel PRO/1000 MT Desktop (82540EM)

Promiscuous Mode: Deny

MAC Address: 0800279E0E21

☒ Cable Connected



sec@kali: ~

11:15 AM



sec@kali: ~

File Actions Edit View Help

```
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 10.0.2.15 netmask 255.255.255.0 broadcast 10.0.2.255
    inet6 fe80::a00:27ff:fe7d:1f85 prefixlen 64 scopeid 0x20<link>
    ether 08:00:27:7d:1f:85 txqueuelen 1000 (Ethernet)
    RX packets 16 bytes 4616 (4.5 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 29 bytes 2697 (2.6 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 12 bytes 556 (556.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 12 bytes 556 (556.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

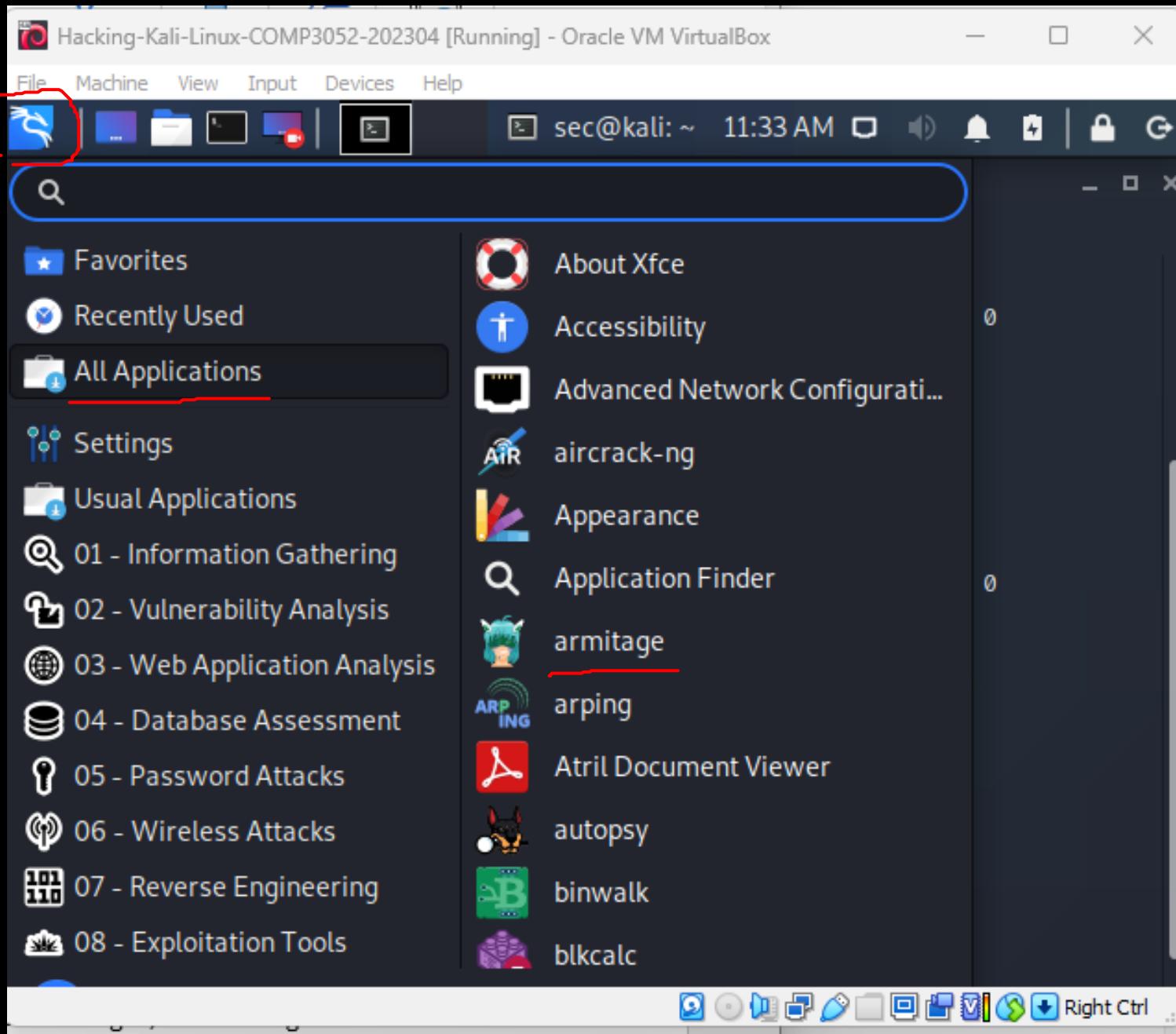
```
Hacking-Kali-Linux-COMP3052-202304 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
sec@kali: ~ 11:30 AM

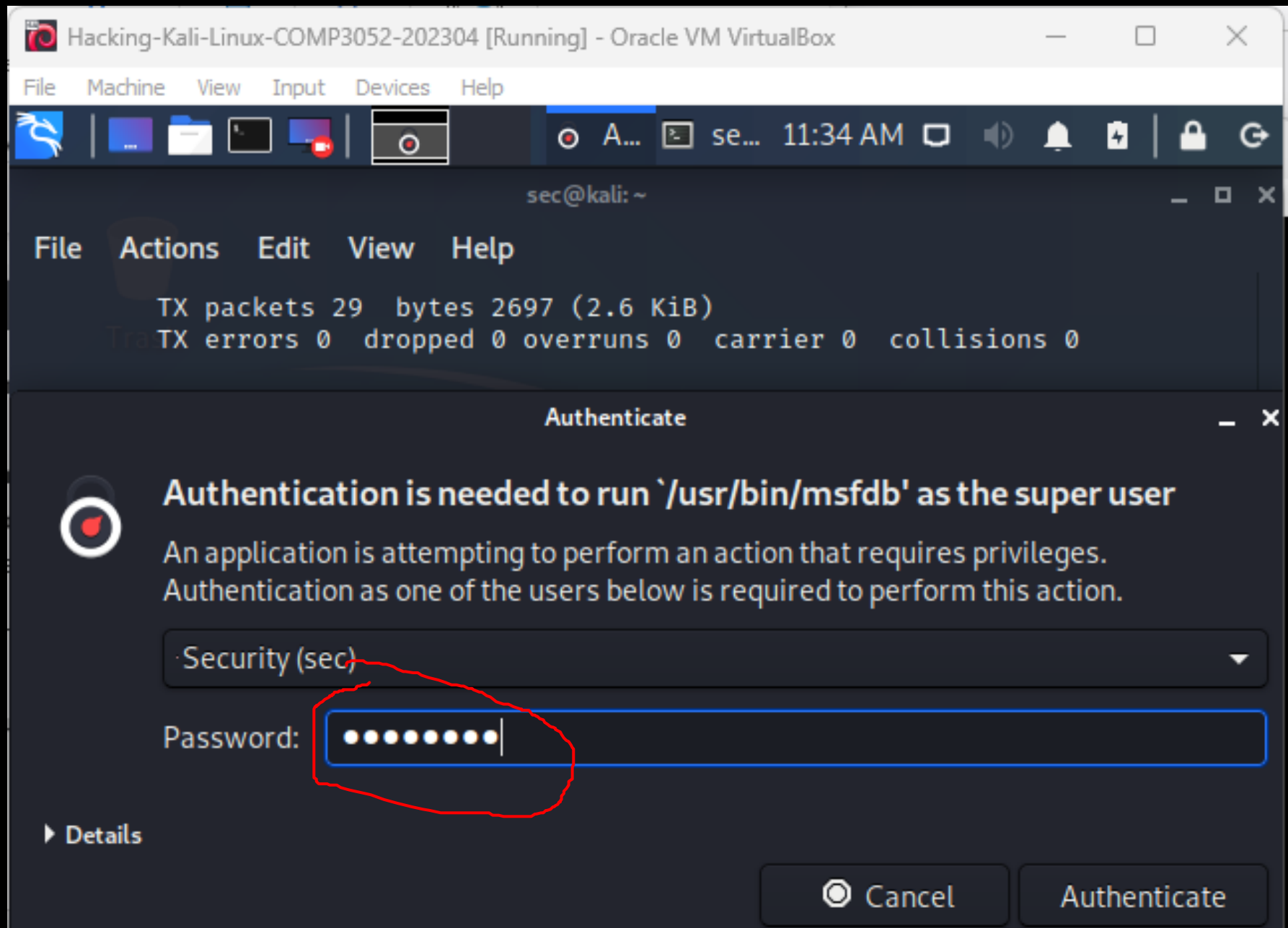
sec@kali: ~
File Actions Edit View Help

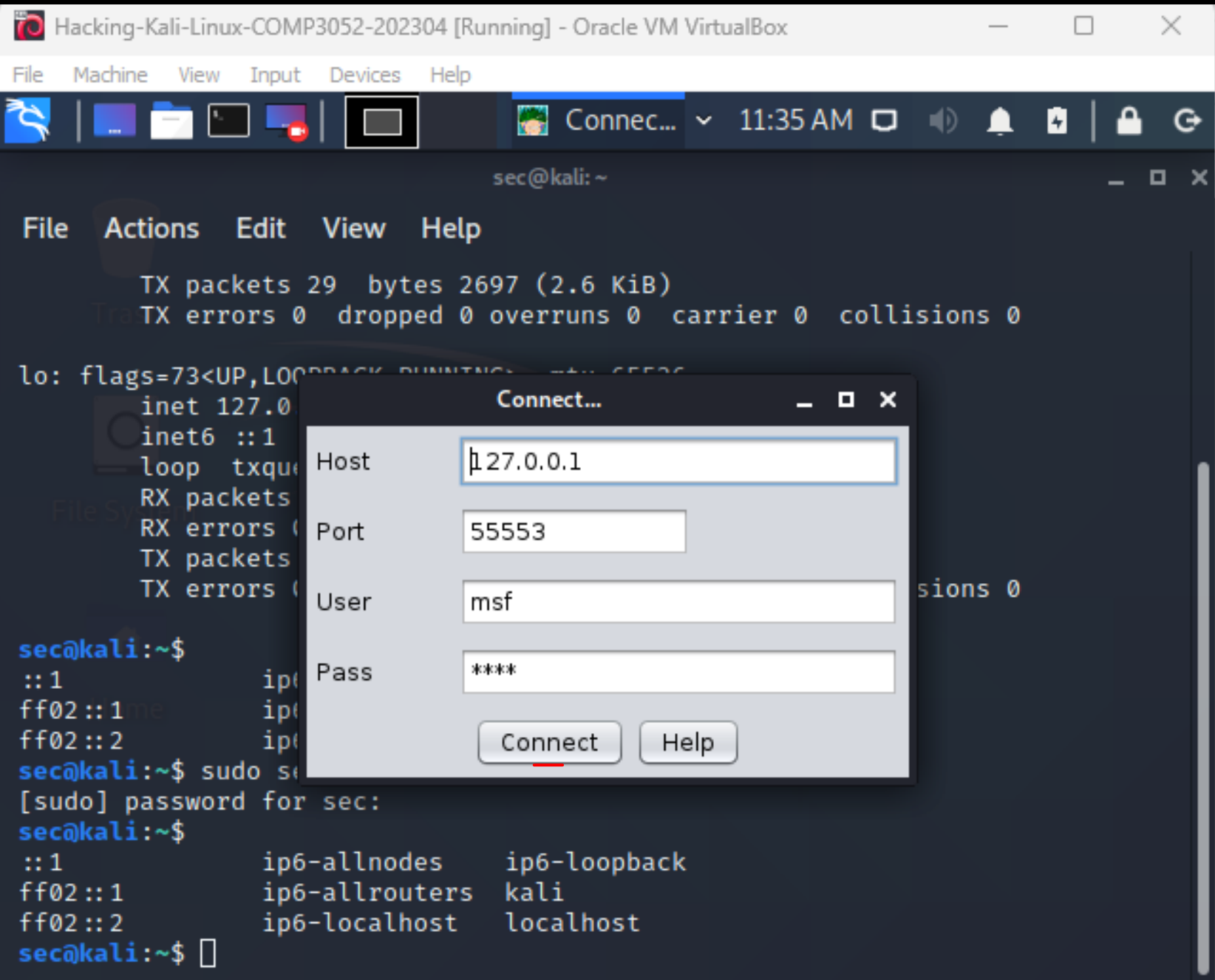
TX packets 29 bytes 2697 (2.6 KiB)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 12 bytes 556 (556.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 12 bytes 556 (556.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

sec@kali:~$
::1          ip6-allnodes    ip6-loopback
ff02::1      ip6-allrouters  kali
ff02::2      ip6-localhost  localhost
sec@kali:~$ sudo service postgresql start
[sudo] password for sec:
sec@kali:~$
::1          ip6-allnodes    ip6-loopback
ff02::1      ip6-allrouters  kali
ff02::2      ip6-localhost  localhost
sec@kali:~$
```









Hacking-Kali-Linux-COMP3052-202304 [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

sec@kali: ~ 11:37 AM

sec@kali: ~

File Actions Edit View Help

TX packets 29 bytes 2697 (2.6 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 ::  
loop tx  
RX packe  
RX error  
TX packe  
TX error

sec@kali:~\$  
:: 1  
ff02::1  
ff02::2

sec@kali:~\$ sudo service postgresql start  
[sudo] password for sec:  
sec@kali:~\$

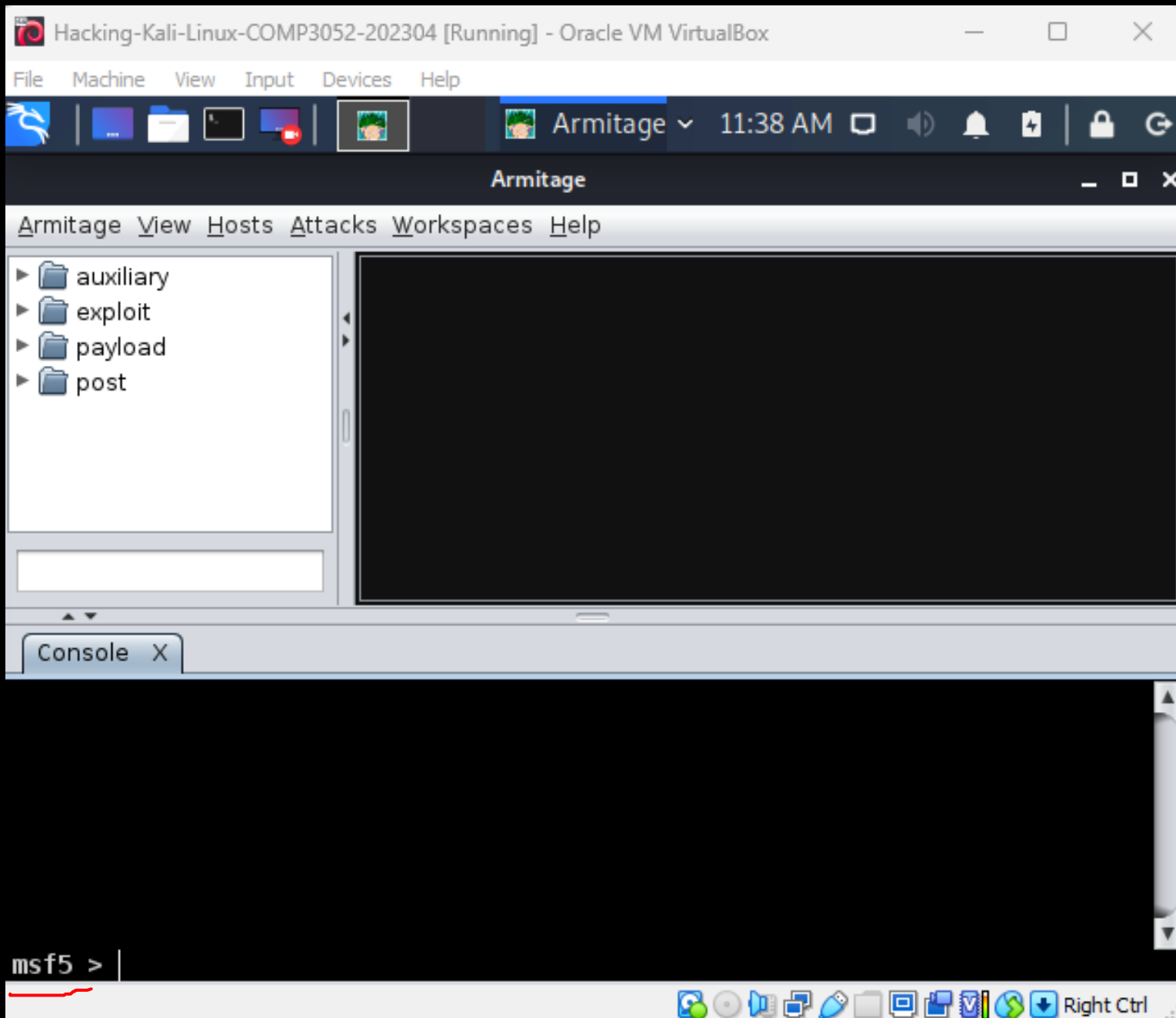
ip6-allnodes ip6-loopback  
ip6-allrouters kali  
ip6-localhost localhost

sec@kali:~\$

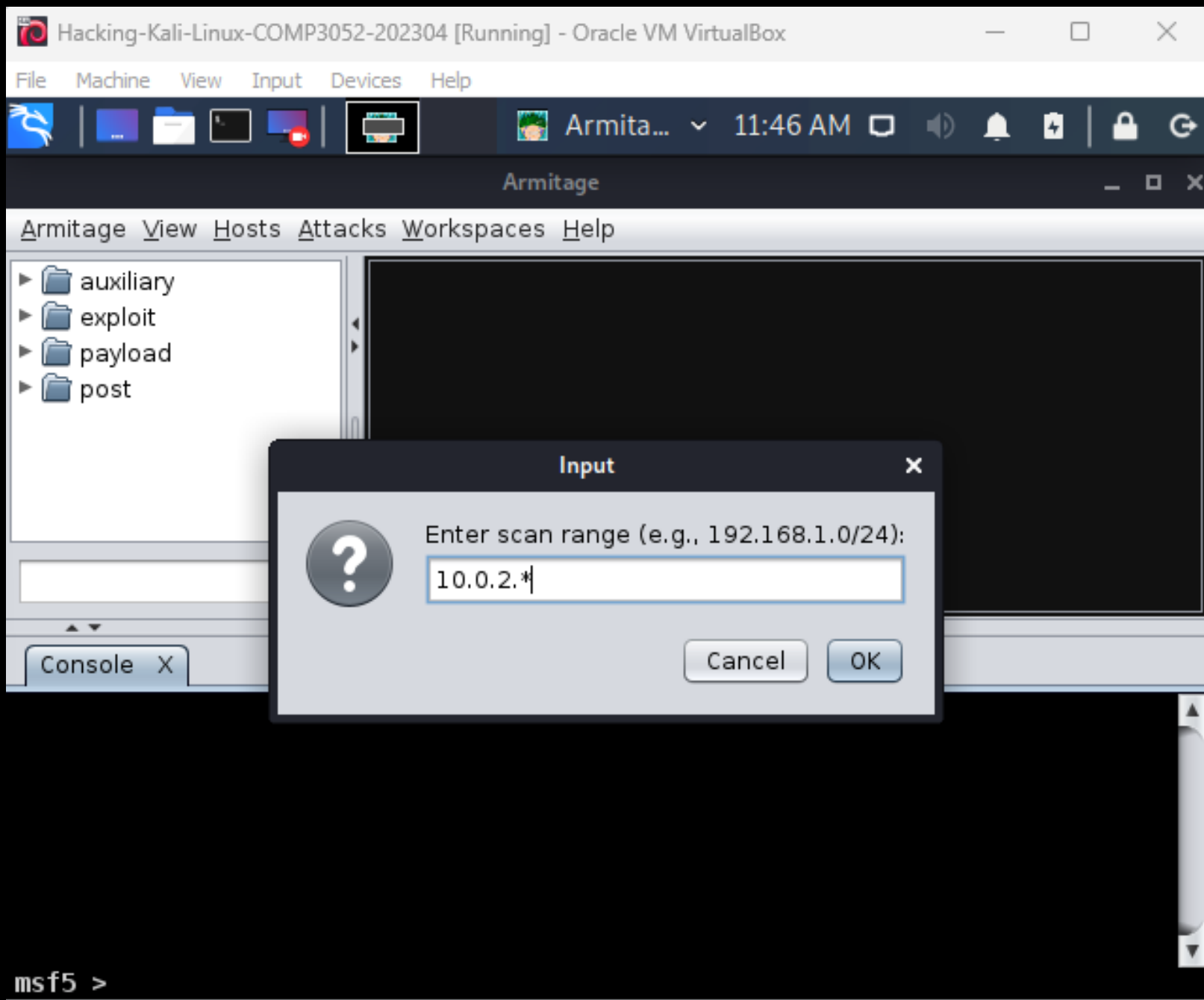
Start Metasploit?

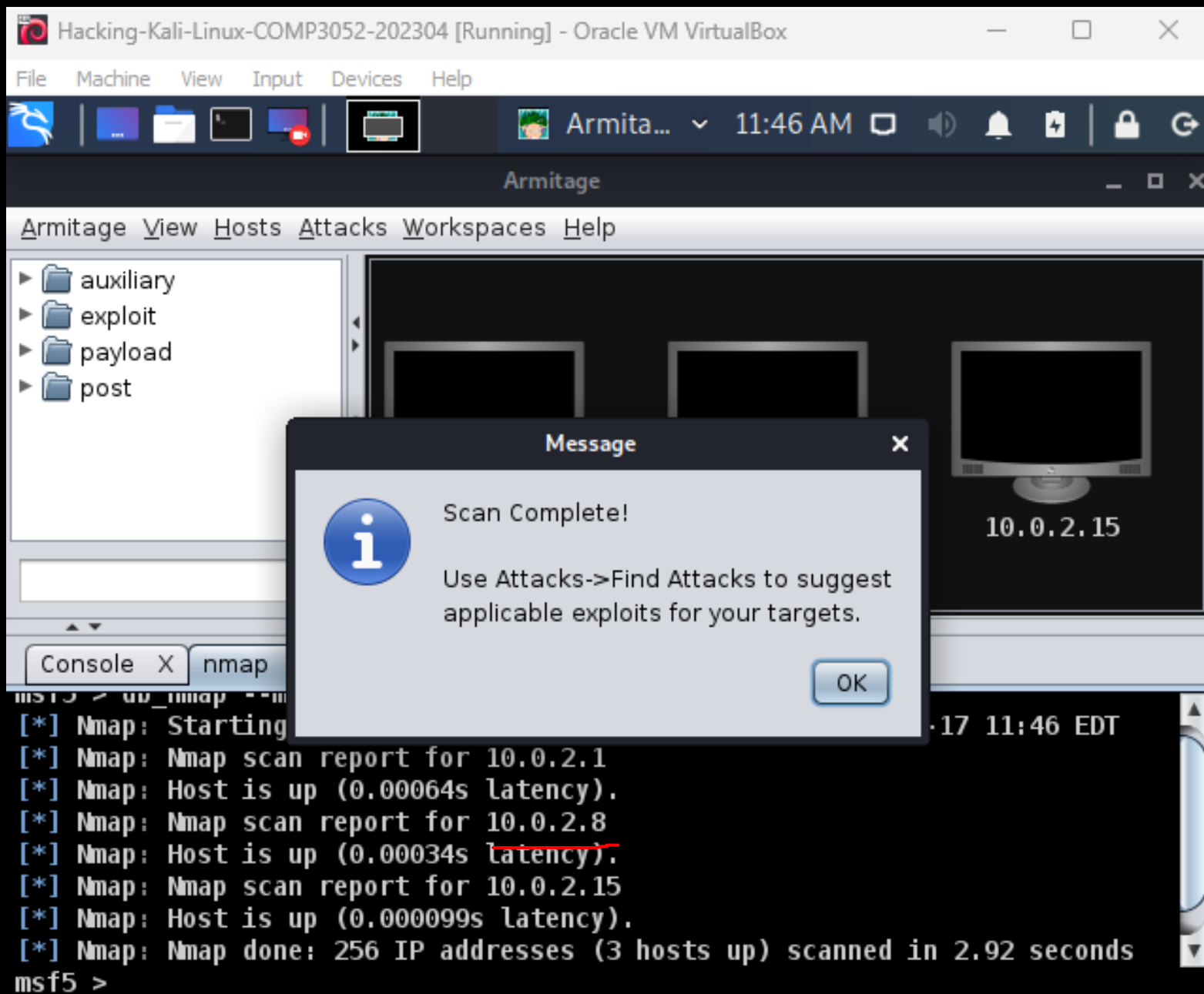
A Metasploit RPC server is not running or not accepting connections yet. Would you like me to start Metasploit's RPC server for you?

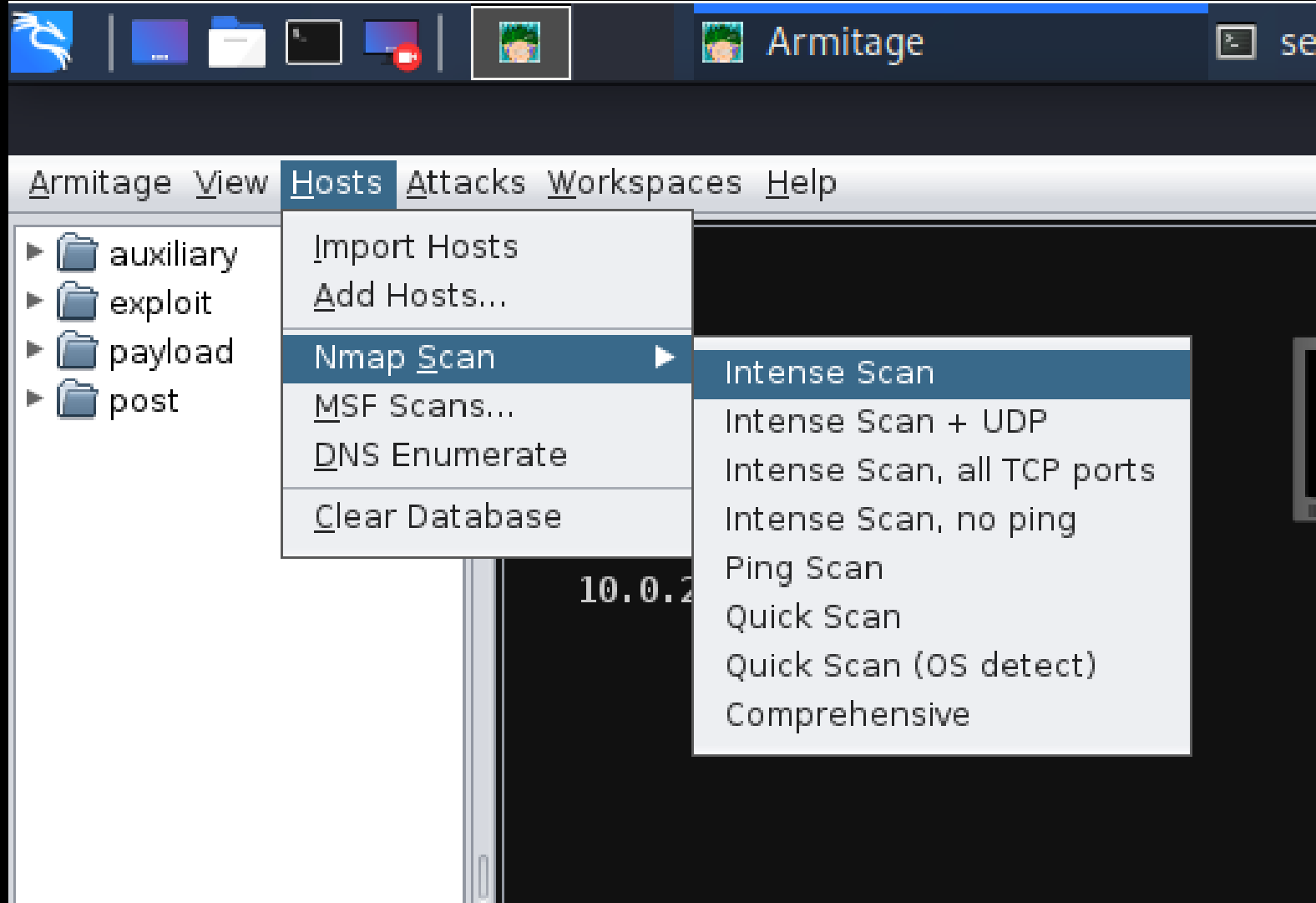
No Yes

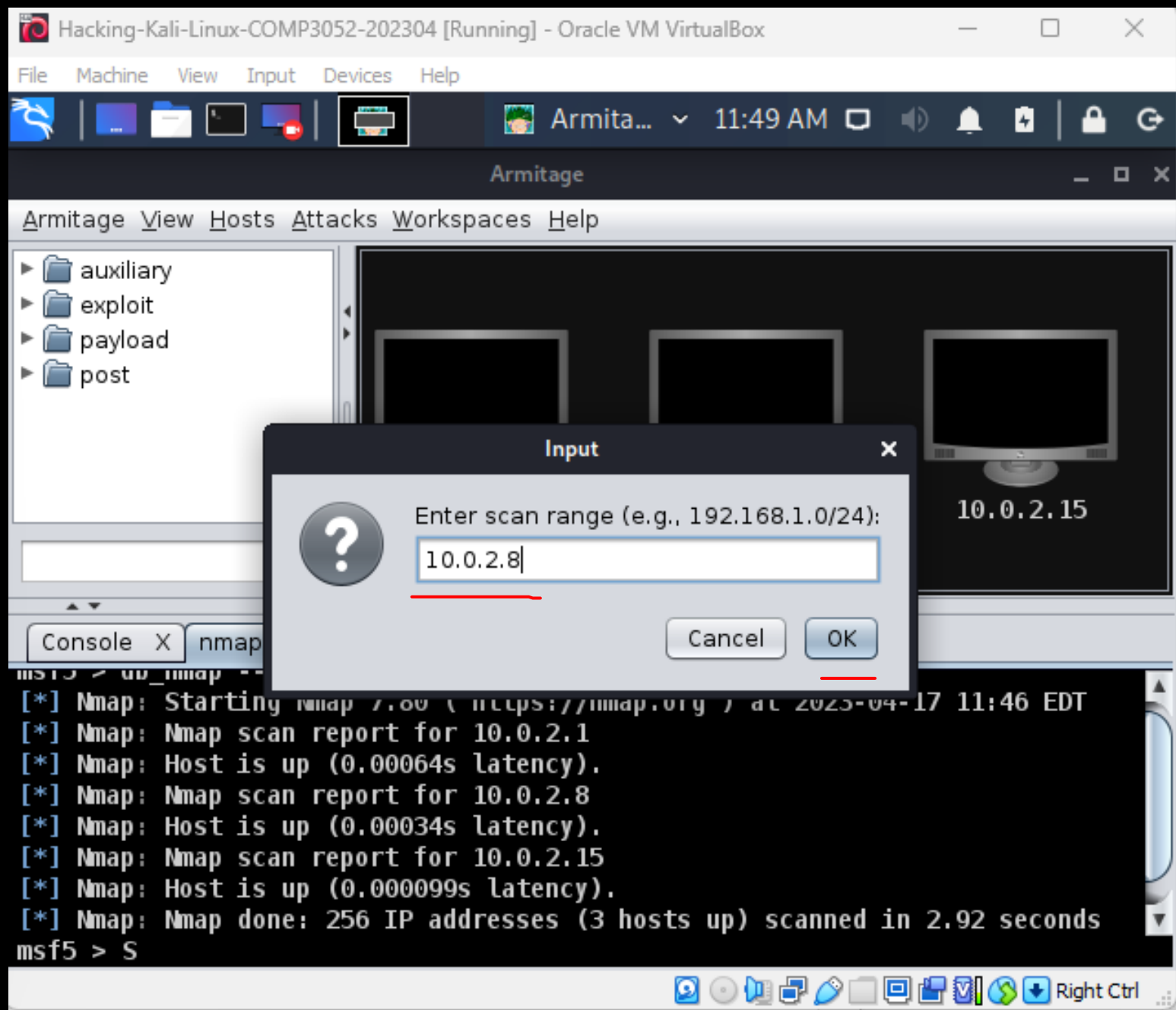


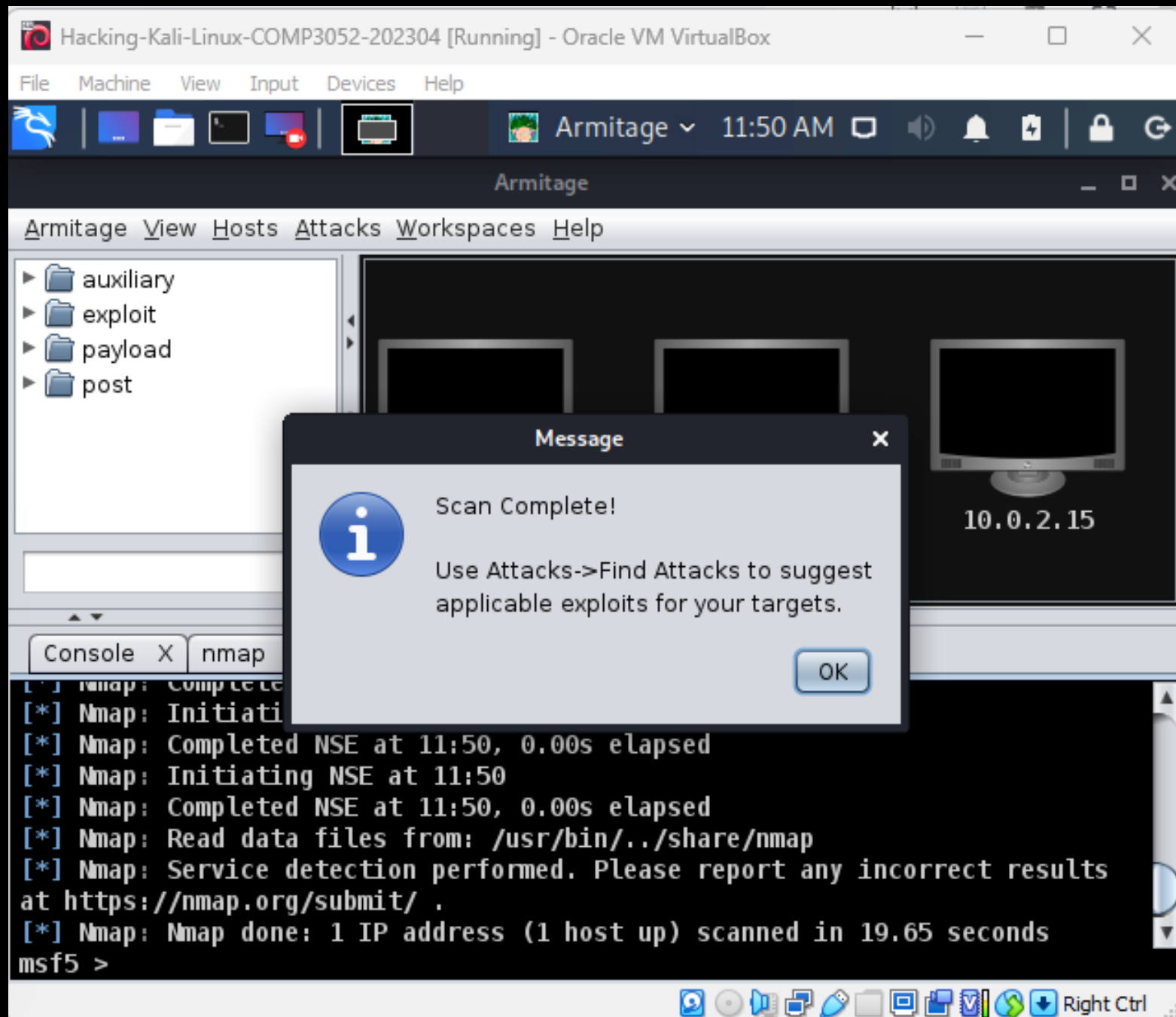
Click Hosts ->  
NMap Scan ->  
Ping Scan

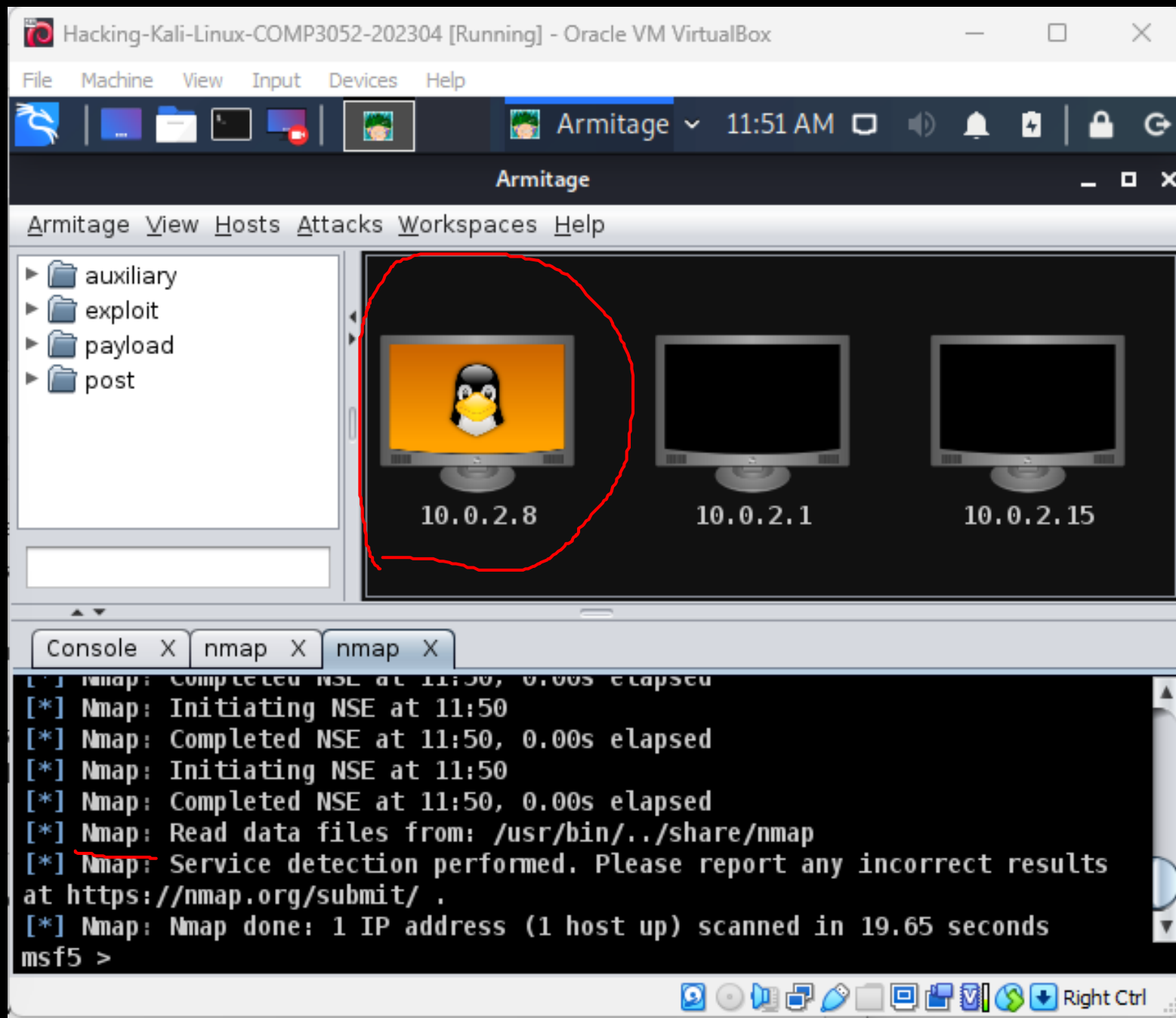




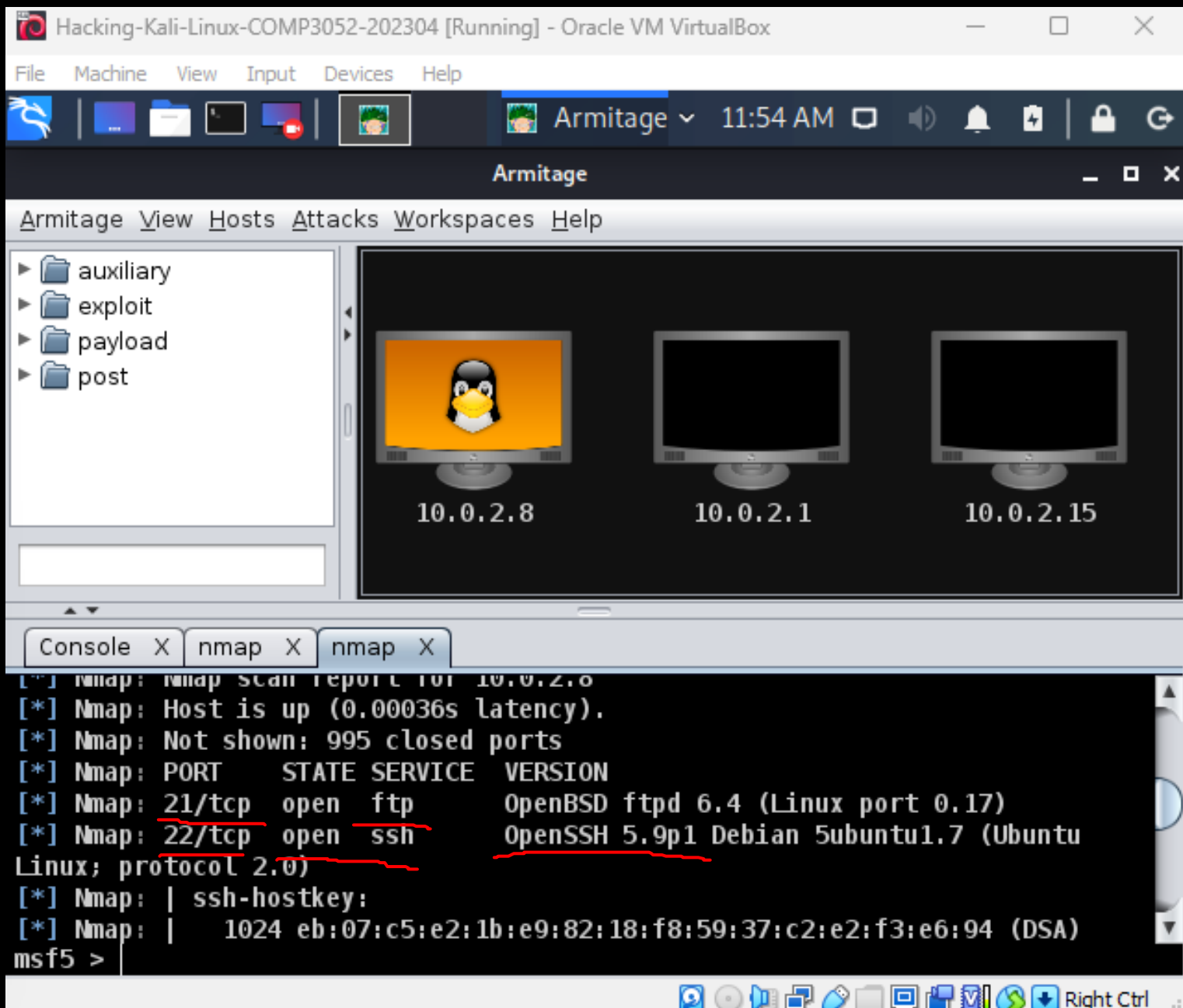












Hacking-Kali-Linux-COMP3052-202304 [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

Armitage 11:56

Armitage View Hosts Attacks Workspaces Help

- auxiliary
- exploit
- payload
- post

**Right click**

10.0.2.8 10.0.2.1 10.0.2.15

Login  
**Services**  
Scan  
Host

Console X nmap X nmap X Services X

host	name	port	proto	info
10.0.2.8	ftp	21	tcp	OpenBSD ftpd 6.4 Linux port 0.17
10.0.2.8	<u>ssh</u>	22	tcp	OpenSSH 5.9p1 Debian Subuntu1.7 Ubunt...
10.0.2.8	telnet	23	tcp	Linux telnetd
10.0.2.8	http	80	tcp	Apache httpd 2.2.22 (Ubuntu)
10.0.2.8	ssl/http	443	tcp	Apache httpd 2.2.22 (Ubuntu)

Refresh Copy

Right Ctrl

Hacking-Kali-Linux-COMP3052-202304 [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

Armita... 12:00 PM

Armitage

Armitage View Hosts Attacks Workspaces Help

auxiliary  
scanner  
ssl  
openssl\_heart

heartbleed

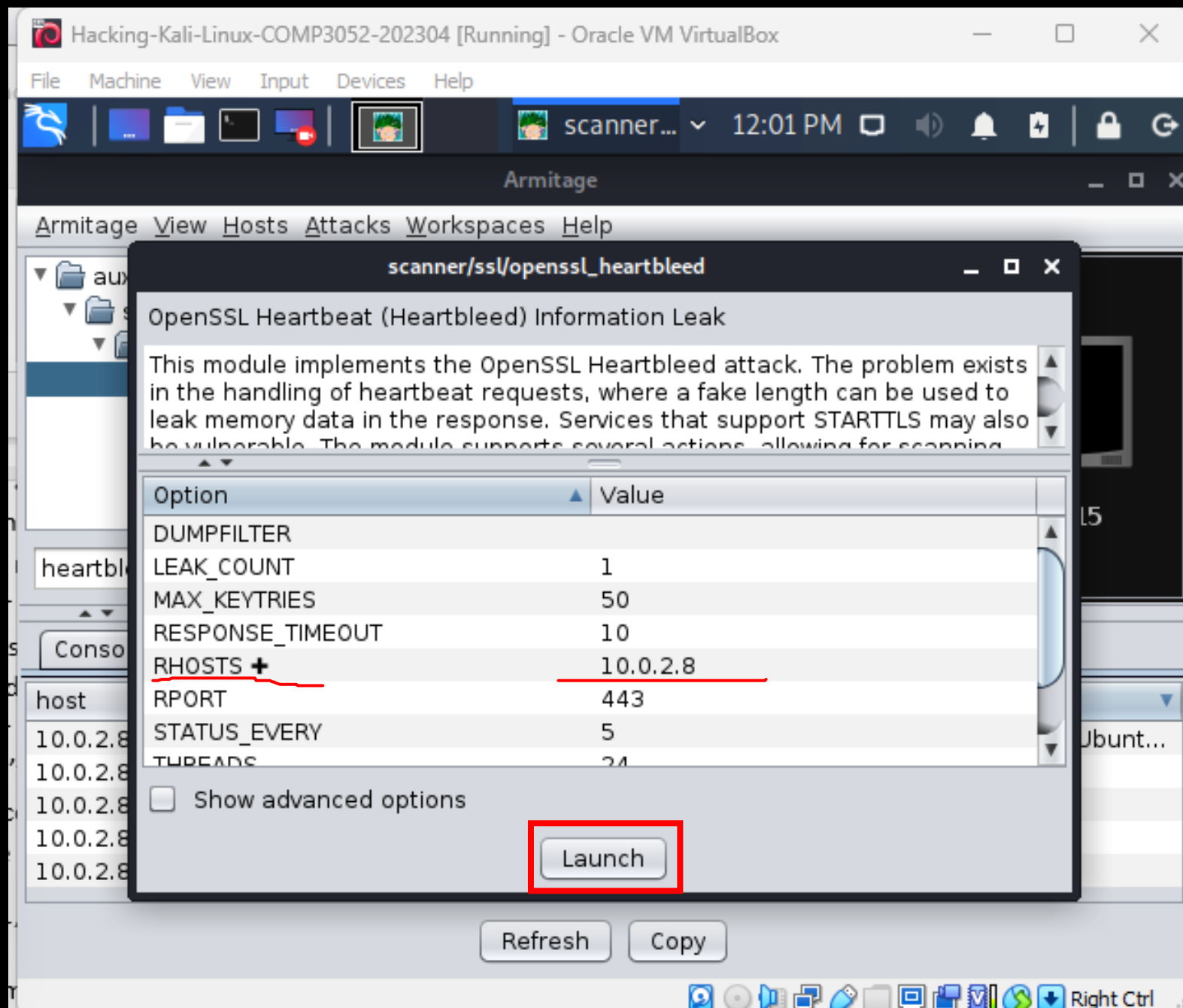
10.0.2.8 10.0.2.1 10.0.2.15

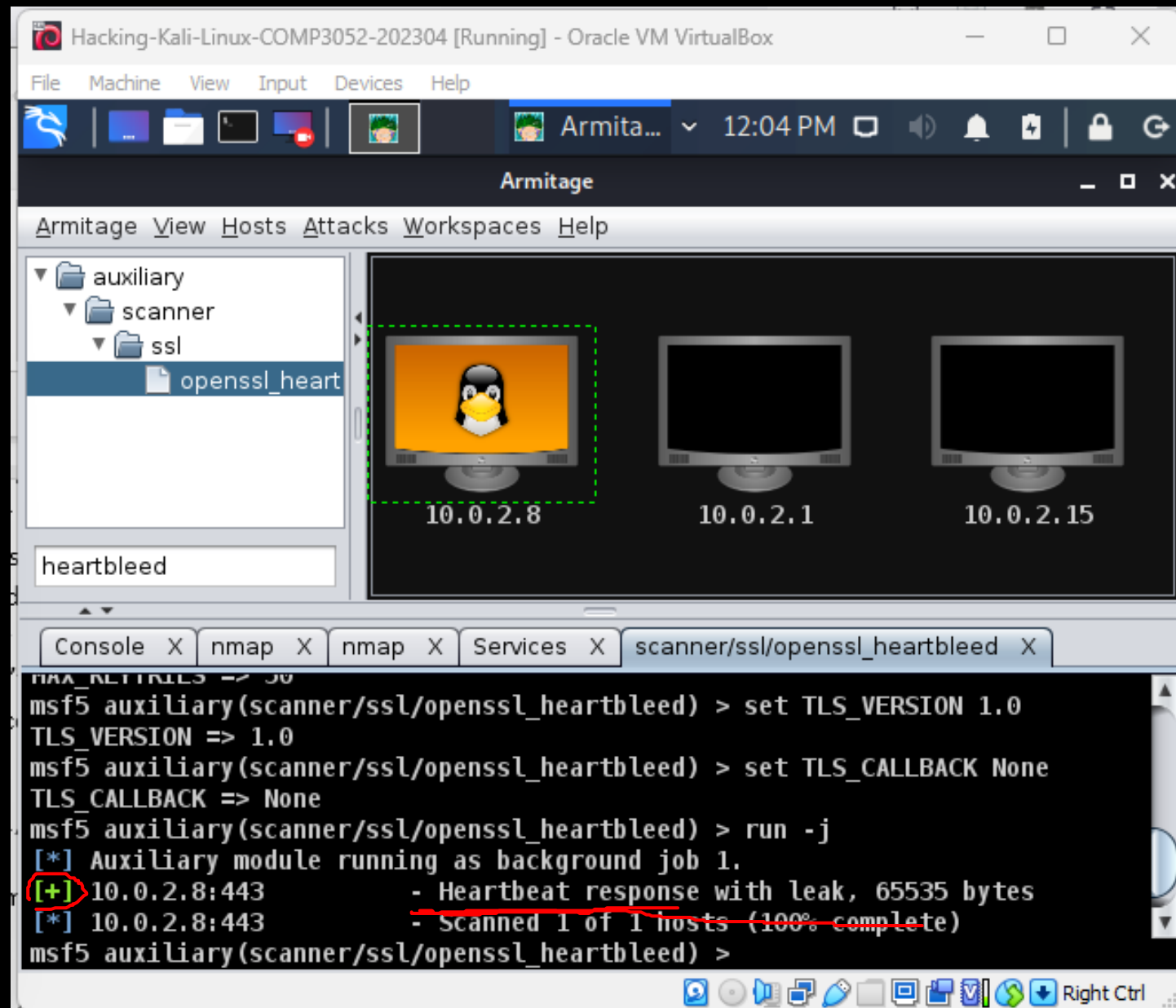
Console X nmap X nmap X Services X

host	name	port	proto	info
10.0.2.8	ssh	22	tcp	OpenSSH 5.9p1 Debian 5ubuntu1.7 Ubuntu...
10.0.2.8	ftp	21	tcp	OpenBSD ftpd 6.4 Linux port 0.17
10.0.2.8	telnet	23	tcp	Linux telnetd
10.0.2.8	http	80	tcp	Apache httpd 2.2.22 (Ubuntu)
10.0.2.8	ssl/http	443	tcp	Apache httpd 2.2.22 (Ubuntu)

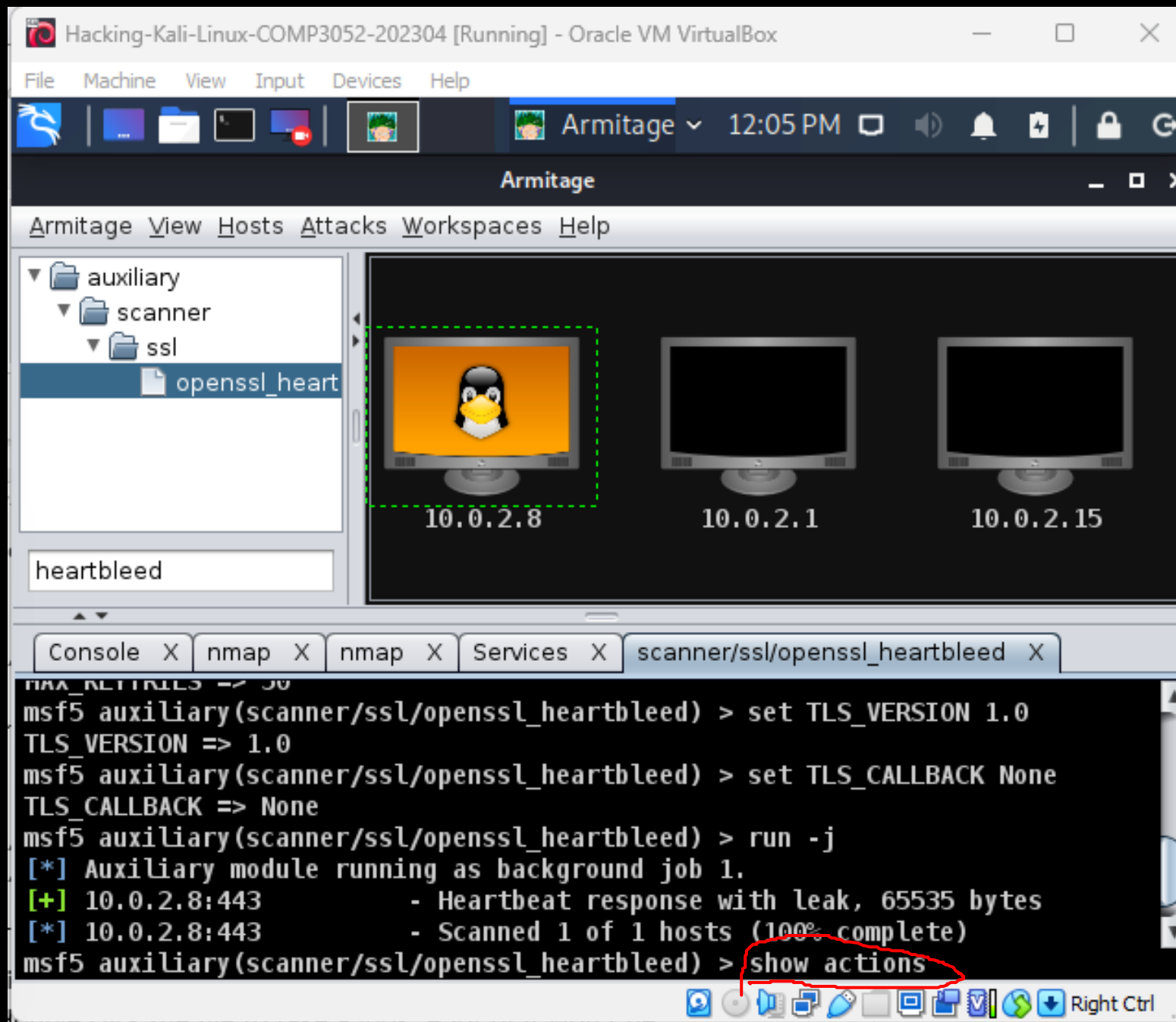
Refresh Copy

Right Ctrl





About Heartbleed, please refer to <https://heartbleed.com/>



Hacking-Kali-Linux-COMP3052-202304 [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

Armita... 12:06 PM

Armitage

Armitage View Hosts Attacks Workspaces Help

auxiliary  
scanner  
ssl  
openssl\_heart

heartbleed

10.0.2.8 10.0.2.1 10.0.2.15

Console X nmap X nmap X Services X scanner/ssl/openssl\_heartbleed X

auxiliary actions:

Name	Description
DUMP	Dump memory contents to loot
KEYS	Recover private keys from memory
SCAN	Check hosts for vulnerability

msf5 auxiliary(scanner/ssl/openssl\_heartbleed) >

Right Ctrl

Hacking-Kali-Linux-COMP3052-202304 [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

Armitage 12:07 PM

Armitage

Armitage View Hosts Attacks Workspaces Help

auxiliary  
  scanner  
    ssl  
      openssl\_heart

heartbleed

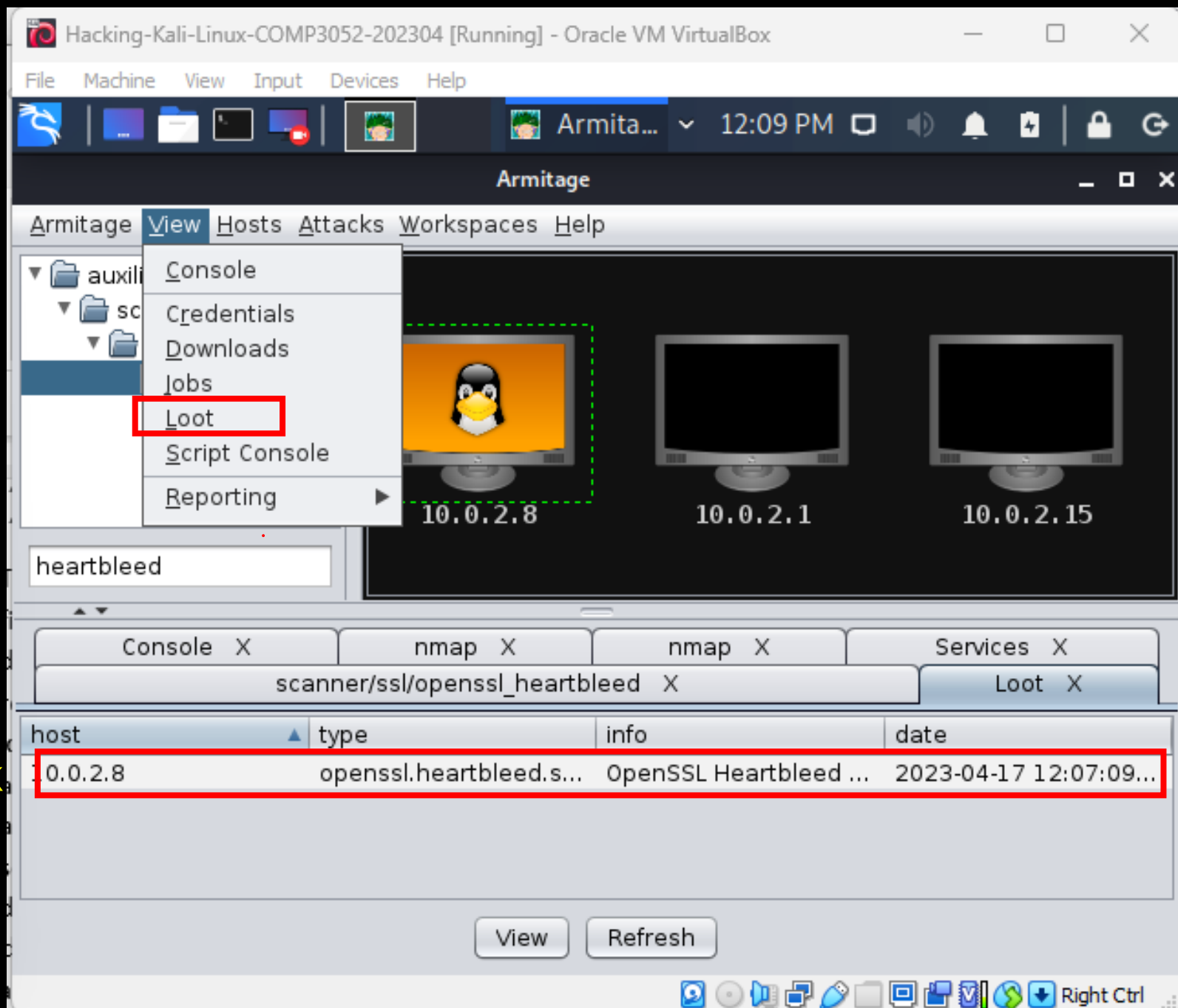
10.0.2.8 10.0.2.1 10.0.2.15

Console X nmap X nmap X Services X scanner/ssl/openssl\_heartbleed X

```
msf5 auxiliary(scanner/ssl/openssl_heartbleed) > set ACTION DUMP
ACTION => DUMP
msf5 auxiliary(scanner/ssl/openssl_heartbleed) > run
[+] 10.0.2.8:443 - Heartbeat response with leak, 65535 bytes
[+] 10.0.2.8:443 - Heartbeat data stored in
/home/sec/.msf4/loot/20230417120709_default_10.0.2.8_openssl.heartble_133824.
[*] 10.0.2.8:443 - Scanned 1 of 1 hosts (100% complete)
[*] Auxiliary module execution completed
msf5 auxiliary(scanner/ssl/openssl_heartbleed) > |
```

Right Ctrl





Double click

Hacking-Kali-Linux-COMP3052-202304 [Running] - Oracle VM VirtualBox

FileMachineViewInputDevicesHelp

Armitage

12:11 PM

Armitage

12:11 PM

ArmitageViewHostsAttacksWorkspacesHelp

auxiliary

scanner

ssl

openssl\_heart

heartbleed

10.0.2.8

10.0.2.1

10.0.2.15

Console X

nmap X

nmap X

Services X

scanner/ssl/openssl\_heartbleed X

Loot X

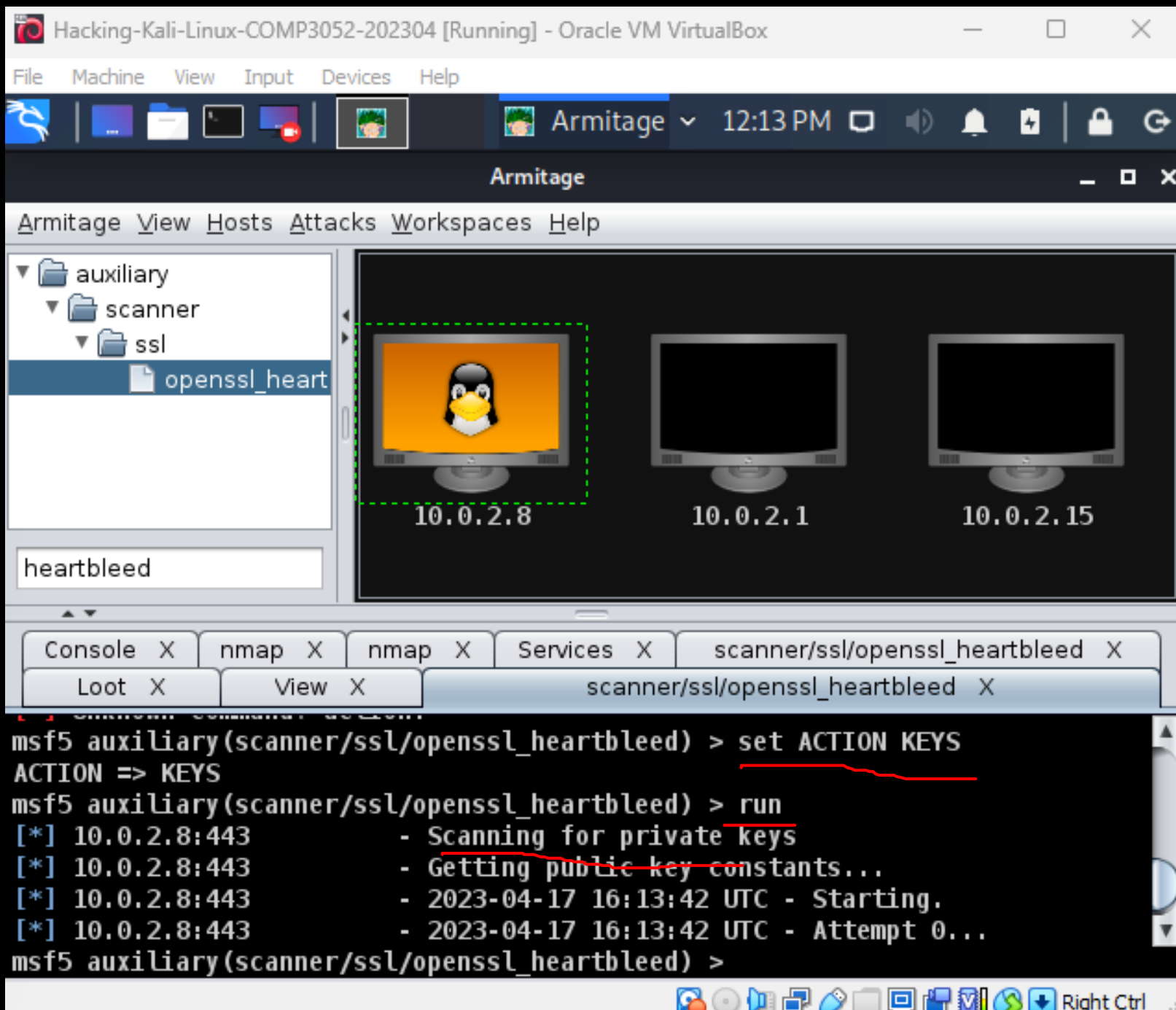
View X

Host: 10.0.2.8

Access-Control-Request-Method: DELETE

Refresh

Right Ctrl



Hacking-Kali-Linux-COMP3052-202304 [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

Armitage 12:17 PM

Armitage

Armitage View Hosts Attacks Workspaces Help

auxiliary  
scanner  
ssl  
openssl\_heart

heartbleed

10.0.2.8 10.0.2.1 10.0.2.15

Console X nmap X nmap X Services X scanner/ssl/openssl\_heartbleed X  
Loot X View X scanner/ssl/openssl\_heartbleed X

```
[*] 10.0.2.8:443 - 2023-04-17 16:14:55 UTC - Attempt 40...  
[*] 10.0.2.8:443 - 2023-04-17 16:15:04 UTC - Attempt 45...  
[-] 10.0.2.8:443 - Private key not found. You can try to increase  
MAX_KEYTRIES and/or HEARTBEAT_LENGTH.  
[*] 10.0.2.8:443 - Scanned 1 of 1 hosts (100% complete)  
[*] Auxiliary module execution completed
```

msf5 auxiliary(scanner/ssl/openssl\_heartbleed) > |

Right Ctrl

Hacking-Kali-Linux-COMP3052-202304 [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

scanner... 12:19 PM

Armitage

Armitage View Hosts Attacks Workspaces Help

auxiliary  
scanner  
ssh  
ssh\_login  
ssh\_login\_p

ssh\_login

Console X nmap  
Loot X Vi

msf5 auxiliary(scanner/ssl/openssl\_heartbleed) >

scanner/ssh/ssh\_login

SSH Login Check Scanner

This module will test ssh logins on a range of machines and report successful logins. If you have loaded a database plugin and connected to database this module will record successful logins and hosts so you can track your access.

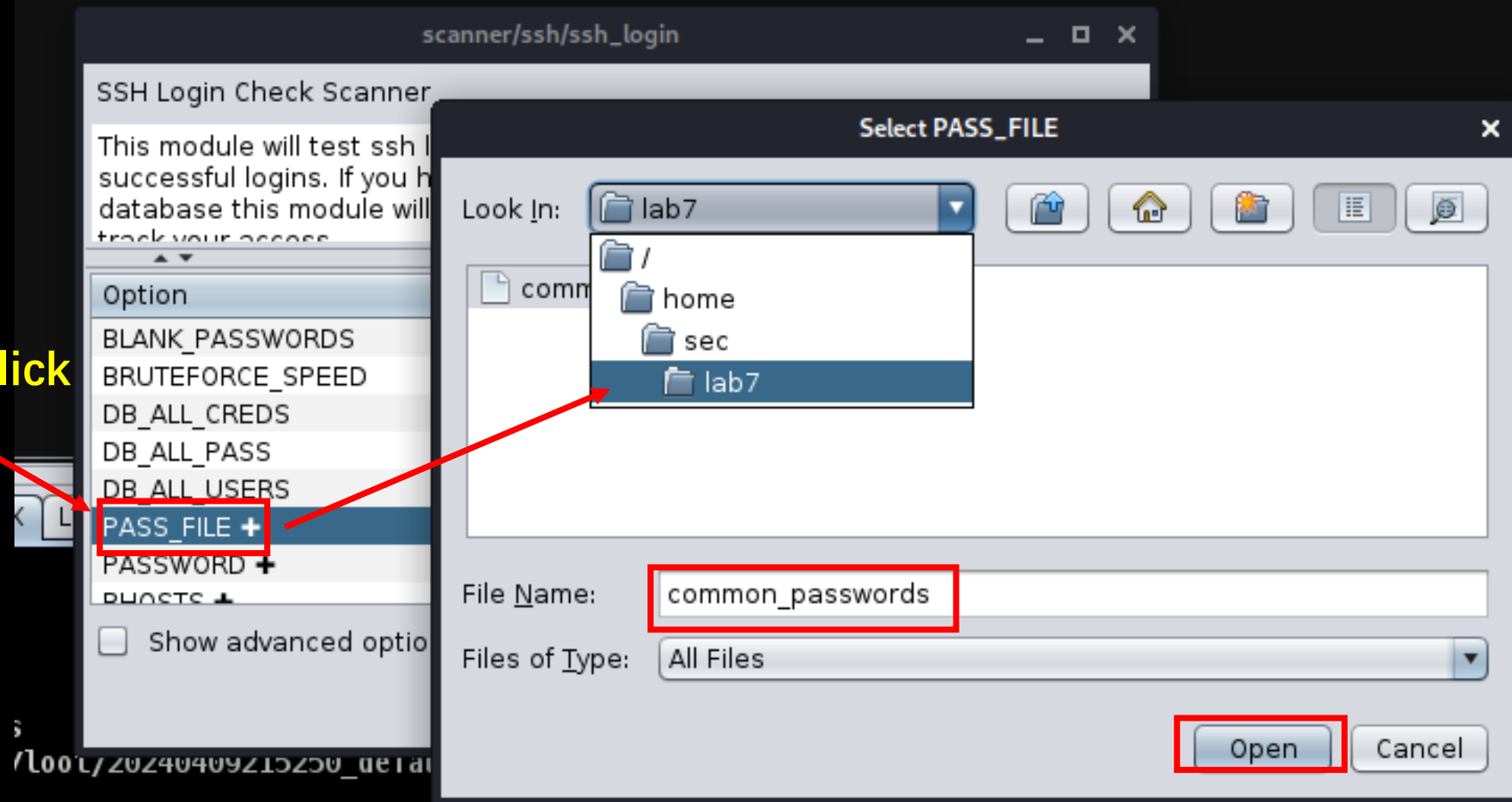
Option	Value
BLANK_PASSWORDS	0
BRUTEFORCE_SPEED	5
DB_ALL_CREDS	false
DB_ALL_PASS	0
DB_ALL_USERS	0
PASS_FILE +	
PASSWORD +	
HOSTS +	

☐ Show advanced options

Launch

10.0.2.8:443  
10.0.2.8:443  
[-] 10.0.2.8:443  
MAX\_KEYTRIES and/or  
10.0.2.8:443  
Auxiliary modul

Double click

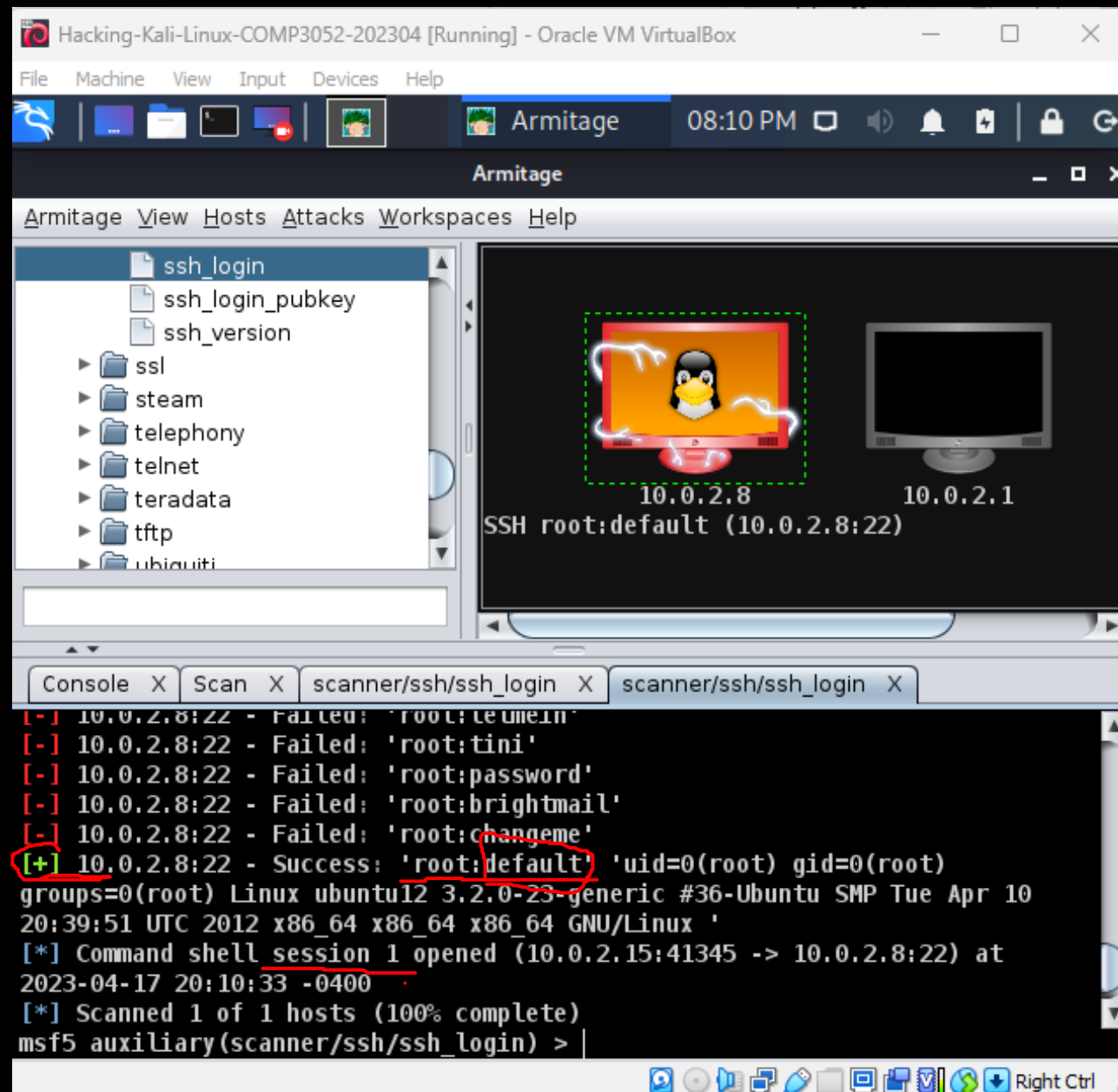


## SSH Login Check Scanner

This module will test ssh logins on a range of machines and report successful logins. If you have loaded a database plugin and connected to a database this module will record successful logins and hosts so you can track your access.

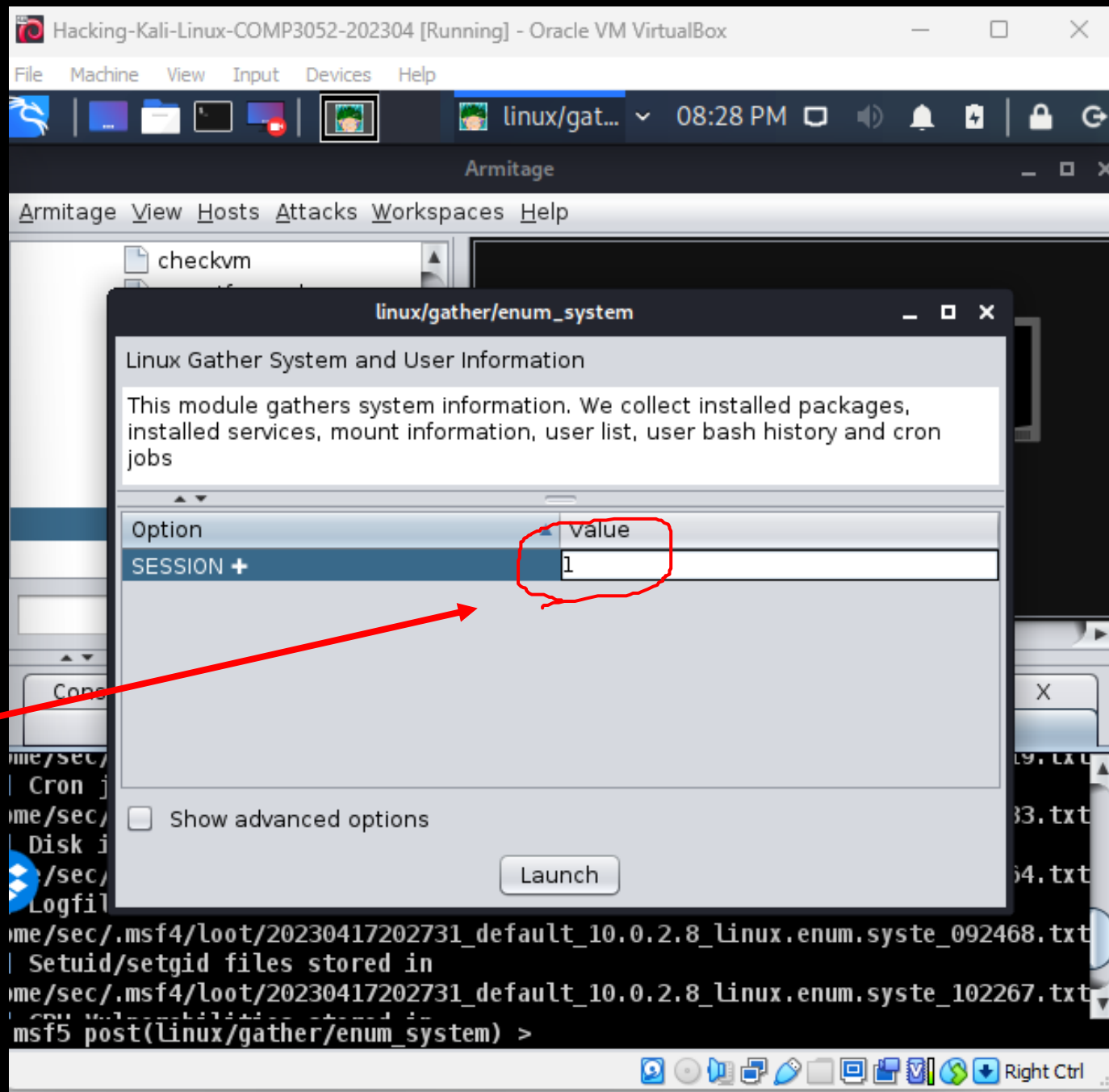
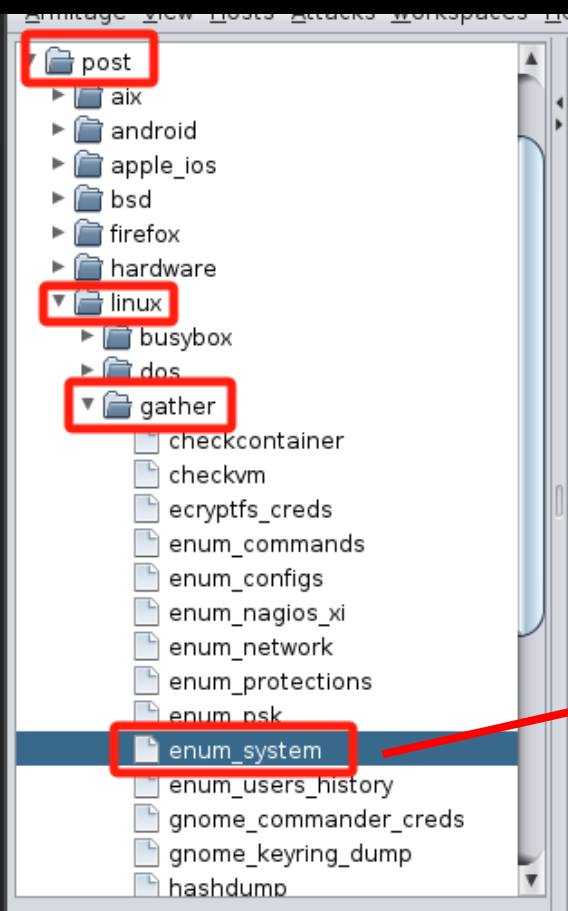
Option ▲	Value
REPORT	22
STOP_ON_SUCCESS	0
THREADS	24
USER_AS_PASS	0
USER_FILE +	
USERNAME +	root
USERPASS_FILE +	
VERBOSE	1

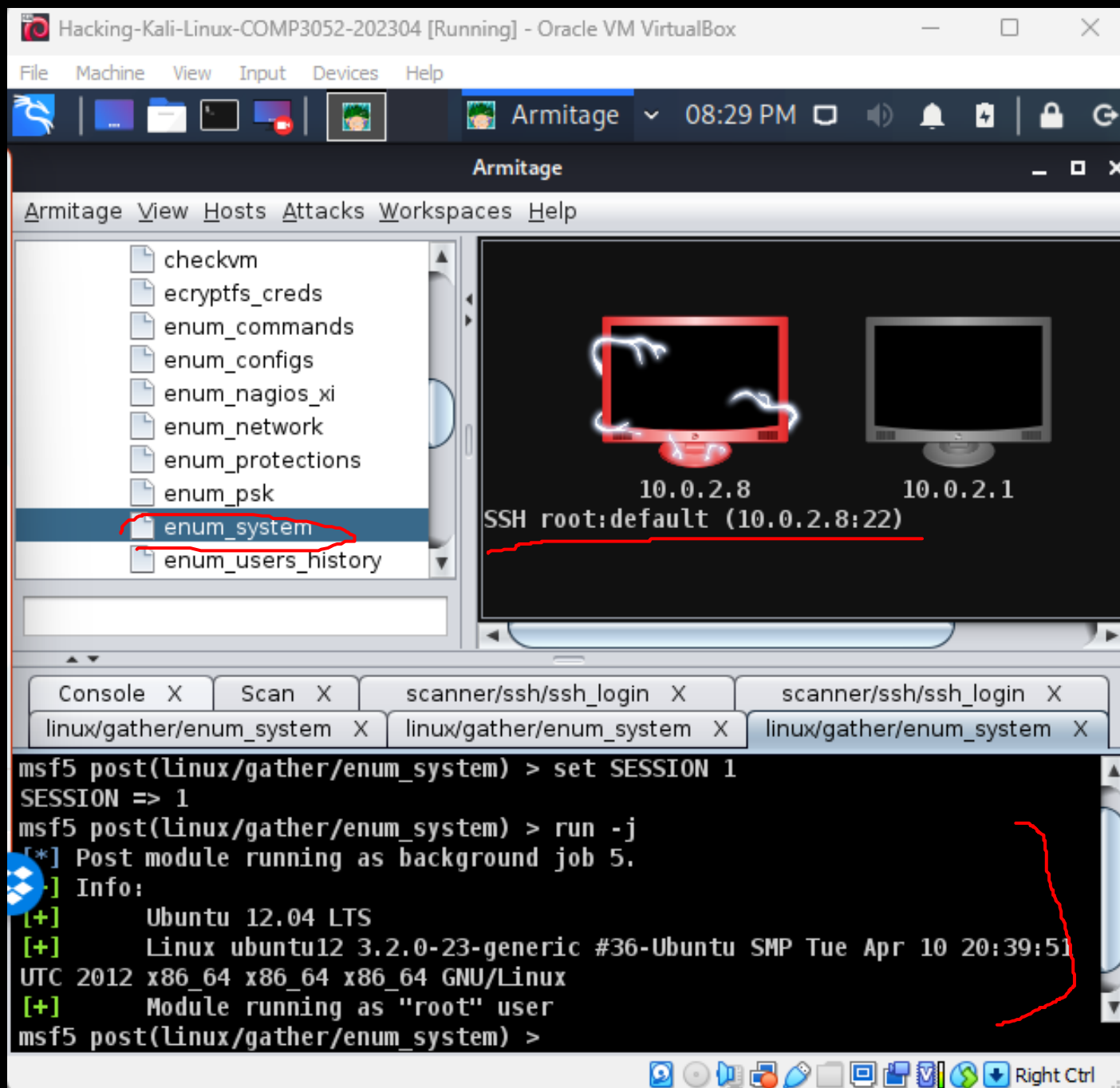
☐ Show advanced options

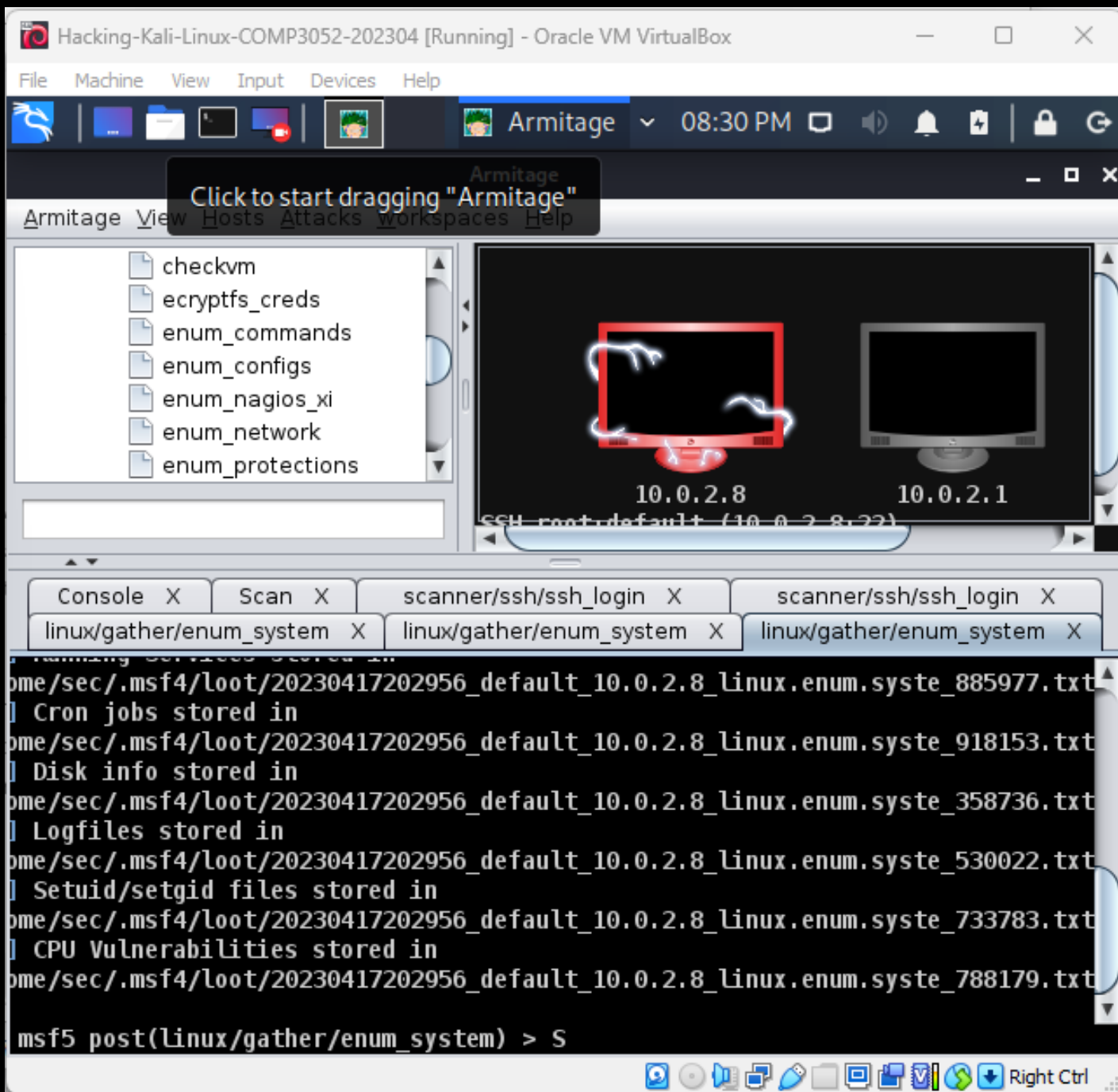


About dictionary attack and its difference from brute-force attacks, please refer to <https://www.techtarget.com/searchsecurity/definition/dictionary-attack>









**Please Remember to Shut Down the Virtual Machines**

## Additional Tasks:

Read the document COMP3052.SEC.LAB.05.AttackDefend originally prepared by Mike Pound.

Work on the exercises described under the following sections from pages 2-5 for:

STARTING METASPLOIT

GAINING ACCESS

EXPLOITING THE ROOT SHELL