

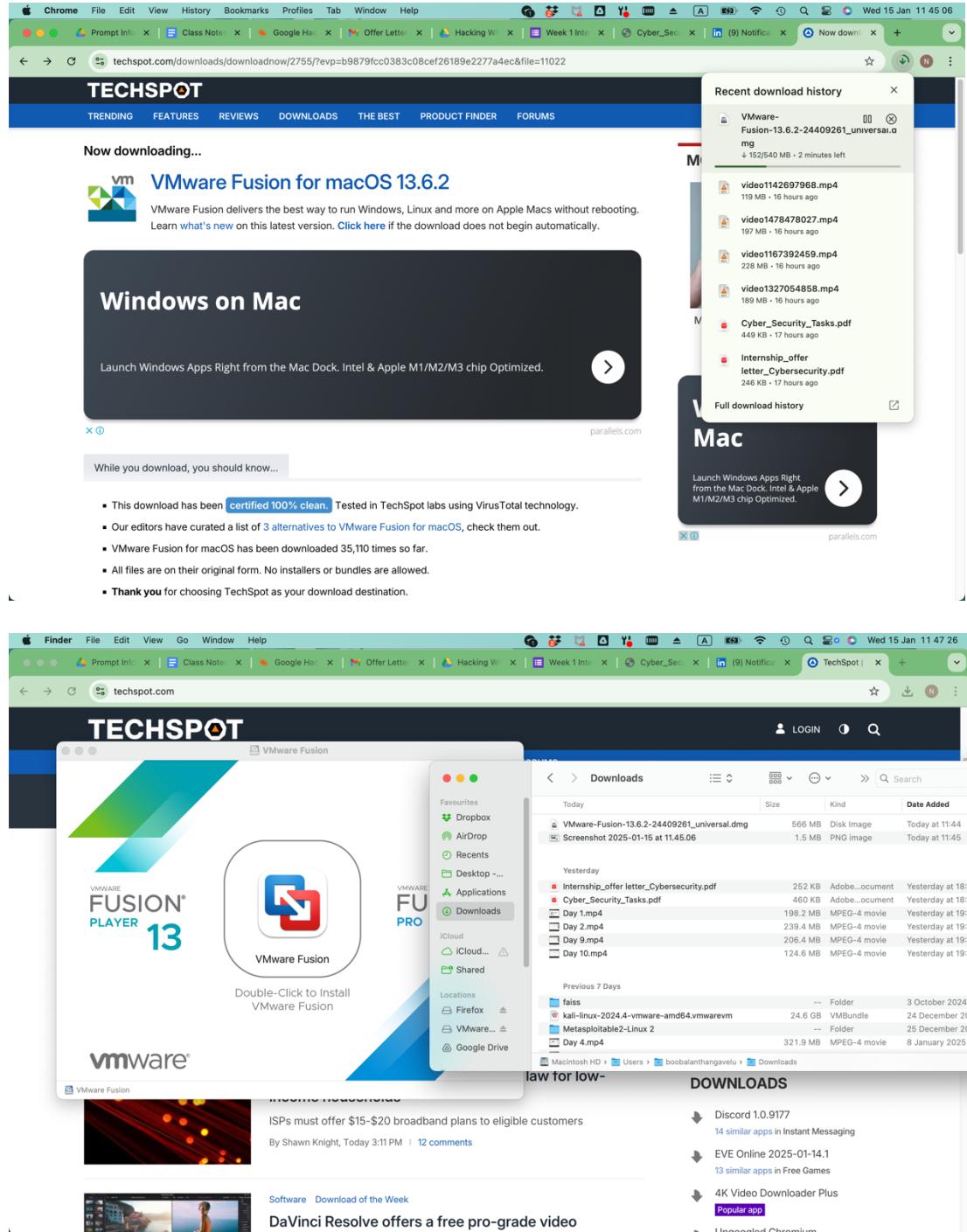
Week 1: Introduction to Cybersecurity and Virtualization

Cybersecurity Lab Setup Reports

Task 1: Setting Up Virtualization Software

1. Installed VMware Fusion

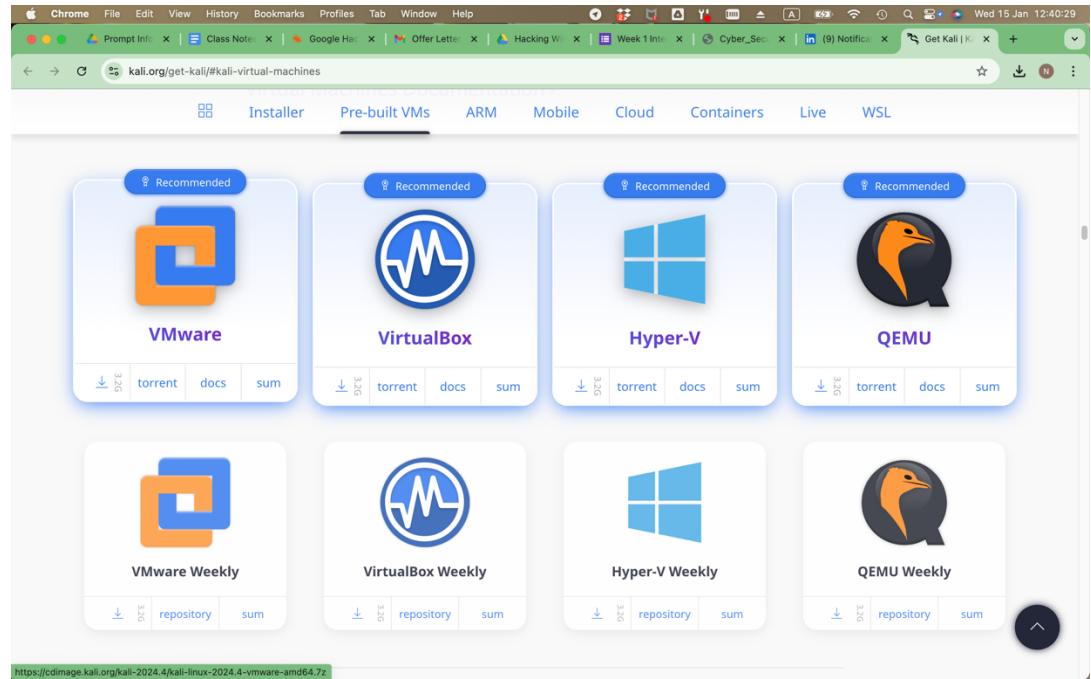
- Downloaded and installed VMware Fusion.



Task 2: Downloading Kali Linux and Metasploitable

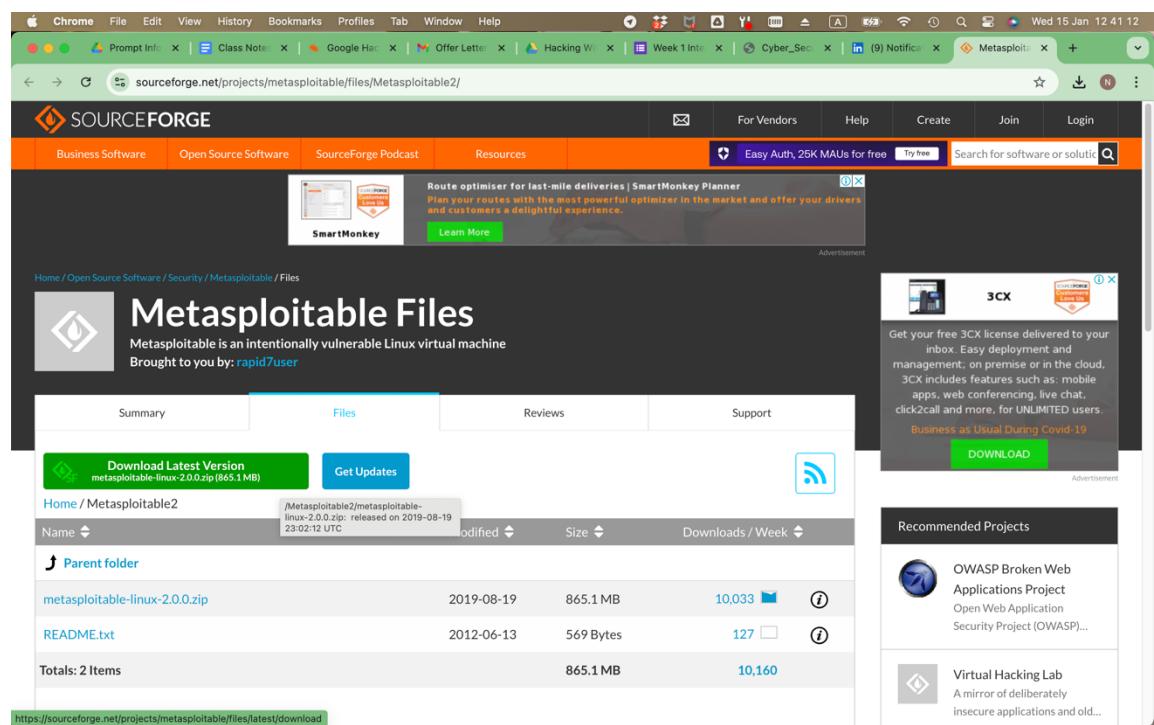
1. Downloaded Kali Linux

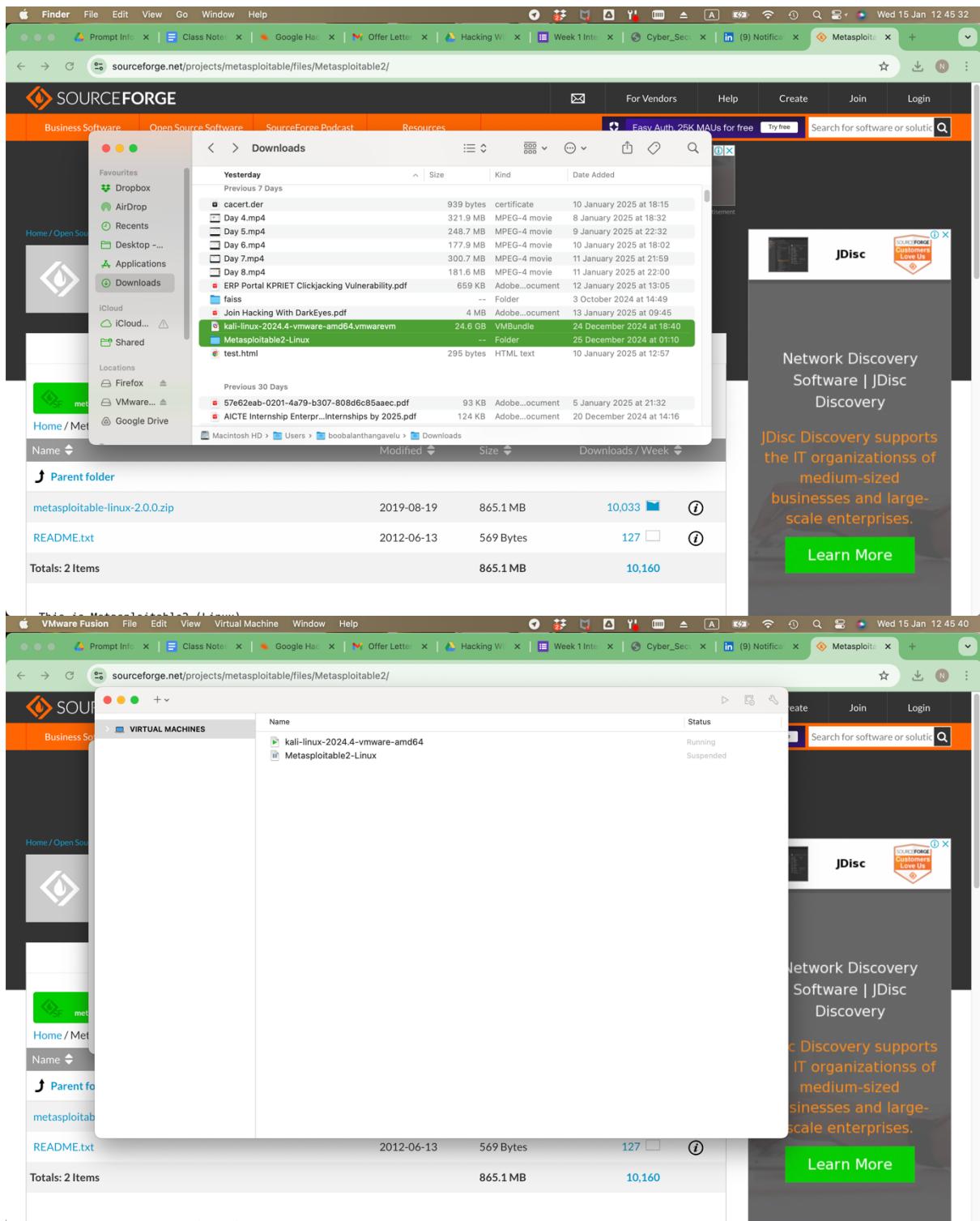
- Used the official website: [Kali Linux Downloads](#).



2. Downloaded Metasploitable

- Used the official repository: [Metasploitable Downloads](#).





Task 3: Creating Virtual Machines

1. Kali Linux Virtual Machine:

- Created a new VM in VMware Fusion.
- Allocated resources:

RAM: 4 GB

Disk Space: 50 GB

- Attached the Kali Linux ISO to the virtual CD/DVD drive.
- Booted the VM and followed the installation steps. Commands used:

```
# Update system
sudo apt update && sudo apt upgrade -y
```

```
(kali㉿kali)-[~/Clickjacking-Tester]
$ sudo apt update && sudo apt upgrade -y
[sudo] password for kali:
Get:1 http://kali.download/kali kali-rolling InRelease [41.5 kB]
Get:2 http://kali.download/kali kali-rolling/main amd64 Packages [20.3 MB]
Get:3 http://kali.download/kali kali-rolling/main amd64 Contents (deb) [48.7 MB]
Get:4 http://kali.download/kali kali-rolling/contrib amd64 Packages [111 kB]
Get:5 http://kali.download/kali kali-rolling/contrib amd64 Contents (deb) [258 kB]
Get:6 http://kali.download/kali kali-rolling/non-free amd64 Packages [195 kB]
Get:7 http://kali.download/kali kali-rolling/non-free amd64 Contents (deb) [877 kB]
Get:8 http://kali.download/kali kali-rolling/non-free-firmware amd64 Packages [10.6 kB]
Get:9 http://kali.download/kali kali-rolling/non-free-firmware amd64 Contents (deb) [23.3 kB]
Fetched 70.5 MB in 14s (4,884 kB/s)
516 packages can be upgraded. Run 'apt list --upgradable' to see them.
The following packages were automatically installed and are no longer required:
  libbbfi01      libgl1-mesa-dev    libjxl0.9        openjdk-23-jre
  libc++1-19     libgles-dev       libmbcrypto7t64   openjdk-23-jre-headless
  libc++abi1-19  libgles1         libpaper1       python3-appdirs
  libegl-dev     libglvnd-core-dev  libsuperlu6
  libfmt9        libglvnd-dev     libunwind-19
Use 'sudo apt autoremove' to remove them.

Upgrading:
Setting up kali-desktop-xfce (2025.1.3) ...
Setting up libedata-book-1.2-27t64:amd64 (3.54.3-1) ...
Setting up libebook-1.2-21t64:amd64 (3.54.3-1) ...
Setting up bluez-obexd (5.79-1) ...
Processing triggers for ca-certificates-java (20240118) ...
done.
Setting up openjdk-23-jre:amd64 (23.0.1+11-2) ...
Processing triggers for dictionaries-common (1.30.3) ...
Processing triggers for ca-certificates (20241223) ...
Updating certificates in /etc/ssl/certs...
0 added, 0 removed; done.
Running hooks in /etc/ca-certificates/update.d ...
done.
Processing triggers for tex-common (6.18) ...
Building format(s) --all.
  This may take some time... done.
Processing triggers for php8.2-cli (8.2.27-1) ...
Processing triggers for libapache2-mod-php8.2 (8.2.27-1) ...
Processing triggers for libc-bin (2.40-3) ...
Processing triggers for ca-certificates-java (20240118) ...
done.

(kali㉿kali)-[~/Clickjacking-Tester]
```

- # Install essential tools


```
sudo apt install net-tools nmap
```

```
kali@kali: ~/Clickjacking-Tester
File Actions Edit View Help
Processing triggers for libc-bin (2.40-3) ...
Processing triggers for ca-certificates-java (20240118) ...
done.
[sudo] password for kali:
[sudo] password for kali:
net-tools is already the newest version (2.10-1.1).
net-tools set to manually installed.
nmap is already the newest version (7.95+dfsg-1kali1).
nmap set to manually installed.
The following packages were automatically installed and are no longer required:
 libbbfi01   libgl1-mesa-dev   libjxl0.9      openjdk-23-jre
 libc++1-19   libgles-dev     libmbcrypto7t64  openjdk-23-jre-headless
 libc++abi1-19 libgles1       libpaper1      python3-appdirs
 libegl-dev    libglvnd-core-dev libsuperlu6
 libfmt9       libglvnd-dev    libunwind-19
Use 'sudo apt autoremove' to remove them.

Summary:
Upgrading: 0, Installing: 0, Removing: 0, Not Upgrading: 20

[kali@kali]-[~/Clickjacking-Tester]
$
```

2. Metasploitable Virtual Machine:

- Created another VM for Metasploitable.
 - Allocated resources:

RAM: 512 MB
Disk Space: 8 GB

- Attached the Metasploitable ISO and completed the installation.

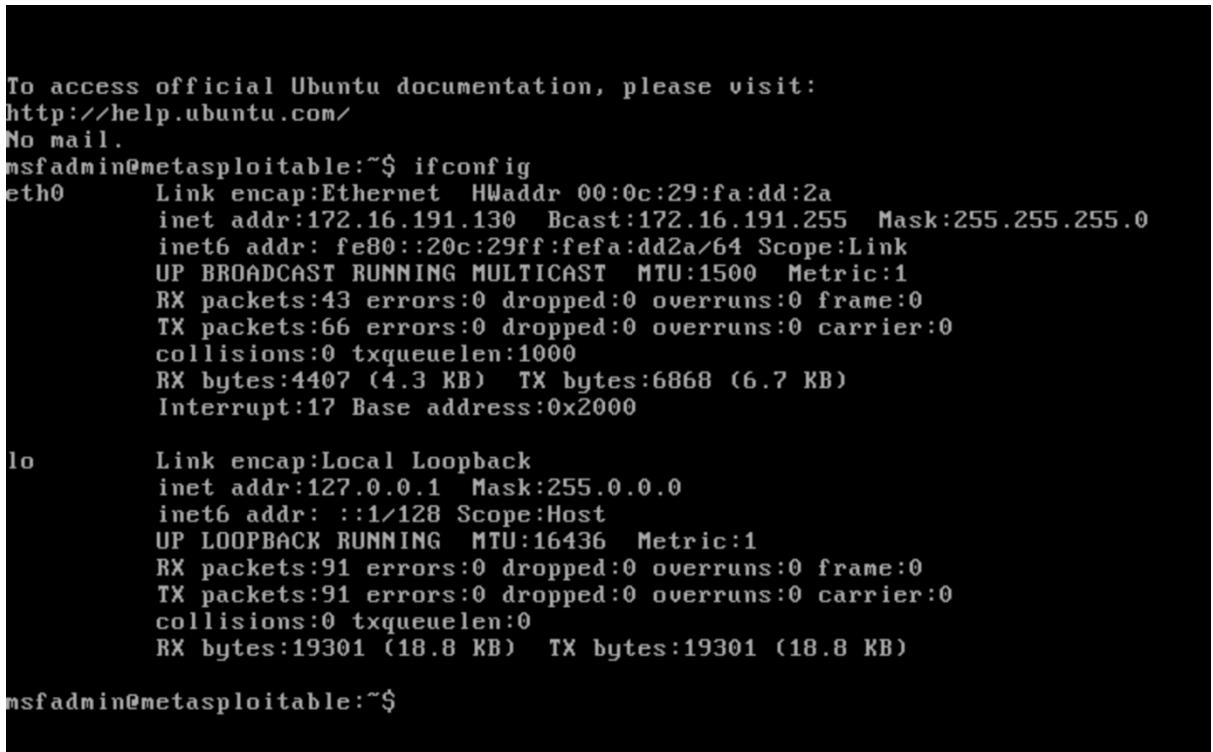
Task 4: Configuring Networking

- Configured both VMs to use a bridged network adapter to communicate with each other and the host.

- Verified the IP addresses using:

```
# On Kali Linux:  
ifconfig
```

```
# On Metasploitable:  
Ifconfig
```

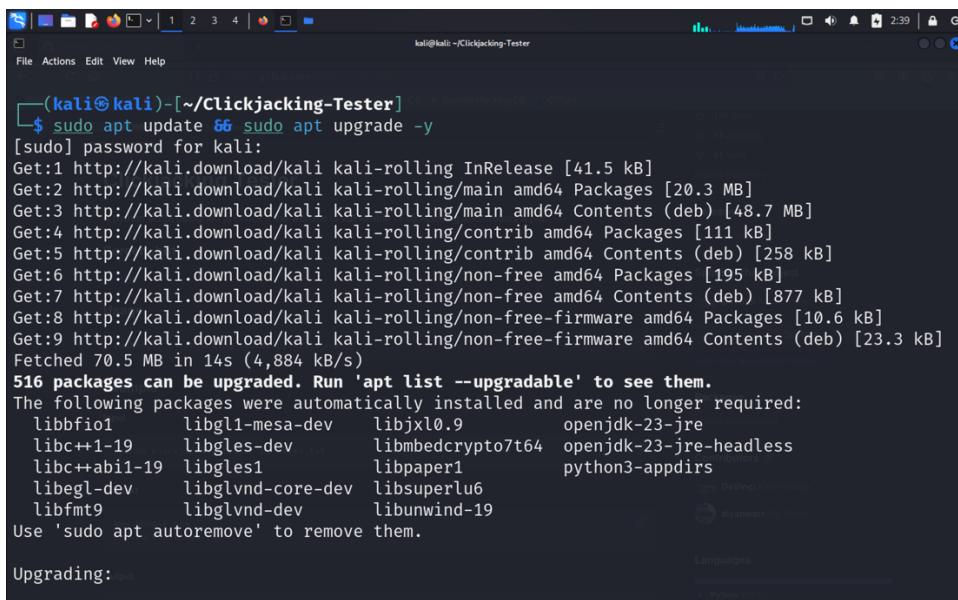


```
To access official Ubuntu documentation, please visit:  
http://help.ubuntu.com/  
No mail.  
msfadmin@metasploitable:~$ ifconfig  
eth0      Link encap:Ethernet HWaddr 00:0c:29:fa:dd:2a  
          inet addr:172.16.191.130 Bcast:172.16.191.255 Mask:255.255.255.0  
          inet6 addr: fe80::20c:29ff:fe:dd2a/64 Scope:Link  
          UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1  
          RX packets:43 errors:0 dropped:0 overruns:0 frame:0  
          TX packets:66 errors:0 dropped:0 overruns:0 carrier:0  
          collisions:0 txqueuelen:1000  
          RX bytes:4407 (4.3 KB) TX bytes:6868 (6.7 KB)  
          Interrupt:17 Base address:0x2000  
  
lo       Link encap:Local Loopback  
          inet addr:127.0.0.1 Mask:255.0.0.0  
          inet6 addr: ::1/128 Scope:Host  
          UP LOOPBACK RUNNING MTU:16436 Metric:1  
          RX packets:91 errors:0 dropped:0 overruns:0 frame:0  
          TX packets:91 errors:0 dropped:0 overruns:0 carrier:0  
          collisions:0 txqueuelen:0  
          RX bytes:19301 (18.8 KB) TX bytes:19301 (18.8 KB)  
  
msfadmin@metasploitable:~$
```

Task 5: Updating and Configuring Kali Linux

- Updated Kali Linux using:

```
sudo apt update && sudo apt upgrade -y
```



```
(kali㉿kali)-[~/Clickjacking-Tester]$ sudo apt update && sudo apt upgrade -y  
[sudo] password for kali:  
Get:1 http://kali.download/kali kali-rolling InRelease [41.5 kB]  
Get:2 http://kali.download/kali kali-rolling/main amd64 Packages [20.3 MB]  
Get:3 http://kali.download/kali kali-rolling/main amd64 Contents (deb) [48.7 MB]  
Get:4 http://kali.download/kali kali-rolling/contrib amd64 Packages [111 kB]  
Get:5 http://kali.download/kali kali-rolling/contrib amd64 Contents (deb) [258 kB]  
Get:6 http://kali.download/kali kali-rolling/non-free amd64 Packages [195 kB]  
Get:7 http://kali.download/kali kali-rolling/non-free amd64 Contents (deb) [877 kB]  
Get:8 http://kali.download/kali kali-rolling/non-free-firmware amd64 Packages [10.6 kB]  
Get:9 http://kali.download/kali kali-rolling/non-free-firmware amd64 Contents (deb) [23.3 kB]  
Fetched 70.5 MB in 14s (4,884 kB/s)  
516 packages can be upgraded. Run 'apt list --upgradable' to see them.  
The following packages were automatically installed and are no longer required:  
  libbfio1      libgl1-mesa-dev    libjxl0.9      openjdk-23-jre  
  libc++1-19    libgles-dev      libmbcrypto7t64  openjdk-23-jre-headless  
  libc++abi1-19 libgles1        libpaper1      python3-appdirs  
  libegl-dev    libglvnd-core-dev  libsuperlu6  
  libfmt9       libglvnd-dev     libunwind-19  
Use 'sudo apt autoremove' to remove them.  
Upgrading: ...
```

```
Setting up kali-desktop-xfce (2025.1.3) ...
Setting up libedata-book-1.2-27t64:amd64 (3.54.3-1) ...
Setting up libebook-1.2-21t64:amd64 (3.54.3-1) ...
Setting up bluez-obexd (5.79-1) ...
Processing triggers for ca-certificates-java (20240118) ...
done.
Setting up openjdk-23-jre:amd64 (23.0.1+11-2) ...
Processing triggers for dictionaries-common (1.30.3) ...
Processing triggers for ca-certificates (20241223) ...
Updating certificates in /etc/ssl/certs ...
0 added, 0 removed; done.
Running hooks in /etc/ca-certificates/update.d ...
done.
Processing triggers for tex-common (6.18) ...
Building format(s) --all.
    This may take some time... done.
Processing triggers for php8.2-cli (8.2.27-1) ...
Processing triggers for libapache2-mod-php8.2 (8.2.27-1) ...
Processing triggers for libc-bin (2.40-3) ...
Processing triggers for ca-certificates-java (20240118) ...
done.
```

(kali㉿kali)-[~/Clickjacking-Tester]

- Installed additional tools for penetration testing:

```
sudo apt install metasploit-framework -y
sudo apt install nikto -y
```

```
libfmt9      libglvnd-dev      libunwind-19
Use 'sudo apt autoremove' to remove them.

Summary:
Upgrading: 0, Installing: 0, Removing: 0, Not Upgrading: 20

[(kali㉿kali)-[~/Clickjacking-Tester]]$ sudo apt install metasploit-framework -y
[sudo] password for kali:
metasploit-framework is already the newest version (6.4.44-0kali1).
metasploit-framework set to manually installed.
The following packages were automatically installed and are no longer required:
  libbbfi01   libgl1-mesa-dev   libjxl0.9      openjdk-23-jre
  libc++1-19   libgles-dev      libmbcrypto7t64  openjdk-23-jre-headless
  libc++abi1-19 libgles1       libpaper1     python3-appdirs
  libegl-dev   libglvnd-core-dev libsuperlu6
  libfmt9      libglvnd-dev      libunwind-19
Use 'sudo apt autoremove' to remove them.

Summary:
Upgrading: 0, Installing: 0, Removing: 0, Not Upgrading: 20

[(kali㉿kali)-[~/Clickjacking-Tester]]$
```

```

kali@kali: ~/Clickjacking-Tester
File Actions Edit View Help
libegl-dev libglvnd-core-dev libsuperlu6
libfmt9 libglvnd-dev libunwind-19
Use 'sudo apt autoremove' to remove them.

Summary:
Upgrading: 0, Installing: 0, Removing: 0, Not Upgrading: 20

(kali㉿kali)-[~/Clickjacking-Tester]
$ sudo apt install nikto
nikto is already the newest version (1:2.5.0+git20230114.90ff645-0kali1).this project
nikto set to manually installed.
The following packages were automatically installed and are no longer required:
libbbfio1 libgl1-mesa-dev libjxl0.9 openjdk-23-jre
libc++1-19 libgles-dev libmbcrypto7t64 openjdk-23-jre-headless
libc++abi1-19 libgles1 libpaper1 python3-appdirs
libegl-dev libglvnd-core-dev libsuperlu6
libfmt9 libglvnd-dev libunwind-19
Use 'sudo apt autoremove' to remove them.

Summary:
Upgrading: 0, Installing: 0, Removing: 0, Not Upgrading: 20

(kali㉿kali)-[~/Clickjacking-Tester]
$ 

```

Task 6: Identifying Metasploitable's IP Address

- Logged into Metasploitable using default credentials:

Username: msfadmin
Password: msfadmin

- Identified IP address:

ifconfig

```

To access official Ubuntu documentation, please visit:
http://help.ubuntu.com/
No mail.
msfadmin@metasploitable:~$ ifconfig
eth0      Link encap:Ethernet HWaddr 00:0c:29:fa:dd:2a
          inet addr:172.16.191.130 Bcast:172.16.191.255 Mask:255.255.255.0
          inet6 addr: fe80::20c:29ff:fe:dd2a/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
          RX packets:43 errors:0 dropped:0 overruns:0 frame:0
          TX packets:66 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:4407 (4.3 KB) TX bytes:6868 (6.7 KB)
          Interrupt:17 Base address:0x2000

lo       Link encap:Local Loopback
          inet addr:127.0.0.1 Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING MTU:16436 Metric:1
          RX packets:91 errors:0 dropped:0 overruns:0 frame:0
          TX packets:91 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:19301 (18.8 KB) TX bytes:19301 (18.8 KB)

msfadmin@metasploitable:~$ 

```

Output: 172.16.191.130

Task 7: Initial Reconnaissance

- Performed a basic network scan from Kali Linux:
- nmap 172.16.191.130

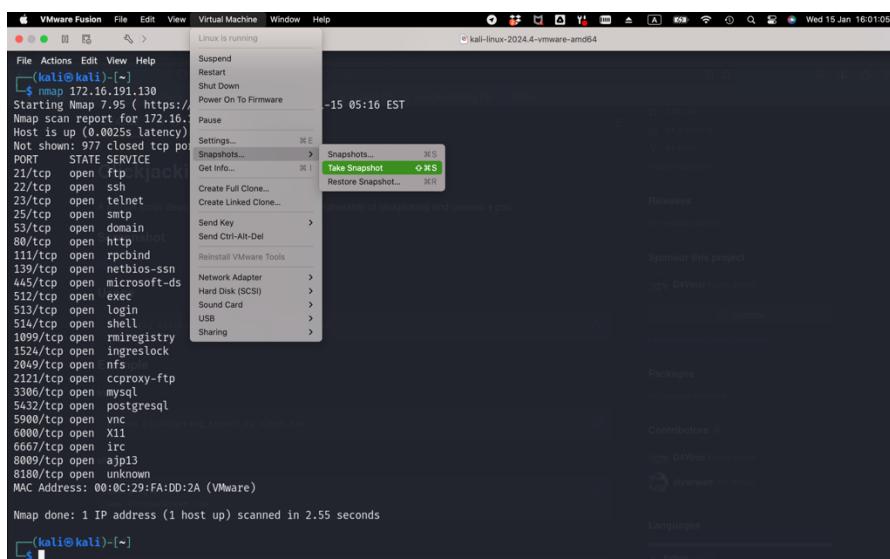
```
(kali㉿kali)-[~]
$ nmap 172.16.191.130
Starting Nmap 7.95 ( https://nmap.org ) at 2025-01-15 05:16 EST
Nmap scan report for 172.16.191.130
Host is up (0.0025s latency).
Not shown: 977 closed tcp ports (reset)
PORT      STATE SERVICE
21/tcp    open  ftp
22/tcp    open  ssh
23/tcp    open  telnet
25/tcp    open  smtp
53/tcp    open  domain
80/tcp    open  http
111/tcp   open  rpcbind
139/tcp   open  netbios-ssn
445/tcp   open  microsoft-ds
512/tcp   open  exec
513/tcp   open  login
514/tcp   open  shell
1099/tcp  open  rmiregistry
1524/tcp  open  ingreslock
2049/tcp  open  nfs
2121/tcp  open  cproxy-ftp
3306/tcp  open  mysql
5432/tcp  open  postgresql
5900/tcp  open  vnc
6000/tcp  open  X11
6667/tcp  open  irc
8009/tcp  open  ajp13
8180/tcp  open  unknown
MAC Address: 00:0C:29:FA:DD:2A (VMware)

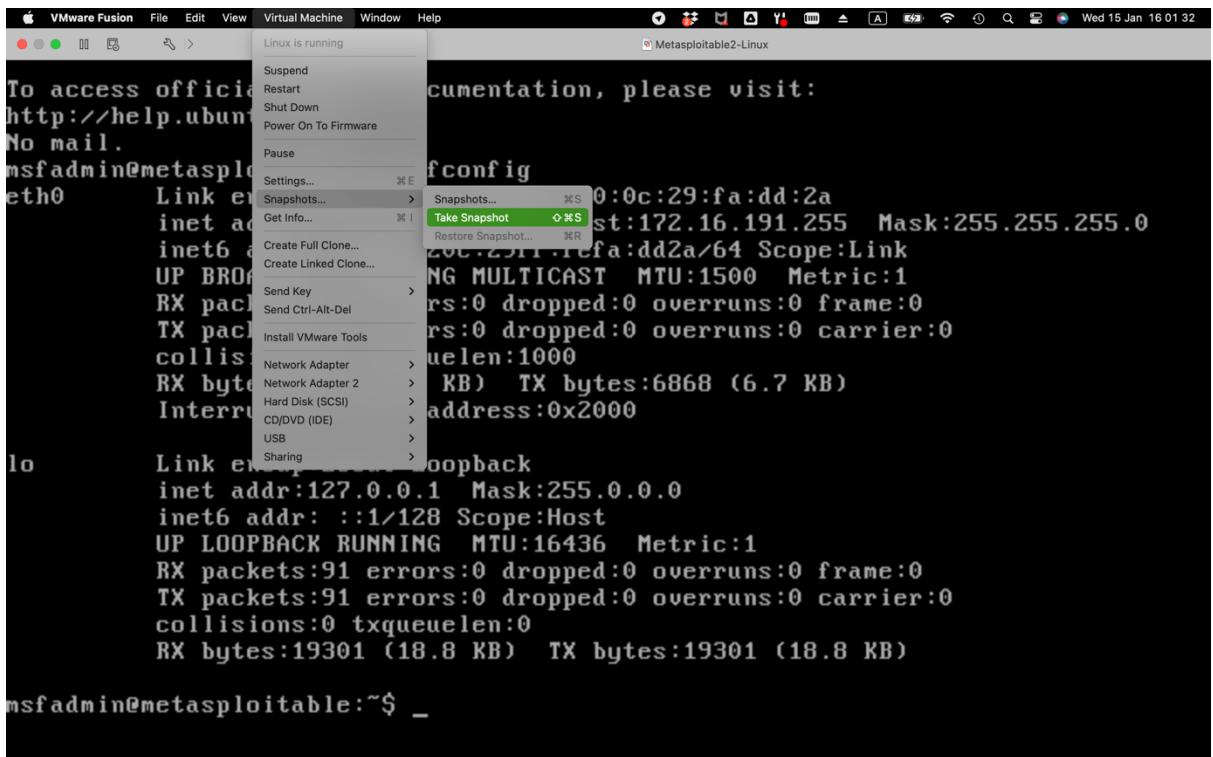
Nmap done: 1 IP address (1 host up) scanned in 2.55 seconds
```

Output: Identified open ports, running services, and OS information of Metasploitable.

Task 8: Snapshots and Cleanup

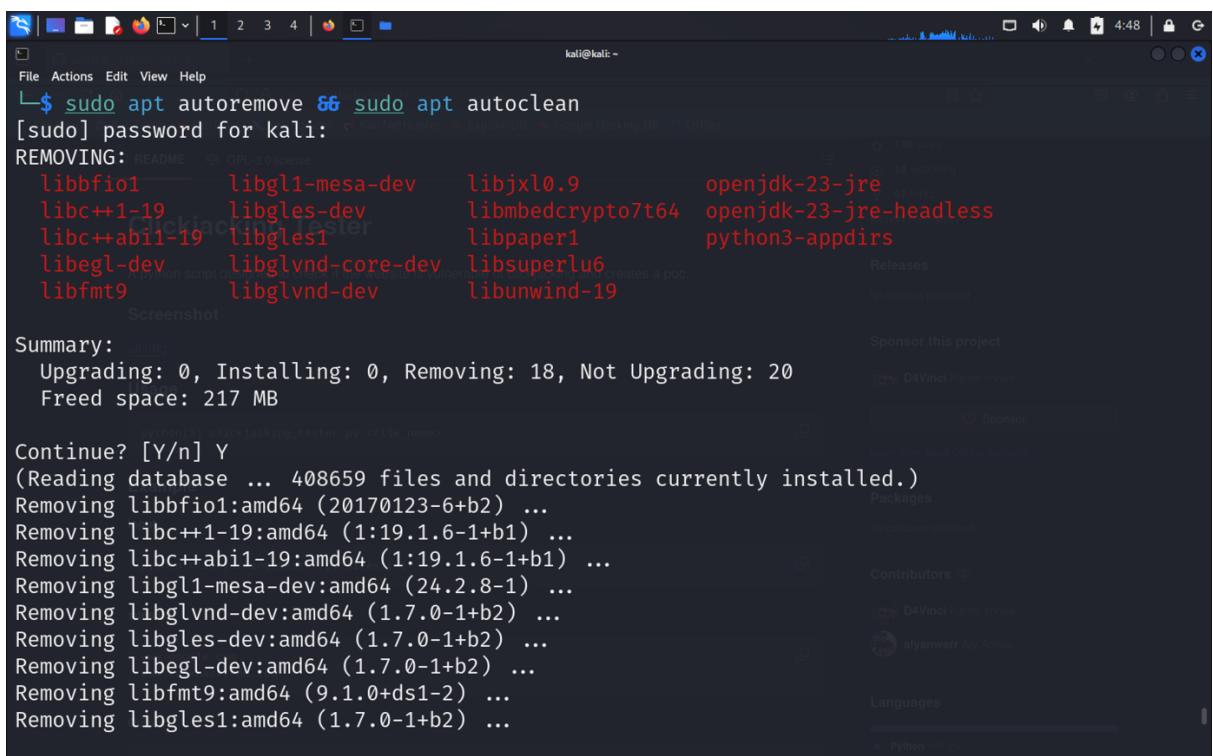
- Took snapshots of both VMs to save the current state.





- Cleaned unnecessary files using:

```
sudo apt autoremove && sudo apt autoclean
```



```
File Actions Edit View Help
Del samba-ad-provision 2:4.21.2+dfsg-3 [500 kB]
Del libnm0 1.50.0-1+b1 [453 kB]
Del libpam-systemd 257-2 [292 kB]
Del libharfbuzz-icu0 10.1.0-1 [15.1 kB]
Del libgpg-error0 1.51-2 [82.1 kB]
Del chromium 131.0.6778.139-1 [86.7 MB]
Del libSDL2-2.0-0 2.30.10+dfsg-1 [667 kB]
Del kali-desktop-core 2025.1.1 [14.0 kB]
Del util-linux-extra 2.40.2-12 [265 kB]
Del libudev1 257-2 [147 kB]
Del kali-system-cli 2025.1.1 [13.9 kB]
Del python3-pkg-resources 75.2.0-1 [213 kB]
Del aspell 0.60.8.1-2 [275 kB]
Del apt 2.9.17 [1,368 kB]
Del libgs10 10.04.0~dfsg-2 [2,562 kB]
Del metasploit-framework 6.4.38-0kali1 [221 MB]
Del kali-themes-common 2025.1.1 [6,889 kB]
Del librav1e0.7 0.7.1-7+b3 [940 kB]
Del pipewire-bin 1.2.7-1 [385 kB]
Del php8.2-mysql 8.2.26-4 [118 kB]
Del login 1:4.16.0-2+really2.40.2-12 [81.8 kB]

(kali㉿kali)-[~]
```