Ex.No.9 Use Process Explorer to identify suspicious processes

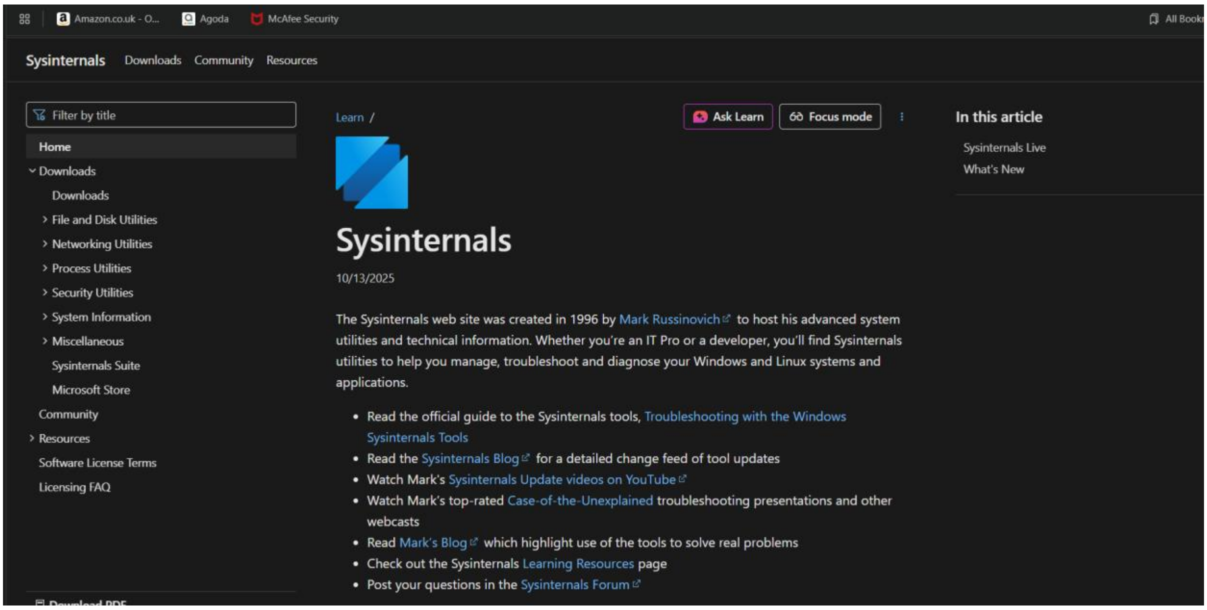
AIM:

To identify and remove suspicious process from the system using Linux command -line tools.

PROCEDURE:

Process Explorer is a powerful Windows tool that provides detailed information about running processes, allowing users to monitor, troubleshoot, and detect suspicious activities. It can be used to detect potential malware or harmful processes by analyzing various aspects of running applications.

Step 1: Download and Set Up Process Explorer



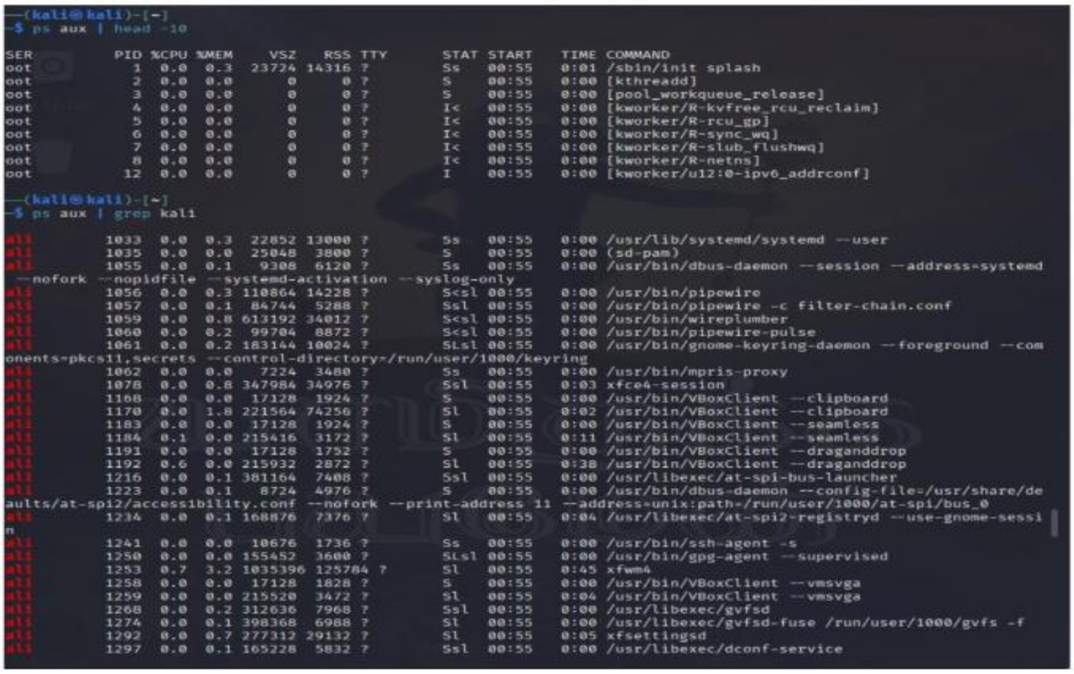
Sysinternals

10/13/2025

The Sysinternals web site was created in 1996 by Mark Russinovich to host his advanced system utilities and technical information. Whether you're an IT Pro or a developer, you'll find Sysinternals utilities to help you manage, troubleshoot and diagnose your Windows and Linux systems and applications.

- Read the official guide to the Sysinternals tools, Troubleshooting with the Windows Sysinternals Tools
- Read the Sysinternals Blog for a detailed change feed of tool updates
- Watch Mark's Sysinternals Update videos on YouTube
- Watch Mark's top-rated Case-of-the-Unexplained troubleshooting presentations and other webcasts
- Read Mark's Blog which highlight use of the tools to solve real problems
- Check out the Sysinternals Learning Resources page
- Post your questions in the Sysinternals Forum

Step 2: Familiarize Yourself with the Interface

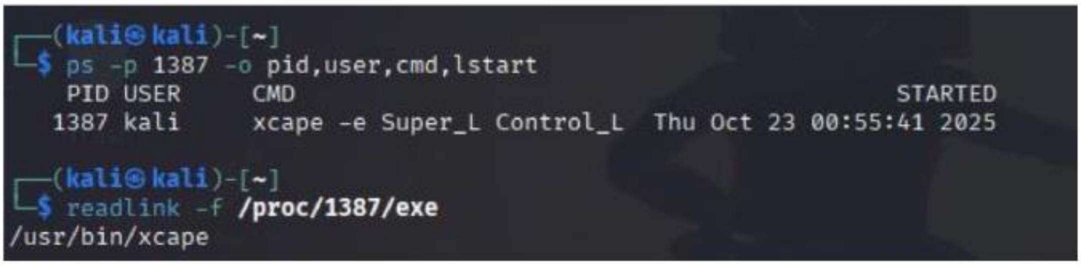


```
──(kali㉿kali)-[~]
─$ ps aux | head -10

SER          PID %CPU %MEM    VSZ   RSS TTY      STAT START   TIME COMMAND
oot            1  0.0  0.3  23724 14316 ?        Ss   00:55   0:01 /sbin/init splash
oot            2  0.0  0.0      0     0 ?        S    00:55   0:00 [kthreadd]
oot            3  0.0  0.0      0     0 ?        S    00:55   0:00 [pool_workqueue_release]
oot            4  0.0  0.0      0     0 ?        I<   00:55   0:00 [kworker/R-kvfree_rcu_reclaim]
oot            5  0.0  0.0      0     0 ?        I<   00:55   0:00 [kworker/R-rcu_gp]
oot            6  0.0  0.0      0     0 ?        I<   00:55   0:00 [kworker/R-sync_wq]
oot            7  0.0  0.0      0     0 ?        I<   00:55   0:00 [kworker/R-slub_flushwq]
oot            8  0.0  0.0      0     0 ?        I<   00:55   0:00 [kworker/R-netns]
oot           12  0.0  0.0      0     0 ?        I    00:55   0:00 [kworker/u12:0-ipv6_addrconf]

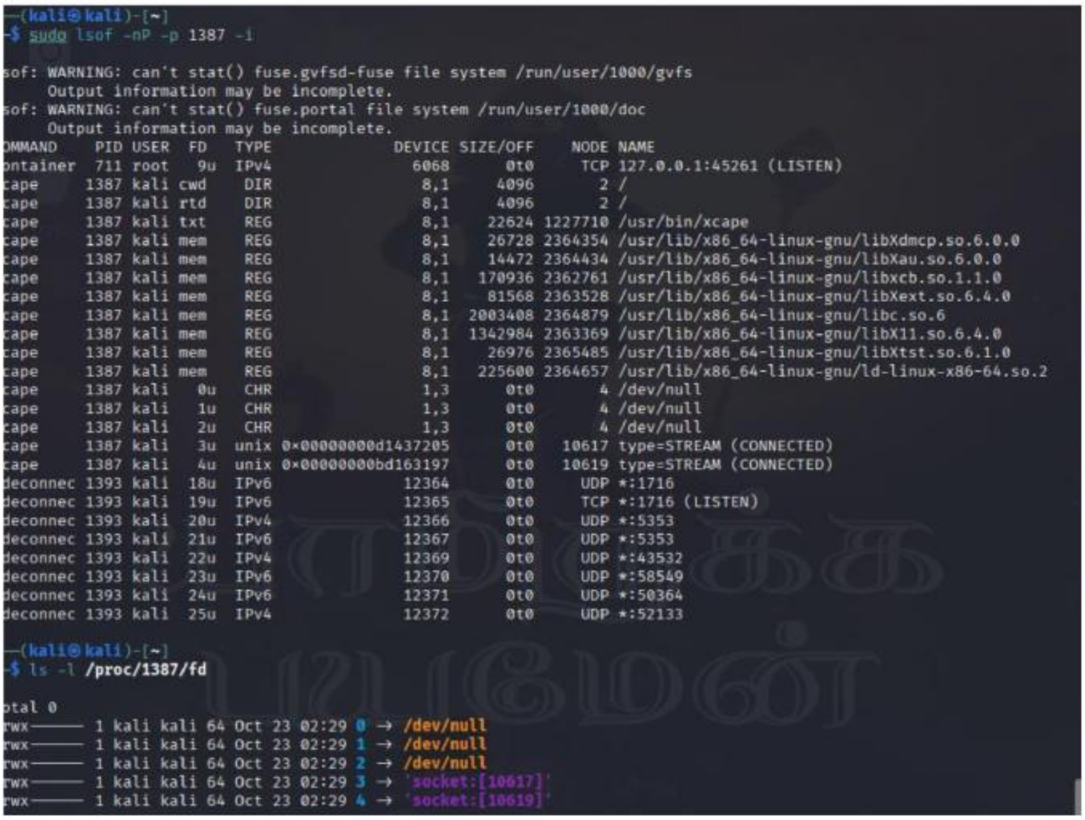
──(kali㉿kali)-[~]
─$ ps aux | grep kali

ali         1033  0.0  0.3  22852 13000 ?        Ss   00:55   0:00 /usr/lib/systemd/systemd --user
ali         1035  0.0  0.0  25048  3800 ?        S    00:55   0:00 (sd-pam)
ali         1055  0.0  0.1   9308  6120 ?        Ss   00:55   0:00 /usr/bin/dbus-daemon --session --address=systemd
 --nofork --nopidfile --systemd-activation --syslog-only
ali         1056  0.0  0.3 110864 14228 ?        S<sl 00:55   0:00 /usr/bin/pipewire
ali         1057  0.0  0.1  84744  5288 ?        Ssl  00:55   0:00 /usr/bin/pipewire -c filter-chain.conf
ali         1059  0.0  0.8 613192 34012 ?        S<sl 00:55   0:00 /usr/bin/wireplumber
ali         1060  0.0  0.2  99704  8872 ?        S<sl 00:55   0:00 /usr/bin/pipewire-pulse
ali         1061  0.0  0.2 183144 10024 ?        SLsl 00:55   0:00 /usr/bin/gnome-keyring-daemon --foreground --com
onents=pkcs11,secrets --control-directory=/run/user/1000/keyring
ali         1062  0.0  0.0   7224  3480 ?        Ss   00:55   0:00 /usr/bin/mpris-proxy
ali         1078  0.0  0.8 347984 34976 ?        Ssl  00:55   0:03 xfce4-session
ali         1168  0.0  0.0  17128  1924 ?        S    00:55   0:00 /usr/bin/VBoxClient --clipboard
ali         1170  0.0  1.8 221564 74256 ?        Sl   00:55   0:02 /usr/bin/VBoxClient --clipboard
ali         1183  0.0  0.0  17128  1924 ?        S    00:55   0:00 /usr/bin/VBoxClient --seamless
ali         1184  0.1  0.0 215416  3172 ?        Sl   00:55   0:11 /usr/bin/VBoxClient --seamless
ali         1191  0.0  0.0  17128  1752 ?        S    00:55   0:00 /usr/bin/VBoxClient --draganddrop
ali         1192  0.6  0.0 215932  2872 ?        Sl   00:55   0:38 /usr/bin/VBoxClient --draganddrop
ali         1216  0.0  0.1 381164  7408 ?        Ssl  00:55   0:00 /usr/libexec/at-spi-bus-launcher
ali         1223  0.0  0.1   8724  4976 ?        S    00:55   0:00 /usr/bin/dbus-daemon --config-file=/usr/share/de
aults/at-spi2/accessibility.conf --nofork --print-address 11 --address=unix:path=/run/user/1000/at-spi/bus_0
ali         1234  0.0  0.1 168876  7376 ?        Sl   00:55   0:04 /usr/libexec/at-spi2-registryd --use-gnome-sessi
n
ali         1241  0.0  0.0  10676  1736 ?        Ss   00:55   0:00 /usr/bin/ssh-agent -s
ali         1250  0.0  0.0 155452  3600 ?        SLsl 00:55   0:00 /usr/bin/gpg-agent --supervised
ali         1253  0.7  3.2 1035396 125784 ?      Sl   00:55   0:45 xfwm4
ali         1258  0.0  0.0  17128  1828 ?        S    00:55   0:00 /usr/bin/VBoxClient --vmsvga
ali         1259  0.0  0.0 215520  3472 ?        Sl   00:55   0:04 /usr/bin/VBoxClient --vmsvga
ali         1268  0.0  0.2 312636  7968 ?        Ssl  00:55   0:00 /usr/libexec/gvfsd
ali         1274  0.0  0.1 398368  6988 ?        Sl   00:55   0:00 /usr/libexec/gvfsd-fuse /run/user/1000/gvfs -f
ali         1292  0.0  0.7 277312 29132 ?        Sl   00:55   0:05 xfsettingsd
ali         1297  0.0  0.1 165228  5832 ?        Ssl  00:55   0:00 /usr/libexec/dconf-service
```



```
┌──(kali㉿kali)-[~]
└─$ ps -p 1387 -o pid,user,cmd,lstart
  PID USER     CMD                                                  STARTED
 1387 kali     xcape -e Super_L Control_L  Thu Oct 23 00:55:41 2025

┌──(kali㉿kali)-[~]
└─$ readlink -f /proc/1387/exe
/usr/bin/xcape
```

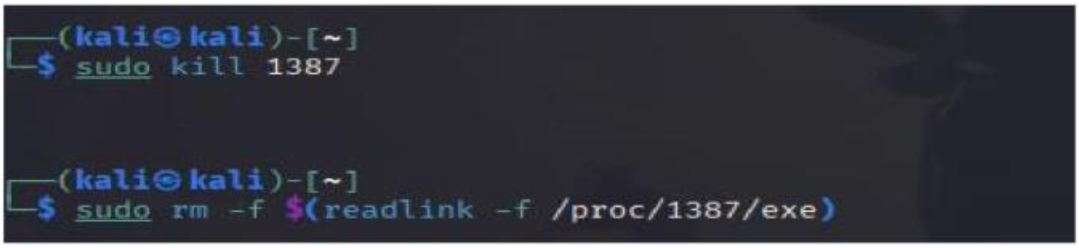


```
─(kali㉿kali)-[~]
─$ sudo lsof -nP -p 1387 -i

sof: WARNING: can't stat() fuse.gvfsd-fuse file system /run/user/1000/gvfs
      Output information may be incomplete.
sof: WARNING: can't stat() fuse.portal file system /run/user/1000/doc
      Output information may be incomplete.
OMMAND    PID USER  FD   TYPE              DEVICE SIZE/OFF    NODE NAME
ontainer  711 root   9u  IPv4                6068      0t0     TCP 127.0.0.1:45261 (LISTEN)
cape     1387 kali cwd    DIR                 8,1     4096       2 /
cape     1387 kali rtd    DIR                 8,1     4096       2 /
cape     1387 kali txt    REG                 8,1    22624 1227710 /usr/bin/xcape
cape     1387 kali mem    REG                 8,1    26728 2364354 /usr/lib/x86_64-linux-gnu/libXdmcp.so.6.0.0
cape     1387 kali mem    REG                 8,1    14472 2364434 /usr/lib/x86_64-linux-gnu/libXau.so.6.0.0
cape     1387 kali mem    REG                 8,1   170936 2362761 /usr/lib/x86_64-linux-gnu/libxcb.so.1.1.0
cape     1387 kali mem    REG                 8,1    81568 2363528 /usr/lib/x86_64-linux-gnu/libXext.so.6.4.0
cape     1387 kali mem    REG                 8,1  2003408 2364879 /usr/lib/x86_64-linux-gnu/libc.so.6
cape     1387 kali mem    REG                 8,1  1342984 2363369 /usr/lib/x86_64-linux-gnu/libX11.so.6.4.0
cape     1387 kali mem    REG                 8,1    26976 2365485 /usr/lib/x86_64-linux-gnu/libXtst.so.6.1.0
cape     1387 kali mem    REG                 8,1   225600 2364657 /usr/lib/x86_64-linux-gnu/ld-linux-x86-64.so.2
cape     1387 kali   0u   CHR                 1,3      0t0       4 /dev/null
cape     1387 kali   1u   CHR                 1,3      0t0       4 /dev/null
cape     1387 kali   2u   CHR                 1,3      0t0       4 /dev/null
cape     1387 kali   3u  unix 0x00000000d1437205      0t0   10617 type=STREAM (CONNECTED)
cape     1387 kali   4u  unix 0x00000000bd163197      0t0   10619 type=STREAM (CONNECTED)
deconnec 1393 kali  18u  IPv6               12364      0t0     UDP *:1716
deconnec 1393 kali  19u  IPv6               12365      0t0     TCP *:1716 (LISTEN)
deconnec 1393 kali  20u  IPv4               12366      0t0     UDP *:5353
deconnec 1393 kali  21u  IPv6               12367      0t0     UDP *:5353
deconnec 1393 kali  22u  IPv4               12369      0t0     UDP *:43532
deconnec 1393 kali  23u  IPv6               12370      0t0     UDP *:58549
deconnec 1393 kali  24u  IPv6               12371      0t0     UDP *:50364
deconnec 1393 kali  25u  IPv4               12372      0t0     UDP *:52133

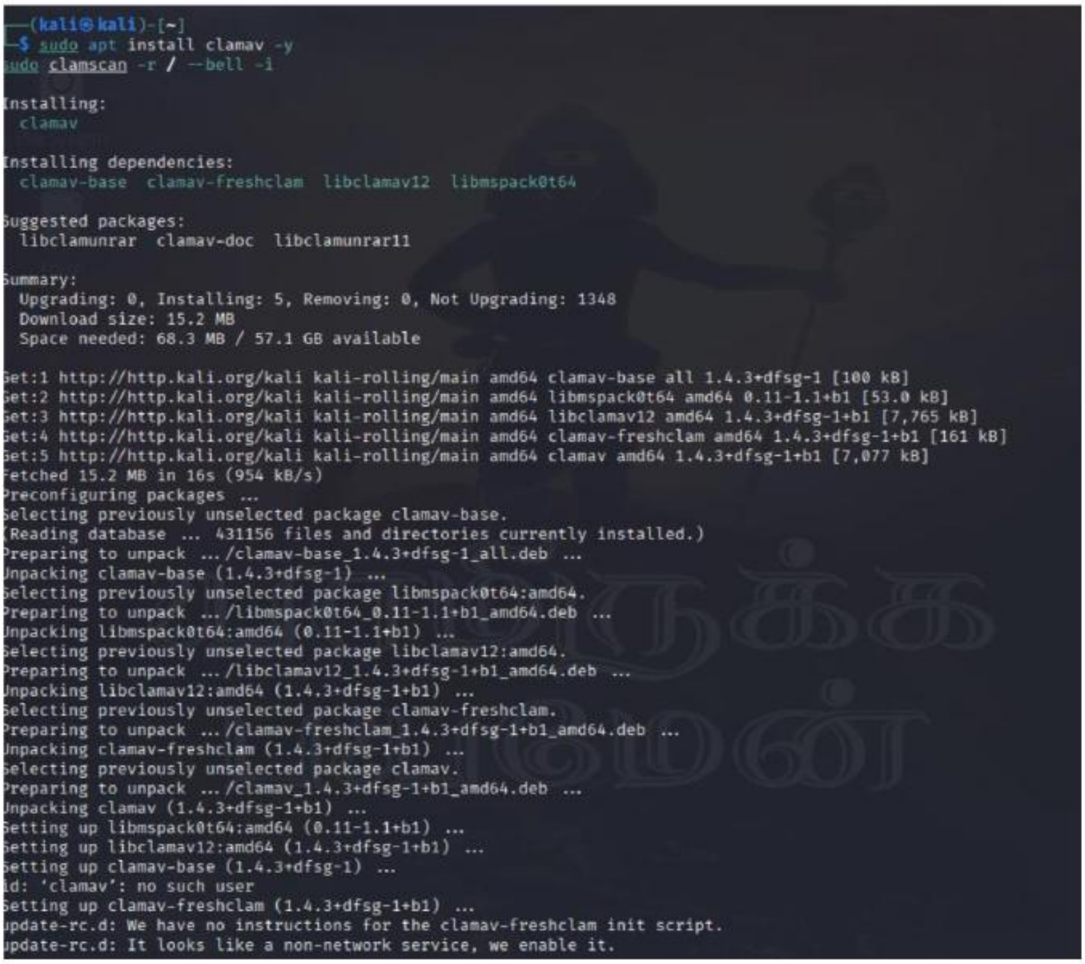
─(kali㉿kali)-[~]
─$ ls -l /proc/1387/fd

otal 0
rwx────── 1 kali kali 64 Oct 23 02:29 0 → /dev/null
rwx────── 1 kali kali 64 Oct 23 02:29 1 → /dev/null
rwx────── 1 kali kali 64 Oct 23 02:29 2 → /dev/null
rwx────── 1 kali kali 64 Oct 23 02:29 3 → 'socket:[10617]'
rwx────── 1 kali kali 64 Oct 23 02:29 4 → 'socket:[10619]'
```



```
┌──(kali㉿kali)-[~]
└─$ sudo kill 1387


┌──(kali㉿kali)-[~]
└─$ sudo rm -f $(readlink -f /proc/1387/exe)
```



```
┌──(kali㉿kali)-[~]
└─$ sudo apt install clamav -y
sudo clamscan -r / --bell -i

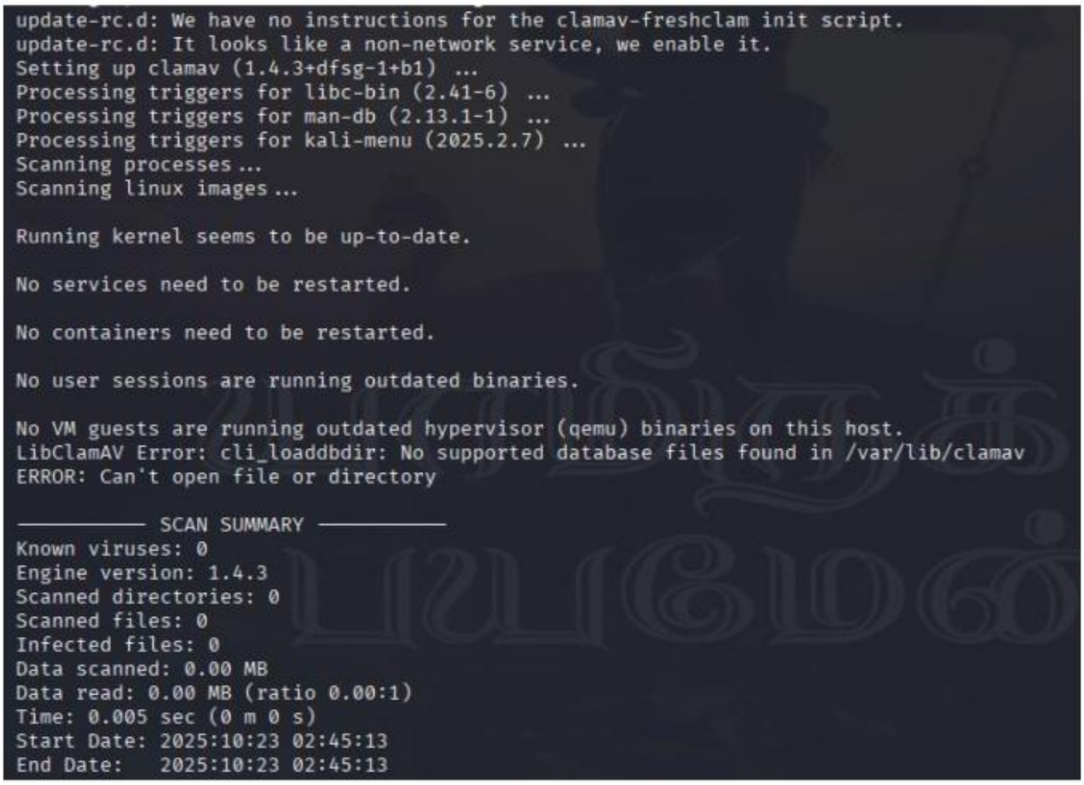
Installing:
  clamav

Installing dependencies:
  clamav-base  clamav-freshclam  libclamav12  libmspack0t64

Suggested packages:
  libclamunrar  clamav-doc  libclamunrar11

Summary:
  Upgrading: 0, Installing: 5, Removing: 0, Not Upgrading: 1348
  Download size: 15.2 MB
  Space needed: 68.3 MB / 57.1 GB available

Get:1 http://http.kali.org/kali kali-rolling/main amd64 clamav-base all 1.4.3+dfsg-1 [100 kB]
Get:2 http://http.kali.org/kali kali-rolling/main amd64 libmspack0t64 amd64 0.11-1.1+b1 [53.0 kB]
Get:3 http://http.kali.org/kali kali-rolling/main amd64 libclamav12 amd64 1.4.3+dfsg-1+b1 [7,765 kB]
Get:4 http://http.kali.org/kali kali-rolling/main amd64 clamav-freshclam amd64 1.4.3+dfsg-1+b1 [161 kB]
Get:5 http://http.kali.org/kali kali-rolling/main amd64 clamav amd64 1.4.3+dfsg-1+b1 [7,077 kB]
Fetched 15.2 MB in 16s (954 kB/s)
Preconfiguring packages ...
Selecting previously unselected package clamav-base.
(Reading database ... 431156 files and directories currently installed.)
Preparing to unpack .../clamav-base_1.4.3+dfsg-1_all.deb ...
Unpacking clamav-base (1.4.3+dfsg-1) ...
Selecting previously unselected package libmspack0t64:amd64.
Preparing to unpack .../libmspack0t64_0.11-1.1+b1_amd64.deb ...
Unpacking libmspack0t64:amd64 (0.11-1.1+b1) ...
Selecting previously unselected package libclamav12:amd64.
Preparing to unpack .../libclamav12_1.4.3+dfsg-1+b1_amd64.deb ...
Unpacking libclamav12:amd64 (1.4.3+dfsg-1+b1) ...
Selecting previously unselected package clamav-freshclam.
Preparing to unpack .../clamav-freshclam_1.4.3+dfsg-1+b1_amd64.deb ...
Unpacking clamav-freshclam (1.4.3+dfsg-1+b1) ...
Selecting previously unselected package clamav.
Preparing to unpack .../clamav_1.4.3+dfsg-1+b1_amd64.deb ...
Unpacking clamav (1.4.3+dfsg-1+b1) ...
Setting up libmspack0t64:amd64 (0.11-1.1+b1) ...
Setting up libclamav12:amd64 (1.4.3+dfsg-1+b1) ...
Setting up clamav-base (1.4.3+dfsg-1) ...
id: 'clamav': no such user
Setting up clamav-freshclam (1.4.3+dfsg-1+b1) ...
update-rc.d: We have no instructions for the clamav-freshclam init script.
update-rc.d: It looks like a non-network service, we enable it.
```



```
update-rc.d: We have no instructions for the clamav-freshclam init script.
update-rc.d: It looks like a non-network service, we enable it.
Setting up clamav (1.4.3+dfsg-1+b1) ...
Processing triggers for libc-bin (2.41-6) ...
Processing triggers for man-db (2.13.1-1) ...
Processing triggers for kali-menu (2025.2.7) ...
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.

No services need to be restarted.

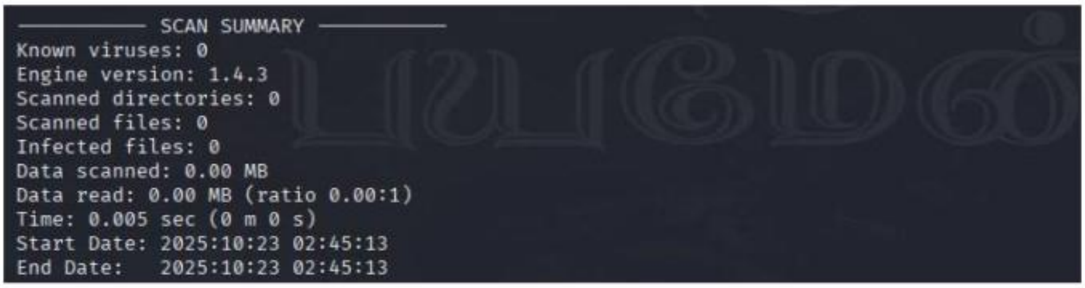
No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
LibClamAV Error: cli_loaddbdir: No supported database files found in /var/lib/clamav
ERROR: Can't open file or directory

----------- SCAN SUMMARY -----------
Known viruses: 0
Engine version: 1.4.3
Scanned directories: 0
Scanned files: 0
Infected files: 0
Data scanned: 0.00 MB
Data read: 0.00 MB (ratio 0.00:1)
Time: 0.005 sec (0 m 0 s)
Start Date: 2025:10:23 02:45:13
End Date:   2025:10:23 02:45:13
```

Result:



```
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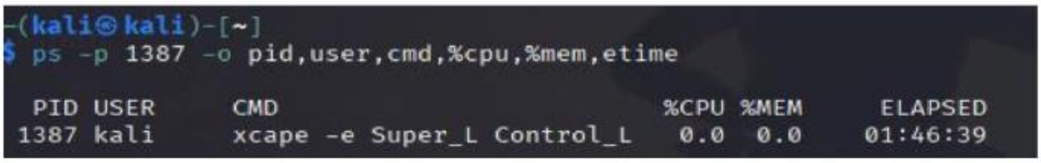

```
-(kali㉿kali)-[~]
$ ps -p 1387 -o pid,user,cmd,%cpu,%mem,etime

  PID USER     CMD                         %CPU %MEM     ELAPSED
 1387 kali     xcape -e Super_L Control_L   0.0  0.0    01:46:39
```