



**UNIVERSITE DE TECHNOLOGIE D'HAÏTI
(UNITECH)
FACULTE DES SCIENCES INFORMATIQUES**

TRAVAUX DIRIGES	INSTALLATION ET COMMANDES LINUX
MATIERE	CYBERSECURITE
ETUDIANTE	CADET ESTHER
NIVEAU	II (3EME ANNEE)
DEPARTEMENT	INFORMATIQUES
ENCADREUR	SAINT AMOUR ISMAEL
DATE	LE/4/1/25

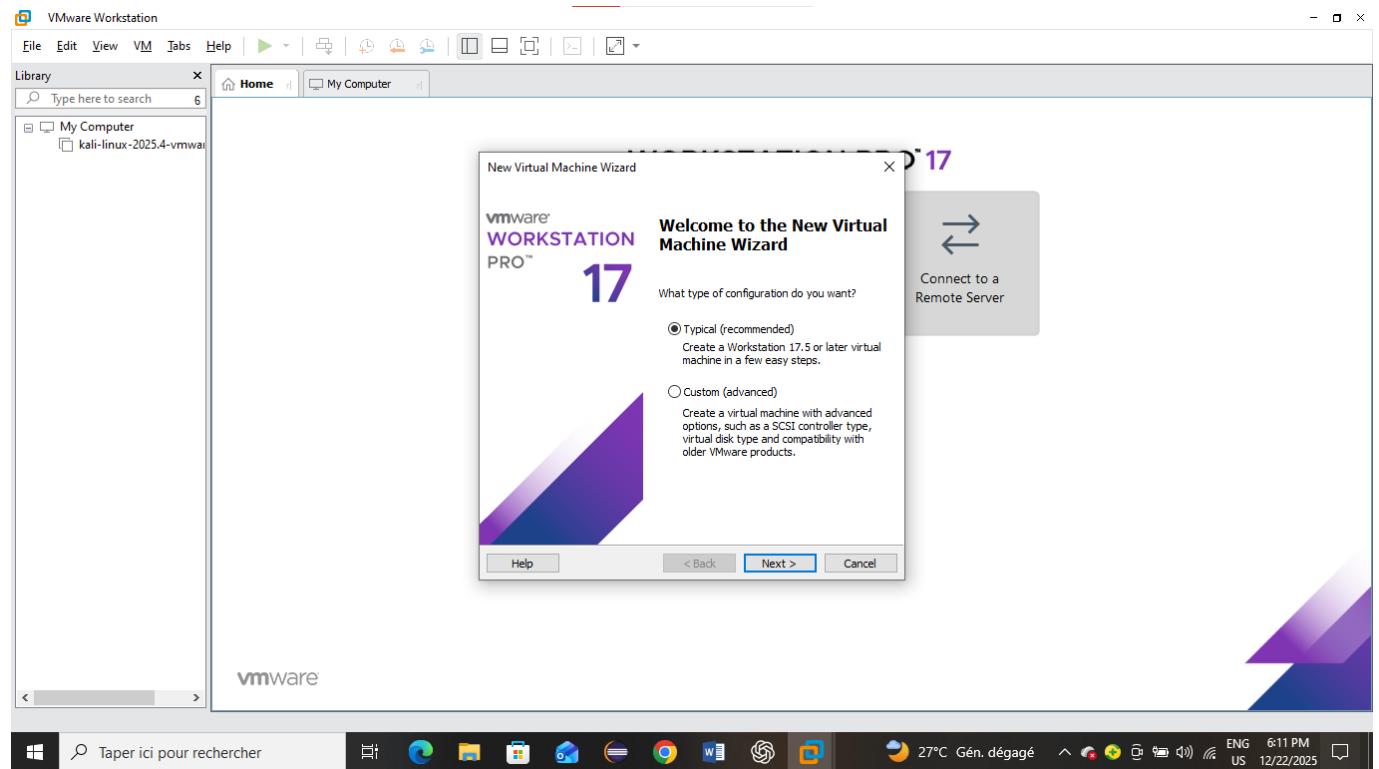
INTRO Ce travail dirige a pour objectif de m'initier à l'installation de Kali Linux dans un environnement virtualisé et à la manipulation des commandes de base du système Linux.

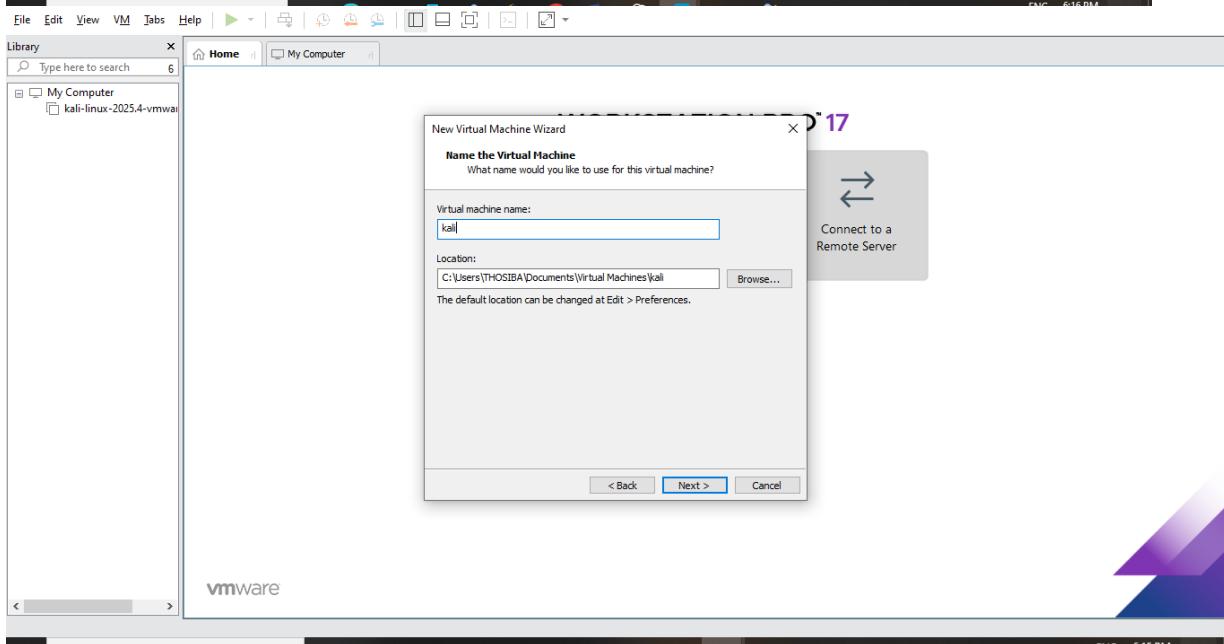
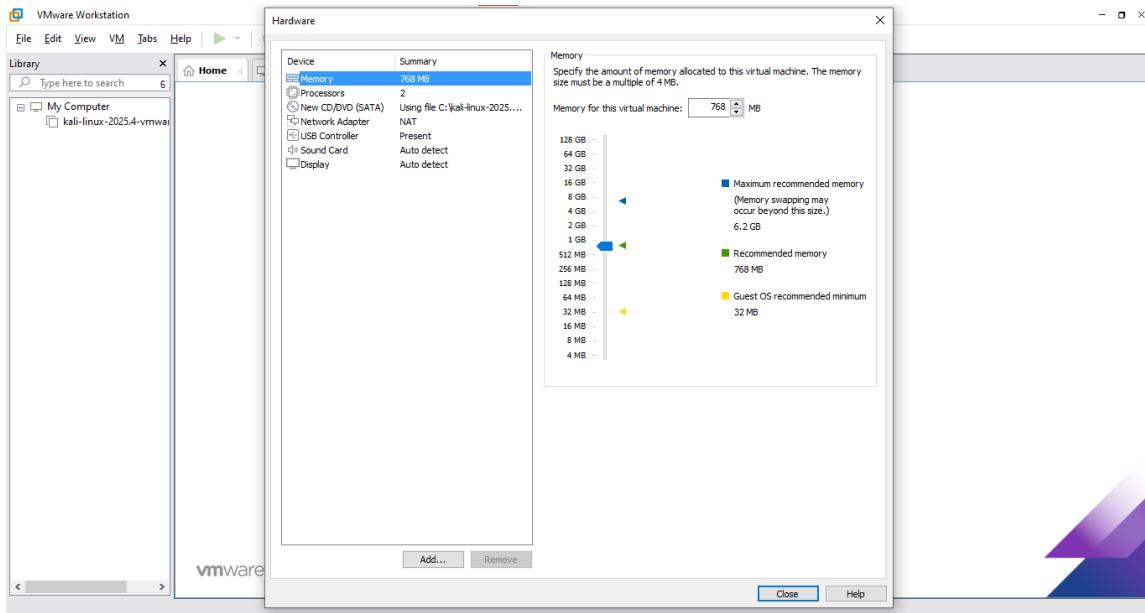
Il permet également de comprendre l'organisation des fichiers, la gestion des processus, l'analyse du système et l'exploitation du réseau.

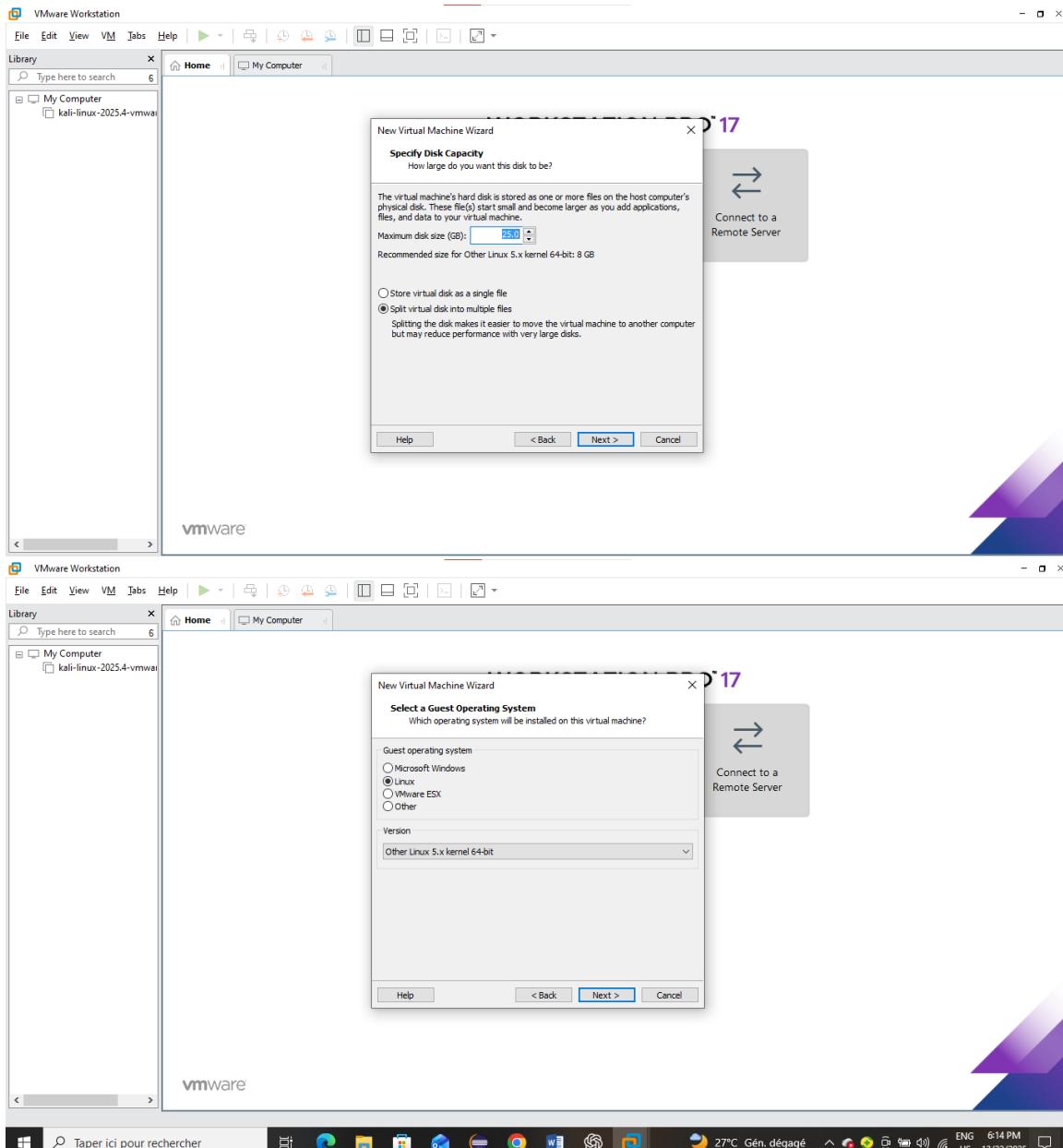
➤ INSTALLATION DE KALI LINUX

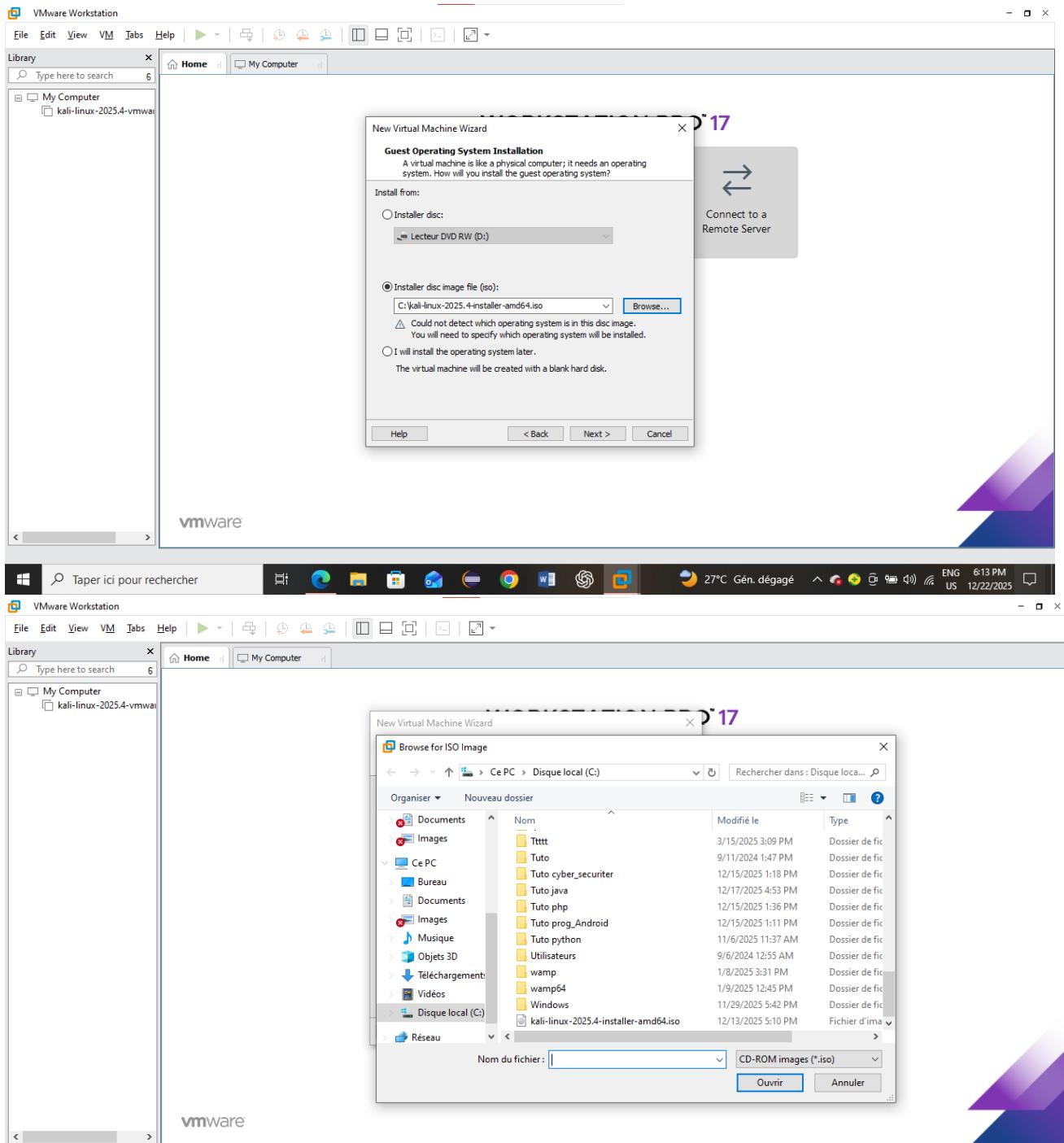
Kali Linux a été installé sur une machine virtuelle à l'aide du logiciel **VMWARE**.

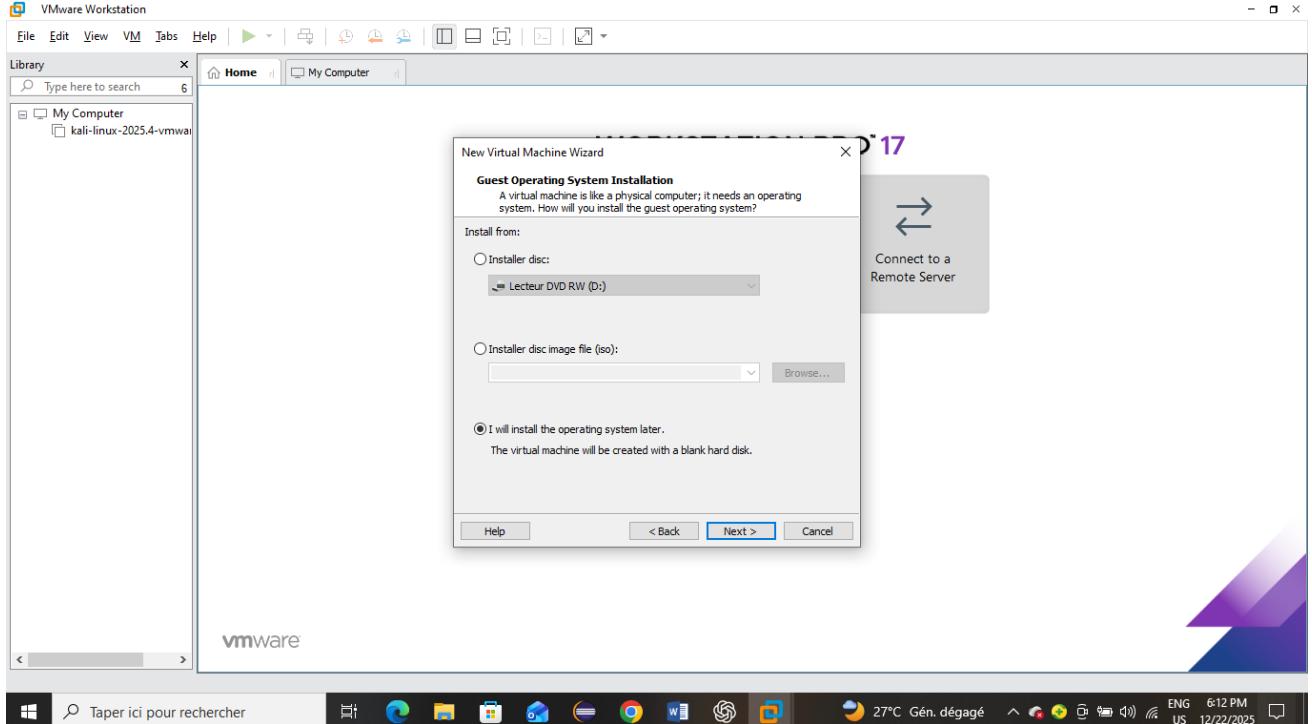
L'installation a été réalisée en mode graphique en suivant les étapes recommandées (choix de la langue, du clavier, du disque et de l'utilisateur).



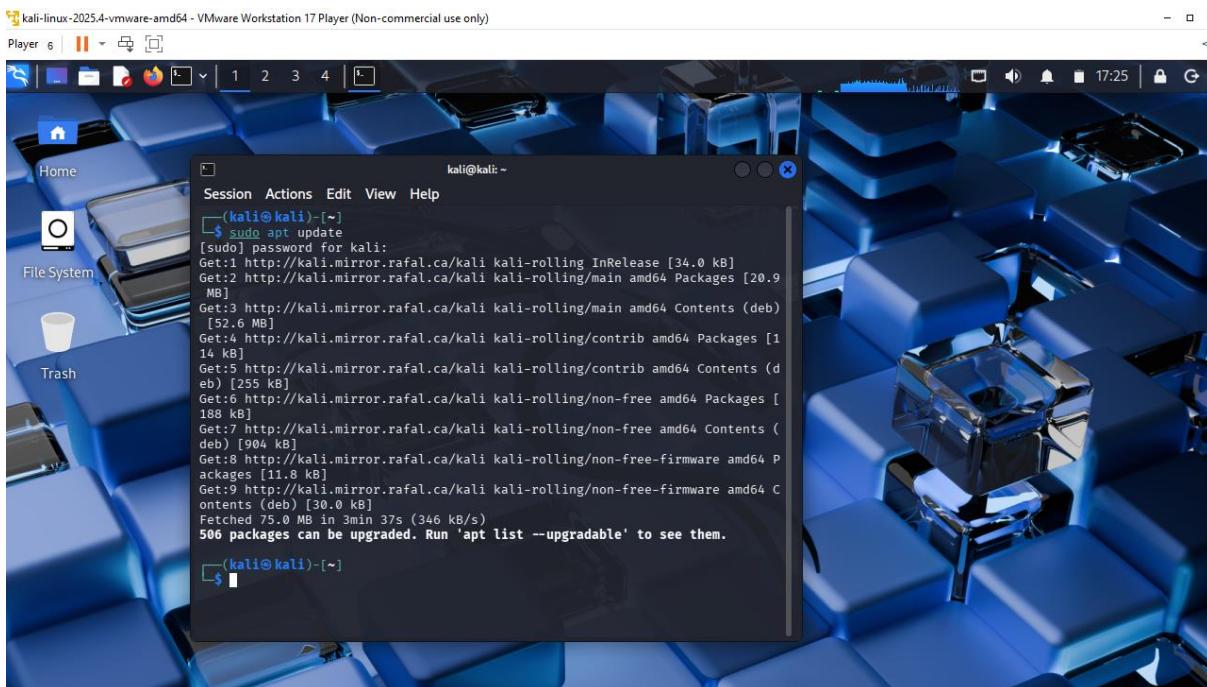


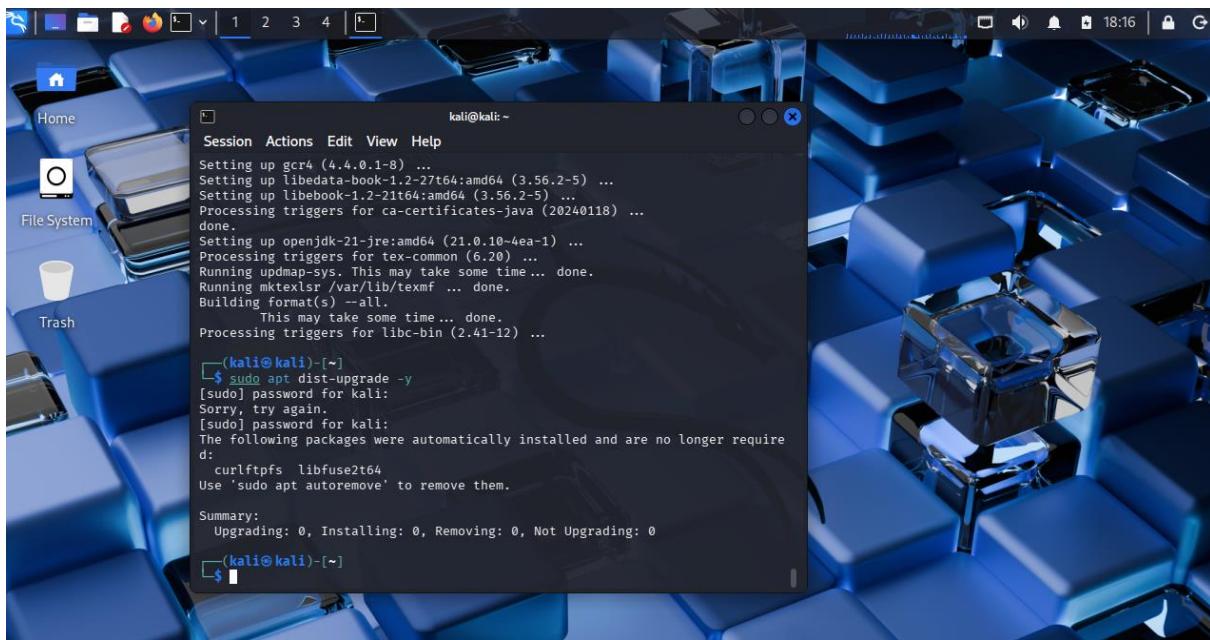






➤ Après l'installation, le système a été mis à jour avec la commande suivante





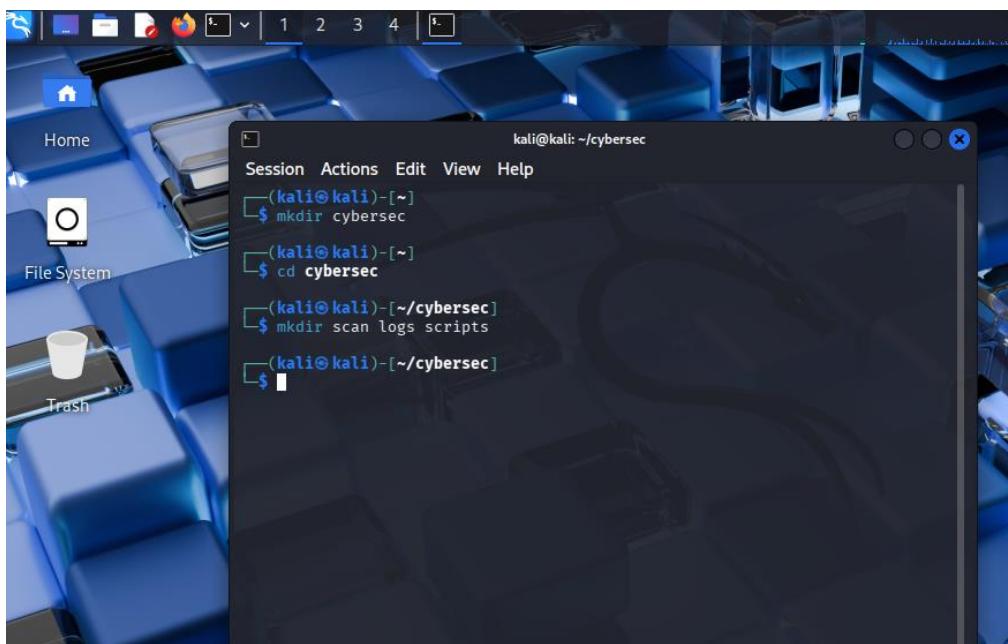
A screenshot of a Kali Linux desktop environment. A terminal window titled "kali@kali: ~" is open, showing the output of the command `sudo apt dist-upgrade -y`. The terminal shows various package dependencies being updated, including gcr4, libedata-book, libebook, ca-certificates-java, openjdk-21-jre, tex-common, miktexlsr, libc-bin, curlftpfs, libfuse2t64, and curl. It also shows a summary of the upgrade process.

```
Session Actions Edit View Help
kali@kali: ~
Setting up gcr4 (4.4.0.1-8) ...
Setting up libedata-book-1.2-27t64:amd64 (3.56.2-5) ...
Setting up libebook-1.2-21t64:amd64 (3.56.2-5) ...
Processing triggers for ca-certificates-java (20240118) ...
done.
Setting up openjdk-21-jre:amd64 (21.0.10~4ea-1) ...
Processing triggers for tex-common (6.20) ...
Running upmap-sys. This may take some time... done.
Running miktexlsr /var/lib/texmf ... done.
Building format(s) --all.
This may take some time... done.
Processing triggers for libc-bin (2.41-12) ...

(kali㉿kali)-[~]
$ sudo apt dist-upgrade -y
[sudo] password for kali:
Sorry, try again.
[sudo] password for kali:
The following packages were automatically installed and are no longer required:
  curlftpfs  libfuse2t64
Use 'sudo apt autoremove' to remove them.

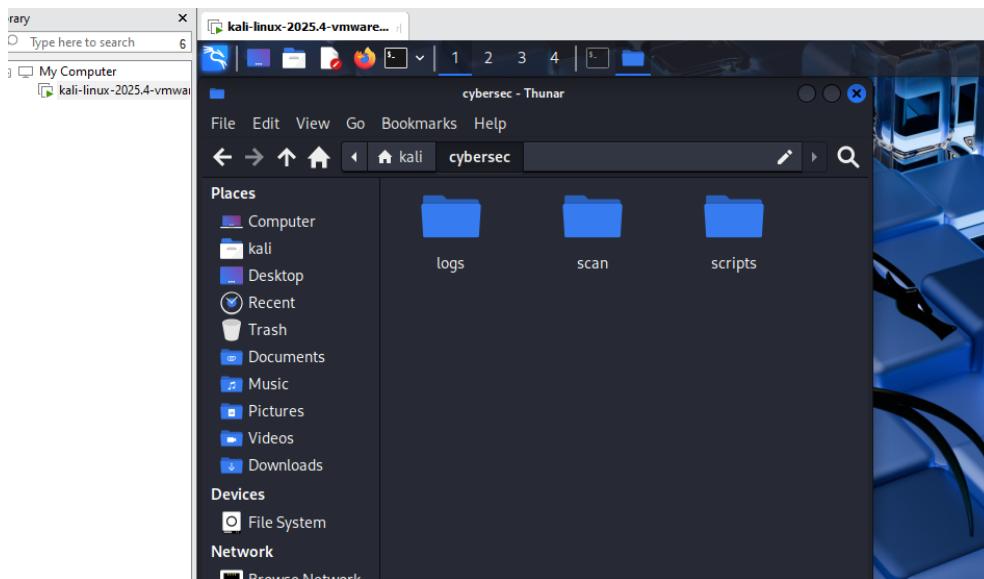
Summary:
  Upgrading: 0, Installing: 0, Removing: 0, Not Upgrading: 0
(kali㉿kali)-[~]
$
```

- Un dossier principal nommé cybersec a été créé, contenant trois sous-dossiers : scan, logs et scripts.



A screenshot of a Kali Linux desktop environment. A terminal window titled "kali@kali: ~/cybersec" is open, showing the creation of a directory structure. The user first creates a directory named "cybersec" at the current working directory (~). Then, they change into that directory and create three sub-directories: "scan", "logs", and "scripts".

```
Session Actions Edit View Help
kali@kali: ~/cybersec
(kali㉿kali)-[~]
$ mkdir cybersec
(kali㉿kali)-[~]
$ cd cybersec
(kali㉿kali)-[~/cybersec]
$ mkdir scan logs scripts
(kali㉿kali)-[~/cybersec]
$
```



- Deux fichiers notes.txt ont été créés dans les dossiers dans les dossiers **scan** et **logs**, puis du contenu y a été ajouté.

```
(kali㉿kali)-[~/cybersec]
└─$ touch scan/notes.txt logs/notes.txt

(kali㉿kali)-[~/cybersec]
```

```
(kali㉿kali)-[~/cybersec]
└─$ echo "Note du scan reseau" >scan/notes.txt

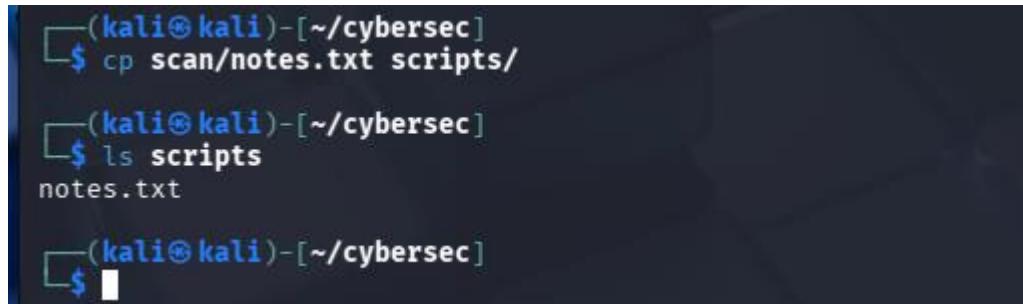
(kali㉿kali)-[~/cybersec]
└─$ echo "logs du systeme kali" >logs/notes.txt

(kali㉿kali)-[~/cybersec]
└─$ cat scan/notes.txt
Note du scan reseau

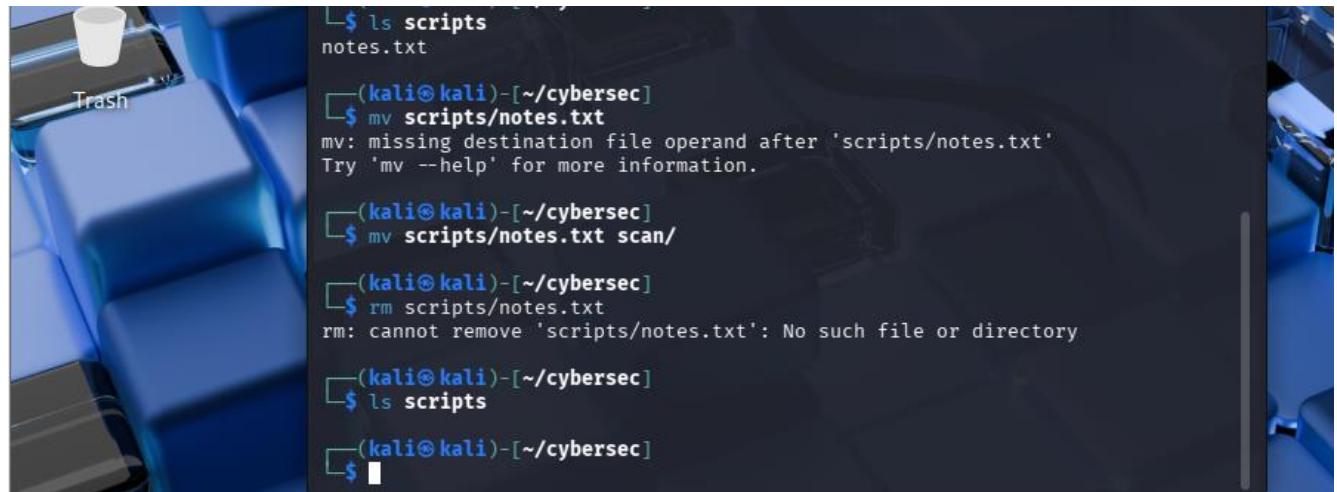
(kali㉿kali)-[~/cybersec]
└─$ cat logs/notes.txt
logs du systeme kali

(kali㉿kali)-[~/cybersec]
└─$
```

- Le fichier notes.txt a été copié dans le dossier **scripts**, ensuite déplacé et supprimé selon les consignes.

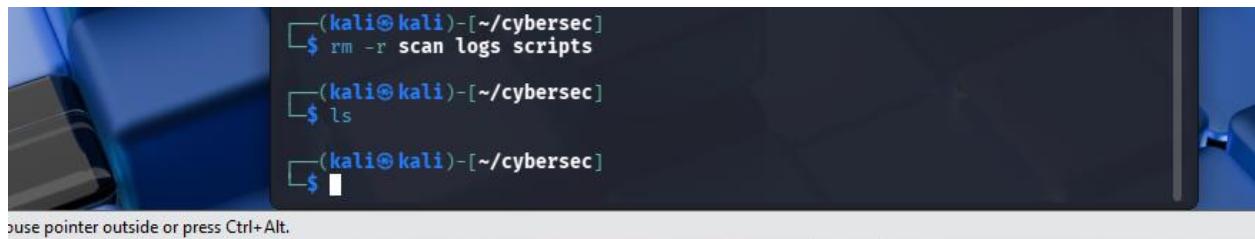


```
(kali㉿kali)-[~/cybersec]
└─$ cp scan/notes.txt scripts/
(kali㉿kali)-[~/cybersec]
└─$ ls scripts
notes.txt
(kali㉿kali)-[~/cybersec]
└─$
```



```
└─$ ls scripts
notes.txt
(kali㉿kali)-[~/cybersec]
└─$ mv scripts/notes.txt
mv: missing destination file operand after 'scripts/notes.txt'
Try 'mv --help' for more information.
(kali㉿kali)-[~/cybersec]
└─$ mv scripts/notes.txt scan/
(kali㉿kali)-[~/cybersec]
└─$ rm scripts/notes.txt
rm: cannot remove 'scripts/notes.txt': No such file or directory
(kali㉿kali)-[~/cybersec]
└─$ ls scripts
(kali㉿kali)-[~/cybersec]
└─$
```

- Les sous-dossiers **scan**, **logs** et **scripts** ont été supprimés.



```
(kali㉿kali)-[~/cybersec]
└─$ rm -r scan logs scripts
(kali㉿kali)-[~/cybersec]
└─$ ls
(kali㉿kali)-[~/cybersec]
└─$
```

use pointer outside or press Ctrl+Alt.

- Les informations réseau de la machine ont été affichées avec la commande **ip a**

```
(kali㉿kali)-[~/cybersec]
$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
        inet 127.0.0.1/8 scope host lo
            valid_lft forever preferred_lft forever
        inet6 ::1/128 scope host noprefixroute
            valid_lft forever preferred_lft forever
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 00:0c:29:ab:cf:12 brd ff:ff:ff:ff:ff:ff
        inet 192.168.231.130/24 brd 192.168.231.255 scope global dynamic noprefixroute
            route eth0
                valid_lft 1207sec preferred_lft 1207sec
            inet6 fe80::c0ac:750f:79a1:b082/64 scope link noprefixroute
                valid_lft forever preferred_lft forever

(kali㉿kali)-[~/cybersec]
```

Move the mouse pointer outside or press Ctrl+Alt.

- Plusieurs commandes système ont été exécutées afin d'analyser l'état du système

```
(kali㉿kali)-[~/cybersec]
$ df -h
Filesystem      Size  Used Avail Use% Mounted on
udev            879M    0  879M   0% /dev
tmpfs           197M  1.3M 196M   1% /run
/dev/sda1        79G   16G  59G  22% /
tmpfs           982M  4.0K 982M   1% /dev/shm
none            1.0M    0  1.0M   0% /run/credentials/systemd-journald.service
tmpfs           982M   60K 982M   1% /tmp
none            1.0M    0  1.0M   0% /run/credentials/getty@tty1.service
tmpfs           197M  112K 197M   1% /run/user/1000

(kali㉿kali)-[~/cybersec]
```

```
(kali㉿kali)-[~/cybersec]
$ du -sh .
4.0K .
```

```
(kali㉿kali)-[~/cybersec]
$ ps aux
USER      PID %CPU %MEM      VSZ   RSS TTY      STAT START  TIME COMMAND
root      1  0.2  0.7  24404 15184 ?      Ss  16:53  0:05 /sbin/init
root      2  0.0  0.0      0   0 ?      S  16:53  0:00 [kthreadd]
root      3  0.0  0.0      0   0 ?      S  16:53  0:00 [pool_work
root      4  0.0  0.0      0   0 ?      I< 16:53  0:00 [kworker/R
root      5  0.0  0.0      0   0 ?      I< 16:53  0:00 [kworker/R
root      6  0.0  0.0      0   0 ?      I< 16:53  0:00 [kworker/R
root      7  0.0  0.0      0   0 ?      I< 16:53  0:00 [kworker/R
root      8  0.0  0.0      0   0 ?      I< 16:53  0:00 [kworker/R
root     12  0.0  0.0      0   0 ?      I  16:53  0:00 [kworker/u
root     13  0.0  0.0      0   0 ?      I< 16:53  0:00 [kworker/R
root     14  0.0  0.0      0   0 ?      S  16:53  0:00 [ksoftirqd
root     15  0.2  0.0      0   0 ?      I  16:53  0:05 [rcu_prem
root     16  0.0  0.0      0   0 ?      S  16:53  0:00 [rcu_exp_p
root     17  0.0  0.0      0   0 ?      S  16:53  0:00 [rcu_exp_g
root     18  0.0  0.0      0   0 ?      S  16:53  0:00 [migration
root     19  0.0  0.0      0   0 ?      S  16:53  0:00 [idle_inje
root     20  0.0  0.0      0   0 ?      S  16:53  0:00 [cpuhp/0]
root     21  0.0  0.0      0   0 ?      S  16:53  0:00 [cpuhp/1]
root     22  0.0  0.0      0   0 ?      S  16:53  0:00 [idle_inje
root     23  0.0  0.0      0   0 ?      S  16:53  0:00 [migration
root     24  0.0  0.0      0   0 ?      S  16:53  0:00 [ksoftirqd
root     27  0.0  0.0      0   0 ?      S  16:53  0:00 [cpuhp/2]
```

```
$ free -h
              total        used        free      shared  buff/cache   availa
ble
Mem:       1.9Gi      789Mi      212Mi      7.4Mi      1.1Gi      1.
Swap:      953Mi          0B      953Mi
```

The screenshot shows a Kali Linux desktop environment with a terminal window open. The terminal window title is "Session Actions Edit View Help". Inside the terminal, the user has run several commands:

```
root      623  0.0  0.4 18428 9352 ?          Ss  16:54  0:00 /usr/lib/s
root      858  0.0  0.9 336572 19604 ?          Ssl 16:54  0:01 /usr/sbin/
root      883  0.0  0.0    0 0 ?                 I<  16:54  0:00 [kworker/u
root      886  0.0  0.6 391064 12792 ?          Ssl 16:54  0:00 /usr/sbin/
root      977  0.0  0.3 381052 7696 ?          SSl 16:54  0:00 /usr/sbin/
root      995  0.0  0.1 8124 2784 tty1           Ss+ 16:54  0:00 /usr/sbin/
root      996  3.5  6.6 941704 132744 tty7        Ssl+ 16:54  1:22 /usr/lib/x
root     1033  0.0  0.0    0 0 ?                 S  16:54  0:00 [psimon]
rtkit    1062  0.0  0.1 21492 3220 ?          SNSl 16:54  0:00 /usr/libexec/
root     1135  0.0  0.0    0 0 ?                 I  16:54  0:02 [kworker/3
root     1140  0.0  0.5 172768 10288 ?          Sl  16:55  0:00 lightdm-
kali    1168  0.0  0.6 23060 13440 ?          Ss  16:55  0:00 /usr/lib/s
kali    1170  0.0  0.2 24360 4104 ?          S  16:55  0:00 (sd-pam)
kali    1190  0.0  0.2 8912 5948 ?          Ss  16:55  0:00 /usr/bin/d
kali    1191  0.0  0.6 102036 12464 ?          S<Sl 16:55  0:00 /usr/bin/p
kali    1193  0.0  0.5 183184 10396 ?          SLSl 16:55  0:00 /usr/bin/g
kali    1194  0.0  0.1 7212 3740 ?          Ss  16:55  0:00 /usr/bin/m
kali    1195  0.0  0.9 480568 19116 ?          S<sl 16:55  0:00 /usr/bin/w
kali    1196  0.0  0.2 84704 5476 ?          Ssl 16:55  0:00 /usr/bin/p
kali    1197  0.0  0.4 99364 9144 ?          S<sl 16:55  0:00 /usr/bin/p
kali    1220  0.0  1.8 422292 37208 ?          Ssl 16:55  0:01 xfce4-sess
kali    1287  0.0  0.3 381168 7756 ?          Ssl 16:55  0:00 /usr/libexec/
kali    1294  0.0  0.2 8484 4972 ?          S  16:55  0:00 /usr/bin/d
kali    1305  0.0  0.3 168784 7668 ?          Sl  16:55  0:00 /usr/libexec/
kali    1312  0.0  0.0 10688 1860 ?          Ss  16:55  0:00 /usr/bin/s
kali    1321  0.0  0.1 155488 3972 ?          SLSl 16:55  0:00 /usr/bin/g
kali    1324  1.5  6.7 1183764 136292 ?          Sl  16:55  0:35 xfwm4
kali    1329  0.0  0.4 312816 8540 ?          Ssl 16:55  0:00 /usr/libexec/
kali    1335  0.0  0.3 472140 7648 ?          Sl  16:55  0:00 /usr/libexec/
kali    1354  0.0  1.7 355836 35396 ?          Sl  16:55  0:01 xfsettings
kali    1360  0.0  0.3 165276 6152 ?          Ssl 16:55  0:00 /usr/libexec/
kali    1361  0.2  2.3 508028 47080 ?          Sl  16:55  0:06 xfce4-pane
```

The desktop environment includes a file manager window titled "kali-linux-2025.4-vmware...", a terminal window titled "Session Actions Edit View Help", and a terminal window titled "Session Actions Edit View Help" showing the output of the "lspci" command.

➤ Installation et utilisation de traceroute

```
(kali㉿kali)-[~/cybersec]
$ sudo apt install traceroute -y
[sudo] password for kali:
traceroute is already the newest version (1:2.1.6-1).
The following packages were automatically installed and are no longer required:
  curlftpfs libfuse2t64
Use 'sudo apt autoremove' to remove them.

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

(kali㉿kali)-[~/cybersec]
$ traceroute google.com
traceroute to google.com (142.250.217.174), 30 hops max, 60 byte packets
 1  192.168.231.2 (192.168.231.2)  2.346 ms  5.077 ms  4.391 ms
 2  * * *
 3  * * *
 4  * * *
 5  * * *
 6  * * *
 7  * * *
 8  * * *
 9  * * *
10  * * *
11  * * *
12  * * *
13  * * *
14  * * *
15  * * *
16  * * *
17  * * *
18  * * *
19  * * *
20  * * *
21  * * *
22  * * *
23  *■
```

➤ Commandes réseau et journaux système

```
(kali㉿kali)-[~/cybersec]
$ journalctl
Dec 17 17:08:36 kali kernel: Linux version 6.16.8+kali-amd64 (devel@kali.org) (x86_64-linux-gnu-gcc-14 (Debian 14.3.0-8) 14.3.0, GNU ld (GNU >
Dec 17 17:08:36 kali kernel: Command line: BOOT_IMAGE=/boot/vmlinuz-6.16.8+kali-amd64 root=UUID=24746b7e-1f26-43a7-8603-f350675beb65 ro quiet>
Dec 17 17:08:36 kali kernel: Disabled fast string operations
Dec 17 17:08:36 kali kernel: BIOS-provided physical RAM map:
Dec 17 17:08:36 kali kernel: BIOS-e820: [mem 0x0000000000000000-0x0000000000009ffff] usable
Dec 17 17:08:36 kali kernel: BIOS-e820: [mem 0x000000000009f400-0x000000000009ffff] reserved
Dec 17 17:08:36 kali kernel: BIOS-e820: [mem 0x0000000000dc000-0x00000000000ffff] reserved
Dec 17 17:08:36 kali kernel: BIOS-e820: [mem 0x000000000100000-0x0000000007fedffff] usable
Dec 17 17:08:36 kali kernel: BIOS-e820: [mem 0x0000000007fee0000-0x0000000007fefefff] ACPI data
Dec 17 17:08:36 kali kernel: BIOS-e820: [mem 0x0000000007feff0000-0x0000000007feffff] ACPI NVS
Dec 17 17:08:36 kali kernel: BIOS-e820: [mem 0x0000000007ff00000-0x0000000007fffffff] usable
Dec 17 17:08:36 kali kernel: BIOS-e820: [mem 0x000000000f000000-0x000000000f7fffffff] reserved
Dec 17 17:08:36 kali kernel: BIOS-e820: [mem 0x000000000fec00000-0x000000000fec0ffff] reserved
try: sudo apt install kubectl
(kali㉿kali)-[~/cybersec]
$ ss -tuln
Netid      State          Recv-Q           Send-Q           Local Address:Port          Peer Address:Port
(kali㉿kali)-[~/cybersec]
$ netstart -tuln ss -tuln
```

```
[kali㉿kali] -[~/cybersec]
└─$ journalctl -n 10
Dec 22 17:51:19 kali systemd[1]: apt-daily.service: Deactivated successfully.
Dec 22 17:51:19 kali systemd[1]: Finished apt-daily.service - Daily apt download activities.
Dec 22 17:51:19 kali systemd[1]: apt-daily.service: Consumed 1.010s CPU time over 1.075s wall clock time, 13.4M memory peak.
Dec 22 17:52:52 kali dbus-daemon[1190]: [session uid=1000 pid=1190 pidfd=5] Activating via systemd: service name='org.xfce.Xfconf' unit='xfconf'
Dec 22 17:52:52 kali dbus-daemon[1168]: Starting xfconfd.service - Xfce configuration service ...
Dec 22 17:52:52 kali dbus-daemon[1190]: [session uid=1000 pid=1190 pidfd=5] Successfully activated service 'org.xfce.Xfconf'
Dec 22 17:52:52 kali systemd[1168]: Started xfconfd.service - Xfce configuration service.
Dec 22 17:55:03 kali CRON[31316]: pam_unix(cron:session): session opened for user root(uid=0) by root(uid=0)
Dec 22 17:55:03 kali CRON[31318]: (root) CMD (command -v debian-sa1 > /dev/null && debian-sa1 1 1)
Dec 22 17:55:03 kali CRON[31316]: pam_unix(cron:session): session closed for user root
```

```
[kali㉿kali] -[~/cybersec]
```

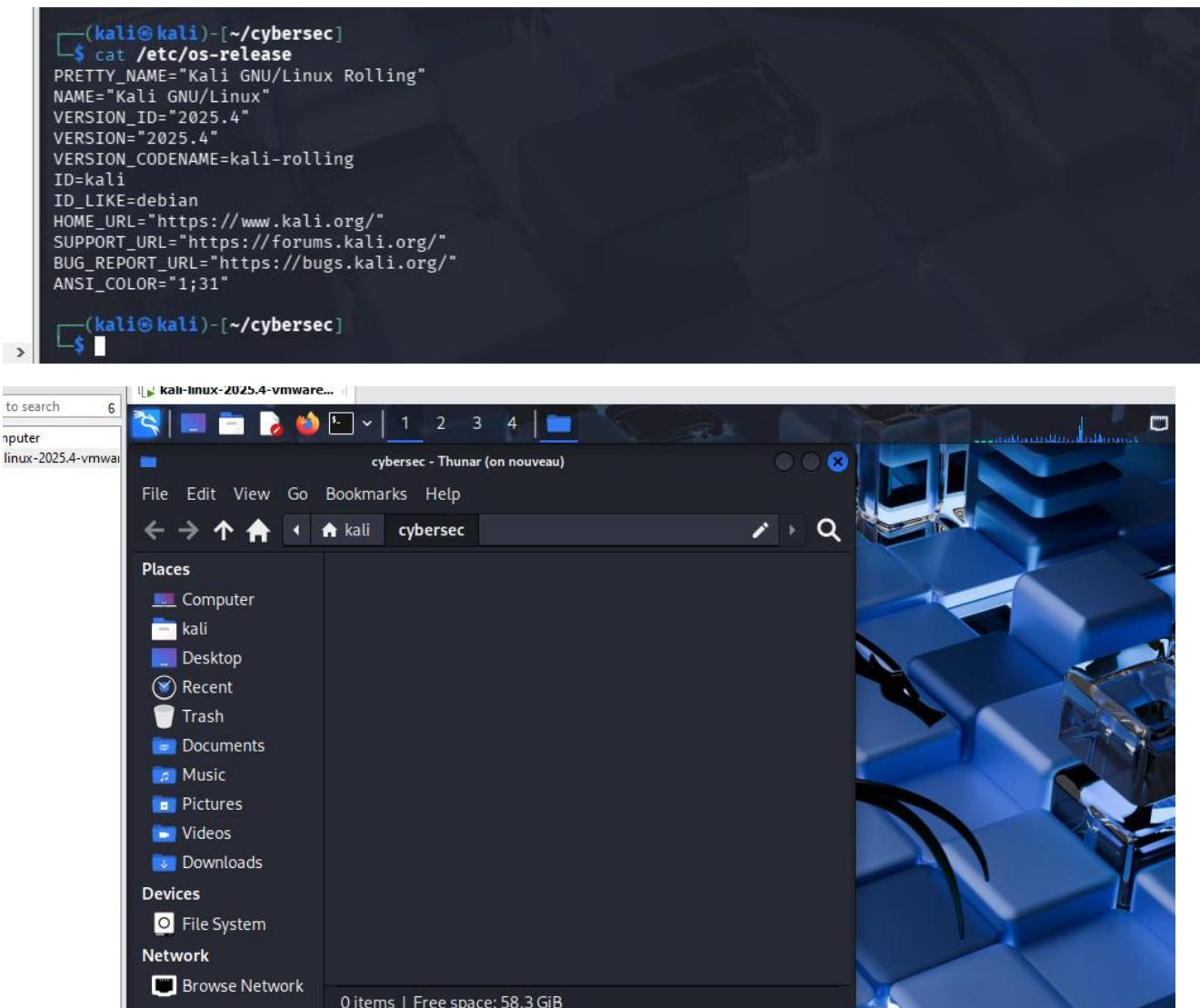
➤ Information systèmes avancées

```
[kali㉿kali] -[~/cybersec]
└─$ date
Mon Dec 22 06:02:45 PM EST 2025
```

```
[kali㉿kali] -[~/cybersec]
└─$ timedatectl
    Local time: Mon 2025-12-22 18:02:57 EST
    Universal time: Mon 2025-12-22 23:02:57 UTC
        RTC time: Mon 2025-12-22 23:02:57
       Time zone: America/New_York (EST, -0500)
System clock synchronized: yes
          NTP service: active
    RTC in local TZ: no

[kali㉿kali] -[~/cybersec]
└─$ hostnamectl
  Static hostname: kali
        Icon name: computer-vm
      Chassis: vm
Chassis Asset Tag: No Asset Tag
      Machine ID: b69758c0cad3481e967dcad827001d56
        Boot ID: 9a47dffeb15421d90affcfb9311c4cb
      AF_VSOCK CID: 4088123154
Virtualization: vmware
Operating System: Kali GNU/Linux Rolling
      Kernel: Linux 6.17.10+kali-amd64
Architecture: x86-64
Hardware Vendor: VMware, Inc.
Hardware Model: VMware Virtual Platform
Hardware Version: None
Firmware Version: 6.00
Firmware Date: Thu 2020-11-12
Firmware Age: 5y 1month 1w 3d

[kali㉿kali] -[~/cybersec]
```



Conclusion

Ce travail dirige m'a permis de familiariser avec **Kali Linux**, son installation dans une machine virtuelle et l'utilisation des **commandes essentielles de Linux**.

J'apprends à gérer les fichiers, analyser les ressources du système, consulter les journaux et effectuer des tests réseau, ce qui constitue une base importante pour les études en informatiques et **cybersécurité**.