

LINUX FUNDAMENTALS

ASSIGNMENT REPORT



**Peter Kinyumu,
cs-sa07-24067,
May 9th, 2024.**

1. INTRODUCTION

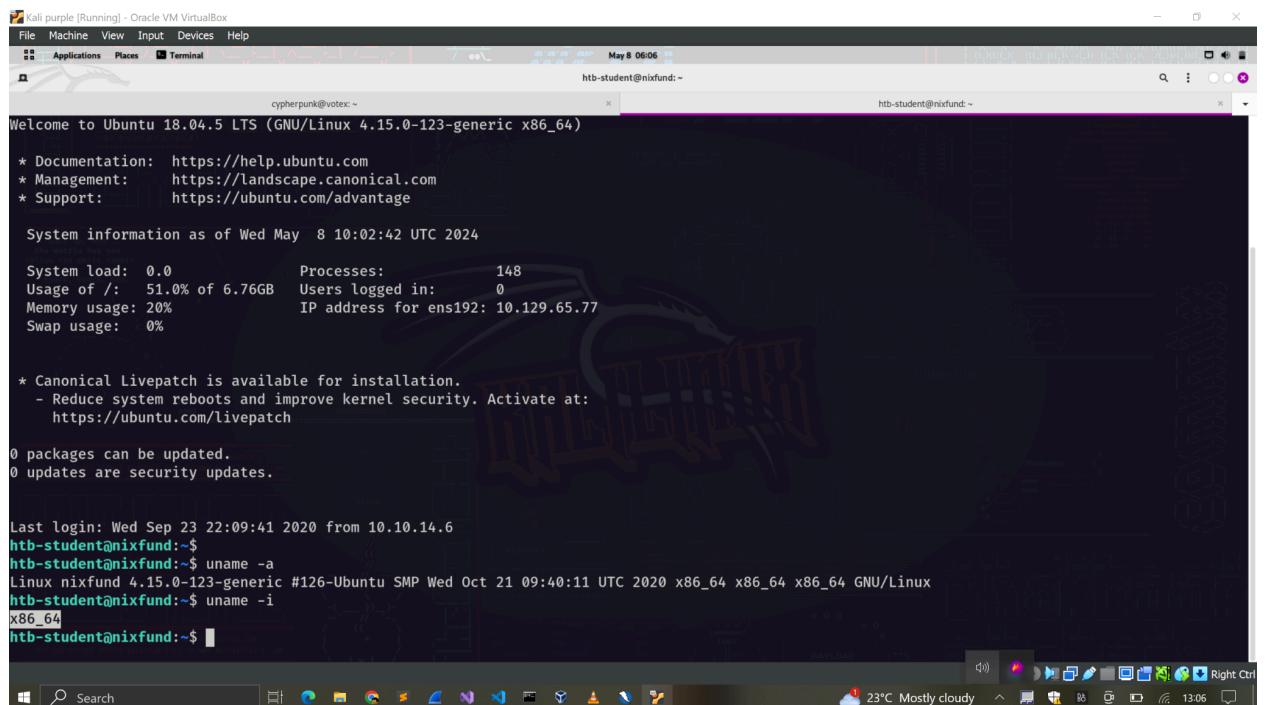
This report documents my completion of the **Linux Fundamentals** Module on the HacktheBox platform. The module covered the fundamentals required to work comfortably with the Linux operating system and shell. Linux is an open-source operating system that is essential for cybersecurity analysts because it contains tools that can help automate tasks and manipulate files easily.

The module covered various topics, from Linux structure, an introduction to the shell, text manipulation, user management, and network management.

2. ANSWERS TO QUESTIONS

System Information

- Find out the machine hardware name and submit it as the answer.



Kali purple [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Applications Places Terminal May 8 06:06
htb-student@nixfund:~

```
Welcome to Ubuntu 18.04.5 LTS (GNU/Linux 4.15.0-123-generic x86_64)

 * Documentation: https://help.ubuntu.com
 * Management: https://landscape.canonical.com
 * Support: https://ubuntu.com/advantage

 System information as of Wed May 8 10:02:42 UTC 2024

 System load: 0.0          Processes: 148
 Usage of /: 51.0% of 6.76GB  Users logged in: 0
 Memory usage: 20%          IP address for ens192: 10.129.65.77
 Swap usage: 0%

 * Canonical Livepatch is available for installation.
   - Reduce system reboots and improve kernel security. Activate at:
     https://ubuntu.com/livepatch

 0 packages can be updated.
 0 updates are security updates.

Last login: Wed Sep 23 22:09:41 2020 from 10.10.14.6
htb-student@nixfund:~$ uname -a
Linux nixfund 4.15.0-123-generic #126-Ubuntu SMP Wed Oct 21 09:40:11 UTC 2020 x86_64 x86_64 x86_64 GNU/Linux
htb-student@nixfund:~$ uname -i
x86_64
htb-student@nixfund:~$
```

Windows Search icon | Taskbar icons | Weather icon (23°C Mostly cloudy) | Date (13:06) | Right Ctrl

- What is the path to htb-student's home directory?

Running the command **pwd** at the home directory displays **/home/htb-student** as the path.

- Which shell is specified for the htb-student user?

d. Which kernel version is installed on the system? (Format: 1.22.3)

```

Kali purple [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Applications Places Terminal May 8 06:19
htb-student@nixfund: ~
htb-student@nixfund:~$ ls /bin /cdrom /etc /initrd.img /lib /lost+found /mnt /proc /run /snap /sys /usr /vmlinuz
htb-student@nixfund:~$ echo $SHELL
/bin/bash
htb-student@nixfund:~$ uname -r
4.15.0-123-generic
htb-student@nixfund:~$ 

```

The terminal shows the output of `ls` in the root directory, followed by the command `echo \$SHELL` which outputs `/bin/bash`. Finally, `uname -r` is run, outputting the kernel version `4.15.0-123-generic`. Red arrows point from the shell type and kernel version lines to the right.

e. What is the name of the network interface that MTU is set to 1500?

```

Kali purple [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Applications Places Terminal May 8 06:22
htb-student@nixfund: ~
htb-student@nixfund:~$ ifconfig
ens192: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
inet 10.129.65.77 netmask 255.255.0.0 broadcast 10.129.255.255
inet6 fe80::250:56ff:fe94:1307 prefixlen 64 scopeid 0x0<link>
inet6 dead:beef::250:56ff:fe94:1307 prefixlen 64 scopeid 0x0<global>
ether 00:50:56:94:13:07 txqueuelen 1000 (Ethernet)
RX packets 15900 bytes 1146651 (1.1 MB)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 1263 bytes 235903 (235.9 KB)
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 2340 bytes 184487 (184.4 KB)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 2340 bytes 184487 (184.4 KB)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

```

The terminal shows the output of `ifconfig`. The line for the interface `ens192` is highlighted with a red box, and the MTU value `1500` is also highlighted. Red arrows point from the MTU value to the right.

f. What is the path to the htb-student's mail?

```

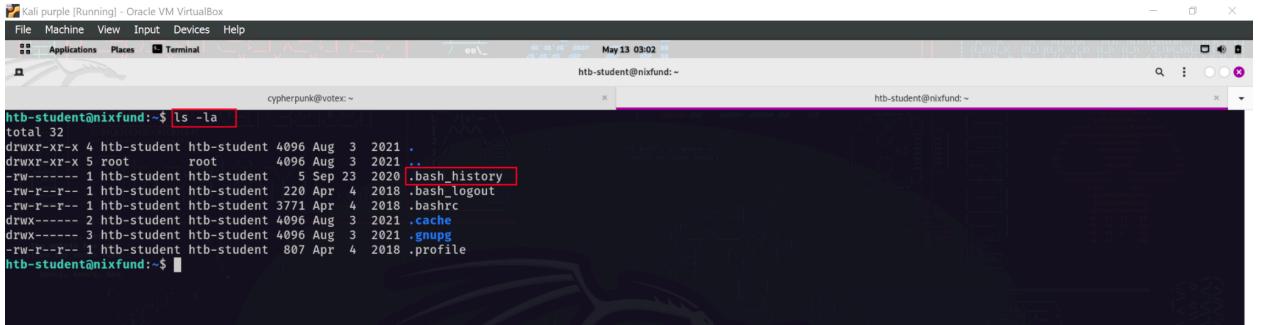
Kali purple [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Applications Places Terminal May 8 06:27
htb-student@nixfund: ~
htb-student@nixfund:~$ printenv
LS_COLORS=rs=0:di=01;34:ln=01;36:mh=00:pi=40;33:so=01;35:do=01;35:bd=01;33:01:cd=40;33:01:or=40;31:01:mi=00:su=37;41:sg=30;43:ca=30;41:tw=30;42:ow=34;42:st=37;44:ex=01;32:*.tar=01;31:*.tgz=01;31:*.arc=01;31:*.arj=01;31:*.tar.zst=01;31:*.tzo=01;31:*.t7z=01;31:*.zip=01;31:*.z=01;31:*.Z=01;31:*.dz=01;31:*.gz=01;31:*.lrz=01;31:*.lz=01;31:*.lzo=01;31:*.xz=01;31:*.zst=01;31:*.tzst=01;31:*.bz2=01;31:*.bz=01;31:*.tbz=01;31:*.tbz2=01;31:*.tz=01;31:*.deb=01;31:*.rpm=01;31:*.jar=01;31:*.war=01;31:*.ear=01;31:*.sar=01;31:*.rar=01;31:*.alz=01;31:*.ace=01;31:*.cpio=01;31:*.7z=01;31:*.rz=01;31:*.cab=01;31:*.wim=01;31:*.swm=01;31:*.dwm=01;31:*.esd=01;31:*.jpg=01;35:*.jpeg=01;35:*.mjpg=01;35:*.gif=01;35:*.bmp=01;35:*.pbm=01;35:*.pgm=01;35:*.ppm=01;35:*.tga=01;35:*.xbm=01;35:*.xpm=01;35:*.tif=01;35:*.tiff=01;35:*.png=01;35:*.svg=01;35:*.svg=01;35:*.mng=01;35:*.pcx=01;35:*.mov=01;35:*.mpg=01;35:*.mpeg=01;35:*.m2v=01;35:*.mkv=01;35:*.webm=01;35:*.ogm=01;35:*.mp4=01;35:*.m4v=01;35:*.mp4=01;35:*.vob=01;35:*.qt=01;35:*.nuv=01;35:*.wmv=01;35:*.asf=01;35:*.rm=01;35:*.rmvb=01;35:*.flc=01;35:*.avi=01;35:*.flv=01;35:*.gl=01;35:*.dl=01;35:*.xcf=01;35:*.xwd=01;35:*.yuv=01;35:*.cgm=01;35:*.emf=01;35:*.ogg=01;35:*.oxg=01;35:*.aac=00;36:*.au=00;36:*.flac=00;36:*.m4a=00;36:*.mid=00;36:*.mka=00;36:*.mp3=00;36:*.mpc=00;36:*.ogg=00;36:*.ra=00;36:*.wav=00;36:*.oga=00;36:*.opus=00;36:*.spx=00;36:*.xspf=00;36:*
SSH_CONNECTION=10.10.16.48 40830 22
LESSCLOSE=/usr/bin/lesspipe %s %
LANG=en_US.UTF-8
XDG_SESSION_ID=1
USER=htb-student
PWD=/home/htb-student
HOME=/home/htb-student
SSH_CLIENT=10.10.16.48 40830 22
XDG_DATA_DIRS=/usr/local/share:/usr/share:/var/lib/snapd/desktop
SSH_TTY=/dev/pts/0
MAIL=/var/mail/htb-student
TERM=xterm-256color
SHELL=/bin/bash
SHLVL=1
LOGNAME=htb-student
XDG_RUNTIME_DIR=/run/user/1002
PATH=/usr/local/sbin:/usr/local/bin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/snap/bin
LESSOPEN=| /usr/bin/lesspipe %

```

The terminal shows the output of `printenv`. The line `MAIL=/var/mail/htb-student` is highlighted with a red box, and the path to the student's mail is also highlighted. Red arrows point from the path to the right.

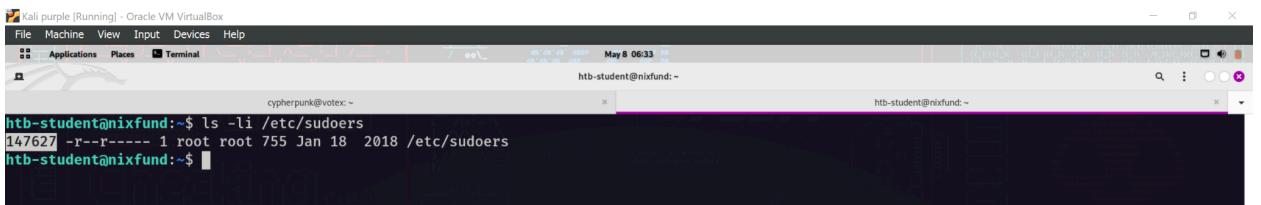
Navigation - Your way around Linux

- a. What is the name of the hidden "history" file in the htb-user's home directory?



```
htb-student@nixfund:~$ ls -la
total 32
drwxr-xr-x 4 htb-student htb-student 4096 Aug  3 2021 .
drwxr-xr-x 5 root      root      4096 Aug  3 2021 ..
-rw----- 1 htb-student htb-student 5 Sep 23 2020 .bash_history
-rw-r--r-- 1 htb-student htb-student 220 Apr  4 2018 .bash_logout
-rw-r--r-- 1 htb-student htb-student 3771 Apr  4 2018 .bashrc
drwxr--r-- 2 htb-student htb-student 4096 Aug  3 2021 .cache
drwxr----- 3 htb-student htb-student 4096 Aug  3 2021 .gnupg
-rw-r--r-- 1 htb-student htb-student 807 Apr  4 2018 .profile
htb-student@nixfund:~$
```

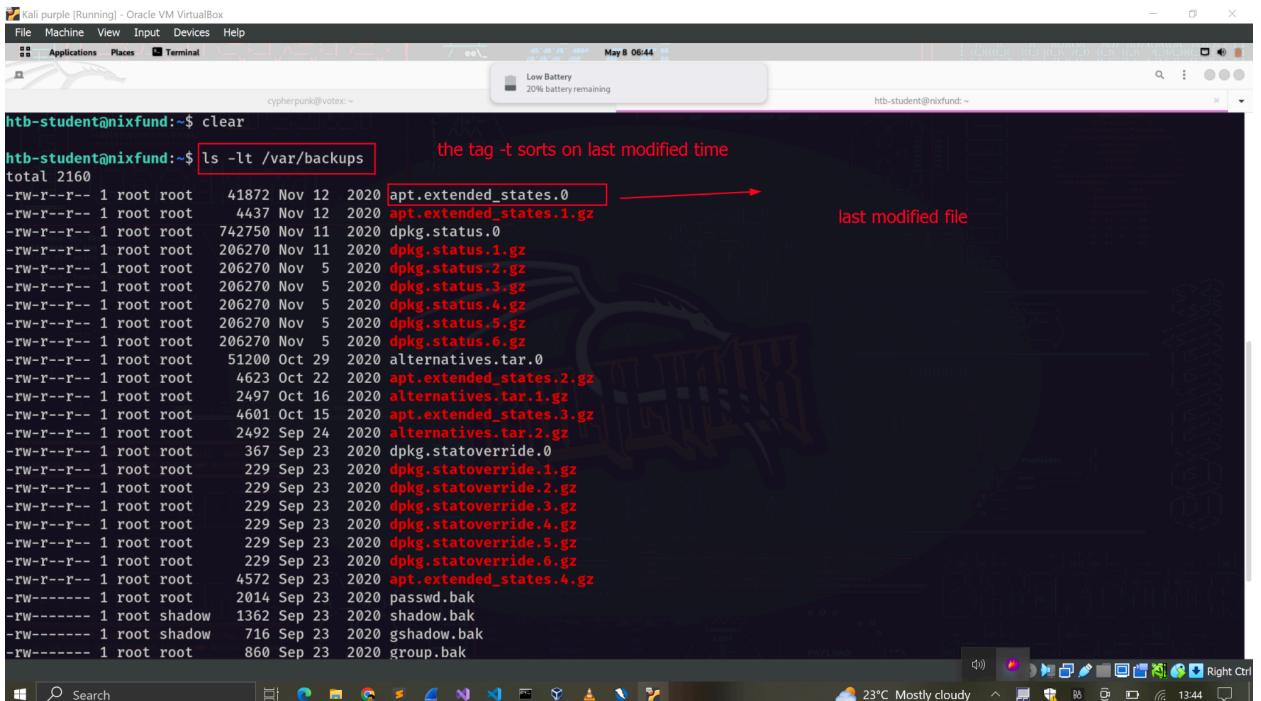
- b. What is the index number of the "sudoers" file in the "/etc" directory?



```
htb-student@nixfund:~$ ls -li /etc/sudoers
147627 -r--r----- 1 root root 755 Jan 18 2018 /etc/sudoers
htb-student@nixfund:~$
```

Working with files

- a. What is the name of the last modified file in the "/var/backups" directory?



```
htb-student@nixfund:~$ clear
htb-student@nixfund:~$ ls -lt /var/backups
total 2160
-rw-r--r-- 1 root root 41872 Nov 12 2020 apt.extended_states.0
-rw-r--r-- 1 root root 4437 Nov 12 2020 apt.extended_states.1.gz
-rw-r--r-- 1 root root 742750 Nov 11 2020 dpkg.status.0
-rw-r--r-- 1 root root 206270 Nov 11 2020 dpkg.status.1.gz
-rw-r--r-- 1 root root 206270 Nov  5 2020 dpkg.status.2.gz
-rw-r--r-- 1 root root 206270 Nov  5 2020 dpkg.status.3.gz
-rw-r--r-- 1 root root 206270 Nov  5 2020 dpkg.status.4.gz
-rw-r--r-- 1 root root 206270 Nov  5 2020 dpkg.status.5.gz
-rw-r--r-- 1 root root 206270 Nov  5 2020 dpkg.status.6.gz
-rw-r--r-- 1 root root 51200 Oct 29 2020 alternatives.tar.0
-rw-r--r-- 1 root root 4623 Oct 22 2020 apt.extended_states.2.gz
-rw-r--r-- 1 root root 2497 Oct 16 2020 alternatives.tar.1.gz
-rw-r--r-- 1 root root 4601 Oct 15 2020 apt.extended_states.3.gz
-rw-r--r-- 1 root root 2492 Sep 24 2020 alternatives.tar.2.gz
-rw-r--r-- 1 root root 367 Sep 23 2020 dpkg.statoverride.0
-rw-r--r-- 1 root root 229 Sep 23 2020 dpkg.statoverride.1.gz
-rw-r--r-- 1 root root 229 Sep 23 2020 dpkg.statoverride.2.gz
-rw-r--r-- 1 root root 229 Sep 23 2020 dpkg.statoverride.3.gz
-rw-r--r-- 1 root root 229 Sep 23 2020 dpkg.statoverride.4.gz
-rw-r--r-- 1 root root 229 Sep 23 2020 dpkg.statoverride.5.gz
-rw-r--r-- 1 root root 229 Sep 23 2020 dpkg.statoverride.6.gz
-rw-r--r-- 1 root root 4572 Sep 23 2020 apt.extended_states.4.gz
-rw----- 1 root root 2014 Sep 23 2020 passwd.bak
-rw----- 1 root shadow 1362 Sep 23 2020 shadow.bak
-rw----- 1 root shadow 716 Sep 23 2020 gshadow.bak
-rw----- 1 root root 860 Sep 23 2020 group.bak
```

- b. What is the inode number of the "shadow.bak" file in the "/var/backups" directory?

```
htb-student@nixfund:~$ ls -li /var/backups
total 2160
262248 -rw-r--r-- 1 root root 51200 Oct 29 2020 alternatives.tar.gz
262559 -rw-r--r-- 1 root root 2497 Oct 16 2020 alternatives.tar.1.gz
262261 -rw-r--r-- 1 root root 2492 Sep 24 2020 alternatives.tar.2.gz
266334 -rw-r--r-- 1 root root 41872 Nov 12 2020 apt.extended.states.0
266335 -rw-r--r-- 1 root root 4437 Nov 12 2020 apt.extended.states.1.gz
266430 -rw-r--r-- 1 root root 4623 Oct 22 2020 apt.extended.states.2.gz
266487 -rw-r--r-- 1 root root 4601 Oct 15 2020 apt.extended.states.3.gz
266233 -rw-r--r-- 1 root root 4572 Sep 23 2020 apt.extended.states.4.gz
262178 -rw-r--r-- 1 root root 437 Aug 5 2019 dpkg.diversions.0
262203 -rw-r--r-- 1 root root 202 Aug 5 2019 dpkg.diversions.1.gz
262264 -rw-r--r-- 1 root root 202 Aug 5 2019 dpkg.diversions.2.gz
262257 -rw-r--r-- 1 root root 202 Aug 5 2019 dpkg.diversions.3.gz
262246 -rw-r--r-- 1 root root 202 Aug 5 2019 dpkg.diversions.4.gz
262249 -rw-r--r-- 1 root root 202 Aug 5 2019 dpkg.diversions.5.gz
262235 -rw-r--r-- 1 root root 202 Aug 5 2019 dpkg.diversions.6.gz
262231 -rw-r--r-- 1 root root 367 Sep 23 2020 dpkg.statoverride.0
262205 -rw-r--r-- 1 root root 229 Sep 23 2020 dpkg.statoverride.1.gz
262310 -rw-r--r-- 1 root root 229 Sep 23 2020 dpkg.statoverride.2.gz
262311 -rw-r--r-- 1 root root 229 Sep 23 2020 dpkg.statoverride.3.gz
262247 -rw-r--r-- 1 root root 229 Sep 23 2020 dpkg.statoverride.4.gz
262250 -rw-r--r-- 1 root root 229 Sep 23 2020 dpkg.statoverride.5.gz
262236 -rw-r--r-- 1 root root 229 Sep 23 2020 dpkg.statoverride.6.gz
263999 -rw-r--r-- 1 root root 742750 Nov 11 2020 dpkg.status.0
262179 -rw-r--r-- 1 root root 206270 Nov 11 2020 dpkg.status.1.gz
262234 -rw-r--r-- 1 root root 206270 Nov 5 2020 dpkg.status.2.gz
262241 -rw-r--r-- 1 root root 206270 Nov 5 2020 dpkg.status.3.gz
262243 -rw-r--r-- 1 root root 206270 Nov 5 2020 dpkg.status.4.gz
262220 -rw-r--r-- 1 root root 206270 Nov 5 2020 dpkg.status.5.gz
262230 -rw-r--r-- 1 root root 206270 Nov 5 2020 dpkg.status.6.gz
265226 -rw----- 1 root root 860 Sep 23 2020 group.bak
265817 -rw----- 1 root shadow 716 Sep 23 2020 gshadow.bak
264599 -rw----- 1 root root 2014 Sep 23 2020 passwd.bak
265293 -rw----- 1 root shadow 1362 Sep 23 2020 shadow.bak
htb-student@nixfund:~$
```

Finding files

- a. What is the name of the config file that has been created after 2020-03-03 and is smaller than 28k but larger than 25k?

```
htb-student@nixfund:~$ find / -type f -name *.bak -exec ls -al {} \; 2>/dev/null |wc -l counts all files with .bak extension
4
htb-student@nixfund:~$ find / -type f -name *.conf -user root -size +25k -size -28k -newermt 2020-03-03 -exec ls -al {} \; 2>/dev/null
-rw-r--r-- 1 root root 27422 Jun 12 2020 /usr/share/drirc.d/00-mesa-defaults.conf
htb-student@nixfund:~$
```

config file >25 but <28k in size

- b. How many files exist on the system that have the ".bak" extension?
c. Submit the full path of the "xxd" binary.

```
htb-student@nixfund:~$ find / -type f -name *.bak -exec ls -al {} \; 2>/dev/null |wc -l
4
htb-student@nixfund:~$ find / -type f -name *.conf -user root -size +25k -size -28k -newermt 2020-03-03 -exec ls -al {} \; 2>/dev/null
-rw-r--r-- 1 root root 27422 Jun 12 2020 /usr/share/drirc.d/00-mesa-defaults.conf
htb-student@nixfund:~$ which xxd
/usr/bin/xxd
htb-student@nixfund:~$
```

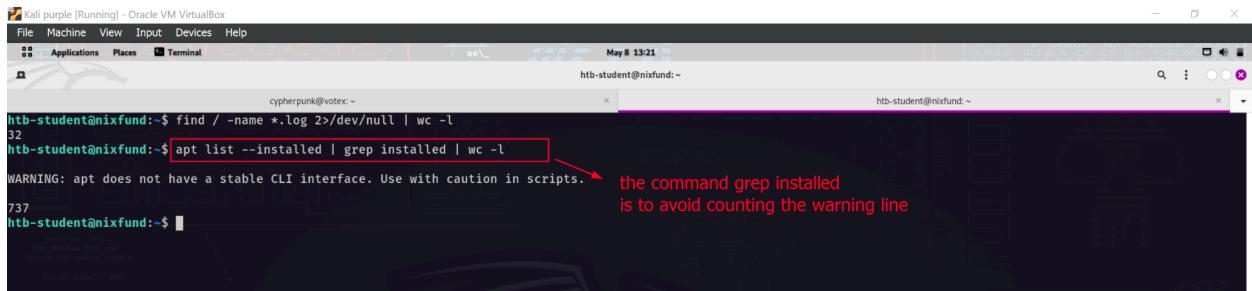
File descriptors

This section focused on using pipes to redirect STDOUT from one program to be processed by another.

a. **How many files exist on the system that have the ".log" file extension?**

The command `find / -name *.log 2>/dev/null | wc -l` displays the count all log files within the system. The first part of the command before the pipe will display all files with a `.log` extension and the rest part of the command counts the lines.

b. **How many total packages are installed on the target system?**



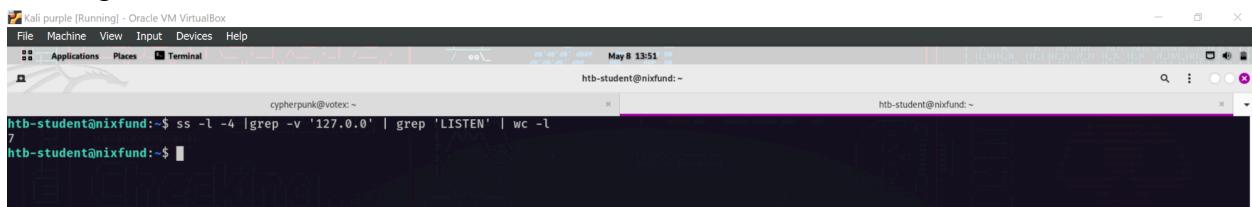
```
htb-student@nixfund:~$ find / -name *.log 2>/dev/null | wc -l
32
htb-student@nixfund:~$ apt list --installed | grep installed | wc -l
WARNING: apt does not have a stable CLI interface. Use with caution in scripts.
737
htb-student@nixfund:~$
```

Filter contents

This section aimed to teach how to use pagers like `less` and `more` to read files interactively and to filter specific contents from files using `grep`.

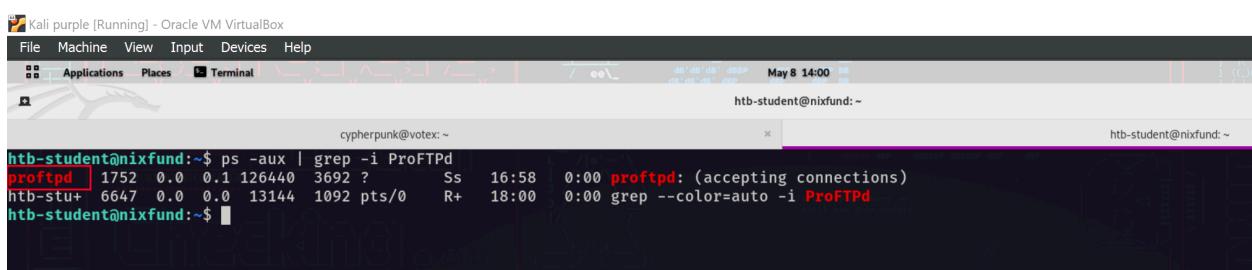
a. **How many services are listening on the target system on all interfaces? (Not on localhost and IPv4 only)**

The command `ss` is used to investigate sockets, which are bound connections of IP addresses with their port number. The option `-4` displays only IPv4 addresses. `grep -v` then performs an invert match of localhost addresses. `grep 'LISTEN'` finally matches all listening services.



```
htb-student@nixfund:~$ ss -l -4 | grep -v '127.0.0' | grep 'LISTEN' | wc -l
7
htb-student@nixfund:~$
```

b. **Determine what user the ProFTPD server is running under. Submit the username as the answer.**



```
htb-student@nixfund:~$ ps -aux | grep -i ProFTPD
proftpd 1752 0.0 0.1 126440 3692 ? Ss 16:58 0:00 proftpd: (accepting connections)
htb-stu+ 6647 0.0 0.0 13144 1092 pts/0 R+ 18:00 0:00 grep --color=auto -i ProFTPD
htb-student@nixfund:~$
```

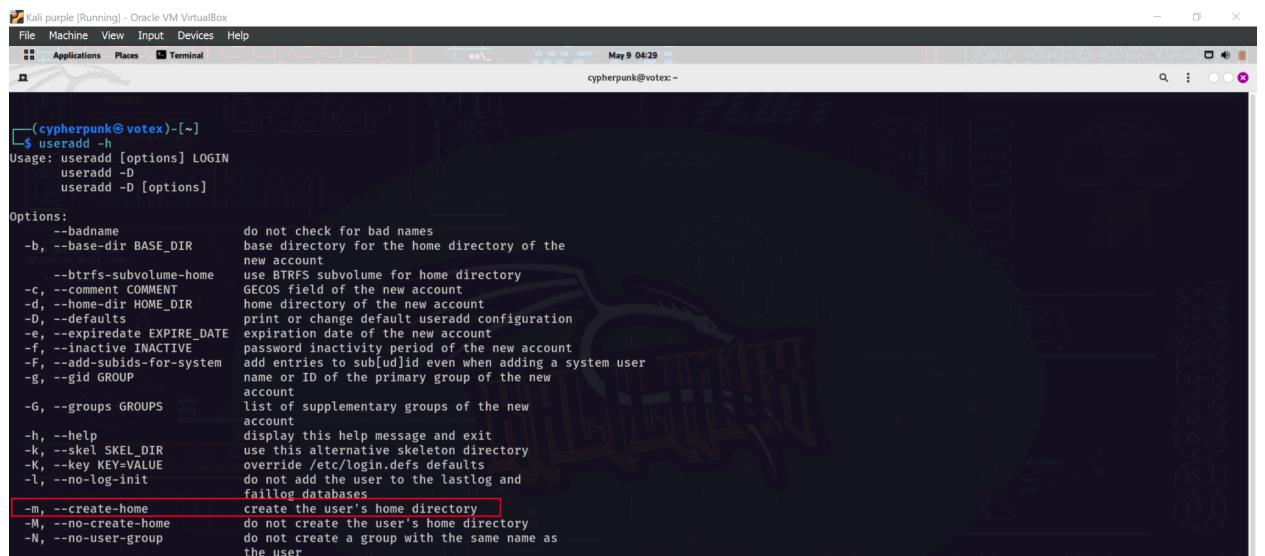
- c. Use cURL from your Pwnbox (not the target machine) to obtain the source code of the "https://www.inlanefreight.com" website and filter all unique paths of that domain. Submit the number of these paths as the answer.

With the command `curl https://www.inlanefreight.com/ | grep Eo "https:\\\{0,3\\\}.inlanefreight\\.com[^\"\\"]*" | sort -u | wc -l` I retrieved the count for all unique paths of that domain to be 34.

User Management

User management is essential for Linux administration. Creating new users and adding users to specific groups are important for access control.

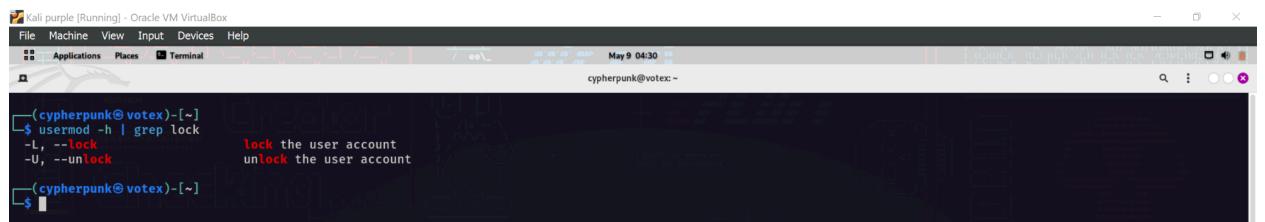
- a. Which option needs to be set to create a home directory for a new user using "useradd" command?



```
(cyberpunk@votex)-[~]
$ useradd -h
Usage: useradd [options] LOGIN
        useradd -D
        useradd -D [options]

Options:
  --badname          do not check for bad names
  -b, --base-dir BASE_DIR      base directory for the home directory of the
                                new account
  --btrfs-subvolume-home      use BTRFS subvolume for home directory
  -c, --comment COMMENT      GECOS field of the new account
  -d, --home-dir HOME_DIR    home directory of the new account
  -D, --defaults           print or change default useradd configuration
  -e, --expiredate EXPIRE_DATE   expiration date of the new account
  -f, --inactive INACTIVE     password inactivity period of the new account
  -F, --add-subids-for-system add entries to subuid/gid even when adding a system user
  -g, --gid GROUP            name or ID of the primary group of the new
                                account
  -G, --groups GROUPS       list of supplementary groups of the new
                                account
  -h, --help                display this help message and exit
  -k, --skel SKEL_DIR        use this alternative skeleton directory
  -K, --key KEY=VALUE        override /etc/login.defs defaults
  -l, --no-log-init          do not add the user to the lastlog and
                                faillog databases
  -m, --create-home          create the user's home directory
  -M, --no-create-home       do not create the user's home directory
  -N, --no-user-group        do not create a group with the same name as
                                the user
```

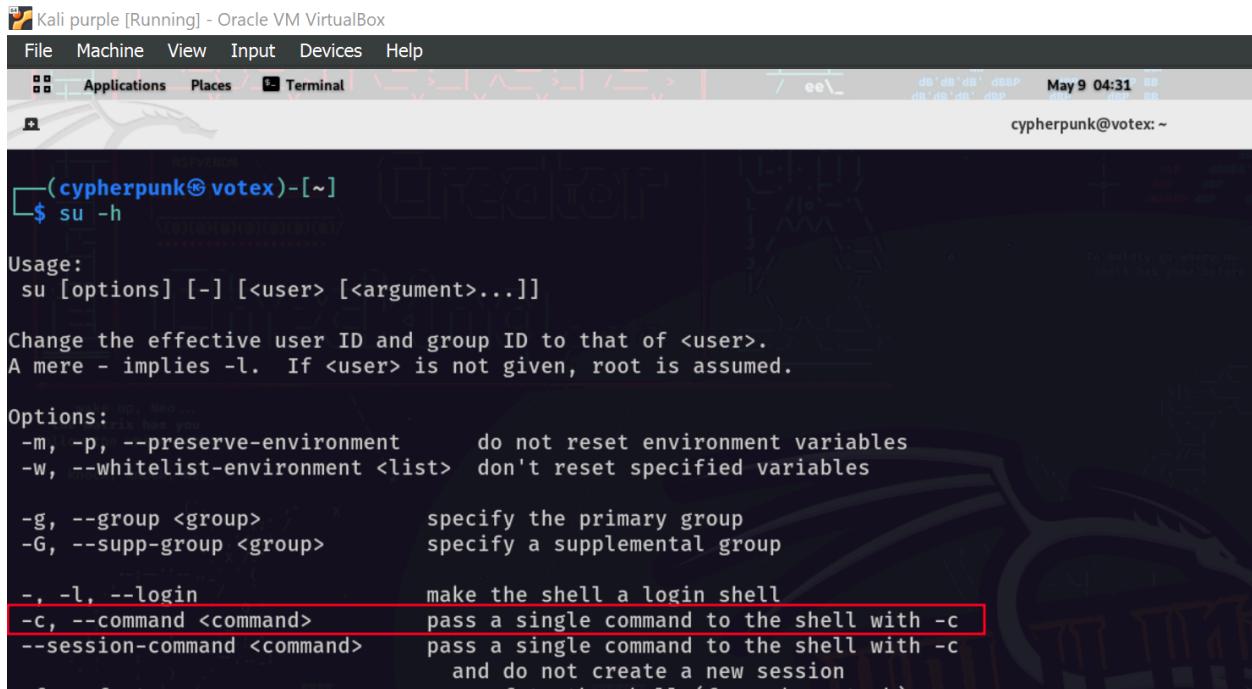
- b. Which option needs to be set to lock a user account using the "usermod" command? (long version of the option)



```
(cyberpunk@votex)-[~]
$ usermod -h | grep lock
-L, --lock               lock the user account
-U, --unlock              unlock the user account

(cyberpunk@votex)-[~]
$
```

- c. Which option needs to be set to execute a command as a different user using the "su" command? (long version of the option)



```
(cypherpunk㉿votex)~]$ su -h
Usage:
  su [options] [-] [<user> [<argument>...]]
Change the effective user ID and group ID to that of <user>.
A mere - implies -l. If <user> is not given, root is assumed.

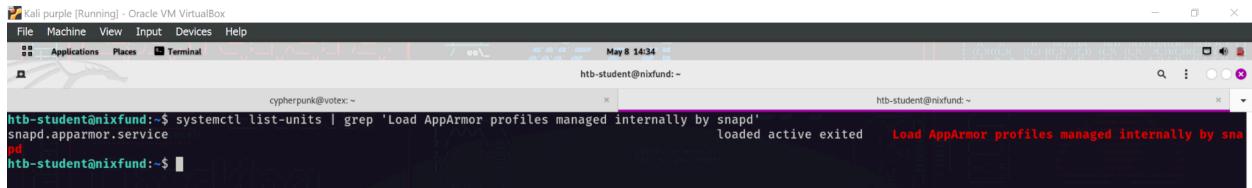
Options:
  -m, -p, --preserve-environment      do not reset environment variables
  -w, --whitelist-environment <list>  don't reset specified variables

  -g, --group <group>                specify the primary group
  -G, --supp-group <group>           specify a supplemental group

  -, -l, --login                     make the shell a login shell
  -c, --command <command>            pass a single command to the shell with -c
  --session-command <command>        pass a single command to the shell with -c
                                     and do not create a new session
```

Service, Process Management and Task scheduling

- a. Use the "systemctl" command to list all units of services and submit the unit name with the description "Load AppArmor profiles managed internally by snapd" as the answer.



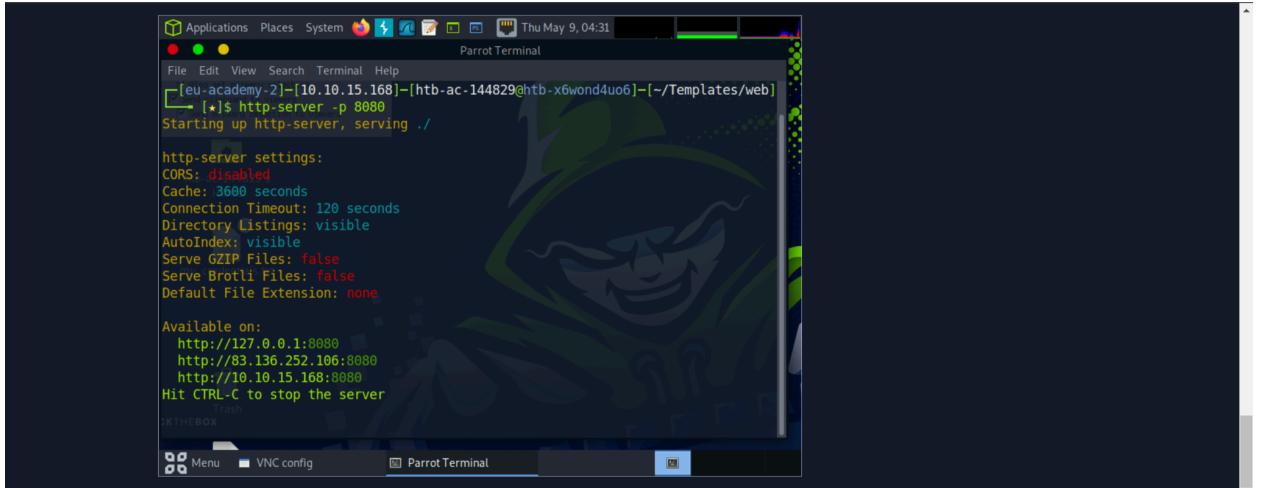
```
htb-student@nixfund:~$ systemctl list-units | grep 'Load AppArmor profiles managed internally by snapd'
snapd.apparmor.service                                loaded active exited  Load AppArmor profiles managed internally by snapd
htb-student@nixfund:~$
```

- b. What is the type of the service of the "syslog.service"?

Web services

- a. Find a way to start a simple HTTP server inside Pwnbox or your local VM using "npm". Submit the command that starts the web server on port 8080 (use the short

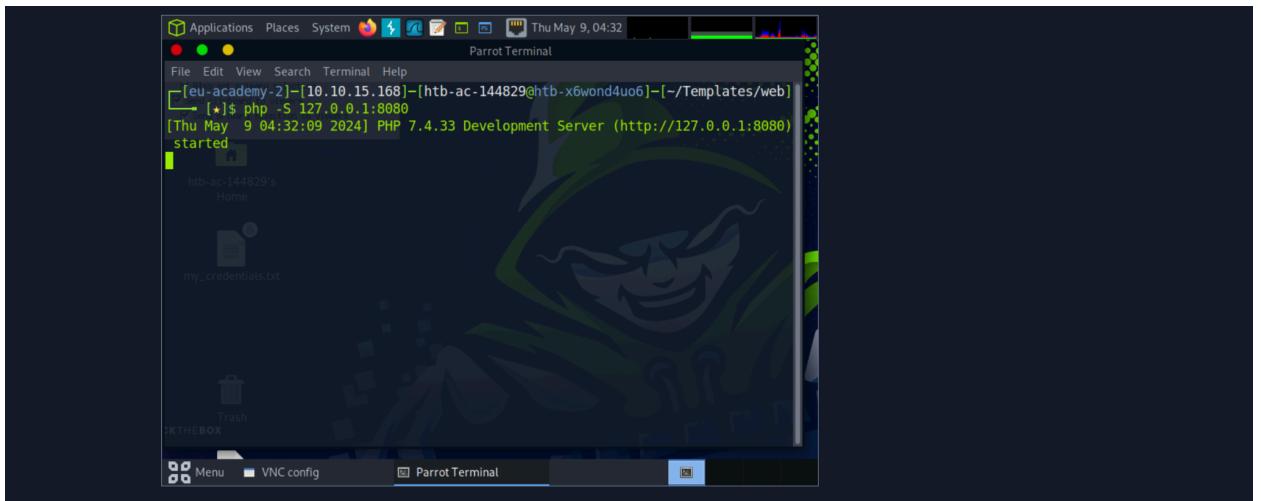
argument to specify the port number).



```
[eu-academy-2]~[10.10.15.168]~[htb-ac-144829@htb-x6wond4uo6]~[~/Templates/web]
[!]$ http-server -p 8080
Starting up http-server, serving .
http-server settings:
CORS: disabled
Cache: 3600 seconds
Connection Timeout: 120 seconds
Directory Listings: visible
AutoIndex: visible
Serve GZIP Files: false
Serve Brotli Files: false
Default File Extension: none

Available on:
http://127.0.0.1:8080
http://83.136.252.106:8080
http://10.10.15.168:8080
Hit CTRL-C to stop the server
[!]
```

- b. Find a way to start a simple HTTP server inside Pwnbox or your local VM using "php". Submit the command that starts the web server on the localhost (127.0.0.1) on port 8080.



```
[eu-academy-2]~[10.10.15.168]~[htb-ac-144829@htb-x6wond4uo6]~[~/Templates/web]
[!]$ php -S 127.0.0.1:8080
[Thu May 9 04:32:09 2024] PHP 7.4.33 Development Server (http://127.0.0.1:8080)
started
```

File system Management

- a. How many partitions exist in our Pwnbox? (Format: 0)

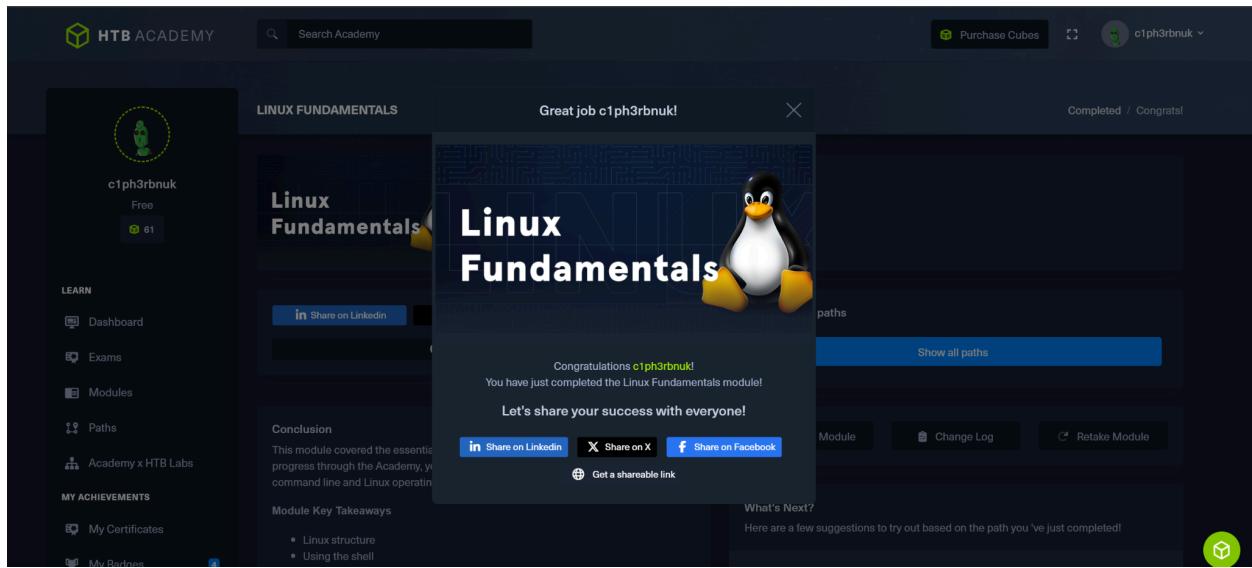
There are only 3 partitions, /dev/vda1, /dev/vda2, /dev/vda3 as shown below.

```
[eu-academy-2]~[10.10.15.131]~[htb-ac-144829@htb-vtdsidoqfp]~[~]
[+]$ sudo fdisk -l
Disk /dev/vda: 50 GiB, 53687091200 bytes, 104857600 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: gpt
Disk identifier: BEDCBC1A-6B76-B743-8F21-D32E9B1310E5

Device      Start    End  Sectors  Size Type
/dev/vda1     2048  96471039  96468992   46G Linux filesystem
/dev/vda2  96471040  96473087     2048   1M BIOS boot
/dev/vda3  96724992 104855551  8130560   3.9G Linux swap
[+]$
```

3. MODULE COMPLETION

The following is a sharable link to the badge I earned after completing the module.
<https://academy.hackthebox.com/achievement/144829/18>



4. CONCLUSION

To summarise, this module provided great insights and an overview of the Linux system. I have learned how to navigate around Linux with commands like **cd**, find and locate files using **find** **locate** commands, manipulate texts with **sed**, **cut and awk**, manage users, packages, and disks, backup files, schedule tasks, harden the security of the system and many more.

It was fun and enjoyable to explore Linux. I look forward to practising more and hopefully using the techniques that I have learned during the later chapters of the course.