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1. Introduction

Kali Linux (formerly known as BackTrack Linux) is an open-source, Debian-based Linux distribution which allows users to perform advanced penetration testing and security auditing. It runs on multiple platforms and is freely available and accessible to both information security professionals and hobbyists.

This distribution has several hundred tools, configurations, and scripts with industry-specific modifications that allow users to focus on tasks such as computer forensics, reverse engineering, and vulnerability detection, instead of dealing with unrelated activities. (g0tmi1k, 2024)

2. Aim of the report

It exhibits an application and understanding of the UNIX utilities to create, move around, and manage directories and files. This is through the various commands and options it offers.

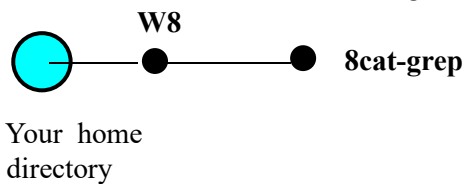
- Interact with the Linux operating system for user management, file management, and system information retrieval.
- Ability to realize Linux commands while performing system interaction, file handling, and logging using the script command.

3. Objective of the report

The primary aim of this report is to explore and practice basic essential Linux commands on system interaction, user identification, and file management. This hands-on exercise further aspires to develop proficiency at some elementary operations on Linux, such as creating, editing, joining files, fetching system information, and making good use of logging utilities like script command. By detailing these steps, the report also acts as a guide to understanding and replicating these tasks in similar environments.

4. Task in details

1. Create the directory structure presented in the figure below.



```
(muna@kali)-[~]
$ mkdir -p W8/8cat-grep

(muna@kali)-[~]
$ ls
alscript      Desktop      file  test1  W7
combinedTest  Documents   kali  test2  W8
```

Figure 1: Creating Directory W8

2. Change to the 8cat-grep directory by one step using a relative pathname.

```
(muna@kali)-[~]
$ cd W8/8cat-grep

(muna@kali)-[~/W8/8cat-grep]
$
```

Figure 2: Changing to the 8cat-grep

3. Using the cat utility, create two files

File testa	File testb
Kkkll	KKKKK
lllmm	LLLLL
oo--oo	MMMMM
mmmdd	DDDDD
dddkk	

```

(muna@kali)-[~/W8/8cat-grep]
$ cat > testa << EOF
> kkkll
> lllmm
> oo-oo
> mmmdd
> dddkk
> EOF

(muna@kali)-[~/W8/8cat-grep]
$ ls
testa

(muna@kali)-[~/W8/8cat-grep]
$ cat > testb <<EOF
> KKKKK
> LLLLL
> MMMMM
> DDDDD
> EOF

(muna@kali)-[~/W8/8cat-grep]
$ ls
testa testb

(muna@kali)-[~/W8/8cat-grep]
$ cat testb
KKKKK
LLLLL
MMMMM
DDDDD

(muna@kali)-[~/W8/8cat-grep]
$

```

Figure 3: Creating two files, using the cat utility

4. Give the following commands and explain the results for yourself

- **grep ll testa**

```

(muna@kali)-[~/W8/8cat-grep]
$ grep ll testa
kkkll
lllmm

(muna@kali)-[~/W8/8cat-grep]
$

```

Figure 4: Command grep ll testa

- **grep -v ll testa**

```

(muna@kali)-[~/W8/8cat-grep]
$ grep -v ll testa
oo-oo
mmmdd
dddkk

(muna@kali)-[~/W8/8cat-grep]
$

```

Figure 5: Command grep -v ll testa

- **grep -n ll testa**

```
(muna@kali)~[/W8/8cat-grep]
$ grep -n ll testa
1:kkkll
2:lllmm
(muna@kali)~[/W8/8cat-grep]
$
```

Figure 6: Command `grep -n ll testa`

- **grep -l ll ***

```
(muna@kali)~[/W8/8cat-grep]
$ grep -l ll *
testa
```

Figure 7: `grep -l ll`

- **grep -i ll ***

```
(muna@kali)~[/W8/8cat-grep]
$ grep -i ll *
testa:kkkll
testa:lllmm
testb:LLLLL
```

Figure 8: `Grep -i ll *`

- **grep -c ll ***

```
(muna@kali)~[/W8/8cat-grep]
$ grep -c ll *
testa:2
testb:0
```

Figure 9: `Grep -c ll *`

- **grep '^K' testa testb**

```
(muna@kali)-[~/W8/8cat-grep]
$ grep '^K' testa testb
testb:K K K K K
```

Figure 10: Command grep '^K' testa testb

- **grep -n '^' testa**

```
(muna@kali)-[~/W8/8cat-grep]
$ grep -n '^' testa
1:kkkll
2:lllmm
3:oo-oo
4:mmmdd
5:dddkk
```

Figure 11: Command grep -n '^' testa

5. Define the lsal alias for ls -al command

Show that your system stores it giving the **alias** command (without arguments). Use it in your home directory.

```
(muna@kali)-[~/W8/8cat-grep]
$ alias lsal='ls -al'

(muna@kali)-[~/W8/8cat-grep]
$ alias
alias diff='diff --color=auto'
alias egrep='egrep --color=auto'
alias fgrep='fgrep --color=auto'
alias grep='grep --color=auto'
alias ip='ip --color=auto'
alias l='ls -CF'
alias la='ls -A'
alias ll='ls -l'
alias ls='ls --color=auto'
alias lsal='ls -al'
alias nwho='getent passwd | wc -l'

(muna@kali)-[~/W8/8cat-grep]
$
```

Figure 12: Define the lsal

```

(muna@kali)-[~/W8/Scat-grep]
$ cd ~
(muna@kali)-[~]
$ ls -al
total 188
drwx----- 12 muna muna 4096 Dec 24 12:06 .
drwxr-xr-x  3 root root 4096 Dec 12 00:27 ..
-rw-rw-r--  1 muna muna 7538 Dec 12 00:46 alscript
-rw-r--r--  1 muna muna 4181 Dec 24 11:54 .bash_history
-rw-r--r--  1 muna muna 220 Dec 12 00:25 .bash_logout
-rw-r--r--  1 muna muna 5606 Dec 24 09:07 .bashrc
-rw-r--r--  1 muna muna 3526 Dec 12 00:25 .bashrc.original
drwxrwxr-x  8 muna muna 4096 Dec 19 02:40 .cache
-rw-rw-r--  1 muna muna 79 Dec 12 00:51 combinedTest
drwxr-xr-x 13 muna muna 4096 Dec 19 07:39 .config
drwxr-xr-x  2 muna muna 4096 Dec 15 01:52 Desktop
-rw-r--r--  1 muna muna 35 Dec 15 01:52 .dmrc
drwxr-xr-x  2 muna muna 4096 Dec 15 01:52 Documents
-rw-r--r--  1 muna muna 11759 Dec 12 00:25 .face
lrwxrwxrwx  1 muna muna 5 Dec 12 00:25 .face.icon -> .face
-rw-rw-r--  1 muna muna 0 Dec 19 05:28 file
drwx----- 3 muna muna 4096 Dec 15 01:52 .gnupg
-rw-r--r--  1 muna muna 0 Dec 15 01:52 .ICEauthority
drwxr-xr-x  3 muna muna 4096 Dec 12 00:25 .java
drwx-----15 kali kali 4096 Dec 12 00:24 kali
drwxr-xr-x  4 muna muna 4096 Dec 15 01:52 .local
-rw-r--r--  1 muna muna 807 Dec 12 00:25 .profile
-rw-rw-r--  1 muna muna 24 Dec 12 00:41 test1
-rw-rw-r--  1 muna muna 55 Dec 12 00:46 test2
-rw-r--r--  1 muna muna 5 Dec 24 08:02 .vboxclient-clipboard-tty7-control
.pid
-rw-r--r--  1 muna muna 5 Dec 24 08:02 .vboxclient-clipboard-tty7-service
.pid
-rw-r--r--  1 muna muna 5 Dec 24 08:02 .vboxclient-display-svgx-x11-tty7-
control.pid
-rw-r--r--  1 muna muna 5 Dec 24 08:02 .vboxclient-display-svgx-x11-tty7-
service.pid
-rw-r--r--  1 muna muna 5 Dec 24 08:02 .vboxclient-draganddrop-tty7-contr
ol.pid
-rw-r--r--  1 muna muna 5 Dec 24 08:02 .vboxclient-draganddrop-tty7-servi
ce.pid
-rw-r--r--  1 muna muna 5 Dec 24 08:02 .vboxclient-hostversion-tty7-contr
ol.pid
-rw-r--r--  1 muna muna 5 Dec 24 08:02 .vboxclient-seamless-tty7-control.
pid
-rw-r--r--  1 muna muna 5 Dec 24 08:02 .vboxclient-seamless-tty7-service.
pid
-rw-r--r--  1 muna muna 5 Dec 24 08:02 .vboxclient-vmvga-session-tty7-co
ntrol.pid
drwxrwxr-x  3 muna muna 4096 Dec 19 07:19 W7
drwxrwxr-x  3 muna muna 4096 Dec 24 12:06 W8
-rw-r--r--  1 muna muna 49 Dec 24 08:02 .Xauthority
-rw-r--r--  1 muna muna 9612 Dec 24 11:54 .xsession-errors
-rw-r--r--  1 muna muna 8122 Dec 22 01:34 .xsession-errors.old
-rw-r--r--  1 muna muna 10868 Dec 12 00:25 .zshrc

```

Figure 13:ls -al command

6. Remove the alias.

Show that your system does not store it.

```

(muna@kali)-[~]
$ unalias lsal
(muna@kali)-[~]
$ alias
alias diff='diff --color=auto'
alias egrep='egrep --color=auto'
alias fgrep='fgrep --color=auto'
alias grep='grep --color=auto'
alias ip='ip --color=auto'
alias l='ls -CF'
alias la='ls -A'
alias ll='ls -l'
alias ls='ls --color=auto'
alias nwho='getent passwd | wc -l'
(muna@kali)-[~]
$

```

Figure 14:Removing remove the alias.

7. Define this alias again preserving it for the next session

```
(muna@kali)-[~]
$ echo "alias lsal='ls -al'" >> ~/.bashrc

(muna@kali)-[~]
$ source ~/.bashrc

(muna@kali)-[~]
$
```

Figure 15:Defining this alias again

8. Define the nwho alias for the number of system file at UNIX computers.

```
(muna@kali)-[~]
$ alias nwho='getent passwd |wc -l'

(muna@kali)-[~]
$ nwho
58

(muna@kali)-[~]
$ echo "alias nwho='getent passwd | wc -l'" >> ~/.bashrc

(muna@kali)-[~]
$ source ~/.bashrc

(muna@kali)-[~]
$
```

Figure 16:Defining nwho

10) List your last commands executed giving the history command.

```
(muna@kali)-[~]
$ history
1  whoami
2  who
3  finger muna
4  date
5  ls
6  ls -a
7  ls -a -l
8  cat /etc /passwd
9  cat /etc/passwd
10 echo "This is a one-line file" > test1
11 cat test1
12 cat >test2
13 cat > test2
14 cls
15 clear
16 cat > test2
17 .
18 /home/muna
19 dir /home/muna
20 cat test2
21 cat test1 test2 > combinedTest
22 cat combinedTest
23 ls
24 exit
25
```

Figure 17:History 1

```

302 cat > testa <<EOF
303 kkk11
304 111mm
305 oo-oo
306 mmmdd
307 dddkk
308 EOF
309 ls
310 cat > testb <<EOF
311 KKKKK
312 LLLLL
313 MMMMM
314 DDDDD
315 EOF
316 ls
317 cat testb
318 grep 11 testa
319 grep -v 11 testa
320 grep -n 11 testa
321 grep -1 11 *
322 grep -i 11 *
323 grep -l 11 *
324 grep -c 11 *
325 grep '^K' testa testb
326 grep -n '^' testa
327 grep -1 11*
328 grep -1 11 *
329 clear
330 alias lsal='ls -al'
331 ! -3
332 ls
333 echo "alias lsal='ls -al'" >> ~/.bashrc
334 lsal
335 unalias lsal
336 a
337 echo "alias lsal='ls -al'" >> ~/.bashrc
338 source ~/.bashrc
339 alias nwho='getent passwd | wc -l'
340 EOF
341 alias nwho='getent passwd | wc -l'
342 nwho
343 echo "alias nwho='getent passwd | wc -l'" >> ~/.bashrc
344 source ~/.bashrc
345 source ~/.bashrc
346 history

```

(muna@kali)-[~]
\$

Figure 18:History 1.1

10. Re-execute the last but one command using the redo (r) command and the number of the event.

- `Fc -r`

```

345 source ~/.bashrc
346 history

```

(muna@kali)-[~]
\$ fc -r 346

Figure 19:Command Fc -r

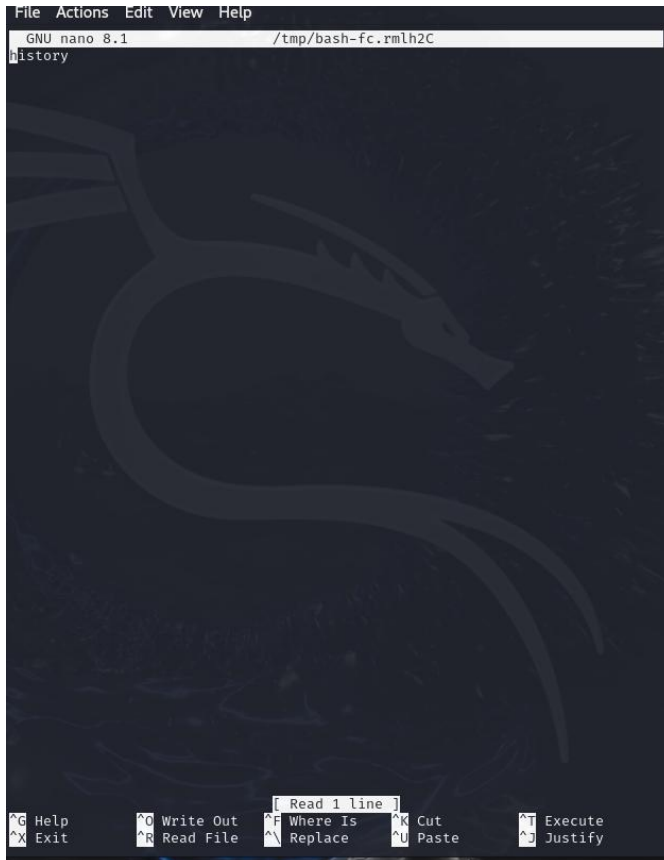


Figure 20: Terminal of history

11. Re-execute the command given three commands ago using the negative integer.

!-3

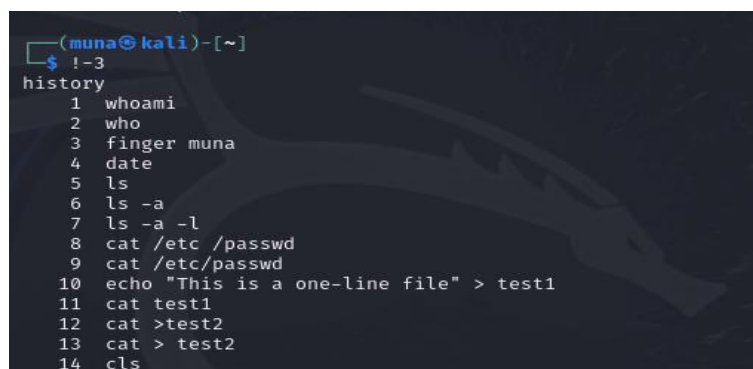


Figure 21: Command !-3

12. Re-execute the last command which name begins with 'l'.

fc -e- l

```
(muna@kali)-[~]
$ fc -e- l
lsal
total 188
drwx----- 12 muna muna 4096 Dec 24 22:46 .
drwxr-xr-x 3 root root 4096 Dec 12 00:27 ..
-rw-rw-r-- 1 muna muna 7538 Dec 12 00:46 alscript
-rw----- 1 muna muna 4375 Dec 24 22:59 .bash_history
-rw-r--r-- 1 muna muna 220 Dec 12 00:25 .bash_logout
-rw-r--r-- 1 muna muna 5736 Dec 24 22:52 .bashrc
-rw-r--r-- 1 muna muna 3526 Dec 12 00:25 .bashrc.original
drwxrwxr-x 8 muna muna 4096 Dec 19 02:40 .cache
-rw-rw-r-- 1 muna muna 79 Dec 12 00:51 combinedTest
drwxr-xr-x 13 muna muna 4096 Dec 24 22:46 .config
drwxr-xr-x 2 muna muna 4096 Dec 15 01:52 Desktop
-rw-r--r-- 1 muna muna 35 Dec 15 01:52 .dmrc
drwxr-xr-x 2 muna muna 4096 Dec 15 01:52 Documents
-rw-r--r-- 1 muna muna 11759 Dec 12 00:25 .face
lrwxrwxrwx 1 muna muna 5 Dec 12 00:25 .face.icon -> .face
-rw-rw-r-- 1 muna muna 0 Dec 19 05:28 file
drwx----- 3 muna muna 4096 Dec 15 01:52 .gnupg
-rw----- 1 muna muna 0 Dec 15 01:52 .ICEauthority
drwxr-xr-x 3 muna muna 4096 Dec 12 00:25 .java
drwx----- 15 kali kali 4096 Dec 12 00:24 kali
drwxr-xr-x 4 muna muna 4096 Dec 15 01:52 .local
-rw-r--r-- 1 muna muna 807 Dec 12 00:25 .profile
-rw-rw-r-- 1 muna muna 24 Dec 12 00:41 test1
-rw-rw-r-- 1 muna muna 55 Dec 12 00:46 test2
-rw-r----- 1 muna muna 5 Dec 24 22:46 .vboxclient-clipboard-tty7-control
.pid
-rw-r----- 1 muna muna 5 Dec 24 22:46 .vboxclient-clipboard-tty7-service
.pid
-rw-r----- 1 muna muna 5 Dec 24 22:46 .vboxclient-display-svgx11-tty7-
control.pid
-rw-r----- 1 muna muna 5 Dec 24 22:46 .vboxclient-display-svgx11-tty7-
service.pid
-rw-r----- 1 muna muna 5 Dec 24 22:46 .vboxclient-draganddrop-tty7-contr
ol.pid
-rw-r----- 1 muna muna 5 Dec 24 22:46 .vboxclient-draganddrop-tty7-servi
ce.pid
-rw-r----- 1 muna muna 5 Dec 24 22:46 .vboxclient-hostversion-tty7-contr
ol.pid
-rw-r----- 1 muna muna 5 Dec 24 22:46 .vboxclient-seamless-tty7-control.
pid
-rw-r----- 1 muna muna 5 Dec 24 22:46 .vboxclient-seamless-tty7-service.
pid
-rw-r----- 1 muna muna 5 Dec 24 22:46 .vboxclient-vmvga-session-tty7-co
ntrol.pid
```

Figure 22: Command `fc -e- l`

5. Conclusion

By going through this logbook now, I am comfortable with all common Linux commands and utilities. It even made me walk through some practical or real-world scripts right from creating directories, files to work with commands like grep, aliases set up, etc.

These exercises did not only further boost my confidence in using Linux, but it went further to emphasize just how powerful and flexible using Linux to manage files and system tasks can be. In summary, it will inflate in my mind the right point of view regarding Linux and its role in everyday computing.

6. References

g0tmi1k. (2024). *kali*. Retrieved from <https://www.kali.org/docs/introduction/what-is-kali-linux/>