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20BCE2790

Title: Linux Command List Assessment

Instructions:-

The following assessment aims to test your understanding and practical knowledge of various Linux commands. Perform the tasks given below using the appropriate commands. Write down the command(s) used to complete each task. You can use any Linux distribution or command-line interface of your choice. Ensure that you provide the correct output or results for each task.

Note: It is recommended to perform this assessment on a Linux machine or virtual environment.

File and Directory Operations:

ls: List files and directories cd:

Change directory

pwd: Print working directory

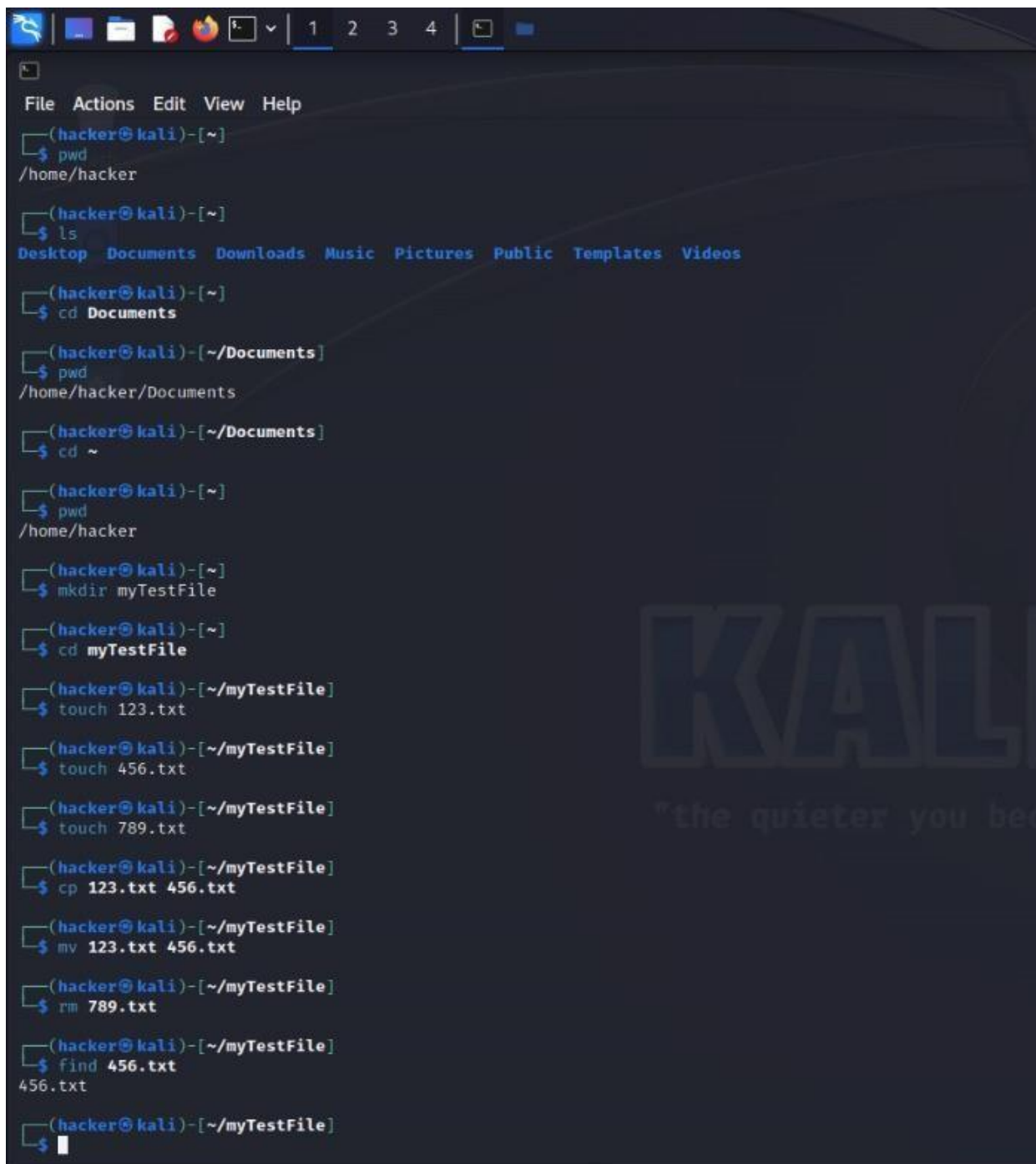
mkdir: Make directory touch:

Create an empty file cp: Copy
files and directories

mv: Move or rename files and directories rm:

Remove files and directories

find: Search for files and directories



```
File Actions Edit View Help
(hacker@kali)-[~]
$ pwd
/home/hacker

(hacker@kali)-[~]
$ ls
Desktop Documents Downloads Music Pictures Public Templates Videos

(hacker@kali)-[~]
$ cd Documents

(hacker@kali)-[~/Documents]
$ pwd
/home/hacker/Documents

(hacker@kali)-[~/Documents]
$ cd ~

(hacker@kali)-[~]
$ pwd
/home/hacker

(hacker@kali)-[~]
$ mkdir myTestFile

(hacker@kali)-[~]
$ cd myTestFile

(hacker@kali)-[~/myTestFile]
$ touch 123.txt

(hacker@kali)-[~/myTestFile]
$ touch 456.txt

(hacker@kali)-[~/myTestFile]
$ touch 789.txt

(hacker@kali)-[~/myTestFile]
$ cp 123.txt 456.txt

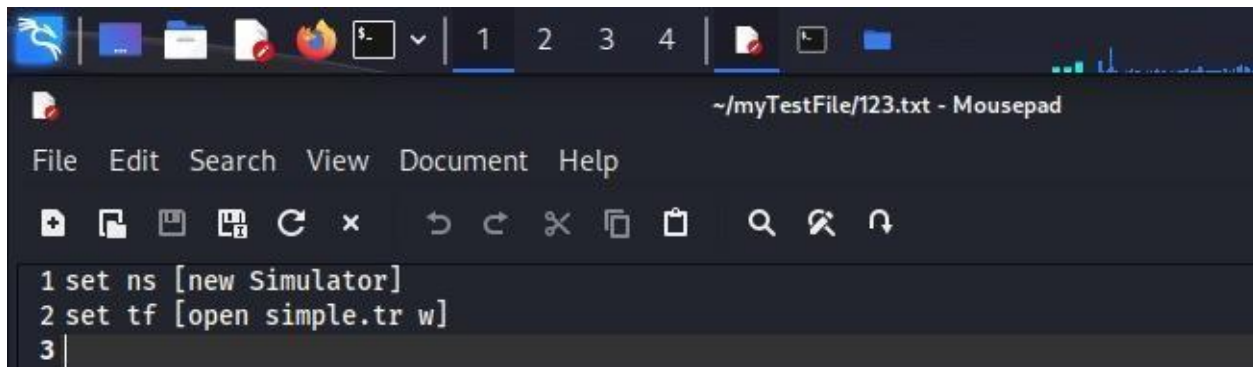
(hacker@kali)-[~/myTestFile]
$ mv 123.txt 456.txt

(hacker@kali)-[~/myTestFile]
$ rm 789.txt

(hacker@kali)-[~/myTestFile]
$ find 456.txt
456.txt

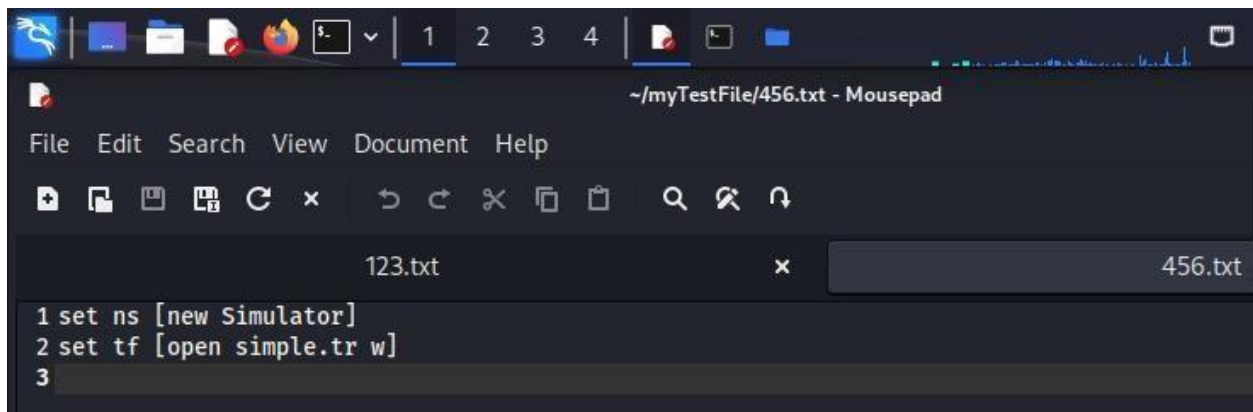
(hacker@kali)-[~/myTestFile]
$
```

123.txt file

A screenshot of a terminal window titled "~myTestFile/123.txt - Mousepad". The window has a menu bar with "File", "Edit", "Search", "View", "Document", and "Help". Below the menu bar is a toolbar with various icons for file operations. The main text area contains the following code:

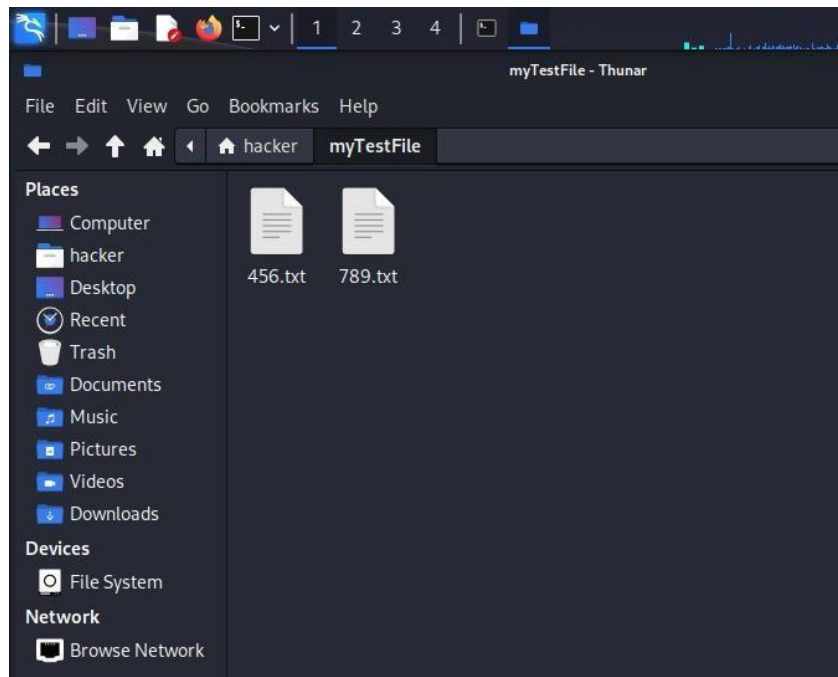
```
1 set ns [new Simulator]
2 set tf [open simple.tr w]
3
```

cp 123.txt file to 456.txt file

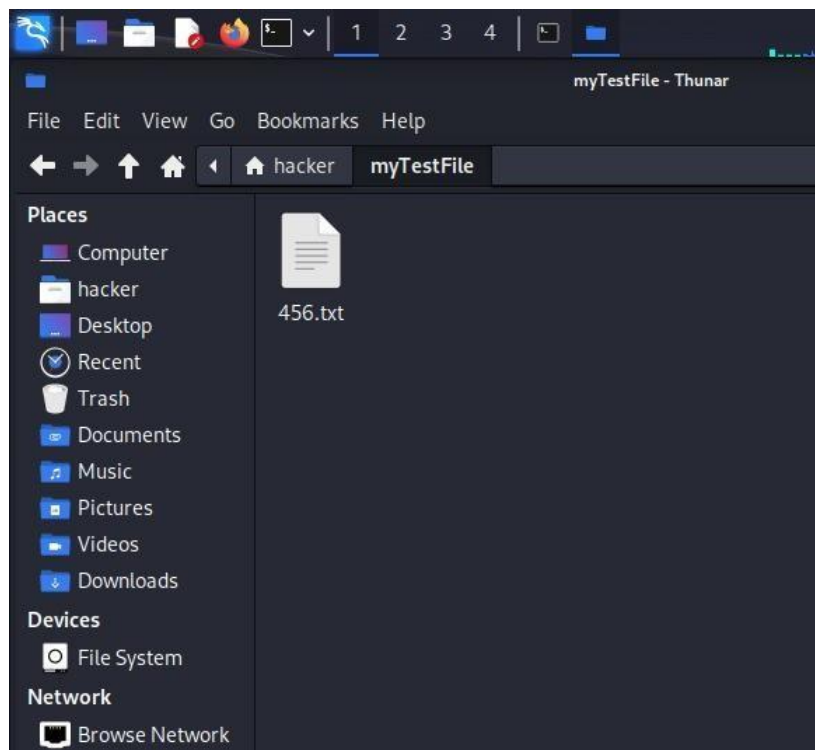
A screenshot of a terminal window titled "~myTestFile/456.txt - Mousepad". The window has a menu bar with "File", "Edit", "Search", "View", "Document", and "Help". Below the menu bar is a toolbar with various icons for file operations. The main text area contains the following code:

```
1 set ns [new Simulator]
2 set tf [open simple.tr w]
3
```

mv 123.txt file to 456.txt file



rm 789.txt file and find 456.txt file



File Viewing and Editing:

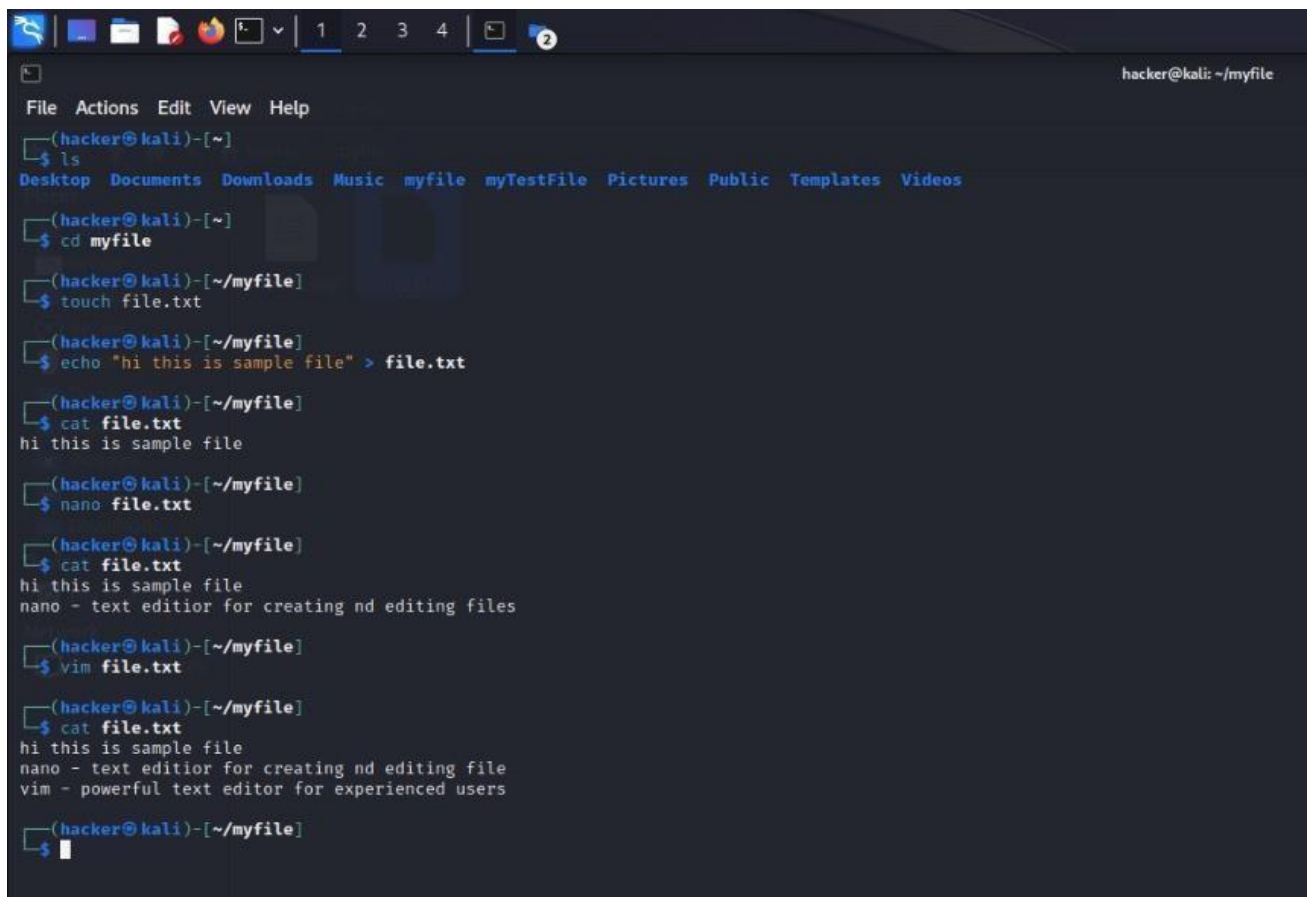
cat: Concatenate and display file content less:

View file content with pagination head:

Display the beginning of a file tail: Display the end of a file

nano: Text editor for creating and editing files vi/vim:

Powerful text editor for experienced users



```
hacker@kali: ~/myfile
File Actions Edit View Help
(hacker@kali)-[~]
$ ls
Desktop Documents Downloads Music myfile myTestFile Pictures Public Templates Videos
(hacker@kali)-[~]
$ cd myfile
(hacker@kali)-[~/myfile]
$ touch file.txt
(hacker@kali)-[~/myfile]
$ echo "hi this is sample file" > file.txt
(hacker@kali)-[~/myfile]
$ cat file.txt
hi this is sample file
(hacker@kali)-[~/myfile]
$ nano file.txt
(hacker@kali)-[~/myfile]
$ cat file.txt
hi this is sample file
nano - text editor for creating nd editing files
(hacker@kali)-[~/myfile]
$ vim file.txt
(hacker@kali)-[~/myfile]
$ cat file.txt
hi this is sample file
nano - text editor for creating nd editing file
vim - powerful text editor for experienced users
(hacker@kali)-[~/myfile]
$
```

```
(hacker@kali)-[~/myfile]
$ head file.txt
hi this is sample file
nano - text editor for creating nd editing file
vim - powerful text editor for experienced users
less - view file content

(hacker@kali)-[~/myfile]
$ tail file.txt
hi this is sample file
nano - text editor for creating nd editing file
vim - powerful text editor for experienced users
less - view file content

(hacker@kali)-[~/myfile]
$ less file.txt

(hacker@kali)-[~/myfile]
$

(hacker@kali)-[~/myfile]
$
```

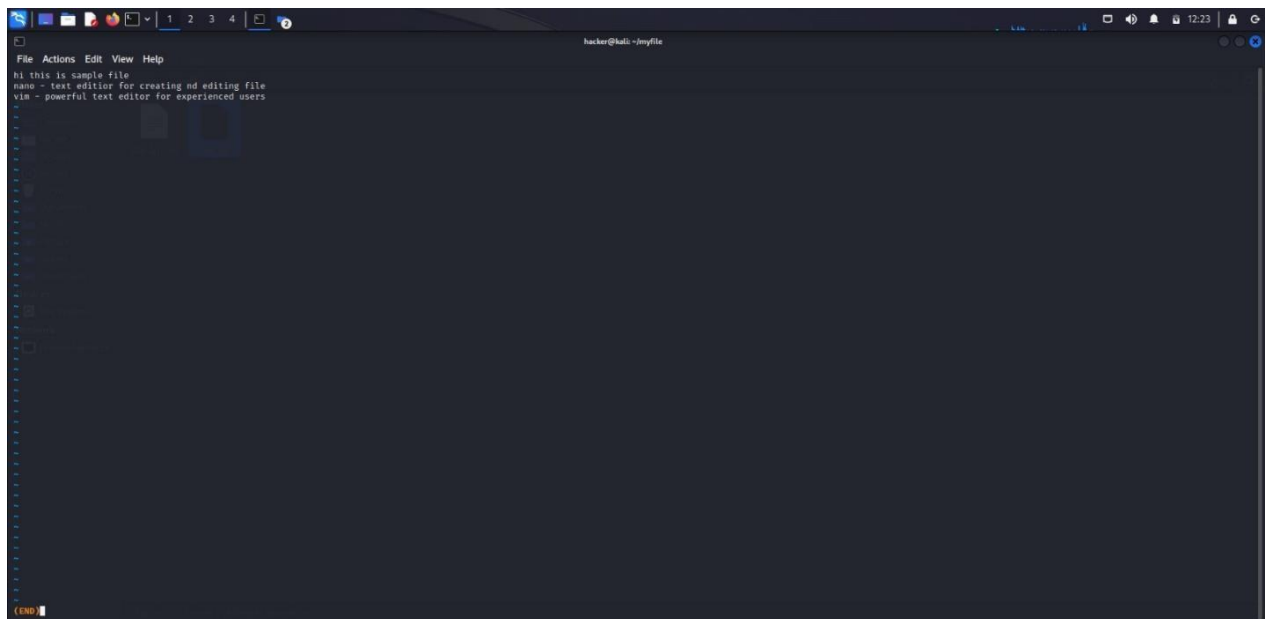
less command window



nano command window



vim / vi command window



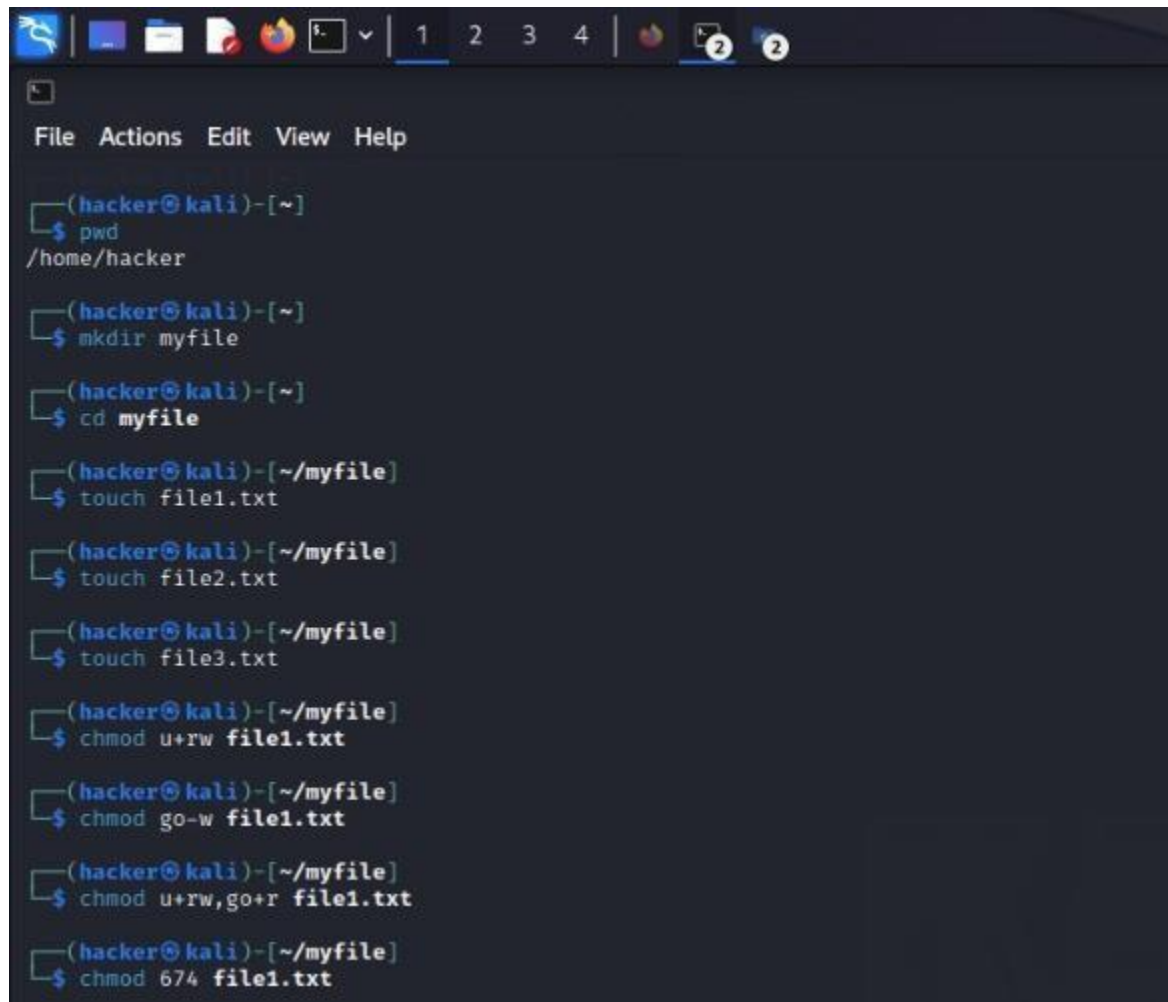
:wq to exit the command window for nano, vim/vi, less

File Permissions:

chmod: Change file permissions

chown: Change file owner chgrp:

Change file group

A terminal window with a dark background and light blue text. The window title bar shows standard Linux icons and tabs. The terminal content shows a series of commands and their outputs in a shell environment.

```
(hacker@kali)-[~]
$ pwd
/home/hacker

(hacker@kali)-[~]
$ mkdir myfile

(hacker@kali)-[~]
$ cd myfile

(hacker@kali)-[~/myfile]
$ touch file1.txt

(hacker@kali)-[~/myfile]
$ touch file2.txt

(hacker@kali)-[~/myfile]
$ touch file3.txt

(hacker@kali)-[~/myfile]
$ chmod u+rw file1.txt

(hacker@kali)-[~/myfile]
$ chmod go-w file1.txt

(hacker@kali)-[~/myfile]
$ chmod u+rw,go+r file1.txt

(hacker@kali)-[~/myfile]
$ chmod 674 file1.txt
```



```
(hacker@kali)-[~/myfile]
$ ls -l
total 0
-rw-rwxr-- 1 hacker hacker 0 May 21 22:53 file1.txt
-rw-r--r-- 1 hacker hacker 0 May 21 22:53 file2.txt
-rw-r--r-- 1 hacker hacker 0 May 21 22:53 file3.txt
```

```
(hacker@kali)-[~/myfile]
$ chmod 777 file2.txt
```

```
(hacker@kali)-[~/myfile]
$ chmod a+x file3.txt
```

```
(hacker@kali)-[~/myfile]
$ chmod 755 file1.txt
```

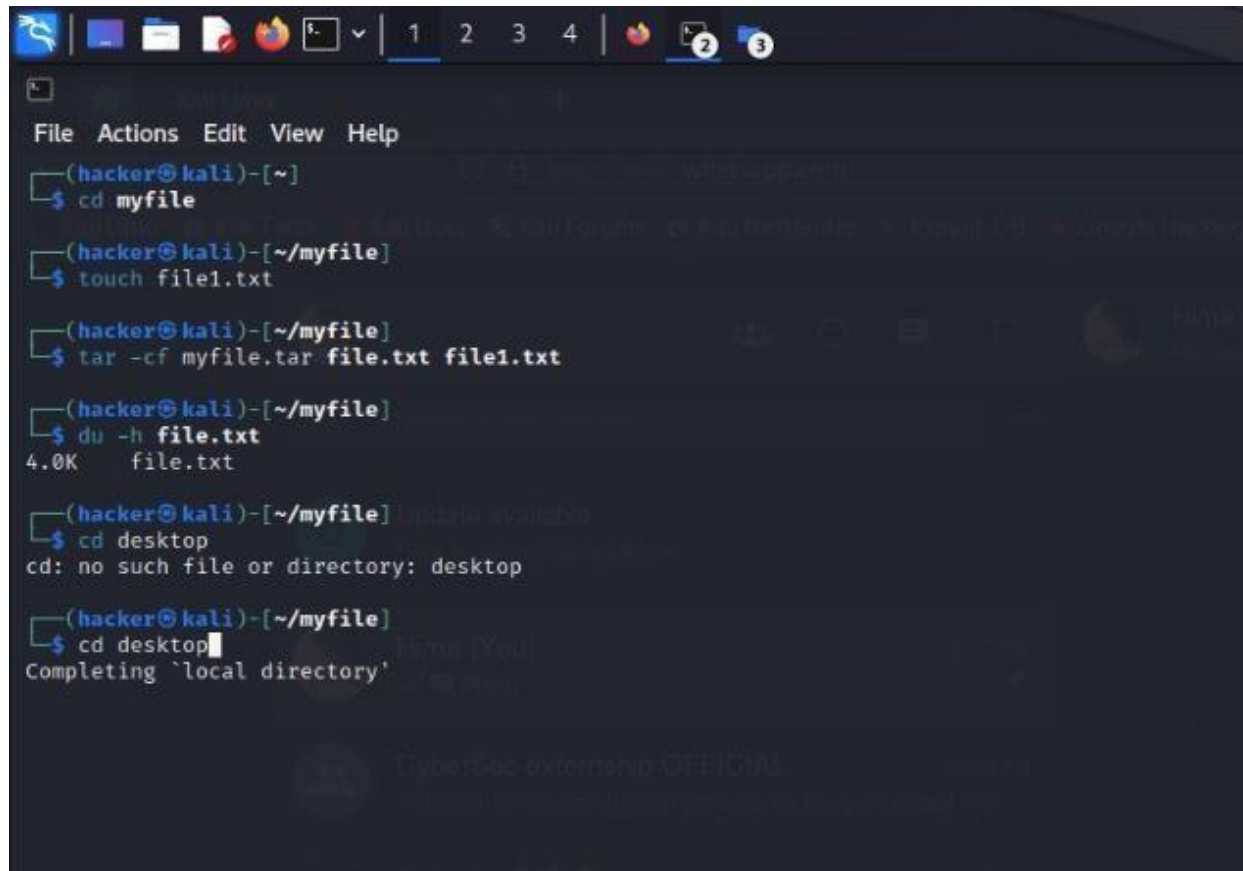
```
(hacker@kali)-[~/myfile]
$ ls -l
total 0
-rwxr-xr-x 1 hacker hacker 0 May 21 22:53 file1.txt
-rwxrwxrwx 1 hacker hacker 0 May 21 22:53 file2.txt
-rwxr-xr-x 1 hacker hacker 0 May 21 22:53 file3.txt
```

File Compression and Archiving:

tar: Archive files gzip:

Compress files

unzip: Extract files from a ZIP archive

A screenshot of a Kali Linux terminal window. The window has a dark theme and a menu bar with 'File', 'Actions', 'Edit', 'View', and 'Help'. The terminal shows a series of commands being executed in a shell. The user is in the directory ~/myfile. They first run 'cd myfile', then 'touch file1.txt'. Next, they run 'tar -cf myfile.tar file.txt file1.txt' to create an archive. Then, they run 'du -h file.txt' which shows '4.0K file.txt'. Finally, they attempt to run 'cd desktop' but receive an error 'cd: no such file or directory: desktop'. The prompt then returns to the shell, and they run 'cd desktop' again, which results in a message 'Completing `local directory`'.

```
(hacker@kali)-[~]
$ cd myfile

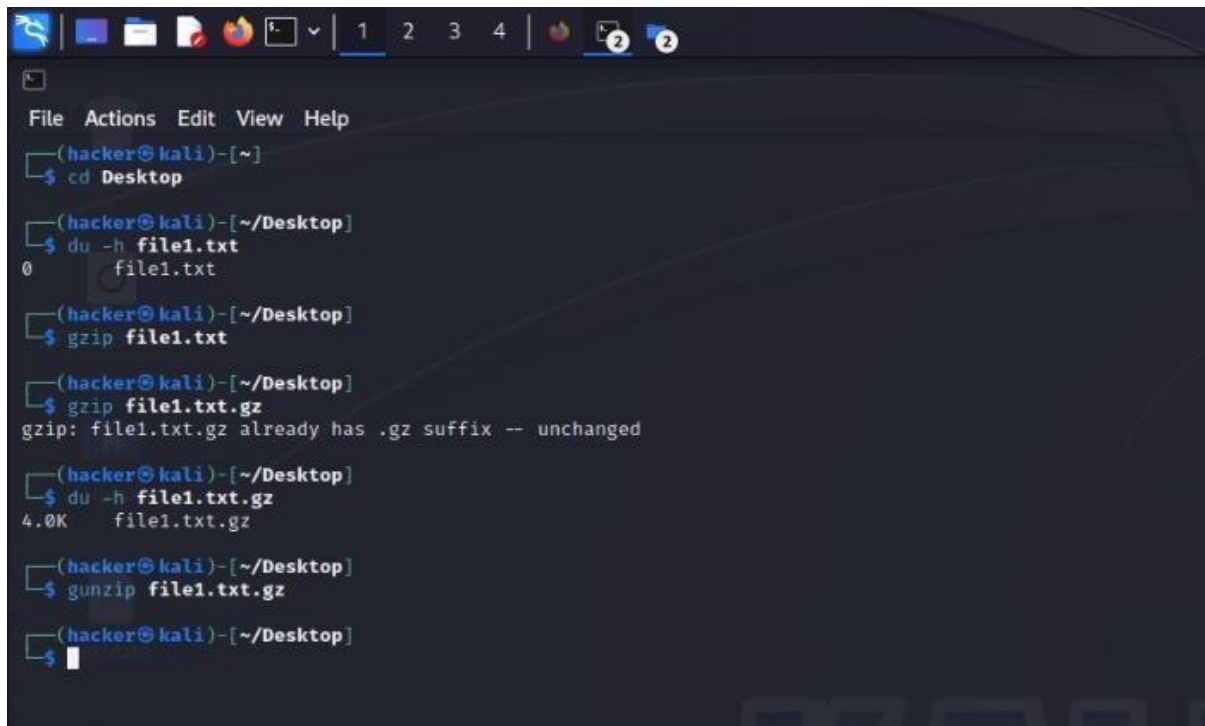
(hacker@kali)-[~/myfile]
$ touch file1.txt

(hacker@kali)-[~/myfile]
$ tar -cf myfile.tar file.txt file1.txt

(hacker@kali)-[~/myfile]
$ du -h file.txt
4.0K    file.txt

(hacker@kali)-[~/myfile]
$ cd desktop
cd: no such file or directory: desktop

(hacker@kali)-[~/myfile]
$ cd desktop
Completing `local directory`
```



A terminal window on a Kali Linux desktop. The window has a menu bar with 'File', 'Actions', 'Edit', 'View', and 'Help'. The terminal shows the following commands and output:

```
(hacker@kali)-[~]
$ cd Desktop

(hacker@kali)-[~/Desktop]
$ du -h file1.txt
0      file1.txt

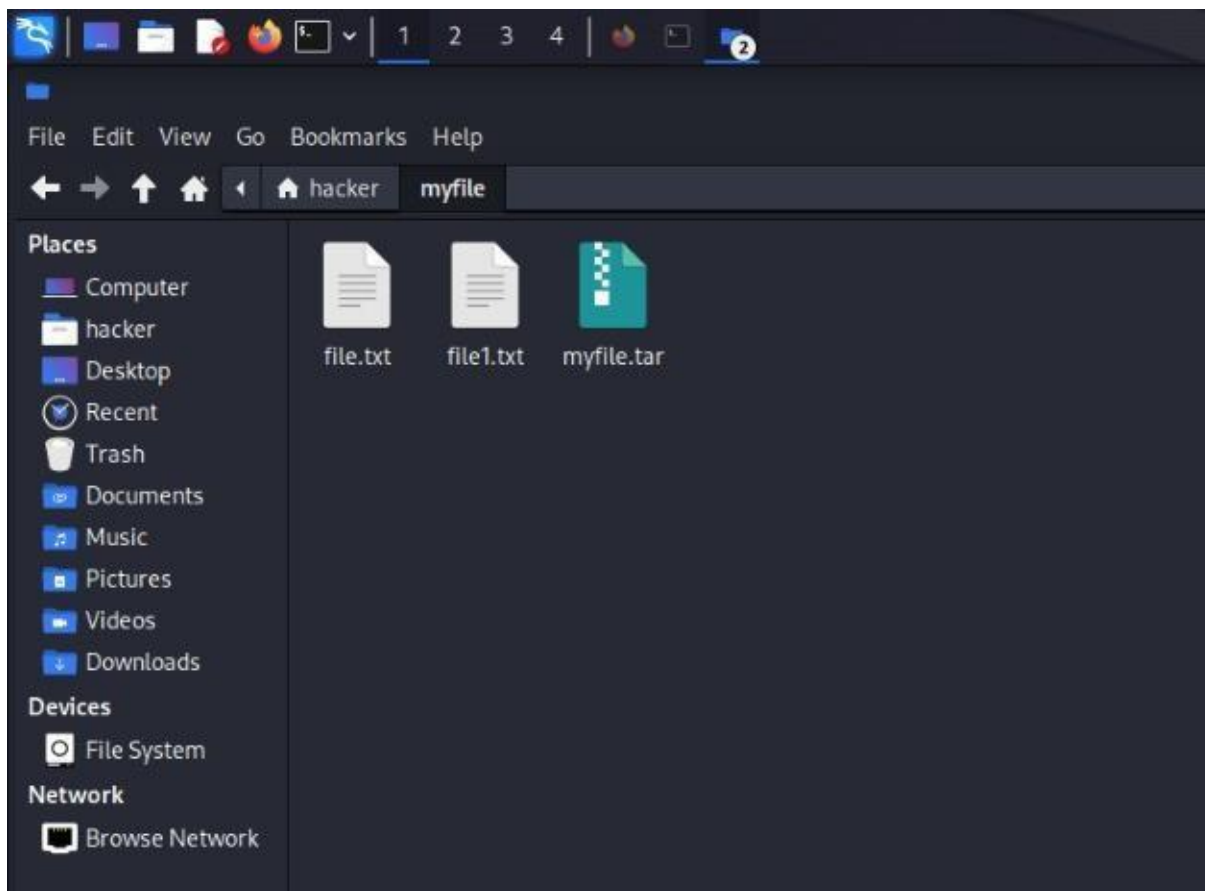
(hacker@kali)-[~/Desktop]
$ gzip file1.txt

(hacker@kali)-[~/Desktop]
$ gzip file1.txt.gz
gzip: file1.txt.gz already has .gz suffix -- unchanged

(hacker@kali)-[~/Desktop]
$ du -h file1.txt.gz
4.0K   file1.txt.gz

(hacker@kali)-[~/Desktop]
$ gunzip file1.txt.gz

(hacker@kali)-[~/Desktop]
$
```



Process Management:

ps: List running processes

top: Display real-time system information and processes kill:

Terminate processes

bg: Run processes in the background

fg: Bring background processes to the foreground top

command

```
hacker@kali: ~  
File Actions Edit View Help  
top - 13:17:18 up 1:35, 1 user, load average: 0.47, 0.30, 0.28  
Tasks: 182 total, 1 running, 181 sleeping, 0 stopped, 0 zombie  
%Cpu(s): 15.9 us, 5.5 sy, 0.0 ni, 78.3 id, 0.2 wa, 0.0 hi, 0.1 si, 0.0 st  
MiB Mem : 3920.2 total, 1798.0 free, 1469.6 used, 930.0 buff/cache  
MiB Swap: 975.0 total, 975.0 free, 0.0 used, 2450.6 avail Mem  


| PID   | USER   | PR | NI  | VIRT    | RES    | SHR    | S | %CPU | %MEM | TIME+   | COMMAND                          |
|-------|--------|----|-----|---------|--------|--------|---|------|------|---------|----------------------------------|
| 51763 | hacker | 20 | 0   | 10.8g   | 402184 | 165980 | S | 60.5 | 10.0 | 0:05.58 | firefox-esr                      |
| 652   | root   | 20 | 0   | 511212  | 188324 | 98008  | S | 13.0 | 4.7  | 1:58.60 | Xorg                             |
| 52060 | hacker | 20 | 0   | 10.3g   | 110160 | 88092  | S | 9.3  | 2.7  | 0:00.28 | file:/// Content                 |
| 991   | hacker | 20 | 0   | 1171092 | 110860 | 77376  | S | 1.0  | 2.8  | 0:31.88 | xfwm4                            |
| 51686 | hacker | 20 | 0   | 445688  | 108804 | 89324  | S | 1.0  | 2.7  | 0:00.22 | qterminal                        |
| 127   | root   | 0  | -20 | 0       | 0      | 0      | I | 0.3  | 0.0  | 0:00.26 | kworker/3:1H-kblockd             |
| 295   | root   | 20 | 0   | 0       | 0      | 0      | S | 0.3  | 0.0  | 0:00.44 | jbd2/sda1-8                      |
| 1022  | hacker | 20 | 0   | 231512  | 29812  | 19692  | S | 0.3  | 0.7  | 0:02.04 | xfsettingsd                      |
| 1039  | hacker | 20 | 0   | 468656  | 47404  | 35384  | S | 0.3  | 1.2  | 0:11.27 | xfce4-panel                      |
| 1048  | hacker | 20 | 0   | 516524  | 114996 | 51532  | S | 0.3  | 2.9  | 0:14.43 | xfdesktop                        |
| 1054  | hacker | 20 | 0   | 358648  | 42436  | 22220  | S | 0.3  | 1.1  | 0:20.42 | panel-13-cpugra                  |
| 1056  | hacker | 20 | 0   | 350308  | 32940  | 21004  | S | 0.3  | 0.8  | 0:15.28 | panel-15-genmon                  |
| 1059  | hacker | 20 | 0   | 391736  | 48592  | 33364  | S | 0.3  | 1.2  | 0:01.96 | panel-18-power-                  |
| 33636 | hacker | 20 | 0   | 445764  | 111544 | 89808  | S | 0.3  | 2.8  | 0:01.15 | qterminal                        |
| 41320 | root   | 20 | 0   | 0       | 0      | 0      | I | 0.3  | 0.0  | 0:00.13 | kworker/u8:2-ext4-rsv-conversion |
| 41552 | root   | 20 | 0   | 0       | 0      | 0      | I | 0.3  | 0.0  | 0:00.29 | kworker/1:1-events               |
| 51746 | hacker | 20 | 0   | 11632   | 5352   | 3204   | R | 0.3  | 0.1  | 0:00.04 | top                              |
| 51883 | hacker | 20 | 0   | 10.3g   | 114400 | 86112  | S | 0.3  | 2.8  | 0:00.40 | Privileged Cont                  |
| 1     | root   | 20 | 0   | 167664  | 12176  | 9016   | S | 0.0  | 0.3  | 0:01.15 | systemd                          |
| 2     | root   | 20 | 0   | 0       | 0      | 0      | S | 0.0  | 0.0  | 0:00.01 | kthreadd                         |
| 3     | root   | 0  | -20 | 0       | 0      | 0      | I | 0.0  | 0.0  | 0:00.00 | rcu_gp                           |
| 4     | root   | 0  | -20 | 0       | 0      | 0      | I | 0.0  | 0.0  | 0:00.00 | rcu_par_gp                       |
| 5     | root   | 0  | -20 | 0       | 0      | 0      | I | 0.0  | 0.0  | 0:00.00 | slub_flushwq                     |
| 6     | root   | 0  | -20 | 0       | 0      | 0      | I | 0.0  | 0.0  | 0:00.00 | netns                            |
| 8     | root   | 0  | -20 | 0       | 0      | 0      | I | 0.0  | 0.0  | 0:00.00 | kworker/0:0H-events_highpri      |
| 10    | root   | 0  | -20 | 0       | 0      | 0      | I | 0.0  | 0.0  | 0:00.00 | mm_percpu_wq                     |
| 11    | root   | 20 | 0   | 0       | 0      | 0      | I | 0.0  | 0.0  | 0:00.00 | rcu_tasks_kthread                |
| 12    | root   | 20 | 0   | 0       | 0      | 0      | I | 0.0  | 0.0  | 0:00.00 | rcu_tasks_rude_kthread           |
| 13    | root   | 20 | 0   | 0       | 0      | 0      | I | 0.0  | 0.0  | 0:00.00 | rcu_tasks_trace_kthread          |
| 14    | root   | 20 | 0   | 0       | 0      | 0      | S | 0.0  | 0.0  | 0:00.06 | ksoftirqd/0                      |
| 15    | root   | 20 | 0   | 0       | 0      | 0      | I | 0.0  | 0.0  | 0:03.16 | rcu_preempt                      |
| 16    | root   | rt | 0   | 0       | 0      | 0      | S | 0.0  | 0.0  | 0:00.05 | migration/0                      |
| 18    | root   | 20 | 0   | 0       | 0      | 0      | S | 0.0  | 0.0  | 0:00.00 | cpuhp/0                          |
| 19    | root   | 20 | 0   | 0       | 0      | 0      | S | 0.0  | 0.0  | 0:00.00 | cpuhp/1                          |
| 20    | root   | rt | 0   | 0       | 0      | 0      | S | 0.0  | 0.0  | 0:00.38 | migration/1                      |
| 21    | root   | 20 | 0   | 0       | 0      | 0      | S | 0.0  | 0.0  | 0:00.06 | ksoftirqd/1                      |
| 23    | root   | 0  | -20 | 0       | 0      | 0      | I | 0.0  | 0.0  | 0:00.00 | kworker/1:0H-events_highpri      |
| 24    | root   | 20 | 0   | 0       | 0      | 0      | S | 0.0  | 0.0  | 0:00.00 | cpuhp/2                          |
| 25    | root   | rt | 0   | 0       | 0      | 0      | S | 0.0  | 0.0  | 0:00.37 | migration/2                      |
| 26    | root   | 20 | 0   | 0       | 0      | 0      | S | 0.0  | 0.0  | 0:00.06 | ksoftirqd/2                      |
| 29    | root   | 20 | 0   | 0       | 0      | 0      | S | 0.0  | 0.0  | 0:00.00 | cpuhp/3                          |
| 30    | root   | rt | 0   | 0       | 0      | 0      | S | 0.0  | 0.0  | 0:00.39 | migration/3                      |
| 31    | root   | 20 | 0   | 0       | 0      | 0      | S | 0.0  | 0.0  | 0:00.18 | ksoftirqd/3                      |
| 33    | root   | 0  | -20 | 0       | 0      | 0      | I | 0.0  | 0.0  | 0:00.00 | kworker/3:0H-events_highpri      |
| 37    | root   | 20 | 0   | 0       | 0      | 0      | S | 0.0  | 0.0  | 0:00.00 | kdevtmpfs                        |


```

```
hacker@kali: ~  
File Actions Edit View Help  
(hacker@kali)-[~]  
$ ps  
  PID TTY          TIME CMD  
 51689 pts/0    00:00:00 zsh  
 52267 pts/0    00:00:00 ps  
(hacker@kali)-[~]  
$ top  
top - 13:17:59 up 1:35, 1 user, load average: 0.35, 0.29, 0.27  
Tasks: 182 total, 1 running, 181 sleeping, 0 stopped, 0 zombie  
%Cpu(s): 4.6 us, 2.2 sy, 0.0 ni, 93.1 id, 0.0 wa, 0.0 hi, 0.1 si, 0.0 st  
MiB Mem : 3920.2 total, 1790.6 free, 1467.0 used, 947.5 buff/cache  
MiB Swap: 975.0 total, 975.0 free, 0.0 used, 2453.2 avail Mem  


| PID   | USER   | PR  | NI  | VIRT    | RES    | SHR    | S | %CPU | %MEM | TIME+   | COMMAND                     |
|-------|--------|-----|-----|---------|--------|--------|---|------|------|---------|-----------------------------|
| 51763 | hacker | 20  | 0   | 2927992 | 381700 | 176088 | S | 10.6 | 9.5  | 0:11.61 | firefox-esr                 |
| 652   | root   | 20  | 0   | 522476  | 199568 | 98116  | S | 8.9  | 5.0  | 2:02.22 | Xorg                        |
| 52060 | hacker | 20  | 0   | 2448168 | 119364 | 99200  | S | 3.6  | 3.0  | 0:01.12 | file:/// Content            |
| 51686 | hacker | 20  | 0   | 445688  | 108988 | 89448  | S | 1.7  | 2.7  | 0:00.70 | qterminal                   |
| 991   | hacker | 20  | 0   | 1171092 | 110860 | 77376  | S | 1.0  | 2.8  | 0:32.64 | xfwm4                       |
| 1056  | hacker | 20  | 0   | 350308  | 32940  | 21004  | S | 1.0  | 0.8  | 0:15.43 | panel-15-genmon             |
| 1039  | hacker | 20  | 0   | 468656  | 47404  | 35384  | S | 0.7  | 1.2  | 0:11.61 | xfce4-panel                 |
| 1054  | hacker | 20  | 0   | 358648  | 42436  | 22220  | S | 0.7  | 1.1  | 0:20.66 | panel-13-cpugra             |
| 16    | root   | rt  | 0   | 0       | 0      | 0      | S | 0.3  | 0.0  | 0:00.06 | migration/0                 |
| 181   | root   | -51 | 0   | 0       | 0      | 0      | S | 0.3  | 0.0  | 0:01.95 | irq/18-vmwgfx               |
| 591   | root   | 20  | 0   | 358412  | 2800   | 2428   | S | 0.3  | 0.1  | 0:01.25 | VBoxService                 |
| 1043  | hacker | 20  | 0   | 575792  | 74332  | 39916  | S | 0.3  | 1.9  | 0:26.16 | Thunar                      |
| 33636 | hacker | 20  | 0   | 445764  | 111544 | 89808  | S | 0.3  | 2.8  | 0:01.20 | qterminal                   |
| 1     | root   | 20  | 0   | 167664  | 12176  | 9016   | S | 0.0  | 0.3  | 0:01.15 | systemd                     |
| 2     | root   | 20  | 0   | 0       | 0      | 0      | S | 0.0  | 0.0  | 0:00.01 | kthreadd                    |
| 3     | root   | 0   | -20 | 0       | 0      | 0      | I | 0.0  | 0.0  | 0:00.00 | rcu_gp                      |
| 4     | root   | 0   | -20 | 0       | 0      | 0      | I | 0.0  | 0.0  | 0:00.00 | rcu_par_gp                  |
| 5     | root   | 0   | -20 | 0       | 0      | 0      | I | 0.0  | 0.0  | 0:00.00 | slub_flushwq                |
| 6     | root   | 0   | -20 | 0       | 0      | 0      | I | 0.0  | 0.0  | 0:00.00 | netns                       |
| 8     | root   | 0   | -20 | 0       | 0      | 0      | I | 0.0  | 0.0  | 0:00.00 | kworker/0:0H-events_highpri |
| 10    | root   | 0   | -20 | 0       | 0      | 0      | I | 0.0  | 0.0  | 0:00.00 | mm_percpu_wq                |
| 11    | root   | 20  | 0   | 0       | 0      | 0      | I | 0.0  | 0.0  | 0:00.00 | rcu_tasks_kthread           |
| 12    | root   | 20  | 0   | 0       | 0      | 0      | I | 0.0  | 0.0  | 0:00.00 | rcu_tasks_rude_kthread      |
| 13    | root   | 20  | 0   | 0       | 0      | 0      | I | 0.0  | 0.0  | 0:00.00 | rcu_tasks_trace_kthread     |
| 14    | root   | 20  | 0   | 0       | 0      | 0      | S | 0.0  | 0.0  | 0:00.06 | ksoftirqd/0                 |
| 15    | root   | 20  | 0   | 0       | 0      | 0      | I | 0.0  | 0.0  | 0:03.20 | rcu_preempt                 |
| 18    | root   | 20  | 0   | 0       | 0      | 0      | S | 0.0  | 0.0  | 0:00.00 | cpuhp/0                     |
| 19    | root   | 20  | 0   | 0       | 0      | 0      | S | 0.0  | 0.0  | 0:00.00 | cpuhp/1                     |
| 20    | root   | rt  | 0   | 0       | 0      | 0      | S | 0.0  | 0.0  | 0:00.38 | migration/1                 |
| 21    | root   | 20  | 0   | 0       | 0      | 0      | S | 0.0  | 0.0  | 0:00.06 | ksoftirqd/1                 |
| 23    | root   | 0   | -20 | 0       | 0      | 0      | I | 0.0  | 0.0  | 0:00.00 | kworker/1:0H-events_highpri |
| 24    | root   | 20  | 0   | 0       | 0      | 0      | S | 0.0  | 0.0  | 0:00.00 | cpuhp/2                     |
| 25    | root   | rt  | 0   | 0       | 0      | 0      | S | 0.0  | 0.0  | 0:00.37 | migration/2                 |
| 26    | root   | 20  | 0   | 0       | 0      | 0      | S | 0.0  | 0.0  | 0:00.06 | ksoftirqd/2                 |
| 29    | root   | 20  | 0   | 0       | 0      | 0      | S | 0.0  | 0.0  | 0:00.00 | cpuhp/3                     |
| 30    | root   | rt  | 0   | 0       | 0      | 0      | S | 0.0  | 0.0  | 0:00.39 | migration/3                 |


```



```
hacker@kali: ~  
File Actions Edit View Help  
51686 hacker 20 0 445688 108988 89448 S 1.7 2.7 0:00.70 qterminal  
991 hacker 20 0 1171092 110860 77376 S 1.0 2.8 0:32.64 xfwm4  
1056 hacker 20 0 350308 32940 21004 S 1.0 0.8 0:15.43 panel-15-genmon  
1039 hacker 20 0 468656 47404 35384 S 0.7 1.2 0:11.61 xfce4-panel  
1054 hacker 20 0 358648 42436 22220 S 0.7 1.1 0:20.66 panel-13-cpugra  
16 root rt 0 0 0 0 S 0.3 0.0 0:00.06 migration/0  
181 root -51 0 0 0 0 S 0.3 0.0 0:01.95 irq/18-vmwgfx  
591 root 20 0 358412 2800 2428 S 0.3 0.1 0:01.25 VBoxService  
1043 hacker 20 0 575792 74332 39916 S 0.3 1.9 0:26.16 Thunar  
33636 hacker 20 0 445764 111544 89808 S 0.3 2.8 0:01.20 qterminal  
1 root 20 0 167664 12176 9016 S 0.0 0.3 0:01.15 systemd  
2 root 20 0 0 0 0 S 0.0 0.0 0:00.01 kthreadd  
3 root 0 -20 0 0 0 I 0.0 0.0 0:00.00 rcu_gp  
4 root 0 -20 0 0 0 I 0.0 0.0 0:00.00 rcu_par_gp  
5 root 0 -20 0 0 0 I 0.0 0.0 0:00.00 slub_flushwq  
6 root 0 -20 0 0 0 I 0.0 0.0 0:00.00 netns  
8 root 0 -20 0 0 0 I 0.0 0.0 0:00.00 kworker/0:0H-events_highpri  
10 root 0 -20 0 0 0 I 0.0 0.0 0:00.00 mm_percpu_wq  
11 root 20 0 0 0 0 I 0.0 0.0 0:00.00 rcu_tasks_kthread  
12 root 20 0 0 0 0 I 0.0 0.0 0:00.00 rcu_tasks_rude_kthread  
13 root 20 0 0 0 0 I 0.0 0.0 0:00.00 rcu_tasks_trace_kthread  
14 root 20 0 0 0 0 S 0.0 0.0 0:00.06 ksoftirqd/0  
15 root 20 0 0 0 0 I 0.0 0.0 0:03.20 rcu_preempt  
18 root 20 0 0 0 0 S 0.0 0.0 0:00.00 cpuhp/0  
19 root 20 0 0 0 0 S 0.0 0.0 0:00.00 cpuhp/1  
20 root rt 0 0 0 0 S 0.0 0.0 0:00.38 migration/1  
21 root 20 0 0 0 0 S 0.0 0.0 0:00.06 ksoftirqd/1  
23 root 0 -20 0 0 0 I 0.0 0.0 0:00.00 kworker/1:0H-events_highpri  
24 root 20 0 0 0 0 S 0.0 0.0 0:00.00 cpuhp/2  
25 root rt 0 0 0 0 S 0.0 0.0 0:00.37 migration/2  
26 root 20 0 0 0 0 S 0.0 0.0 0:00.06 ksoftirqd/2  
29 root 20 0 0 0 0 S 0.0 0.0 0:00.00 cpuhp/3  
30 root rt 0 0 0 0 S 0.0 0.0 0:00.39 migration/3  
31 root 20 0 0 0 0 S 0.0 0.0 0:00.18 ksoftirqd/3  
33 root 0 -20 0 0 0 I 0.0 0.0 0:00.00 kworker/3:0H-events_highpri  
37 root 20 0 0 0 0 S 0.0 0.0 0:00.00 kdevtmpfs  
38 root 0 -20 0 0 0 I 0.0 0.0 0:00.00 inet_frag_wq  
39 root 20 0 0 0 0 S 0.0 0.0 0:00.00 kauditd  
40 root 20 0 0 0 0 S 0.0 0.0 0:00.00 khungtaskd  
41 root 20 0 0 0 0 S 0.0 0.0 0:00.00 oom_reaper  
42 root 0 -20 0 0 0 I 0.0 0.0 0:00.00 writeback  
43 root 20 0 0 0 0 S 0.0 0.0 0:00.39 kcompactd0  
  
(hacker@kali)-[~]  
$ pkill firefox  
  
(hacker@kali)-[~]  
$ xkill  
Select the window whose client you wish to kill with button 1....
```

```
File Actions Edit View Help
(hacker@kali)-[~]
$ ps
  PID TTY          TIME CMD
 63033 pts/0        00:00:00 zsh
 63089 pts/0        00:00:00 ps

(hacker@kali)-[~]
$ gedit f1.txt &
[1] 63253

(hacker@kali)-[~]
$ ps
  PID TTY          TIME CMD
 63033 pts/0        00:00:00 zsh
 63253 pts/0        00:00:00 gedit
 63321 pts/0        00:00:00 ps

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

```
File Actions Edit View Help
(hacker@kali)-[~]
$ ps -al
F S  UID        PID      PPID    C  PRI  NI ADDR  SZ  WCHAN  TTY          TIME CMD
0 S  1000      63253    63033    1   85   5  - 158808 do_sys pts/0        00:00:00 gedit
4 R  1000      63555    63033    0   80   0  - 2800   -      pts/0        00:00:00 ps

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

```
File Actions Edit View Help
(hacker@kali)-[~]
$ bg
bg: job already in background

(hacker@kali)-[~]
$ fg
[1] + running  gedit f1.txt

$
```

System Information:

uname: Print system information df:

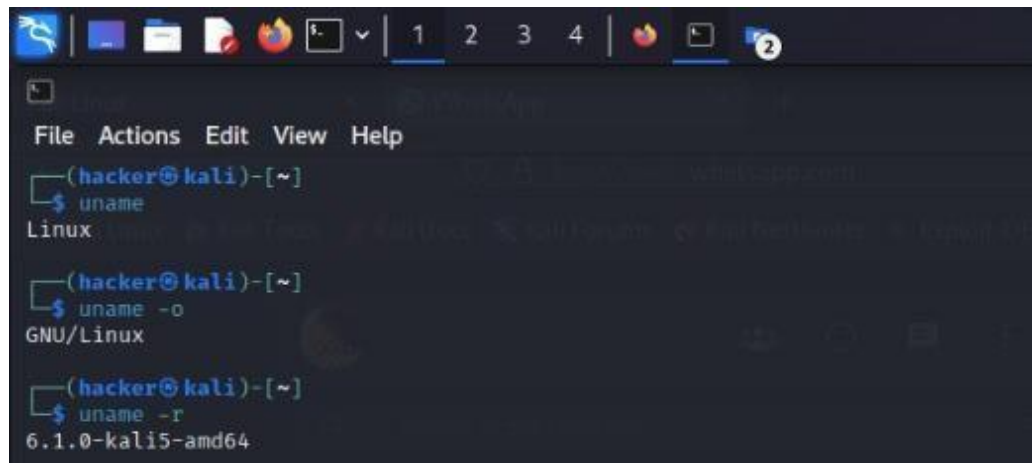
Display disk space usage free:

Display memory usage uptime:

Show system uptime who: Display

logged-in users

w: Display logged-in users and their activities



```
(hacker@kali)-[~]  
$ uname  
Linux  
  
(hacker@kali)-[~]  
$ uname -o  
GNU/Linux  
  
(hacker@kali)-[~]  
$ uname -r  
6.1.0-kali5-amd64
```



```
hacker@kali: ~  
File Actions Edit View Help  
$ uname -v  
#1 SMP PREEMPT_DYNAMIC Debian 6.1.12-1kali2 (2023-02-23)  
$ uname -m  
x86_64  
$ uname -p  
unknown  
$ uname -i  
unknown  
$ uname -a  
Linux kali 6.1.0-kali5-amd64 #1 SMP PREEMPT_DYNAMIC Debian 6.1.12-1kali2 (2023-02-23) x86_64 GNU/Linux  
$ w  
13:59:36 up 2:17, 1 user, load average: 0.00, 0.02, 0.06  
USER      TTY      FROM            LOGIN@   IDLE   JCPU   PCPU WHAT  
hacker    tty7     :0               11:45    2:17m  2:49   2.86s xfce4-session  
$ df  
Filesystem      1K-blocks      Used Available Use% Mounted on  
udev             1966588         0    1966588   0% /dev  
tmpfs            401432        1020     400412   1% /run  
/dev/sda1       29801344    13755556    14506616  49% /  
tmpfs            2007144         0     2007144   0% /dev/shm  
tmpfs             5120          0         5120   0% /run/lock  
tmpfs            401428         88     401340   1% /run/user/1000  
$ free  
             total        used        free      shared  buff/cache   available  
Mem:        4014288      1783004      1320840        61184      1219816      2231284  
Swap:        998396           0        998396  
$ uptime  
14:00:28 up 2:18, 1 user, load average: 0.00, 0.01, 0.05  
$ who  
hacker    tty7      2023-05-29 11:45 (:0)  
$
```

Networking:

ifconfig: Configure network interfaces

ping: Send ICMP echo requests to a network host

ssh: Securely connect to a remote system

scp: Securely copy files between systems

wget: Download files from the web

```
hacker@kali: ~  
File Actions Edit View Help  
(hacker@kali)-[~]  
$ ifconfig  
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500  
    inet 10.0.2.15 netmask 255.255.255.0 broadcast 10.0.2.255  
    inet6 fe80::a00:27ff:fea5:7d64 prefixlen 64 scopeid 0x20<link>  
    ether 08:00:27:a5:7d:64 txqueuelen 1000 (Ethernet)  
    RX packets 35770 bytes 34719466 (33.1 MiB)  
    RX errors 0 dropped 0 overruns 0 frame 0  
    TX packets 17293 bytes 7194417 (6.8 MiB)  
    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 4 bytes 240 (240.0 B)  
    RX errors 0 dropped 0 overruns 0 frame 0  
    TX packets 4 bytes 240 (240.0 B)  
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0  
  
(hacker@kali)-[~]  
$ ping www.google.com  
PING www.google.com (142.250.192.68) 56(84) bytes of data.  
64 bytes from bom12s16-in-f4.1e100.net (142.250.192.68): icmp_seq=1 ttl=119 time=52.7 ms  
64 bytes from bom12s16-in-f4.1e100.net (142.250.192.68): icmp_seq=2 ttl=119 time=51.5 ms  
64 bytes from bom12s16-in-f4.1e100.net (142.250.192.68): icmp_seq=3 ttl=119 time=51.4 ms  
64 bytes from bom12s16-in-f4.1e100.net (142.250.192.68): icmp_seq=4 ttl=119 time=51.4 ms  
64 bytes from bom12s16-in-f4.1e100.net (142.250.192.68): icmp_seq=5 ttl=119 time=53.1 ms  
64 bytes from bom12s16-in-f4.1e100.net (142.250.192.68): icmp_seq=6 ttl=119 time=96.1 ms  
64 bytes from bom12s16-in-f4.1e100.net (142.250.192.68): icmp_seq=7 ttl=119 time=50.8 ms  
64 bytes from bom12s16-in-f4.1e100.net (142.250.192.68): icmp_seq=8 ttl=119 time=49.5 ms  
64 bytes from bom12s16-in-f4.1e100.net (142.250.192.68): icmp_seq=9 ttl=119 time=53.9 ms  
64 bytes from bom12s16-in-f4.1e100.net (142.250.192.68): icmp_seq=10 ttl=119 time=52.9 ms  
64 bytes from bom12s16-in-f4.1e100.net (142.250.192.68): icmp_seq=11 ttl=119 time=55.2 ms  
64 bytes from bom12s16-in-f4.1e100.net (142.250.192.68): icmp_seq=12 ttl=119 time=53.8 ms  
64 bytes from bom12s16-in-f4.1e100.net (142.250.192.68): icmp_seq=13 ttl=119 time=53.2 ms  
64 bytes from bom12s16-in-f4.1e100.net (142.250.192.68): icmp_seq=14 ttl=119 time=52.6 ms  
64 bytes from bom12s16-in-f4.1e100.net (142.250.192.68): icmp_seq=15 ttl=119 time=54.3 ms  
64 bytes from bom12s16-in-f4.1e100.net (142.250.192.68): icmp_seq=16 ttl=119 time=55.3 ms  
64 bytes from bom12s16-in-f4.1e100.net (142.250.192.68): icmp_seq=17 ttl=119 time=52.0 ms  
64 bytes from bom12s16-in-f4.1e100.net (142.250.192.68): icmp_seq=18 ttl=119 time=51.7 ms  
64 bytes from bom12s16-in-f4.1e100.net (142.250.192.68): icmp_seq=19 ttl=119 time=50.7 ms  
64 bytes from bom12s16-in-f4.1e100.net (142.250.192.68): icmp_seq=20 ttl=119 time=51.6 ms  
64 bytes from bom12s16-in-f4.1e100.net (142.250.192.68): icmp_seq=21 ttl=119 time=51.3 ms  
64 bytes from bom12s16-in-f4.1e100.net (142.250.192.68): icmp_seq=22 ttl=119 time=68.4 ms  
64 bytes from bom12s16-in-f4.1e100.net (142.250.192.68): icmp_seq=23 ttl=119 time=723 ms  
64 bytes from bom12s16-in-f4.1e100.net (142.250.192.68): icmp_seq=24 ttl=119 time=125 ms  
64 bytes from bom12s16-in-f4.1e100.net (142.250.192.68): icmp_seq=25 ttl=119 time=308 ms  
64 bytes from bom12s16-in-f4.1e100.net (142.250.192.68): icmp_seq=26 ttl=119 time=93.0 ms
```

```
File Actions Edit View Help
64 bytes from bom12s16-in-f4.1e100.net (142.250.192.68): icmp_seq=23 ttl=119 time=723 ms
64 bytes from bom12s16-in-f4.1e100.net (142.250.192.68): icmp_seq=24 ttl=119 time=125 ms
64 bytes from bom12s16-in-f4.1e100.net (142.250.192.68): icmp_seq=25 ttl=119 time=308 ms
64 bytes from bom12s16-in-f4.1e100.net (142.250.192.68): icmp_seq=26 ttl=119 time=93.0 ms
64 bytes from bom12s16-in-f4.1e100.net (142.250.192.68): icmp_seq=27 ttl=119 time=52.3 ms
64 bytes from bom12s16-in-f4.1e100.net (142.250.192.68): icmp_seq=28 ttl=119 time=52.5 ms
64 bytes from bom12s16-in-f4.1e100.net (142.250.192.68): icmp_seq=29 ttl=119 time=54.5 ms
64 bytes from bom12s16-in-f4.1e100.net (142.250.192.68): icmp_seq=30 ttl=119 time=52.0 ms
64 bytes from bom12s16-in-f4.1e100.net (142.250.192.68): icmp_seq=31 ttl=119 time=51.1 ms
64 bytes from bom12s16-in-f4.1e100.net (142.250.192.68): icmp_seq=32 ttl=119 time=50.9 ms
64 bytes from bom12s16-in-f4.1e100.net (142.250.192.68): icmp_seq=33 ttl=119 time=52.0 ms
64 bytes from bom12s16-in-f4.1e100.net (142.250.192.68): icmp_seq=34 ttl=119 time=53.1 ms
64 bytes from bom12s16-in-f4.1e100.net (142.250.192.68): icmp_seq=35 ttl=119 time=51.5 ms
64 bytes from bom12s16-in-f4.1e100.net (142.250.192.68): icmp_seq=36 ttl=119 time=51.8 ms
^C
-- www.google.com ping statistics --
36 packets transmitted, 36 received, 0% packet loss, time 35033ms
rtt min/avg/max/mdev = 49.517/82.875/722.890/116.726 ms

(hacker@kali)-[~]
$ wget www.google.com
--2023-05-29 14:13:20-- http://www.google.com/
Resolving www.google.com (www.google.com)... 142.250.192.68, 2404:6800:4009:829::2004
Connecting to www.google.com (www.google.com)|142.250.192.68|:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: unspecified [text/html]
Saving to: 'index.html'

index.html [ => ] 19.09K --.-KB/s in 0.08s

2023-05-29 14:13:21 (235 KB/s) - 'index.html' saved [19551]

(hacker@kali)-[~]
$ ssh
usage: ssh [-46AaCfGgKkMNNqsTtVvXxYy] [-B bind_interface]
          [-b bind_address] [-c cipher_spec] [-D [bind_address:]port]
          [-E log_file] [-e escape_char] [-F configfile] [-I pkcs11]
          [-i identity_file] [-J [user@]host[:port]] [-L address]
          [-l login_name] [-m mac_spec] [-O ctl_cmd] [-o option] [-p port]
          [-Q query_option] [-R address] [-S ctl_path] [-W host:port]
          [-w local_tun[:remote_tun]] destination [command [argument ...]]

(hacker@kali)-[~]
$ scp
usage: scp [-346ABCOpqRrsTv] [-c cipher] [-D sftp_server_path] [-F ssh_config]
          [-i identity_file] [-J destination] [-l limit] [-o ssh_option]
          [-P port] [-S program] [-X sftp_option] source ... target

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


System Administration:

sudo: Execute commands with superuser privileges

apt-get: Package management for Debian-based distributions yum:

Package management for Red Hat-based distributions systemctl:

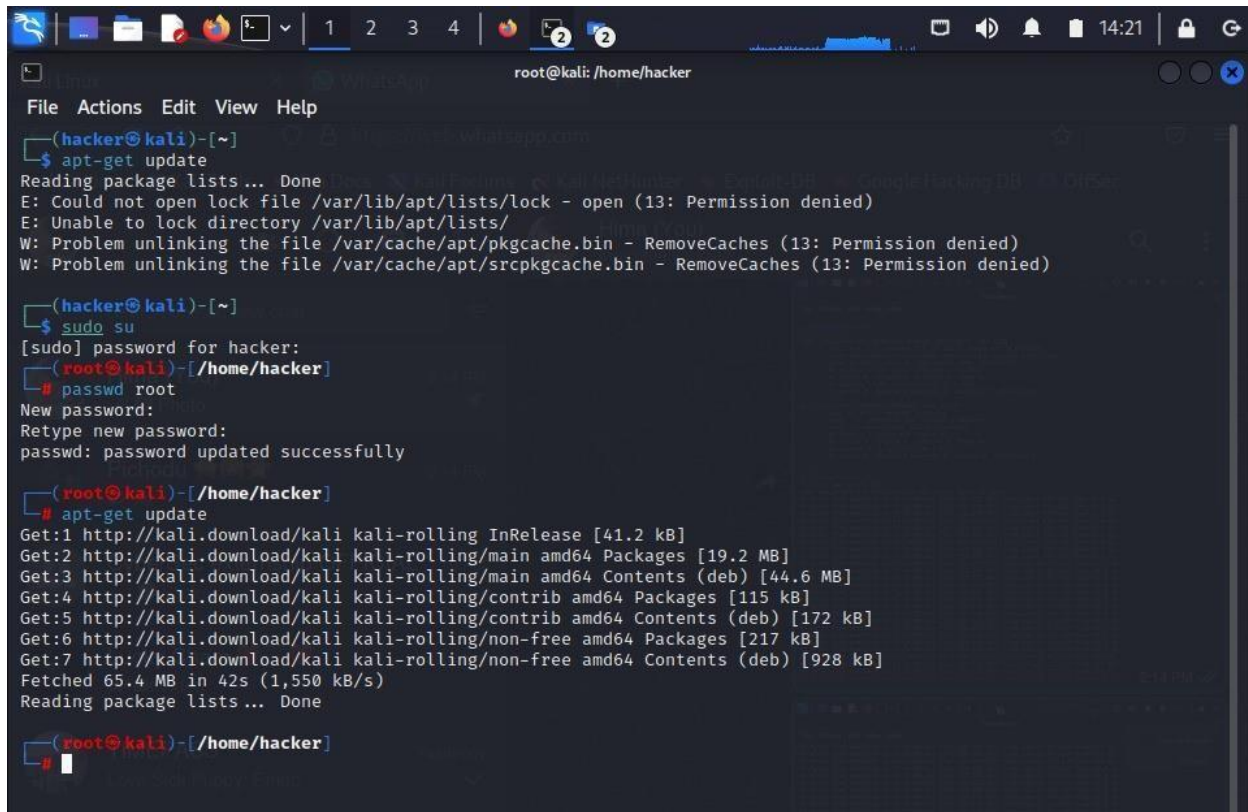
Manage system services

crontab: Schedule recurring tasks

useradd: Add a new user passwd:

Change user password

apt-get, sudo and passwd



```
root@kali: /home/hacker

(hacker@kali)~$ apt-get update
Reading package lists... Done
E: Could not open lock file /var/lib/apt/lists/lock - open (13: Permission denied)
E: Unable to lock directory /var/lib/apt/lists/
W: Problem unlinking the file /var/cache/apt/pkgcache.bin - RemoveCaches (13: Permission denied)
W: Problem unlinking the file /var/cache/apt/srcpkgcache.bin - RemoveCaches (13: Permission denied)

(hacker@kali)~$ sudo su
[sudo] password for hacker:
(root@kali)~$ passwd root
New password:
Retype new password:
passwd: password updated successfully

(root@kali)~$ apt-get update
Get:1 http://kali.download/kali kali-rolling InRelease [41.2 kB]
Get:2 http://kali.download/kali kali-rolling/main amd64 Packages [19.2 MB]
Get:3 http://kali.download/kali kali-rolling/main amd64 Contents (deb) [44.6 MB]
Get:4 http://kali.download/kali kali-rolling/contrib amd64 Packages [115 kB]
Get:5 http://kali.download/kali kali-rolling/contrib amd64 Contents (deb) [172 kB]
Get:6 http://kali.download/kali kali-rolling/non-free amd64 Packages [217 kB]
Get:7 http://kali.download/kali kali-rolling/non-free amd64 Contents (deb) [928 kB]
Fetched 65.4 MB in 42s (1,550 kB/s)
Reading package lists... Done

(root@kali)~$
```

systemctl command

```
hacker@kali: ~  
$ systemctl
```

UNIT	LOAD	ACTIVE	SUB
proc-sys-fs-binfmt_misc.automount	loaded	active	running
sys-devices-pci0000:00-0000:00:01.1-ata2-host1-target1:0:0-1:0:0:0-block-sr0.device	loaded	active	plugged
sys-devices-pci0000:00-0000:00:03.0-net-eth0.device	loaded	active	plugged
sys-devices-pci0000:00-0000:00:05.0-sound-card0-controlC0.device	loaded	active	plugged
sys-devices-pci0000:00-0000:00:0d.0-ata3-host2-target2:0:0-2:0:0:0-block-sda-sda1.device	loaded	active	plugged
sys-devices-pci0000:00-0000:00:0d.0-ata3-host2-target2:0:0-2:0:0:0-block-sda-sda2.device	loaded	active	plugged
sys-devices-pci0000:00-0000:00:0d.0-ata3-host2-target2:0:0-2:0:0:0-block-sda-sda5.device	loaded	active	plugged
sys-devices-pci0000:00-0000:00:0d.0-ata3-host2-target2:0:0-2:0:0:0-block-sda.device	loaded	active	plugged
sys-devices-platform-serial8250-tty-ttyS0.device	loaded	active	plugged
sys-devices-platform-serial8250-tty-ttyS1.device	loaded	active	plugged
sys-devices-platform-serial8250-tty-ttyS2.device	loaded	active	plugged
sys-devices-platform-serial8250-tty-ttyS3.device	loaded	active	plugged
sys-devices-virtual-misc-rfkill.device	loaded	active	plugged
sys-module-configfs.device	loaded	active	plugged
sys-module-fuse.device	loaded	active	plugged
sys-subsystem-net-devices-eth0.device	loaded	active	plugged
-.mount	loaded	active	mounted
dev-hugepages.mount	loaded	active	mounted
dev-mqueue.mount	loaded	active	mounted
proc-sys-fs-binfmt_misc.mount	loaded	active	mounted
root-.cache-doc.mount	loaded	active	mounted
root-.cache-gvfs.mount	loaded	active	mounted
run-credentials-systemd\x2dsysctl.service.mount	loaded	active	mounted
run-credentials-systemd\x2dsysusers.service.mount	loaded	active	mounted
run-credentials-systemd\x2dtmpfiles\x2dsetup.service.mount	loaded	active	mounted
run-credentials-systemd\x2dtmpfiles\x2dsetup\x2ddev.service.mount	loaded	active	mounted
run-rpc_pipefs.mount	loaded	active	mounted
run-user-1000-doc.mount	loaded	active	mounted
run-user-1000-gvfs.mount	loaded	active	mounted
run-user-1000.mount	loaded	active	mounted
sys-fs-fuse-connections.mount	loaded	active	mounted
sys-kernel-config.mount	loaded	active	mounted
sys-kernel-debug.mount	loaded	active	mounted
sys-kernel-tracing.mount	loaded	active	mounted
systemd-ask-password-plymouth.path	loaded	active	waiting
systemd-ask-password-wall.path	loaded	active	waiting
init.scope	loaded	active	running
session-3.scope	loaded	active	running
colord.service	loaded	active	running
console-setup.service	loaded	active	exited
cron.service	loaded	active	running
dbus.service	loaded	active	running
getty@tty1.service	loaded	active	running
haveged.service	loaded	active	running
ifupdown-pre.service	loaded	active	exited
keyboard-setup.service	loaded	active	exited
kmod-static-nodes.service	loaded	active	exited

crontab and useradd command

```
hacker@kali: ~  
File Actions Edit View Help  
  
(hacker@kali)-[~]  
$ crontab -l  
no crontab for hacker  
  
(hacker@kali)-[~]  
$ crontab -l maverick -l  
crontab: usage error: only one operation permitted  
usage: crontab [-u user] file  
crontab [ -u user ] [ -i ] { -e | -l | -r }  
      (default operation is replace, per 1003.2)  
-e      (edit user's crontab)  
-l      (list user's crontab)  
-r      (delete user's crontab)  
-i      (prompt before deleting user's crontab)  
  
(hacker@kali)-[~]  
$ sudo useradd test1_user  
  
(hacker@kali)-[~]  
$ cat /etc/passwd | grep test1_user  
mytest1_user:x:9876:9876::/home/mytest1_user:/bin/sh  
test1_user:x:9881:9881::/home/test1_user:/bin/sh  
  
(hacker@kali)-[~]  
$ sudo useradd -u 5678 test2_user  
  
(hacker@kali)-[~]  
$ id test2_user  
uid=5678(test2_user) gid=5678(test2_user) groups=5678(test2_user)  
  
(hacker@kali)-[~]  
$ sudo useradd -g 10000 test3_user  
useradd: group '10000' does not exist  
  
(hacker@kali)-[~]  
$ sudo useradd -g 1000 test3_user  
  
(hacker@kali)-[~]  
$ id test3_user  
uid=9882(test3_user) gid=1000(hacker) groups=1000(hacker)  
  
(hacker@kali)-[~]  
$ sudo useradd -M test4_user  
  
(hacker@kali)-[~]  
$ sudo useradd -e 2023-05-26 test5_user
```

(hacker@kali)-[~]
\$ sudo useradd -l test6_user

(hacker@kali)-[~]
\$ sudo chage -l test6_user

Last password change	: May 29, 2023
Password expires	: never
Password inactive	: never
Account expires	: never
Minimum number of days between password change	: 0
Maximum number of days between password change	: 99999
Number of days of warning before password expires	: 7

(hacker@kali)-[~]
\$ sudo useradd -s /bin/sh test6_user
useradd: user 'test6_user' already exists

(hacker@kali)-[~]
\$ sudo useradd -s /bin/sh test7_user

(hacker@kali)-[~]
\$ sudo cat /etc/passwd | grep test8_user

(hacker@kali)-[~]
\$ sudo cat /etc/passwd | grep test7_user
test7_user:x:9886:9886::/home/test7_user:/bin/sh

(hacker@kali)-[~]
\$ sudo useradd -p /bin/sh test8_user

(hacker@kali)-[~]
\$ sudo cat /etc/passwd | grep test8_user
test8_user:x:9887:9887::/home/test8_user:/bin/sh

(hacker@kali)-[~]
\$ sudo useradd -p test_password test9_user

(hacker@kali)-[~]
\$ sudo cat /etc/shadow | grep test9_user
test9_user:test_password:19506:0:99999:7:::


```

(hacker@kali)-[~]
$ sudo useradd --help
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 sub[uid]id 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
  -o, --non-unique         allow to create users with duplicate
                          (non-unique) UID
  -p, --password PASSWORD  encrypted password of the new account
  -r, --system             create a system account
  -R, --root CHROOT_DIR    directory to chroot into
  -P, --prefix PREFIX_DIR  prefix directory where are located the /etc/* files
  -s, --shell SHELL        login shell of the new account
  -u, --uid UID            user ID of the new account
  -U, --user-group         create a group with the same name as the user
  -Z, --selinux-user SEUSER  use a specific SEUSER for the SELinux user mapping

(hacker@kali)-[~]
$ █

```

All commands are verified in the software Kali Linux.