

Archisman Das
20BCE2229

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.

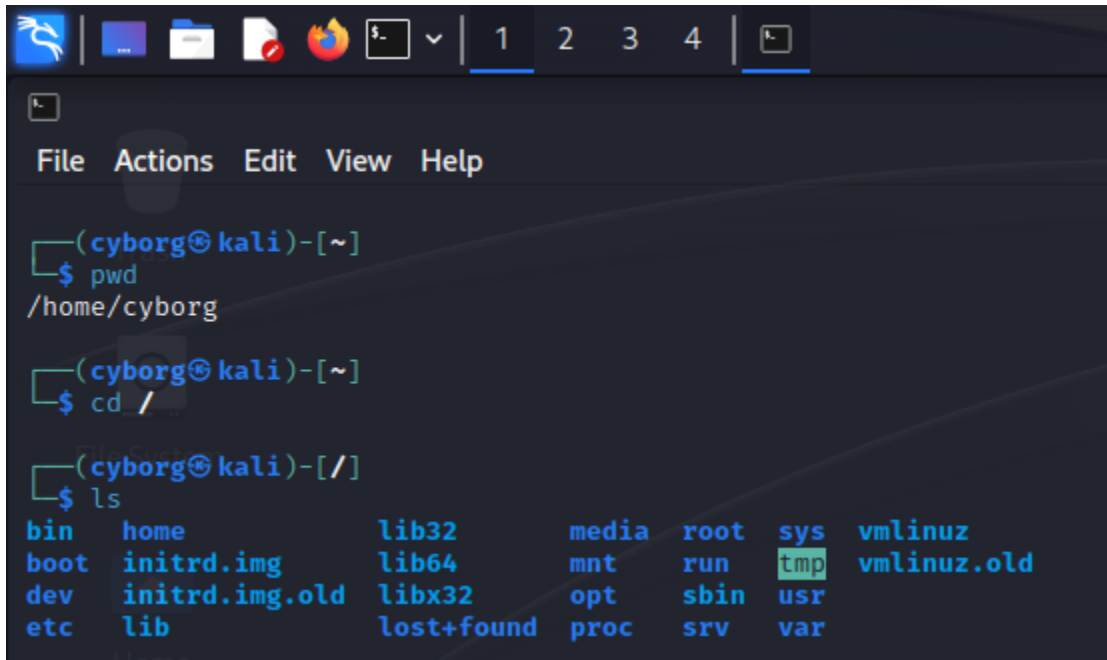
Ensure that you provide the correct command(s) used to accomplish each task. Write your answers below each task.

Once you have completed the assessment, review your answers and verify that the output or results are correct.

Make this in document format and send them with images

Submitted By,
Archisman Das,
20BCE2229,
Email: archisman.das2020@vitstudent.ac.in
VIT Vellore.

File and Directory Operations:



A terminal window with a dark background and light blue text. The window has a menu bar with 'File', 'Actions', 'Edit', 'View', and 'Help'. The terminal shows the following sequence of commands and output:

```
(cyborg@kali)-[~]  
$ pwd  
/home/cyborg  
  
(cyborg@kali)-[~]  
$ cd /  
  
(cyborg@kali)-[/]  
$ ls  
bin      home      lib32     media     root      sys        vmlinuz  
boot     initrd.img lib64      mnt       run        tmp        vmlinuz.old  
dev      initrd.img.old libx32     opt       sbin       usr  
etc      lib        lost+found proc       srv        var
```

Figure 1

pwd: Print working directory

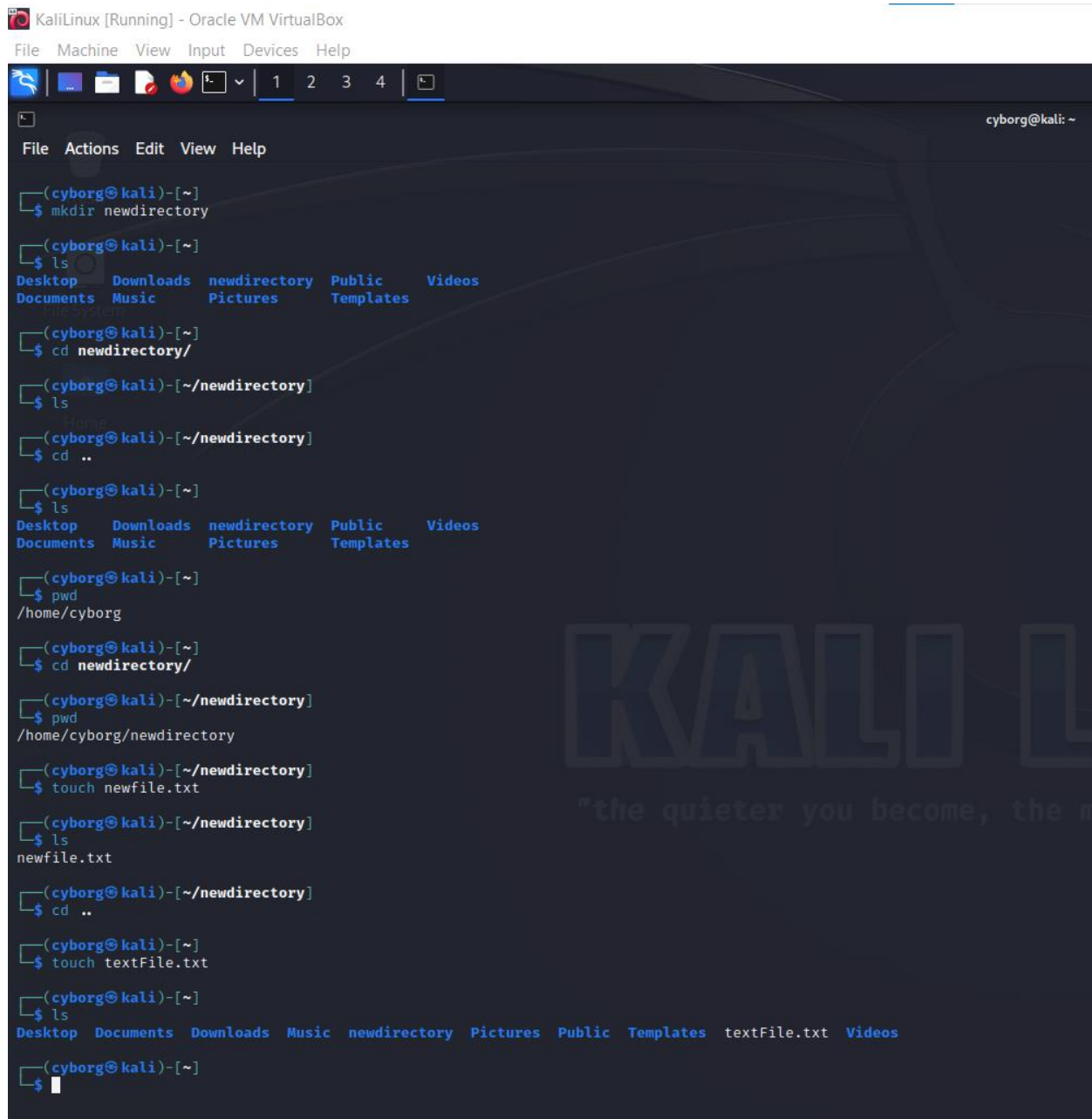
As shown in Fig 1, the current working directory is home and the user is cyborg.

cd: Change directory

Changed directory from user home directory to root

ls: List files and directories

lists the files and directories present in the root directory



```
(cyborg@kali)-[~]
$ mkdir newdirectory

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

(cyborg@kali)-[~]
$ cd newdirectory/

(cyborg@kali)-[~/newdirectory]
$ ls

(cyborg@kali)-[~/newdirectory]
$ cd ..

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

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

(cyborg@kali)-[~]
$ cd newdirectory/

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

(cyborg@kali)-[~/newdirectory]
$ touch newfile.txt

(cyborg@kali)-[~/newdirectory]
$ ls
newfile.txt

(cyborg@kali)-[~/newdirectory]
$ cd ..

(cyborg@kali)-[~]
$ touch textFile.txt

(cyborg@kali)-[~]
$ ls
Desktop  Documents  Downloads  Music  newdirectory  Pictures  Public  Templates  textFile.txt  Videos

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

Figure 2

mkdir: Make directory

Created new directory inside user home directory as newdirectory

touch: Create an empty file

Created a file named textFile.txt inside home and a file newFile.txt in newDirectory.

```

(cyborg@kali)-[~]
$ cp textFile.txt newdirectory

(cyborg@kali)-[~]
$ cd newdirectory/

(cyborg@kali)-[~/newdirectory]
$ ls
newfile.txt  textFile.txt

(cyborg@kali)-[~/newdirectory]
$

```

Figure 3

cp: Copy files and directories

Copies textFile.txt into newdirectory

```

(cyborg@kali)-[~/newdirectory]
$ mv newfile.txt abc.txt

(cyborg@kali)-[~/newdirectory]
$ ls
abc.txt  textFile.txt

```

```

(cyborg@kali)-[~/newdirectory]
$ cd ..

(cyborg@kali)-[~]
$ ls
Desktop  Documents  Downloads  Music  newdirectory  Pictures  Public  Templates  textFile.txt  Videos

(cyborg@kali)-[~]
$ touch file

(cyborg@kali)-[~]
$ mv file newdirectory

(cyborg@kali)-[~]
$ ls
Desktop  Documents  Downloads  Music  newdirectory  Pictures  Public  Templates  textFile.txt  Videos

(cyborg@kali)-[~]
$ cd newdirectory/

(cyborg@kali)-[~/newdirectory]
$ ls
abc.txt  file  textFile.txt

```

Figure 4

mv: Move or rename files and directories

Renames newfile.txt as abc.txt

Moves a file named “file” from user home directory to newdirectory.

```
(cyborg@kali)-[~/newdirectory]
$ cd ..

(cyborg@kali)-[~]
$ ls
Desktop  Documents  Downloads  Music  newdirectory  Pictures  Public  Templates  textFile.txt  Videos

(cyborg@kali)-[~]
$ rm -rf newdirectory && rm textFile.txt

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

Figure 5

rm: Remove files and directories

Removes directory “newdirectory” -rf deletes subdirectories if any and deletes file “textFile.txt”

```
(cyborg@kali)-[~/newdirectory]
$ ls
newfile.txt  textFile.txt

(cyborg@kali)-[~/newdirectory]
$ find newfile.txt
newfile.txt

(cyborg@kali)-[~/newdirectory]
$ find abc.txt
find: 'abc.txt': No such file or directory

(cyborg@kali)-[~/newdirectory]
$
```

Figure 6

find: Search for files and directories

newfile.txt is present and is shown; while abc.txt is not present in the Directory

File Viewing and Editing:

```
(cyborg@kali)-[~/newdirectory]
$ ls
arch.zip.gz  compress.tar.gz  demo.txt  newfile.txt.gz  textFile.txt

(cyborg@kali)-[~/newdirectory]
$ cat demo.txt
// Start of File

The sky is blue.

Kali Linux containers are the ideal solution to

    run Kali Linux within other Linux distributions
    provide isolated environments for development or testing activities

without the overhead of virtual machines. Docker is the preferred solution fo
r applications whilst LXC/LXD are preferred for entire systems.

Linux containers provide features like snapshots and freezing which comes in
very handy when developing or testing software.

Kali images are available on the image server for LXC and LXD and can easily
be launched either in LXD using the "images:" image server or in LXC using th
e "lxc-download" template.

LXC is a userspace interface for the Linux kernel containment features. Throu
gh a powerful API and simple tools, it lets Linux users easily create and man
age system or application containers.

LXD is a next generation system container manager. It offers a user experienc
e similar to virtual machines but using Linux containers instead. It's image
based with pre-made images available for a wide number of Linux distributions
and is built around a very powerful, yet pretty simple, REST API.

LXD vs LXC:

LXD is the more convenient of the two but is only available in Ubuntu or othe
r distributions (such as Kali) as snap package.

LXC is available in more distributions and preferred in Kali as it is support
ed natively and does not required snapd to be running.

//End of file

(cyborg@kali)-[~/newdirectory]
$
```

Figure 7

cat: Concatenate and display file content

Displays the content of the file demo.txt

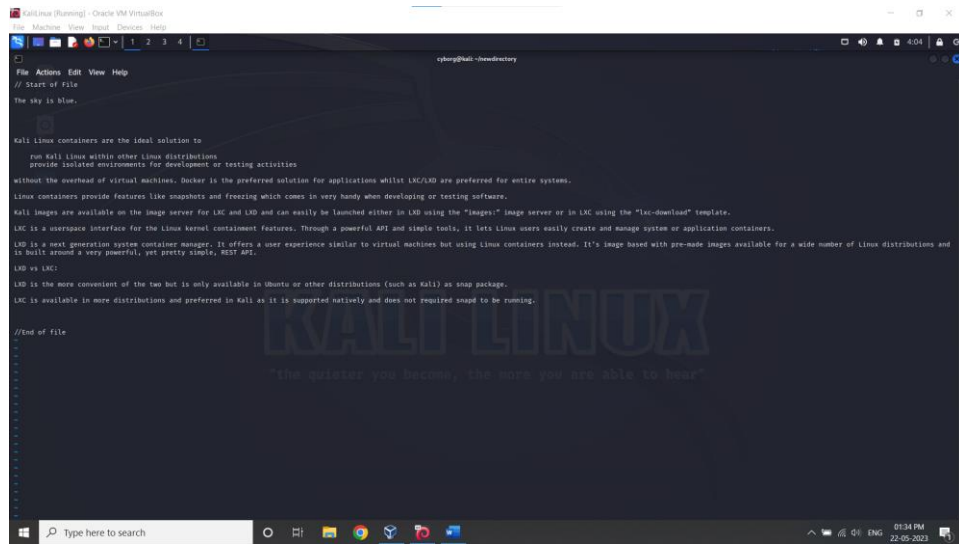


Figure 8

less: View file content with pagination

Opens demo.txt with pagination



Figure 9

head: Display the beginning of a file

tail: Display the end of a file

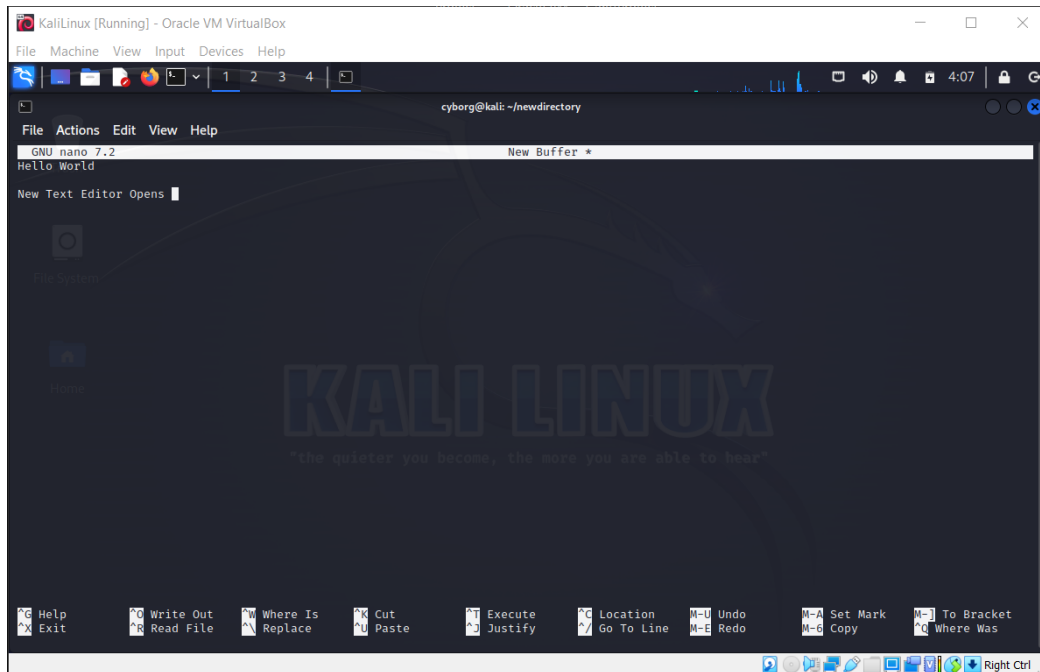


Figure 10

nano: Text editor for creating and editing files



Figure 11

vi/vim: Powerful text editor for experienced users

File Permissions:

```
(cyborg@kali)-[~/newdirectory]
$ chmod 644 demo.txt

File System
(cyborg@kali)-[~/newdirectory]
$ ls -l
total 20
-rw-r--r-- 1 cyborg cyborg 118 May 21 16:58 arch.zip.gz
-rw-r--r-- 1 cyborg cyborg 160 May 21 16:52 compress.tar.gz
-rw-r--r-- 1 cyborg cyborg 1453 May 22 04:02 demo.txt
-rw----- 1 cyborg cyborg 37 May 22 04:07 nano.6515.save
-rw-r--r-- 1 cyborg cyborg 32 May 21 16:47 newfile.txt.gz
-rw-r--r-- 1 cyborg cyborg 0 May 21 17:12 textFile.txt

(cyborg@kali)-[~/newdirectory]
$ chmod 755 demo.txt

(cyborg@kali)-[~/newdirectory]
$ ls -l
total 20
-rw-r--r-- 1 cyborg cyborg 118 May 21 16:58 arch.zip.gz
-rw-r--r-- 1 cyborg cyborg 160 May 21 16:52 compress.tar.gz
-rwxr-xr-x 1 cyborg cyborg 1453 May 22 04:02 demo.txt
-rw----- 1 cyborg cyborg 37 May 22 04:07 nano.6515.save
-rw-r--r-- 1 cyborg cyborg 32 May 21 16:47 newfile.txt.gz
-rw-r--r-- 1 cyborg cyborg 0 May 21 17:12 textFile.txt

(cyborg@kali)-[~/newdirectory]
$
```

Figure 12

chmod: Change file permissions

Permission of demo.txt changed to owner can read write and execute.

```
(cyborg@kali)-[~/newdirectory]
$ sudo chown archi demo.txt
[sudo] password for cyborg:

(cyborg@kali)-[~/newdirectory]
$ ls -l
total 20
-rw-r--r-- 1 cyborg cyborg 118 May 21 16:58 arch.zip.gz
-rw-r--r-- 1 cyborg cyborg 160 May 21 16:52 compress.tar.gz
-rwxr-xr-x 1 archi cyborg 1453 May 22 04:02 demo.txt
-rw----- 1 cyborg cyborg 37 May 22 04:07 nano.6515.save
-rw-r--r-- 1 cyborg cyborg 32 May 21 16:47 newfile.txt.gz
-rw-r--r-- 1 cyborg cyborg 0 May 21 17:12 textFile.txt

(cyborg@kali)-[~/newdirectory]
$
```

Figure 13

chown: Change file owner

Owner is changed from “cyborg” to “archi”

```
(cyborg@kali)-[~/newdirectory]
$ sudo addgroup ethical
Adding group `ethical' (GID 1003) ...
Done.

(cyborg@kali)-[~/newdirectory]
$ sudo chgrp ethical demo.txt

(cyborg@kali)-[~/newdirectory]
$ ls -l
total 20
-rw-r--r-- 1 cyborg cyborg 118 May 21 16:58 arch.zip.gz
-rw-r--r-- 1 cyborg cyborg 160 May 21 16:52 compress.tar.gz
-rwxr-xr-x 1 archi ethical 1453 May 22 04:02 demo.txt
-rw----- 1 cyborg cyborg 37 May 22 04:07 nano.6515.save
-rw-r--r-- 1 cyborg cyborg 32 May 21 16:47 newfile.txt.gz
-rw-r--r-- 1 cyborg cyborg 0 May 21 17:12 textFile.txt

(cyborg@kali)-[~/newdirectory]
$
```

Figure 14

chgrp: Change file group

Created a group using addgroup “ethical” and changed the group for demo.txt from cyborg to ethical.

File Compression and Archiving:

```
(cyborg@kali)-[~/newdirectory]
$ tar -czvf compress.tar.gz file.tar
file.tar

(cyborg@kali)-[~/newdirectory]
$ ls
compress.tar.gz file.tar newfile.txt
```

Figure 15

tar: Archive files

```
(cyborg@kali)-[~/newdirectory]
$ ls
arch.zip.gz  compress.tar.gz  file.tar  newfile.txt

(cyborg@kali)-[~/newdirectory]
$ gzip newfile.txt

(cyborg@kali)-[~/newdirectory]
$ ls
arch.zip.gz  compress.tar.gz  file.tar  newfile.txt.gz
```

Figure 16

gzip: Compress files

```
(cyborg@kali)-[~/newdirectory]
$ zip arch.zip newfile.txt
adding: newfile.txt (stored 0%)

(cyborg@kali)-[~/newdirectory]
$ ls
arch.zip  compress.tar.gz  file.tar  newfile.txt

(cyborg@kali)-[~/newdirectory]
$ unzip arch.zip
Archive:  arch.zip
replace newfile.txt? [y]es, [n]o, [A]ll, [N]one, [r]ename: y
extracting: newfile.txt

(cyborg@kali)-[~/newdirectory]
$ ls
arch.zip  compress.tar.gz  file.tar  newfile.txt
```

Figure 17

unzip: Extract files from a ZIP archive

Process Management:

```
(cyborg@kali)-[~]
$ ps
  PID TTY          TIME CMD
  4787 pts/0        00:00:05 zsh
 55253 pts/0        00:00:00 ps
```

ps: List running processes

```
(cyborg@kali)-[~]
$ top
top - 17:09:02 up 1:49, 1 user, load average: 0.01, 0.04, 0.00
Tasks: 165 total, 1 running, 164 sleeping, 0 stopped, 0 zombie
%Cpu(s): 0.4 us, 0.6 sy, 0.0 ni, 98.9 id, 0.0 wa, 0.0 hi, 0.1 si, 0.0 st
MiB Mem : 3920.2 total, 2548.5 free, 924.1 used, 692.4 buff/cache
MiB Swap: 975.0 total, 975.0 free, 0.0 used. 2996.1 avail Mem

  PID USER      PR  NI  VIRT  RES  SHR S %CPU  %MEM    TIME+  COMMAND
  604 root        20   0 475684 153296 78596 S   1.7   3.8   0:39.34 Xorg
 4784 cyborg      20   0 447620 110368 90288 S   1.0   2.7   0:09.80 qterminal
    1 root        20   0 167748 12252   9100 S   0.3   0.3   0:00.94 systemd
    2 root        20   0      0     0     0 S   0.3   0.0   0:00.01 kthreadd
   15 root        20   0      0     0     0 I   0.3   0.0   0:02.18 rcu_preempt
 1089 cyborg     20   0 358712 42024 21376 S   0.3   1.0   0:09.49 panel-13-cpugra
 1102 cyborg     20   0 342124 30484 20564 S   0.3   0.8   0:09.15 panel-15-genmon
 1110 cyborg     20   0 592868 45176 33952 S   0.3   1.1   0:02.83 panel-16-pulsea
    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   0:00.05 ksoftirqd/0
   16 root        rt    0      0     0     0 S   0.0   0.0   0:00.04 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   0:00.22 migration/1
   21 root        20   0      0     0     0 S   0.0   0.0   0:00.04 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   0:00.22 migration/2
   26 root        20   0      0     0     0 S   0.0   0.0   0:00.05 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   0:00.22 migration/3
   31 root        20   0      0     0     0 S   0.0   0.0   0:00.06 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   0:00.25 kcompactd0
   44 root        25   5      0     0     0 S   0.0   0.0   0:00.00 ksmd
```

Figure 18

top: Display real-time system information and processes from Figure 18



Figure 19

kill: Terminate processes
kill 4784 closes the terminal

```
File Actions Edit View Help
(cyborg@kali)~/newdirectory
$ bg
bg: no current job

(cyborg@kali)~/newdirectory
$ sleep 500
^Z
zsh: suspended sleep 500

(cyborg@kali)~/newdirectory
$ jobs
[1] + suspended sleep 500

(cyborg@kali)~/newdirectory
$ bg
[1] + continued sleep 500

(cyborg@kali)~/newdirectory
$ fg
[1] + running sleep 500
^Z
zsh: suspended sleep 500

(cyborg@kali)~/newdirectory
$ ps
  PID TTY          TIME CMD
 57204 pts/0        00:00:01 zsh
 62569 pts/0        00:00:00 sleep
 62902 pts/0        00:00:00 ps

(cyborg@kali)~/newdirectory
$ bg
[1] + continued sleep 500

(cyborg@kali)~/newdirectory
$
```

Figure 20

bg: Run processes in the background

fg: Bring background processes to the foreground

System Information:

```
(cyborg@kali)~[~/newdirectory]
$ uname
Linux

(cyborg@kali)~[~/newdirectory]
$ df
Filesystem      1K-blocks      Used Available Use% Mounted on
udev            1966588         0   1966588   0% /dev
tmpfs           401432         964    400468   1% /run
/dev/sda1       29801344 12804328  15457844  46% /
tmpfs           2007144         0    2007144   0% /dev/shm
tmpfs           5120          0       5120   0% /run/lock
tmpfs           401428         88    401340   1% /run/user/1000

(cyborg@kali)~[~/newdirectory]
$ free
              total        used        free      shared  buff/cache   available
Mem:           4014288    1349456    1933720         53000       1011780       2664832
Swap:           998396         0         998396

(cyborg@kali)~[~/newdirectory]
$ uptime
 17:22:17 up  2:02,  1 user,  load average: 0.13, 0.08, 0.02

(cyborg@kali)~[~/newdirectory]
$ who
cyborg    tty7                2023-05-21 12:02 (:0)

(cyborg@kali)~[~/newdirectory]
$ w
 17:22:29 up  2:03,  1 user,  load average: 0.11, 0.07, 0.02
USER      TTY      FROM              LOGIN@   IDLE   JCPU   PCPU   WHAT
cyborg    tty7      :0                12:02    5:19m 48.52s  0.35s xfce4-session
```

Figure 21

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

Networking:

```
(cyborg@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:fef6:1322 prefixlen 64 scopeid 0x20<link>
    ether 08:00:27:f6:13:22 txqueuelen 1000 (Ethernet)
    RX packets 15558 bytes 17952569 (17.1 MiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 5339 bytes 597900 (583.8 KiB)
    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

(cyborg@kali)-[~]
$ ping www.google.com
PING www.google.com (142.250.182.68) 56(84) bytes of data.
64 bytes from maa05s20-in-f4.1e100.net (142.250.182.68): icmp_seq=1 ttl=57 time=42.0 ms
64 bytes from maa05s20-in-f4.1e100.net (142.250.182.68): icmp_seq=2 ttl=57 time=42.1 ms
64 bytes from maa05s20-in-f4.1e100.net (142.250.182.68): icmp_seq=3 ttl=57 time=43.5 ms
64 bytes from maa05s20-in-f4.1e100.net (142.250.182.68): icmp_seq=4 ttl=57 time=42.4 ms
64 bytes from maa05s20-in-f4.1e100.net (142.250.182.68): icmp_seq=5 ttl=57 time=45.4 ms
64 bytes from maa05s20-in-f4.1e100.net (142.250.182.68): icmp_seq=6 ttl=57 time=41.0 ms
64 bytes from maa05s20-in-f4.1e100.net (142.250.182.68): icmp_seq=7 ttl=57 time=41.3 ms
64 bytes from maa05s20-in-f4.1e100.net (142.250.182.68): icmp_seq=8 ttl=57 time=42.4 ms
64 bytes from maa05s20-in-f4.1e100.net (142.250.182.68): icmp_seq=9 ttl=57 time=43.5 ms
64 bytes from maa05s20-in-f4.1e100.net (142.250.182.68): icmp_seq=10 ttl=57 time=42.3 ms
64 bytes from maa05s20-in-f4.1e100.net (142.250.182.68): icmp_seq=11 ttl=57 time=45.0 ms
64 bytes from maa05s20-in-f4.1e100.net (142.250.182.68): icmp_seq=12 ttl=57 time=42.7 ms
^Z
zsh: suspended ping www.google.com
```

Figure 22

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


```
(cyborg@kali) - [~/newdirectory]
$ wget https://kali.download/nethunterpro-images/kali-2023.1/nethunterpro-2023.1-pinephonepro-phosh.tar.xz
--2023-05-22 05:59:15-- https://kali.download/nethunterpro-images/kali-2023.1/nethunterpro-2023.1-pinephonepro-phosh.tar.xz
Resolving kali.download (kali.download)... 104.18.103.100, 104.18.102.100, 2606:4700::6812:6664, ...
Connecting to kali.download (kali.download)|104.18.103.100|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 904843984 (863M) [application/octet-stream]
Saving to: 'nethunterpro-2023.1-pinephonepro-phosh.tar.xz'

nethunterpro-2023.1-pinephonepro-pho 100%[=====>] 862.93M 4.28MB/s in 3m 14s

2023-05-22 06:02:29 (4.46 MB/s) - 'nethunterpro-2023.1-pinephonepro-phosh.tar.xz' saved [904843984/904843984]

(cyborg@kali) - [~/newdirectory]
$ ls
arch.zip.gz      demo.txt      index.html    nethunterpro-2023.1-pinephonepro-phosh.tar.xz  textFile.txt
compress.tar.gz demo.txt.pub  nano.6515.save newfile.txt.gz

(cyborg@kali) - [~/newdirectory]
$
```

Figure 24

wget: Download files from the web by taking the url as input.

System Administration:

```
(cyborg@kali) - [~]
$ sudo useradd -m archi123

(cyborg@kali) - [~]
$ cd ..

(cyborg@kali) - [/home]
$ ls
archi123  cyborg

(cyborg@kali) - [/home]
$

(cyborg@kali) - [/home]
$ sudo apt-get install unzip
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
unzip is already the newest version (6.0-28).
0 upgraded, 0 newly installed, 0 to remove and 531 not upgraded.
```

Figure 25

sudo: Execute commands with superuser privileges


```

(cyborg@kali)-[/home]
$ sudo apt-get install unzip
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
unzip is already the newest version (6.0-28).
0 upgraded, 0 newly installed, 0 to remove and 531 not upgraded.

```

Figure 26

apt-get: Package management for Debian-based distributions

Virtual Box Kali Linux is Debian-based

yum: Package management for Red Hat-based distributions

```

$ systemctl
UNIT                                LOAD    ACTIVE SUB    >
proc-sys-fs-binfmt_misc.automount  loaded active running >
sys-devices-pci0000:00-0000:00:01.1-ata2-host2-target2:0:0-2:0:0:0-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-host1-target1:0:0-1:0:0:0-block-sda-sda1.device loaded active plugged >
sys-devices-pci0000:00-0000:00:0d.0-ata3-host1-target1:0:0-1:0:0:0-block-sda-sda2.device loaded active plugged >
sys-devices-pci0000:00-0000:00:0d.0-ata3-host1-target1:0:0-1:0:0:0-block-sda-sda5.device loaded active plugged >
sys-devices-pci0000:00-0000:00:0d.0-ata3-host1-target1:0:0-1:0:0:0-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 >
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-2.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 >
lightdm.service                       loaded active running >
ModemManager.service                  loaded active running >
networking.service                    loaded active exited >
NetworkManager-wait-online.service    loaded active exited >
NetworkManager.service                 loaded active running >
plymouth-quit-wait.service             loaded active exited >
plymouth-read-write.service            loaded active exited >

```

Figure 27 a

ModemManager.service	loaded active running	>
networkd.service	loaded active exited	>
NetworkManager-wait-online.service	loaded active exited	>
NetworkManager.service	loaded active running	>
plymouth-quit-wait.service	loaded active exited	>
plymouth-read-write.service	loaded active exited	>
plymouth-start.service	loaded active exited	>
kline 1-54 ... skipping ...		
UNIT	LOAD	ACTIVE SUB DESCRIPTION
sys-fs-fs-binfmt_misc.automount	loaded active running	Arbitrary Executable File Formats File System Automount Point
sys-devices-pci0000:00-0000:00:01-1-ata2-host2-target1:0:0-2:0:0:0-block-sr0.device	loaded active plugged	VBOX_CD-ROM
sys-devices-pci0000:00-0000:00:03-0-net-eth0.device	loaded active plugged	8254EM Gigabit Ethernet Controller (PRO/1000 MT Desktop Adapter)
sys-devices-pci0000:00-0000:00:05-0-sound-card0-controlC0.device	loaded active plugged	/sys/devices/pci0000:00/0000:00:05:0/sound/card0/controlC0
sys-devices-pci0000:00-0000:00:0a-0-ata3-host1-target1:0:0-1:0:0:0-block-sda1.device	loaded active plugged	VBOX_HARDDISK 1
sys-devices-pci0000:00-0000:00:0a-0-ata3-host1-target1:0:0-1:0:0:0-block-sda2.device	loaded active plugged	VBOX_HARDDISK 2
sys-devices-pci0000:00-0000:00:0a-0-ata3-host1-target1:0:0-1:0:0:0-block-sda5.device	loaded active plugged	VBOX_HARDDISK 5
sys-devices-pci0000:00-0000:00:0a-0-ata3-host1-target1:0:0-1:0:0:0-block-sda6.device	loaded active plugged	VBOX_HARDDISK 6
sys-devices-platform-serial8250-tty-ttyS0.device	loaded active plugged	/sys/devices/platform/serial8250/tty/ttyS0
sys-devices-platform-serial8250-tty-ttyS1.device	loaded active plugged	/sys/devices/platform/serial8250/tty/ttyS1
sys-devices-platform-serial8250-tty-ttyS2.device	loaded active plugged	/sys/devices/platform/serial8250/tty/ttyS2
sys-devices-platform-serial8250-tty-ttyS3.device	loaded active plugged	/sys/devices/platform/serial8250/tty/ttyS3
sys-devices-virtual-misc-rfkill.device	loaded active plugged	/sys/devices/virtual/misc/rfkill
sys-module-configfs.device	loaded active plugged	/sys/module/configfs
sys-module-fuse.device	loaded active plugged	/sys/module/fuse
sys-subsystem-net-devices-eth0.device	loaded active plugged	8254EM Gigabit Ethernet Controller (PRO/1000 MT Desktop Adapter)
-mount	loaded active mounted	Root Mount
dev-hugepages.mount	loaded active mounted	Huge Pages File System
dev-mqueue.mount	loaded active mounted	POSIX Message Queue File System
proc-sys-fs-binfmt_misc.mount	loaded active mounted	Arbitrary Executable File Formats File System
run-credentials-systemd-x2dsysctl.service.mount	loaded active mounted	/run/credentials/systemd-sysctl.service
run-credentials-systemd-x2dsysusers.service.mount	loaded active mounted	/run/credentials/systemd-sysusers.service
run-credentials-systemd-x2dtmpfilesx2dsetup.service.mount	loaded active mounted	/run/credentials/systemd-tmpfiles-setup.service
run-credentials-systemd-x2dtmpfilesx2dsetupx2ddev.service.mount	loaded active mounted	/run/credentials/systemd-tmpfiles-setup-dev.service
run-pc-pipefs.mount	loaded active mounted	IPC Pipe File System
run-user-1000-doc.mount	loaded active mounted	/run/user/1000/doc
run-user-1000-gvfs.mount	loaded active mounted	/run/user/1000/gvfs
run-user-1000.mount	loaded active mounted	/run/user/1000
sys-fs-fuse-connections.mount	loaded active mounted	FUSE Control File System
sys-kernel-config.mount	loaded active mounted	Kernel Configuration File System
sys-kernel-debug.mount	loaded active mounted	Kernel Debug File System
sys-kernel-tracing.mount	loaded active mounted	Kernel Trace File System
systemd-ask-password-plymouth.path	loaded active waiting	Forward Password Requests to Plymouth Directory Watch
systemd-ask-password-wall.path	loaded active waiting	Forward Password Requests to Wall Directory Watch
init.scope	loaded active running	System and Service Manager
session2.scope	loaded active running	Session 2 of User cyborg
colord.service	loaded active running	Manage, Install and Generate Color Profiles
console-setup.service	loaded active exited	Set console font and keypad
cron.service	loaded active running	Regular background program processing daemon
dbus.service	loaded active running	D-Bus System Message Bus
getty@tty1.service	loaded active running	Getty on tty1
haveged.service	loaded active running	Entropy Daemon based on the HAVEGE algorithm
ifupdown-pre.service	loaded active exited	Helper to synchronize boot up for ifupdown
keyboard-setup.service	loaded active exited	Set the console keyboard layout

Figure 27 b

systemctl: Manage system services

crontab: Schedule recurring tasks

```
(cyborg@kali)-[~]
$ sudo useradd -m archi123

(cyborg@kali)-[~]
$ cd ..

(cyborg@kali)-[/home]
$ ls
archi123  cyborg

(cyborg@kali)-[/home]
$
```

Figure 28

useradd: Add a new user

```
(cyborg@kali)-[/home]
$ passwd
Changing password for cyborg.
Current password:
New password:
Retype new password:
passwd: password updated successfully
```

Figure 29

passwd: Change user password