

Title: Linux Command List Assessment

NAME: KAMALESH D

REG. NO.: 20MIS0342

CAMPUS: VIT – Vellore

Course: M. Tech (Intergrated) Software Engineering – 5 years

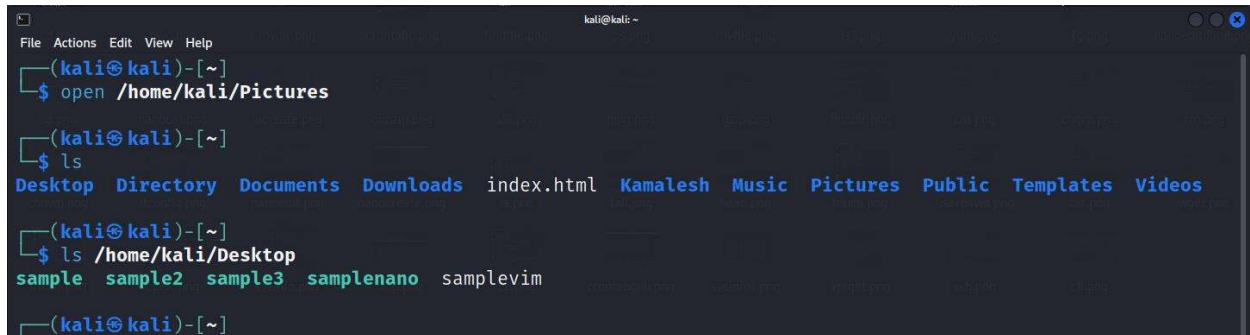
Instructions:-

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:

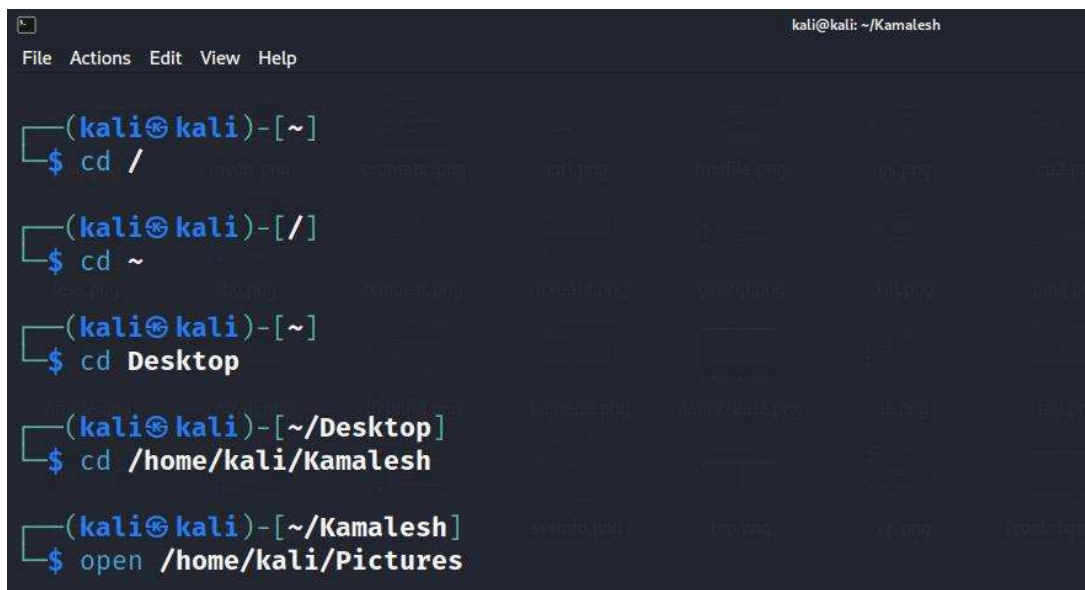
\$ ls:

A terminal window titled 'kali@kali: ~' showing a sequence of commands and their outputs. The user first runs 'open /home/kali/Pictures', which opens a file manager window. Then, the user runs 'ls', which lists the contents of the current directory (~) as Desktop, Directory, Documents, Downloads, index.html, Kamalesh, Music, Pictures, Public, Templates, and Videos. Next, the user runs 'ls /home/kali/Desktop', which lists the contents of the Desktop directory as sample, sample2, sample3, samplenano, and samplevim.

```
(kali@kali)-[~]  
$ open /home/kali/Pictures  
  
(kali@kali)-[~]  
$ ls  
Desktop  Directory  Documents  Downloads  index.html  Kamalesh  Music  Pictures  Public  Templates  Videos  
  
(kali@kali)-[~]  
$ ls /home/kali/Desktop  
sample  sample2  sample3  samplenano  samplevim
```

Lists files and directories.

\$ cd:

A terminal window titled 'kali@kali: ~/Kamalesh' showing a sequence of 'cd' and 'open' commands. The user runs 'cd /', then 'cd ~', then 'cd Desktop', then 'cd /home/kali/Kamalesh', and finally 'open /home/kali/Pictures', which opens a file manager window.

```
(kali@kali)-[~]  
$ cd /  
  
(kali@kali)-[/]  
$ cd ~  
  
(kali@kali)-[~]  
$ cd Desktop  
  
(kali@kali)-[~/Desktop]  
$ cd /home/kali/Kamalesh  
  
(kali@kali)-[~/Kamalesh]  
$ open /home/kali/Pictures
```

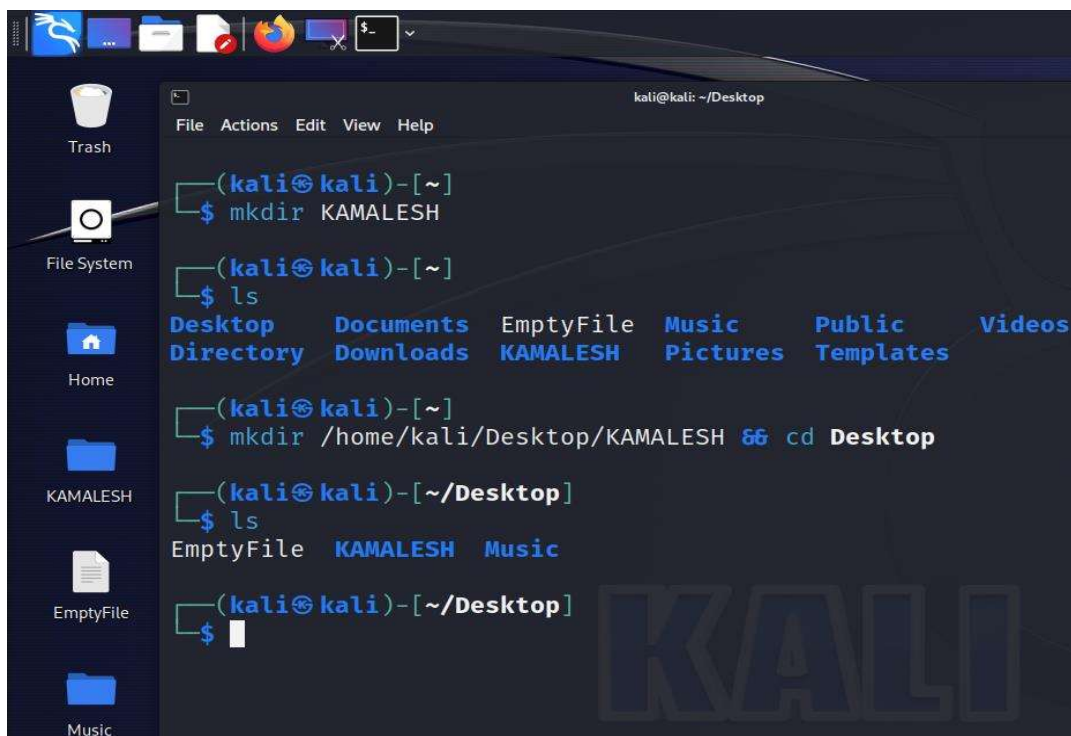
Changes directory.

\$ pwd:

```
(kali㉿kali)-[~/KAMALESH]  
$ pwd  
/home/kali/KAMALESH
```

Prints working directory

\$ mkdir:

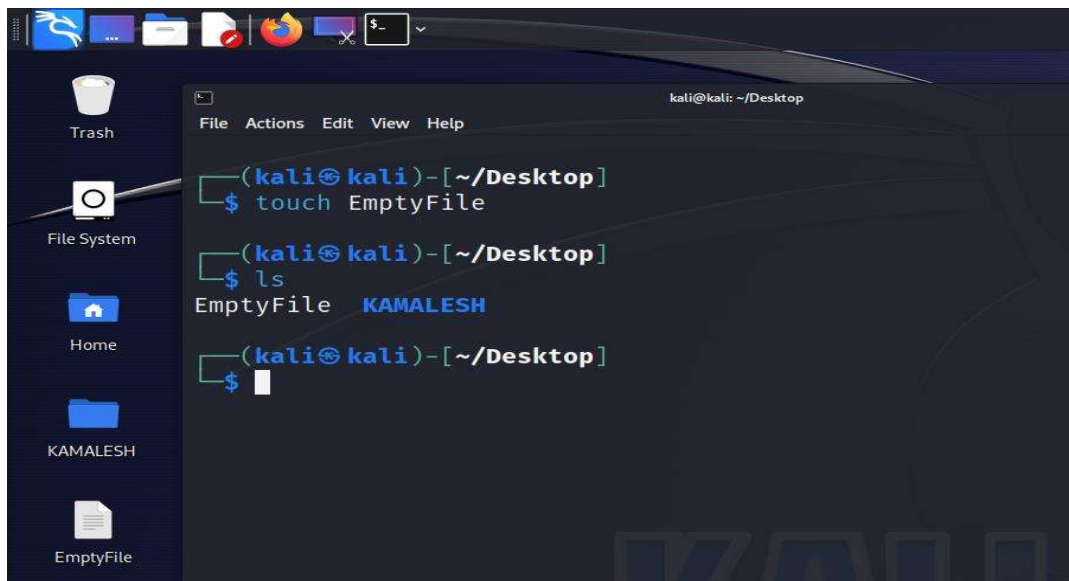


The screenshot shows a Kali Linux desktop environment. On the left is a sidebar with icons for Trash, File System, Home, KAMALESH, EmptyFile, and Music. The main window is a terminal titled 'kali@kali: ~/Desktop'. The terminal shows the following commands and output:

```
(kali㉿kali)-[~]  
$ mkdir KAMALESH  
  
(kali㉿kali)-[~]  
$ ls  
Desktop  Documents  EmptyFile  Music  Public  Videos  
Directory Downloads  KAMALESH  Pictures Templates  
  
(kali㉿kali)-[~]  
$ mkdir /home/kali/Desktop/KAMALESH 86 cd Desktop  
  
(kali㉿kali)-[~/Desktop]  
$ ls  
EmptyFile KAMALESH Music  
  
(kali㉿kali)-[~/Desktop]  
$
```

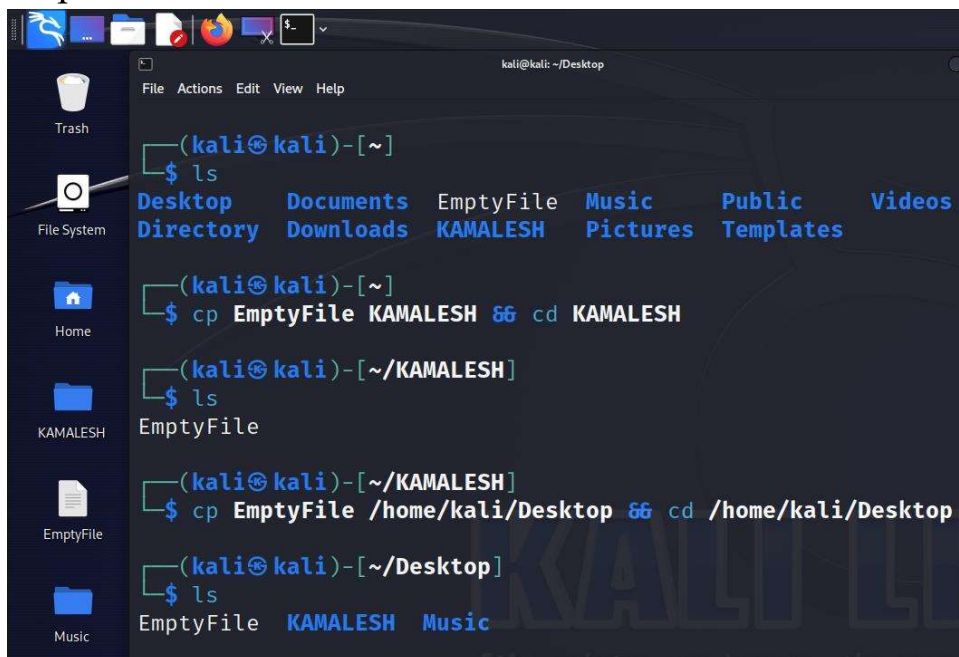
Makes directory

\$ touch:



Creates an empty file

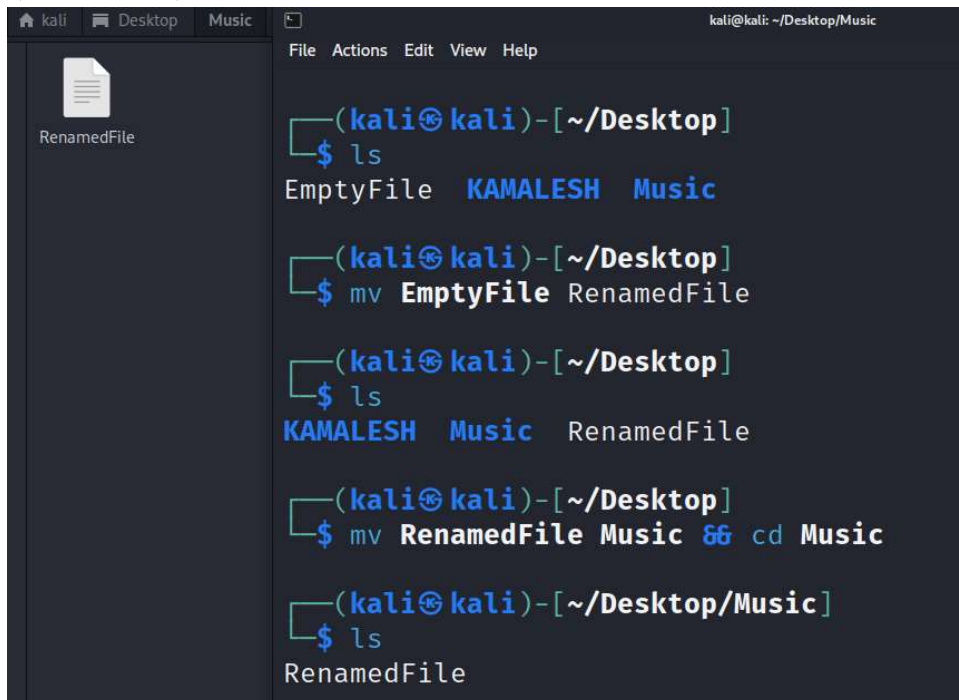
\$ cp:



Copies files and directories

\$ mv:

(\$ mv file)



The screenshot shows a file manager window with a sidebar containing a file icon labeled 'RenamedFile'. The main pane displays a terminal window with the following commands and output:

```
(kali@kali)-[~/Desktop]
$ ls
EmptyFile  KAMALESH  Music

(kali@kali)-[~/Desktop]
$ mv EmptyFile RenamedFile

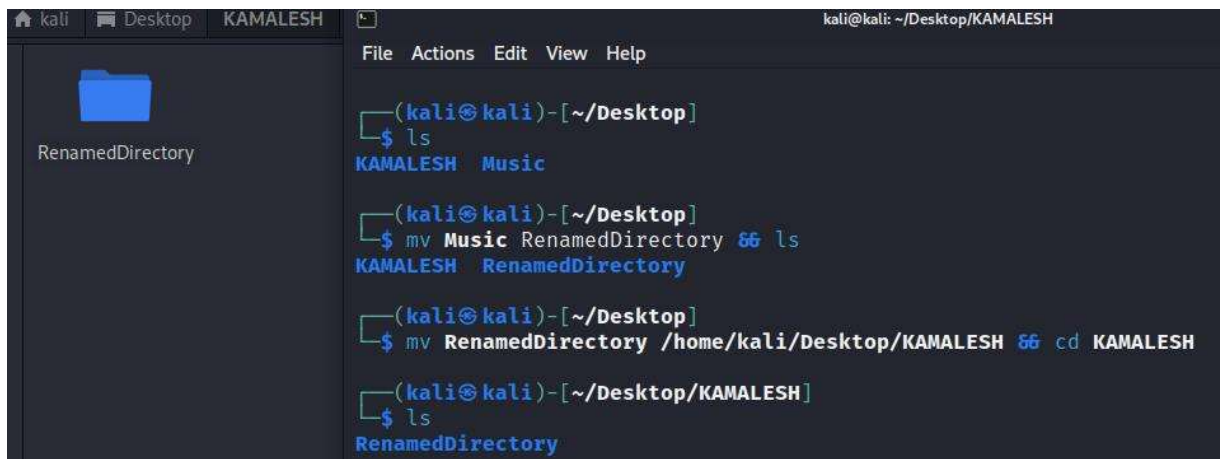
(kali@kali)-[~/Desktop]
$ ls
KAMALESH  Music  RenamedFile

(kali@kali)-[~/Desktop]
$ mv RenamedFile Music && cd Music

(kali@kali)-[~/Desktop/Music]
$ ls
RenamedFile
```

Moves & renames files

(\$ mv directory)



The screenshot shows a file manager window with a sidebar containing a folder icon labeled 'RenamedDirectory'. The main pane displays a terminal window with the following commands and output:

```
(kali@kali)-[~/Desktop]
$ ls
KAMALESH  Music

(kali@kali)-[~/Desktop]
$ mv Music RenamedDirectory && ls
KAMALESH  RenamedDirectory

(kali@kali)-[~/Desktop]
$ mv RenamedDirectory /home/kali/Desktop/KAMALESH && cd KAMALESH

(kali@kali)-[~/Desktop/KAMALESH]
$ ls
RenamedDirectory
```

Moves & renames directories

\$ rm:

```
kali@kali: ~  
File Actions Edit View Help  
  
(kali@kali)-[~]  
$ ls  
Desktop    Documents  EmptyFile  Music      Public     Videos  
Directory  Downloads  KAMALESH   Pictures   Templates  
  
(kali@kali)-[~]  
$ rm EmptyFile && ls  
Desktop    Documents  KAMALESH   Pictures   Templates  
Directory  Downloads  Music      Public     Videos  
  
(kali@kali)-[~]  
$ rm KAMALESH  
rm: cannot remove 'KAMALESH': Is a directory  
  
(kali@kali)-[~]  
$ rm -r KAMALESH && ls  
Desktop    Documents  Music      Public     Videos  
Directory  Downloads  Pictures   Templates  
  
(kali@kali)-[~]  
$
```

Removes files and directories

\$ find:

(\$ find file)

```
kali@kali: ~  
File Actions Edit View Help  
  
(kali@kali)-[~/Desktop]  
$ ls  
3      file2  file5  file8  KAMALESH  TargetFile  
file   file4  file7  file9  target  
  
(kali@kali)-[~/Desktop]  
$ find TargetFile  
TargetFile
```

Searches for files.

(\$ find directory)


```
kali@kali: ~  
File Actions Edit View Help  
  
(kali@kali)-[~]  
$ ls  
2 Desktop Documents KAMALESH Pictures Templates  
3 Directory Downloads Music Public Videos  
  
(kali@kali)-[~]  
$ cd Desktop/2 && ls  
file  
  
(kali@kali)-[~/Desktop/2]  
$ cd ~  
  
(kali@kali)-[~]  
$ find /home/kali -name 2  
/home/kali/Desktop/2  
/home/kali/2  
  
(kali@kali)-[~]  
$ find /home/kali -empty -name 2  
/home/kali/2
```

Searches for directories.

File Viewing and Editing:

\$ cat:

```
(kali@kali)-[~/Desktop]  
$ cat sample sample2 sample3  
This is a sample text file that's made to demo the concatenation command.  
Command is $ cat sample ... by Kamalesh  
This is another sample text file for the same purpose for cat command.  
By Kamalesh  
Again... Same purpose... By Kamalesh  
  
(kali@kali)-[~/Desktop]  
$ cat -n sample sample2 sample3  
1 This is a sample text file that's made to demo the concatenation command.  
2 Command is $ cat sample ... by Kamalesh  
3 This is another sample text file for the same purpose for cat command.  
4 By Kamalesh  
5 Again... Same purpose... By Kamalesh
```

Concatenates and displays file content

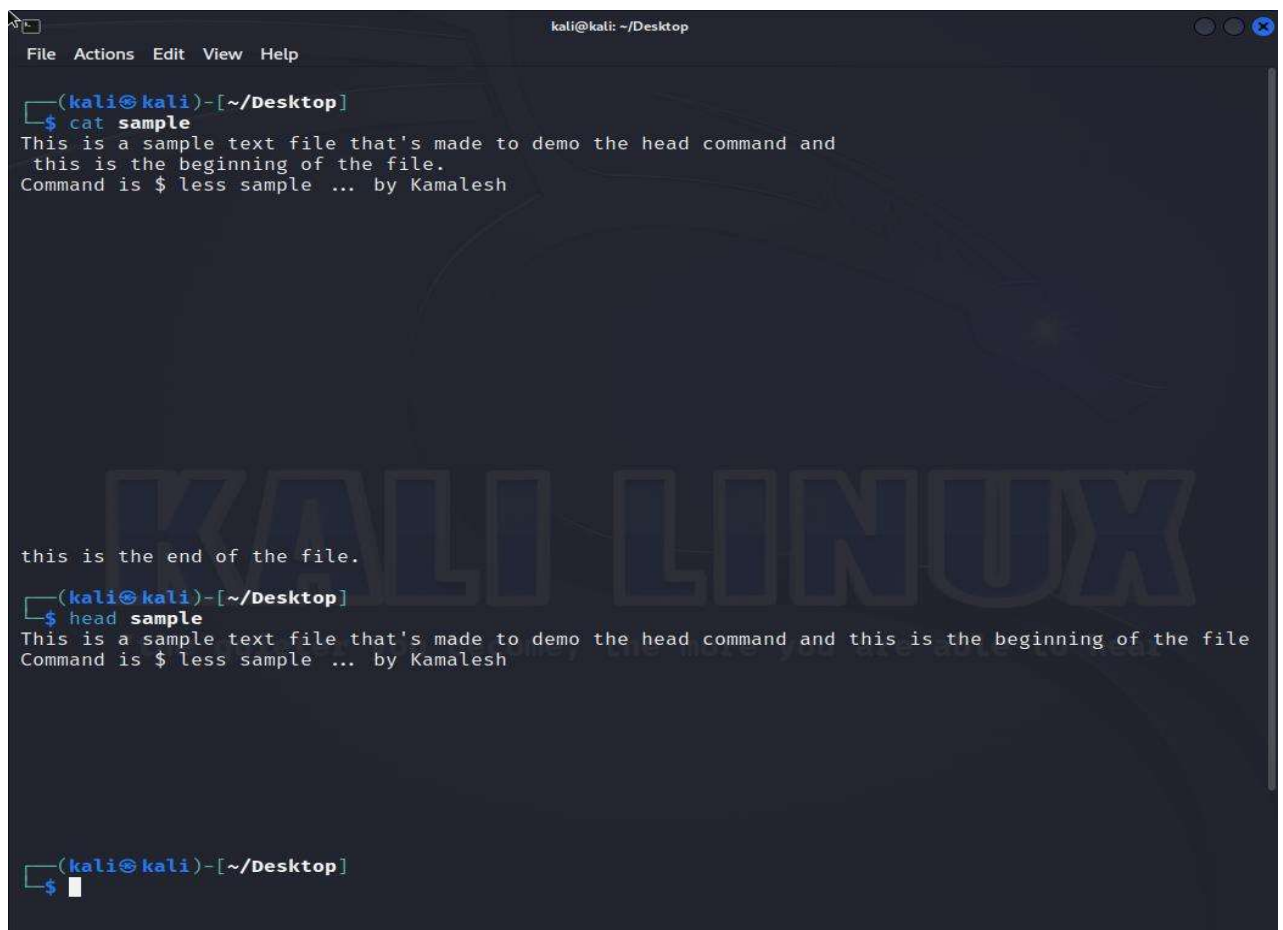
\$ less:



```
kali@kali: ~/Desktop
File Actions Edit View Help
KALI LINUX
"the quieter you become, the more you are able to hear"
This is a sample text file that's made to demo the less command.
Command is $ less sample ... by Kamalesh
sample (END)
```

Displays file content with pagination (a separate command-line interface)

\$ head:



A terminal window titled 'kali@kali: ~/Desktop' with a menu bar (File, Actions, Edit, View, Help). The terminal shows the following commands and output:

```
(kali@kali)-[~/Desktop]
$ cat sample
This is a sample text file that's made to demo the head command and
this is the beginning of the file.
Command is $ less sample ... by Kamallesh

this is the end of the file.

(kali@kali)-[~/Desktop]
$ head sample
This is a sample text file that's made to demo the head command and this is the beginning of the file
Command is $ less sample ... by Kamallesh

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

The background of the terminal features a faint Kali Linux dragon logo and the text 'KALI LINUX'.

Displays the beginning of a file

\$ tail:

```
kali@kali: ~/Desktop
File Actions Edit View Help
(kali@kali)-[~/Desktop]
$ cat sample
This is a sample text file that's made to demo the head command and this is the beginning of the file
.
Command is $ less sample ... by Kamalesh

this is the end of the file.
(kali@kali)-[~/Desktop]
$ tail sample
"the quieter you become, the more you are able to hear"

this is the end of the file.
(kali@kali)-[~/Desktop]
$
```

Displays the end of a file.

\$ nano:

Text editor for creating and editing files
(contents of the file to be edited)

```
kali@kali: ~/Desktop
File Actions Edit View Help

(kali@kali)-[~/Desktop]
$ cat sample
This is a sample text file that's made to demo the head command and this is the beginning of the file.
Command is $ less sample ... by Kamalesh

this is the end of the file.

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

(inside nano's command-line interface)

```
kali@kali: ~/Desktop
File Actions Edit View Help
GNU nano 7.2 samplenano *
This is a command-line text editor called by $nano samplenano, a Linux command.
By KAMALESH

^KG Help      ^O Write Out  ^W Where Is   ^K Cut        ^T Execute    ^C Location
^X Exit      ^R Read File  ^\ Replace    ^U Paste      ^J Justify    ^_ Go To Line
```

(contents of the newfile created by nano)


```
kali@kali: ~/Desktop
File Actions Edit View Help

(kali@kali)-[~/Desktop]
$ vim samplevim

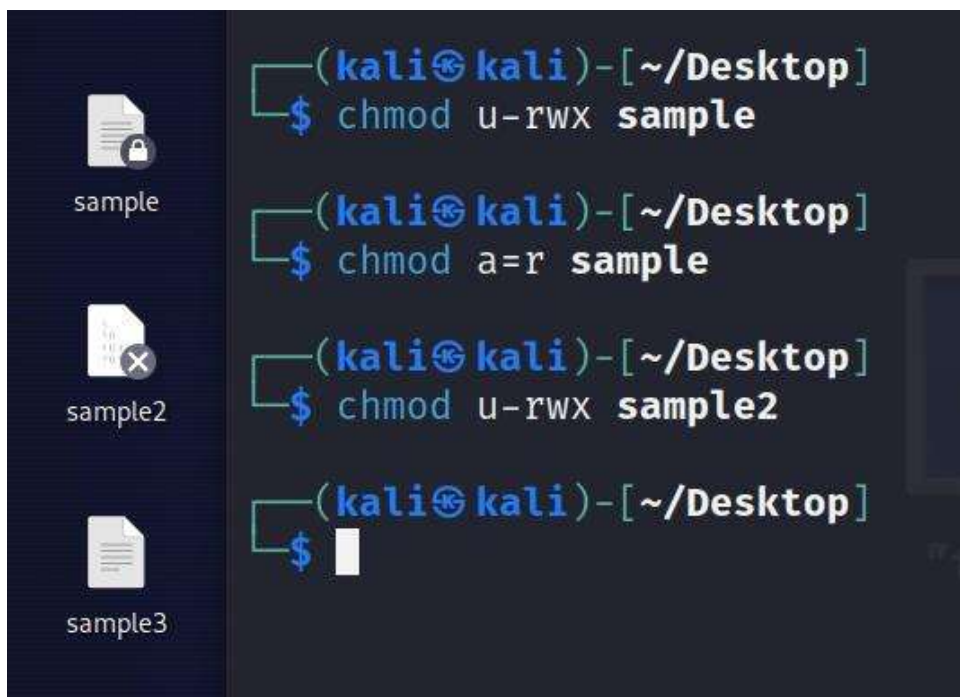
(kali@kali)-[~/Desktop]
$ ls
sample  sample2  sample3  samplenano  samplevim

(kali@kali)-[~/Desktop]
$ cat samplevim
This is a command-line editor called by $ vim / $ vi.
By KAMALESH.

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

File Permissions:

chmod:



```
(kali@kali)-[~/Desktop]
$ chmod u-rwx sample

(kali@kali)-[~/Desktop]
$ chmod a=r sample

(kali@kali)-[~/Desktop]
$ chmod u-rwx sample2

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

Changes file permissions.

\$ chown:

```
root@kali: /home/kali/Desktop
File Actions Edit View Help
(kali@kali)-[~/Desktop]
$ chown sample3
chown: changing ownership of 'sample3': Operation not permitted

(kali@kali)-[~/Desktop]
$ sudo su
[sudo] password for kali:
(root@kali)-[/home/kali/Desktop]
# chown sample3

(root@kali)-[/home/kali/Desktop]
# ls -l sample3
-rwxrwxrwx 1 kali 37 May 21 12:32 sample3

(root@kali)-[/home/kali/Desktop]
#
```

Changes file owner.

\$ chgrp:

```
root@kali: /home/kali/Desktop
File Actions Edit View Help
(kali@kali)-[~/Desktop]
$ sudo su
(root@kali)-[/home/kali/Desktop]
# addgroup sample
Adding group `sample' (GID 1001) ...
Done.

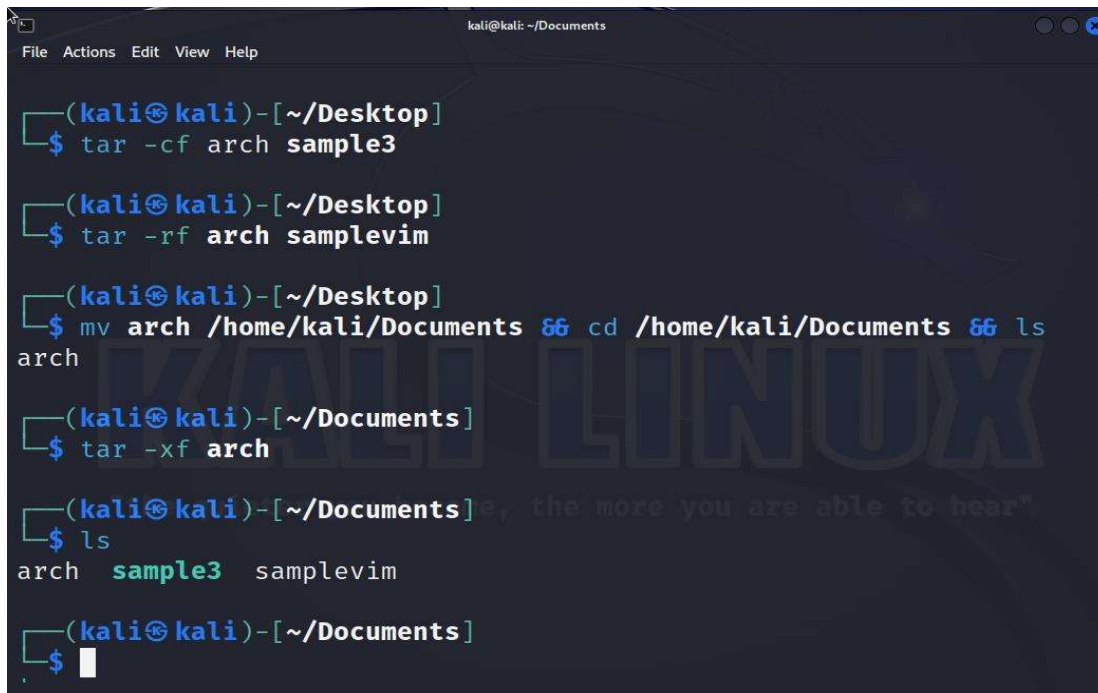
(root@kali)-[/home/kali/Desktop]
# chgrp 1001 sample3

(root@kali)-[/home/kali/Desktop]
# ls -lg sample3
-rwxrwxrwx 1 sample 37 May 21 12:32 sample3
```

Changes file group.

File Compression and Archiving:

\$ tar:

A terminal window titled 'kali@kali: ~/Documents' showing a series of commands and their outputs. The user is in the directory ~/Desktop. They create a tar archive named 'arch' containing 'sample3' and 'samplevim'. Then they move the 'arch' file to /home/kali/Documents. Finally, they extract the archive in the Documents directory and list the files, showing 'sample3' and 'samplevim' are present.

```
(kali@kali)-[~/Desktop]
$ tar -cf arch sample3

(kali@kali)-[~/Desktop]
$ tar -rf arch samplevim

(kali@kali)-[~/Desktop]
$ mv arch /home/kali/Documents && cd /home/kali/Documents && ls
arch

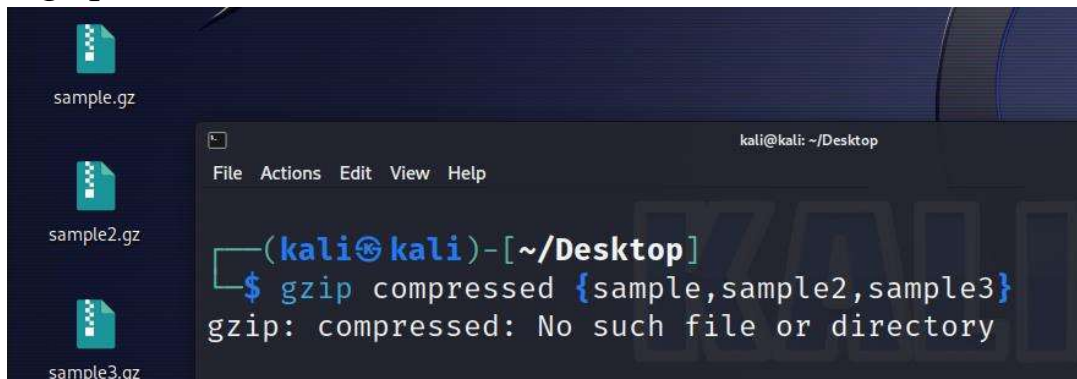
(kali@kali)-[~/Documents]
$ tar -xf arch

(kali@kali)-[~/Documents]
$ ls
arch  sample3  samplevim

(kali@kali)-[~/Documents]
$
```

Archives files.

\$ gzip:


A terminal window titled 'kali@kali: ~/Desktop' showing a command to compress files. The command is '\$ gzip compressed {sample,sample2,sample3}'. The output is 'gzip: compressed: No such file or directory'. To the left of the terminal, there are three file icons labeled 'sample.gz', 'sample2.gz', and 'sample3.gz', indicating the files were successfully compressed.

```
(kali@kali)-[~/Desktop]
$ gzip compressed {sample,sample2,sample3}
gzip: compressed: No such file or directory
```

Compresses files

(please don't mind the error; The command successfully compressed the files).referGUI nearby

\$ unzip:

A terminal window titled 'kali@kali: ~/Desktop' with a menu bar (File, Actions, Edit, View, Help). The terminal shows three commands: 1. `(kali@kali)-[~/Desktop]`
`$ gunzip sample.gz sample2.gz sample3.gz` 2. `(kali@kali)-[~/Desktop]`
`$ ls` 3. `(kali@kali)-[~/Desktop]`
`$` The output of the `ls` command is: `sample sample2 sample3 samplenano samplevim`. On the left, a sidebar shows icons for 'sample', 'sample2', and 'sample3'.

```
(kali@kali)-[~/Desktop]
$ gunzip sample.gz sample2.gz sample3.gz

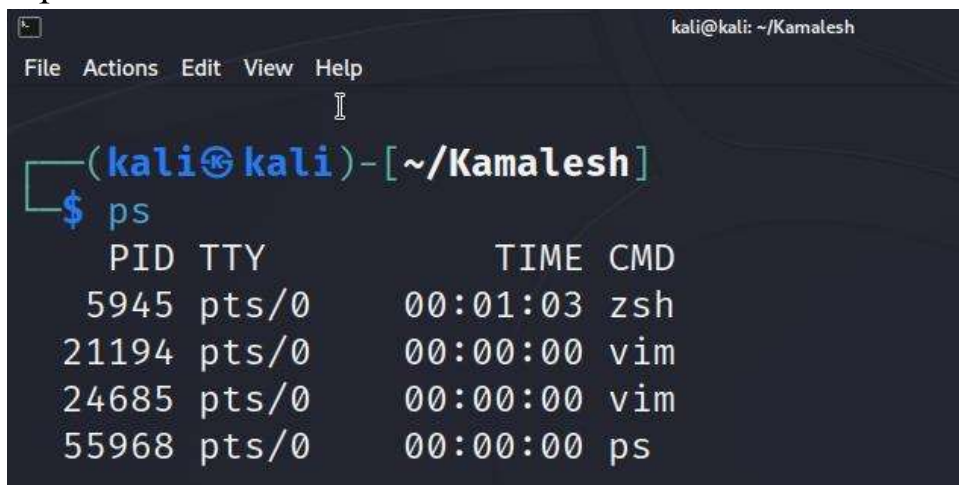
(kali@kali)-[~/Desktop]
$ ls
sample sample2 sample3 samplenano samplevim

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

Extracts files from a ZIP archive.

Process Management:

\$ ps:

A terminal window titled 'kali@kali: ~/Kamalesh' with a menu bar (File, Actions, Edit, View, Help). The terminal shows the command `ps` and its output in a table format.

```
(kali@kali)-[~/Kamalesh]
$ ps
  PID TTY          TIME CMD
  5945 pts/0        00:01:03 zsh
 21194 pts/0        00:00:00 vim
 24685 pts/0        00:00:00 vim
 55968 pts/0        00:00:00 ps
```

Lists running processes

\$ top:

```
kali@kali: ~  
File Actions Edit View Help  
top - 04:25:13 up 1:49, 1 user, load average: 0.32, 0.40, 0.34  
Tasks: 163 total, 1 running, 162 sleeping, 0 stopped, 0 zombie  
%Cpu(s): 7.2 us, 3.3 sy, 0.0 ni, 89.4 id, 0.0 wa, 0.0 hi, 0.1 si, 0.0 st  
MiB Mem : 2751.2 total, 1529.1 free, 906.0 used, 487.4 buff/cache  
MiB Swap: 1024.0 total, 1024.0 free, 0.0 used, 1845.2 avail Mem  


| PID   | USER | PR | NI  | VIRT   | RES    | SHR   | S | %CPU | %MEM | TIME+   | COMMAND                     |
|-------|------|----|-----|--------|--------|-------|---|------|------|---------|-----------------------------|
| 601   | root | 20 | 0   | 533236 | 178312 | 76120 | S | 18.7 | 6.3  | 4:20.10 | Xorg                        |
| 57550 | kali | 20 | 0   | 480936 | 46304  | 34684 | S | 5.9  | 1.6  | 0:01.02 | xfce4-screensho             |
| 991   | kali | 20 | 0   | 587712 | 102500 | 77760 | S | 3.6  | 3.6  | 1:01.48 | xfwm4                       |
| 57237 | kali | 20 | 0   | 458380 | 104308 | 84960 | S | 1.3  | 3.7  | 0:01.20 | qterminal                   |
| 1193  | kali | 20 | 0   | 207752 | 35308  | 19380 | S | 1.0  | 1.3  | 0:56.25 | panel-13-cpugra             |
| 57474 | kali | 20 | 0   | 11632  | 5384   | 3228  | R | 1.0  | 0.2  | 0:00.16 | top                         |
| 931   | kali | 20 | 0   | 217960 | 2556   | 2200  | S | 0.3  | 0.1  | 0:22.69 | VBoxClient                  |
| 959   | kali | 20 | 0   | 217552 | 3380   | 2888  | S | 0.3  | 0.1  | 0:02.52 | VBoxClient                  |
| 1030  | kali | 20 | 0   | 591592 | 124892 | 51192 | S | 0.3  | 4.4  | 0:09.93 | xfdesktop                   |
| 1197  | kali | 20 | 0   | 342876 | 31676  | 21128 | S | 0.3  | 1.1  | 0:37.07 | panel-15-genmon             |
| 1199  | kali | 20 | 0   | 593428 | 43688  | 33892 | S | 0.3  | 1.6  | 0:10.51 | panel-16-pulsea             |
| 56411 | root | 20 | 0   | 0      | 0      | 0     | I | 0.3  | 0.0  | 0:00.02 | kworker/1:0-events          |
| 1     | root | 20 | 0   | 167720 | 12176  | 9064  | S | 0.0  | 0.4  | 0:02.54 | 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  | 0:01.03 | ksoftirqd/0                 |
| 15    | root | 20 | 0   | 0      | 0      | 0     | I | 0.0  | 0.0  | 0:06.05 | rcu_preempt                 |
| 16    | root | rt | 0   | 0      | 0      | 0     | S | 0.0  | 0.0  | 0:00.08 | migration/0                 |


```

Displays real-time system information and processes.

\$ kill:

(had to execute a dummy sleep command to demonstrate \$ kill command)

```
kali@kali: ~/Kamalesh
File Actions Edit View Help

(kali@kali)-[~/Kamalesh]
$ ps
  PID TTY          TIME CMD
  60075 pts/0        00:00:30 zsh
  79071 pts/0        00:00:00 sleep
  79266 pts/0        00:00:00 ps

(kali@kali)-[~/Kamalesh]
$ kill 79071

[1] + terminated sleep 76685
(kali@kali)-[~/Kamalesh]
$
```

Terminates processes.

\$ bg:

(Executed dummy sleep commands to demonstrate \$ bg command)

```
File Actions Edit View Help

(kali@kali)-[~/Kamalesh]
$ jobs
[1] - suspended sleep 76673
[2] + suspended sleep 76685

(kali@kali)-[~/Kamalesh]
$ bg %1 %2
[1] - continued sleep 76673
[2] - continued sleep 76685

(kali@kali)-[~/Kamalesh]
$
```

Runs processes in the background.

\$ fg:

(Executed dummy sleep commands to demonstrate \$ fg command)



```
File Actions Edit View Help

(kali㉿kali)-[~/Kamalesh]
$ jobs
[1]  + running      sleep 76673
[2]  - running      sleep 76685

(kali㉿kali)-[~/Kamalesh]
$ fg %1
[1]  - running      sleep 76673
█
```

Brings background processes to the foreground.

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

```
kali@kali: ~/Kamalesh
File Actions Edit View Help

(kali@kali)-[~/Kamalesh]
$ uname
Linux

(kali@kali)-[~/Kamalesh]
$ df
Filesystem      1K-blocks    Used Available Use% Mounted on
udev            1368060         0   1368060   0% /dev
tmpfs           281724         936    280788   1% /run
/dev/sda1       82083148 14026952  63840648  19% /
tmpfs          1408616         0   1408616   0% /dev/shm
tmpfs           5120          0     5120    0% /run/lock
tmpfs          281720         84    281636   1% /run/user/1000

(kali@kali)-[~/Kamalesh]
$ free
              total        used        free      shared  buff/cache   available
Mem:        2817232       944988       1540256         28580        514140       1872244
Swap:        1048572           0       1048572

(kali@kali)-[~/Kamalesh]
$ uptime
05:09:49 up 2:34, 1 user, load average: 0.26, 0.28, 0.27

(kali@kali)-[~/Kamalesh]
$ who
kali      tty7      2023-05-22 02:36 (:0)

(kali@kali)-[~/Kamalesh]
$ w
05:10:50 up 2:35, 1 user, load average: 0.40, 0.32, 0.28
USER      TTY      FROM          LOGIN@   IDLE   JCPU   PCPU WHAT
kali      tty7      :0            02:36    2:35m  6:24   5.43s xfce4-session

(kali@kali)-[~/Kamalesh]
```

Networking:

\$ ifconfig:


```
kali@kali: ~/Kamalesh
File Actions Edit View Help

(kali@kali)-[~/Kamalesh]
$ 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::b0f4:7b85:3f39:8f71 prefixlen 64 scopeid 0<20<link>
    ether 08:00:27:c7:e1:36 txqueuelen 1000 (Ethernet)
    RX packets 6 bytes 1226 (1.1 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 38 bytes 4729 (4.6 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 0<10<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
```

Configures network interfaces.

\$ ping:

```
kali@kali: ~/Kamalesh
File Actions Edit View Help

(kali@kali)-[~/Kamalesh]
$ ping www.thesmartbridge.com
PING thesmartbridge.com (192.186.199.228) 56(84) bytes of data.
64 bytes from 228.199.186.192.host.secureserver.net (192.186.199.228): icmp_seq=1 ttl=48 time=264 ms
64 bytes from 228.199.186.192.host.secureserver.net (192.186.199.228): icmp_seq=2 ttl=48 time=262 ms
64 bytes from 228.199.186.192.host.secureserver.net (192.186.199.228): icmp_seq=3 ttl=48 time=263 ms
64 bytes from 228.199.186.192.host.secureserver.net (192.186.199.228): icmp_seq=4 ttl=48 time=262 ms
64 bytes from 228.199.186.192.host.secureserver.net (192.186.199.228): icmp_seq=5 ttl=48 time=263 ms
64 bytes from 228.199.186.192.host.secureserver.net (192.186.199.228): icmp_seq=6 ttl=48 time=264 ms
^C
— thesmartbridge.com ping statistics —
6 packets transmitted, 6 received, 0% packet loss, time 5009ms
rtt min/avg/max/mdev = 261.608/263.093/264.478/1.019 ms
```

Sends ICMP echo requests to a network host.

\$ ssh:

(I don't own a remote server/client profile, thus unable to execute:\$ ssh)


```
File Actions Edit View Help
SSH(1) BSD General Commands Manual SSH(1)

NAME
  ssh - OpenSSH remote login client

SYNOPSIS
  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 destination]
    [-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 ...]]

DESCRIPTION
  ssh (SSH client) is a program for logging into a remote machine and for executing commands on a remote machine. It is intended to provide secure encrypted communications between two untrusted hosts over an insecure network. X11 connections, arbitrary TCP ports and UNIX-domain sockets can also be forwarded over the secure channel.

  ssh connects and logs into the specified destination, which may be specified as either [user@]hostname or a URI of the form ssh://[user@]hostname[:port]. The user must prove their identity to the remote machine using one of several methods (see below).

  If a command is specified, it will be executed on the remote host instead of a login shell. A complete command line may be specified as command, or it may have additional arguments. If supplied, the arguments will be appended to the command, separated by spaces, before it is sent to the server to be executed.

  The options are as follows:

  -4      Forces ssh to use IPv4 addresses only.

Manual page ssh(1) line 1 (press h for help or q to quit)
```

Securely connects to a remote system

\$ scp:

(I don't own a remote server/client profile, thus unable to execute:\$ scp)

```
kali@kali: ~/Kamlesh
File Actions Edit View Help
SCP(1) BSD General Commands Manual SCP(1)

NAME
  scp - OpenSSH secure file copy

SYNOPSIS
  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

DESCRIPTION
  scp copies files between hosts on a network.

  scp uses the SFTP protocol over a ssh(1) connection for data transfer, and uses the same authentication
  and provides the same security as a login session.

  scp will ask for passwords or passphrases if they are needed for authentication.

  The source and target may be specified as a local pathname, a remote host with optional path in the
  form [user@]host:[path], or a URI in the form scp://[user@]host[:port]/[path]. Local file names can
  be made explicit using absolute or relative pathnames to avoid scp treating file names containing
  ':' as host specifiers.

  When copying between two remote hosts, if the URI format is used, a port cannot be specified on the
  target if the -R option is used.

  The options are as follows:

Manual page scp(1) line 1 (press h for help or q to quit)
```

Securely copies files between systems.

\$ wget:

```
kali@kali: ~
File Actions Edit View Help

(kali@kali)-[~]
$ wget www.thesmartbridge.com
--2023-05-22 05:52:06-- http://www.thesmartbridge.com/
Resolving www.thesmartbridge.com (www.thesmartbridge.com)... 192.186.199.228
Connecting to www.thesmartbridge.com (www.thesmartbridge.com)|192.186.199.228|:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: unspecified [text/html]
Saving to: 'index.html'

index.html           [  =>  ] 61.22K  231KB/s  in 0.3s

2023-05-22 05:52:07 (231 KB/s) - 'index.html' saved [62687]

(kali@kali)-[~]
$ find /home/kali -name index.html
/home/kali/index.html
```

Downloads files from the web.

System Administration:

\$ sudo:

```
root@kali: /home/kali
File Actions Edit View Help

(kali㉿kali)-[~]
$ sudo
usage: sudo -h | -K | -k | -V
usage: sudo -v [-ABkNnS] [-g group] [-h host] [-p prompt] [-u user]
usage: sudo -l [-ABkNnS] [-g group] [-h host] [-p prompt] [-U user] [-u user] [command [arg ...]]
usage: sudo [-ABbEHkNnPS] [-r role] [-t type] [-C num] [-D directory] [-g group] [-h host] [-p prompt] [-R directory]
[-T timeout] [-u user] [VAR=value] [-i | -s] [command [arg ...]]
usage: sudo -e [-ABkNnS] [-r role] [-t type] [-C num] [-D directory] [-g group] [-h host] [-p prompt] [-R directory]
[-T timeout] [-u user] file ...

(kali㉿kali)-[~]
$ sudo su
[sudo] password for kali:
(kali㉿kali)-[/home/kali]
#
```

Executes commands with superuser privileges.

```
$ apt-get:
```

```
root@kali: /home/kali
File Actions Edit View Help

(root@kali)-[/home/kali]
# apt-get install dpkg -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  dpkg-dev libdpkg-perl
Suggested packages:
  debsig-verify debian-keyring bzip
The following packages will be upgraded:
  dpkg dpkg-dev libdpkg-perl
3 upgraded, 0 newly installed, 0 to remove and 527 not upgraded.
Need to get 3,514 kB of archives.
After this operation, 1,024 B of additional disk space will be used.
Get:1 http://http.kali.org/kali kali-rolling/main amd64 dpkg amd64 1.21.21+kali2 [1,568 kB]
Get:2 http://http.kali.org/kali kali-rolling/main amd64 dpkg-dev all 1.21.21+kali2 [1,355 kB]
Get:3 http://http.kali.org/kali kali-rolling/main amd64 libdpkg-perl all 1.21.21+kali2 [591 kB]
Fetched 3,514 kB in 3s (1,233 kB/s)
(Reading database ... 394378 files and directories currently installed.)
Preparing to unpack .../dpkg_1.21.21+kali2_amd64.deb ...
Unpacking dpkg (1.21.21+kali2) over (1.21.20+kali1) ...
Setting up dpkg (1.21.21+kali2) ...
dpkg-db-backup.service is a disabled or a static unit not running, not starting it.
(Reading database ... 394378 files and directories currently installed.)
Preparing to unpack .../dpkg-dev_1.21.21+kali2_all.deb ...
Unpacking dpkg-dev (1.21.21+kali2) over (1.21.20+kali1) ...
Preparing to unpack .../libdpkg-perl_1.21.21+kali2_all.deb ...
Unpacking libdpkg-perl (1.21.21+kali2) over (1.21.20+kali1) ...
Setting up libdpkg-perl (1.21.21+kali2) ...
Setting up dpkg-dev (1.21.21+kali2) ...
Processing triggers for man-db (2.11.2-1) ...
Processing triggers for kali-menu (2023.1.7) ...
```

Package management for Debian-based distributions (dpkg)

\$ yum:


```
File Actions Edit View Help

(root@kali)-[/home/kali]
# apt-get install yum -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Package yum is not available, but is referred to by another package.
This may mean that the package is missing, has been obsoleted, or
is only available from another source

E: Package 'yum' has no installation candidate
```

Package management for Red Hat-based distributions
(another package already installed)

\$ systemctl:

```
kali@kali: ~/Kamalesh
File Actions Edit View Help

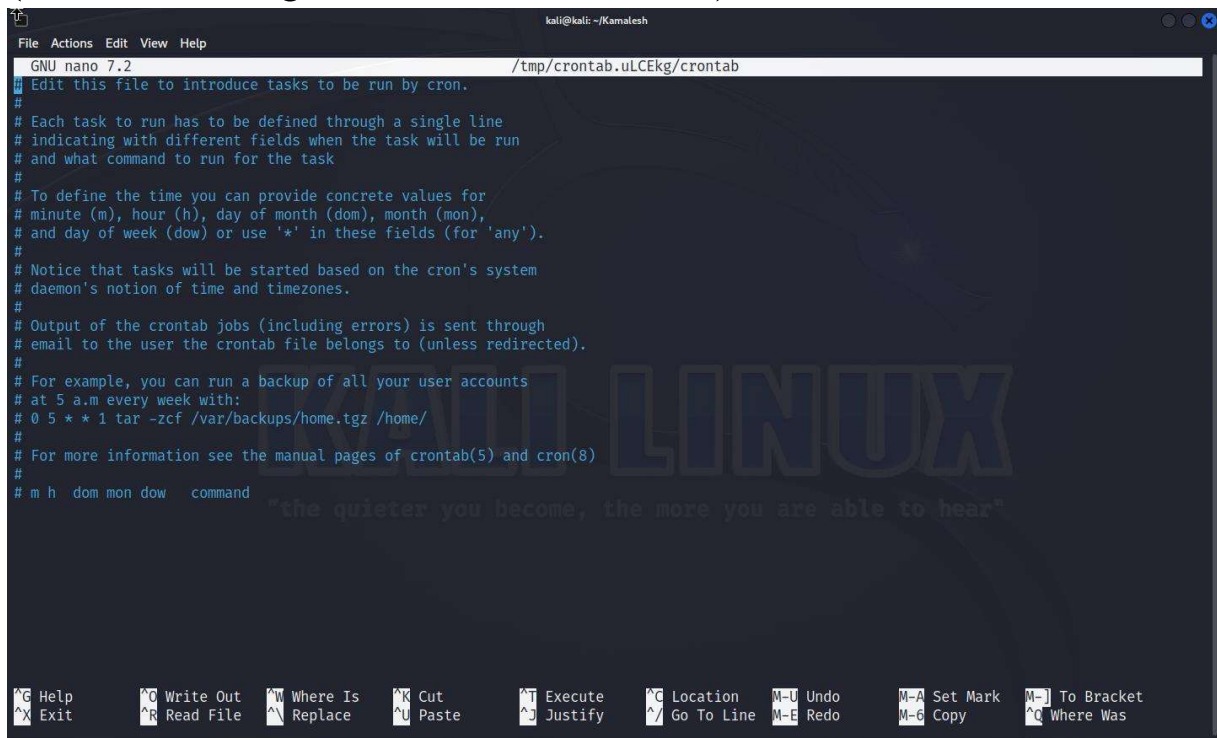
(kali@kali)-[~/Kamalesh]
$ systemctl

UNIT                                LOAD    ACTIVE SUB    DESCRIPTION
proc-sys-fs-binfmt_misc.automount  loaded active running Arbitrary Executable File
sys-devices-pci0000:00-0000:00:01.1-ata2-host2-target2:0:0-2:0:0:0-block-sr0.device loaded active plugged VBOX_CD-ROM
sys-devices-pci0000:00-0000:00:03.0-net-eth0.device loaded active plugged 82540EM Gigabit Ethernet
sys-devices-pci0000:00-0000:00:05.0-sound-card0-controlC0.device loaded active plugged /sys/devices/pci0000:00/0
sys-devices-pci0000:00-0000:00:0d.0-ata3-host1-target1:0:0-1:0:0:0-block-sda-sda1.device loaded active plugged VBOX_HARDDISK root
sys-devices-pci0000:00-0000:00:0d.0-ata3-host1-target1:0:0-1:0:0:0-block-sda.device loaded active plugged VBOX_HARDDISK
sys-devices-platform-serial8250-tty-ttyS0.device loaded active plugged /sys/devices/platform/ser
sys-devices-platform-serial8250-tty-ttyS1.device loaded active plugged /sys/devices/platform/ser
sys-devices-platform-serial8250-tty-ttyS2.device loaded active plugged /sys/devices/platform/ser
sys-devices-platform-serial8250-tty-ttyS3.device loaded active plugged /sys/devices/platform/ser
sys-devices-virtual-misc-rfkill.device loaded active plugged /sys/devices/virtual/misc
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 82540EM Gigabit Ethernet
-.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
proc-sys-fs-binfmt_misc.mount loaded active mounted Arbitrary Executable File
run-credentials-systemd\x2dsysctl.service.mount loaded active mounted /run/credentials/systemd-
run-credentials-systemd\x2dsysusers.service.mount loaded active mounted /run/credentials/systemd-
run-credentials-systemd\x2dtmpfiles\x2dsetup.service.mount loaded active mounted /run/credentials/systemd-
run-credentials-systemd\x2dtmpfiles\x2dsetup\x2ddev.service.mount loaded active mounted /run/credentials/systemd-
run-rpc_pipefs.mount loaded active mounted RPC Pipe File System
run-user-1000-gvfs.mount loaded active mounted /run/user/1000/gvfs
run-user-1000.mount loaded active mounted /run/user/1000
run-user-1002-gvfs.mount loaded active mounted /run/user/1002/gvfs
run-user-1002.mount loaded active mounted /run/user/1002
sys-fs-fuse-connections.mount loaded active mounted FUSE Control File System
sys-kernel-config.mount loaded active mounted Kernel Configuration File
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
```

Manages system services.

\$ crontab:

(schedule editing command-line interface)



```
GNU nano 7.2 /tmp/crontab.uLCEkg/crontab
# Edit this file to introduce tasks to be run by cron.
#
# Each task to run has to be defined through a single line
# indicating with different fields when the task will be run
# and what command to run for the task
#
# To define the time you can provide concrete values for
# minute (m), hour (h), day of month (dom), month (mon),
# and day of week (dow) or use '*' in these fields (for 'any').
#
# Notice that tasks will be started based on the cron's system
# daemon's notion of time and timezones.
#
# Output of the crontab jobs (including errors) is sent through
# email to the user the crontab file belongs to (unless redirected).
#
# For example, you can run a backup of all your user accounts
# at 5 a.m every week with:
# 0 5 * * 1 tar -zcf /var/backups/home.tgz /home/
#
# For more information see the manual pages of crontab(5) and cron(8)
#
# m h dom mon dow   command
```

Schedules recurring tasks.

\$ useradd: Add a new user

\$ passwd: Change user password

```
root@kali: /home/kali/Kamalesh
File Actions Edit View Help

(root@kali)-[/home/kali/Kamalesh]
# adduser dummy
Adding user `dummy' ...
Adding new group `dummy' (1001) ...
Adding new user `dummy' (1001) with group `dummy (1001)' ...
Creating home directory `/home/dummy' ...
Copying files from `/etc/skel' ...
New password:
Retype new password:
passwd: password updated successfully
Changing the user information for dummy
Enter the new value, or press ENTER for the default
    Full Name []: Dummy
    Room Number []:
    Work Phone []:
    Home Phone []:
    Other []:
Is the information correct? [Y/n] y
Adding new user `dummy' to supplemental / extra groups `users' ...
Adding user `dummy' to group `users' ...

(root@kali)-[/home/kali/Kamalesh]
# passwd dummy
New password:
Retype new password:
passwd: password updated successfully

(root@kali)-[/home/kali/Kamalesh]
#
```