Smart Bridge Assessment-1
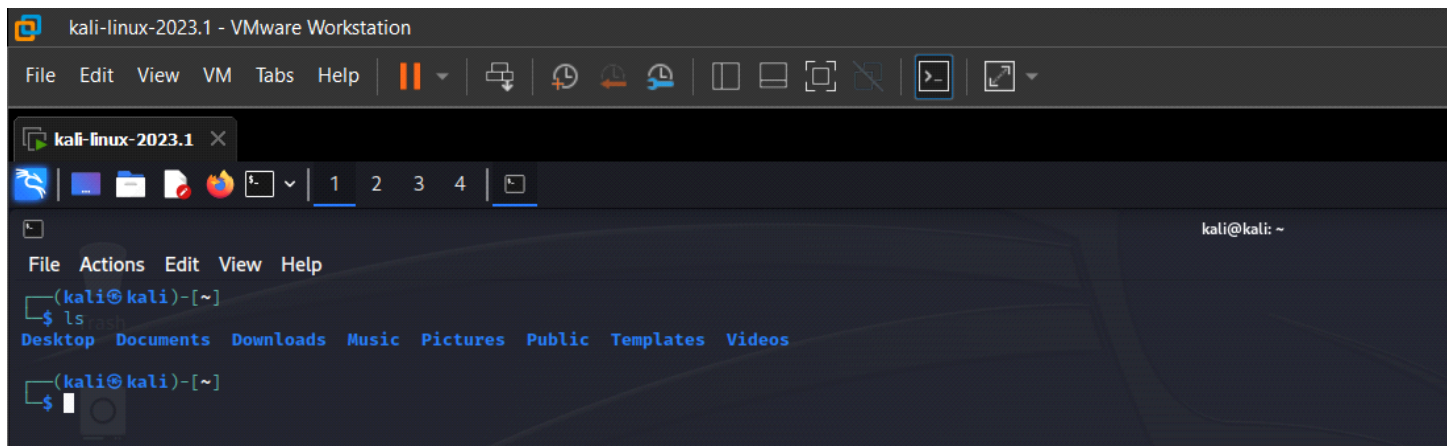
Name:J V S Manideep
Regno: 20BCN7164
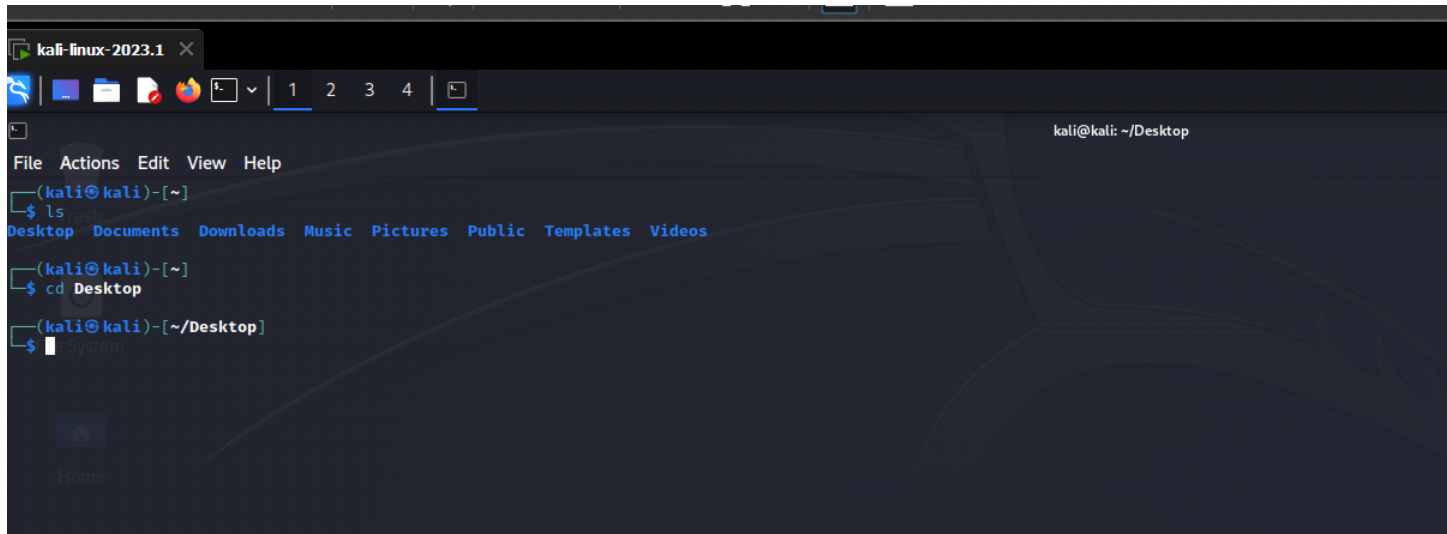
Linux Command List Assessment

File and Directory Operations

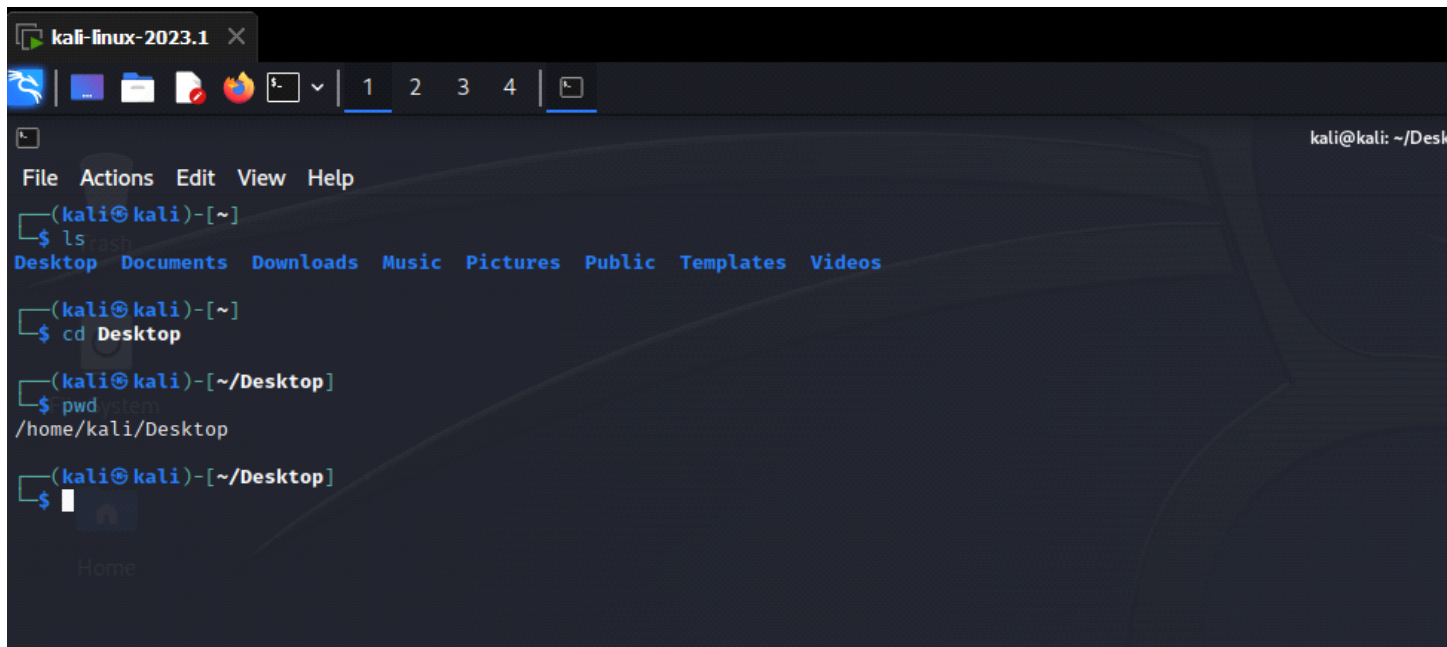ls: List files and directories

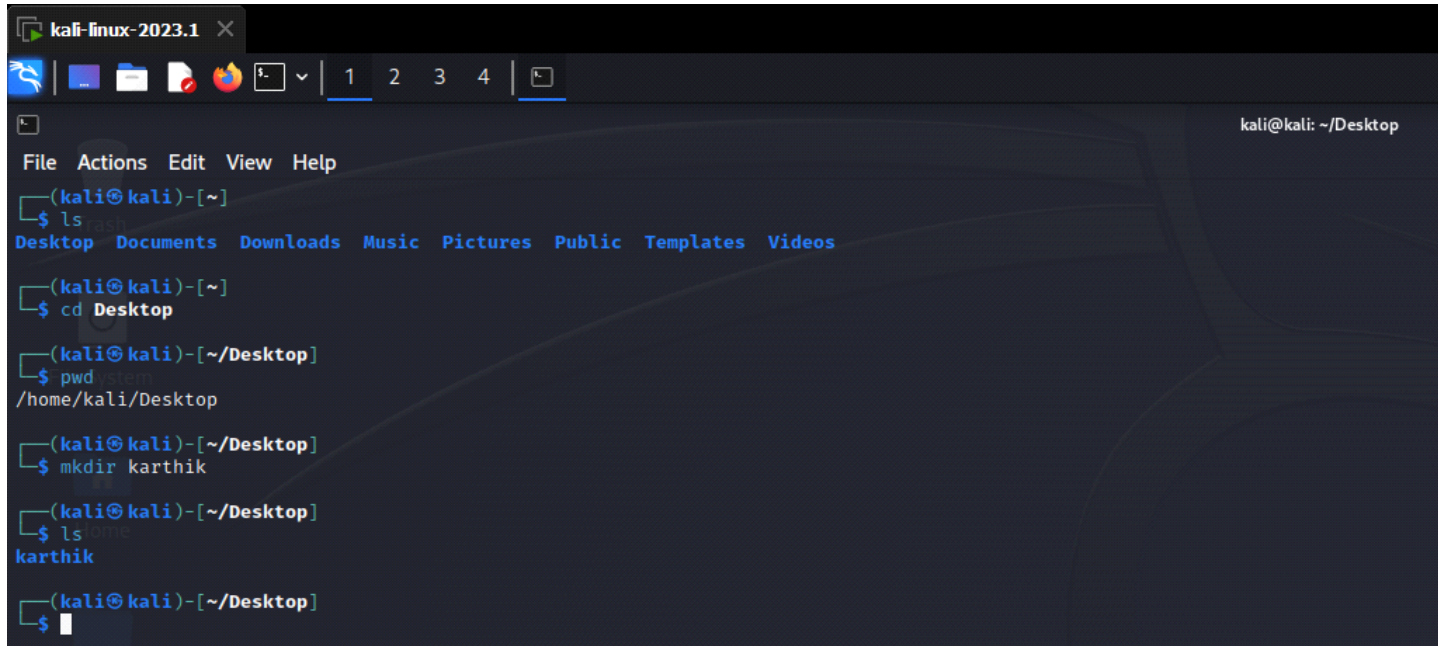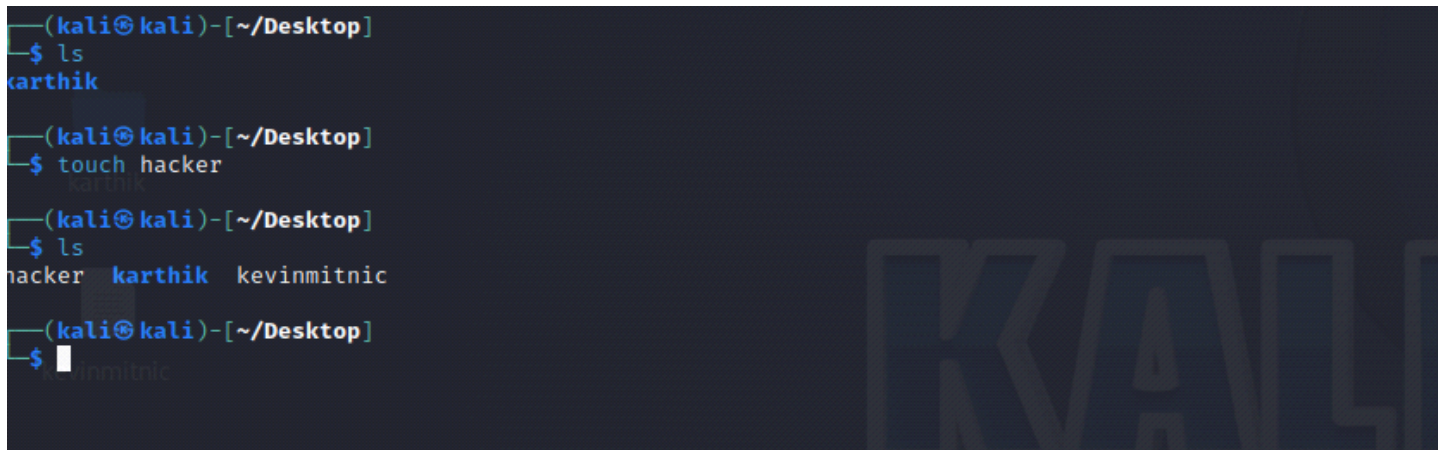cd: Change directory

pwd: Print working directory

mkdir: Make directory

touch: Create an empty file

cp: Copy files and directories

```
—(kali⊕kali)-[~/Desktop]
—$ cp hacker knight

—(kali⊕kali)-[~/Desktop]
—$ ls
acker  karthik  kevinmitnic  knight

—(kali⊕kali)-[~/Desktop]
—$ sS
```

mv: Move or rename files and directories

```
—(kali⊕kali)-[~/Desktop]
—$ mv knight karthik

—(kali⊕kali)-[~/Desktop]
—$ ls
hacker  karthik  kevinmitnic

—(kali⊕kali)-[~/Desktop]
—$ cd karthik

—(kali⊕kali)-[~/Desktop/karthik]
—$ ls
knight

—(kali⊕kali)-[~/Desktop/karthik]
—$ 
```

rm: Remove files and directories

```
—(kali⊕kali)-[~/Desktop]
—$ ls
hacker  karthik  kevinmitnic

—(kali⊕kali)-[~/Desktop]
—$ rm kevinmitnic

—(kali⊕kali)-[~/Desktop]
—$ ls
hacker  karthik

—(kali⊕kali)-[~/Desktop]
—$ 
```

find: Search for files and directories

```
┌──(kali☉kali)-[~/Desktop]
└─$ find karthik
karthik
karthik/knight

┌──(kali☉kali)-[~/Desktop]
└─$
```

File Viewing and Editing:

cat: Concatenate and display file content

```
┌──(kali☉kali)-[~/Desktop]
└─$ cat hacker
hi this is karthik
HACKER
```

less: View file content with pagination

```
┌──(kali☉kali)-[~/Desktop]          hi this is karthik
└─$ less hacker                     HACKER

zsh: suspended  less hacker         hacker (END)
```

head: Display the beginning of a file

```
┌──(kali☉kali)-[~/Desktop]
└─$ head hacker
hi this is karthik
HACKER
```
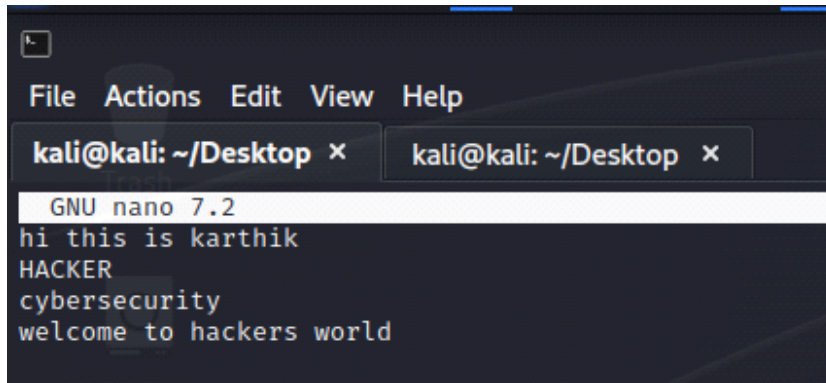
tail: Display the end of a file

nano: Text editor for creating and editing files

vi/vim: Powerful text editor for experienced users

```
hi this is karthik
HACKER
cybersecurity
welcome to hackers world
~
~
~
~
~
~
~
~
~
~
  ┌──(kali㊀kali)-[~/Desktop]
  └─$ vi hacker

zsh: suspended  vi hacker
```

File Permissions:

chmod: Change file permissions

```
┌──(kali㊀kali)-[~/Desktop]
└─$ chmod +x+r hacker

┌──(kali㊀kali)-[~/Desktop]
└─$
```

chown: Change file owner

```
──(kali㊀kali)-[~/Desktop]
─$ chown kali hacker
```

chgrp: Change file group

```
──(kali㊀kali)-[~/Desktop]
└─$ chgrp kali hacker
```

File Compression and Archiving:

tar: Archive files

```
┌──(kali㊧kali)-[~/Desktop]
└─$ tar -cf fil.tar hacker

┌──(kali㊧kali)-[~/Desktop]
└─$ ls
fil.tar  hacker  hackerY  karthik
```

gzip: Compress files

```
┌──(kali㊧kali)-[~/Desktop]
└─$ gzip 'fil.tar'

┌──(kali㊧kali)-[~/Desktop]
└─$ ls
fil.tar.gz  hacker  hackerY  karthik

┌──(kali㊧kali)-[~/Desktop]
└─$ ▮
```

unzip: Extract files from a ZIP archive

```
┌──(kali㊧kali)-[~/Desktop]
└─$ unzip 'dark.zip'
Archive:  dark.zip
replace hackerY? [y]es, [n]o, [A]ll, [N]one, [r]ename:
error:  invalid response [{ENTER}]
replace hackerY? [y]es, [n]o, [A]ll, [N]one, [r]ename: hello
error:  invalid response [hello]
replace hackerY? [y]es, [n]o, [A]ll, [N]one, [r]ename: n
replace karthik/knight? [y]es, [n]o, [A]ll, [N]one, [r]ename: n
```
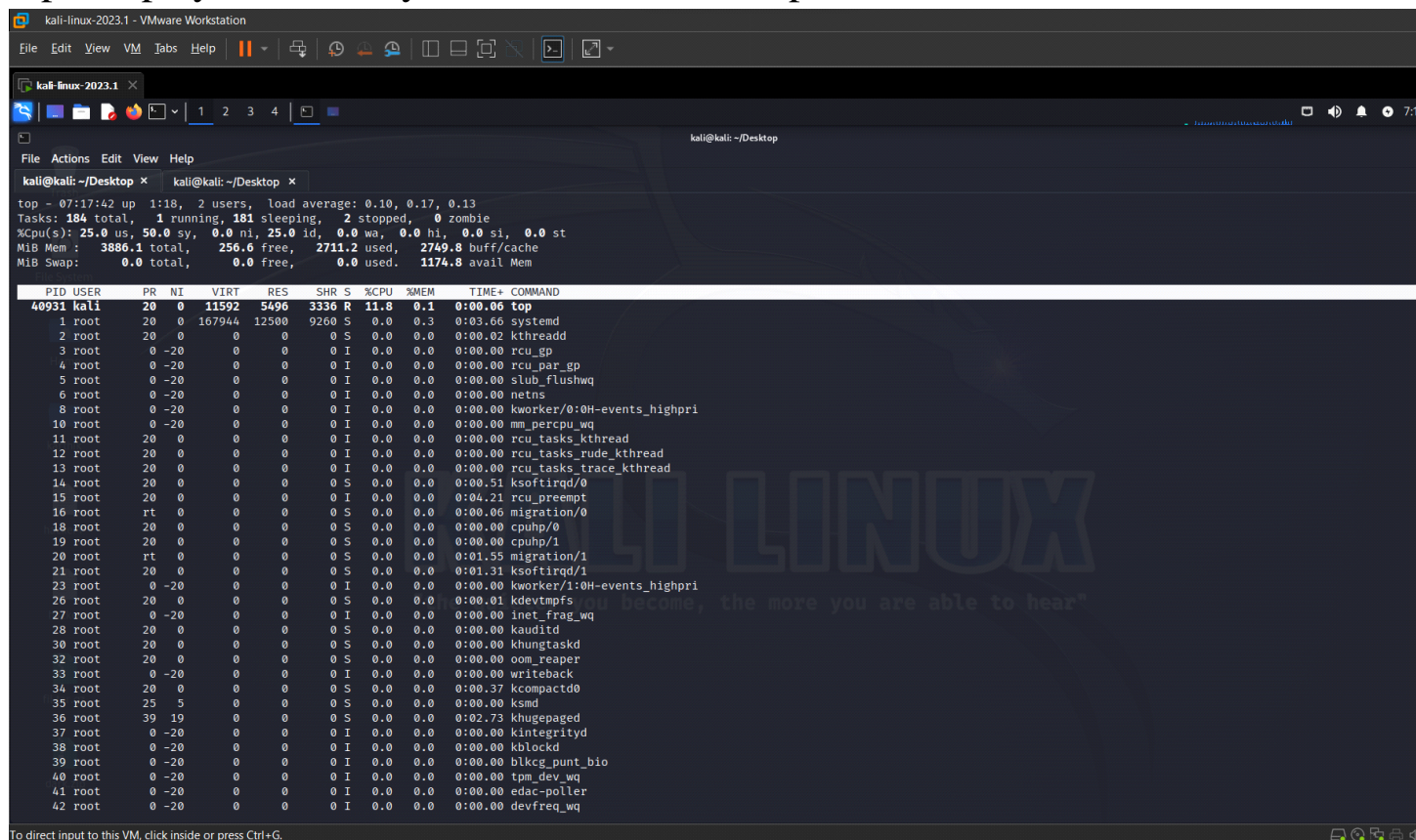
Process Management:

ps: List running processes

top: Display real-time system information and processes

kill: Terminate processes

```
┌──(kali㊉kali)-[~/Desktop]
└─$ ps
   PID TTY          TIME CMD
  6368 pts/0    00:00:15 zsh
 14727 pts/0    00:00:00 less
 17026 pts/0    00:00:00 vi
 59577 pts/0    00:00:00 top
 59724 pts/0    00:00:00 ps

┌──(kali㊉kali)-[~/Desktop]
└─$ kill 59577
```

bg: Run processes in the background

```
┌──(kali㊉kali)-[~/Desktop]
└─$ bg
[3]    continued  top
[3]  + suspended (signal)  top

┌──(kali㊉kali)-[~/Desktop]
└─$ █
```

fg: Bring background processes to the foreground

```
┌──(kali㊉kali)-[~/Desktop]
└─$ fg
[3]    continued  top
```

System Information:

uname: Print system information

```
┌──(kali㊉kali)-[~/Desktop]
└─$ uname
Linux
```

df: Display disk space usage

```
┌──(kali㊀kali)-[~/Desktop]
└─$ df
Filesystem     1K-blocks     Used Available Use% Mounted on
udev            1941744        0   1941744   0% /dev
tmpfs            397932     1168    396764   1% /run
/dev/sr0        4076828  4076828        0 100% /run/live/medium
/dev/loop0      3505408  3505408        0 100% /run/live/rootfs/filesystem.squash
tmpfs           1989660  1614576    375084  82% /run/live/overlay
overlay         1989660  1614576    375084  82% /
tmpfs           1989660        0   1989660   0% /dev/shm
tmpfs              5120        0      5120   0% /run/lock
tmpfs           1989660      760   1988900   1% /tmp
tmpfs            397932       96    397836   1% /run/user/1000
```

free: Display memory usage

```
┌──(kali㊀kali)-[~/Desktop]
└─$ free
               total        used        free      shared  buff/cache   available
Mem:         3979320     2781232      257384     1635256     2817028     1198088
Swap:              0           0           0

┌──(kali㊀kali)-[~/Desktop]
└─$ uptime
 07:58:54 up  1:59,  2 users,  load average: 0.10, 0.17, 0.09
```

uptime: Show system uptime

```
┌──(kali㊀kali)-[~/Desktop]
└─$ free
               total        used        free      shared  buff/cache   available
Mem:         3979320     2781232      257384     1635256     2817028     1198088
Swap:              0           0           0

┌──(kali㊀kali)-[~/Desktop]
└─$ uptime
 07:58:54 up  1:59,  2 users,  load average: 0.10, 0.17, 0.09
```

who: Display logged-in users

```
┌──(kali㊀kali)-[~/Desktop]
└─$ who
kali     tty1         2023-05-22 06:00
kali     tty7         2023-05-22 06:01 (:0)
┌──(kali㊀kali)-[~/Desktop]
└─$ w
 07:59:41 up  2:00,  2 users,  load average: 0.04, 0.14, 0.08
USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
kali     tty1     -                06:00    1:59m  2.39s  2.31s -zsh
kali     tty7     :0               06:01    1:59m  1:25   0.95s xfce4-session
┌──(kali㊀kali)-[~/Desktop]
└─$
```

w: Display logged-in users and their activities

```
┌──(kali⊛kali)-[~/Desktop]
└─$ who
kali      tty1         2023-05-22 06:00
kali      tty7         2023-05-22 06:01 (:0)

┌──(kali⊛kali)-[~/Desktop]
└─$ w
 07:59:41 up  2:00,  2 users,  load average: 0.04, 0.14, 0.08
USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
kali     tty1     -                06:00    1:59m  2.39s  2.31s -zsh
kali     tty7     :0               06:01    1:59m  1:25   0.95s xfce4-session

┌──(kali⊛kali)-[~/Desktop]
└─$ ▉
```

Networking:

ifconfig: Configure network interfaces

```
┌──(kali⊛kali)-[~/Desktop]
└─$ ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 192.168.113.128  netmask 255.255.255.0  broadcast 192.168.113.255
        inet6 fe80::1ce9:819f:70a2:90b  prefixlen 64  scopeid 0×20<link>
        ether 00:0c:29:34:d3:bf  txqueuelen 1000  (Ethernet)
        RX packets 972666  bytes 1462715467 (1.3 GiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 35336  bytes 2280261 (2.1 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 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
```

<u>ping: Send ICMP echo requests to a network host</u>

```
┌──(kali㊛kali)-[~/Desktop]
└─$ ping 1.1.1.1
PING 1.1.1.1 (1.1.1.1) 56(84) bytes of data.
64 bytes from 1.1.1.1: icmp_seq=1 ttl=128 time=36.6 ms
64 bytes from 1.1.1.1: icmp_seq=2 ttl=128 time=36.3 ms
64 bytes from 1.1.1.1: icmp_seq=3 ttl=128 time=37.0 ms
64 bytes from 1.1.1.1: icmp_seq=4 ttl=128 time=38.8 ms
64 bytes from 1.1.1.1: icmp_seq=5 ttl=128 time=35.8 ms
64 bytes from 1.1.1.1: icmp_seq=6 ttl=128 time=36.1 ms
64 bytes from 1.1.1.1: icmp_seq=7 ttl=128 time=35.8 ms
64 bytes from 1.1.1.1: icmp_seq=8 ttl=128 time=36.1 ms
64 bytes from 1.1.1.1: icmp_seq=9 ttl=128 time=37.6 ms
64 bytes from 1.1.1.1: icmp_seq=10 ttl=128 time=44.0 ms
64 bytes from 1.1.1.1: icmp_seq=11 ttl=128 time=35.5 ms
64 bytes from 1.1.1.1: icmp_seq=12 ttl=128 time=35.5 ms
64 bytes from 1.1.1.1: icmp_seq=13 ttl=128 time=36.2 ms
64 bytes from 1.1.1.1: icmp_seq=14 ttl=128 time=36.0 ms
64 bytes from 1.1.1.1: icmp_seq=15 ttl=128 time=36.4 ms
64 bytes from 1.1.1.1: icmp_seq=16 ttl=128 time=35.7 ms
64 bytes from 1.1.1.1: icmp_seq=17 ttl=128 time=37.3 ms
64 bytes from 1.1.1.1: icmp_seq=18 ttl=128 time=48.9 ms
64 bytes from 1.1.1.1: icmp_seq=19 ttl=128 time=45.8 ms
64 bytes from 1.1.1.1: icmp_seq=20 ttl=128 time=50.5 ms
64 bytes from 1.1.1.1: icmp_seq=21 ttl=128 time=38.4 ms
64 bytes from 1.1.1.1: icmp_seq=22 ttl=128 time=39.0 ms
q64 bytes from 1.1.1.1: icmp_seq=23 ttl=128 time=36.3 ms
64 bytes from 1.1.1.1: icmp_seq=24 ttl=128 time=37.1 ms
64 bytes from 1.1.1.1: icmp_seq=25 ttl=128 time=38.1 ms
64 bytes from 1.1.1.1: icmp_seq=26 ttl=128 time=37.1 ms
^C
─── 1.1.1.1 ping statistics ───
26 packets transmitted, 26 received, 0% packet loss, time 25033ms
rtt min/avg/max/mdev = 35.499/38.376/50.461/4.034 ms

┌──(kali㊛kali)-[~/Desktop]
└─$ ▊
```

To direct input to this VM, click inside or press Ctrl+G.

ssh: Securely connect to a remote system

```
┌──(kali㉿kali)-[~/Desktop]
└─$ sudo service ssh start

┌──(kali㉿kali)-[~/Desktop]
└─$ █
```

```
Try: sudo apt install <deb name>
karna@karna-virtual-machine:~$ ssh@192.168.113.128
ssh@192.168.113.128: command not found
karna@karna-virtual-machine:~$ ssh kali@192.168.113.128
The authenticity of host '192.168.113.128 (192.168.113.128)' can't be established.
ED25519 key fingerprint is SHA256:wbBGuqwlwtD9xiaz+0paV+4XClsUd6yzDOXP/p5VrnA.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '192.168.113.128' (ED25519) to the list of known hosts.
kali@192.168.113.128's password:
Linux kali 6.1.0-kali5-amd64 #1 SMP PREEMPT_DYNAMIC Debian 6.1.12-1kali2 (2023-02-23) x86_64

The programs included with the Kali GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Kali GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
┌──(kali㉿kali)-[~]
└─$ ls
Desktop  Documents  Downloads  Music  Pictures  Public  Templates  Videos

┌──(kali㉿kali)-[~]
└─$ cd Desktop

┌──(kali㉿kali)-[~/Desktop]
└─$ ls
dark.zip  fil.tar.gz  hacker  hackerY  karthik

┌──(kali㉿kali)-[~/Desktop]
└─$
```

scp: Securely copy files between systems

```
karna@karna-virtual-machine:~$ scp paper.txt kali@192.168.113.128:/~
kali@192.168.113.128's password:
paper.txt: No such file or directory
karna@karna-virtual-machine:~$ scp paper kali@192.168.113.128:/~
kali@192.168.113.128's password:
scp: /~: Permission denied
karna@karna-virtual-machine:~$
```

wget: Download files from the web

System Administration:

sudo: Execute commands with superuser privileges

apt-get: Package management for Debian-based distributions

```
┌──(kali㊀kali)-[~/Desktop]
└─$ sudo apt-get update
Get:1 file:/run/live/medium kali-last-snapshot InRelease
Ign:1 file:/run/live/medium kali-last-snapshot InRelease
Get:2 file:/run/live/medium kali-last-snapshot Release [7,354 B]
Get:2 file:/run/live/medium kali-last-snapshot Release [7,354 B]
Get:3 file:/run/live/medium kali-last-snapshot Release.gpg
Ign:3 file:/run/live/medium kali-last-snapshot Release.gpg
Get:4 http://kali.download/kali kali-rolling InRelease [41.2 kB]
Get:5 http://kali.download/kali kali-rolling/non-free Sources [130 kB]
Get:6 http://kali.download/kali kali-rolling/main Sources [15.6 MB]
Get:7 http://kali.download/kali kali-rolling/main amd64 Packages [19.3 MB]
48% [6 Sources store 0 B] [7 Packages 13.6 MB/19.3 MB 71%]
```

yum: Package management for Red Hat-based distributions

systemctl: Manage system services

```
  ┌─(kali㊸kali)-[~/Desktop]
  └─$ systemctl status
● kali
    State: running
    Units: 271 loaded (incl. loaded aliases)
     Jobs: 0 queued
   Failed: 0 units
    Since: Mon 2023-05-22 05:59:33 UTC; 2h 26min ago
  systemd: 252.5-2
   CGroup: /
           ├─init.scope
           │ └─1 /sbin/init components splash noeject
           ├─system.slice
           │ ├─ModemManager.service
           │ │ └─1774 /usr/sbin/ModemManager
           │ ├─NetworkManager.service
           │ │ └─1762 /usr/sbin/NetworkManager --no-daemon
           │ ├─colord.service
           │ │ └─2210 /usr/libexec/colord
           │ ├─cron.service
           │ │ └─1753 /usr/sbin/cron -f
           │ ├─dbus.service
           │ │ └─1754 /usr/bin/dbus-daemon --system --address=systemd: --nofork --nopidfile --systemd-activation --syslog-only
           │ ├─haveged.service
           │ │ └─550 /usr/sbin/haveged --Foreground --verbose=1
           │ ├─lightdm.service
           │ │ ├─1785 /usr/sbin/lightdm
           │ │ └─1801 /usr/lib/xorg/Xorg :0 -seat seat0 -auth /var/run/lightdm/root/:0 -nolisten tcp vt7 -novtswitch
           │ ├─open-vm-tools.service
           │ │ └─557 /usr/bin/vmtoolsd
           │ ├─polkit.service
           │ │ └─1757 /usr/lib/polkit-1/polkitd --no-debug
           │ ├─rtkit-daemon.service
           │ │ └─1907 /usr/libexec/rtkit-daemon
           │ ├─run-vmblock\x2dfuse.mount
           │ │ └─511 vmware-vmblock-fuse /run/vmblock-fuse -o rw,subtype=vmware-vmblock,default_permissions,allow_other,dev,suid
           │ ├─ssh.service
           │ │ └─71455 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"
           │ ├─systemd-journald.service
           │ │ └─492 /lib/systemd/systemd-journald
           │ ├─systemd-logind.service
```

crontab: Schedule recurring tasks

```
  ┌──(kali⊗kali)-[~/smart]
  └─$ crontab -e
no crontab for kali - using an empty one

Select an editor.  To change later, run 'select-editor'.
  1. /bin/nano        ←── easiest
  2. /usr/bin/vim.basic
  3. /usr/bin/vim.tiny

Choose 1-3 [1]: 1
No modification made
```

kali@kali: ~/smart ×   **kali@kali: ~** ×

```
  GNU nano 7.2                                                                /tm
q# 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
```

useradd: Add a new user

```
┌──(kali㊀kali)-[~/Desktop]
└─$ useradd -D
GROUP=100
HOME=/home
INACTIVE=-1
EXPIRE=
SHELL=/bin/sh
SKEL=/etc/skel
CREATE_MAIL_SPOOL=no
LOG_INIT=yes
```

passwd: Change user password


```
┌──(kali㊀kali)-[~]
└─$ passwd
Changing password for kali.
Current password:
New password:
Retype new password:
passwd: password updated successfully
```