

Lab 2: Linux Commands - II

Execute the following Linux commands on Linux terminal and verify the output.

1. ifconfig

```
harsh@Ubuntu:~$ ifconfig
enp0s3: 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::1fbc:b8c8:401:5df9 prefixlen 64 scopeid 0x20<link>
    ether 08:00:27:79:13:85 txqueuelen 1000 (Ethernet)
    RX packets 298253 bytes 377118018 (377.1 MB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 70966 bytes 14051767 (14.0 MB)
    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 16267 bytes 1819152 (1.8 MB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 16267 bytes 1819152 (1.8 MB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

2. kill

```
harsh@Ubuntu:~$ kill -l
1) SIGHUP      2) SIGINT      3) SIGQUIT     4) SIGILL      5) SIGTRAP
6) SIGABRT     7) SIGBUS      8) SIGFPE      9) SIGKILL     10) SIGUSR1
11) SIGSEGV    12) SIGUSR2    13) SIGPIPE    14) SIGALRM     15) SIGTERM
16) SIGSTKFLT  17) SIGCHLD   18) SIGCONT    19) SIGSTOP    20) SIGTSTP
21) SIGTTIN    22) SIGTTOU   23) SIGURG     24) SIGXCPU    25) SIGXFSZ
26) SIGVTALRM  27) SIGPROF   28) SIGWINCH   29) SIGIO       30) SIGPWR
31) SIGSYS     34) SIGRTMIN  35) SIGRTMIN+1 36) SIGRTMIN+2 37) SIGRTMIN+3
38) SIGRTMIN+4 39) SIGRTMIN+5 40) SIGRTMIN+6 41) SIGRTMIN+7 42) SIGRTMIN+8
43) SIGRTMIN+9 44) SIGRTMIN+10 45) SIGRTMIN+11 46) SIGRTMIN+12 47) SIGRTMIN+13
48) SIGRTMIN+14 49) SIGRTMIN+15 50) SIGRTMAX-14 51) SIGRTMAX-13 52) SIGRTMAX-12
53) SIGRTMAX-11 54) SIGRTMAX-10 55) SIGRTMAX-9 56) SIGRTMAX-8 57) SIGRTMAX-7
58) SIGRTMAX-6 59) SIGRTMAX-5 60) SIGRTMAX-4 61) SIGRTMAX-3 62) SIGRTMAX-2
63) SIGRTMAX-1 64) SIGRTMAX
```

3. mount

```
harsh@Ubuntu:~$ mount
sysfs on /sys type sysfs (rw,nosuid,nodev,noexec,relatime)
proc on /proc type proc (rw,nosuid,nodev,noexec,relatime)
udev on /dev type devtmpfs (rw,nosuid,relatime,size=1973768k,nr_inodes=493442,mode=755,inode64)
devpts on /dev/pts type devpts (rw,nosuid,noexec,relatime,gid=5,mode=620,ptmxmode=000)
tmpfs on /run type tmpfs (rw,nosuid,nodev,noexec,relatime,size=401824k,mode=755,inode64)
/dev/sda3 on / type ext4 (rw,relatime,errors=remount-ro)
securityfs on /sys/kernel/security type securityfs (rw,nosuid,nodev,noexec,relatime)
tmpfs on /dev/shm type tmpfs (rw,nosuid,nodev,inode64)
tmpfs on /run/lock type tmpfs (rw,nosuid,nodev,noexec,relatime,size=5120k,inode64)

harsh@Ubuntu:~$ mount -V
mount from util-linux 2.37.2 (libmount 2.37.2: selinux, smack, btrfs, verity, namespaces. assert. debug)
```

4. sort

```
harsh@Ubuntu:~/Desktop/g11$ cat file1.txt
c cat
z zebra
l lion
d dog
b buffalo
p parrot
harsh@Ubuntu:~/Desktop/g11$ sort file1.txt
b buffalo
c cat
d dog
l lion
p parrot
z zebra
```

5. export

```
harsh@Ubuntu:~/Desktop/g11$ export -p
declare -x COLORTERM="truecolor"
declare -x DBUS_SESSION_BUS_ADDRESS="unix:path=/run/user/1000/bus"
declare -x DESKTOP_SESSION="ubuntu"
declare -x DISPLAY=":0"
declare -x GDMSESSION="ubuntu"
declare -x GNOME_DESKTOP_SESSION_ID="this-is-deprecated"
declare -x GNOME_SETUP_DISPLAY=":1"
declare -x GNOME_SHELL_SESSION_MODE="ubuntu"
declare -x GNOME_TERMINAL_SCREEN="/org/gnome/Terminal/screen/23110a04_1016_43aa_9943_4e7c129a61fd"
declare -x GNOME_TERMINAL_SERVICE=":1.99"
declare -x GTK_MODULES="gail:atk-bridge"
declare -x HOME="/home/harsh"
declare -x IM_CONFIG_PHASE="1"
declare -x LANG="en_IN"
declare -x LANGUAGE="en_IN:en"
declare -x LESSCLOSE="/usr/bin/lesspipe %s %s"
declare -x LESSOPEN="| /usr/bin/lesspipe %s"
declare -x LOGNAME="harsh"
```

6. ssh

```
harsh@Ubuntu:~/Desktop/g11$ ssh -l 192.168.1.1
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 ...]]
```

7. zip

```
harsh@Ubuntu:~/Desktop/g11$ ls
file1.txt  file2.txt
harsh@Ubuntu:~/Desktop/g11$ zip test.zip file1.txt file2.txt
  adding: file1.txt (stored 0%)
  adding: file2.txt (stored 0%)
harsh@Ubuntu:~/Desktop/g11$ ls
file1.txt  file2.txt  test.zip
```

8. unzip

```
harsh@Ubuntu:~/Desktop/g11$ unzip test.zip
Archive:  test.zip
replace file1.txt? [y]es, [n]o, [A]ll, [N]one, [r]ename: A
  extracting: file1.txt
  extracting: file2.txt
harsh@Ubuntu:~/Desktop/g11$ ls
file1.txt  file2.txt  test.zip
```

9. ps

```
harsh@Ubuntu:~/Desktop/g11$ ps
  PID TTY          TIME CMD
 3413 pts/0    00:00:00 bash
 3444 pts/0    00:00:00 ps
```

10. uname

```
harsh@Ubuntu:~/Desktop/g11$ uname
Linux
```

11. chown

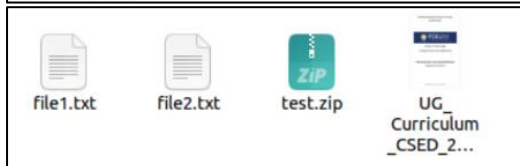
```
harsh@Ubuntu:~/Desktop/g11$ chown harsh file1.txt
harsh@Ubuntu:~/Desktop/g11$ ls -l file1.txt
-rw-rw-r-- 1 harsh harsh 46 Jan 16 20:53 file1.txt
```

12. wget

```
harsh@Ubuntu:~/Desktop/g11$ wget https://sot.pdpu.ac.in/downloads/UG_Curriculum_CSED_2020-24.pdf
--2023-01-16 22:36:38-- https://sot.pdpu.ac.in/downloads/UG_Curriculum_CSED_2020-24.pdf
Resolving sot.pdpu.ac.in (sot.pdpu.ac.in)... 203.77.200.33
Connecting to sot.pdpu.ac.in (sot.pdpu.ac.in)|203.77.200.33|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 3799836 (3.6M) [application/pdf]
Saving to: 'UG_Curriculum_CSED_2020-24.pdf'

UG_Curriculum_CSED_20 100%[=====>] 3.62M 1.19MB/s in 3.0s

2023-01-16 22:36:42 (1.19 MB/s) - 'UG_Curriculum_CSED_2020-24.pdf' saved [3799836/3799836]
```



13. ufw

```
root@Ubuntu:/home/harsh# sudo ufw status verbose
Status: inactive
root@Ubuntu:/home/harsh# sudo ufw enable
Firewall is active and enabled on system startup
root@Ubuntu:/home/harsh# sudo ufw disable
Firewall stopped and disabled on system startup
```

14. traceroute

```
root@Ubuntu:/home/harsh# traceroute www.pdpu.ac.in
traceroute to www.pdpu.ac.in (203.77.200.33), 30 hops max, 60 byte packets
 1 _gateway (10.0.2.2) 3.291 ms 3.222 ms 3.140 ms
 2 * * *
 3 * * *
 4 * * *
 5 * * *
 6 * * *
 7 * * *
 8 * * *
 9 * * *
10 * * *
11 * * *
12 * * *
13 * * *
14 * * *
15 * * *
16 * * *
17 * * *
18 * * *
19 * * *
20 * * *
21 * * *
22 * * *
23 *^C
```

15. service

```
harsh@Ubuntu:~/Desktop$ service --status-all
[ + ] acpid
[ - ] alsa-utils
[ - ] anacron
[ + ] apparmor
[ + ] apport
[ + ] avahi-daemon
[ - ] bluetooth
[ - ] console-setup.sh
[ + ] cron
[ + ] cups
[ + ] cups-browsed
[ + ] dbus
[ + ] gdm3
[ - ] grub-common
[ - ] hwclock.sh
[ + ] irqbalance
[ + ] kerneloops
[ - ] keyboard-setup.sh
[ + ] kmod
[ - ] open-vm-tools
[ + ] openvpn
[ - ] plymouth
[ + ] plymouth-log
[ + ] procs
[ - ] pulseaudio-enable-autospawn
[ - ] rsync
[ - ] saned
[ - ] speech-dispatcher
[ - ] spice-vdagent
[ + ] udev
[ + ] ufw
[ + ] unattended-upgrades
[ - ] uuidd
[ - ] whoopsie
[ - ] x11-common
```

16. alias

```
harsh@Ubuntu:~/Desktop$ alias c="clear"
harsh@Ubuntu:~/Desktop$ alias
alias alert='notify-send --urgency=low -i "${[ $? = 0 ]} && echo terminal || echo error)" "$(history|tail -n1|sed -e '\''s/^\s*[0-9]\+\s*//;s/[\;]&|]\s*alert$//'\`'
)'"'
alias c='clear'
alias egrep='egrep --color=auto'
alias fgrep='fgrep --color=auto'
alias grep='grep --color=auto'
alias l='ls -CF'
alias la='ls -A'
alias ll='ls -aF'
alias ls='ls --color=auto'
```

17. dd

```
harsh@Ubuntu:~/Desktop/g11$ touch abc.txt xyz.txt
harsh@Ubuntu:~/Desktop/g11$ ls
abc.txt file2.txt test.zip UG_Curriculum_CSED_2020-24.pdf xyz.txt
harsh@Ubuntu:~/Desktop/g11$ echo "This is abc.txt" >> abc.txt
harsh@Ubuntu:~/Desktop/g11$ echo "This is xyz.txt" >> xyz.txt
harsh@Ubuntu:~/Desktop/g11$ cat abc.txt xyz.txt
This is abc.txt
This is xyz.txt
harsh@Ubuntu:~/Desktop/g11$ dd if=abc.txt of=xyz.txt
0+1 records in
0+1 records out
16 bytes copied, 0.000778132 s, 20.6 kB/s
harsh@Ubuntu:~/Desktop/g11$ cat xyz.txt
This is abc.txt
```

18. whereis

```
harsh@Ubuntu:~/Desktop$ whereis bash
bash: /usr/bin/bash /usr/share/man/man1/bash.1.gz
```


19. whatis

```
harsh@Ubuntu:~/Desktop$ whatis cp rm touch
cp (1)             - copy files and directories
rm (1)             - remove files or directories
touch (1)          - change file timestamps
```

20. diff

```
harsh@Ubuntu:~/Desktop/g11$ diff file1.txt file2.txt
1,6d0
< c cat
< z zebra
< l lion
< d dog
< b buffalo
< p parrot
```

21. ln

```
harsh@Ubuntu:~/Desktop/g11$ ln -s file1.txt link.txt
harsh@Ubuntu:~/Desktop/g11$ ls -l link.txt
lrwxrwxrwx 1 harsh harsh 9 Jan 17 19:26 link.txt -> file1.txt
```

22. top

```
harsh@Ubuntu:~/Desktop/g11$ top

top - 19:27:39 up 24 min,  1 user,  load average: 0.00, 0.00, 0.03
Tasks: 185 total,   1 running, 184 sleeping,   0 stopped,   0 zombie
%Cpu(s):  0.7 us,  0.7 sy,  0.0 ni, 98.2 id,  0.2 wa,  0.0 hi,  0.2 si,  0.0 st
MiB Mem :  3924.0 total,  2477.1 free,   671.5 used,   775.5 buff/cache
MiB Swap:  2680.0 total,  2680.0 free,    0.0 used.  3007.5 avail Mem

  PID USER      PR  NI   VIRT   RES   SHR  S  %CPU  %MEM     TIME+ COMMAND
 1446 harsh     20   0 3954140 309284 125224 S   3.0   7.7   0:55.39 gnome-s+
  280 root      -51   0     0     0     0  S   0.3   0.0   0:01.09 irq/18-+
 1377 harsh     39  19  642080  28164  18776 S   0.3   0.7   0:01.26 tracker+
 1957 harsh     20   0  581280  61368  41844 S   0.3   1.5   0:11.63 gnome-t+
    1 root      20   0  166712  11860   8284 S   0.0   0.3   0:01.93 systemd
    2 root      20   0     0     0     0  S   0.0   0.0   0:00.02 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+
    5 root       0 -20     0     0     0  I   0.0   0.0   0:00.00 slub_fl+
    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+
    9 root      20   0     0     0     0  I   0.0   0.0   0:03.15 kworker+
   10 root       0 -20     0     0     0  I   0.0   0.0   0:00.00 mm_perc+
```

23. useradd

```
root@Ubuntu:/home/harsh/Desktop/g11# useradd harsh2
Password:
```

24. man

```
root@Ubuntu:/home/harsh/Desktop/g11# man -f sleep
sleep (1)             - delay for a specified amount of time
sleep (3)             - sleep for a specified number of seconds
```

25. cp

```

harsh@Ubuntu:~/Desktop/g11$ cat file2.txt
This is file2.txt
harsh@Ubuntu:~/Desktop/g11$ cp file1.txt file2.txt
harsh@Ubuntu:~/Desktop/g11$ cat file2.txt
c cat
z zebra
l lion
d dog
b buffalo
p parrot

```

26. ln

```

harsh@Ubuntu:~/Desktop/g11$ ln -s file1.txt link.txt
harsh@Ubuntu:~/Desktop/g11$ ls -l link.txt
lrwxrwxrwx 1 harsh harsh 9 Jan 17 19:26 link.txt -> file1.txt

```

27. netstat

```

harsh@Ubuntu:~/Desktop/g11$ netstat -nr
Kernel IP routing table

```

Destination	Gateway	Genmask	Flags	MSS Window	irtt	Iface
0.0.0.0	10.0.2.2	0.0.0.0	UG	0 0	0	enp0s3
10.0.2.0	0.0.0.0	255.255.255.0	U	0 0	0	enp0s3
169.254.0.0	0.0.0.0	255.255.0.0	U	0 0	0	enp0s3

28. nslookup

```

harsh@Ubuntu:~/Desktop/g11$ nslookup yahoo.com
Server:      127.0.0.53
Address:     127.0.0.53#53

Non-authoritative answer:
Name:   yahoo.com
Address: 98.137.11.163
Name:   yahoo.com
Address: 74.6.143.26
Name:   yahoo.com
Address: 74.6.143.25
Name:   yahoo.com
Address: 74.6.231.20
Name:   yahoo.com
Address: 74.6.231.21
Name:   yahoo.com
Address: 98.137.11.164
Name:   yahoo.com
Address: 2001:4998:44:3507::8001
Name:   yahoo.com
Address: 2001:4998:124:1507::f001
Name:   yahoo.com
Address: 2001:4998:24:120d::1:0
Name:   yahoo.com
Address: 2001:4998:44:3507::8000
Name:   yahoo.com
Address: 2001:4998:24:120d::1:1
Name:   yahoo.com

```

29. dig

```
harsh@Ubuntu:~$ dig google.com

; <<>> DiG 9.18.1-1ubuntu1.1-Ubuntu <<>> google.com
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 33320
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 65494
;; QUESTION SECTION:
;google.com.                IN      A

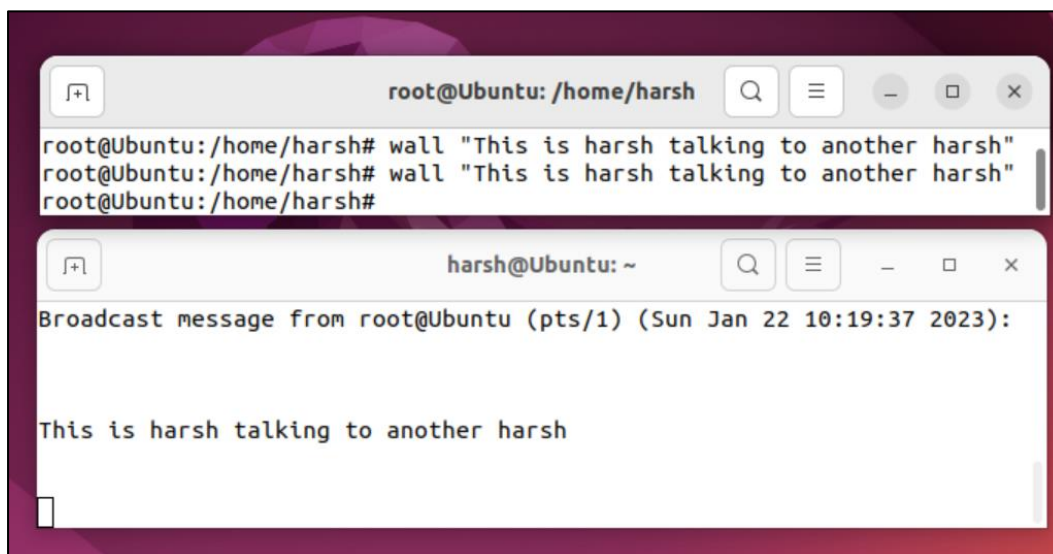
;; ANSWER SECTION:
google.com.                 0       IN      A      142.251.42.14

;; Query time: 12 msec
;; SERVER: 127.0.0.53#53(127.0.0.53) (UDP)
;; WHEN: Thu Jan 19 10:52:59 IST 2023
;; MSG SIZE rcvd: 55
```

30. uptime

```
harsh@Ubuntu:~$ uptime
10:54:49 up 12 min,  1 user,  load average: 2.10, 1.38, 0.80
```

31. wall



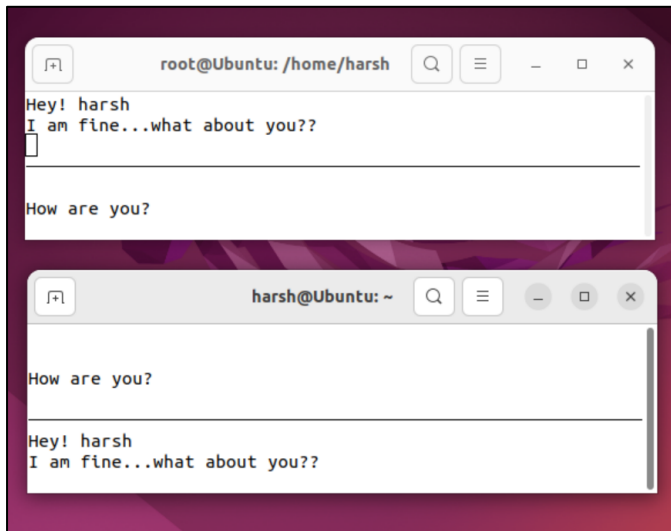
32. mesg

```
harsh@Ubuntu:~/Desktop/g11$ mesg
is y
harsh@Ubuntu:~/Desktop/g11$ mesg n
harsh@Ubuntu:~/Desktop/g11$ mesg
is n
```

33. write

```
root@Ubuntu:/home/harsh# write harsh
Hey Harsh! Break in 30 mins
Regards, HSroot@Ubuntu:/home/harsh# write harsh
Hey Harsh! Break in 30 mins
Regards, HS
root@Ubuntu:/home/harsh# w
 11:26:10 up 44 min,  3 users,  load average: 0.59, 0.63, 0.83
USER  TTY      FROM            LOGIN@   IDLE   JCPU   PCPU   WHAT
harsh  tty2      tty2            10:43    44:36  0.07s  0.07s  /usr/libexec/gn
harsh  pts/1     -               11:18    1.00s  0.18s  0.07s  sudo login hars
harsh  pts/1     -               11:19    1.00s  0.18s  0.06s  -bash
```

34. talk



35. w

```
root@Ubuntu:/home/harsh# w
 11:33:07 up 51 min,  3 users,  load average: 3.95, 1.91, 1.25
USER  TTY      FROM            LOGIN@   IDLE   JCPU   PCPU   WHAT
harsh  tty2      tty2            10:43    51:33  0.07s  0.07s  /usr/libexec/gn
harsh  pts/1     -               11:18    1.00s  0.41s  0.11s  sudo login hars
harsh  pts/1     -               11:19    1.00s  0.41s  0.06s  -bash
```

36. rename

```
harsh@Ubuntu:~/Desktop/g11$ cat file1.txt
c cat
z zebra
l lion
d dog
b buffalo
p parrot
harsh@Ubuntu:~/Desktop/g11$ cat file2.txt
This is file2.txt
harsh@Ubuntu:~/Desktop/g11$ mv file1.txt file2.txt
harsh@Ubuntu:~/Desktop/g11$ cat file1.txt
cat: file1.txt: No such file or directory
harsh@Ubuntu:~/Desktop/g11$ cat file2.txt
c cat
z zebra
l lion
d dog
b buffalo
p parrot
```

37. free

```
harsh@Ubuntu:~/Desktop/g11$ free
              total        used        free      shared  buff/cache   available
Mem:        4018208      1413360       683316        55136       1921532       2318144
Swap:      2744316           0       2744316
```