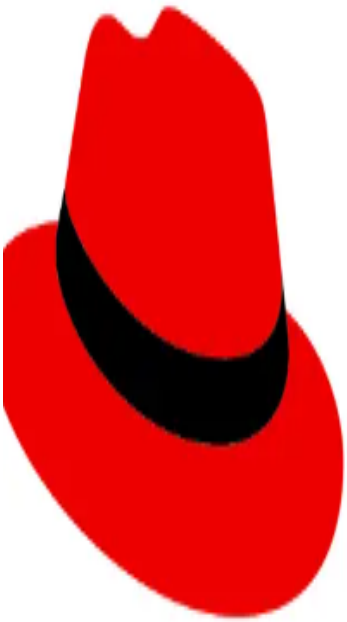


Red Hat Enterprise Linux 9

RHCSA – SA 1 LAB BOOK

Chapter 2 - Managing Files from the Command Line

Command is divided into 3 parts:

- **Command -:** program itself
- **Options -:** controlling behaviour of command
- **Argument -:** Target on which we perform operation

NOTE: All Commands are in small letters.

1. **echo command :**
   - ✓ It prints the argument as it is.
     $ echo hello world
     $ echo "hello world"
     $ echo 'hello world'
   - ✓ Single quote is used to remove special meaning of symbols.
   - ✓ Extract the values from variable
     X = 5
     # echo x
     # echo $x
   - ✓ We have number of pre-configured variables, known as environmental variable.
     # echo $SHELL
     # echo #BASHPID
     # echo $USER

```
[root@workstation ~]# echo $SHELL
/bin/bash
[root@workstation ~]# echo $BASHPID
2782
[root@workstation ~]# echo $USER
redhat
[root@workstation ~]#
```

2. **date command:** It is used to display the system date and time. By default, the date command displays the date in the time zone on which UNIX/LINUX OS is config.
   - ✓ date
   - ✓ date +%d-%m-%y
   - ✓ date +%H:%M:%M:%S

```
[root@workstation ~]# date
Friday 12 May 2023 04:05:34 PM IST
[root@workstation ~]#
[root@workstation ~]# date +%d-%m-%y
12-05-23
[root@workstation ~]# date +%H:%M:%M:%S
16:06:06:33
```

3. **cal command:** The cal command is a command-line utility for displaying a calendar in the internal.
   It can be used to print a single month, many months, or an entire year.
   To show a cal in the terminal run cal.

   E.g., cal: Display current calendar.
   cal 2023: Display the entire calendar of the year 2018

   cal 5 2023: Display the calendar for the 5th month of that year i.e. (Month, Year).

```
[root@workstation ~]# cal
      May 2023
Su Mo Tu We Th Fr Sa
    1  2  3  4  5  6
 7  8  9 10 11 12 13
14 15 16 17 18 19 20
21 22 23 24 25 26 27
28 29 30 31
```

```
[root@workstation ~]# cal 2023
                                2023

      January               February                 March
Su Mo Tu We Th Fr Sa  Su Mo Tu We Th Fr Sa  Su Mo Tu We Th Fr Sa
 1  2  3  4  5  6  7                  1  2  3  4                  1  2  3  4
 8  9 10 11 12 13 14   5  6  7  8  9 10 11   5  6  7  8  9 10 11
15 16 17 18 19 20 21  12 13 14 15 16 17 18  12 13 14 15 16 17 18
22 23 24 25 26 27 28  19 20 21 22 23 24 25  19 20 21 22 23 24 25
29 30 31              26 27 28              26 27 28 29 30 31

      April                 May                  June
Su Mo Tu We Th Fr Sa  Su Mo Tu We Th Fr Sa  Su Mo Tu We Th Fr Sa
                   1         1  2  3  4  5  6                  1  2  3
 2  3  4  5  6  7  8   7  8  9 10 11 12 13   4  5  6  7  8  9 10
 9 10 11 12 13 14 15  14 15 16 17 18 19 20  11 12 13 14 15 16 17
16 17 18 19 20 21 22  21 22 23 24 25 26 27  18 19 20 21 22 23 24
23 24 25 26 27 28 29  28 29 30 31           25 26 27 28 29 30
30

      July                  August               September
Su Mo Tu We Th Fr Sa  Su Mo Tu We Th Fr Sa  Su Mo Tu We Th Fr Sa
                   1         1  2  3  4  5                  1  2
 2  3  4  5  6  7  8   6  7  8  9 10 11 12   3  4  5  6  7  8  9
 9 10 11 12 13 14 15  13 14 15 16 17 18 19  10 11 12 13 14 15 16
16 17 18 19 20 21 22  20 21 22 23 24 25 26  17 18 19 20 21 22 23
23 24 25 26 27 28 29  27 28 29 30 31        24 25 26 27 28 29 30
30 31

      October               November             December
Su Mo Tu We Th Fr Sa  Su Mo Tu We Th Fr Sa  Su Mo Tu We Th Fr Sa
 1  2  3  4  5  6  7                  1  2  3  4                  1  2
 8  9 10 11 12 13 14   5  6  7  8  9 10 11   3  4  5  6  7  8  9
15 16 17 18 19 20 21  12 13 14 15 16 17 18  10 11 12 13 14 15 16
22 23 24 25 26 27 28  19 20 21 22 23 24 25  17 18 19 20 21 22 23
29 30 31              26 27 28 29 30        24 25 26 27 28 29 30
                                            31
```

```
[root@workstation ~]# cal 5 2023
      May 2023
Su Mo Tu We Th Fr Sa
     1  2  3  4  5  6
 7  8  9 10 11 12 13
14 15 16 17 18 19 20
21 22 23 24 25 26 27
28 29 30 31
```

4. **pwd command:** Present working directory.
   The pwd Linux command prints the current working directory path, starting from the root (/).

```
[root@workstation ~]# pwd
/root
```

5. lscpu Command:

- Command to retrieve hardware-related information such as CPU, HDD, and RAM.
- Display information about your CPU.
- Gather CPU Ar. Information from sysfs (System File System)
- /proc/cpuinfo
- **Information includes:**
  - No CPUs.
  - Threads
  - Sockets non-uniform memory access (NUMA) nodes.
  - In virtualized environment, the CPU Ar. The information displayed reflect the config of the guest O.S. which is typically different from the physical (host) system.
  - **Output:** May differ between the virtual system and physical system.

```
[root@workstation ~]# lscpu
Architecture:            x86_64
  CPU op-mode(s):        32-bit, 64-bit
  Address sizes:         45 bits physical, 48 bits virtual
  Byte Order:            Little Endian
CPU(s):                  4
  On-line CPU(s) list:   0-3
Vendor ID:               GenuineIntel
  BIOS Vendor ID:        GenuineIntel
  Model name:            Intel(R) Core(TM) i5-10210U CPU @ 1.60GHz
    BIOS Model name:     Intel(R) Core(TM) i5-10210U CPU @ 1.60GHz
    CPU family:          6
    Model:               142
    Thread(s) per core:  1
    Core(s) per socket:  2
    Socket(s):           2
    Stepping:            12
```

6. lsblk command:

- List block information about all available or specified block devices.
- Reads the sysfs file system together with information.
- The command prints all blocks device (except RAM disks) in a tree-like format by default.

```
[root@servera ~]# lsblk
NAME   MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
vda    252:0    0   10G  0 disk
├─vda1 252:1    0    1M  0 part
├─vda2 252:2    0  100M  0 part /boot/efi
└─vda3 252:3    0  9.9G  0 part /
vdb    252:16   0    5G  0 disk
vdc    252:32   0    5G  0 disk
vdd    252:48   0    5G  0 disk
[root@servera ~]#
```

7. ifconfig command:

- Configure or view the configuration of the network interface
- "ifconfig etho up ": Will activate the eth0 interface.
- "ifdown eth0": Command deactivates the eth0.
- **E.g**.

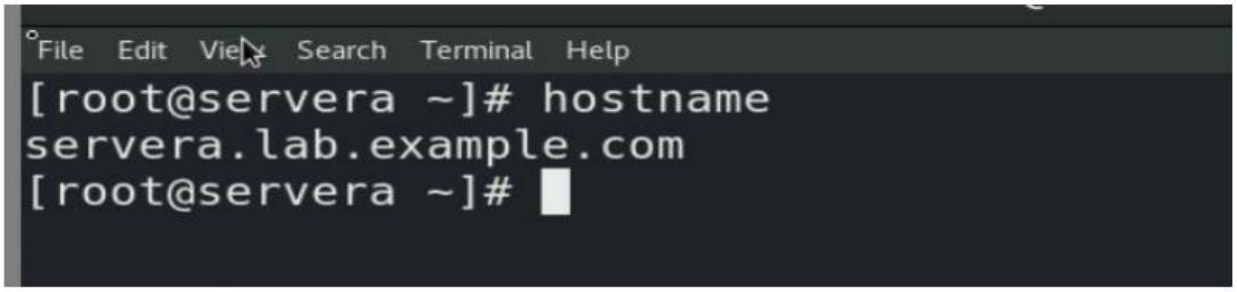
  eth0: Ethernet – Physical interface of my

  inet = ipv4address system of system.
  lo: Loop Back / Local host add 127.0.0.1
  ifconfig eth0 172.16.25.125
- Interface name to set the IP address to interface eth0

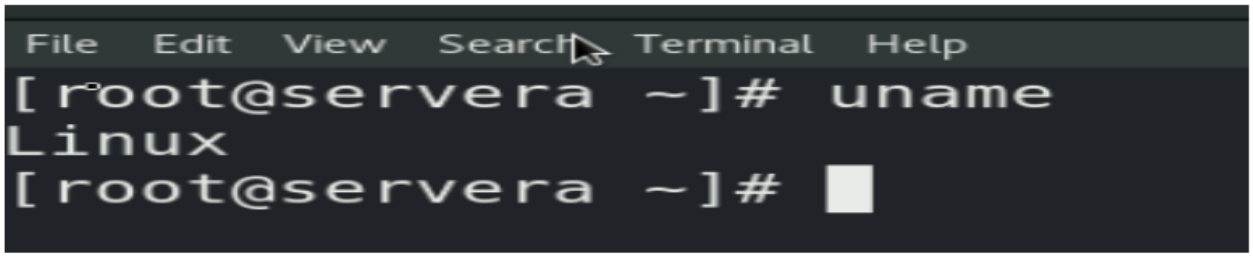
```
[root@servera ~]# ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 8942
        inet 172.25.250.10  netmask 255.255.255.0  broadcast 172.25.250.
255
        inet6 fe80::5b0b:316b:561e:86ab  prefixlen 64  scopeid 0x20<link
>
        inet6 fe80::7664:264b:8b32:d700  prefixlen 64  scopeid 0x20<link
>
        ether 52:54:00:00:fa:0a  txqueuelen 1000  (Ethernet)
        RX packets 727  bytes 66585 (65.0 KiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 405  bytes 35655 (34.8 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 39  bytes 3448 (3.3 KiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 39  bytes 3448 (3.3 KiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

8. **hostname command:**
   - The hostname is used to display the system's DNS name, and to display or set its hostname or NIS domain name.
   - **E.g.,** The hostname with IP or vice versa.
     Hostnamectl set-hostname servera.lab.example.com
   - Entry should do with the DNS.
   - The hostname will print the name of a machine the hostname.



9. **uname command:**
   - Print the information about the current system.
   - uname command prints kernel name, version, hostname, etc.
     E.g., $uname: Linux Kernel Name.
   - $uname -s: Linux Kernel Name
   - $uname -a: It will print all information of user.
     i.e.
     Linux: Kernel name.
     Shell.example.com: hostname.
     3:10:0-229.e17.x86: Release.
     Jan 29: Version.
     X86_64: Ar.
     GNU/Linux: Operating System name.



10. **ping command:**
    - It is that whether your system is reachable or not by sending the packets to that system and receiving the packets.
    - Ping stands for Packet Internet Groper.

- Ping uses ICMP (Internet Control Message Protocol) to communicate with other devices.
  E.g., ping 192.168.43.205
- If you want to ping till 5 count command as below:
  E.g., ping 05 192.168.43.205

```
[root@servera ~]# ping -c 5 172.25.250.10
PING 172.25.250.10 (172.25.250.10) 56(84) bytes of data.
64 bytes from 172.25.250.10: icmp_seq=1 ttl=64 time=0.087 ms
64 bytes from 172.25.250.10: icmp_seq=2 ttl=64 time=0.090 ms
64 bytes from 172.25.250.10: icmp_seq=3 ttl=64 time=0.096 ms
64 bytes from 172.25.250.10: icmp_seq=4 ttl=64 time=0.103 ms
64 bytes from 172.25.250.10: icmp_seq=5 ttl=64 time=0.088 ms

--- 172.25.250.10 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 126ms
rtt min/avg/max/mdev = 0.087/0.092/0.103/0.013 ms
[root@servera ~]#
```

11. env command:

- env is a shell command for Linux, UNIX, and Unix-like O.S.
- **E.g.**, **$env:** It will show me all environment variables that are defined in my current system.

```
[root@servera ~]# env
LS_COLORS=rs=0:di=38;5;33:ln=38;5;51:mh=00:pi=40;38;5;11:so=38;5;13:do=3
8;5;5:bd=48;5;232;38;5;11:cd=48;5;232;38;5;3:or=48;5;232;38;5;9:mi=01;05
;37;41:su=48;5;196;38;5;15:sg=48;5;11;38;5;16:ca=48;5;196;38;5;226:tw=48
;5;10;38;5;16:ow=48;5;10;38;5;21:st=48;5;21;38;5;15:ex=38;5;40:*.tar=38;
5;9:*.tgz=38;5;9:*.arc=38;5;9:*.arj=38;5;9:*.taz=38;5;9:*.lha=38;5;9:*.l
z4=38;5;9:*.lzh=38;5;9:*.lzma=38;5;9:*.tlz=38;5;9:*.txz=38;5;9:*.tzo=38;
5;9:*.t7z=38;5;9:*.zip=38;5;9:*.z=38;5;9:*.dz=38;5;9:*.gz=38;5;9:*.lrz=3
8;5;9:*.lz=38;5;9:*.lzo=38;5;9:*.xz=38;5;9:*.zst=38;5;9:*.tzst=38;5;9:*.
bz2=38;5;9:*.bz=38;5;9:*.tbz=38;5;9:*.tbz2=38;5;9:*.tz=38;5;9:*.deb=38;5
;9:*.rpm=38;5;9:*.jar=38;5;9:*.war=38;5;9:*.ear=38;5;9:*.sar=38;5;9:*.ra
r=38;5;9:*.alz=38;5;9:*.ace=38;5;9:*.zoo=38;5;9:*.cpio=38;5;9:*.7z=38;5;
9:*.rz=38;5;9:*.cab=38;5;9:*.wim=38;5;9:*.swm=38;5;9:*.dwm=38;5;9:*.esd=
38;5;9:*.jpg=38;5;13:*.jpeg=38;5;13:*.mjpg=38;5;13:*.mjpeg=38;5;13:*.gif
=38;5;13:*.bmp=38;5;13:*.pbm=38;5;13:*.pgm=38;5;13:*.ppm=38;5;13:*.tga=3
8;5;13:*.xbm=38;5;13:*.xpm=38;5;13:*.tif=38;5;13:*.tiff=38;5;13:*.png=38
;5;13:*.svg=38;5;13:*.svgz=38;5;13:*.mng=38;5;13:*.pcx=38;5;13:*.mov=38;
5;13:*.mpg=38;5;13:*.mpeg=38;5;13:*.m2v=38;5;13:*.mkv=38;5;13:*.webm=38;
5;13:*.ogm=38;5;13:*.mp4=38;5;13:*.m4v=38;5;13:*.mp4v=38;5;13:*.vob=38;5
```

```
;13:*.qt=38;5;13:*.nuv=38;5;13:*.wmv=38;5;13:*.asf=38;5;13:*.rm=38;5;13:
*.rmvb=38;5;13:*.flc=38;5;13:*.avi=38;5;13:*.fli=38;5;13:*.flv=38;5;13:*
.gl=38;5;13:*.dl=38;5;13:*.xcf=38;5;13:*.xwd=38;5;13:*.yuv=38;5;13:*.cgm
=38;5;13:*.emf=38;5;13:*.ogv=38;5;13:*.ogx=38;5;13:*.aac=38;5;45:*.au=38
;5;45:*.flac=38;5;45:*.m4a=38;5;45:*.mid=38;5;45:*.midi=38;5;45:*.mka=38
;5;45:*.mp3=38;5;45:*.mpc=38;5;45:*.ogg=38;5;45:*.ra=38;5;45:*.wav=38;5;
45:*.oga=38;5;45:*.opus=38;5;45:*.spx=38;5;45:*.xspf=38;5;45:
SSH_CONNECTION=172.25.250.9 37898 172.25.250.10 22
LANG=en_US.UTF-8
HISTCONTROL=ignoredups
HOSTNAME=servera.lab.example.com
XDG_SESSION_ID=1
USER=root
SELINUX_ROLE_REQUESTED=
PWD=/root
HOME=/root
SSH_CLIENT=172.25.250.9 37898 22
SELINUX_LEVEL_REQUESTED=
SSH_TTY=/dev/pts/0
MAIL=/var/spool/mail/root
TERM=xterm-256color
SHELL=/bin/bash
XMODIFIERS=@im=ibus
SELINUX_USE_CURRENT_RANGE=
```

```
SHLVL=1
LOGNAME=root
DBUS_SESSION_BUS_ADDRESS=unix:path=/run/user/0/bus
XDG_RUNTIME_DIR=/run/user/0
PATH=/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/root/bin
HISTSIZE=1000
LESSOPEN=||/usr/bin/lesspipe.sh %s
_=/usr/bin/env
[root@servera ~]#
```

12. users command:

- Nothing but it will print you the list of users who are currently logged in.

```
File  Edit  View  Search  Terminal  Help
[root@servera ~]# users
root
[root@servera ~]#
```

13. who command:

- who commands print information about all users who are currently logged in.?
- who command displays the following information for each user currently logged into the system if no option is provided:
  Login name of the users.
  Terminal line numbers.
  Login time of the users into the system.
  The remote hostname of the user
  E.g., who

Whereas,

Seema: username
Pts/2: Terminal No 2, 3
2018-12-04: Logged in date
14:12: Time
172.25.254.15: From which host system

```
[root@servera ~]# who
root     pts/0        2022-04-20 06:21 (172.25.250.9)
[root@servera ~]#
```

14. w command:

- The "w" command displays a list of all logged in to the server and display what they are doing.
- The "w" command shows the following information about each and their process on the system:
  USER: User Name.
  TTY: Terminal type such as pts/0 or console
  FROM: The remote hostname or IP Address or Server name
  LOGIN @: Login time.
  IDLE: Idle time.
  JCPU: The JCPU time is the time used by all processes attached to the tty.
  PCPU: The PCPU time is the time used by the current process displayed in WHAT field.
  WHAT: The command line of USER's current process.

Note:

PCPU: Actually, it shows you how many seconds it takes to execute the command "w" or "W".

JCPU: Actually, it shows you what time it took to execute all the process regarding to the current terminal.

15. head and tail command:

1) head command: Display the beginning 10 lines which are written in file.

By default, these commands display 10 lines only.

E.g., head /etc/passwd

If you want to display only first 3 lines then use the below command:

E.g., head -n 3 /etc/passw

```
[root@workstation ~]# head /etc/passwd
root:x:0:0:root:/root:/bin/bash
bin:x:1:1:bin:/bin:/sbin/nologin
daemon:x:2:2:daemon:/sbin:/sbin/nologin
adm:x:3:4:adm:/var/adm:/sbin/nologin
lp:x:4:7:lp:/var/spool/lpd:/sbin/nologin
sync:x:5:0:sync:/sbin:/bin/sync
shutdown:x:6:0:shutdown:/sbin:/sbin/shutdown
halt:x:7:0:halt:/sbin:/sbin/halt
mail:x:8:12:mail:/var/spool/mail:/sbin/nologin
operator:x:11:0:operator:/root:/sbin/nologin
[root@workstation ~]#
```

```
[root@workstation ~]# head -n 3 /etc/passwd
root:x:0:0:root:/root:/bin/bash
bin:x:1:1:bin:/bin:/sbin/nologin
daemon:x:2:2:daemon:/sbin:/sbin/nologin
```

2) tail command: Display the last 10 lines which are written in file. By default, these commands display 10 lines only

E.g., tail /etc/passwd

```
[root@workstation ~]# tail /etc/passwd
radvd:x:75:75:radvd user:/:/sbin/nologin
colord:x:980:980:User for colord:/var/lib/colord:/sbin/nologin
pipewire:x:979:979:PipeWire System Daemon:/var/run/pipewire:/sbin/nologi
n
flatpak:x:978:978:User for flatpak system helper:/:/sbin/nologin
saslauth:x:977:76:Saslauthd user:/run/saslauthd:/sbin/nologin
libstoragemgmt:x:976:976:daemon account for libstoragemgmt:/var/run/lsm:
/sbin/nologin
clevis:x:975:975:Clevis Decryption Framework unprivileged user:/var/cach
e/clevis:/sbin/nologin
gdm:x:42:42::/var/lib/gdm:/sbin/nologin
gnome-initial-setup:x:974:974::/run/gnome-initial-setup/:/sbin/nologin
avahi:x:70:70:Avahi mDNS/DNS-SD Stack:/var/run/avahi-daemon:/sbin/nologi
n
```

If you want to display only last 3 lines then use the below command:

E.g., tail -n 3 /etc/passwd

```
[root@workstation ~]# tail -n 3 /etc/passwd
gdm:x:42:42::/var/lib/gdm:/sbin/nologin
gnome-initial-setup:x:974:974::/run/gnome-initial-setup/:/sbin/nologin
avahi:x:70:70:Avahi mDNS/DNS-SD Stack:/var/run/avahi-daemon:/sbin/nologi
```

16. history command:

The history command displays a list of previously executed commands prefixed with a command number

```
[root@workstation ~]# history
    1  vim /etc/rht
    2  vim /etc/rht
    3  exit
    4  man whoami
    5  clear
    6  date
    7  date +%d
    8  date +%m
    9  clear
   10  cal
   11  cal 2018
   12  clear
   13  cal
   14  clear
   15  cal 5 2018
   16  clear
   17  cal 4 2022
   18  clear
   19  cal 2022
   20  clar
```

17. ls command:

List the content of the present working directory

```
[root@workstation ~]# ls
anaconda-ks.cfg  Documents  Music           Pictures  Templates
Desktop          Downloads  original-ks.cfg  Public    Videos
[root@workstation ~]#
```

18. ls -l command:

To show long listing information about the file/directory

```
[root@workstation ~]# ls -l
total 16
-rw-------. 1 root root 6503 Apr 23  2020 anaconda-ks.cfg
drwxr-xr-x. 2 root root    6 May  5 04:34 Desktop
drwxr-xr-x. 2 root root    6 May  5 04:34 Documents
drwxr-xr-x. 2 root root    6 May  5 04:34 Downloads
-rw-r--r--. 1 root root    0 May  5 07:07 f1.txt
drwxr-xr-x. 2 root root    6 May  5 04:34 Music
-rw-------. 1 root root 6251 Apr 23  2020 original-ks.cfg
drwxr-xr-x. 2 root root    6 May  5 04:34 Pictures
drwxr-xr-x. 2 root root    6 May  5 04:34 Public
drwxr-xr-x. 2 root root    6 May  5 04:34 Templates
drwxr-xr-x. 2 root root    6 May  5 04:34 Videos
```

Whereas,

```
-rw-------. 1 root root 6503 Apr 23  2020 anaconda-ks.cfg
```

Following are the possible file type options in the 1st character of the ls -l output.

Fields Explanation:

-normal file

d: Directory

s: socket file

l: link file

Field 1 – File Permissions: Next 9 character specifies the file permissions. Every 3 characters specifies read, write and execute permissions for user (root), group and others respectively in order.

Taking above example:

- `rw-` Indicates read-write permission for user (root),
- `r--` Read permission for group, and
- `r--.` Read permission for others respectively.

Field 2 – Number of links: Second field specifies the number of links for that file. In this example, `1` indicates only one link to this file.

Field 3 – Owner: Third field specifies owner of the file. In this example, this

file is owned by username ‘root’.

Field 4 – Group: Fourth field specifies the group of the file. In this example, this file belongs to ‘root’ group.

Field 5 – Size: Fifth field specifies the size of the file in bytes. In this example, ‘6503’ indicates the file size in bytes.

Field 6 – Last modified date and time: Sixth field specifies the date and time of the last modifications of the file. In this example, ‘Apr 23 2022’ specifies the last modification of the file.

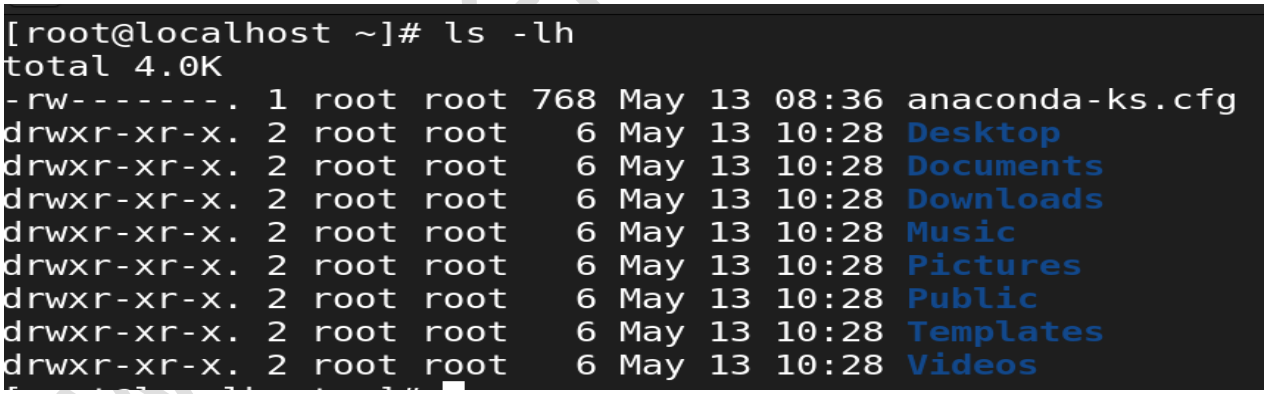
Field 7 – File name: The last field is the name of the file. In this example, the file name is ‘anaconda-ks.cfg’

19. ls -lh command:

To display file size in easy-to-read format OR display the file size in Human Readable Format.

Whereas,

h: stands for human readable form



20. ls -1 command:

Display one file per line.

```
[root@workstation ~]# ls -1
anaconda-ks.cfg
Desktop
Documents
Downloads
f1.txt
Music
original-ks.cfg
Pictures
Public
Templates
Videos
```

21. ls -al command:

Formatted listing with hidden files

```
[root@workstation ~]# ls -al
total 64
dr-xr-x---. 15 root root 4096 Apr 20 05:41 .
dr-xr-xr-x. 17 root root  224 Apr 23  2020 ..
-rw-------.  1 root root 6503 Apr 23  2020 anaconda-ks.cfg
-rw-------.  1 root root   32 Sep 21  2020 .bash_history
-rw-r--r--.  1 root root   18 Aug 12  2018 .bash_logout
-rw-r--r--.  1 root root  176 Aug 12  2018 .bash_profile
-rw-r--r--.  1 root root  176 Aug 12  2018 .bashrc
drwx------. 10 root root  230 Apr 20 05:41 .cache
drwxr-xr-x. 11 root root 4096 Apr 20 05:41 .config
-rw-r--r--.  1 root root  100 Aug 12  2018 .cshrc
drwxr-xr-x.  2 root root    6 Apr 20 05:41 Desktop
drwxr-xr-x.  2 root root    6 Apr 20 05:41 Documents
drwxr-xr-x.  2 root root    6 Apr 20 05:41 Downloads
-rw-------.  1 root root   16 Apr 20 05:41 .esd_auth
-rw-------.  1 root root  310 Apr 20 05:41 .ICEauthority
drwxr-xr-x.  3 root root   19 May  7  2020 .local
drwxr-xr-x.  2 root root    6 Apr 20 05:41 Music
-rw-------.  1 root root 6251 Apr 23  2020 original-ks.cfg
drwxr-xr-x.  2 root root    6 Apr 20 05:41 Pictures
drwxr-----.  3 root root   19 Apr 20 05:41 .pki
drwxr-xr-x.  2 root root    6 Apr 20 05:41 Public
```

22. ls -lt command:

To sort the file names displayed in the order of last modification time.

```
[root@workstation ~]# ls -lt
total 16
drwxr-xr-x. 2 root root    6 Apr 20 05:41 Music
drwxr-xr-x. 2 root root    6 Apr 20 05:41 Pictures
drwxr-xr-x. 2 root root    6 Apr 20 05:41 Videos
drwxr-xr-x. 2 root root    6 Apr 20 05:41 Desktop
drwxr-xr-x. 2 root root    6 Apr 20 05:41 Documents
drwxr-xr-x. 2 root root    6 Apr 20 05:41 Downloads
drwxr-xr-x. 2 root root    6 Apr 20 05:41 Public
drwxr-xr-x. 2 root root    6 Apr 20 05:41 Templates
-rw-------. 1 root root 6503 Apr 23  2020 anaconda-ks.cfg
-rw-------. 1 root root 6251 Apr 23  2020 original-ks.cfg
[root@workstation ~]#
```

23. ls -ltr command:

To sort the file names in the last modification time in reverse order. This will be showing the last edited file in the last line whichwill be handy when the listing goes beyond a page.

```
[root@workstation /]# ls -ltr
total 28
drwxr-xr-x.   2 root root    6 Aug 12  2018 srv
lrwxrwxrwx.   1 root root    8 Aug 12  2018 sbin -> usr/sbin
drwxr-xr-x.   2 root root    6 Aug 12  2018 opt
drwxr-xr-x.   2 root root    6 Aug 12  2018 mnt
drwxr-xr-x.   2 root root    6 Aug 12  2018 media
lrwxrwxrwx.   1 root root    9 Aug 12  2018 lib64 -> usr/lib64
lrwxrwxrwx.   1 root root    7 Aug 12  2018 lib -> usr/lib
lrwxrwxrwx.   1 root root    7 Aug 12  2018 bin -> usr/bin
drwxr-xr-x.  12 root root  144 Apr 23  2020 usr
drwxr-xr-x.  21 root root 4096 May  7  2020 var
dr-xr-xr-x.   5 root root 4096 May  7  2020 boot
```

24. ls -a command:

To show all the hidden files in the directory, use '-a option'.Hidden files in UNIX starts with '.' in its file name. It will show all the files including the '.' (Current directory) and, (Parent directory).

```
[root@workstation ~]# ls -a
.                .bashrc    Downloads      Music            .tcshrc
..               .cache     .esd_auth      original-ks.cfg  Templates
anaconda-ks.cfg  .config    f1.txt         Pictures         Videos
.bash_history    .cshrc     file1.txt      .pki             .viminfo
.bash_logout     Desktop    .ICEauthority  Public
.bash_profile    Documents  .local         .ssh
```

25. ls -A command:

To show the hidden files, but not the '.' (Current directory)and '..' (Parent directory).

```
File  Edit  View  Search  Terminal  Help
[root@workstation ~]# ls -A
anaconda-ks.cfg  .config    f1.txt         Pictures   Videos
.bash_history    .cshrc     file1.txt      .pki       .viminfo
.bash_logout     Desktop    .ICEauthority  Public
.bash_profile    Documents  .local         .ssh
.bashrc          Downloads  Music          .tcshrc
.cache           .esd_auth  original-ks.cfg  Templates
```

26. ls -i command: Sometimes you may want to know the inode number of a file for internal maintenance. Using inode number you can remove files thathas special characters in its name.

```
[root@servera etc]# ls -i
17340020 adjtime                    9191561 modprobe.d
16807379 aliases                    9192453 modules-load.d
   40425 alternatives              17442273 motd.d
17387865 anacrontab                17340643 mtab
17115694 at.deny                   17115654 nanorc
 9254684 audit                     17278316 netconfig
 9309378 authselect                 9254456 NetworkManager
    1133 bash_completion.d         16807393 networks
16807380 bashrc                    17562327 nfs.conf
17278315 bindresvport.blacklist    17562494 nfsmount.conf
 9192296 binfmt.d                      4676 nftables
```

27. ls –Rl = list the files recursively with details

```
[root@localhost mnt]# ls -Rl
.:
total 100
drwxr-xr-x. 27 root root 4096 May 13 14:37 parentdir1
drwxr-xr-x. 27 root root 4096 May 13 14:37 parentdir10
drwxr-xr-x. 27 root root 4096 May 13 14:37 parentdir11
drwxr-xr-x. 27 root root 4096 May 13 14:37 parentdir12
drwxr-xr-x. 27 root root 4096 May 13 14:37 parentdir13
drwxr-xr-x. 27 root root 4096 May 13 14:37 parentdir14
drwxr-xr-x. 27 root root 4096 May 13 14:37 parentdir15
drwxr-xr-x. 27 root root 4096 May 13 14:37 parentdir16
drwxr-xr-x. 27 root root 4096 May 13 14:37 parentdir17
drwxr-xr-x. 27 root root 4096 May 13 14:37 parentdir18
drwxr-xr-x. 27 root root 4096 May 13 14:37 parentdir19
drwxr-xr-x. 27 root root 4096 May 13 14:37 parentdir2
drwxr-xr-x. 27 root root 4096 May 13 14:37 parentdir20
```

28. mkdir command:

To create a directory

```
[root@workstation ~]# mkdir dir1
[root@workstation ~]# ls
anaconda-ks.cfg  Documents  original-ks.cfg  Templates
Desktop          Downloads  Pictures         Videos
dir1             Music      Public
[root@workstation ~]#
```

29. mkdir {dir1,dir2,dir3,dir4} command

OR

mkdir directoryName{1..100}

Creates multiple directories in the current location.

Do not use spaces inside {}

Whereas,

-p: parent directory.

```
[root@localhost /]# mkdir {dir1,dir2,dir3,dir4}
[root@localhost /]# ls
afs  boot  dir1  dir3  etc   lib    media  opt   root  sbin  sys  usr
bin  dev   dir2  dir4  home  lib64  mnt    proc  run   srv   tmp  var
```

30. mkdir -p dir1/dir2 && touch dir1/dir2/file1.txt && touch dir1/dir2/file2.txt

To created Parent Dir under it create a Child Dir and inside Child dir create multiple files

```
[root@localhost mnt]# mkdir -p dir1/dir2 && touch dir1/dir2/file1.txt && touch dir1/dir2/file2.txt
[root@localhost mnt]# ls
dir1
[root@localhost mnt]# cd dir1
[root@localhost dir1]# ls
dir2
[root@localhost dir1]# cd dir2
[root@localhost dir2]# ls
file1.txt  file2.txt
[root@localhost dir2]#
```

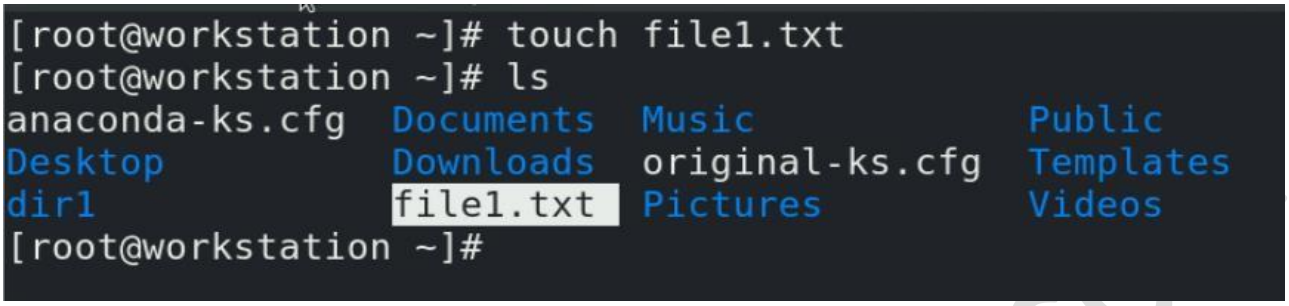
31. mkdir -p parentdirectory{1..25}/subdirectory{1..10} command:

Create multiple Parent Directories within a subdirectory

```
[root@localhost mnt]# mkdir -p parentdir{1..25}/childdir{1..25}
[root@localhost mnt]# ls
parentdir1   parentdir12  parentdir15  parentdir18  parentdir20  parentdir23  parentdir3  parentdir6  parentdir9
parentdir10  parentdir13  parentdir16  parentdir19  parentdir21  parentdir24  parentdir4  parentdir7
parentdir11  parentdir14  parentdir17  parentdir2   parentdir22  parentdir25  parentdir5  parentdir8
[root@localhost mnt]# cd parentdir1
[root@localhost parentdir1]# ls
childdir1   childdir12  childdir15  childdir18  childdir20  childdir23  childdir3  childdir6  childdir9
childdir10  childdir13  childdir16  childdir19  childdir21  childdir24  childdir4  childdir7
childdir11  childdir14  childdir17  childdir2   childdir22  childdir25  childdir5  childdir8
[root@localhost parentdir1]#
```

32. touch command:

To create a file



Touch command has two uses:

a) It creates new empty file.
b) It updates the timestamp on any file.

Editors:

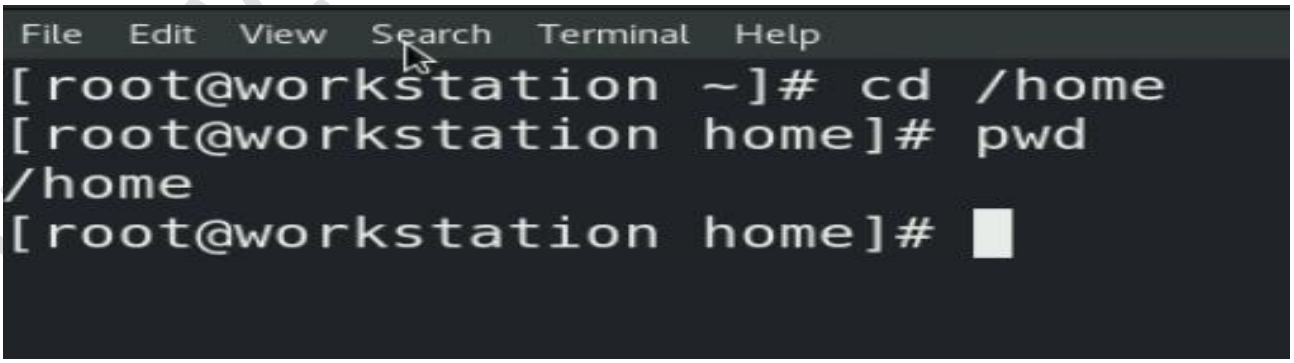
Graphical Editor: gedit

gedit <filename>

Text-based Editor: vim

vim <filename>

33. cat command: If you have written anything into the file and later on you want to print / display the content from it then in that case we use the cat command.



34. mv command:

```
[root@workstation ~]# ls
anaconda-ks.cfg  Documents  Music              Pictures  Templates
Desktop          Downloads  original-ks.cfg    Public    Videos
[root@workstation ~]# touch f1.txt
[root@workstation ~]# vi f1.txt
[root@workstation ~]# cat f1.txt
Good afternoon all

[root@workstation ~]# mv f1.txt /home
[root@workstation ~]# ls
anaconda-ks.cfg  Documents  Music              Pictures  Templates
Desktop          Downloads  original-ks.cfg    Public    Videos
[root@workstation ~]# cd /home
[root@workstation home]# ls
devops   f1.txt   student
[root@workstation home]#
```

To move a file to an another / different directory.

35. mv abc.txt newfile.txt command:

In same directory mv command used to rename the file

```
[root@localhost home]# touch abc.txt
[root@localhost home]# ls
abc.txt  student
[root@localhost home]# mv abc.txt newfile.txt
[root@localhost home]# ls
newfile.txt  student
[root@localhost home]#
```

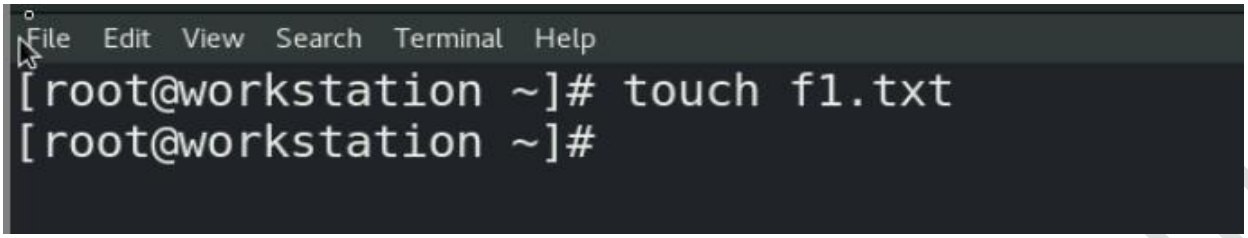
36. mv file1.txt /tmp/newfile1.txt

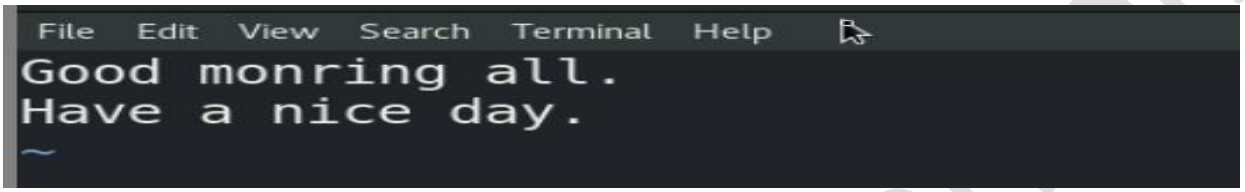
Move into another directory and rename it.

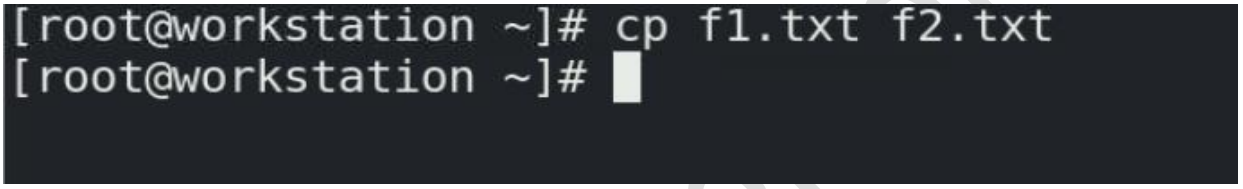
```
[root@localhost home]# mv newfile.txt /tmp/newfile.txt
[root@localhost home]# cd /tmp
[root@localhost tmp]# ls
newfile.txt
systemd-private-8e94a4a612ed4abc92602213cb624dbe-chronyd.service-vkMHto
systemd-private-8e94a4a612ed4abc92602213cb624dbe-colord.service-JQ4AJG
systemd-private-8e94a4a612ed4abc92602213cb624dbe-dbus-broker.service-K2xDZn
systemd-private-8e94a4a612ed4abc92602213cb624dbe-fwupd.service-F74MDv
systemd-private-8e94a4a612ed4abc92602213cb624dbe-ModemManager.service-jjCzcj
systemd-private-8e94a4a612ed4abc92602213cb624dbe-power-profiles-daemon.service-FWNteu
systemd-private-8e94a4a612ed4abc92602213cb624dbe-rtkit-daemon.service-B0jP6Y
systemd-private-8e94a4a612ed4abc92602213cb624dbe-switcheroo-control.service-30or9Y
systemd-private-8e94a4a612ed4abc92602213cb624dbe-systemd-logind.service-Pyv95z
systemd-private-8e94a4a612ed4abc92602213cb624dbe-upower.service-xGBIH4
VMwareDnD
vmware-root_920-2731086625
vmware-root_924-2722763428
vmware-root_937-4013854423
[root@localhost tmp]#
```

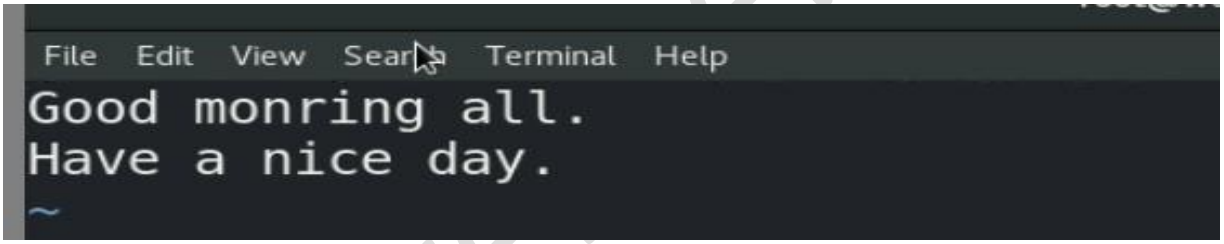
37. cp file1 file2 command:

Copy the contents of file1 to file2





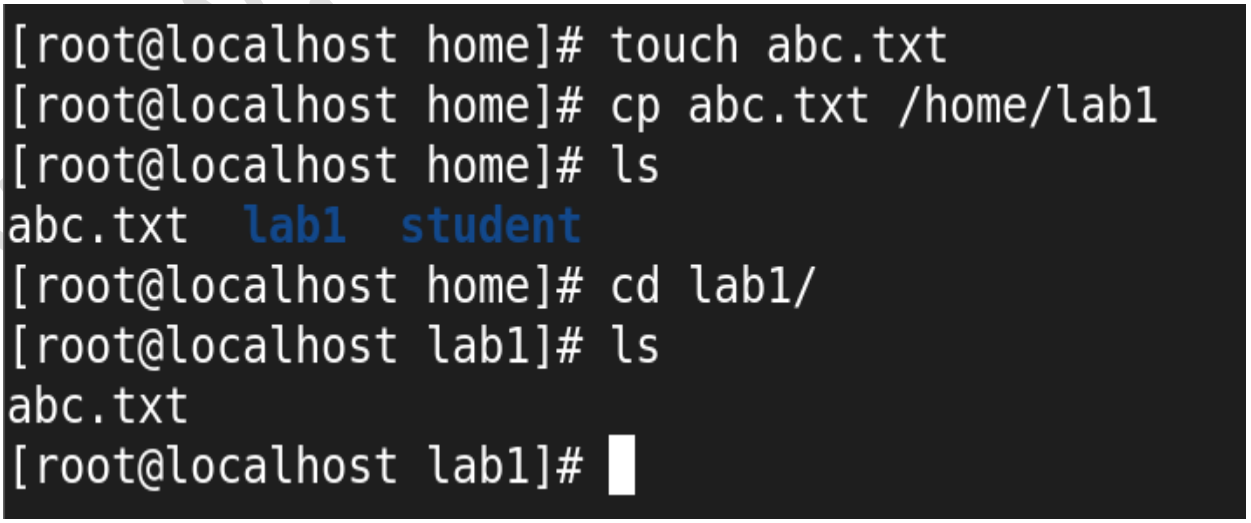




38. Create mkdir lab1

cp abc.txt /lab1 command

Copying file abc,txt into lab1 direcotry



39. Copying f1.txt from dir1 using:

```
[root@servera ~]# mkdir dir1
[root@servera ~]# cd dir1
[root@servera dir1]# touch f1.txt
[root@servera dir1]# ls
f1.txt
[root@servera dir1]# cd /root
```

```
[root@servera ~]# cp -r dir1 dir2
[root@servera ~]# cd dir1
[root@servera dir1]# ls
f1.txt
[root@servera dir1]# cd /root/dir2
[root@servera dir2]# ls
f1.txt
```

40. Moving file OR directory from one location to another location:

```
[root@servera ~]# touch f1.txt
[root@servera ~]# ls
anaconda-ks.cfg  f1.txt  original-ks.cfg
[root@servera ~]# mkdir dir1
[root@servera ~]# ls
anaconda-ks.cfg  dir1  f1.txt  original-ks.cfg
[root@servera ~]# mv f1.txt dir1 /home
```

```
[root@servera ~]# ls
anaconda-ks.cfg  original-ks.cfg
[root@servera ~]# cd /home
[root@servera home]# ls
devops  dir1  f1.txt  student
```

41. cat command:

Display the part of file on screen use scroll bar to scroll up and down

```
[root@localhost /]# vi f1.txt
[root@localhost /]# cat f1.txt
Good morning all
[root@localhost /]#
```

42. more /etc/passwd command:

Displays file from 1st line on screen with percentage of file open use enter or space bar to scroll.

```
[root@localhost /]# more /etc/passwd
root:x:0:0:root:/root:/bin/bash
bin:x:1:1:bin:/bin:/sbin/nologin
daemon:x:2:2:daemon:/sbin:/sbin/nologin
adm:x:3:4:adm:/var/adm:/sbin/nologin
lp:x:4:7:lp:/var/spool/lpd:/sbin/nologin
sync:x:5:0:sync:/sbin:/bin/sync
shutdown:x:6:0:shutdown:/sbin:/sbin/shutdown
halt:x:7:0:halt:/sbin:/sbin/halt
mail:x:8:12:mail:/var/spool/mail:/sbin/nologin
operator:x:11:0:operator:/root:/sbin/nologin
games:x:12:100:games:/usr/games:/sbin/nologin
ftp:x:14:50:FTP User:/var/ftp:/sbin/nologin
nobody:x:65534:65534:Kernel Overflow User:/:/sbin/nologin
tss:x:59:59:Account used for TPM access:/dev/null:/sbin/nologin
systemd-coredump:x:999:997:systemd Core Dumper:/:/sbin/nologin
dbus:x:81:81:System message bus:/:/sbin/nologin
polkitd:x:998:996:User for polkitd:/:/sbin/nologin
avahi:x:70:70:Avahi mDNS/DNS-SD Stack:/var/run/avahi-daemon:/sbin/nologin
colord:x:997:995:User for colord:/var/lib/colord:/sbin/nologin
geoclue:x:996:994:User for geoclue:/var/lib/geoclue:/sbin/nologin
rtkit:x:172:172:RealtimeKit:/proc:/sbin/nologin
libstoragemgmt:x:995:991:daemon account for libstoragemgmt:/var/run/lsm:/sbin/nologin
cockpit-ws:x:994:990:User for cockpit web service:/nonexisting:/sbin/nologin
cockpit-wsinstance:x:993:989:User for cockpit-ws instances:/nonexisting:/sbin/nologin
sssd:x:992:988:User for sssd:/:/sbin/nologin
```

43. less /etc/passwd command:

Displays file from 1st line on screen use enter or space bar to scroll

```
total 108
drwxr-xr-x. 27 root root 4096 May 13 14:37 ./
dr-xr-xr-x. 22 root root 4096 May 13 15:00 ../
drwxr-xr-x. 27 root root 4096 May 13 14:37 parentdir1/
drwxr-xr-x. 27 root root 4096 May 13 14:37 parentdir10/
drwxr-xr-x. 27 root root 4096 May 13 14:37 parentdir11/
drwxr-xr-x. 27 root root 4096 May 13 14:37 parentdir12/
drwxr-xr-x. 27 root root 4096 May 13 14:37 parentdir13/
drwxr-xr-x. 27 root root 4096 May 13 14:37 parentdir14/
drwxr-xr-x. 27 root root 4096 May 13 14:37 parentdir15/
drwxr-xr-x. 27 root root 4096 May 13 14:37 parentdir16/
drwxr-xr-x. 27 root root 4096 May 13 14:37 parentdir17/
drwxr-xr-x. 27 root root 4096 May 13 14:37 parentdir18/
drwxr-xr-x. 27 root root 4096 May 13 14:37 parentdir19/
drwxr-xr-x. 27 root root 4096 May 13 14:37 parentdir2/
drwxr-xr-x. 27 root root 4096 May 13 14:37 parentdir20/
drwxr-xr-x. 27 root root 4096 May 13 14:37 parentdir21/
drwxr-xr-x. 27 root root 4096 May 13 14:37 parentdir22/
drwxr-xr-x. 27 root root 4096 May 13 14:37 parentdir23/
drwxr-xr-x. 27 root root 4096 May 13 14:37 parentdir24/
drwxr-xr-x. 27 root root 4096 May 13 14:37 parentdir25/
drwxr-xr-x. 27 root root 4096 May 13 14:37 parentdir3/
drwxr-xr-x. 27 root root 4096 May 13 14:37 parentdir4/
drwxr-xr-x. 27 root root 4096 May 13 14:37 parentdir5/
drwxr-xr-x. 27 root root 4096 May 13 14:37 parentdir6/
```

44. cd command :

cd: changes to home directory

cd <path>

cd.. = changes one directory back

cd - = Changes to previous working directory.

44. Remove commands for file:

To remove the empty file use the below command

Command = rm f1.txt

rm: remove regular empty file 'f1.txt'? yes

Hence, file removed.

To remove the file with content use the below command

Command = rm f1.txt

rm: remove regular file 'f1.txt'? yes

Hence, file removed

To remove the file with content forcefully using the below command

Command = rm -f f1.txt

Hence, file removed

To remove the file with content recursively using the below command

Command = rm -r f1.txt

rm: remove regular file 'f1.txt'? yes

Hence, file removed

45. Remove commands for Directory:

To remove the empty directory use the below command

Command: = rmdir dir1

Hence, directory removed

Whereas,

rm = remove

dir = directory

To remove the Parentdir along with Childdir using the below command

Command = rm -r parentdir

rm: descend into directory 'parentdir/'? y

rm: remove directory 'parentdir/childdir'? y

rm: remove directory 'parentdir/'? y

Hence, parentdir and childdir removed

Whereas,

rm = remove

-r = recursively

If we try to remove parentdir along with child dir or a simple empty parent dir using forcefully (-f)

Command = rm -f parentdir

rm: cannot remove 'parentdir/': Is a directory

Hence, we cannot removed using the -f

Note: Forcefully we always delete / remove only the file and not the directory.

46. wc command:

This command counts lines, words, and characters in a file. It takes a -l, -w, or -c option to display only the number of lines, words, or characters, respectively.

END

.