Linux Basic Commands

Basic Linux Commands

- File Handling
- Text Processing
- System Administration
- Process Management
- Archival
- Network
- File Systems
- Advanced Commands

File Handling commands

- **mkdir** – make directories

  Usage: mkdir [OPTION] DIRECTORY...

  eg. mkdir bharatitgyan

- **ls** – list directory contents

  Usage: ls [OPTION]... [FILE]...

  eg. ls, ls l, ls bharatitgyan

- **cd** – changes directories

  Usage: cd [DIRECTORY]

  eg. cd bharatitgyan

File Handling(contd...)

- **pwd** print name of current working directory

  Usage: pwd

- **vim** – Vi Improved, a programmers text editor

  Usage: vim [OPTION] [file]...

  eg. vim BiG.txt

File Handling(contd...)

- **cp** – copy files and directories

  Usage: cp [OPTION]... SOURCE DEST

  eg. cp sample.txt sample_copy.txt

  cp sample_copy.txt target_dir

- **mv** – move (rename) files

  Usage: mv [OPTION]... SOURCE DEST

  eg. mv source.txt target_dir

  mv old.txt new.txt

File Handling(contd...)

- **rm** remove files or directories
  Usage: rm [OPTION]... FILE... eg.
  rm file1.txt , rm rf some_dir
- **find** – search for files in a directory hierarchy
  Usage: find [OPTION] [path] [pattern] eg.
  find file1.txt, find name file1.txt
- **history** – prints recently used commands
  Usage: history

Pattern

A Pattern is an expression that describes a set of strings which is used to give a concise description of a set, without having to list all elements.

eg. ab*cd matches anything that starts with ab and ends with cd etc.

ls *.txt – prints all text files

grep "^Hello" filename - To search for lines starting with "Hello“

grep "world$" filename - To search for lines ending with "world“

awk '$1 ~ /^A/ { print }' filename - To print lines where the first field starts with "A”

sed 's/old/new/g' filename - To replace all occurrences of "old" with "new" in a file

grep -E '\b([0-9]{1,3}\.){3}[0-9]{1,3}\b' filename - To match IP addresses in a file

Text Processing

- **cat** – concatenate files and print on the standard output

  Usage: cat [OPTION] [FILE]...

  eg. cat file1.txt file2.txt

  cat n file1.txt

- **echo** – display a line of text

  Usage: echo [OPTION] [string] ...

  eg. echo I love India

  echo $HOME

Text Processing(contd...)

- **grep** print lines matching a pattern

  Usage: grep [OPTION] PATTERN [FILE]...

  eg. grep i apple sample.txt

- **wc** print the number of newlines, words, and bytes in files

  Usage: wc [OPTION]... [FILE]...

  eg. wc file1.txt

  wc L file1.txt

Text Processing(contd...)

- **sort** – sort lines of text files

  Usage: sort [OPTION]... [FILE]...

  eg. sort file1.txt

  sort r file1.txt

Linux File Permissions

- 3 types of file permissions – read, write, execute
- 10 bit format from 'ls l' command

1 2 3 4 5 6 7 8 9 10

file type owner group others

- eg. drwxrwr means owner has all three permissions,
  - group has read and write, others have only read permission
- read permission – 4, write – 2, execute 1
- eg. rwxrw-r-- = 764
  - 673 = rw-rwx-wx

System Administration

- **chmod** – change file access permissions

  Usage: chmod [OPTION] [MODE] [FILE] eg.

  chmod 744 calculate.sh

- **chown** – change file owner and group

  Usage: chown [OPTION]... OWNER[:[GROUP]] FILE...

  eg. chown remo myfile.txt

System Administration (contd...)

- **su** – change user ID or become superuser

  Usage: su [OPTION] [LOGIN]

  eg. su remo, su

- **passwd** – update a user's authentication tokens(s)

  Usage: passwd [OPTION]

  eg. passwd

- **who** – show who is logged on

  Usage: who [OPTION]

  eg. who , who b , who q

Process Management

- **ps** – report a snapshot of the current processes

  Usage: ps [OPTION]

  eg. ps, ps el
- **top -** top or htop: Real-time process monitoring with resource usage details
- **kill** – to kill a process(using signal mechanism)

  Usage: kill [OPTION] pid

  eg. kill 9 2275

Process Management(contd...)

- **bg** – make a foreground process to run in background

  Usage: type 'ctrl+z' and then 'bg <job id>'

- **fg** – to make background process as foreground process

  Usage: fg [jobid]

- **jobs** – displays the names and ids of background jobs

  Usage: jobs

- **nice -** Adjust the priority of a process (renice)

  Usage: nice -n 10 command

Archival

- **tar** – to archive a file

  Usage: tar [OPTION] DEST SOURCE

  eg. tar cvf /home/archive.tar /home/original

  tar xvf /home/archive.tar

- **zip** – package and compress (archive) files

  Usage: zip [OPTION] DEST SOURSE eg.

  zip original.zip original

- **unzip** – list, test and extract compressed files in a ZIP archive

  Usage: unzip filename

  eg. unzip original.zip

Network

- **ssh** – SSH client (remote login program)

  "ssh is a program for logging into a remote machine and for executing commands on a remote machine"

  Usage: ssh [options] [user]@hostname

  eg. ssh X root@10.10.10.143

- **scp** – secure copy (remote file copy program)

  "scp copies files between hosts on a network"

Usage: scp [options] [[user]@host1:file1] [[user]@host2:file2]

eg. scp file1.txt root@10.10.10.143:~/Desktop/

Network (contd...)

Command	Description	Example Usage
ifconfig	Display or configure network interfaces and their IP addresses.	ifconfig ifconfig eth0 192.168.1.100
ip	A versatile tool for network configuration, including IP address assignment, route management, and more.	ip addr show ip route add default via 192.168.1.1
ping	Send ICMP echo requests to test network connectivity.	ping google.com ping 192.168.1.1
traceroute	Trace the route packets take to reach a destination.	traceroute google.com traceroute 192.168.1.1
netstat	Display network statistics, routing table, interface statistics, and connections.	netstat -tuln netstat -r

Network (contd...)

Command	Description	Example Usage
ss	A replacement for netstat, displaying socket statistics, including listening ports and established connections.	ss -tuln ss -s
route	View or configure the routing table.	route -n route add default gw 192.168.1.1
hostname	Display or set the system's hostname.	hostname hostname newhostname
nslookup	Query DNS (Domain Name System) servers for DNS information.	nslookup google.com nslookup 8.8.8.8
dig	A powerful DNS query tool for querying DNS servers.	dig google.com dig -x 8.8.8.8
wget	Download files or resources from the internet.	wget http://example.com/file.txt

Network (contd...)

Command	Description	Example Usage
curl	Retrieve data from URLs, including HTTP, HTTPS, and more.	curl -O http://example.com/file.txt
nmap	Network scanning tool for discovering open ports and services on a target host.	nmap -p 80,443 target_ip
sshd	Restart the SSH server for configuration changes.	systemctl restart sshd
ifup	Bring up a network interface.	ifup eth0
ifdown	Take down a network interface.	ifdown eth0
netcat (nc)	Versatile networking utility for reading/writing data across network connections.	nc -l -p 12345 nc target_ip 12345 < file.txt

File Systems

- **fdisk –** partition manipulator

  eg. sudo fdisk l

- **mount** – mount a file system

  Usage: mount t type device dir eg.

  mount /dev/sda5 /media/target

- **umount** – unmount file systems

  Usage: umount [OPTIONS] dir | device...

  eg. umount /media/target

File Systems(contd...)

- **du** – estimate file space usage

  Usage: du [OPTION]... [FILE]...

  eg. du

- **df** – report filesystem disk space usage

  Usage: df [OPTION]... [FILE]...

  eg. df

- **quota** – display disk usage and limits

  Usage: quota [OPTION]

  eg. quota v

Advanced Commands

- **reboot** – reboot the system
  Usage: reboot [OPTION] eg.
  reboot

- **poweroff** – power off the system
  Usage: poweroff [OPTION] eg.
  poweroff

Advanced Commands (contd...)

- **sed** stream editor for filtering and transforming text

  Usage: sed [OPTION] [inputfile]...

  eg. sed 's/love/hate/g' loveletter.txt

- **awk** pattern scanning and processing language

  eg. awk F: '{ print $1 }' sample_awk.txt

- **find** search for files in a directory hierarchy

  Usage: find [OPTION] [path] [pattern]

  eg. find name file1.txt

- **locate** – find or locate a file

  Usage: locate [OPTION]... FILE...

  eg. locate file1.txt

Editor commands

- **kate** – KDE Advanced Text Editor

  Usage: kate [options][file(s)]

  eg. kate file1.txt file2.txt

- **vim** – Vi Improved, a programmers text editor

  Usage: vim [OPTION] [file]...

  eg. vim Bharatitgyan.sh

- **gedit** A text Editor. Used to create and edit files.

  Usage: gedit [OPTION] [FILE]...

  eg. gedit bharat.txt