Linux Commands and Examples(v1)

Table of Contents

1 date

To display date

```
$ date
```

To display the time in GMT/UTC time zone

```
$ date -u
```

To display past dates

```
$ date --date="3 year ago"
$ date --date="1 month ago"
```

To display future date

```
$ date --date="next wed"
$ date --date="next month"
```

To set the system date and time

```
$ date --set="Wed Apr 27 14:20:55 IST 2022"
```

2. echo

echo - display a line of text

$ echo [string]

with double quotes

$ echo "Welcome to Linux"

with single quotes

$ echo ‘Welcome to FOSS’

without quotes

$ echo Welcome to Kaniyam

3. cat

cat - concatenate files and print on the standard output

To display contents of file

$ cat /etc/group

To view contents of multiple files

$ cat file3.txt file4.txt

To create a file with cat command

$ cat > file5.txt

some contents typed here

CTRL+D to save the file

To view cat command with large file size

$ cat /proc/cpuinfo | more

$ cat /proc/cpuinfo | less

To display line numbers in file

$ cat -n number.txt

4. ls

ls - list directory contents

To list files and directories

$ ls

To long listing of files

$ ls -l

To view hidden files

$ ls -a

To list files with human readable format

$ ls -lh

recursively list Subdirectories

$ ls -R

To sort files by file size

$ ls -lS

To order files based on last modified time

$ ls -lt

5. rm

rm - remove files or directories

To remove or delete file

$ rm file.txt

To delete a directory recursively

$ rm -r old_data/

To delete the files interactively

$ rm -i file.txt

To Delete files forcefully

$ rm -f file.txt

To delete all the .txt files

$ rm -f *.txt

6. cp

cp - copy files and directories

To copy a file old_file.txt

$ cp old_file.txt new_file.txt

To copying multiple files to a directory

$ cp file1_name file2_name file3_name /opt

To copying a directory or folder

$ cp -r /home/klug /opt/backup

To preserve mode, ownership and timestamps when copying

$ cp -p file.txt /opt/backup/

To copy the files and directory forcefully

$ cp -f file.txt /opt/backup

7. mv

mv - move or rename files

$ mv [Option] source destination

To rename a file1.txt to file2.txt

$ mv file1.txt file2.txt

$ mv file1.txt /home/venus/Documents/file2.txt

To move multiple directories from one location to another

$ mv dir1 dir2 dir3 /path/to/destination_directory/

8. history

history - displays a list of commands used in the terminal session

To display the list of commands used

```
$ history
```

To show only the latest 10 entries

```
$ history 10
```

To run the 100th command again in history

```
$ !100
```

To repeat the last command

```
$ !!
```

To remove a command from history

```
$ history -d event_number
```

```
$ history -d 100
```

To remove whole history

```
$ history -c
```

To view the last 10 commands

```
$ history | tail
```

9. whoami

whoami - print effective userid

```
$ whoami
```

10. hostname

hostname - show or set the system's host name

To display the system hostname

$ hostname

To get all IP addresses

$ hostname -I

To set the hostname

$ sudo hostname <new_hostname>

To set kaniyam as hostname

$ sudo hostname kaniyam

11. uname

uname - print system information

To print uname without options

$ uname

To print all information

$ uname -a

To print the kernel name

$ uname -s

To print the kernel release

$ uname -r

12. uptime

uptime - Tell how long the system has been running

uptime command without any options

```
$ uptime
```

To show uptime in pretty format

```
$ uptime -p
```

To display the date/time since when the system has been running

```
$ uptime -s
```

13. pwd

pwd - print name of current/working directory

To get working directory path

```
$ pwd
```

14. mkdir

mkdir - make directories

To create a directory

$ mkdir dir1

To display verbose message for every directory created.

$ mkdir -v directory_1 directory_2 directory_3

To create multiple directories

$ mkdir {dir1,dir2,dir3}

To create parent directories

$ mkdir -p /dir_1/dir_2/dir_3

$ mkdir -p -v /dir_1/dir_2/dir_3

To set permissions for the directories

$ mkdir -m a=rwx [directory_name]

$ mkdir -m777 dir_1

$ mkdir -m755 dir_2

$ mkdir -m766 dir_3

15. rmdir

rmdir - remove empty directories

To remove a single empty directory

```
$ rmdir sample_dir1
```

To remove multiple directories using rmdir

```
$ rmdir sample_dir1 sample_dir2
```

16. cd

cd - change directory

change current directory to /usr/share

```
$ cd /usr/share/
```

To change current directory to parent directory

```
$ cd ..
```

To change to home directory

```
$ cd
```

17. locate

locate - find files by name, quickly

To locate a file name

$ sudo updatedb

$ locate file_name

create a file secret.txt in somewhere in system

$ locate secret.txt

18. man

man - an interface to the system reference manuals

$ man df

$ man du

$ man uptime

1 Executable programs or shell commands

2 System calls (functions provided by the kernel)

3 Library calls (functions within program libraries)

4 Special files (usually found in /dev)

5 File formats and conventions, e.g. /etc/passwd

6 Games

7 Miscellaneous

8System administration commands (usually only for root)

9 Kernel routines [Non standard]

19. who

who - show who is logged on

To print who command output without options

```
$ who
```

To print same as -b -d --login -p -r -t -T -u

```
$ who -a
```

To check the current runlevel

```
$ who -r
```

To view the time of last system boot

```
$ who -b
```

20. wc

wc - print newline, word, and byte counts for each file

wc without options will display (number of lines),(number of words) and (number of bytes) of the file

```
$ wc file.txt
```

To Count Number of Lines

```
$ wc -l file.txt
```

To Display Number of Words

```
$ wc -w file.txt
```

To Count Number of Bytes and Characters

```
$ wc -c file.txt
$ wc -m file.txt
```

21. | piping

To find wc of file /proc/cpuinfo

$ cat /proc/cpuinfo | wc

$ cat filename | wc

To filter a keyword from a file.txt

$ cat filename | grep <keyword>

$ cat /proc/cpuinfo | grep vendor_id

22. vim

vim - Vi IMproved, a programmer's text editor

To create a file

$ vim filename

To go Insert Mode

press I

Once the editor is in insert mode, start writing the content in the file.

To Save the file and exit from the editor

[Esc] SHIFT+ :wq!

or

[Esc] SHIFT+ :x

To quit from the file without saving

Esc SHIFT+ :q!

23. find

find - search for files in a directory hierarchy

To find all the files whose name is secret.txt in current working directory

```
$ find . -name secret.txt
```

To find files in home directory

```
$ find /home -name secret.txt
```

To find all python files in a directory

```
$ find . -type f -name "*.py"
```

24. env

env - run a program in a modified environment

To print out a list of all environment variables

```
$ env
```

25. export

export - It is used to mark variables and functions to be passed to child processes

To display all exported variables

$ export

To view all exported variables on the current shell

$ export -p

The variable ‘community’ has been assigned the value ‘ilugc’

$ community=ilugc

$ export community

check with

$ printenv community

26. df

df - report file system disk space usage

To display all the file system

$ df -a

To display size in human readable format

$ df -h /home/

To get complete grand total

$ df -h --total

To display file type

$ df -T /home/ilugc

To display disk space usage of current dir

$ df -Th

27. less

less - used to read the contents of a text file one page(one screen) at a time

$ less filename

$ less /proc/cpuinfo

28. sort

sort - is used to sort a file, arranging the records in a particular order

```
$ cat sort.txt
assam
tamilnadu
chattisgarh
delhi
gujarat
himachal pradesh
kerala
bihar
```

To sort arrange the sort.txt

```
$ sort sort.txt
```

To Save Output to File

```
$ sort file.txt > sort_output.txt
```

To Sort Multiple Files

```
$ sort file1.txt file2.txt
```

To Sort in Reverse Order

```
$ sort -r sort.txt
```

To Remove Duplicate Entries

```
$ sort -u file.txt
```

29. uniq

uniq - it is used to report or filter out repeated lines in a file.

$ cat uniq.txt

redhat

debian

ubuntu

ubuntu

centos

fedora

fedora

fedora

fedora

To report or filter out for lines that are adjacent and repeated

$ uniq uniq.txt

To only print unique lines

$ uniq -u uniq.txt

To prefix lines by the number of occurrences

$ uniq -c uniq.txt

To only print duplicate lines, one for each group

$ uniq -d uniq.txt

To print all duplicate lines

```
$ uniq -D demo.txt
```

30. cut

cut - remove sections from each line of files

```
$ cat cut.txt
Alpha is first line
Beta is second line
Charlie is third line
Delta is fourth line
```

To display 1st character from each line of a file

```
$ cut -c1 cut.txt
```

To display 2nd character from each line of a file

```
$ cut -c2 cut.txt
```

To extract first 3 characters of each line from file.txt

```
$ cut -c1-3 cut.txt
```

To extract 7 characters from the beginning of each line

```
$ cut -c-7 cut.txt
```

31. fmt

fmt - simple optimal text formatter Reformat each paragraph in the files, writing to standard output

```
$ cat fmt.txt
Hai
all Welcome
to
ILUGC
```

```
$ fmt fmt.txt
Hai all Welcome to ILUGC
```

32. head

head - output the first part of files

To display the first 10 lines default of head command

$ head /proc/cpuinfo

To show the first 6 lines

$ head -n 6 /proc/cpuinfo

To display multiple files

$ head file1.txt file2.txt

To redirect output to a text file

$ head /proc/cpuinfo > head_output.txt

To display head with Pipeline

$ ls /etc | head

$ ls -t | head -n 4 | sort

33. tail

tail - output the last part of files

To display the last 10 lines of a file

$ tail /proc/cpuinfo

To show the last 6 lines

$ tail -n 6 /proc/cpuinfo

To Display the last n lines from multiple files

$ tail -n 4 file1.txt file2.txt

To Save the output of tail command to a text file

$ tail -n 10 /proc/cpuinfo > tail_output.txt

To use pipes

$ tail /var/log/messages | sort

$ tail /var/log/messages | tail -n 6 | sort

To monitor real-time log files

$ tail -f /var/log/messages

34. nl

nl - used for numbering lines, accepting input either from a file or from STDIN

$ cat nl.txt

Apache

Squid

Samba

DNS

DHCP

To display a file with line numbers

$ nl nl.txt

To number all lines including empty lines

$ nl -b a file.txt

To add a string after line numbers

$ nl -s "..." file.txt

35. split

split - is used to split large files into smaller files

syntax

$ split {options} {file_name} {prefix}

$ cat split.txt

This is line 1

This is line 2

This is line 3

This is line 4

This is line 5

This is line 6

This is line 7

This is line 8

This is line 9

This is line 10

To split split.txt with verbose option

$ split split.txt --verbose

To split files with customize line numbers

$ split -l2 split.txt --verbose

To split file with customize suffix

$ split -l2 split.txt my_file

36. tac

tac - is used to concatenate and print files in reverse

```
$ cat tac.txt
This is line 1
This is line 2
This is line 3
This is line 4
This is line 5
```

To print files in reverse

```
$ tac tac.txt
```

37. last

last - show a listing of last logged in users

To list last five users logged in

```
$ last -5
```

To display information like system down entries and run level changes

```
$ last -x
```

38. tr

tr - is used to translate and/or delete characters from stdin input and writes to stdout

$ cat tr.txt

linux OS is powerful

linux os is versatile

linux os is best

To change all lowercase letters in the text to uppercase and vice versa

$ cat tr.txt | tr [a-z] [A-Z]

To save the results written to stdout in a file

$ cat tr.txt | tr [a-z] [A-Z] > tr_output.txt

To send input to tr using the input redirection and redirect the output to a file

$ tr [a-z] [A-Z] < tr.txt > tr_output.txt

39. sed

sed - stream editor for filtering and transforming text

Basic text substitution using ‘sed’

```
$ echo "indian linux user group" | sed 's/indian/kanchi/'
```

```
$ cat linux.txt
linux is a very popular os.
linux is easy to use. linux is easy to learn.
linux is a versatile os
```

To make all occurrences to change from linux to unix

```
$ sed 's/linux/unix/g' linux.txt
```

To replace words or characters with ignore character case

```
$ sed 's/linux/unix/gi' linux.txt > sed_output.txt
```

40. paste

paste - used to join files horizontally

$ cat name

apache

nginx

mysql

ftp

jenkins

$ cat server

webserver

webserver

db server

file server

integration server

To merge the files in parallel with default delimiter as tab

$ paste name server

To merge files with delimiter as any character

$ paste -d "|" name server

41. join

join - join lines of two files on a common field , join combines lines of files on a common field

$ cat file1.txt

1 andhra

2 tamilnadu

3 kerala

4 karnataka

5 Delhi

$ cat file2.txt

1 101

2 102

3 103

4 104

5 105

To join the 2 files

$ join file1.txt file2.txt

To create a new file with the joined contents

$ join file1.txt file2.txt > file3.txt

42. file

file - determine file type

To determine file type

$ file -b filename.py

$ file -b file.img

$ file -b file.txt

$ file -b file.pdf

To display all files’s file type

$ file *

To display the file type of files in specific range

$ file [a-d]*

$ file [e-h]*

43. touch

touch – create empty files and change file timestamps

To Create an Empty File

```
$ touch file.txt
```

To Create Multiple Files

```
$ touch file1.txt file2.txt file3.txt file4.txt
$ mkdir test && cd test
$ touch file{0..1000}.txt
```

To Set File Timestamp Using Date String

```
$ touch -d tomorrow demo.txt
```

To Explicitly Set the Access and Modification times

```
$ touch -c -t YYMMDDHHMM demo.txt
$ touch -c -t 2412311159
```

44. cal

cal - displays a calendar

To Show current month calendar

$ cal

To Show calendar of selected month and year

$ cal August 2025

To Show the calendar of current year

$ cal -y

To Show calendar of previous, current and next month

$ cal -3

45. rev

rev - reverse lines character wise

$ cat rev.txt

This is sample test file

To reverse the text

$ rev rev.txt

$ echo This is sample file | rev

$ rev

linux

foss

ilugc

46. >

> I/O redirection

write to a file

$ cat > sample.txt

line1

line2

line3

line4

ctrl+D

write output to file

$ wc file_name > file_output.txt

$ free -h | wc > free_output.txt

$ df -Th | wc > df_output.txt

47. <

< - I/O redirection

Input to a command and writing output to a file

$ wc < input_sample.txt > wc_output.txt

48. >>

>> - append

To append lines to a file.txt

$ echo “This is append line1” >> file.txt

$ cat >> file.txt

This is added line2

This is added line3

This is added line4

ctrl+D

49. tee

tee - read from standard input and write to standard output and files

To append a line of text to a file

$ echo "This is demo msg " | tee -a demo.txt

To display output of df -Th and write to a df.txt

$ df -Th | tee df.txt

To display output of free -h and write to a free.txt

$ free -h | tee free.txt

50. xargs

xargs - build and execute command lines from standard input

To find a file and remove using xargs

```
$ find /home/venus/ -name "test.py" -type f | xargs rm -f
```

To find a file and grep a particular keyword

```
$ find /home/venus/ -name "free.log" -type f | xargs grep "04:08:01"
```

To read items from file

```
$ xargs -a file_name
```

To list number of lines/words/characters in each file

```
$ ls free.* | xargs wc
```

51. grep

grep - print lines that match patterns

```
$ cat grep_example.txt
This is line number one
this is line number two
THIS is line number three
this is line 4
This is line 5
```

To search for the given string in a single file

```
$ grep "this" grep_example.txt
```

To check for the given string in multiple files

```
$ grep "this" grep_example.txt file2.txt
```

To search case insensitive using grep -i

```
$ grep -i "4" grep_example.txt
```

To count the number of matches using grep -c

```
$ grep -c this grep_example.txt
```

To show line number while displaying the output using grep -n

```
$ grep -n "this" grep_example.txt
```

52. jobs

jobs - used to list the jobs running in the background

To run some jobs in background

$ ping google.com

CTRL+Z

$ man ls

CTRL+Z

To lists jobs running in background

$ jobs

To display jobs with process id

$ jobs -l

To display the process ID or jobs for the job whose name begins with “p” and “m”

$ jobs %p

$ jobs %m

To display PIDs only

$ jobs -p

53. fg

fg - is used to put a background job in foreground.

First list the jobs running in background

```
$ jobs -l
```

To make the job with id [1] to run in foreground

```
$ fg %1
```

To make the job with id [2] to run in foreground

```
$ fg %2
```

54. bg

bg - is used to place foreground jobs in background.

$ ping google.com

press CTRL+Z

To view running jobs

$ jobs -l

To resume the job ping google.com job with job number 1

$ bg %1

To kill the job # ping google.com

$ kill -9 <pid>

55. runlevel

runlevel - Print previous and current SysV runlevel

To see the current runlevel of the system

```
$ runlevel
```

0 - Halt

1 - Single-user mode

2 - Not used (user-definable)

3 - Full multi-user mode

4 - Not used (user-definable)

5 - Full multi-user mode (with an X-based login screen)

6 - Reboot

56. init

init - initializes and controls processes

To restart the system

$ init 6

To shut down system

$ init 0

57. ps

ps - report a snapshot of the current processes.

To display processes for the current shell

$ ps

To Display processes in BSD format

$ ps aux

To print user running processes

$ ps -x

To print all processes in different formats

$ ps -A

To display full-format listing

$ ps -ef

58. pstree

pstree - is used to display the parent-child relationship in a hierarchical format

To print pstree without any option

$ pstree

To Display the tree hierarchy of a user processes

$ pstree -p <username>

59. top

top - display Linux processes

To list all processes

$ top

To exit after n repetitions

$ top -n 3

$ top -n 5

To display all user-specific processes

$ top -u <username>

$ top -u root

$ top -u venus

To save the running top command results output

$ top -n 1 -b > top_output.txt

60. htop

htop - interactive process viewer

To view the running processes

```
$ htop
```

To view the processes of a user

```
$ htop -u <username>
```

61. kill

kill - send a signal to a process

To display all the available signals

$ kill -l

To use PID with the kill command

$ kill pid

To kill multiple processes at once

$ kill <pid1> <pid2> <pid3>

To forcefully kill single process

$ kill -9 <pid>

To forcefully kill multiple process

$ kill -9 <pid1> <pid2>

To find signal name

$ kill -l 3

$ kill -l 9

$ kill -l 15

62. killall

killall - kill processes by name

To kill a program by name

$ killall <program_name>

To killall firefox

$ killall firefox

To get a list of signals that killall can send

$ killall -l

To Kill multiple processes interactively

$ killall -i <program1> <program2>

63. pidof

pidof - find the process ID of a running program

To find the PID of the SSH

$ pidof sshd

To find the PID of firefox, top

$ pidof firefox

$ pidof top

64. nice

nice - run a program with modified scheduling priority

- ‘nicer’ processes require fewer resources
- Nice value ranges from +19(very nice) to −20 (not very nice)
- Non-root users can only specify values from 1 to 19
- the root user can specify the full range of values

To check all nice values of all processes

$ top

To check the nice value of htop process

$ ps -el | grep htop

To set the priority of a process

$ nice -n <number><process name>

$ nice -10 htop

To set the negative priority for a process

$ sudo nice --n <number><process name>

$ sudo nice --10 htop

65. renice

renice - alter priority of running processes

renice changes the niceness of existing processes

To change the priority of the running process.

$ sudo renice -n 10 -p <PID>

66. useradd

useradd - create a new user or update default new user information

To add a new user without home directory

```
$ sudo useradd user_name
```

To create user with home directory

```
$ sudo useradd -m user_name
```

To create a user with a specific User ID

```
$ sudo useradd -u 1004 user_name
```

67. adduser

adduser - add a user to the system

To add a new user

$ adduser user_name

68. passwd

passwd - change user password

To change system user’s password

$ passwd

To change password for root

$ sudo passwd root

To display user status Information

$ sudo passwd -S <user_name>

To display information of all users

$ sudo passwd -Sa

69. userdel

userdel - delete a user account and related files

To delete a user account

$ sudo userdel user_name

To remove the user’s home directory and mail spool

$ sudo userdel -r user_name

To forcefully remove the user account

$ sudo userdel -f user_name

70. deluser

deluser - remove a user or group from the system

To delete an user account

$ sudo deluser user_name

To delete or account including deleting home directory

$ sudo deluser --remove-home user_name

To delete account even while the user logged in

$ sudo deluser --force <user_name>

71. groupadd

groupadd - create a new group

To create a group

$ sudo groupadd group_name

To create a group with specific groupid

$ sudo groupadd <group_name> -g 1234

72. addgroup

addgroup - add group to the system

To add a new group

$ sudo addgroup <group_name>

To add a new group with specified group id

$ sudo addgroup group_name --gid 6789

73. groupdel

groupdel - delete a group

To delete a group

```
$ sudo groupdel group_name
```

74. delgroup

delgroup - remove a group from the system

To remove a group

```
$ sudo delgroup group_name
```

75. groups

groups - print the groups a user is in

```
$ groups [username]
```

To display group membership for the current user

```
$ groups
```

To find groups of root

```
# groups
```

76. id

id - print real and effective user and group IDs

To print your own id without any options

$ id

To find a specific users id

$ id -u <user_name>

To find a specific users GID

$ id -g <user_name>

To find out UID and all groups associated with a username

$ id <user_name>

77. usermod

usermod - modify a user account

To add a user to sudo group

$ sudo usermod -aG sudo <user_name>

To add group to an existing user

$ sudo usermod -aG group_name user_name

78. ln

ln - creates the hard and symbolic links between the files.

To create hard link with the name sample_link_file.txt

```
$ ln sample_file.txt sample_hardlink_file1.txt
$ ln sample_file.txt sample_hardlink_file2.txt
$ ln sample_file.txt sample_hardlink_file3.txt
```

even the original file name sample_file.txt is deleted we can access the file with sample_hardlink_file1.txt, sample_hardlink_file2.txt, sample_hardlink_file3.txt

To create symbolic or soft link to a file

```
$ ln -s /home/venus/Documents/file.txt softlink_file.txt
$ ls -al softlink_file.txt
```

To create symbolic or soft link to a directory

```
$ ln -s /home/venus/music/ music
$ ls -al music
```

79. unlink

unlink - call the unlink function to remove the specified file

syntax

$ unlink filename

$ unlink dir_name

To create hard link with the name sample_link_file.txt

$ ln sample_file.txt sample_hardlink_file1.txt

To delete the hardlink

$ unlink sample_hardlink_file1.txt

To create symbolic or soft link to a file

$ ln -s /home/venus/Documents/file.txt softlink_file.txt

To delete the symbolic link

$ unlink softlink_file.txt

To delete the symbolic link for directory

$ ln -s /home/venus/music/ music

$ unlink music

80. stat

stat - display file or file system status

To view the file details

```
$ stat file.txt
```

To Show only octal file permissions

```
$ stat -c %a file.txt
$ stat --format="%a %n" file.txt
```

To Show the owner and group of a file

```
$ stat --format="%U %G" file.txt
```

81. chmod (symbolic mode)

chmod - change file mode bits

Symbolic Method

u - The file owner.

g - The users who are members of the group.

o - All other users.

a - All users, equal to ugo.

r – read w – write x – execute

- Removes the specified permissions.

+ Adds specified permissions.

= Changes the current permissions to the specified permissions

To set user , group and others full permissions

$ chmod ugo=rwx file.txt

To remove write and execute permission for others

$ chmod o-wx file.txt

To remove write permission for group

$ chmod g-w file.txt

To set sticky bit to a given directory or file

$ chmod o+t <dir_name>

$ chmod o+t file.txt

chmod (numeric mode)

numeric method

r (read) = 4

w (write) = 2

x (execute) = 1

no permissions = 0

rwx=4+2+1=7

rw= 4+2=6

rx= 4+1=5

To set read , write , execute permission to users , group and others

$ chmod 777 file.txt

To set read , write , execute permission to users and read permission only for group and others

$ chmod 744 file.txt

To set read , write , execute permission for user and no permission for group and others

$ chmod 700 file.txt

To set permission recursively for folder

$ chmod -R 755 /var/www/

To set read, write, and execute permissions, and a sticky bit to a given directory

$ chmod 1777 dir_name

82. chown

chown - change file owner and group to another existing owner and group

To change the owner of a file

$ sudo chown frappe file.txt

To change the group ownership of a file

$ sudo chown :frappe file.txt

To change both owner and the group

$ sudo chown frappe:frappe file.txt

To change the owner/group of the files by traveling the directories recursively

$ sudo chown -R venus:venus directory_name

83. chgrp

chgrp - change group ownership

To change a directory group ownership

$ sudo chgrp <group_ownership> <dir_name>

To change group ownership of a file

$ sudo chgrp <group_ownership_name> file.txt

To recursively change group ownership

$ sudo chgrp -R frappe directory_name/

84. umask

umask - is used to set default permissions for files or directories the user creates.

To calculate umask value

$ umask

To Displays the current mask

$ umask -p

To set the default permissions for all new files or folders to 644 and 755 then umask value is

$ umask 022

for folders 777-022 = 755

for files 666-022 = 644

85. gpasswd

gpasswd - administer /etc/group and /etc/gshadow

To add user user1 to the group ilugc

$ sudo gpasswd -a user1 ilugc

To remove user user1 from the group ilugc

$ sudo gpasswd -d user1 ilugc

86. whatis

whatis - display one-line manual page descriptions

```
$ whatis free
$ whatis cp ls df du free
```

To get debugging information

```
$ whatis -d pwd
```

To use regular expressions with this

```
$ whatis -r free
```

To use wildcard with this

```
$ whatis -w du
```

87. w

w - Show who is logged on and what they are doing

To show who is logged on and what they are doing

```
$ w
```

88. which

which - locate a command

syntax

$ which -a [argument]

To locate a command

$ which -a touch

$ which -a free

$ which -a du

$ which -a df

$ which python3

89. whereis

whereis - is used to find the location of the binary, source, and manual page files

To find the directories where the whereis command search

```
$ whereis -l
```

To get information about the commands

```
$ whereis du
$ whereis free
$ whereis bash
```

To get output for multiple commands

```
$ whereis du free bash
```

To search only for sources

```
$ whereis -s free
```

To search only for man files

```
$ whereis -m du
```

To search only for binaries

```
$ whereis -b cp
$ whereis -b free
```

90. apropos

apropos - search the manual page names and descriptions

```
$ apropos <command_name>
$ apropos useradd
$ apropos adduser
$ apropos df
$ apropos free
```

91. chattr

chattr - change file attributes on a Linux file system

To add attributes on files and immutable to secure from deletion create file sample.txt

```
$ sudo chattr +i sample.txt
```

To list the file attributes

```
$ lsattr sample.txt
```

To unset attribute on Files

```
$ sudo chattr -i sample.txt
```

To open the file only in append mode

```
$ sudo chattr +a sample.txt
```

To secure entire directory important_folder and its files

```
$ sudo chattr -R +i important_folder
```

To unset it

```
$ sudo chattr -R -i important_folder
```

92. lsattr

lsattr - is used to list the attributes of a file or directory

To display all the files and directories in the current directory along with their file attributes

```
$ lsattr
```

```
$ lsattr file.txt
```

```
$ lsattr dir_name
```

To list all files in directories

```
$ lsattr -a
```

To Recursively list attributes of directories and their contents

```
$ lsattr -R /etc/ssh/
```

93. zip

zip - package and compress (archive) files

Create files for archiving

```
$ touch file{1..5}.txt
$ zip zipfile *.txt
```

To list zip file contents

```
$ zip -sf zipfile.zip
```

94. unzip

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

To extract all files from the zip archive

$ unzip zipfile.zip

To display the content of the zip file without extracting

$ unzip -l zipfile.zip

To extract zip files with suppressing output

$ unzip -q zipfile.zip

95. sudo

sudo - allows a permitted user to execute a command as the superuser or another user

To run command as a root user

$ sudo <command>

$ sudo chmod

To add a user to the sudo group

$ sudo usermod -aG sudo <user_name>

96. su

su - run a command with substitute user and group ID

su command without any option

$ su

To switch to root user

$ su -

su command to make the shell a login shell

$ su - frappe

To Use su with sudo command

$ sudo su - frappe

97. ulimit

ulimit - allows viewing or limiting system resource amounts that individual users consume

To find the resource amount that the current user has access to use

```
$ ulimit
```

To get a detailed report with all resource limits for the current user

```
$ ulimit -a
```

98. enable

enable command is used to enable or disable the shell built-in commands.

To list the shell builtin commands which are enabled

```
$ enable
```

To disable the shell builtin command alias

```
$ enable -n alias
```

check the list with

```
$ enable
```

```
$ alias c=clear
```

To make the alias command to enable again

```
$ enable alias
```

```
$ alias c=clear
```

```
$ c
```

To disable history command

```
$ enable -n history
```

check with

```
$ enable
```

```
$ history
```

To enable the history command

```
$ enable history
```

```
$ history
```

99. type

type - is used to display information about the command type

To find the type of ls command

$ type ls

To find the type of wc command

$ type wc

$ type type

To display more than one argument

$ type df free sleep head

To display the command is an alias, keyword or a function and path of an executable

$ type -a pwd

$ type -a ls

100. shutdown

shutdown - is used to shutdown the system in a safe way

To shutdown the system at a specified time 6 P.M

```
$ sudo shutdown 18:00
```

To schedule a system shutdown in 30 minutes from now

```
$ sudo shutdown +30
```

To cancel a scheduled shutdown

```
$ sudo shutdown -c
```

To shutdown the system immediately

```
$ sudo shutdown now
```

To halt your system

```
$ sudo shutdown -H
```

To make shutdown power-off machine

```
$ sudo shutdown -P
```

101. reboot

reboot - is used restart or reboot the system

To restart system

```
$ sudo reboot
$ sudo shutdown -r now
```

To restart remote server

```
$ ssh root@remote-server /sbin/reboot
```

To force immediate reboot

```
$ sudo reboot -f
```

102. help

help - displays the information about the built-in commands present in the Linux shell

To display information about help command

$ help help

$ help cd

To display short description about commands

$ help -d help

$ help -d ls

$ help -d cd

To display usage in pseudo-manpage format

$ help -m help

$ help -m pwd

103. at , atq , atrm

at, batch, atq, atrm - queue, examine, or delete jobs for later execution

To execute a command at 13.00 hours

$ at 13.00

warning: commands will be executed using /bin/sh

at Thu Aug 3 13:00:00 2023

at> df -Th > df.txt

at> CTRL+D

To list the jobs in queue

$ atq

To cancel the jobs in queue

$ atrm <job_number>

104. nologin

nologin – To add user with no shell access

To add a user without a login shell

$ sudo useradd -s /sbin/nologin user_name

To check

$ cat /etc/passwd | grep nologin

105. chsh

chsh - change login shell

To enable the shell access for the user

$ sudo chsh -s /bin/bash <username>

To change the login shell for user

$ chsh

106. crontab

crontab - maintain crontab files for individual users

To list crontab entries

$ crontab -l

create a script name sample.sh to display amount of free and used memory in the system with timestamp

$ cat > sample.sh

```
#!/bin/bash
free -h
echo "this is memory available"
current_time=$(date)
echo "time is: $current_time"
```

To execute this script for every 2 minutes and write to file called free.log

create free.log file

$ touch free.log

then

$ crontab -e

```
*/2 * * * * /bin/bash /home/venus/sample.sh >>
/home/venus/free.log
```

restart the cron.service

$ sudo systemctl restart cron.service

$ crontab -l

107. wget

wget - is used for non-interactive download of files from the Web

To download a file with wget

$ wget http://path/to/url

To download pdf from kaniyam

$ wget https://www.kaniyam.com/download/Learn%20GNU%20Linux%20in%20Tamil%20-%20Part%201.pdf

$ wget https://www.kaniyam.com/download/Learn-GNU-Linux-in-Tamil-Part-2.pdf

To download multiple files from a file

$ cat downloads.txt

http://path/to/url1

http://path/to/url2

http://path/to/url3

$ wget -i downloads.txt

To download multiple files with http and ftp

$ wget http://path/to/url1 http://path/to/url2

108. du

du - estimate file space usage

To check the disk usage summary of a directory

$ du /etc

$ du /home

To check disk usage in a human-readable format

$ du -h /etc

$ du -h /home/venus

To check the total usage size of a particular directory

$ du -sh /etc

To check the total usage size of current directory

$ du -hs *

To print the grand total for a directory

$ du -chs *

$ du -hsc /home/venus

109. systemctl

systemctl - Control the systemd system and service manager

To start service

$ sudo systemctl start mariadb.service

$ sudo systemctl start apache2.service

To stop service

$ sudo systemctl stop mariadb.service

$ sudo systemctl stop apache2.service

To restart service

$ sudo systemctl restart mariadb.service

$ sudo systemctl restart apache2.service

To check status of service

$ sudo systemctl status mariadb.service

$ sudo systemctl status apache2.service

To enable service

$ sudo systemctl enable mariadb.service

$ sudo systemctl enable apache2.service

To disable service

$ sudo systemctl disable mariadb.service

```
$ sudo systemctl disable apache2.service
```

To see the status of all services

```
$ sudo systemctl list-units --type=service
```

To List services by status

```
$ sudo systemctl list-units --type=service --state=active
$ systemctl list-units --type=service --state=running
$ systemctl list-units --type=service --state=stopped
$ systemctl list-units --type=service --state=enabled
$ systemctl list-units --type=service --state=disabled
$ systemctl list-units --type=service --state=failed
```

To Kill a service with signal 9

```
$ sudo systemctl kill -s 9 <service_name>
```

To reload daemon

```
$ systemctl daemon-reload
```

110. tar

tar - an archiving utility

```
$ mkdir tar_examples && cd tar_examples
$ mkdir files && cd files
$ touch file{0..1000}.txt
$ cd ..
```

To make archiving using tar

```
$ tar cf myfiles.tar files
```

To list files without extracting

```
$ tar tf myfiles.tar
```

To extract files myfiles.tar

```
$ tar -xvf myfiles.tar
```

To make archiving using gunzip tar.gz

```
$ tar cf myfiles.tar.gz files
```

To list files without extracting from tar.gz

```
$ tar tf myfiles.tar.gz
```

To extract files from myfiles.tar.gz

```
$ tar -xvzf myfiles.tar.gz
```

110. apt

apt - command-line interface for the package management

To Update System Packages

$ sudo apt update

To install packages

$ sudo apt install <package_name1> <package_name2>

$ sudo apt install vsftpd apache2 mariadb-server

To Check All Dependencies of a Package

$ sudo apt depends bind9

$ sudo apt depends vsftpd

To Search for a Package

$ sudo apt search apache2

$ sudo apt search vsftpd

To View Information About Package

$ sudo apt show apache2

$ sudo apt show vsftpd

To Upgrade System

$ sudo apt upgrade

To Remove Unused Packages

```
$ sudo apt autoremove
```

To Clean Old Repository of Downloaded Packages

```
$ sudo apt autoclean
```

To Remove Packages with its Configuration Files

```
$ sudo systemctl stop apache2
$ sudo apt purge apache2
$ sudo systemctl stop vsftpd
$ sudo apt purge vsftpd
```

To List Packages

```
$ sudo apt list
```

111. add-apt-repository

add-apt-repository - Adds a PPA repository into the /etc/apt/sources.list

To add a php PPA repository

```
$ sudo add-apt-repository ppa:PPA_REPOSITORY_NAME/PPA
$ sudo add-apt-repository ppa:ondrej/php
$ sudo apt update
```

Then install package

```
$ sudo apt install php
```

To remove the PPA repository

```
$ sudo add-apt-repository --remove ppa:PPA_REPO_NAME/PPA
$ sudo add-apt-repository --remove ppa:ondrej/php
```

112. rsync

rsync - a fast, versatile, remote (and local) file-copying tool

create a backup folder in Documents

$ mkdir -p /home/venus/Documents/backup

To backup .txt files to backup folder using rsync

$ rsync -v *.txt /home/venus/Documents/backup

To copy files from local to remote

$ rsync -av --progress *.txt your_username@remote_server:/home/kaniyam/

To copy files from remote to local

$ rsync -av --progress kaniyam@ip:/home/kaniyam/*.txt .

113. scp

scp - OpenSSH secure file copy

To copy a file from local to remote server

```
$ scp *.txt kaniyam@remote_server:/home/kaniyam/
```

To copy a file from remote server to local

```
$ scp kaniyam@remote_server:/home/kaniyam/file.txt .
```

To copy a folder from local host to remote server recursively

```
$ scp -r example_folder kaniyam@remote_server:/home/kaniyam/
```

To copy a folder from remote server to localhost recursively

```
$ scp -r kaniyam@remote_server:/home/kaniyam/example_folder .
```

114. curl

curl - is a tool for transferring data from or to a server

To transfer a url

$ curl https://www.ilugc.in

To transfer a url and write output to a file

$ curl https://www.kaniyam.com/ > curl_output.txt

To display a progress meter during use to indicate the transfer rate, amount of data transferred, time left, etc

$ curl -# -O https://www.kaniyam.com/download/Learn%20GNU%20Linux%20in%20Tamil%20-%20Part%201.pdf

115. free

free - Display amount of free and used memory in the system

To Display system memory

$ free

To Display memory in Bytes/KB/MB/GB

$ free -b

$ free -k

$ free -m

$ free -g

To display system memory in human-readable format

$ free -h

To Refresh the output every 2 seconds

$ free -s 2

To write the output to a file

$ free -h > free.log

116. ifconfig

ifconfig - configure a network interface

To display all the interfaces available

$ sudo ifconfig -a

To display a short list

$ sudo ifconfig -s

To View network settings of wlp2s0

$ ifconfig wlp2s0

117. ip

ip - show / manipulate routing, network devices, interfaces and tunnels

To displays info about all network interfaces

$ sudo ip a

$ sudo ip -4 a

To show running interfaces

$ sudo ip link ls up

To check

$ sudo ip addr show

To check route table

$ sudo ip route show

118. netstat

netstat - Print network connections, routing tables, interface statistics, masquerade connections, and multicast memberships

To list all ports:

$ netstat --all

To list all listening ports

$ netstat -l

To list listening TCP ports

$ netstat -at

TO list listening UDP ports

$ netstat -au

To List only listening TCP ports

$ netstat -lt

To List the statistics for all ports.

$ netstat -s

To print the netstat information continuously

$ netstat -c

To use grep with netstat

$ sudo netstat -tulpn | grep 80

$ sudo netstat -tulpn | grep https

119. ping

ping - send ICMP ECHO_REQUEST to network hosts

To check whether a remote host is up

$ ping google.com

$ ping ilugc.in

To limit the number of pings

$ ping -c 5 google.com

$ ping -c 10 ilugc.in

To print only summary statistics

$ ping -c 5 -q google.com

120. alias

alias - Creates aliases -- words that are replaced by a command string. Aliases expire with the current shell session unless defined in the shell's configuration file, e.g. ~/.bashrc.

$ alias c=clear

$ alias u=uptime

$ alias f=free -h

$ c

$ u

$ f

if shell is closed the alias will not work next session

To make it permanent

$ vim ~/.bashrc

alias c=’clear’

alias u=’uptime’

aliad f=’free -h’

:wq! Save and exit

To make it to operational

$ source ~/.bashrc

121. unalias

unalias - Remove aliases

To remove the aliases in the current shell

```
$ unalias c
$ unalias u
$ unalias f
```

when the shell is closed and opened again the alias will work , to make the changes permanent we need to remove the alias in ~/.bashrc file

122. clear

clear - clear the terminal screen

clear the terminal

$ clear

or

CTRL+l

or

$ reset

123. source

source - Execute commands from a file in the current shell

```
$ source ~/.bashrc
$ source /etc/profile
```

```
$ cat > example.txt
free -h
pwd
date
time
uptime
```

```
$ source example.txt
```

124. sh

sh - is a command language interpreter that executes commands read from a command line string, the standard input, or a specified file.

To Invoke the Bourne shell

```
$ sh
```

To run the bash script

```
$ sh example.sh
```

125. ssh

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

To access remote server

$ ssh user@192.168.122.50

$ ssh user@my.server.in

To use a different port number for ssh connection

$ ssh user@my.server.in -p 2222

$ ssh user@192.168.122.50 -p 2222

126. tldr

tldr - Display simple help pages for command-line tools

To update the local cache of tldr pages

```
$ tldr -u
```

To view tldr pages of commands

```
$ tldr free
$ tldr df
$ tldr du
```