

🔧 mkdir

mkdir linux-basics: creates a new directory with the specified name.

```
aws Services Search [Alt+S]
ubuntu@ip-172-31-81-27:~$ mkdir linux-basics
ubuntu@ip-172-31-81-27:~$ ls
linux-basics
ubuntu@ip-172-31-81-27:~$
```

- mkdir dev qa prod : creates multiple directories at once.
- mkdir logfolder{1..10} : creates a range of directories with sequential numbers from 1 to 10.

```
aws Services Search [Alt+S]
ubuntu@ip-172-31-81-27:~$ mkdir dev qa prod
ubuntu@ip-172-31-81-27:~$ ls
dev linux-basics prod qa
ubuntu@ip-172-31-81-27:~$ mkdir logfolder{1..10}
ubuntu@ip-172-31-81-27:~$ ls
dev          logfolder1  logfolder2  logfolder4  logfolder6  logfolder8  prod
linux-basics logfolder10 logfolder3  logfolder5  logfolder7  logfolder9  qa
ubuntu@ip-172-31-81-27:~$
```

🔧 sudo: stands for ‘superuser do’

sudo [options] [cmd]: It is used to execute commands as a root user or super user.

- sudo apt-get update : updates the package list

```
aws Services Search [Alt+S]
ubuntu@ip-172-31-81-27:~$ apt-get update
Reading package lists... Done
E: Could not open lock file /var/lib/apt/lists/lock - open (13: Permission denied)
E: Unable to lock directory /var/lib/apt/lists/
W: Problem unlinking the file /var/cache/apt/pkgcache.bin - RemoveCaches (13: Permission denied)
W: Problem unlinking the file /var/cache/apt/srcpkgcache.bin - RemoveCaches (13: Permission denied)
ubuntu@ip-172-31-81-27:~$ sudo apt-get update
Hit:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]
Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease [108 kB]
Get:4 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Get:5 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 Packages [14.1 MB]
Get:6 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/universe Translation-en [5652 kB]
Get:7 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 c-n-f Metadata [286 kB]
Get:8 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/multiverse amd64 Packages [217 kB]
Get:9 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/multiverse Translation-en [112 kB]
Get:10 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/multiverse amd64 c-n-f Metadata [8372 B]
Get:11 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages [1031 kB]
Get:12 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main Translation-en [216 kB]
Get:13 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 c-n-f Metadata [14.1 kB]
```

- `sudo -u username touch file.txt` : creates a new file “file.txt” with the ownership of “username”.

```
aws Services Search [Alt+S]
ubuntu@ip-172-31-81-27:~$ sudo -u ubuntu touch file.txt
ubuntu@ip-172-31-81-27:~$ ls
dev file.txt linux-basics prod qa
ubuntu@ip-172-31-81-27:~$
```

- `sudo -s` : starts a new shell with root privileges.

```
aws Services Search [Alt+S] N. Virginia Tejashree-AWS
ubuntu@ip-172-31-81-27:~$ sudo -s
root@ip-172-31-81-27:/home/ubuntu# ls
dev logfolder1 logfolder2 logfolder4 logfolder6 logfolder8 prod
linux-basics logfolder10 logfolder3 logfolder5 logfolder7 logfolder9 qa
root@ip-172-31-81-27:/home/ubuntu#
```

🔊 history

`history` : display all the commands which we have executed on a terminal.

```
aws Services Search
ubuntu@ip-172-31-81-27:~$ history
 1  ls
 2  clear
 3  cd
 4  ls
 5  cd linux-devops
 6  mkdir linux-devops
 7  rm -rf linux-devops
 8  rm -rf dev
 9  rm -rf logfolder{1..10}
10  ls
11  rm -rf prod qa
12  ls
13  clear
14  ls
15  clear
16  history
17  clear
18  mkdir linux-basics
19  ls
```

🔊 `ls`

`ls` : list the contents of the current working directory

- `ls -l` : list the content in long format with permissions, owner, size, and last modified date for each directory
- `ls -a` : list all files in the directory, including hidden files that start with a dot (.) character.

```
aws Services Search [Alt+S] N. Virginia Tejashree-AWS
ubuntu@ip-172-31-81-27:~$ ls
dev file.txt linux-basics prod qa
ubuntu@ip-172-31-81-27:~$ ls -l
total 16
drwxrwxr-x 2 ubuntu ubuntu 4096 Apr 24 10:34 dev
-rw-rw-r-- 1 ubuntu ubuntu 0 Apr 24 10:47 file.txt
drwxrwxr-x 2 ubuntu ubuntu 4096 Apr 24 10:33 linux-basics
drwxrwxr-x 2 ubuntu ubuntu 4096 Apr 24 10:34 prod
drwxrwxr-x 2 ubuntu ubuntu 4096 Apr 24 10:34 qa
ubuntu@ip-172-31-81-27:~$ ls -a
. . . .bash_logout .bashrc .cache .lessht .profile .ssh .sudo_as_admin_successful dev file.txt linux-basics prod qa
ubuntu@ip-172-31-81-27:~$
```

- `ls -R` : list the content of the current directory and its sub-directories recursively.

```
ubuntu@ip-172-31-81-27:~$ ls -R
.:
dev  file.txt  linux-basics  prod  qa

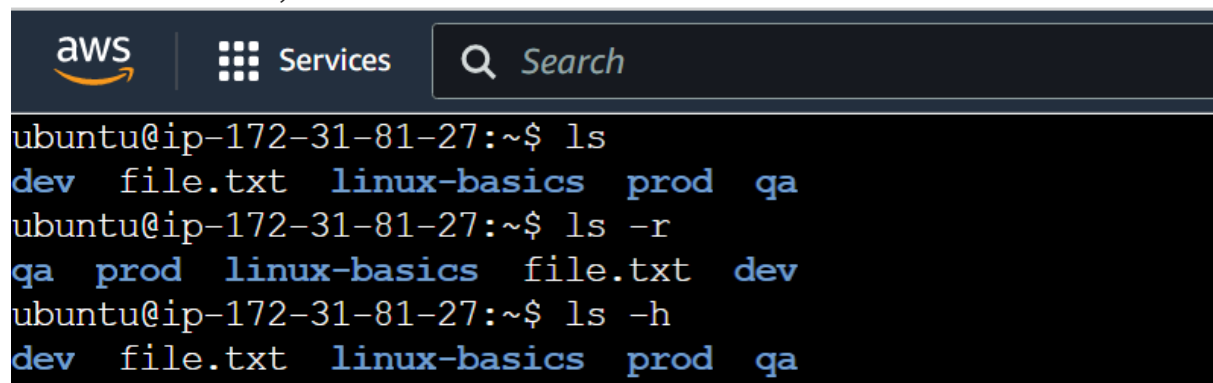
./dev:

./linux-basics:

./prod:

./qa:
ubuntu@ip-172-31-81-27:~$
```

- `ls -r` : reverse the order of display. Older files are listed first.
- `ls -h` : display file size in a human-readable format. eg KB, MB, or GB.



The screenshot shows the AWS console header with the AWS logo, a 'Services' menu, and a search bar. Below the header is a terminal window showing the following commands and output:

```
ubuntu@ip-172-31-81-27:~$ ls
dev  file.txt  linux-basics  prod  qa
ubuntu@ip-172-31-81-27:~$ ls -r
qa  prod  linux-basics  file.txt  dev
ubuntu@ip-172-31-81-27:~$ ls -h
dev  file.txt  linux-basics  prod  qa
```

we can also combine the above options:

- `ls -alh` : display the content of the directory including hidden files in a long format with file size displayed in a human-readable format.

```
aws Services Search [Alt]
ubuntu@ip-172-31-81-27:~$ ls -alh
total 48K
drwxr-x--- 8 ubuntu ubuntu 4.0K Apr 24 10:47 .
drwxr-xr-x 3 root root 4.0K Apr 23 09:43 ..
-rw-r--r-- 1 ubuntu ubuntu 220 Jan 6 2022 .bash_logout
-rw-r--r-- 1 ubuntu ubuntu 3.7K Jan 6 2022 .bashrc
drwx----- 2 ubuntu ubuntu 4.0K Apr 23 09:45 .cache
-rw----- 1 ubuntu ubuntu 20 Apr 23 10:18 .lessht
-rw-r--r-- 1 ubuntu ubuntu 807 Jan 6 2022 .profile
drwx----- 2 ubuntu ubuntu 4.0K Apr 23 09:43 .ssh
-rw-r--r-- 1 ubuntu ubuntu 0 Apr 23 09:48 .sudo_as_admin_successful
drwxrwxr-x 2 ubuntu ubuntu 4.0K Apr 24 10:34 dev
-rw-rw-r-- 1 ubuntu ubuntu 0 Apr 24 10:47 file.txt
drwxrwxr-x 2 ubuntu ubuntu 4.0K Apr 24 10:33 linux-basics
drwxrwxr-x 2 ubuntu ubuntu 4.0K Apr 24 10:34 prod
drwxrwxr-x 2 ubuntu ubuntu 4.0K Apr 24 10:34 qa
ubuntu@ip-172-31-81-27:~$
```

cd

`cd <path/to/directory>` : will take you to the specified directory path.

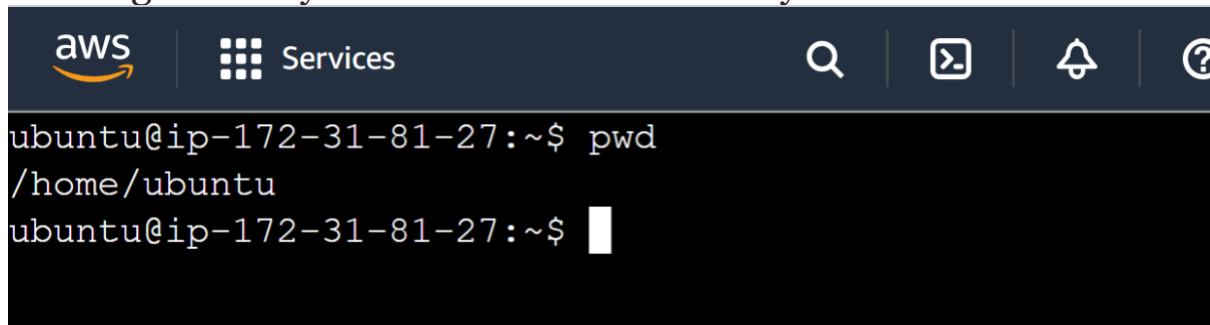
```
ubuntu@ip-172-31-81-27:~$ ls
my-file.txt my-folder
ubuntu@ip-172-31-81-27:~$ pwd
/home/ubuntu
ubuntu@ip-172-31-81-27:~$ cd my-folder
ubuntu@ip-172-31-81-27:~/my-folder$ ls
ubuntu@ip-172-31-81-27:~/my-folder$ pwd
/home/ubuntu/my-folder
ubuntu@ip-172-31-81-27:~/my-folder$
```

- `cd ~` : used to navigate to the home directory.
- `cd /` : take you to the root directory
- `cd ..` : move up one directory

```
aws Services Search [Alt+S] N. Virginia Tejashree-AWS
ubuntu@ip-172-31-81-27:~$ cd dev
ubuntu@ip-172-31-81-27:~/dev$ cd ..
ubuntu@ip-172-31-81-27:~$ ls
dev logfolder1 logfolder10 logfolder2 logfolder3 logfolder4 logfolder5 logfolder6 logfolder7 logfolder8 logf
older9 prod qa
ubuntu@ip-172-31-81-27:~$ cd ~
ubuntu@ip-172-31-81-27:~$ ls
dev logfolder1 logfolder10 logfolder2 logfolder3 logfolder4 logfolder5 logfolder6 logfolder7 logfolder8 logf
older9 prod qa
ubuntu@ip-172-31-81-27:~$ cd /
ubuntu@ip-172-31-81-27:/$ ls
bin boot dev etc home lib lib32 lib64 libx32 lost+found media mnt opt proc root run sbin snap srv s
ys usr var
ubuntu@ip-172-31-81-27:/$
```

pwd

`pwd`: It stands for print working directory. It prints the current working directory in which the user currently is.

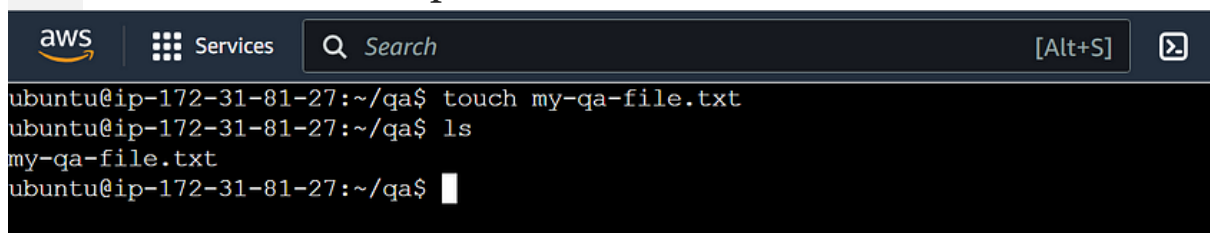
A terminal window with a dark background. The top bar is dark blue with the AWS logo, a grid icon, and the word 'Services'. On the right are icons for search, terminal, notifications, and help. The terminal text shows a user prompt 'ubuntu@ip-172-31-81-27:~\$' followed by the command 'pwd', the output '/home/ubuntu', and another prompt 'ubuntu@ip-172-31-81-27:~\$' with a cursor.

```
aws | Services | Search | Terminal | Notifications | Help
ubuntu@ip-172-31-81-27:~$ pwd
/home/ubuntu
ubuntu@ip-172-31-81-27:~$
```

» File Operations

`touch`

`touch`: This command helps to create a new file.

A terminal window with a dark background. The top bar is dark blue with the AWS logo, a grid icon, 'Services', a search bar with 'Search' and '[Alt+S]', and a terminal icon. The terminal text shows a user prompt 'ubuntu@ip-172-31-81-27:~/qa\$' followed by the command 'touch my-qa-file.txt', then 'ls', and the output 'my-qa-file.txt'. The prompt ends with a cursor.

```
aws | Services | Search [Alt+S] | Terminal
ubuntu@ip-172-31-81-27:~/qa$ touch my-qa-file.txt
ubuntu@ip-172-31-81-27:~/qa$ ls
my-qa-file.txt
ubuntu@ip-172-31-81-27:~/qa$
```

`cat`

`cat filename` : used to display the content of the file

- `cat file1 file2 > newfile` : concatenate file1 , file2 content in newfile.
- `cat file1 >> file2` : appends the file1 content to file2.
- `cat -n filename` : display the content with line numbers.
- `cat -E filename` : display the content with a \$ sign at the end of each line.

- `cat -T filename` : display the content of the filename with tabs.

```
ubuntu@ip-172-31-81-27:~$ cat file.txt
Hello Dosto, We are learning Linux
ubuntu@ip-172-31-81-27:~$ cat file2.txt
Hey, We are excited!
ubuntu@ip-172-31-81-27:~$ cat file.txt file2.txt > newfile.txt
ubuntu@ip-172-31-81-27:~$ ls
dev file.txt file2.txt hello linux-basics newfile newfile.txt prod qa
ubuntu@ip-172-31-81-27:~$ cat newfile.txt

Hello Dosto, We are learning Linux
Hey, We are excited!
ubuntu@ip-172-31-81-27:~$ cat -n file.txt
  1
  2 Hello Dosto, We are learning Linux
ubuntu@ip-172-31-81-27:~$ cat -E file.txt
$
Hello Dosto, We are learning Linux$
ubuntu@ip-172-31-81-27:~$ cat -T filename
cat: filename: No such file or directory
ubuntu@ip-172-31-81-27:~$ cat -T file.txt
Hello Dosto, We are learning Linux
```

🔗 cp

`cp src dest` : copy a file/ directory to another location

- `cp file1.txt file2.txt`: This will copy the content of file1 to file2 which is in the same directory.

```
aws Services Search
ubuntu@ip-172-31-81-27:~$ cat file.txt
Hello Dosto, We are learning Linux
ubuntu@ip-172-31-81-27:~$ cat file2.txt
Hey, We are excited!
ubuntu@ip-172-31-81-27:~$ cp file.txt file2.txt
ubuntu@ip-172-31-81-27:~$ cat file2.txt
Hello Dosto, We are learning Linux
ubuntu@ip-172-31-81-27:~$
```

- `cp -v file.txt dev` : It copies the file.txt to the dev directory in verbose mode. Hence you were able to see the progress.

```
aws | Services | Search [Alt+S]
ubuntu@ip-172-31-81-27:~$ ls
dev file.txt file2.txt hello linux-basics newfile newfile.txt prod qa
ubuntu@ip-172-31-81-27:~$ cd dev
ubuntu@ip-172-31-81-27:~/dev$ ls
ubuntu@ip-172-31-81-27:~/dev$ cd ..
ubuntu@ip-172-31-81-27:~$ cp -v file.txt dev
'file.txt' -> 'dev/file.txt'
ubuntu@ip-172-31-81-27:~$ cd dev
ubuntu@ip-172-31-81-27:~/dev$ ls
file.txt
ubuntu@ip-172-31-81-27:~/dev$
```

- `cp -r dev qa` : copies dir and sub-dir to destination dir

```
aws | Services | Search
ubuntu@ip-172-31-81-27:~$ cp -r dev qa
ubuntu@ip-172-31-81-27:~$ cd qa
ubuntu@ip-172-31-81-27:~/qa$ ls -R
.:
dev qa

./dev:
file.txt

./qa:
file.txt
```

mv

`mv file.txt file3.txt` : moves or renames a file or directory.


```
aws | Services | Search
ubuntu@ip-172-31-81-27:~/dev$ ls
file.txt
ubuntu@ip-172-31-81-27:~/dev$ mv file.txt file3.txt
ubuntu@ip-172-31-81-27:~/dev$ ls
file3.txt
ubuntu@ip-172-31-81-27:~/dev$
```

rm

rm file/directory_name : removes a file or directory

- rm file.txt : delete the file
- rm -r qa : recursively delete the file and folders.

```
aws | Services | Search
ubuntu@ip-172-31-81-27:~$ rm file.txt
ubuntu@ip-172-31-81-27:~$ ls
dev file2.txt hello linux-basics newfile newfile.txt prod qa
ubuntu@ip-172-31-81-27:~$ rm -r qa
ubuntu@ip-172-31-81-27:~$ ls
dev file2.txt hello linux-basics newfile newfile.txt prod
```

- rm -rf prod : forcefully deletes the directory/file, to remove a directory we need to use -r.

```
ubuntu@ip-172-31-81-27:~$ rm -rf prod
ubuntu@ip-172-31-81-27:~$ ls
dev file2.txt hello linux-basics newfile newfile.txt
ubuntu@ip-172-31-81-27:~$
```

➤ Text Processing

grep

`grep [options] [pattern] [filename]` : ‘globally search for a regular expression and print’. It is used for text search and filtering based on regular expressions and returns the lines which match the pattern.

Eg: log analysis, system monitoring, and code debugging.

- `grep "INFO" logfile.txt` : this will return the search which has the INFO keyword from logfile.txt

```
aws Services Search [Alt+S]
ubuntu@ip-172-31-81-27:~$ grep "INFO" logfile.txt
03/22 08:51:01 INFO :.main: ***** RSVP Agent started *****
03/22 08:51:01 INFO :...locate configFile: Specified configuration file: /u/user10/rsvpd1.conf
03/22 08:51:01 INFO :.main: Using log level 511
03/22 08:51:01 INFO :.settcpimage: Get TCP images rc - EDC8112I Operation not supported on socket.
03/22 08:51:01 INFO :.settcpimage: Associate with TCP/IP image name = TCPCS
03/22 08:51:02 INFO :.reg_process: registering process with the system
03/22 08:51:02 INFO :.reg_process: attempt OS/390 registration
03/22 08:51:02 INFO :.reg_process: return from registration rc=0
03/22 08:51:06 INFO :...read_physical_netif: index #0, interface VLINK1 has address 129.1.1.1, ifidx 0
03/22 08:51:06 INFO :...read_physical_netif: index #1, interface TR1 has address 9.37.65.139, ifidx 1
03/22 08:51:06 INFO :...read_physical_netif: index #2, interface LINK11 has address 9.67.100.1, ifidx 2
03/22 08:51:06 INFO :...read_physical_netif: index #3, interface LINK12 has address 9.67.101.1, ifidx 3
03/22 08:51:06 INFO :...read_physical_netif: index #4, interface CTCDO has address 9.67.116.98, ifidx 4
03/22 08:51:06 INFO :...read_physical_netif: index #5, interface CTCDD has address 9.67.117.98, ifidx 5
03/22 08:51:06 INFO :...read_physical_netif: index #6, interface LOOPBACK has address 127.0.0.1, ifidx 0
03/22 08:51:06 INFO :...mailslot create: creating mailslot for timer
```

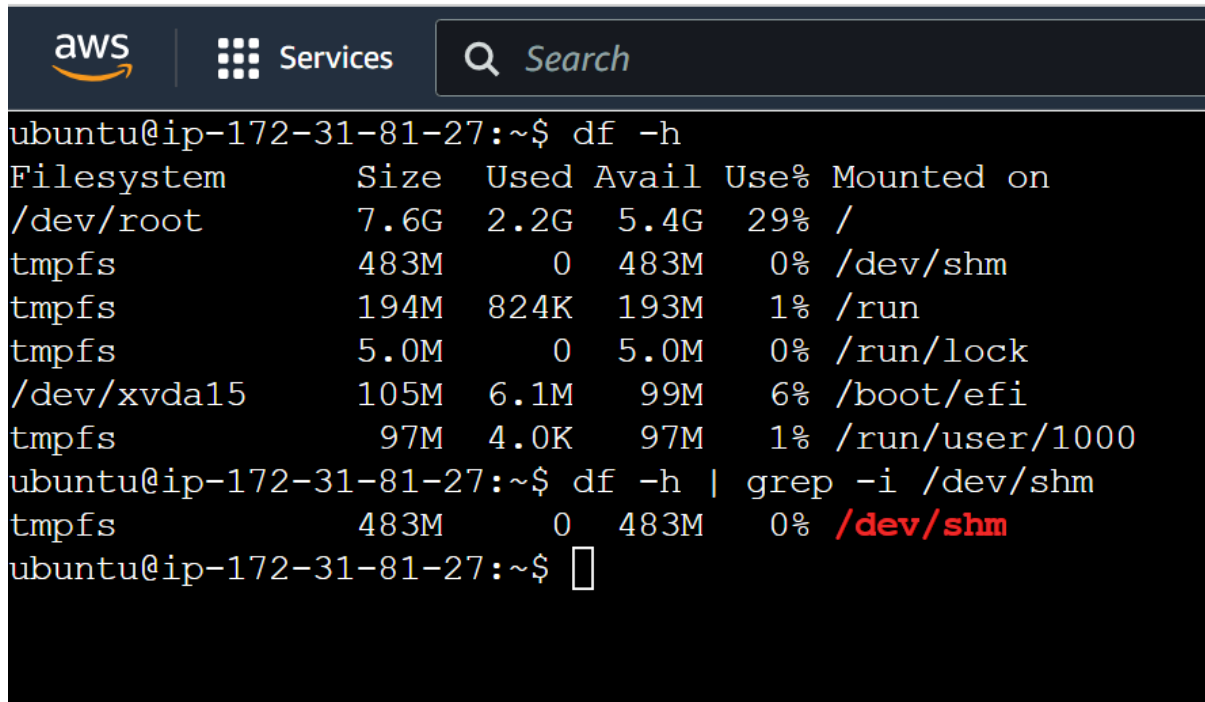
- `grep "ERROR" -r -i /home/ubuntu` : this will try to find the ‘error’ keyword in the path /home.

```
aws Services Search [Alt+S] N. Virginia Tejasree-AWS
ubuntu@ip-172-31-81-27:~$ grep "ERROR" -r -i /home
/home/ubuntu/.bashrc:# colored GCC warnings and errors
/home/ubuntu/.bashrc:#export GCC_COLORS='error=01;31:warning=01;35:note=01;36:caret=01;32:locus=01:quote=01'
/home/ubuntu/.bashrc: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$/\s*'"
ubuntu@ip-172-31-81-27:~$
```

- `top | grep -i systemd` : grep can be combined with other Linux commands and search for the exact pattern.

```
aws Services Search [Alt+S] N. Virginia
ubuntu@ip-172-31-81-27:~$ top | grep -i systemd
  1 root      20   0 101852 12776  8248 S   0.0   1.3   0:03.36 systemd
```

- `df -h | grep -i /dev/shm` : here we combined grep with disk space command and searched for /dev/shm



```
aws | Services | Search
ubuntu@ip-172-31-81-27:~$ df -h
Filesystem      Size  Used Avail Use% Mounted on
/dev/root        7.6G  2.2G  5.4G  29% /
tmpfs            483M   0    483M   0% /dev/shm
tmpfs            194M  824K  193M   1% /run
tmpfs            5.0M   0    5.0M   0% /run/lock
/dev/xvda15      105M   6.1M   99M   6% /boot/efi
tmpfs            97M   4.0K   97M   1% /run/user/1000
ubuntu@ip-172-31-81-27:~$ df -h | grep -i /dev/shm
tmpfs            483M   0    483M   0% /dev/shm
ubuntu@ip-172-31-81-27:~$
```

🔗 awk

`awk <condition> {<action>} filename`: awk is a programming language and has its own syntax. It is used for text processing and manipulation.

Eg: Data extraction, Report generation or Data Manipulation.

- `awk '/INFO/ {print $1 $2 $3 $6} logfile.txt` : here, you can pass the pattern 'INFO' and condition to print columns 1, 2, 3, and 6 of a log file.

```
aws Services Search
ubuntu@ip-172-31-81-27:~$ awk '/INFO/ {print $1 $2 $3 $6}' logfile.txt
03/2208:51:01INFOFORVIP
03/2208:51:01INFOconfiguration
03/2208:51:01INFOlog
03/2208:51:01INFOTCP
03/2208:51:01INFOwith
03/2208:51:02INFOprocess
03/2208:51:02INFOOS/390
03/2208:51:02INFOfrom
03/2208:51:06INFO#0,
03/2208:51:06INFO#1,
03/2208:51:06INFO#2,
03/2208:51:06INFO#3,
03/2208:51:06INFO#4,
03/2208:51:06INFO#5,
03/2208:51:06INFO#6,
03/2208:51:06INFOmailslot
03/2208:51:06INFOallocated
03/2208:51:06INFOmailslot
```

- `awk -F',' '{print $1, $3}' fruits.txt` : This will split on delimiter and print the values of columns 1 and 3 in the output

```
ubuntu@ip-172-31-81-27:~$ cat > fruits.txt
apples,10,good
blueberry,20,awesome
mango,30,man-goes
ubuntu@ip-172-31-81-27:~$ awk -F',' '{print $1, $3}' fruits.txt
apples good
blueberry awesome
mango man-goes
ubuntu@ip-172-31-81-27:~$
```

- `awk -F',' '$2 > 75 {print $1}' marks.txt` : This will split on delimiter and then the marks of students and will print their names if marks are greater than 75.

```
aws | Services | Search [A]
ubuntu@ip-172-31-81-27:~$ cat marks.txt
Tej,90
Jessica,94
Akash,93
Sidharth,95
Chetan,100
VijayRaj,10
Debu,30
ubuntu@ip-172-31-81-27:~$ awk -F',' '$2 > 75 {print $1}' marks.txt
Tej
Jessica
Akash
Sidharth
Chetan
```

🔍 find

find : used to find files and directories in a given directory. It uses the name, size, type, or modified time of the file to search.

Eg: file management, backup, and system administration.

- `find . -name "logfile.txt"` : this will find the file by name in the current dir and its sub-directories.
- `find . -name "*.txt"` : this will find all the files with the extension .txt

```
aws | Services | Search
ubuntu@ip-172-31-81-27:~$ find . -name "logfile.txt"
./logfile.txt
ubuntu@ip-172-31-81-27:~$ find . -name "*.txt"
./marks.txt
./logfile.txt
./newfile.txt
./file2.txt
./fruits.txt
./dev/file3.txt
ubuntu@ip-172-31-81-27:~$
```

- `find . -type d` : this finds all the directories from the current directory.
- `find . -type f -size +10M` : this finds all the greater than 10M
- `find . -name "logfile.txt" -delete` : deletes all the files which match the filename.

```

aws Services Search [Alt+S]
ubuntu@ip-172-31-81-27:~$ find . -type d
.
./linux-basics
./.ssh
./config
./config/procps
./dev
./cache
ubuntu@ip-172-31-81-27:~$ find . -type f -size +3k
./bashrc
./logfile.txt
ubuntu@ip-172-31-81-27:~$ find . -name "logfile.txt" -delete
ubuntu@ip-172-31-81-27:~$ ls
dev file2.txt fruits.txt hello linux-basics marks.txt newfile newfile.txt
ubuntu@ip-172-31-81-27:~$

```

🔪 sed

`sed [options] [pattern] [filename]` : It's used to search, transform and replace in the file/output of the command.

- `sed -i 's/bitter/awesome/g' logfile.txt` : It will replace the old text with the new text in a file. `-i` stands for editing a file in place, `-g` stands for replacing all occurrences, and `-s` stands for substituting the old value with the new one.

```
aws | Services | Search
ubuntu@ip-172-31-81-27:~$ cat fruits.txt
apples,good
mangoes,cool
blueberry,awesome
pear,awesome
avacado,bitter
ubuntu@ip-172-31-81-27:~$ sed -i 's/bitter/awesome/g' fruits.txt
ubuntu@ip-172-31-81-27:~$ cat fruits.txt
apples,good
mangoes,cool
blueberry,awesome
pear,awesome
avacado,awesome
ubuntu@ip-172-31-81-27:~$
```

- `sed -i '3s/cool/sweet/' file.txt`: replace the first occurrence of old text with new text but only on line 3 of a file

```
aws | Services | Search
ubuntu@ip-172-31-81-27:~$ cat fruits.txt
apples,good
mangoes,cool
blueberry,awesome
pear,awesome
avacado,awesome
ubuntu@ip-172-31-81-27:~$ sed -i '3s/cool/sweet/' fruits.txt
ubuntu@ip-172-31-81-27:~$ cat fruits.txt
apples,good
mangoes,cool
blueberry,awesome
pear,awesome
avacado,awesome
ubuntu@ip-172-31-81-27:~$
```

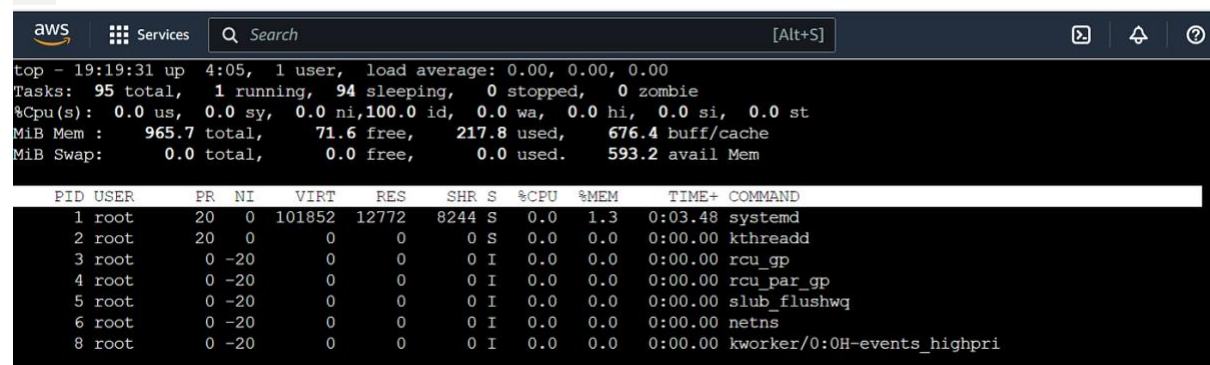
- `sed -i '/awesome/d' file.txt` : delete all lines containing the word 'awesome' in a file.

```
ubuntu@ip-172-31-81-27:~$ cat fruits.txt
apples,good
mangoes,cool
blueberry,awesome
pear,awesome
avacado,awesome
ubuntu@ip-172-31-81-27:~$ sed -i '/awesome/d' fruits.txt
ubuntu@ip-172-31-81-27:~$ cat fruits.txt
apples,good
mangoes,cool
ubuntu@ip-172-31-81-27:~$
```

» System Information

🔊 top

top : It gives the system resources usage in real-time.

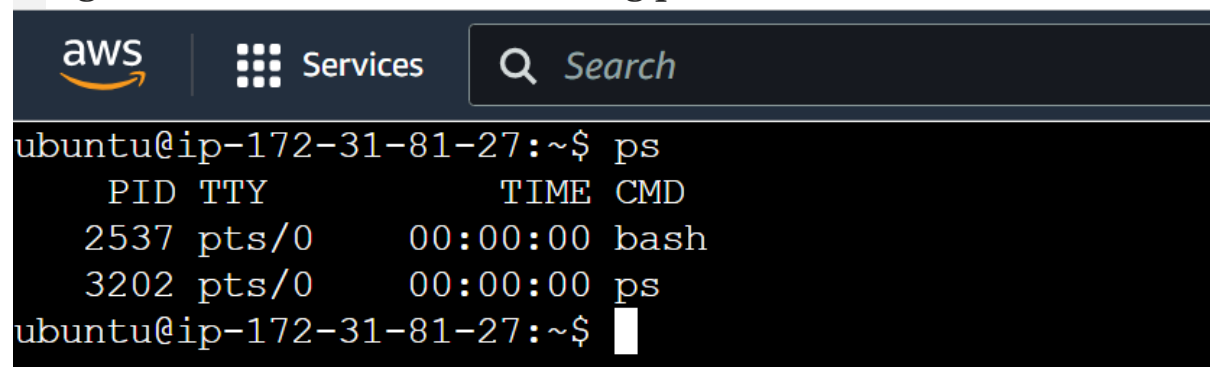


```
top - 19:19:31 up 4:05, 1 user, load average: 0.00, 0.00, 0.00
Tasks: 95 total, 1 running, 94 sleeping, 0 stopped, 0 zombie
%Cpu(s): 0.0 us, 0.0 sy, 0.0 ni,100.0 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
MiB Mem : 965.7 total, 71.6 free, 217.8 used, 676.4 buff/cache
MiB Swap: 0.0 total, 0.0 free, 0.0 used. 593.2 avail Mem
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
1	root	20	0	101852	12772	8244	S	0.0	1.3	0:03.48	systemd
2	root	20	0	0	0	0	S	0.0	0.0	0:00.00	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_gp
5	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	slub_flushwq
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/0:0H-events_highpri

🔊 ps

ps : gives information about running processes.



```
ubuntu@ip-172-31-81-27:~$ ps
```

PID	TTY	TIME	CMD
2537	pts/0	00:00:00	bash
3202	pts/0	00:00:00	ps

```
ubuntu@ip-172-31-81-27:~$
```

🔊 df

`df` : gives the disk space usage

```
aws | Services | Search
ubuntu@ip-172-31-81-27:~$ df
Filesystem      1K-blocks    Used Available Use% Mounted on
/dev/root        7941576 2356028   5569164  30% /
tmpfs            494460      0    494460   0% /dev/shm
tmpfs            197788      832   196956   1% /run
tmpfs             5120        0     5120   0% /run/lock
/dev/xvda15      106858      6182   100677   6% /boot/efi
tmpfs            98892        4    98888   1% /run/user/1000
```

🔧 free

`free` : gives the system memory usage

```
ubuntu@ip-172-31-81-27:~$ free -m
              total        used         free       shared    buff/cache   available
Mem:           965         217           71           0          676         593
Swap:            0            0            0
```

🔧 uname

`uname -u` : displays system name

```
aws | Services | Search | N. Virginia | Tejashree-AWS
ubuntu@ip-172-31-81-27:~$ uname -a
Linux ip-172-31-81-27 5.19.0-1023-aws #24~22.04.1-Ubuntu SMP Wed Mar 29 15:23:31 UTC 2023 x86_64 x86_64 x86_64 GNU/Linux
ubuntu@ip-172-31-81-27:~$
```

➤ Networking

🔧 ping

`ping google.com` : checks the connectivity by sending packets to the host.

```
aws Services Search [Alt+S]
ubuntu@ip-172-31-81-27:~$ ping google.com
PING google.com (172.253.122.101) 56(84) bytes of data.
64 bytes from bh-in-f101.1e100.net (172.253.122.101): icmp_seq=1 ttl=100 time=2.29 ms
64 bytes from bh-in-f101.1e100.net (172.253.122.101): icmp_seq=2 ttl=100 time=2.29 ms
64 bytes from bh-in-f101.1e100.net (172.253.122.101): icmp_seq=3 ttl=100 time=2.30 ms
64 bytes from bh-in-f101.1e100.net (172.253.122.101): icmp_seq=4 ttl=100 time=2.36 ms
64 bytes from bh-in-f101.1e100.net (172.253.122.101): icmp_seq=5 ttl=100 time=2.35 ms
64 bytes from bh-in-f101.1e100.net (172.253.122.101): icmp_seq=6 ttl=100 time=2.27 ms
64 bytes from bh-in-f101.1e100.net (172.253.122.101): icmp_seq=7 ttl=100 time=2.37 ms
^C
--- google.com ping statistics ---
7 packets transmitted, 7 received, 0% packet loss, time 6011ms
rtt min/avg/max/mdev = 2.272/2.318/2.365/0.035 ms
ubuntu@ip-172-31-81-27:~$
```

ssh

ssh -i user@remote_host: This allows to connect to remote server via ssh

```
D:\Users\trajendra\Downloads\Trainwithshubham\pemfile>ssh -i "devops-practice.pem" ubuntu@211-254-16.compute-1.amazonaws.com
Welcome to Ubuntu 22.04.2 LTS (GNU/Linux 5.19.0-1023-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

System information as of Wed Apr 26 19:35:37 UTC 2023

System load: 0.06787109375 Processes: 99
Usage of /: 29.7% of 7.57GB Users logged in: 1
Memory usage: 27% IPv4 address for eth0: 172.31.81.27
Swap usage: 0%

 * Ubuntu Pro delivers the most comprehensive open source security and
 * compliance features.
 * https://ubuntu.com/aws/pro
 * Introducing Expanded Security Maintenance for Applications.
 * Receive updates to over 25,000 software packages with your
 * Ubuntu Pro subscription. Free for personal use.
 * https://ubuntu.com/aws/pro

Expanded Security Maintenance for Applications is not enabled.

28 updates can be applied immediately.
10 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

Last login: Wed Apr 26 19:33:20 2023 from 172-31-81-27
ubuntu@ip-172-31-81-27:~$
```

scp

scp filename remotehost:localpath : these commands copy files from the remote host to the local system.

➤ User and Group Management

These commands are used for managing user accounts, groups, and passwords.

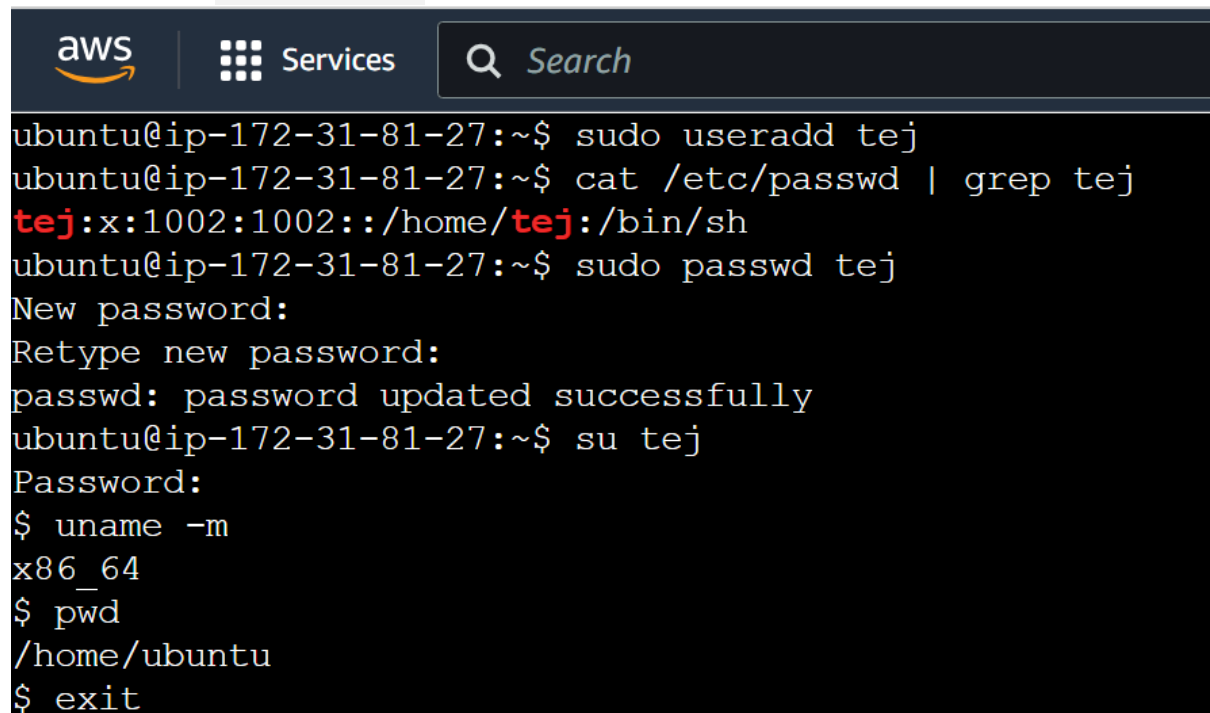
useradd

`useradd username` : this will add a new user

passwd

`passwd username` : change the password of the user

- `cat /etc/passwd` : to view all users



```
aws | Services | Search
ubuntu@ip-172-31-81-27:~$ sudo useradd tej
ubuntu@ip-172-31-81-27:~$ cat /etc/passwd | grep tej
tej:x:1002:1002::/home/tej:/bin/sh
ubuntu@ip-172-31-81-27:~$ sudo passwd tej
New password:
Retype new password:
passwd: password updated successfully
ubuntu@ip-172-31-81-27:~$ su tej
Password:
$ uname -m
x86_64
$ pwd
/home/ubuntu
$ exit
```

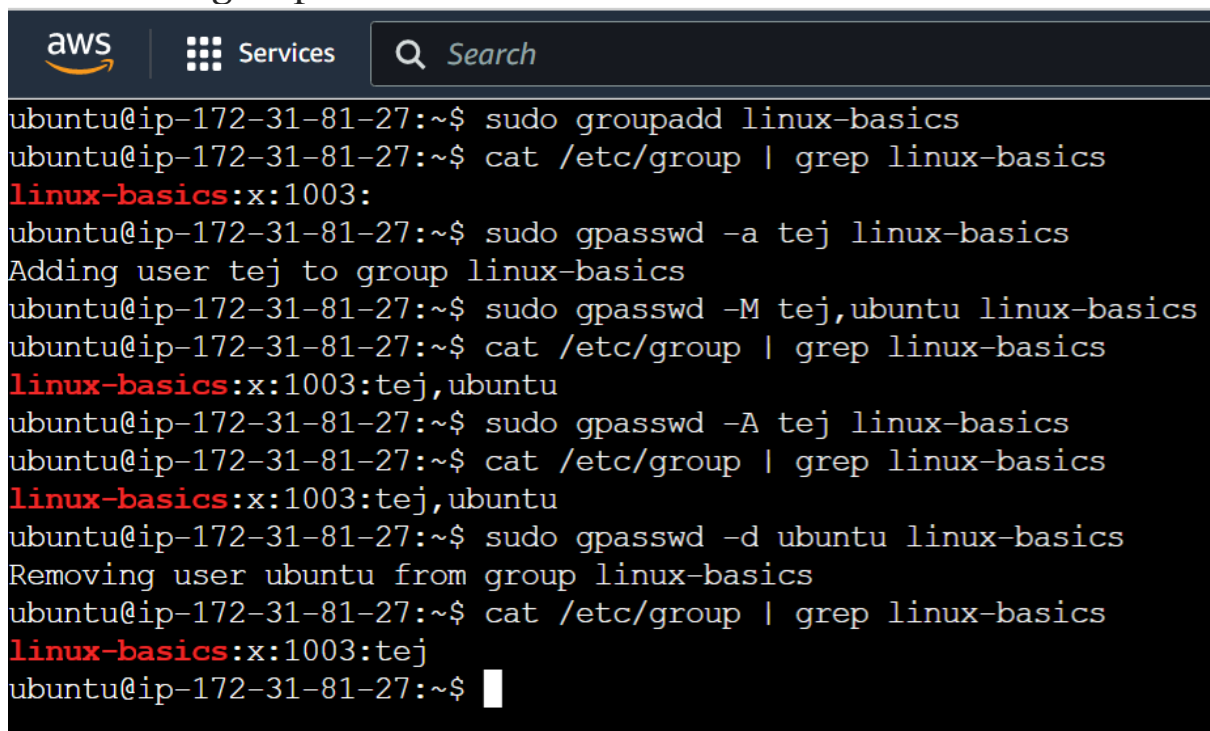
groupadd

`groupadd grpname` : it will create a new group

- `cat /etc/group` : to view all the groups

gpasswd

- `gpasswd -a username grpname` : add a single user to the group
- `gpasswd -M user1,user2 groupname` : add multiple users to the group.
- `gpasswd -A username grpname` : create an admin of the group.
- `gpasswd -d username groupname` : delete the user from the group.



```

aws  Services  Search
ubuntu@ip-172-31-81-27:~$ sudo groupadd linux-basics
ubuntu@ip-172-31-81-27:~$ cat /etc/group | grep linux-basics
linux-basics:x:1003:
ubuntu@ip-172-31-81-27:~$ sudo gpasswd -a tej linux-basics
Adding user tej to group linux-basics
ubuntu@ip-172-31-81-27:~$ sudo gpasswd -M tej,ubuntu linux-basics
ubuntu@ip-172-31-81-27:~$ cat /etc/group | grep linux-basics
linux-basics:x:1003:tej,ubuntu
ubuntu@ip-172-31-81-27:~$ sudo gpasswd -A tej linux-basics
ubuntu@ip-172-31-81-27:~$ cat /etc/group | grep linux-basics
linux-basics:x:1003:tej,ubuntu
ubuntu@ip-172-31-81-27:~$ sudo gpasswd -d ubuntu linux-basics
Removing user ubuntu from group linux-basics
ubuntu@ip-172-31-81-27:~$ cat /etc/group | grep linux-basics
linux-basics:x:1003:tej
ubuntu@ip-172-31-81-27:~$

```

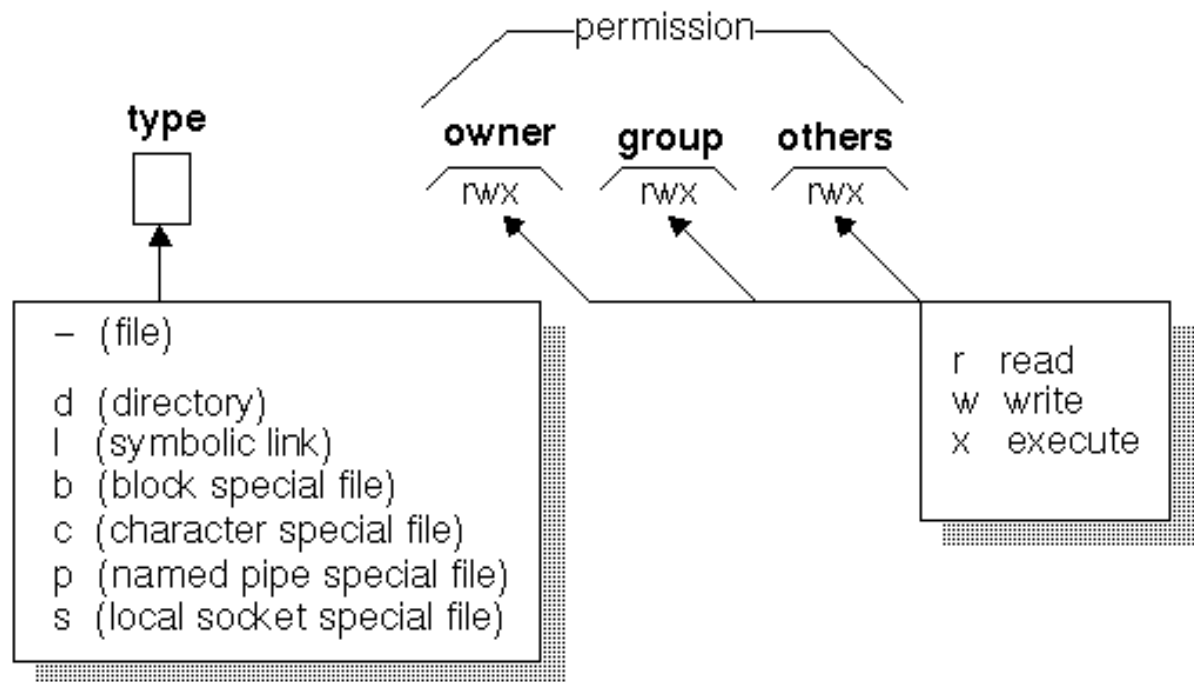
deluser

`deluser username` : this will delete a user account.

```
ubuntu@ip-172-31-81-27:~$ sudo deluser tej
Removing user `tej' ...
Warning: group `tej' has no more members.
Done.
ubuntu@ip-172-31-81-27:~$
```

» File Permission

🔧 chmod



ZK-0536U-R

Permission Classes:

Type: Type of file or directory.

1. Owners: They are owners of the file

2. Group: Permission for groups

3. Other: Permission for other users. eg you might have used the share button in a Word document.

There are three types of permissions: read (r), write (w), and execute (x).

	4	2	1	
0	-	-	-	no permissions
1	-	-	x	only execute
2	-	w	-	only write
3	-	w	x	write and execute
4	r	-	-	only read
5	r	-	x	read and execute
6	r	w	-	read and write
7	r	w	x	read, write and execute

Let's take example

```
aws | Services | Q | [Icon] | [Icon] | [Icon] | N. Virginia ▼
ubuntu@ip-172-31-81-27:~$ ls -lh | grep fruits.txt
-rw-rw-r-- 1 ubuntu ubuntu 25 Apr 26 19:09 fruits.txt
ubuntu@ip-172-31-81-27:~$
```

In the above example, the fruits.txt has

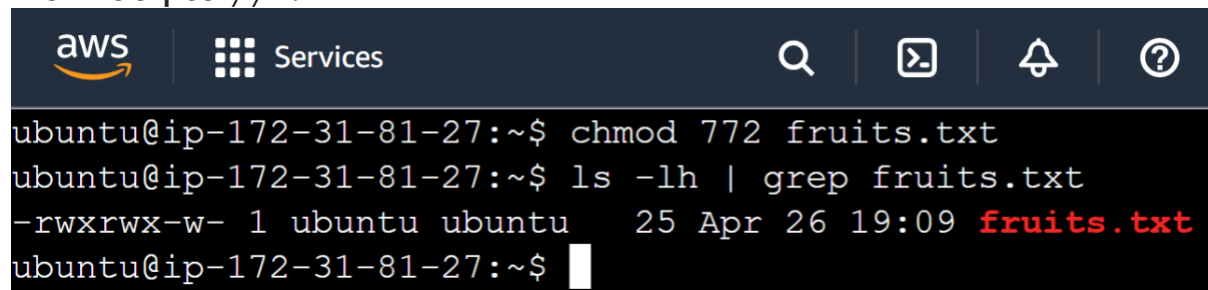
1. Owner : it has read and write permission (4: read) + (2: write) = 6
2. Group: it has read and write permission (4: read) + (2: write) = 6
3. Other: it has only read (4: read) = 4

Hence the current permission for a file is **664**

To change the file permission to 772, we will be using chmod cmd.

- The first 7 indicates the owner, to change his permission we need read(4), write(2), and execute (1) permissions, which are represented by $4+2+1=7$
- The group has read(4), write(2), and execute (1) permissions, which are represented by $4+2+1=7$
- All other users have only write permission which is represented by $0+2+0=2$

`chmod 772 fruits.txt` : This will change the permission of the fruits.txt file from 664 to 772.



```
aws | Services | Search | Icons | Notifications | Help
ubuntu@ip-172-31-81-27:~$ chmod 772 fruits.txt
ubuntu@ip-172-31-81-27:~$ ls -lh | grep fruits.txt
-rwxrwx-w- 1 ubuntu ubuntu 25 Apr 26 19:09 fruits.txt
ubuntu@ip-172-31-81-27:~$
```


Here in `-rwxrwx-w-` the first `-` represents the normal file.

» Miscellaneous

🔗 head

`head filename` : display the top contents of the file, default 10 lines.

`head -n 3 filename` : This displays the top 3 lines of the file.



The screenshot shows a terminal window with a dark background. At the top, there is a header bar with the AWS logo, a 'Services' menu, and a search bar. The terminal prompt is `ubuntu@ip-172-31-81-27:~$`. The first command executed is `head color1.txt`, which outputs ten lines of color names: `green`, `yellow`, `red`, `maroon`, `hot pink`, `lavendra`, `peacock blue`, `peach`, `blue`, and `grey`. The second command is `head -n 3 color1.txt`, which outputs the first three lines: `green`, `yellow`, and `red`. The prompt `ubuntu@ip-172-31-81-27:~$` is shown again with a cursor.

🔗 tail

`tail filename` : display the bottom lines of files

`tail -n 3 filename` : display the bottom 3 lines of files


```
aws | Services | Search
ubuntu@ip-172-31-81-27:~$ tail color1.txt
maroon
hot pink
lavendra
peacock blue
peach
blue
grey
light grey
black

ubuntu@ip-172-31-81-27:~$ tail -n 3 color1.txt
light grey
black

ubuntu@ip-172-31-81-27:~$
```

🔗 diff

`diff file1 file2` : it shows the difference between the two files.

- Any line unique in file1 will be indicated by < symbol
- Lines unique in file2 will be indicated by symbol >



Services

Search

```
ubuntu@ip-172-31-81-27:~$ diff color1.txt color2.txt
1c1,4
< green
---
> purple
> white
> black
> hot pink
2a6
> orange
4,12c8
< maroon
< hot pink
< lavender
< peacock blue
< peach
< blue
< grey
< light grey
< black
---
> green
ubuntu@ip-172-31-81-27:~$
```