

Linux → kernel
GNU/Linux → OS

Linux

→ Background & History

1970 1985 1990 1995 2020

Bell lab → Mobile

Before that computer was used in NASA or DARPA (Military Agency of USA)

Bell lab has started creating a computer for mainframe of their own system.

Bell lab → Unix

Started selling to different companies like

who was running electronic infrastructure

Normally it was cost around 2800\$ - 50,000\$
If we compare it with current price
then it will be 12000\$/unit system

Berkeley university of California started ~~using~~ Unix

They have pay lot of money for using license.

∴ Some of the employees of Berkeley & Bell lab started using new system BSD

BSD - Berkeley Software Distribution
licensed & cheaper

GNU/GPL

↑
license

current version of kernel (stable)
5.9

Kernel - Software code that interacts with low level software

1980

Linus Torvalds

RS - Richard Stallman
wanted to create his free OS

Unix was first OS

Apple }
HP }
IBM }

Linux is ~~binding~~ for
binding for hardware
its like middleware/interface

1985

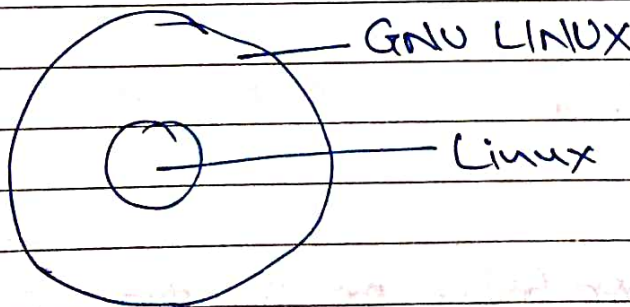
FSF - Free Software Foundation

RS started creating his own OS called GNU

1991

RS — Linus Torvalds
GNU/LINUX

RS & LT
are godfather of
free SW



} Offered by
Community

1992 - 1994 Netpage
1995 Google

2020

almost 99% technologies runs on Linux

4000 distributions are available means 4000 OS
available on top of Linux

1971 Unix → OS

DOS → Parent OS of Windows

Free BSD

Net BSD

Ubuntu - Linux

it requires
different software
the Linux

It cannot operate
itself

Install Gitbash → windows

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Apple Mac OS/Unix

Shell (terminal)

Install Linux

Linux Commands

- 1] ls → list/file/directory
show all files & folders in current folder
- 2] ls -l
all files & folders in more descriptive way
- 3] cd → change directory
cd /var
- 4] cp → copy file from one to another location
cp src-file dest-file.
- 5] mv → move/cut
- 6] remove rm
remove file or folder or directory
we can't retrieve it & it will be removed permanently.
- 7] pwd → print/^{present} working directory
gives location (where I am)
- 8] who → how many users are login to the system
- 9] current login user -
whoami; ~~who~~

less gives more data
more gives less data 2. Less is heavily used

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- 9] history
all previous commands
- 10] exit
closes the connection & exit the terminal.
- 11] cat → open the file ← reads a file
- 12] less → similar to cat but only prints ^{the} 1/1 page wise.
- 13] more
- 14] echo → print something
echo \$path
System path
- 15] top → all the system level information. [Load the system info]
- 16] ps → all the applⁿ running into the system.
- 17] touch newfile → create a new file
- 18] ping google.com
check the connectivity with ~~out~~ internet
- 19] ifconfig → identify whether i am connected to internet or not.
identify the ip address of the system.
- 20] ssh not ip address → Access the remote server
username
- 21] mkdir → creates a directory
- 22] rmdir → remove directory
- Adv chmod → change mode

NIX system → All the system derived from Unix as well as Linux

For windows — ipconfig

- 23] which node installed
gives location of software where it is installed.
which python
path of software path of shell

which ls, which ps
path of command/file/s/w
in Linux command is nothing but a s/w, file or process

wget https://ipinfo.io [command line browser]
Fetch the get from the website & saved in a json file.

cat json.2

ssh missingskill@139.180.132.156
password: Skill10212

touch aekansha

ls -l [list]

if there is a dash at start then it is a file
& if there is 'd' at start then it is a directory

ls -lh [human readable]

Display in human readable format

ls -l -h -t [ascending order]

File which is created very first will be displayed at the top.

ls -l -h -t -r [reverse order]

ls -l -h -t -r -F

add slash after a directory which makes it easy to identify a directory.

ls -lht-rF [can club them together]
Give same result

[command name] --help → Short Summary of the Command

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man ls → manual (details)
Display all flags in detail

anything starts with '.' is a hidden file

ls -ltrFa

a → Shows hidden file

clear → clean the screen / clear the terminal
another command is → Ctrl+L

overwrite

cat > filename ← write into a file

My name is Akansha

This is a text file

When done press → Ctrl+C

Cat is used either to write into a file or read a file

We can modify file content by writing into it & then read.
it is overwrite the file

update

cat >> filename ← to add/append new content to
file, it contains old content too.

cd ~ → takes us to user's home folder
current logged in

cd -

holds the last position / return to the prev folder

cd ..

take u one folder back

cd vishal-d . pwd

cd ../samal-d

cd ../..

or cd /home
cd ~

23

23/03
to Atanika
Gorivale.

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cd /samal-d/

ls

mkdir skill

ls -l

cd skill/

pwd

ls

create mkdir 2020/09 -p ← Recursive directory

ls -l

cd 2020

cd 09

pwd

ls -l

mkdir 01 02 03

To create multiple folders in current directory

ls -l

ls

pwd

cd 01

pwd

cd ../02

pwd

cd ~/samal-d

pwd

cd - mv user's home folder

~

..

../..../

-

~/samal-d

one folder back things to

~/samal-d

look for user's home folder things to

rm -d removes only empty directories

-rf → r-recursion f-force

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ls -l

ls -F

rm -d 01

ls

rm -d 02

rm -d 03

ls

ls

mkdir 02/skill -p

ls

rm -d 02 → It will not remove 02 dir.

[rm -rf 02

→ This will remove not only the directory but also all files & folders in it.

ls -l

mkdir 02/skill 03/skill -p

will create two directories inside 02 & one skill directory individually inside the folder recursively.

ls

cd 02/

ls

cd ../03/

ls

rm linux → delete file

rm -rf skill → delete folder

touch linux git js → create 3 files

ls

rm * → delete all the files but not folder

rm -rf * → delete all the folders & files

specific rm skill/linux → delete linux file inside skill folder

rm -rf skill/task-d → delete directory

mv plays dual role

ipinfo.io

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mv ~~src~~ samal-linux samal-d

move file to dir

mv ~~src~~ samal-mv samal-d

move folder to folder

mv samal-linux linux-samal

rename the file

mv ~~src~~ samal-mv mv-samal

rename folder

mv linux-samal ../linux-samal-practice

This will move the file one step back & rename it at the same time.

- If a file already exist with the same name comparing with we are moving, then it will overwrite the destination file.

cp some samal-d/

copy source file to dest folder

cp ../drop.

copy a file from prev folder to current folder

cp linux-samal ../

copy file one step back

cp -rf satish-d samal-d

copy source folder to dest folder

cp -rf yogesh-k vishal-d subodh-d samal-d

copy multiple folders to dest folder

mv subodh-d vishal-d yogesh-k ../Depali-d/

cd ..

ls

cd Depali-d/

ls

ls -l

- rm -rf hello-d/*

It will remove all the inside content in the directory but not the directory.

move multiple folders to dest folder

cd /bin/
Display all the commands.
cd /sbin/

echo HELLO
echo \$PATH

cd /user/sbin/
wget paytm.com
~~cat~~ ls
cat index.html
less index.html
Space → next
q - quit

ps -ef

display all the running applications

* File System

In linux everything is considered as a file

cd / → ~~main~~ root directory (system's)

pwd → System's root directory (boot)

ls

ls -l

cd boot/ → ^{display} all configurations of the kernel are stored

cd → ^{user's} home directory

ls

ls -l

pwd

cd /boot

It will print ~~last~~ lines
of the file

tail -100f saral

click split pane ^{vertically} browser

It continuously read the file

just like

cat saral

cat >> saral

Hello

This is a live file.

w → prev

Shortcut → | → simbling / Nobody other than root can change
d → folder update the file or delete anything

Basic directories inside root directory

- 1 - /boot → System kernel is stored
- 1 - /bin → binary files are stored
[all user level binaries are stored]
- 1 - /sbin → System binary
[related to linux kernel & used by sys admin]
- 1 - /home → here the new user is created.
[all users configurations are stored]
- 1 - /var → system level variables are stored
[log files, temp files] Variable files.
- 1 - /usr → User system resource.
- 1 - /root → home folder for root user
which is used by sys admin.

root users are always denoted by '#'

Normal users are denoted by '\$'

- 1 - /tmp → temporary folder
Used whenever system wants to store temporarily.

1 - /etc → System configurations are stored

1 - /lib → system level libraries are stored

1 - /dev → Memory files for hard drive, ex key, mouse

check mount 1 - /mnt → designed for CD-ROM

1 - /opt → User Software are stored → all the apps are stored here.

cd bin/

cd /home/

cd ../sbin/

ls -l

cd dev/

cd missingskill/

cd /etc/

ls

cat passwd

ls -l

cat sysctl-d

cd ssh

1 - /proc → mem file [sys related info]

ls

ls -h

cat ssh.config

var/log
su root

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cd ../..

pwd

cd ..

ls

ls -l

cd var/

X tail -100f syslog

chown missingskill:missingskill opt/ -R

ls -l ↑

change ownership

fdisk -l /dev/ → check the file system.

~~fdisk~~ su root

fdisk -l

fdisk -l /dev/vda1