## Linux Basics

### SHELL:

sh

Stephen Bourne

bourne shell

csh

C shell

zsh

tsh

tcsh

bash

Bourne Again SHell

bash

files

users

process

### file & directory

inverted tree file structure

pwd

ls

cd

dir name

. current directory

.. parent directory

~ home directory

- previous folder (toggle)

absolute path

relative path

home (in my case /home/nigam)

mount point

vi

cat

cp copy

mv move

rename

rm remove

mkdir

rmdir

### editors:

nano

vi (vim)

gedit

emacs

### vi:

visual editor

two modes:

command & insert

command mode:

:w save

:q quit

:q! quit without saving

:wq save & quit

:w! save as

:set number

yy copy

6yy copy 6 lines

p paste

dd cut

delete

u undo

ctr+r redo

### general commands:

gcc

python

whatis

whereis

which

who

all the users who have logged in

whoami

current user

history

## user & groups

chmod

u user (owner)

g group

o others

r read

w write

o others

S or T sticky bits

chown

chgrp

## Files, processes

inode

pid

ppid

file descriptor

init

first process to run

systemd

initialisation service

system components

ELF executable format

type of file

- regular

d directory

s socket

p pipe

b block dd

c character dd

l link

### Process

ps

memory

virtual

actual

time

start

etime

time spent in the system mode

uid (user)

gid

ppid (parent )

threads (lwp)

interrupts

signals

IPC

files open

priority

state

terminal

job ids:

ids given to background process

fg

fetch it to foreground

## Signals

kill

sends a signal

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | behaviour | keyboard | handled |  |
| SIGTERM | terminates | no | yes |  |
| SIGINT | terminates | yes | yes |  |
| SIGQUIT | terminates | yes | yes | core dump |
| SIGKILL | terminates | no | no |  |
| SIGSTOP | stops (pauses) | yes | no |  |
|  |  |  |  |  |

3 signals from keyboard:

ctrl+c SIGKILL

ctrl+z SIGSTOP

ctrl+\ SIGQUIT (core dump)

2 signals can’t be handled

SIGKILL SIGSTOP

### STATE

run R

sleep (wait) S

stop T

----------------------

zombie Z

uninterruptible D

kernel(thread) I

additional symbols:

s session leader

+ printing (foreground)

l multi threaded

< high priority (not nice to others)

N low priority (nice to others)

### PATHS

/bin

/usr/bin

echo $PATH

## SHELL

echo

environment variables

SHELL

PATH

USER

PWD

HOME

LANG

EDITOR

OSTYPE

HOSTNAME

ENV

OLDPWD

printenv

### Scripting:

Shebang #!

comments #

variables

$0

$n

$!

$$

$?

if then elif else fi

### man pages

manual

0 Header files

1 commands

2 system calls

3 functions

3p perl

4 device files

5 special file formats

6 applications, games

7 misc

signals

8 special commands (system admin)

9 kernel routines

### Filters & redirection

> output (create fresh)w

>> append

cat

tac

wc

-l

-c

-w

more

less

head

tail

cut  
comm

sort

uniq

grep

### system calls

getpid

getppid

signal

## All Commands:

who

whoami

pwd

ls

cd

nano

vi

emacs

gedit

nano

emacs

clear

echo

cat

cp

mv

rm

mkdir

rmdir

sh

bash

xterm

gcc

python

whatis

whereis

which

who

whoami

chmod

chown

chgrp

ps

pstree

nice

renice

echo

bg

fg

kill

more

less

head

tail

cut  
comm

sort

uniq

grep