**Prerequisite:**

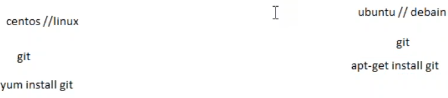
* Vmware workstation 10 download
* Linux OS (ISO file) 🡪 centos download
* Putty download

OS : interface between user and hardware

Linux means variant of unix

Unix 🡪 HP-unix, IBM-AIX, SUN-SOLARES, REDHAT

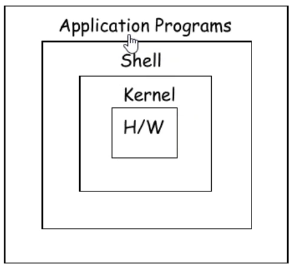
Red hat flavours 🡪 centos, Ubuntu, fedora, debain



Linux Features

* Multiple users login at a time
* Multi tasking
* User to user communication

Os Structure



384.50+

**Linux System**

Uname 🡪 OS name (Linux)

uname -a 🡪 Display linux system information

uname -r 🡪 Display kernel release information (3.10.0-1160.76.1.e17.x86\_64)

uptime 🡪 Show how long the system has been running + load

hostname 🡪 Show system host name

hostname -i 🡪 Display the IP address of the host

last reboot 🡪 Show system reboot history

date 🡪 Show the current date and time (Tue Mar 7 04:43:00 EST 2023)

date –s “Tue Mar 7 04:43:00 EST 2023” 🡪 to change the date

cal 🡪 Show this month calendar

cal 2023 🡪 2023 year calendar

cal 12 2023 🡪 2023 December month calendar

w 🡪 Display who is online

whoami 🡪 Who you are logged in as (puppapav)

finger user 🡪 Display information about user

write puppapav 🡪 to communicate with user

**HARDWARE**

dmesg 🡪 Detected hardware and boot messages

cat /proc/cpuinfo 🡪 CPU model

cat /proc/meminfo 🡪 Hardware memory

cat /proc/interrupts 🡪 Lists the number of interrupts per CPU per I/O device

Ishw 🡪 Displays information on hardware configuration of the system

Isblk 🡪 Displays block device related information in Linux

free –m 🡪 Used and free memory (-m for MB)

Ispci –tv 🡪 Show PCI devices

Isusb –tv 🡪 Show USB devices

dmidecode 🡪 Show hardware info from the BIOS

hdparm -i /dev/sda 🡪 Show info about disk sda

hdparm -tT /dev/sda 🡪 Do a read speed test on disk sda

badblocks -s /dev/sda 🡪 Test for unreadable blocks on disk sda

**USERS**

id 🡪 Show the active user id with login and group

last 🡪 Show last logins on the system

who 🡪 Show who is logged on the system

groupadd admin 🡪 Add group "admin"

useradd -c "Sam Tomshi" 🡪 g admin -m sam #Create user "sam"

userdel sam 🡪 Delete user sam

adduser sam 🡪 Add user "sam"

passwd sam 🡪 set password

usermod 🡪 Modify user information

cd /etc 🡪 server related configuration files available

suu – puppapav 🡪 switch user

**FILE COMMANDS**

ls 🡪 display all files

ls –l 🡪 to see the files

Is –al or ls –la 🡪 Display all information about files/directories (including hidden files)

pwd 🡪 Show the path of present working directory (puppapav/cmproject/manual)

mkdir <dir-name> 🡪 Create a directory

rm <file-name> 🡪 Delete file

rmdir <dir-name> 🡪 remove directory

rm -r <dir-name> 🡪 Delete directory recursively

rm -f <file-name> 🡪 Forcefully remove file

rm -rf \* or rm –rf <dir-name> 🡪 Forcefully remove directory recursively

cp <path of file> <target path> 🡪 Copy file 1 to file2

cp -r dir1 dir2 🡪 Copy dir1 to dir2, create dir2 if it doesn't exist

mv <path of file> <target path> 🡪 Rename source to test/ move source to directory

cp –rf <path of file> <target path> 🡪 Copy file 1 to file2 force fully

mv –rf <path of file> <target path> 🡪 Rename source to test/ move source to directory

In -s /path/to/file-name link-name #Create symbolic link to file-name

touch <file name> 🡪 Create or update file

cat <file> 🡪 Place standard input into file

more file 🡪 Output contents of file

head file 🡪 Output first 10 lines of file

tail file 🡪 Output last 10 lines of file

tail -f file 🡪 Output contents of file as it grows starting with the last 10 lines

gpg -c file 🡪 Encrypt file

gpg file.gpg 🡪 Decrypt file

wc <file-name> 🡪 print the number of lines, words, and letters in file

wc <file1> <file2> 🡪 print the number of lines, words, and letters in multiple files

wc –l <file-name> 🡪 only number of lines in a file

wc –w <file-name> 🡪 only number of words in a file

wc –c <file-name> 🡪 only number of letters in a file

xargs 🡪 Execute command lines from standard input

**PROCESS RELATED**

ps 🡪 Display your currently active processes

ps aux | grep 'telnet' 🡪 Find all process id related to telnet process

pmap 🡪 Memory map of process

top 🡪 Display all running processes

kill pid 🡪 Kill process with mentioned pid id

killall proc 🡪 Kill all processes named proc

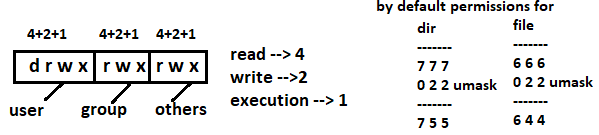
pkill process-name 🡪 Send signal to a process with its name

bg 🡪 Resumes suspended jobs without bringing them to foreground

fg 🡪 Brings the most recent job to foreground

fg n 🡪 Brings job n to the foreground

**FILE PERMISSION RELATED**



chmod octal file-name 🡪 Change the permissions of file to octal

Example

chmod +x <file-name> 🡪 change permission to execute

chmod –r <file-name> 🡪 to remove read permission

chmod 777 /data/test.txt 🡪 Set rwx permission for owner, group, world

chmod 755 /data/test.txt 🡪 Set rwx permission for owner,rx for group and world

chown owner-user file 🡪 Change owner of the file

chown owner-user:owner-group file-name 🡪 Change owner and group owner of the file

chown owner-user:owner-group directory 🡪 Change owner and group owner of the directory

**NETWORK**

ip addr show 🡪 Display all network interfaces and ip address

(a iproute2 command, powerful than ifconfig)

ip address add 192.168.0.1 dev eth0 🡪 Set ip address

ethtool eth0 🡪 Linux tool to show ethernet status

mii-tool eth0 🡪 Linux tool to show ethernet status

ping host 🡪 Send echo request to test connection

whois domain 🡪 Get who is information for domain

dig domain 🡪 Get DNS information for domain

dig -x host 🡪 Reverse lookup host

host google.com 🡪 Lookup DNS ip address for the name

hostname -i 🡪 Lookup local ip address

wget file 🡪 Download file

netstat –tupl 🡪 Listing all active listening ports

**COMPRESSION / ARCHIVES**

tar cf home.tar home 🡪 Create tar named home.tar containing home/

tar xf file.tar 🡪 Extract the files from file.tar

tar czf file.tar.gz files 🡪 Create a tar with gzip compression

gzip file 🡪 Compress file and renames it to file.gz

**INSTALL PACKAGE**

rpm -i pkgname.rpm 🡪 Install rpm based package

rpm -e pkgname 🡪 Remove package

**INSTALL FROM SOURCE**

./configure

make

make install

**SEARCH**

grep pattern files 🡪 Search for pattern in files

grep -r pattern dir 🡪 Search recursively for pattern in dir

locate file 🡪 Find all instances of file

find /home/tom -name 'index\*' 🡪 Find files names that start with "index"

find /home-size +10000k 🡪 Find files larger than 10000k in /home

**LOGIN (SSH AND TELNET)**

ssh user@host 🡪 Connect to host as user

ssh -p port user@host 🡪 Connect to host using specific port

telnet host 🡪 Connect to the system using telnet port

**FILE TRANSFER**

scp

scp file.txt server2:/tmp 🡪 Secure copy file.txt to remote host /tmp folder

rsync

rsync -a /home/apps /backup/ 🡪 Synchronize source to destination

**DISK USAGE**

df –h 🡪 Show free space on mounted file systems

df –i 🡪 Show free inodes on mounted file systems

fdisk –l 🡪 Show disks partitions sizes and types

du –ah 🡪 Display disk usage in human readable form

du –sh 🡪 Display total disk usage on the current directory

findmnt 🡪 Displays target mount point for all file system

mount device-path mount-point 🡪 Mount a device

**DIRECTORY TRAVERSE**

cd .. 🡪 To go up one level of the directory tree

cd or cd ~ 🡪 Go to $HOME directory

cd /test 🡪 Change to /test directory

ls

ls –l 🡪 display the files and dir in alphabetical order

ls –lt 🡪 display the files and dir in time order

ls –ltr 🡪 display the files in descending order according to time

relevant path: 3.Linux/

absolute path: D:/ Tech/DevOps/3.Linux

All basics of Linux

How to create files, dir, and groups

How to change permissions of files, dir, and groups How to create users

Ssh

Scp

Winscp

Scp

Cron