**File System Hierarchy**

#Top Label Direcotry

**/**

# Admin Means having E2E Permission

**/root**

# Its Home Dir. for other user

**/home**

# Its contain bootable file

**/boot**

# Its contain all config. file

**/etc**

# By default softwareinstall this dir.

**/usr**

# Its contain command used by all user

**/bin**

# Its contain command used by suer user

**/sbin**

# Contain special device file

**/dev**

# installation of add on application software packages

**/opt**

# contain all libararies file used by system

**/lib**

# web browser write data to the tmp dir. during page view or download

**/tmp**

# contain variable data, as well system loggin file

**/var**

**DAY TO DAY USED LINUX BASIC COMMAND:**

**1 – SYSTEM INFORMATION**

# Display Linux system information

**$ uname -a**

# Display kernel release information

**$ uname -r**

# Show operating system information such as distribution name and version

**$ cat /etc/os-release**

# Show how long the system has been running + load

**$ uptime**

# Show system host name

**$ hostname**

# Display all local IP addresses of the host.

**$ hostname -I**

# Show system reboot history

**$ last reboot**

# Show the current date and time

**$ date**

# Show this month's calendar

**$ cal**

# Display who is online

**$ w**

# Who you are logged in as

**$ whoami**

**2 – HARDWARE INFORMATION**

# Display messages in kernel ring buffer

**$ dmesg**

# Display CPU information

**$ cat /proc/cpuinfo**

# Display memory information

**$ cat /proc/meminfo**

# Display free and used memory ( -h for human readable, -m for MB, -g for GB.)

**$ free -h**

# Display PCI devices

**$ lspci -tv**

# Display USB devices

**$ lsusb -tv**

# Display DMI/SMBIOS (hardware info) from the BIOS

**$ dmidecode**

# Show info about disk sda

**$ hdparm -i /dev/sda**

# Perform a read speed test on disk sda

**$ hdparm -tT /dev/sda**

# Test for unreadable blocks on disk sda

**$ badblocks -s /dev/sda**

**3 – PERFORMANCE MONITORING AND STATISTICS**

# Display and manage the top processes

**$ top**

# Interactive process viewer (top alternative)

**$ htop**

# Display processor related statistics

**$ mpstat 1**

# Display virtual memory statistics

**$ vmstat 1**

# Display I/O statistics

**$ iostat 1**

# Display the last 100 syslog messages (Use /var/log/syslog for Debian based systems.)

**$ tail -100 /var/log/messages**

# Capture and display all packets on interface eth0

**$ tcpdump -i eth0**

# Monitor all traffic on port 80 ( HTTP )

**$ tcpdump -i eth0 'port 80'**

# List all open files on the system

**$ lsof**

# List files opened by user

**$ lsof -u user**

# Display free and used memory ( -h for human readable, -m for MB, -g for GB.)

**$ free -h**

# Execute "df -h", showing periodic updates

**$ watch df -h**

**4 – USER INFORMATION AND MANAGEMENT**

# Display the user and group ids of your current user.

**$ id**

# Display the last users who have logged onto the system.

**$ last**

# Show who is logged into the system.

**$ who**

# Show who is logged in and what they are doing.

**$ w**

# Create a group named "test".

**$ groupadd test**

# add usre or create user

**$ sudo useradd username**

# Create an account named Mani, with a comment of "Mani Singh" and create the user's home directory.

**$ useradd -c "Mani Singh" -m mani**

# Delete the Mani account.

**$ userdel Mani**

# Add the Mani account to the Devops group

**$ usermod -aG Devops Mani**

# To check user created or not

**$ cat /etc**

**$ cat /etc/passwd (under etc folder call passwd; here showing created user)**

**5 – FILE AND DIRECTORY COMMANDS**

# List all files in a long listing (detailed) format

**$ ls -al**

# Create empty file

**$ touch filename**

# create small data file but cannot edit content of file

**$ cat filename**

# Create a file & edit content of file as well and its widely used

**$ vi filename**

# View all the list of file & dir.

**$ ls -latr**

# show long list dir.

**$ ls -la**

# Show log dir.

**$ cd log**

# Open file

**$ cat filename**

# Display the present working directory

**$ pwd**

# Create a directory

**$ mkdir directory**

# Remove (delete) file

**$ rm file**

# Remove the directory and its contents recursively

**$ rm -r directory**

# Force removal of file without prompting for confirmation

**$ rm -f file**

# Forcefully remove directory recursively

**$ rm -rf directory**

# Copy file1 to file2

**$ cp file1 file2**

# Copy source\_directory recursively to destination. If destination exists, copy source\_directory into destination, otherwise create destination with the contents of source\_directory.

**$ cp -r source\_directory destination**

# Rename or move file1 to file2. If file2 is an existing directory, move file1 into directory file2

**$ mv file1 file2**

# Create symbolic link to linkname

**$ ln -s /path/to/file linkname**

# Create an empty file or update the access and modification times of file.

**$ touch file**

# View the contents of file

**$ cat file**

# Browse through a text file

**$ less file**

# Display the first 10 lines of file

**$ head file**

# Display the last 10 lines of file

**$ tail file**

# Display the last 10 lines of file and "follow" the file as it grows.

**$ tail -f file**

**6 – PROCESS MANAGEMENT**

# Display your currently running processes

**$ ps**

# Display all the currently running processes on the system.

**$ ps -ef**

# Display process information for processname

**$ ps -ef | grep processname**

# Display and manage the top processes

**$ top**

# Interactive process viewer (top alternative)

**$ htop**

# Kill process with process ID of pid

**$ kill pid**

# Kill all processes named processname

**$ killall processname**

# Start program in the background

**$ program &**

# Display stopped or background jobs

**$ bg**

# Brings the most recent background job to foreground

**$ fg**

# Brings job n to the foreground

**$ fg n**

**7 – FILE PERMISSIONS**

Linux chmod example

**U G W**

**rwx rwx rwx chmod 777 filename**

**rwx rwx r-x chmod 775 filename**

**rwx r-x r-x chmod 755 filename**

**rw- rw- r-- chmod 664 filename**

**rw- r-- r-- chmod 644 filename**

**# NOTE: Use 777**

**LEGEND**

**U = User**

**G = Group**

**W = World**

**r = Read**

**w = write**

**x = execute**

**- = no access**

**8 – NETWORKING**

# Display all network interfaces and IP address

**$ ip a**

# Display eth0 address and details

**$ ip addr show dev eth0**

# Query or control network driver and hardware settings

**$ ethtool eth0**

# Send ICMP echo request to host

**$ ping host**

# Display whois information for domain

**$ whois domain**

# Display DNS information for domain

**$ dig domain**

# Reverse lookup of IP\_ADDRESS

**$ dig -x IP\_ADDRESS**

# Display DNS IP address for domain

**$ host domain**

# Display the network address of the host name.

**$ hostname -i**

# Display all local IP addresses of the host.

**$ hostname -I**

# Download <http://domain.com/file>

**$ wget** [**http://domain.com/file**](http://domain.com/file)

# Display listening tcp and udp ports and corresponding programs

**$ netstat –nutlp**

**9 – ARCHIVES (TAR FILES)**

# Create tar named archive.tar containing directory.

**$ tar cf archive.tar directory**

# Extract the contents from archive.tar.

**$ tar xf archive.tar**

# Create a gzip compressed tar file name archive.tar.gz.

**$ tar czf archive.tar.gz directory**

# Extract a gzip compressed tar file.

**$ tar xzf archive.tar.gz**

# Create a tar file with bzip2 compression

**$ tar cjf archive.tar.bz2 directory**

# Extract a bzip2 compressed tar file.

**$ tar xjf archive.tar.bz2**

**10 – INSTALLING PACKAGES**

# Search for a package by keyword.

**$ yum search keyword**

# Install package.

**$ yum install package**

# Display description and summary information about package.

**$ yum info package**

# Install package from local file named package.rpm

**$ rpm -i package.rpm**

# Remove/uninstall package.

**$ yum remove package**

# Install software from source code.

**$ tar zxvf sourcecode.tar.gz**

**cd sourcecode**

**./configure**

**make**

**make install**

**11 – SEARCH**

# Search for pattern in file

**$ grep pattern file**

# Search recursively for pattern in directory

**$ grep -r pattern directory**

# Find files and directories by name

**$ locate name**

# Find files in /home/john that start with "prefix".

**$ find /home/john -name 'prefix\*'**

# Find files larger than 100MB in /home

**$ find /home -size +100M**

**12 – SSH LOGINS**

# Connect to host as your local username.

**$ ssh host**

# Connect to host as user

**$ ssh user@host**

# Connect to host using port

**$ ssh -p port user@host**

**13 – FILE TRANSFERS**

# Secure copy file.txt to the /tmp folder on server

**$ scp file.txt server:/tmp**

# Copy \*.html files from server to the local /tmp folder.

**$ scp server:/var/www/\*.html /tmp**

# Copy all files and directories recursively from server to the current system's /tmp folder.

**$ scp -r server:/var/www /tmp**

# Synchronize /home to /backups/home

**$ rsync -a /home /backups/**

# Synchronize files/directories between the local and remote system with compression enabled

**$ rsync -avz /home server:/backups/**

**14 – DISK USAGE**

# Show free and used space on mounted filesystems

**$ df -h**

# Show free and used inodes on mounted filesystems

**$ df -i**

# Display disks partitions sizes and types

**$ fdisk -l**

# Display disk usage for all files and directories in human readable format

**$ du -ah**

# Display total disk usage off the current directory

**$ du –sh**

**15 – DIRECTORY NAVIGATION**

# To go up one level of the directory tree. (Change into the parent directory.)

**$ cd ..**

# Go to the $HOME directory

**$ cd**

# Change to the /etc directory

**$ cd /etc**

**16 – SECURITY**

# Create user password

**$ passwd username (once press enter button then its asking password then give any password)**

# To check pasword created or not

**$ cat shadow**

**(under user show password created then again type command "su username" switch to user now again type command "sudo su"& press enter and asking to password)**

# Change the current user's password.

**$ passwd**

# Switch to the root account with root's environment. (Login shell.)

**$ sudo -i**

# Execute your current shell as root. (Non-login shell.)

**$ sudo -s**

# List sudo privileges for the current user.

**$ sudo -l**

# Edit the sudoers configuration file.

**$ visudo**

# Display the current SELinux mode.

**$ getenforce**

# Display SELinux details such as the current SELinux mode, the configured mode, and the loaded policy.

**$ sestatus**

# Change the current SELinux mode to Permissive. (Does not survive a reboot.)

**$ setenforce 0**

# Change the current SELinux mode to Enforcing. (Does not survive a reboot.)

**$ setenforce 1**

# Set the SELinux mode to enforcing on boot by using this setting in the /etc/selinux/config file.

**$ SELINUX=enforcing**

# Set the SELinux mode to permissive on boot by using this setting in the /etc/selinux/config file.

**$ SELINUX=permissive**

# Set the SELinux mode to disabled on boot by using this setting in the /etc/selinux/config file.

**$ SELINUX=disabled**

**17 – LOGGING AND AUDITING**

# Display messages in kernel ring buffer.

**$ dmesg**

# Display logs stored in the systemd journal.

**$ journalctl**

# Display logs for a specific unit (service).

**$ journalctl -u servicename**