Linux Commands Cheat Sheet.

What Is The Shell ?

Shell is the textual representation of the operating system. It takes keyboard commands and passes them to the operating system. All Linux distributions came with a Shell program called *BASH*. Which is the acronym for *"Bourne Again Shell."*

What is Terminal Emulators?

To Interact with the Shell, We need a graphical user interface that can allow the user access to a textual representation of the operating system and its application. Most used terminal emulators on Linux are GNOME Terminal on GNOME and GTK-based environments, Konsole on KDE, and xfce4-terminal on Xfce as well as xterm.

Help Commands.

> `whatis` : Search whatis database for complete words. used to find short descriptions of system commands.

```
$ whatis ls
$ whatis man
$ whatis cd
$ whatis env
```

> `which` : Show the full path to shell commands.

```
$ which ls
$ which cd
$ which man
```

> `whereis` : Locate binary, source and man pages for a command.

```
$ whereis cd
$ whereis ls
$ whereis man
$ whereis pwd
```

> `apropos`: Search through a database of short description to find help and man pages containing certain terms and commands.

```
$ apropos man
$ apropos ls
$ apropos cd
$ apropos pwd
```

> `man` : Manual pages for commands.

```
$ man ls
$ man cd
$ man pwd
$ man man
```

Bash Variables.

env : List current environment variables.

```
$ env
```

echo : Output value of $Name variable.

```
$ echo "Hello World"
$ echo $USER
$ echo $HOSTNAME
$ echo $PATH
$ echo $HOME
$ echo $BASH_VERSION
# Create a Variable
$ MY_VAR='Hello, from Variable'
$ echo $MY_VAR

# Some other command
$ echo {A..Z}
$ echo {1..100}
$ echo {001..15}
$ echo "Hello World !" > README.txt
```

export: Set $Name to value in environment.

```
$ export MY_VAR="Hello, Centos 8"
#show see
$ env
```

$PATH : Executable search path.

```
$ echo $PATH
```

$HOME : Home Directory.

```
$ echo $HOME
```

$SHELL : Current Shell.

```
$ echo $SHELL
```

System Commands.

`uname` : Displays Linux system information.

```
$ uname
$ uname --help
# print all infomation
$ uname -a
# print kernel name
$ uname -s
# print the operating system.
$ uname -o
```

`uptime` : Displays how long the system has been running including load average.

```
$ uptime
$ uptime --help
$ uptime -s
$ uptime -p
```

`hostname` : Shows the system host-name.

```
$ hostname
$ hostname --help
$ hostname -a
$ hostname -A
$ hostname -i
$ hostname -I
```

`last reboot` : Shows system reboot history.

```
$ last reboot
```

`date` : Displays current system date and time.

```
$ date
$ date -u
$ date --date "10 days ago"
$ date +%T
```

`cal` : Displays the current calendar month and day.

```
$ cal
$ cal --help
$ cal 08 1991
```

w : Displays currently logged in users in the system.

```
$ w
$ w -i
```

whoami : Displays who you are logged in as.

```
$ whoami
```

id : prints real user id, and various other details related to the account.

```
$ id
$ id root
```

Directory Operations

clear : clear your terminal

```
$ clear
```

pwd: Print working directory.

```
$ pwd
```

ls : prints the names of the files and directories.

```
$ ls
$ ls --help
$ ls -a
$ ls -l
$ ls -l -a -h
$ ls -lah
```

cd : Change directory.

```
$ cd /etc
$ pwd
```

```
$ cd /bin
$ pwd

# This command is used to change directory to the home directory.
$ cd ~

$ cd -
$ cd ..
$ cd ../../
```

mkdir: Create a new directory.

```
$ mkdir MyFolder

$ mkdir -p Folder_1/Floder_A
```

rmdir: Delete an empty directory.

```
$ rmdir MyFolder
```

File Operations

cat: Concatenate,It reads data from the file and gives their content as output.

```
$ cat [file_name]
$ cat README.txt
$ cat /etc/passwd
$ cat /etc/hosts

# Custom end marker and Write Text in File.
$ cat  > longFile.txt << EOF
> We are Writting in a Long file
> We can write untile we use wordl of 'EOF'
> EOF
```

less :Display the contents of a file one pages at a time.

```
$ less LongFile.txt
$ less /etc/passwd
```

head: Print the first 10 line of a file.

```
$ head /etc/passwd
$ head longFile.txt
$ head -3 longFile.txt
```

tail: print the last 10 line of a file

```
$ tail /etc/passwd
$ tail longFile.txt
$ tail -3 longFile.txt
```

touch : Create an empty file,

```
$ touch file1
$ touch file2 file3 file4
```

cp : copy directory and files.

```
$ cp file1 copy_file
$ cp file1 [directory_path]
$ cp -r [directory] [copy_directory_path]
```

mv: Move directory and files.

```
$ mv file1 New_file
$ mv file1 [directory_path]
$ mv -r [directory] [copy_directory_path]
```

rm : Remove directory and files.

```
$ rm MyFile.txt
$ rm README.txt

$ rm -r MyFloder
$ rm -r Directory
```

file: The file utility determines the file type.

```
$ file /dev/sda
$ file File.png
$ file /proc/cpuinfo
```

wc : count the number of words or characters in a file.

```
$ wc randomFile.txt
$ wc -l /etc/passwd
$ wc --help
```

> `stat` : Display file system status.

```
$ stat file.txt
$ stat /etc/passwd
$ stat /var/log/audit/
```

> `cut` : Removes sections from lines of input.

```
$ cut -d ":" -f 1 /etc/passwd
```

Search Files

> `grep` : Search text files for lines containing a matching pattern.

```
$ grep [word] [fileName]
$ grep root /etc/passwd
```

> `locate` : Find files by matching the whole path name.

```
$ locate [fileName]
$ locate shadow
```

> `find` : Search fir files in a directory hierarchy.

```
# $ find [location/directory] -type [file type] -name [Name of the file
$ find / -type f -name passwd
$ find /etc -type -f -name apache2
```

Commands to know

> `sudo` : Execute a command as another user,usually with higher permissions.

```
$ sudo  ls /root
$ sudo burpsuite
```

> `adduser` : To add/create a new user.

```
$ sudo adduser cent
```

> `passwd` : change password of a user.

```
$ sudo passwd cent
```

> su : Run a shell as another user or Change the user

```
$ su cent
```

> shutdown : Bring the system down in a safe way.

```
$ shutdown -h now

# Will shutdown in 5 minit
$ shutdown -h +5
# Will restart in 5 minit
$ shutdown -r +5
```

> poweroff : Turn off the system.

```
$ poweroff
```

> init 6 : This command gracefully reboots the system.

```
$ init 6
        or
$ reboot
```

Partitions and Disk Management.

> df : Report file system disk space usage.

```
$ df -h
```

> fdisk : lists all the partitions of all the drives

```
$ fdisk -l
```

> lsblk: It is similar to the output from fdisk-l, but it will also display devices with multiple partitions in a kind of tree

```
$ lsblk
```

```
$ lsof -i
```

Process Management

ps : Report on current processes

```
$ ps
$ ps x
$ ps aux
```

top : Show real time processes.

```
$ top
```

kill : Terminate a process by PID.

```
$ kill -9 [PID]
```

pkill : Lookup of signal processes based on same and other attributes.

```
$ pkill [service_name]
```

pgrep : Grep for process information.

```
$ pgrep [service_name]
$ pgrep sshd
$ pgrep firewalld
```

jobs : Display all jobs.

```
$ jobs
```

Networking

ifconfig : Configure network interface.

```
# intall net-tools
$ yum install net-tools
```

```
$ ifconfig
$ ifconfig eth0 down
$ ifconfig eth0 192.168.0.120 netmask 255.255.255.0 broadcast 192.168.0.255
$ route add defult gw 192.168.0.1
$ ifconfig eth0 hw ether 00:11:22:33:44:55
$ ifconfig eth0 up
```

`route` : Show/Manipulate the IP routing table.

```
$ route
# To display routing table in full numeric form.
$ route -n

# To add a default gateway.
$ sudo route add default gw 169.254.0.0
#To reject routing to a particular host or network.
$ sudo route add -host 192.168.1.51 reject
# To delete the default gateway.
$ route del default
```

`ip` : Show/Manipulate routing, devices, policy and tunnels; replaces ifconfig, arp, and route.

```
$ ip a
        or
$ ip addr

# Only show ipv4
$ ip -4 addr

# Only show ipv6
$ ip -6 addr

# Only show running interfaces.
$ ip link ls up

# Adding an IPv4 address
$ ip addr add 192.168.0.120/24 dev esp0s3

# Delete IP address to interface
$ ip addr del 192.168.0.120/24 dev esp0s3
```

`ifup` : Bring network interface up.

```
$ ifup enp0s3
```

`ifdown` : Bring network interface down.

```
$ ifdown enp0s3
```

ping : Send ICMP ECHO_REQUEST to network hosts

```
$ ping google.com
$ ping -c 3 google.com
```