

BASIC LEVEL

1. What command is used to get the IP addresses of all interfaces on a server?

ifconfig.

2. What is the purpose of "mv" command?

- i) It renames a file or folder.
- ii) It moves a group of files to a different directory.

3. Which command is used to create a new empty file?

touch

4. Which command is used to display the contents of a directory?

Dir

5. Which command is used to display all the file names along with their types of the current directory?

ls -l

file ./*

6. Which command is used to clear the terminal?

clear

7. What are daemons?

Some processes have the goal to run for a long time on the system in the background. This could be to fulfill requests like scanning an incoming email or sending back a page of a website. These processes are called daemons. Besides the duration, another big difference is that daemons do not need interaction with the terminal. Typically they won't send any data to it but use log files instead. Daemons are often started directly after the operating system started. Most have a 'd' at the end of the process name, to hint that they are a daemon process.

A daemon (or service) is a background process that is designed to run autonomously, with little or not user intervention. The Apache web server http daemon (httpd) is one such example of a daemon. It waits in the background listening on specific ports, and serves up pages or processes scripts, based on the type of request.

8. Which command is used to move to the parent directory?

Cd..

9. What does echo command do?

It is used to display line of text/string that are passed as an argument .

10.How to display content of a file?

Cat

11. How to identify which shell you are using?

echo "\$SHELL"

12. How do you check if a particular service is running?

service service_name status' or '/etc/init.d/service_name status for the System V (SysV) init system, and 'systemctl status service_name' for the systemd systems for a specific service.

\$ sudo systemctl

13.What is the command to run a program with elevated Permissions?

Sudo

14.Which command is used to display the path of the current working directory?

Pwd(print working directory)

15. How to delete a directory forcefully?

Rm -rf dirname

16.Which command is used to switch from superuser to normal User?

su

17.How to switch to superuser (root) with elevated permissions?

sudo -s

sudo - l

18.How to determine the type of a file?

File <filename>

INTERMEDIATE LEVEL

1. What are the different modes when using VI editor?

Insert mode and command mode

2. Which command is used to create multiple directories simultaneously?

mkdir {test1,test2,test3}

3. What is LILO?

LILO stands for Linux Loader that is used to load Linux into memory.

4. How `cd ~`, `cd /` and `cd -` are different from each other?

`cd /` navigates to root directory

`cd ~` navigates to home directory

`cd -` navigates to previous directory

5. What is a `grep` command?

`Grep` is an acronym that stands for Global Regular Expression Print. `Grep` is a Linux / Unix command-line tool used to search for a string of characters in a specified file. The text search pattern is called a regular expression. When it finds a match, it prints the line with the result. The `grep` command is handy when searching through large log files.

6. If we are in the directory `X` and we are running `rmdir X` being in that directory `X`. Will this command successfully remove the directory or not?

`Rmdir X` would not work if we are inside the `X` directory.

7. What are the contents of `/usr/local`?

The following directories, or symbolic links to directories, must be in `/usr/local`

Directory Description

<code>bin</code>	Local binaries
<code>etc</code>	Host-specific system configuration for local binaries
<code>games</code>	Local game binaries
<code>include</code>	Local C header files
<code>lib</code>	Local libraries
<code>man</code>	Local online manuals
<code>sbin</code>	Local system binaries
<code>share</code>	Local architecture-independent hierarchy
<code>src</code>	Local source code

No other directories, except those listed below, may be in `/usr/local` after first installing a FHS-compliant system

8. Which command is used to display the current username?

`Whoami`

`id -un`

9. What command is used to change your password?

`Passwd`

10. How to find the difference in two configuration files?

`diff <(file1) <(file2)`

11. How to find where a file is located in Linux?

1. `find . -name thisfile.txt`

If you need to know how to find a file in Linux called thisfile.txt, it will look for it in current and sub-directories.

2. `find /home -name *.jpg`

Look for all .jpg files in the /home and directories below it.

3. `find . -type f -empty`

Look for an empty file inside the current directory.

4. `find /home -user randomperson -mtime 6 -iname ".db"`

Look for all .db files (ignoring text case) that have been changed in the preceding 6 days by a user called *randomperson*.

12. Which command shows the users that are logged in?

W or who

13. How to forcefully stop a process which is running in the background?

kill

14. Which command is used to list the name of files starting from any particular alphabet or string?

`ls -d abc*`

15. How to move multiple files of the same extension to a different directory?

`mv *.txt`

16. What command would you use to check how much memory is being used ?

vmstat

free

17. Which command is used to display the list of content in reverse order?

`ls -r`

18. What command is used to show how long it's been since the server was Rebooted?

who -b

19. What command is used to change the ownership of a file?

chown

ADVANCED LEVEL

1. How to see the list of mounted devices on a Linux system?

mount

2. How to check disk usage in terms of kilobytes(K), megabytes(M) and

gigabytes(G)?

df -h

3. What is Swap Space?What is a typical size for a swap partition in Linux?

Swap space in Linux is used when the amount of physical memory (RAM) is full. If the system needs more memory resources and the RAM is full, inactive pages in memory are moved to the swap space. While swap space can help machines with a small amount of RAM, it should not be considered a replacement for more RAM. Swap space is located on hard drives, which have a slower access time than physical memory.

Swap space can be a dedicated swap partition (recommended), a swap file, or a combination of swap partitions and swap files.

Swap should equal 2x physical RAM for up to 2 GB of physical RAM, and then an additional 1x physical RAM for any amount above 2 GB, but never less than 32 MB.

So, if:

M = Amount of RAM in GB, and S = Amount of swap in GB, then

```
If M < 2
    S = M *2
Else
    S = M + 2
```

Using this formula, a system with 2 GB of physical RAM would have 4 GB of swap, while one with 3 GB of physical RAM would have 5 GB of swap. Creating a large swap space partition can be especially helpful if you plan to upgrade your RAM at a later time.

For systems with really large amounts of RAM (more than 32 GB) you can likely get away with a smaller swap partition (around 1x, or less, of physical RAM).

4. How would you schedule a task in Linux?

`crontab -l` (List the jobs for the current user).

`crontab -r` (Remove all jobs for the current users).

`crontab -e` (Edit jobs for the current user).

`crontab <filename>` (Remove all jobs, and replace with the jobs read from <filename>. If no file is specified, stdin will be used).

5. How these commands would be working try and explain (files contain

“hello” word) :

- **`grep -v -i hello file1.txt`**

To exclude all lines that contain **hello** and includes lines with mixed case entries from file1.txt

- **`grep -i hello file2.txt`**

Includes lines with mixed case entries from file2.txt

- **`grep -A 2 hello file2.txt`**

This command prints three lines after the match from file2.txt

- **`grep -C 4 hello file1.txt`**

This command prints two lines before and after the match from file1.txt

- **`grep -B 3 hello file1.txt`**

This command prints two lines before the match from file1.txt

- **`ps -ef | more`**

The `ps` command on linux is one of the most basic commands for viewing the processes running on the system. It provides a snapshot of the current processes along with detailed information like user id, cpu usage, memory usage, command name etc.

More is a filter for paging through text one screenful at a time.

- **`awk '{print $2,$5;}' employee.txt`**

`awk` works on programs that contain rules xcomprised of patterns and actions. The action is executed on the text that matches the pattern.

This prints second and fifth field of text.

6. What is the export command used for?(Give Example)

Export helps to view all the environment variables and the ability to update the current shell session about the change you made to the exported variable. You don't have to wait until new shell session to use the value of the variable you changed.

Syntax :

export [-f] [-n] [name[=value] ...] or export -p

example :

```
shizuka@naruto:~$ export
declare -x CLUTTER_IM_MODULE="xim"
declare -x COMPIZ_CONFIG_PROFILE="ubuntu"
declare -x DBUS_SESSION_BUS_ADDRESS="unix:abstract=/tmp/dbus-VXmQdJg8f0"
declare -x DEFAULTS_PATH="/usr/share/gconf/ubuntu.default.path"
declare -x DESKTOP_SESSION="ubuntu"
declare -x DISPLAY=":0"
declare -x GDMSESSION="ubuntu"
declare -x GDM_LANG="en_US"
declare -x GNOME_DESKTOP_SESSION_ID="this-is-deprecated"
declare -x GNOME_KEYRING_CONTROL=""
declare -x GNOME_KEYRING_PID=""
declare -x GPG_AGENT_INFO="/home/shizuka/.gnupg/S.gpg-agent:0:1"
declare -x GTK2_MODULES="overlay-scrollbar"
declare -x GTK_IM_MODULE="ibus"
declare -x GTK_MODULES="gail:atk-bridge:unity-gtk-module"
declare -x HOME="/home/shizuka"
declare -x IM_CONFIG_PHASE="1"
declare -x INSTANCE="Unity"
declare -x JOB="gnome-session"
declare -x LANG="en_US.UTF-8"
declare -x LANGUAGE="en_US"
declare -x LESSCLOSE="/usr/bin/lesspipe %s %s"
```

7. Explain the redirection operator?

Redirection can be defined as changing the way from where commands read input to where commands sends output. You can redirect input and output of a command. For redirection, meta characters are used. Redirection can be into a file (shell meta characters are angle brackets '<', '>') or a program (shell meta characters are pipesymbol '|').

8. Which command is used to review boot messages?

Dmesg

9. Which command is used to change the permissions of a file? Explain its Usage?

- **chmod +rwx filename** to add permissions.
- **chmod -rwx directoryname** to remove permissions.
- **chmod +x filename** to allow executable permissions.

- **chmod -wx filename** to take out write and executable permissions.

10. Which command would you use to create a file system on a new hard Drive?

cat /proc/p

fdisk -l or parted -l

mkfs

11. How to compress files in Linux?

- tar
- zip
- gzip
- bzip2
- xz

12. Which file is used to automatically mount file systems on boot?

/etc/vfstab file

13. Find out the purpose of each of the following commands:

• shutdown

command brings the system down in a secure way

shutdown [OPTIONS] [TIME] [MESSAGE]

• diff

diff stands for difference. This command is used to display the differences in the files by line.

diff [options] File1 File2 paring the files line by line.

• sort

SORT command is used to sort a file, arranging the records in a particular order. By default, the sort command sorts file assuming the contents are ASCII. Using options in sort command, it can also be used to sort numerically.

\$ sort filename.txt

• ps

Linux provides us a utility called ps for viewing information related with the processes on a system which stands as abbreviation for "Process Status". ps command is used to list the currently running processes and their PIDs along with some other information depends on different options.

• kill

It's a command to kill a process by ID

• mount

The **mount** command serves to attach the filesystem found on some device to the big file tree.

- **nano**

Nano is a modeless editor so you can start typing immediately to insert text

14. What are symbolic links? How do you create one using command?

A symlink (also called a symbolic link) is a type of file in Linux that points to another file or a folder on your computer. Symlinks are similar to shortcuts in Windows. Some people call symlinks "soft links" – a type of link in Linux/UNIX systems – as opposed to "hard links."

The syntax for creating a symlink is:

ln -s <path to the file/folder to be linked> <the path of the link to be created>

ln is the link command. The -s flag specifies that the link should be soft. -s can also be entered as -symbolic.

By default, ln command creates hard links. The next argument is path to the file (or folder) that you want to link. (That is, the file or folder you want to create a shortcut for.)

And the last argument is the path to link itself (the shortcut).

15. How would you copy a file or a directory from your system to another system on the same network?

scp <source><destination>