**1.How do you list all the processes running in Linux?**

**Ans. Top, ps, htop**

2.what is **top and htop Command:**

**Ans. Top is used for view all the process running, htop is used for detailed view of process running**

**3.What is the chmod command in Linux, and how do you use it?**

**Ans. Chmod is used for changing permission of file and directory. It has three access specifiers user, group, other. It has three permission – read write and execute.**

**a-all, u – user , go – group, o – other : : r – read, w- write, x – execute**

**+ -> add permission**

**- -> remove permission**

**= -> set permission for specified values**

**Ex- chmod u+x,go-x,o-w filename**

4.**How do you find the process ID (PID) of a running process?**

**Ans. Using ps, top command**

5.**How do users create a symbolic link in Linux?**

**Ans. Using ln command we can create symbolic link.**

**Ex- ln -s existing\_file symbolic\_link\_file**

6.**What is Swap Space?**

**Ans. 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.**

7.**What is a root account?**

**Ans. Root is the superuser account in Unix and Linux. It is a user account for administrative purposes, and typically has the highest access rights on the system.**

8.**Describe CLI and GUI in Linux.**

**Ans.** CLI, or Command-Line Interface, is a text-based interface that interacts with a computer system. It allows users to execute commands by typing specific keywords and parameters into a terminal or command prompt. CLI is used for various tasks, including system administration, software development, and automation.

A GUI, or Graphical User Interface, is an interface that interacts with a computer system. Unlike CLI, which is text-based, GUI uses graphical elements such as icons, buttons, windows, and menus to allow users to interact with the system. A GUI is designed to be intuitive and user-friendly, providing a visual representation of the system and its functions. Users can perform tasks by clicking icons, selecting menu items, and dragging and dropping files.

9.**What is the Linux Kernel? Is it legal to edit it?**

Ans. The Linux kernel is the main component of a [Linux operating system (OS)](https://www.redhat.com/en/topics/linux/what-is-linux) and is the core interface between a computer’s hardware and its processes. It communicates between the two, managing resources as efficiently as possible. Yes we can change linux kernel.

10.**Elaborate all the file permission in Linux.**

**Ans. The three access specific permission are-**

1. **User ‘u’ 2) Group ‘go’ 3) Other ‘o’ and for all ‘a’.**

**Using the access keywords, we can target the specific permission to be change.**

**Permissions – read ‘r’ , write, ‘w’, execute, ‘x’**

**Now we can change permission of file by using these for ex**

**chmod u+x,go+r,o-w temp**

11.How do you move a file from one directory to another using Linux commands?

Ans. Using cd command. Ex- cd target\_location

For moving further in the directory at once you can use cd desktop/code. This will move direct to the code directory. For coming out of directory use cd .. ( cd then double full stop).

12.How would you check the network connectivity between your machine and a remote server using the Linux terminal?

Ans. The PING (Packet Internet Groper) command is used to check the network connectivity between the host and server/host. This command takes as input the [IP address](https://www.geeksforgeeks.org/what-is-an-ip-address/) or the URL and sends a data packet to the specified address with the message “PING” and gets a response from the server/host this time is recorded which is called latency. Fast ping with low latency means a faster connection. Ping uses [ICMP(Internet Control Message Protocol)](https://www.geeksforgeeks.org/internet-control-message-protocol-icmp/) to send an ICMP echo message to the specified host if that host is available then it sends an ICMP reply message. Ping is generally measured in milliseconds every modern operating system has this ping pre-installed.

Command -> ping ip\_address

ex – ping [www.google.com](http://www.google.com)

now replace google.com with any ip address and it will show the connectivity status

13.What Linux command could you use to display the list of users currently logged into the system?

Ans. The **'w'** command in Linux displays information about the users currently logged into the system and their processes.

14.In Linux, what command would you use to monitor real-time changes in a log file?

Ans. **tail Command** – Monitor Logs in Real Time, tail command is the most common solution to display a log file in real time. However, the command to display the file has two versions, as illustrated in the below examples. In the first example the command tail needs the -f argument to follow the content of a file.

15.What command would you use to compress and decompress files using the *gzip* tool?

Ans. The gzip tool is commonly used to compress and decompress files in Unix-like operating systems. Here are the commands to compress and decompress files using gzip:

### To compress a file using gzip, you can use the following command: gzip filename

To decompress a file that was compressed using gzip, you can use the following command: gzip -d filename.gz

Alternatively, you can use the gunzip command, which is equivalent to gzip -d: gunzip filename.gz

16.How do you chain several commands together in Linux?

**Ans. Using the Semicolon (;) Operator** Segmenting a chain of commands with the semicolon is the most common practice for running multiple commands in a Linux terminal.

17.**How do you format a disk in Linux?**

Linux Format Disk ext4 File System

To format the Disk [ext4](https://www.easeus.com/partition-master/ext2-ext3-ext4-file-system-format-and-difference.html) File System efficiently, all you have to do is:

**Step 1.**Use the command sudo mkfs -t ext4 /dev/sdb to format your disk partition.

**Step 2.**Once done with it, you must verify the file system change. It would help if you use lsblk -fto do it quickly.

**Step 3.** Once complete, the terminal will list blocked devices. Locate the preferred partition that you are willing to format.

**Step 4.** Confirm the formatting of the preferred partition. Bingo! You have successfully formatted your Disk ext4 file system conveniently.

18.**What is the command to remove a directory in Linux?**

**Ans. rm command is used to remove directory**

19.How do you display the contents of a file in Linux?

Ans. cat command is used to display

20.What is the command to find a specific file in a directory and its subdirectories in Linux?

Ans. To find a specific file in a directory and its subdirectories in Linux, you can use the find command.

Here’s the syntax: find /path/to/search -name "filename"

For example, if you want to search for a file named example.txt starting from the current directory and searching through all subdirectories, you would use: find . -name "example.txt"

Here’s a breakdown of the command:

* find is the command used to search for files.
* . specifies the starting point for the search (in this case, the current directory). You can replace . with any specific directory path.
* -name is the option to search for files by their name.
* "example.txt" is the name of the file you’re searching for. You can use wildcard characters (like \* or ?) if you want to search for files that match a pattern.

If you need to find files regardless of case, you can use the -iname option instead of -name:

21.How do you use the "tar" command to compress and extract files in Linux?

The tar command in Linux is used to create, extract, and manipulate archive files. Here are the basic commands to compress (create an archive) and extract (unpack an archive) files using tar:

**Compressing Files with tar**

To create a compressed archive (e.g., a tar.gz file):

tar -czvf archive\_name.tar.gz /path/to/directory\_or\_files

Here’s what each option means:

-c: Create a new archive.

-z: Compress the archive using gzip.

-v: Verbosely list files processed (optional; it shows the progress in the terminal).

-f: Specify the filename of the archive.

tar -czvf my\_archive.tar.gz /home/user/my\_directory

This command creates a compressed archive named my\_archive.tar.gz containing the contents of /home/user/my\_directory.

**Extracting Files with tar**

To extract a compressed archive (e.g., a tar.gz file):

tar -xzvf archive\_name.tar.gz

Here’s what each option means:

-x: Extract files from an archive.

-z: Decompress the archive using gzip.

-v: Verbosely list files processed (optional; it shows the progress in the terminal).

-f: Specify the filename of the archive.

22**.How do you configure a static IP address in Linux?**

**Ans.** There are two main ways to configure a static IP address in Linux:

1. **Editing network configuration files:** This method involves modifying a text file depending on your Linux distribution (e.g., /etc/network/interfaces for Ubuntu/Debian) to specify the static IP, subnet mask, gateway, and DNS servers.
2. **Using the command line:** This method utilizes tools like nmcli or ip to directly set the static IP configuration for the network interface.

Here's a more detailed breakdown of the steps involved:

**Identifying your network interface:**

Before configuring the static IP, you'll need to identify your network interface name. Use the ifconfig -a command to list your network interfaces. Common names are eth0, eth1, or wlan0.

**1. Editing network configuration files:**

* Open the appropriate configuration file with root privileges (using sudo).
* Edit the settings for your network interface, specifying:
  + BOOTPROTO=static (to set static IP)
  + IPADDR (your static IP address)
  + NETMASK (your subnet mask)
  + GATEWAY (default gateway IP)
  + Optionally, DNS1 and DNS2 (preferred and alternate DNS servers)
* Save the changes.
* Restart the networking service (e.g., /etc/init.d/networking restart for older systems, or use a service management tool like systemctl).

**2. Using the command line:**

* The specific commands may vary depending on your distribution. Here are two common examples:
  + Using nmcli (Network Manager Command Line Interface):
    - Identify your connection name with nmcli connection show
    - Modify the connection to static IP with a command like:
    - sudo nmcli connection modify <connection\_name> ipv4.addresses <static\_ip>/<subnet\_mask> ipv4.gateway <gateway\_ip> ipv4.dns <dns\_server1>
  + Using ip command (available on newer systems):
    - Set the static IP configuration directly:
    - sudo ip addr add <static\_ip>/<subnet\_mask> dev <interface\_name>
    - sudo ip route add default via <gateway\_ip>

Optionally, configure DNS servers:

sudo nmcli connection modify <connection\_name> ipv4.dns <dns\_server1> <dns\_server2> (if using multiple)

**Verifying your static IP:**

Once you've configured the static IP, use the ifconfig -a command to verify that the network interface is using the static IP address you assigned.

**Important Note:** Make sure to choose an IP address that is within the valid range for your network and doesn't conflict with any existing devices. It's also recommended to consult your network administrator for specific configuration details if you're on a managed network.