

30 Essential Linux interview questions

Basic Linux Commands & File System (1–8)

1. What is the difference between relative and absolute paths in Linux?

- **Answer:**

An **absolute path** starts from the root `/`, while a **relative path** starts from your current directory.

- **Explanation:**

Absolute paths always work regardless of your current location. Relative paths depend on where you are.

- **Use Case:**

In scripting, absolute paths ensure scripts run correctly from any location.

Example:

```
cd /home/user/docs    # Absolute  
cd ../pictures       # Relative
```

2. How do you list files and directories, including hidden ones?

- **Answer:**

Use `ls -la` to list all files, including hidden ones.

- **Explanation:**

Hidden files start with a `.` and are skipped unless you use `-a`.

- **Use Case:**

Useful for finding config files like `.bashrc`.

Example:

```
ls -la
```

3. What does the chmod command do, and how do you use it?

- **Answer:**

`chmod` changes file or directory permissions.

- **Explanation:**

Permissions are set as `r` (read), `w` (write), `x` (execute).

- **Use Case:**

Give scripts execute permissions.

Example:

```
chmod +x script.sh
```

4. Explain the difference between touch and mkdir.

- **Answer:**

`touch` creates empty files; `mkdir` creates directories.

- **Explanation:**

Use `touch` for files and `mkdir` for folders.

- **Use Case:**

When setting up file structures for an app.

Example:

```
touch file.txt  
mkdir myfolder
```

5. What is the purpose of the man command?

- **Answer:**

`man` displays the manual/help page for a command.

- **Explanation:**

Useful to check syntax and options.

- **Use Case:**

Understanding command flags in production.

Example:

```
man grep
```

6. How do you find a file by name in Linux?

- **Answer:**

Use `find /path -name "<filename>"`.

- **Explanation:**

`find` searches recursively.

- **Use Case:**

Locating log files or configs.

Example:

```
find /var/log -name "auth.log"
```

7. How do you view the current working directory and disk usage?

- **Answer:**

Use `pwd` to view current path, `df -h` for disk usage.

- **Explanation:**

`pwd` shows where you are; `df -h` shows disk usage in human-readable format.

- **Use Case:**

Troubleshoot storage issues.

Example:

```
Pwd
```

```
df -h
```

8. What are file permissions like `rwxr-xr--`, and how do you change ownership (`chown`)?

- **Answer:**

File permissions define who can read/write/execute. Use `chown user:group <file>` to change ownership.

- **Explanation:**

Permissions follow `user-group-others` order.

- **Use Case:**

Giving correct ownership to web or log files.

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- **Example:**

chown apache:apache index.html

User & Process Management (9–14)

9. What is the difference between su and sudo?

- **Answer:**

`su` switches to another user; `sudo` runs a command with elevated privileges.

- **Explanation:**

`sudo` is safer and logs actions.

- **Use Case:**

Running a root-only command like installing software.

Example:

```
sudo apt update  
su - username
```

10. How do you add a user and set a password?

- **Answer:**

Use `useradd <username>` and `passwd <username>`.

- **Explanation:**

Creates and secures new accounts.

- **Use Case:**

Onboarding new team members.

Example:

```
useradd devuser  
passwd devuser
```

11. How do you check running processes (ps, top, htop) in Linux?

- **Answer:**

Use `ps aux`, `top`, or `htop` to see running processes.

- **Explanation:**
`htop` is more interactive; `ps` is good for scripting.
- **Use Case:**
Monitoring memory-hungry processes.

Example:

```
ps aux | grep nginx  
top  
htop
```

12. How do you kill a running process safely?

- **Answer:**
Use `kill <PID>` or `kill -9 <PID>`.
- **Explanation:**
`kill` tries graceful exit, `-9` forces it.
- **Use Case:**
Terminate hung apps like Apache.

Example:

```
kill 1234  
kill -9 5678
```

13. What is the difference between a hard link and a soft link?

- **Answer:**
Hard links share the same inode; soft links (symlinks) point to another file.
- **Explanation:**
Deleting original breaks soft link but not hard link.
- **Use Case:**
Managing configs or shared files.

Example:

```
ln file1 file2 # Hard link  
ln -s file1 file2 # Soft link
```

14. How do you check which service or process is using the most memory or CPU?

- **Answer:**
Use `top`, `htop`, or `ps aux --sort=-%mem`.
- **Explanation:**
Sorted `ps` helps in automation/scripts.
- **Use Case:**
Finding performance bottlenecks.

Example:

```
ps aux --sort=-%mem | head
```

◆ Networking & Connectivity (15–19)

15. How do you check your IP address and network configuration in Linux?

- **Answer:**
Use `ip a` or `ifconfig` (older systems).
- **Explanation:**
`ip a` shows all IP addresses and interface states.
- **Use Case:**
Debugging connectivity issues.

Example: `ip a`

16. What is SSH and how do you connect to a remote server?

Answer:

SSH (Secure Shell) is used to connect securely to remote systems:

```
ssh user@remote_ip
```

- **Explanation:**
Encrypts communication between local and remote systems.
- **Use Case:**
Managing cloud servers like EC2 or VPS.

Example: ssh ubuntu@192.168.1.100

17. How do you transfer files using scp or rsync?

- **Answer:**
Use `scp` for quick transfer or `rsync` for optimized syncing.
- **Explanation:**
`rsync` only copies changes, saving time.
- **Use Case:**
Backing up logs or configs to a remote server.

Example: scp file.txt user@remote:/tmp/
rsync -avz /data/ user@remote:/backup/

18. How do you check if a port is in use (netstat, ss, lsof)?

- **Answer:**
Use `ss -tuln` or `lsof -i :<port>`.
- **Explanation:**
Shows which service is listening on which port.
- **Use Case:**
Troubleshooting port conflicts.

Example: ss -tuln
lsof -i :80

19. How do you troubleshoot basic network issues (ping, traceroute)?

- **Answer:**
Use `ping <host>`, `traceroute <host>`, `nslookup <domain>`.
- **Explanation:**
Helps check connectivity, DNS resolution, and route.
- **Use Case:**
Diagnosing internet or VPN issues.

Example: `ping google.com`

 `traceroute google.com`

 `nslookup google.com`

System Administration & Services (20–24)

20. How do you start, stop, and restart a service using systemctl?

Answer:

`systemctl start|stop|restart <service>`

- **Explanation:**
Manages systemd services.
- **Use Case:**
Restarting web servers like Apache/Nginx.
- **Example:** `systemctl restart nginx`

21. How do you check logs using journalctl or tail -f?

- **Answer:**
Use `journalctl -u <service>` or `tail -f <logfile>`.
- **Explanation:**
`journalctl` works with systemd; `tail -f` shows live logs.
- **Use Case:**
Debugging service failures or runtime errors.

Example: `journalctl -u sshd`
 `tail -f /var/log/syslog`

22. How do you schedule a cron job and list existing ones?

- **Answer:**
Use `crontab -e` to edit and `crontab -l` to list.
- **Explanation:**
Cron schedules repetitive tasks.
- **Use Case:**
Automating backups or report generation.

Example: `crontab -e`
 `# Add: 0 2 * * * /backup.sh`

23. How do you configure a static IP address via CLI?

- **Answer:**
On modern systems (Netplan), edit `/etc/netplan/*.yaml`.
- **Explanation:**
CLI IP configs depend on distro (Netplan, NetworkManager, etc.).
- **Use Case:**
Assigning static IPs to servers or VMs.

Example (Ubuntu):

```
network:  
  
  ethernets:  
  
    eth0:  
  
      dhcp4: no  
  
      addresses: [192.168.1.100/24]
```

```
gateway4: 192.168.1.1  
nameservers:  
    addresses: [8.8.8.8, 8.8.4.4]  
version: 2
```

24. How do you troubleshoot a failed or inactive systemd service?

Answer:

Check status and logs:

```
systemctl status <service>
```

```
journalctl -xeu <service>
```

- **Explanation:**
Status shows failure reason; journalctl shows logs.
- **Use Case:**
Debugging failed database or application services.

Example: `systemctl status apache2`

```
journalctl -xeu apache2
```

Monitoring, Scripting & Troubleshooting (25–30)

25. How do you check system uptime, CPU, and memory usage?

- **Answer:**
Use `uptime`, `top`, `free -h`.
- **Explanation:**
Common tools for live system resource check.
- **Use Case:**
Identifying overloaded systems.

Example: `uptime`

```
top  
free -h
```

26. How do you search for a keyword inside files (grep, find)?

- **Answer:**
Use `grep -r "keyword" /path` or combine with `find`.
- **Explanation:**
`grep` is for content, `find` is for names.
- **Use Case:**
Searching logs or configs.

Example: `grep -r "error" /var/log`

```
find /etc -name "*conf"
```

27. What are environment variables and how do you set/view them?

- **Answer:**
Use `export VAR=value` to set, `echo $VAR` to view.
- **Explanation:**
Used to configure app settings and paths.
- **Use Case:**
Setting JAVA_HOME, PATH, etc.

Example: `export APP_ENV=production`

```
echo $APP_ENV
```

28. How do you handle “Permission Denied” errors when permissions seem correct?

- **Answer:**
Check:

- Ownership (`ls -l`)
 - Execution (`x` flag)
 - SELinux/AppArmor
 - Directory permissions
- **Explanation:**
It's often ownership, SELinux, or missing execute permission on parent dir.
 - **Use Case:**
Debugging script or deployment failures.

Example:

```
ls -l script.sh  
chmod +x script.sh  
getenforce          # For SELinux
```

29. What steps do you take to troubleshoot a slow or unresponsive Linux server?

- **Answer:**
 1. Check CPU/mem: `top`, `htop`, `vmstat`
 2. Disk usage: `df -h`, `iostat`
 3. Logs: `journalctl`, `dmesg`
 4. Network: `ping`, `netstat`, `ss`
- **Explanation:**
Check all system resources and logs step-by-step.
- **Use Case:**
Real-time server issue troubleshooting.

Example:

```
top  
df -h
```

```
journalctl -xe  
ping 8.8.8.8
```

30. Write a basic shell script to take a filename as input and display the first 10 lines.

Answer:

```
#!/bin/bash  
  
echo "Enter filename:"  
  
read file  
  
head -n 10 "$file"
```

- **Explanation:**
Reads input and shows first 10 lines.
- **Use Case:**
Used in log scanning or data previews.