

DevOps Shack

Top 50 Linux Error, Solution RCA Asked In MNC Interviews

1. Command Not Found (: **command: command not found**)

RCA: The command is either misspelled or not installed.

Solution:

- Check if the command is installed: **which <command>**
- Install missing package: **sudo apt-get install <package>** (Debian-based) or **sudo yum install <package>** (RHEL-based)
- Check **\$PATH** variable: **echo \$PATH**

2. Permission Denied (: **./script.sh: Permission denied**)

RCA: The script or file lacks execution permissions.

Solution:

- Grant execute permission: **chmod +x script.sh**
- Run as superuser: **sudo ./script.sh**

3. Disk Space Full (**No space left on device**)

RCA: The disk is full, preventing new files from being created.

Solution:



- Check disk usage: `df -h`
- Remove unnecessary files: `rm -rf /path/to/files`
- Find large files: `du -ah / | sort -rh | head -10`

4. Process Already Running (Address already in use)

RCA: A process is already using the port.

Solution:

- Find process ID (PID): `lsof -i :<port>`
- Kill the process: `kill -9 <PID>`
- Restart the service: `systemctl restart <service>`

5. Segmentation Fault (Segmentation fault (core dumped))

RCA: Accessing invalid memory locations in a program.

Solution:

- Check logs: `dmesg | tail -20`
- Run with debugger: `gdb ./program`
- Recompile with debugging flags: `gcc -g program.c -o program`

6. Kernel Panic (Kernel panic - not syncing: Fatal exception)

RCA: Corrupt kernel, missing modules, or hardware failure.

Solution:

- Boot into recovery mode and check logs: `journalctl -xb`
- Update kernel: `sudo apt-get update && sudo apt-get upgrade`
- Rebuild initramfs: `update-initramfs -u`



7. Cannot SSH (**Connection refused**)

RCA: SSH service is not running or blocked by firewall.

Solution:

- Start SSH service: **sudo systemctl start sshd**
- Allow SSH in firewall: **sudo ufw allow 22**
- Check listening port: **netstat -tulnp | grep ssh**

8. Stale NFS File Handle (**Stale NFS file handle**)

RCA: The remote file system is unmounted or changed.

Solution:

- Remount NFS: **sudo umount -f /mnt/nfs && sudo mount -a**
- Restart NFS service: **sudo systemctl restart nfs-kernel-server**

9. High CPU Usage (**Load average too high**)

RCA: Process consuming too many resources.

Solution:

- Check processes: **top** or **htop**
- Kill high CPU process: **kill -9 <PID>**
- Optimize services or increase resources

10. Boot Issues (**initramfs prompt** or **grub rescue>** error)

RCA: Corrupt bootloader, missing kernel files.

Solution:



- Reinstall GRUB: `grub-install /dev/sda && update-grub`
- Boot from live CD and repair system

11. Too Many Open Files (`Too many open files`)

RCA: The process exceeds the file descriptor limit.

Solution:

- Check limits: `ulimit -n`
- Increase limit temporarily: `ulimit -n 100000`
- Permanent change: Edit `/etc/security/limits.conf`

12. Broken Pipe (`Write failed: Broken pipe`)

RCA: Network connection closed unexpectedly.

Solution:

- Increase SSH timeout: `echo "ClientAliveInterval 60" >> /etc/ssh/sshd_config`
- Use `screen` or `tmux` to persist sessions

13. Out of Memory (`Out of memory: Kill process`)

RCA: Insufficient RAM, process exceeds system limits.

Solution:

- Check memory usage: `free -m`
- Kill memory-intensive processes: `kill -9 <PID>`

Add swap space:

```
sudo fallocate -l 2G /swapfile
```



```
sudo chmod 600 /swapfile
sudo mkswap /swapfile
sudo swapon /swapfile
```

14. Read-only File System (Read-only file system error)

RCA: Disk corruption, remounted in read-only mode.

Solution:

- Remount filesystem: `mount -o remount,rw /`
- Check disk: `fsck -y /dev/sdaX`

15. Network Unreachable (Network is unreachable)

RCA: Incorrect network configuration or cable issue.

Solution:

- Restart network service: `systemctl restart networking`
- Check IP configuration: `ip addr show`
- Restart interface: `ifconfig eth0 down && ifconfig eth0 up`

16. Connection Reset by Peer (ssh_exchange_identification: Connection reset by peer)

RCA: SSH daemon rejects the connection.

Solution:

- Check `fail2ban` or firewall: `iptables -L`
- Restart SSH service: `systemctl restart sshd`



17. Dependency Issues (Dependency hell: Package conflicts)

RCA: Conflicting or missing package dependencies.

Solution:

- Use dependency resolver: `sudo apt-get -f install`
- For RHEL: `sudo yum clean all && yum update`

18. Cron Job Not Running (Cron job not executing)

RCA: Incorrect cron syntax, no execution permission.

Solution:

- Check cron logs: `cat /var/log/syslog | grep CRON`
- Verify permissions: `chmod +x script.sh`
- Restart cron service: `systemctl restart cron`

19. No Route to Host (No route to host)

RCA: Network misconfiguration, firewall blocking connection.

Solution:

- Check routing table: `route -n`
- Disable firewall: `sudo iptables -F`
- Verify connectivity: `ping <remote_host>`

20. 502 Bad Gateway (Nginx/Apache)

RCA: Backend service is down or misconfigured.



Solution:

- Restart backend service: `systemctl restart php-fpm`
- Check logs: `tail -f /var/log/nginx/error.log`

21. High I/O Wait (`iowait too high`)

RCA: Disk is overloaded, slow I/O operations.

Solution:

- Check I/O wait: `iostat -x 1 10`
- Find heavy disk usage: `iotop`
- Optimize storage or use SSD

22. Invalid Date (`date: cannot set date: Operation not permitted`)

RCA: Incorrect timezone, user lacks permission.

Solution:

- Sync time: `sudo timedatectl set-ntp on`
- Change timezone: `sudo timedatectl set-timezone UTC`

23. 404 Not Found (Web Server Error)

RCA: Missing document root or misconfigured server.

Solution:

- Check web server config: `cat /etc/nginx/sites-enabled/default`
- Restart service: `systemctl restart nginx`

24. Firewall Blocking Port (`Connection timed out`)



RCA: Firewall blocking the service port.

Solution:

- Allow port in firewall: `sudo ufw allow 8080`
- Restart firewall: `systemctl restart firewallld`

25. Process Hung (D state processes)

RCA: Process stuck due to I/O or deadlock.

Solution:

- Find stuck processes: `ps aux | grep D`
- Kill process: `kill -9 <PID>`

26. Package Not Found (E: Unable to locate package)

RCA: Repository issue or incorrect package name.

Solution:

- Update package list: `sudo apt-get update`
- Search package: `apt-cache search <package>`

27. Kernel Module Not Loading (modprobe: ERROR)

RCA: Missing or incorrect kernel module.

Solution:

- Load module manually: `modprobe <module_name>`
- Check logs: `dmesg | tail -20`

28. SSH Key Permission Denied



RCA: Incorrect permissions on SSH private key.

Solution:

- Set correct permissions: `chmod 600 ~/.ssh/id_rsa`
- Restart SSH: `systemctl restart sshd`

29. Log File Too Large (`/var/log/messages` is too large)

RCA: Logs growing too fast.

Solution:

- Rotate logs: `logrotate -f /etc/logrotate.conf`
- Compress old logs: `gzip /var/log/syslog`

30. Zombie Process (`defunct` process)

RCA: Parent process not cleaning up child processes.

Solution:

- Find parent PID: `ps -aux | grep defunct`
- Kill parent process: `kill -9 <PPID>`

31. `systemctl`: command not found

RCA: Older system using SysVinit instead of systemd.

Solution:

- Use older service command: `service <service_name> start`
- Upgrade to systemd if necessary.



32. Too many authentication failures (SSH)

RCA: Repeated failed logins cause SSH lockout.

Solution:

Increase authentication attempts:

```
echo "MaxAuthTries 10" >> /etc/ssh/sshd_config  
systemctl restart sshd
```

33. Device or resource busy (Unmounting Issue)

RCA: Process using the device.

Solution:

- Find using processes: `lsof | grep /mnt/device`
- Kill the process: `kill -9 <PID>`
- Force unmount: `umount -l /mnt/device`

34. Mounting Failed (mount: unknown filesystem type)

RCA: Unsupported or missing filesystem type.

Solution:

- Check available filesystems: `cat /proc/filesystems`

Install missing filesystem support:



```
sudo apt-get install xfsprogs # For XFS
sudo apt-get install nfs-common # For NFS
```

- Mount with correct type: `mount -t ext4 /dev/sda1 /mnt`

35. User Locked Out (Account locked due to too many failed logins)

RCA: Security settings locked the account.

Solution:

- Unlock user: `sudo passwd -u <username>`
- Reset failed login attempts: `faillock --user <username> --reset`

36. Symbolic Link Broken (ln: failed to create symbolic link)

RCA: Target file doesn't exist or incorrect path.

Solution:

- Verify target exists: `ls -l <target>`
- Correct the link: `ln -s /correct/path /symlink`

37. File Descriptor Limit Exceeded (Too many open files)

RCA: Application exceeded open file limit.

Solution:

Increase limits:

```
echo "fs.file-max = 100000" >> /etc/sysctl.conf
sysctl -p
ulimit -n 100000
```



38. **chown** Permission Denied (**Operation not permitted**)

RCA: Attempt to change ownership of a root-owned file as a non-root user.

Solution:

- Use **sudo: sudo chown user:user file.txt**
- Check immutable flag: **lsattr file.txt**

39. Software Package Signature Error (**GPG error: NO_PUBKEY**)

RCA: Missing GPG key for the package repository.

Solution:

Add missing key:

```
sudo apt-key adv --keyserver keyserver.ubuntu.com  
--recv-keys <KEY>
```

40. USB Device Not Detected (**dmesg | grep USB shows no output**)

RCA: USB subsystem failure or hardware issue.

Solution:

- Restart USB service: **modprobe -r usb_storage && modprobe usb_storage**
- Check logs: **dmesg | tail -50**

41. NTP Sync Not Working (**timedatectl shows time out of sync**)



RCA: NTP service not running or firewall blocking NTP.

Solution:

- Start NTP: `systemctl restart systemd-timesyncd`
- Check firewall: `sudo ufw allow 123/udp`

42. Kernel Update Failed (`grub menu missing new kernel`)

RCA: Bootloader not updated after kernel install.

Solution:

Update GRUB:

```
sudo update-grub
sudo grub-install /dev/sda
```

43. Service Not Starting (`Failed to start <service>`)

RCA: Configuration errors, missing dependencies.

Solution:

- Check logs: `journalctl -xe`
- Fix missing dependencies: `sudo apt-get -f install`

44. Swap Not Enabled (`swapon: /swapfile: swapon failed`)

RCA: Swapfile not created or mounted.

Solution:

Create and enable swap:

```
sudo fallocate -l 2G /swapfile
sudo chmod 600 /swapfile
sudo mkswap /swapfile
sudo swapon /swapfile
```

45. **scp** Transfer Slow (**scp** takes too long to transfer files)

RCA: Compression disabled, high latency.

Solution:

- Enable compression: **scp -C file user@host:/path**

Use **rsync**:

```
rsync -avz file user@host:/path
```

46. **ping** Works, But **curl** Fails (**curl: (7) Failed to connect**)

RCA: Firewall blocking the port.

Solution:

- Check firewall rules: **iptables -L -n**
- Allow traffic: **sudo ufw allow 80**

47. System Logs Not Rotating (**Log files keep growing**)

RCA: Logrotate misconfigured or service issue.

Solution:



- Manually rotate logs: `logrotate -f /etc/logrotate.conf`
- Restart log service: `systemctl restart rsyslog`

48. Stuck at **Grub>** Prompt (`grub rescue>`)

RCA: GRUB bootloader corrupted.

Solution:

Boot into live CD and reinstall GRUB:

```
sudo mount /dev/sda1 /mnt
sudo grub-install --root-directory=/mnt /dev/sda
```

49. Cron Job Runs But Doesn't Work (**Crontab entry exists but doesn't execute correctly**)

RCA: Environment variables missing.

Solution:

- Specify full paths: `/usr/bin/python3 /path/to/script.py`

Log cron output:

```
* * * * * /path/to/script.sh >> /var/log/myscript.log 2>&1
```

50. Disk Errors (**I/O error on device**)

RCA: Failing disk, filesystem corruption.

Solution:

- Check disk health: `smartctl -a /dev/sda`
- Repair filesystem: `fsck -y /dev/sda1`

