

By DevOps Shack

# 100 LINUX ERRORS & SOLUTION



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## DEVOPS SHACK

# 100 Linux Errors & solution

### 1. Permission Denied

**RCA:** The user does not have the necessary permissions to execute or modify the file.

**Solution:** Use sudo or change file permissions.

Command:

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

### 2. File Not Found (No such file or directory)

**RCA:** The specified file does not exist, or the path is incorrect.

**Solution:** Verify the correct path and check if the file exists.

Command:

```
ls -l /path/to/file
```

### 3. Directory Not Found

**RCA:** The specified directory does not exist or was deleted.

**Solution:** Create the missing directory.

Command:

```
mkdir -p /desired/paths
```

### 4. Read-Only File System

**RCA:** The filesystem is mounted as read-only due to disk corruption or improper shutdown.

**Solution:** Remount the filesystem in read/write mode.

Command:

```
mount -o remount,rw /
```



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## 5. Disk Space Full (No space left on device)

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

**Solution:** Delete unnecessary files or expand disk space.

**Command:**

```
df -h
```

```
rm -rf /var/log/*
```

## 6. Symbolic Link Points to Non-Existent File (broken symlink)

**RCA:** The original file of the symlink was moved or deleted.

**Solution:** Find and recreate the symlink.

**Command:**

```
ls -l symlink_name
```

```
ln -sf /new/target/path symlink_name
```

## 7. Too Many Open Files

**RCA:** The system has reached its file descriptor limit.

**Solution:** Increase the open file limit.

**Command:**

```
Ulimit
```

```
-n 100000
```

## 8. Text file busy Error

**RCA:** The file is in use by another process while trying to modify or delete it.

**Solution:** Identify and stop the process using it.

**Command:**

```
lsof | grep filename
```

```
kill -9 <PID>
```

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## 9. Stale NFS file handle

**RCA:** The NFS-mounted file was deleted or moved on the remote system.

**Solution:** Remount the NFS share.

**Command:**

```
umount -l /mnt/nfs
```

```
mount -a
```

## 10. Argument list too long

**RCA:** Too many arguments passed to a command, exceeding system limits.

**Solution:** Use find or xargs instead of rm \*.

**Command:**

```
find /path -type f -delete
```

## 11. Process Killed Automatically

**RCA:** The Out-of-Memory (OOM) killer terminated the process.

**Solution:** Increase swap memory or optimize memory usage.

**Command:**

```
free -m
```

```
dmesg | grep -i 'oom'
```

## 12. Zombie Process Remains After Termination

**RCA:** The parent process has not cleaned up the child process.

**Solution:** Restart the parent process or kill the zombie process.

**Command:**

```
ps aux | grep Z
```

```
kill -9 <PID>
```

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### 13. Segmentation Fault (core dumped)

**RCA:** A program attempted to access restricted memory.

**Solution:** Debug using gdb.

**Command:**

```
gdb ./program core
```

### 14. Too Many Processes Running (Fork Bomb)

**RCA:** A process is recursively creating child processes.

**Solution:** Use ulimit to prevent excessive process creation.

**Command:**

```
ulimit -u 5000
```

### 15. Device is Busy When Unmounting a Partition

**RCA:** A process is using the partition.

**Solution:** Find and kill the process before unmounting.

**Command:**

```
lsdf +D /mnt/partition
```

```
kill -9 <PID>
```

```
umount /mnt/partition
```

### 21. Network Unreachable

**RCA:** Incorrect network configuration or firewall rules.

**Solution:** Check network settings and routes.

**Command:**

```
ip a
```

```
route -n
```

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## 22. Connection Timed Out

**RCA:** The remote server is not responding.

**Solution:** Use ping or telnet to diagnose.

**Command:**

```
ping -c 4 google.com
```

```
telnet google.com 80
```

## 23. SSH Connection Refused

**RCA:** SSH service is not running or firewall is blocking.

**Solution:** Start SSH and allow the port.

**Command:**

```
systemctl start ssh
```

```
ufw allow 22/tcp
```

## 24. Unknown Host

**RCA:** DNS resolution failed.

**Solution:** Check /etc/resolv.conf or use nslookup.

**Command:**

```
nslookup google.com
```

## 25. Port Already in Use

**RCA:** Another process is using the port.

**Solution:** Find and kill the process using the port.

**Command:**

```
netstat -tulnp | grep :80
```

```
kill -9 <PID>
```

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## 26. User is Not in the sudoers File

**RCA:** The user does not have sudo privileges.

**Solution:** Add the user to the sudo group.

**Command:**

```
sudo usermod -aG sudo username
```

## 27. SSH Key Authentication Fails

**RCA:** Incorrect key permissions or missing public key in authorized\_keys.

**Solution:** Ensure correct permissions and key placement.

**Command:**

```
chmod 600 ~/.ssh/authorized_keys
```

## 28. Account Locked Due to Too Many Failed Logins

**RCA:** Security settings locked the account after multiple incorrect attempts.

**Solution:** Unlock the user account.

**Command:**

```
faillock --reset --user username
```

## 29. Too Many Authentication Failures (SSH)

**RCA:** Exceeded max authentication attempts in SSH.

**Solution:** Increase the limit in sshd\_config.

**Command:**

```
sudo nano /etc/ssh/sshd_config
```

```
MaxAuthTries 6
```

```
systemctl restart sshd
```

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### 30. Unable to Change User Password

**RCA:** Password complexity requirements or expired account.

**Solution:** Reset the password and check account status.

**Command:**

```
sudo passwd username
```

```
sudo chage -l username
```

### 31. Kernel Panic – Not Syncing

**RCA:** The kernel cannot mount the root filesystem due to corruption or misconfiguration.

**Solution:** Boot into recovery mode and reinstall the kernel.

**Command:**

```
sudo apt update && sudo apt upgrade -y
```

```
sudo update-initramfs -u
```

### 32. Boot Stuck at GRUB> Prompt

**RCA:** GRUB bootloader is corrupted or missing.

**Solution:** Reinstall GRUB from a live CD.

**Command:**

```
grub-install /dev/sda
```

```
update-grub
```

### 33. initramfs Error at Boot

**RCA:** The system is unable to load the root filesystem.

**Solution:** Check the filesystem for corruption.

**Command:**

```
fsck -y /dev/sda1
```



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### 34. No init found Error

**RCA:** The system init process is missing or corrupted.

**Solution:** Reinstall the init package.

**Command:**

```
sudo apt install --reinstall system
```

### 35. Slow Boot Time

**RCA:** Background services slowing down the boot.

**Solution:** Identify and disable unnecessary services.

**Command:**

```
systemd-analyze blame
```

```
systemctl disable unwanted-service
```

### 36. Boot Stuck at GRUB> Prompt

**RCA:** The GRUB bootloader is corrupted or missing.

**Solution:** Reinstall GRUB from a live CD.

**Command:**

```
grub-install /dev/sda
```

```
update-grub
```

### 37. initramfs Error at Boot

**RCA:** The system cannot load the root filesystem.

**Solution:** Boot into recovery mode and check filesystem integrity.

**Command:**

```
fsck -y /dev/sda1
```

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### 38. No init found Error

**RCA:** The system init process is missing or corrupted.

**Solution:** Reinstall the init package.

**Command:**

```
sudo apt install --reinstall system
```

### 39. Kernel Module Failed to Load

**RCA:** The kernel module is missing or incompatible with the running kernel.

**Solution:** Manually load the module or install the required kernel headers.

**Command:**

```
modprobe module-name
```

### 40. modprobe: FATAL: Module Not Found

**RCA:** The module is missing from the `/lib/modules/` directory.

**Solution:** Update the kernel module list.

**Command:**

```
sudo depmod -a
```

### 41. High CPU Usage (top shows 100% CPU usage)

**RCA:** A process is consuming too much CPU.

**Solution:** Identify and stop the process.

**Command:**

```
top
```

```
kill -9 <PID>
```

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#### 42. Out of Memory (OOM Killer triggered)

**RCA:** The system ran out of available memory.

**Solution:** Add swap space or optimize memory usage.

**Command:**

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

```
sudo mkswap /swapfile
```

```
sudo swapon /swapfile
```

#### 43. System Running Slowly

**RCA:** High system load due to excessive background processes.

**Solution:** Check system load and stop unnecessary services.

**Command:**

```
uptime
```

```
systemctl stop unused-service
```

#### 44. Disk I/O Bottleneck (iowait is high in top)

**RCA:** High disk usage causing slow performance.

**Solution:** Identify and stop I/O-intensive processes.

**Command:**

```
iostat -x 1 10
```

#### 45. Too Many Open Files Error

**RCA:** The system has reached its file descriptor limit.

**Solution:** Increase the open file limit.

**Command:**

```
ulimit -n 100000
```

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#### 46. Frequent System Freezing

**RCA:** Resource exhaustion due to high CPU, memory, or disk usage.

**Solution:** Monitor and kill resource-hungry processes.

**Command:**

```
htop
```

```
kill -9 <PID>
```

#### 47. High Disk Usage (df -h Shows 100% Used)

**RCA:** Large log files or unnecessary files filling up the disk.

**Solution:** Delete large unwanted files and free up space.

**Command:**

```
du -sh /var/log/*
```

```
rm -rf /var/log/old_logs
```

#### 48. Slow File Read/Write Performance

**RCA:** Fragmented disk or faulty disk sectors.

**Solution:** Check the disk health and optimize filesystem performance.

**Command:**

```
sudo smartctl -a /dev/sda
```

#### 49. System Clock is Incorrect

**RCA:** Time is not syncing properly due to NTP issues.

**Solution:** Restart NTP service and sync time.

**Command:**

```
sudo systemctl restart systemd-timesyncd
```

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### 50. dmesg Shows Hardware Errors

**RCA:** Faulty hardware component (RAM, CPU, disk).

**Solution:** Run a hardware diagnostic test.

**Command:**

```
sudo dmesg | grep -i error
```

### 51. Wi-Fi Not Connecting

**RCA:** The network interface is down or the driver is missing.

**Solution:** Restart the network service and check drivers.

**Command:**

```
sudo systemctl restart NetworkManager
```

```
nmcli device wifi rescan
```

### 52. Unable to Obtain IP Address (DHCP Issue)

**RCA:** The DHCP client is not running or the router is not assigning an IP.

**Solution:** Restart DHCP and network services.

**Command:**

```
sudo dhclient -r && sudo dhclient
```

### 53. Internet Works but Local Network is Unreachable

**RCA:** The local network gateway is missing from the routing table.

**Solution:** Add a proper default gateway.

**Command:**

```
ip route add default via 192.168.1.1
```

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#### 54. Duplicate IP Address on Network

**RCA:** Another device is using the same IP.

**Solution:** Set a static IP or release/renew DHCP lease.

**Command:**

```
sudo dhclient -r && sudo dhclient eth0
```

#### 55. VPN Connection Drops Frequently

**RCA:** Firewall rules or incorrect MTU settings.

**Solution:** Adjust MTU and check firewall.

**Command:**

```
sudo ip link set dev tun0 mtu 1400
```

#### 56. Firewall Blocks Outgoing Traffic

**RCA:** UFW or iptables is too restrictive.

**Solution:** Allow outbound connections.

**Command:**

```
sudo ufw allow out on eth0
```

#### 57. DNS Queries Failing Randomly

**RCA:** DNS cache corruption or ISP issues.

**Solution:** Clear cache and change DNS.

**Command:**

```
sudo systemctl restart systemd-resolved
```

#### 58. High Network Latency

**RCA:** Network congestion or poor routing.

**Solution:** Identify slow hops using traceroute.

**Command:**

```
traceroute google.com
```



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### 59. Packet Loss on Wired Connection

**RCA:** Faulty cable or network interference.

**Solution:** Check Ethernet cables and NIC status.

**Command:**

```
ethtool eth0
```

### 60. Port Forwarding Not Working

**RCA:** NAT or firewall rules preventing traffic.

**Solution:** Check router settings and firewall rules.

**Command:**

```
sudo iptables -t nat -L -n -v
```

### 61. SSH Public Key Authentication Not Working

**RCA:** Incorrect file permissions.

**Solution:** Fix permissions.

**Command:**

```
chmod 700 ~/.ssh
```

```
chmod 600 ~/.ssh/authorized_keys
```

### 62. User Cannot Write to /tmp Directory

**RCA:** Sticky bit or wrong permissions set.

**Solution:** Fix permissions.

**Command:**

```
sudo chmod 1777 /tmp
```

### 63. Password Authentication Failing for Local Users

**RCA:** PAM misconfiguration.

**Solution:** Restore PAM defaults.

**Command:**



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```
sudo pam-auth-update --force
```

#### 64. Cannot Unlock Encrypted Drive (LUKS)

**RCA:** Corrupt encryption headers.

**Solution:** Try backup headers.

**Command:**

```
cryptsetup luksHeaderRestore --header-backup-file /backup.img /dev/sdX
```

#### 65. User's Home Directory Not Created Automatically

**RCA:** useradd command used without -m.

**Solution:** Create the directory manually.

**Command:**

```
sudo mkdir /home/username
```

```
sudo chown username:username /home/username
```

#### 66. SSH Sessions Disconnecting Frequently

**RCA:** Keep-alive packets not enabled.

**Solution:** Enable keep-alive packets.

**Command:**

```
echo "ClientAliveInterval 60" | sudo tee -a /etc/ssh/sshd_config
```

#### 67. sudo Command Takes a Long Time to Execute

**RCA:** Incorrect hostname resolution.

**Solution:** Fix /etc/hosts.

**Command:**

```
echo "127.0.0.1 localhost" | sudo tee -a /etc/hosts
```





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### 68. Cannot Change User Shell

**RCA:** Shell is not listed in /etc/shells.

**Solution:** Add shell to /etc/shells.

**Command:**

```
echo "/bin/zsh" | sudo tee -a /etc/shells
```

```
chsh -s /bin/zsh
```

### 69. User Processes Exceed Limit (ulimit error)

**RCA:** Process limits exceeded.

**Solution:** Increase process limits.

**Command:**

```
ulimit -u 100000
```

### 70. Cannot Add User to Multiple Groups

**RCA:** Wrong syntax used in usermod.

**Solution:** Use correct usermod command.

**Command:**

```
sudo usermod -aG group1,group2 username
```

### 71. APT Repository Not Found

**RCA:** Incorrect repo URL.

**Solution:** Update sources list.

**Command:**

```
sudo nano /etc/apt/sources.list
```

```
sudo apt update
```

---

## 72. Software Crashes on Launch

**RCA:** Missing shared libraries.

**Solution:** Find and install missing dependencies.

**Command:**

```
ldd /usr/bin/software
```

## 73. Package Installation Hangs

**RCA:** Lock file stuck.

**Solution:** Remove lock files and retry.

**Command:**

```
sudo rm /var/lib/dpkg/lock
```

## 74. Compiled Binary Segfaults Immediately

**RCA:** Missing execution permissions or corrupt binary.

**Solution:** Recompile with debug flags.

**Command:**

```
gcc -g -o program program.c
```

## 75. PPA Removed but Packages Remain

**RCA:** Old packages still installed.

**Solution:** Remove manually.

**Command:**

```
sudo apt autoremove
```

## 76. Java Not Found Despite Installation

**RCA:** Incorrect PATH.

**Solution:** Set the correct JAVA\_HOME.

**Command:**

```
export JAVA_HOME=/usr/lib/jvm/java-11-openjdk
```



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### 77. Kernel Headers Missing

**RCA:** Headers not installed.

**Solution:** Install matching kernel headers.

**Command:**

```
sudo apt install linux-headers-$(uname -r)
```

### 78. Snapd Not Running

**RCA:** Snap service is disabled.

**Solution:** Enable and start snapd.

**Command:**

```
sudo systemctl enable --now snapd
```

### 79. Package Dependency Issues

**RCA:** Missing dependencies.

**Solution:** Fix broken dependencies.

**Command:**

```
sudo apt --fix-broken install
```

### 80. Python Module Not Found Despite Installation

**RCA:** Module installed in wrong environment.

**Solution:** Install in the correct environment.

**Command:**

```
python3 -m pip install module-name
```

---

### 81. System Clock is Drifting

**RCA:** NTP service is not running or misconfigured.

**Solution:** Restart and sync time using NTP.

**Command:**

```
sudo systemctl restart systemd-timesyncd
```

```
sudo timedatectl set-ntp true
```

### 82. Laptop Battery Drains Fast in Linux

**RCA:** Power management settings are not optimized.

**Solution:** Enable power-saving mode.

**Command:**

```
sudo tlp start
```

### 83. Monitor Resolution Not Detected Correctly

**RCA:** Graphics driver issue or incorrect display settings.

**Solution:** Manually set resolution using xrandr.

**Command:**

```
xrandr --output HDMI-1 --mode 1920x1080
```

### 84. USB Device Not Recognized

**RCA:** The kernel does not detect the USB device.

**Solution:** Reload USB drivers.

**Command:**

```
sudo modprobe -r usb_storage
```

```
sudo modprobe usb_storage
```

---

### 85. Bluetooth Not Working

**RCA:** Bluetooth service is disabled or the adapter is not detected.

**Solution:** Enable Bluetooth and restart services.

**Command:**

```
sudo systemctl restart Bluetooth
```

### 86. Unable to Mount External Hard Drive

**RCA:** Unsupported file system or permission issues.

**Solution:** Check the filesystem type and mount with correct options.

**Command:**

```
sudo mount -t ntfs-3g /dev/sdb1 /mnt
```

### 87. Kernel Logs Flooded with Errors

**RCA:** A misbehaving driver or hardware failure.

**Solution:** Check logs and identify the issue.

**Command:**

```
dmesg | grep -i error
```

### 88. Keyring Keeps Asking for Password on Login

**RCA:** Keyring is not unlocked automatically.

**Solution:** Remove password protection from the keyring.

**Command:**

```
rm ~/.local/share/keyrings/*.keyring
```

### 89. System Boot Takes Too Long

**RCA:** A service is delaying startup.

**Solution:** Identify and disable unnecessary services.

**Command:**

```
systemd-analyze blame
```



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## 90. Persistent Journal Logs Consuming Too Much Space

**RCA:** Journald logs are not rotating properly.

**Solution:** Limit the journal log size.

**Command:**

```
sudo journalctl --vacuum-size=500M
```

## 91. Unauthorized Root Login Attempts in Logs

**RCA:** A bot is attempting brute-force login.

**Solution:** Block IPs using fail2ban.

**Command:**

```
sudo apt install fail2ban
```

```
sudo systemctl enable --now fail2ban
```

## 92. System Security Hardening Required

**RCA:** Default Linux configurations may be insecure.

**Solution:** Use a security-hardening tool.

**Command:**

```
sudo apt install lynis
```

```
sudo lynis audit system
```

## 93. SELinux Preventing Software from Running

**RCA:** SELinux is blocking access.

**Solution:** Temporarily disable SELinux (for debugging only).

**Command:**

```
sudo setenforce 0
```

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#### 94. AppArmor Blocking Application Execution

**RCA:** AppArmor profile is too restrictive.

**Solution:** Set AppArmor profile to complain mode.

**Command:**

```
sudo aa-complain /usr/bin/application
```

#### 95. SSH Brute Force Attacks Detected

**RCA:** Multiple failed SSH login attempts.

**Solution:** Restrict SSH to key-based authentication only.

**Command:**

```
sudo nano /etc/ssh/sshd_config
```

```
PasswordAuthentication no
```

```
sudo systemctl restart sshd
```

#### 96. System Crashes Due to Corrupt Swap File

**RCA:** Swap file corruption causes kernel crashes.

**Solution:** Recreate the swap file.

**Command:**

```
sudo swapoff -a
```

```
sudo rm -f /swapfile
```

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

```
sudo mkswap /swapfile
```

```
sudo swapon /swapfile
```

#### 97. Files Deleted but Space Not Freed

**RCA:** A deleted file is still held open by a process.

**Solution:** Find and close the process using the file.

**Command:**

```
lsof | grep deleted
```



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### 98. RAID Array Degraded or Failed

**RCA:** A disk in the RAID array has failed.

**Solution:** Identify and replace the failed disk.

**Command:**

```
cat /proc/mdstat
```

### 99. NVMe SSD Performance Degradation

**RCA:** TRIM is not enabled, leading to slower writes.

**Solution:** Enable TRIM.

**Command:**

```
sudo fstrim -av
```

### 100. System Freezes Randomly with No Logs

**RCA:** A hardware issue such as overheating, bad RAM, or power supply problems.

**Solution:** Run hardware diagnostics.

**Command:**

```
sudo memtester 2048M 5
```