By DevOps Shack

100 LINUX ERRORS & SOLUTION



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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 /
```

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>
```



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>
```



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:

```
lsof +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
```



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>
```



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
```



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
```



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
```

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>
```



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
```

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
```



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
```



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
```



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:

```
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
```



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
```



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
```

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
```



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
```



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
```

