

## Essential IT Troubleshooting Commands Every Engineer Should Know

In the world of IT, troubleshooting is an art that combines technical expertise with quick decision-making. Over my journey as an IT engineering student, I've compiled a list of essential commands that are incredibly useful for diagnosing and resolving network, system, and service-related issues. These commands are the go-to tools for IT professionals, whether managing Active Directory, troubleshooting email delivery, or working in cloud environments.

From **ping** and **tracert** for network diagnostics to **az login** for managing cloud resources, these commands help ensure seamless operations across various platforms.

### Why Share This?

I believe that knowledge grows when shared. For those in IT or anyone starting their career in tech, mastering these commands can make a big difference in resolving technical issues efficiently.

Take a look at this categorized list of commands and see if any resonate with you. What are your favorite troubleshooting commands? Share them below!

### Network Troubleshooting Commands

1. `ping [IP/hostname]` – Check connectivity to a device or server.
2. `tracert [IP/hostname]` (Windows) / `traceroute [IP/hostname]` (Linux) – Trace the route to a destination.
3. `ipconfig` (Windows) / `ifconfig` (Linux/macOS) – View IP configuration.
4. `ipconfig /all` – Display detailed network adapter configuration.
5. `ipconfig /flushdns` – Clear the DNS cache.
6. `nslookup [hostname]` – Resolve DNS queries.
7. `netstat` – View active network connections.
8. `arp -a` – View the ARP table.
9. `route print` – Display the system's routing table.
10. `telnet [IP] [port]` – Check connectivity to a specific port.
11. `curl [URL]` or `wget [URL]` – Test HTTP/HTTPS connectivity.
12. `netsh interface show interface` – Display active network interfaces (Windows).
13. `netsh wlan show profile` – View saved Wi-Fi profiles (Windows).
14. `tcpdump` – Capture and analyze network packets (Linux/macOS).
15. `nmap [IP]` – Scan for open ports and services.

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### System Diagnostics Commands

16. `sfc /scannow` – Scan and repair corrupted system files (Windows).
17. `chkdsk /f /r` – Check for disk errors and repair them (Windows).
18. `diskpart` – Manage disk partitions (Windows).
19. `df -h` – Check disk space usage (Linux/macOS).
20. `top` or `htop` – Monitor processes and resource usage (Linux/macOS).
21. `tasklist` – List running processes (Windows).
22. `taskkill /PID [PID] /F` – Kill a process by its PID (Windows).
23. `eventvwr` – Open Event Viewer to check logs (Windows).
24. `ps aux` – View running processes (Linux/macOS).
25. `dmesg` – Check kernel messages (Linux).

- 26. wmic – Perform various system diagnostics and queries (Windows).
  - 27. systeminfo – View detailed system information (Windows).
  - 28. whoami – Display the current user logged in.
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### Server and Service Troubleshooting

- 29. iisreset – Restart IIS services (Windows Server).
  - 30. services.msc – Open the Services console to manage services (Windows).
  - 31. Get-Service – List services in PowerShell (Windows).
  - 32. net start [service] / net stop [service] – Start/stop a service (Windows).
  - 33. Get-EventLog – Query event logs using PowerShell (Windows).
  - 34. journalctl – View system logs (Linux).
  - 35. systemctl status [service] – Check the status of a service (Linux).
  - 36. sudo service [service] restart – Restart a service (Linux).
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### Active Directory and User Management

- 37. dsquery user – Find user objects in Active Directory.
  - 38. dsadd user – Add a user in Active Directory.
  - 39. net user [username] /domain – View user details (Windows).
  - 40. net accounts – Display password policies (Windows).
  - 41. Get-ADUser – Retrieve user details in PowerShell.
  - 42. Get-ADComputer – Retrieve computer details in Active Directory.
  - 43. Set-ADAccountPassword – Reset user passwords in Active Directory.
  - 44. repadmin /showrepl – Check AD replication status (Windows).
  - 45. repadmin /syncall – Force AD replication (Windows).
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### Email and Exchange Commands

- 46. Test-Mailflow – Test mail delivery in Exchange.
  - 47. Get-Mailbox – List mailboxes in Exchange.
  - 48. Get-MessageTrackingLog – Track email delivery in Exchange.
  - 49. Get-Queue – Check the email queue in Exchange.
  - 50. Set-Mailbox – Modify mailbox properties in Exchange.
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### Cloud and Azure Commands

- 51. az login – Log into the Azure CLI.
  - 52. az account show – View active Azure subscriptions.
  - 53. az vm list – List all virtual machines.
  - 54. az network vnet list – Display virtual networks.
  - 55. az ad user list – List Azure AD users.
  - 56. Connect-AzureAD – Connect to Azure AD using PowerShell.
  - 57. Get-AzureADUser – Retrieve Azure AD user details.
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### Miscellaneous Commands

- 58. ping -t [IP] – Continuous ping for monitoring (Windows).

59. `whois [domain]` – Look up domain registration details.
60. `ssh [user]@[IP]` – Connect to a remote server via SSH.
61. `scp [file] [user]@[IP]:[path]` – Securely copy files over SSH.
62. `netsh advfirewall set allprofiles state off` – Disable the firewall (Windows).