Windows network commands cheat sheet

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Open Command Prompt or PowerShell. Commands marked (admin) need “Run as administrator”.

IP settings

Command	What it does
`ipconfig`	IP address, mask and gateway
`ipconfig /all`	Full details: MAC, DHCP, DNS servers, lease
`ipconfig /release` `ipconfig /renew`	Get a fresh address from DHCP
`ipconfig /flushdns`	Clear the DNS cache
`ipconfig /displaydns`	Show cached DNS answers
`Get-NetIPConfiguration`	PowerShell view of IP settings

Connectivity tests

Command	What it does
`ping 8.8.8.8`	Can I reach the internet by IP?
`ping -t host`	Ping until Ctrl+C
`tracert 8.8.8.8`	Show each hop on the path
`pathping host`	Path plus loss per hop (slow)
`Test-NetConnection host -Port 443`	Is a TCP port reachable? (PowerShell)

DNS

Command	What it does
`nslookup example.com`	Look up a name
`nslookup example.com 1.1.1.1`	Ask a specific DNS server
`Resolve-DnsName example.com -Type MX`	PowerShell DNS lookup (any record type)

Connections and ports

Command	What it does
`netstat -ano`	All connections with process IDs
`netstat -ano | findstr :443`	Who is using port 443?
`tasklist /fi "PID eq 1234"`	Which program owns that PID
`Get-NetTCPConnection -State Listen`	Listening ports (PowerShell)
`arp -a`	IP-to-MAC table (ARP cache)
`route print`	Routing table

Wi-Fi

Command	What it does
`netsh wlan show interfaces`	Signal, channel, speed, SSID
`netsh wlan show profiles`	Saved Wi-Fi networks
`netsh wlan show wlanreport`	HTML report of recent Wi-Fi problems (admin)

Fixes (admin)

Command	What it does
`netsh winsock reset`	Reset network sockets, then restart
`netsh int ip reset`	Reset TCP/IP settings, then restart
`sfc /scannow`	Repair Windows system files
`gpupdate /force`	Re-apply Group Policy (domain PCs)

System info

Command	What it does
`hostname` / `whoami`	Computer and user name
`systeminfo`	OS version, boot time, hotfixes
`winver`	Windows version window
`getmac /v`	MAC addresses of adapters
`Get-NetAdapter`	Adapters, status and link speed

Troubleshooting order

1. `ipconfig`: do I have an IP (not 169.254.x.x)?
2. `ping` the gateway, then `8.8.8.8`.
3. `nslookup` a name: if IP works but names fail, it is DNS.
4. `tracert` to see where it stops.
5. `Test-NetConnection` for a specific port or app.

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