# Linux Commands Cheat Sheet

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| Command | Purpose | Example Usage | Where Info is Stored | Why Use This Command |
| cat /etc/os-release | Displays OS details | cat /etc/os-release | /etc/os-release | To check which Linux distribution and version is installed |
| ifconfig | Shows network interfaces (IP, MAC, etc.) | ifconfig eth0 | Kernel network stack | To check IP, MAC, and interface status |
| ping | Checks network connectivity | ping google.com | Not stored, real-time output | To see if a server or device is reachable |
| iperf | Tests network speed | iperf -s (server) / iperf -c <server-IP> (client) | Network stack (real-time measurement) | To measure network performance |
| systemctl start/stop/enable/disable <service> | Starts, stops, enables, or disables a system service | systemctl start nginx | /etc/systemd/system/ (for enabled services) | To control services like web servers, databases, etc. |
| lsmod | Lists loaded kernel modules (drivers) | lsmod | /proc/modules, /lib/modules/ | To verify loaded hardware drivers |
| memtester | Tests RAM for errors | memtester 512M 5 | Directly tests RAM, not stored | To diagnose faulty RAM |
| mount | grep mqueue | Checks if the message queue (mqueue) is mounted | mount | grep mqueue | /proc/mounts | To check inter-process communication (IPC) support |
| tcpdump | Captures network traffic packets | tcpdump -i eth0 | Captured packets (not stored unless redirected) | To analyze network traffic |
| rngd | Improves system entropy for better random number generation | rngd -r /dev/random | Kernel entropy pool (/dev/random) | To ensure cryptographic security by improving entropy |
| ssh | Connects to a remote system via SSH | ssh user@192.168.1.1 | Remote system logs (if enabled) | To securely manage remote systems |
| fdisk -l | Displays disk partitions and storage details | fdisk -l | /dev/sdX partitions | To check partitioning and disk storage |
| i2cdetect / gpiodetect | Detects I2C devices or lists GPIO controllers | i2cdetect -y 1 / gpiodetect | I2C bus, GPIO subsystem | To detect hardware peripherals |
| cansend | Sends CAN bus messages for automotive/industrial systems | cansend can0 123#DEADBEEF | CAN bus network | To send messages to CAN devices for diagnostics and control |