# Advance Linux Commands |DevOps Yatri

## System Monitoring & Performance

| Command | Description |
|---|---|
| top    htop | Live list of running processes (press q to quit) |
| vmstat    1 | Enhanced version of top (needs to be installed) |
| iostat -xz 1 | Shows memory, CPU, and I/O usage every 1 sec |
| uptime  free | CPU & disk I/O stats per second (needs sysstat) |
| -h  sar  -u  1 | System uptime & load average |
| 3 | Memory usage in human-readable format |
|  | CPU usage stats (needs sysstat) |

## Process & Job Control

| Command | Description |
|---|---|
| `ps aux | grep nginx` |
| kill -9  PID | Force kill a process |
| pkill <name> | Kill process by name |
| nice -n 10 <cmd> | Run command with lower priority |
| renice -n -5  PID | Change priority of running process |
| nohup <cmd> & | Run command even after logout |
| bg , fg | Background/foreground a paused job |

# Networking

| Command | Description |
|---------|-------------|
| `ip a` | Show all IP addresses (modern `ifconfig`) |
| Command | Description |
| `netstat -tulnp` | List listening ports & associated programs |
| `ss -tulwn` | Faster alternative to netstat |
| `nmap IP` | Scan open ports (needs nmap) |
| `curl -I URL` | Show HTTP headers (good for debugging) |
| `ping <host>` | Check network reachability |
| `traceroute <host>` | Trace packet path to host |

# Disk & File Management

| Command | Description |
|---------|-------------|
| `df -h` | Disk usage of mounted file systems |
| `du -sh *` | sort -h` |
| `mount` / `umount` | Mount/unmount filesystems |
| `lsblk` | List block devices |
| `rsync -avz src/ dest/` | Sync files/directories (archive + compress) |
| `find / -type f -name "file.txt"` | Find files by name |
| `locate <file>` | Fast file search (needs `updatedb`) |

# Security & Permissions

| Command | Description |
|---------|-------------|
| `chmod 755 file` | Set executable permissions |
| `chown user:group file` | Change ownership |
| `umask` | Show default permission mask |
| `sudo visudo` | Safely edit sudoers file |
| `passwd <user>` | Change user password |
| `ssh user@host` | Secure remote login |
| `scp file user@host:/path` | Secure copy over SSH |

# Logs & Debugging
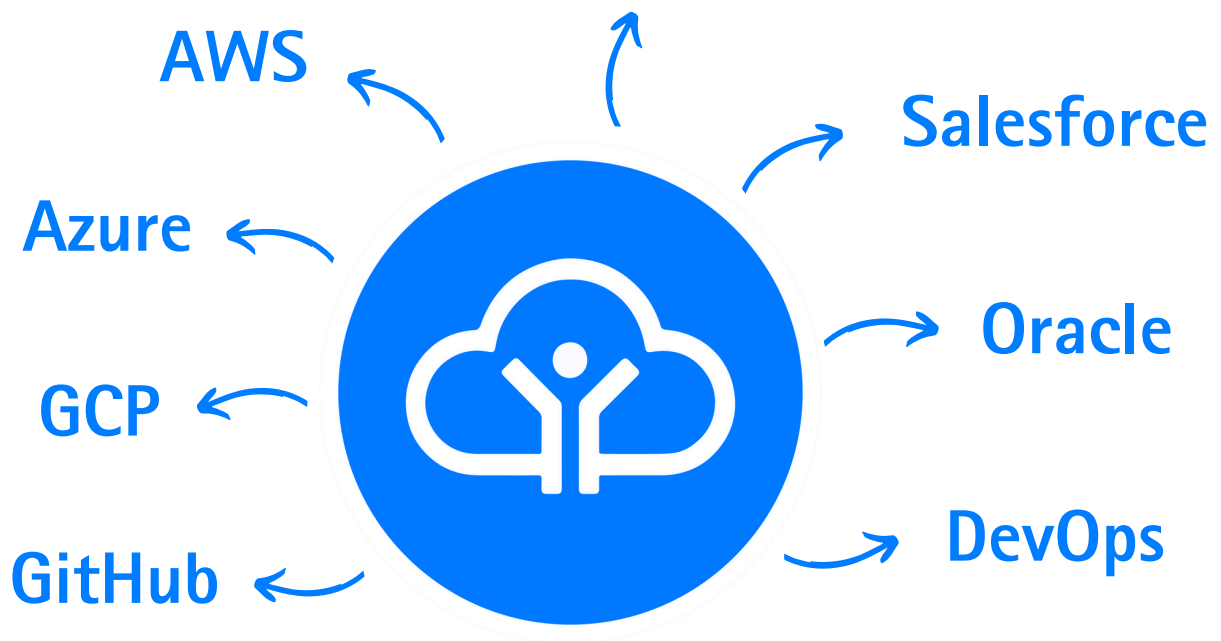
| Command | Description |
|---|---|
| journalctl -xe | View critical system logs |
| tail -f /var/log/syslog | Live tail system log (Debian/Ubuntu) |
| `dmesg | less` |
| strace -p PID | Trace syscalls of a running process |
| lsof -i :80 | See which process is using port 80 |
| file <filename> | Identify file type |

# Pro Tips & Troubleshooting Commands

| Command | Description |
|---|---|
| watch -n 1 df -h | Refresh disk usage every second |
| ss -plnt | Show open ports and listening processes |
| `history | grep ssh` |
| uptime && who | Show uptime and logged-in users |
| tldr <cmd> | Simplified man pages (needs tldr tool) |
| ls -ltr | List files by modified time (latest last) |
| `netstat -plant | grep :22` |
| grep -ir "error" /var/log/ | Search all logs for "error " |
| xargs | Run commands from stdin (e.g., cleanup) |
| alias ll='ls -alF' | Create handy shell shortcuts |

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