1. File and Directory Management:

These commands help you manage files and directories in Linux.

* ls – List files and directories
* cd – Change directory
* pwd – Print working directory
* mkdir – Create directories
* m – Remove files or directories
* rmdir – Remove empty directories
* cp – Copy files or directories
* mv – Move or rename files or directories
* find – Search for files in a directory hierarchy
* touch– Create a new empty file
* cat – Concatenate and display the content of a file
* nano, `vim`, `vi` – Text editors to edit files
* chmo – Change file permissions
* chown – Change file ownership
* ln– Create symbolic or hard links

**2.System Monitoring and Performance:**

These commands are used to monitor and assess system performance.

* top – Display running processes and their system resource usage
* htop – An improved version of `top` with a better UI
* ps – Display information about active processes
* df – Check disk space usage
* du – Estimate file and directory space usage
* free – Display memory usage (RAM)
* uptime – Show how long the system has been running
* vmstat – Report virtual memory statistics
* iostat – Display CPU and I/O statistics
* netstat – Display network connections, routing tables, and interface statistics
* ss – Display network sockets
* sar – Collect, report, or save system activity information
* dstat – View system resource statistics
* lsof – List open files
* iostat – Display input/output statistics
* ping – Test network connectivity
* traceroute– Show the route packets take to a network host
* nmap – Network exploration and port scanning
* nc (netcat) – Network communication and debugging tool

**3. Package Management:**

Depending on the Linux distribution, package management commands vary:

For Debian/Ubuntu-based systems:

* apt-get – Install, upgrade, and manage packages
* dpkg – Package manager for Debian packages
* For RHEL/CentOS-based systems:
* yum – Install, update, and manage packages
* dnf – Advanced package manager for RPM-based distributions
* rpm – Manage RPM packages

**4. Networking:**

DevOps engineers often need to manage network configurations and troubleshoot network issues.

* ifconfig – Configure a network interface (deprecated, use `ip` instead)
* ip – Show/manipulate routing, devices, and IP addresses
* curl – Transfer data from or to a server (supporting many protocols)
* wget – Download files from the web
* ssh – Secure shell for remote login
* scp – Securely copy files between systems
* telnet – Network communication protocol for interacting with remote devices
* dig – DNS lookup utility
* host – DNS lookup tool
* iptables – Set up, maintain, and inspect the IP packet filter rules
* firewall – Frontend for managing firewall rules
* ss – Get network socket information

**5.User and Permission Management:**

User and permission management is critical for DevOps for security reasons.

* useradd – Create a new user
* usermod – Modify a user account
* passwd – Change user password
* groupadd – Create a new group
* su – Switch user
* sudo – Run commands as another user, typically as root
* id – Show user and group IDs
* whoami – Show the current logged-in user
* last – Show the last logged-in users

**6.Process Management:**

Managing processes is important for troubleshooting and system administration.

* kill – Terminate a process by PID
* killall – Terminate all processes by name
* nice – Start a process with a given priority
* renice – Change the priority of a running process
* bg – Send a job to the background
* fg – Bring a job to the foreground
* jobs – List background jobs

**7. Disk and File System Management:**

Managing disk space and file systems is critical in a production environment.

* mount – Mount a filesystem
* umount – Unmount a filesystem
* fsck – Filesystem consistency check and repair
* mkfs – Create a filesystem
* tune2fs – Adjust tunable file system parameters
* parted – Disk partitioning utility
* fdisk – Disk partitioning tool
* lsblk – List block devices
* blkid – Get block device attributes

**8. Backup and Archiving:**

Archiving and backing up data is crucial for disaster recovery.

* tar – Archive files into a single file
* zip – Compress files
* unzip – Uncompress a zip archive
* rsync – Remote file and directory synchronization
* scp – Secure copy of files over SSH
* dd – Disk cloning and backup tool

**9. Automation and Scripting**:

Automation is key in DevOps for streamlining repetitive tasks.

* bash – Bourne Again Shell scripting
* sh – Shell command interpreter
* cron – Schedule and manage periodic jobs (cron jobs)
* at – Schedule commands to run once at a specified time
* watch – Periodically execute a program and display the output
* expect – Automate interactive applications

**10. Version Control (Git):**

Git is one of the most important tools in DevOps for version control.

* git init – Initialize a new Git repository
* git clone – Clone an existing repository
* git add – Stage changes for the next commit
* git commit – Commit staged changes
* git push – Push commits to a remote repository
* git pull – Fetch and integrate changes from a remote repository
* git branch – Manage branches
* git merge – Merge branches
* git log – Show commit logs

**11. Virtualization and Containerization:**

DevOps relies heavily on containers and virtualization for efficient deployment.

* docker – Manage Docker containers
* kubectl – Manage Kubernetes clusters
* vagrant – Manage virtualized environments using Vagrant
* virt-manager – Manage virtual machines with libvirt

**12. Security and Access Control:**

Security commands are crucial to manage access and secure infrastructure.

* openssl – Manage SSL certificates
* gpg – Encrypt files or verify signatures
* chmod – Change file permissions
* chown – Change file ownership
* ufw – Uncomplicated firewall for managing firewall rules

**13.Continuous Integration and Deployment Tools:**

In the DevOps lifecycle, these commands interact with CI/CD pipelines.

* jenkins-cli – Jenkins command-line interface
* ansible – Automation tool for configuration management and deployment
* terraform – Infrastructure as code tool to manage cloud services

**14. Log Management:**

Analyzing logs is critical for troubleshooting in DevOps.

* tail – Output the last part of a file
* head – Output the first part of a file
* less – View file contents page by page
* grep – Search text using patterns
* awk – Text processing and data extraction
* sed – Stream editor for filtering and transforming text
* journalctl – Query and view logs in `systemd`-based Linux systems

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