Linux : Day 5: Package, Services, Scheduling & Storage (Ultimate DevOps Cheat Sheet)

Friendly, visual, and practical. Each topic includes what it is, must-know commands, and a DevOps scenario so you can apply it in real systems.

TL;DR (One-screen)

• Package Management: rpm, yum, dnf → install, upgrade, remove, resolve deps. Repos = BaseOS + AppStream.

• Service Control: systemctl start/stop/restart/enable/mask. PID1 = systemd.

• Scheduling: cron for periodic, at for one-time. Access controlled by allow/deny.

• Storage: Partition → Format → Mount → fstab. Swap via partition or file. LVM for flexible resizing.

1) Package Management (RedHat-based)

1.1 RPM

• Install: rpm -ivh pkg.rpm

• Upgrade: rpm -U pkg.rpm

• Freshen: rpm -F pkg.rpm

• Remove: rpm -e pkg

• Options: --nodeps, --force

• DevOps scenario: Install a pre-downloaded driver RPM without waiting for repos.

1.2 YUM

• yum list → list installed pkgs

• yum search <kw> → search by name/summary

• yum info pkg → pkg details

• yum install/remove pkg

• yum update vs yum upgrade

• yum provides /path/to/file

• yum localinstall pkg.rpm → resolve deps

• DevOps scenario: Quickly pull nginx + all deps from repo instead of chasing RPMs.

1.3 DNF (YUM v2)

• Repo mgmt: dnf repolist, dnf repolist all

• /etc/yum.repos.d/ → repo configs

• Enable/disable: dnf config-manager --enable repo_id

• DevOps scenario: Enable AppStream repo when package missing in BaseOS.

1.4 Own Repo

• mkdir /myrepo; cp /media/DVD/Packages/* /myrepo; createrepo /myrepo

• Configure in /etc/yum.repos.d/ownrepo.repo

2) Service & Daemon Control (systemd)

• List: systemctl list-units --type=service

• Failed: systemctl --failed

• Status: systemctl status sshd

• Start/Stop: systemctl start|stop sshd

• Enable on boot: systemctl enable --now sshd

• Reload config: systemctl reload service

• Mask/unmask: systemctl mask httpd

• DevOps scenario: Mask misconfigured httpd to prevent accidental startup during maintenance.

3) Scheduling Jobs

3.1 Cron (periodic)

• File: /var/spool/cron/username

• Edit: crontab -e

• Syntax: min hr day mon dow cmd

• List/remove: crontab -l, crontab -r

• Control: /etc/cron.allow & /etc/cron.deny

• DevOps scenario: Rotate logs nightly at 2AM.

3.2 At (one-time)

• Schedule: at 17:30, at now+2min, at teatime

• Jobs: atq (list), atrm <job> (remove)

• Config: /etc/at.allow, /etc/at.deny

• DevOps scenario: Run a DB export at midnight without editing crontab.

4) Storage Management

4.1 Disk Partition Workflow

• Create: fdisk /dev/sda

• Format: mkfs.ext3 /dev/sda1

• Mount: mount /dev/sda1 /dir1

• Permanent: /etc/fstab entry

• Check: lsblk, df -h, lsblk -fp

4.2 Swap

• View: swapon -s

• From partition: fdisk, mkswap, swapon

• From file: fallocate -l 4G /swapfile; chmod 600; mkswap; swapon

4.3 LVM (Logical Volume Manager)

• PV: pvcreate /dev/sda1

• VG: vgcreate vg0 /dev/sda1 /dev/sda2

• LV: lvcreate -L 50G -n lv0 vg0

• FS: mkfs.ext3 /dev/vg0/lv0

• Mount: mount /dev/vg0/lv0 /part1

• Resize: lvextend -r -L +10G lv0 or lvreduce -L 2G lv0

• DevOps scenario: Expand /srv/data volume on the fly when app storage runs out.

5) Partition Reducing (Caution ⚠️)

• Backup → Unmount → resize2fs → lvreduce

• DevOps scenario: Shrink a test LVM to free space for another environment.