DevOpsSchool

Course curriculum · November 2026

LEVEL 04 OF 04 · ADVANCED

Operating System Advanced Training

Understand kernel internals, virtualization and container isolation, and design tuned, observable and resilient OS fleets at scale.

LIVE ONLINE **Max 8-10 hours**	CORPORATE (DAY-WISE) **5 days · Days 1-5**	SELF-PACED VIDEO **1-year LMS access**
BATCH SIZE **Max 10 learners**	NEXT BATCHES **1st of every month · weekends: first Saturday**	CERTIFICATE **Verifiable certificate of completion**

Foundation	Essential	Intermediate	Advanced
1 day · Included	2 days · Included	3 days · Included	5 days · This curriculum

INSIDE THIS CURRICULUM

What you will achieve	Outcomes and level focus
Who should attend	Audience and prerequisites
Agenda	47 topics · Foundation to Advanced
Hands-on labs	4 labs
Formats and fees	Live, self-paced, corporate
Trainer and reviews	Rajesh Kumar
Enrolment	Batches, payment, contacts

WHY DEVOPSSCHOOL

- Rated 4.6 on Google
- 1,500+ verifiable certificates issued in the public registry
- Trainer Rajesh Kumar: 20 years in industry
- Small batches: max 10 learners, every session recorded

Course page: www.devopsschool.com/courses/os/operating-system-advance-training.html
Talk to us: WhatsApp +91 99057 40781 · +1 (469) 756-6329 · contact@DevOpsSchool.com · reply within 1 hour

OUTCOMES

What you will achieve

By the end of the Operating System course path, you will be able to:

1

Understand OS internals

Explain how processes, memory, storage and the kernel work together on Linux and Windows.

2

Administer Linux and Windows

Manage services, storage, users, networking and automation on both platforms.

3

Tune and secure systems

Harden, troubleshoot and performance-tune operating systems across large fleets.

WHAT THE ADVANCED LEVEL ADDS

Kernel internals, virtualization, containers and scale

Hands-on: Tune and isolate workloads. Use eBPF tools to find a latency issue, tune kernel parameters and cgroups v2 limits, and verify isolation of two containerised workloads.

WHO SHOULD ATTEND

- Experienced Operating System practitioners responsible for quality, security and scale.
- Senior engineers, architects and leads who design and troubleshoot Operating System solutions.
- Teams making Operating System an organisation-wide standard.

BEFORE YOU START

- The Intermediate level, or equivalent hands-on experience.
- You can already: Diagnose performance problems, harden Linux and Windows systems and troubleshoot boot, disk, memory and network failures.
- Basic computer skills and a laptop with a stable internet connection for the live sessions and labs.
- This curriculum includes every earlier level, so it is complete on its own.

AGENDA · FOUNDATION TO ADVANCED

Operating System Advanced Training agenda

47 topics. Each level builds on the one before it, so this curriculum lists every earlier level in full. Days are for corporate (day-wise) delivery; live online batches cover the same agenda in max 8-10 hours.

DAY 1 — Foundation: Operating system concepts, boot process and shells

Included from Foundation

1. Role of an operating system: kernel, user space, system calls and hardware abstraction
2. OS families: Linux distributions, Windows Server and macOS, and where each runs in IT
3. Kernel types: monolithic, microkernel and hybrid designs with Linux and Windows NT as examples
4. Boot process: UEFI or BIOS, GRUB, kernel and initramfs, systemd and Windows Boot Manager
5. Processes and threads: PIDs, process states, parent and child processes, fork and exec
6. Memory basics: physical and virtual memory, pages, swap and the page cache
7. File systems basics: files, directories, inodes, permissions and the Linux directory hierarchy
8. Users and groups: accounts, sudo, UAC on Windows and the principle of least privilege
9. Shell essentials: bash and PowerShell navigation, pipes, redirection and getting help
10. Installing an OS: a Linux VM with Ubuntu or RHEL and a Windows Server evaluation VM
11. Packages and updates: apt, dnf and winget basics and patching routines

DAY 2 — Essential: Process, memory, storage and service management

Included from Essential

12. Process management: ps, top, htop, kill and signals; Task Manager and Get-Process on Windows
13. CPU scheduling: time slicing, priorities, nice and renice and the Linux CFS and EEVDF schedulers
14. Memory management: free, vmstat, OOM killer behaviour, swap tuning and Windows memory counters
15. Storage management: partitions, LVM, mounting, fstab, NTFS and ext4 versus XFS
16. File permissions in depth: chmod, chown, umask, ACLs and NTFS permissions
17. Service management: systemd units, systemctl and journalctl, and Windows services
18. Scheduling tasks: cron, systemd timers and Windows Task Scheduler
19. Networking basics: interfaces, IP configuration, DNS resolution, ss and netstat
20. Logging: journald, rsyslog, /var/log and Windows Event Viewer
21. Inter-process communication: pipes, signals, sockets and shared memory
22. Shell scripting: bash and PowerShell scripts with variables, loops and error handling
23. Remote administration: SSH keys, scp and rsync, and PowerShell remoting

DAY 3 — Intermediate: Performance, security hardening and troubleshooting

Included from Intermediate

24. Performance analysis: USE method with sar, iostat, mpstat and Windows Performance Monitor
25. Concurrency: race conditions, locks, mutexes, semaphores and deadlocks with real examples
26. Virtual memory in depth: page faults, huge pages, NUMA and memory overcommit
27. File system internals: journaling, write-back caching, fsync and recovering with fsck
28. Security hardening: CIS Benchmarks, SSH hardening, firewalls with nftables, firewalld and Windows Defender Firewall
29. Mandatory access control: SELinux and AppArmor modes, contexts and troubleshooting denials
30. Auditing: auditd rules, sudo logging and Windows audit policies

31. Patch management: unattended upgrades, dnf-automatic and Windows Update policies
32. Troubleshooting boot failures: rescue mode, GRUB repair and Windows recovery environment
33. Troubleshooting resources: full disks, inode exhaustion, memory leaks and runaway processes
34. Configuration automation: Ansible for Linux and Windows hosts and desired state configuration
35. Backup and restore: rsync, tar, snapshots and Windows Server Backup

DAYS 4-5 **Advanced: Kernel internals, virtualization, containers and scale** **New at this level**

36. Kernel internals: system call path, kernel modules, interrupts and the /proc and /sys interfaces
37. Kernel tuning: sysctl parameters for networking, memory and file handles
38. Virtualization: hypervisors (KVM, Hyper-V, VMware ESXi), hardware virtualization and paravirtual drivers
39. Container isolation: namespaces, cgroups v2, seccomp and capabilities underlying Docker and Kubernetes
40. eBPF tracing: bpftrace, BCC tools and perf for deep performance investigation
41. Storage performance: I/O schedulers, RAID levels, NVMe and tuning with fio benchmarks
42. High availability: clustering with Pacemaker and Corosync and Windows Server Failover Clustering
43. Fleet management at scale: golden images, immutable OS approaches and configuration drift control
44. Observability for OS fleets: node_exporter, Windows exporter, centralised logs and alerting
45. Security at scale: endpoint protection, vulnerability scanning and kernel live patching
46. Upgrades and migrations: in-place versus rebuild upgrades and moving between distributions
47. Capstone: design a tuned, hardened and observable server fleet with automated patching and recovery

PRACTICE

Hands-on labs

You build these yourself during the course, guided by the trainer.

FOUNDATION

Install and explore two operating systems

Install Ubuntu and Windows Server VMs, inspect boot logs, running processes and file permissions, and update both systems.

ESSENTIAL

Administer services and storage

Create an LVM volume, deploy a systemd service with a timer, schedule the same task on Windows and trace both through their logs.

INTERMEDIATE

Harden and troubleshoot a server

Apply CIS-aligned hardening with SELinux enforcing, then diagnose and fix a broken boot, a full disk and a CPU-hungry process.

ADVANCED

Tune and isolate workloads

Use eBPF tools to find a latency issue, tune kernel parameters and cgroups v2 limits, and verify isolation of two containerised workloads.

HOW YOU CAN LEARN

Formats and fees

The same agenda in three formats. Fees are in Indian rupees as of November 2026; the course page shows them in your currency.

FORMAT	DURATION	WHAT YOU GET	FEE
Live & interactive (online)	Max 8-10 hours	Instructor-led public batch of max 10 learners with demos, labs, Q&A and assignment review. Weekday batches start on the 1st of every month, weekend batches on the first Saturday of every month.	**INR 34,999**
Self-paced video	1-year LMS access	All four Operating System levels, plus 20+ more courses and 50+ tools, at your own pace.	**INR 833/month** billed yearly at INR 9,996
Corporate (day-wise)	5 days for this level	A private batch for your team, on demand. Foundation 1 day, Essential 2, Intermediate 3, Advanced 5 (cumulative). 1:1 training is also available on demand.	**Quote on request**

ASSESSMENT AND CERTIFICATE

Your progress is checked through hands-on labs and assignments at every level. On completion you receive a DevOpsSchool certificate of completion with a unique credential ID that anyone can verify at devopsschool.com/certificates.

INCLUDED WITH EVERY LIVE BATCH

- Every live session is recorded and stays in your LMS for a year.
- Can't attend your batch? Move to next month's batch.
- Free demo class before you pay.
- Free 10-15 minute call with an advisor or the trainer to check the course fits you.

YOUR TRAINER

Learn from Rajesh Kumar

Principal Architect, trainer and mentor in DevOps, SRE, DevSecOps and platform engineering, with 20 years across 8+ software MNCs, including Staff DevOps/SRE Engineer for a leading Japanese mobile-payment platform and Principal DevOps Architect and Manager in Europe.

Profile: www.rajeshkumar.xyz · Videos: youtube.com/@TheDevOpsSchool

20 years in industry	**200+** corporate trainings
10,000+ engineers mentored	**70+** organisations coached

REVIEWS

What learners say

Rated 4.6 on Google · more reviews at devopsschool.com/testimonials and in our video testimonials.

> “Rajesh is very good trainer. Rajesh was able to resolve our queries and question effectively. We really liked the hands-on examples covered during this training program.”
>
> Indrayani, India

> “The training was very useful and interactive. Rajesh helped develop the confidence of all.”
>
> Abhinav Gupta, Pune

START YOUR OPERATING SYSTEM TRAINING

Join the next batch

Weekday batches start on the 1st of every month and weekend batches on the first Saturday of every month, with max 10 learners each. Corporate and 1:1 batches run on demand. We reply within 1 hour.

Pay by UPI, credit and debit cards, net banking or PayPal. Before you pay, read our refund policy. All levels of this course: www.devopsschool.com/courses/os/

ENROL OR RESERVE A SEAT
Operating System Advanced Training

WHATSAPP · INDIA
+91 99057 40781

WHATSAPP · USA
+1 (469) 756-6329

EMAIL
contact@DevOpsSchool.com