DevOpsSchool

Course curriculum · November 2026

LEVEL 04 OF 04 · ADVANCED

Kubernetes Advanced Training

Secure, network, upgrade, back up, monitor and troubleshoot a production Kubernetes cluster end to end.

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	55 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/kubernetes/kubernetes-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 Kubernetes course path, you will be able to:

1

Build and run clusters

Install, configure and upgrade kubeadm-based Kubernetes clusters with working kubectl access.

2

Deploy real workloads

Run stateless and stateful applications with Deployments, Services, storage, ConfigMaps, Secrets and Jobs.

3

Secure and troubleshoot

Apply networking, RBAC and Network Policies, then monitor, back up and troubleshoot clusters with confidence.

WHAT THE ADVANCED LEVEL ADDS

Networking, security, operations and troubleshooting

Hands-on: Harden and operate a production cluster. Install Calico and an Ingress controller, lock traffic down with Network Policies and RBAC, upgrade the cluster with kubeadm, back up etcd and fix injected failures as the final project.

WHO SHOULD ATTEND

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

BEFORE YOU START

- The Intermediate level, or equivalent hands-on experience.
- You can already: Give applications persistent storage, external configuration and secrets, and run StatefulSets, DaemonSets, Jobs and CronJobs.
- 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

Kubernetes Advanced Training agenda

55 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: Architecture, kubeadm cluster setup and first pod

Included from Foundation

1. Understanding the need of Kubernetes: container orchestration, self-healing, scaling and declarative desired state
2. Kubernetes architecture: control plane and worker nodes, the API server as the single entry point
3. Control plane (master) components: kube-apiserver, etcd, kube-scheduler, kube-controller-manager, cloud-controller-manager
4. Node components: kubelet, kube-proxy and the container runtime (containerd, CRI-O) through the CRI
5. Kubernetes concepts and terminology: cluster, node, pod, object, spec and status, controller, manifest, context
6. Kubernetes cluster requirements: supported Linux, CPU and memory, swap, unique hostnames, required ports, container runtime
7. Understanding Kubernetes clusters using kubeadm: kubeadm init, join tokens, certificates and the pod network add-on
8. Demo: installing and configuring the Kubernetes control plane (master) node with kubeadm
9. Demo: installing and configuring Kubernetes worker nodes and joining them with kubeadm join
10. Demo: install and configure a workstation using kubectl: kubeconfig, contexts, kubectl get nodes and cluster-info
11. Understanding the concept of Namespace: default, kube-system, kube-public, creating and switching namespaces
12. Demo: define your first Kubernetes pod with kubectl run and a YAML manifest (apiVersion, kind, metadata, spec)
13. Demo: working and deep dive with Kubernetes pods: describe, logs, exec, port-forward, multi-container pods and delete

DAY 2 — Essential: Controllers, deployments, labels and services

Included from Essential

14. Declarative manifests in daily use: kubectl apply vs create, dry-run=client -o yaml, explain and diff
15. Understanding Kubernetes replication controllers and their successor ReplicaSets: desired replicas and self-healing
16. Demo: define your first replication controller and scale it with kubectl scale
17. Demo: working with Kubernetes replication controllers: pod replacement, selectors and safe deletion
18. Understanding Kubernetes Deployments: ReplicaSet management, rolling update strategy, maxSurge and maxUnavailable
19. Demo: define your first Deployment and update its container image
20. Demo: working and deep dive with Deployments: kubectl rollout status, history, undo, pause and resume
21. Understanding Kubernetes labels and selectors: equality and set-based selectors, annotations versus labels
22. Demo: define your first Kubernetes labels and work with them: kubectl label, -l filters and relabelling pods
23. Understanding Kubernetes Services: ClusterIP, NodePort, LoadBalancer, ExternalName and endpoints
24. Demo: define your first Kubernetes Service and reach a Deployment by its stable DNS name
25. Demo: working and deep dive with Services: session affinity, targetPort, headless services and EndpointSlices
26. Demo: deploy a Java stack application on Kubernetes with Deployments and Services
27. Demo: deploy a Node.js stack application on Kubernetes with Deployments and Services

DAY 3 **Intermediate: Storage, configuration and stateful workloads** Included from Intermediate

28. Understanding Kubernetes volumes: pod-scoped storage, volume mounts and lifecycle
29. Understanding types of volumes: emptyDir, hostPath, nfs, configMap, secret, projected and CSI volumes
30. Static and dynamic provisioning: pre-created PersistentVolumes versus StorageClass-driven provisioning
31. Understanding PersistentVolume and PersistentVolumeClaim: access modes, capacity, reclaim policy and binding
32. Understanding ConfigMap and Secret: env, envFrom and volume mounts, base64 encoding and encryption at rest
33. Understanding StorageClass: provisioners, parameters, volumeBindingMode, allowVolumeExpansion and default class
34. Demo: working with PersistentVolume and PersistentVolumeClaim for a database pod
35. Demo: working with ConfigMap and Secret created from literals, files and YAML
36. Demo: StorageClass with dynamic provisioning and volume expansion
37. Understanding StatefulSet and DaemonSet: stable network identity, ordered rollout, per-pod volume claims, one pod per node
38. Understanding CronJob and Job: completions, parallelism, backoffLimit, schedules and concurrencyPolicy
39. Demo: working with a StatefulSet and a DaemonSet (log or monitoring agent on every node)
40. Demo: working with Job and CronJob, inspecting history and failed runs
41. Demo: stateless example: PHP guestbook with Redis leader and followers

DAYS 4-5 **Advanced: Networking, security, operations and troubleshooting** **New at this level**

42. Kubernetes pod networking: what it is, how it works and the network model (IP per pod, no NAT between pods)
43. How to implement Kubernetes networking: network plugins (CNI), Flannel, Project Calico and Weave Net (legacy) compared
44. Demo: implementing Project Calico network plugins on a kubeadm cluster
45. Understanding Ingress and Ingress controllers; demo: implementing NGINX Ingress with host and path rules and TLS
46. Understanding Network Policies; demo: default-deny and allow rules between namespaces and pods
47. Understanding DNS for Services and Pods: CoreDNS, service records, search domains and troubleshooting lookups
48. Kubernetes authentication and authentication modules: X.509 client certificates, ServiceAccount tokens, OIDC
49. Kubernetes authorization: demo RBAC with Roles, ClusterRoles and bindings, and demo ABAC policy files
50. Pod observability: demo liveness, readiness and startup probes, plus static pods managed by the kubelet
51. Scheduling: demo assigning pods to nodes using nodeSelector and node affinity, taints and tolerations
52. Cluster operations: Kubernetes Dashboard add-on, kubeadm cluster upgrade, node maintenance with cordon and drain
53. Demo: backing up and restoring a Kubernetes cluster with etcdctl snapshot save and restore
54. Troubleshooting: application failure, control plane failure, worker node failure and networking
55. Monitoring and logging: cluster components, running applications, component logs and application logs; final project

PRACTICE

Hands-on labs

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

FOUNDATION

Stand up a kubeadm cluster

Install a control plane and two workers with kubeadm, configure kubectl on a workstation and run a first nginx pod in its own namespace.

ESSENTIAL

Deploy and expose a two-tier application

Deploy a Java or Node.js application as a Deployment, label it, expose it with ClusterIP and NodePort Services and perform a rolling update with rollback.

INTERMEDIATE

Run a stateful app with persistent storage

Deploy a database as a StatefulSet with dynamically provisioned volumes, feed it configuration from a ConfigMap and Secret, and schedule a nightly backup CronJob.

ADVANCED

Harden and operate a production cluster

Install Calico and an Ingress controller, lock traffic down with Network Policies and RBAC, upgrade the cluster with kubeadm, back up etcd and fix injected failures as the final project.

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 Kubernetes 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 KUBERNETES 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/kubernetes/

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