DevOpsSchool

Course curriculum · November 2026

LEVEL 04 OF 04 · ADVANCED

Kubespray Advanced Training

Run highly available, air-gapped and hardened Kubespray clusters and automate their lifecycle through CI pipelines and GitOps.

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	46 topics · Foundation to Advanced
Hands-on labs	4 labs
Formats and fees	Live, 1:1, 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/kubespray/kubespray-and-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 Kubespray course path, you will be able to:

1

Deploy Kubernetes with Ansible

Build repeatable multi-node Kubernetes clusters with Kubespray inventories and playbooks.

2

Operate the cluster lifecycle

Scale, upgrade, reset and troubleshoot Kubespray clusters with minimal disruption.

3

Run production-grade clusters

Design highly available, hardened and air-gapped clusters and automate their lifecycle.

WHAT THE ADVANCED LEVEL ADDS

HA, offline installs, hardening and automation

Hands-on: Build an HA air-gapped production cluster. Deploy three control plane and etcd nodes behind kube-vip using a local file and image repository, harden them against kube-bench findings and rehearse a control plane recovery.

WHO SHOULD ATTEND

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

BEFORE YOU START

- The Intermediate level, or equivalent hands-on experience.
- You can already: Add and remove nodes, upgrade Kubernetes versions, rotate certificates and troubleshoot failed Kubespray runs without downtime.
- 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

Kubespray Advanced Training agenda

46 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: Kubespray architecture, prerequisites and first cluster

Included from Foundation

1. What Kubespray is: Ansible playbooks from kubernetes-sigs for production-ready Kubernetes on bare metal, VMs and clouds
2. Kubespray compared with kubeadm, kOps, Cluster API and managed services: when each one fits
3. Architecture: Ansible control node, inventory groups kube_control_plane, kube_node, etcd and k8s_cluster
4. Supported platforms: Linux distributions, Kubernetes version matrix per Kubespray release and release branches
5. Prerequisites: SSH key access, sudo, Python on targets, IPv4 forwarding, firewall ports and time sync
6. Control node setup: cloning the repo, checking out a release tag, Python venv and pip install -r requirements.txt
7. Container option: running Kubespray from the official container image instead of a local Ansible install
8. Inventory: copying the bundled example inventory to inventory/mycluster and writing hosts.yaml with ansible_host and ip
9. Deploying the cluster: ansible-playbook -i inventory/mycluster/hosts.yaml --become cluster.yml
10. First checks: fetching admin.conf, kubectl get nodes, system pods, CoreDNS and the default Calico network
11. Local practice environments: Vagrant and VM-based clusters for repeatable learning

DAY 2 — Essential: Group_vars configuration, networking and add-ons

Included from Essential

12. Variable layout: group_vars/all, group_vars/k8s_cluster/k8s-cluster.yml, addons.yml and variable precedence
13. Kubernetes settings: kube_version, kube_service_addresses, kube_pods_subnet, kube_proxy_mode and cluster_name
14. Container runtime: container_manager containerd (default) or CRI-O, registry mirrors and insecure registries
15. Network plugins: kube_network_plugin calico, cilium, flannel, kube-ovn or kube-router and their key options
16. etcd deployment: etcd_deployment_type host versus kubeadm, member placement and certificates
17. DNS: CoreDNS and NodeLocal DNSCache settings, upstream resolvers and dns_mode
18. Add-ons via addons.yml: Helm, metrics-server, ingress-nginx, cert-manager, local path provisioner, MetalLB
19. Control plane access: apiserver load balancing with the built-in nginx proxy or an external load balancer, kube-vip
20. Node settings: labels, taints and kubelet arguments set through inventory and group variables
21. Partial runs: Ansible tags and --limit to run only parts of the deployment safely
22. Idempotent re-runs: re-running cluster.yml and reading Ansible output to verify changes

DAY 3 — Intermediate: Day-2 operations: scale, upgrade, reset, troubleshoot

Included from Intermediate

23. Scaling out: adding worker nodes with scale.yml and --limit, and verifying they join correctly
24. Removing nodes: remove-node.yml with node= extra var, draining and cleaning up etcd membership
25. Adding and replacing control plane and etcd nodes: ordering rules and inventory changes
26. Upgrading Kubernetes: upgrade-cluster.yml, one minor version at a time, serial upgrades and drain settings
27. Upgrading Kubespray itself: moving between release tags and reconciling inventory variable changes
28. Reset and rebuild: resetting hosts with reset.yml and rebuilding a failed node

29. Certificate management: kubeadm-managed certificates, expiry checks and renewal options
30. Security basics: kube-apiserver flags, audit logging, Pod Security admission and encryption of Secrets at rest
31. Private registry and proxy settings: http_proxy, no_proxy and registry mirrors for corporate networks
32. Troubleshooting failed runs: -vvv output, failed task context, facts cache and common SSH or package errors
33. Validating the cluster after changes: node conditions, component health, conformance smoke tests

DAYS 4-5 **Advanced: HA, offline installs, hardening and automation** **New at this level**

34. High availability design: three or five control plane and etcd members, failure domains and quorum
35. API server load balancing for HA: external HAProxy and Keepalived, kube-vip and the localhost nginx proxy compared
36. Recovering the control plane: recover-control-plane.yml, etcd snapshot backup and restore procedures
37. Offline and air-gapped installs: contrib/offline scripts, files_repo, registry_host and pre-pulled images
38. Hardening: CIS Kubernetes Benchmark guidance, kube-bench checks, kubelet hardening and audit policies
39. Dual-stack networking: IPv4 and IPv6 clusters and network plugin choices at scale
40. Cloud and bare metal targets: provisioning VMs with Terraform contrib modules before running Kubespray
41. Large clusters: Ansible forks, pipelining, fact caching and batch sizes for faster runs
42. Version pinning and change control: inventories in Git, reviewed variable changes and release tag tracking
43. Automating Kubespray in CI pipelines: containerised runs, secrets handling and approval gates
44. Post-install GitOps: bootstrapping Argo CD or Flux for cluster add-ons and workloads
45. Migration planning: moving between Kubespray, kubeadm-only and managed Kubernetes
46. Capstone: build a hardened, highly available, offline-capable cluster with a documented runbook

PRACTICE

Hands-on labs

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

FOUNDATION **Deploy a three-node cluster with Kubespray**
Prepare one control node and three Linux VMs, build an inventory and run cluster.yml to get a working cluster with one control plane, etcd and two workers.

ESSENTIAL **Customise and redeploy the cluster**
Switch the CNI to Cilium, enable metrics-server, ingress-nginx and MetalLB through group_vars, and redeploy a fresh cluster to verify every setting.

INTERMEDIATE **Scale, upgrade and repair a cluster**
Add a worker with scale.yml, remove another with remove-node.yml, upgrade the cluster one Kubernetes minor version and recover a node broken during the exercise.

ADVANCED **Build an HA air-gapped production cluster**
Deploy three control plane and etcd nodes behind kube-vip using a local file and image repository, harden them against kube-bench findings and rehearse a control plane recovery.

HOW YOU CAN LEARN

Formats and fees

The same agenda in four 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**
1:1 live training (online)	Max 8-10 hours, one-to-one	The same agenda, taught one-to-one by the trainer. Starts immediately, without waiting for the next batch; sessions planned around your working hours, at your pace.	**INR 99,999**
Self-paced video	1-year LMS access	All four Kubespray 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).	**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 KUBESPRAY 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. 1:1 training can start immediately; corporate 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/kubespray/

ENROL OR RESERVE A SEAT
Kubespray Advanced Training

WHATSAPP · INDIA
+91 99057 40781

WHATSAPP · USA
+1 (469) 756-6329

EMAIL
contact@DevOpsSchool.com