DevOpsSchool

Course curriculum · November 2026

LEVEL 04 OF 04 · ADVANCED

Tikv Advanced Training

Design resilient, multi-region TiKV deployments, tune them for heavy workloads and run them under clear operational governance.

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, 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/tikv/tikv-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 Tikv course path, you will be able to:

1

Understand TiKV internals

Explain regions, Raft replication, MVCC and Percolator transactions and how they shape application design.

2

Deploy and operate clusters

Deploy, scale, upgrade, secure and back up TiKV clusters with TiUP, BR and TiDB Operator.

3

Run TiKV at scale

Design multi-zone topologies, tune performance and recover from failures with tested runbooks.

WHAT THE ADVANCED LEVEL ADDS

High availability, multi-region design and performance at scale

Hands-on: Capstone: resilient multi-zone TiKV platform. Deploy TiKV across three simulated zones with placement rules, run a fault-injection drill, recover service and document the runbook.

WHO SHOULD ATTEND

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

BEFORE YOU START

- The Intermediate level, or equivalent hands-on experience.
- You can already: Operate TiKV day to day: scale nodes, tune scheduling, back up and restore data, enable TLS and troubleshoot hot spots.
- 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

Tikv 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: Distributed key-value concepts, architecture and first cluster

Included from Foundation

1. What TiKV is: a CNCF graduated distributed transactional key-value database and its relationship to TiDB
2. Use cases: metadata stores, large-scale key-value workloads and the storage layer under TiDB
3. Architecture: TiKV nodes, Placement Driver (PD), regions, peers and the timestamp oracle
4. Raft consensus: leaders, followers, log replication and why three replicas tolerate one failure
5. Storage engine: RocksDB, column families and Raft Engine for the Raft log
6. Data model: ordered byte keys, region splitting by key range and region size
7. Raw KV versus transactional KV: API differences and when to choose each
8. Installing with TiUP: tiup playground for a local cluster and checking component status
9. First reads and writes: put, get, scan and delete with the Go, Rust, Java or Python client
10. Cluster inspection: pd-ctl store and region commands and the TiKV dashboard pages in Grafana
11. Configuration basics: tikv.toml and pd.toml structure and the most important defaults

DAY 2 — Essential: Transactions, client development and production deployment

Included from Essential

12. MVCC: multi-version keys, timestamps from PD and snapshot reads
13. Percolator transactions: two-phase commit, primary keys, locks and write conflicts
14. Optimistic and pessimistic transactions: behaviour, retries and choosing a mode
15. Async commit and one-phase commit: how they cut transaction latency
16. Client usage: connection to PD, batch get and put, reverse scans and key encoding conventions
17. TTL and atomic operations: expiring keys and compare-and-swap in Raw KV
18. Topology planning: hardware sizing, SSD requirements, labels for zones and hosts
19. Production deployment: tiup cluster topology files, deploy, start, display and check commands
20. Replica placement: max-replicas, location labels and isolation levels in PD
21. Monitoring stack: Prometheus, Grafana and Alertmanager deployed by TiUP and the key TiKV panels
22. Logs and diagnostics: TiKV and PD log files, slow query signals and common error messages
23. Rolling configuration changes: tiup cluster edit-config and reload without downtime

DAY 3 — Intermediate: Operations, scheduling, backup and security

Included from Intermediate

24. Scaling out and in: tiup cluster scale-out and scale-in and draining stores safely
25. PD scheduling: balance-leader, balance-region and hot-region schedulers and their limits
26. Placement Rules: controlling replica counts, roles and locations per key range
27. Hot spot troubleshooting: identifying hot regions, splitting regions and key design fixes
28. Backup and restore: BR full and incremental backups to S3-compatible storage and point-in-time recovery
29. Change data capture: TiKV CDC and streaming changes to downstream systems
30. Security: TLS between clients, PD and TiKV, certificate rotation and encryption at rest

31. Upgrades: tiup cluster upgrade, version compatibility and rolling restart behaviour
32. Store failure handling: down and offline stores, replica repair and tikv-ctl recovery tools
33. Performance tuning: block cache, write buffers, compaction settings and thread pools
34. Running on Kubernetes: TiDB Operator, TidbCluster resources and persistent volumes
35. Benchmarking: go-ycsb workloads and reading latency and throughput results

DAYS 4-5 **Advanced: High availability, multi-region design and performance at scale** **New at this level**

36. Multi-zone and multi-region topologies: label-based placement, leader preferences and latency trade-offs
37. Disaster recovery: five-replica designs, learner replicas and planned failover between regions
38. Online unsafe recovery: restoring availability when a majority of replicas is lost
39. Large-scale tuning: region merge, split thresholds, Raft batching and RocksDB write stall avoidance
40. Coprocessor and storage internals: how pushdown works and how compaction affects tail latency
41. Resource control: request units, resource groups and protecting critical tenants
42. Capacity planning: storage growth, region counts per store and PD scaling
43. Observability at scale: alert rules, Grafana dashboards per store and continuous profiling
44. Security hardening: least-privilege network access, certificate management and audit of admin tools
45. Chaos testing: injecting node, disk and network faults to verify recovery runbooks
46. Building systems on TiKV: designing key schemas for metadata services and large key-value applications
47. Capstone: a production-grade, multi-zone TiKV platform with backup, monitoring and runbooks

PRACTICE

Hands-on labs

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

FOUNDATION

Start TiKV and store your first keys

Launch a local PD and three-node TiKV cluster with tiup playground, write and scan keys from a client program and inspect region placement with pd-ctl.

ESSENTIAL

Deploy a three-host TiKV cluster

Write a TiUP topology file, deploy PD, TiKV and monitoring to three hosts and run a transactional client workload while watching Grafana.

INTERMEDIATE

Scale, back up and recover TiKV

Scale a cluster from three to five TiKV nodes, take a BR backup to S3-compatible storage, simulate a store failure and restore service.

ADVANCED

Capstone: resilient multi-zone TiKV platform

Deploy TiKV across three simulated zones with placement rules, run a fault-injection drill, recover service and document the runbook.

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 Tikv 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 TIKV 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/tikv/

ENROL OR RESERVE A SEAT
Tikv Advanced Training

WHATSAPP · INDIA
+91 99057 40781

WHATSAPP · USA
+1 (469) 756-6329

EMAIL
contact@DevOpsSchool.com