

Kubernetes Administration: CKA Exam Preparation

Duration: 5 Days

Language: en

Course Code: PI1 - 144

Objective

By the end of this course, participants will be able to:

- Understand Kubernetes architecture, components, and cluster lifecycle.
- Deploy and configure multi-node Kubernetes clusters using **kubeadm** and managed services.
- Implement resource management, networking, and security policies.
- Troubleshoot clusters and applications effectively under real-world conditions.
- Prepare thoroughly for the **Certified Kubernetes Administrator (CKA)** exam with targeted practice.

Audience

This course is ideal for:

- System Administrators and DevOps Engineers managing containerized workloads.
- Cloud Engineers and Developers using Kubernetes for deployment and orchestration.
- Professionals seeking **CKA certification** or advancing in DevOps and cloud-native careers.
- IT teams transitioning to microservices or container-based infrastructure.

Training Methodology

The course integrates hands-on labs , command-line simulations , and guided exercises that mirror actual CKA exam environments. Each session builds practical confidence through problem-solving, live demonstrations, and interactive workshops aligned with CNCF standards.

Summary

This intensive and practical course is designed to prepare professionals for the **Certified Kubernetes Administrator (CKA)** certification while developing real-world mastery in

container orchestration, cluster management, and cloud-native operations.

Through a balance of theory, hands-on labs, and exam-focused exercises, participants will learn how to deploy, configure, manage, and troubleshoot Kubernetes clusters in production environments. The course covers every critical concept outlined in the official CNCF CKA curriculum — including networking, scheduling, security, storage, and troubleshooting.

By the end of the bootcamp, learners will be confident in administering Kubernetes environments across multiple platforms and well-prepared to pass the CKA certification exam on their first attempt.

Course Content & Outline

Section 1: Kubernetes Fundamentals & Architecture

- Introduction to containerization and orchestration.
- Kubernetes architecture overview: control plane, nodes, pods, and services.
- Key components: kube-apiserver, etcd, scheduler, and controller-manager.
- Understanding namespaces, labels, and selectors.
- Working with kubectl commands and configuration files.

Section 2: Cluster Installation & Configuration

- Installing Kubernetes with kubeadm and other tools.
- Cluster initialization, node joining, and verification.
- Configuring and managing Kubernetes networking (CNI plugins, CoreDNS).
- Working with kubeconfig files and contexts.
- Managing certificates and authentication.

Section 3: Workloads, Scheduling & Resource Management

- Deployments, ReplicaSets, and StatefulSets.
- Pod lifecycle and scheduling policies.
- Resource requests, limits, and Quality of Service (QoS) classes.
- Taints, tolerations, and node affinity for advanced scheduling.
- DaemonSets, Jobs, and CronJobs in cluster operations.

Section 4: Networking, Storage & Security

- Kubernetes networking model and service discovery.
- Configuring Services, Ingress, and load balancing.
- Persistent Volumes (PV), Persistent Volume Claims (PVC), and StorageClasses.
- Role-Based Access Control (RBAC), Service Accounts, and Secrets management.
- Implementing security policies and network isolation.

Section 5: Monitoring, Troubleshooting & Exam Preparation

- Debugging pods, nodes, and cluster-level issues.
- Using logs, metrics, and probes (liveness/readiness).
- Backup, restore, and cluster upgrade strategies.
- Overview of CKA exam structure, format, and time management strategies.
- Full-length practice labs and exam simulation exercises.

Certificate Description

Upon successful completion of this training course, delegates will be awarded a Holistique Training Certificate of Completion. For those who attend and complete the online training course, a Holistique Training e-Certificate will be provided.

Holistique Training Certificates are accredited by The CPD Certification Service (CPD), and are certified under ISO 9001 and ISO 29993 standards.

CPD credits for this course are granted by our Certificates and will be reflected on the Holistique Training Certificate of Completion. In accordance with the standards of The CPD Certification Service, one CPD credit is awarded per hour of course attendance. A maximum of 50 CPD credits can be claimed for any single course we currently offer.

Categories

IT & Computer Application

Tags

Kubernetes, CKA certification

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