Kubernetes Bootcamp (CKAD)

Category: Cloud Platforms | **Vendor:** CNCF

Duration: 40.00 hours (5 days) **32.5 CPD Hours** **Rating:** ⭐ 4.6 (5,878 reviews)

Course Information

Delivery Format:	Instructor Led - Online
Certification:	Certified Kubernetes Application Developer (CKAD)
Related Exam:	CKAD

Course Overview

Kubernetes is a Cloud Orchestration Platform providing reliability, replication, and stability while maximizing resource utilization for applications and services. By the conclusion of this hands-on training, you will go back to work with all necessary commands and practical skills to empower your team to succeed, as well as gain knowledge of important concepts like Kubernetes architecture and container orchestration. We prioritize covering all objectives and concepts necessary for passing the Certified Kubernetes Application Developer (CKAD) exam. You will command and configure a high availability Kubernetes environment (and later, build your own!) capable of demonstrating all K8s'' features discussed and demonstrated in this course. Your week of intensive, hands-on training will conclude with a mock CKAD exam that matches the real thing.

About This Course

Kubernetes is a Cloud Orchestration Platform providing reliability, replication, and stability while maximizing resource utilization for applications and services. By the conclusion of this hands-on training, you will go back to work with all necessary commands and practical skills to empower your team to succeed, as well as gain knowledge of important concepts like Kubernetes architecture and container orchestration. We prioritize covering all objectives and concepts necessary for passing the Certified Kubernetes Application Developer (CKAD) exam. You will command and configure a high availability Kubernetes environment (and later, build your own!) capable of demonstrating all K8s'' features discussed and demonstrated in this course. Your week of intensive, hands-on training will conclude with a mock CKAD exam that matches the real thing.

Who Should Attend

Anyone who plans to work with Kubernetes at any level or tier of involvement

Any company or individual who wants to advance their knowledge of the cloud environment

Application Developers

Operations Developers

IT Directors/Managers

Learning Outcomes

Upon successful completion of this course, participants will be able to:

All topics required by the CKAD exam, including:

Deploy applications to a Kubernetes cluster

Pods, ReplicaSets, Deployments, DaemonSets

Self-healing and observable applications

Multi-container Pod Design

Application configuration via Configmaps, Secrets

Administrate cluster use for your team

A systematic understanding of Kubernetes architecture

Troubleshooting and debugging tools

Kubernetes networking and services

Detailed Course Outline

Kubernetes Architecture

- Components
- Understand API deprecations
- Containers
- Define, build and modify container images
- Pods
- Master Services
- Node Services
- K8s Services
- YAML Essentials
- Creating a K8s Cluster

kubectl Commands

- Kubernetes Resources
- Kubernetes Namespace
- Kubernetes Contexts

Pods

- What is a Pod
- Create, List, Delete Pods
- How to Access Running Pods
- Kubernetes Resources
- Managing Cloud Resource Consumption
- Multi-Container Pod Design
- Security Contexts
- Init Containers
- Understand multi-container Pod design patterns (e.g. sidecar, init and others)
- Pod Wellness Tracking

Networking

- Packet Forwarding
- ClusterIP and NodePort Services
- Provide and troubleshoot access to applications via services
- Ingress Controllers
- Use Ingress rules to expose applications
- NetworkPolicy resource
- Demonstrate basic understanding of NetworkPolicies
- Network Plugins
- Defining the Service Mesh
- Service mesh configuration examples

ReplicaSets

- Services
- ReplicaSet Function
- Deploying ReplicaSets

Deployments

- Deployment Object
- Updating/Rolling Back Deployments
- Understand Deployments and how to perform rolling updates
- Deployment Strategies
- Use Kubernetes primitives to implement common deployment strategies (e.g. blue/green or canary)
- Scaling ReplicaSets
- Autoscaling

Labels and Annotations

- Labels
- Annotations
- Node Taints and Tolerations

Jobs

- The K8s Job and CronJob
- Understand Jobs and CronJobs
- Immediate vs. scheduled internal use

Application Configuration

- Understanding and defining resource requirements, limits and quotas
- Config Maps
- Create & consume Secrets
- Patching
- Custom Resource Definition
- Discover and use resources that extend Kubernetes (CRD)
- Managing ConfigMaps and Secrets as Volumes

Storage

- Static and dynamic persistent volumes via StorageClass
- K8s volume configuration
- Utilize persistent and ephemeral volumes
- Adding persistent storage to containers via persistent volume claims

Introduction to Helm

- Helm Introduction
- Charts
- Use the Helm package manager to deploy existing packages

Application Security

- Understand authentication, authorization and admission control
- Understand ServiceAccounts
- Understand SecurityContexts

Application Observability and Maintenance

- Use provided tools to monitor Kubernetes applications
- How to Troubleshoot Kubernetes
- Basic and Advanced Logging Techniques
- Utilize container logs
- Accessing containers with Port-Forward
- Debugging in Kubernetes

Hands on Labs:

- Define, build and modify container images
- Deploy Kubernetes using Ansible
- Isolating Resources with Kubernetes Namespaces
- Cluster Access with Kubernetes Context
- Listing Resources with kubectl get
- Examining Resources with kubectl describe
- Create and Configure Basic Pods
- Debugging via kubectl port-forward
- Imperative vs. Declarative Resource Creation
- Performing Commands inside a Pod
- Understanding Labels and Selectors
- Insert an Annotation
- Create and Configure a ReplicaSet
- Writing a Deployment Manifest
- Perform rolling updates and rollbacks with Deployments
- Horizontal Scaling with kubectl scale
- Implement probes and health checks
- Understanding and defining resource requirements, limits and quotas
- Understand Jobs and CronJobs
- Best Practices for Container Customization
- Persistent Configuration with ConfigMaps
- Create and Consume Secrets
- Understand the Init container multi-container Pod design pattern
- Using PersistentVolumeClaims for Storage
- Dynamically Provision PersistentVolumes with NFS
- Deploy a NetworkPolicy
- Provide and troubleshoot access to applications via services
- Use Ingress rules to expose applications
- Understand the Sidecar multi-container Pod design pattern
- Setting up a single tier service mesh
- Tainted Nodes and Tolerations

Use the Helm package manager to deploy existing packages

- A Completed Project
- Install Jenkins Using Helm and Run a Demo Job
- Custom Resource Definitions (CRDs)
- Patching
- Understanding Security Contexts for Cluster Access Control
- Utilize container logs
- Advanced Logging Techniques
- Troubleshooting
- Calicoctl
- Deploy a Kubernetes Cluster using Kubeadm
- Monitoring Applications in Kubernetes
- Resource-Based Autoscaling
- Create ServiceAccounts for use with the Kubernetes Dashboard
- Saving Your Progress With GitHub
- CKAD Practice Drill
- Alta Kubernetes Course Specific Updates
- Sourcing Secrets from HashiCorp Vault
- Example CKAD Test Questions

□□ Certification Path

Certified Kubernetes Application Developer (CKAD)

Exam: CKAD

Additional Course Details

Nexus Humans Kubernetes Bootcamp (CKAD) training program is a workshop that presents an invigorating mix of sessions, lessons, and masterclasses meticulously crafted to propel your learning expedition forward.

This immersive bootcamp-style experience boasts interactive lectures, hands-on labs, and collaborative hackathons, all strategically designed to fortify fundamental concepts.

Guided by seasoned coaches, each session offers priceless insights and practical skills crucial for honing your expertise. Whether you're stepping into the realm of professional skills or a seasoned professional, this comprehensive course ensures you're equipped with the knowledge and prowess necessary for success.

While we feel this is the best course for the Kubernetes Bootcamp (CKAD) course and one of our Top 10 we encourage you to read the course outline to make sure it is the right content for you.

Additionally, private sessions, closed classes or dedicated events are available both live online and at our training centres in Dublin and London, as well as at your offices anywhere in the UK, Ireland or across EMEA.

Frequently Asked Questions

Q: What delivery options are available for Kubernetes Bootcamp (CKAD)?

We offer multiple delivery formats:

- Live Instructor-Led Classroom Online (Virtual/Live Online)
- Traditional Instructor-Led Classroom Training (ILT)
- On-site delivery at your offices anywhere in United Kingdom
- Private dedicated courses customized for your team

Q: What certification does this course prepare me for?

The Kubernetes Bootcamp (CKAD) course helps prepare you for the Certified Kubernetes Application Developer (CKAD) certification path.

Q: Which exam does this course prepare me for?

This course prepares you for the CKAD official exam. You can take this exam at any exam center across United Kingdom including London, Manchester, Birmingham, Edinburgh, or live online wherever you are located.

Q: How many CPD hours does this course provide?

The 5-day Kubernetes Bootcamp (CKAD) course provides up to 32.5 CPD hours of structured learning. CPD certificates can be provided upon request.

Q: What is the duration of the Kubernetes Bootcamp (CKAD) training?

The training takes place over 5 day(s), with each day lasting approximately 40.00 hours including breaks for lunch and refreshments.

Q: Do you provide corporate training for Kubernetes Bootcamp (CKAD)?

Yes, we provide corporate training, dedicated training, and closed classes for Kubernetes Bootcamp (CKAD). Training can take place anywhere in United Kingdom including London, Manchester, Birmingham, Edinburgh, or live online allowing teams from across United Kingdom or internationally to attend.

Q: Why choose Nexus Human for Kubernetes Bootcamp (CKAD)?

Nexus Human is recognized as one of the leading training providers. Our trainers have won multiple awards including:

- Small Firms Best Trainer Award
- National Training Partner of the Year (Ireland) - Multiple Years
- Global Top 30 Instructor Awards (2012, 2019, 2021)
- Tech Excellence Award Nominations
- Learning Performance Institute (LPI) External Training Provider Sponsor 2024

Q: Are there any discount codes available?

Yes! Use discount code **PENPAL5** when booking your Kubernetes Bootcamp (CKAD) training. Please note that only one discount code can be used per booking and cannot be combined with other special offers.

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