

Certified Kubernetes Administrator (CKA)

This intermediate-level Kubernetes training covers the objectives in the CKA exam, which is the one required exam to earn the Certified Kubernetes Administrator (CKA) certification. Learn the skills needed to install, configure and manage Kubernetes containers so that your application life cycle stays reliable and efficient.

[CBT Nuggets course material](#) →

WEEK 1

Deploy a Kubernetes Cluster using Kubeadm **161 min.**

Intro to Kubernetes Deployment Tools	9
Prepare Amazon VPC and EC2 Instance for Kubeadm	12
Install Kubeadm and Dependencies for Kubernetes	8
Initialize Kubernetes Master Node with Kubeadm	17
Install Project Calico Container Network Interface	8

Configure Role-Based Access Control (RBAC) in Kubernetes

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Create Certificate Credentials for Kubernetes User	11
Create KubeConfig File for Kubernetes User	14
Create Roles and RoleBindings in Kubernetes	14

Understanding Kubernetes Manifest Files

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Use Kubernetes API Reference to Understand Manifests	13
Kubernetes API Groups and Resources	8
Create Kubernetes Manifests with Trial and Error	21

WEEK 2

Understanding Networking in Kubernetes **159 min.**

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Expose Services on Internal Cluster Network	10

Expose Services Externally via Cloud Load Balancer 10

Understanding CoreDNS in Kubernetes

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Explore the Default CoreDNS Configuration 14
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Using Liveness and Readiness Probes in Kubernetes Pods

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Create a Sample Web Application for Probes 15
Add Liveness Probe with Shell Command 14

WEEK 3

155 min.

Using Built-in Kubernetes HttpGet Probe 7
Use Container Startup Probes to Validate Pod Initialization 5
Use Readiness Probes to Temporarily Take Pods Offline 8

Understanding Deployments on Kubernetes

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Create a Kubernetes Deployment 10
Deploy Multiple Versions of Applications 10

Use Service Controller to Route Traffic 13

Build and Deploy Custom Container Images for Kubernetes Pods

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Configure Kaniko Authentication to GitLab Private Repository 13
Configure Kaniko to Push to Private Amazon ECR Repository 13
Test Deployment of Application to Kubernetes Cluster 7

Horizontal Pod Scaling on Kubernetes

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Install Kubernetes Metrics Server 8

WEEK 4

154 min.

Create Deployment and Service Controllers 10
Create Horizontal Pod Autoscaler Resource 12
Increase Horizontal Pod Autoscaler Limits 11

Configure Cluster Autoscaling in Kubernetes

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Demo of Kubernetes Cluster Autoscaler 6
Overview of Autoscaler Install and OIDC Setup 14
Install Kubernetes Cluster Autoscaler 13

Validate Kubernetes Cluster Autoscaler Functionality 8

Using Ingress Controllers with Kubernetes Clusters

Overview 1
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Secure Traffic in Kubernetes Clusters with Network Policy

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WEEK 5

151 min.

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Verify Connectivity from Client Pod to MySQL 7
Create Network Policy Resource for MySQL Pod 8
Use IPBlock Rules to Control Access to Pods 8
Using Egress Rules in Kubernetes Network Policy 9

Advanced Kubectl Command Line Usage

Overview 1
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Using Kubectl Exec to Debug Kubernetes Pods 9
Access Services in Kubernetes using Kubectl Port Forwarding 15
Filtering Resource Results and Controlling Output with Kubectl 8

Using Kubectl Kustomize to Apply Templates 9

Troubleshooting a Kubernetes Cluster

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Simulating Kubelet Failure on Kubernetes Worker Node 13
Exhausting Kubernetes Cluster Worker Node Resources 14

WEEK 6

Upgrade Kubernetes Clusters Provisioned with Kubeadm 157 min.

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Configure Kubernetes Cluster with Older Version 10
Upgrade Kubernetes Master Node 16
Upgrade Kubernetes Worker Nodes 12

Create Highly Available Kubernetes Cluster with Kubeadm

Overview 1
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Prepare Kubernetes Master Node Virtual Machines 8
Installing Kubeadm on Kubernetes Master Nodes 7
Configure Load Balancer for Kubernetes Master Nodes 8

Join Second Kubernetes Master Node to Cluster 11

Deploy Highly Available Etcd Cluster for Kubernetes

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Intro to Etcd for Kubernetes Clusters 11

Create Infrastructure for Etcd Cluster 8

Set Up Etcd Cluster Prerequisites 7

Generate Etcd Certificates and Configs 11

Install Etcd Static Pod Manifests for Kubelet 10

WEEK 7

80 min.

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Backup and Restore Commands for Etcd 6

Understanding Storage Volumes in Kubernetes

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Create a Kubernetes PersistentVolume using Amazon EBS Plugin 12

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Define Custom Storage Classes in Kubernetes 14