



KD100: Kubernetes and Docker Bootcamp I

UPDATE! This course now includes one free voucher for the Kubernetes & Docker Certification Exam (KCM100).

The KD100 is the perfect 2 day introductory course to get you started with both Docker and Kubernetes.

The course is broken up into lectures, labs and a hands-on certification test. This course requires students to be very familiar with the Linux command line.

The lectures provide an introduction to Docker and Kubernetes. Students will learn how to use Docker for developing, shipping, and running applications. Also, students will learn how to use Kubernetes to automate deployment, scaling, and management of containerized applications. The labs provide hands-on experience on:

- How to run a Docker container, build a new Docker image and configure it
- How to use docker-compose to streamline container development and testing
- How to use Kubernetes to deploy and manage a simple web application

The certification exam tests candidate's ability to create, configure, and manage containers using Kubernetes & Docker. The exam is completely hands-on with an allotted time of three hours. The course will prepare students for this certification exam.

Course Details

- Duration: 2 days
- Hours: 9:00 a.m. - 5:00 p.m.

Course Objectives

After completing this course students will understand:

- What is a container, how it differs from a virtual machine, and how to use containers to deliver software applications faster
- What is a container-runtime and how it differs from a container
- How to install Docker from scratch
- How to use Docker to run and manage containers
- How to build Docker images
- How to configure volumes and networks in Docker
- How to view and manage overlay filesystem
- What are microservices and how they differ from monolithic application
- What is container orchestration and why it is needed
- How to use docker-compose to run microservices
- How container orchestration systems help in management of microservices
- How to install a single node Kubernetes cluster from scratch
- How to create Kubernetes pods, deployments, and services
- How to manage containers
- How to discover and connect containers
- How to use Kubernetes to deploy a software application consisting of several components

Target Audience

- Software Developers
- Architects
- Deployment Engineers

Prerequisites

- Strong experience using Linux command line
- Understanding of the software development lifecycle
- A general understanding of virtualization concepts
- Experience with networking concepts
- Understand how a simple web application works

Labs Requirements

- Laptop with WiFi connectivity
- Web browser supporting HTML5
- SSH client

Course Syllabus

Day 1

Module 1

Introduction

Theory

- Course introduction
- Containers, containerized applications

Workshops

- Explore the classroom environment

Module 2

Introduction to Kubernetes

Theory

- Docker overview
- Images, containers, volumes, networks

Workshops

- Installing Docker
- Running a container
- Building an image

Module 3

Using Docker

Theory

- Best practices
- Image management, Docker Hub and Docker Registry
- Overlay Filesystem in Docker

Workshops

- Image management
- Docker Volumes
- Docker Networks
- Overlay Filesystem

Module 4

Container Orchestration

Theory

- Introduction to container orchestration
- Introduction to Kubernetes

Workshops

- Kubernetes installation and configuration

*Day 2***Module 5**

Kubernetes Concepts

Theory

- Pods, volumes, labels, annotation
- Deployments, services

Workshops

- Using Kubernetes

Module 6

Kubernetes in Production

Theory

- Working with Kubernetes in production

Workshops

- Workload deployment and management
- Creating and configuring containers
- Monitoring, logging and debugging containers
- Creating, deploying and running an application from scratch