

# Containers, Kubernetes, and Red Hat OpenShift Administration I

Learn via: **Classroom / Virtual Classroom / Online**

Duration: **5 Day**

## **Overview**

Through an introduction to Docker, Kubernetes, and Red Hat OpenShift Platform, this course helps you understand one of the key tenets of the DevOps movement: continuous integration and continuous deployment. Containers have become a key technology for the configuration and deployment of applications and microservices. Kubernetes is a container orchestration platform that provides foundational services in Red Hat OpenShift Container Platform, which allows enterprises to manage container deployments and scale their applications using Kubernetes.

In addition to gaining an understanding of these tools, you will build core administration skills through the installation, configuration, and management of an OpenShift cluster.

Course content summary

- Learn about container, Docker, and OpenShift architecture
- Create containerized services
- Manage containers and container images
- Create custom container images
- Deploy multi-container applications
- Install an OpenShift cluster
- Configure and manage masters and nodes
- Secure OpenShift
- Control access to resources on OpenShift
- Monitor and collect metrics on OpenShift
- Deploy applications on OpenShift using source-to-image (S2I)
- Manage storage on OpenShift

## **Audience**

- Developers who want to containerize software applications
- Administrators who are new to container technology and container orchestration
- Architects who are considering using container technologies in software architectures
- System administrators who want to learn more about OpenShift
- System architects who want to learn more about OpenShift
- Architects and developers who want to install and configure OpenShift

## **Prerequisites**

Prerequisites for {training}:

- Have ability to use a Linux terminal session and issue operating system commands
- Become a Red Hat Certified System Administrator (RHCSA) or demonstrate equivalent knowledge
- Have experience with web application architectures and their corresponding technologies

## **What You Will Learn**

As a result of attending this {training}, you should be able to install, configure, and manage a Red Hat OpenShift Container Platform cluster and deploy applications on it.

You should be able to demonstrate these skills:

- Install OpenShift Container Platform to create a simple cluster
- Configure and manage OpenShift masters and nodes
- Secure OpenShift with a simple internal authentication mechanism
- Control access to resources on OpenShift
- Deploy applications on OpenShift using source-to-image (S2I)
- Configure and manage OpenShift pods, services, routes, secrets, and other resources

## Impact on the organization

This {training} is intended to expose you to container and container orchestration technologies such as Docker, Kubernetes, and Red Hat OpenShift. You are taught how to containerize software applications and services. Containers are rapidly becoming a deployment technology of choice in organizations adopting DevOps principles and practices. Moving applications and services from traditional deployment platforms to container deployments make the applications deployable on a single clustered cloud architecture instead of many disparate sets of hardware configurations. Upon completion, you will have developed the skills needed to install, configure, and manage the Red Hat OpenShift Container Platform to deploy containerized applications that are highly available, resilient, and scalable. Red Hat OpenShift Container Platform enables rapid application development and deployment, as well as portability of an application across environments. The platform also offers simplified application scaling, administration, and maintenance of adapted or cloud-native applications.

Red Hat has created this course in a way intended to benefit our customers, but each company and infrastructure is unique, and actual results or benefits may vary.

## Outline

### Describe container technology

Describe how software can run in containers orchestrated by the OpenShift Container Platform.

### Create containerized services

Provision a server using container technology.

### Manage containers

Manipulate pre-built container images to create and manage containerized services.

### Manage container images

Manage the life cycle of a container image from creation to deletion.

### Create custom container images

Design and code a Dockerfile to build a custom container image.

### Deploy multi-container applications

Deploy applications that are containerized using multiple container images.

### Install OpenShift Container Platform

Install OpenShift and configure the cluster.

### Explore OpenShift networking concepts

Describe and explore OpenShift networking concepts.

### Deploy containerized applications on OpenShift

Deploy single container applications on OpenShift Container Platform.

### Deploy multi-container applications on OpenShift

Deploy applications that are containerized using multiple container images on an OpenShift cluster.

### Execute commands

Execute commands using the command-line interface.

### Control resource access

Control access to OpenShift resources.

### Allocate persistent storage

Implement persistent storage.

### Manage application deployments

Manipulate resources to manage deployed applications.

### Install the metrics subsystem

Install and configure the metrics gathering system.

### Manage OpenShift Container Platform

Manage and monitor OpenShift resources and software.