

## [DO295]: Containers, Kubernetes, and Red Hat OpenShift Development II

Length : 5 days  
Delivery Method : Instructor-led (Classroom)

### Course Overview

#### Accelerated hands-on training to boost developer productivity powered by Red Hat OpenShift

Containers, Kubernetes, and Red Hat OpenShift Development II (DO295) teaches you how to design, build, and deploy containerized software applications to an OpenShift® cluster. Whether you are tasked with writing container-native applications or migrating existing brownfield applications, this course provides hands-on training to boost developer productivity powered by Red Hat OpenShift.

### Course Summary

- Explore container and OpenShift architecture
- Create containerized services
- Manage containers and container images
- Build custom container images
- Manage and trigger application builds
- Customize an existing source-to-image base image
- Develop an OpenShift template
- Generate health checks to monitor and improve application reliability

### Audience for this course

- Developers who wish to containerize software applications.
- Administrators who are new to container technology and container orchestration.
- Architects who are considering using container technologies in software architectures.
- Site reliability engineers who are considering using Kubernetes and OpenShift.

### Technology requirements

- Internet access is required for this course in order to access the OpenShift shared and dedicated clusters.

### Recommended skills

- Be able to use a Linux terminal session, issue operating system commands, and be familiar with shell scripting
- Have experience with web application architectures and their corresponding technologies
- Being a Red Hat Certified System Architect is recommended, but not required

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## Impact on the organization

Containers are a key technology for the configuration and deployment of applications and microservices, and containers and OpenShift have quickly become the de facto solution for agile development and application deployment. Administrators and developers are seeking ways to improve application time-to-market for minimum viable products. This course provides the gateway to organizational and digital transformation by providing an understanding of the potential of DevOps using a container-based architecture. Orchestrated with Kubernetes and OpenShift, a container-based architecture improves application reliability and scalability, while decreasing developer overhead and facilitating continuous deployment.

## Impact on the individual

As a result of attending this course, you will understand the fundamental concepts behind containerizing, scaling, deploying, and managing applications on Red Hat OpenShift Container Platform, which is a containerized application platform that allows enterprises to manage container deployments and scale their applications using Kubernetes.

You should be able to demonstrate these skills:

- Design container images to containerize applications.
- Customize application builds and implement post-commit build hooks.
- Create a multicontainer application template.
- Implement health checks to improve system reliability.

## Course Outline

### Module 1: Introduction to container technology

#### Lessons

- Describe how software can run in containers orchestrated by Red Hat OpenShift Container Platform.

### Module 2: Create containerized services

#### Lessons

- Provision a server using container technology.

### Module 3: Manage containers

#### Lessons

- Manipulate prebuilt container images to create and manage containerized services.

### Module 4: Manage container images

#### Lessons

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

### Module 5: Create custom container images

#### Lessons

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

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## **Module 6: Deploy containerized applications on OpenShift**

### **Lessons**

- Deploy single container applications on OpenShift Container Platform.

## **Module 7: Troubleshoot containerized applications**

### **Lessons**

- Troubleshoot a containerized application deployed on OpenShift.

## **Module 8: Deploy and manage applications on an OpenShift cluster**

### **Lessons**

- Use various application packaging methods to deploy applications to an OpenShift cluster, then manage their resources.

## **Module 9: Design containerized applications for OpenShift**

### **Lessons**

- Select a containerization method for an application and create a container to run on an OpenShift cluster.

## **Module 10: Publish enterprise container images**

### **Lessons**

- Create an enterprise registry and publish container images to it.

## **Module 11: Build applications**

### **Lessons**

- Describe the OpenShift build process, then trigger and manage builds.

## **Module 12: Customize source-to-image (S2I) builds**

### **Lessons**

- Customize an existing S2I base image and create a new one.

## **Module 13: Create applications from OpenShift templates**

### **Lessons**

- Describe the elements of a template and create a multicontainer application template.

## **Module 14: Manage application deployments**

### **Lessons**

- Monitor application health and implement various deployment methods for cloud-native applications.

## **Module 15: Perform comprehensive review**

### **Lessons**

- Create and deploy cloudnative applications on OpenShift.

**Note:** Course outline is subject to change with technology advances and as the nature of the underlying job evolves. For questions or confirmation on a specific objective or topic, please contact [enquiries@avantustraining.com](mailto:enquiries@avantustraining.com).

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