

**OpenShift Administration**

**Course Number:** DVOP-130  
**Duration:** 3 days

**Overview**

This OpenShift Administration training course teaches attendees how to install and manage an OpenShift cluster.

**Prerequisites**

Attendees will need a working knowledge of Linux systems administration skills. Prior knowledge of containerization is helpful but not required.

**Materials**

All students will receive comprehensive courseware.

**Software Needed on Each Student PC**

A complete remote environment is included for each student with the class. You will need Internet access, a modern web browser, and an SSH client to access the environment.

**Objectives**

* Learn how to install and manage an OpenShift cluster
* Manage application lifecycle on the OpenShift platform
* Configure OpenShift networking and storage
* Create scheduled jobs
* Secure an OpenShift cluster
* Log and monitor an OpenShift cluster
* Manage application deployments
* Understand OpenShift commands

**Outline**

* Installation and Core Concepts
  + OCP 4.x Installation
  + Demo: Installing OpenShift on AWS
  + Kubernetes Architecture
  + Cluster Communication
  + Objects
  + Object Properties
  + Labels & Selectors
  + Annotations
  + Object Management
  + Image Fundamentals
  + Container Fundamentals
  + Pod Fundamentals
  + Working With Pods
  + OpenShift Overview
  + Demo: Configuring an Identity Provider
  + Demo: OpenShift Web Console
  + Lab Tasks
    - Container And Pod Fundamentals
    - Pod Fundamentals
    - OpenShift CLI Basics
    - OpenShift GUI Basics
* Application Lifecycle Management
  + Pod Lifecycle
  + Container Lifecycle
  + Init Containers
  + Container: Command and args
  + Container: Defining Environment
  + ReplicaSet
  + Deployments
  + Working With Deployments
  + Deployment Rollouts
  + Demo: Sock Shop Microservice on OpenShift
  + Lab Tasks
    - Pod Lifecycle
    - Init Containers
    - Deployments
    - Scaling Workloads
* Networking
  + Network Overview
  + OpenShift Networking
  + Service Discovery & CoreDNS
  + Container Network Interface (CNI)
  + Services
  + Ingress Objects
  + Demo: Installing A Valid SSL Certificate
  + Lab Tasks
    - Port-Forwarding
    - Services
    - OpenShift Routes
* Storage
  + Storage
  + Volume Types
  + Static Volumes (Demo)
  + ConfigMaps
  + Secrets
  + OpenShift Container Storage
  + Lab Tasks
    - Demo: Static Volumes
    - Demo: GUI - Deploy Gitlab with Persistent Storage
    - Demo: CLI - Deploy Gitlab with Persistent Storage
    - Demo: ConfigMaps & Secrets
    - Static Volume Provisioning
    - ConfigMaps And Secrets
* Scheduling
  + Controlling And Tracking Resources
  + Scheduler Operation
  + DaemonSet
  + Node Affinity & Anti-Affinity
  + Pod Affinity & Anti-Affinity
  + Taints & Tolerations
  + Lab Tasks
    - Demo: Affinity and Taints
    - Pod Resources and Scheduling
    - Static Scheduling and DaemonSets
    - Pod And Node Affinities
* Security
  + Controlling Access To The Kubernetes API
  + Kubectl Configuration
  + Role-Based Access Control
  + Service Accounts
  + Admission Controllers
  + PodSecurityPolicy
  + Admission Controller
  + Default Admission Controllers
* Logging
  + Logging Basics
  + Aggregated Cluster Logging
  + Lab Tasks
    - Demo: Cluster Logging
* Jobs And Cronjobs
  + Jobs
  + Cronjobs
  + Lab Tasks
    - Jobs
    - Cronjobs
* Linux Containers
  + Application Management Landscape
  + Application Isolation
  + Resource Measurement and Control
  + Container Security
  + OverlayFS Overview
  + Container Security
  + Open Container Initiative
  + Lab Tasks
    - Container Concepts runC