

**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