# Enterprise Kubernetes Storage with Red Hat OpenShift Data Foundation (DO370) Training

Duration: **5 Day**

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## Overview

Learn the essential skills to **design, implement, and manage storage for Kubernetes environments** using **Red Hat OpenShift Data Foundation (ODF)**.

Traditional storage solutions in Kubernetes environments are often limited in scalability and flexibility. Red Hat OpenShift Data Foundation provides a unified, cloud-native storage layer that integrates seamlessly with OpenShift — supporting **file, block, and object storage** for containerized workloads.

This {*training} teaches administrators how to deploy, configure, monitor, and manage OpenShift Data Foundation clusters to deliver **high-performance, resilient, and scalable storage** for enterprise applications. It also introduces modern data protection and disaster recovery practices using **Kubernetes CSI and OADP APIs**.

> *This course is based on Red Hat OpenShift Data Foundation.*

## Who Should Attend

This course is designed for:

- **Primary Audience:** Platform Administrators, System Administrators, and Cloud Infrastructure Engineers managing storage and container platforms.
- **Secondary Audience:** Enterprise Architects, DevOps Engineers, and Site Reliability Engineers designing application infrastructure for hybrid and cloud-native environments.

## What You Will Learn

By the end of this {*training}, you will have gained knowledge and skills in the following areas:

- Describe the **architecture and features** of Red Hat OpenShift Data Foundation.
- **Install and configure** ODF on an OpenShift cluster using internal mode.
- Select and tune **storage classes** based on application performance and capacity requirements.
- Configure **OpenShift services** (Monitoring, Registry, and Logging) to use ODF storage.
- Enable **object storage access** for containerized workloads.
- Implement **backup and restore operations** using Kubernetes CSI and OADP APIs.
- Monitor **cluster health and performance metrics** for ODF.
- Identify and troubleshoot **Ceph components** and common failure scenarios.

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## Impact on the Organization

Modern enterprises increasingly depend on **persistent storage for containerized workloads**. With **Red Hat OpenShift Data Foundation**, organizations can:

- Automatically provision storage tailored to specific workload needs.
- Achieve **data resiliency and high availability** for business-critical apps.
- Unify storage management across hybrid and multicloud environments.
- Reduce complexity by integrating storage natively within OpenShift.

This course equips teams to efficiently support digital transformation initiatives and accelerate application deployment through **automated, cloud-native storage provisioning**.

## Impact on the Individual

After completing this course, participants will:

- Understand how to deploy ODF using on-premises or cloud-based storage backends.
- Be able to select and configure storage classes that match application needs.
- Monitor and scale storage capacity proactively.
- Create, clone, and restore persistent volumes using Kubernetes-native tools.

Professionals will gain the practical skills to **provision, manage, and optimize enterprise-grade Kubernetes storage** within Red Hat OpenShift environments.

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## Outline

**1. Architecture Overview and Deployment of OpenShift Data Foundation (Internal Mode)**
Understand ODF architecture, deployment options, and install ODF on OpenShift using internal mode.

**2. Configuring Application Workloads for File and Block Storage**
Provision and connect applications to ODF-backed file and block storage classes.

**3. Configuring Application Workloads for Object Storage**
Configure applications to use object storage via ODF's S3-compatible API.

**4. Configuring OpenShift Cluster Services**
Integrate OpenShift services like Monitoring, Image Registry, and Logging with ODF storage.

**5. Backup and Restore of Kubernetes Block and File Volumes**
Implement backup and recovery strategies using Kubernetes CSI snapshots and OADP.

**6. Monitoring OpenShift Data Foundation**
Monitor ODF performance metrics, storage capacity, and health status.

**7. Managing Storage Capacity with ODF**
Expand or optimize cluster capacity dynamically to meet growing data demands.

**8. Troubleshooting OpenShift Data Foundation**
Diagnose and resolve common Ceph-related or storage-layer issues.