# Red Hat OpenShift Virtualization Administration II: Configuring Production Virtual Machines (DO256) Training

Duration: **3 Day**

BILGINÇ IT Academy
info@bilginc.com
bilginc.com

## Overview

**Build production-ready virtual machines and configure the Kubernetes and OpenShift resources required to support them with Red Hat OpenShift Virtualization.**

Red Hat OpenShift Virtualization Administration II: Configuring Production Virtual Machines (DO256) is an advanced course focused on configuring and managing virtual machines for production environments with Red Hat OpenShift Virtualization.

The course provides IT operations teams with the skills required to enable advanced networking for virtual machines and cluster nodes, migrate existing virtual machines from other hypervisors to OpenShift Virtualization, and implement backup and data protection processes for virtualized workloads.

Participants also learn how to establish standardized and efficient VM provisioning processes, control virtual machine placement across cluster nodes with Kubernetes resources, and implement high availability configurations designed to keep virtual machines resilient during failures, planned maintenance, and cluster upgrades.

### Benefits for Organizations

OpenShift Virtualization enables organizations to manage virtualized and containerized workloads through the same Red Hat OpenShift orchestration and clustering infrastructure.

By bringing these workloads under a common management platform, organizations can reduce operational complexity and achieve potential operational savings while integrating existing virtual machine workloads into modern OpenShift environments.

### Benefits for Participants

After completing DO256, IT professionals should be able to deploy and manage production-ready virtualized workloads on Red Hat OpenShift.

Participants will develop the skills required to:

- Configure authentication and authorization for VM access.
- Implement advanced virtual machine networking.
- Migrate existing VMs from traditional hypervisors to OpenShift Virtualization.
- Establish backup and restore processes for virtual machines.
- Create standardized resources for efficient VM provisioning.
- Manage VM scheduling and workload distribution.
- Implement high availability configurations for production virtual machines.

### Recommended Next Courses and Certification

After DO256, participants may consider:

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- **Red Hat Certified Specialist in OpenShift Virtualization Exam (EX316)**

Virtual Machine Administrators working with OpenShift Virtualization can also benefit from deeper Kubernetes and OpenShift administration skills. Recommended courses include:

- **Red Hat OpenShift Administration I: Operating a Production Cluster (DO180)** – Recommended for deploying and managing workloads in OpenShift clusters.
- **Red Hat OpenShift Administration II: Configuring a Production Cluster (DO280)** – Recommended for OpenShift project security and resource management.
- **Red Hat OpenShift Administration III: Scaling Kubernetes Deployments in the Enterprise (DO380)** – Recommended for more advanced cluster and node management.
- **Enterprise Kubernetes Storage with Red Hat OpenShift Data Foundation (DO370)** – Recommended for advanced OpenShift storage management.
- **Red Hat OpenShift Installation Lab (DO322)** – Recommended for hands-on OpenShift cluster installation and configuration experience.

## Prerequisites

Participants are recommended to:

- Complete Red Hat's free skills assessment to determine whether the course matches their current experience level,
- Complete **Red Hat OpenShift Virtualization Administration I: Operating Virtual Machines (DO156)**.

Linux skills are not specifically required to manage OpenShift clusters or OpenShift Virtualization itself. However, administration of the operating system inside individual Linux virtual machines requires Linux system administration knowledge. The following courses provide these skills:

- **Red Hat System Administration I (RH124)**
- **Red Hat System Administration II (RH134)**

## Who Should Attend

This course is designed primarily for:

- **Virtual Machine Administrators** planning to migrate workloads from traditional hypervisors to OpenShift Virtualization,
- **Platform Engineers** supporting virtualized workloads,
- **Cloud Administrators**,
- **System Administrators**.

The course is suitable both for teams managing virtualized workloads independently and for teams running virtual machines alongside containerized workloads within the same OpenShift cluster.

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## What You Will Learn

During DO256, participants will:

- Understand OpenShift OAuth server concepts and custom resources and their role in Kubernetes authentication.
- Define and implement Role-Based Access Control (RBAC) and user permissions.
- Enable advanced and flexible networking for OpenShift nodes and virtual machines.
- Migrate virtual machines from other hypervisors to Red Hat OpenShift Virtualization using the Migration Toolkit for Virtualization (MTV) operator.
- Back up and restore virtual machines using the OpenShift APIs for Data Protection (OADP) operator.
- Create and manage custom instance types, templates, and boot sources for VM provisioning.
- Control virtual machine placement on cluster nodes using Kubernetes resources.
- Rebalance VM workloads across cluster nodes by enabling descheduler evictions.
- Configure highly available virtual machines that remain resilient during failures, planned maintenance, and cluster upgrades.

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## Outline

### Authentication and Authorization for OpenShift Virtualization Virtual Machines

Explore OpenShift OAuth server concepts and related custom resources and understand their role in Kubernetes authentication. Define user permissions and implement Role-Based Access Control for virtualized environments.

### Advanced Networking for Virtual Machines in OpenShift Virtualization

Enable comprehensive and flexible networking capabilities for both cluster nodes and virtual machines within an OpenShift environment.

### Migrating Virtual Machines to Red Hat OpenShift Virtualization

Use the Migration Toolkit for Virtualization (MTV) operator to migrate existing virtual machines from other hypervisor environments to Red Hat OpenShift Virtualization.

### Backing Up and Restoring Virtual Machines

Use the OpenShift APIs for Data Protection (OADP) operator to create virtual machine backups and restore virtual machines when required.

### Creating Custom Instance Types, Templates, and Boot Sources

Create and manage custom instance types, templates, and boot sources to establish more efficient and standardized virtual machine provisioning processes.

### Controlling Virtual Machine Scheduling

Use Kubernetes resources to control virtual machine placement across cluster nodes. Enable descheduler evictions to rebalance VM workloads between available nodes.

### Configuring High Availability for Virtual Machines

Configure Kubernetes resources to implement highly available virtual machines that can remain resilient during system failures, planned maintenance operations, and cluster upgrades.