



Red Hat OpenShift Essentials & Advanced DevOps Automation Training

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Course Overview:

"Red Hat OpenShift Fundamentals & Advanced DevOps Automation" is an intensive 5-day training program that empowers IT professionals, DevOps engineers, and developers to master OpenShift from the ground up. This course blends foundational theory with hands-on practice. Participants will explore the OpenShift Kubernetes platform, learn OpenShift administration and development, deploy containerized applications, integrate CI/CD pipelines with Tekton, configure security using RBAC and SCCs, and manage services like Service Mesh, Knative, and GitOps. From understanding BuildConfigs to debugging with Prometheus and deploying via Devfiles, the course offers a complete pathway for OpenShift mastery.

Target Audience:

- DevOps Engineers
- Kubernetes Administrators
- Application Developers
- Platform Engineers
- Site Reliability Engineers SREs
- IT Infrastructure Specialists

Targeted Organizational Departments:

- IT Operations
- Software Development
- DevOps & Automation
- Cybersecurity
- Cloud Infrastructure Teams
- Quality Assurance and Testing

Targeted Industries:

- Technology & Software
- Banking & Finance
- Government & Public Sector
- Telecommunications
- Energy & Utilities
- Healthcare & Pharmaceuticals

Course Offerings:

By the end of this course, participants will be able to:

- Understand the architecture and core components of OpenShift Kubernetes platform
- Deploy and manage applications using DeploymentConfig, BuildConfig, and templates
- Use the OpenShift oc CLI and odo CLI for automation and app management
- Implement CI/CD pipelines with Tekton for continuous deployment with OpenShift
- Configure Role-Based Access Control RBAC and Security Context Constraints SCCs
- Monitor, log, and debug applications using Prometheus, Elasticsearch, and Kibana
- Leverage Red Hat Developer Sandbox and OpenShift Local for development and testing
- Deploy microservices and serverless applications using Service Mesh and Knative

Training Methodology:

This course combines instructor-led training with practical labs, real-world case studies, and guided walkthroughs. Participants will execute live exercises involving BuildConfig creation, RBAC configuration, and CI/CD deployment. Activities simulate collaborative DevOps workflows, while reflection sessions solidify learning. Discussions around OpenShift CRDs, GitOps, Helm templates, and the Twelve-Factor App methodology provide both strategic and technical insights.

Course Toolbox:

- Red Hat OpenShift Developer Sandbox Free Tier
- OpenShift Local CRC Setup
- oc CLI and odo CLI tools
- Tekton CI/CD Pipelines and tkn CLI
- Devfile and Dev Spaces
- Sample GitHub/GitLab repositories for deployment
- YAML/Helm Templates and Operators Examples only
- Example logs, dashboards Prometheus, Kibana, and alerts
- Guided practice scripts installation, scaling, debugging

The course gives insights and examples of these tools, but does not include any commercial licenses or paid **Note:** software.

Course Agenda:

Day 1: Introduction to OpenShift & Architecture Essentials

- What is Red Hat OpenShift and how it extends Kubernetes **Topic 1:**
- Understanding OpenShift Projects vs Namespaces **Topic 2:**
- Custom Resource Definitions: DeploymentConfig vs Deployment **Topic 3:**
- Using oc and odo CLI tools effectively **Topic 4:**
- Setting up OpenShift Local CRC and Red Hat Sandbox **Topic 5:**
- Accessing the web console and CLI simultaneously **Topic 6:**
- OpenShift concepts recap and practical exercises discussion **Reflection & Review:**



Day 2: Application Deployment, BuildConfig, and Registry

- Creating and managing BuildConfigs Topic 1:
- Using OpenShift Source-to-Image S2I build system Topic 2:
- Deploying from Git and managing container image registry Topic 3:
- Debugging deployments with odo CLI and Devfile Topic 4:
- OpenShift application templates and automated provisioning Topic 5:
- Role of OpenShift image streams and automated rebuilds Topic 6:
- Build and deployment workflows overview Reflection & Review:

Day 3: CI/CD Automation with Tekton Pipelines

- Understanding Tekton and installing OpenShift Pipelines Topic 1:
- Creating pipelines, tasks, workspaces, triggers Topic 2:
- Using EventListeners and Webhooks for continuous deployment Topic 3:
- Deploying CI/CD pipelines via YAML and Web Console Topic 4:
- GitOps and version-controlled deployments Topic 5:
- Using tkn CLI and Visual Studio Code extensions Topic 6:
- Pipeline design feedback and use case review Reflection & Review:

Day 4: OpenShift Security and Access Management

- Configuring users, roles, and service accounts RBAC Topic 1:
- Understanding and applying Security Context Constraints SCCs Topic 2:
- Secure container deployment best practices Topic 3:
- OpenShift compliance, image validation, and UBI images Topic 4:
- Managing application secrets and config maps securely Topic 5:
- OpenShift policy and audit log usage Topic 6:
- Role-based access simulation and audit logs Reflection & Review:

Day 5: Monitoring, Serverless, and Advanced OpenShift

- Application logging with Kibana and Elasticsearch Topic 1:
- Monitoring containers using Prometheus and Grafana Topic 2:
- Scaling applications manually, horizontally, and vertically Topic 3:
- Deploying serverless apps using Knative Topic 4:
- Service Mesh integration with Istio for microservices Topic 5:
- Advanced automation using OpenShift Operators and Helm Topic 6:
- Final project showcase and course wrap-up Reflection & Review:

FAQ:

What specific qualifications or prerequisites are needed for participants before enrolling in the course?

Participants should have basic knowledge of containers, Docker, Kubernetes, and Git.

How long is each day's session, and is there a total number of hours required for the entire course?

Each day's session is generally structured to last around 4-5 hours, with breaks and interactive activities included. The total course duration spans five days, approximately 20-25 hours of instruction.

How is OpenShift different from vanilla Kubernetes and why is it relevant for enterprise use?

OpenShift builds on Kubernetes by offering enhanced security, integrated DevOps tools, visual management consoles, and enterprise-ready CRDs, making it ideal for secure, scalable, and compliant environments.

How This Course is Different from Other Red Hat OpenShift Training Courses:

This course delivers an end-to-end DevOps experience based on real-world needs. It combines beginner and advanced modules, practical CLI usage oc/odo, free access to Red Hat Developer Sandbox, and advanced topics like Service Mesh, Tekton CI/CD, GitOps, and Knative. Security and monitoring are not optional add-ons but integral to the training, ensuring participants walk away with a holistic understanding. Whether you're deploying microservices, securing clusters with RBAC, or scaling apps with Prometheus, this course transforms OpenShift theory into enterprise-grade action.



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WHO WE ARE

Agile Leaders is a renowned training center with a team of experienced experts in vocational training and development. With 20 years of industry experience, we are committed to helping executives and managers replace traditional practices with more effective and agile approaches.

OUR VISION

We aspire to be the top choice training provider for organizations seeking to embrace agile business practices. As we progress towards our vision, our focus becomes increasingly customer-centric and agile.

OUR MISSION

We are dedicated to developing value-adding, customer-centric agile training courses that deliver a clear return on investment. Guided by our core agile values, we ensure our training is actionable and impactful.

WHAT DO WE OFFER

At Agile Leaders, we offer agile, bite-sized training courses that provide a real-life return on investment. Our courses focus on enhancing knowledge, improving skills, and changing attitudes. We achieve this through engaging and interactive training techniques, including Q&As, live discussions, games, and puzzles.



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