Red Hat Training and Certification

AD221
Cloud-native Integration with Red Hat Fuse and Apache Camel

Red Hat Fuse, based on the Apache Camel project, is a lightweight, flexible integration platform that enables rapid integration of cloud-native applications, both on-premise and in the cloud.

Camel development is organized around:

- Routes that define a sequence or flow of processing.
- Processors that transform, interpret, and modify messages within a Camel route.
- Components that enable the creation of endpoints that interact with the outside world for acquiring and transmitting data.

Cloud-native Integration with Red Hat Fuse (AD221) emphasizes learning architectural patterns and implementing integration services based on Apache Camel and OpenShift. Camel and Red Hat Fuse enable developers to create complex integrations in a simple and maintainable format. You will learn how to use the most common integration components in Camel and develop, test, and deploy integration focused applications on OpenShift. This course is based on Red Hat Fuse 7.10 and OpenShift 4.

Course content summary

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- Deploy Fuse applications on Red Hat OpenShift Container Platform
- Implement REST APIs with the Camel REST DSL
- Implement unit tests, error handling, and mocks for Camel routes
- Implement Enterprise Integration Patterns (EIP) using Camel components
- Integrate Camel applications with a database
- Integrate Camel applications with Apache Kafka
- Integrate Cloud-native services using Camel K
- Consume REST services using the Camel HTTP component

Audience for this course

- This course is designed for Java developers focused on implementing integration solutions in an enterprise.

Prerequisites for this course

- Experience with Java application development or Red Hat Application Development I: Programming in Java EE (AD183).
- Be proficient in using an IDE such as Visual Studio Code.
- Experience with Maven and version control is recommended, but not required.
- Experience with Red Hat OpenShift or Introduction to OpenShift Applications (DO101) is recommended, but not required.

Outline for this course

- **Introduction to Red Hat Fuse and Camel**
  Describe the architecture of Red Hat Fuse and Camel and how they are used to integrate applications.
- **Create Camel routes**
  Implement Camel routes and develop custom processors
- **Implement enterprise integration patterns**
  Describe the most commonly used enterprise integration patterns and implement them using Camel components.
- **Create tests for routes and error handling**
  Develop reliable routes by creating unit tests and mocks, and by handling errors**.**
- **Integrate services using asynchronous messaging**
  Integrate microservices using Apache Kafka and ActiveMQ (JMS)
- **Implement transactions**
  Provide data integrity in route processing by implementing transactions.
- **Build and consume REST services**
  Implement and consume REST services with Camel.
- **Integrate cloud-native services**
  Deploy cloud-native microservices based on Camel Routes and Camel K components to an OpenShift cluster

Impact on the Individual

As a result of taking this course, you will have a strong understanding of fundamental Camel concepts, commonly used Camel components and their configurations, and Camel deployment options. You will also develop a thorough grasp of enterprise integration patterns to solve integration problems.

You will be able to demonstrate these skills:

- Develop Camel routes to integrate systems such as JMS, FTP, Databases, and REST services.
- Filter and transform messages to create integration routes that are highly reliable.
- Develop tests and use mock components to thoroughly test routes.
- Create reliable routes by implementing transactional routes that prevent data loss.
- Deploy Camel routes to Red Hat OpenShift Container Platform.

Course reference https://www.redhat.com/en/services/training/ad221-cloud-native-integration-with-red-hat-fuse?section=overview