

Master Enterprise Integration with Apache Camel and Spring Boot. Learn to build, test, and deploy robust integration solutions using Camel's EIPs, Spring Boot, and advanced features like Kamelets, dynamic routing, REST services, and messaging middleware. Perfect for developers aiming to simplify microservices and enterprise integrations.

Learning Objectives

Introduction

- Discuss **EAI** (Enterprise Application Integration)
- Role of **EIP** (Enterprise Integration Patterns)
- List and discuss **key patterns** (real-world examples of each pattern)

Introduction to Camel

- Camel as a EAI and **EIP platform**
- Camel history from **ESB** to **MSA**
- Introduce of **Camel terms** (Components, DSL, Routes, Endpoints, Data Formats, ...)
- Understand the **Camel Context**
- Discuss the various **Embedded DSL** options (Java, XML, ...)
- Explore Camel **Architecture and Core Concepts**
- Develop a good understanding of **Exchange & Message**
- Using Camel **JBang**
- Overview of platforms: **Camel Quarkus**, kubernetes **CamelK** and OSGI **Karaf**

Camel Spring Boot

- Understand the integration with **Spring Boot*
- Explore the **Spring Boot starter** for Camel
- Configure routes using **properties/application.yml**
- Leveraging **Spring's Dependency Injection (DI)** in Routes
- Develop and deploy Camel applications as **Spring Boot microservices**
- Utilize **Spring Boot Actuator** for monitoring routes
- Integrate with **Spring Transactions**

Testing with Camel and Spring Boot

- Discuss building tests with Camel
- Use **Templates** to produce/consume messages
- **Mocking** components
- Using **Interceptors**
- Building **Integration Tests**
- **Best practices** for Test Automation in Camel

Develop Camel Routes

- Understand the relation between **Components and Endpoints**
- Defining the context **programmatically** or Using **Spring**
- Explanation of the **eDSL syntax** (XML and Java)
- Use of the **YAML DSL**
- Discuss the various Message Exchange Patterns (MEP)
- The use of **Endpoint URIs**
- **Transforming Data**
- Implementing and using **dynamic routing, content-based routing and filtering**
- Deep dive into additional patterns (**Aggregator, Splitter, and Routing Slip, ...**)
- Implementing **REST services**
- Integrating with **Messaging Middleware** (JMS, Kafka, etc.)
- Throughout and **Parallel Processing**
- **Error Handling** and **Fault Tolerance**
- Implementing **retry** mechanisms and **dead-letter** channels

Kamelets Overview

- Introduction to **Kamelets**
- Understand the **role** of Kamelets in Camel integrations
- Explore the **Kamelet Catalog**
- Understand the concepts of **Source, Sink, and Action**
- **parameterized** Kamelets for dynamic routing