Publication date : 01/10/2024

Course : Apache Camel, implementation

Practical course - 3d - 21h00 - Ref. APC
Price : 1830 € E.T.

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In the JEE ecosystem, Apache Camel is the reference framework implementing enterprise architecture patterns. You will address the problems of enterprise application integration. You will implement an operational solution. You will master activity monitoring and error management.

Teaching objectives

At the end of the training, the participant will be able to:

- Identify situations justifying the use of EIP patterns.
- Master the architecture of the Apache Camel framework.
- Use Apache Camel's main endpoint components.
- Design efficient, robust roads.
- Transform messages.
- Static and dynamic message routing. Monitor route activity.

Intended audience

JEE developers, software architects, SOA project managers.

Prerequisites

Good knowledge of IS architectures and standard communication protocols. Good knowledge of the Java language. Knowledge of the Spring framework is a plus.

Practical details

Hands-on work

Implementation of a "red thread" case study to serve as a framework for all the practical work carried out.

Course schedule

PARTICIPANTS

JEE developers, software architects, SOA project managers.

PREREQUISITES

Good knowledge of IS architectures and standard communication protocols. Good knowledge of the Java language. Knowledge of the Spring framework is a plus.

TRAINER QUALIFICATIONS

The experts leading the training are specialists in the covered subjects. They have been approved by our instructional teams for both their professional knowledge and their teaching ability, for each course they teach. They have at least five to ten years of experience in their field and hold (or have held) decision-making positions in companies.

ASSESSMENT TERMS

The trainer evaluates each participant's academic progress throughout the training using multiple choice, scenarios, hands-on work and more.
Participants also complete a placement test before and after the course to measure the skills they've developed.

1 The challenges of enterprise integration

- Corporate integration styles.
- Service-oriented versus event-oriented architecture.
- Messaging style.
- Introduction to EIP.

Hands-on work

Appropriation of the case study.

2 The Apache Camel framework

- Camel and EIP.
- Message anatomy.
- Route components (exchange, endpoints, processor, router, transformer), Pipe and Filter model.
- Route implementation in Java DSL and Spring DSL (XML).
- Work on message content using scripting languages (simple, XPath, SpEL, etc.).
- Endpoint components: file, mail, ActiveMQ, JMS, direct.

Hands-on work

Route design: transfer files to JMS queues, distribute information by e-mail.

3 Transforming message content

- EIP Message Translator: the different techniques (Processor, Beans, DSL, Expressions).
- EIP Content Enricher: enrich versus pollEnrich.
- XML transformation: XSLT, marshaling / unmarsharling.
- Predefined format transformation components (csv, xml, json, zip, etc.).
- Transformation using templates (Velocity, Freemarker).
- Design your own converters.

Hands-on work

Transform the content of messages carried by previously created routes.

4 Endpoint and gateway components

- Camel components.
- Communication in memory (Direct, SEDA, VM), via web services (CXF, CXFRS, Restlet), asynchronous (JMS).
- Database access : JDBC, JPA.
- Periodic activation of routes : Timer, Quartz.
- Using gateways: CamelProxy and @Consume and @Produce annotations.

Hands-on work

Integration of existing applications, proxification of web services (SOAP and REST), use of gateways.

5 Message routing

- Message filtering and broadcasting.
- Static routing: content-based router, recipientList.
- Dynamic routing: routingSlip, dynamicRouter.
- Load balancing and failover.

Hands-on work

Implement routing strategies and load balancing.

TEACHING AIDS AND TECHNICAL RESOURCES

• The main teaching aids and instructional methods used in the training are audiovisual aids, documentation and course material, hands-on application exercises and corrected exercises for practical training courses, case studies and coverage of real cases for training seminars.
• At the end of each course or seminar, ORSYS provides participants with a course evaluation questionnaire that is analysed by our instructional teams.
• A check-in sheet for each half-day of attendance is provided at the end of the training, along with a course completion certificate if the trainee attended the entire session.

TERMS AND DEADLINES

Registration must be completed 24 hours before the start of the training.

ACCESSIBILITY FOR PEOPLE WITH DISABILITIES

Do you need special accessibility accommodations? Contact Mrs. Fosse, Disability Manager, at psh-accueil@orsys.fr to review your request and its feasibility.

6 Activity tracking and error management

- Route activity monitoring: Log and Wiretap, JConsole.
- Recoverable and non-recoverable errors, associated strategies.
- Predefined error handling: DefaultErrorHandler, DeadLetterChannel, LoggingErrorHandler.
- Redelivery after error.
- Exception handling: onException().

Hands-on work
Add metrics, message logging, error handling.

Dates and locations

REMOTE CLASS
2026 : 25 Mar., 24 June, 2 Nov.

PARIS LA DÉFENSE
2026 : 25 Mar., 24 June, 2 Nov.

METZ
2026 : 10 Feb.