Publication date : 02/21/2024

Course : Apache Kafka, centralizing data flows in real time

A unified message agent system

Practical course - 3d - 21h00 - Ref. AKU

Price : 2220 CHF E.T.

4,4 / 5

BEST

This training course will enable you to master the message agents of the Apache Foundation's Kafka open source project for handling low-latency, real-time data streams. You'll learn how to use ksqlDB, how to set up data security and Kafka's management tools.

Teaching objectives

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

- Understand the principles of inter-application communications
- Understanding Kafka's architecture
- Implementing ksqlDB
- Working safely with Kafka

Intended audience

Architects, project managers, developers, DevOps teams.

Prerequisites

Notions of enterprise application architectures, knowledge of network protocols, good knowledge of Java or other languages. Knowledge of Spring or Node.js is a plus.

Practical details

Hands-on work

Development of a red wire project linking several applications via Kafka.

Course schedule

PARTICIPANTS

Architects, project managers, developers, DevOps teams.

PREREQUISITES

Notions of enterprise application architectures, knowledge of network protocols, good knowledge of Java or other languages. Knowledge of Spring or Node.js 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 evolution of Kafka's IT systems and areas of use

- Enterprise application architectures: cloud, microservices, big data, elastic architectures, SOA.
- Communication between applications.
- Kafka's usefulness.
- Message brokers: producers, consumers, brokers.
- Comparisons between different brokers and Kafka.

2 Overview of Kafka

- Clusters.
- Brokers.
- Topics.
- Sheet music.
- Offsets.
- Introducing ZooKeeper and its new alternative KRaft.

Hands-on work

Install and configure kafka.

3 High-availability architecture

- Data replication and security: message consistency, broker failure management, log management.
- Broker cluster: set-up and configuration, monitoring, log management.
- Zookeeper cluster.
- Kafka Connect.
- Group and load management.

4 ksqlDB overview and ecosystem

- ksqlDB use cases: why ksqlDB, use case examples, ksqlDB and licensing.
- ksqlDB & Kafka.
- Interactive use of ksqlDB.
- ksqlDB architecture.
- ksqlDB CLI.
- ksqlDB server modes.

5 Using ksqlDB

- Streams and Tables.
- Kafka message and data formats.
- Data manipulation and aggregation.
- User-defined functions (UDF).
- Data enrichment and joins.
- Windowed operation.
- Metrics and observability.

Hands-on work

Use ksqlDB (data manipulation and aggregation).

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 Kafka Streams

- Anatomy of a Streams application.
- Setting up a Streams application.
- Topology of a Streams application.
- Stateless and Stateful operations.
- Kafka Streams DSL.
- Sliding window operations.
- Processor API.

7 Safety with Kafka

- SSL encryption.
- Configuration with SASL.
- Using LCDs.
- Security.

Hands-on work
Safety implementation.

8 Kafka tools

- Kafka management tools.
- Monitoring Kafka.
- Apache Avro.
- The "Schema Registry".
- Presentation of the Confluent platform: Differences with OpenSource.

Hands-on work
Monitor, monitor Kafka.

Dates and locations

REMOTE CLASS
2026 : 8 Apr., 4 May, 1 June, 16 Sep., 21 Oct.,
18 Nov., 16 Dec.