

## IBM Confluent Developer Skills for Building Apache Kafka

**Cursusduur: 3 Dagen    Cursuscode: DEVKAFKAG    Trainingsmethode: Virtual Learning**

### Beschrijving:

**Build, integrate, and architect real-time streaming applications using Apache Kafka and Confluent.**

Through interactive lessons and real-world exercises, you'll gain end-to-end expertise across the entire streaming pipeline covering client development, stream processing, and enterprise data governance. Several of the hands-on lab exercises in this course follow the story of building and upgrading a driver location app. Throughout the course concepts are applied directly to a working application. Exercises are available in Java, C# and Python. Exercises include: **Working with Kafka command line tools** **Producing driver location data to Kafka and consuming that data in real-time** **Refactoring the application to use Avro and Schema Registry** **Pulling the driver data into a Kafka Streams app to enrich it** **Extracting a table from an external database into Kafka using Kafka Connect** **Experimenting with semantic partitioning**

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Virtueel en Klassikaal™

Virtueel en Klassikaal™ is een eenvoudig leerconcept en biedt een flexibele oplossing voor het volgen van een klassikale training. Met Virtueel en Klassikaal™ kunt u zelf beslissen of u een klassikale training virtueel (vanuit huis of kantoor) of fysiek op locatie wilt volgen. De keuze is aan u! Cursisten die virtueel deelnemen aan de training ontvangen voor aanvang van de training alle benodigde informatie om de training te kunnen volgen.

### Doelgroep:

Application Developers and Architects who want to write applications that interact with Apache Kafka. The course treats Java as a first-class citizen, but students will derive value even if Java is not their primary programming language. C# and Python clients will also be used in some options for labs.

### Doelstelling:

- The lessons and activities in this course enable participants to build the skills to:
- Write Producers and Consumers to send data to and read data from Kafka
- Create schemas, describe schema evolution, and integrate with Confluent Schema Registry
- Integrate Kafka with external systems using Kafka Connect
- Write streaming applications with Kafka Streams
- Make design decisions about acks, keys, partitions, batching, replication, and retention policies

### Vereiste kennis en vaardigheden:

Attendees should be familiar with developing professional apps in Java (preferred), C#, or Python.

Additionally, a working knowledge of the Apache Kafka architecture is required for this course.

Participants are required to provide a laptop computer with unobstructed internet access to fully participate in the class.

### Examens en certificering

- None

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## Vervolgcurssussen:

■ *None recommended*

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### Cursusinhoud:

#### Introductory Concepts

- Configure your Kafka applications to connect to a Kafka cluster
- Distinguish between leaders and followers and work with replicas
- Explain what a segment is and explore retention
- Use the CLI to work with topics, producers, and consumers

#### Working with Producers

- Describe the work a producer performs, and the core components needed to produce messages
- Create producers and specify configuration properties
- Explain how to configure producers to know that Kafka receives messages
- Delve into how batching works and explore batching configurations
- Explore reacting to failed delivery and tuning producers with timeouts
- Use the APIs for Java, C#/.NET, or Python to create a Producer

#### Consumers, Groups, and Partitions

- Create and manage consumers and their property files
- Illustrate how consumer groups and partitions provide scalability and fault tolerance
- Explore managing consumer offsets
- Tune fetch requests
- Explain how consumer groups are managed and their benefits
- Compare and contrast group management strategies and when you might use each
- Use the API for Java, C#/.NET, or Python to create a Consumer

#### Schemas and the Confluent Schema Registry

- Describe Kafka schemas and how they work
- Write an Avro compatible schema and explore using Protobuf and JSON schemas
- Write schemas that can evolve
- Write and read messages using schema-enabled Kafka client applications
- Build an Avro Kafka producer or consumer in Python, Java or C# using Confluent Schema Registry

#### Streaming with Kafka Streams and Flink

- Develop an appreciation for what streaming applications can do for you back on the job
- Describe Kafka Streams and explore streams properties and topologies
- Compare and contrast streams and tables, and relate events in streams to records/messages in topics
- Write a Kafka Streams application using the Streams DSL (Domain-Specific Language)
- Detail Apache Flink's key capabilities and APIs, identifying their target use cases

#### Kafka Connect

- List the components of Kafka Connect and describe how they relate
- Set configurations for components of Kafka Connect
- Describe connect integration and how data flows between applications and Kafka
- Explore some use-cases where Kafka Connect makes development efficient
- Use Kafka Connect in conjunction with other tools to process data in motion in the most efficient way
- Create a Connector and import data from a database to a Kafka cluster

#### Design Decisions and Considerations

- Delve into how compaction affects consumer offsets
- Explore how consumers work with offsets in scenarios outside of normal processing behavior
- Understand how to manipulate offsets to deal with anomalies
- Evaluate decisions about consumer and partition counts and how they relate
- Address decisions that arise from default key-based partitioning and consider alternative partitioning strategies
- Configure producers to deliver messages without duplicates and with ordering guarantees
- List ways to manage large message sizes
- Describe how to work with messages in transactions and how Kafka enables transactions

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### Extra informatie:

Official course book provided to participants

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## Nadere informatie:

Neem voor nadere informatie of boekingen contact op met onze Customer Service Desk 030 - 60 89 444

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