

Apache Kafka – Course Outline

1 Duration

16 Hours (4 half days)

2 Objectives

This course provides good coverage of Apache Kafka (distributed messaging system). At end of this course, participants should

- Understand Messaging System Concepts
- Master Kafka Fundamentals, Architecture and it's components
- Able to Publish and Subscribe messages with Kafka

3 Audience

Developers and Data Engineers who are looking to use Kafka for messaging and build real time stream processing pipeline.

4 Pre-requisite

- General knowledge on messaging systems and concepts
- Knowledge on programming (preferably Java)
- Basic knowledge of Linux or Unix based systems
- Basic knowledge of data processing

5 Hardware & Network Requirements

- Desktop/Laptop with minimum 16GB RAM
- Proxy Free High speed internet connection (minimum 5 Mbps)

6 Software Requirements

- Windows or Linux or Mac
- JDK 11+
- Putty / SSH Client
- Eclipse latest version
- Docker Desktop / Engine

7 Outline

Day 1

Module-1: Introduction to Kafka

- Messaging Concepts
- Distributed Messaging System
- Kafka Overview
- Kafka Usecases
- Kafka Concepts
- Benefits and Limitations

Module-2: Kafka Installation and Setup

- Kafka Installation and Setup
- Kafka Configuration
- Kafka CLI Overview

Day 2

Module-3: Kafka Architecture and Components

- Kafka Design Considerations
- Kafka Architecture
- Zookeeper Overview
- Kafka Concepts and Components
 - Broker, Node, Cluster
 - Producer, Consumer, Consumer Group
 - Topic, Offset, Segment, Watermark
 - Partitioning
 - Replication
 - Durability
- Create Topic with Partitioning and Replication
- Produce/Consume messages using Kafka CLI

Day 3

Module-4: PubSub with Kafka API

- Kafka API Overview
- Kafka Producer Configuration
- Kafka Consumer Configuration
- Kafka Broker Configuration
- Write Java program to produce message to Kafka
- Write Java program to consume messages from Kafka

Day 4

Module-5: Kafka Advanced Concepts

- Creating Custom Partitioner
- Handling Transactions
- Handling Exceptions
- Log Compaction
- Kafka Monitoring
- Multi Broker Kafka cluster setup
- Kafka Streaming Overview
- Kafka Connect Overview