# Training Topic: Kafka Testing

**Number Of Hrs.:** 24 **Pax Level:** 1+ years

## Apache Kafka Training Objective

* Describe the architecture of Kafka.
* Explore Kafka producers and consumers for writing and reading messages.
* Understand publish-subscribe messaging and how it fits in the Data ecosystem.
* Explore how Kafka’s stream delivery capabilities make it a perfect source for stream processing systems.
* Know how to run Kafka as a cluster on one or more servers that can span multiple data centers.
* Use different tools to test the data coming in and out.

## Apache Kafka Training Audience

Anybody who wants to understand how messaging queue works and enterprise integration with messages.

## Apache Kafka Training Prerequisites

It is recommended to get experience in at least one of the programming languages such as Java Python or Scala. A general understanding of streaming and distributed computing technologies will be beneficial but not needed.

**Pre-requisite**

* GitHub
* Good to have introduction to containerization with Docker.
* Programming with Java
* Good to have Spring boot.
* Good to have conceptual knowledge ESB.

## Day 1

* Introduction to Big Data
* Key Challenges with Heterogeneous communication
* Big Data Analytics
* Need for Kafka
* What is Kafka?
* Kafka Features
* Kafka Concepts
* Kafka Architecture
* Kafka Components
* Zookeeper
* Where is Kafka Used?
* Kafka Installation
* Kafka Cluster
* Types of Kafka Clusters
* Constructing a Kafka Producer
* Sending a Message to Kafka
* Communicating when more than one consumer exists
* Producing Keyed and Non-Keyed Messages

## Day 2

* Commits and Offsets
* Rebalance Listeners
* Consuming Records with Specific Offsets
* Working with Kafka with Java Programming
* Configuring Producers with Java
* Configuring Consumers with Java
* Partitions with Java
* Subscribing to Topics
* Consumers and Consumer Groups
* Standalone Consumer
* Consumer Groups and Partition Rebalance
* The Poll Loop
* Configuring Consumers
* Serializers & Deserializers
* Cluster Membership
* The Controller
* Request Processing
* Topic Operations
* Consumer Groups
* Dynamic Configuration Changes
* Partition Management
* Consuming and Producing
* Working with Ack and testing
* Configuring Single Node Single Broker Cluster
* Configuring Single Node Multi Broker Cluster

## Day 3

* Seeding consumer data on File / DB and testing
* Setup a SpringBoot application, with API end point
* SpringBoot application to be integrated with kafka
  + Producer + Test
  + Consumer + Test
* Understanding and working on real time project
* Introduction to other formats of data passed in Kafka.
* Working with Selenium (Java) and testing data received from Kafka