

APACHE KAFKA



- **DURATION OF TRAINING :
32 HRS.**
- **BATCH TYPE :
WEEKDAYS/WEEKENDS**
- **MODE OF TRAINING :
CLASSROOM/ONLINE/COR
PORATE TRAINING**



The Confluent Certified Administrator for Apache Kafka certification tests the knowledge and skills needed to manage, monitor, and configure a Kafka ecosystem effectively. The exam covers a range of topics to ensure that certified administrators can operate Kafka clusters proficiently.

Here's an outline of the typical syllabus content for the Confluent Certified Administrator for Apache Kafka :

1. Kafka Basics

- Overview of Kafka architecture and components
- Understanding Kafka producers, consumers, topics, and partitions
- Key concepts: brokers, replication, and logs
- Differences between Kafka and traditional messaging systems

2. Kafka Installation and Configuration

- Setting up a Kafka cluster and ZooKeeper (or KRaft mode in newer versions)
- Configuration of brokers, producers, and consumers
- Important configuration parameters for performance tuning
- Data retention policies and log segment management

3. Cluster Management and Operations

- Adding, removing, and replacing brokers in a cluster
- Rebalancing partitions across brokers
- Handling broker failures and recovery
- Managing Kafka and ZooKeeper for high availability
- Upgrading Kafka clusters

4. Replication and Data Reliability

- In-synch replica (ISR) concept and unclean leader election
- Leader election and failover
- Configuring replication factors and replication settings
- Understanding acks and data durability

5. Kafka Security

- Configuring authentication and authorization (SSL, SASL)
- Kafka ACLs (Access Control Lists) for fine-grained access control
- Enabling encryption in-transit and at-rest
- Securing ZooKeeper

6. Monitoring and Troubleshooting

- Using Kafka metrics and monitoring tools (e.g., Confluent Control Center, Prometheus, Grafana)
- Key performance indicators (KPIs) to monitor Kafka health
- Troubleshooting common Kafka issues (e.g., consumer lag, broker issues)
- Log analysis and debugging

7. Data Retention and Management

- Configuring topic-level retention policies
- Compaction and deletion policies
- Segment configuration and log cleanup
- Managing o sets and dealing with consumer rebalances

8. Kafka Streams and Connect (Overview)

- Introduction to Kafka Streams API and Kafka Connect
- Basic configuration and management of connectors
- Integrating with external systems using Kafka Connect
- Simple use cases for Kafka Streams and transformations

9. Performance Tuning and Optimization

- Tuning Kafka for high throughput and low latency
- Key configuration settings for optimizing producer, consumer, and broker performance
- Hardware considerations (disk, memory, and network)
- Producer and consumer batching, compression, and acknowledgment settings

10. Backup and Disaster Recovery

- Backing up Kafka data and configurations
- Configuring multi-cluster replication with Confluent's Replicator or Mirror Maker
- Disaster recovery strategies and failover techniques

11. Kafka Ecosystem and Confluent Platform Overview

- Components of the Confluent Platform (Schema Registry, REST Proxy, KSQL, etc.)
- Basic usage of Schema Registry for schema management and evolution
- Using Confluent Control Center for management and monitoring



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