AVRO

Introduction to Avro

- Overview of Avro
- Importance and Use Cases of Avro
- Understanding Serialization and Deserialization
- Comparison with Other Serialization Formats

Avro Architecture

- Avro Data Types
- Avro Schemas
    - Primitive Types
    - Complex Types
    - Logical Types
- Schema Evolution and Compatibility

Avro Schemas

- Defining Avro Schemas
- Schema Declaration and Syntax
- Nested Schemas
- Schema Registry

Working with Avro

- Writing Avro Data
- Reading Avro Data
- Avro Tools and Utilities
- Integrating Avro with Big Data Ecosystems

Avro with Apache Kafka

- Using Avro with Kafka
- Schema Registry in Kafka
- Producing and Consuming Avro Messages
- Handling Schema Evolution in Kafka

Avro with Apache Hadoop

- Using Avro with Hadoop
- Writing Avro Data to HDFS
- Reading Avro Data from HDFS
- MapReduce with Avro Data

Avro with Apache Spark

- Using Avro with Spark
- Reading and Writing Avro Data in Spark
- Schema Handling in Spark
- Optimizing Avro Operations in Spark

Avro with Other Big Data Technologies

- Avro with Apache Hive
- Avro with Apache Pig
- Avro with Apache Flink
- Avro with Apache NiFi
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Serialization APIs

- Deserialization APIs
- Handling Different Data Formats
- Performance Tuning
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Advanced Avro Concepts

- Custom Data Types and Logical Types
- Avro IDL (Interface Definition Language)
- Avro with REST APIs
- Security and Access Control