

[DEV-305]: HDF Developer: Apache Storm and Trident

Length : 2 Days
 Delivery Method : Instructor-led (Classroom)

Course Overview

This course provides a technical introduction to the fundamentals of Apache Storm and Trident that includes the concepts, terminology, architecture, installation, operation, and management of Storm and Trident. Simple Storm and Trident code excerpts are provided throughout the course. The course also includes an introduction to, and code samples for, Apache Kafka. Apache Kafka is a messaging system that is commonly used in concert with Storm and Trident.

Audience Profile

Hadoop developers who need to be able to design and build Storm and Kafka applications using Java and the Trident API.

Pre-Requisites

Participants must have experience developing Java applications and using a Java IDE. Labs are completed using the Eclipse IDE and Gradle. Participants should have a basic understanding of Hadoop.

Formats

Lecture/Discussion	50%
Hands-on Labs	50%

Course Outline

Module 1: Real-Time Data Processing, Introduction to Storm Components, Installing and Configuring Storm

Lessons

- Identify Whether Storm Performs Batch or Real-Time Processing
- Recognize Differences Between Batch and Real-Time Processing
- List Reasons Why Companies Deploy Storm
- Describe Storm Use Cases
- Define the Terms Tuple, Stream, Topology, Spout, Bolt, Nimbus and Supervisor
- Diagram the Relationship Between a Supervisor, Worker Process, Executor and a Task
- Given the Java Code for a Topology, Diagram the Spout and Bolt Connections
- Define the Purpose of a Stream Grouping
- Perform a Storm Installation Using the Hortonworks Data Platform and Ambari
- Given a List of Storm Configuration Sources, Order them By Precedence
- Identify the Primary, Installation Specific Storm Configuration Files

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- Identify the URL Useful for Reading Storm Configuration Parameter Descriptions
- List Differences Between Storm Local Mode and Distributed Mode
- Identify Reasons to Use Storm Local Mode
- Given a JAR File Name and the Package Name of a Topology, Build the Storm Command Necessary to Submit the Topology to the Cluster
- Given a Topology Code Example, Describe the Spout and Bolt Connections in the Topology
- Identify the Purpose of the Multi-lang Protocol
- Identify the Differences Between Reliable and Unreliable Operation
- Diagram a Tuple Tree and Identify Its Branches
- List Three Methods to Disable Reliable Operation

Labs

- Configuring a Storm Development Environment
- Storm Word Count
- Using Storm Multi-lang Support
- Processing Log Files

Module 2: HBase Command Line Basics, HBase Installation and Configuration and HBase Schema Design

Lessons

- List Tool Used to Manage and Monitor Storm
- Display Online Help Using the Storm Command Line Client
- Determine when it is Appropriate to Use the Storm List, Activate, Deactivate, Rebalance and Kill Commands
- Identify How to Open the Storm UI Console
- Interpret the Metrics Displayed on the Storm UI Console
- Recognize Use Cases for Kafka
- Describe the Components of Kafka
- Explain the Concept of a Topic Leader and Followers
- Describe the Publication and Consumption of Kafka Messages
- Define a New Kafka Topic
- Configure and Instantiate a Kafka Spout for a Storm and Trident Topology
- List Differences Between Storm and Trident
- List Characteristics of a Trident Topology
- List the Benefits of Batch Processing
- Describe the Purpose and Operation of the Each Method
- Describe the Purpose and Operation of a Trident Filter
- Describe the Types of Aggregation Operations
- List the Three Types of Trident States

LABS

- Integrating Kafka with Storm
- Using Trident
- Using Trident with Kafka

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