MongoDB Essentials Training

Overview

Get ramped quickly on MongoDB with a comprehensive entry-level training program for organizations looking to train developer and operations teams together. This 4-day course, which combines the fundamentals from the entry-level Developer and Administrator courses, covers best practices for the development and administration of MongoDB. Exercises acquaint students with the query language, basic data modelling, indexes, performance tuning, backup and recovery, and MongoDB’s scalability and high availability features.

In this course, students participate in hands-on exercises using a MongoDB Atlas database environment. Alternatively, and according to the preference of the class, students may use a MongoDB deployment managed by Ops Manager, or a manually-managed deployment of MongoDB.

MongoDB training courses are delivered on site at your company and taught by an experienced MongoDB consulting engineer. Throughout the course, hands-on exercises reinforce the subjects being discussed.

Who Should Attend?

This course is designed for application developers and database administrators with no prior experience of MongoDB.

Course Duration

This is a 4-day training course.

Course Prerequisites

- This class can be delivered in person or remotely. For in-person classes, all students must attend the class in person.
- Each class accommodates up to 12 students.
- To fully participate in the class, students should be equipped with a computer that has:
  - unobstructed web access
  - access to the strigo.io training delivery platform via a supported web browser
  - for remote classes, the ability to join a Zoom meeting using the Zoom desktop client (ideally), or using the Zoom web client in a supported web browser
Course Content

Day 1

**Storage Basics**
- What is a Storage Engine?
- WiredTiger Storage Engine
- In-Memory Storage Engine
- Encrypted Storage Engine

**MongoDB Document Model**
- JSON and BSON
- MongoDB Data Types

**MongoDB Setup**
- Lab: Atlas Setup / Local MongoDB Setup

**CRUD Basics**
- Insert Command
- Find Command
- Query Operators
- Lab: Finding Documents
- Remove Command
- Updating Documents
- Lab: Updating Documents

**CRUD Advanced**
- Bulk Writes
- Retryable Writes
- Find and Modify
- Transactions

**Replication Basics**
- MongoDB Replica Sets
- Replica Set Use Cases
- Replication Mechanics

**Replication Advanced**
- Using Write Concern to Tune Durability Semantics
- Using Read Concern to Tune Read Isolation
- Using Read Preference
- Replica Set Tag Sets

Day 2

**Sharding Basics**
- Sharding Concepts
- When to Shard
- What is a Shard Key?
- Zoned Sharding / MongoDB Atlas Global Clusters

**Sharding Advanced**
- Components of a Sharded Cluster
- Sharding Mechanics
- Choosing a Good Shard Key

**Aggregation Basics**
- Aggregation Pipeline Concepts
- Aggregation Pipeline Stages
- Aggregation Pipeline Expressions
- Lab: Writing Aggregation Queries

**Aggregation Advanced**
- $lookup stage
- $graphLookup stage
- Lab: Using $graphLookup
- $expr operator
- Lab: Using $expr
- Faceted Search
- Type Conversions
- Advanced Expression Operators
- Date Expression Operators
- Expression Variables
- Aggregation Pipeline Optimizations
- Aggregation in a Sharded Cluster

Day 3

**Performance Basics**
- Indexes
- Lab: Creating Indexes
- Lab: Using explain()

**Performance Advanced**
- Designing Compound Indexes
- Indexing Arrays
- Covered Queries
- Using hint() and Index Filters

Day 4

**Schema Design**
- Schema Design Core Concepts
- Common Patterns
- Lab: Data Model for an E-Commerce Site

**Application Development and Drivers**
- Application Development with MongoDB Drivers
- Lab: Driver Tutorial

**Security Basics**
- Authentication & Authorization
- Lab: Creating an Admin User
- Lab: Creating a readWrite User
- Network Encryption
- Encryption at Rest
- Auditing

**Monitoring**
- Key Metrics to Monitor
- Monitoring using Atlas / Ops Manager
- Lab: Configuring Alerts

**Automation**
- Atlas / Ops Manager Automation Use Cases
- How Automation Works
- Using the Atlas / Ops Manager Automation API
- Using the Terraform MongoDB Atlas Provider

**Backup and Recovery**
- Why We Need Backups
- MongoDB Atlas / Ops Manager Backup Methods
- mongodump and mongorestore tools
- Lab: Backup and Restore using Atlas / Ops Manager