

# Mongo DB 3.x Core Training

## Course 4603 - 16 Hours

### Overview

Learn and experience Mongo DB 3.x from installation to CRUD and Map Reduce, replication and sharding as well as with BSON, the java driver and basic administration of Mongo DB. This training introduces the popular Mongo Database. As part of this class you will learn the core skills required to work Mongo DB from development to administration including data modeling and clustering architecture. The course is bundled with many labs.

### Who Should Attend

- System Administrators
- Operations
- Database Administrators
- Support
- DevOps
- Developers

### Prerequisites

- Relational Database SQL experience
- Basic Java development experience

### Course Contents

#### Lesson 1: Course Introduction

- Course Introduction
- Courseware walkthrough
- Documentation
- Lab – courseware installation

#### Lesson 2: Introduction to Mongo DB

- Why Mongo DB
- What is Mongo DB
- Performance
- High Availability
- Scaling
- Document
- Cluster Architecture
- CRUD operations
- Mongo DB Shell
- Lab - Mongo DB Basic Installation and startup



### Lesson 3: MongoDB Read Operations

- Read Operations Overview
- Data Model
- Query
- Projection
- Querying Arrays
- Cursor
- Sort
- Index Introduction
- Distributed Queries
- Read Isolation, Consistency, and Recency
- Lab: Practice Read commands

### Lesson 4: MongoDB Write Operations

- Write Operations Overview
- Insert Document
- Update Document
- Update Arrays in Document
- Delete Document
- Atomicity and Transactions
- Distributed Write Operations
- Write Operation Performance
- Lab: Practice modify operations

### Lesson 5: Mongo Shell

- Start the mongo Shell
- Working with the mongo Shell
- Tab Completion and Other Keyboard Shortcuts
- Configure the mongo Shell
- Write Scripts for the mongo Shell
- Data Types in the mongo Shell
- Lab - Experience mongo shell

### Lesson 6: Mongo Indexes

- Index Introduction
- Sort Queries
- Index Types
- Index Properties
- Index Creation
- Intersection and Multikey Index Bounds
- Lab – Experience Mongo Indexes



### **Lesson 7: Aggregations**

- Aggregation Introduction
- Aggregation Pipeline
- Aggregation Pipeline Optimization
- Aggregation Pipeline Limits
- Aggregation Pipeline and Sharded Collections
- Map-Reduce
- Map-Reduce and Sharded Collections
- Map Reduce Concurrency
- Single Purpose Aggregation Operations
- Lab: Experience Aggregations

### **Lesson 8: Replication**

- Replication Introduction
- Replica Set Members
- Replica Set Deployment Architectures
- Replica Set High Availability
- Replica Set Read and Write Semantics
- Replication Processes
- Master Slave Replication
- Lab: Configure Replication Set

### **Lesson 9: Sharding**

- Sharding introduction
- Sharded Cluster Requirements
- Shard Key Indexes
- Sharded Cluster Metadata
- Sharded Cluster Installation
- Lab (Configure Sharding)

### **Lesson 10: Data modeling Introduction**

- Data Modeling Introduction
- Embedded vs References
- Capped Collections
- Design by Data Access use cases

### **Lesson 11: Lesson 11: Administration concerns (If time permits)**

- MongoDB Backup Methods
- Monitoring MongoDB
- Configure the Database
- Security Considerations
- Diagnostic Configurations
- Analyzing MongoDB Performance

### **Lesson 12: Summary**

- Summary
- Wrap up