

**MongoDB for the DBA**

**Course Number:** MDB-102  
**Duration:** 2 days

**Overview**

[MongoDB](https://www.mongodb.com/) is a powerful database featuring a flexible document-oriented approach for organizing data rather than the traditional fixed-schema tabular model. With its robust durability and scalability mechanisms, MongoDB became massively popular for workloads of any size.

Accelebrate's MongoDB training goes well beyond basic MongoDB concepts and includes specific topics important to those charged with running, monitoring, maintaining, and troubleshooting MongoDB clusters. Students learn the basics of MongoDB as a database, including installation, basic querying, and data manipulation. Attendees also learn how to handle administrative tasks such as installation, backup, performance tuning, replica sets, and sharded clusters.

**Prerequisites**

* Have experience in developing database-backed applications
* Know basic JavaScript
* Be comfortable working in the shell (Bash or PowerShell or Cmd.exe)

**Materials**

All students receive comprehensive courseware.

**Software Needed on Each Student PC**

* Computer with Internet connectivity
* Ability to install software on the computer
* Recent 64-bit OS, such as Windows 10, macOS, or Linux

**Objectives**

* Operate and install MongoDB clusters
* Learn basic data manipulation and query sytnax
* Work with performance tuning
* Understand monitoring
* Create a backup strategy
* Understand storage internals
* Work with Replica Sets and replication
* Understand Sharding and scalability

**Outline**

* Introduction
* MongoDB Overview
  + What is MongoDB?
  + What is a Document-Oriented database?
  + The differences from relational databases
  + Databases, Collections, and documents
* Running MongoDB
  + Zero-footprint using command line
  + Using the Configuration file
  + Understanding key configuration choices
* CRUD basics
  + Creating documents
  + Finding documents
  + Updating documents
  + Deleting documents
* Backup & Restore
  + Backing up MongoDB
  + Restoring MongoDB
  + Storage snapshot
  + Importing and exporting data
  + Log rotation
* Aggregation
  + The aggregation pipeline
  + Major pipeline stages
  + Key aggregation operators
* Replica Sets
  + Durability
  + Automatic failover
  + Elections and server roles
  + Read and write concerns
  + The Oplog
* Sharding
  + Understanding sharding mechanics
  + Sharded cluster components
  + Creating a sharded cluster
  + The sharding key and data distribution
* Indexing and Query Tuning
  + Index types
  + Index direction
  + Covering index
  + Query planner
* Monitoring
  + Server Statistics
  + Log and logging levels
  + Profiling
  + Using command line tools
* Production Notes
  + Sharding and Scale Up
  + WiredTiger, memory and CPU
  + Sizing Oplog
  + OS specific notes
* Conclusion