

Introduction to MongoDB for DBAs - TTDB4680

Explore MongoDB Database Architecture, User Management, Security, Availability, Backup & Recovery, Diagnostics & More

Duration: 3 Days

Skill Level: Introductory

Available Format: Instructor-Led Online; Instructor-Led, Onsite In Person ; Blended; On Public Schedule

MongoDB is fast becoming the database of choice for big data applications, being one of the most popular and widely implemented NoSQL databases. Its scalability, robustness, and flexibility have made it extremely popular among business enterprises who use it to implement a variety of activities including social communications, analytics, content management, archiving and other activities. This has led to an increased demand for MongoDB administrators who have the skills to handle cross functional duties.

What You'll Learn

Overview

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Geared for experienced DBAs, MongoDB for DBAs is a three-day hands-on course that explores the concepts, architecture and pitfalls of managing a MongoDB installation. This course is targeted to the DBA who is familiar with the concepts and tasks of working with a Relational database and is not responsible for a NoSQL MongoDB database. You will learn the critical aspects of MongoDB and use it to solve data

management challenges. You will learn to manage MongoDB effectively by gaining expertise in MongoDB administration tools, syntax, MongoDB installations, configurations, security, troubleshooting, backup, scaling and many other features. The focus of this course is on practical skills and applying the DBA existing database knowledge to a MongoDB

Objectives

This skills-focused course is approximately 50% hands-on. Our engaging instructors and mentors are highly experienced practitioners who bring years of current "on-the-job" experience into every classroom.

Working in a hands-on learning environment, guided by our expert team, attendees will explore:

- The MongoDB Basic Architecture and Installation
- MongoDB administration
- User Management
- MongoDB security
- Indexes
- Backup & Recovery
- High Availability / Replication
- Diagnostics & Troubleshooting

Need different skills or topics? If your team requires different topics or tools, additional skills or custom approach, this course may be further adjusted to accommodate. We offer database, full stack, development, security and other related topics that may be blended with this course for a track that best suits your needs. Our team will collaborate with you to understand your needs and will target the course to focus on your specific learning objectives and goals.

Audience

This introductory-level course is for experienced DBAs who will be working with MongoDB. In order to gain the most from this course you should have:

- Prior practical experience in Database Administration
- Experience working with Linux and be comfortable working with command line

Pre-Requisites

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Agenda

Please note that this list of topics is based on our standard course offering, evolved from typical industry uses and trends. We will work with you to tune this course and level of coverage to target the skills you need most.

Introduction to MongoDB Basic Architecture and Installation

- Differentiate database categories
- Learn MongoDB design goals
- List MongoDB tools
- Describe JSON and BSON
- Understanding the basic concepts of a Database
- Database categories: What is NoSQL? Why NoSQL? Benefit over RDBMS
- Types of NoSQL Database, and NoSQL vs. SQL Comparison, ACID & Base Property
- CAP Theorem, implementing NoSQL and what is MongoDB?
- Graph Database
- Overview of MongoDB, Design Goals for MongoDB Server and Database, MongoDB tools
- Understanding the following: Collection, Documents and Key/ Values, etc.,
- Introduction to JSON and BSON documents
- Environment setup (live Hands-on) and using various MongoDB tools available in the MongoDB Package

MongoDB Administration

- Take database backup and restore MongoDB®
- Export and import data from/ to a MongoDB® instance
- Check server status and DB status
- Monitor various resource utilization of a mongod instance
- Understand various optimization strategies
- Administration concepts in MongoDB

- Monitoring issues related to Database
- Monitoring at Server, Database, Collection level, and various Monitoring tools related to MongoDB
- Database Profiling, Locks, Memory Usage, No of connections, page fault etc.,
- Backup and Recovery Methods for MongoDB
- Export and Import of Data to and from MongoDB
- Run time configuration of MongoDB
- Production notes/ best practices
- Data Managements in MongoDB (Capped Collections/ Expired data from TTL)
- TTL Collection Features
- GridFS
- Memory-Mapped Files
- Journaling Mechanics
- Storage Engines
- Power of 2-Sized Allocations
- No Padding Allocation Strategy
- Diagnosing Performance Issues
- Optimization Strategies for MongoDB
- Configure Tag Sets for Replica Set . Optimize Query Performance
- Monitoring Strategies for MongoDB . MongoDB Utilities
- MongoDB Commands
- MongoDB Management Service (MMS)
- Data Backup Strategies in MongoDB
- Copying Underlying Data Files
- Backup with MongoDump
- Fsync and Lock
- MongoDB Ops Manager Backup Software
- Security Strategies in MongoDB
- Authentication Implementation in MongoDB . Authentication in a Replica set
- Authentication on Sharded Clusters
- Authorization
- End-to-End Auditing for Compliance

User Management

- Create a User Administrator.
- Add a User to a Database.
- Create/Assign User a Role.

- Verify/Modify a User Access/Privileges.
- Change a User's Password

MongoDB Security

- Knowing security concepts in MongoDB
- Understand how Authentication and Authorisation works
- Security Introduction
- Security Concepts

Indexes

- Index Introduction,
- Index Concepts
- Index Types
- Index Properties
- Index Creation and Indexing Reference
- Introduction to Aggregation
- Aggregation Approach to Aggregation sort Order
- Pipeline Operators and Indexes
- Text Indexes
- Aggregate Pipeline Stages
- Text Search
- MapReduce
- Index Creation
- Aggregation Operations
- Index Creation on Replica Set
- Remove, Modify, and Rebuild Indexes
- Listing Indexes
- Measure Index Use
- Control Index Use
- Index Use Reporting
- Geospatial Indexes
- MongoDB's Geospatial Query Operators
- GeoWith Operator

Backup & Recovery

- Import and Export MongoDB Data
- Restore and recovery of MongoDB(Including point in time Recovery)
- Restore a Replica Set from MongoDB Backups
- Recover Data after an Unexpected Shutdown
- Backup and Restore with Filesystem Snapshots
- Back Up and Restore with MongoDB Tools
- Backup and Restore Sharded Clusters

High Availability (Replication)

- Understand the concept of Replication in MongoDB®
- Create a production like Replica Set
- Introduction to Replication (High Availability), Concepts around Replication
- What is Replica Set and Master Slave Replication?
- Type of Replication in MongoDB
- How to setup a replicated cluster & managing replica sets etc.,
- Master-Slave Replication
- Replica Set in MongoDB
- Automatic Failover
- Replica Set Members
- Write Concern
- Write Concern Levels
- Write Concern for a Replica Set
- Modify Default Write Concern
- Read Preference
- Read Preference Modes
- Blocking for Replication
- Tag Set
- Configure Tag Sets for Replica set . Replica Set Deployment Strategies
- Replica Set Deployment Patterns
- Oplog File
- Replication State and Local Database, Replication Administration

Diagnostics & Troubleshooting

- Troubleshoot slow queries
- Diagnose connectivity problems
- Understand diagnostic tools
- Learn common production issues
- Learn fixes and solutions.

Related Courses

TTDB4680	Introduction to MongoDB for DBAs
TTDB4683	Introduction to MongoDB for Developers

All course software (limited versions, for course use only), digital courseware files or course notes, labs / data sets and solutions (as applicable) are provided for you in our “easy access / no install required” high-speed remote lab environment. Our tech team works with every student to ensure everyone is set up with working access and ready to go prior to every course start date, ensuring a smooth delivery and great hands-on experience. Please ask for details.

For More Information

Please [contact us](#) or call 844-475-4559 toll free for more information about our training services (instructor-led, self-paced or blended), coaching and mentoring services, public course enrollment or questions, partner programs, courseware licensing options and more.