Development Rapid Start

Developing a well-designed data model at the beginning of a project is key to achieving better performance, simplified queries, and optimal infrastructure usage for your application. If you are relatively new to building applications with MongoDB, a Development Rapid Start can help you get going quickly.

This engagement includes both developer training and custom consulting to help you design a schema for your application. A MongoDB consulting engineer can then implement these recommendations in a follow-on project, or your team can handle the implementation process themselves, as you prefer.

Key Activities

**Developer Training:** Two days of introductory developer training, with hands-on exercises throughout the course, aimed at preparing your team for productive development on MongoDB. These sessions will cover MongoDB fundamentals, storage and retrieval, indexes and optimization, development best practices, and schema design.

**Schema Design:** A MongoDB consulting engineer will collaborate with your team to gather the data and query requirements for your application. The consultant will then create a design draft based on your application requirements.

**Development Best Practices:** Your consultant will review applicable MongoDB development best practices with your team based on an assessment of your application’s requirements and anticipated challenges.

Deliverables

At the end of the engagement, you will receive:

- Training materials for ongoing reference.
- A detailed report that includes a description of the application requirements and recommended schema design, with a sample document from each planned collection, query structure, and indexes.

Engagement Details

- This engagement is best suited for developer or DevOps teams.
- The ideal time to engage MongoDB for this service is at the planning or early development phase of a project, or when evaluating MongoDB for future uses.
- You should have a reasonably well-defined set of requirements for the proposed MongoDB project.
- A Development Rapid Start engagement is focused on one project or application build.
- A MongoDB consulting engineer will spend 4 consecutive days working with your team, typically on site. Within 10 business days, our consultant will deliver a comprehensive written report.
Typical Agenda

The schedule below describes a typical agenda and timeline for a Development Rapid Start consulting engagement.

### Days 1 & 2: Development Rapid Start Training (DFR01)

#### Day 1

**Introduction**
- Why a new database?
- What are documents?
- MongoDB
  - Agile
  - Usability
  - Utility
  - Scalability
- When to use MongoDB
- Common mistakes

**Accessing MongoDB**
- Starting a cluster *
- Installing a shell *
- Using the web shell
- Connecting to your cluster *

**Developer Basics**
- Container types
- Comparison with RDBMS
- Coding against MongoDB
- Developer sandbox *
- CRUD examples *

**Storage and Retrieval**
- Bulk versus single writes
- Filtering and projection
- Basic query operators *
- Querying arrays
- Expressive queries
- Using cursors
- Basic update operations *
- Array update operations *
- Expressive updates
- Advanced atomicity models
  - Upsert
  - findOneAndUpdate

**Internals Developers Should Know**
- BSON data types
- Null handling
- Collation and ordering
- Type bracketing
- Sorting container types
- Internal locking models
- Long-term lock management

#### Day 2

**Indexes and Optimization**
- What are indexes?
- MongoDB misconceptions
- Single field indexes
- Reading explain plans *
- Indexes and performance
  - Limits
  - Best practices
  - Compression
- Multikey indexes
- Compound index design *
- Covered queries
- Geospatial indexing *
  - 2d indexes
  - Spherical indexes
- TTL indexes
- Text indexes
- Wildcard indexing
- How indexes are chosen
  - Query planner / Query optimizer
  - Hints and tips

**Indexes and Optimization Cont.**
- Coding for idempotency
- Understanding the drivers *
- Error handling
- Majority writes
- Authentication pools
- Codecs, DALs and ODMs
- Driver helpers

**Schema Design**
- BSON internals *
- Choosing container types *
- Design fundamentals
- Linking models
- Payload versus process
- Dynamic schema
- Design patterns *

* includes hands-on exercise
Days 3 & 4: Consulting

Day 3

- We will work with your team to identify the data and query requirements for your application, including the following aspects:
  - Project milestones and associated functionality
  - End-user / service interface
  - Application architecture (e.g. data access layers)
  - Data model
  - Typical access patterns
  - Specific challenges and areas of concern
- We will review applicable MongoDB development best practices with your team.
- We will work with your team to design and produce recommendations for key aspects of your MongoDB application, including:
  - Schema
  - Indexes
  - Sharding strategy and shard key selection
  - Query structure

Day 4

- We will continue working with your team to design and produce recommendations for key aspects of your MongoDB application.
- We will assist with prototyping key recommendations.
- Time permitting, we will answer any other questions related to developing your application on MongoDB.

Resources

We are the MongoDB experts. Over 20,000 organizations rely on our commercial products. We offer software and services to make your life easier. For more information, please visit mongodb.com or contact us at sales@mongodb.com.

- Case studies (mongodb.com/customers)
- Resource center (mongodb.com/resource-center)
- Classroom training (mongodb.com/training)
- Consulting (mongodb.com/consulting)
- Documentation (docs.mongodb.com)
- MongoDB download (mongodb.com/download)
- MongoDB Atlas database as a service (mongodb.com/atlas)