



MongoDB

Introduction to MongoDB, MongoDB Compass, and MongoDB Shell
Installation and Usage





Agenda

- Introduction to MongoDB
- MongoDB Installation
- MongoDB Compass Installation and Overview
- MongoDB Shell Installation and Basic Commands



Introduction to MongoDB

MongoDB is a leading NoSQL database with key features that set it apart

. Document-Oriented

Data is stored in flexible **BSON** documents, allowing for easy representation of complex relationships within a single document.

. Flexible Schema

The dynamic schema allows for on-the-fly modifications, providing agility in adapting to evolving data structures.

. Scalable

MongoDB's architecture supports horizontal scaling, making it ideal for handling growing datasets and high-volume workloads.

. High Performance

Engineered for speed, MongoDB ensures swift read and write operations, utilizing internal memory and indexing for optimized performance.



MongoDB Installation



Installation for mac os

01. Install using homebrew

```
mongodb
```

```
brew install mongodb-community@7.0
```

esc ← → ▷ □ Touch Bar

02. start the server service

```
mongodb
```

```
brew services start mongodb-community@7.0
```

esc ← → ▷ □ Touch Bar

03. stop the server service

```
stop
```

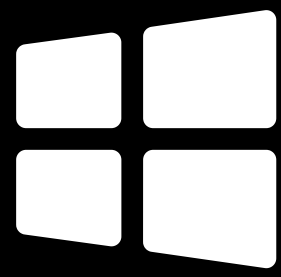
```
brew services stop mongodb-community@7.0
```

esc ← → ▷ □ Touch Bar

04. Check if the service is on

```
check
```

```
brew services list
```



Intallation On Windows os

1- Download the installer

Download the MongoDB Community .msi installer from
➤ [MongoDB Download Center](#)

- In the Version dropdown, select the version of MongoDB to download.
- In the Platform dropdown, select Windows.
- In the Package dropdown, select msi.
- Click Download.

Version
7.0.4 (current)

Platform
Windows x64

Package
msi

Download

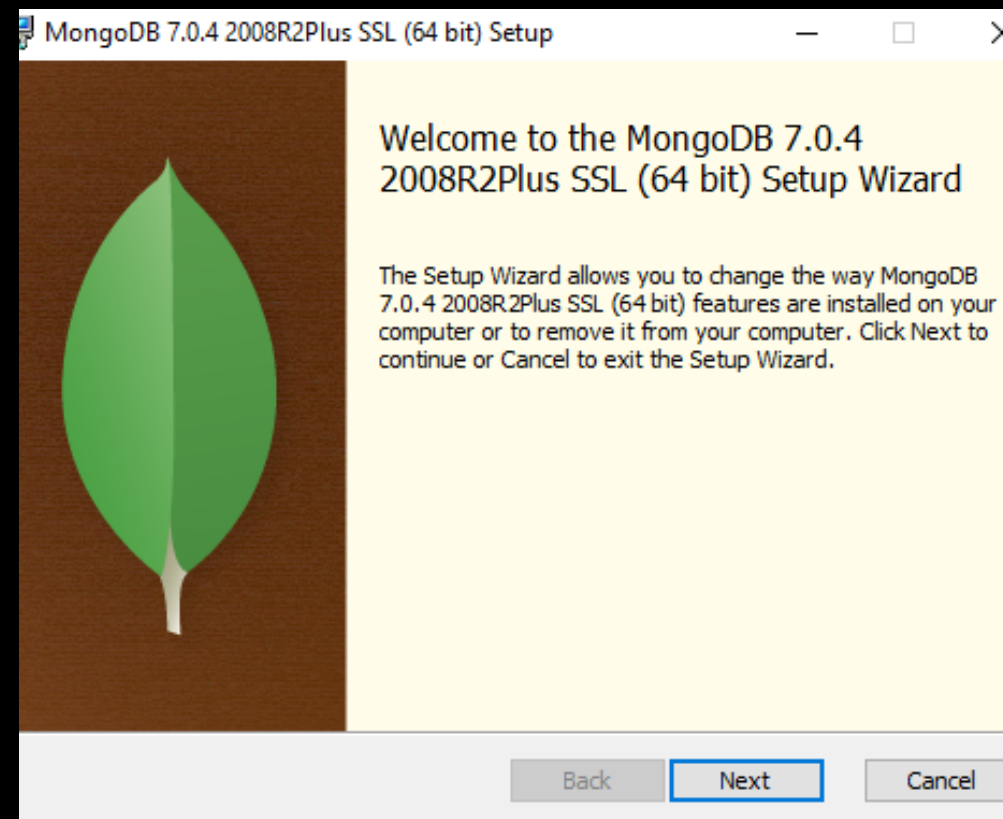
Copy link

More Options

2- Run the MongoDB installer

from the Windows Explorer/File Explorer

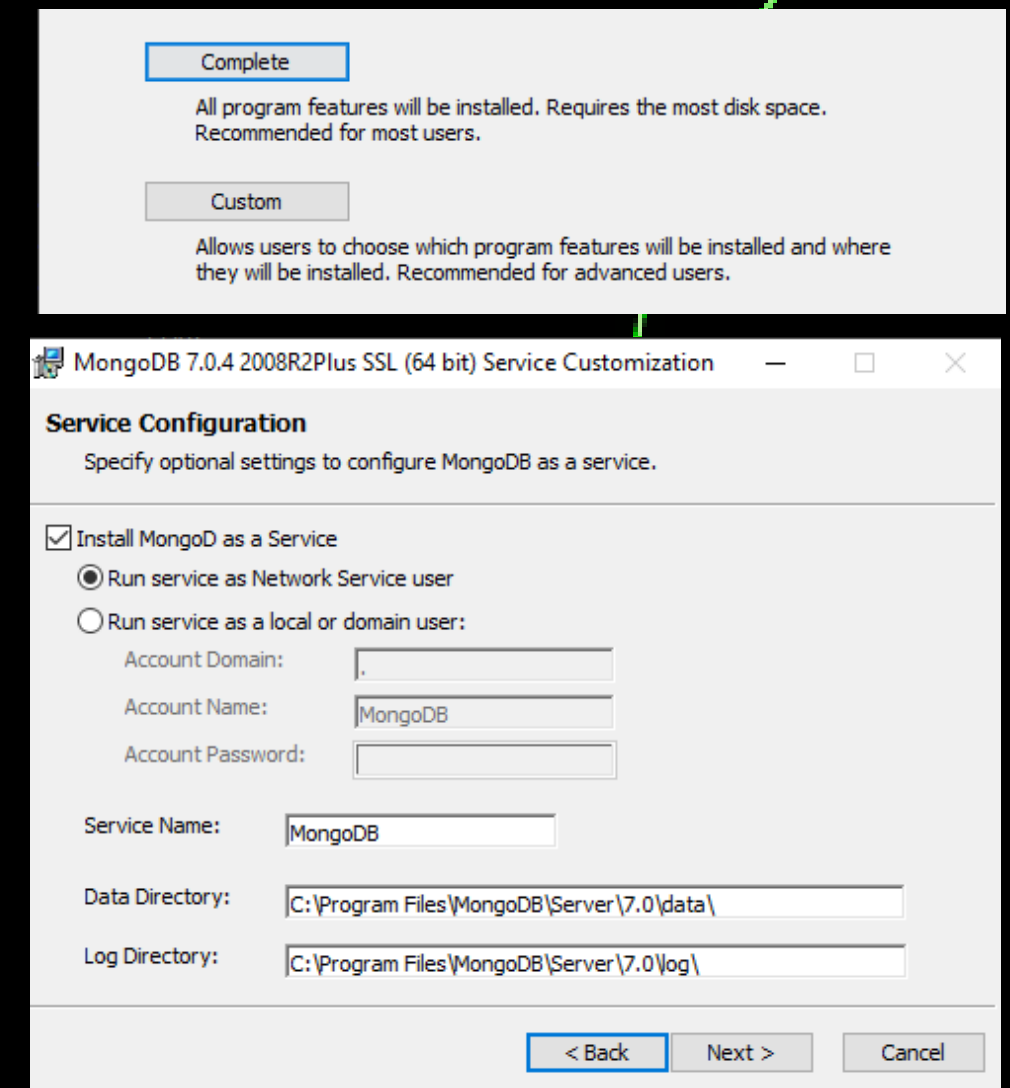
- Go to the directory where you downloaded the MongoDB installer (.msi file). By default, this is your Downloads directory.
- Double-click the .msi file.

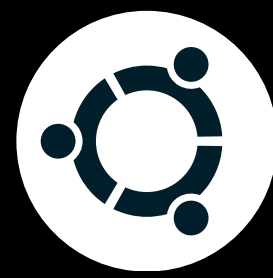


3- Run MongoDB as service

The wizard steps you through the installation of MongoDB and MongoDB Compass.

- Choose Setup Type
- Service Configuration





Intallation On Ubuntu

1- Importing MongoDB Public GPG Key:

```
curl -fsSL https://pgp.mongodb.com/server-7.0.asc | \\  
sudo gpg -o /usr/share/keyrings/mongodb-server-7.0.gpg \\  
--dearmor
```

Linux Command

MongoDB

2- Adding MongoDB Repository to Sources List

```
echo "deb [ arch=amd64,arm64 signed-  
by=/usr/share/keyrings/mongodb-server-7.0.gpg ]  
https://repo.mongodb.org/apt/ubuntu jammy/mongodb-  
org/7.0 multiverse" | sudo tee  
/etc/apt/sources.list.d/mongodb-org-7.0.list
```

3- Updating the Package List:

```
sudo apt-get update
```

4- Installing MongoDB

```
sudo apt-get install -y mongodb-org
```

Linux Command

MongoDB

MongoDB Compass

MongoDB Compass is a user-friendly GUI designed for intuitive interaction with MongoDB databases, catering to both developers and non-developers.

01-Intuitive GUI

User-friendly interface for easy navigation.

2- Visual Data Exploration

Explore data structure and relationships visually

03- Query Builder

Build MongoDB queries visually.

04- Real-time Statistics

Monitor live database performance metrics.

05- Index Management

View and manage indexes for performance optimization.

06- Aggregation Pipeline Builder

Construct complex data transformation pipelines visually

07-Document Validation

Define and enforce schema validation rules.



08- Connection Management

Easily connect to and manage MongoDB servers.

To download Compass, you can use your preferred web browser



Download Compass for

- Open the [downloads page](#).
- Select the installer you prefer. The MongoDB Compass installer is available as a .exe or .msi package or a .zip archive.
- Download the latest version of MongoDB Compass for Windows.

Version	1.41.0 (Stable)	▼
Platform	Windows 64-bit (10+)	▼
Package	exe	▼
<div>Download </div> <div> Copy link</div> <div>More Options </div>		




Download Compass for

- Open the [downloads page](#).
- Download the latest version of MongoDB Compass for macOS. The MongoDB Compass installer is a .dmg disk image.

Version	1.41.0 (Stable)	▼
Platform	macOS 64-bit (10.14+)	▼
Package	dmg	▼
<div>Download </div> <div> Copy link</div> <div>More Options </div>		

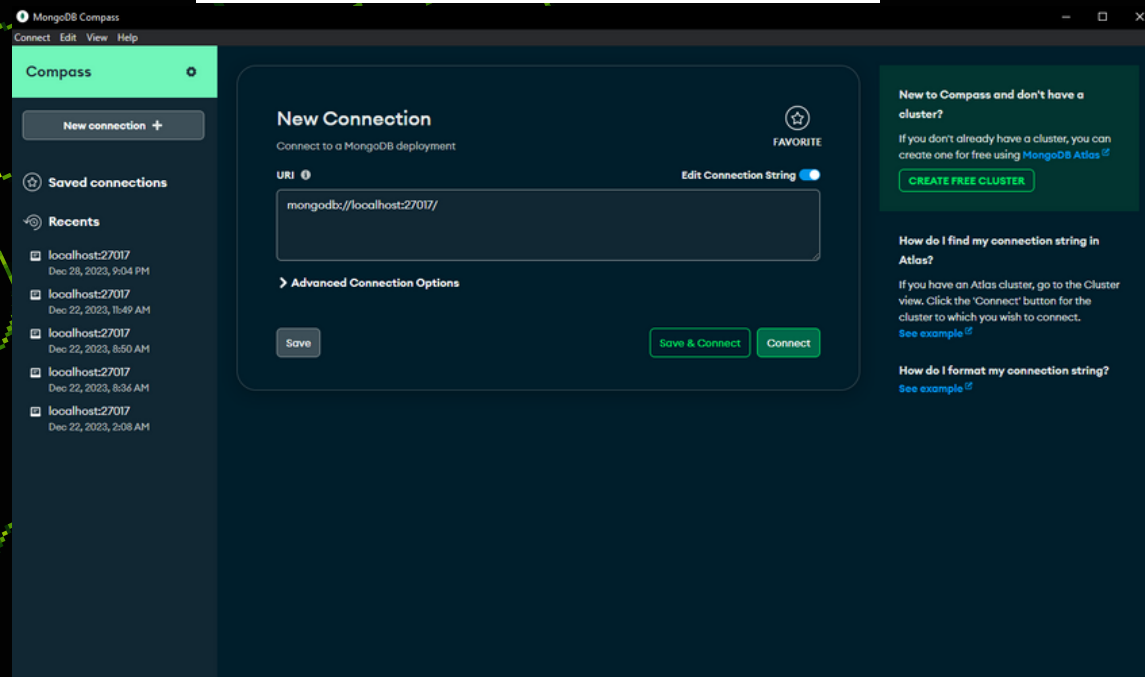
Download Compass for

- Open the [downloads page](#).
- Download the latest version of MongoDB Compass for Ubuntu. The MongoDB Compass installer is a .deb disk image.

Version	1.41.0 (Stable)	▼
Platform	Ubuntu 64-bit (16.04+)	▼
Package	deb	▼
<div>Download </div> <div> Copy link</div> <div>More Options </div>		

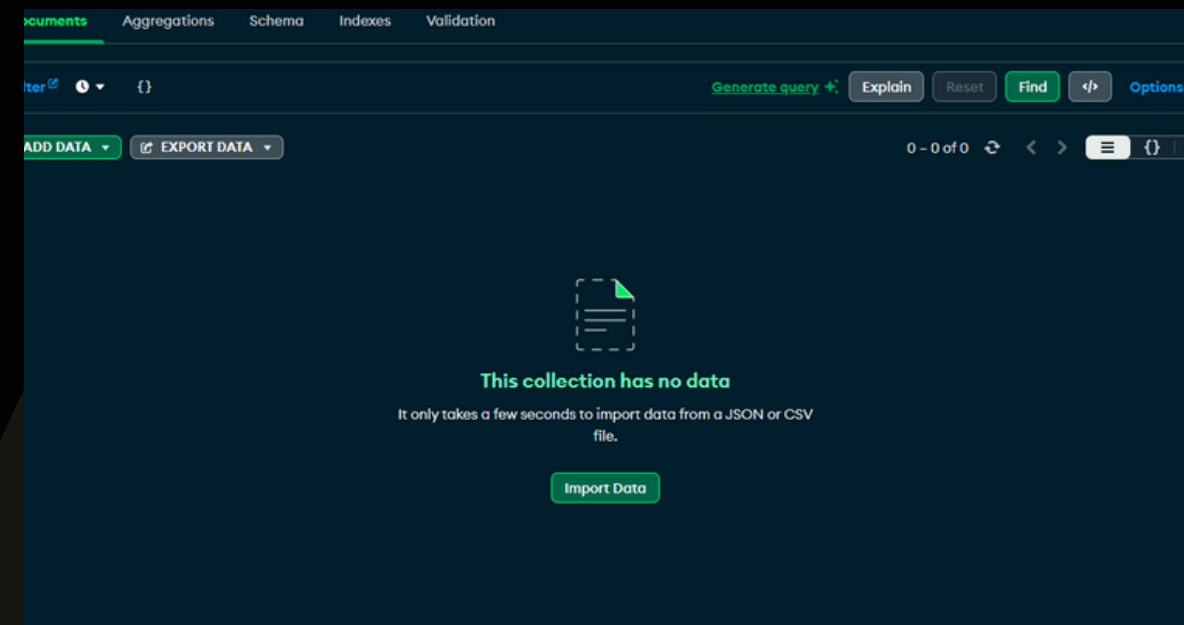
MongoDB Compass Interface

Dashboard Overview



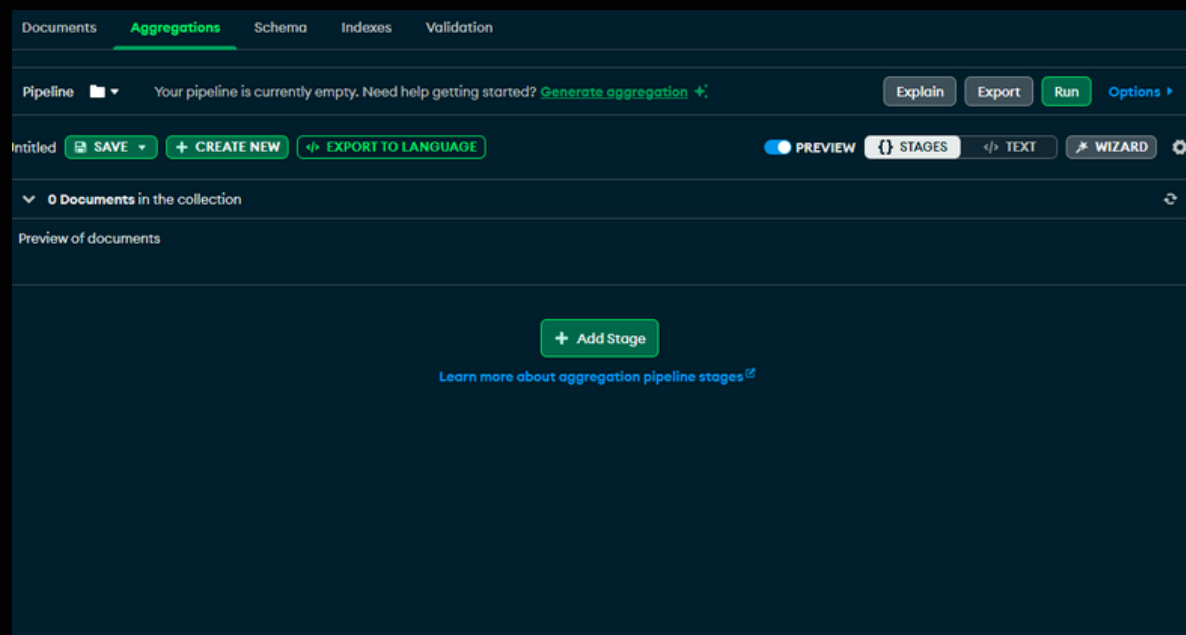
- . Database Statistics
- . Performance Metrics
- . Shard Visualization

Collections Tab



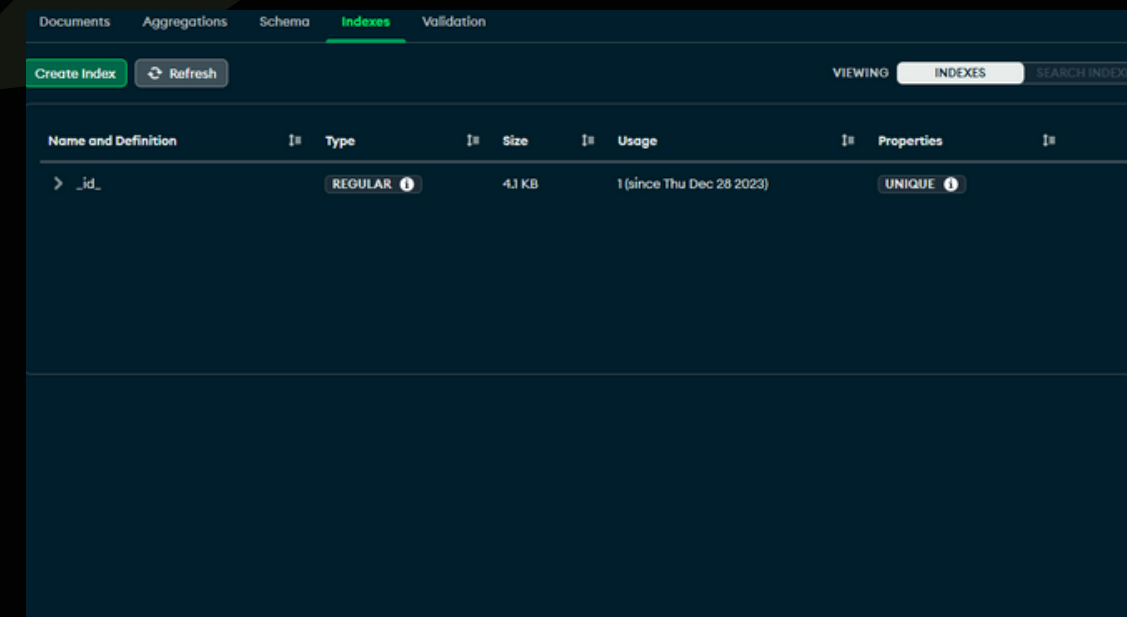
- . Collection Exploration
- . Query and Filter
- . Document Editing

Pipeline Builder



- . Visual Data Transformation
- . Aggregation Stages
- . Preview Results

Index tab



- . Index Management
- . Create Index
- . Index Statistics

MongoDB Shell

The MongoDB Shell, mongosh, is a JavaScript and Node.js REPL environment for interacting with MongoDB deployments in Atlas, locally, or on another remote host. Use the MongoDB Shell to test queries and interact with the data in your MongoDB database.

01-Querying Documents

- Use the find command to retrieve specific documents based on query criteria.
- Examples demonstrate searching for data within collections.

02- Inserting Data

- Utilize the insert command to add new documents to a MongoDB collection.
- Showcase how to seamlessly integrate new data into the database.

03- Updating Documents

- Demonstrate the update command to modify existing documents in a collection.
- Showcase the flexibility of MongoDB Shell for data updates.

04- Deleting Documents

- Showcase the delete command to remove documents from a MongoDB collection.
- Illustrate the simplicity and efficiency of data deletion using MongoDB Shell.

To download Mongosh, you can use your preferred web browser

Download Mongosh for



1. Open the MongoDB Shell download page.
2. In the Platform dropdown, select Windows 64-bit (8.1+) (MSI)
3. Click Download.
4. Double-click the installer file.
5. Follow the prompts to install mongosh.

Version	2.1.1	▼
<hr/>		
Platform	Windows x64 (10+)	▼
<hr/>		
Package	msi	▼
<hr/>		
Download	Copy link	More Options

Download Mongosh for



1- Open the MongoDB Shell download page.

2- Download the mongosh installation archive for your operating system

Version	2.1.1	▼
<hr/>		
Platform	MacOS M1 (11.0+)	▼
<hr/>		
Package	zip	▼
<hr/>		
Download	Copy link	More Options

```
unzip mongosh-2.1.0-darwin-arm64.zip
```

Download Mongosh for



```
sudo apt-get install -y mongodb-mongosh
```

- Connecting to MongoDB Server using Shell

```
~ mongosh "mongodb+srv://cluster0.ab123.mongodb.net/myFirstDatabase" --username user
Enter password: *****
Current Mongosh Log ID: 6142707ff2a7e240da6ade56
Connecting to:      mongodb+srv://cluster0.ab123.mongodb.net/myFirstDatabase
```

- Achieve CRUD Operations using Mongosh

```
use sample_mflix

db.movies.insertOne(
  {
    title: "The Favourite",
    genres: [ "Drama", "History" ],
    runtime: 121,
    rated: "R",
    year: 2018,
    directors: [ "Yorgos Lanthimos" ],
    cast: [ "Olivia Colman", "Emma Stone", "Rachel Weisz" ],
    type: "movie"
  }
)
```

Insertion

```
use sample_mflix

db.movies.find( { countries: "Mexico", "imdb.rating": { $gte: 7 } } )
```

```
use sample_mflix

db.movies.find( {
  year: 2010,
  $or: [ { "awards.wins": { $gte: 5 } }, { genres: "Drama" } ]
} )
```

Query Documents

```
use sample_mflix

db.movies.updateOne( { title: "Twilight" },
{
  $set: {
    plot: "A teenage girl risks everything—including her life—when she falls in love with a vampire."
  },
  $currentDate: { lastUpdated: true }
})
```

Update

```
use sample_mflix
```

```
db.movies.deleteOne( { cast: "Brad Pitt" } )
```

```
use sample_mflix
```

```
db.movies.deleteMany( { title: "Titanic" } )
```

Delete