# MongoDB Atlas Installation

Sunday, May 12, 2024 10:15 AM

JSON: JavaScript Object Notation

- Lighter weight version of XML(eXtensible Markup Language, a text-based file format used for storing structured data)
- Key: value pairs
- Lists
- Very similar to Python dictionaries and lists
- Nest multiple levels deep

Flat JSON File

- List of dictionaries
- Each dictionary has the same keys in the same order
- Works just like csv
- Easy to load into a single database table
- Easy to dump a single database table into a flat JSON file
-

Nested JSON File
List of dictionaries

- A key's value is a list of dictionaries
    - A key's value is a list of dictionaries

Nested JSON File and Relational Tables

- Top level JSON would be equivalent to a relational table
- Each nested list would have to be a separate relational table
- Advantage
    - JSON can hold data from several tables
    - NoSQL document databases are based on this concept
- Disadvantage
    - Loading and dumping to and from relational tables involves multiple tables and complicated primary key logic to work

Relational Database vs. MongoDB Database

| Relational | MongoDB |
|---|---|
| database | database |
| table | collection |
| row | document |
| column | field |

Query languages

| Select…From… | Find() |
|---|---|
| SELECT * FROM people | db.people.find({}) |
| SELECT * FROM people WHERE age = 25 | db.people.find({age: 25}) |
| SELECT * FROM people WHERE age > 25 | db.people.find({age:{$gt:25}}) |

Dynamic Schema

A dynamic schema allows for more flexibility by enabling the schema to be modified or extended on the fly, without requiring predefined structures.

MongoDB Atlas

- Database-as-Service (DBaaS): a service that allows you to set up, deploy, and scale a database without worrying about on-premise physical hardware, software, updates, and the details of configuring for performance.

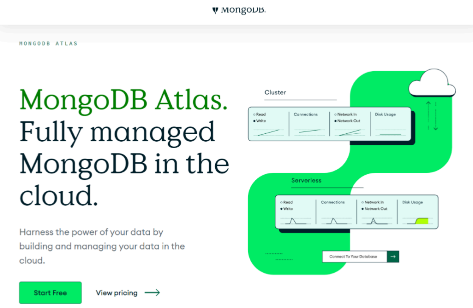
- It is a fully-managed cloud database that handles all the complexity of deploying, managing, and healing your deployments on the cloud service provider of our choices. MongoDB Atlas is the best way to deploy, run, and scale MongoDB in the cloud.

- It provides a free version for users
- Check it out from here: Atlas

We will use Compass, MongoDB GUI, to manipulate our database

**Launch MongoDB Atlas**

- Search “mongoDB cluster for Free” in a browser



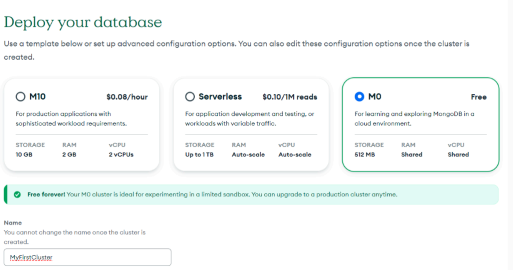
MongoDB.

MONGODB ATLAS

MongoDB Atlas. Fully managed MongoDB in the cloud.

Harness the power of your data by building and managing your data in the cloud.

- Complete a short survey
- Choose “Free” and “Create” a new cluster



Deploy your database

Use a template below or set up advanced configuration options. You can also edit these configuration options once the cluster is created.

○ **M10** — **$0.08/hour**
For production applications with sophisticated workload requirements.

| STORAGE | RAM | vCPU |
|---|---|---|
| 10 GB | 2 GB | 2 vCPUs |

○ **Serverless** — **$0.10/1M reads**
For application development and testing, or workloads with variable traffic.

| STORAGE | RAM | vCPU |
|---|---|---|
| Up to 1 TB | Auto-scale | Auto-scale |

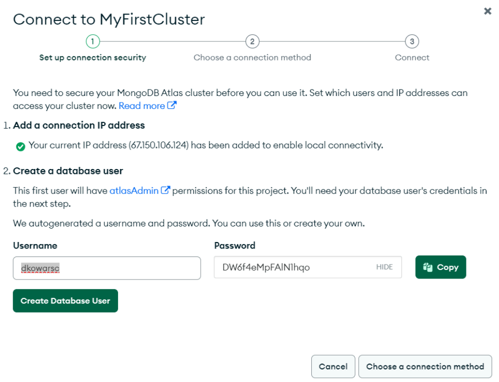
● **M0** — **Free**
For learning and exploring MongoDB in a cloud environment.

| STORAGE | RAM | vCPU |
|---|---|---|
| 512 MB | Shared | Shared |

✓ **Free forever!** Your M0 cluster is ideal for experimenting in a limited sandbox. You can upgrade to a production cluster anytime.

**Name**
You cannot change the name once the cluster is created.
MyFirstCluster

Connect to your created cluster

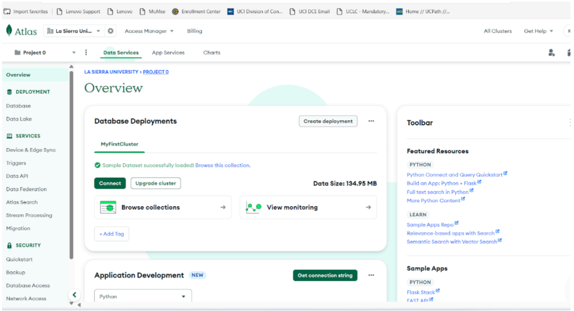


Connect to MyFirstCluster

You need to secure your MongoDB Atlas cluster before you can use it. Set which users and IP addresses can access your cluster now. Read more

1. **Add a connection IP address**
   ✓ Your current IP address (67.150.106.124) has been added to enable local connectivity.
2. **Create a database user**
   This first user will have atlasAdmin permissions for this project. You'll need your database user's credentials in the next step.
   We autogenerated a username and password. You can use this or create your own.
   **Username**: dkowarsc
   **Password**: DW6f4eMpFAlN1hqo

Click “Create Database User” button



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Overview

Database Deployments

MyFirstCluster

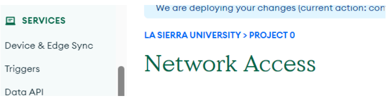
✓ Sample Dataset successfully loaded! Browse this collection.

**Data Size: 134.95 MB**

Application Development NEW

Python

- Set up Database user access if needed
- Setup Network Access to “Allow Access from Anywhere” for now



We are deploying your changes (current action: con

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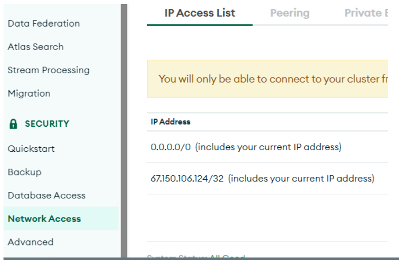
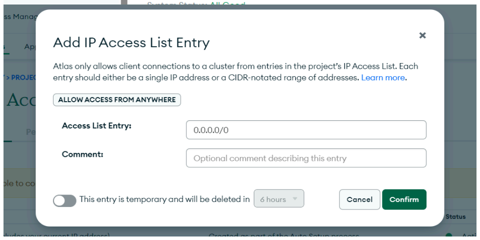
Network Access



You will only be able to connect to your cluster fr

| IP Address |
|---|
| 0.0.0.0/0 (includes your current IP address) |
| 67.150.106.124/32 (includes your current IP address) |



Add IP Access List Entry

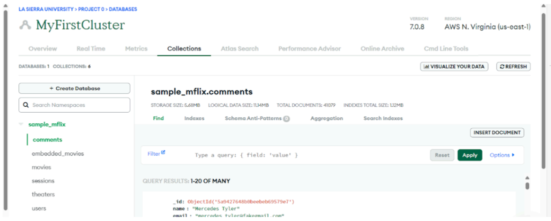
Atlas only allows client connections to a cluster from entries in the project's IP Access List. Each entry should either be a single IP address or a CIDR-notated range of addresses. Learn more.

Access List Entry: 0.0.0.0/0

Comment: Optional comment describing this entry

This entry is temporary and will be deleted in 6 hours

Check connections: we can see we have one database and 6 collections in the database



DATABASES: 1 COLLECTIONS: 6

sample_mflix.comments

STORAGE SIZE: 5.68MB LOGICAL DATA SIZE: 11.14MB TOTAL DOCUMENTS: 41079 INDEXES TOTAL SIZE: 1.12MB

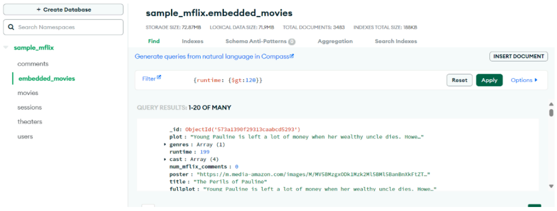
```
Type a query: { field: 'value' }
```

QUERY RESULTS: 1-20 OF MANY

```
_id: ObjectId('5a9427648b0beebeb69579e7')
name : "Mercedes Tyler"
email : "mercedes_tyler@fakegmail.com"
```

Run a simple query to find out all the movies that have a runtime *greater than 120 minutes* in the *embedded_movies* collection: in the Filter line, type:

{runtime: {$gt:120}}



sample_mflix.embedded_movies

STORAGE SIZE: 72.87MB LOGICAL DATA SIZE: 71.9MB TOTAL DOCUMENTS: 3483 INDEXES TOTAL SIZE: 188KB

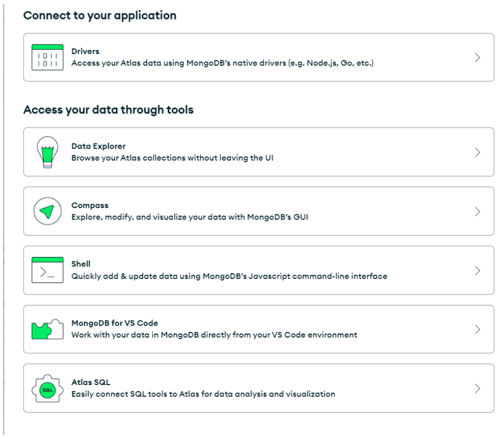
```
{runtime: {$gt:120}}
```

QUERY RESULTS: 1-20 OF MANY

```
_id: ObjectId('573a1390f29313caabcd5293')
plot : "Young Pauline is left a lot of money when her wealthy uncle dies. Howe…"
genres : Array (1)
runtime : 199
cast : Array (4)
num_mflix_comments : 0
poster : "https://m.media-amazon.com/images/M/MV5BMzgxODk1Mzk2Ml5BMl5BanBnXkFtZT…"
title : "The Perils of Pauline"
fullplot : "Young Pauline is left a lot of money when her wealthy uncle dies. Howe…"
```

Connect Compass

- Select Connection type



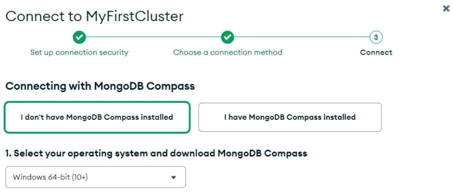
Connect to your application

- Drivers
  Access your Atlas data using MongoDB's native drivers (e.g. Node.js, Go, etc.)

Access your data through tools

- Data Explorer
  Browse your Atlas collections without leaving the UI
- Compass
  Explore, modify, and visualize your data with MongoDB's GUI
- Shell
  Quickly add & update data using MongoDB's Javascript command-line interface
- MongoDB for VS Code
  Work with your data in MongoDB directly from your VS Code environment
- Atlas SQL
  Easily connect SQL tools to Atlas for data analysis and visualization

- Choose Compass and download it based on your os ( I used a windows laptop)



Connect to MyFirstCluster

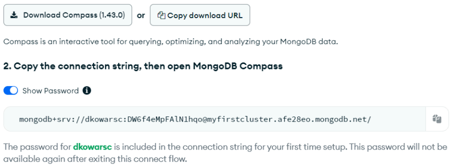
Set up connection security
Choose a connection method
3
Connect

Connecting with MongoDB Compass

I don't have MongoDB Compass installed
I have MongoDB Compass installed

1. Select your operating system and download MongoDB Compass

Windows 64-bit (10+)



Compass is an interactive tool for querying, optimizing, and analyzing your MongoDB data.

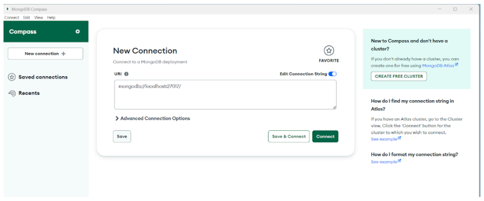
**2. Copy the connection string, then open MongoDB Compass**

Show Password

```
mongodb+srv://dkowarsc:DW6f4eMpFAlN1hqo@myfirstcluster.afe28eo.mongodb.net/
```

The password for **dkowarsc** is included in the connection string for your first time setup. This password will not be available again after exiting this connect flow.

Replace the localhost info with the string (mongodb+srv://dkowarsc:<password>@myfirstcluster.afe28eo.mongodb.net/) you created from previous step



New Connection

Connect to a MongoDB deployment

URI: mongodb://localhost:27017/

Edit Connection String

New to Compass and don't have a cluster?

If you don't already have a cluster, you can create one for free using MongoDB Atlas

How do I find my connection string in Atlas?

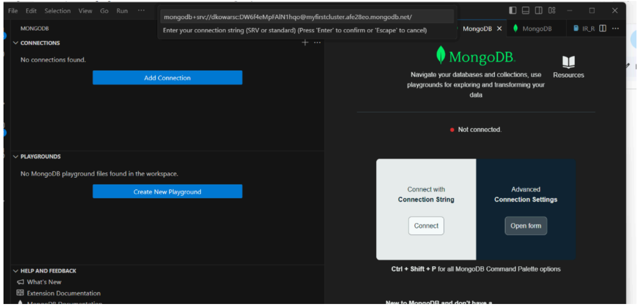
If you have an Atlas cluster, go to the Cluster view. Click the 'Connect' button for the cluster to which you wish to connect.

How do I format my connection string?

You can use VS Code to connect your cluster in Atlas

Connect VS Code

- Open VS Code-> Extensions->Find MongoDB for VS Code



```
mongodb+srv://dkowarsc:DW6f4eMpFAlN1hqo@myfirstcluster.afe28eo.mongodb.net/
```

Enter your connection string (SRV or standard) (Press 'Enter' to confirm or 'Escape' to cancel)

No connections found.

No MongoDB playground files found in the workspace.

Navigate your databases and collections, use playgrounds for exploring and transforming your data

Not connected.

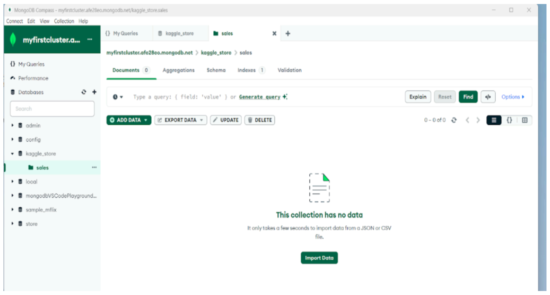
Ctrl + Shift + P for all MongoDB Command Palette options

Use: mongodb+srv://dkowarsc:<password>@myfirstcluster.afe28eo.mongodb.net/ for the connection

There are many ways to create a new database in your cluster, but when you want to load a dataset like a json or csv file from your local directory to the cluster, you can consider Compass because it is simpler.

For Example

- Connect-> Compass, you will see below GUI for your cluster



This collection has no data

It only takes a few seconds to import data from a JSON or CSV file.

- On the left panel, it lists databases in the cluster. You can create a new database by clicking + sign next to the Database. Give it a name for the database and a name for the collection of the database.

- Then the new collection is shown and click the … next to the collection name to import data from your local machine.