Introducción a MongoDB

Qué es MongoDB

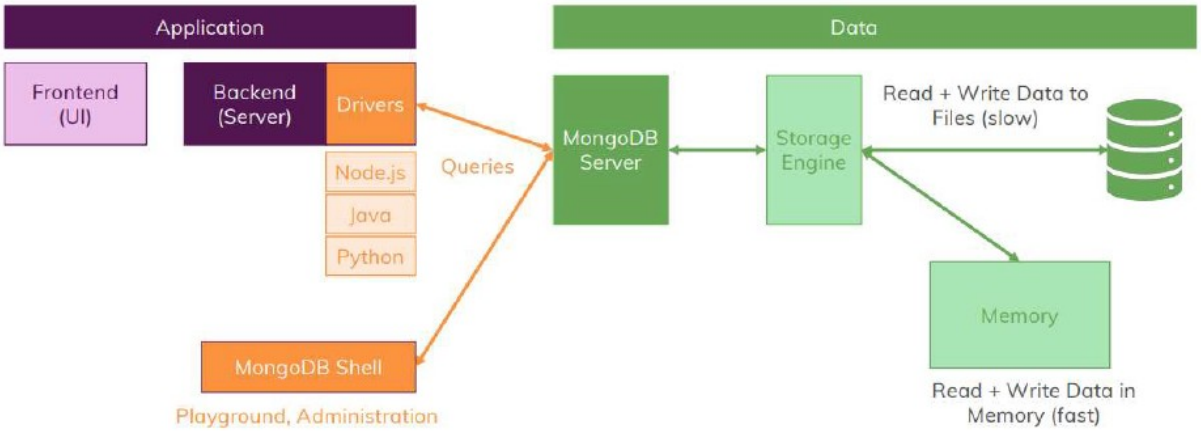
MongoDB es un motor de bases de datos no SQL basado en documentos, desarrollado por **MongoDB Inc**.

MongoDB Inc, además de MongoDB, dispone del servicio de base de datos en la nube (**MongoDB Atlas**), ofrece una GUI (**MongoDB Compass**) y desarrolla los drivers para los principales lenguajes de programación.

Características de MongoDB

- Alta flexibilidad.
- Alto rendimiento.
- Escalado horizontal.
- Lenguaje de consultas rico.
- Soporte para múltiples motores de almacenamiento.

Arquitectura de MongoDB



Bases de datos, colecciones y documentos

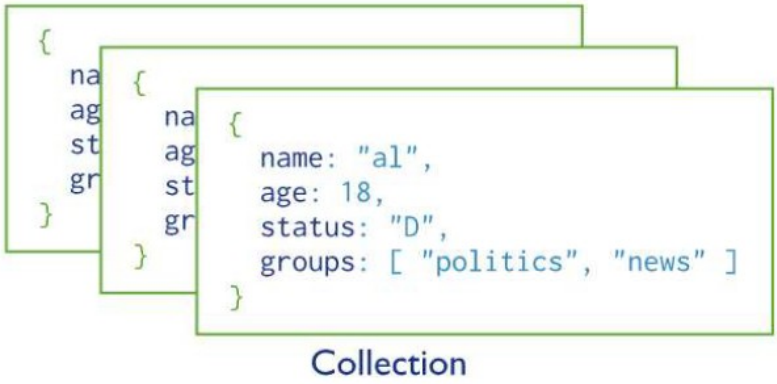
Documentos

MongoDB almacena los datos en formato de documento JSON.


```
{
  name: "sue",                    ← field: value
  age: 26,                        ← field: value
  status: "A",                    ← field: value
  groups: [ "news", "sports" ]    ← field: value
}
```

Colecciones

Los documentos se almacenan en colecciones.



Bases de datos

Una base de datos es un almacén de colecciones.

Una instancia de MongoDB puede contener múltiples bases de datos.

Documentos JSON y BSON

Un documento JSON es una colección de pares de clave-valor, donde el valor puede ser un valor simple, un array de valores, otro documento JSON e incluso un array de documentos JSON. JSON significa JavaScript Object Notation.

MongoDB almacena los documentos en formato BSON. BSON viene de Binary JSON y es el equivalente binario de un documento JSON.

Tipos de datos BSON

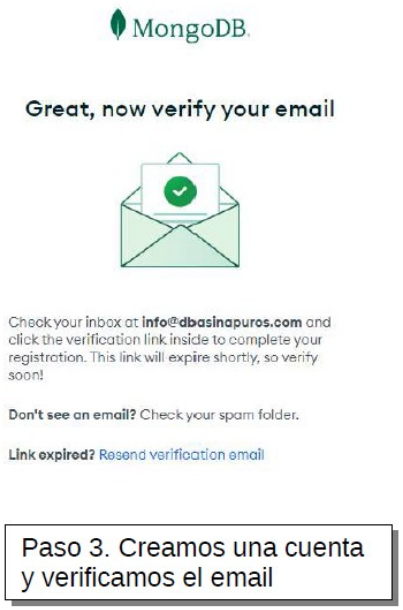
- String
- Integer
- Long integer
- Double
- Date
- Boolean
- Array
- Object
- ObjectId

Entorno de pruebas

MongoDB Atlas

MongoDB Atlas es una infraestructura de base de datos en la nube, completamente administrada.

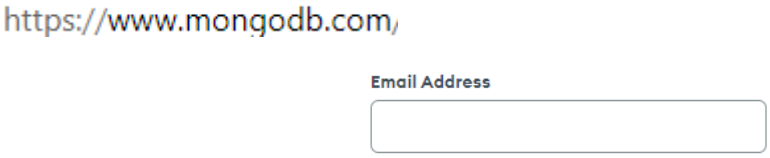
Actualmente se puede contratar un servidor dedicado o uno compartido. También facilita un cluster de base de datos gratuito en un servidor compartido para pequeños proyectos o destinado al aprendizaje.



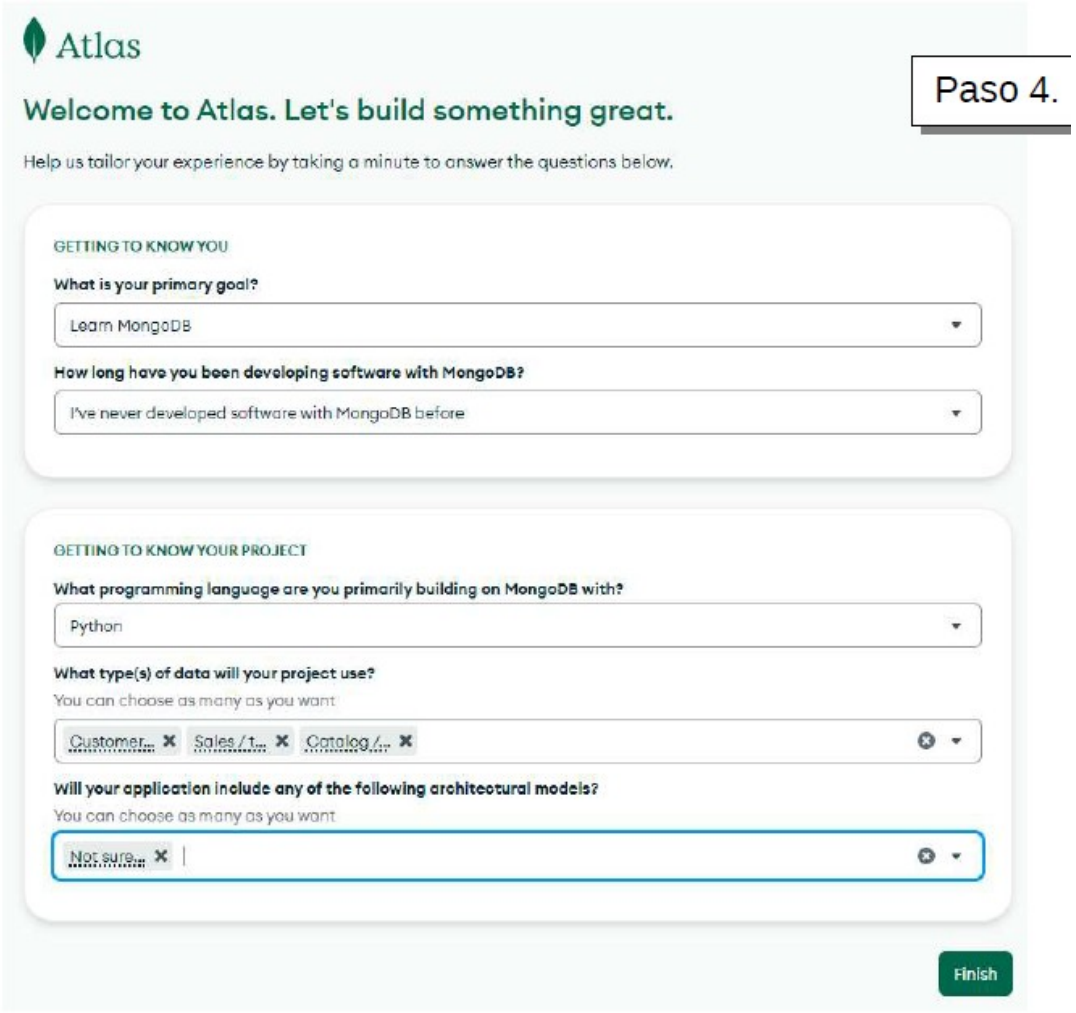
Paso 3. Creamos una cuenta y verificamos el email

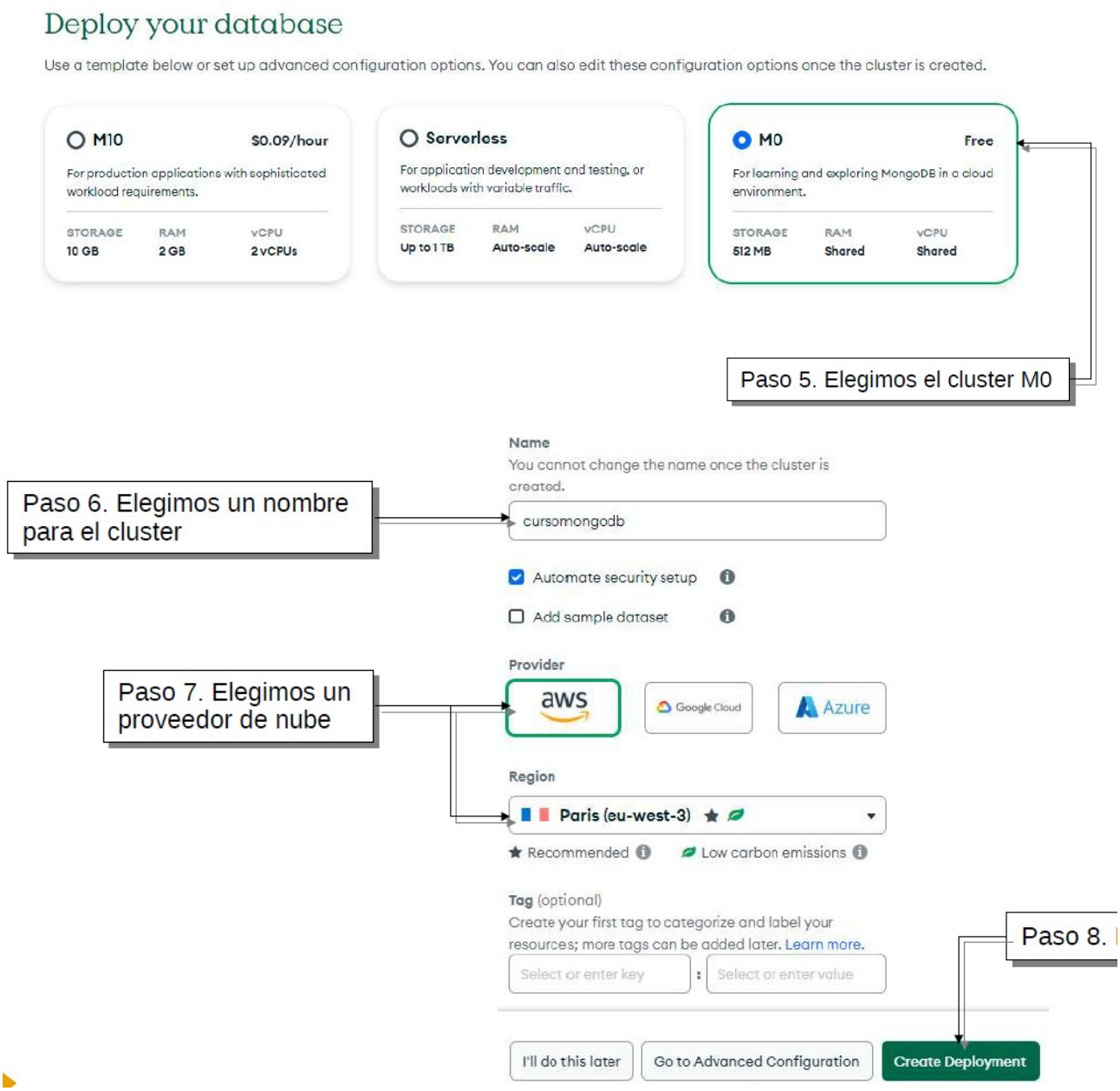
trai

Nos conectamos:

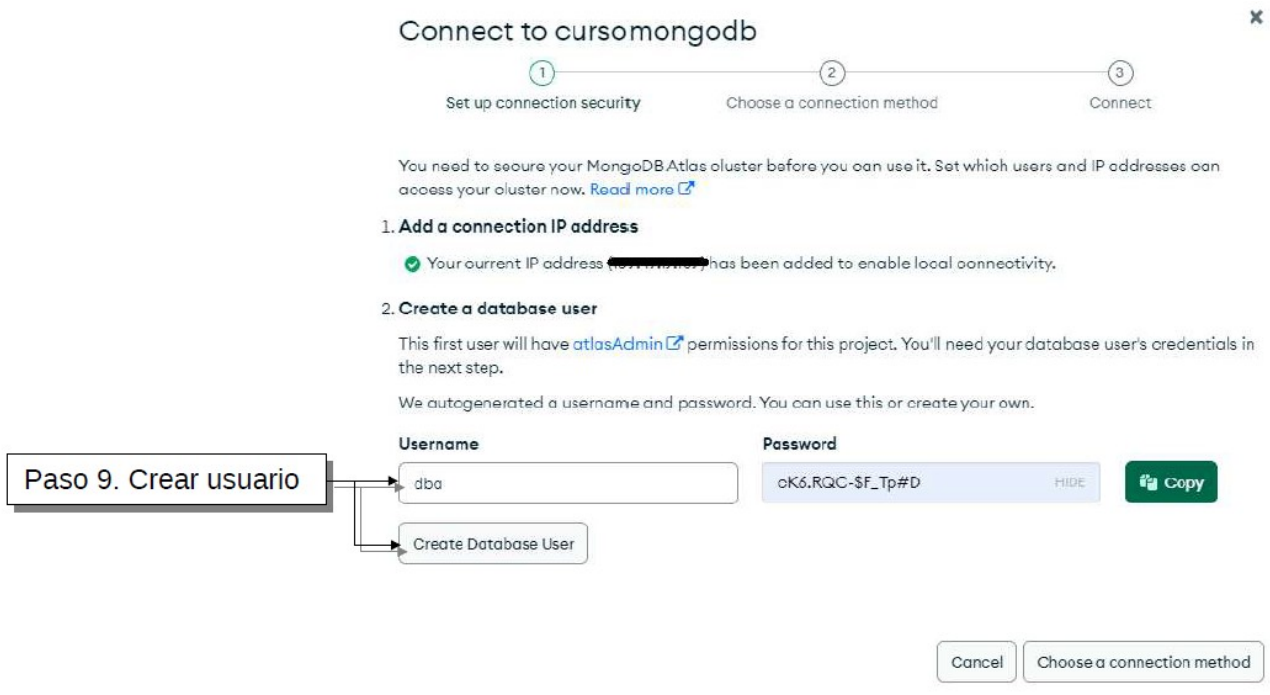


Y respondemos a algunas preguntas:

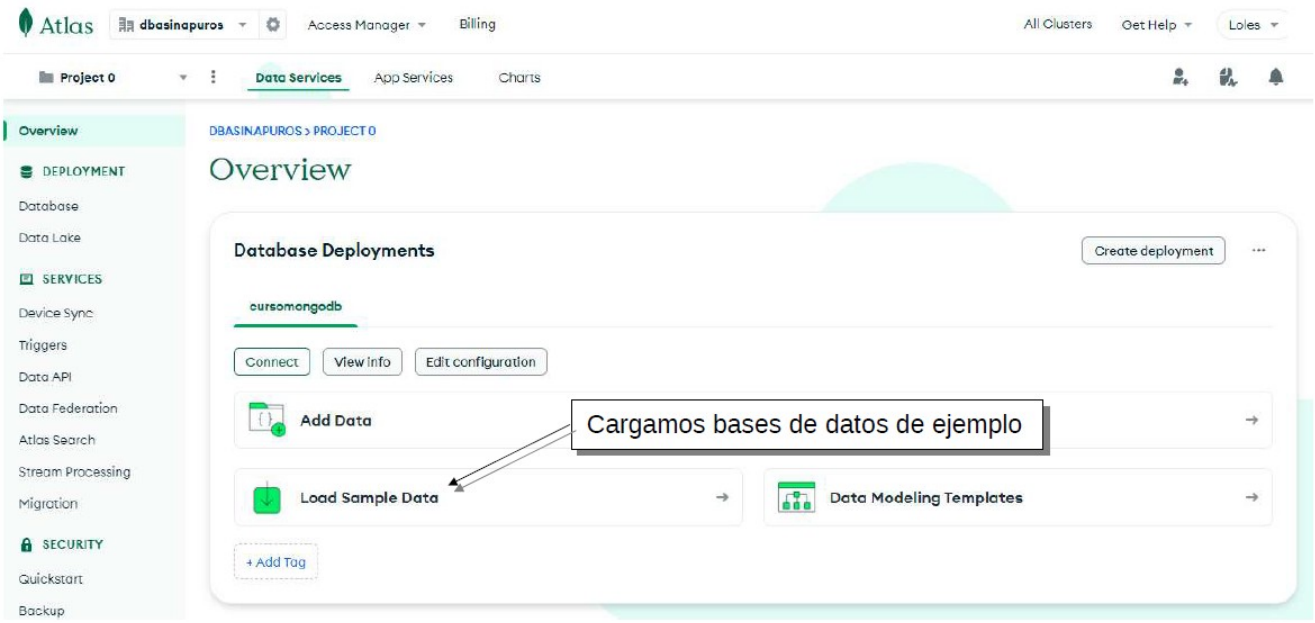


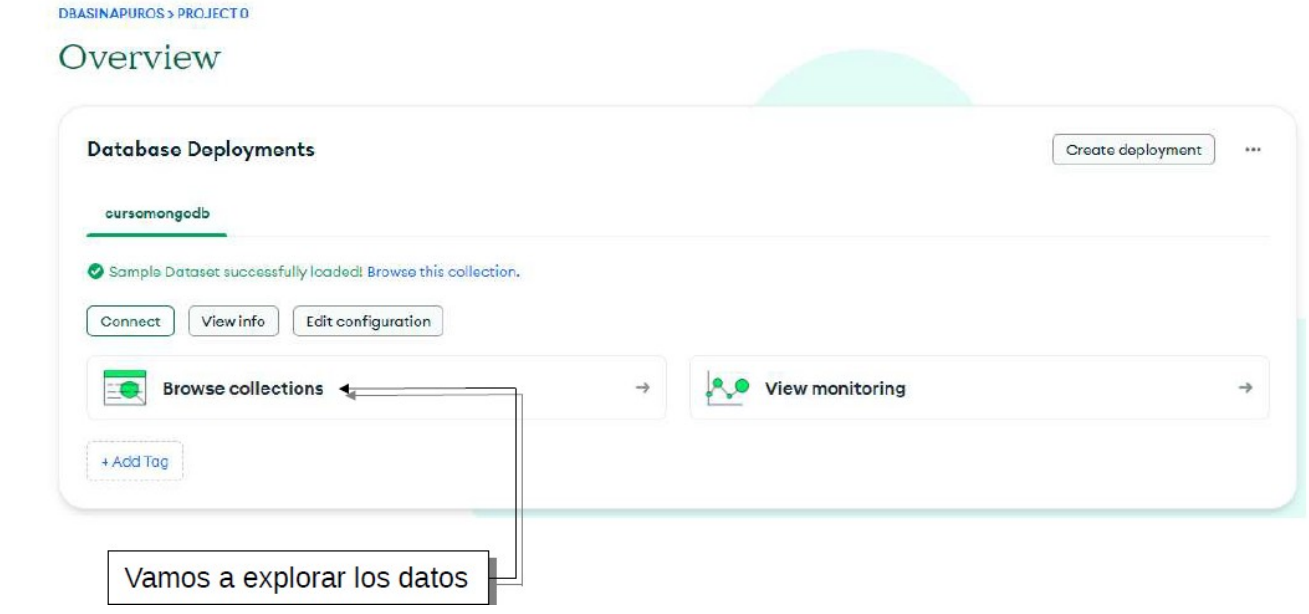


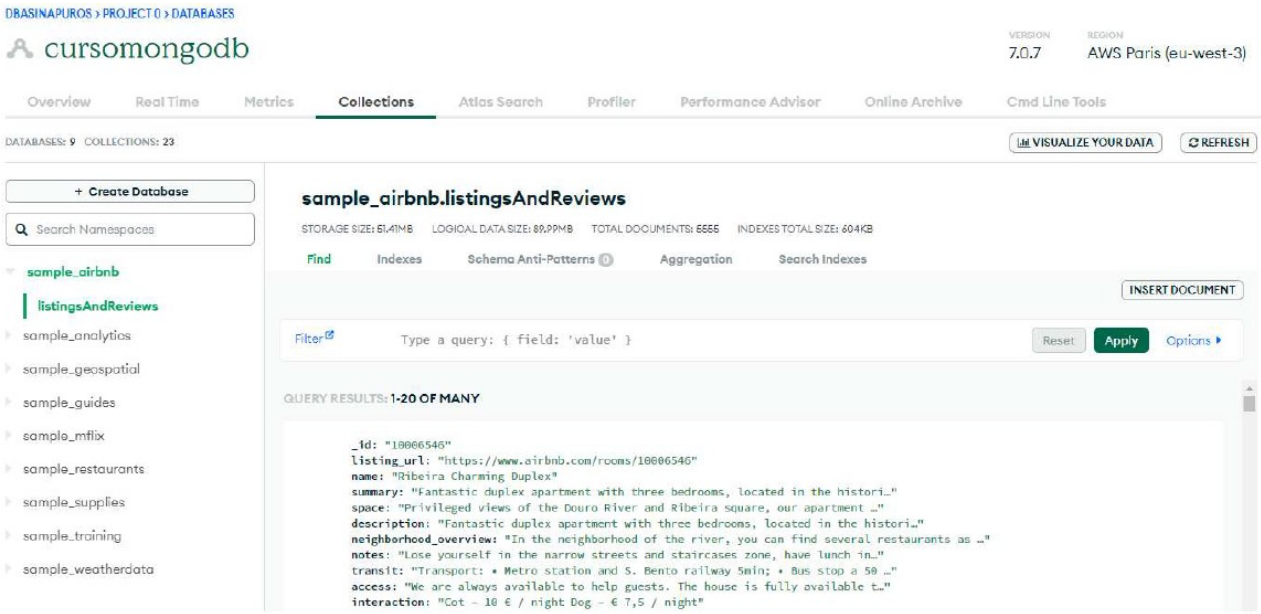
Al crear el usuario debemos recordar el password.




Connect to cursomongodb
1
Set up connection security
2
Choose a connection method
3
Connect
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 ([redacted]) has been added to enable local connectivity.
2. Create a database user
A database user has been added to this project.
You'll need your database user's credentials in the next step.
Paso 10. Hacemos clic aquí
Cancel
Choose a connection method


Atlas
dbasinapuros
Access Manager
Billing
All Clusters
Get Help
Loles
Project 0
Data Services
App Services
Charts
Overview
DEPLOYMENT
Database
Data Lake
SERVICES
Device Sync
Triggers
Data API
Data Federation
Atlas Search
Stream Processing
Migration
SECURITY
Quickstart
Backup
DBASINAPUROS > PROJECT 0
Overview
Database Deployments
Create deployment
cursomongodb
Connect
View Info
Edit configuration
Add Data
Cargamos bases de datos de ejemplo
Load Sample Data
Data Modeling Templates
+ Add Tag


DBASINAPUROS > PROJECT 0
Overview
Database Deployments
Create deployment
cursomongodb
Sample Dataset successfully loaded! Browse this collection.
Connect
View info
Edit configuration
Browse collections
View monitoring
+ Add Tag
Vamos a explorar los datos

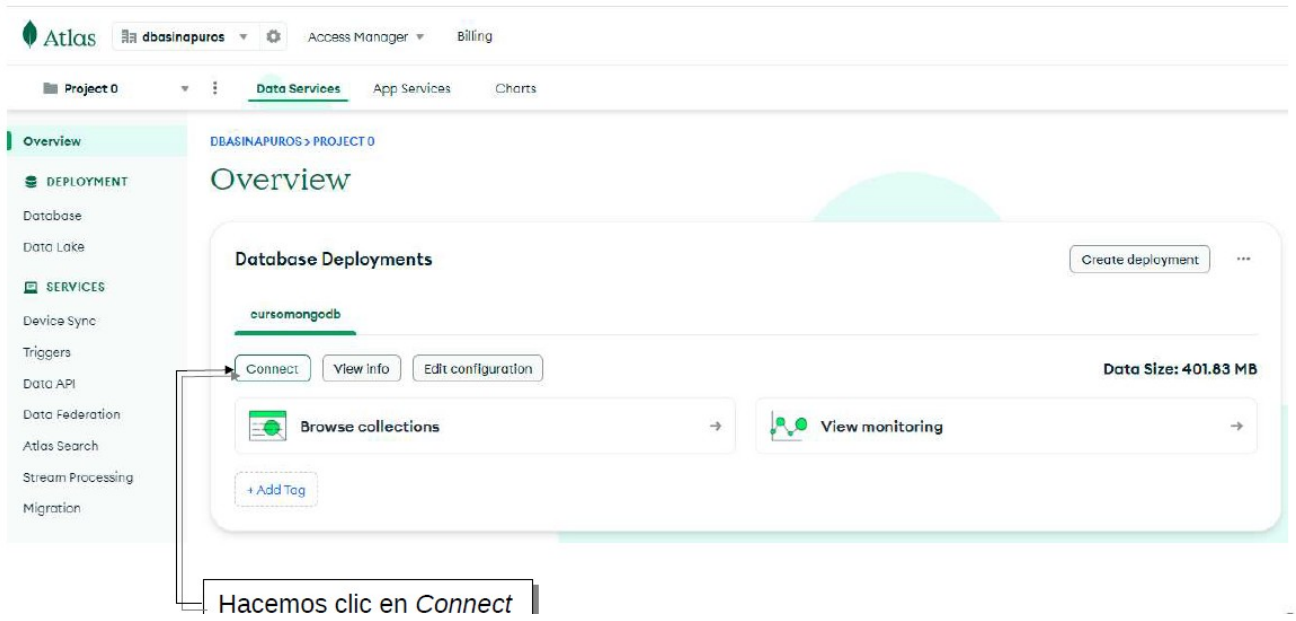


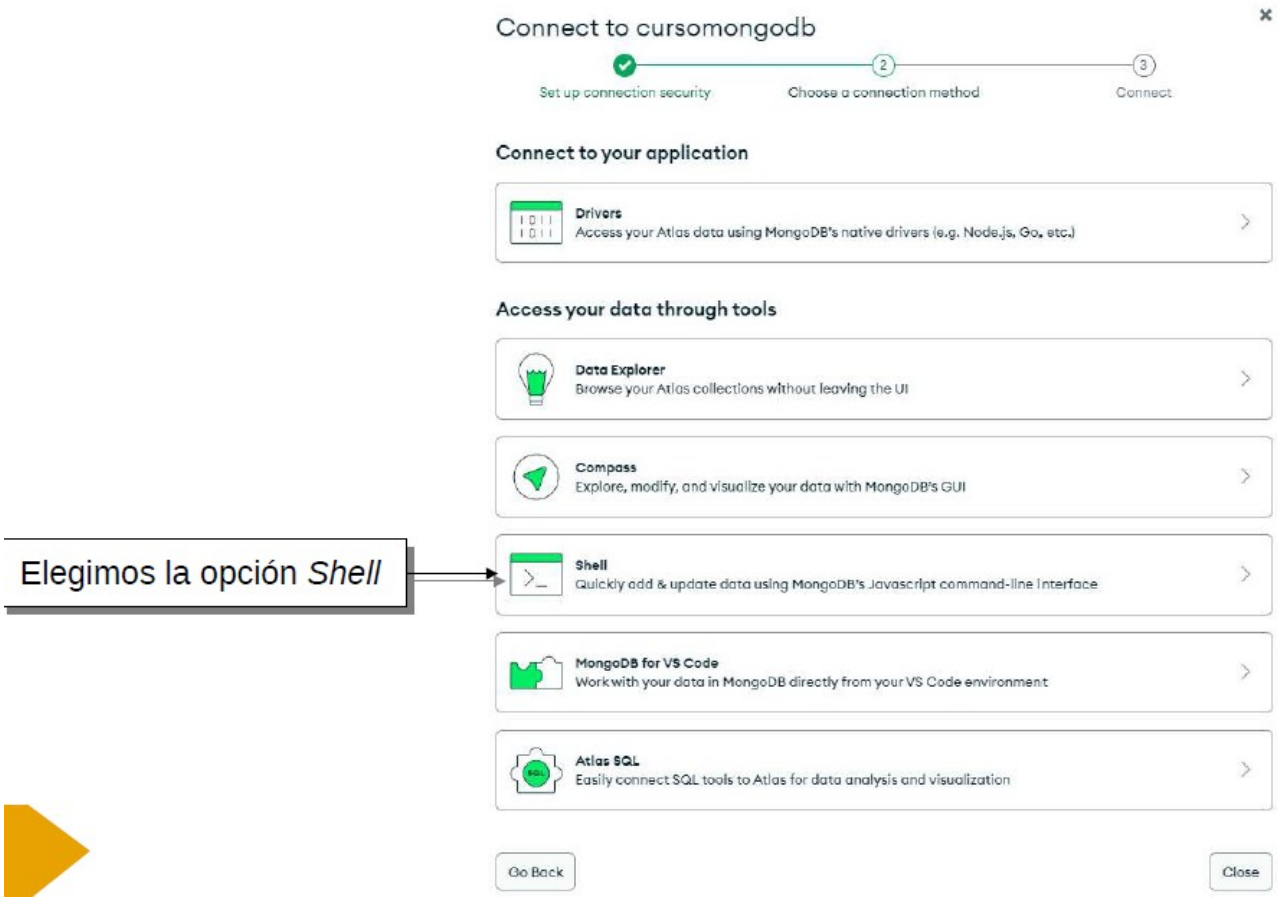
MongoDB Shell

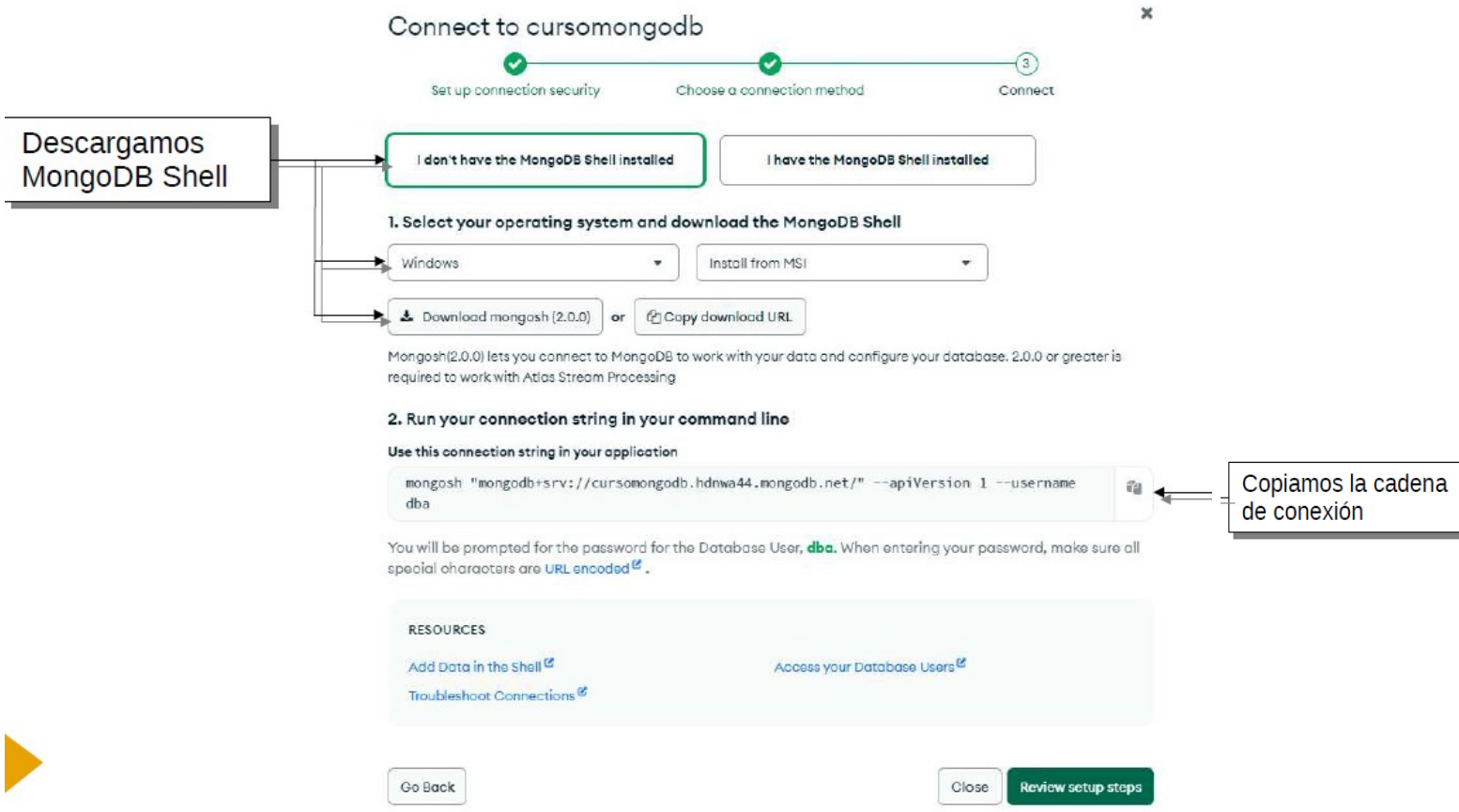
MongoDB Shell es el intérprete de comandos en modo texto de MongoDB.

Está escrito en JavaScript y Node.js

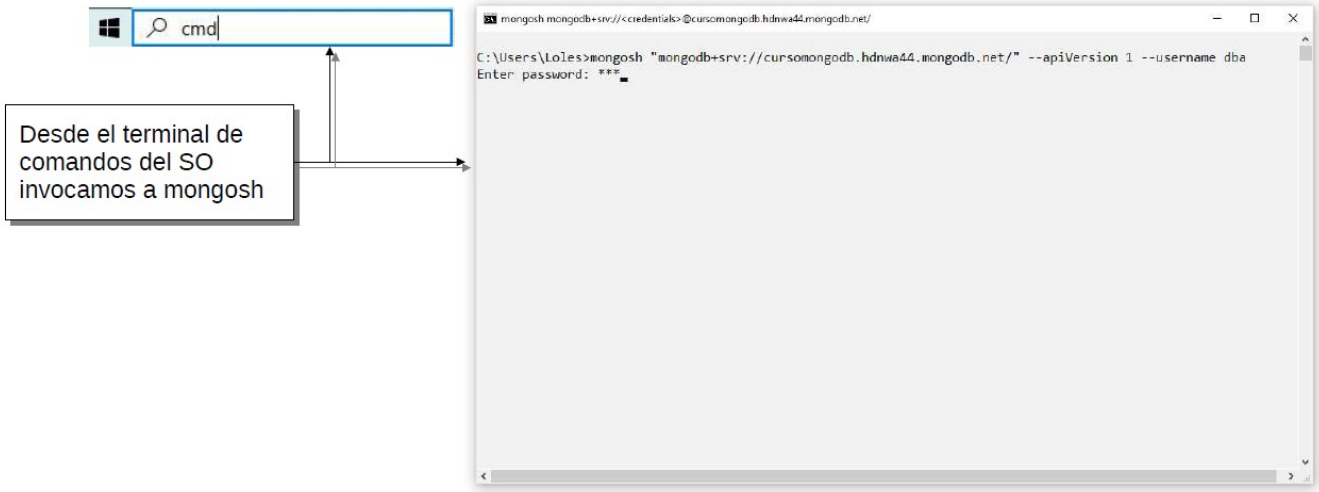
Nos permite interactuar con las bases de datos, consultar colecciones y realizar operaciones administrativas.




Connect to cursomongodb
Set up connection security
2
Choose a connection method
3
Connect
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
Elegimos la opción Shell
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
Go Back
Close


Connect to cursomongodb
Set up connection security
Choose a connection method
3
Connect
Descargamos MongoDB Shell
I don't have the MongoDB Shell installed
I have the MongoDB Shell installed
1. Select your operating system and download the MongoDB Shell
Windows
Install from MSI
Download mongosh (2.0.0)
or
Copy download URL
Mongosh(2.0.0) lets you connect to MongoDB to work with your data and configure your database. 2.0.0 or greater is required to work with Atlas Stream Processing
2. Run your connection string in your command line
Use this connection string in your application
mongosh "mongodb+srv://cursomongodb.hdnwa44.mongodb.net/" --apiVersion 1 --username dba
Copiamos la cadena de conexión
You will be prompted for the password for the Database User, dba. When entering your password, make sure all special characters are URL encoded.
RESOURCES
Add Data in the Shell
Access your Database Users
Troubleshoot Connections
Go Back
Close
Review setup steps

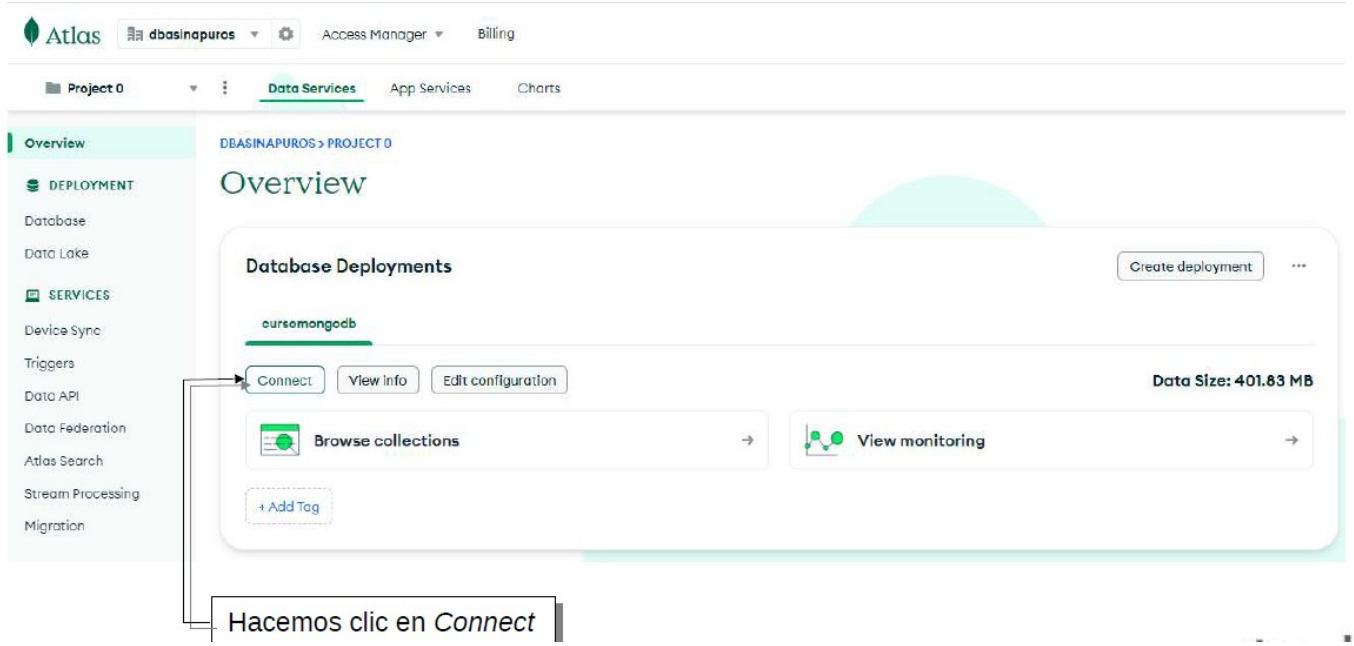
Para conectarnos desde el terminal pegamos en el prompt la cadena de conexión copiada:

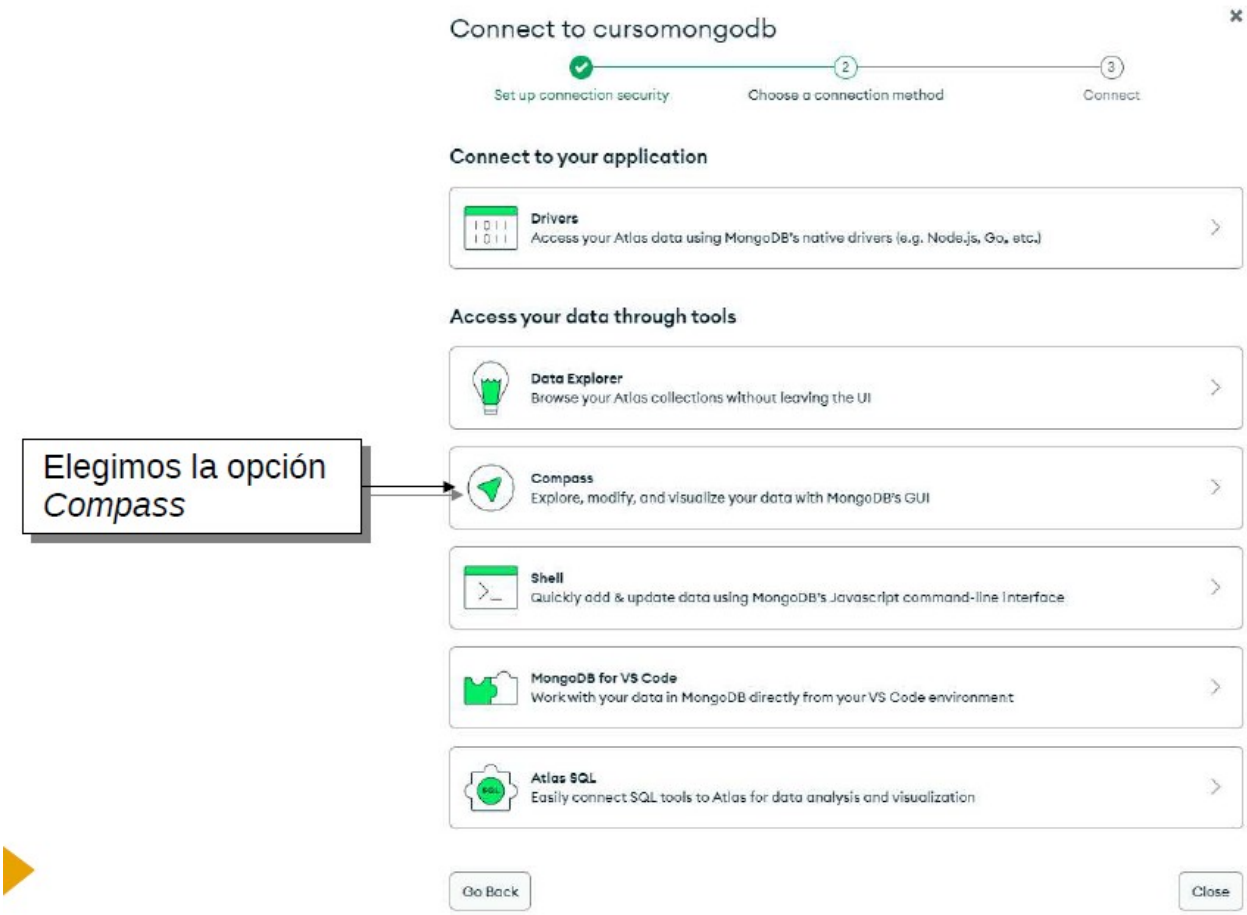


MongoDB Compass

MongoDB Compass es una interfaz gráfica de usuario para trabajar con bases de datos MongoDB.

Está desarrollada por la misma empresa y permite la realización de operaciones con la base de datos de forma intuitiva sin conocer la sintaxis de las mismas.


Atlas
dbasinapuros
Access Manager
Billing
Project 0
Data Services
App Services
Charts
Overview
DEPLOYMENT
Database
Data Lake
SERVICES
Device Sync
Triggers
Data API
Data Federation
Atlas Search
Stream Processing
Migration
DBASINAPUROS > PROJECT 0
Overview
Database Deployments
Create deployment
cursomongodb
Connect
View Info
Edit configuration
Data Size: 401.83 MB
Browse collections
View monitoring
+ Add Tag
Hacemos clic en *Connect*


Connect to cursomongodb
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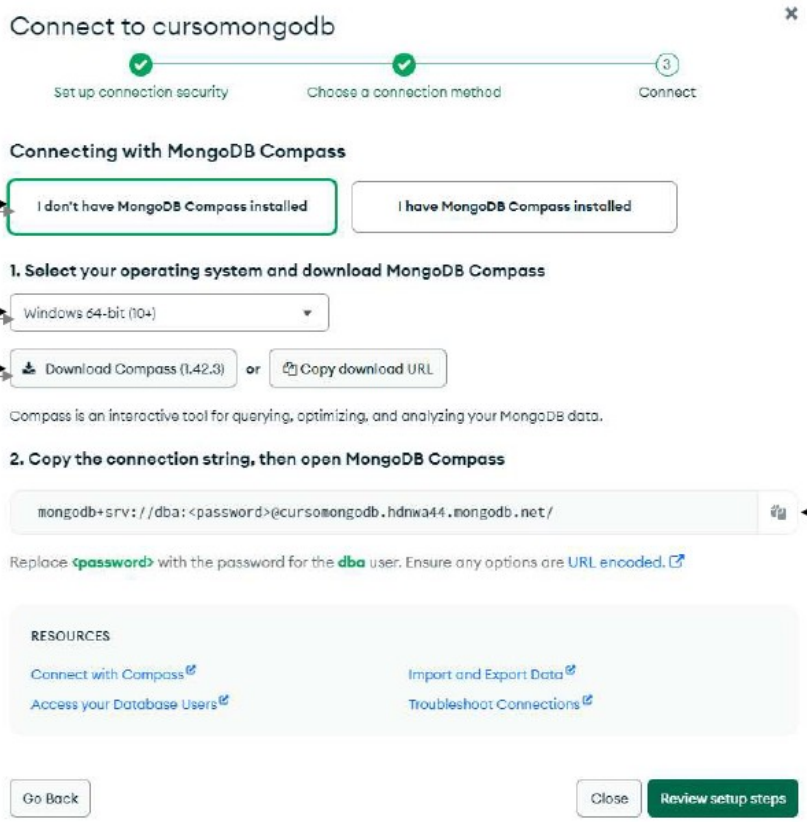
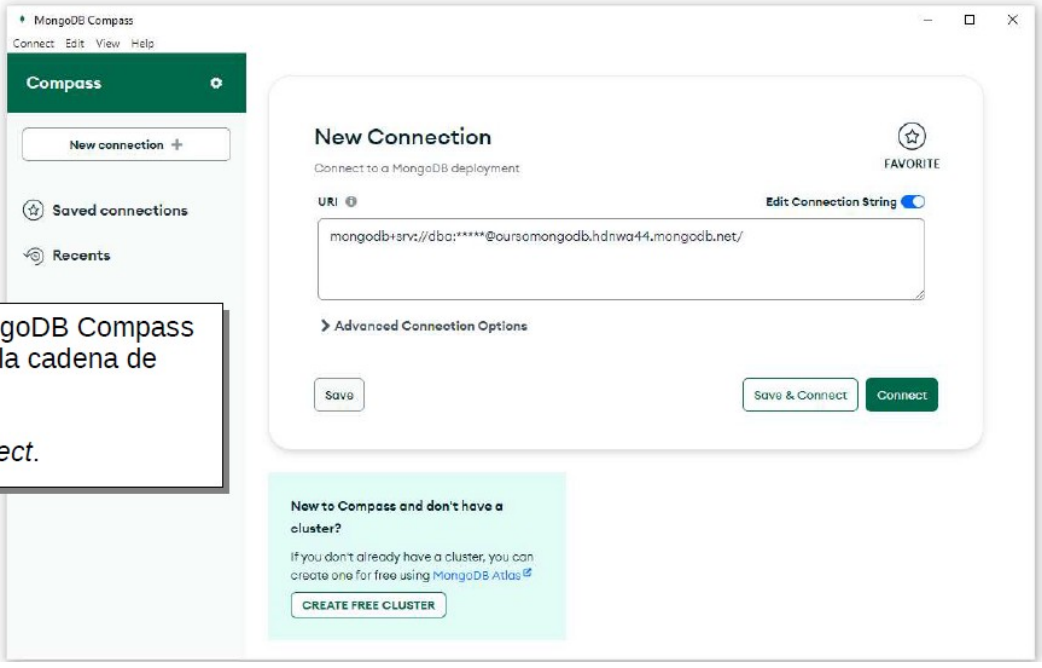
Work with your data in MongoDB directly from your VS Code environment
Atlas SQL
Easily connect SQL tools to Atlas for data analysis and visualization
Go Back
Close
Elegimos la opción *Compass*

Descargamos MongoDB Compass

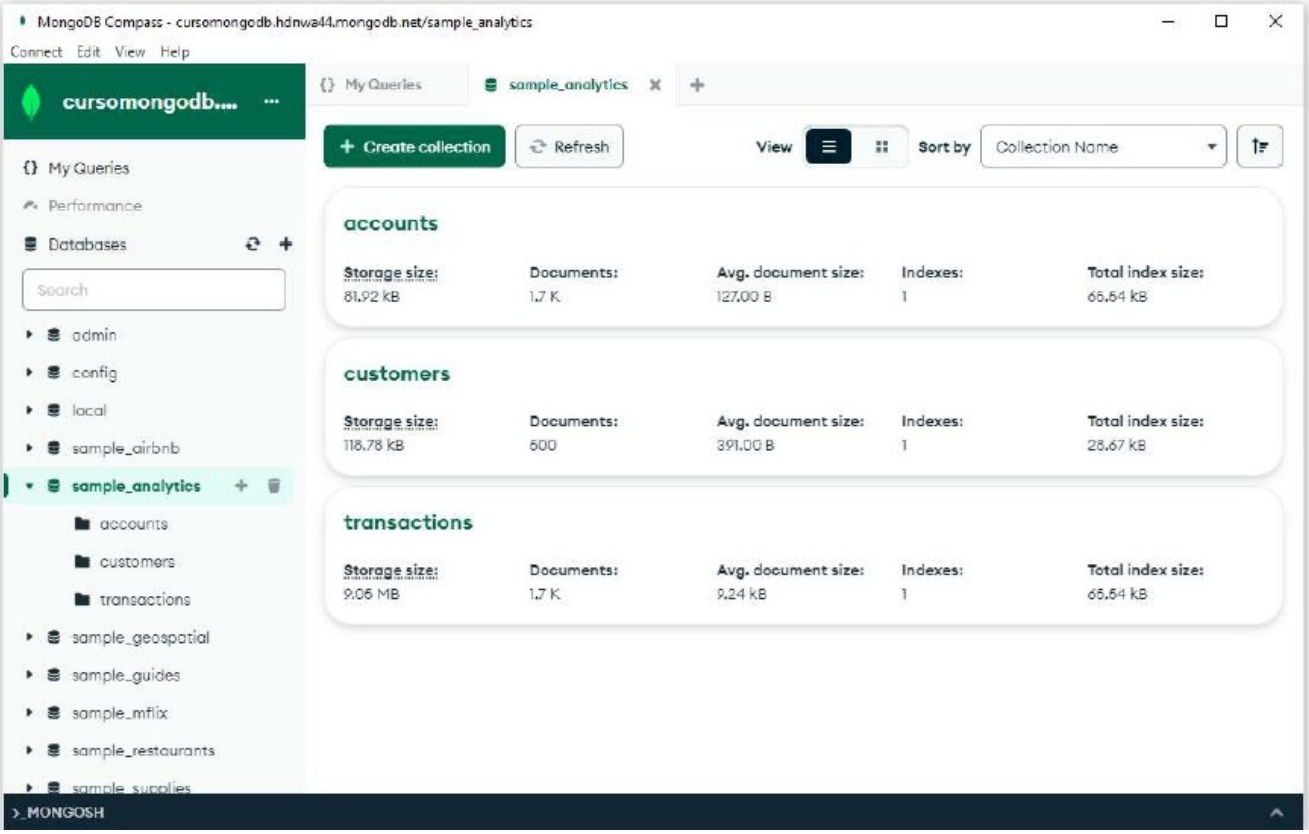


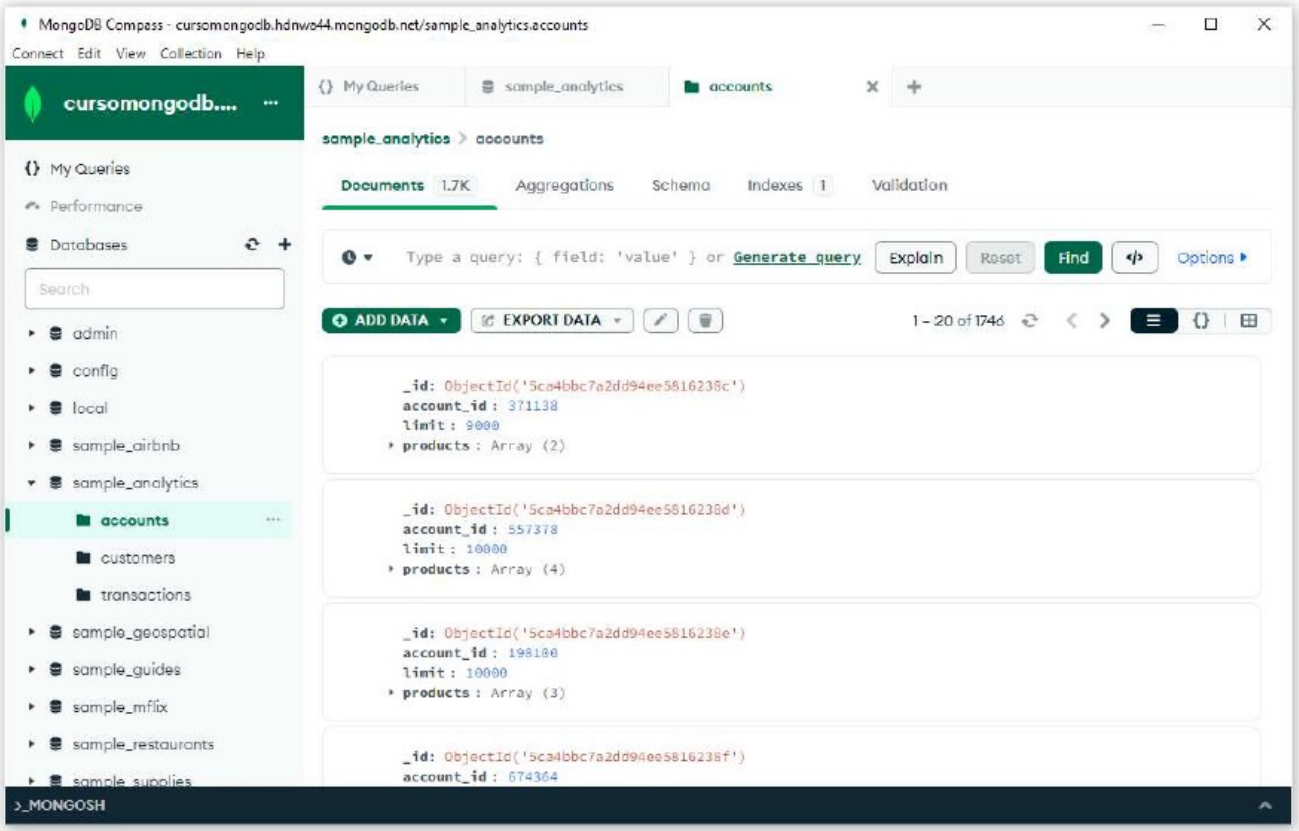
Copiamos la cadena de conexión



Abrimos MongoDB Compass y escribimos la cadena de conexión.

Clic en *Connect*.


MongoDB Compass - cursomongodb.hdnwa44.mongodb.net/sample_analytics
Connect Edit View Help
cursomongodb....
My Queries
Performance
Databases
Search
admin
config
local
sample_airbnb
sample_analytics
accounts
customers
transactions
sample_geospatial
sample_guides
sample_mflix
sample_restaurants
sample_supplies
My Queries
sample_analytics
+ Create collection
Refresh
View
Sort by
Collection Name
accounts
Storage size: 81.92 kB
Documents: 1.7 K
Avg. document size: 127.00 B
Indexes: 1
Total index size: 65.54 kB
customers
Storage size: 118.78 kB
Documents: 500
Avg. document size: 391.00 B
Indexes: 1
Total index size: 28.67 kB
transactions
Storage size: 9.06 MB
Documents: 1.7 K
Avg. document size: 9.24 kB
Indexes: 1
Total index size: 65.54 kB
>_MONGOSH

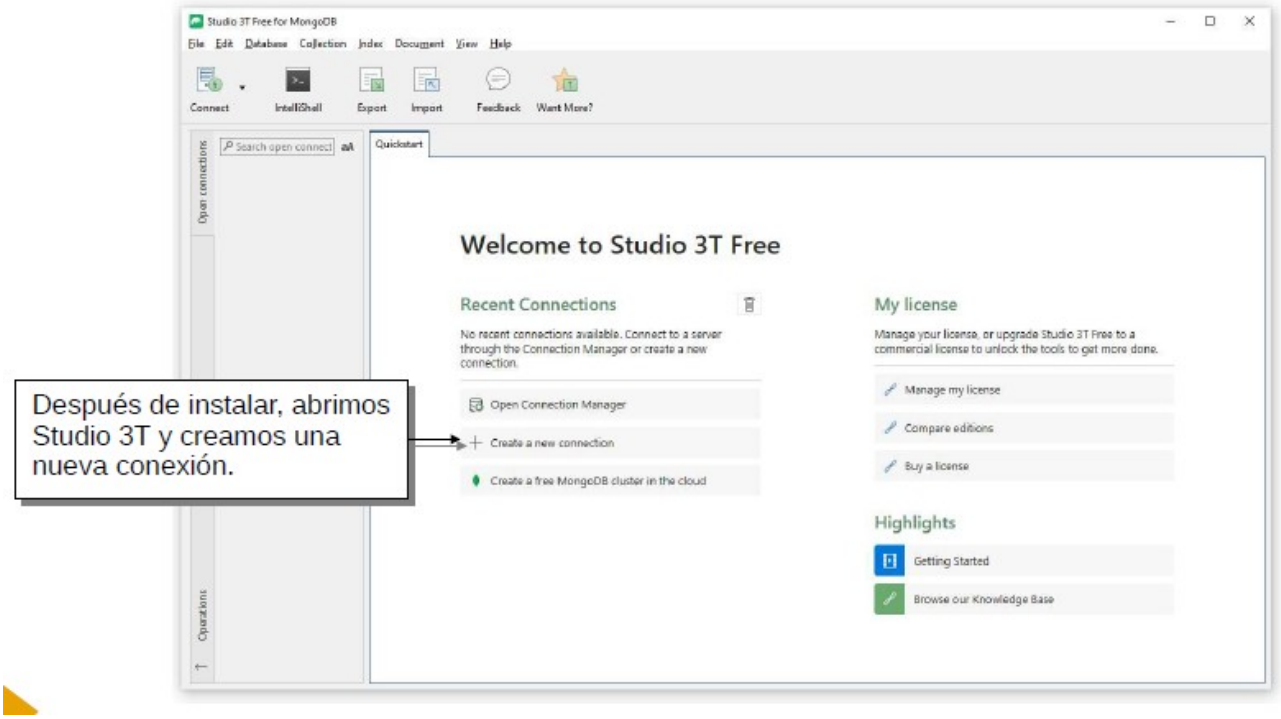

MongoDB Compass - cursomongodb.hdnwa44.mongodb.net/sample_analytics.accounts
Connect Edit View Collection Help
cursomongodb....
My Queries
Performance
Databases
Search
admin
config
local
sample_airbnb
sample_analytics
accounts
customers
transactions
sample_geospatial
sample_guides
sample_mflix
sample_restaurants
sample_supplies
My Queries
sample_analytics
accounts
sample_analytics > accounts
Documents 1.7K
Aggregations
Schema
Indexes 1
Validation
Type a query: { field: 'value' } or Generate query
Explain
Reset
Find
Options
ADD DATA
EXPORT DATA
1 - 20 of 1746
_id: ObjectId('5ca4bbc7a2dd94ee5816238c')
account_id : 371138
limit : 9000
products : Array (2)
_id: ObjectId('5ca4bbc7a2dd94ee5816238d')
account_id : 557378
limit : 10000
products : Array (4)
_id: ObjectId('5ca4bbc7a2dd94ee5816238e')
account_id : 198100
limit : 10000
products : Array (3)
_id: ObjectId('5ca4bbc7a2dd94ee5816238f')
account_id : 674364
>_MONGOSH

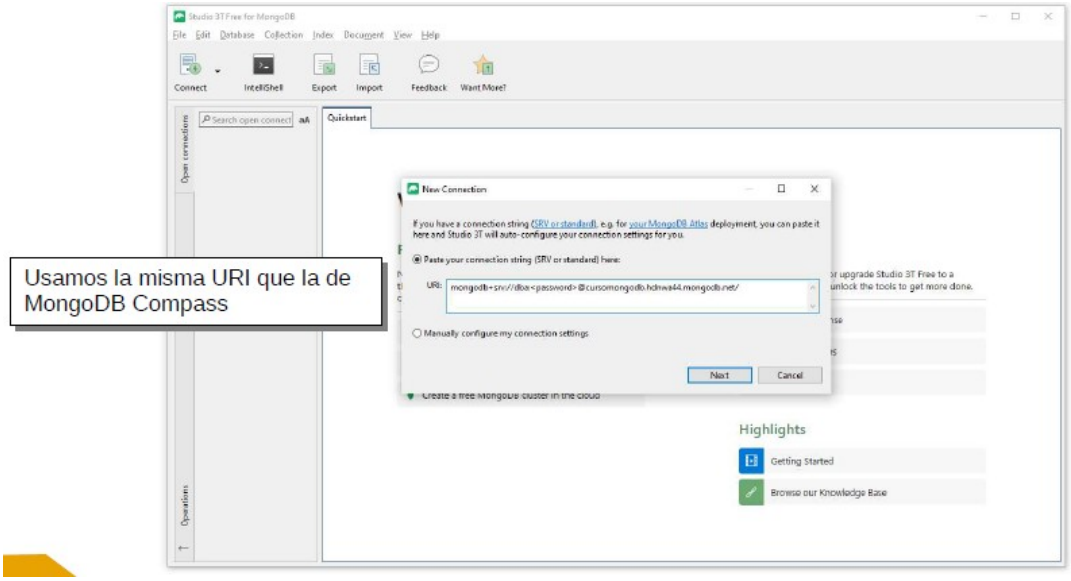
Studio 3T

Studio 3T es una interfaz gráfica de usuario para MongoDB.

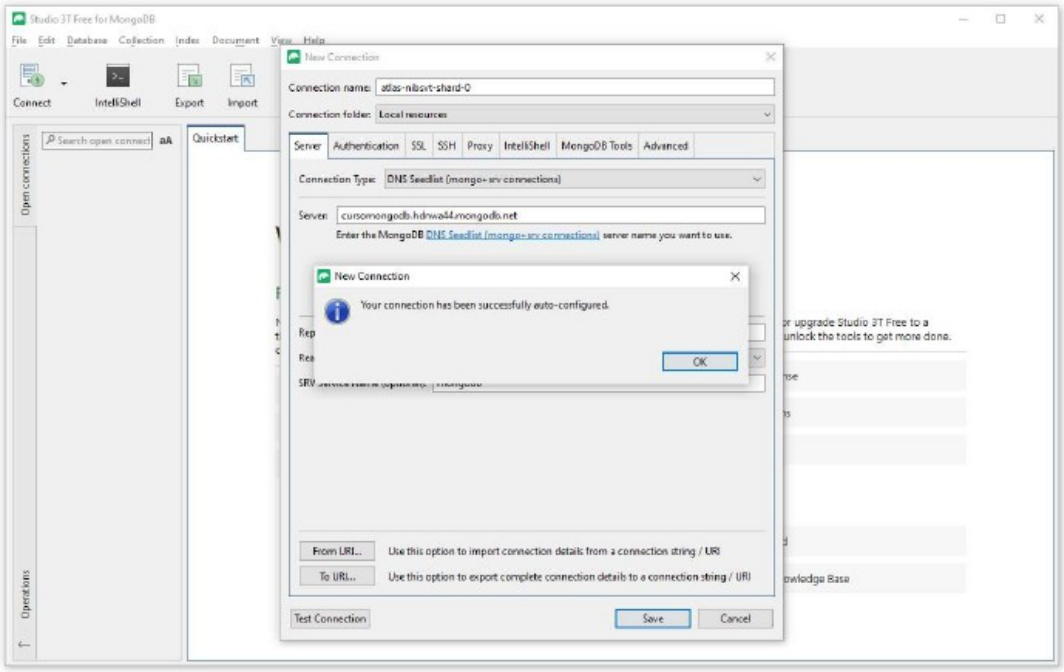
Tiene una licencia Free y una licencia Premium que podemos probar durante un mes.

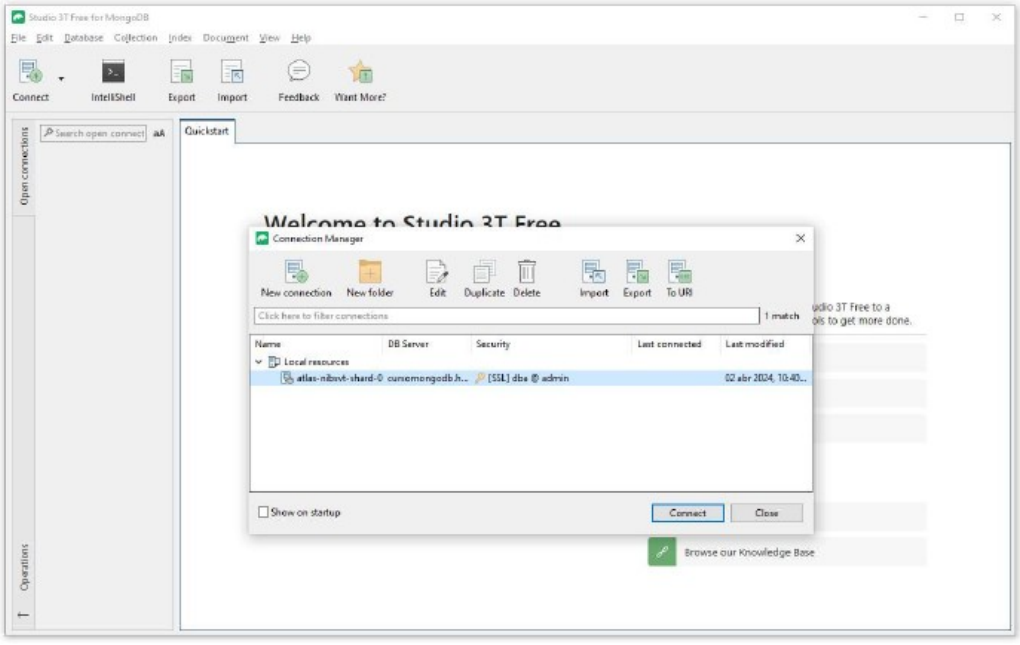
Es similar a MongoDB Compass pero sus herramientas recuerdan a otros productos como DBeaver.

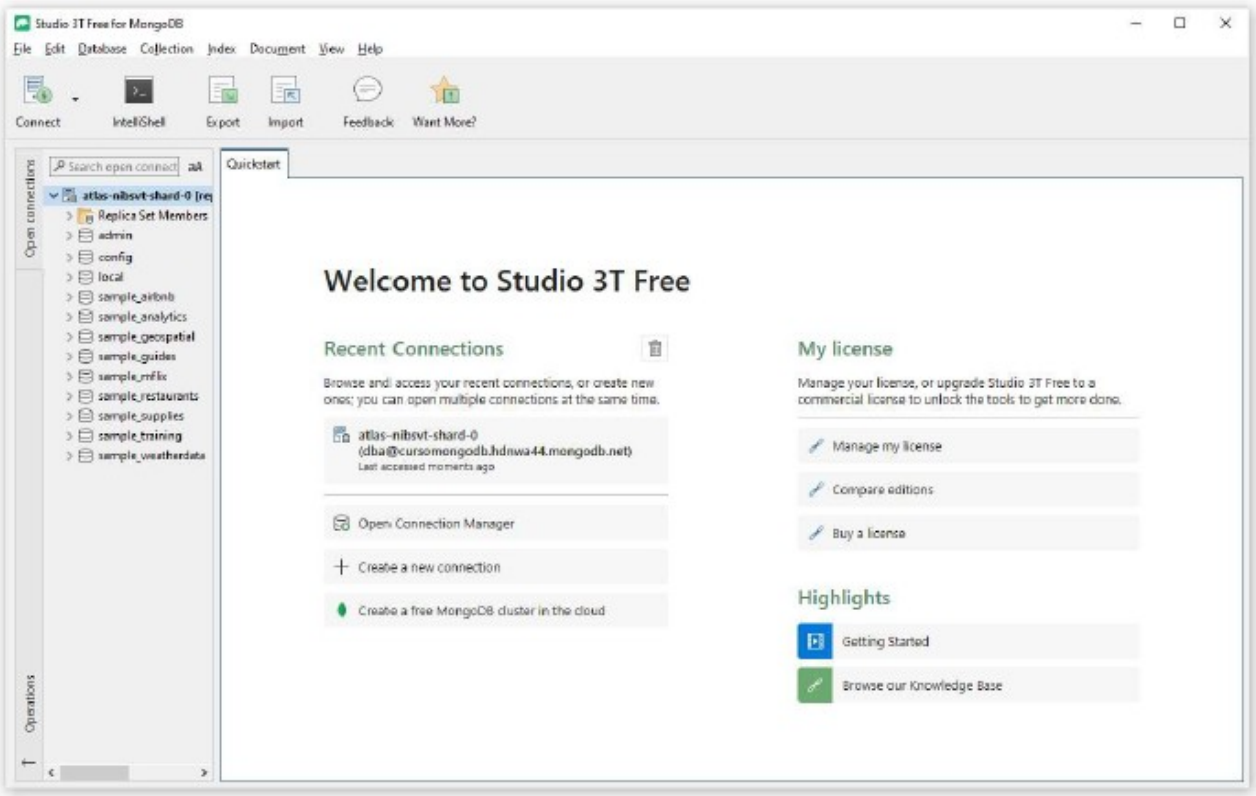


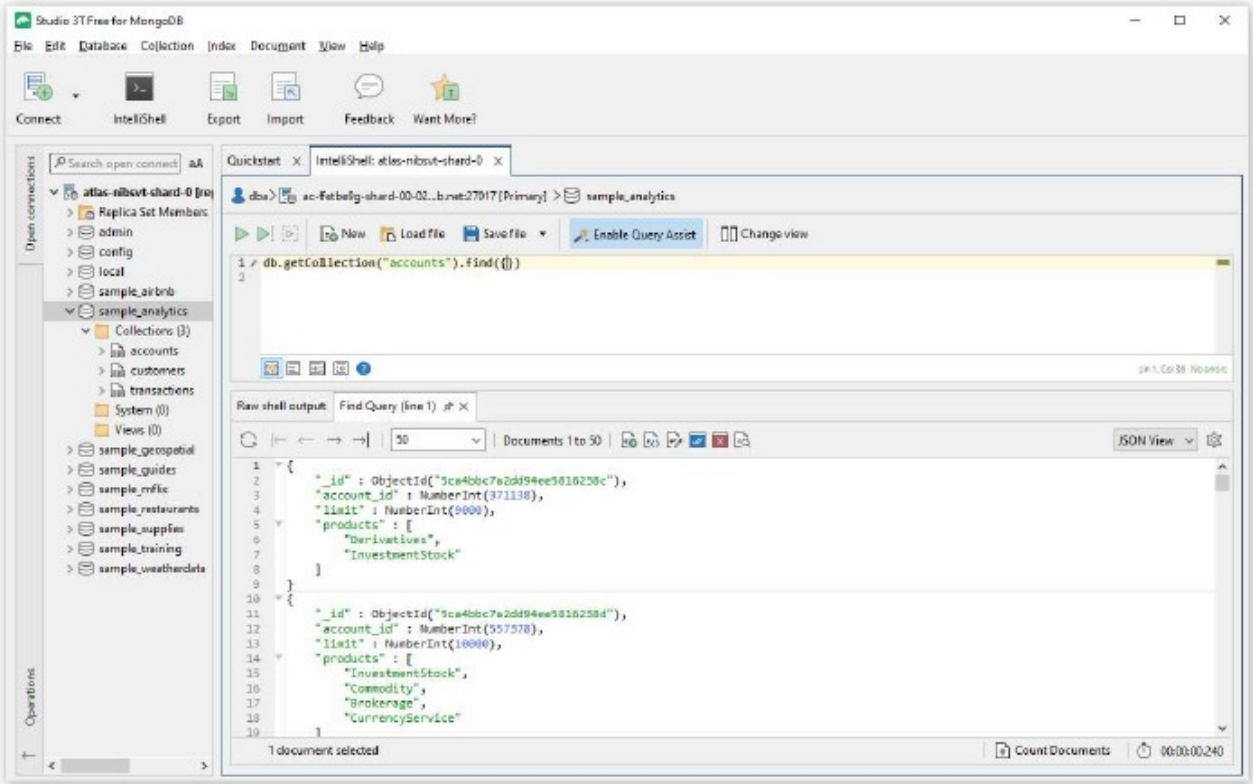


Recuerda cambiar el password por el tuyo.






Studio 3T Free for MongoDB
File Edit Database Collection Index Document View Help
Connect IntelliShell Export Import Feedback Want More?
Open connections
Search open connect
atlas-nibsvt-shard-0
Replica Set Members
admin
config
local
sample_airbnb
sample_analytics
sample_geospatial
sample_guides
sample_mflix
sample_restaurants
sample_supplies
sample_training
sample_weatherdata
Operations
Quickstart
Welcome to Studio 3T Free
Recent Connections
Browse and access your recent connections, or create new ones; you can open multiple connections at the same time.
atlas-nibsvt-shard-0
(dba@cursomongodb.hdnwa44.mongodb.net)
Last accessed moments ago
Open Connection Manager
Create a new connection
Create a free MongoDB cluster in the cloud
My license
Manage your license, or upgrade Studio 3T Free to a commercial license to unlock the tools to get more done.
Manage my license
Compare editions
Buy a license
Highlights
Getting Started
Browse our Knowledge Base


Studio 3T Free for MongoDB
File Edit Database Collection Index Document View Help
Connect IntelliShell Export Import Feedback Want More?
Quickstart
IntelliShell: atlas-nibsvt-shard-0
sample_analytics
New Load file Save file Enable Query Assist Change view
db.getCollection("accounts").find({})
Raw shell output
Find Query (line 1)
Documents 1 to 50
JSON View
{
"_id" : ObjectId("5ca4bbc7a2dd94ee5816238c"),
"account_id" : NumberInt(371138),
"limit" : NumberInt(9000),
"products" : [
"Derivatives",
"InvestmentStock"
]
}
{
"_id" : ObjectId("5ca4bbc7a2dd94ee5816238d"),
"account_id" : NumberInt(557578),
"limit" : NumberInt(10000),
"products" : [
"InvestmentStock",
"Commodity",
"Brokerage",
"CurrencyService"
]
1 document selected
Count Documents
00:00:00.240