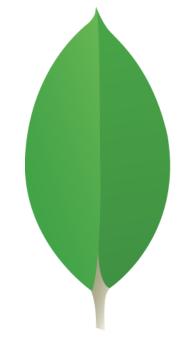


O que é NoSQL?

- Não usa SQL
- Utiliza uma linguagem de consulta customizada
- É um banco de dados "não-relacional"
- Significa coisas diferentes em implementações diferentes
- Favorece a velocidade e escalabilidade mais que qualquer outro recurso
- Não substitui o tradicional RDBMS







mongolbe

O que é mongoDB?

Uma base de dados orientada a "documentos"

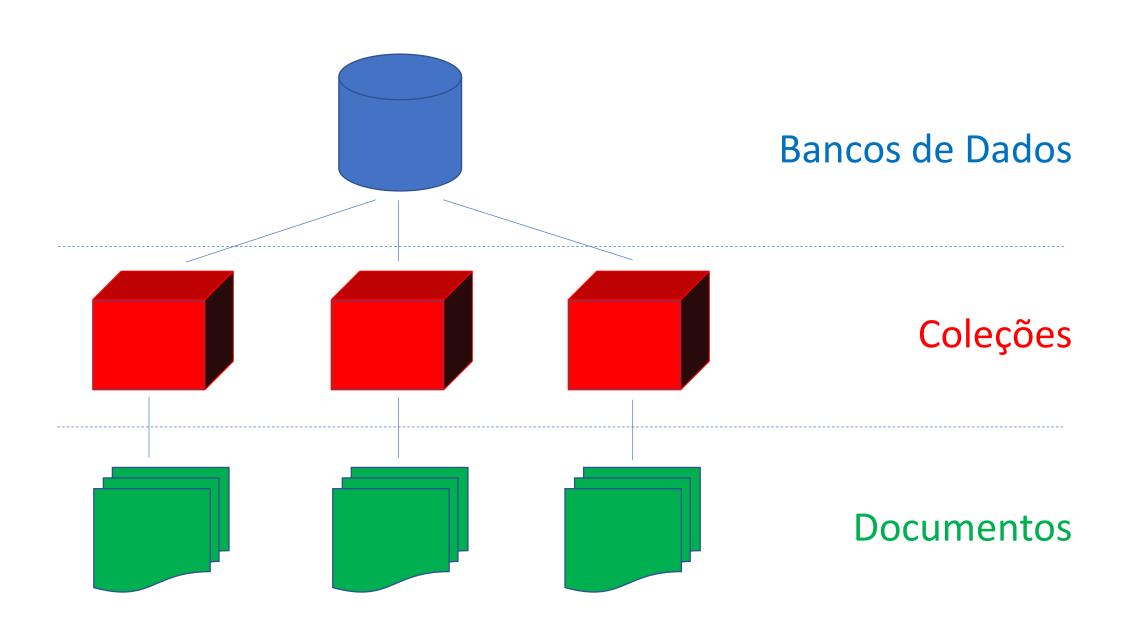
Documentos são representados como pares de *Name : Value*

Documentos aninhados e arrays reduzem a necessidade de joins

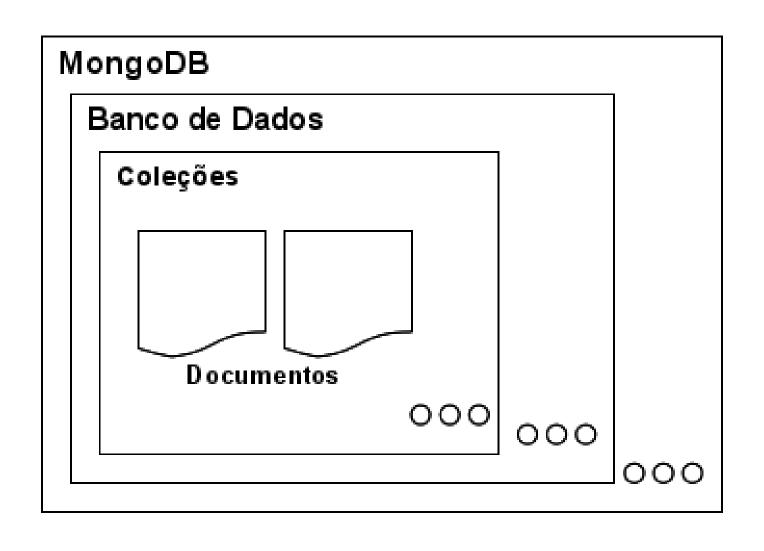
Esquemas dinâmicos – permitem dados não estruturados e complexos



Estrutura de um banco de dados MongoDB



Estrutura de um banco de dados MongoDB



MongoDB x MySLQ



- Tabelas
- Linhas
- Colunas
- Estrutura definida
- Joins

MongoDB

- Collection
- Documentos
- Atributos
- Estrutura flexível
- Documentos completos

MongoDB – Documento exemplo

```
"firstName":"Jack",
"secondName": "Jones",
"age":30,
"phoneNumbers":[
  {fixedLine:"1234"},
  {mobile:"5678"}
"residentialAddress":{
lineOne:"...",
lineTwo:"...",
city:"...",
state:"...",
 zip:"...",
country:"..."
```

- Nomes sempre entre aspas
- Valores string sempre entre aspas
- Separado por virgulas
- Chaves representam objetos
 - residentalAddress é um objeto aninhado
 - Colchetes representam arrays
 - phoneNumbers é um array de objetos

MongoDB - Vocabulário

SQL MongoDB

- Record / RowDocument
 - ColumnField
 - Primary Key
 - IndexIndex
 - CursorCursor
 - SchemaSchema

- Database
 Database
 - TableCollection

 - Primary Key

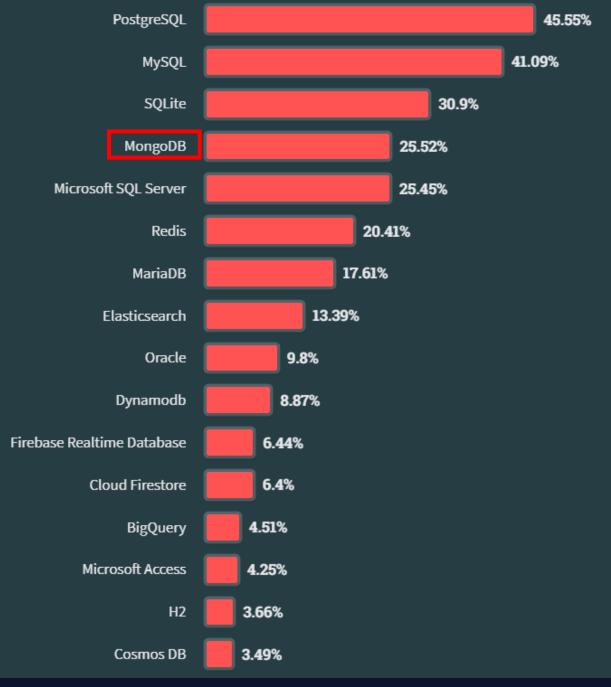
MongoDB - Detalhes

- Todos os documentos tem um campo **_id**
- Uma collection somente existe quando há dados
- Documentos em uma collection não necessitam um esquema rígido, mas tipicamente são similares
- A linguagem de consulta suporta estruturas complexas, incluindo expressões regulares

420 systems in ranking, June 2023

			420 systems in ranking, June 2023					
	Rank				Score			
Jun	May	Jun	DBMS	Database Model	Jun	May	Jun	
2023	2023 1.	2022 1.	Oracle 🚹	Relational, Multi-model 👔	2023 1231.48	2023	2022 -56.27	
			_					
2.	2.	2.	MySQL [Relational, Multi-model 🔞	1163.94			
3.	3.	3.	Microsoft SQL Server []	Relational, Multi-model 👔	930.06	+9.97	-3.76	
4.	4.	4.	PostgreSQL #	Relational, Multi-model 🛐	612.82	-5.08	-8.02	
5.	5.	5.	MongoDB 🔠	Document, Multi-model 👔	425.36	-11.25	-55.36	
6.	6.	6.	Redis 😷	Key-value, Multi-model 👔	167.35	-0.78	-7.96	
7.	7.	7.	IBM Db2	Relational, Multi-model 👔	144.89	+1.87	-14.30	
8.	8.	8.	Elasticsearch	Search engine, Multi-model 👔	143.75	+2.11	-12.25	
9.	1 0.	9.	Microsoft Access	Relational	134.45	+3.28	-7.36	
10.	4 9.	10.	SQLite	Relational	131.21	-2.65	-4.22	
11.	11.	1 3.	Snowflake 🚹	Relational	114.13	+2.41	+17.71	
12.	12.	4 11.	Cassandra 🚹	Wide column	108.55	-2.58	-6.90	
13.	13.	4 12.	MariaDB 🚹	Relational, Multi-model 🚺	97.31	+0.44	-14.27	
14.	14.	14.	Splunk	Search engine	89.45	+2.81	-6.11	
15.	15.	1 6.	Amazon DynamoDB 😷	Multi-model 🚺	79.90	-1.20	-3.98	
16.	16.	4 15.	Microsoft Azure SQL Database	Relational, Multi-model 👔	78.96	-0.23	-7.05	
17.	17.	17.	Hive	Relational	75.52	+1.91	-6.06	
18.	18.	1 24.	Databricks	Multi-model 👔	65.82	+1.87	+17.69	
19.	19.	4 18.	Teradata	Relational, Multi-model 👔	62.64	-0.07	-7.76	
20.	20.	1 23.	Google BigQuery 😷	Relational	54.64	-0.24	+5.57	
21.	21.	1 22.	FileMaker	Relational	54.38	+2.39	+2.80	

https://ob.ongines.com/onking



https://survey.stackoverflow.co/2023/#most-popular-technologies-database

MongoDB – Indicação de uso

Big Data

Escrita intensa

Busca simples, porém pesada

Alta escalabilidade e disponibilidade

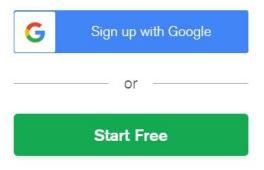
Schema instável

MongoDB — Site



MongoDB Atlas

Cloud-hosted MongoDB service on AWS, Azure and Google Cloud. Deploy, operate, and scale a MongoDB database in just a few clicks





https://www.mongodb.com/pt-br

MongoDB — Site

(Evento) Desconto de 50% no MongoDB.local São Paulo com o código WEB50! Saiba mais >



Produtos

Soluções

cões Recursos

Empresa

Preços

Q

Logar

Teste Grátis

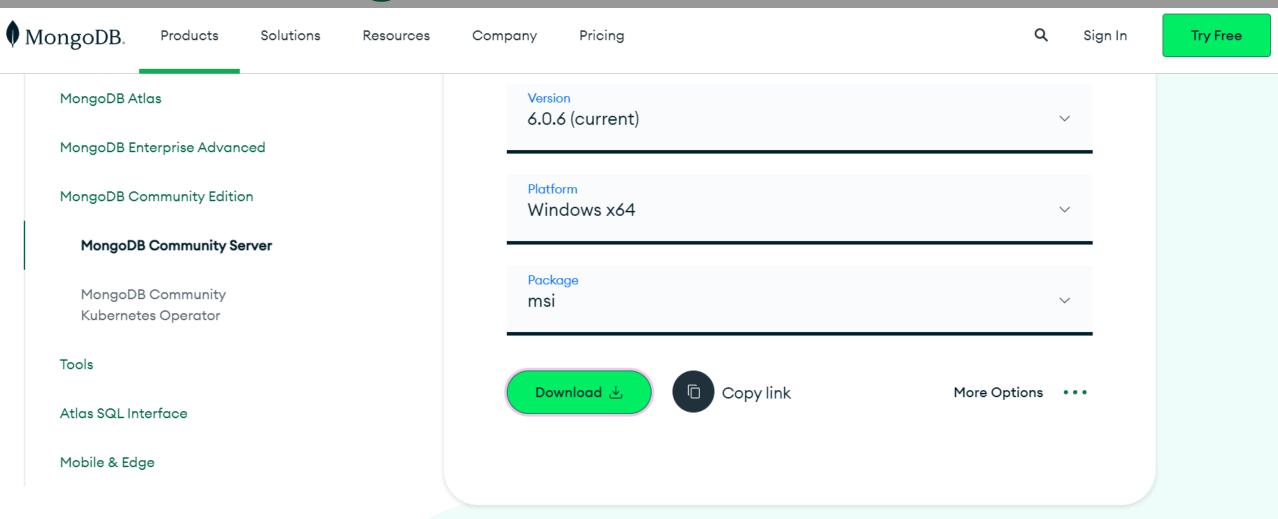
NOVO Apresentando o suporte nativo para dados de séries Saiba mais 🗦

Crie mais rapidamente. Crie com mais inteligência.

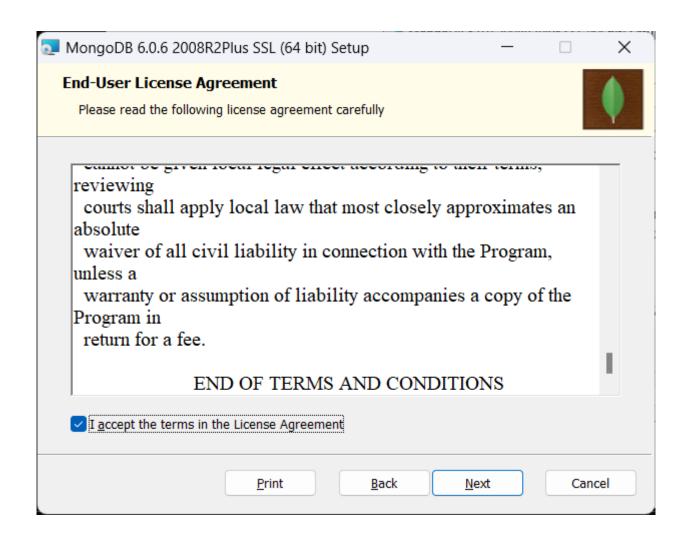
Leve suas ideias ao mercado mais rapidamente usando uma

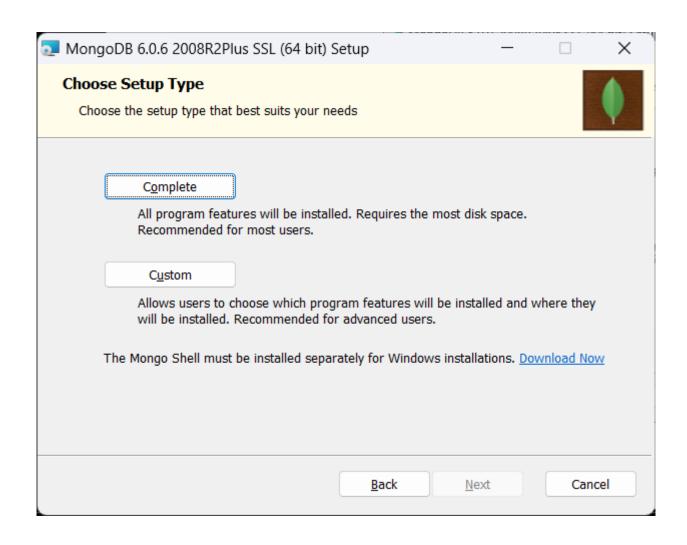


MongoDB — Site - Download

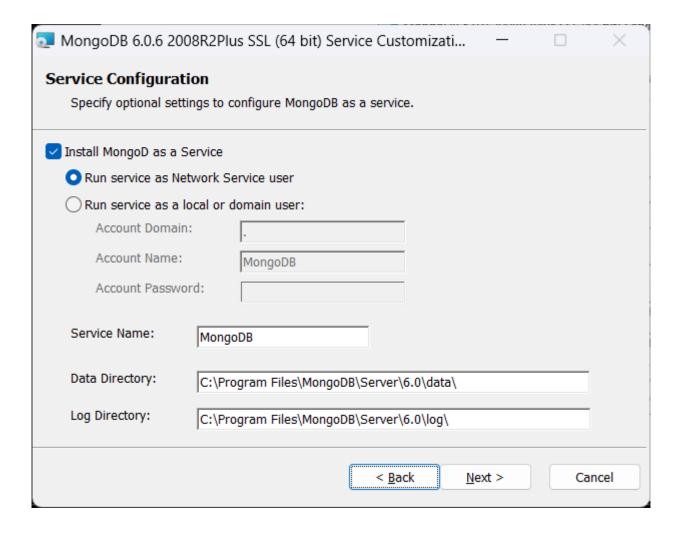




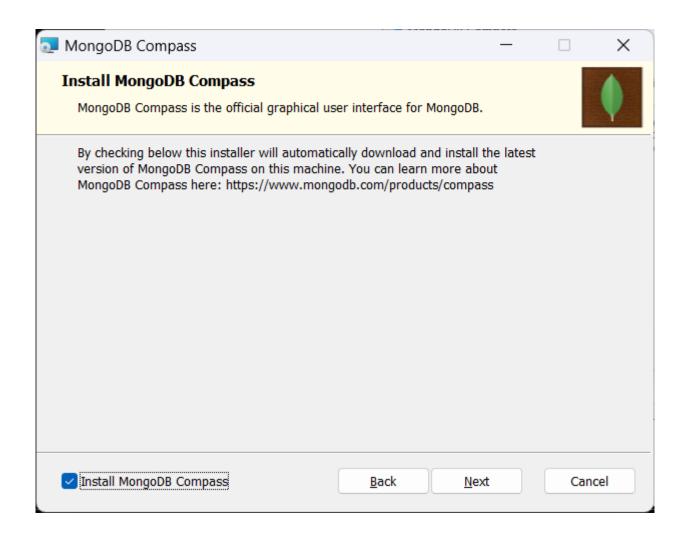


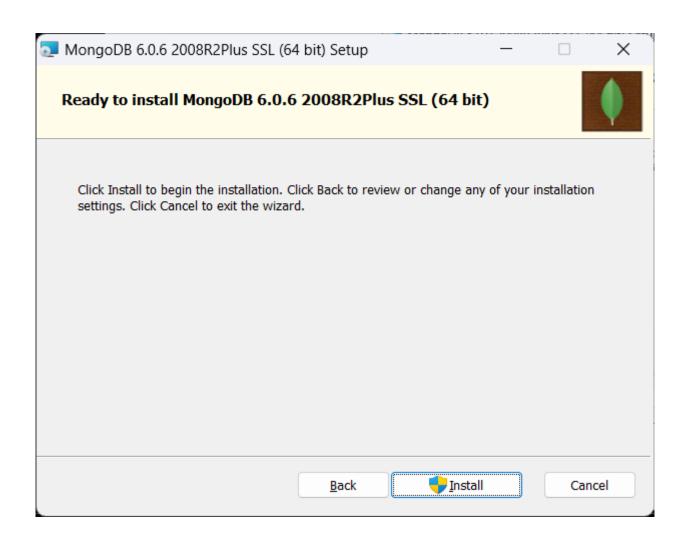


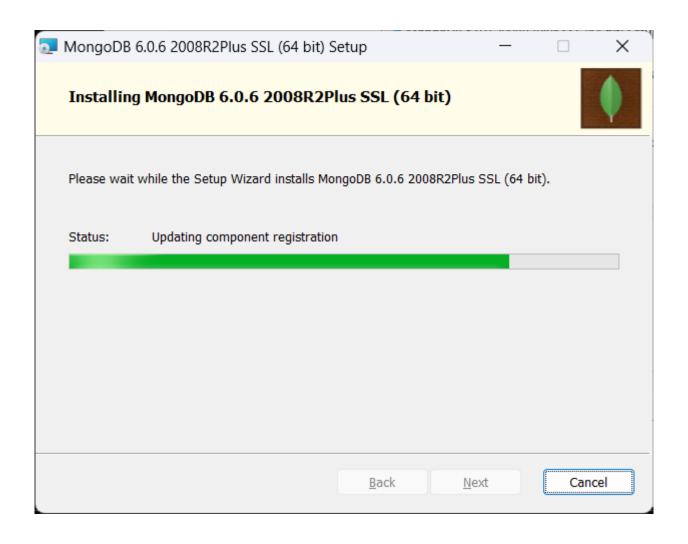
MongoDB – Instalação – Service (ou não)



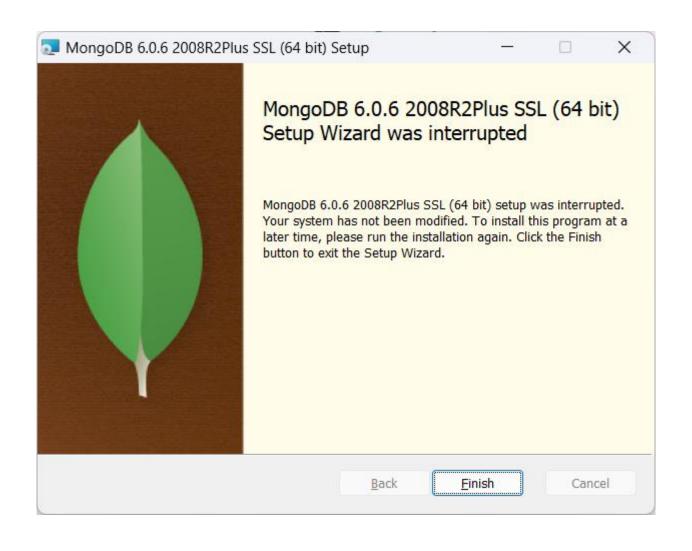
MongoDB – Instalação – Compass



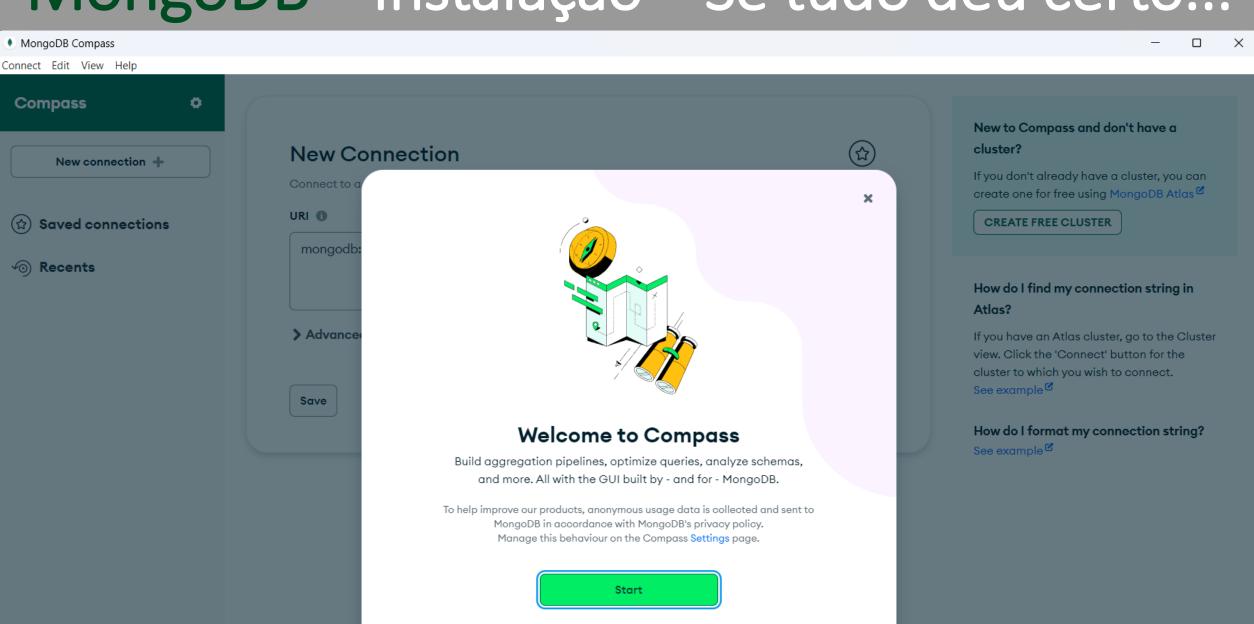




MongoDB – Instalação – Se tudo deu certo...



MongoDB – Instalação – Se tudo deu certo...



MongoDB — Criar pasta para Collections



MongoDB – Ferramentas

C:\Program Files\MongoDB\Server\6.0\bin

	Nome	Data de modificação	Tipo	Tamanho
	installCompass.ps1	04/05/2023 17:20	Script do Window	2 KB
o *	mongod.cfg	22/06/2023 23:34	Arquivo Fonte Con	1 KB
*	• mongod.exe	04/05/2023 18:43	Aplicativo	55.172 KB
*	■ mongod.pdb	04/05/2023 18:43	Program Debug D	827.372 KB
*	• mongos.exe	04/05/2023 18:48	Aplicativo	34.066 KB
*		04/05/2023 18:48	Program Debug D	463.708 KB

MongoDB Shell

MongoDB.

Products

Solutions

Resources

Company

Pricing

https://www.mongodb.com/try/download/shell

MongoDB Atlas

MongoDB Enterprise Advanced

MongoDB Community Edition

Tools

MongoDB Shell

MongoDB Compass (GUI)

Atlas CLI

Atlas Kubernetes Operator

MongoDB CLI for Cloud Manager and Ops Manager

MongoDB Cluster-to-Cluster Sync

Relational Migrator

MongoDB Shell Download

MongoDB Shell is the quickest way to connect to (and work with) MongoDB. Easily query data, configure settings, and execute other actions with this modern, extensible command-line interface – replete with syntax highlighting, intelligent autocomplete, contextual help, and error messages.

Note: MongoDB Shell is an open source (Apache 2.0), standalone product developed separately from the MongoDB Server.

Learn more

Version 1.10.1

Platform

Windows 64-bit (8.1+)

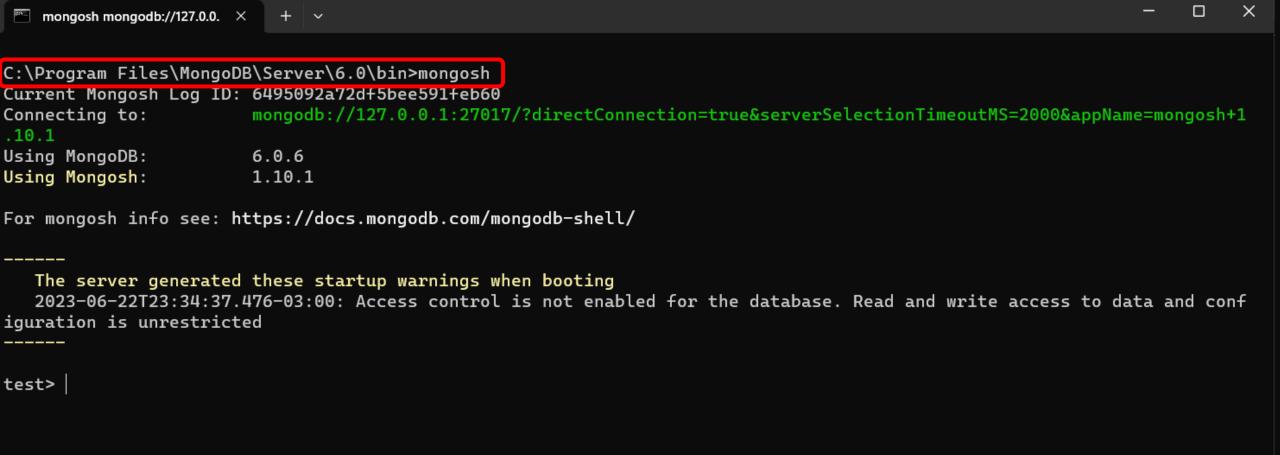
Package

zip

MongoDB — Subindo o server

```
Prompt de Comando - mongo X
C:\Program Files\MongoDB\Server\6.0\bin>mongod
{"T":{"$date":"2023-06-22123:37:14.954-03:00"},"s":"I", "c":"NETWORK",
 specification", "attr": {"spec": {"incomingExternalClient": {"minWireVersi
t":{"minWireVersion":0,"maxWireVersion":17},"outgoing":{"minWireVersion
                                                                                   "ctx":"-", "msg": "Automatically di
{"t":{"$date":"2023-06-22T23:37:14.958-03:00"},"s":"I", "c":"CONTROL",
                                                                      "id":23285,
sabling TLS 1.0, to force-enable TLS 1.0 specify --sslDisabledProtocols 'none'"}
{"t":{"$date":"2023-06-22T23:37:14.960-03:00"},"s":"I", "c":"NETWORK",
                                                                     "id":4648602, "ctx":"thread1","msg":"Implicit T
CP FastOpen in use."}
{"t":{"$date":"2023-06-22T23:37:14.963-03:00"},"s":"I", "c":"REPL",
                                                                     "id":5123008, "ctx":"thread1","msg":"Successful
ly registered PrimaryOnlyService", "attr": {"service": "TenantMigrationDonorService", "namespace": "config.tenantMigrationDon
ors"}}
{"t":{"$date":"2023-06-22T23:37:14.963-03:00"},"s":"I", "c":"REPL",
                                                                     "id":5123008, "ctx":"thread1","msg":"Successful
ly registered PrimaryOnlyService", "attr": {"service": "TenantMigrationRecipientService", "namespace": "config.tenantMigratio
nRecipients"}}
{"t":{"$date":"2023-06-22T23:37:14.963-03:00"},"s":"I", "c":"REPL",
                                                                                     x":"thread1","msg":"Successful
ly registered PrimaryOnlyService", "attr": {"service": "ShardSplitDonor"
                                                                                      config.tenantSplitDonors"}}
ocator":"tcmalloc","en ___________: {"distmod":"windows","distarch":"x86_64","target_arch":"x86_64"}}}
{"t":{"$date":"2023-06-22T23:37:14.967-03:00"},"s":"I", "c":"CONTROL", "id":51765, "ctx":"initandlisten","msg":"Oper
ating System", "attr": {"os": {"name": "Microsoft Windows 10", "version": "10.0 (build 22631)"}}}
{"t":{"$date":"2023-06-22T23:37:14.967-03:00"},"s":"I", "c":"CONTROL", "id":21951, "ctx":"initandlisten","msg":"Opti
```

MongoDB — Shell



Mongo DB — Visualizando bancos

```
mongosh mongodb://127.0.0.
C:\Program Files\MongoDB\Server\6.0\bin>mongosh
Current Mongosh Log ID: 6495092a72df5bee591feb60
Connecting to:
                        mongodb://127.0.0.1:27017/?directConnection=true&serverSelectionTimeoutMS=2000&appName=mongosh+1
.10.1
                        6.0.6
Using MongoDB:
Using Mongosh:
                        1.10.1
For mongosh info see: https://docs.mongodb.com/mongodb-shell/
  The server generated these startup warnings when booting
   2023-06-22T23:34:37.476-03:00: Access control is not enabled for the database. Read and write access to data and conf
iguration is unrestricted
test> show databases
admin
       40.00 KiB
config 12.00 KiB
local
       40.00 KiB
test>
```

MongoDB — Acessando banco

```
mongosh mongodb://127.0.0.
C:\Program Files\MongoDB\Server\6.0\bin>mongosh
Current Mongosh Log ID: 6495092a72df5bee591feb60
Connecting to:
                       mongodb://127.0.0.1:27017/?directConnection=true&serverSelectionTimeoutMS=2000&appName=mongosh+1
.10.1
                       6.0.6
Using MongoDB:
Using Mongosh:
                       1.10.1
For mongosh info see: https://docs.mongodb.com/mongodb-shell/
  The server generated these startup warnings when booting
   2023-06-22T23:34:37.476-03:00: Access control is not enabled for the database. Read and write access to data and conf
iguration is unrestricted
test> show databases
admin
       40.00 KiB
config 12.00 KiB
local
       40.00 KiB
test> use farmacia -
switched to db farmacia
farmacia>
                                                                                  Ao acessar um
                                                                               banco inexistente o
                                                                                mesmo será criado
```

MongoDB – Exibindo coleções

```
mongosh mongodb://127.0.0.
C:\Program Files\MongoDB\Server\6.0\bin>mongosh
Current Mongosh Log ID: 6495092a72df5bee591feb60
Connecting to:
                       mongodb://127.0.0.1:27017/?directConnection=true&serverSelectionTimeoutMS=2000&appName=mongosh+1
.10.1
                       6.0.6
Using MongoDB:
Using Mongosh:
                       1.10.1
For mongosh info see: https://docs.mongodb.com/mongodb-shell/
  The server generated these startup warnings when booting
  2023-06-22T23:34:37.476-03:00: Access control is not enabled for the database. Read and write access to data and conf
iguration is unrestricted
test> show databases
admin
       40.00 KiB
config 12.00 KiB
       40.00 KiB
local
test> use farmacia
                                                            Banco vazio. Ainda
switched to db farmacia
                                                          não criamos nenhuma
farmacia> show collections
                                                                  collection
farmacia>
```

MongoDB — Insert

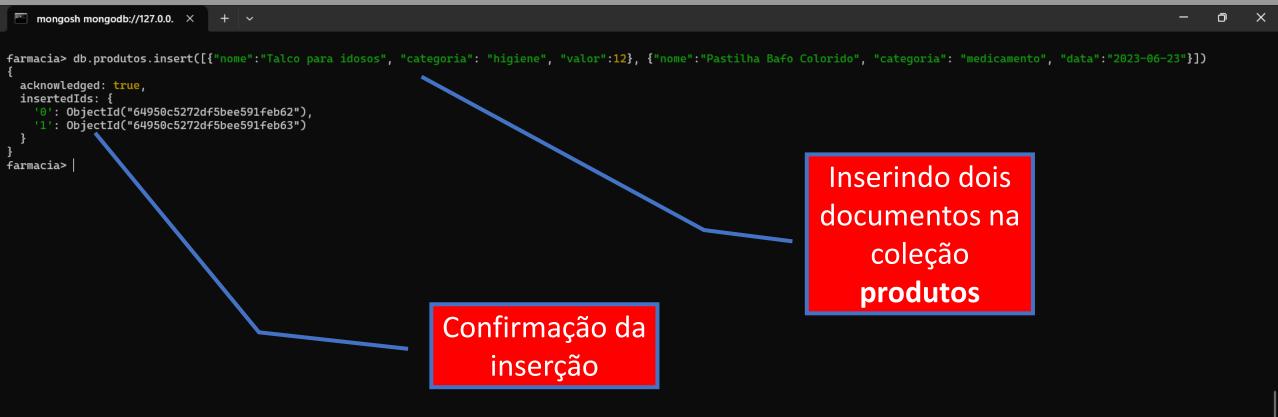
```
Inserindo
documento na
coleção
produtos
```

```
farmacia> db.produtos.insert({"nome":"Sabonete Limpa Tudo", "categoria": "higiene", "valor":123})
DeprecationWarning: Collection.insert() is deprecated. Use insertOne, insertMany, or bulkWrite.
{
   acknowledged: true,
   insertedIds: { '0': ObjectId("64950a6b72df5bee591feb61") }
}
farmacia> |
```

MongoDB — Find

Buscandodocumentos na coleção **produtos**

MongoDB – Insert múltiplo



db.produtos.insert([{"nome":"Talco para idosos", "categoria": "higiene", "valor":12}, {"nome":"Pastilha Bafo Colorido", "categoria": "medicamento", "data":"2023-06-23"}])

MongoDB — Find

```
\blacksquare mongosh mongodb://127.0.0. 	imes + 	imes
```

```
farmacia> db.produtos.find()
    _id: ObjectId("64950a6b72df5bee591feb61"),
   nome: 'Sabonete Limpa Tudo',
    categoria: 'higiene',
   valor: 123
    _id: ObjectId("64950c5272df5bee591feb62"),
   nome: 'Talco para idosos',
    categoria: 'higiene',
   valor: 12
    _id: ObjectId("64950c5272df5bee591feb63"),
   nome: 'Pastilha Bafo Colorido',
    categoria: 'medicamento',
    data: '2023-06-23'
farmacia>
```

Consulta na coleção produtos

MongoDB – Consulta por categoria

```
farmacia> db.produtos.find({"categoria":"higiene"})
   _id: ObjectId("64950a6b72df5bee591feb61"),
    nome: 'Sabonete Limpa Tudo',
   categoria: 'higiene',
   valor: 123
   _id: ObjectId("64950c5272df5bee591feb62"),
    nome: 'Talco para idosos',
    categoria: 'higiene',
    valor: 12
farmacia>
```

MongoDB — updateMany / updateOne

```
mongosh mongodb://127.0.0.
farmacia> db.produtos.updateMany( { "nome": "Sabonete Limpa Tudo" }, { $set: { "nome": "Sabonete Limpa Nada", "estoque": 48 } })
 acknowledged: true,
 insertedId: null,
 matchedCount: 1,
 modifiedCount: 1,
 upsertedCount: 0
farmacia> db.produtos.find()
    _id: ObjectId("64950a6b72df5bee591feb61"),
   nome: 'Sabonete Limpa Nada',
   categoria: 'higiene',
   valor: 123,
   estoque: 48
   _id: ObjectId("64950c5272df5bee591feb62"),
   nome: 'Talco para idosos',
   categoria: 'higiene',
   valor: 12
   _id: ObjectId("64950c5272df5bee591feb63"),
   nome: 'Pastilha Bafo Colorido',
   categoria: 'medicamento',
   data: '2023-06-23'
farmacia>
```

MongoDB — replaceOne

```
farmacia> db.produtos.replaceOne( { "nome": "Talco para idosos" }, { "nome": "Talco branco", "categoria":"perfumaria", "estoque": 19 })
 acknowledged: true,
 insertedId: null,
 matchedCount: 1,
 modifiedCount: 1,
 upsertedCount: 0
farmacia> db.produtos.find()
    _id: ObjectId("64950a6b72df5bee591feb61"),
    nome: 'Sabonete Limpa Nada',
    categoria: 'higiene',
    valor: 123,
    estoque: 48
    _id: ObjectId("64950c5272df5bee591feb62"),
    nome: 'Talco branco',
    categoria: 'perfumaria',
    estoque: 19
    _id: ObjectId("64950c5272df5bee591feb63"),
    nome: 'Pastilha Bafo Colorido',
    categoria: 'medicamento',
    data: '2023-06-23'
farmacia>
```

MongoDB — Remove

```
farmacia> db.produtos.remove({_id : ObjectId("64950c5272df5bee591feb63")})
DeprecationWarning: Collection.remove() is deprecated. Use deleteOne, deleteMany, findOneAndDelete, or bulkWrite.
{ acknowledged: true, deletedCount: 1 }
farmacia> db.produtos.find()
    _id: ObjectId("64950a6b72df5bee591feb61"),
    nome: 'Sabonete Limpa Nada',
    categoria: 'higiene',
    valor: 123,
    estoque: 48
    _id: ObjectId("64950c5272df5bee591feb62"),
    nome: 'Talco branco',
    categoria: 'perfumaria',
    estoque: 19
farmacia>
```

MongoDB – Verificando as coleções

```
6:4_
```

```
mongosh mongodb://127.0.0. 	imes + 	imes
```

```
farmacia> show collections
produtos
farmacia>
```

MongoDB x SQL – Exemplos Criando e inserindo

```
SQL
CREATE TABLE usuarios (
      id INT AUTO_INCREMENT,
      nome Varchar(30),
      cidade Varchar(60),
      estado Varchar(60),
      PRIMARY KEY (id)
INSERT INTO usuarios (nome, cidade, estado)
VALUES ("Lucas", "Pelotas", "RS");
```



MongoDB

```
db.usuarios.insert(
    {"nome": "Lucas",
        "cidade": "Pelotas",
        "estado": "RS"
    }
)
```

MongoDB x SQL – Exemplos Excluindo

```
SQL
```

DELETE

FROM usuarios

WHERE estado = "RS";

MongoDB

db.usuarios.deleteMany({ "estado": "RS" });





MongoDB x SQL – Exemplos Alterando / Atualizando

SQL

```
UPDATE usuarios
SET estado = "RS"
WHERE cidade = "Pelotas"
```



MongoDB



MongoDB x SQL – Exemplos Consultando

```
SQL
SELECT *
FROM usuarios
WHERE estado = "RS";
```



MongoDB

db.usuarios.find({ "estado": "RS" });



MongoDB x SQL – Exemplos Consultando (com condição dupla)

```
SQL
```

```
SELECT *
```

FROM usuarios

WHERE (idade > 18) AND (idade <= 40);

MongoDB

db.usuarios.find({"idade":{\$gt:18, \$lte:40}})





MongoDB x SQL – Exemplos Consultando (string)

SQL

```
SELECT *
```

FROM usuarios

WHERE nome LIKE "Arthur%";

MongoDB

db.usuarios.find({"nome":/^Arthur/})





MongoDB x SQL – Exemplos Consultando – Ordenação

```
SQL
SELECT *
FROM usuarios
WHERE cidade = "Pelotas"
ORDER BY nome ASC;
```



MongoDB

db.usuarios.find({"cidade":"Pelotas"}).sort({nome:1})



MongoDB x SQL – Exemplos Consultando – Ordenação decrescente

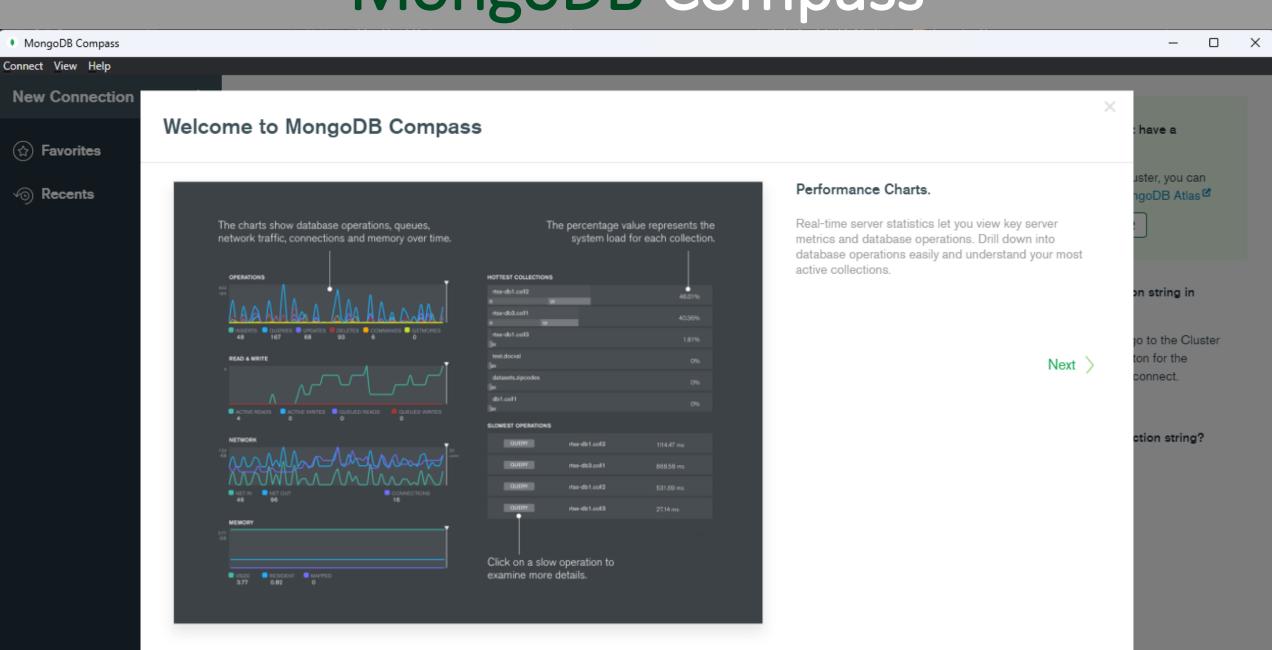
```
SQL
SELECT *
FROM usuarios
WHERE cidade = "Pelotas"
ORDER BY nome DESC;
```

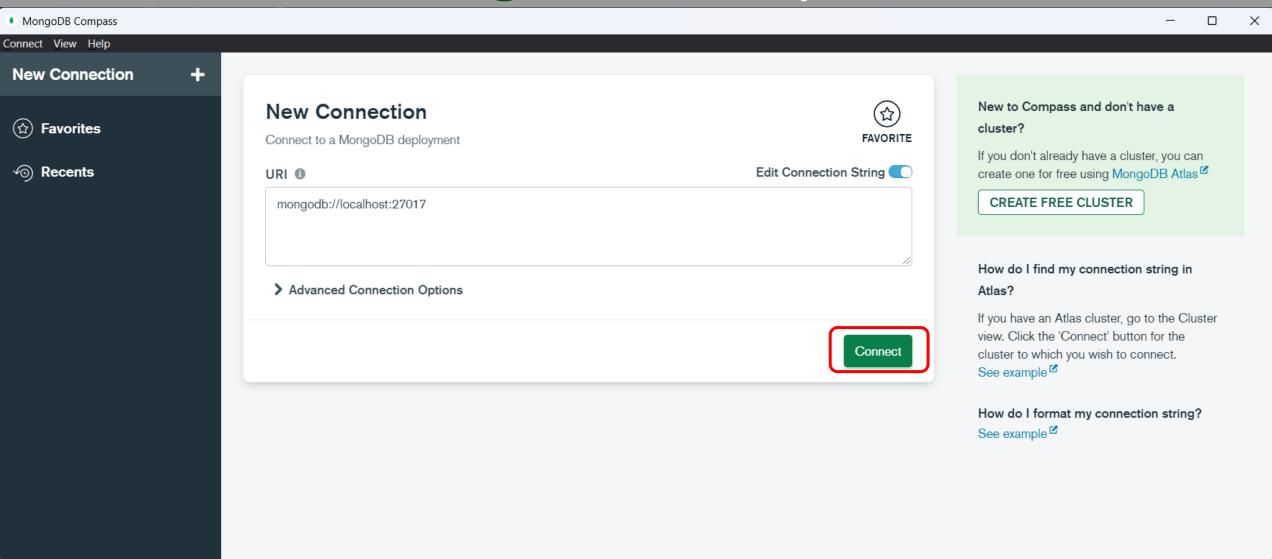


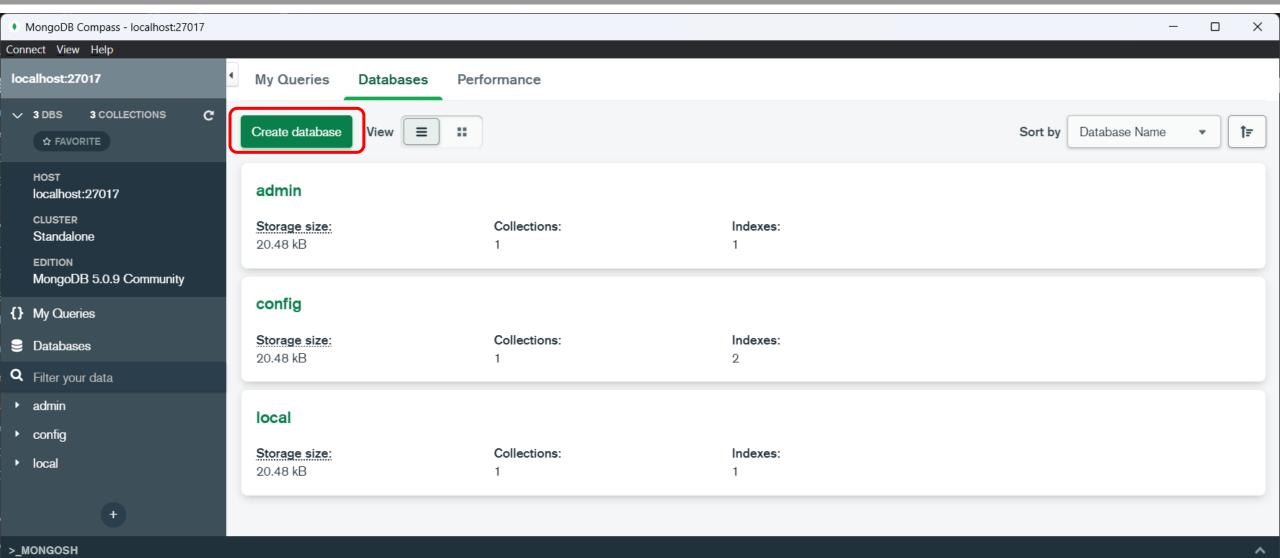
MongoDB

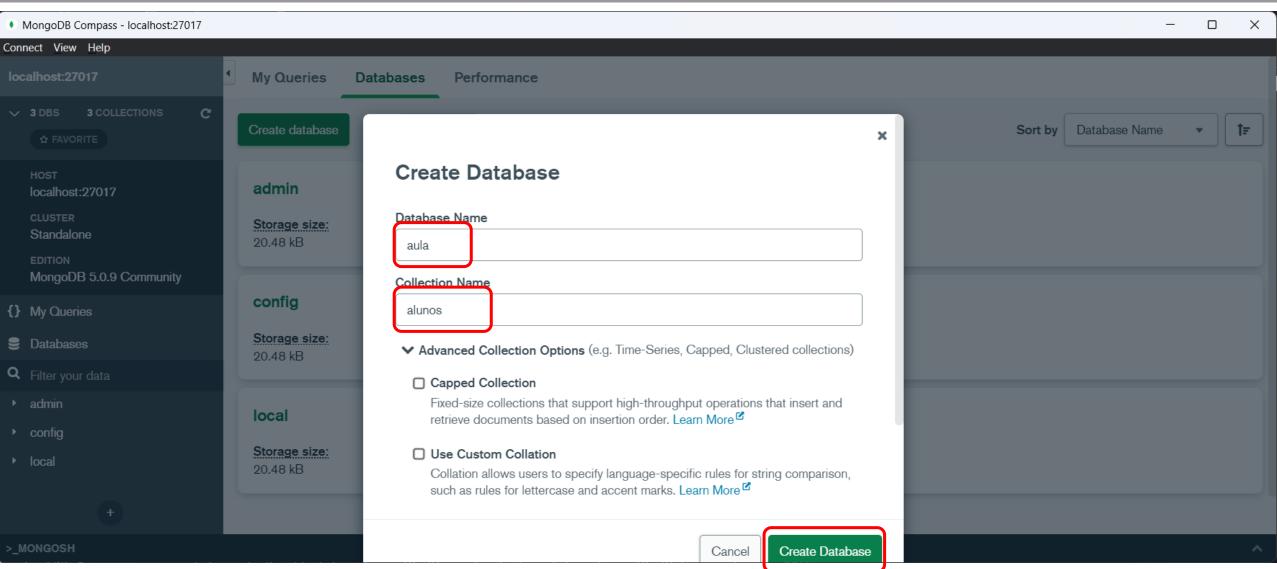
```
db.usuarios.find({"cidade":"Pelotas"}).sort({"nome":-1})
```

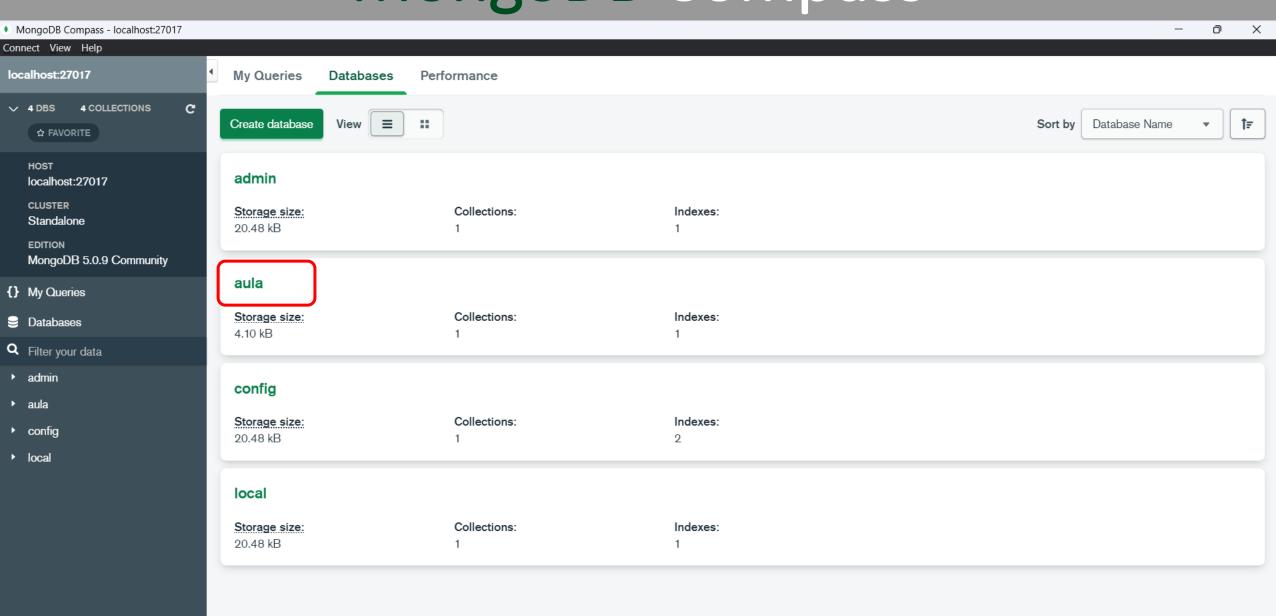


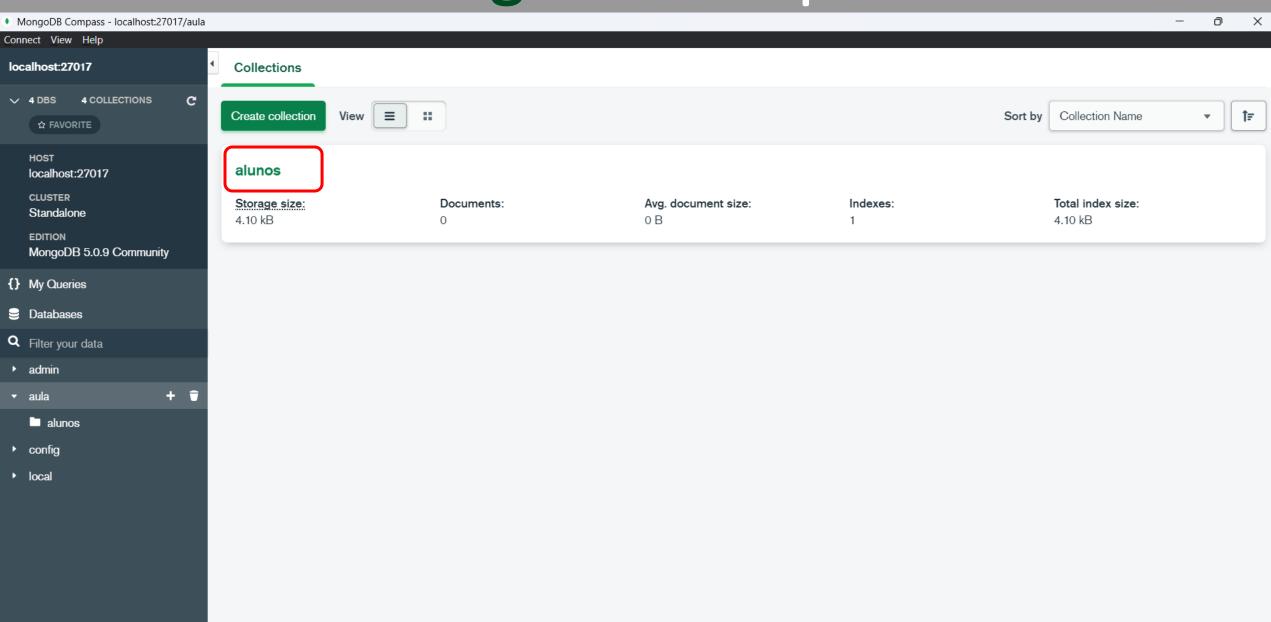


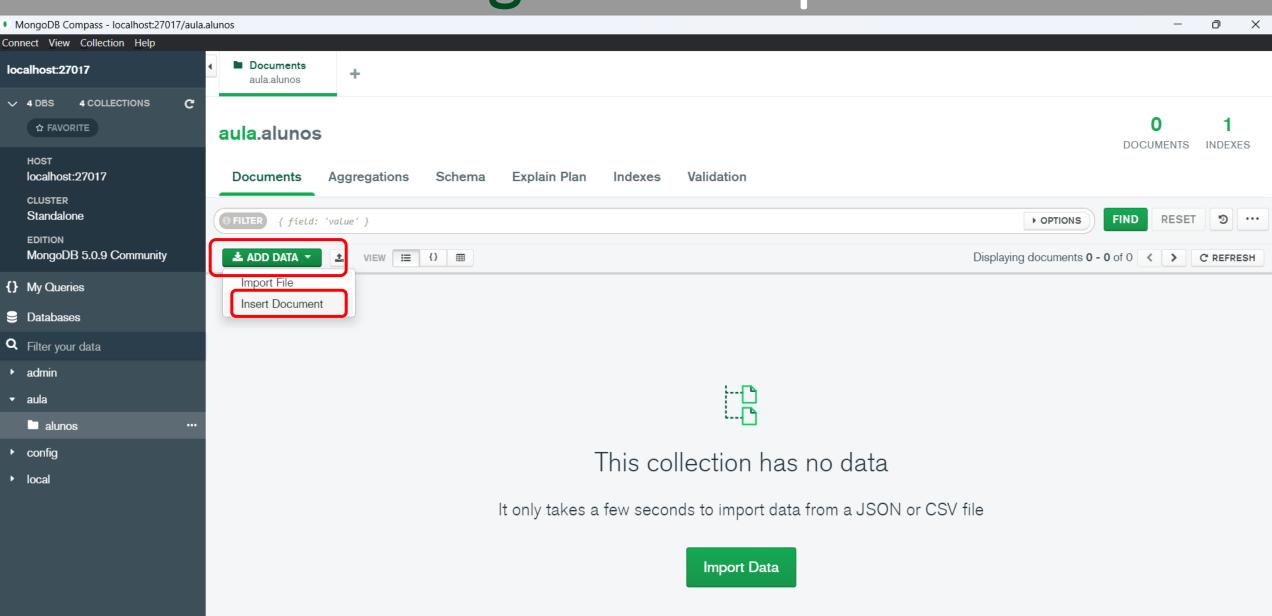


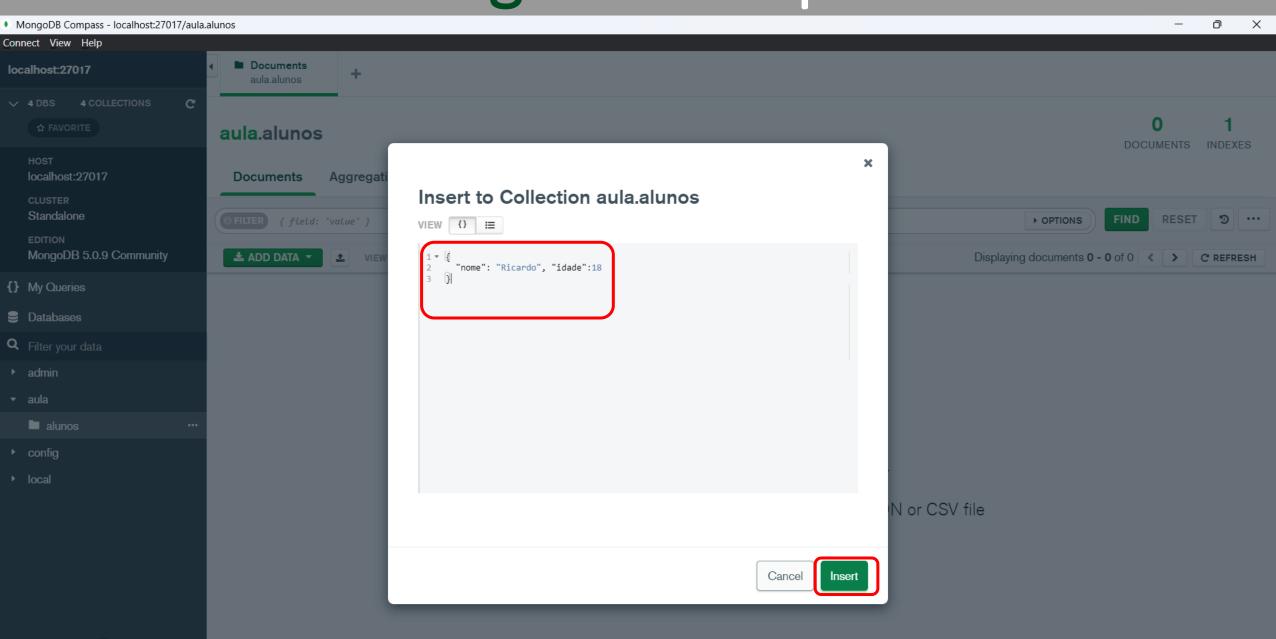


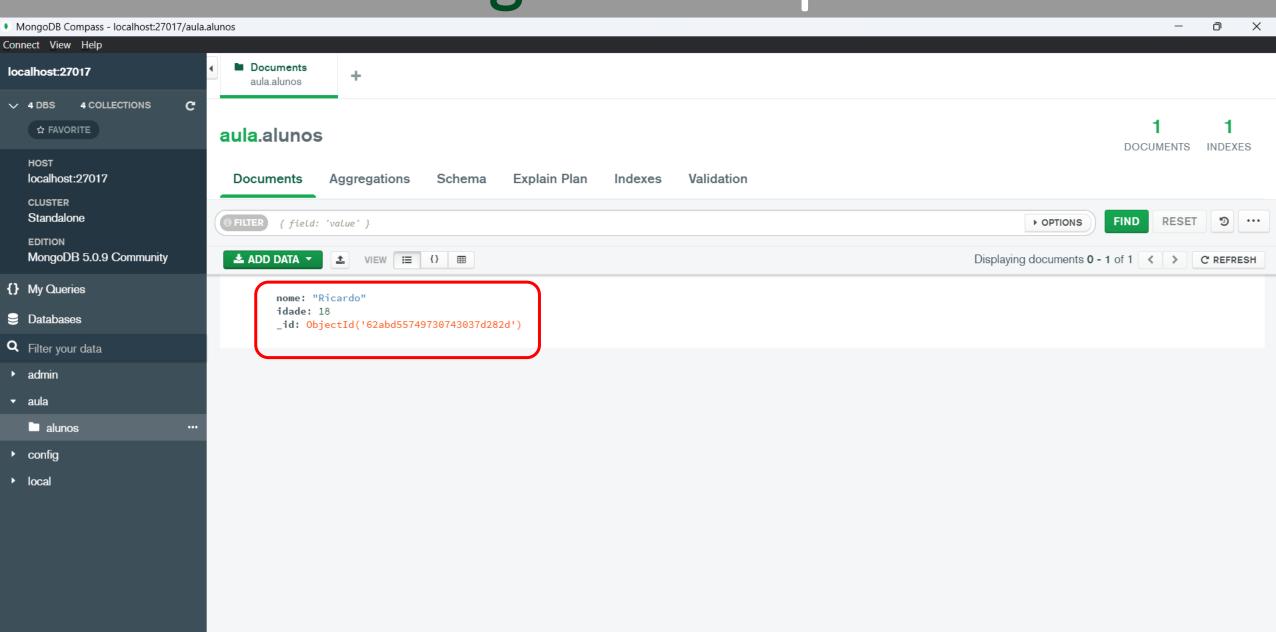












Bora Mongar?

