

Mar 09, 2023

Version 1

Create a MongoDB Atlas cluster V.1

DOI

dx.doi.org/10.17504/protocols.io.rm7vzb1r5vx1/v1

Mateusz Jundzill^{1,2}, Riccardo Spott¹, Mara Lohde¹, Martin Hölzer³, Adrian Viehweger⁴, Christian Brandt^{1,5,2}

¹Institute for Infectious Diseases and Infection Control, Jena University Hospital, Jena, Germany;

²Leibniz Center for Photonics in Infection Research (LPI), Jena 07747, Germany;

³Methodology and Research Infrastructure, Bioinformatics and Systems Biology (MF1), Robert Koch Institute, Berlin 13353, Germany;

⁴Medical Microbiology and Virology, University Hospital Leipzig, Leipzig 04103, Germany;

⁵InfectoGnostics Research Campus, Jena 07747, Germany



Mateusz Jundzill

Create & collaborate more with a free account

Edit and publish protocols, collaborate in communities, share insights through comments, and track progress with run records.

Create free account

OPEN  ACCESS



DOI: <https://dx.doi.org/10.17504/protocols.io.rm7vzb1r5vx1/v1>

Protocol Citation: Mateusz Jundzill, Riccardo Spott, Mara Lohde, Martin Hölzer, Adrian Viehweger, Christian Brandt 2023. Create a MongoDB Atlas cluster . protocols.io <https://dx.doi.org/10.17504/protocols.io.rm7vzb1r5vx1/v1> Version created by **Mateusz Jundzill**



License: This is an open access protocol distributed under the terms of the **Creative Commons Attribution License**, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited

Protocol status: Working

We use this protocol and it's working

Created: February 21, 2023

Last Modified: March 09, 2023

Protocol Integer ID: 77369

Keywords: MongoDB, MongoDB Atlas, database, data administration , mongodb atlas cluster, mongodb atlas, data administrators with limited it knowledge, step guide on setup process, data administrator, setup process

Abstract

A step-by-step guide on setup process for MongoDB Atlas tailored for data administrators with limited IT knowledge.

Troubleshooting

MongoDB Atlas set up

- 1 **Create an account on MongoDB website.**
- 2 **Create an organization.** Select *Create a new organization* and name your organization with e.g. the name of the institute or the group responsible for data administration. In the *Select Cloud Service* window, choose *MongoDB Atlas* and proceed to the next step. In the final step, add additional members by sending invitation emails or proceed by selecting *Create Organisation*.

Note

An organization is used for billing purposes and as a way to organize teams of users and projects. One organization can contain multiple projects.

Being a team member of the organization is not required for accessing the database.

- 3 **Create a project.** Select *New project* and name the project.

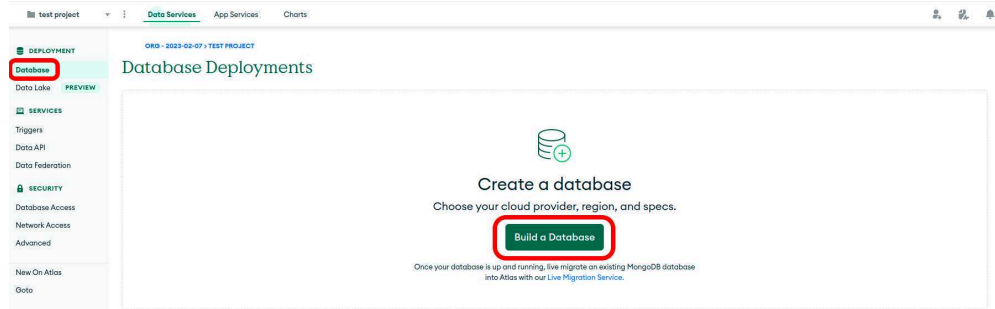


Note

The name of a project should be short and descriptive, particularly when multiple projects exist. We recommend naming the project after the working group name or the purpose.

Note that the project name is not the same as the database or collection name.

- 4 **Create a cluster.** Select *Build a database* then *Shared* cluster tier and confirm by *Create*.



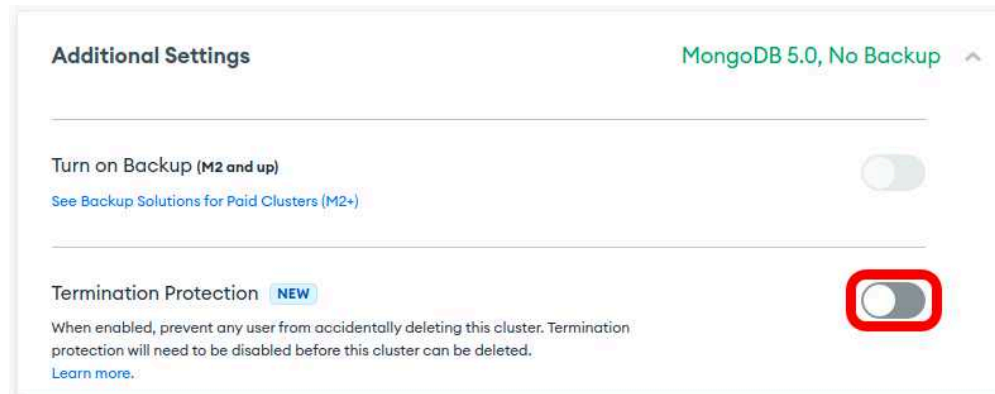
4.1 Choose a cloud provider and region. Name your cluster in the *Cluster Name* section.

Note

The server provider and location should be selected based on the preferred data protection policies of the user's country or institution. If the administrator doesn't provide any requirements, a good rule of thumb is to choose the closest cluster to your location.

The available locations are not the same between cloud providers.

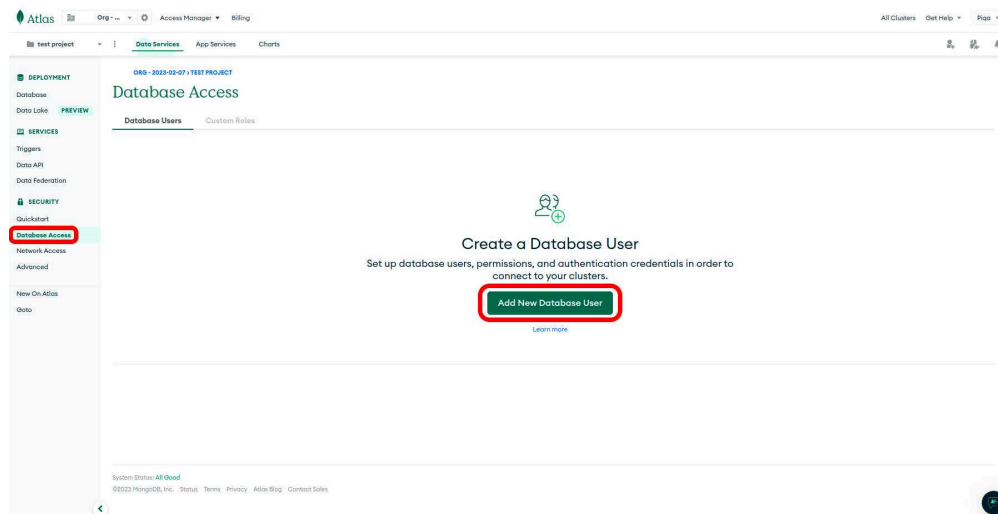
4.2 Go to the *Additional Settings* tab and turn *Termination Protection* and confirm by selecting *Create Cluster*.



Note

Termination Protection prevents accidental cluster deletion.

5 Create user profiles. Go to the *Database access* tab and select *Add New Database User*.



- 5.1 In the *Password Authentication* section, enter the name of the user (users can be created for each person accessing the database or for a specific function) and create a password. The password can either be autogenerated or entered manually.



Add New Database User

Create a database user to grant an application or user, access to databases and collections in your clusters in this Atlas project. Granular access control can be configured with default privileges or custom roles. You can grant access to an Atlas project or organization using the corresponding [Access Manager](#).

Authentication Method

Password

Certificate

AWS IAM
(MongoDB 4.4 and up)

MongoDB uses [SCRAM](#) as its default authentication method.

Password Authentication

[SHOW](#)

[Autogenerate Secure Password](#) [Copy](#)

Database User Privileges

Configure role based access control by assigning database users a mix of one built-in role, multiple custom roles, and multiple specific privileges. A user will gain access to all actions within the roles assigned to them, not just the actions those roles share in common. **You must choose at least one role or privilege.** [Learn more about roles.](#)

Built-in Role

Select one [built-in role](#) for this user.

0 SELECTED ^

Add Built In Role

Custom Roles

Select your [pre-defined custom role\(s\)](#). Create a custom role in the [Custom Roles](#) tab.

Safety information

After creating the account, remember to copy the credentials as the passwords will be hidden for security reasons.

5.2 In the *Database User Privileges* section assign roles to the user, you can use pre-prepared template roles such as Admin, Read/Write, and Read from the *Built-in Role* section.

If there are multiple databases or collections, you can assign roles to specific elements of the cluster to fine-tune access in the *Specific Privileges* section.



Add New Database User

Create a database user to grant an application or user, access to databases and collections in your clusters in this Atlas project. Granular access control can be configured with default privileges or custom roles. You can grant access to an Atlas project or organization using the corresponding [Access Manager](#).

Authentication Method

Password

Certificate

AWS IAM
(MongoDB 4.4 and up)

MongoDB uses [SCRAM](#) as its default authentication method.

Password Authentication

e.g. new-user_31

Enter password SHOW

Autogenerate Secure Password Copy

Database User Privileges

Configure role based access control by assigning database users a mix of one built-in role, multiple custom roles, and multiple specific privileges. A user will gain access to all actions within the roles assigned to them, not just the actions those roles share in common. **You must choose at least one role or privilege.** [Learn more about roles.](#)

Built-in Role
Select one [built-in role](#) for this user.

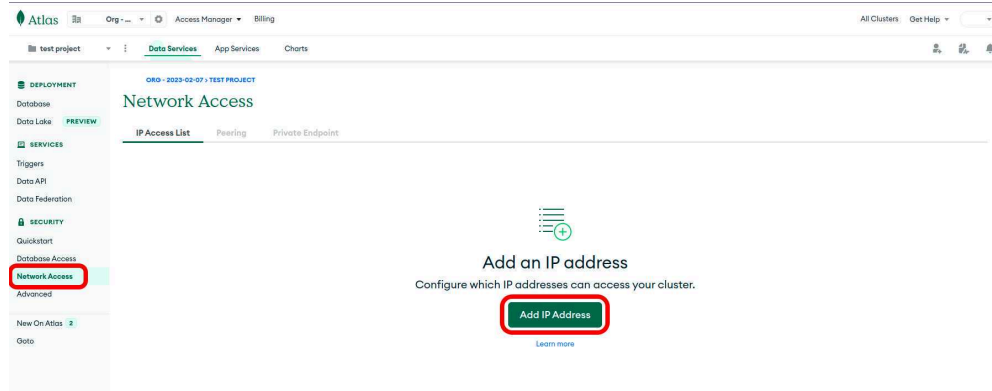
Add Built In Role

Custom Roles
Select your [pre-defined custom role\(s\)](#). Create a custom role in the [Custom Roles](#) tab.

Note

To ensure security and stability, we recommend creating at least one user for each Built-in Role. It should be avoided to use of the Admin role for routine tasks.

6 **Limit IP addresses.** Go to the *Network Access* tab.



Depending on the security protocols three approaches can be chosen:

1. *Allow Access From Anywhere*
2. Specify IP addresses in *Access List Entry* (the current machine can be added by selecting *Add Current IP Address*)
3. Select the IP address range in CIDR notation in *Access List Entry*

Note

CIDR notation examples:

188.225.0.1/32 will allow access only for 188.225.0.1 address

188.225.0.1/24 will allow access for range 188.225.0.XXX

188.225.0.1/16 will allow access for range 188.225.XXX.XXX

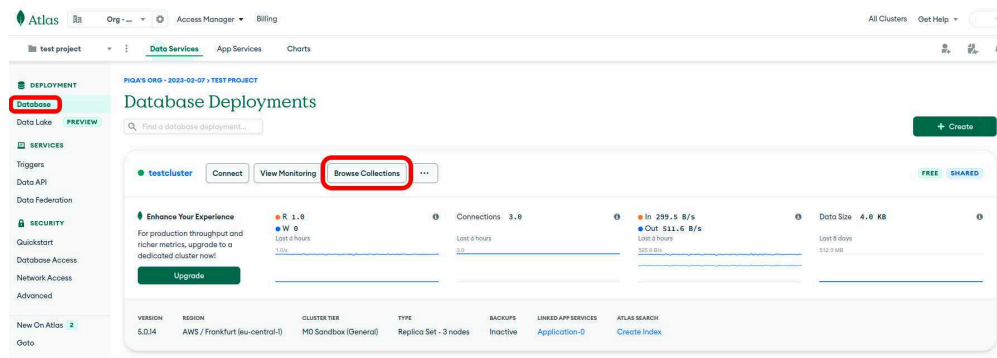
Optionally it is possible to use online tools to convert IP address lists to CIDR notation

Example: [ARIN](#)

Safety information

Allow Access From Anywhere is not recommended, as it may result in unauthorized access to the cluster.

- 7 **Create a database and a collection.** Go to the *Database* tab, choose *Browse Collections* and then *Add My Own Data*. Name your first database and collection.



Note

To ensure compatibility and clarity, avoid using special characters(e.g.: “\$, (, \$, %”) or non-standard English characters in the database and collection names. It’s also recommended to keep the names concise.

Note that you can always add additional databases and collections later on.

MongoDB Compass Access

- 8 **Obtaining connection string.** Go to the *Database* tab, pick *Connect* and then choose *Connect using MongoDB Compass*. Finally copy the connection string.



Connect to testcluster

✓ Setup connection security

✓ Choose a connection method

Connect

I do not have MongoDB Compass

I have MongoDB Compass

1 Choose your version of Compass:

1.12 or later

See your Compass version in "About Compass"

2 Copy the connection string, then open MongoDB Compass.

mongodb+srv:// :<password>@testcluster. .mongodb.net/test

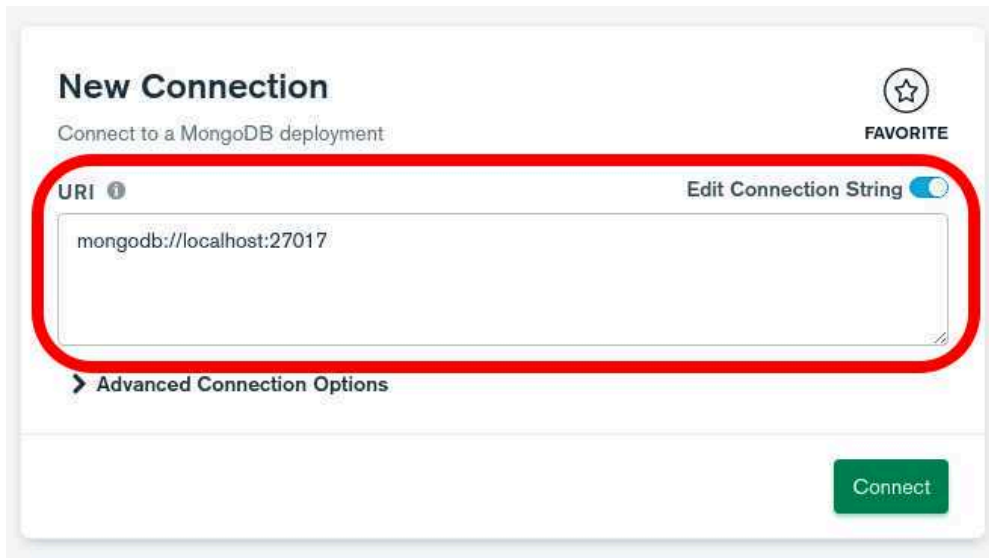
You will be prompted for the password for the user's (Database User) username.
When entering your password, make sure that any special characters are [URL encoded](#).

Having trouble connecting? [View our troubleshooting documentation](#)

Go Back

Close

- 9 **Database access via MongoDB Compass.** Download and install MongoDB Compass from [MongoDB website](#). Copy the connection string obtained in [go to step #8 MongoDB Compass Access](#) , and paste it in the URI box in MongoDB Compass, making sure to replace <username> and <password> with your credentials. Alternatively, you can fill in the username and password under the *Advanced Connection Options* section.



Note

Connection strings with usernames and passwords can be saved by selecting *Favourite* in the upper right corner of the window.

Please note that the *Favorite* option will also save your username and password. If you want to save connection strings on a shared computer, it is recommended to remove your credentials before saving and enter them later in the *Advanced Connection Options* section.

10 **Data import.** Data import can be performed in two ways by using:

- MongoDB Compass
- Command line

STEP CASE

MongoDB Compass 4 steps

10.1 Prepare a CSV file for the input.

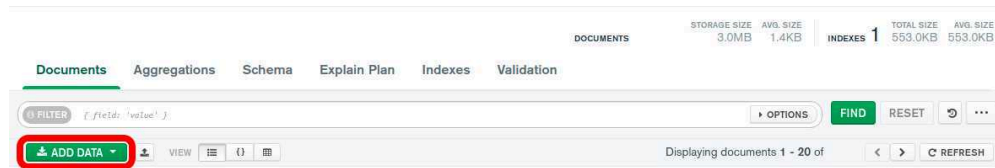
The input file opened in a text editor should look like the given example:



```
Header1, Header2, Header3  
Value1, Value2, Value3  
Value4, Value5, Value6
```

10.2 Connect to the database as explained in the section

➡ go to [step #8 MongoDB Compass Access](#) . Select *Add Data*.



Select *Import File* and choose the file that you want to upload data from. Pick *CSV* in the *Select Input File Type* section.

10.3 If the file is in the proper format, the *Specify Fields and Types* table should appear, which provides an overview of the imported data and allows for the specification of key types. Once you have verified the information, pick *Import* to complete the process

Import To Collection

Select File

example.csv

Select Input File Type

JSON

CSV

Options

Select delimiter

COMMA

☒ Ignore empty strings
 ☐ Stop on errors

Specify Fields and Types

	test1	test2	test3
	<input checked="" type="checkbox"/> String	<input checked="" type="checkbox"/> String	<input checked="" type="checkbox"/> String
1	example1	example2	example3
2	example4	example5	example6

CANCEL

IMPORT

- 10.4 Upon successful import, you should see a confirmation message stating *Import completed*. Verify the number of documents imported to ensure that the import was successful



Import To Collection



Select File

example.csv

Select Input File Type

JSON

CSV

Options

Select delimiter COMMA☒ Ignore empty strings☐ Stop on errors

Specify Fields and Types

	<input checked="" type="checkbox"/> test1 String	<input checked="" type="checkbox"/> test2 String	<input checked="" type="checkbox"/> test3 String
1	example1	example2	example3
2	example4	example5	example6

Import completed

2 / 2

DONE