

## Activitat 2 → Connexió Java-Mongodb

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### Persistència en BD natives XML

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**Assignatura:** [Accés a dades]

**Data:** [07-01-2026]

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# Petit manual de com fer servir mongo

## 1. Creació del clúster

Anem a “+ Create”

The screenshot shows the MongoDB Atlas Project Overview page. On the left, there's a sidebar with sections like DATABASE, STREAMING DATA, SERVICES, and SECURITY. The main area is titled "Project 0 Overview" and features a cartoon character of a stack of cylinders. Below it is a section titled "Create a cluster" with a green button labeled "+ Create". A purple arrow points to this button. To the right, there's a "Toolbar" with links to "Featured Resources" (Get Started with Atlas, Reference MongoDB Documentation, Learn MongoDB Skills, Atlas Learning Hub), "New On Atlas" (Learn about the latest feature enhancements on Atlas), and "Support" (Support Plan: Basic Plan, CHAT WITH SUPPORT, VIEW SUPPORT OPTIONS). At the bottom, it says "System Status: All Good" and includes links to Status, Terms, Privacy, Atlas Blog, and Contact Sales.

Cliquem al pla “Free”

The screenshot shows the "Deploy your cluster" step. It asks to choose a template or set up advanced configuration options. There are three options: "M10" (\$0.09/hour), "Flex" (From \$0.011/hour), and "Free". The "Free" option is selected and highlighted with a purple box and a purple arrow. Below each option, there's a table of storage, RAM, and vCPU details. A note says "Free forever! Your free cluster is ideal for experimenting in a limited sandbox. You can upgrade to a production cluster anytime." At the bottom, there are "Configurations" (Name, Automate security setup, Preload sample dataset) and "Quick setup" (Automate security setup, Preload sample dataset) sections, along with "I'll do this later", "Go to Advanced Configuration", "Create Deployment", and a feedback icon.

Fem scroll down:

- 1- El nom del nostre **Clauster**.
- 2- El **proveidor** on s'allotjara la nostra base de dades
- 3- La regió.
- 4- Tags opcionals
- 5- Seguretat automatica
- 6- Preload d'una simple data set

The screenshot shows the 'Clusters' creation interface. A purple box highlights the configuration area, and numbered circles 1 through 6 point to specific fields and options:

- 1. Name: Cluster0
- 2. Provider: AWS
- 3. Region: Paris (eu-west-3)
- 4. Tag (optional): Select or enter key:  ; Select or enter value:
- 5. Automate security setup:
- 6. Preload sample dataset:

Below the form, there are buttons: 'I'll do this later', 'Go to Advanced Configuration', 'Create Deployment' (highlighted with a green arrow), and a message icon.

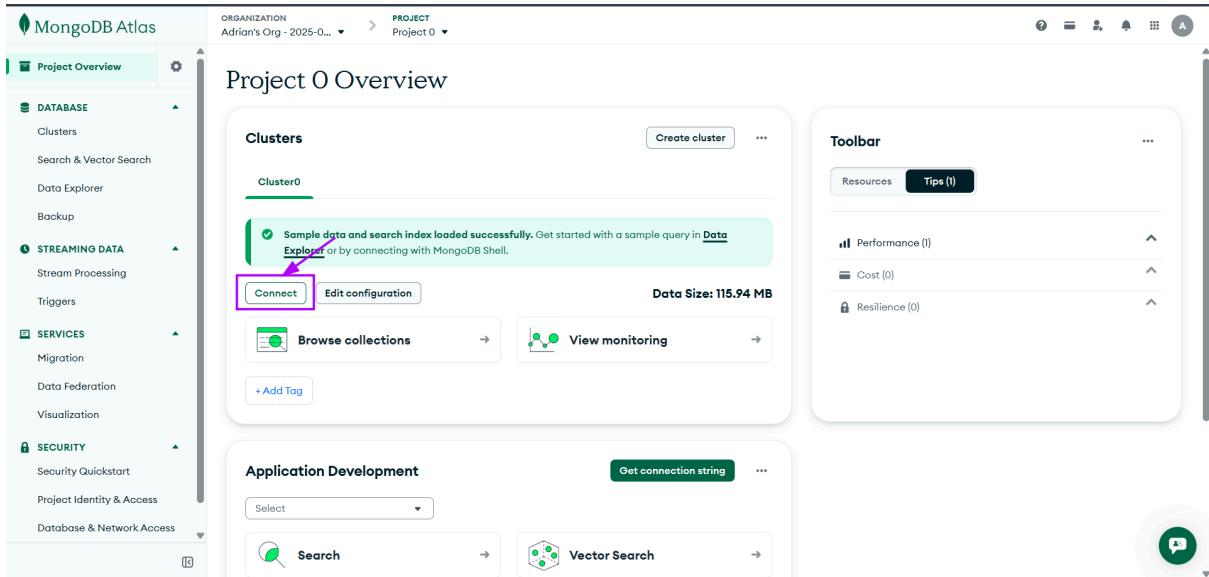
Fem clic a “Create Deployment”

The screenshot shows the same 'Clusters' creation interface after clicking 'Create Deployment'. The 'Create Deployment' button is highlighted with a green arrow. The rest of the interface remains the same as the previous screenshot.

## 2. Com connectar-se

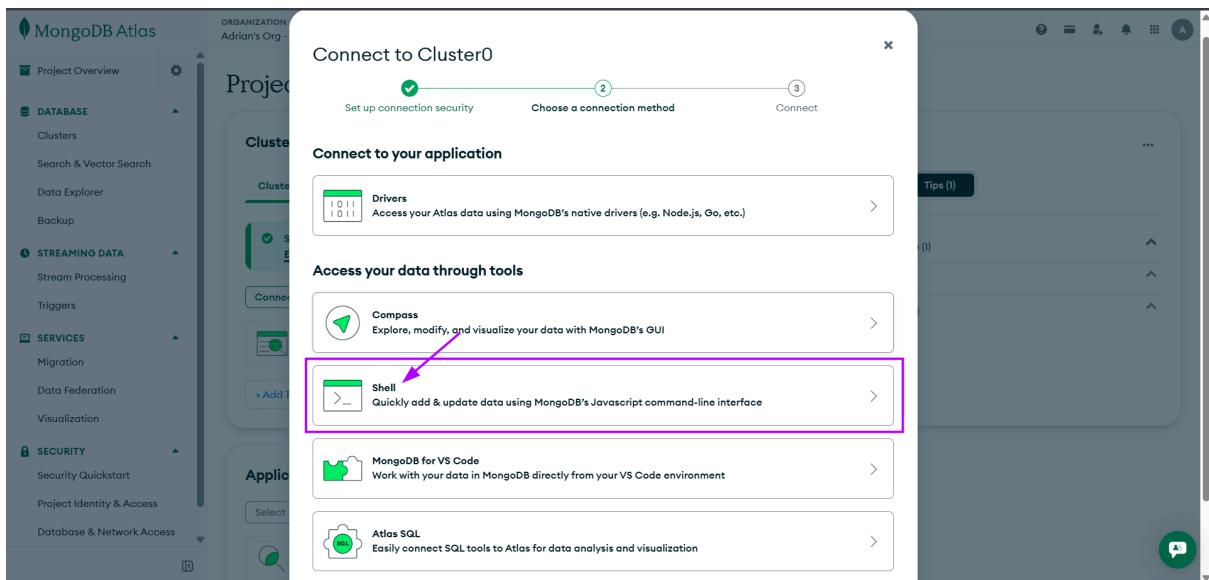
### 2.1 Connectar-se amb Shell ( Terminal )

Anem a “Connect”



The screenshot shows the MongoDB Atlas Project Overview interface. On the left, there's a sidebar with sections like DATABASE, STREAMING DATA, SERVICES, and SECURITY. The main area is titled "Project 0 Overview". Under "Clusters", there's a cluster named "Cluster0" with a green success message: "Sample data and search index loaded successfully. Get started with a sample query in Data Explorer or by connecting with MongoDB Shell." Below this is a "Connect" button, which is highlighted with a purple box and an arrow pointing to it. To the right of the "Connect" button is "Data Size: 115.94 MB". Further down, there are sections for "Application Development" and "View monitoring". A toolbar on the right includes tabs for Resources and Tips, and sections for Performance, Cost, and Resilience.

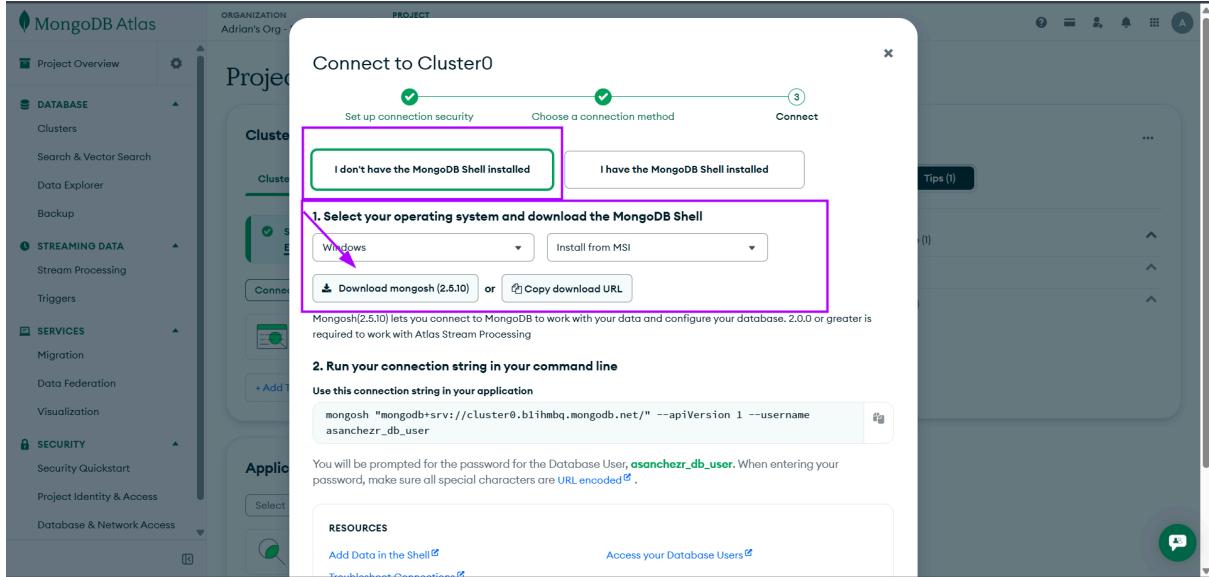
Anem a la opció “Shell”



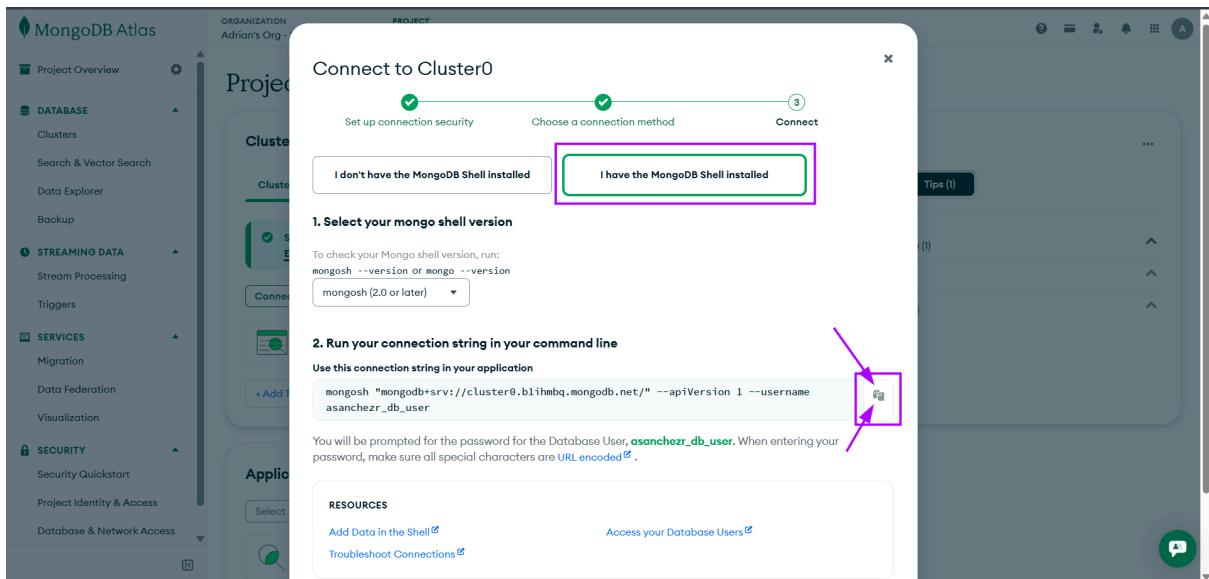
This screenshot shows the "Connect to Cluster0" modal window. It has three steps: 1. Set up connection security (done), 2. Choose a connection method (highlighted with a purple box and an arrow), and 3. Connect. Under "Choose a connection method", there are several options: "Drivers" (native drivers for various languages), "Compass" (GUI for exploring data), and "Shell" (highlighted with a purple box and an arrow). Other options include "MongoDB for VS Code" and "Atlas SQL". The background shows the same Project Overview interface as the previous screenshot.

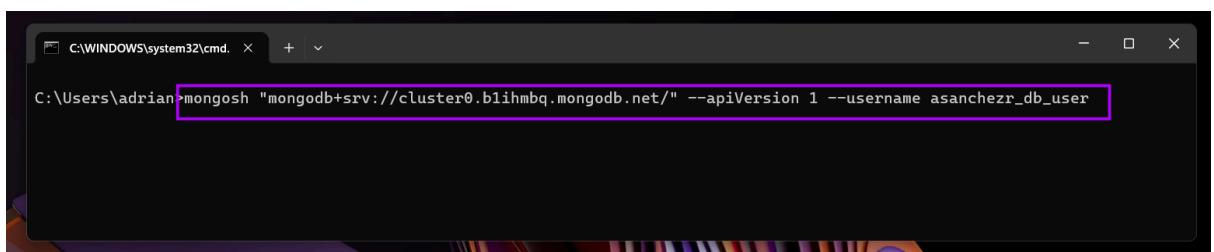
Si no tenim “**Mongosh**” instal·lat llavors anem a la opció “I don’t have the MongoDB Shell installed” llavors aneu a instal·lar-la i següi el tutorial:

### Com instal·lar mongoDB Shell

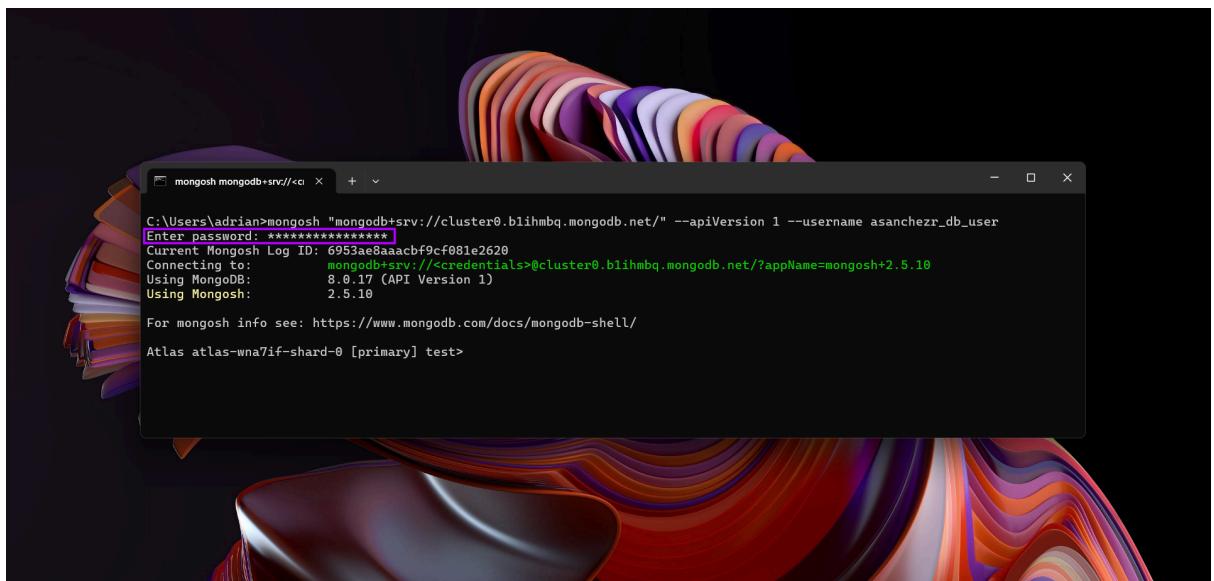


Un cop instal·lat copiem el enllaç.





Ens demana-ra un *password*.



Per canviar-ho si te n'has oblidat, ves a **"Database & Network Access"**

The screenshot shows the MongoDB Atlas Project Overview for 'Project O'. On the left sidebar, under the 'SECURITY' section, the 'Database & Network Access' option is highlighted with a purple box and an arrow pointing to it from the top-left.

**Clusters**  
Cluster0  
Sample data and search index loaded successfully. Get started with a sample query in Data Explorer or by connecting with MongoDB Shell.  
Data Size: 115.94 MB

**Toolbar**  
Resources **Tips (1)**  
Performance (1) Cost (0) Resilience (0)

**Application Development**  
Get connection string

Prem **"EDIT"** a l'usuari que es el **owner del Clauster**.

The screenshot shows the 'Database Users' page under 'Database & Network Access'. A user named 'asanchezr\_db\_user' is listed. The 'Actions' column for this user has an 'EDIT' button, which is highlighted with a purple box and an arrow pointing to it from the top-right.

User	Description	Authentication Method	MongoDB Roles	Resources	Actions
asanchezr_db_user		SCRAM	atlasAdmin@admin	All Resources	<b>EDIT</b> <b>DELETE</b>

**Database & Network...**

ORGANIZATION: Adrian's Org - 2025-0... PROJECT: Project 0

## Database Users

**Edit User: asanchezr\_db\_user@admin**

Update 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** (selected)
- Certificate
- AWS IAM
- Federated Auth (MongoDB 7.0 and up)

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

**Password Authentication**

asanchezr\_db\_user

**Edit Password**

**User Description**

Add an optional description to your user.

**Actions**: [EDIT](#) [DELETE](#)

**Database & Network...**

ORGANIZATION: Adrian's Org - 2025-0... PROJECT: Project 0

## Database Users

**Edit User: asanchezr\_db\_user@admin**

Update 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** (selected)
- Certificate
- AWS IAM
- Federated Auth (MongoDB 7.0 and up)

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

**Password Authentication**

asanchezr\_db\_user

**Enter new password**

**Autogenerate Secure Password** (button 1)

**Copy** (button 2)

**User Description**

Add an optional description to your user.

**Actions**: [EDIT](#) [DELETE](#)

**Database & Network...**

ORGANIZATION: Adrian's Org - 2025-0... PROJECT: Project 0

## Database Users

**mongosh mongodbsrv://<cl**

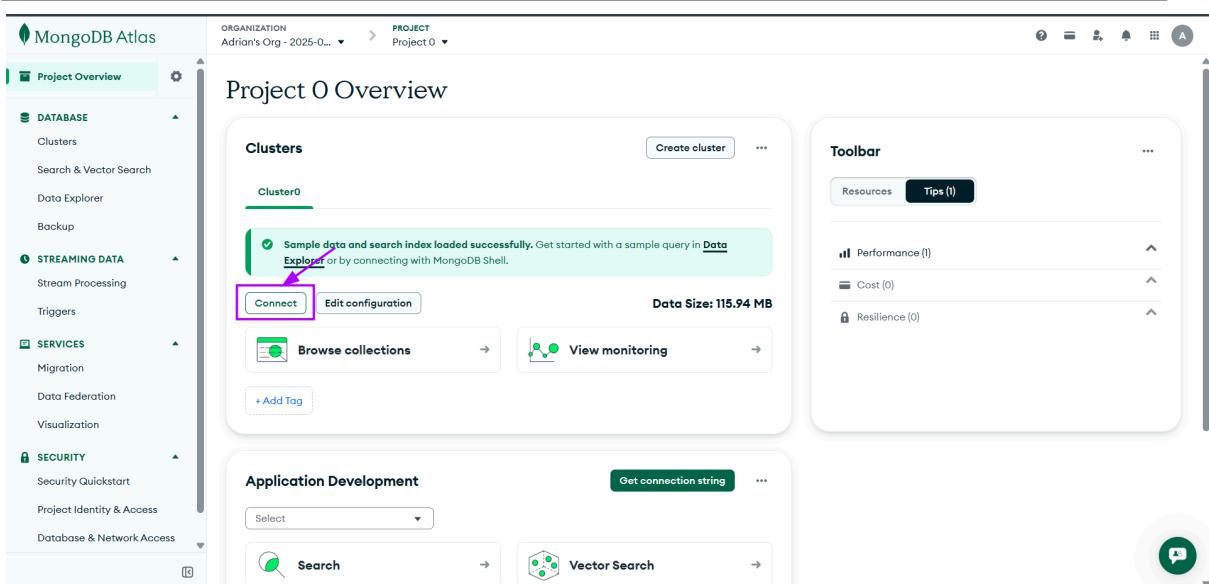
```
C:\Users\adrian>mongosh "mongodb+srv://cluster0.blihmbq.mongodb.net/" --apiVersion 1 --username asanchezr_db_user
Enter password: *****
Current Mongosh Log ID: 6953ae8aaacb9fcf881c2620
Connecting to: mongodbsrv://<credentials>@cluster0.blihmbq.mongodb.net/?appName=mongosh+2.5.10
Using MongoDB: 8.0.17 (API Version 1)
Using Mongosh: 2.5.10
For mongosh info see: https://www.mongodb.com/docs/mongodb-shell/
Atlas atlas-wna7if-shard-0 [primary] test>use tasques
switched to db tasques
Atlas atlas-wna7if-shard-0 [primary] tasques>
```

**Actions**: [NEW DATABASE USER](#) [EDIT](#) [DELETE](#)

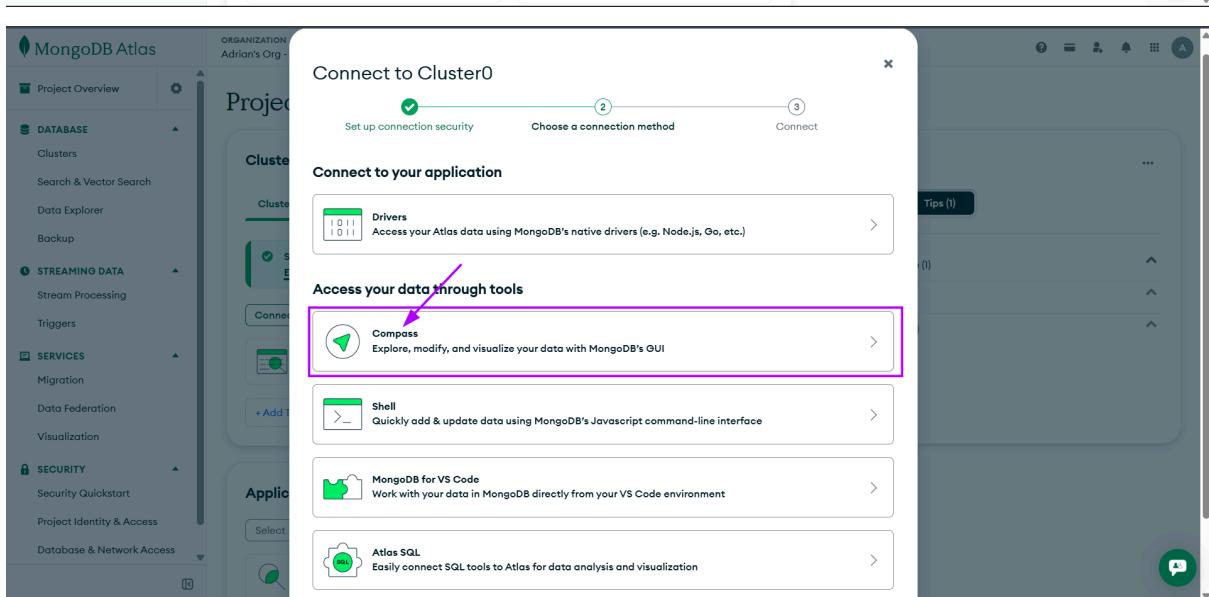
System Status: All Good

©2025 MongoDB, Inc. Status Terms Privacy Atlas Blog Contact Sales

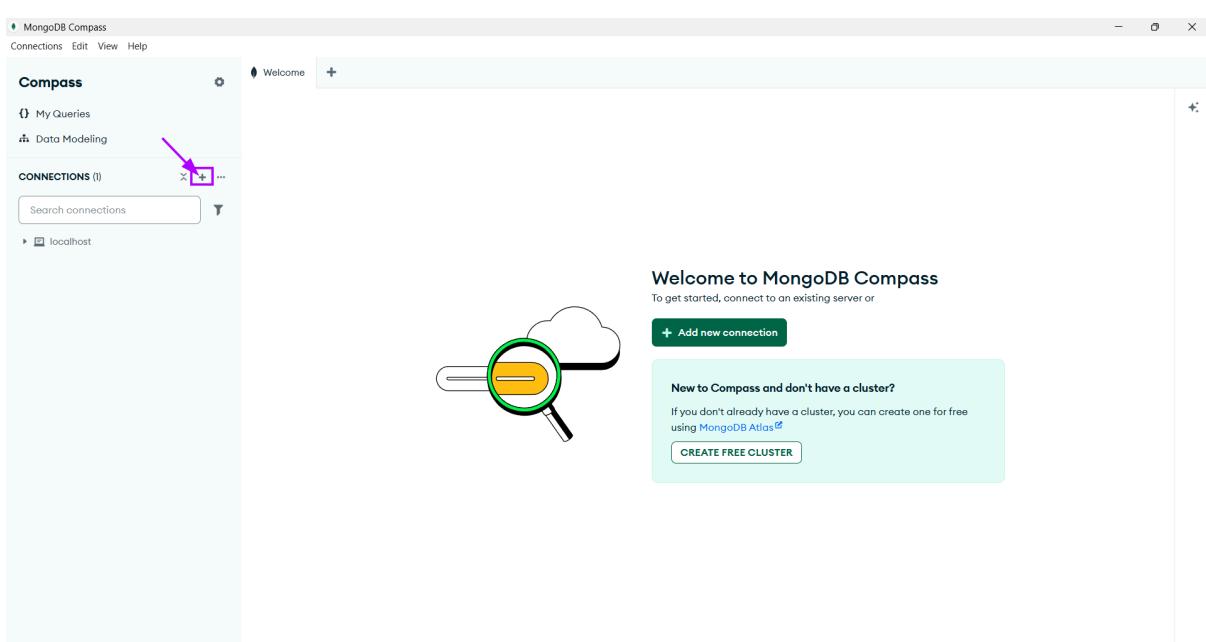
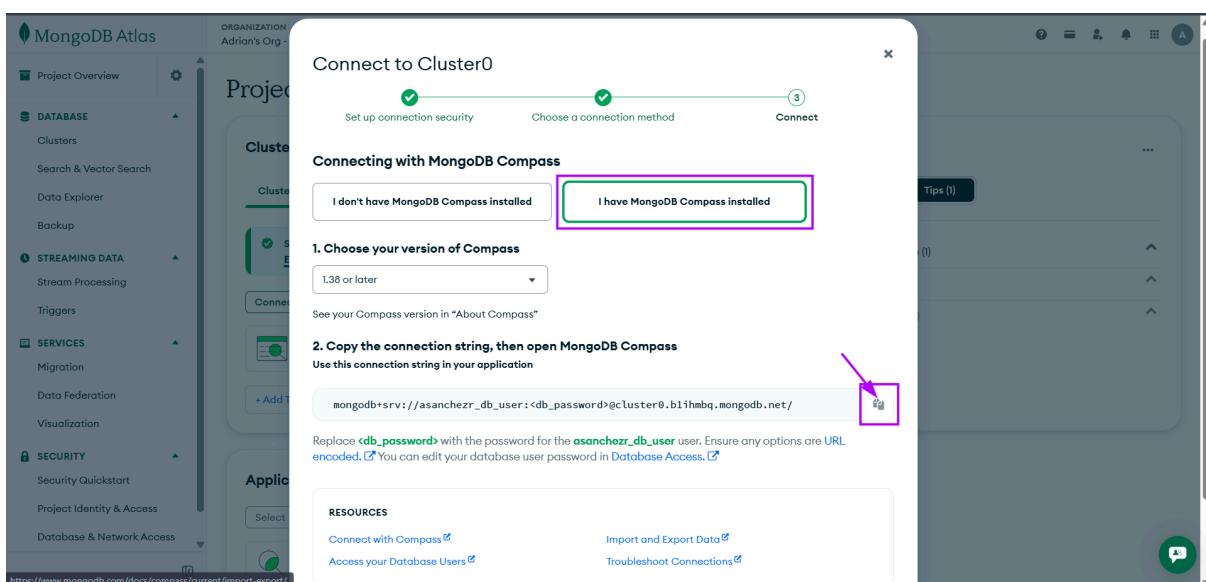
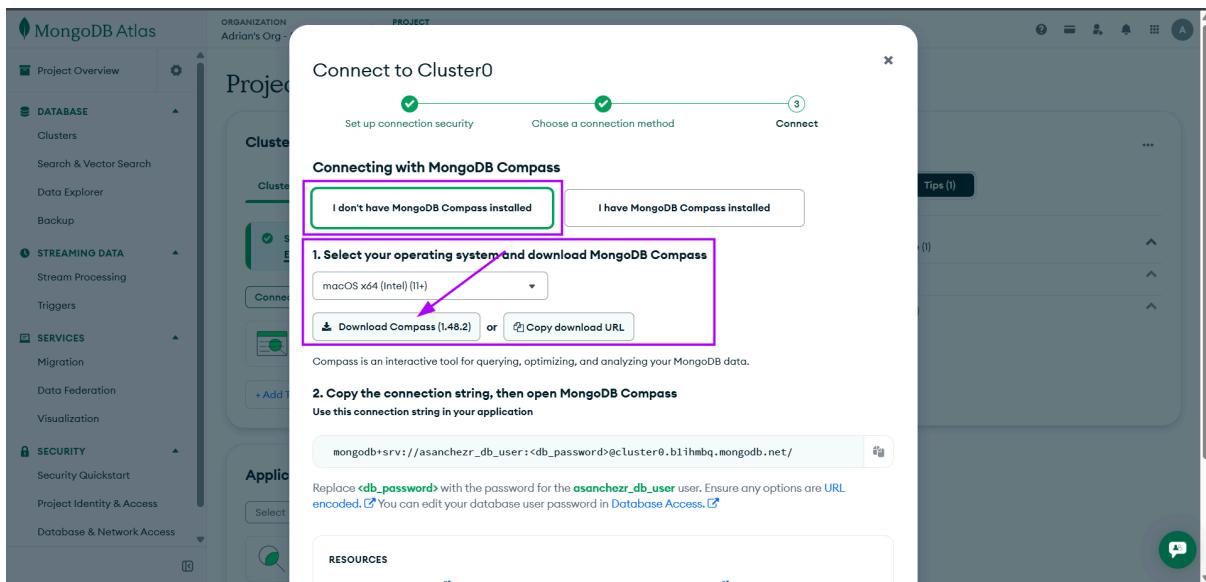
## 2.2 Connectar-se amb Compass

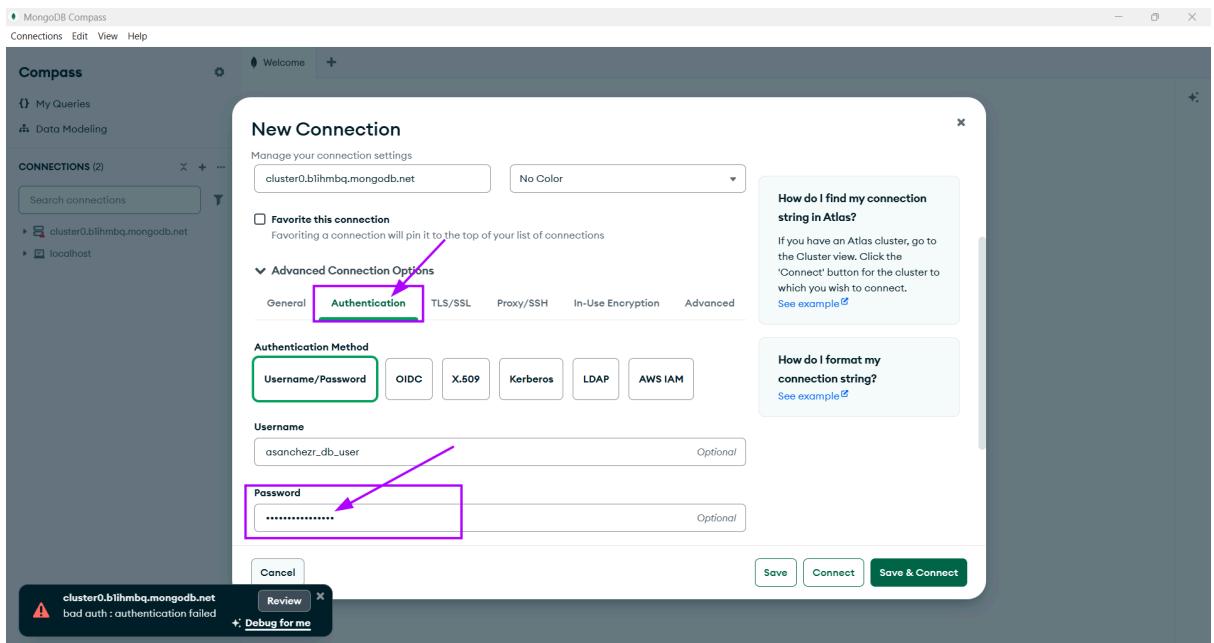
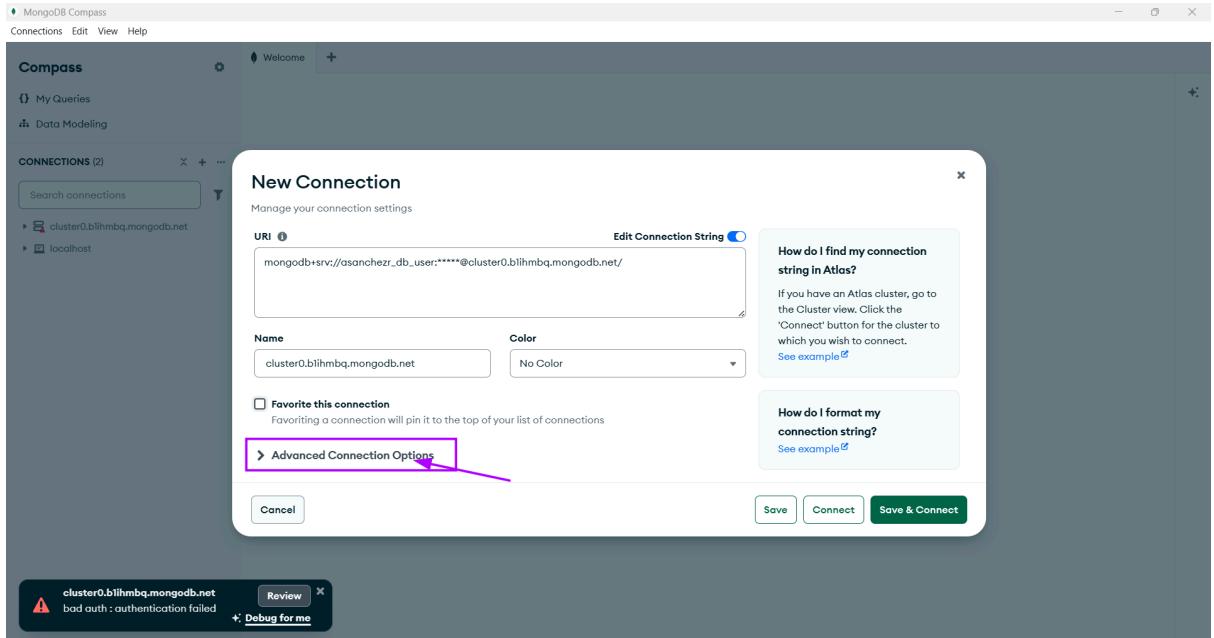


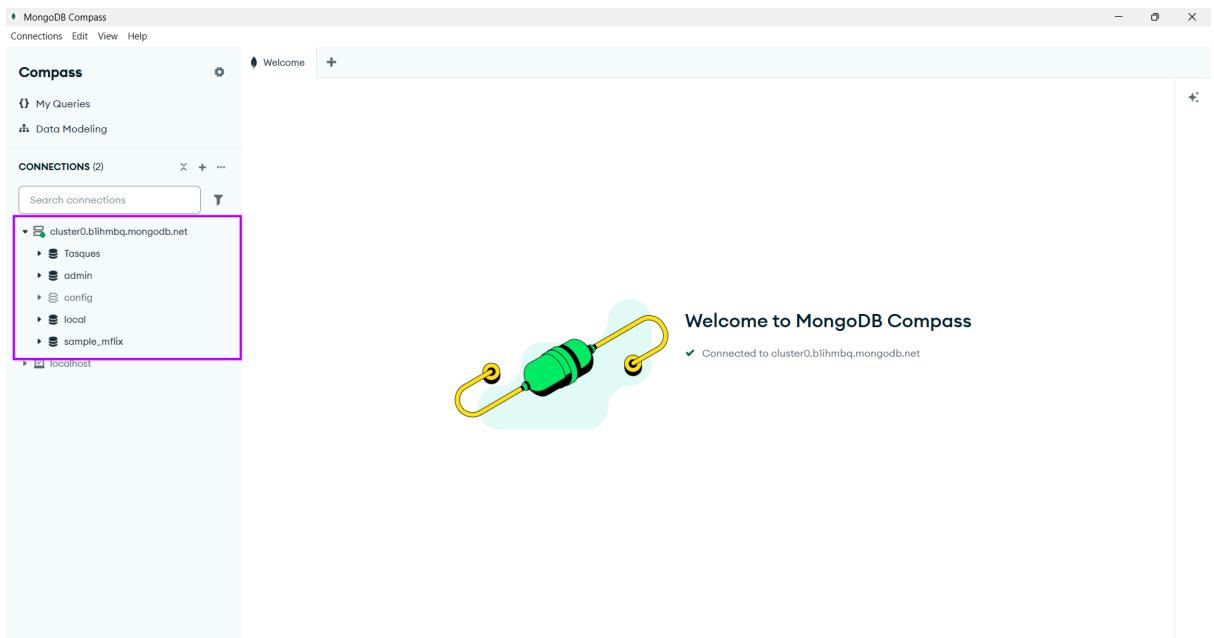
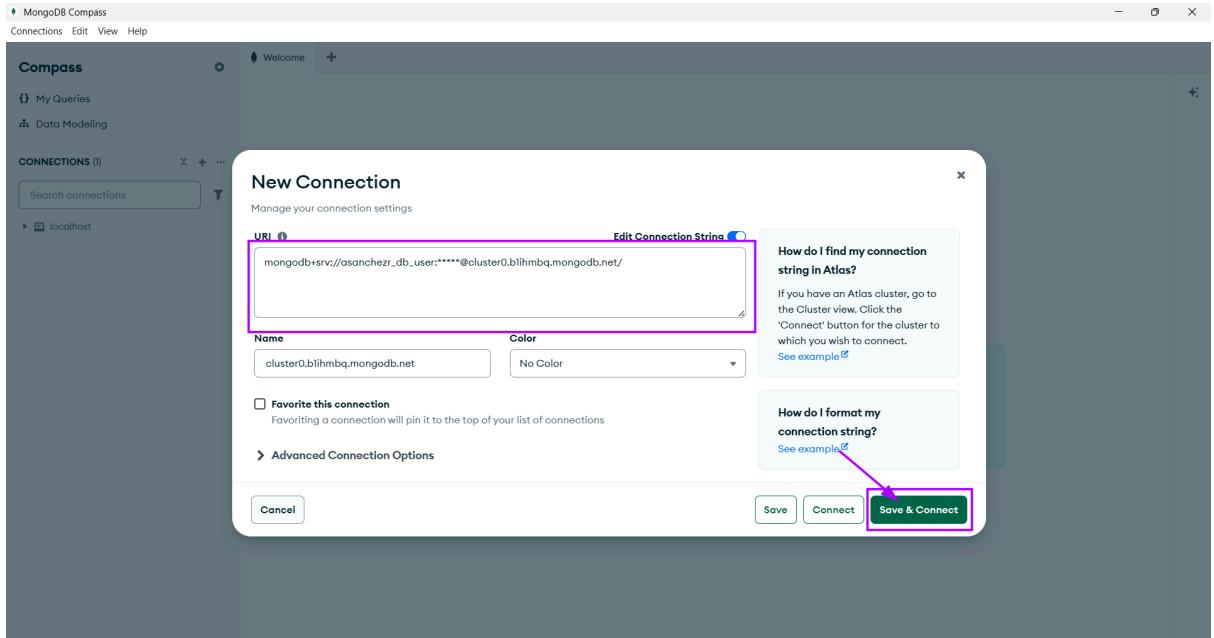
The screenshot shows the MongoDB Atlas Project Overview page for 'Project O'. On the left, there's a sidebar with sections like DATABASE, STREAMING DATA, SERVICES, and SECURITY. The main area shows 'Cluster0' with a message: 'Sample data and search index loaded successfully. Get started with a sample query in Data Explorer or by connecting with MongoDB Shell.' A purple arrow points to the 'Connect' button, which is highlighted with a pink box. To the right is a 'Toolbar' with tabs for Resources and Tips (which is selected), showing Performance, Cost, and Resilience metrics.

A modal window titled 'Connect to Cluster0' is open. It has three steps: 1. Set up connection security (done), 2. Choose a connection method (in progress), and 3. Connect (not yet). Step 2 is where the screenshot is taken. Below the steps, there's a section titled 'Connect to your application' with a 'Drivers' option. Underneath it, there's a section titled 'Access your data through tools' with several options: 'Compass' (highlighted with a pink box and a purple arrow), 'Shell', 'MongoDB for VS Code', and 'Atlas SQL'.







MongoDB Compass - cluster0.b1ihmbq.mongodb.net/Tasques.Entrades

Connections Edit View Collection Help

**Compass**

My Queries Data Modeling

**CONNECTIONS (2)**

- cluster0.b1ihmbq.mongodb.net
  - Tasques
    - Entrades
  - admin
  - config
  - local
  - sample\_mflix
- localhost

cluster0.b1ihmbq.mongodb.net > Tasques > Entrades

Documents 3 Aggregations Schema Indexes 1 Validation

Type a query: { field: 'value' } or [Generate query](#)

[EXPLAIN](#) [Reset](#) [Find](#) [Options](#)

[ADD DATA](#) [EXPORT DATA](#) [UPDATE](#) [DELETE](#)

25 1 - 3 of 3

`_id: ObjectId('695390e903426d3ea24d818')  
nomAlumne: 'Laura'  
cognom1: 'Martinez'  
cognom2: 'Soler'  
dataEntradaTasca: '2025-12-10T09:30:00Z'  
completa: true  
observacions: 'Tasca entregada abans de la data límit'`

`_id: ObjectId('695390e903426d3ea24d819')  
nomAlumne: 'Pol'  
cognom1: 'Garcia'  
cognom2: 'Lopez'  
dataEntradaTasca: '2025-12-12T14:15:00Z'  
completa: false  
observacions: 'Falten alguns exercicis'`

`_id: ObjectId('695390e903426d3ea24d81a')  
nomAlumne: 'Anna'  
cognom1: 'Vidal'  
cognom2: 'Riera'  
dataEntradaTasca: '2025-12-14T18:45:00Z'  
completa: true  
observacions: 'Molt bona presentació i contingut'`

[Edit](#) [Copy](#) [Delete](#)

[Open MongoDB shell](#)

MongoDB Compass - cluster0.b1ihmbq.mongodb.net/Shell

Connections Edit View Help

**Compass**

My Queries Data Modeling

**CONNECTIONS (2)**

- cluster0.b1ihmbq.mongodb.net
  - Tasques
    - Entrades
  - admin
  - config
  - local
  - sample\_mflix
- localhost

> mongosh: cluster0.b1ih...

> MONGOSH

> use Tasques

< switched to db Tasques

> db.Entrades.find()

```
{
  "_id: ObjectId('695390e903426d3ea24d818'),
  nomAlumne: 'Laura',
  cognom1: 'Martinez',
  cognom2: 'Soler',
  dataEntradaTasca: '2025-12-10T09:30:00Z',
  completa: true,
  observacions: 'Tasca entregada abans de la data límit'
}

{
  "_id: ObjectId('695390e903426d3ea24d819'),
  nomAlumne: 'Pol',
  cognom1: 'Garcia',
  cognom2: 'Lopez',
  dataEntradaTasca: '2025-12-12T14:15:00Z',
  completa: false,
  observacions: 'Falten alguns exercicis'
}

{
  "_id: ObjectId('695390e903426d3ea24d81a'),
  nomAlumne: 'Anna',
  cognom1: 'Vidal',
  cognom2: 'Riera',
  dataEntradaTasca: '2025-12-14T18:45:00Z',
  completa: true,
  observacions: 'Molt bona presentació i contingut'
}
```

### 3. Creació de la base de dades

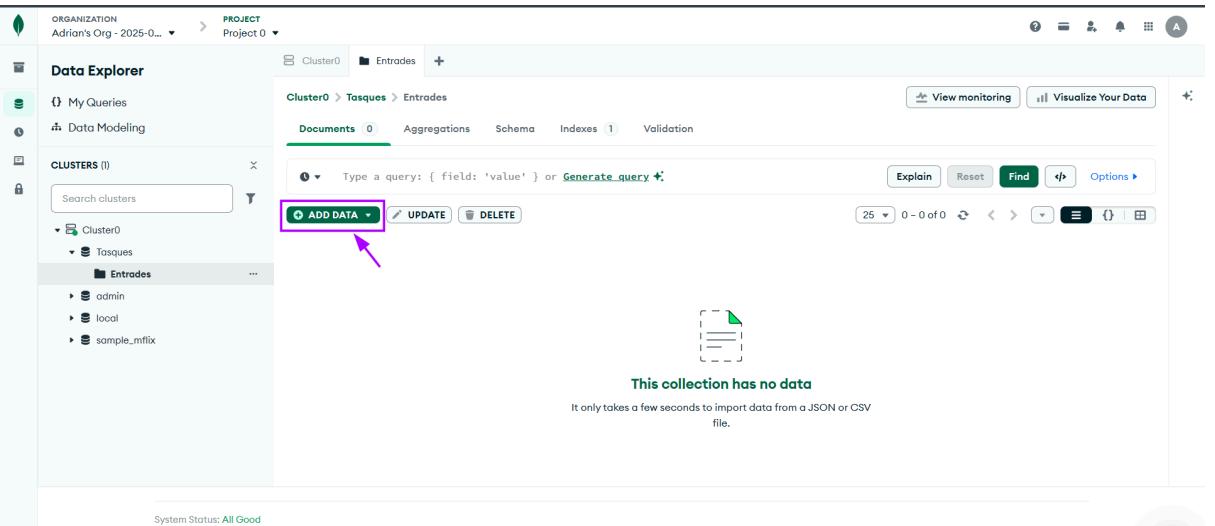
The screenshot shows the MongoDB Atlas Project Overview interface for 'Project 0'. The left sidebar contains navigation links for Project Overview, DATABASE (Clusters, Search & Vector Search, Data Explorer, Backup), STREAMING DATA (Stream Processing, Triggers), SERVICES (Migration, Data Federation, Visualization), SECURITY (Security Quickstart, Project Identity & Access). A central panel titled 'Project 0 Overview' displays 'Clusters' (Cluster0) with 'Browse collections' and 'View monitoring' buttons. Below it is the 'Application Development' section with 'Get connection string' and search options. A purple box highlights a message: 'Loading sample dataset. We are loading the sample dataset to Cluster0.' In the bottom left, another message says: 'Sample dataset successfully loaded. Access it in Collections or by connecting with the MongoDB Shell.' On the right, there's a 'Toolbar' with 'Resources' and 'Tips (1)', 'Featured Resources' (BUILD: Sample Apps Repo, Semantic Search with Vector Search, Learn MongoDB Skills, Atlas Learning Hub), 'New On Atlas' (Learn about the latest feature enhancements on Atlas), and 'Support' (Support Plan: Basic Plan, CHAT WITH SUPPORT, VIEW SUPPORT OPTIONS).

This screenshot is identical to the first one, but the message 'Loading sample dataset...' has been replaced by a green success message: 'Sample data loaded successfully. [Browse this collection.](#)' The 'Browse collections' button in the 'Clusters' section is highlighted with a purple box and a pink arrow points to it from the bottom message. The bottom message 'Sample dataset successfully loaded...' is also highlighted with a purple box.

The screenshot shows the MongoDB Atlas Data Explorer interface. At the top, there are navigation dropdowns for 'ORGANIZATION' (Adrian's Org - 2025-0...) and 'PROJECT' (Project 0). Below the navigation is a toolbar with icons for help, refresh, user, and settings. On the left, a sidebar titled 'Data Explorer' includes sections for 'My Queries', 'Data Modeling', and 'CLUSTERS (1)'. Under 'CLUSTERS', 'Cluster0' is selected, showing its contents: 'admin', 'local', and 'sample\_mflix'. The main area displays 'Cluster0' details with tabs for 'View monitoring', 'Visualize your data', and the highlighted 'Create database' button. A table lists databases with columns for 'Database name', 'Storage size', 'Collections', and 'Indexes'. The 'sample\_mflix' database has 86.10 MB storage, 6 collections, and 10 indexes. At the bottom, a footer bar shows 'System Status: All Good' and links to 'Status', 'Terms', 'Privacy', 'Atlas Blog', and 'Contact Sales'. A green speech bubble icon is in the bottom right corner.

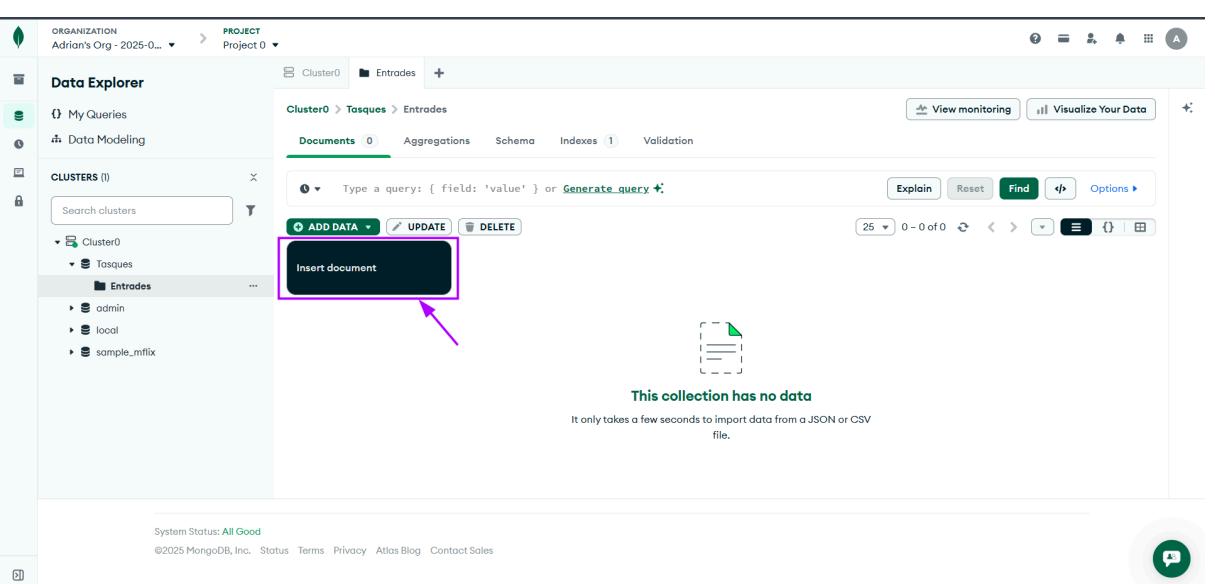
This screenshot shows the 'Create Database' dialog box overlaid on the MongoDB Atlas Data Explorer. The dialog has fields for 'Database Name' (Tasques) and 'Collection Name' (Entrades). It includes a checkbox for 'Time-Series' which is unchecked. Below the collection name is a link to 'Learn More'. At the bottom, there is a section for 'Additional preferences (e.g. Custom collation, Clustered collections)' with a plus sign icon. The 'Create Database' button at the bottom right is highlighted with a purple border and a purple arrow points to it from the bottom right of the dialog. The background shows the same cluster details as the first screenshot.

## 4. Insert de les dades



The screenshot shows the MongoDB Atlas Data Explorer interface. On the left, the sidebar displays the organization (Adrian's Org - 2025-0...), project (Project 0), and cluster (Cluster0). Under 'CLUSTERS (1)', 'Tasques' is expanded, showing 'Entrades' with three sub-items: admin, local, and sample\_mflix. In the main panel, the 'Cluster0 > Tasques > Entrades' path is selected. The 'Documents' tab is active, showing 0 documents. The 'ADD DATA' button is highlighted with a purple box and a pink arrow pointing to it. Below the button, there are 'UPDATE' and 'DELETE' buttons. The status bar at the bottom indicates 'System Status: All Good'.

This collection has no data  
It only takes a few seconds to import data from a JSON or CSV file.



The screenshot shows the same MongoDB Atlas Data Explorer interface. The 'ADD DATA' button has been clicked, and a modal dialog box titled 'Insert document' is displayed. This dialog box is highlighted with a black box and a pink arrow pointing to it. The rest of the interface remains visible in the background.

This collection has no data  
It only takes a few seconds to import data from a JSON or CSV file.

**Insert Document**

To collection Tasques.Entrades

```

1  [
2    {
3      "nomAlumne": "Laura",
4      "cognom1": "Martinez",
5      "cognom2": "Soler",
6      "dataEntradaTasca": "2025-12-10T09:30:00Z",
7      "completa": true,
8      "observacions": "Tasca entregada abans de la data límit"
9    },
10   {
11     "nomAlumne": "Pol",
12     "cognom1": "Garcia",
13     "cognom2": "Lopez",
14     "dataEntradaTasca": "2025-12-12T14:15:00Z",
15     "completa": false,
16     "observacions": "Falten alguns exercicis"
17   },
18   {
19     "nomAlumne": "Anna",
20     "cognom1": "Vidal",
21     "cognom2": "Riera",
22     "dataEntradaTasca": "2025-12-14T18:45:00Z",
23     ...
24   }
25

```

**VIEW**

**Cancel** **Insert**

**Data Explorer**

Cluster0 > Tasques > Entrades

Documents 3 Aggregations Schema Indexes 1 Validation

Type a query: { field: 'value' } or [Generate query](#)

**ADD DATA**

```

_id: ObjectId('69526bca62f77de565e35256')
nomAlumne: "Laura"
cognom1: "Martinez"
cognom2: "Soler"
dataEntradaTasca: "2025-12-10T09:30:00Z"
completa: true
observacions: "Tasca entregada abans de la data límit"

_id: ObjectId('69526bca62f77de565e35257')
nomAlumne: "Pol"
cognom1: "Garcia"
cognom2: "Lopez"
dataEntradaTasca: "2025-12-12T14:15:00Z"
completa: false
observacions: "Falten alguns exercicis"

```

**View monitoring** **Visualize Your Data**

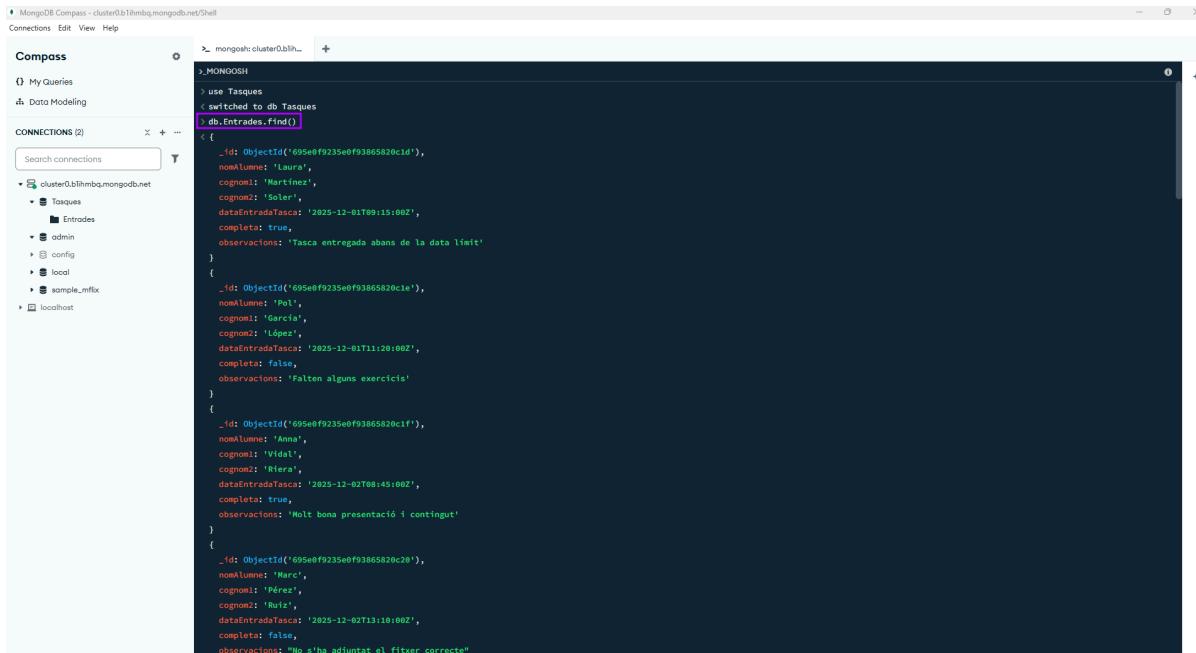
25 1-3 of 3

**System Status:** All Good

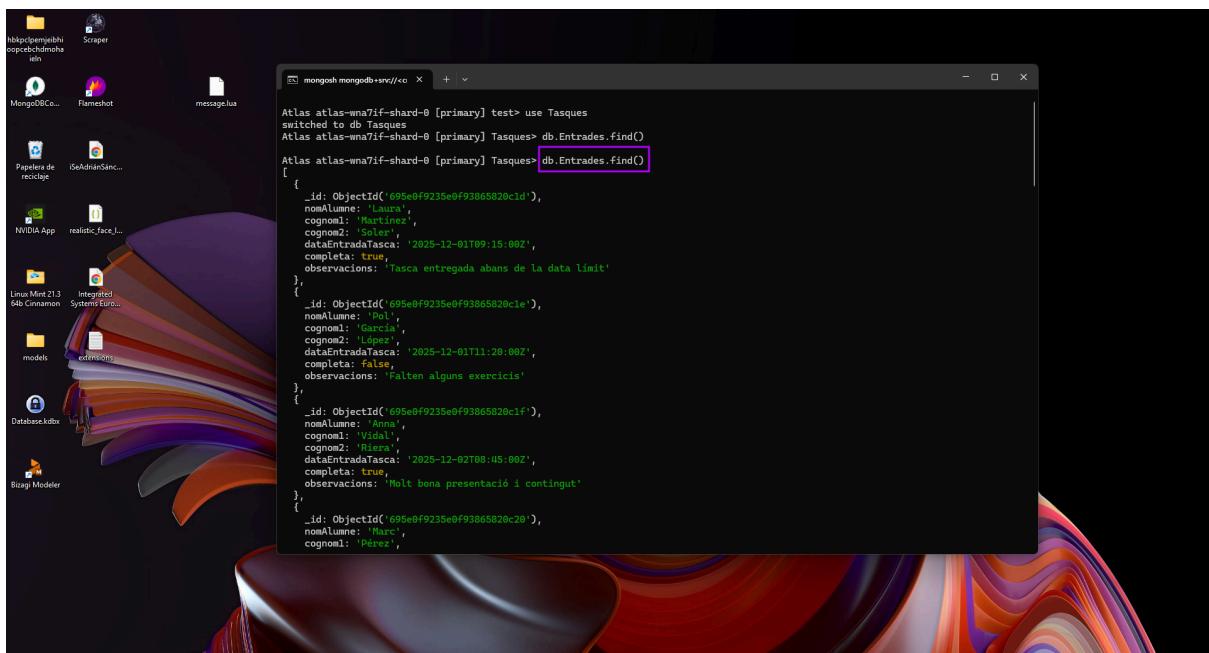
# 5. Cerques

## 1. Llistar totes les tasques.

db.Entradess.find()



```
> use Tasques
switched to db Tasques
> db.Entradess.find()
{
  "_id": ObjectId("695e0f9235e0f93865820c1d"),
  "nomAlumne": "Laura",
  "cognom1": "Martinez",
  "cognom2": "Soler",
  "dataEntradaTasca": "2025-12-01T09:15:00Z",
  "completa": true,
  "observacions": "Tasca entregada abans de la data límit"
}
{
  "_id": ObjectId("695e0f9235e0f93865820c1e"),
  "nomAlumne": "Poli",
  "cognom1": "Garcia",
  "cognom2": "Lopez",
  "dataEntradaTasca": "2025-12-01T11:20:00Z",
  "completa": false,
  "observacions": "Falten alguns exercicis"
}
{
  "_id": ObjectId("695e0f9235e0f93865820c1f"),
  "nomAlumne": "Anna",
  "cognom1": "Vidal",
  "cognom2": "Riera",
  "dataEntradaTasca": "2025-12-02T08:45:00Z",
  "completa": true,
  "observacions": "Molt bona presentació i contingut"
}
{
  "_id": ObjectId("695e0f9235e0f93865820c20"),
  "nomAlumne": "Marc",
  "cognom1": "Perez",
  "cognom2": "Ruiz",
  "dataEntradaTasca": "2025-12-02T13:10:00Z",
  "completa": false,
  "observacions": "No s'ha adjuntat el fitxer correcte"
```



```
Atlas atlas-wna7if-shard-0 [primary] test> use Tasques
switched to db Tasques
Atlas atlas-wna7if-shard-0 [primary] Tasques> db.Entradess.find()
Atlas atlas-wna7if-shard-0 [primary] Tasques> db.Entradess.find()
{
  "_id": ObjectId("695e0f9235e0f93865820c1d"),
  "nomAlumne": "Laura",
  "cognom1": "Martinez",
  "cognom2": "Soler",
  "dataEntradaTasca": "2025-12-01T09:15:00Z",
  "completa": true,
  "observacions": "Tasca entregada abans de la data límit"
}
{
  "_id": ObjectId("695e0f9235e0f93865820c1e"),
  "nomAlumne": "Poli",
  "cognom1": "Garcia",
  "cognom2": "Lopez",
  "dataEntradaTasca": "2025-12-01T11:20:00Z",
  "completa": false,
  "observacions": "Falten alguns exercicis"
}
{
  "_id": ObjectId("695e0f9235e0f93865820c1f"),
  "nomAlumne": "Anna",
  "cognom1": "Vidal",
  "cognom2": "Riera",
  "dataEntradaTasca": "2025-12-02T08:45:00Z",
  "completa": true,
  "observacions": "Molt bona presentació i contingut"
}
{
  "_id": ObjectId("695e0f9235e0f93865820c20"),
  "nomAlumne": "Marc",
  "cognom1": "Perez",
  "cognom2": "Ruiz",
  "dataEntradaTasca": "2025-12-02T13:10:00Z",
  "completa": false,
  "observacions": "No s'ha adjuntat el fitxer correcte"
```

Organization: Adrian's Org - 2025-0... Project: Project 0

**Data Explorer**

- My Queries
- Data Modeling
- CLUSTERS (1)
  - Cluster0
    - Tasques
    - Entrades**
      - admin
      - local
      - sample\_mflix

Documents: 3 Aggregations Schema Indexes Validation

**Find**

```
_id: ObjectId('605e0f935e0f93865820c1d')
nomAlumne: "Laura"
cognom1: "Martinez"
cognom2: "Soler"
dataEntradaTasca: "2025-12-10T09:30:00Z"
completa: true
observacions: "Tasca entregada abans de la data límit"

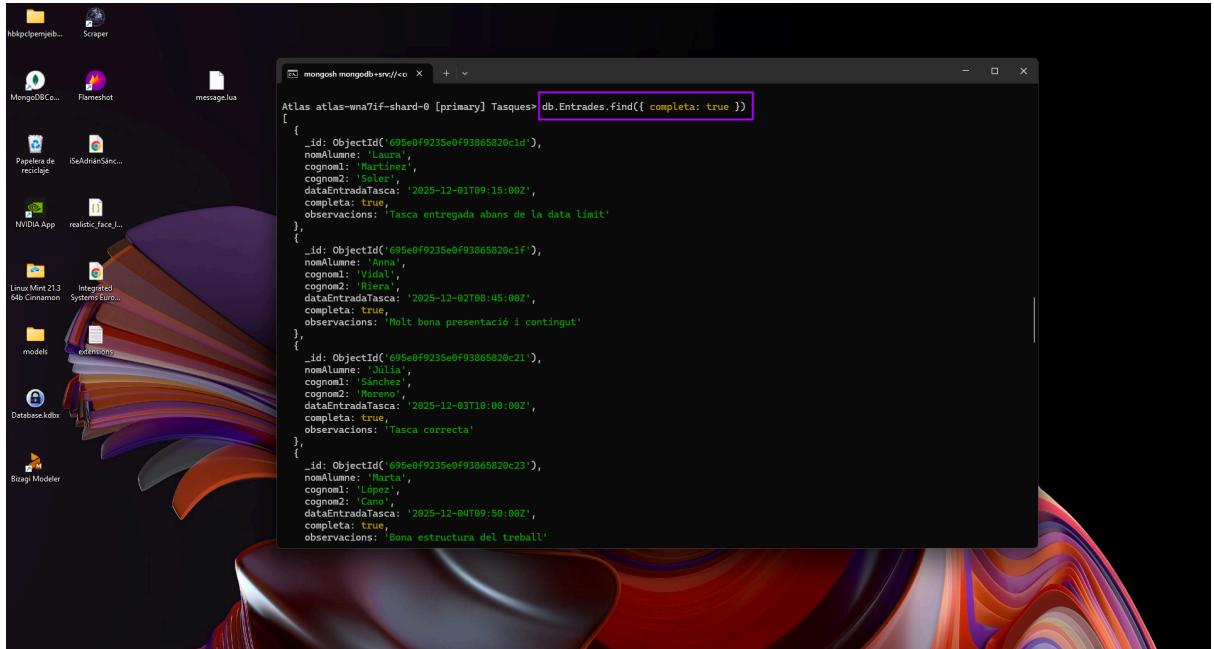
_id: ObjectId('605e0f935e0f93865820c1f')
nomAlumne: "Pol"
cognom1: "Garcia"
cognom2: "Lopez"
dataEntradaTasca: "2025-12-12T14:15:00Z"
completa: false
observacions: "Falten alguns exercicis"
```

System Status: All Good  
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## 2. Llistar les tasques completades.

db.Entradess.find({ completa: true })

```
> MONOGISH
db.Entradess.find({ completa: true })
{
  "_id: ObjectId('605e0f935e0f93865820c1d'),
  nomAlumne: "Laura",
  cognom1: "Martinez",
  cognom2: "Soler",
  dataEntradaTasca: "2025-12-01T09:15:00Z",
  completa: true,
  observacions: "Tasca entregada abans de la data límit"
}
{
  "_id: ObjectId('605e0f935e0f93865820c1f'),
  nomAlumne: "Anna",
  cognom1: "Vidal",
  cognom2: "Riera",
  dataEntradaTasca: "2025-12-02T08:45:00Z",
  completa: true,
  observacions: "Molt bona presentació i contingut"
}
{
  "_id: ObjectId('605e0f935e0f93865820c21'),
  nomAlumne: "Julia",
  cognom1: "Sánchez",
  cognom2: "Moreno",
  dataEntradaTasca: "2025-12-03T10:00:00Z",
  completa: true,
  observacions: "Tasca correcta"
}
{
  "_id: ObjectId('605e0f935e0f93865820c23'),
  nomAlumne: "Marta",
  cognom1: "López",
  cognom2: "Cano",
  dataEntradaTasca: "2025-12-04T09:50:00Z",
  completa: true,
  observacions: "Bona estructura del treball"
}
```



A screenshot of the MongoDB Atlas Data Explorer interface. The top navigation bar shows "ORGANIZATION Adrian's Org - 2025-0..." and "PROJECT Project 0". The left sidebar has sections for "Data Explorer", "My Queries", "Data Modeling", and "CLUSTERS (0)". Under "CLUSTERS (0)", there is a search bar and a list of clusters: Cluster0, Tasques, Entrades, admin, local, sample\_mflix, and test. The main area shows the "Cluster0 > Tasques > Entrades" collection. The "Documents" tab is selected, displaying two results. The first document is identical to the one in the terminal. The second document is also a task entry with similar fields. The interface includes a toolbar with "Generate query", "Explain", "Reset", and a prominent "Find" button.

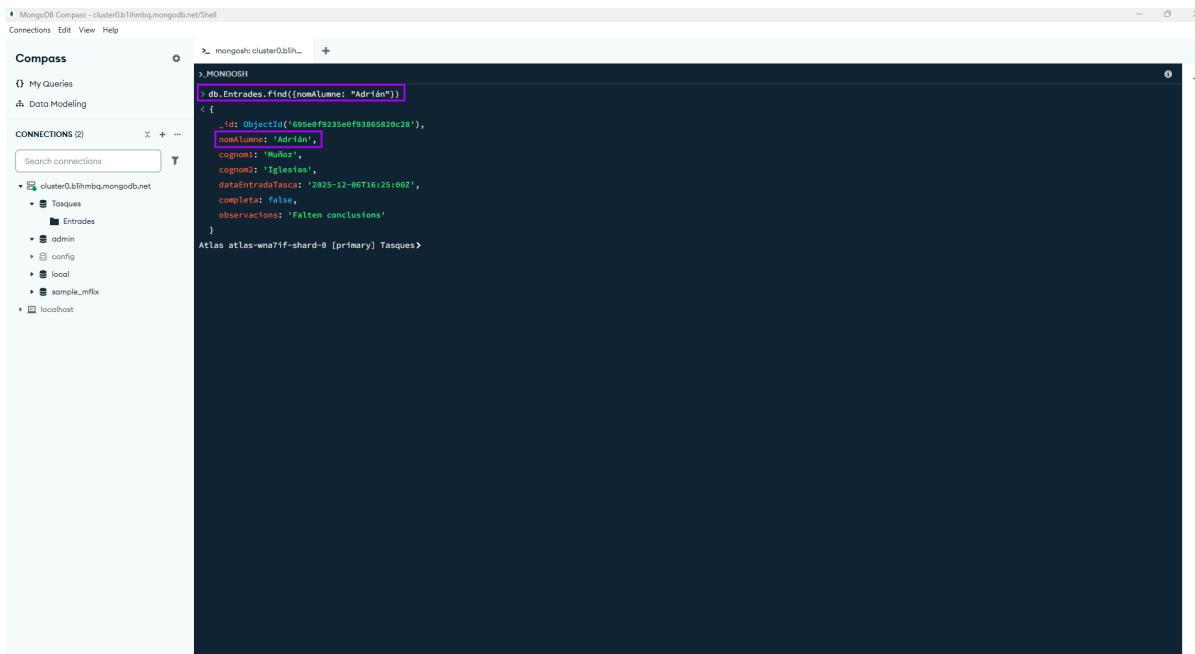
```
System Status: All Good
©2025 MongoDB, Inc. Status Terms Privacy Atlas Blog Contact Sales
```

```
Cluster0 > Tasques > Entrades
Documents 3 Aggregations Schema Indexes 1 Validation
{ completa: true }
Generate query Explain Reset Find Options
ADD DATA UPDATE DELETE
_id: ObjectId('69526bca62f77de565e35256')
nomAlumne: "Laura"
cognom1: "Martinez"
cognom2: "Soler"
dataEntradaTasca: "2025-12-10T09:30:00Z"
completa: true
observacions: "Tasca entregada abans de la data límit"

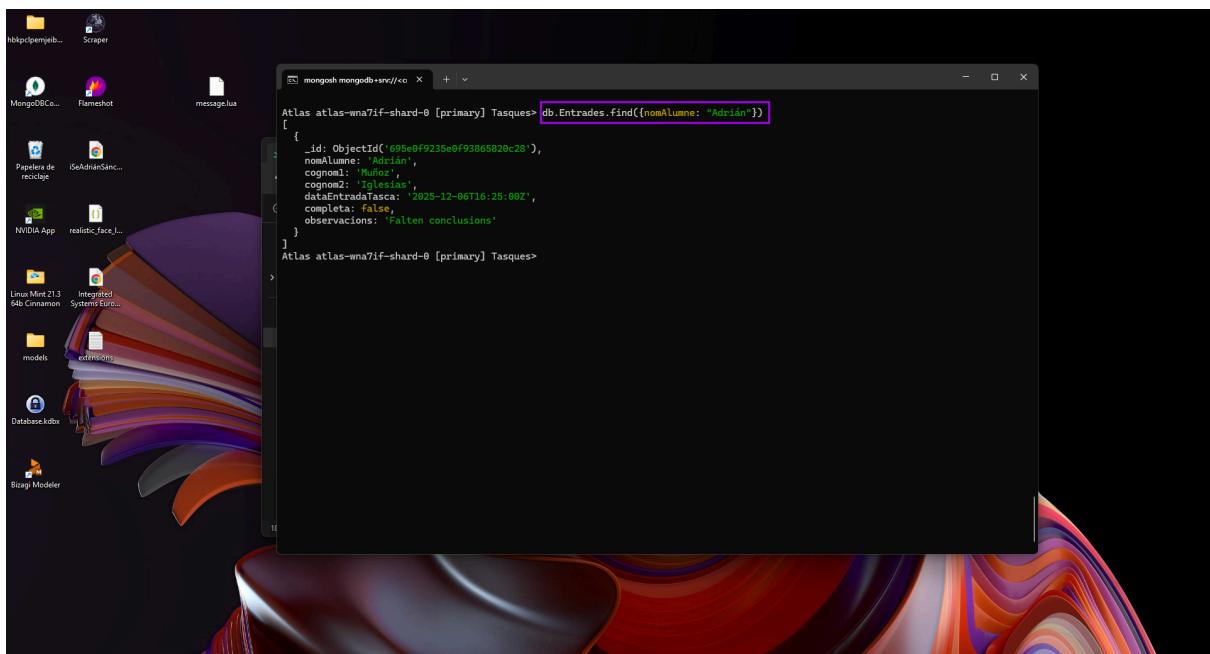
_id: ObjectId('69526bca62f77de565e35258')
nomAlumne: "Anna"
cognom1: "Vidal"
cognom2: "Riera"
dataEntradaTasca: "2025-12-14T18:45:00Z"
completa: true
observacions: "Molt bona presentació i contingut"
```

### 3. Llistar les tasques d'un alumne específic.

```
db.Entradess.find({nomAlumne: "Adrián"})
```



```
>_MONOOSH
>_ mongoDB:cluster[0].listCollections()
>_ MONOOSH
>_ db.Entradess.find({nomAlumne: "Adrián"})
< [
  {
    "_id": ObjectId("695e0f9235e0f93865820c28"),
    "nomAlumne": "Adrián",
    "cognom1": "Muñoz",
    "cognom2": "Iglesias",
    "dataEntradaTasca": "2025-12-06T16:25:00Z",
    "completa": false,
    "observacions": "Falten conclusiones"
  }
]
Atlas atlas-wna7if-shard-0 [primary] Tasques>
```



```
hkpclpmjeb... Scaper
MongoDBCom... Flasheshot
message.lis
Papelería de
reciclaje iSeAdminSan...
NVIDIA App realistic-face...
Linux Mint 21.3
64b Cinnamon
models Database.kdbx
Bixby Modeler
mongoDB:atlas-wna7if-shard-0> db.Entradess.find({nomAlumne: "Adrián"})
[{"_id": ObjectId("695e0f9235e0f93865820c28"), "nomAlumne": "Adrián", "cognom1": "Muñoz", "cognom2": "Iglesias", "dataEntradaTasca": "2025-12-06T16:25:00Z", "completa": false, "observacions": "Falten conclusiones"}]
Atlas atlas-wna7if-shard-0 [primary] Tasques>
```

The screenshot shows the MongoDB Compass Data Explorer interface. The left sidebar displays the organization 'Adrian's Org - 2025-0...' and project 'Project 0'. Under 'Data Explorer', there are sections for 'My Queries' and 'Data Modeling'. The 'CLUSTERS (1)' section shows 'Cluster0' with its sub-clusters: 'Tasques' and 'Entrades'. The 'Entrades' cluster is selected, showing its sub-clusters: 'admin', 'local', 'sample\_mflix', and 'test'. The main panel shows the 'Cluster0 > Tasques > Entrades' documents. A search query '{ nomAlumne: "Laura" }' is entered in the search bar. The results show one document:

```

_id: ObjectId('69526bca62f7de565e35256')
nomAlumne : "Laura"
cognom1 : "Martinez"
cognom2 : "Soler"
dataEntradaTasca : "2025-12-10T09:30:00Z"
completa : true
observacions : "Tasca entregada abans de la data limit"

```

Below the results, the system status is 'All Good'.

## 4. Cerca les tasques de determinat alumne i completades.

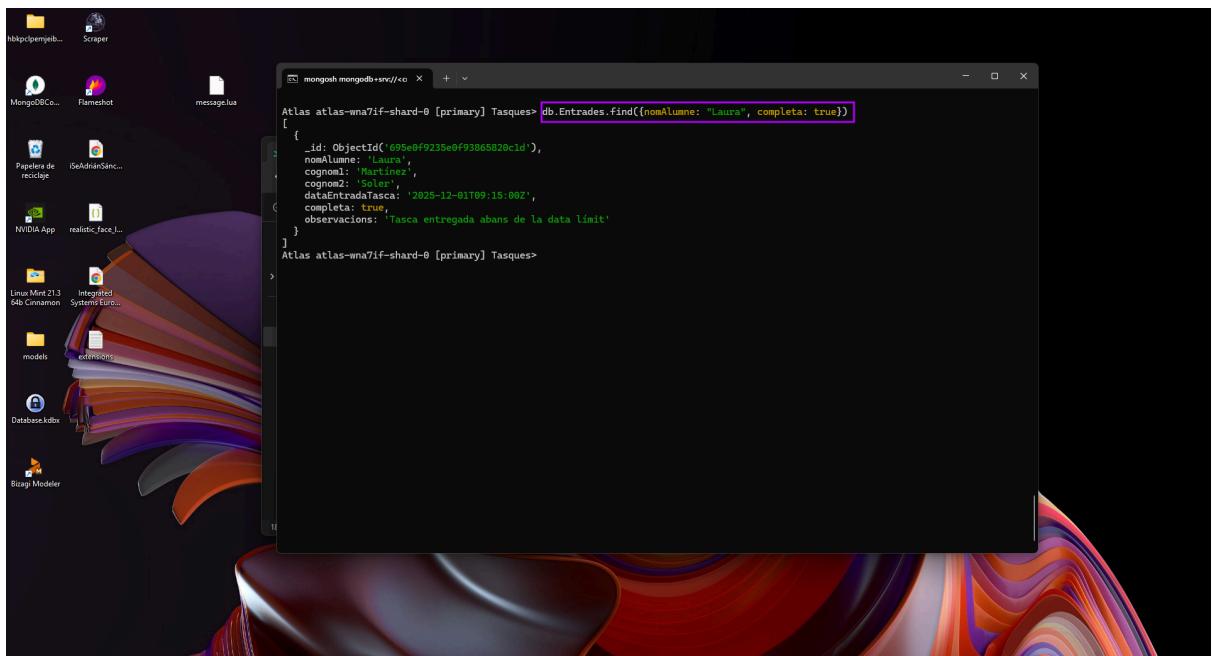
```
db.Entradess.find({ nomAlumne: "Laura", completa: true})
```

The screenshot shows the MongoDB Compass Shell interface. The left sidebar shows 'Compass' with 'My Queries' and 'Data Modeling' sections, and 'CONNECTIONS (2)' with 'cluster0.blhmbq.mongodb.net'. The main panel shows the command line: 'db.Entradess.find({ nomAlumne: "Laura", completa: true})'. The results pane displays the same document as the previous screenshot:

```

_id: ObjectId("69526bca62f7de565e35256")
nomAlumne : "Laura"
cognom1 : "Martinez"
cognom2 : "Soler"
dataEntradaTasca : "2025-12-10T09:30:00Z"
completa : true
observacions : "Tasca entregada abans de la data limit"

```



ORGANIZATION  
Adrian's Org - 2025-0... > PROJECT  
Project 0

Data Explorer

My Queries

Data Modeling

CLUSTERS (1)

Search clusters

Cluster0 Tasques Entrades

Documents 3 Aggregations Schema Indexes 1 Validation

{ nomAlumne: "Laura", completa: true }

Generate query Explain Reset Find Options

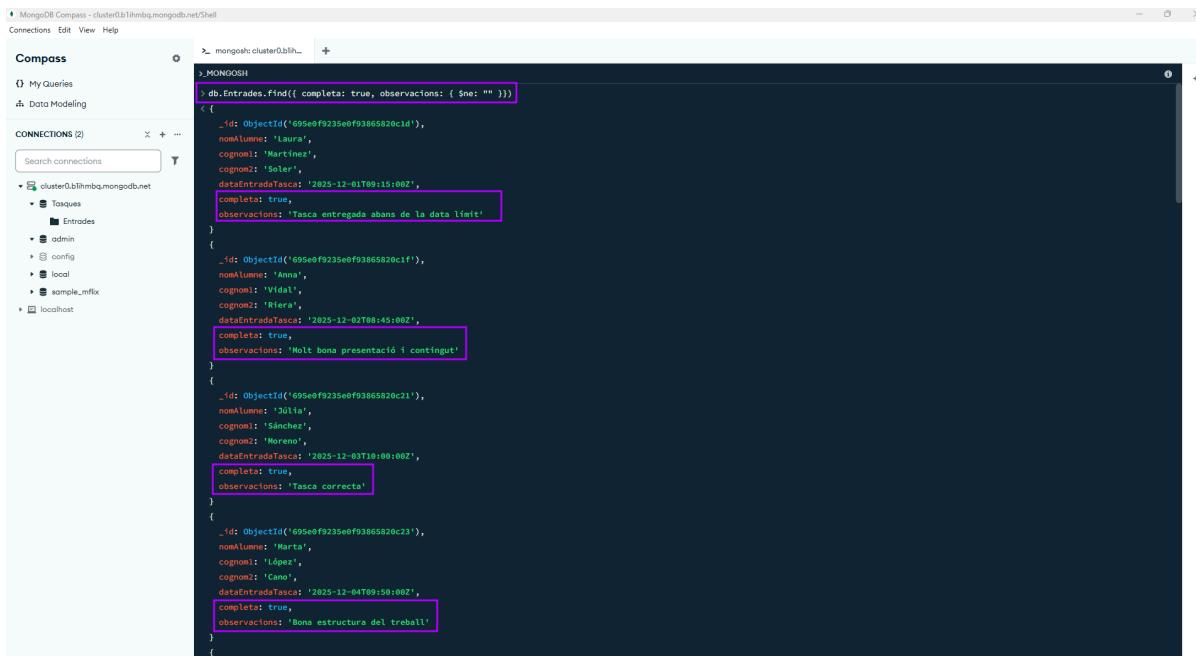
ADD DATA UPDATE DELETE

\_id: ObjectId("69526bca62f77de565e35256")
nomAlumne : "Laura"
cognom1 : "Martínez"
cognom2 : "Soler"
dataEntradaTasca : "2025-12-10T09:30:00Z"
completa : true
observacions : "Tasca entregada abans de la data límit"

System Status: All Good  
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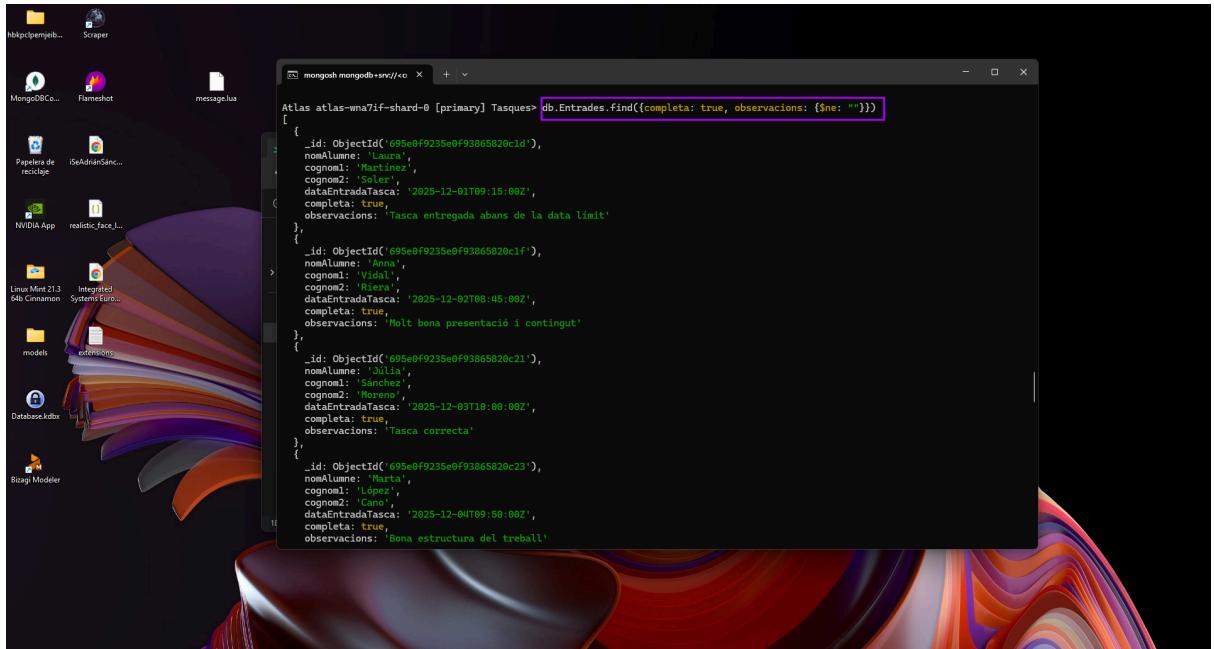
## 5. Llista les tasques completades i amb observacions.

```
db.Entrades.find({ completa: true, observacions: { $ne: "" }})
```



```
mongosh:cluster[0]:> db.Entrades.find({ completa: true, observacions: { $ne: "" }})
```

```
[{"_id": ObjectId("695e0f9235e0f93865820c1d"), "nomAlumne": "Laura", "cognom1": "Martínez", "cognom2": "Soler", "dataEntradaTasca": "2025-12-01T09:15:00Z", "completa": true, "observacions": "Tasca entregada abans de la data límit"}, {"_id": ObjectId("695e0f9235e0f93865820c1f"), "nomAlumne": "Anna", "cognom1": "Vidal", "cognom2": "Iriarte", "dataEntradaTasca": "2025-12-02T08:45:00Z", "completa": true, "observacions": "Molt bona presentació i contingut"}, {"_id": ObjectId("695e0f9235e0f93865820c21"), "nomAlumne": "Julia", "cognom1": "Sánchez", "cognom2": "Moreno", "dataEntradaTasca": "2025-12-03T10:00:00Z", "completa": true, "observacions": "Tasca correcta"}, {"_id": ObjectId("695e0f9235e0f93865820c23"), "nomAlumne": "Marta", "cognom1": "López", "cognom2": "Cano", "dataEntradaTasca": "2025-12-04T09:50:00Z", "completa": true, "observacions": "Bona estructura del treball"}]
```

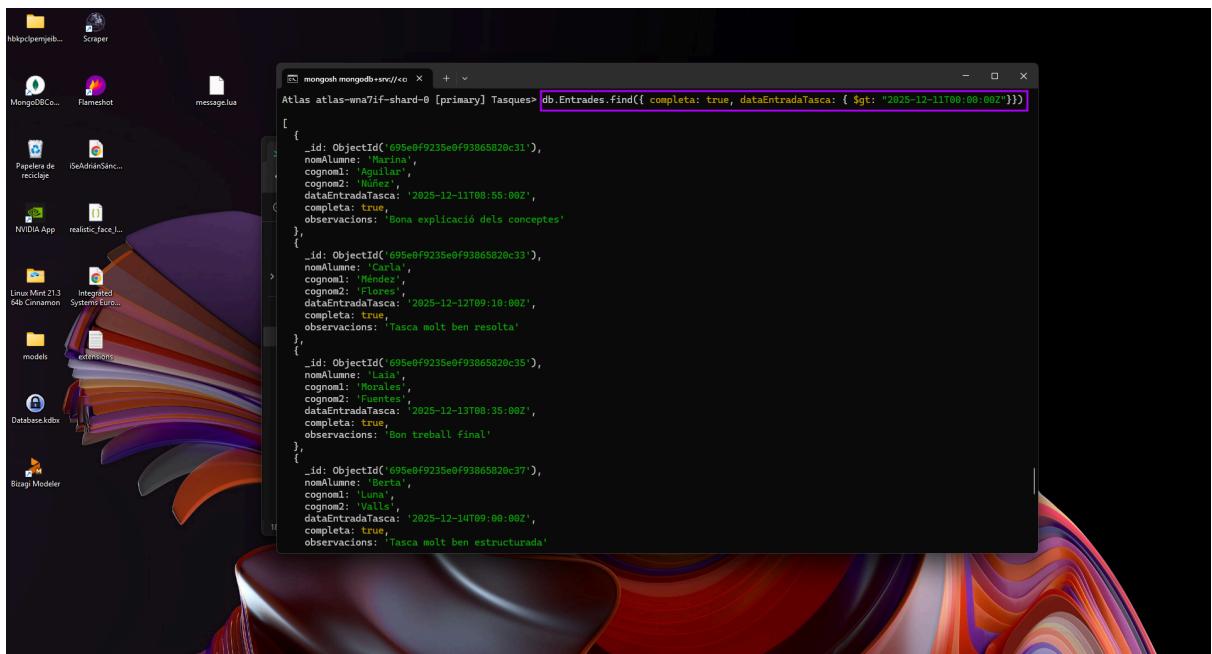


```
mongosh:cluster[0]:> db.Entrades.find({completa: true, observacions: {$ne: ""}})
```

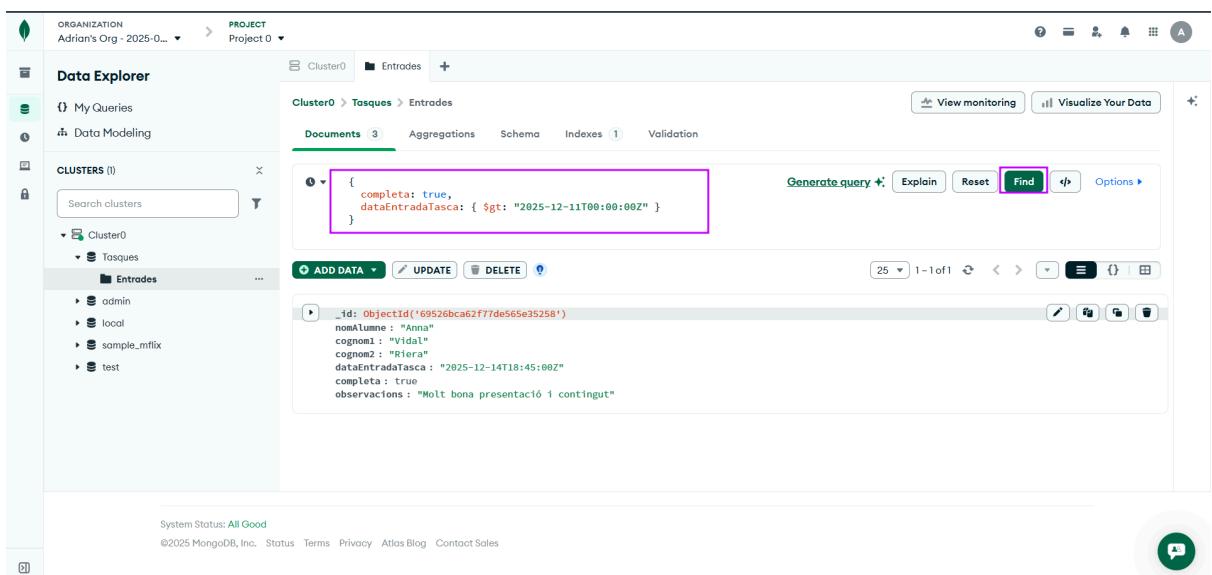
```
[{"_id": ObjectId("695e0f9235e0f93865820c1d"), "nomAlumne": "Laura", "cognom1": "Martínez", "cognom2": "Soler", "dataEntradaTasca": "2025-12-01T09:15:00Z", "completa": true, "observacions": "Tasca entregada abans de la data límit"}, {"_id": ObjectId("695e0f9235e0f93865820c1f"), "nomAlumne": "Anna", "cognom1": "Vidal", "cognom2": "Iriarte", "dataEntradaTasca": "2025-12-02T08:45:00Z", "completa": true, "observacions": "Molt bona presentació i contingut"}, {"_id": ObjectId("695e0f9235e0f93865820c21"), "nomAlumne": "Julia", "cognom1": "Sánchez", "cognom2": "Moreno", "dataEntradaTasca": "2025-12-03T10:00:00Z", "completa": true, "observacions": "Tasca correcta"}, {"_id": ObjectId("695e0f9235e0f93865820c23"), "nomAlumne": "Marta", "cognom1": "López", "cognom2": "Cano", "dataEntradaTasca": "2025-12-04T09:50:00Z", "completa": true, "observacions": "Bona estructura del treball"}]
```

## 6. Llista les tasques completades després d'una certa data.

```
db.Entradess.find({ completa: true, dataEntradaTasca: { $gt:
    "2025-12-11T00:00:00Z" }})
```



```
mongosh mongo:src//ca
Atlas atlas-wna7if-shard-0 [primary] Tasques> db.Entrades.find({ completa: true, dataEntradaTasca: { $gt: "2025-12-11T00:00:00Z" }})
[
  {
    "_id": ObjectId("695e0f9235e0f93865820c31"),
    "nomAlumne": "Macina",
    "cognom1": "Aguilar",
    "cognom2": "Núñez",
    "dataEntradaTasca": "2025-12-11T00:56:00Z",
    "completa": true,
    "observacions": "Bona explicació dels conceptes"
  },
  {
    "_id": ObjectId("695e0f9235e0f93865820c33"),
    "nomAlumne": "Carla",
    "cognom1": "Méndez",
    "cognom2": "Torres",
    "dataEntradaTasca": "2025-12-12T09:10:00Z",
    "completa": true,
    "observacions": "Tasca molt ben resolta"
  },
  {
    "_id": ObjectId("695e0f9235e0f93865820c35"),
    "nomAlumne": "Morales",
    "cognom1": "Fuentes",
    "cognom2": null,
    "dataEntradaTasca": "2025-12-13T08:35:00Z",
    "completa": true,
    "observacions": "Bon treball final"
  },
  {
    "_id": ObjectId("695e0f9235e0f93865820c37"),
    "nomAlumne": "Beta",
    "cognom1": "Luna",
    "cognom2": "Valls",
    "dataEntradaTasca": "2025-12-14T09:00:00Z",
    "completa": true,
    "observacions": "Tasca molt ben estructurada"
  }
]
```



ORGANIZATION Adrian's Org - 2025-0... PROJECT Project 0

Data Explorer

My Queries Data Modeling

CLUSTERS (0)

Search clusters

Cluster0 Tasques Entrades

Documents 3 Aggregations Schema Indexes 1 Validation

Generate query Explain Reset Find Options

ADD DATA UPDATE DELETE

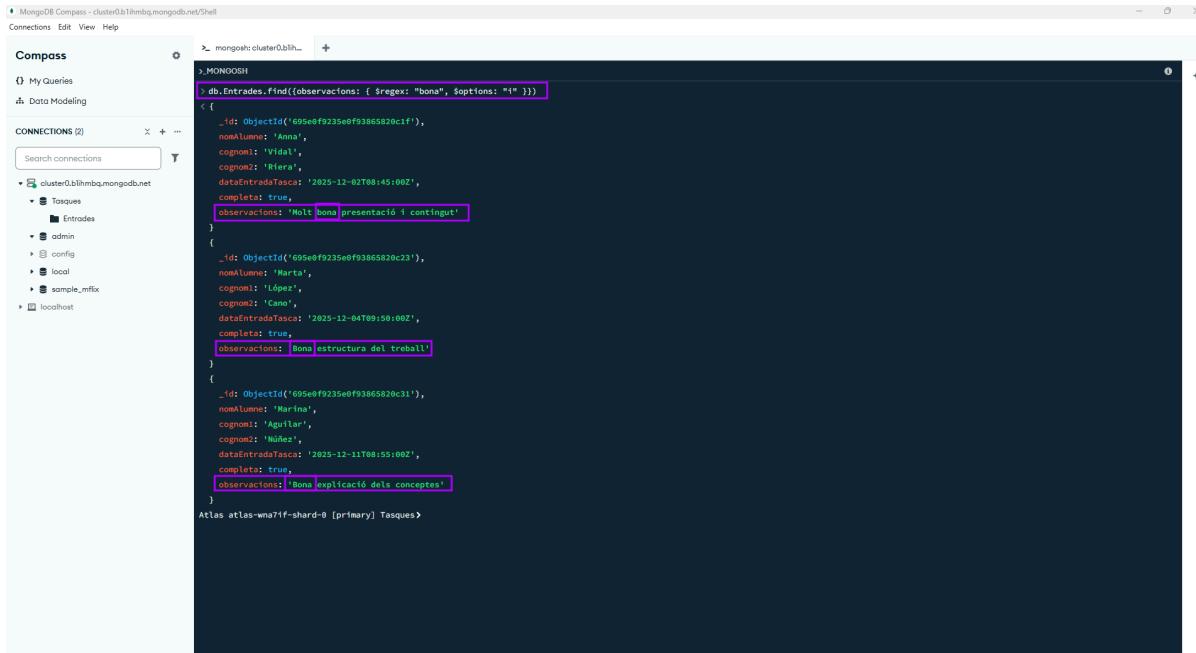
System Status: All Good  
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25 1-1 of 1

\_id: ObjectId("69526bc62f77de565e35258")  
nomAlumne: "Anna"  
cognom1: "Vidal"  
cognom2: "Biera"  
dataEntradaTasca: "2025-12-14T18:45:00Z"  
completa: true  
observacions: "Molt bona presentació i contingut"

## 7. Llista les tasques amb observacions que continguin una paraula específica.

```
db.Entrades.find({observacions: { $regex: "bona", $options: "i" }})
```

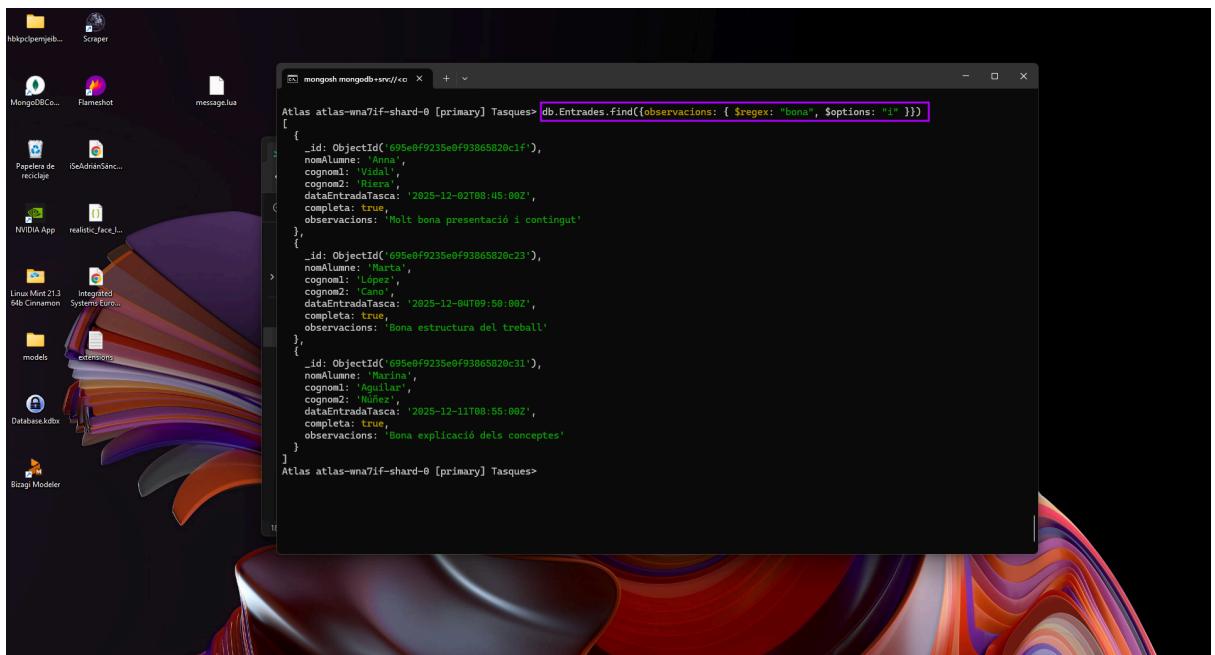


The screenshot shows the MongoDB Compass interface. On the left, there's a sidebar with 'Connections' (cluster0.blhmbq.mongodb.net) and 'Data Modeling'. Under 'Connections', there are sections for 'Tasques' (with 'Entrades' selected), 'admin', 'config', 'local', 'sample\_mflix', and 'localhost'. The main area is titled 'mongoh:cluster0.blhmbq.mongodb.net/Shell' and contains a code editor with the following query:

```
> db.Entrades.find({observacions: { $regex: "bona", $options: "i" }})
```

The results pane shows three documents from the 'Tasques' collection:

```
[{"_id": ObjectId("695e0f9235e0f93865820c1f"), "nomAlumne": "Anna", "cognom1": "Vidal", "cognom2": "Riera", "dataEntradaTasca:": "2025-12-02T08:45:00Z", "completa": true, "observacions": "Molt bona presentació i contingut"}, {"_id": ObjectId("695e0f9235e0f93865820c23"), "nomAlumne": "Marta", "cognom1": "López", "cognom2": "Cano", "dataEntradaTasca:": "2025-12-04T09:50:00Z", "completa": true, "observacions": "Bona estructura del treball"}, {"_id": ObjectId("695e0f9235e0f93865820c31"), "nomAlumne": "Marina", "cognom1": "Aguilar", "cognom2": "Muñoz", "dataEntradaTasca:": "2025-12-11T08:55:00Z", "completa": true, "observacions": "Bona explicació dels conceptes"}]
```



The screenshot shows a Linux desktop environment with a dark theme. A terminal window is open, showing the same MongoDB query and results as the previous screenshot. The desktop background features a colorful abstract design. The terminal window title is 'mongoh: mongodb+srv://xc...'.

```
Atlas atlas-wma7if-shard-0 [primary] Tasques> db.Entrades.find({observacions: { $regex: "bona", $options: "i" }})
```

The results in the terminal are identical to those shown in the MongoDB Compass screenshot:

```
[{"_id": ObjectId("695e0f9235e0f93865820c1f"), "nomAlumne": "Anna", "cognom1": "Vidal", "cognom2": "Riera", "dataEntradaTasca:": "2025-12-02T08:45:00Z", "completa": true, "observacions": "Molt bona presentació i contingut"}, {"_id": ObjectId("695e0f9235e0f93865820c23"), "nomAlumne": "Marta", "cognom1": "López", "cognom2": "Cano", "dataEntradaTasca:": "2025-12-04T09:50:00Z", "completa": true, "observacions": "Bona estructura del treball"}, {"_id": ObjectId("695e0f9235e0f93865820c31"), "nomAlumne": "Marina", "cognom1": "Aguilar", "cognom2": "Muñoz", "dataEntradaTasca:": "2025-12-11T08:55:00Z", "completa": true, "observacions": "Bona explicació dels conceptes"}]
```

The screenshot shows the MongoDB Compass interface. In the left sidebar, under 'CLUSTERS (1)', there is a tree view with 'Cluster0' expanded, showing 'Tasques' and 'Entrades'. Under 'Entrades', items like 'admin', 'local', 'sample\_mflix', and 'test' are listed. The main panel shows the 'Data Explorer' for 'Cluster0 > Tasques > Entrades'. A search bar contains the query: '{ observacions: { \$regex: "bona", \$options: "i" } }'. Below the search bar are buttons for 'Generate query', 'Explain', 'Reset', and a green 'Find' button, which is highlighted with a red box. The results table shows one document with the following fields and values:

```

_id: ObjectId('69526bca62f7de565e35258')
nomAlumne : "Anna"
cognom1 : "Vidal"
cognom2 : "Biera"
dataEntradaTasca : "2025-12-14T18:45:00Z"
completa : true
observacions : "Molt bona presentació i contingut"

```

At the bottom of the interface, it says 'System Status: All Good' and includes links for 'Status', 'Terms', 'Privacy', 'Atlas Blog', and 'Contact Sales'.

## 8. Llista les tasques no completades ordenades alfabèticament.

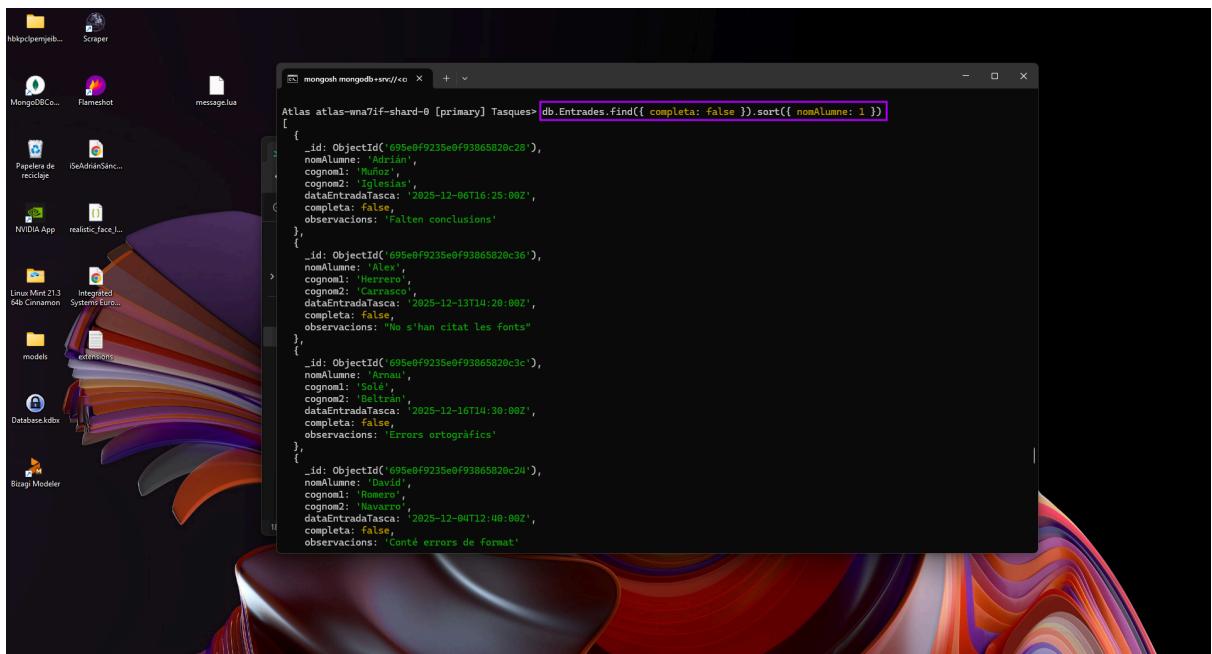
db.Entradess.find({ completa: false }).sort({ nomAlumne: 1 })

The screenshot shows the MongoDB Compass Shell interface. On the left, the 'Compass' sidebar lists 'Connections' and 'Data Modeling'. Under 'CONNECTIONS (2)', it shows 'cluster0.blhmbq.mongodb.net' with 'Tasques' and 'Entrades' collections. The main area displays the command: 'db.Entradess.find({ completa: false }).sort({ nomAlumne: 1 })'. The results pane shows the following documents, each with its '\_id' field highlighted:

```

{
  "_id": ObjectId("695eff9235e0f93865820c28"),
  "nomAlumne": "Adrià",
  "cognom1": "Muñoz",
  "cognom2": "Iglesias",
  "dataEntradaTasca": "2025-12-06T16:25:00Z",
  "completa": false,
  "observacions": "Falten conclusiones"
},
{
  "_id": ObjectId("695eff9235e0f93865820c36"),
  "nomAlumne": "Alex",
  "cognom1": "Herrero",
  "cognom2": "Carrasco",
  "dataEntradaTasca": "2025-12-13T14:20:00Z",
  "completa": false,
  "observacions": "No s'han citat les fonts"
},
{
  "_id": ObjectId("695eff9235e0f93865820c3c"),
  "nomAlumne": "Arau",
  "cognom1": "Solà",
  "cognom2": "Baltrán",
  "dataEntradaTasca": "2025-12-16T14:30:00Z",
  "completa": false,
  "observacions": "Errors ortogràfics"
},
{
  "_id": ObjectId("695eff9235e0f93865820c24"),
  "nomAlumne": "David",
  "cognom1": "Romero",
  "cognom2": "Navarro",
  "dataEntradaTasca": "2025-12-04T12:40:00Z",
  "completa": false,
  "observacions": "Conté errors de format"
}

```



ORGANIZATION Adrian's Org - 2025-0... PROJECT Project 0

Data Explorer

My Queries Data Modeling

CLUSTERS (1)

Cluster0

Tasques

Entrades

Documents 3 Aggregations Schema Indexes 1 Validation

Generate query Explain Reset Find Options

Max Time MS 60000

Skip 0 Limit 0

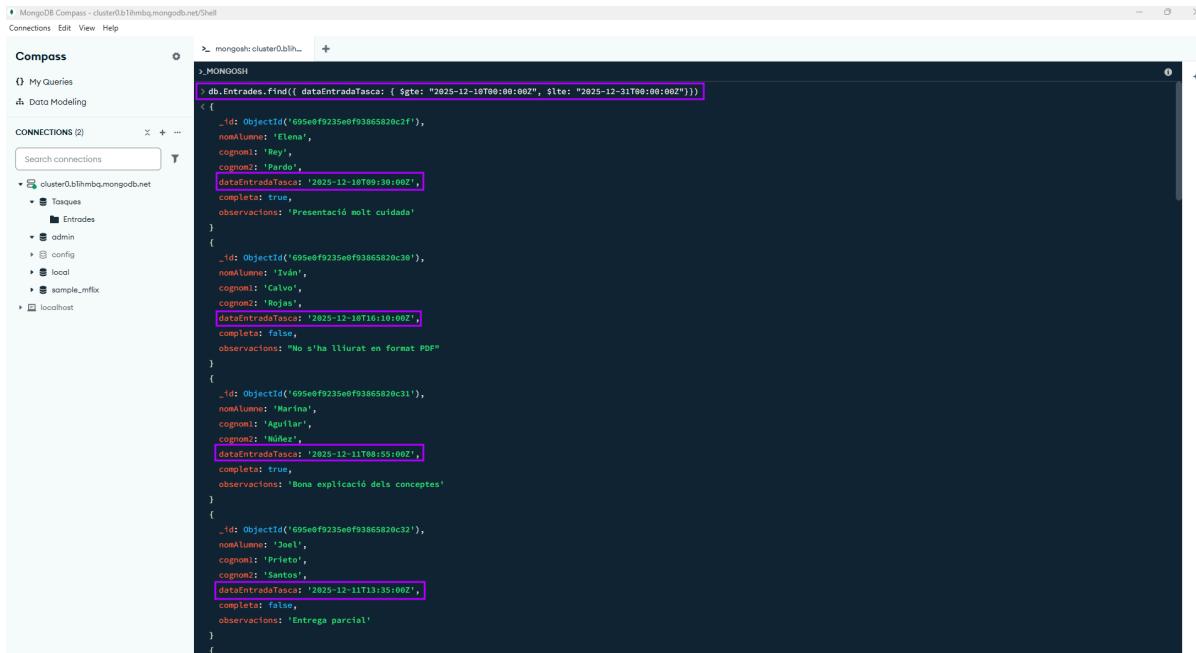
ADD DATA UPDATE DELETE

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```
.id: ObjectId('69526bc62f77de565e35257')  
nomAlumne: "Alei"  
cognom1: "García"  
cognom2: "López"  
dataEntradaTasca: "2025-12-12T14:15:00Z"  
completa: false  
observacions: "Falten alguns exercicis"
```

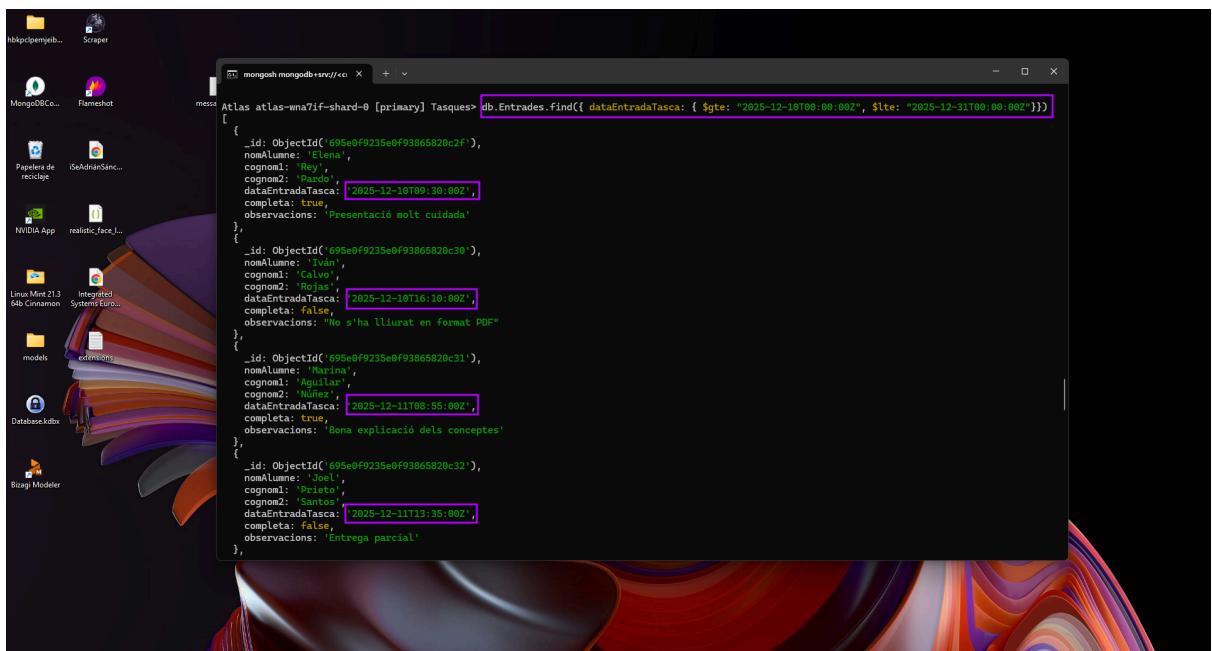
## 9. Llista les tasques entre dues dates específiques.

```
db.Entrades.find({ dataEntradaTasca: { $gte: "2025-12-10T00:00:00Z", $lte: "2025-12-31T00:00:00Z" }})
```



The screenshot shows the MongoDB Compass interface with a connection to 'cluster0.b1hmbq.mongodb.net'. A search bar contains the query: `db.Entrades.find({ dataEntradaTasca: { $gte: "2025-12-10T00:00:00Z", $lte: "2025-12-31T00:00:00Z" }})`. The results pane displays five documents, each representing a task entry:

```
[{"_id": ObjectId("695e0f9235e0f93865820c2f"), "nomAlumne": "Elena", "cognom1": "Rey", "cognom2": "Pardo", "dataEntradaTasca": "2025-12-10T09:30:00Z", "completa": true, "observacions": "Presentació molt cuidada"}, {"_id": ObjectId("695e0f9235e0f93865820c30"), "nomAlumne": "Iván", "cognom1": "Calvo", "cognom2": "Rojas", "dataEntradaTasca": "2025-12-10T16:10:00Z", "completa": false, "observacions": "No s'ha lliurat en format PDF"}, {"_id": ObjectId("695e0f9235e0f93865820c31"), "nomAlumne": "Marina", "cognom1": "Aguilar", "cognom2": "Muñoz", "dataEntradaTasca": "2025-12-11T08:55:00Z", "completa": true, "observacions": "Bona explicació dels conceptes"}, {"_id": ObjectId("695e0f9235e0f93865820c32"), "nomAlumne": "Joel", "cognom1": "Prieto", "cognom2": "Santos", "dataEntradaTasca": "2025-12-11T13:35:00Z", "completa": false, "observacions": "Entrega parcial"}, {"_id": ObjectId("695e0f9235e0f93865820c33")}]
```



The screenshot shows a Linux desktop environment with a terminal window open. The terminal title is 'mongosh mongodb+srv://<...>'. The command entered is: `db.Entrades.find({ dataEntradaTasca: { $gte: "2025-12-10T00:00:00Z", $lte: "2025-12-31T00:00:00Z" }})`. The results are identical to those shown in the MongoDB Compass screenshot, listing five task entries between December 10 and December 31, 2025.

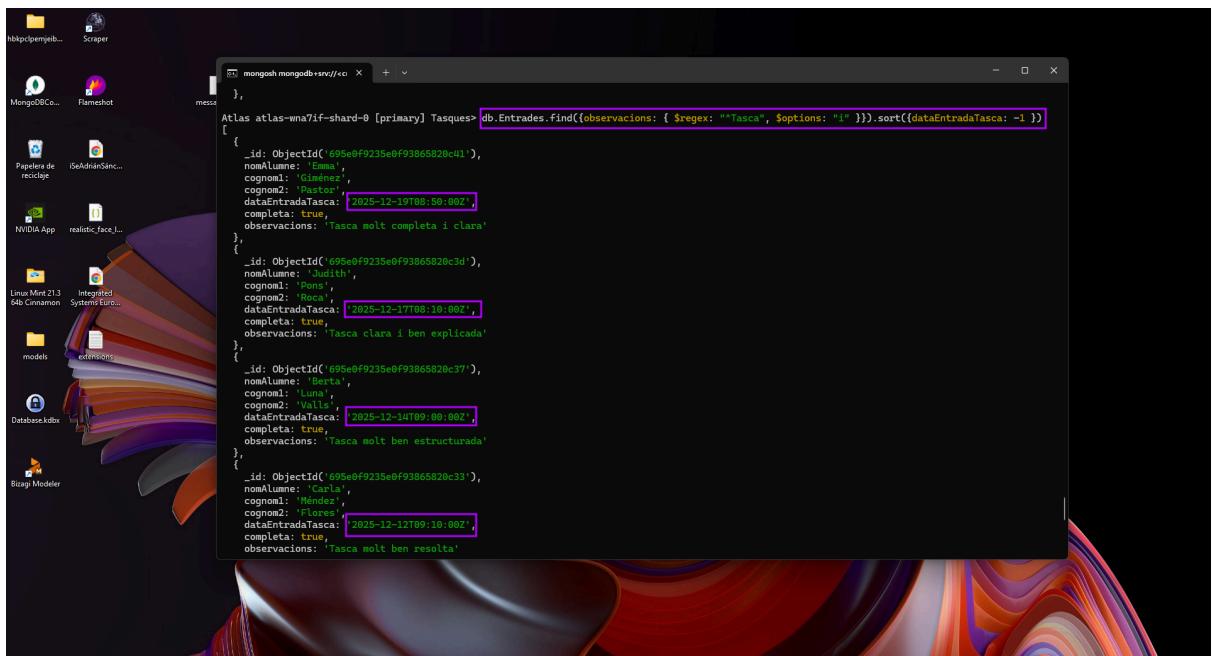
```
[{"_id": ObjectId("695e0f9235e0f93865820c2f"), "nomAlumne": "Elena", "cognom1": "Rey", "cognom2": "Pardo", "dataEntradaTasca": "2025-12-10T09:30:00Z", "completa": true, "observacions": "Presentació molt cuidada"}, {"_id": ObjectId("695e0f9235e0f93865820c30"), "nomAlumne": "Iván", "cognom1": "Calvo", "cognom2": "Rojas", "dataEntradaTasca": "2025-12-10T16:10:00Z", "completa": false, "observacions": "No s'ha lliurat en format PDF"}, {"_id": ObjectId("695e0f9235e0f93865820c31"), "nomAlumne": "Marina", "cognom1": "Aguilar", "cognom2": "Muñoz", "dataEntradaTasca": "2025-12-11T08:55:00Z", "completa": true, "observacions": "Bona explicació dels conceptes"}, {"_id": ObjectId("695e0f9235e0f93865820c32"), "nomAlumne": "Joel", "cognom1": "Prieto", "cognom2": "Santos", "dataEntradaTasca": "2025-12-11T13:35:00Z", "completa": false, "observacions": "Entrega parcial"}, {"_id": ObjectId("695e0f9235e0f93865820c33")}]
```

The screenshot shows the MongoDB Compass interface. In the top navigation bar, it says 'ORGANIZATION Adrian's Org - 2025-0...' and 'PROJECT Project 0'. On the left sidebar, there are sections for 'Data Explorer', 'My Queries', 'Data Modeling', and 'CLUSTERS (1)'. Under 'CLUSTERS (1)', 'Cluster0' is selected, and 'Tasques' is expanded, showing 'Entrades'. The main area displays the 'Entrades' collection with 3 documents. One document is highlighted with a pink border, showing its internal structure. At the bottom right of the main area, the 'Find' button is highlighted with a green box.

## 10. Llista les tasques amb observacions que comencin amb una determinada paraula ordenades per data més nova a més antiga.

```
db.Entrades.find({observacions: { $regex: "^Tasca", $options: "i" }}).sort({dataEntradaTasca: -1 })
```

The screenshot shows the MongoDB Compass Shell interface. The title bar says 'MongoDB Compass - cluster0.b1hmbq.mongodb.net/Shell'. The left sidebar shows 'Compass' with 'My Queries' and 'Data Modeling', and 'CONNECTIONS (2)' with 'cluster0.b1hmbq.mongodb.net'. The main area has a terminal window titled 'mongosh:cluster0.b1hmbq...'. It contains the command: 'db.Entrades.find({observacions: { \$regex: "^Tasca", \$options: "i" }}).sort({dataEntradaTasca: -1 })'. Below the command, the results are listed as a series of JSON objects, each representing a document from the 'Entrades' collection. The documents are sorted by 'dataEntradaTasca' in descending order, with the most recent entry at the top.



ORGANIZATION Adrian's Org - 2025-0... PROJECT Project 0

Data Explorer

Cluster0 Entrades +

Cluster0 > Tasques > Entrades

Documents 3 Aggregations Schema Indexes 1 Validation

Find

Generate query Explain Reset Options

Max Time MS 60000

Skip 0 Limit 0

Project { field: 0 }

Sort { dataEntradaTasca: -1 }

Collection { locale: 'simple' }

Index Hint { field: -1 }

Add DATA Update Delete

\_id: ObjectId("69526bca62f77de565e35256")  
nomAlumne: "Laura"  
cognom1: "Martínez"  
cognom2: "Soler"  
dataEntradaTasca: "2025-12-10T09:30:00Z"  
completa: true  
observacions: "Tasca entregada abans de la data limit"

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# Creació del disseny de la base de dades

---

## 1. Introducció

---

Aquest document descriu el disseny de la base de dades No-SQL utilitzada per a l'aplicació de gestió de tasques d'alumnes.

S'ha utilitzat MongoDB com a sistema gestor de bases de dades, ja que permet treballar amb documents JSON de manera flexible i eficient.

## 2. Clúster

---

Que conté aquest Clúster:

- **Base de dades:** Tasques.
- **Col·lecció principal:** Entrades.

### **Base de dades:**

Aquesta base de dades conté tota la informació relacionada amb les tasques entregades pels alumnes.

### **Col·lecció:**

La col·lecció principal s'anomena **Entrades** i emmagatzema **totes les tasques** de l'aplicació.

Cada document de la col·lecció representa **una tasca individual** associada a un alumne.

S'ha optat per una **única col·lecció principal** perquè les tasques són **entitats independents i no requereixen relacions complexes** amb altres col·leccions.

## Camps de la col·lecció:

- **nomAlumne**

Nom de l'alumne que entrega la tasca.

- **cognom1**

Primer cognom de l'alumne.

- **cognom2**

Segon cognom de l'alumne.

- **dataEntradaTasca**

Data i hora en què s'ha entregat la tasca.

Aquest camp és imprescindible, ja que permet ordenar les tasques cronològicament i realitzar filtres per dates.

- **completa**

Camp booleà que indica si la tasca està completada o no.

- **observacions**

Camp de text lliure per afegir comentaris o observacions sobre la tasca.

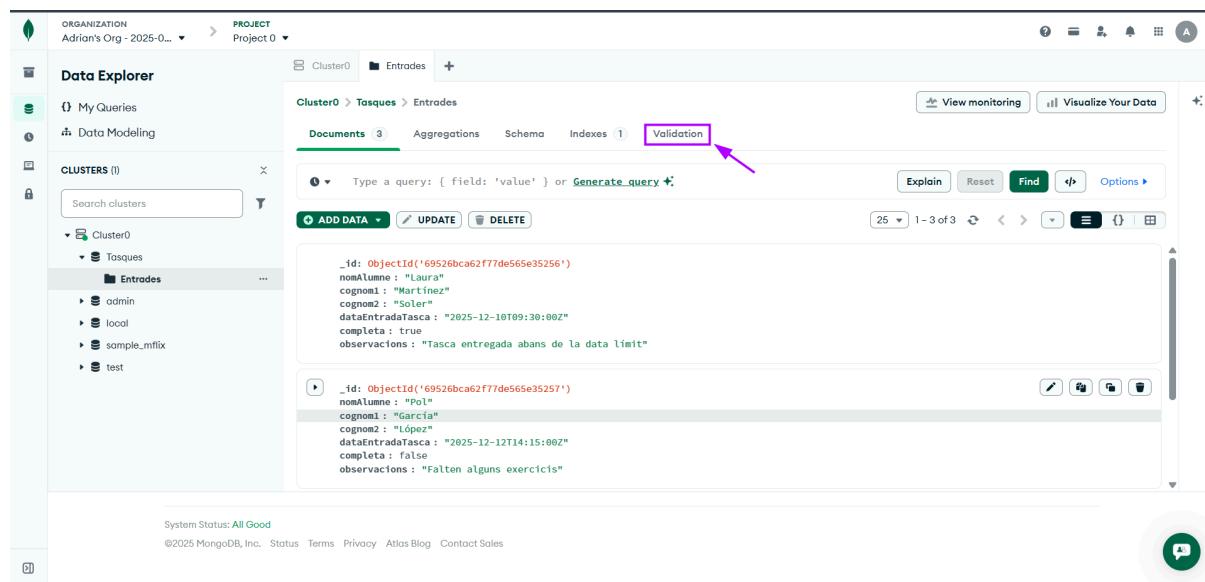
El camp `\_id` no s'inclou explícitament, ja que MongoDB el genera automàticament per a cada document.

### 3. Esquema de la base de dades

---

```
{  
  "$jsonSchema": {  
    "bsonType": "object",  
    "required": [  
      "nomAlumne",  
      "dataEntradaTasca",  
      "completa"  
    ],  
    "properties": {  
      "nomAlumne": {  
        "bsonType": "string",  
        "description": "Nom de l'alumne que entrega la tasca"  
      },  
      "cognom1": {  
        "bsonType": "string",  
        "description": "Primer cognom de l'alumne"  
      },  
      "cognom2": {  
        "bsonType": "string",  
        "description": "Segon cognom de l'alumne"  
      },  
      "dataEntradaTasca": {  
        "bsonType": "date",  
        "description": "Data i hora d'entrada de la tasca"  
      },  
      "completa": {  
        "bsonType": "bool",  
        "description": "Indica si la tasca està completada o no"  
      },  
      "observacions": {  
        "bsonType": "string",  
        "description": "Observacions associades a la tasca"  
      }  
    }  
  }  
}
```

## 4. Com insertar-ho

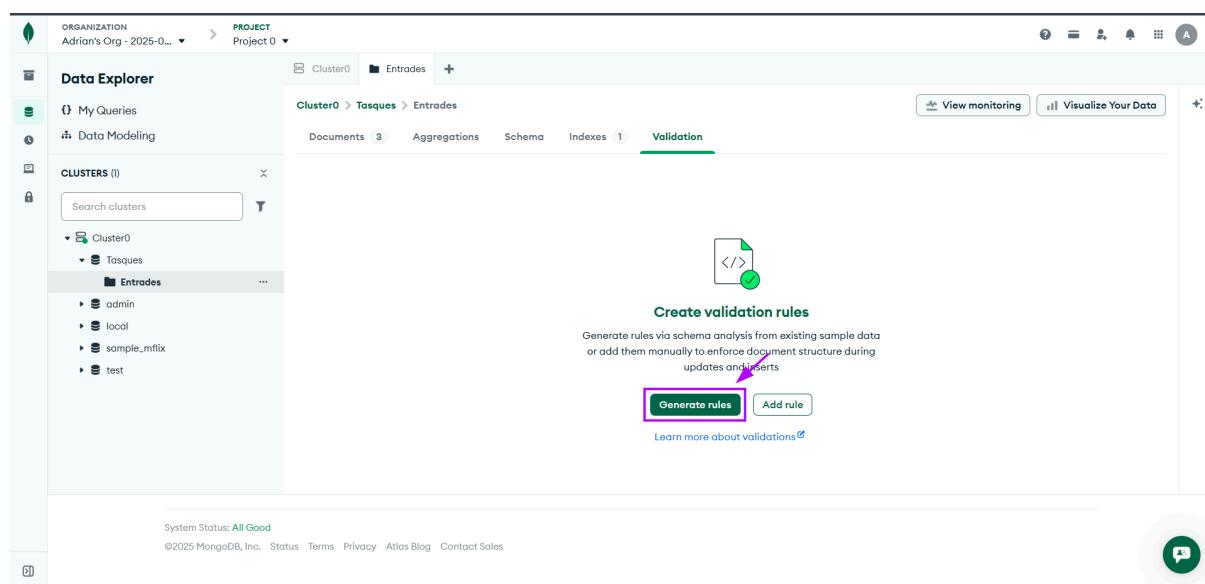


The screenshot shows the MongoDB Atlas Data Explorer interface. The left sidebar displays the organization and project details, along with the Data Explorer section. Under CLUSTERS, Cluster0 is selected, showing its contents: Tasques and Entrades. The Entrades collection is currently selected, displaying three documents. A purple box highlights the 'Validation' tab at the top of the document list. The documents listed are:

```
_id: ObjectId('69526bca62f77de565e35256')
nomalumno : "Laura"
cognom1 : "Martinez"
cognom2 : "Soler"
dataEntradaTasca : "2025-12-10T09:30:00Z"
completa : true
observacions : "Tasca entregada abans de la data limit"

_id: ObjectId('69526bca62f77de565e35257')
nomalumno : "Poi"
cognom1 : "Garcia"
cognom2 : "Lopez"
dataEntradaTasca : "2025-12-12T14:15:00Z"
completa : false
observacions : "Falten alguns exercicis"
```

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The screenshot shows the same MongoDB Atlas Data Explorer interface, but the 'Validation' tab is now active. A large green icon representing a document with brackets is displayed. Below it, the heading 'Create validation rules' is shown, followed by a brief description: 'Generate rules via schema analysis from existing sample data or add them manually to enforce document structure during updates and inserts'. Two buttons are present: 'Generate rules' (highlighted with a purple box) and 'Add rule'. A purple box also highlights the 'Generate rules' button. At the bottom, there is a link 'Learn more about validations'.

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The screenshot shows the MongoDB Data Explorer interface. On the left, the navigation bar includes 'ORGANIZATION' (Adriom's Org - 2025-0...), 'PROJECT' (Project 0), 'Data Explorer' (My Queries, Data Modeling), 'CLUSTERS' (Cluster0), and 'Tareas' (Entreges). The main area displays the 'Validation' tab for the 'Entreges' collection under 'Cluster0 > Tareas > Entreges'. A modal window titled 'Validation rules' is open, showing the JSON schema for the document:

```
1 * { "$jsonSchema": { 2 * "bsonType": "object", 3 * "required": [ 4 * "nomAlumne", 5 * "dataEntradaTasca", 6 * "completa", 7 * ], 8 * "properties": { 9 * "nomAlumne": { 10 * "bsonType": "string", 11 * "description": "Nom de l'alumne que entrega la tasca" }, 12 * "cognom1": { 13 * "bsonType": "string", 14 * "description": "Primer cognom de l'alumne" }, 15 * "cognom2": { 16 * "bsonType": "string", 17 * "description": "Segon cognom de l'alumne" }, 18 * "dataEntradaTasca": { 19 * "bsonType": "date", 20 * "description": "Data i hora d'entrada de la tasca" }, 21 * "completa": { 22 * "bsonType": "bool", 23 * "description": "Indica si la tasca està completada o no" }, 24 * "observacions": { 25 * "bsonType": "string", 26 * "description": "Observacions associades a la tasca" } 27 * } 28 * }
```

Below the schema, a note says: 'Rules are modified & not applied. Please review before applying.' At the bottom right are 'Cancel' and 'Apply' buttons.

This screenshot is identical to the previous one, but a purple arrow points to the 'Apply' button at the bottom right of the validation rules modal.

This screenshot shows the same validation rules modal, but a purple arrow points to a confirmation dialog box titled 'Are you sure you want to apply these validation rules?'. The dialog contains the message: 'These rules will be enforced on updates & inserts of your document. Please make sure you have reviewed the rules before applying them.' It has 'Cancel' and 'Confirm' buttons.

The screenshot shows the Apache Atlas Data Explorer interface. The left sidebar displays 'Data Explorer' with sections for 'My Queries', 'Data Modeling', and 'Clusters'. Under 'Clusters', 'Cluster0' is selected, showing 'Tasques' and 'Entrades'. The main area shows 'Cluster0 > Tasques > Entrades' with tabs for 'Documents', 'Aggregations', 'Schema', 'Indexes', and 'Validation'. The 'Validation' tab is active, displaying a JSON schema for 'Entrades'. The schema defines properties like 'nomAlumne', 'dataEntradaTasca', 'completa', and 'cognoms', each with detailed descriptions and data types. A button 'Edit rules' is at the bottom right of the schema view. A banner at the bottom left indicates 'New validation rules applied'.

```
1 * {
2 *   $jsonSchema: {
3 *     type: 'object',
4 *     required: [
5 *       'nomAlumne',
6 *       'dataEntradaTasca',
7 *       'completa'
8 *     ],
9 *     properties: {
10 *       nomAlumne: {
11 *         type: 'string',
12 *         description: 'Nom de l\'alumne que entrega la tasca'
13 *       },
14 *       cognoms: {
15 *         type: 'string',
16 *         description: 'Primer cognom de l\'alumne'
17 *       },
18 *       cognom: {
19 *         type: 'string',
20 *         description: 'Segon cognom de l\'alumne'
21 *       },
22 *       dataEntradaTasca: {
23 *         type: 'date',
24 *         description: 'Data i hora d\'entrada de la tasca'
25 *       },
26 *       completa: {
27 *         type: 'bool',
28 *         description: 'Indica si la tasca està completada o no'
29 *       },
30 *       observacions: {
31 *         type: 'string',
32 *         description: 'Observacions associades a la tasca'
33 *       }
34 *     }
35 *   }
36 * }
```

## 5. Justificació

---

S'ha utilitzat una estructura basada en documents perquè **permets una gran flexibilitat** a l'hora **d'afegir o modificar camps** sense haver de redefinir tota la base de dades.

La presència d'un camp de data permet:

- Ordenar les tasques de manera **cronològica**.
- Filtrar tasques entre **dues dates** concretes.
- Consultar tasques entregades **abans o després d'una data determinada**.

Aquest disseny compleix **els requisits de l'activitat** i proporciona **una base sòlida** per a la implementació posterior de les operacions **CRUD** i la **connexió amb una aplicació Java**.

## Tutorials

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### Com instal·lar mongoDB Shell

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 Com instalar mongoDB Shell

### Com instal·lar mongo Compass

---

 Com instal·lar mongo Compass