



NTU Academy for Professional  
and Continuing Education

(SCTP) Advanced  
Professional Certificate

**Data Science and AI**



# Introduction



- MongoDB is a document-oriented NoSQL database. It stores data in JSON-like documents with dynamic schemas, making the integration of data in certain types of applications easier and faster.
- We will be connecting to a MongoDB cluster hosted on MongoDB Atlas, cloud database service that allows you to host MongoDB databases on the cloud.
- Setup a free tier account on MongoDB (<https://www.mongodb.com/>)
- Note the cluster URL and DB username + password credentials

# 1: Create a free Cluster

Choose **free** cluster and  
'Create Deployment'

## Deploy your cluster

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

☐ M10 \$0.09/hour

Dedicated cluster for development environments and low-traffic applications.

STORAGE	RAM	vCPU
10 GB	2 GB	2 vCPUs

☐ Flex From \$0.011/hour  
Up to \$30/month

For application development and testing, with on-demand burst capacity for unpredictable traffic.

STORAGE	RAM	vCPU
5 GB	Shared	Shared

☒ Free

For learning and exploring MongoDB in a cloud environment.

STORAGE	RAM	vCPU
512 MB	Shared	Shared

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

### Configurations

#### Name

You cannot change the name once the cluster is created.

Cluster0

#### Provider



#### Region

Singapore (ap-southeast-1) ★

★ Recommended ⓘ

🌿 Low carbon emissions ⓘ

#### Tag (optional)

Create your first tag to categorize and label your resources; more tags can be added later. [Learn more.](#)

Select or enter key

Select or enter value

### Quick setup

☒ Automate security setup ⓘ

☒ Preload sample dataset ⓘ

I'll do this later

Go to Advanced Configuration

Create Deployment

## 2: Create Database User



Note down your **DB username** and **DB password**, as you will need it later



This is different from your login username and password.

### Connect to Cluster0

1

2

3

Set up connection securityChoose a connection methodConnect

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

- Add a connection IP address**

✓ Your current IP address (210.10.77.29) has been added to enable local connectivity. Only an IP address you add to your Access List will be able to connect to your project's clusters. Add more later in [Network Access](#).
- Create a database user**

This first user will have [atlasAdmin](#) permissions for this project.

We autogenerated a username and password. You can use this or create your own.

❗ You'll need your database user's credentials in the next step. Copy the database user password.

Username

dsaingyb\_db\_user

Password

ltz5pmLoXEi4Zxl3

HIDE

Copy

Create Database User

Close

Choose a connection method

# 3: Setup Drivers

Click 'Drivers' to see how to access using Python

×

Connect to Cluster0

✓

2


3

Set up connection security

Choose a connection method


Connect

Connect to your application


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

>


Access your data through tools

 **Compass**  
Explore, modify, and visualize your data with MongoDB's GUI


>

 **Shell**  
Quickly add & update data using MongoDB's Javascript command-line interface

>

 **MongoDB for VS Code**  
Work with your data in MongoDB directly from your VS Code environment

>

 **Atlas SQL**  
Easily connect SQL tools to Atlas for data analysis and visualization

>

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Close

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# Step 4: Setup Python Code

Copy and paste the code into your Jupyter notebook.

Don't forget to type in your password!

## Connecting with MongoDB Driver

### 1. Select your driver and version

We recommend installing and using the latest driver version.

Driver	Version
Python	4.7 or later

### 2. Install your driver

Run the following on the command line

Note: Use appropriate Python 3 executable

```
python -m pip install "pymongo[srv]"
```

[View MongoDB Python Driver installation instructions.](#)

### 3. Add your connection string into your application code

Use this connection string in your application

[View full code sample](#)

```
from pymongo.mongo_client import MongoClient
from pymongo.server_api import ServerApi

uri = "mongodb+srv://ngyibin:<db_password>@cluster0.pelawcl.mongodb.net/?retryWrites=true"

# Create a new client and connect to the server
client = MongoClient(uri, server_api=ServerApi('1'))

# Send a ping to confirm a successful connection
try:
    client.admin.command('ping')
    print("Pinged your deployment. You successfully connected to MongoDB!")
except Exception as e:
    print(e)
```

Replace `<db_password>` with the password for the `ngyibin` database user. Ensure any option params are URL encoded.

#### RESOURCES

[Get started with the Python Driver](#)

[Python Starter Sample App](#)

[Access your Database Users](#)

**Please note**

[Troubleshoot Connections](#)

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[Done](#)