

NYC GenAI Hackathon Preparation Sheet

The purpose of this preparation sheet is to help participants get a lab environment set up and running before the event. We have provided some sample Python code that we can use as a template for some of the projects we'll be running in the hackathon. In addition to Llama 2, Bedrock, and others, we will try to provide alternative stacks at the event. Currently, the default stack consists of GPT3.5-turbo, Langchain, and MongoDB Atlas Vector Search.

NYC GenAI Hackathon Preparation Sheet Overview

Signup for a free **OpenAI** account
Create a Free **MongoDB Atlas** Account
Create or use an existing **Amazon** account
Create an **Amazon Sagemaker** Notebook Instance
Load and run the example **Jupyter Notebooks**

1) Signup for a free OpenAI account

- Create an account
- Select API keys in the left panel
- Verify by phone
- Create a secret key, save and copy it.

2) Create a Free MongoDB Atlas Account

Register a new account at: <https://www.mongodb.com/cloud/atlas/register>

Create an account

- Select Product from top down menu
- Select Try for Free Signup for a free account
- Great, now verify your email
- Fill in the little questionnaire

Deploy Database Cluster

- Select the free m0
- Use the default name *Cluster0*
- Default to N.Virginia (US-East-1)
- Keep *Automate security setup* enabled
- Keep *Add sample dataset* enabled
- Provide AWS
- Now create the deployment (button below/right)

Configure the database cluster

- There is an automatic user created.
 - (if copy and paste doesn't work, consider reloading the page)
- Fill out user and password & create the user
- Change the IP address that have access: (by clicking IP Access List)
 - by default it will fill in your current IP address
 - but for the hackathon we don't exactly what that IP will be
 - Therefore we allow all IPs
 - Use 0.0.0.0/0 for IP
 - do this for hackathon only , for production restrict this
- Now Create the Database and Cluster.

Get database cluster connection string

- After the Database is created select the *Connect* button for Cluster0
- Select Drivers
- Select Python (3.12 or later is fine)
- Copy the connect string: it Should look like this:

mongodb+srv://<username>:<password>@cluster0.faoasxh.mongodb.net/?retryWrites=true&w=majority

- Replace the <username> and <password> with the user you created

Congratulations, you're all done and the mongodb database setup is completed

Setup Atlas database

After the database Cluster is created and set up, we'll set up Atlas database:

- select Deployments > Database on the left side
- go over to the *collections* tab
- *create database:*
- database ***langchain_db***
- collection_name ***test***

Setup Atlas search vector index

After the Database is created and set up, we'll set up an Atlas search vector index.

- select Atlas Search on the left navigation side
- select your database source: **Cluster0**
- Select Atlas Vector Search (**Json editor**)
- Select Database ***langchain_db*** and collection_name ***test***
- IndexName ***index_name***
- Use the following json to configure:

```
{
  "fields": [{
    "numDimensions": 1536, "path": "embedding",
    "similarity": "cosine", "type": "vector"
  }]
}
```

Here's what it should look like when you're done:

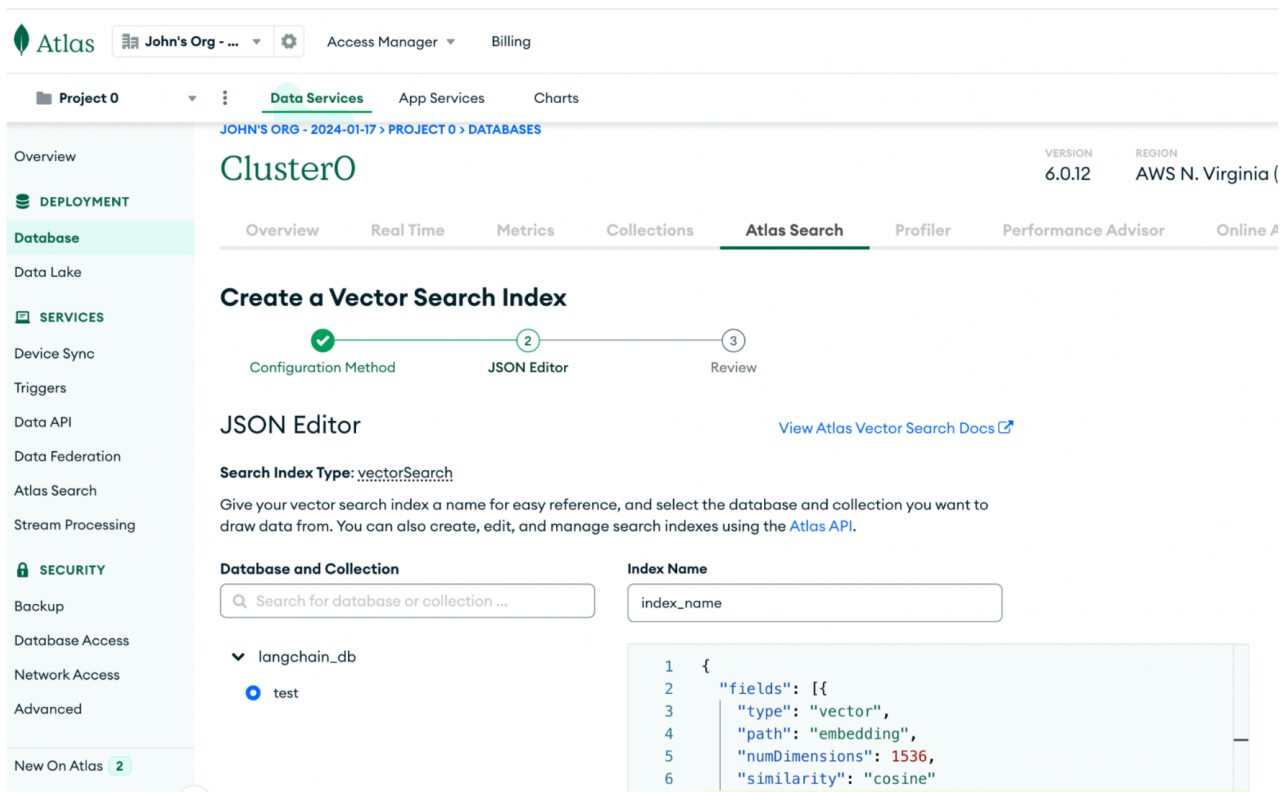


Figure 1

More reading

- For more details see <https://www.mongodb.com/docs/atlas/atlas-vector-search/create-index/>
- <https://www.mongodb.com/blog/post/dedicated-search-nodes-vector-search-now-in-general-availability>

3) Amazon Sagemaker

From the AWS Console navigate the Amazon Sagemaker (note you can use the search bar.)

Setup a Notebook Instance

After the database Cluster is created and set up, we'll set up a Notebook Instance:

- select Notebook > Notebook Instances on the left side
- Select the Create notebook Instances button

- In Notebook Instance Settings
 - Add an Notebook Instance name (e.g., MDB-test1)
 - Use the defaults for the other setting fields
 - See Figure 2.
- In Permissions and encryption
 - Select create a new role (take the defaults)
 - See Figure 3

Configure a Git Repository

- *Select Git repository from the left window*
- *Select the Default repository arrow*
- *Select Clone a public Git repository to this notebook instance only*
- *Paste the repo*
 - *<https://github.com/OperationalizingAI/Hackathon-1-24-24.git>*
- *See Figure 4*

aws Services Search [Option+S]

Amazon SageMaker > Notebook Instances > Create notebook instance

Create notebook instance

Amazon SageMaker provides pre-built fully managed notebook instances that run Jupyter notebooks. The notebook instances include example code for common model training and hosting exercises. [Learn more](#)

Notebook instance settings

Notebook instance name

Maximum of 63 alphanumeric characters. Can include hyphens (-), but not spaces. Must be unique within your account in an AWS Region.

Notebook instance type

Elastic Inference [Learn more](#)

Platform identifier [Learn more](#)

► Additional configuration

Figure 2

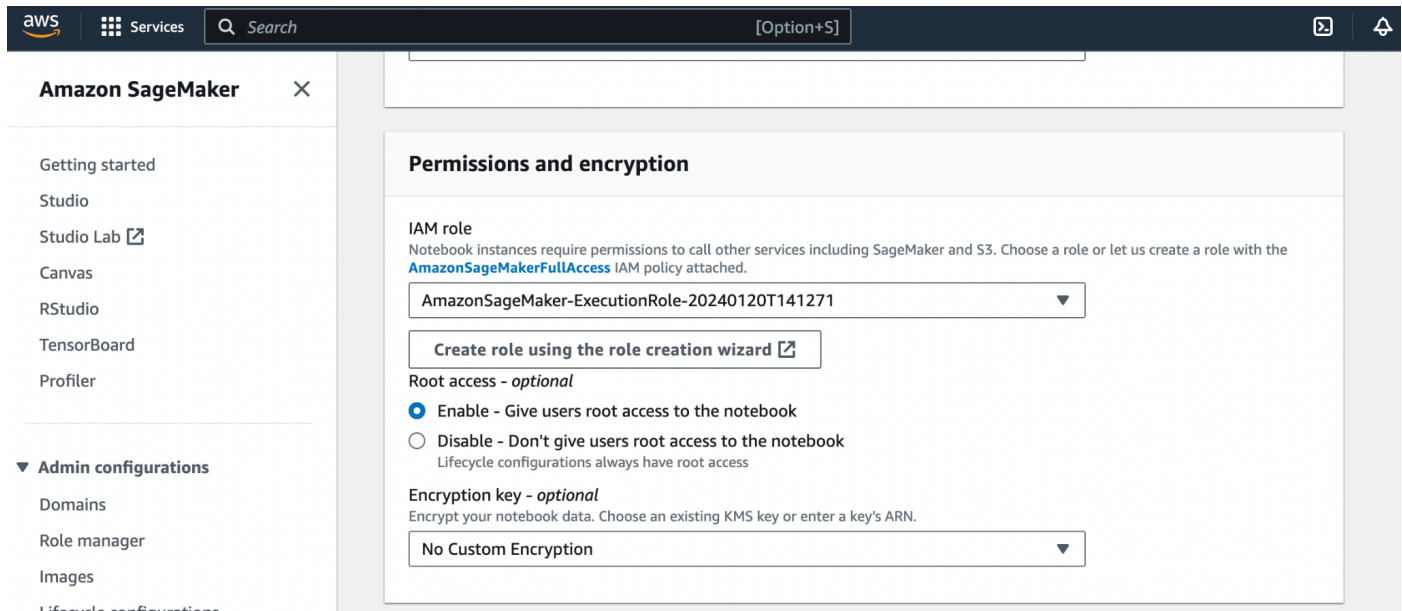


Figure 3

▼ **Git repositories - optional**

▼ **Default repository**

Repository
Jupyter will start in this repository. Repositories are added to your home directory.

Clone a public Git repository to this notebook instance only

Git repository URL
Clone a repository to use for this notebook instance only.

https://github.com/OperationalizingAI/Hackathon-1-24-24.git

▶ **Additional repository 1**

Add additional repository

Figure 4

Create the Notebook

After the instance is running (inService) create the Python notebook.

- Select the *Open JupyterLabs* action for the instance
- Under *Notebook* select the *conda_python3* box
- Rename your notebook (e.g., *MDB-test-1.ipynb*)
- Import the sample notebook provided with the workshop
- Load the same note books for Colab
 - *MDBLoad-SM.ipynb*

- *DBRetrieve-SM.ipynb*
- *Run your code.*

4) Google Colab (We are not using Colab for the NYC Hackathon)

Create a free account on Google Colab

- Goto (<https://colab.research.google.com/>)
- Load the same notebooks for Colab
 - *MDBLoad-GC.ipynb*
 - *DBRetrieve-GC.ipynb*
- *Run your code.*
-
- Under Notebook select the *conda_python3* box
- Rename your notebook (e.g., *MDB-test-1.ipynb*)
- Import the sample notebook provided with the workshop
- *Run your code.*

5) Jupyter Notebooks

Example Code to load data in our database

<https://colab.research.google.com/drive/18Qf2IZjV9FY6VdcDTDFdGk3NSNiAT2-3?usp=sharing>

Example Code to query our data using RAG(Retrieval Augmented Generation)

<https://colab.research.google.com/drive/10uYyKxYMgi1qkWSaq1WO8IA2X5SSPayw?usp=sharing>