

Change Management GENAI

ChatBot

Report by

Hemachithra
Software Enginner
GenAI Developer

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Contents

1	Introduction	2
2	Steps in a GenAI ChatBot	2
3	Data Ingestion & Preprocessing	3
3.1	Storing Data in Azure Storage Account	3
3.2	Uploading Data to Azure Blob Storage	3
4	Creating Azure AI Search and Vectorizing the Data	4
4.1	Provision an Azure AI Search Instance	4
4.2	Importing and Vectorizing Data in Azure	4
4.3	Create Search Indexes	6
5	Setting Up Azure OpenAI	7
6	Deploying and Configuring the Model	8
6.1	Deploying the AI Model	8
6.2	Testing in the Playground	8
6.3	Adding a Data Source	9
7	Deploying as a Web Application & Testing	12

List of Figures

1.1	GENAI RAG CHATBOT FLOW	2
3.1	Create Storage Account	3
3.2	Creating Change storage Container	4
4.1	AI Search Instance	4
4.2	Create AI Search Service	5
4.3	Import and Vectorize Data	5
4.4	Azure Blob Storage	6
4.5	Configure Azure Blob Storage	6
4.6	Search Index	7
5.1	Azure OpenAI Services	7
5.2	Explore Azure OpenAI Foundry	8
6.1	Model Deployments	8
6.2	Deploy base model	8
6.3	selecting & configuring base model	9
6.4	Explore Model Chat Playground	9
6.5	Adding Data Source	10
6.6	Azure AI S	10
6.8	Semantic Search	10
6.7	Integrate DataSource	11
6.9	API Key	11
6.10	Configuring Data Source	12
6.11	Validate ChatBot	12
7.1	Navigate to Resource Group	13
7.2	Launch Change Chatbot	13
7.3	Interact with the Change management ChatBot	14

Change Management GENAI ChatBot

1 Introduction

Retrieval-Augmented Generation (RAG) combines retrieval-based and generative AI approaches to create an intelligent chatbot capable of responding with high relevance and accuracy. This document provides a step-by-step guide on implementing a RAG-based chatbot on Azure using client-specific data.

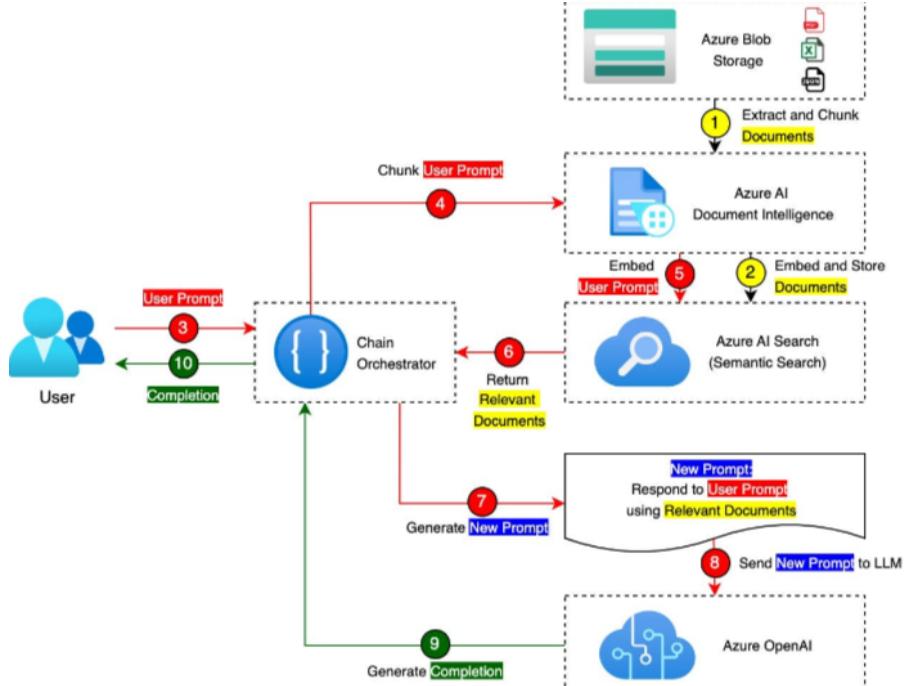


Figure 1.1: GENAI RAG CHATBOT FLOW

2 Steps in a GenAI ChatBot

- Data Ingestion & Preprocessing
- Creating Azure AI Search & Vectorization
- Setting Up Azure OpenAI
- Deploying Model
- Deploying Web App & Testing

3 Data Ingestion & Preprocessing

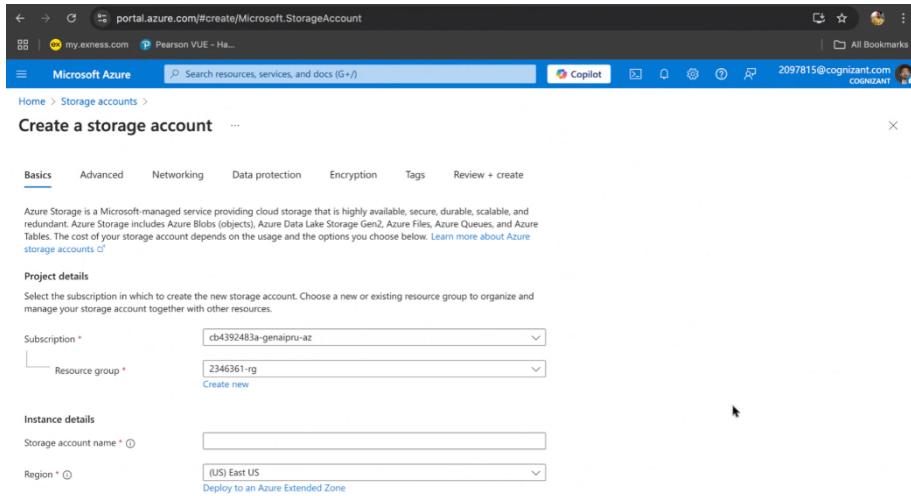


Figure 3.1: Create Storage Account

3.1 Storing Data in Azure Storage Account

Follow the steps below to create a storage account in Azure:

1. Navigate to the **Azure Portal**.
2. Select **Storage accounts** and click on **Create**.
3. Choose a suitable **Resource Group**, **Storage Account Name**, and **Region**.
4. Set **Performance** to either **Standard** or **Premium** based on requirements.
5. Click on **Review + Create**.

3.2 Uploading Data to Azure Blob Storage

Follow the steps below to upload data to Azure Blob Storage:

1. Open the newly created **Storage Account**.
2. Navigate to **Containers** and create a new container (e.g., `client-data`).
3. Upload structured or unstructured data, such as **Excel**, **CSV**, **JSON**, or **PDF** files.

Name	Last modified	Anonymous access level	Lease state
Slogs	24/12/2024, 11:01:22	Private	Available
change-db	24/12/2024, 11:01:56	Private	Available
change-latest-data	22/01/2025, 13:07:16	Private	Available

Figure 3.2: Creating Change storage Container

4 Creating Azure AI Search and Vectorizing the Data

4.1 Provision an Azure AI Search Instance

Follow these steps to provision an Azure AI Search instance:

Name	Type	Resource group	Location	Subscription
change-search-v2	Search service	2346361-rg	Central US	cb4392483a-genai-pru-az

Figure 4.1: AI Search Instance

1. Navigate to **Azure AI Search** in the **Azure Portal**.
2. Click on **Create AI Search** and configure the **Resource Group**, **Region**, and **Pricing Tier**.
3. Review and create the AI Search service.

4.2 Importing and Vectorizing Data in Azure

Follow these steps to import and vectorize data using Azure Blob Storage:

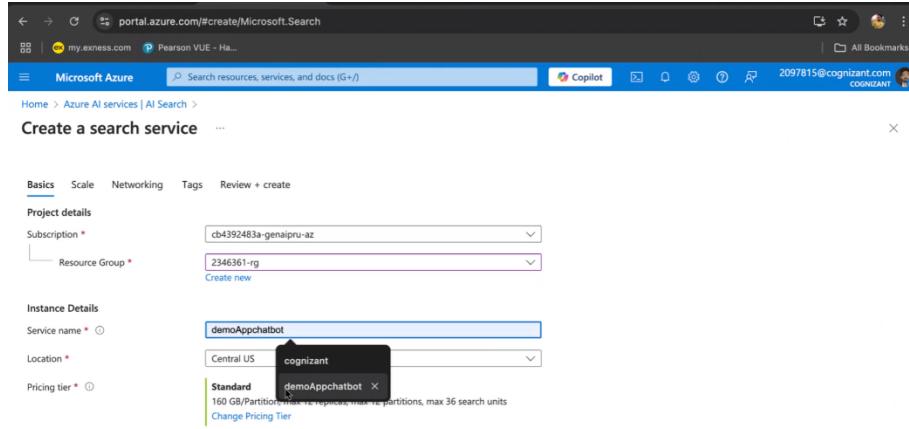


Figure 4.2: Create AI Search Service

- **Select Azure Blob Storage:** Choose the storage account where your data resides.
- **Connect Your Data:** Link Azure AI Search with Blob Storage for data retrieval.
- **Vectorize Your Text:** Convert textual data into vector embeddings using an embedding model.
- **Vectorize and Enrich Images:** Extract features from images and generate embeddings.
- **Advanced Settings:** Configure additional options like indexing and filtering.
- **Review and Create:** Verify the configurations and finalize the setup.

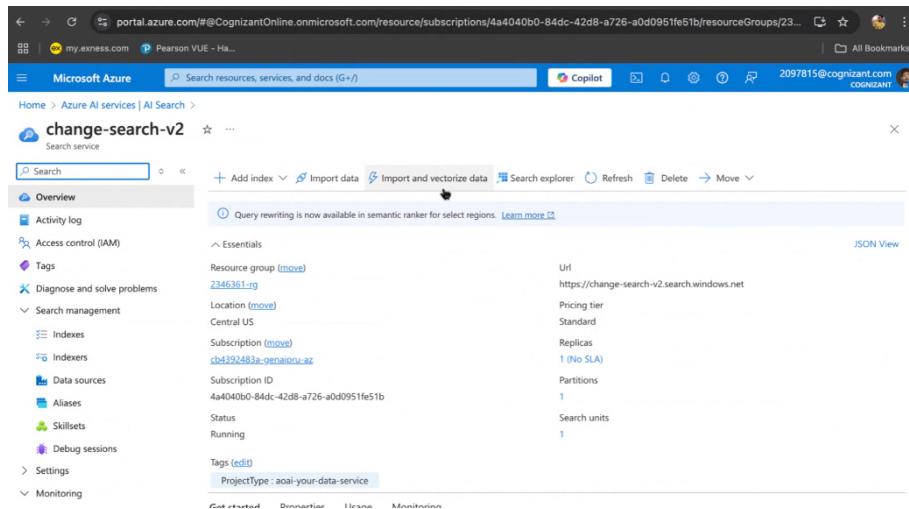


Figure 4.3: Import and Vectorize Data

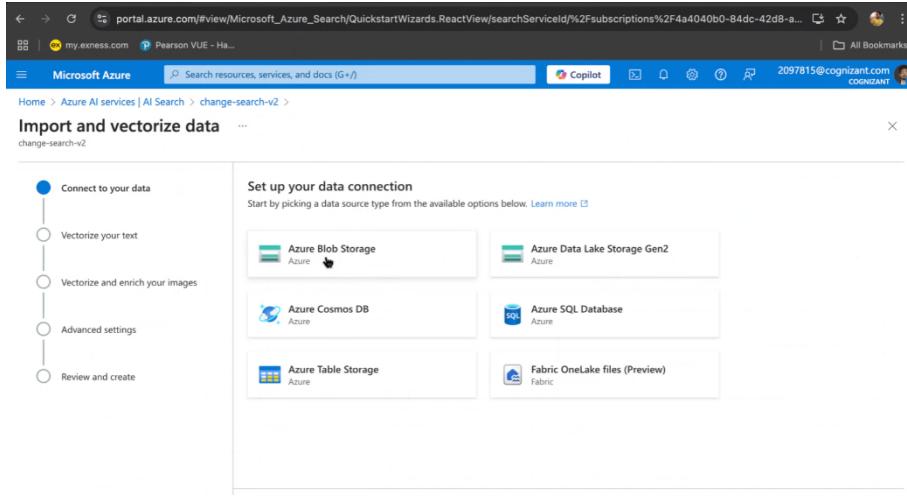


Figure 4.4: Azure Blob Storage

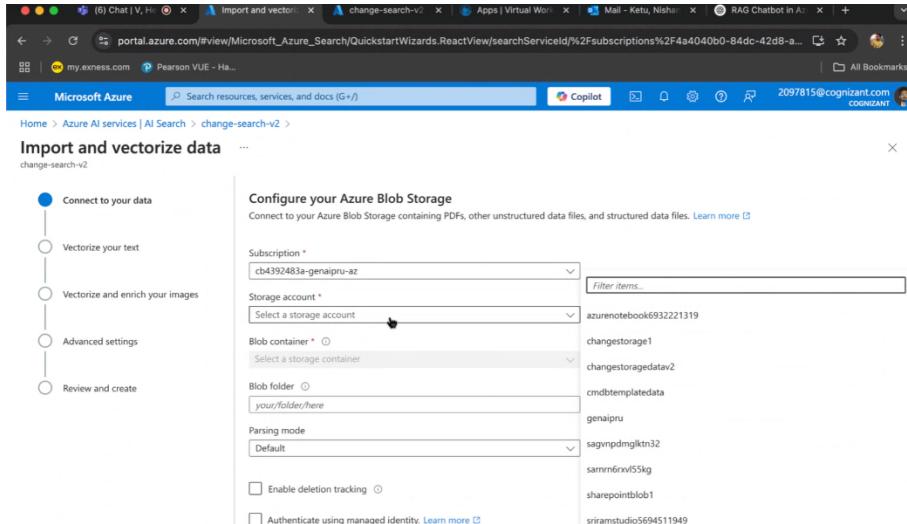


Figure 4.5: Configure Azure Blob Storage

4.3 Create Search Indexes

1. In **Azure AI Search**, define an **index schema** with fields such as **content**, **metadata**, and **vector embeddings**.
2. Link **Azure AI Search** with **Blob Storage** to fetch the embedded data.

Name	Document count	Vector index...	Total storag...
cmdb-latest-data	13	79.66 KB	340.19 KB
vector-1736766709840	69	419.68 KB	1.56 MB
vector-1736768587647	35	213.36 KB	850.28 KB
vector-1737531806289	27	164.73 KB	653.79 KB
vector-1738002031599	27	164.77 KB	652.55 KB

Figure 4.6: Search Index

5 Setting Up Azure OpenAI

1. Navigate to **Azure OpenAI** in the Azure portal.
2. Click **Create** and configure settings such as **Subscription**, **Region**, and **Pricing Tier**.
3. Deploy the **Azure OpenAI Service**.
4. Click on **Explore Azure OpenAI Foundry** to review available models and capabilities.

Name	Kind	Location	Custom Domain...	Pricing tier	Status
GENIAssistantPrudential	OpenAI	East US	geniaassistantpru...	\$0	Succeeded

Figure 5.1: Azure OpenAI Services

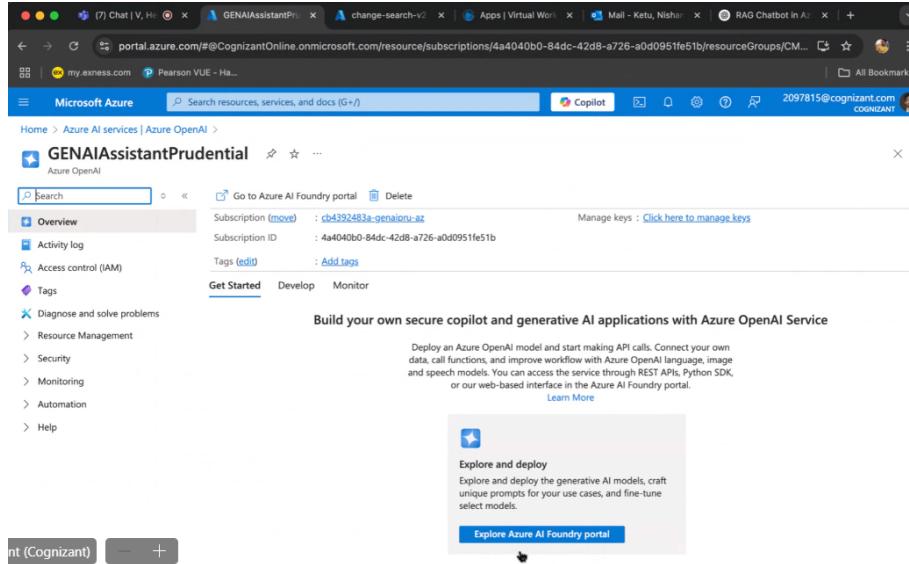


Figure 5.2: Explore Azure OpenAI Foundry

6 Deploying and Configuring the Model

6.1 Deploying the AI Model

1. Navigate to the **Deployments** section in Azure OpenAI.
2. Click on **Deploy Base Model**. Select and deploy a suitable model (e.g., GPT-4-turbo).
3. Confirm that the model has been successfully deployed.

Name	Model name	Model version	State	Model retirement date
gpt-35-turbo	gpt-35-turbo	0125	Succeeded	May 31, 2025 5:30 AM
gpt-4	gpt-4	2024-08-06	Succeeded	Aug 20, 2025 5:30 AM
test-embedding-3-small	test-embedding-3-small	1	Succeeded	Oct 3, 2025 5:30 AM

Figure 6.1: Model Deployments

Name	Model name	Model version	State	Model retirement date
gpt-35-turbo	gpt-35-turbo	0125	Succeeded	May 31, 2025 5:30 AM
gpt-4	gpt-4	2024-08-06	Succeeded	Aug 20, 2025 5:30 AM
test-embedding-3-small	test-embedding-3-small	1	Succeeded	Oct 3, 2025 5:30 AM

Figure 6.2: Deploy base model

6.2 Testing in the Playground

1. Open the deployed model in **Azure OpenAI Playground**.
2. Run test prompts to validate responses and ensure proper connection established to the model.

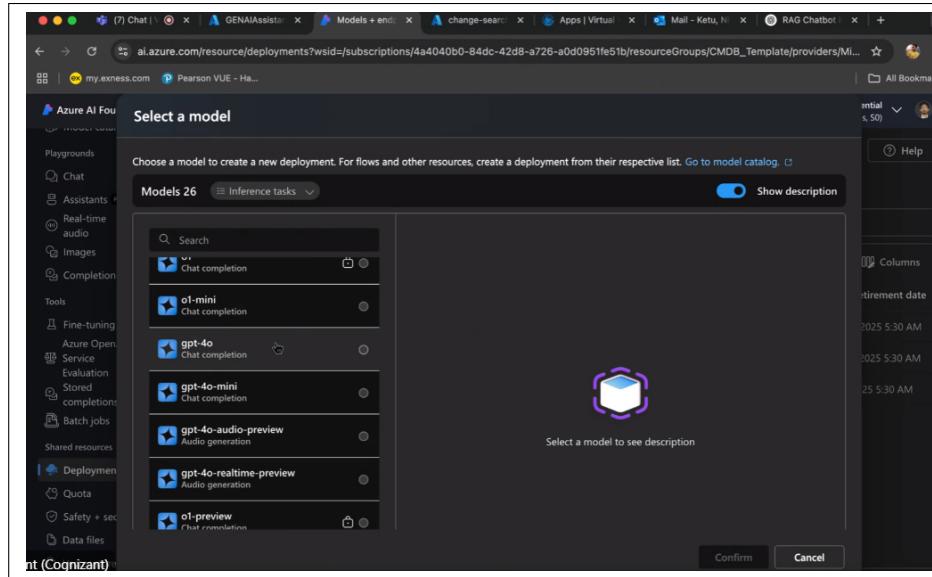


Figure 6.3: selecting & configuring base model

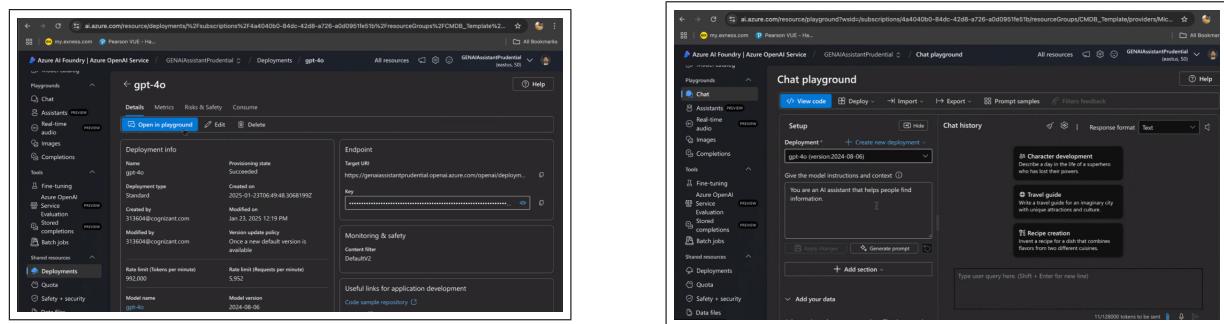


Figure 6.4: Explore Model Chat Playground

6.3 Adding a Data Source

- **Add Data Source** – Navigate to *Azure OpenAI Studio* and select "Add Data Source".
- **Choose Azure AI Search** – Ensure *Azure AI Search* is already configured and ready for integration.
- **Connect Change Process Data** – Integrate the company's *Change Management Process Data* from structured/unstructured sources.
- **Enable Semantic Search** – Activate *Semantic Search* to enhance retrieval accuracy and ranking.
- **Retrieve API Key** – Copy the *API Key* from Azure AI Search for authentication.
- **Configure & Validate** – Review settings, test queries, and ensure smooth data integration.

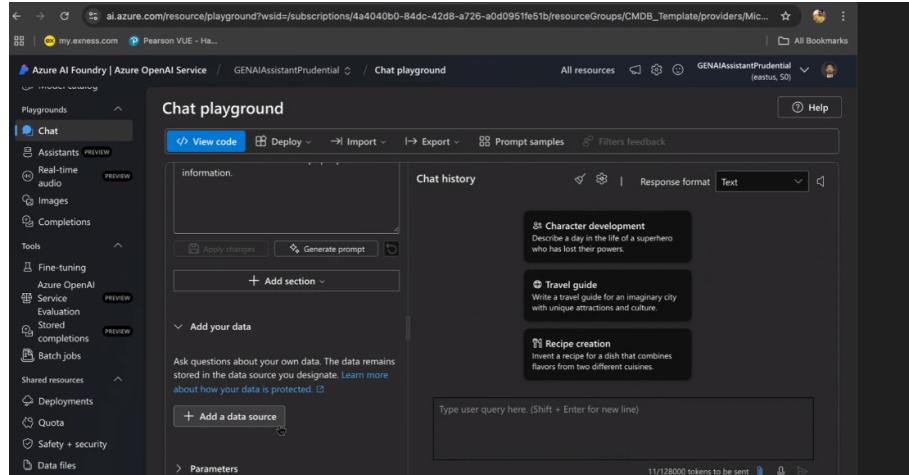


Figure 6.5: Adding Data Source

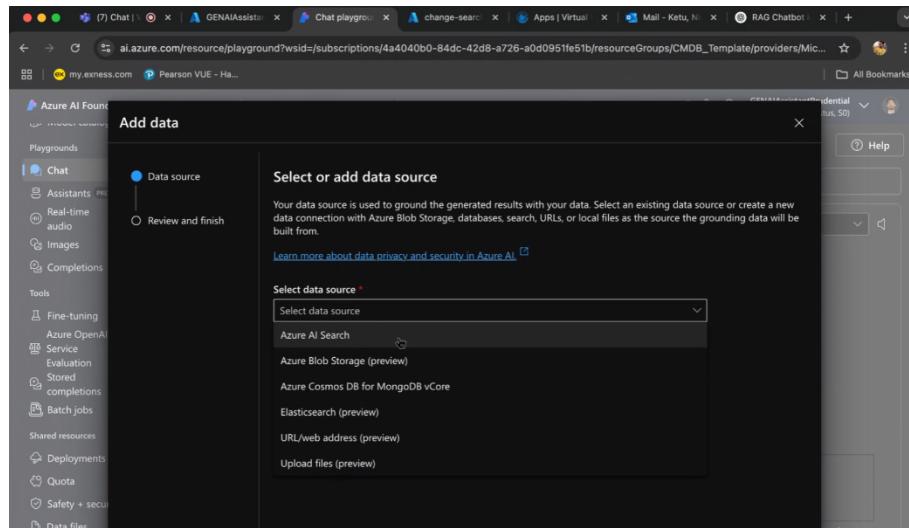


Figure 6.6: Azure AI S

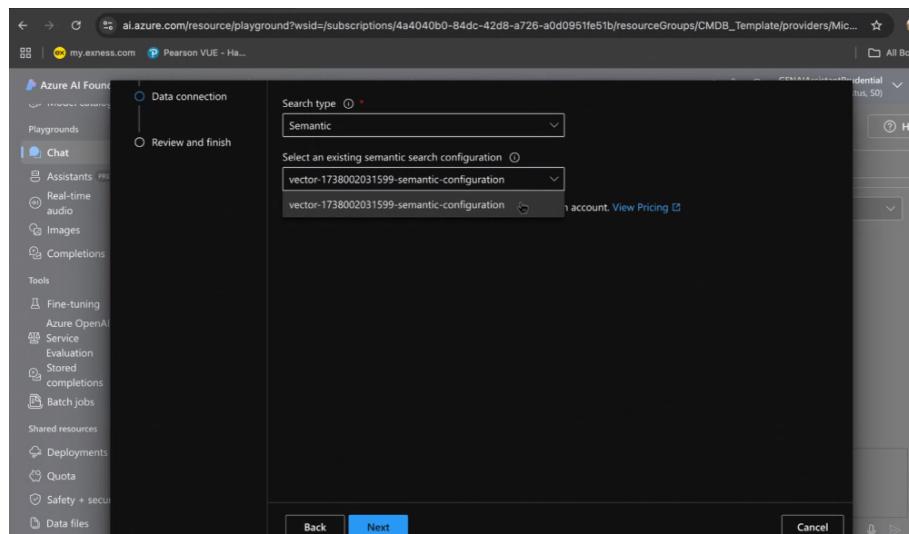


Figure 6.8: Semantic Search

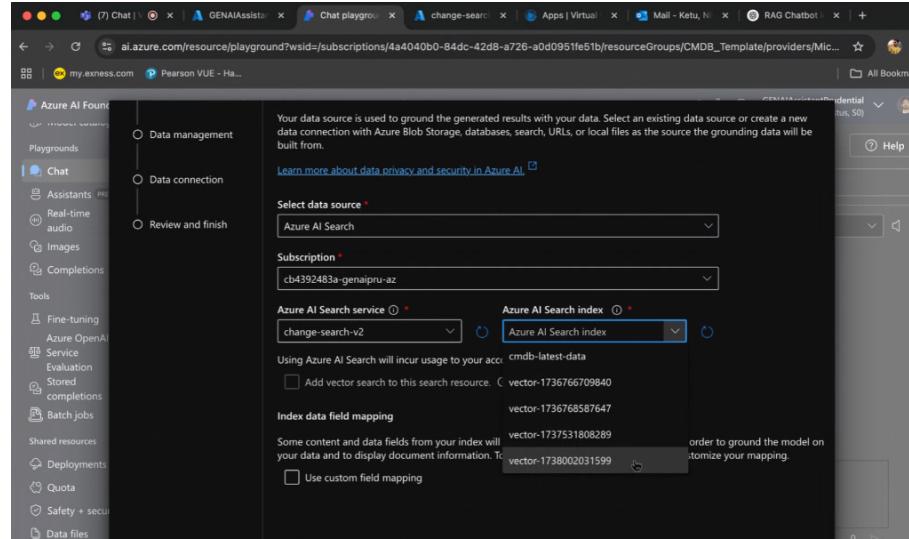


Figure 6.7: Integrate DataSource

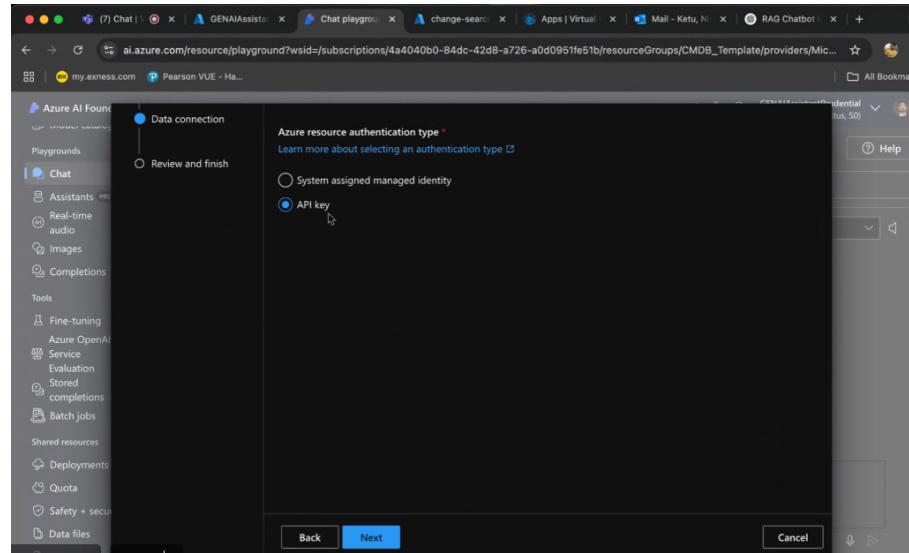


Figure 6.9: API Key

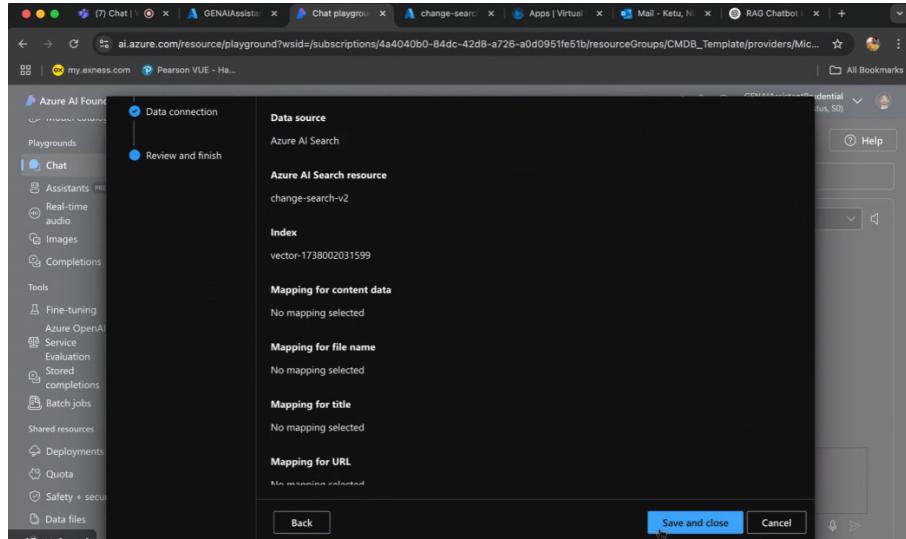


Figure 6.10: Configuring Data Source

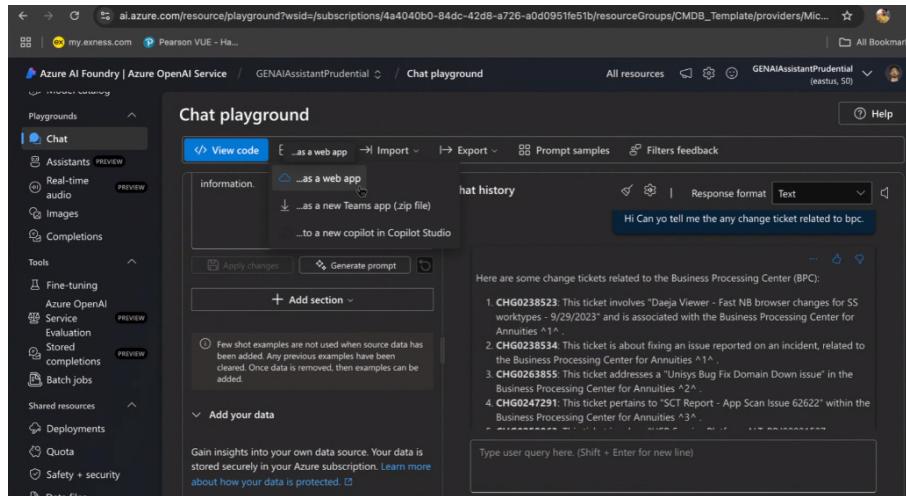


Figure 6.11: Validate ChatBot

7 Deploying as a Web Application & Testing

- **Navigate to Resource Group** – Open the *Azure Portal* and go to the configured *Resource Group*.
- **Select Web App** – Choose the *deployed web app* within the *Resource Group*.
- **Launch the Web App** – Click on *Browse* to open and verify the application.
- **Configure UI Elements** – Customize the *icons, layout, and settings* as needed.
- **Interact with the Chatbot** – Provide prompts related to *Change Management Process tickets*.
- **Explore Responses** – Analyze chatbot-generated answers for insights into the *client environment* related to change process.

Figure 7.1: Navigate to Resource Group

Figure 7.2: Launch Change Chatbot

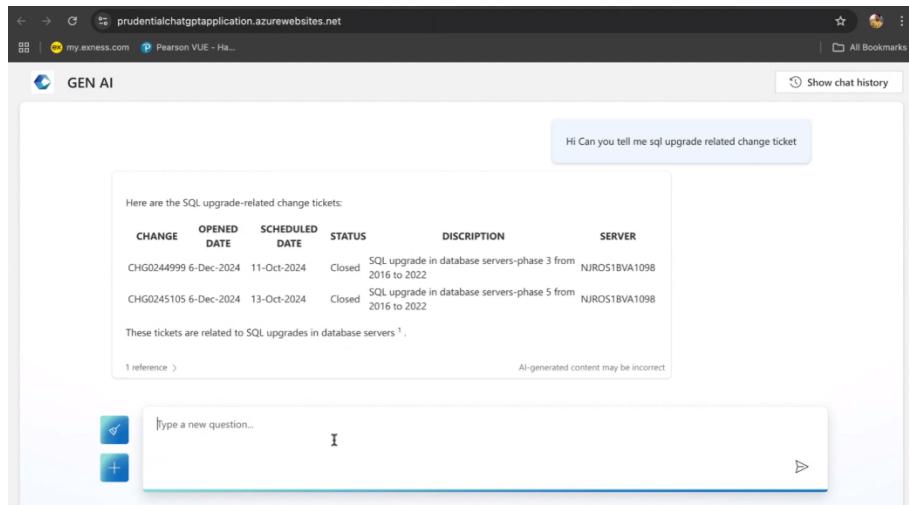


Figure 7.3: Interact with the Change management ChatBot