

TEAMCENTER

# Teamcenter AI Services – Azure Infrastructure Setup

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# Table of Contents

This document provides steps to set up these Azure services:

## **Azure OpenAI Service Setup**

Provides access to OpenAI LLMs and embedding models.

## **Azure AI Search Service Setup**

Acts as the vector database for storing and querying large amounts of data efficiently.

## **Create Vector Index for Azure Search Service**

Provides index that allows you to store embedded documents and access them at your leisure.

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# Section 1: Azure OpenAI Service Setup

1. Log into the Azure Portal and navigate to **Azure OpenAI Service**.
2. Create a new Azure Open AI service instance.
3. Choose an appropriate pricing tier and region that meets your application requirements.
4. Record the endpoints and keys:

This information is used by Teamcenter AI Services to interact with OpenAI models.

Go to Azure OpenAI Studio Delete

Essentials

Resource group (move)	[REDACTED]	API Kind	: OpenAI
Status	: Active	Pricing tier	: Standard
Location	: East US	Endpoints	: <a href="#">Click here to view endpoints</a>
Subscription (move)	[REDACTED]	Manage keys	: <a href="#">Click here to manage keys</a>
Subscription ID	[REDACTED]		
Tags (edit)	[REDACTED]		

Get started Deploy Monitor

5. Navigate to **Model Deployments** and select **Manage Deployments** under this service to deploy and manage your models required for Teamcenter AI Services.
  - **LLM Model:**
    - You can deploy any of the available OpenAI models. Teamcenter AI Services has been tested with **gpt-35-turbo-16k** model.
    - Once the deployment is complete, record the deployment name. TC AI Services uses the deployment name to interact with the model.

## TcQna\_GPT35\_Turbo\_16k

Details Risks & Safety

[Edit deployment](#) [Delete deployment](#) [Refresh](#) [Open in Playground](#)

**Status:** 🟢 Deployment succeeded

Created by: [REDACTED]  
Created at: [REDACTED]  
Last updated: [REDACTED]  
Last updated: [REDACTED]

**Properties:**  
Model name: gpt-35-turbo-16k  
Model version: 0613  
Version update policy: Once the current version expires.  
Deployment type: Standard  
Content Filter: Default  
Tokens per Minute Rate Limit (thousands): 120  
Rate limit (Tokens per minute): 120000  
Rate limit (Requests per minute): 720

- **Embedding Model:**

- You can use any of the available OpenAI Embedding models for Teamcenter AI Services.
- Record the deployment name for the embedding model as well. This is required for Teamcenter AI Services.

Management	
<a href="#">Deployments</a>	text-embedding-3-large
<a href="#">Models</a>	text-embedding-3-small
	text-embedding-ada-002

**Example:** text-embedding-ada-002 deployed in Azure West US region with name **TcQnaEmbeddingAdaModel**:

## TcQnaEmbeddingAdaModel

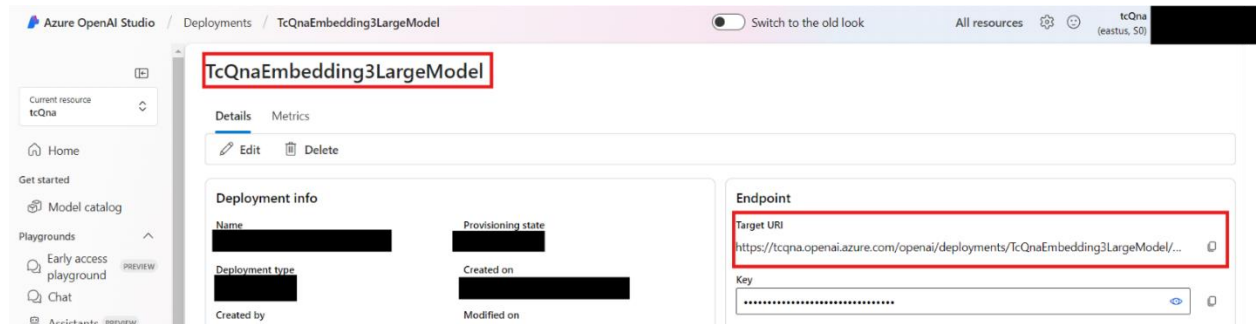
[Edit deployment](#) [Delete deployment](#) [Refresh](#) [Open in Playground](#)

**Status:** 🟢 Deployment succeeded

Created by: [REDACTED]  
Created at: 3/19/2024 8:39 PM  
Last updated by: [REDACTED]  
Last updated at: 3/19/2024 8:39 PM

**Properties:**  
Model name: text-embedding-ada-002  
Model version: 2  
Version update policy: Once a new default version is available.  
Deployment type: Standard  
Content Filter: Default  
Tokens per Minute Rate Limit (thousands): 120  
Rate limit (Tokens per minute): 120000  
Rate limit (Requests per minute): 720

- 
6. The API Version is listed at the end of the Endpoint URI.  
**Note:** This Endpoint URI is not the endpoint that you will provide during Deployment Center installation. The endpoint you will provide only contains the host URL, through **.com/** It will list a date, potentially with the word “preview” following the date. The **Model Name** is the name you specifically provided as shown:

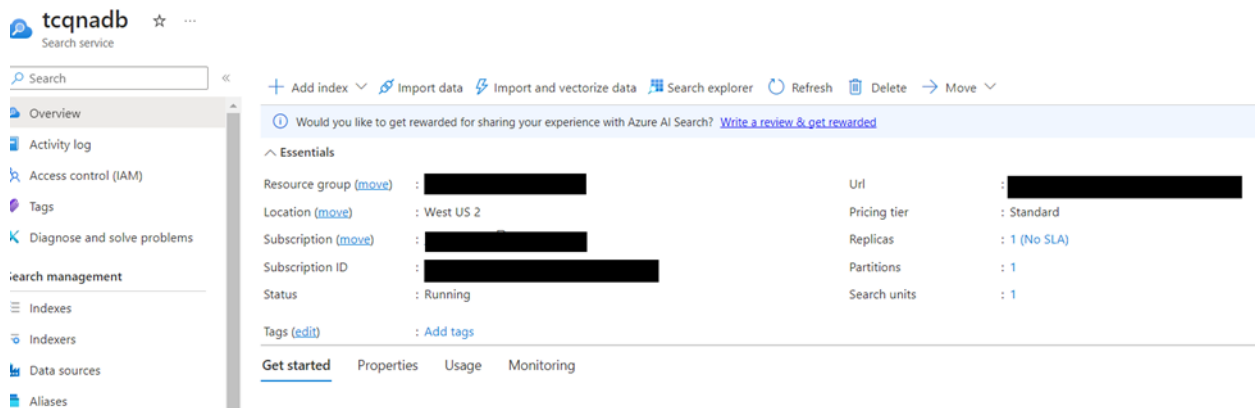


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## Section 2: Azure AI Search Service Setup

1. Log into the Azure Portal and navigate to **AI Search Service**.
2. Create a new search service instance:
  - a. Choose an appropriate pricing tier and region that meets your application requirements.
  - b. Configure the instance with the necessary scalability and performance settings.
3. Record the service URL, which is used by your application to interact with the search service.
4. Record API keys for API access:
  - a. Go to **Settings > Keys**.
  - b. Create admin keys and record them for later.

**Example:** Azure AI Search service named “**tcqnadb**” deployed on West US region:

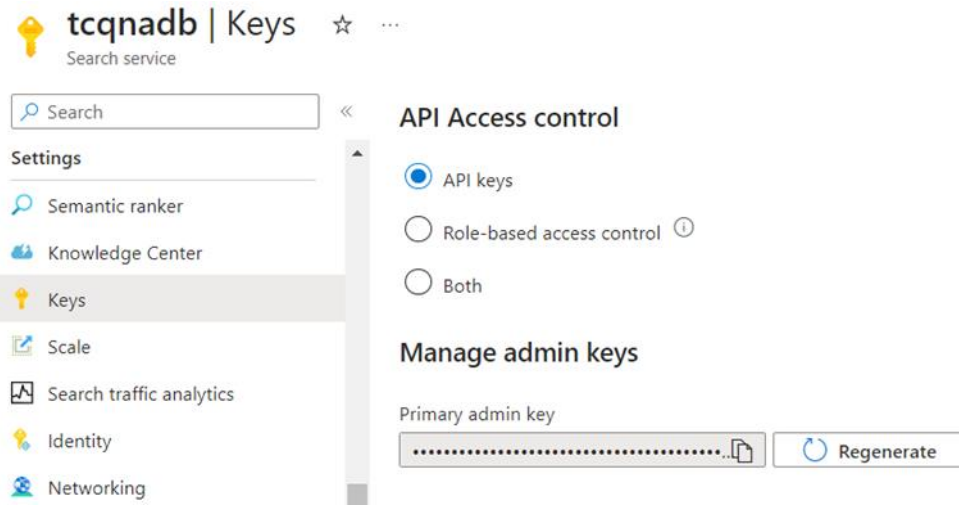


The screenshot shows the Azure AI Search Service configuration page for 'tcqnadb'. The left sidebar contains navigation options: Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Search management, Indexes, Indexers, Data sources, and Aliases. The main content area displays the service's configuration details under the 'Essentials' section:

Resource group (move)	: [REDACTED]	Url	: [REDACTED]
Location (move)	: West US 2	Pricing tier	: Standard
Subscription (move)	: [REDACTED]	Replicas	: 1 (No SLA)
Subscription ID	: [REDACTED]	Partitions	: 1
Status	: Running	Search units	: 1

Additional options include 'Tags (edit)' and 'Add tags'. Below the configuration, there are tabs for 'Get started', 'Properties', 'Usage', and 'Monitoring'.

c. API Keys Generation:



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# Section 3: Create Vector Index for your Azure Search Service

1. Under **Search management**, click **Indexes**.
2. Click **Add index**.
  - a. Enter your unique **Index Name**.
  - b. Add the following fields and fill them in according to the field.  
**Hint:** Use Edm types if applicable such as **Edm.string**.

+ Add field   + Add subfield   🗑 Delete   ⚙ Autocomplete settings

🔍 Search field names

	Field name	Type	Retrievable	Filterable	Sortable	Facetable	Searchable	Analyzer	Dimensions
			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
🔗	id	String	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	content	String	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	metadata	String	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	owning_object	String	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	owning_user	String	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	owning_group	String	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	section_index	Int64	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
	knowledge_bases	StringCollection	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		
	owning_file	String	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	last_modified_date	DateTimeOffset	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
⚡	content_vector	SingleCollection	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>		1536

- c. For **content\_vector**, use the Collection Type (Edm.Single) and fill out the following attributes:
  - i. Dimensions: 1536
  - ii. Create Vector Search Profile
  - iii. Create Algorithm Configuration
    1. **Kind:** hnsw
    2. **m:** 10
    3. **efConstruction:** 512

- 
4. **efSearch:** 500
  5. **metric:** cosine
- d. Click **Create**.
3. Now you have a vector index for the documents that you wish to embed. You will need to save the name of your index for Deployment Center configuration.

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# Install and Configure Teamcenter AI Services

You must now install Teamcenter AI Microservices and configure the applicable AI features.

For detailed steps regarding the installation of Teamcenter AI Microservices in Deployment Center, please refer to *Teamcenter Installation Using Deployment Center* on Support Center.

For detailed steps regarding the configuration of Teamcenter AI Chat and Natural Language Search, please refer to *Data Indexing and Search Configuration* on Support Center.

## References:

<https://github.com/Azure-Samples/openai-end-to-end-baseline>