

Azure SQL DB and REST endpoints to enable AI content moderation

Brian Spendolini
Muazma Zahid

Goals

Learn how to invoke external REST endpoints from Azure SQL Database using [sp_invoke_external_rest_endpoint](#) without having to write complex code or functions. This hands-on lab will walk you through setting up AI-assisted content moderation using Azure SQL Database and REST endpoints.

Understand of how to use stored procedures to make REST calls to

- Azure AI Content Safety
- Azure OpenAI
- Azure AI Language
- How to extend this approach to other AI scenarios, such as language processing and generative AI

Agenda

aka.ms/sqlai
aka.ms/sqlaisamples

1. Creating and connecting to your free Azure SQL Database
2. Getting started with REST in the database
3. Using the Azure AI Language REST endpoints
4. Using the Azure AI Content Safety endpoints
5. Using Azure OpenAI with your data
6. Expanding your knowledge
7. What's possible

Creating and connecting to your free Azure SQL Database

Create a free Azure SQL Database (aka.ms/freedb)

[Home](#) > [Create a resource](#) >

Create SQL Database ...

Microsoft

✕ Basics Networking Security Additional settings Tags Review + create



Create a SQL database with your preferred configurations. Complete the Basics tab then go to Review + Create to provision with smart defaults, or visit each tab to customize. [Learn more](#) ↗



🔑 Want to try Azure SQL Database for free? Create a free serverless database with the first 100,000 vCore seconds, 32GB of data, and 32GB of backup storage free per month for the lifetime of the subscription. [Learn more](#) ↗

Apply offer (Preview)

Use Entra-only Authentication

Authentication

 Azure Active Directory (Azure AD) is now Microsoft Entra ID. [Learn more](#) 

Select your preferred authentication methods for accessing this server. Create a server admin login and password to access your server with SQL authentication, select only Microsoft Entra authentication [Learn more](#)  using an existing Microsoft Entra user, group, or application as Microsoft Entra admin [Learn more](#) , or select both SQL and Microsoft Entra authentication.

Authentication method

- ☒ Use Microsoft Entra-only authentication
- ☐ Use both SQL and Microsoft Entra authentication
- ☐ Use SQL authentication

Start with a Sample Database

Basics Networking Security Additional settings Tags Review + create

Customize additional configuration parameters including collation & sample data.

Data source

Start with a blank database, restore from a backup or select sample data to populate your new database.

Use existing data *

None Backup **Sample**

AdventureWorksLT will be created as the sample database.

AdventureWorksLT

Selecting this sample will modify the "Compute + Storage" settings configured in Basics, for backup compatibility. Visit "Basics" or "Review + Create" tabs to review the changes.

Do you want to continue?

OK

Cancel

Call REST services from the Azure SQL Database

Using [sp_invoke_external_rest_endpoint](#)

```
DECLARE @ret INT, @response NVARCHAR(MAX);

EXEC @ret = sp_invoke_external_rest_endpoint
    @url = N'https://restmcrestface.azurewebsites.net/api/resttest',
    @method = 'GET',
    @headers = '{"Accept": "text/*"}',
    @payload = null,
    @timeout = 230,
    @response = @response OUTPUT;

SELECT @ret AS ReturnCode, @response AS Response;
```

Azure AI Language



<https://learn.microsoft.com/en-us/azure/ai-services/language-service/>

AI Language Feature

Named Entity Recognition (NER)

Personally identifying (PII) and health (PHI) information detection

Language detection

Sentiment Analysis and opinion mining

Summarization

Key phrase extraction

Entity linking

Text analytics for health

Custom text classification

Custom Named Entity Recognition (Custom NER)

Conversational language understanding

Orchestration workflow

Question answering

Custom text analytics for health

Description

Named entity recognition is a preconfigured feature that categorizes entities (words or phrases) in unstructured text across several predefined category groups. For example: people, events, places, dates, and more.

PII detection is a preconfigured feature that identifies, categorizes, and redacts sensitive information in both unstructured text documents, and conversation transcripts. For example: phone numbers, email addresses, forms of identification, and more.

Language detection is a preconfigured feature that can detect the language a document is written in and returns a language code for a wide range of languages, variants, dialects, and some regional/cultural languages.

Sentiment analysis and opinion mining are preconfigured features that help you find out what people think of your brand or topic by mining text for clues about positive or negative sentiment and can associate them with specific aspects of the text.

Summarization is a preconfigured feature that uses extractive text summarization to produce a summary of documents and conversation transcripts. It extracts sentences that collectively represent the most important or relevant information within the original content.

Key phrase extraction is a preconfigured feature that evaluates and returns the main concepts in unstructured text and returns them as a list.

Entity linking is a preconfigured feature that disambiguates the identity of entities (words or phrases) found in unstructured text and returns links to Wikipedia.

Text analytics for health is a preconfigured feature that extracts and labels relevant medical information from unstructured texts such as doctor's notes, discharge summaries, clinical documents, and electronic health records.

Custom text classification enables you to build custom AI models to classify unstructured text documents into custom classes you define.

Custom NER enables you to build custom AI models to extract custom entity categories (labels for words or phrases), using unstructured text that you provide.

Conversational language understanding (CLU) enables users to build custom natural language understanding models to predict the overall intention of an incoming utterance and extract important information from it.

Orchestration workflow is a custom feature that enables you to connect Conversational Language Understanding (CLU), question answering, and LUIS applications.

Question answering is a custom feature that finds the most appropriate answer for inputs from your users, and is commonly used to build conversational client applications, such as social media applications, chat bots, and speech-enabled desktop applications.

Custom text analytics for health is a custom feature that extract healthcare specific entities from unstructured text, using a model you create.

<https://github.com/AzureSQLDB/ContentSafetyLab/>

Azure AI Content Safety

<https://learn.microsoft.com/en-us/azure/ai-services/content-safety/>



AI Content Safety Feature

Description

Analyze text API

Scans text for sexual content, violence, hate, and self harm with multi-severity levels.

Analyze image API

Scans images for sexual content, violence, hate, and self harm with multi-severity levels.

Prompt Shields (preview)

Scans text for the risk of a User input attack on a Large Language Model.

Groundedness detection (preview)

Detects whether the text responses of large language models (LLMs) are grounded in the source materials provided by the users.

Protected material text detection (preview)

Scans AI-generated text for known text content (for example, song lyrics, articles, recipes, selected web content).

<https://github.com/AzureSQLDB/ContentSafetyLab/>

Azure OpenAI Service

<https://learn.microsoft.com/en-us/azure/ai-services/openai/>



Models

GPT-4o & GPT-4 Turbo NEW

GPT-4

GPT-3.5

Embeddings

DALL-E

Whisper

Text to speech (Preview)

Description

The latest most capable Azure OpenAI models with multimodal versions, which can accept both text and images as input.

A set of models that improve on GPT-3.5 and can understand and generate natural language and code.

A set of models that improve on GPT-3 and can understand and generate natural language and code.

A set of models that can convert text into numerical vector form to facilitate text similarity.

A series of models that can generate original images from natural language.

A series of models in preview that can transcribe and translate speech to text.

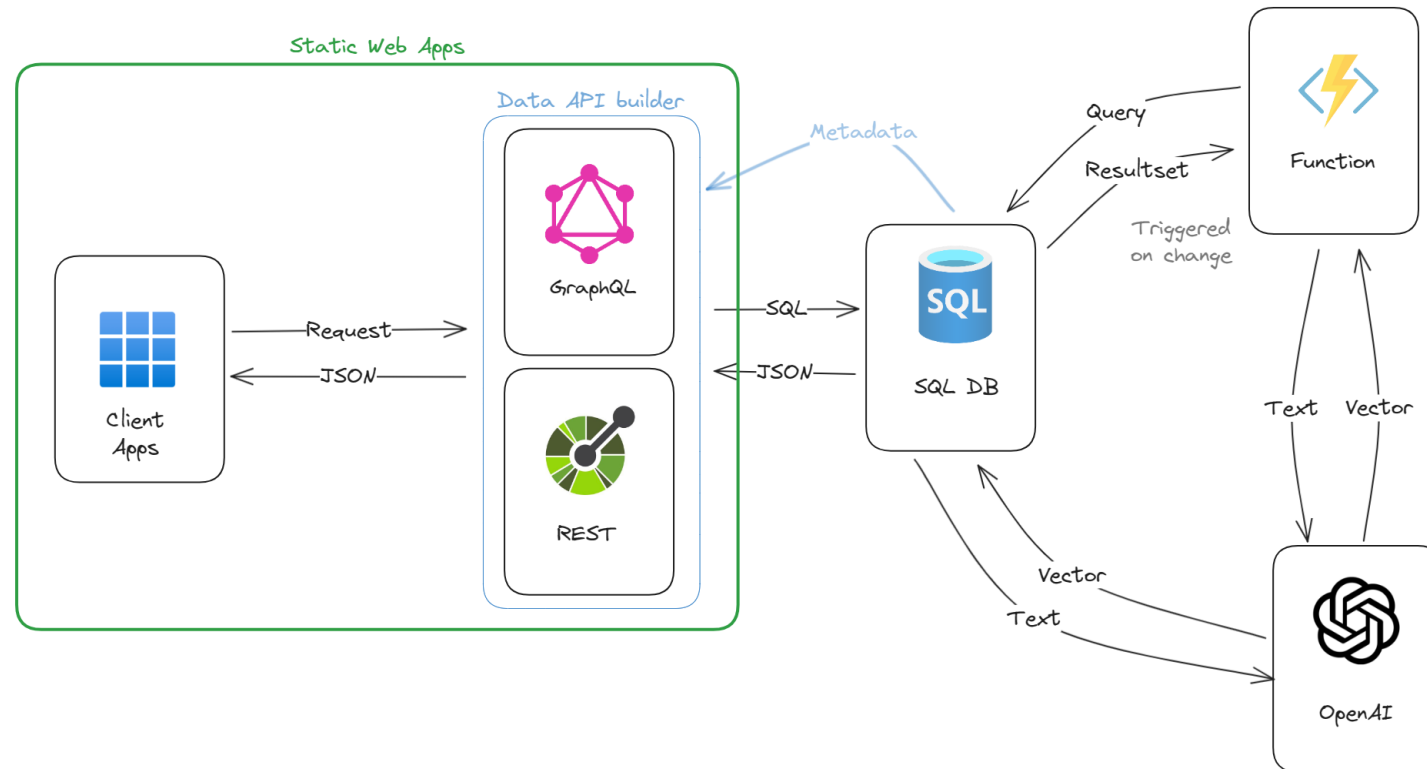
A series of models in preview that can synthesize text to speech.

<https://github.com/AzureSQLDB/ContentSafetyLab/>

Putting it all together

- RAG Patterns
 - Embeddings
 - PII
 - Prompt Safety
- Hybrid and Similarity Search

Session Recommender (Similarity Search) Architecture



Azure SQL DB + REST endpoint (Open AI or any other REST API...)

<https://github.com/Azure-Samples/azure-sql-db-session-recommender-v2>

Try it: <https://ai.chicago.vslive.com/>

Resources

- aka.ms/sqlai
- aka.ms/sqlaisamples
- aka.ms/freedb
- aka.ms/dab

Hands-on Lab

<https://github.com/AzureSQLDB/ContentSafetyLab/>

Blogs

- <https://devblogs.microsoft.com/azure-sql/>
- <https://techcommunity.microsoft.com/t5/azure-sql-blog/bg-p/AzureSQLBlog>

Azure SQL DB Essentials

<https://learn.microsoft.com/en-us/shows/azure-sql-database-essentials/>