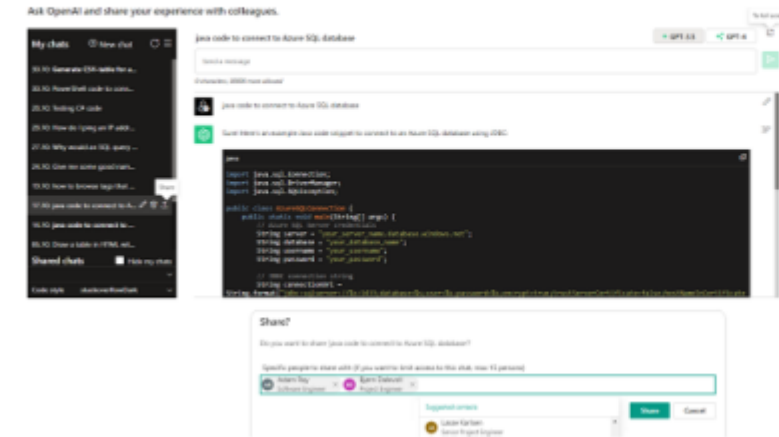


# AZURE OPENAI CHAT WEB PART FOR SHAREPOINT ONLINE

Paul Borisov

# Data Access Diagram: the following slide provides details on data privacy

SharePoint Online web part with regular and Full-Screen appearance. Optional internet and data connections, voice input and speech output, prompt examples, AI images.



Three alternative chat history storage options with data encryption, private and global sharing capabilities for users

OR



OR



Clean architecture without cumbersome function apps

Request enrichment with an API key after successful authorization.



Default models:  
 GPT-3.5 Turbo 16k  
 GPT-4 32k  
 GPT-4 Turbo (v1106, 128k)  
 GPT-4o (Aug 2024)  
 GPT-4o Mini (Aug 2024)  
 GPT-4 Vision  
 Dalle3 Imaging

OR



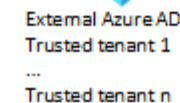
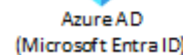
Some customers prefer using the Native OpenAI API subscription. The solution supports this option with the newest models available:  
 GPT 3.5 Turbo 16k  
 GPT-4 Turbo (v1106, 128k)  
 GPT-4o (Aug 2024)  
 GPT-4o Mini (Aug 2024)  
 GPT-4 Vision  
 Dalle3 Imaging  
 Text to speech



REST API requests  
 Texts only, the API key is not exposed in the browser (the more secure setup)

Request validation and authorization

Request validation and authorization



## Data Privacy

Azure OpenAI is the private GDPR-compliant service developed by Microsoft and deployable to your Azure tenant. Data provided to endpoints of Azure OpenAI is kept inside the boundaries of your tenant.

- Native OpenAI is a public service, which provides access to its optional API by paid subscriptions. Any data provided to endpoints of Native OpenAI goes outside the boundaries of your tenant. As of December 2023, Native OpenAI is [GDPR-compliant](#).

Azure OpenAI Chat web part interacts with private **Azure OpenAI** endpoints that are published via Azure API Management service (APIM).

- By default, this setup provides enhanced data privacy. In this configuration, requests to AI do not travel outside your Azure tenant.
- APIM consistently validates the identities of SharePoint users for each individual request. If the request originates from authorized domains, APIM retrieves the **\*\*api-key\*\*** from the secure vault and injects it into the request before forwarding it to the AI endpoint. This process ensures that the api-key does not get exposed in the browser.
- Chats are private and visible only to their creators. Creators have the option to share their chats when this feature is enabled in the web part settings (disabled by default). Creators can share their chats with everyone or only with specific people in the company.
- The web part incorporates tampering prevention logic to guard against unauthorized access to another user's data by their GUID.
- In addition to the default configuration, you have the option to publish the Native Open AI endpoint in APIM. You can find instructions in the project documentation.
  - **CONS:** Granting access to the Native Open AI endpoint requires a separate **api-key** for it and could potentially compromise data privacy, as requests might travel outside your Azure tenant under this setup.
  - **PROS:** Using the Native OpenAI endpoint could grant you access to the newly released language models that are not yet available in Azure OpenAI.

# User Interface

Ask OpenAI and share your experience with colleagues.

The screenshot displays the OpenAI chat interface. On the left is a sidebar with 'My chats' and 'Shared chats'. The main chat area shows a message: 'java code to connect to Azure SQL database'. Below it is a code snippet for connecting to an Azure SQL database using JDBC. The 'Share?' dialog box is open, asking if the user wants to share the chat and listing suggested contacts.

**My chats** + New chat ↻ ☰

- 30.10: Generate CSV-table for a...
- 30.10: PowerShell code to conn...
- 28.10: Testing C# code
- 28.10: How do I ping an IP addr...
- 27.10: Why would an SQL query ...
- 24.10: Give me some good nam...
- 19.10: how to browse tags that ... Share
- 17.10: java code to connect to A... ✎ 🗑️ 📌
- 14.10: java code to connect to ...
- 06.10: Draw a table in HTML wit...

**Shared chats** ☐ Hide my chats ▼

Code style stackoverflowDark ▼

java code to connect to Azure SQL database ⚡ GPT-3.5 ⚡ GPT-4 Turbo 🔒 🗑️ 📌 To full screen

Send a message ▶️ 🎤

0 characters, 30000 more allowed

java code to connect to Azure SQL database 🗑️ 📌 Read out

Sure! Here's an example Java code snippet to connect to an Azure SQL database using JDBC: 🗑️ 📌 🔊

```
java
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.SQLException;

public class AzureSQLConnection {
    public static void main(String[] args) {
        // Azure SQL Server credentials
        String server = "your_server_name.database.windows.net";
        String database = "your_database_name";
        String username = "your_username";
        String password = "your_password";

        // JDBC connection string
        String connectionString =
            String.format("jdbc:sqlserver://%s:1433;database=%s;user=%s;password=%s;encrypt=true;trustServerCertificate=false;hostNameInCertificate
```

## Share?

Do you want to share 'java code to connect to Azure SQL database'?

Specific people to share with (if you want to limit access to this chat, max 15 persons)

AR Adam Ray ✕ BD Bjørn Dalevoll ✕  
Software Engineer Project Engineer

Suggested contacts

LK Lasse Karlisen  
Senior Project Engineer

Share

Cancel

# Full-Screen Mode

My chats + New chat ☰

- 30.10: Generate CSV-table for a...
- 30.10: PowerShell code to conn...
- 28.10: Testing C# code
- 28.10: How do I ping an IP addr...
- 27.10: Why would an SQL query ...
- 24.10: Give me some good nam...
- 19.10: how to browse tags that ...
- 17.10: java code to connect to A...
- 14.10: java code to connect to ...
- 06.10: Draw a table in HTML wit...
- 05.10: Draw the text table with ...
- 04.10: Kan du norsk?
- 03.10: Detailed weather forecas...

Shared chats ☐ Hide my chats

- 30.10: Generate CSV-table for all weeks ... ▾
- Code style vs2015 ▾

PowerShell code to connect to Excel file and extract data into CSV

GPT-3.5

GPT-4



Send a message

LLM: gpt-4-32k



0 characters, 30000 more allowed

```
$connection.Open()

# Create a SQL query to select data from the Excel worksheet
$query = "SELECT * FROM [Sheet1$]"

# Create a new command object
$command = New-Object -TypeName System.Data.OleDb.OleDbCommand($query, $connection)

# Execute the query and get the result set
$result = $command.ExecuteReader()

# Get the column names from the result set
$columnNames = @()
for ($col = 0; $col -lt $result.FieldCount; $col++) {
    $columnName = $result.GetName($col)
    $columnNames += $columnName
}

# Create a new CSV file to store the extracted data with UTF-8 encoding using FileStream
$csvFilePath = "C:\path\to\your\output_file.csv"
$csvFile = New-Object -TypeName System.IO.FileStream -ArgumentList $csvFilePath, [System.IO.FileMode]::Create, [System.IO.FileAccess]::Write
$csvWriter = New-Object -TypeName System.IO.StreamWriter -ArgumentList $csvFile, [System.Text.Encoding]::UTF8

# Write the column headers to the CSV file
$csvWriter.WriteLine($columnNames -join ",")

# Loop through the result set and extract the data
while ($result.Read()) {
    $rowData = @()
    for ($col = 0; $col -lt $result.FieldCount; $col++) {
        $cellValue = $result.GetValue($col)
        $rowData += $cellValue
    }
    $csvWriter.WriteLine($rowData -join ",")
}

# Close the CSV writer, file, result set, and connection
$csvWriter.Close()
$csvFile.Close()
$result.Close()
$connection.Close()
```

In this updated code, we replaced the **StreamWriter** with **FileStream** to create the CSV file. We then pass the **FileStream** object as the first argument to the **StreamWriter** constructor, and **[System.Text.Encoding]::UTF8** as the second argument to specify the UTF-8 encoding.

Please note that we need to close both the CSV writer (**\$csvWriter**) and the CSV file (**\$csvFile**) separately before closing the result set and the connection.

## Key features

- Support for the latest text language models provided by Microsoft and Native OpenAI: GPT-4o (128k and multilingual performance), GPT-4o Mini (128k, fast and cheap), GPT-4 32k, GPT 3.5 16k, GPT-4 Vision, GPT-4 Turbo (1106, 128k)
- Storage data encryption supported for all storage types and the sharing option
- Chat Sharing: Private sharing of personal Chats for a limited number of company users and Global sharing with Everyone in the company
- Support for the Full-Screen Mode. Support for Regular and Full-Width Site Page Sections
- Mobile-Friendly UI with simple customizations (CSS)
- Event Streaming to provide consecutive outputs of AI-responses
- Code Highlighter with options to select Highlight Styles.
- Upper and Lower Side positioning for the Prompt Area Textbox
- Full-Scale Localizations: English, Finnish, and Norwegian
- Optional integrations with company data. For security reasons, these integrations are disabled by default and must be explicitly enabled in the web part settings.
  - AI-Image generations with Dalle3. High-definition images available out-of-the-box
  - Search on the Internet with Bing and Google
  - SharePoint Search, which works under the current user identity and permissions
  - Company Users
  - Local Date and Time
  - Analysis of an uploaded PDF and summarization of its content
  - Analysis of uploaded images and description of their content
  - Voice input and examples for prompt texts
- Voice input and Speech output for reading out AI-generated texts
- Unlimited Chats per user and the option to support Unlimited Chat History Length

## Advanced features

- Built-in integration with API Management Service.
  - For customers that do not have it, the web part also supports direct queries to API with an api-key (configurable)
- Default support for Azure OpenAI and Native OpenAI API
- Alternative storage types to manage Chat History
  - SharePoint List: Supports up to 5000 Chats, Built-in “One-Click” list provisioning, Chat Privacy and Security Trimming for SharePoint Search
  - Azure SQL Database: Provides more advanced storage capabilities tested on 1 Million+ Chat records
  - Local Storage: it can be used to provide quick demo without long-time configurations

# Optional Integrations: SharePoint Search, Company Users, Local Date & Time

## How it works

The Function Calling feature is available in both Azure OpenAI and Native OpenAI (more advanced version). The flow for using this feature typically looks like:

1. In the process of interacting with OpenAI, you can send a request with options to call available integration functions that you have provided.
2. If OpenAI determines that it requires specific data, it will request to call a function with parameters that it deems suitable.
3. To meet OpenAI's demand, you can call the function with the proposed parameters on behalf of OpenAI. This allows you to obtain raw results locally, which you can then submit to OpenAI. You have control over what data you submit.
4. If OpenAI determines that it needs more information, it may demand calling another function, and this process can continue as necessary.
5. OpenAI handles the received data and transforms it as you have requested. The final response from OpenAI will include the results based on the processed data.

```
// 3 show cases available in the web part:
```

```
// Search in SharePoint for "your text". Format the results as an HTML table.
```

```
// Get company users that have names starting with P. Format the results as an HTML table.
```

```
// Date, Time, Date and time.
```

```
export default class FunctionHelper {  
  private static available: { [key: string]: any } = {  
    companyUsers: this.companyUsers,  
    currentDateOrTime: this.currentDateOrTime,  
    currentDateAndTime: this.currentDateAndTime,  
    peopleSearch: this.companyUsers,  
    searchSharepoint: this.searchSharepoint,  
  };
```



# Integrations

## Find in SharePoint "IDD Questionnaire" and show search results as HTML table



Find in SharePoint "IDD Questionnaire" and show search results as HTML table



Here are the search results for "IDD Questionnaire" in SharePoint:

Title	Author	Size	Path
Annex 3 - IDD Questionnaire for Corporates	Olivia Roca;SP Admin	85,822 bytes	<a href="#">Link</a>
Annex 4 - IDD Questionnaire for State Owned Entities (SOEs)	Olivia Roca;SP Admin	85,302 bytes	<a href="#">Link</a>
Annex 5 - IDD Questionnaire for Municipalities, Ministries and Other Government Agencies	Olivia Roca;SP Admin	84,004 bytes	<a href="#">Link</a>



Show me company employees with names that start with p



Here is a list of company employees with names that start with the letter "P":

- Patti Fernandez
- Pradeep Gupta



Show me company employees with names that start with H



Here are the company employees with names that start with the letter "H":

- Harri Niemeläinen
- Henrietta Mueller



Date and time are...



The current date is November 10, 2023, and the current time is 12:02:22. If you have any more questions or need further assistance, feel free to ask!

# Upload and Summarize PDF content

## Summarise PDF content

GPT-3.5

GPT-4

(1)

Upload files

Summarise PDF content

21 characters, 12492 more allowed



Summarise PDF content



The PDF document provides information about the functionality of the Azure OpenAI Chat Web Part and its deployment, permissions, configuration, privacy settings, user interface, event streaming, backend components, and more. Here is a summary of the content:

1. Introduction: The document introduces the Azure OpenAI Chat Web Part and its frontend and backend components.
2. Deployment: It explains how to deploy the web part by adding its compiled solution to the App Catalog.
3. Permissions: After adding the package, the document instructs users to approve the requested permissions and create a standard Azure App registration named "openaiwp" to make authenticated requests.
4. Configuration: Users are guided on how to create a modern Site Page, add the web part, and configure its settings.
5. Privacy settings for SharePoint List storage: The document explains the privacy settings for storing chat histories in a SharePoint list.
6. Options to use native OpenAI instead of Azure OpenAI: Users have the option to use native OpenAI API URLs instead of Azure OpenAI ones.
7. User interface: The document describes the user interface of the web part, including the navigation panel, content panel, and code highlighting options.

# Optional integrations: Search on the Internet with the summary for Bing and Google results

Search on Bing and Google: Open AI vs Gemini. Show 5 most recent results from each.

⚡ GPT-3.5

⚡ GPT-4

⚡ GPT-4 Turbo



Send a message

0 characters, 15000 more allowed



Search on Bing and Google: Open AI vs Gemini. Show 5 most recent results from each.



Here are the 5 most recent search results from Bing:

1. [Generative AI is off to a rough start - InfoWorld](#): As the big vendors overstate the capabilities of their generative AI projects, maybe it's time to use open source to keep them honest. Published on 2023-12-11.
2. [Google finally joins the gen AI race in earnest, and now it's really wide open - SiliconANGLE](#): With its new AI model Gemini, Google this week cracked open the generative AI race even wider — as we said would happen following that pre-Thanksgiving OpenAI debacle. Published on 2023-12-09.
3. [Google may use Gemini AI to tell users their life story through phone data, photos - Indiatimes](#): Google plans to use artificial intelligence technology, including the Gemini AI model and large language models (LLMs), such as those used in Project. Published on 2023-12-11.
4. [Open-source generative AI startup Mistral AI raises \\$415M in funding - SiliconANGLE](#): French generative artificial intelligence startup Mistral AI announced today it has closed on its second bumper funding round of the year, raising 385 million euros, or around \$415 million. Published on 2023-12-11.
5. [Google Launches New Multi-modal Gemini AI Model - InfoQ](#): Alphabet released the first phase of its next-generation AI model, Gemini. Gemini is the first model to outperform human experts on MMLU (Massive Multitask Language Understanding). Published on 2023-12-11.

And here are the 5 most recent search results from Google:

1. [Gemini live today in Bard - Community - OpenAI Developer Forum](#): Discussion thread on the OpenAI Developer Forum about the launch of Gemini.
2. [OpenAI's GPT-Vision vs. Google's Gemini: What To Expect - EnCord](#): A comparison between OpenAI's GPT-Vision and Google's Gemini AI models.
3. [Gemini live today in Bard - Community - OpenAI Developer Forum](#): Continued discussion on the OpenAI Developer Forum about the launch of Gemini.
4. [Google Nears Release of Gemini AI to Challenge OpenAI — The Information](#): Article from The Information discussing Google's upcoming release of Gemini AI to compete with OpenAI.
5. [Google's Gemini is so powerful that OpenAI probably won't release - Reddit](#): A Reddit thread discussing the power of Google's Gemini AI model and its potential impact on OpenAI.

# Image Generations: Dalle-3

Create an image: an illustration of a business meeting

GPT-3.5 GPT-4 GPT-4 Turbo

Send a message

0 characters, 15000 more allowed



The images depict illustrated scenes of professional business environments.

# Using GPT-4 Vision for Image Analysis: a Technical Diagram

What is in this image?



What is in this image?

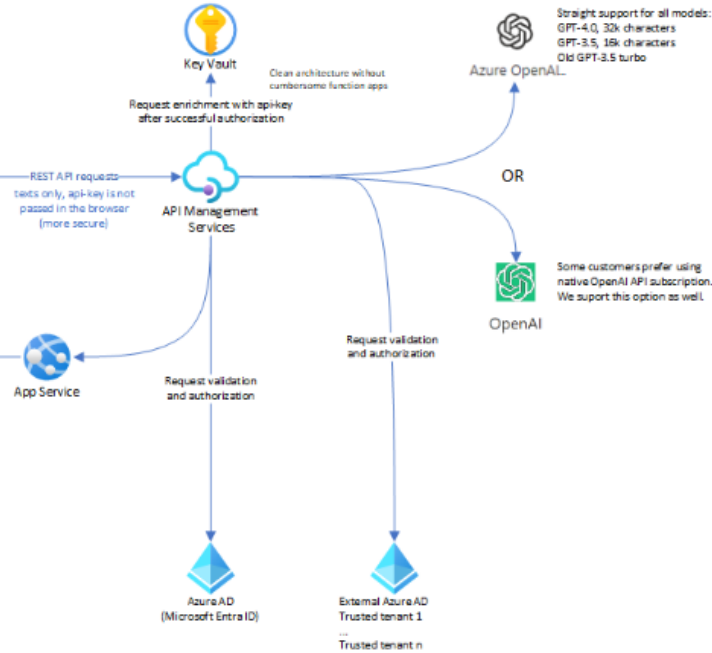
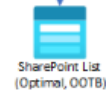
SharePoint Online web part with regular and full-screen appearance



Alternative chat-history storage options with global and private sharing capabilities for users

OR

OR



The image appears to be a flowchart or architectural diagram relating to a software or web application. It includes various components and services that interact with each other to support the application's functionality. Here are the components and descriptions visible in the diagram:

- SharePoint Online web part**: The image at the top left shows a SharePoint Online web part that can be displayed with both regular and full-screen appearance. This is likely a user interface component for displaying content.
- API Management Services**: Positioned in the center-right of the image, this service seems to handle REST API requests, request validation, and authorization, acting as a gateway between clients and backend services.
- App Service**: A central component on the left side of the diagram, identified with the Azure logo, which suggests that it's an Azure App Service used to host web applications.
- Key Vault**: Shown linking to the API Management Services and marked with text indicating that it enriches requests with an API key after successful authorization, which implies security and configurations management.
- OpenAI**: Mentioned on the right side of the image with a note that some customers prefer using their OpenAI subscription, indicating integration with AI services provided by OpenAI.
- Azure AD (Microsoft Entra ID)** and **External Azure AD**: Components for identity and access management.
- AzureSQL database (Enterprise-grade, large Productions)**: A cloud-based database service indicated for production-grade, larger-scale usage.
- Storage options**: At the bottom left, there are three alternatives presented for chat-history storage: SharePoint List, Web Browser (Quick demo), and AzureSQL database.

The image also contains annotations related to support for different GPT models, such as GPT-4.0, and the mention of secure transmission of API keys. Overall, the diagram seems to describe a web application architecture that leverages Azure cloud services and offers flexibility in terms of AI integration and user history storage.

# Using GPT-4 Vision for Image Analysis: a Photo

What is in this image? Can you recognize this place?

⚡ GPT-3.5

🌟 GPT-4



Send a message



0 characters, 15000 more allowed



This image features the 25 de Abril Bridge in Lisbon, Portugal. You can recognize it by its distinctive red color, similar in style to the Golden Gate Bridge in San Francisco, USA. The bridge spans the Tagus River, and in this image, you can also see a dry, grassy foreground that gives a golden hue to the lower part of the photograph. Additionally, there are two sailboats visible on the water, providing a sense of leisure and maritime activity. The sky is clear, which suggests that the photo was taken on a day with good weather.

# Azure OpenAI Chat web part for SharePoint Online, configurable options

**Azure OpenAI Chat** ✕

Settings

Client ID: create a user\_impersonation app with name=openaiwp

98765432-1234-5678-9876-543210123456

Base URL for GPT endpoint (APIM API or full)

https://tenant.azure-api.net/openai

Base URL for GPT4 endpoint (APIM API or full)

https://tenant.azure-api.net/openai4

Base URL for Chat WebApi (APIM API or full)

Optional api-key for Azure OpenAI (for troubleshooting, not for Production)

Language models

- GPT-3.5
- GPT-4

Storage type for chat history

Database

- Enable sharing
- Enable streaming
- Enable full screen mode
- Enable integrations
- Code highlighting
- Show highlighting styles

Default style

stackoverflowDark

- Show prompt area at bottom
- Unlimited chat history length (AI-responses in long chats may be less accurate)

Locale for dates (default is fi-FI)

**Azure OpenAI Chat** ✕

Settings

Client ID: create a user\_impersonation app with name=openaiwp

98765432-1234-5678-9876-5432101234...

Base URL for GPT endpoint (APIM API or full)

https://tenant.azure-api.net/openai

Base URL for GPT4 endpoint (APIM API or full)

https://tenant.azure-api.net/openainative

Base URL for Chat WebApi (APIM API or full)

Optional api-key for Azure OpenAI (for troubleshooting, not for Production)

Language models

gpt-35-turbo-16k,gpt-4-1106-preview

Storage type for chat history

Database

- Enable sharing
- Enable streaming
- Enable full screen mode
- Enable integrations
- Code highlighting
- Show highlighting styles

Default style

stackoverflowDark

- Show prompt area at bottom
- Unlimited chat history length (AI-responses in long chats may be less accurate)

Locale for dates (default is fi-FI)

**Azure OpenAI Chat** ✕

Settings

Client ID: create a user\_impersonation app with name=openaiwp

98765432-1234-5678-9876-5432101234...

Base URL for GPT endpoint (APIM API or full)

https://tenant.azure-api.net/openai

Base URL for GPT4 endpoint (APIM API or full)

https://tenant.azure-api.net/openainative

Base URL for Chat WebApi (APIM API or full)

Optional api-key for Azure OpenAI (for troubleshooting, not for Production)

Language models

gpt-35-turbo-16k,gpt-4-1106-preview

Storage type for chat history

SharePoint list

SharePoint list URL (leave it empty for default URL)

**Create** ← **Deploy in 1 click**

- Enable sharing
- Enable streaming
- Enable full screen mode
- Enable integrations
- Code highlighting
- Show highlighting styles

Default style

stackoverflowDark

- Show prompt area at bottom
- Unlimited chat history length (AI-responses in long chats may be less accurate)

Locale for dates (default is fi-FI)

**Azure OpenAI Chat** ✕

Settings

Client ID: create a user\_impersonation app with name=openaiwp

98765432-1234-5678-9876-5432101234...

Base URL for GPT endpoint (APIM API or full)

https://tenant.azure-api.net/openai

Base URL for GPT4 endpoint (APIM API or full)

https://api.openai.com/v1/chat/completior

Base URL for Chat WebApi (APIM API or full)

Optional api-key for Azure OpenAI (for troubleshooting, not for Production)

\*\*\*\*\*

Language models

gpt-35-turbo-16k,gpt-4-1106-preview

Storage type for chat history

Local storage

- Enable sharing (demo only)
- Enable streaming
- Enable full screen mode
- Enable integrations
- Code highlighting
- Show highlighting styles

Default style

stackoverflowDark

- Show prompt area at bottom
- Unlimited chat history length (AI-responses in long chats may be less accurate)

Locale for dates (default is fi-FI)

**Azure OpenAI Chat** ✕

Language models

- GPT-3.5
- GPT-4
- GPT-4 Turbo (beta, not for Production)
- GPT-4o
- GPT-4o Mini

[Recent updates](#)

Storage type for chat history

SharePoint list

SharePoint list URL (leave it empty for default URL)

https://wpxvh.sharepoint.com/dbChats2

**Update**

- Enable sharing
- Enable streaming
- Enable full screen mode
- Enable integrations
- Bing search

Optional api-key for Bing

Add if APIM endpoint is not configured

- Google search

Optional key for Google: key=API\_KEY&cx=SEARCH\_ENGINE\_ID

Add if APIM endpoint is not configured

- Image analysis: configure /vision (docs)
- Image generation: configure /dalle (docs)

Image library URL (leave it empty for default URL)

**Update**

- Enable examples for the prompt text
- Enable voice input
- Code highlighting
- Show highlighting styles