

Get started with Azure OpenAI in .NET

About me



Security Architect



Consultant



Microsoft Certified Trainer



AI & Cybersecurity Practitioner



Developer



Freelancer



Azure @ ❤️



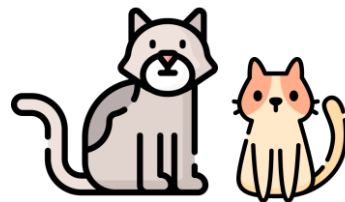
Google Cloud



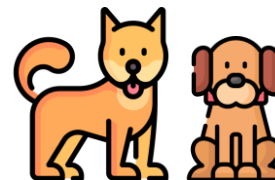
1 Husband



1 Daughter



2 cats



2 dogs



Detective stories



Photography

Agenda

Get started with Azure OpenAI Service

Develop apps with Azure OpenAI Service

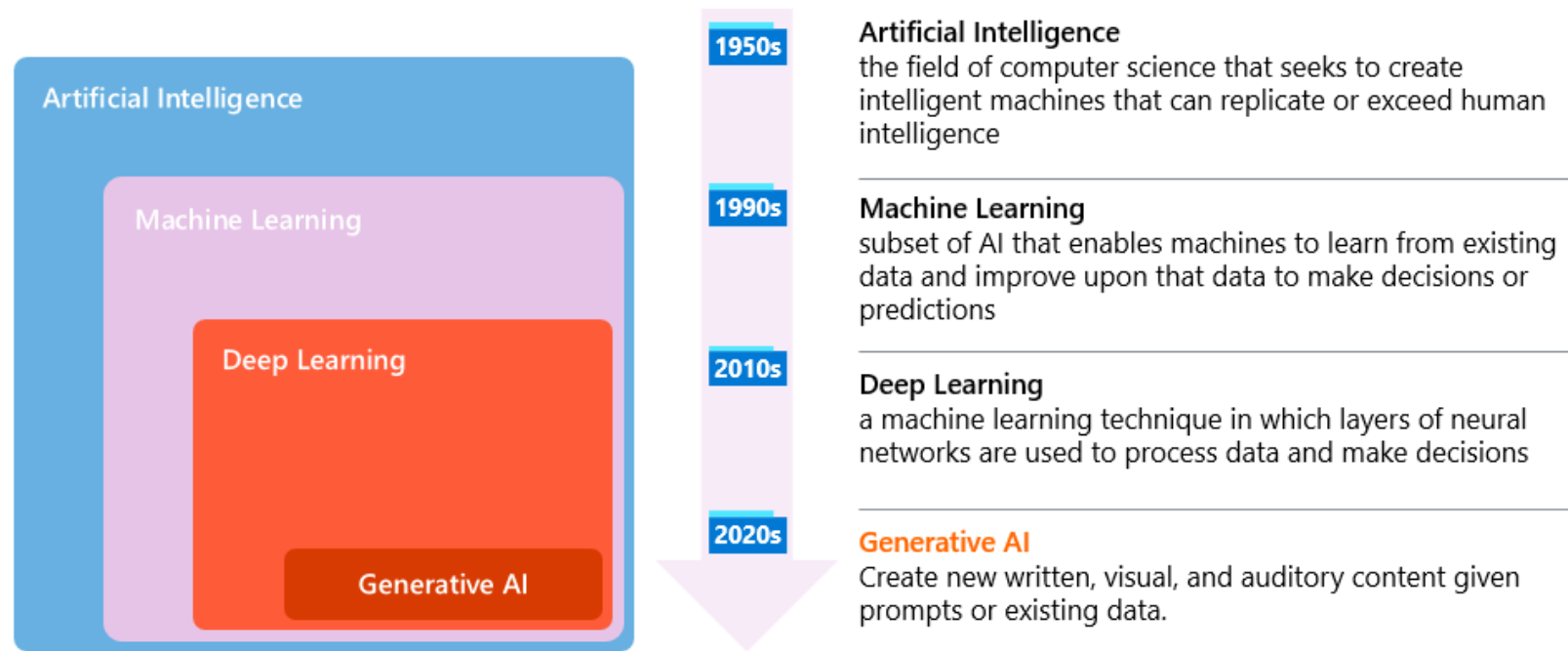
Apply prompt engineering with Azure OpenAI Service

Generate code with Azure OpenAI Service

Generate images with Azure OpenAI Service

GenAI

What is generative AI?



Provision an Azure OpenAI resource in Azure

1. Apply for access to the Azure OpenAI service: <https://aka.ms/oaiapply>
2. Create an **Azure OpenAI** resource in the Azure portal

Provision an Azure OpenAI resource in Azure

[Home](#) > [Azure AI services](#) | [Azure OpenAI](#) >

Create Azure OpenAI ...

1 Basics ② Network ③ Tags ④ Review + submit

Enable new business solutions with OpenAI's language generation capabilities powered by GPT-3 models. These models have been pretrained with trillions of words and can easily adapt to your scenario with a few short examples provided. Apply them to numerous scenarios, from summarization to content and code generation.

[Learn more](#)

Project Details

Subscription * ⓘ

Resource group * ⓘ

[Create new](#)

Instance Details

Region ⓘ

Name * ⓘ

Pricing tier * ⓘ

Azure OpenAI Studio

- Web portal for working with Azure OpenAI models: <https://oai.azure.com/>
- View and deploy base models
- Connect your own data source
- Manage fine tuning and data files for custom models
- Test models in visual playgrounds:
 - **Chat** (GPT-3.5-Turbo and later models)
 - **Completions** (GPT-3 and earlier models)
 - **DALL-E** (Image generations)
 - **Assistants** (Custom and Copilot-like experiences)

Azure OpenAI Studio

azure AI | Azure OpenAI Studio

⌵ ⚙️ ? 😊

azure OpenAI

ground

hat

ompletions

ALL-E

ssistants (Preview)

agement

eployments

odels

ata files

uotas

ontent filters (Preview)

Azure OpenAI Studio


[Privacy & cooki](#)

Welcome to Azure OpenAI service

Explore the generative AI models, craft unique prompts for your use cases, and fine-tune select models.


Get started

Text generation




Assistants playground
PREVIEW
Speed up development of GPT-powered AI Assistants with prebuilt conversation state management and customization tools.
[Try it now](#)

Text generation




Bring your own data
Ground your own data on advanced AI models to create conversational copilots that aid user comprehension, task completion, and decision-making.
[Try it now](#)

Text generation




Chat playground
Design a customized AI assistant using ChatGPT. Experiment with GPT-3.5-Turbo and GPT-4 models.
[Try it now](#)

Text generation



Completions playground
Experiment with completions models for use cases such as summarization, content generation, and classification.
[Try it now](#)

Image generation



DALL-E playground
PREVIEW
Generate unique images by writing descriptions in natural language.
[Try it now](#)

Types of generative AI model

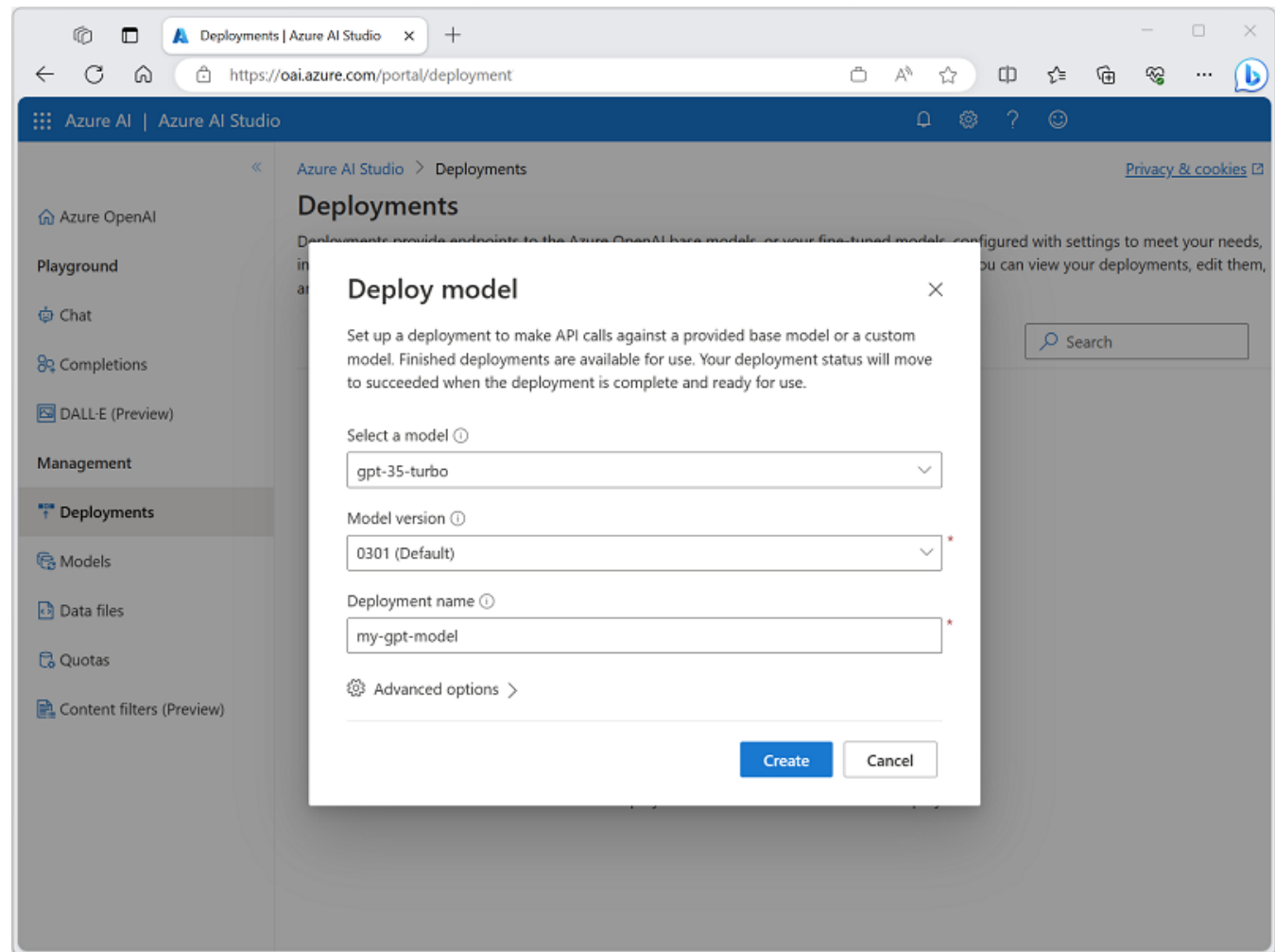
Model Family	Description
GPT-4	Newest, most capable chat-based models for language and code generation
GPT-3	Natural language and code-generation models
Embeddings	Models that use embeddings for specific tasks (similarity, text search, and code search)
DALL-E	Image-generation model (<i>preview, restricted regions</i>)

Deploying generative AI models

Deploy a model in Azure OpenAI Studio to use it

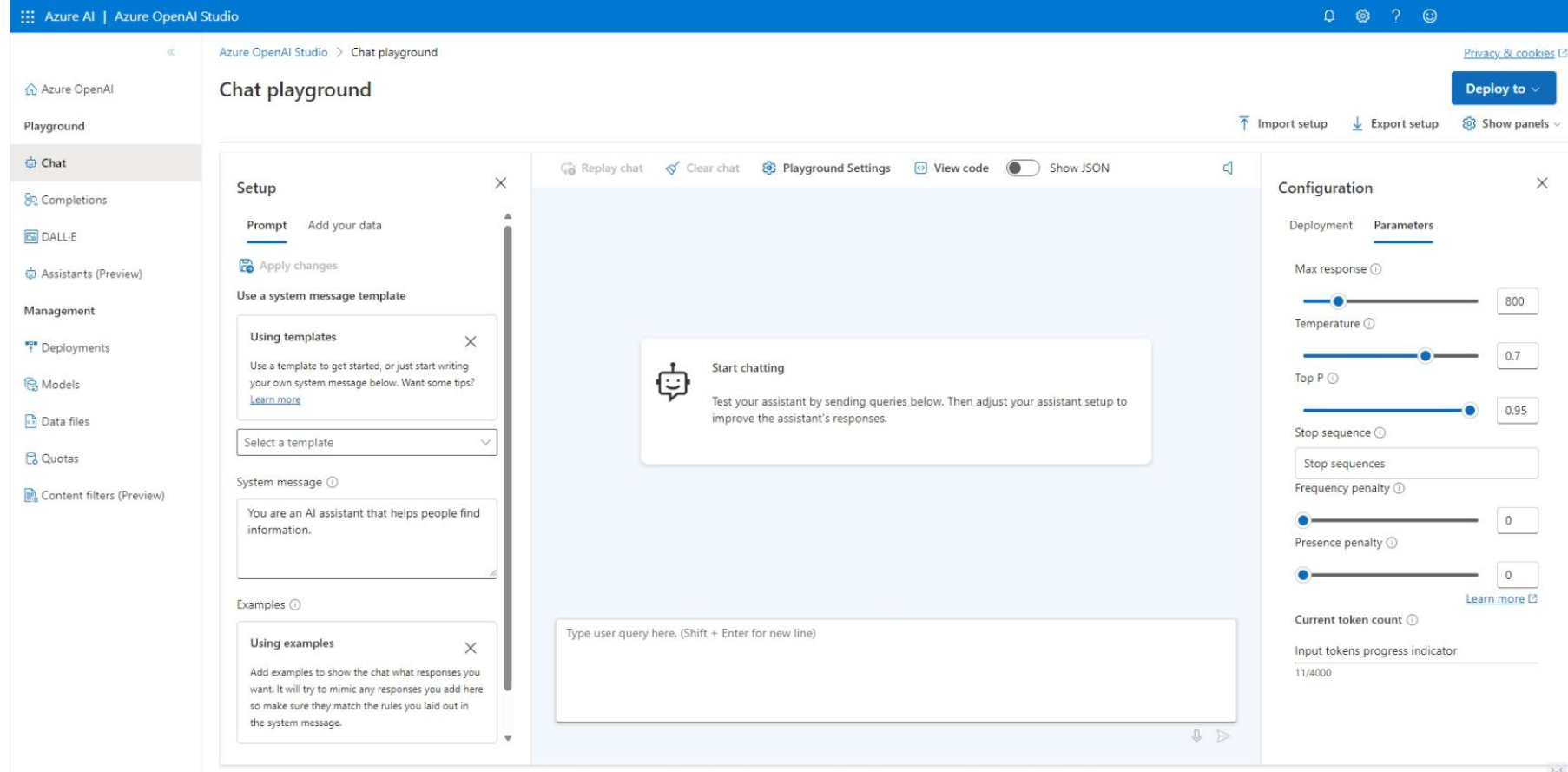
- You can deploy one or more instances of each available model
- The number of deployments depends on your quota, which you can see in the portal
- Alternatively, use the Azure CLI

Deploying generative AI models



Task	Prompt	Completion
Classifying content	Tweet: I enjoyed the training course. Sentiment:	Positive
Generating new content	Write a poem about databases	Databases, oh databases, You keep our information safe, From the small to the large, You store our data in a place.
Transformation/Translation	English: Hello French:	Bonjour
Summarization	Scotland is <i>[long description of Scotland...]</i> Summarize the previous text	Scotland is <i>[summarized description...]</i>
Continuation	One way to grow tomatoes is to	start with seeds...
Question answering	How many moons does Earth have?	Earth has one moon.
Chat	<i>Setup, followed by messages...</i>	<i>A sequence of relevant responses</i>

Prompts



Testing models in Azure OpenAI Studio playground

Azure AI | Azure OpenAI Studio

Azure OpenAI Studio > Chat playground

Chat playground

Deploy to

Import setup Export setup Show panels

Setup

Prompt Add your data

Apply changes

Use a system message template

Using templates

Use a template to get started, or just start writing your own system message below. Want some tips? [Learn more](#)

Select a template

System message

You are an AI assistant that helps people find information.

Examples

Using examples

Add examples to show the chat what responses you want. It will try to mimic any responses you add here so make sure they match the rules you laid out in the system message.

Replay chat Clear chat Playground Settings View code Show JSON

Start chatting

Test your assistant by sending queries below. Then adjust your assistant setup to improve the assistant's responses.

Type user query here. (Shift + Enter for new line)

Configuration

Deployment Parameters

Max response 800

Temperature 0.7

Top P 0.95

Stop sequence

Stop sequences

Frequency penalty 0

Presence penalty 0

Learn more

Current token count

Input tokens progress indicator

11/4000

Azure

Azure OpenAI library

- **OpenAI .NET API library**

The OpenAI .NET library provides convenient access to the OpenAI REST API from .NET applications.

It is generated from the OpenAPI specification in collaboration with Microsoft.

Azure OpenAI example

https://[REDACTED].openai.azure.com/

c#



```
1 // Note: The Azure OpenAI client library for .NET is in preview.
2 // Install the .NET library via NuGet: dotnet add package
  Azure.AI.OpenAI --version 1.0.0-beta.5
3 using Azure;
4
5 using Azure.AI.OpenAI;
6
7 OpenAIClient client = new OpenAIClient(
8     new Uri("https://[REDACTED].openai.azure.com/"),
9     new
AzureKeyCredential(Environment.GetEnvironmentVariable("AZURE_OPENAI_A
PI_KEY")));
10
11 // ### If streaming is selected
12 Response<StreamingChatCompletions> response = await
client.GetChatCompletionsStreamingAsync(
13     deploymentOrModelName: "[REDACTED]",
14     new ChatCompletionsOptions()
15     {
16         Messages =
17         {
18             new ChatMessage(ChatRole.System, @"You are an AI
assistant that helps people find information."),
19             new ChatMessage(ChatRole.User, @"hi"),
20             new ChatMessage(ChatRole.Assistant, @"Hello! How can
```


Azure OpenAI example

https://[REDACTED].openai.azure.com/

curl

```
1 curl
  "https://[REDACTED].openai.azure.com/openai/deployments/[REDACTED]
mplegpt35/chat/completions?api-version=2023-03-15-preview" \
2   -H "Content-Type: application/json" \
3   -H "api-key: YOUR_API_KEY" \
4   -d "{
5     \"messages\": [{\"role\": \"system\", \"content\": \"You are an AI
assistant that helps people find information.\"},
6     {\"role\": \"user\", \"content\": \"hi\"},
7     {\"role\": \"assistant\", \"content\": \"Hello! How can I assist you today?
8     \"}, {\"role\": \"user\", \"content\": \"what is ziggy corporation?\"},
9     {\"role\": \"assistant\", \"content\": \"Ziggy Corporation is a company
specializing in innovative AI solutions [doc2]. Unfortunately, I don't
10    find any information related to the specifics of the company. Is there
11    anything else I can help you with?\"}],
12    \"max_tokens\": 800,
    \"temperature\": 0,
    \"frequency_penalty\": 0,
    \"presence_penalty\": 0,
    \"top_p\": 1,
    \"stop\": null
  }"
```

Demo

Azure OpenAI

I am actively seeking new opportunities and exciting challenges.

If you would like to get in touch, please feel free to reach out through the following channels:

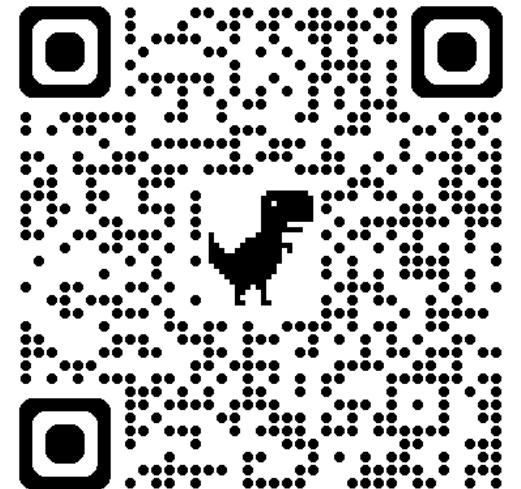
Email: beata@zalnet.pl

LinkedIn: <https://www.linkedin.com/in/beatazalewa/>

Blog: <https://zalnet.pl/blog/>

X: <https://x.com/beatazalewa>

GitHub: <https://github.com/beatazalewa/Conferences/>



Bibliography

The official .NET library for the OpenAI API

<https://github.com/openai/openai-dotnet>

Azure OpenAI .NET Samples

<https://github.com/Azure-Samples/openai-dotnet-samples>



Azure OpenAI for the ASP.NET Core developer

https://www.youtube.com/watch?v=-_ocp6vk2jeo