Microsoft

AI-050

Develop Generative AI Solutions with Azure OpenAI Service

Module 1

Get started with Azure OpenAI Service

Agenda

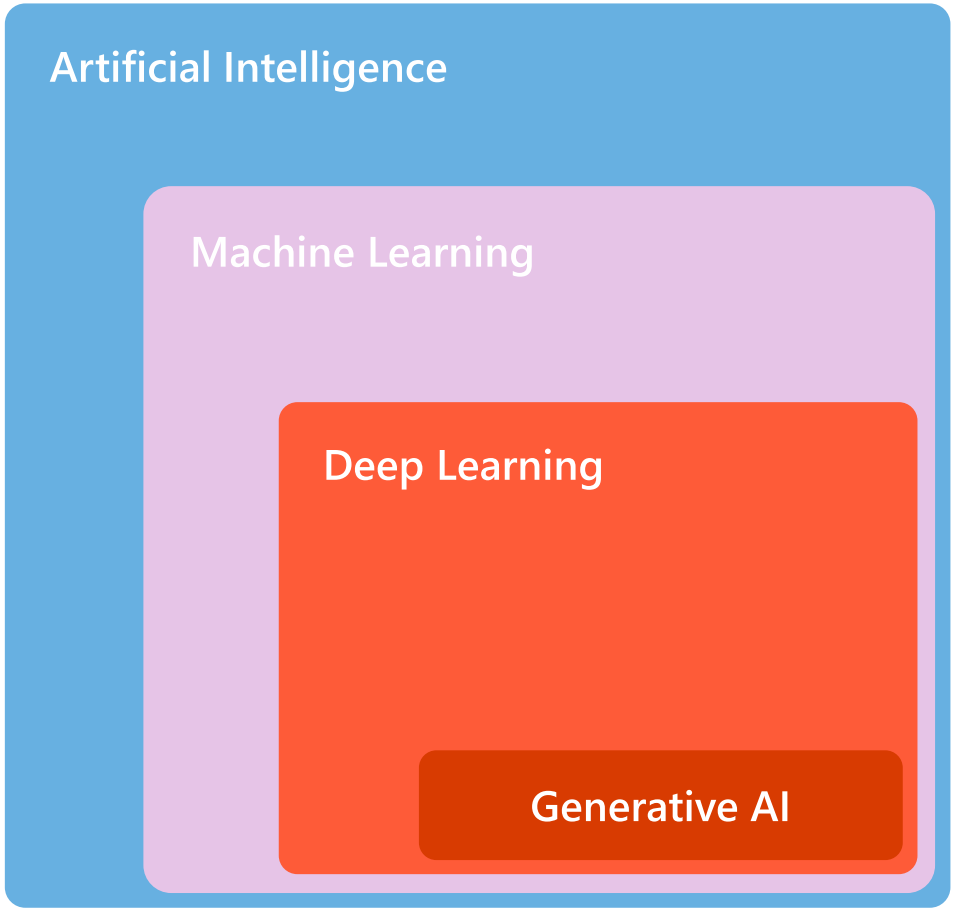
- What is generative AI?
- Provision a resource
- Deploying a model
- Using Azure OpenAI studio

What is generative AI?

LLM

SLM

GPT 3
3.5
4
4o
4o mini



1950s

Artificial Intelligence
the field of computer science that seeks to create intelligent machines that can replicate or exceed human intelligence

1990s

Machine Learning
subset of AI that enables machines to learn from existing data and improve upon that data to make decisions or predictions

2010s

Deep Learning
a machine learning technique in which layers of neural networks are used to process data and make decisions

2021

Generative AI
Create new written, visual, and auditory content given prompts or existing data.

?

Provision an Azure OpenAI resource in Azure

Deploy a model in Azure OpenAI Studio to use it

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

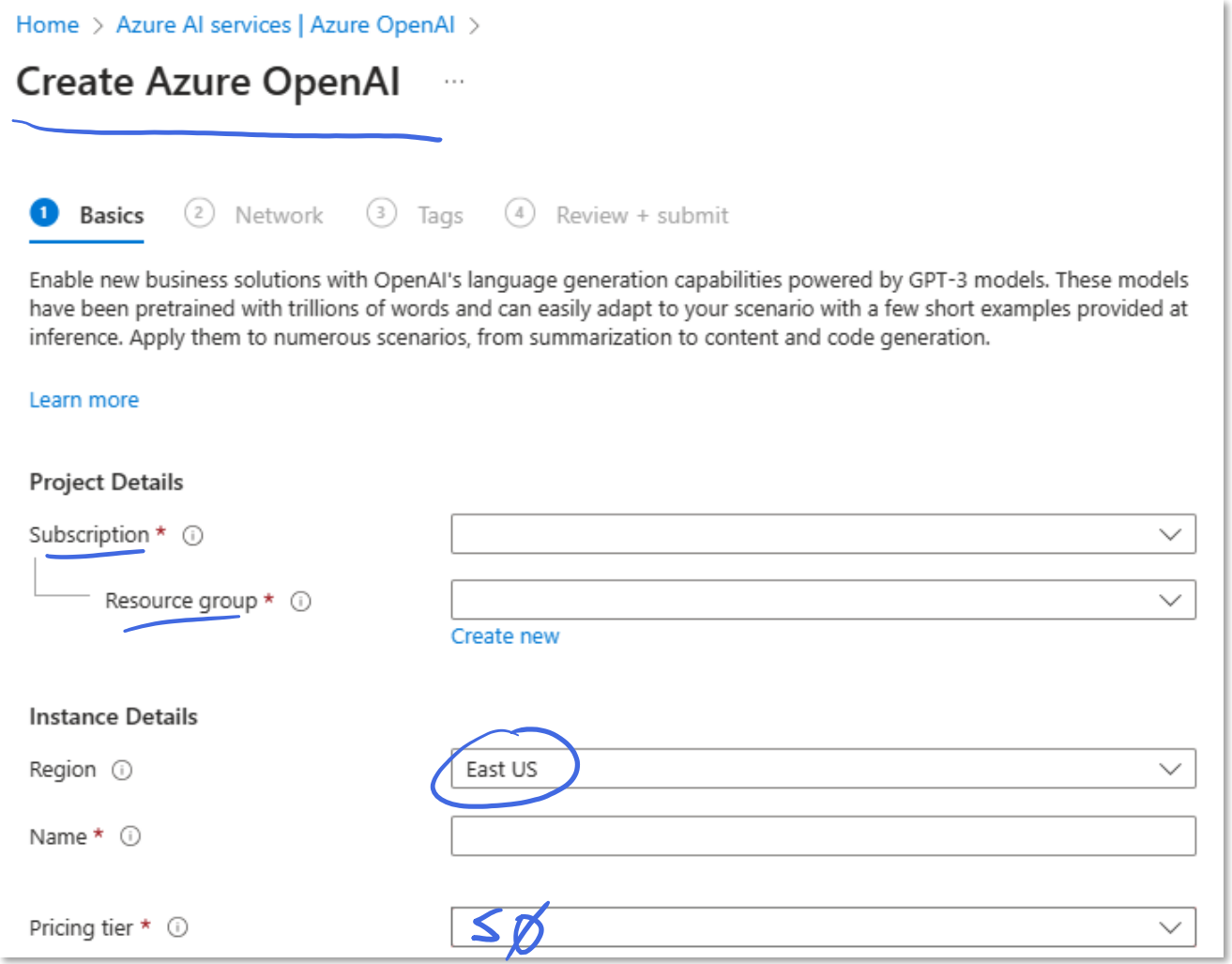
Alternatively, use the Azure CLI

```
az cognitiveservices account create \
-n MyOpenAIResource \
-g MyResourceGroup \
-l eastus \
--kind OpenAI \
--sku s0 \
--subscription subscriptionID
```

Bash

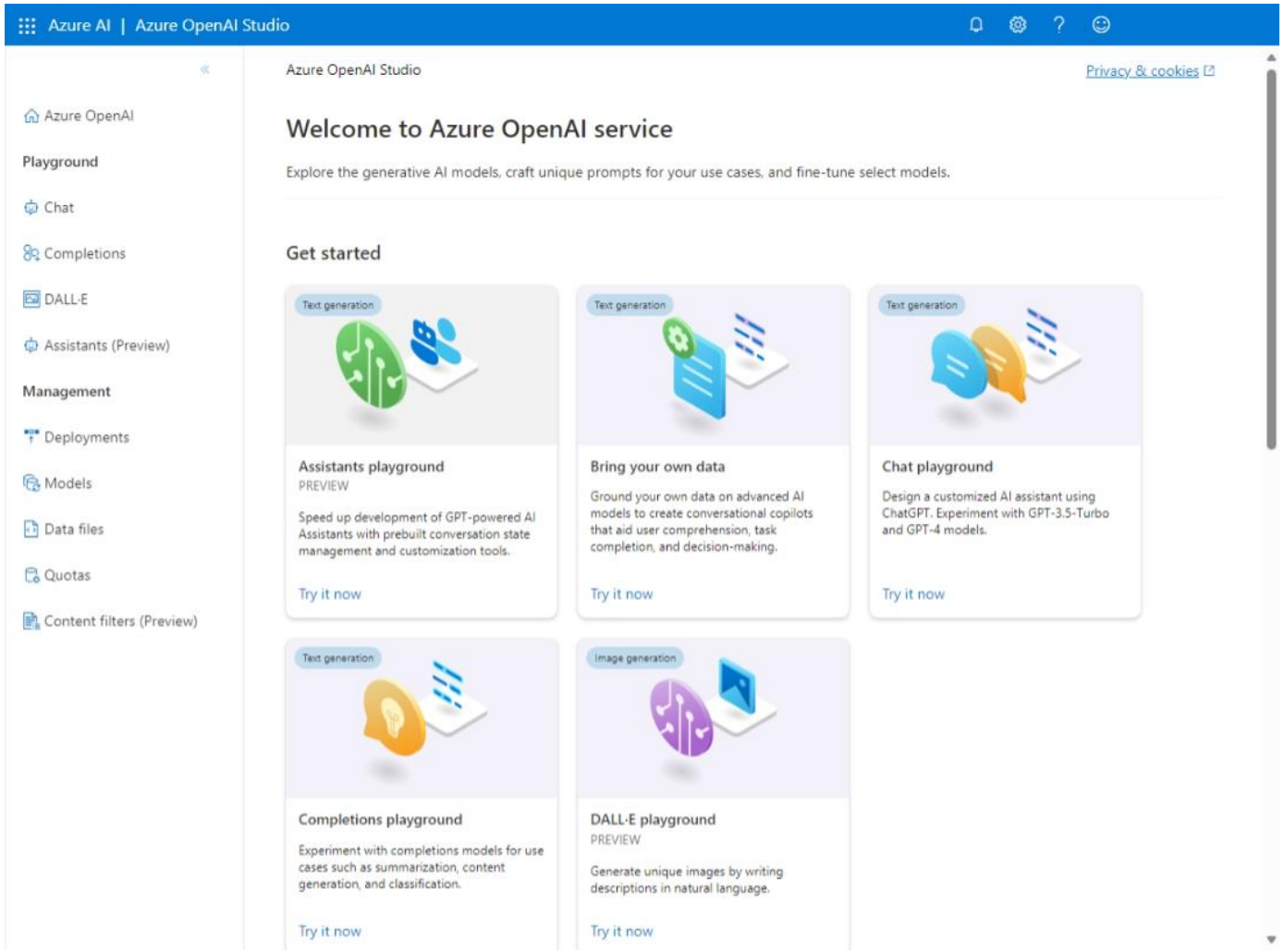
Azure PowerShell

PS .



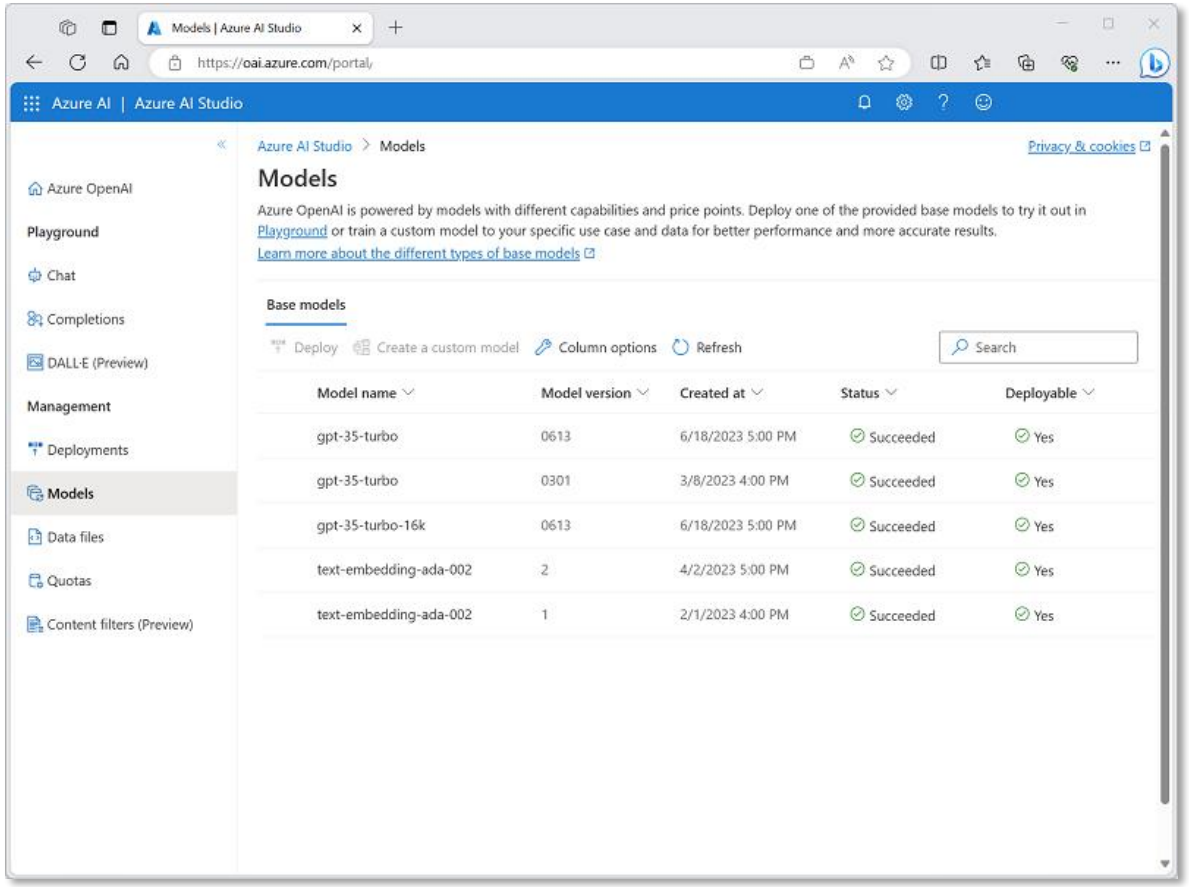
Azure OpenAI Studio

- 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)



Types of generative AI model

Model Family	Description
GPT-4	Newest, most capable chat-based models for language and code generation
GPT-3.5	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

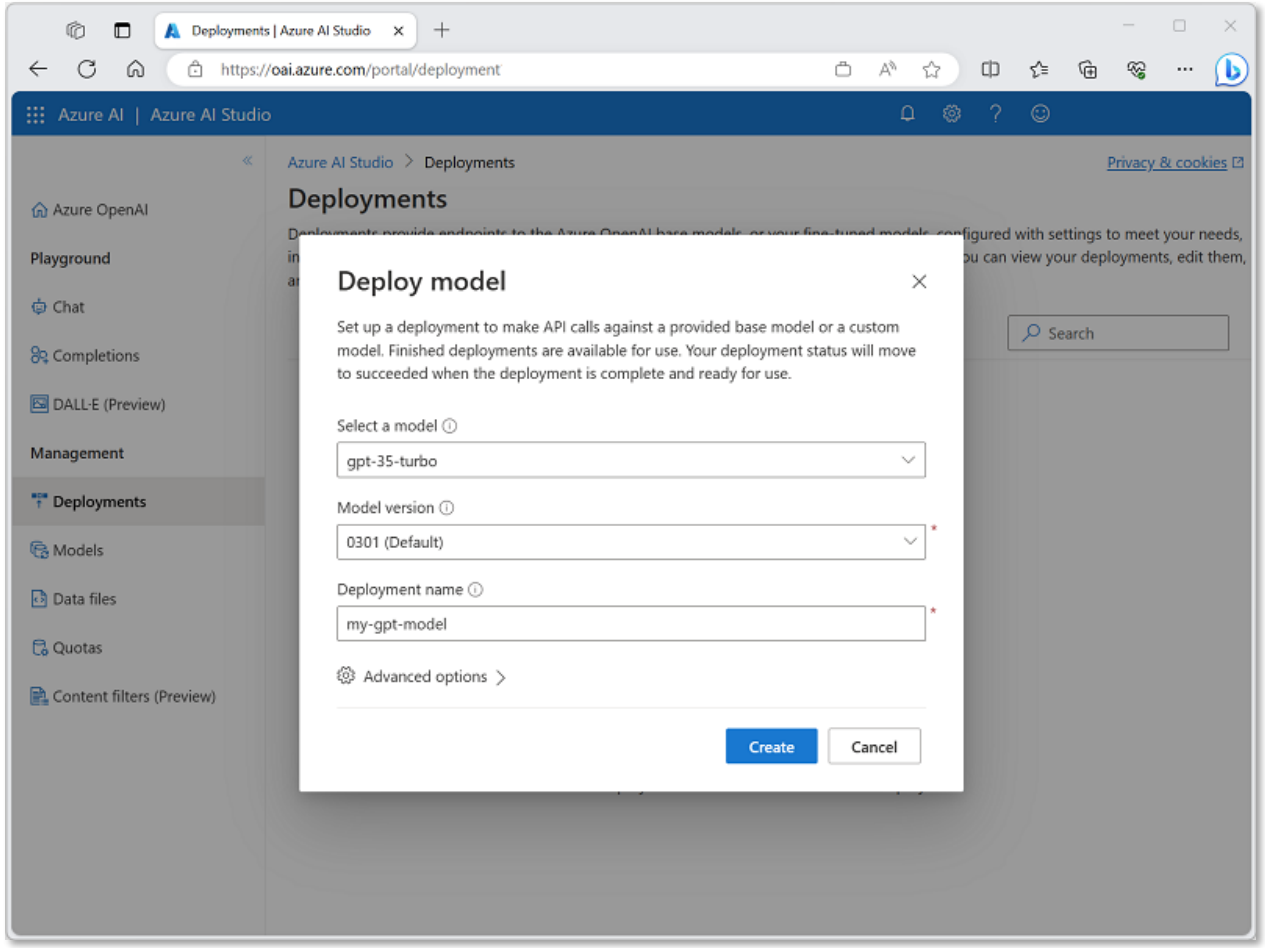


Deploying generative AI models

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

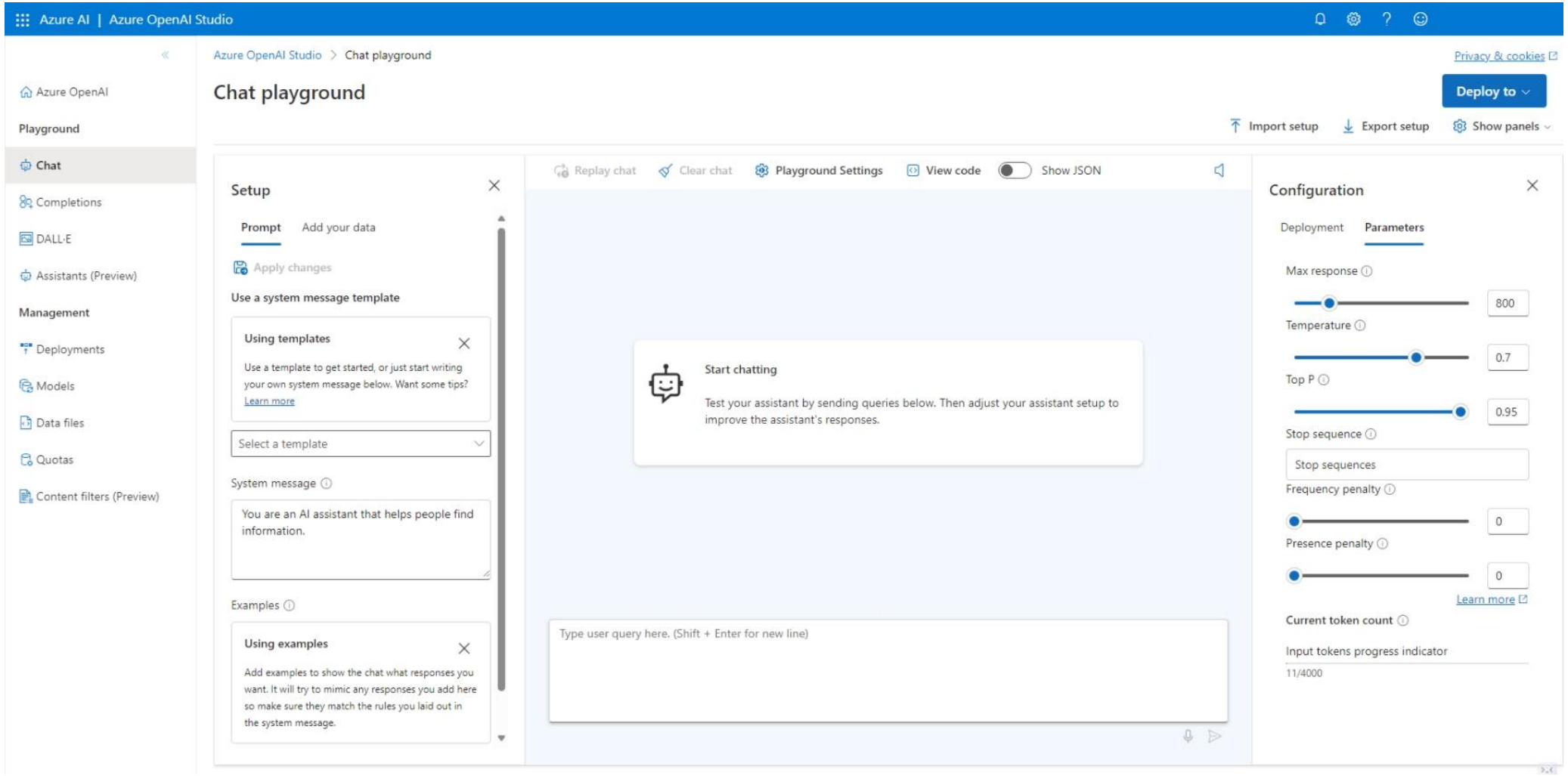
```
az cognitiveservices account deployment create \
    -g myResourceGroupName \
    -n MyOpenAIResource \
    --deployment-name my-gpt-model \
    --model-name gpt-35-turbo \
    --model-version "0301"  \
    --model-format OpenAI \
    --scale-settings-scale-type "Standard"
```



Using prompts to get completions from models

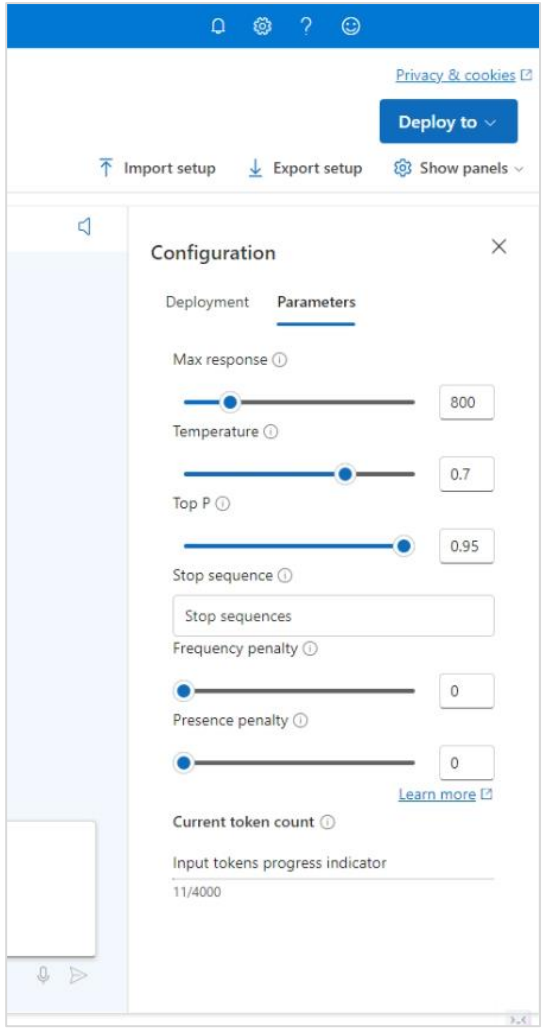
Task	Prompt	Completion
Classifying content	Tweet: I enjoyed the training course. Sentiment:	Positive
Generating new content	Write a poem about databases	Databases, oh databases, You keep our information safe, From the small to the large, You store our data in a place.
Transformation/Translation	English: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

Testing models in Azure OpenAI Studio playground



Model parameters and tokens in Azure OpenAI

- Control model behavior through parameters in studio pane or API call
- Parameters include:
  - **Max Response:** Limit on the number of tokens the response can include
  - **Temperature:** Controls randomness, with a higher number producing a less deterministic response
  - **Top P:** Controls randomness similarly but in a different way than temperature. If adjusting these two values, try one or the other but not both
  - **Frequency penalty:** New tokens are penalized for their existing frequency in the text so far, reducing the likelihood to repeat the same line
  - **Presence penalty:** New tokens are penalized whether they appear in the text so far, increasing likelihood of talking about new topics
- **Tokens** are text measurements, roughly four English characters long. Tokens are used for measuring model capacity, quotas, and prompt or response length



Exercise: Get started with Azure OpenAI Service

Use the hosted lab environment if provided, or view the lab instructions at the link below:

https://aka.ms/mslearn-get-started-azure-openai

Knowledge check

1 **What do you need in order to test a generative AI model using the Azure OpenAI Service Studio?**

- ❑ A deployed model name and Azure command line interface
- ❑ An Azure OpenAI resource and an Azure Cognitive Services resource
- ☑ An Azure OpenAI resource, a deployed model, and a playground

2 **Which parameter could you adjust to change the randomness or creativeness of completions**

- ☑ Temperature
- ❑ Frequency penalty
- ❑ Stop sequence

3 **Which Azure OpenAI Studio playground is able to support conversational interactions that consist of a sequence of messages?**

- ❑ Completions
- ☑ Chat
- ❑ Bot

Learning Recap

In this module, we:

Introduced generative AI and how it relates to AI and machine learning

Provisioned Azure OpenAI resources

Deployed OpenAI models

Generated completions in Azure OpenAI studio

Resources

Get started with Azure OpenAI Service

https://aka.ms/mslearn-start-azure-openai

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Thank you.