



# Intelligent Apps with ChatGPT

## Hands on Lab

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## Introduction

With the latest release of ChatGPT and GPT4, the technology sector and the world are seeing unprecedented levels of excitement. It is one of the most advanced and innovative developments in artificial intelligence, with the potential to transform a wide range of industries and change the way we interact with technology in our daily lives.

Publishing to the Azure Marketplace, you will need marketing information for the listing, technical configuration and any customizations to your app. In this Hands-on Lab, you can accelerate your onboarding with the prebuilt Management portal, which includes configurations, a customer's landing page, webhooks, and automated deployments of resources to Azure.

In this Hands-on Lab, we will be creating an intelligent web application by integrating with Azure OpenAI service and publishing the solution onto Azure Marketplace. By completing this lab, you will gain knowledge to create an application that leverages Azure OpenAI service to create your own AI chatbot. This is a sample solution which should not be used for production or large-scale deployments. Then, learn what it takes to deploy the application as a SaaS solution in the Azure Marketplace.

### OpenAI and ChatGPT

OpenAI is an artificial intelligence research laboratory consisting of some of the world's leading experts in machine learning and artificial intelligence. Founded in 2015, OpenAI's goal is to advance artificial intelligence in a way that benefits humanity while putting up guardrails for this technology to be used ethically and responsibly.

ChatGPT is a large language model that uses the GPT-3.5 architecture to generate human-like responses to text input. ChatGPT has been trained in a vast corpus of text and can understand natural language and respond to a wide variety of questions and prompts. In 2020, OpenAI and Microsoft announced a partnership to advance artificial intelligence and develop new AI technologies.

One of the key areas of collaboration between OpenAI and Microsoft is the development of AI tools and technologies that can be used to improve the productivity and efficiency of businesses and organizations. This includes the integration of OpenAI's language processing technology into Microsoft's cloud computing platform, Azure, as well as the development of new AI-powered products and services. Take advantage of large-scale, generative AI models with deep understandings of language and code to enable new reasoning and comprehension capabilities for building innovative applications on Azure. Apply these coding and language models to a variety of use cases, such as writing assistance, code generation, and reasoning over data.

During the Hands-On Lab, we will be using selected GPT model to produce higher quality writing and handle complex queries.

### Technical Requirements

To deploy your intelligent app to Azure, there are some technical requirements that you will need to follow. We are using Bicep scripts to deploy all resources required for this application:

1. [Azure App Service](#) This also can be configured to run on App Service free tier for development.
2. [Azure Cosmos DB](#) account with database and container at 400 RU/s. This can optionally be configured to run on the Cosmos DB free tier.
3. [Azure Open AI Service](#) You will create a model which will be used by this application.

## Pricing

OpenAI models charge by tokens. Refer [here](#) for pricing. Tokens are pieces of words. Before the API processes the prompts, the input is broken down into tokens. These tokens are not cut up exactly where the words start or end - tokens can include trailing spaces and even sub-words. Here are some helpful rules of thumb for understanding tokens in terms of lengths:

1 token = ± 4 chars in English

1 token = ± ¾ words

100 tokens = ± 75 words

The deployment of this demonstration will incur some charges, specifically for using the OpenAI model. CosmosDB may be free depending on your selection and subscription restrictions, while App Service is using the F1 free tier ([App Service Pricing Plan](#)). This should incur a cost of less than \$5USD but do make sure to turn off your App Service when not in use and [clean up the resources](#) after this workshop.

## Marketplace Offers

As defined in the [official documentation](#):

“THE MICROSOFT COMMERCIAL MARKETPLACE IS A CATALOG OF SOLUTIONS FROM OUR INDEPENDENT SOFTWARE VENDOR (ISV) PARTNERS. AS AN ISV MEMBER OF THE MICROSOFT CLOUD PARTNER PROGRAM, YOU CAN CREATE, PUBLISH, AND MANAGE YOUR COMMERCIAL MARKETPLACE OFFERS IN PARTNER CENTER. YOUR SOLUTIONS ARE LISTED TOGETHER WITH OUR MICROSOFT SOLUTIONS, CONNECTING YOU TO BUSINESSES, ORGANIZATIONS, AND GOVERNMENT AGENCIES AROUND THE WORLD.

THE COMMERCIAL MARKETPLACE IS AVAILABLE IN MORE THAN 100 COUNTRIES AND REGIONS, AND WE MANAGE TAX PAYMENT IN MANY OF THEM. IF YOU SELL TO ESTABLISHED MICROSOFT CUSTOMERS, THEY HAVE THE ADDED BENEFIT OF INCLUDING COMMERCIAL MARKETPLACE PURCHASES IN THEIR EXISTING MICROSOFT PURCHASE AGREEMENTS TO RECEIVE A CONSOLIDATED INVOICE FROM MICROSOFT.”

## Business Requirements

To deploy your solution as a SaaS offer in the Marketplace, you will need to fill up information in the Azure Marketplace offer management panel. This includes but is not limited to Offer title, Offer Description and many more. For a complete list of information, you will need to include in the marketplace offer before launching your offer in the marketplace, please click [Information Requirement for SaaS Offer](#).

## Technical Requirements

To deploy your solution as a SaaS offer in the Marketplace there are some technical requirements that you will need to follow,

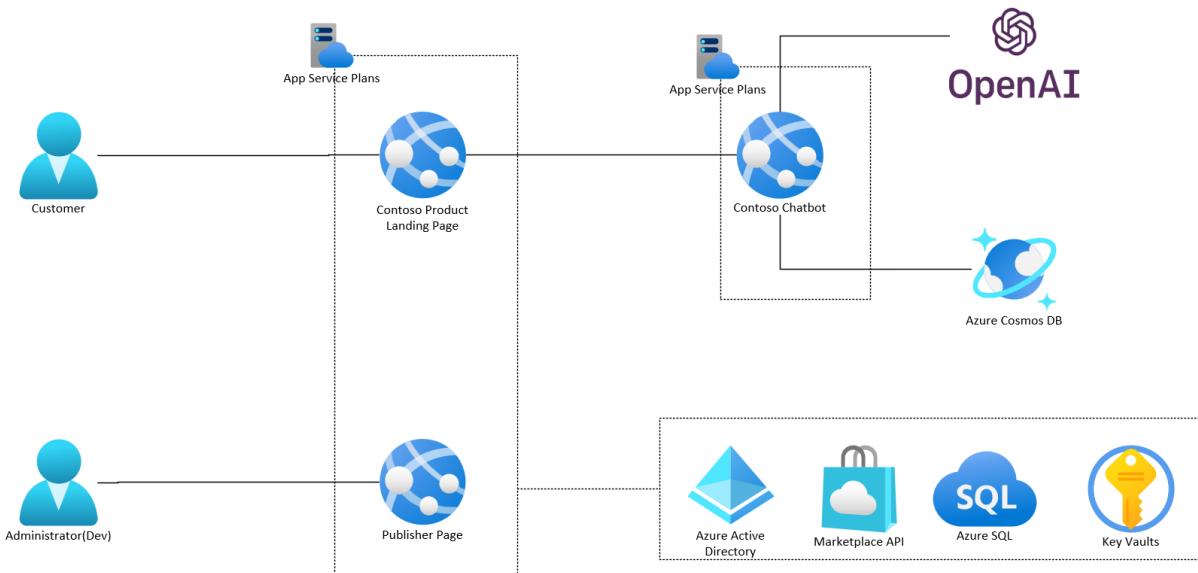
1. You must use the [SaaS Fulfillment APIs](#) to integrate with Azure Marketplace and Microsoft AppSource. You must expose a service that can interact with the SaaS subscription to create, update, and delete a user account and service plan. Critical API changes must be supported within 24 hours. Non-critical API changes will be released periodically. Diagrams and detailed explanations describing the usage of the collected fields are available in documentation for the [APIs](#).
2. If you choose Microsoft License Management Service, you must integrate with Graph API to verify customer eligibility so customers can manage their licenses on Microsoft Admin Center. For details on how to integrate, see [Integrate your SaaS offer with Graph API for License Management](#)
3. You must create at least one plan for your offer. Your plan is priced based on the pricing model you select before publishing: *flat rate* or *per-user*. More details about [plans](#) are provided later in this article.
4. The customer can cancel your offer at any time.

For more information, please refer to [Plan a SaaS offer for the Microsoft commercial marketplace - Marketplace publisher | Microsoft Learn](#)

# Architecture

## High Level Architecture

The architecture for the solution that will be deployed in this guide is as follows,

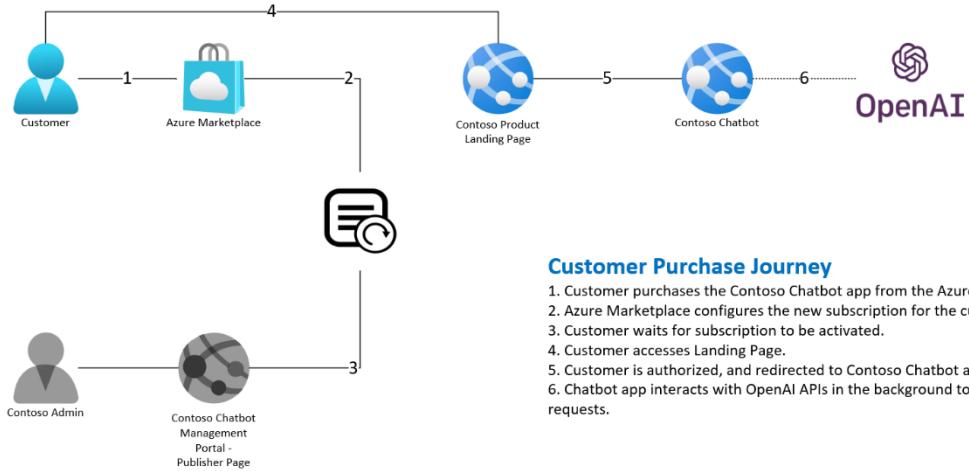


In this guide you will create a Contoso Product Landing Page for your customers, which will authenticate the users and redirect authorized ones to the Contoso Chatbot, your SaaS solution. You will also deploy the Contoso Chatbot Management portal for your IT administrators to manage customers' subscriptions, also shown in the diagram as the Publisher Page.

To support these scenarios, the web apps on hosted on Azure App Service Plans will be integrated with

1. Azure AD, to authenticate your customers and solution administrators.
2. Marketplace APIs (eg. Fulfillment API), to handle the interaction with the Azure Marketplace.
3. Azure SQL DB, to store and manage the data of the subscriptions.
4. Azure Key Vault, to secure the secrets used by your Azure environment.
5. Azure OpenAI Service, to request and respond to AI responses from natural language GPT models.
6. Azure Cosmos DB, to store the chat history and app's data used in the intelligent app.

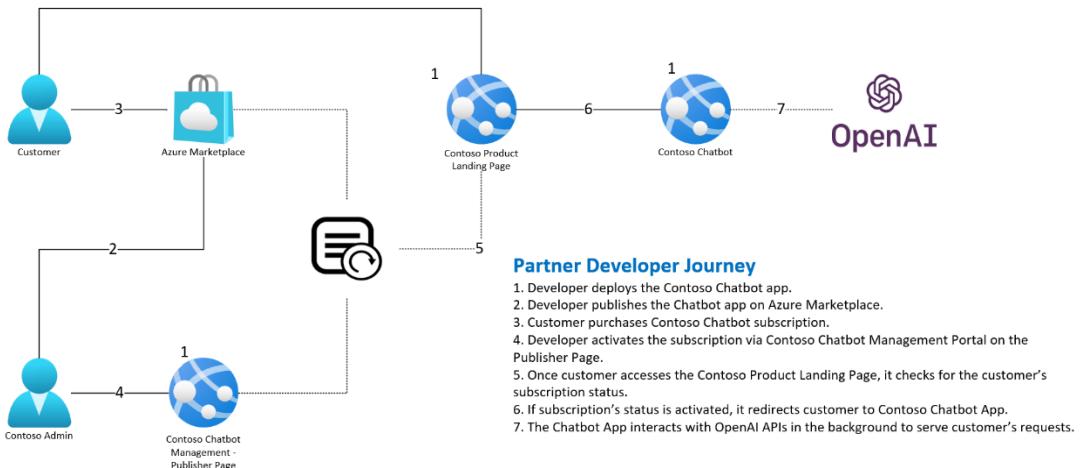
## Customer Purchase Journey



### Customer Purchase Journey

1. Customer purchases the Contoso Chatbot app from the Azure Marketplace.
2. Azure Marketplace configures the new subscription for the customer.
3. Customer waits for subscription to be activated.
4. Customer accesses Landing Page.
5. Customer is authorized, and redirected to Contoso Chatbot app.
6. Chatbot app interacts with OpenAI APIs in the background to serve customer's requests.

## Partner Developer Journey

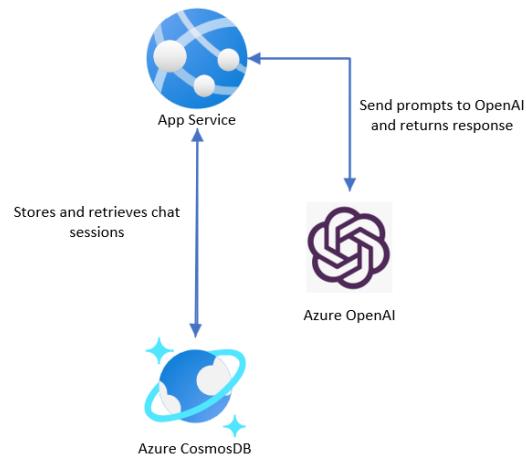


### Partner Developer Journey

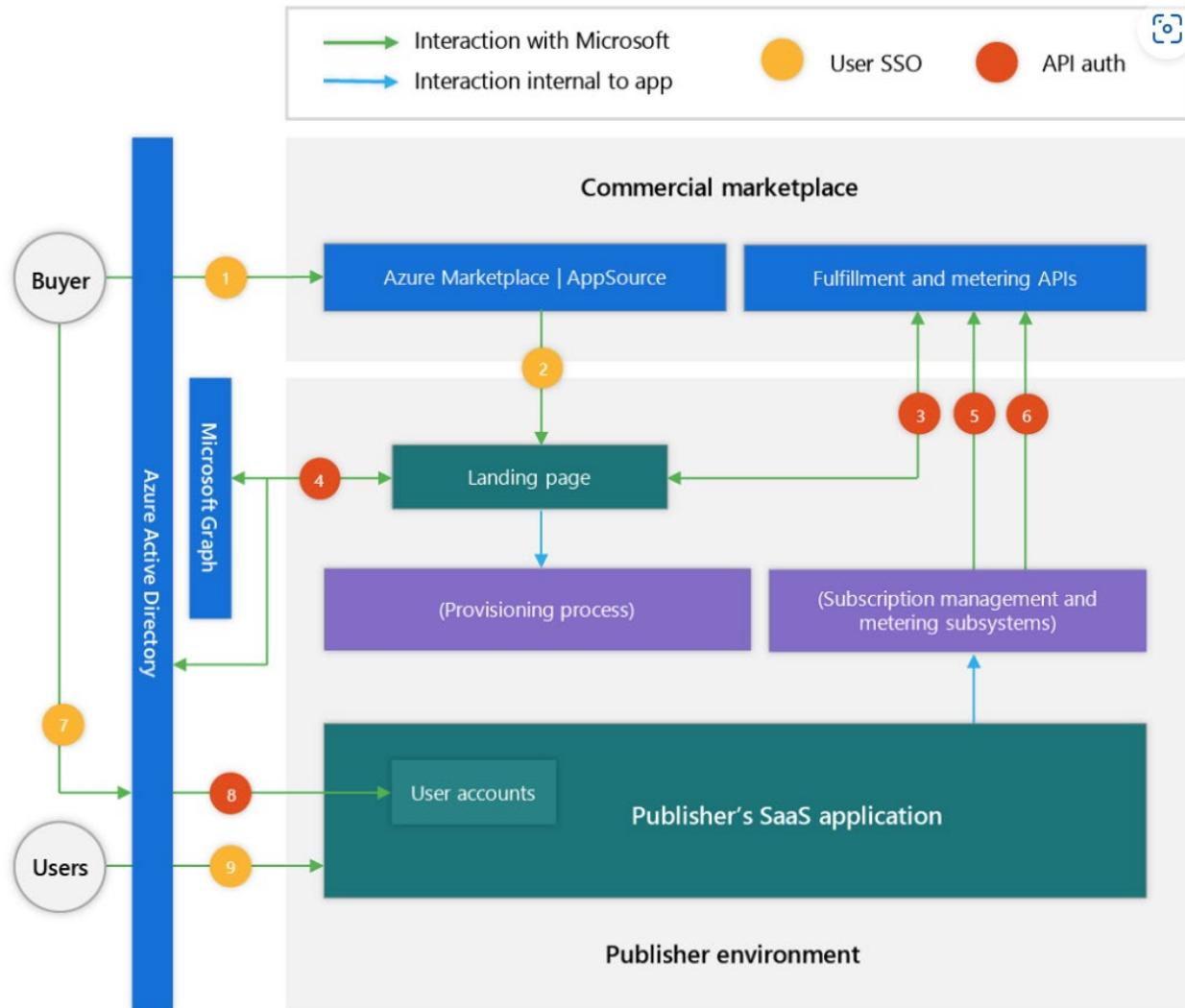
1. Developer deploys the Contoso Chatbot app.
2. Developer publishes the Chatbot app on Azure Marketplace.
3. Customer purchases Contoso Chatbot subscription.
4. Developer activates the subscription via Contoso Chatbot Management Portal on the Publisher Page.
5. Once customer accesses the Contoso Product Landing Page, it checks for the customer's subscription status.
6. If subscription's status is activated, it redirects customer to Contoso Chatbot App.
7. The Chatbot App interacts with OpenAI APIs in the background to serve customer's requests.

## Intelligent App Architecture

The architecture for the Intelligent App (Contoso Chatbot) will be as follows:



The chatbot user interface will be hosted on Azure App Service running a [Blazor front end](#). The underlying Azure OpenAI Service is authenticated through the service's URI and API Key. When the user initiates a chat, a prompt is sent to the OpenAI service, and a response is returned from the AI service. All messages are then stored and persisted in Azure CosmosDB.



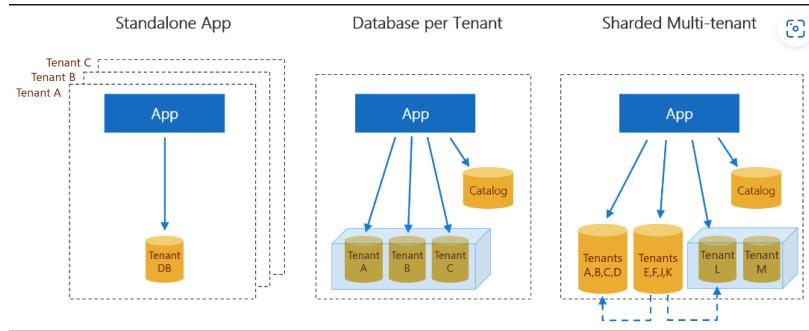
For more information, you can refer to here on [Azure AD and SaaS Overview](#). It is recommended to secure your application according to your application requirements and leverage on Azure AD Single Sign On (SSO).

## SaaS Architecture

In the Software as a Service (SaaS) model, your company does not sell licenses for your software. Instead, each customer makes rental payments to your company, thus each customer is a tenant of your company. In return for paying rent, each tenant receives access to your SaaS application components, and has its data stored in the SaaS system. The term tenancy model refers to how tenants' stored data is organized:

- **Single tenancy**, each database stores data from only one tenant.
- **Multi-tenancy**, each database stores data from multiple separate tenants (with mechanisms to protect data privacy).
- **Hybrid tenancy** models are also available.

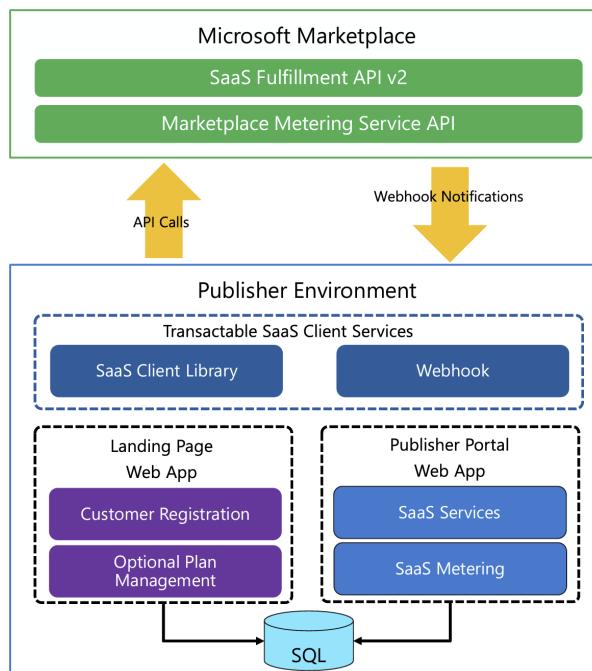
Careful consideration and planning need to be discussed to decide on a model that suits your needs.



Authentication for the application can be integrated into Azure AD, with restrictions and Single Sign On (SSO) enabled to allow easy access for users in your organization.

## Marketplace SaaS Architecture

Here is the end architecture that we will have once we fully deploy our solution as a SaaS Offer in the marketplace.



From the image above, we will deploy the Contoso Landing Page Web App and the Contoso Chatbot Management Publisher Portal Web App in the Azure App Services, utilize the metering API in the Publisher portal and interact with the marketplace API via the webhook to manage customers' subscription of the SaaS solution, such as approve subscription, cancel subscription, & etc.

# Hands On Lab

## Prerequisite

Before you start, you will need to

1. Request Access to [Azure OpenAI](#).
2. Azure subscription and permission to deploy Azure resources.
3. Developer access in Partner Center.

For ease of following this guide, the lab will be split into 2 parts:

1. Deploying an intelligent application.
2. Publishing to Azure Marketplace.

## Deploying the Intelligent App

### Request for Access to Azure OpenAI

Request access to OpenAI can be performed via this [link](#).

1. Fill in the information.
2. Click Submit.
3. You should receive an email about your application's status.

### Deploying Chatbot App Resources

In this section, you will utilize Bicep scripts to deploy the Contoso Chatbot.

1. Click here to [Deploy to Azure](#).
2. Here you can fill in the information about your resources. Note that you are deploying 4 services:
  - a. **Azure App Service** to host your web site and interact with users.
  - b. **Azure App Service Plan** for your App service deployed.
  - c. **Azure OpenAI Service** to power your chatbot.
  - d. **Azure Cosmos DB** to store chat history.

**Custom deployment** ...

Deploy from a custom template

**Template**

Customized template 8 resources

[Edit template](#) [Edit parameters](#) [Visualize](#)

**Project details**

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription \*

Resource group \*

[Create new](#)

**Instance details**

Region \*

Location

Chat App Name \*

Open Ai Region

Open Ai Sku

Open Ai Model Deployment Name

App Services Sku Name

App Services Sku Capacity

Cosmos Free Tier

Cosmos Container Throughput

- Choose the subscription and resource group you would like to deploy into.

**Project details**

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription \*

Resource group \*

[Create new](#)

- For ease of management during this workshop, create a new resource group and provide a name. For example, "rg-contoso-workshop-demo-openai."

Resource group \*

[Create new](#)

**Instance details**

Region \*

Location

Chat App Name \*

Open Ai Region

A resource group is a container that holds related resources for an Azure solution.

Name \*

[OK](#)

[Cancel](#)

5. Select your region and use the default value for your location:

Instance details

Region *	Southeast Asia
Location	[resourceGroup().location]

6. Input your Chat App Name. Make sure it is **unique and contains only lowercase, without any space and hyphens**. Your App Service, CosmosDB and OpenAI resources will use this name with the specific service appended at the end. For example, “<chat app name>-cosmos”.

Location	[resourceGroup().location]
Chat App Name *	
Open Ai Region	East US
Open Ai Sku	S0
Open AI Model Deployment Name	

7. Select your OpenAI region and leave the OpenAI SKU as the default value. There is only one option for SKU. You can refer [here](#) for pricing by token.

Open Ai Region	South Central US
Open Ai Sku	S0

8. Input a name for your OpenAI Model deployment name. This is referring to the GPT model that is created within your OpenAI Service and will be used to answer all queries from the users. You can create multiple models in your Azure OpenAI service later.

Open Ai Sku	S0
Open AI Model Deployment Name	
App Services Sku Name	F1
App Services Sku Capacity	1

9. Leave your App Service SKU Name and Capacity as is and select free tier.

App Services Sku Name	F1
App Services Sku Capacity	1

10. Select the free tier for CosmosDB, if available, by selecting “true”. Your subscription may not allow you to do so, hence the false option is compulsory. The CosmosDB container throughput is selected to 400 units. If you require more processing power this can be increased.

Cosmos Free Tier	true
Cosmos Container Throughput	400

11. Click on “Review + Create.”

Cosmos Free Tier true  
Cosmos Container Throughput 400

Review + create < Previous Next : Review + create >

12. (Optional) If you see the validation error below when clicking “Review + Create”, please go back to Basic tab and select a different OpenAI region. For example, “South Central US”

Home >  
**Custom deployment** ...  
Deploy from a custom template

Validation failed. View error details →

Basics    **Review + create**  
Summary  
Customized template 8 resources  
Terms  
Azure Marketplace Terms | Azure Marketplace

Errors

Summary Raw Error

ERROR DETAILS

Insufficient quota. Cannot create/update/move resource 'saas-workshop-cosmos-openai'. (Code: InsufficientQuota)

WAS THIS HELPFUL? ⤵

Troubleshooting Options  
New Support Request

13. Click “Create” if validation passed.

Validation Passed

charge or bill my current payment method · same billing frequency as my Azure subscription · deployment involves 3rd party offerings, Microsoft · deployment with the publisher of that offer

Microsoft assumes no responsibility for any third-party products or services. See the [Azure Marketplace](#).

Deploying this template will create one or more resources. You are responsible for reviewing the applicable terms as part of this template. Prices and associated costs in the [Marketplace](#); both are subject to change at any time.

Neither subscription credits nor monetary compensation for purchases are included in the template. Purchases are billed separately.

If any Microsoft products are included in a template, they are licensed by Microsoft and not by any third party.

Basics

- Subscription
- Resource group
- Region
- Location
- Chat App Name
- Open AI Region
- Open AI Sku
- Open AI Model Deployment Name
- App Services Sku Name
- App Services Sku Capacity
- Cosmos Free Tier
- Cosmos Container Throughput

[Create](#) < Previous Next >

14. You will be redirected to the deployment screen and your resources are being configured. Please wait for it to be completed.

The screenshot shows the Microsoft Azure Deployment Overview page for a deployment named "Microsoft.Template-20230403155013". The deployment status is shown as "Deployment is in progress". Deployment details include a deployment name, start time (4/3/2023, 3:50:25 PM), subscription (ME-MngEnv...), correlation ID (fbdeba4a-e3f4-41), and resource group (intelligent...). The "Deployment details" section shows a table with columns: Resource, Type, and Status. The table displays the message "No results.".

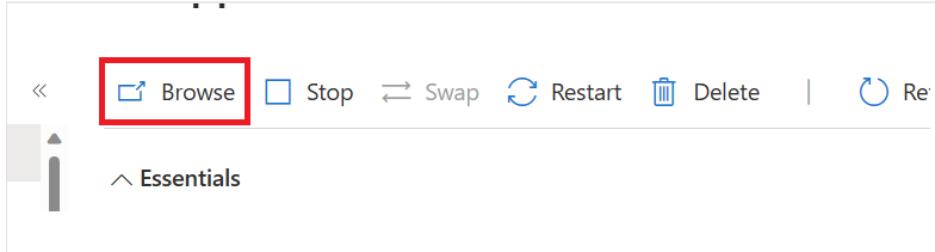
15. Once you see this page, that means your deployment is done. Now you have an Azure OpenAI chatbot app running within your very own subscription!

## Explore your Chatbot

After everything is configured, now is a good time to test a conversation with your chatbot and explore what has been deployed.

1. Go to your [Azure Portal](#).
2. In the search bar, type the new resource group name.
3. Look at the resources deployed in your resource group.
4. Click on your deployed App Service. Do take note of your chatbot app service name.  

URL	<<Copy Paste your URL here for later Reference>>
-----	--
5. Click on “Browse”.



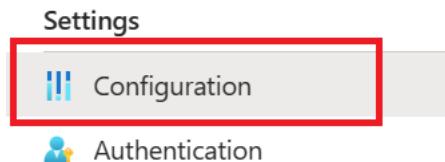
6. This will direct you to your web application. Note the URL of the site as we will configure it later for the marketplace offer setup. This will be your public IP address.  

URL	<<Copy Paste your URL here for later Reference>>
-----	--
7. Now you can explore the application.
8. Click on “New Chat” to start a new conversation and enter any queries you have.
9. Have fun conversing with your new AI personal assistant! Try fine-tuning your prompts to explore the changes in response.

## Check your OpenAI keys

Congratulations on deploying your Contoso Chatbot app integrated with Azure OpenAI Service. To retrieve your OpenAI key follow the steps below:

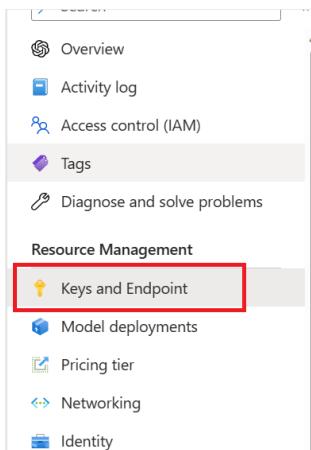
1. Go to your Azure Portal.
2. Navigate to your App Service to see how the keys are used by the chatbot.
3. Search for your chatbot app service.
4. Click on “Configuration”.



5. You can view your OpenAI keys and URI that are already configured here.

OpenAiDeployment	Hidden value. Click to show value	App Service
OpenAiKey	Hidden value. Click to show value	App Service
OpenAiMaxTokens	Hidden value. Click to show value	App Service
OpenAiUri	Hidden value. Click to show value	App Service

6. These configuration settings are important to allow your chatbot to connect with Azure OpenAI service to access the AI capabilities.
7. These values are auto populated during the deployment and are also included during the deployment in your source code for the chatbot for ease of configuration.
8. Search for your Azure OpenAI service deployed resource.
9. Click on “Keys and Endpoints”.



10. Here you can retrieve your values for your keys and endpoint. Just click “Show Keys” to view.
11. You can explore the source code on Github or integrated IDE. The file \Services\OpenAiService.cs includes the code integration to Azure OpenAI Service.

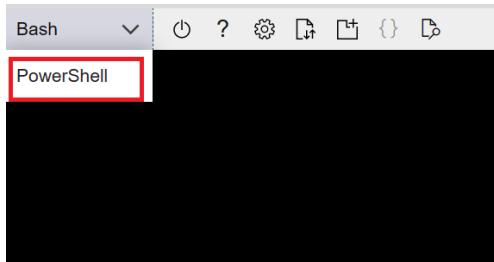
## Testing the Connection to Azure OpenAI Service API

Note the OpenAI key and URI from the steps in the [previous section](#).

1. Go to your [Azure Portal](#).
2. Open the Cloud shell from within Azure. It is located at the top of your navigation bar.



3. Select “PowerShell” from the dropdown menu.



4. Replace fields for "Your\_Resource\_Name", "Your\_Deployment\_Name" and "Your\_API\_Key" below. Deployment name refers to the OpenAI service model deployment name from Step 8 of [Deploying Azure Chatbot Resources](#).

**Command:**

```
curl  
https://[YOUR_RESOURCE_NAME].openai.azure.com/openai/deployments/[YOUR_MODEL_D  
EPLOYMENT_NAME]/completions?api-version=2022-12-01 -H "Content-Type:  
application/json" -H "api-key: [YOUR_API_KEY]" -d '{ "prompt": "Once upon a time",  
"max_tokens": 5}'
```

**Sample to test:**

```
curl https://contoso-demo-chatapp-01-  
openai.openai.azure.com/openai/deployments/contoso-model-01/completions?api-  
version=2022-12-01 -H "Content-Type: application/json" -H "api-key:  
11885210a3ec4f0c8c5ec906e8cedcd1" -d '{ "prompt": "Once upon a time", "max_tokens":  
5}'
```

5. Follow the steps in [Check your App Service OpenAI keys](#) and copy the key to replace in the command.
6. Enter the command.
7. If your Azure OpenAI service is successfully deployed, the returned JSON will have a response sentence completing your prompt. For longer response texts, increase the max token value.

## Securing your Chatbot

Your application is currently publicly available and anyone with the link can access it. To ensure security and restrict access for your application, you can validate and authorize users with sign-ins. This is also a recommended step in creating a SaaS application which allows only paying users, to subscribe and access the app. To update an application to include user authentication and authorization, you must be the owner of the application under Enterprise apps, or be assigned one of Global administrator, Application administrator, or Cloud application administrator directory roles.

1. Go to your [Azure Portal](#).
2. Navigate to your deployed App Service.
3. Click on "Authentication" in the left blade.

## Settings

Configuration

 Authentication

 Application Insights

 Identity

 Backups

 Custom domains

 Certificates

4. Click on “Add identity Provider”

 Add identity provider

5. Select “Microsoft”

## Add an identity provider ...

Basics Permissions

Choose an identity provider from the dropdown below to start.

Identity provider \*

Select identity provider

▼



Sign in Microsoft and Azure AD identities and call Microsoft APIs



Sign in Apple users and call Apple APIs



Sign in Facebook users and call Facebook APIs



Sign in GitHub users and call GitHub APIs



Sign in Google users and call Google APIs



Sign in Twitter users and call Twitter APIs

OpenID Connect

Sign in users with OpenID Connect

6. Fill in your required settings:

## Add an identity provider

Basics Permissions

Identity provider \*

Microsoft



### App registration

An app registration associates your identity provider with your app. Enter the app registration information here, or go to your provider to create a new one. [Learn more](#)

App registration type \*

- Create new app registration
- Pick an existing app registration in this directory
- Provide the details of an existing app registration

Name \* ⓘ

contoso-demo-chatapp-01-webapp

Supported account types \*

- Current tenant - Single tenant
- Any Azure AD directory - Multi-tenant
- Any Azure AD directory & personal Microsoft accounts
- Personal Microsoft accounts only

[Help me choose...](#)

### App Service authentication settings

Requiring authentication ensures all users of your app will need to authenticate. If you allow unauthenticated requests, you'll need your own code for specific authentication requirements. [Learn more](#)

Restrict access \*

- Require authentication
- Allow unauthenticated access

Unauthenticated requests \*

- HTTP 302 Found redirect: recommended for websites
- HTTP 401 Unauthorized: recommended for APIs
- HTTP 403 Forbidden
- HTTP 404 Not found

Redirect to

Microsoft



Token store ⓘ



[Add](#)

[< Previous](#)

[Next: Permissions >](#)

- 
7. Select “Create new app registration”, fill in the name as required.  
[your provider to create a new one. Learn more](#)

App registration type \*

Create new app registration

- Pick an existing app registration in this directory
- Provide the details of an existing app registration

Name \* ⓘ

- 
8. Choose “Any Azure AD Directory & personal Microsoft accounts” to restrict access to only your organization.

Supported account types \*

Current tenant - Single tenant

Any Azure AD directory - Multi-tenant

Any Azure AD directory & personal Microsoft accounts

Personal Microsoft accounts only

[Help me choose...](#)

9. Choose “Require authentication”.

Restrict access \*

Require authentication

Allow unauthenticated access

10. For Unauthenticated requests select “HTTP 302 Found Redirect: recommended for websites”.

Unauthenticated requests \*

HTTP 302 Found redirect: recommended for websites

HTTP 401 Unauthorized: recommended for APIs

HTTP 403 Forbidden

HTTP 404 Not found

11. Click on “Add” at the bottom.

**Add**

12. Now your application is secured by Azure AD.

## Publishing to Marketplace

## Deploying Azure Resources

In this section you will utilize the script from the Contoso Chatbot Management and run it via Azure Portal Cloud Shell. Doing so will deploy several resources such as:

1. Contoso Product Landing Page on Azure App Service
2. Contoso Chatbot Management - Publisher Page on Azure App Service
3. Azure Key Vault
4. Azure SQL Server and DB
5. Azure AAD App Registration

Please follow this step-in sequence to deploy the mentioned services above:

1. Go to your [Azure Portal](#).
2. Open Azure Cloud Shell to access Azure CLI.

The screenshot shows the Microsoft Azure portal interface. At the top, there's a search bar with the placeholder "Search resources, services, and docs (G+/-)". To the right of the search bar is a user icon (a person symbol) enclosed in a red box. Below the search bar, the title "Microsoft Azu..." is partially visible. The main content area is titled "Azure services". It features several service icons: "Create a resource" (plus sign), "Resource groups" (cube with brackets), "Private endpoints" (green dot with brackets), "App Services" (blue globe), "SQL elastic pools" (blue diamond), "Azure Active Directory" (blue triangle), and "Storage accounts" (green bar chart). At the bottom left, there's a "Virtual machines" icon with a blue monitor and a blue arrow pointing right labeled "More services".

3. (Optional) if you were asked, choose **PowerShell**, then choose **Create Storage**



Welcome to Azure Cloud Shell

Select Bash or PowerShell. You can change shells any time via the environment selector in the Cloud Shell toolbar. The most recently used environment will be the default for your next session.

Bash PowerShell

4. Ensure that the chosen mode is using PowerShell and give it a minute until you see the following line **PS /home/[xxxx]>**



The screenshot shows the Azure Cloud Shell interface with a PowerShell session. The title bar says "PowerShell". The command history includes:

- Requesting : Cloud Shell.Succeeded.
- Connecting terminal...
- Welcome to Azure Cloud Shell
- Type "az" to use Azure CLI
- Type "help" to learn about Cloud Shell

MOTD: Azure Cloud Shell now includes Predictive IntelliSense! Learn more: <https://aka.ms/CloudShell/IntelliSense>

VERBOSE: Authenticating to Azure ...  
VERBOSE: Building your Azure drive ...

PS /home/system> [ ]

- dotnet tool install --global dotnet-ef

```
PowerShell ✓ | ⌂ ? ⚙️ 📁 ⚡ {} 🎯
Requesting a Cloud Shell.Succeeded.
Connecting terminal...

Welcome to Azure Cloud Shell

Type "az" to use Azure CLI
Type "help" to learn about Cloud Shell

MOTD: Azure Cloud Shell now includes Predictive IntelliSense! Learn more: https://aka.ms/CloudShell/IntelliSense

VERBOSE: Authenticating to Azure ...
VERBOSE: Building your Azure drive ...
PS /home/alexander> dotnet tool install --global dotnet-ef
```

6. After a few minutes, you can continue once you see this line.

```
PowerShell | ⚡ ? 🌐 🔍 { } 🔍

-----
Installed an ASP.NET Core HTTPS development certificate.
To trust the certificate run 'dotnet dev-certs https --trust' (Windows and macOS only).
Learn about HTTPS: https://aka.ms/dotnet-https

-----
Write your first app: https://aka.ms/dotnet-hello-world
Find out what's new: https://aka.ms/dotnet-whats-new
Explore documentation: https://aka.ms/dotnet-docs
Report issues and find source on GitHub: https://github.com/dotnet/core
Use 'dotnet --help' to see available commands or visit: https://aka.ms/dotnet-cli

-----
You can invoke the tool using the following command: dotnet-ef
Tool 'dotnet-ef' (version '7.0.4') was successfully installed.
```

Or this line if you have already installed dotnet previously.

```
PowerShell | ⚡ ? 🌐 🔍 { } 🔍

e to '1' or 'true' using your favorite shell.

Read more about .NET CLI Tools telemetry: https://aka.ms/dotnet-cli-telemetry

-----
Installed an ASP.NET Core HTTPS development certificate.
To trust the certificate run 'dotnet dev-certs https --trust' (Windows and macOS only).
Learn about HTTPS: https://aka.ms/dotnet-https

-----
Write your first app: https://aka.ms/dotnet-hello-world
Find out what's new: https://aka.ms/dotnet-whats-new
Explore documentation: https://aka.ms/dotnet-docs
Report issues and find source on GitHub: https://github.com/dotnet/core
Use 'dotnet --help' to see available commands or visit: https://aka.ms/dotnet-cli

-----
Tool 'dotnet-ef' is already installed.
```

7. Clone the repo to download the script and it's dependency by running this command in the CloudShell `git clone https://github.com/apacgps/intelligent-apps.git -b main --depth 1`
8. Enter inside the cloned repository by running this command in the CloudShell `cd './intelligent-apps/Hands-On Lab/src/contoso-chatbot-management/deployment/'`
9. Time to run the script by running this command in the CloudShell

```
.\Deploy.ps1 `  
-WebAppNamePrefix "contoso-[3 Digit Number]-[Your name]" `  
-ResourceGroupForDeployment "contoso-ia-rg" `  
-PublisherAdminUsers "[YOUR AZURE PORTAL EMAIL ADDRESS]" `  
-Location "East US"
```

For example

```
. \Deploy.ps1
  -WebAppNamePrefix "contoso-123-scott"
  -ResourceGroupForDeployment "contoso-ia-rg"
  -PublisherAdminUsers "contoso@admin.com"
  -Location "East US"
```

10. Press enter 2 times to deploy on the same tenant and subscription where you login, or else please provide your tenant id and subscription id of your choice.

```
PS /home/system/Commercial-Marketplace-SaaS-Accelerator/deployment> .\Deploy.ps1
>> -WebAppNamePrefix "saas-demo"
>> -ResourceGroupForDeployment "saas-workshop-rg"
>> -PublisherAdminUsers "admin@contoso.com"
>> -Location "East US"
Starting SaaS Accelerator Deployment...
```

<b>Id</b>	<b>Name</b>	<b>Category Domains</b>
--	89a469e4-38f0-43d1-aba5-4d0c043d66d8	Contoso Home MngEnvMCAP578959.onmicrosoft.com

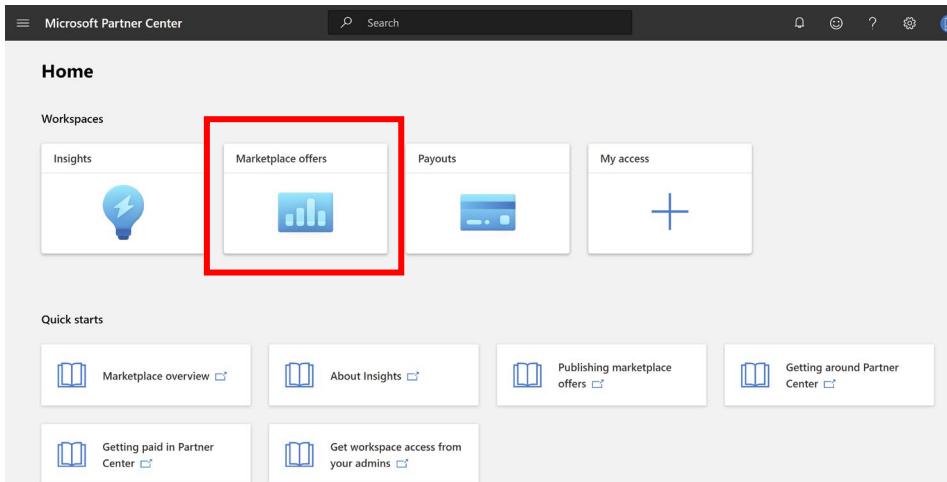
Type your TenantID or press Enter to accept your current one

11. It will now deploy all the listed resources earlier in this section and so give it a couple of minutes and while waiting for this to finish, don't close this page and please continue to the next section - [Setting up the Partner Center](#)

## Setting up the Partner Center

In this step we will put all the information regarding the SaaS solution such as the name, description, screenshot, video, icon etc.

1. Login to your partner center using Developer account (or Higher), [Partner Center Dashboard Link](#)
2. Go to the “Marketplace Offer”



3. Click on “+ New Offer” then “Software as a Service.”

The screenshot shows the Microsoft Partner Center interface. In the top left, it says "Microsoft Partner Center". Below that, "Home > Marketplace offers". On the left, there's a sidebar with "Overview" selected and "Private offers". The main area is titled "Marketplace offers | Overview". It has a note about transacting capabilities for BC add-on offers. A dropdown menu is open, showing "New offer" and "Software as a Service" (which is highlighted with a red box). Other options in the dropdown include "Azure Application", "Azure Virtual Machine", "Azure Container", "Consulting service", "Dynamics 365 apps on Dataverse and Power Apps", and "Dynamics 365 Operations Apps".

4. Enter the following information then click **create**.

- a. Offer ID: contoso-chatbot
- b. Offer alias: Contoso Chatbot

The screenshot shows a modal dialog titled "New Software as a Service". It contains fields for "Offer ID\*" (contoso-chatbot) and "Offer alias\*" (Contoso Chatbot). Below the alias field, a note says "This name won't be used in the marketplace listing and is solely for reference within Partner Center." At the bottom are "Create" and "Cancel" buttons, with "Create" highlighted by a red box.

5. On The left pane go to **Properties**, Click on “+ Categories.”

- a. Primary Category: AI + Machine Learning
- b. Subcategory: Cognitive Services

6. Scroll down and for Legal section tick on the “Use the Standard Contract for Microsoft’s commercial marketplace.” Click **Accept** when prompted.

#### Legal i

Use the Standard Contract for Microsoft’s commercial marketplace? i

7. Click on save draft.
8. On the left pane, go to **Offer Listing** and fill in the following:  
 \*You can download the asset from [this link](#)
- a. Search results summary: Contoso Chatbot
  - b. Description: As a large language model trained by Azure OpenAI, this chatbot has been designed to understand natural language and generate human-like responses. With access to a large database of information, capable of answering a wide range of questions, carrying out complex language tasks, and even generating creative content.
  - c. Getting started instructions: Click the configure account button after the subscription is created.
  - d. Privacy policy link: <https://privacy.microsoft.com/en-US/privacystatement>
  - e. Support contact:
    - i. Name: CSA Contoso Admin
    - ii. Email: [cse\\_admin@contoso.com](mailto:cse_admin@contoso.com)
    - iii. Phone: 010101010
    - iv. Support Link: <https://contoso.com>
  - f. Engineering contact:
    - i. Name: CSA Contoso Engineer
    - ii. Email: [cse\\_engineer@contoso.com](mailto:cse_engineer@contoso.com)
    - iii. Phone: 010101010
  - g. Supporting Documents: Upload any pdf or use the **MarketingChatbot.pdf** from the assets attachment along with this guide\*.
  - h. Document Name: Marketing Contoso Chatbot
  - i. Logo: upload Contoso-Logo-216x216.png from the assets attachment along with this guide\*

- j. Screenshot: upload Screenshots-1280x720.png from the assets attachment along with this guide\*.
  - k. Click on the add image caption under the newly uploaded image: screenshot of app.
9. Click on save draft.
10. On the left pane, go to **Preview Audience** and fill the email with your azure portal login email, this is to enable the specific user to evaluate the solution even before the Contoso Chatbot Go Live

Microsoft Partner Center

Search

Home > Marketplace offers > Contoso Chatbot

Offer overview

Offer setup

Properties

Offer listing

**Preview audience**

Technical configuration

Plan overview

Co-sell with Microsoft

Resell through CSPs

**Contoso Chatbot | Preview Audience**

Save draft Compare Review and publish

Complete and ready for publish

When you publish or update an offer, we will create a preview version accessible to only the audience that you specify here. This audience will be able to see and verify the details of your offer before it goes live. Enter either AAD or MSA email addresses below to include people in your preview audience. Learn more about [configuring preview audience](#) and how to [test your offer in preview](#).

Azure Active Directory or Microsoft Account email address*	Description
contoso@microsoft.com	

Remove

11. Click on save draft.
12. On the left pane, go to **Plan Overview**, then click on **+ Create new plan**.

Microsoft Partner Center

Search

Home > Marketplace offers > Contoso Chatbot

Offer overview

Offer setup

Properties

Offer listing

Preview audience

Technical configuration

**Plan overview**

Co-sell with Microsoft

Resell through CSPs

History

**Contoso Chatbot | Plan overview**

+ Create new plan Edit display rank

Offers sold through Microsoft need to have at least one plan. Click 'Create new plan' to get started.

13. Input the following:
- a. Plan ID: gold-plan-id
  - b. Plan name: Gold Plan

New plan  
Define unique plans for SaaS Accelerator

Plan ID\* ⓘ  
gold-plan-id 38

Use only lowercase, alphanumeric characters, dashes or underscores. ID cannot end with "-preview" and cannot be modified after selecting Create.

Plan name\* ⓘ  
Gold Plan 191

**Create** **Cancel**

14. On the plan description add then click **Save draft**:

This plan will include an unlimited number of chat sessions and access to our Chatbot premium support plan, to assist your business.

Home > Marketplace offers > Contoso Chatbot > Plan overview > Gold Plan

Plan listing | Gold Plan | Plan listing Save draft Compare Review and publish

Complete and ready for publish

Describe the plan as you would like it to appear in the marketplace. [Learn more about configuring plan listing](#).

Plan name\*  
Gold Plan

Plan description\*  
**This plan will include all of our capabilities with unlimited number of chat and access to our Chatbot that has learn from millions of document and Journal to give you the right answer every time.**

**Save draft** **Review and publish**

15. On the left pane, go to the **Pricing and Availability** can click on **edit market**.

**Pricing**

With the new multi-year SaaS capability, your customers now purchase 2-year and 3-year plans with one-time, monthly, and yearly payment options. [Learn more](#)

You can now create Private Offers that support time bound private pricing with customized terms. These capabilities are not supported in private plans. [Learn more](#)

**Pricing model**  
Prices input in USD are converted to market-specific currencies using current exchange rates when saved. You can also use price export and import to review and set market specific prices. The pricing model cannot be changed once the offer is published. In addition, all plans for the same offer must share the same pricing model. [Learn more](#)

Flat rate  
 Per User

16. Click on Select All and Save.

**Edit markets**

Note: \* Australia is a Microsoft Managed Country for sales through all customer purchase scenarios except the Enterprise Agreement customer purchase scenario.

Search   
 Select all    Select only Microsoft Tax Remitted    Unselect all

<input checked="" type="checkbox"/> Afghanistan	<input checked="" type="checkbox"/> Albania	<input checked="" type="checkbox"/> Algeria
<input checked="" type="checkbox"/> Andorra	<input checked="" type="checkbox"/> Angola	<input checked="" type="checkbox"/> Argentina
<input checked="" type="checkbox"/> Armenia ⓘ	<input checked="" type="checkbox"/> Australia ⓘ	<input checked="" type="checkbox"/> Austria ⓘ
<input checked="" type="checkbox"/> Azerbaijan	<input checked="" type="checkbox"/> Bahrain	<input checked="" type="checkbox"/> Bangladesh
<input checked="" type="checkbox"/> Barbados	<input checked="" type="checkbox"/> Belarus ⓘ	<input checked="" type="checkbox"/> Belgium ⓘ
<input checked="" type="checkbox"/> Belize	<input checked="" type="checkbox"/> Bermuda	<input checked="" type="checkbox"/> Bolivia

Save    Cancel

17. Scroll down and for the pricing model enter the following:

- Flat Rate
- Billing term: 1-Month
- Price per payment 0

**Pricing model**

Prices input in USD are converted to market-specific currencies using current exchange rates when saved. You can also use price export and import to review and set market specific prices. The pricing model cannot be changed once the offer is published. In addition, all plans for the same offer must share the same pricing model. [Learn more](#)

Flat rate

Per User

**Billing term\*** ⓘ

1-month

**Payment option\***

One-time

**Price per payment\*** ⓘ

d

USD

+ Add billing term and payment option

**18. Click Save Draft.**

**19. On the left pane, go to Resell Through CSP can click on No Partner in the CSP Program**

**20. Click Save Draft, then click on Review and Publish**

The screenshot shows the Microsoft Partner Center interface for creating a marketplace offer. The left sidebar has a 'Resell through CSPs' section selected. The main area displays the offer details for 'Contoso Chatbot | Resell through CSPs'. It includes a note about expanding reach through partners and a section for selecting resell partners. The 'No partners in the CSP program' option is selected. At the bottom, there are 'Save draft' and 'Review and publish' buttons, with the 'Review and publish' button being highlighted by a red box.

**21. All the page details should have a Complete status with green checkmark except for technical configuration.**

Page	Details	Last Modified (UTC)	Status
Offer setup	Selling through Microsoft No Test Drive No CRM system connected	4/11/23	Complete ✓
Properties	Category: AI + Machine Learning, Cognitive Services	4/11/23	Complete ✓
Offer Listing	Offer name: Contoso Chatbot	4/11/23	Complete ✓
Preview audience	Preview audience configured.	4/11/23	Complete ✓
Technical configuration			
Plan overview			
Co-sell with Microsoft			
Resell through CSPs			
History			
Technical Configuration	Landing Page URL: Connection Webhook:	4/11/23	Incomplete ⓘ
Plan overview	1 Plan(s)	4/11/23	Complete ✓
Gold Plan	Plan name: Gold Plan 141 of 141 markets selected. Pricing model: Flat rate Audience: Public	4/11/23	Complete ✓
Resell through CSPs	Any partner in the CSP program	4/11/23	Complete ✓

22. You are done configuring the required information Click Save Draft and proceed to the next section.

### Setting Up Contoso Chatbot App URL

Have your Contoso Chatbot App URL on hand. This will be the URL from the chatbot deployed in [Explore your Chatbot Step 6](#).

1. Go to your customer portal by opening Azure Portal>search “contoso-ia-rg”>contoso-xxx-name-portal.
2. Click on Configuration.

**Settings**

**Configuration**

**New application setting**

Name	Value
SaaSAppUrl	<your SaaS URL from <a href="#">Explore your Chatbot Step 6</a> .>

3. Click on New Application Settings.
4. Fill up the info as below and click **ok**:
  - a. Name: SaaSAppUrl
  - b. Value: <your SaaS URL from [Explore your Chatbot Step 6](#).>
5. You should now be able to see the variable and click on **save**.

The screenshot shows the 'Application settings' section of the Azure portal. At the top, there are buttons for Refresh, Save (highlighted with a red box), Discard, and Leave Feedback. Below that, tabs for Application settings\*, General settings, Default documents, and Path mappings are visible. The 'Application settings' tab is selected. A note states: 'Application settings are encrypted at rest and transmitted over an encrypted channel. You can choose to display them in plain text in your browser by using the controls below. Application Settings are exposed as environment variables for access by your application at runtime. [Learn more](#)'.

Below the note are buttons for New application setting, Show values, Advanced edit, and a Filter application settings search bar. The main area is a table with columns Name, Value, and Source. One row is highlighted with a red box, showing 'Name: SaaSApiConfiguration\_\_SaaSAppUrl', 'Value: <Hidden value. Click to show value>', and 'Source: App Service'.

## Setting Up Technical Configuration

You will need to setup the technical configuration pane on the partner center with the detail provided by the Contoso Chatbot Management script once it finishes running.

1. Go back to the Azure CloudShell
2. Copy The lowing values of the following data:
  - a. Landing Page Section
  - b. Connection Webhook Section
  - c. Tenant ID
  - d. AAD Application ID

```

PowerShell v | ⌂ ? ? { } { }

"status_text": "",
"url": "https://saas-contoso-portal.scm.azurewebsites.net/api/deployments/latest"
}
● Clean up
✓If the intallation completed without error complete the follwing checklist:
● Add The following URL in PartnerCenter SaaS Technical Configuration
  ➔ Landing Page section: https://saas-contoso-portal.azurewebsites.net/
  ➔ Connection Webhook section: https://saas-contoso-portal.azurewebsites.net/api/AzureWebhook
  ➔ Tenant ID:
  ➔ AAD Application ID section: [REDACTED]
Deployment Complete in 10m:49s
DO NOT CLOSE THIS SCREEN. Please make sure you copy or perform the actions above before closing.
PS /home/system/Commercial-Marketplace-SaaS-Accelerator/deployment>

```

3. Go to the resource group Azure Portal > Resource Group > saas-contoso-rg and ensure you have the same resources deployed as the picture below, if any of the one listed here is not present, delete the resource group and retry the Step 9 from [Deploying Azure Resources](#) with a different -ResourceGroupForDeployment and -WebAppNamePrefix value

Microsoft Azure

Search resources, services, and docs (G+/)

Home > Resource groups >

**saas-contoso-rg** Resource group

Overview

Activity log

Access control (IAM)

Tags

Resource visualizer

Events

Deployments

Security

Policies

Properties

Locks

Cost analysis

Cost alerts (preview)

Create Manage view Delete resource group Refresh Export to C

Essentials

Resources Recommendations

Filter for any field... Type equals all Location equals all Add fi

Showing 1 to 6 of 6 records. Show hidden types No gr

Name	Type
AMPSaaSDB (saas-contoso-sql)/AMPSaaSDB	SQL database
saas-contoso-admin	App Service
saas-contoso-asp	App Service plan
saas-contoso-kv	Key vault
saas-contoso-portal	App Service
saas-contoso-sql	SQL server

< Previous Page 1 of 1 Next >

\* If any of the 6 resources are missing, go to the following [Troubleshooting section](#).

- Open the Partner Center go to Marketplace Offer > Contoso Chatbot > Technical Configuration

Microsoft Partner Center

Search

Home > Marketplace offers > Contoso Chatbot

Offer overview

Offer setup

Properties

Offer listing

Preview audience

Technical configuration

Contoso Chatbot | Technical configuration

Complete and ready for publish

Provide details from the development of your service required for successful

Your offer is currently set to be billed through Microsoft. This requires i SaaS fulfillment APIs to function correctly. If you don't want to provide the Setup.

- Paste all the details from step 2 to the respective box.

6. Click Save Draft
7. Please continue to the next section

## Deploying SaaS Solution to Marketplace

You have configured all the necessary information required to deploy your solution to the Marketplace. Now you will have to review everything and publish the solution:

1. Go the Partner Center > Marketplace Offer > Contoso Chatbot > Offer Overview > Review and Publish

2. Check that all the statuses are Green. In case any are still grey or red, please follow up and complete filling in the requested information. Then scroll down and Click on Publish

Microsoft Partner Center

Home > Marketplace offers > Contoso Chatbot

Offer overview      Contoso Chatbot | Review and publish      Compare      Publish

Properties	Category: AI + Machine Learning, Cognitive Services
Offer Listing	Offer name: Contoso Chatbot
Preview audience	Preview audience configured.
Technical Configuration	Landing Page URL: <a href="https://saas-woskhop-xyz-portal.azurewebsites.net/">https://saas-woskhop-xyz-portal.azurewebsites.net/</a> Connection Webhook: <a href="https://saas-woskhop-xyz-portal.azurewebsites.net/api/AzureWebhook">https://saas-woskhop-xyz-portal.azurewebsites.net/api/AzureWebhook</a>
Plan overview	1 Plan(s)
Gold Plan	Plan name: Gold Plan 141 of 141 markets selected. Pricing model: Flat rate Audience: Public
Resell through CSPs	No partners in the CSP program

**Notes for certification**  
 Provide any info that testers need to understand and use this submission. Customers won't see this info.  
 Provide any critical testing instructions, including test accounts, license keys and test credentials. Failure to do so results in [an automatic rejection](#).

⚠ If your product requires purchase of a service, you must provide test account credentials. If your product offers additional in-app purchases, you must provide a license key.

Notes are not saved when you re-submit. Copy and save your testing notes for certification to use for future submissions.

⚠ You have an in-progress submission. You can't publish until the in-progress submission has been published.

**Submission notification audience**  
 View or change who can receive submission status notifications for this product.  
[Click here](#)

**Publish**      **Cancel**

## 6. You will be redirected to this status page, wait until it reaches the Publisher Signoff page.

Microsoft Partner Center

Home > Marketplace offers > Contoso Chatbot

Contoso Chatbot | Offer overview      Hide offer      Review and publish

**Publish status** Showing details

<span style="color: green;">✔</span> Automated validation Apr 11, 2023, 8:09:09 AM UTC	<span style="color: blue;">⌚</span> Preview creation Apr 11, 2023, 8:09:10 AM UTC	<span style="color: grey;">⌚</span> Publisher signoff Use the generated links to verify your offer listing and test offer purchase. Follow the test guidance outlined in Preview and subscribe to your offer.	<span style="color: grey;">⌚</span> Certification <span style="color: grey;">●</span> Manual validation (>2 business days)
<span style="color: green;">✔</span> Offer purchase flow setup (<40 min) <span style="color: grey;">⌚</span>	<span style="color: green;">✔</span> Test drive data validation (<30 min) <span style="color: grey;">⌚</span>	<span style="color: grey;">⌚</span> Test drive provisioning (<60 min) <span style="color: grey;">⌚</span>	<span style="color: grey;">⌚</span> Lead management validation and registration (<5 min) <span style="color: grey;">⌚</span>
<span style="color: green;">✔</span> Test validation configuration (<3 min) <span style="color: grey;">⌚</span>	<span style="color: green;">✔</span> Amendment configuration (<3 min) <span style="color: grey;">⌚</span>	<span style="color: grey;">⌚</span> Offer validation (<15 min) <span style="color: grey;">⌚</span>	<span style="color: grey;">⌚</span> Amendment configuration (<3 min) <span style="color: grey;">⌚</span>
<span style="color: green;">✔</span> Final public (<45 min) <span style="color: grey;">⌚</span>			<span style="color: grey;">⌚</span> Final public (<45 min) <span style="color: grey;">⌚</span>

**Plan overview**  
 First three plans

Name	Priority model	Availability	Status

## 7. If publishing is completed on the Publisher Signoff page as follows, you have successfully deployed your solution in the Azure Marketplace!

**Offer overview**

Contoso Chatbot | Offer overview

Your offer is not live yet. Please select the **Go live** button.

**Publish status** Showing details

Name	Pricing model	Availability	Status
Gold Plan	Flat rate	Public	Preview

**Plan overview**

First three plans

Keep in mind that the solution is still in the Private Preview and only selected users from your Private Audience section can access and try your solution during these stages.

## Test it Out!

After everything is configured, let's test the end-to-end lifecycle of your Contoso Chatbot Marketplace SaaS Offer.

### Purchasing The Offer

- From the Partner Center > Marketplace Offer > Contoso Chatbot > Offer Overview Click on Azure Portal Preview

**Offer overview**

Contoso Chatbot | Offer overview

Your offer is not live yet. Please select the **Go live** button.

**Publish status** Showing details

Name	Pricing model	Availability	Status
Gold Plan	Flat rate	Public	Preview

**Plan overview**

First three plans

- (Optional) If prompted, sign into the azure account that was whitelisted on the Preview Audience on Step 16 of [Setting up the Partner Center](#).
- Check all the information as it should be same as what we have configured on [Setting up the Partner Center](#).
- Click Subscribe.

Microsoft Azure

Home > Contoso Chatbot (preview) ...

Derwinu

**Contoso Chatbot (preview)** Add to Favorites

Derwinu | SaaS

Plan Gold Plan Subscribe

Overview Plans + Pricing Usage Information + Support Ratings + Reviews

Offered under Microsoft Standard Contract.

Welcome to the world of Intelligent Chatbot! With our solution you can have answers to all your questions simply by typing it in our Contoso Chatbot. Our chatbot can answer your every question because our model has learned from millions of data and boring article, so you don't have to.

Media

All Offer Subscriptions

Name	State	OfferId	PlanId	Quantity	SubscriptionId	Actions	Pending operations
contoso-test-1	PendingOfferActivation	ecosystem-hr	gold	0	7500000-100-000-910a-000000000000	Update	0
contoso-test-10-2-1	Subscribed	ecosystem-hr	basic	0	c13070-000-000-0002-000000000000	Update	0
contoso-test-10-2-2	Subscribed	ecosystem-hr	gold	0	c13070-000-000-0002-000000000000	Update	0
contoso-test-10-2-3	Subscribed	ecosystem-hr	basic	0	9000000-100-000-910a-000000000000	Update	0
contoso-test-10-2-4	Subscribed	ecosystem-hr	basic	0	9000000-100-000-910a-000000000000	Update	0
contoso-test-10-2-5	Subscribed	ecosystem-hr	platinum	0	2000000-100-000-910a-000000000000	Update	0

5. For the Resource group, click “Create New” and name it saas-purchase, click ok.

Microsoft Azure

Home > Contoso Chatbot (preview) > Subscribe To Contoso Chatbot ...

Subscribe to plan

\* Basics Tags Review + subscribe

Fill out the plan details. After you've finished subscribing, configure your SaaS account on the publisher's website to complete the process.

Project details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription \* ME-MngEnvMCAP578959-akevin-1

Resource group \* saas-purchase

Create new

SaaS details

Name \* saas-purchas

OK Cancel

A resource group is a container that holds related resources for an Azure solution.

6. Enter the name: saas-purchase-test-0 and leave the rest then click on Review + Subscribe.

Microsoft Azure Search resources, services

Home > Contoso Chatbot (preview) >

## Subscribe To Contoso Chatbot

Subscribe to plan

\*Basics Tags Review + subscribe

Fill out the plan details. After you've finished subscribing, configure your SaaS account on the publisher's website to complete the process.

### Project details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription \*  Resource group \*  Create new

### SaaS details

Name \*  Change plan

Plan **Gold Plan - 1-month subscription**  
This plan will include all of our capabilities with unlimited number of chat and access to our Chatbot that has learn from millions of document and Journal to give you the right answer every time.

Billing term

Price/payment frequency

Subtotal

Recurring billing  On  Off

**Review + subscribe** < Previous Next: Tags >

7. Give it a few minutes until it finishes deploying, then click on configure account now.

Microsoft Azure Search resources, services, and

Home > Contoso Chatbot (preview) > Subscribe To Contoso Chatbot >

## Subscription progress

✓ Thank you for your order. Configure the SaaS service to complete the purchase

SaaS resource name: saas-purchase-test-0  
Purchase start time: Tuesday, April 11, 2023 at 5:07:43 PM  
Offer & plan details: Contoso Chatbot - Gold Plan - 1-month subscription

Next steps

Configure SaaS account

**⚠ To complete the purchase, configure your SaaS account on the publisher's website.  
We've sent you an email confirmation with instructions on configuring this SaaS account.**

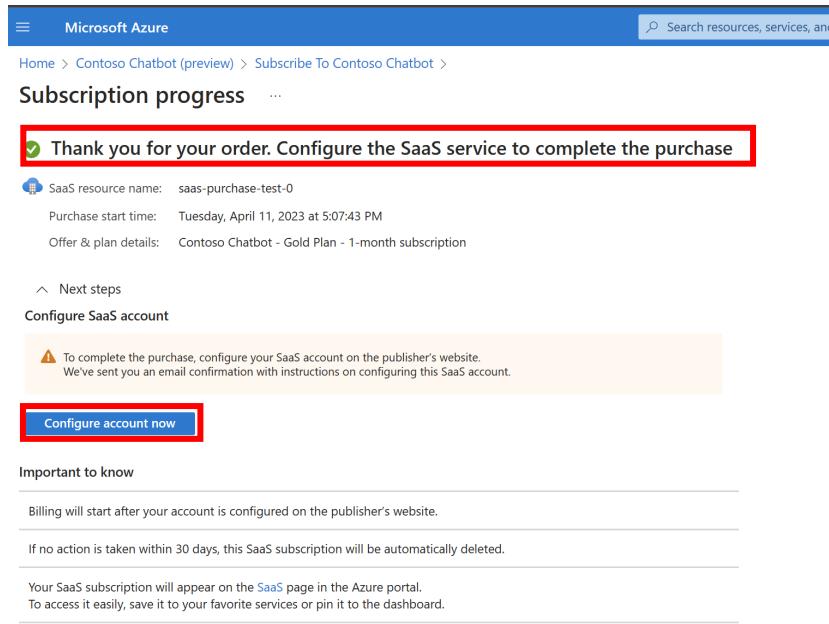
**Configure account now**

Important to know

Billing will start after your account is configured on the publisher's website.

If no action is taken within 30 days, this SaaS subscription will be automatically deleted.

Your SaaS subscription will appear on the [SaaS](#) page in the Azure portal.  
To access it easily, save it to your favorite services or pin it to the dashboard.



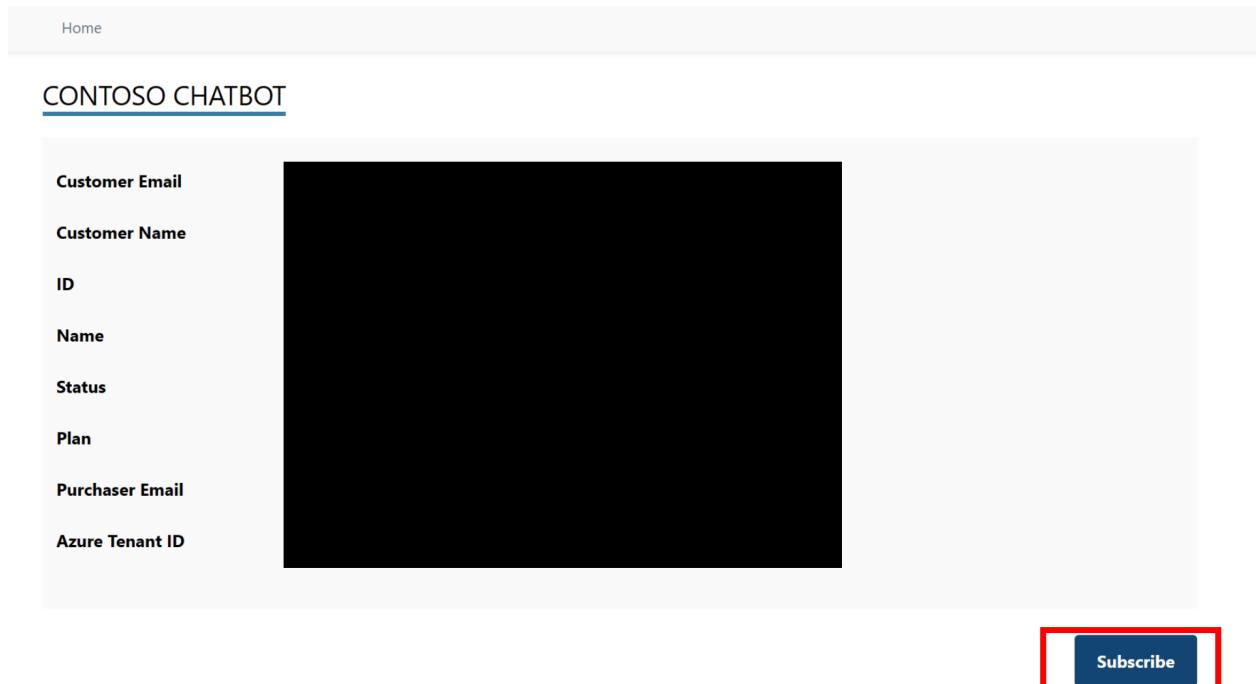
8. (Optional) You may be required to log in again, choose the same user that you use to purchase the offer and click accept.
9. Click on Subscribe

Home

## CONTOSO CHATBOT

<b>Customer Email</b>	
<b>Customer Name</b>	
<b>ID</b>	
<b>Name</b>	
<b>Status</b>	
<b>Plan</b>	
<b>Purchaser Email</b>	
<b>Azure Tenant ID</b>	

**Subscribe**



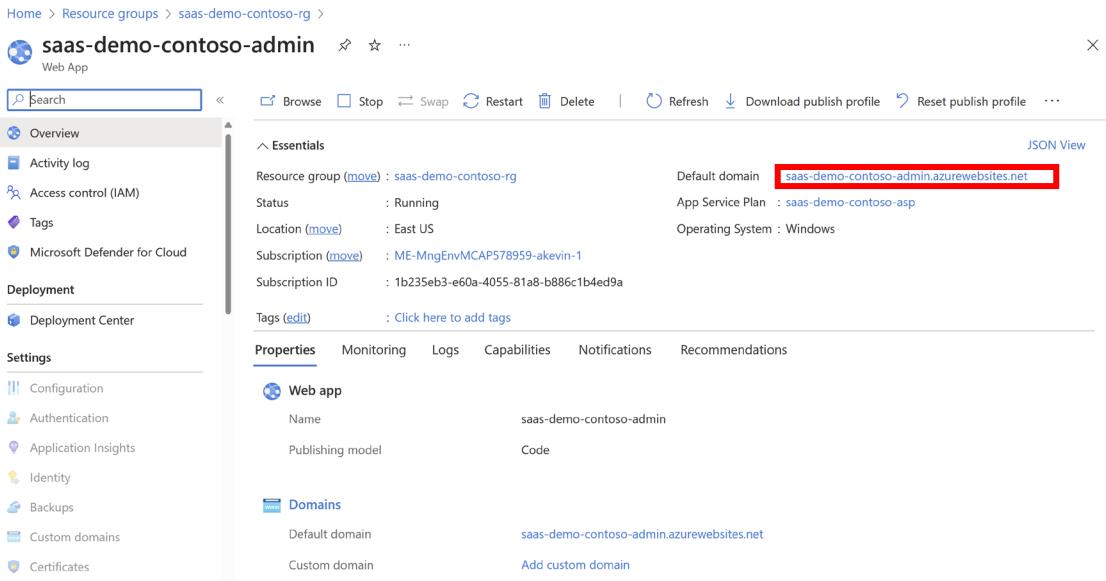
10. You will be directed to the Landing page as follows and your subscription will still be in **PendingActivation** status. You will need to activate it from the publisher side on the next section

## CONTOSO PRODUCT LANDING PAGE SUBSCRIPTIONS

Name	Plan	Quantity	Status	Action
[REDACTED]	gold-plan-id	N/A	PendingActivation	☰
[REDACTED]	gold-plan-id	N/A	Subscribed	☰
[REDACTED]	gold-plan-id	N/A	Subscribed	☰
[REDACTED]	gold-plan-id	N/A	Unsubscribed	☰

### Activate Subscription on the Publisher Portal

1. Go to Azure Portal > App Services > saas-demo-contoso-admin (if you name it differently search for the name-admin) and click on the default domain.



The screenshot shows the Azure portal interface for a web application named 'saas-demo-contoso-admin'. The left sidebar lists various settings like Overview, Activity log, Access control (IAM), Tags, Microsoft Defender for Cloud, Deployment Center, Configuration, Authentication, Application Insights, Identity, Backups, Custom domains, and Certificates. The main pane displays the 'Essentials' section with details such as Resource group (saas-demo-contoso-rg), Status (Running), Location (East US), Subscription (ME-MngEnvMCAP578959-akevin-1), Subscription ID (1b235eb3-e60a-4055-81a8-b886c1b4ed9a), and Tags. Below this, the 'Properties' tab is selected, showing the 'Web app' section with Name (saas-demo-contoso-admin) and Publishing model (Code). The 'Domains' section shows the Default domain as 'saas-demo-contoso-admin.azurewebsites.net' and an option to Add custom domain. The 'Default domain' field is highlighted with a red box.

2. You will be greeted with the following page, click on the subscription.

Welcome to the Contoso Publisher page

Quicklinks

- Subscriptions
- Plans
- Offers
- Scheduler

Users

- Click on the **Subscriptions** link.
- Click on the **Subscriptions** link.
- Click on the  $\equiv$  icon on the right most of the newly created subscription.

Publisher Page

Filter: Enter any text to filter subscriptions   Hide Unsubscribed Fetch All Subscriptions

Purchaser Email	Marketplace Subscription Id	Subscription Name	Plan	Quantity	Status	Action
[REDACTED]	[REDACTED]	saas-purchase-test-0	gold-plan-id	N/A	PendingActivation	$\equiv$
[REDACTED]	[REDACTED]	saas-purchase-test-05	gold-plan-id	N/A	Subscribed	$\equiv$
[REDACTED]	[REDACTED]	saas-purchase-test-04	gold-plan-id	N/A	Subscribed	$\equiv$
[REDACTED]	[REDACTED]	saas-purchase-test-03	gold-plan-id	N/A	Unsubscribed	$\equiv$

- Click on the **Subscriptions** link.
- Click on the **Subscriptions** link.
- Click on the  $\equiv$  icon on the right most of the newly created subscription.
- Click Activate

Status

Pending

View Details

Activate

Activity Log

- Click on the **Subscriptions** link.
- Click on the **Subscriptions** link.
- Click on the  $\equiv$  icon on the right most of the newly created subscription.
- Click Activate
- Scroll down and click on activate.

The screenshot shows the 'Subscription Details' page. It lists various subscription metadata such as Customer Email, Customer Name, ID, Name, Status, Purchaser Email, Azure Tenant ID, Beneficiary Email, Beneficiary Tenant ID, and Beneficiary Object ID. At the bottom right, there are two buttons: 'Activate' and 'Go to Subscription List'. The 'Activate' button is highlighted with a red box.

3. The activation will take some minutes to complete, to check click on the Go to Subscription List

The screenshot displays a message: 'Processing your request. Updated status of the activity is available in the subscription list.' Below this message is a large button labeled 'Go to Subscription List', which is also highlighted with a red box.

4. After completed, the subscription will be changed to subscribe as below.

The screenshot shows the 'Publisher Page' with a table of subscriptions. The columns include Purchaser Email, Marketplace Subscription Id, Subscription Name, Plan, Quantity, Status, and Action. One row is highlighted with a red box, showing 'saas-purchase-test-0' in the Marketplace Subscription Id column, 'gold-plan-id' in the Plan column, and 'Subscribed' in the Status column. The 'Action' column for this row contains a three-dot menu icon.

5. As admin you can also cancel the subscription by clicking on the same ≡ icon on the right most of the subscription row

#### *Use Subscribed SaaS*

1. Go to Azure Portal>search for the name of your subscription, in this guide “saas-purchase-test-1”

The screenshot shows the Azure Portal's resource group page for 'Saas-purchase-test-0'. In the center, there is a success message: 'Your subscription was configured successfully. Select Open SaaS Account on publisher's site to navigate to the publisher's external website'. Below this message is a button labeled 'Open SaaS Account on publisher's site', which is also highlighted with a red box.

2. To see the status of your subscription, click on the Open SaaS Account on publisher site.

Home

## CONTOSO CHATBOT

# Welcome back to Contoso Chatbot

**Start Chatting**   **Unsubscribe**   **Go to Subscription List**

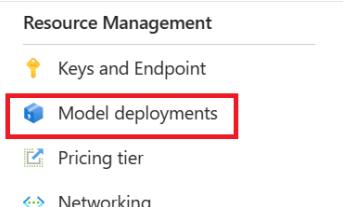
- 
3. You can click on the “Start Chatting” button to be redirected to the Contoso Chatbot.
  4. Congratulations, you have successfully setup, deployed, and purchased your SaaS Solution via the Azure Marketplace

## Clean Up

To remove all the resources used by this sample, you must first manually delete the deployed model within the Azure AI service. You can then delete the resource group for your deployment. This will delete all remaining resources. Follow the steps below to remove the resources:

### Removing Intelligent App

1. Go to your [Azure Portal](#)
2. Search for your Resource Group Name
3. Select your OpenAI service resource.
4. Click on “Model Deployments”



5. Select the model and click “Delete”

+ Create   Modify   Delete   Refresh   Go to Azure OpenAI Studio

Filter...   All model deployment states

Model deployment name	State	Model
contoso-model-01	Succeeded	text-davinci-003

6. Now return to the Resource Group page
7. Click on “Delete Resource Group”

The screenshot shows the Azure Resource Groups page. At the top, there are several buttons: '+ Create', 'Manage view', 'Delete resource group' (which is highlighted with a red box), 'Refresh', 'Export to CSV', and 'Open query'. Below these buttons is a dropdown menu labeled 'Essentials'. Underneath the header, there are two tabs: 'Resources' (which is selected) and 'Recommendations (28)'. The main content area displays a list of resources under the heading 'Resources'.

8. Type in your resource group's name and confirm.

## Removing the Contoso Chatbot Management Resources

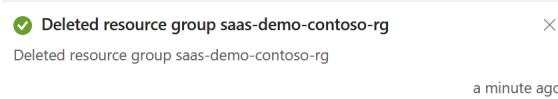
1. Go to Azure Portal > Resource Group > saas-demo-contoso-rg and click on delete resource group.

The screenshot shows the details page for the 'saas-demo-contoso-rg' resource group. At the top, there is a 'Delete resource group' button highlighted with a red box. The page includes sections for 'Overview', 'Activity log', 'Access control (IAM)', 'Tags', 'Resource visualizer', 'Events', 'Settings', 'Deployments', 'Policies', 'Properties', 'Locks', 'Cost Management', 'Monitoring', and 'Insights (preview)'. On the right side, there is information about the subscription (Subscription ID: 1b235eb3-e60a-4055-81a8-b886c1b4ed9a, Location: East US), and a list of resources including an App Service plan, an App Service, and two SQL servers.

2. Type in the name of the resource group in the Bottom and click Delete.

The screenshot shows a confirmation dialog box. It has a text input field containing 'saas-demo-contoso-rg' and two buttons at the bottom: a red-bordered 'Delete' button and a 'Cancel' button.

3. Give it a few minutes. You will know it's complete when the following Notification pops out at the top right corner of your Azure portal.



# Troubleshooting

## Open AI Region Unavailability

Symptom: Insufficient quota

The screenshot shows the Azure portal interface. On the left, there's a navigation bar with 'Home >' followed by 'Custom deployment' and a 'Deploy from a custom template' button. Below this, there are tabs for 'Basics' (which is selected) and 'Review + create'. Under 'Basics', it says 'Customized template' and '8 resources'. At the bottom of this section are 'Terms' and links to 'Azure Marketplace Terms' and 'Azure Marketplace'. To the right, a modal window titled 'Errors' is open. It has tabs for 'Summary' (which is selected) and 'Raw Error'. In the 'Summary' tab, there's a message: 'Validation failed. View error details →'. In the 'Raw Error' tab, the error details are: 'Insufficient quota. Cannot create/update/move resource 'saas-workshop-cosmos-openai''. (Code: InsufficientQuota). Below the error message is a link 'WAS THIS HELPFUL? ⓘ'. At the bottom of the modal, there's a 'Troubleshooting Options' section with a 'New Support Request' link.

Explanation: Only 2 OpenAI services are allowed per region. You might have hit your quota and need to choose another region

Solution:

1. Go back to “Basics” tab.



2. Click on “Open AI Region” and change to another option.

A screenshot of the 'Open AI Region' dropdown menu. The 'East US' option is highlighted with a red box. Other options visible in the dropdown are 'South Central US' and 'West Europe'. The dropdown menu has a red border around it.

## Cosmos DB Free Tier Restriction

Symptom: Free Tier is not supported

```
"status": "Failed",
"error": {
    "code": "BadRequest",
    "message": "Free tier is not supported for Internal sub"
}
```

Explanation: Certain subscriptions do not allow to select Free Tier Option for CosmosDB

Solution:

1. Go back to “Basics” tab.



Review +

2. Change the “Cosmos Free Tier” Option

Cosmos Free Tier ⓘ

Cosmos Container Throughput ⓘ

true

true

false

Cannot find SourceControlToken with name GitHub

Symptom: Intelligent app deployment failed with the following error

Delete Cancel Redeploy Download Refresh

✖ Deployment failed. Click here for details →

Your deployment failed

Deployment name: Microsoft.Template-20230403165559 Start time: 4/3/2023, 4:56:12 PM  
Subscription: ME-MngEnVMCAP578959-alevin-1 Correlation ID: 61132407-0d81-4c49-b0eb-3178a41aa1f5

Resource group: intelligentAppWorkshopRG

Deployment details

Resource	Type	Status	Operation details
saas-ia-workshop-cosmos-webapp/web	Microsoft.Web/sites/sourcecontrols	NotFound	Operation details

```
{"code": "DeploymentFailed", "message": "At least one resource deployment operation failed. Please list deployment operations for details.\nPlease see https://aka.ms/arm-deployment-operations for usage\ndetails.", "details": [{"message": "Cannot find SourceControlToken with\nname GitHub."}]}
```

Explanation: The deployment is having trouble accessing the git repository source code to deploy into Azure App Service. There is an error with the [ARM template](#) here for commit 88ad580.

Solution:

1. Manually copy the [azuredeploy.json](#)
2. In Azure Portal, search for “Deploy a Custom Template”
3. Click on “Build your own template in the editor”



Build your own template in the editor

4. Paste the azuredeploy.json from Step 1.
5. Change line number 85 to this value:
  - a. “webSiteRepository”: <https://github.com/apacgps/intelligent-apps-contoso-chatbot.git>
6. Click “Save”

## Error naming chatapp account name

Symptom: Error with the inputted name

Explanation: Only hyphens, lowercase and no spaces are allowed. For Azure App Service, the name must be globally unique.

Solution: Select a name that only contains hyphens, lowercase and no spaces. For Azure App Service, make sure the name is globally unique.

## Missing Resources Issue

Symptom: If you check the resources within your resource group for the marketplace deployment and there are less than 6 deployed resources

Explanation: You may have already conflicting resources name with the same prefix name

Solution:

1. Redeploying the script on [Deploying Azure Resources Step 9](#) with different **WebAppNamePrefix**

## Accidentally Closing the Powershell when Running Deployment Script

Symptom: -

Explanation: The technical configuration required for Partner Center is shown at the end of the executing the deployment through powershell. If you accidentally close it, here is an alternate way to get the value.

Solution:

1. You need to get several data by remembering the WebAppNamePrefix on the [Deploying Azure Resources Step 9](#) if you follow along, **WebAppNamePrefix** = saas-demo-contoso
  - a. **Landing Page Section:** Go to Resource Group->[WebAppNamePrefix]-rg->[WebAppNamePrefix]-portal->Get the default domain with added “https://” in front.

Home > Resource groups > saas-demo-contoso-rg >

**saas-demo-contoso-portal** Web App

Search | Overview | Activity log | Access control (IAM) | Tags | Diagnose and solve problems | Microsoft Defender for Cloud | Events (preview) | Deployment slots | Deployment Center | Settings | Configuration

Click here to access Application Insights for monitoring and profiling for your app.

**Essentials**

Resource group ( <a href="#">move</a> )	saas-demo-contoso-rg
Status	Running
Location ( <a href="#">move</a> )	East US
Subscription ( <a href="#">move</a> )	ME-MngEnvMCAP578959-akevin-1
Subscription ID	[REDACTED]
Tags ( <a href="#">edit</a> )	Click here to add tags

App Service Plan  
saas-demo-contoso-asp (B1: 1)

Operating System  
Windows

Health Check  
Not Configured

For Example <https://saas-demo-contoso-portal.azurewebsites.net/>

- b. **Connection Webhook section:** add /api/AzureWebhook to the end of point 1.a URL. For example <https://saas-demo-contoso-portal.azurewebsites.net/api/AzureWebhook>
- c. **Tenant ID:** Go to the Azure Portal > Azure Active Directory>App Registration->[WebAppNamePrefix]-FulfillmentAppReg->Directory(Tenant) ID
- d. **AAD Application ID Section:** Go to the Azure Portal > Azure Active Directory>App Registration->[WebAppNamePrefix]-FulfillmentAppReg->Application ID

## Reference

The sample code: [Azure-Samples/cosmosdb-chatgpt: Sample application that combines Azure Cosmos DB with Azure OpenAI ChatGPT service \(github.com\)](https://github.com/Azure-Samples/cosmosdb-chatgpt)

Guide on Setting up and Deploying SaaS into marketplace: [Mastering the SaaS Accelerator - Mastering the Marketplace \(microsoft.github.io\)](https://microsoft.github.io/mastering-the-saas-accelerator/)

SaaS Accelerator Repository: [Commercial-Marketplace-SaaS-Accelerator/Installation-Instructions.md at main · Azure/Commercial-Marketplace-SaaS-Accelerator \(github.com\)](https://github.com/Azure/Commercial-Marketplace-SaaS-Accelerator)

<https://www.youtube.com/watch?v=H8p9n1bVTjY&t=89s>

## Helpful Resources

GPT-4 models are currently in preview. Existing Azure OpenAI customers can apply for access by [filling out this form.](#)

Official Page for SaaS Academy community for marketplace: [Microsoft SaaS Academy](#)