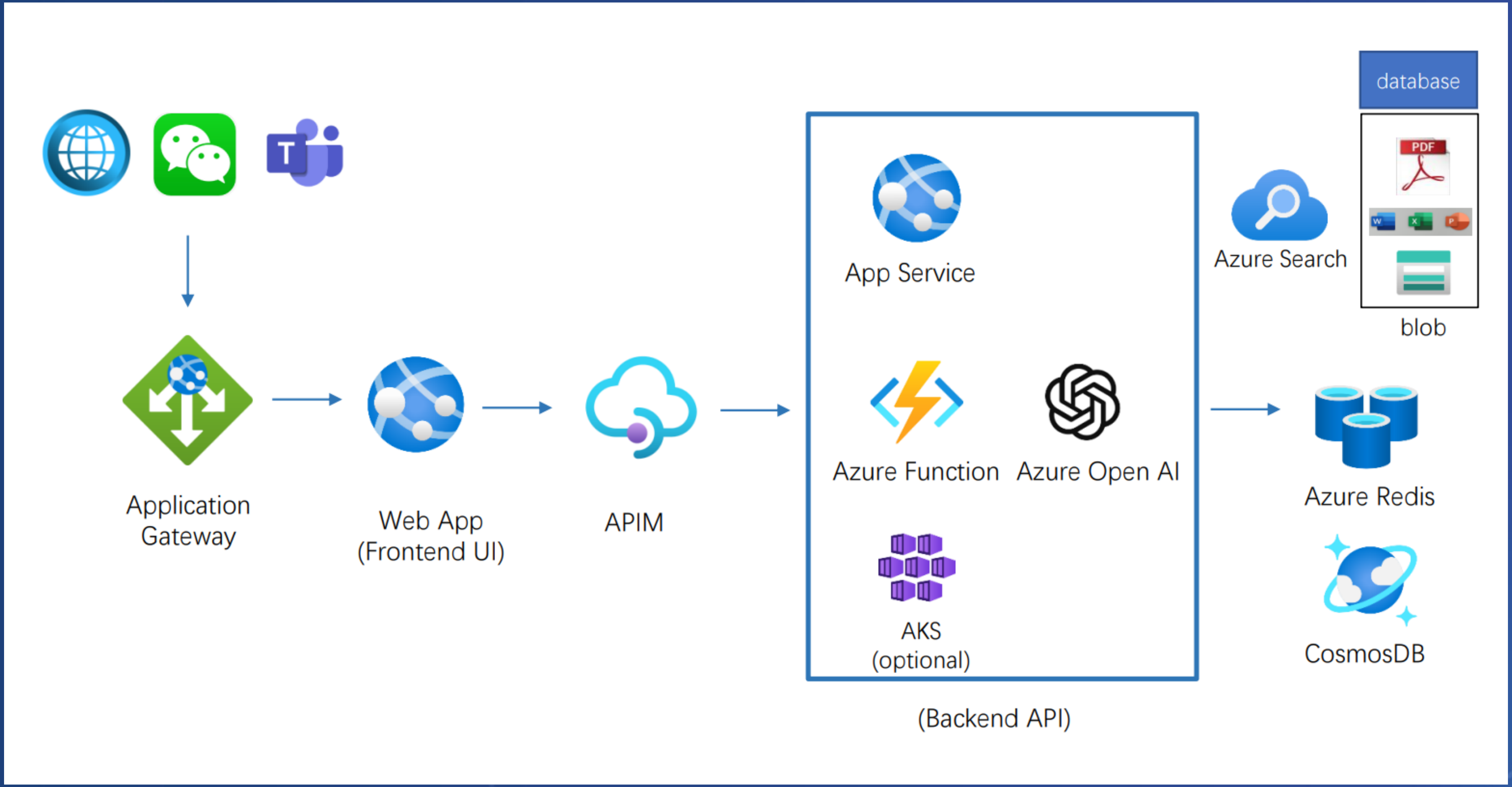
Microsoft Azure

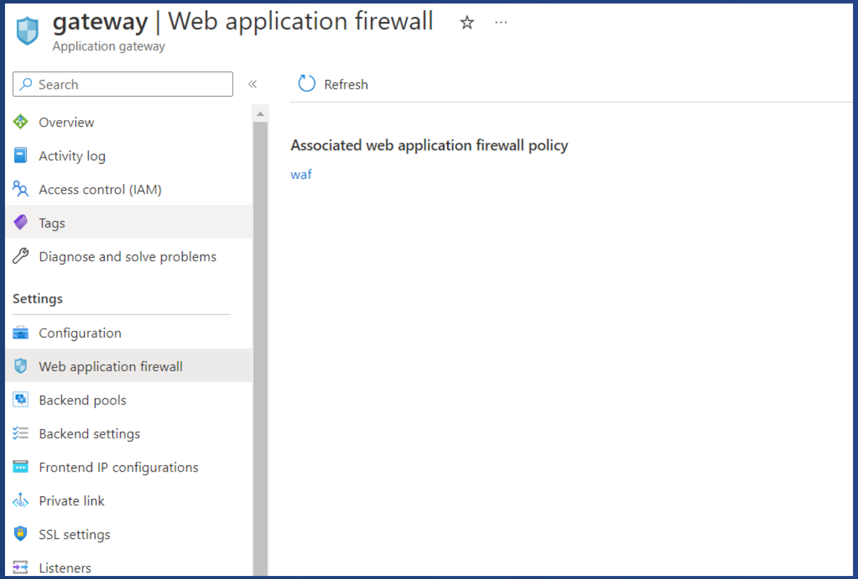
intel

FY23 Q3 Azure In A Day Workshop

Microsoft Azure

intel





Associated web application firewall policy

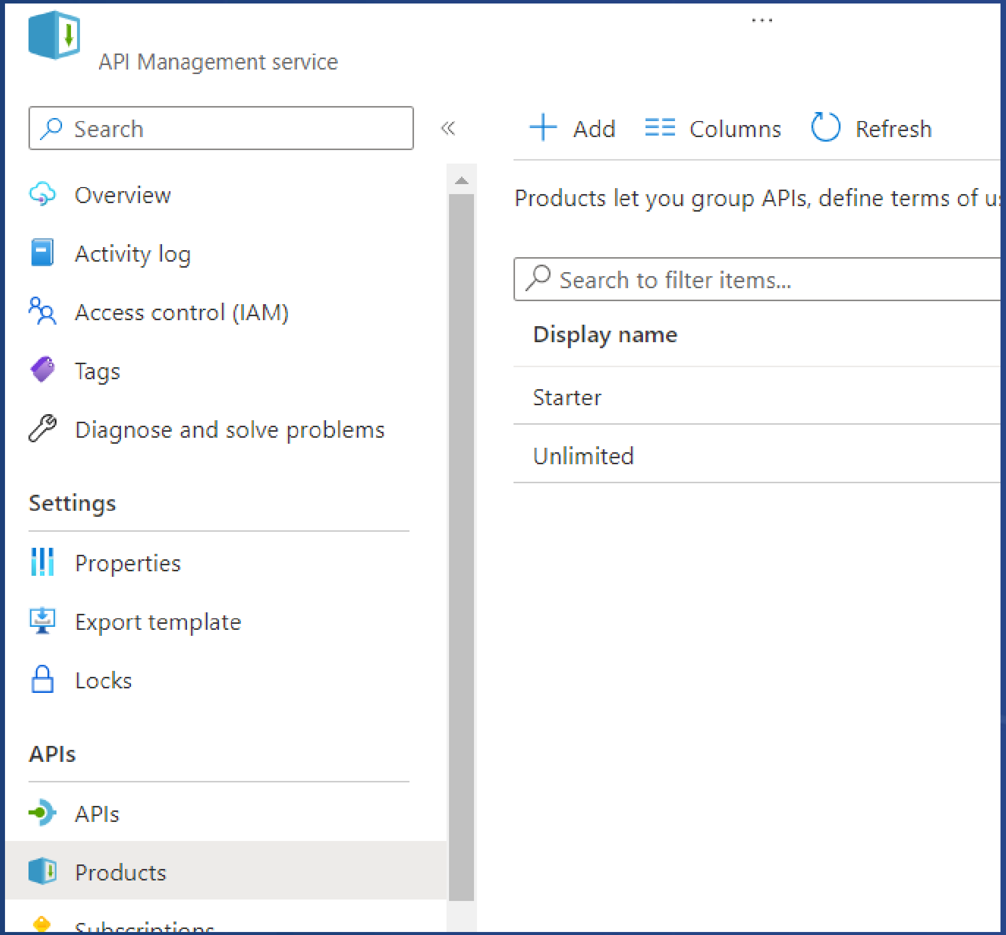
waf

Create an application gateway (Application Gateway)

1. Select “Create a resource” on the left menu of the Azure portal
2. Select “Networking”, and then select “Application Gateway” in the Featured list
3. On the “Basics” tab, enter these values as the following Application Gateway settings:
   •**Resource group:** Select “Create new” to create a new one
   •**Application gateway name:** Enter *myAppGateway* as the name of the application gateway
   •**Tier:** Select “WAF V2”
   •**WAF policy:** Choose **New**, type a name for the new policy, and then choose **OK**. This creates a basic WAF policy with a managed core rule set (CRS)
4. Set up the Frontends tab: Select “Public”
5. Set Backends tab: Select “Backend pool without target” (configure the target in a later step)
6. Set the Configuration tab

Microsoft Azure

intel


API Management service

Search

Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems

Settings

Properties
Export template
Locks

APIs

APIs
Products
Subscriptions

Add Columns Refresh

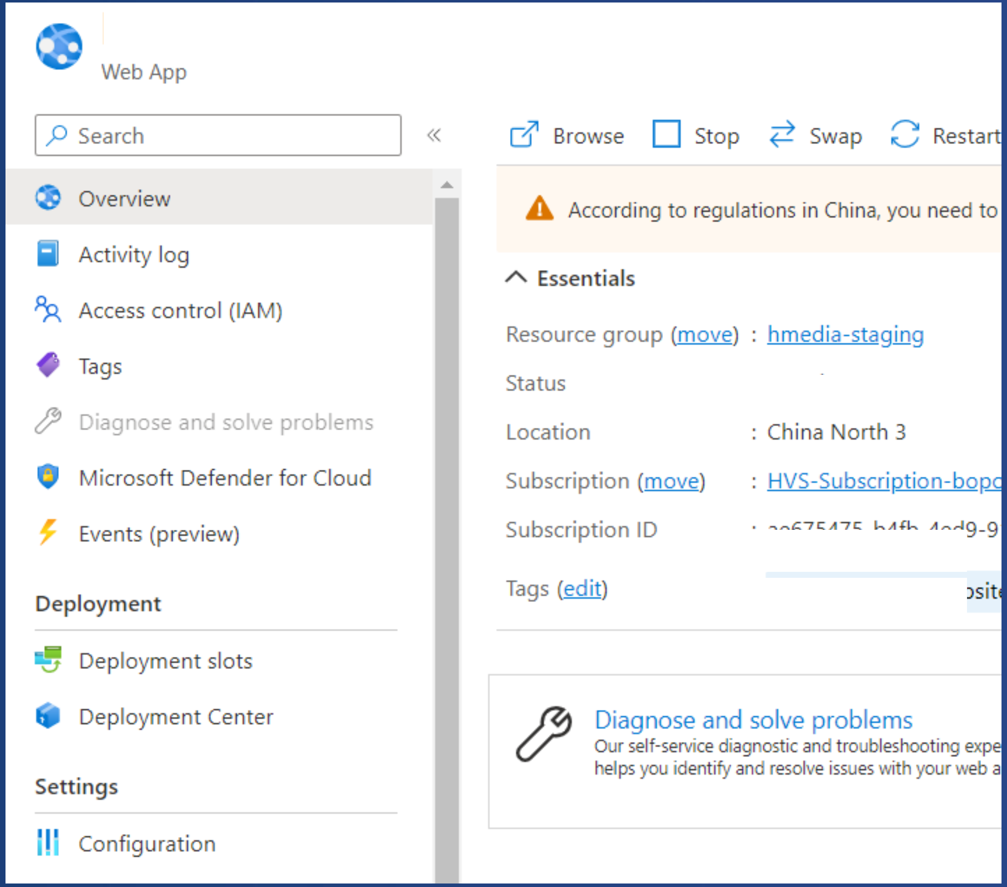
Products let you group APIs, define terms of us

Search to filter items...

Display name
Starter
Unlimited

Create Azure API Management (APIM)

1. In the Azure portal menu, select "Create a resource". You can also select Create a resource on the Azure Home page
2. On the Create a resource page, select "Integration" > "API Management"
3. In the Create API Management page, enter the settings
4. Select "Review + create"
5. Import and publish the API (next steps)
6. Include your API (next steps)



Web App

Browse Stop Swap Restart

According to regulations in China, you need to

Essentials

Resource group (move) : hmedia-staging

Status

Location : China North 3

Subscription (move) : HVS-Subscription-bopc

Subscription ID : ac675475-b4fb-4cd9-9

Tags (edit)

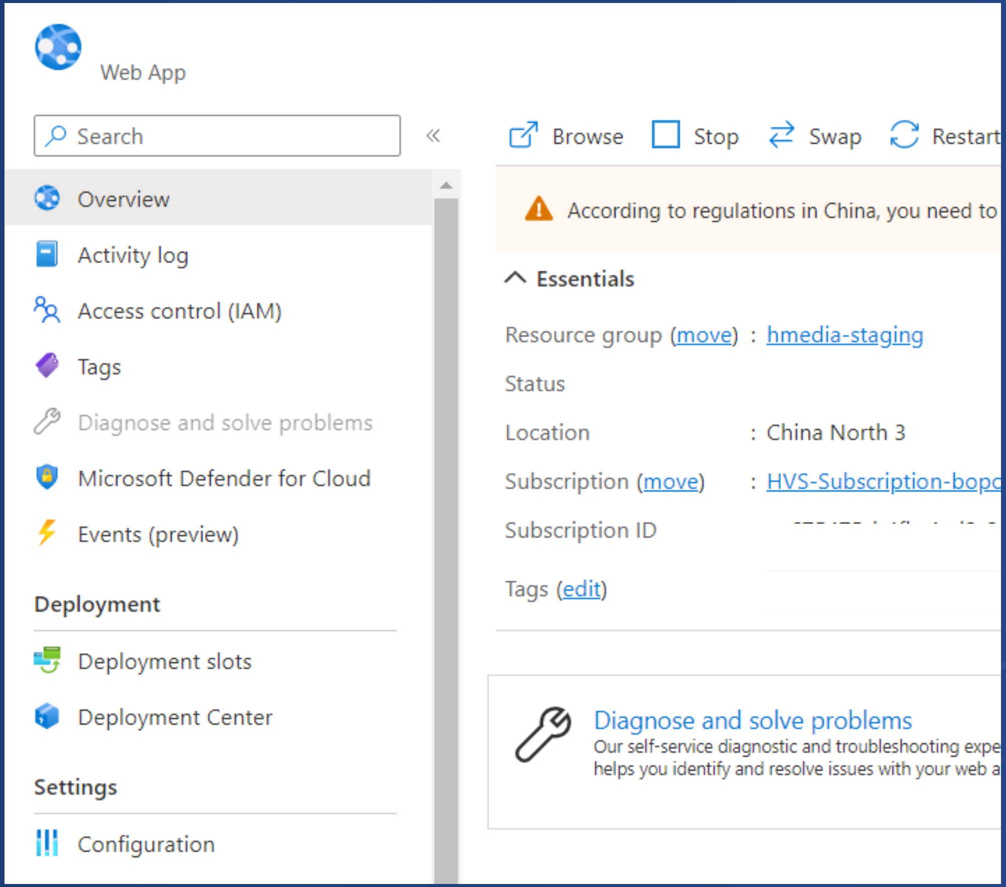
Diagnose and solve problems

Our self-service diagnostic and troubleshooting expe helps you identify and resolve issues with your web a

Create App Service: A front-end UI app

1. In the Azure portal, type “App Services” in the search box. Under “Services”, select “App Services”
2. In the App Service page, select “+ Create”
3. In the Basics tab, under “Project details”, make sure the correct subscription is selected, and then select “Create new” to create a new resource group
4. Set the “Instance Information” tab:
   •Under Name, type a globally unique name for your web app
   •Under Publish, select Code
   •Under Runtime stack, select .NET 6 (LTS)
   •Select "Operating System": Windows or Linux
   •Select the Region where the instance runs: Any
5. Under App Service plan, select Create new to create a new App Service plan:
   •Type a name
   •Select Change Size to select a pricing tier, such as S3 or P3V2
6. Deploy the front-end app (next steps)

Create an App Service: A back-end API service


Web App

Search

Browse | Stop | Swap | Restart

Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems
Microsoft Defender for Cloud
Events (preview)

Deployment
Deployment slots
Deployment Center

Settings
Configuration

According to regulations in China, you need to

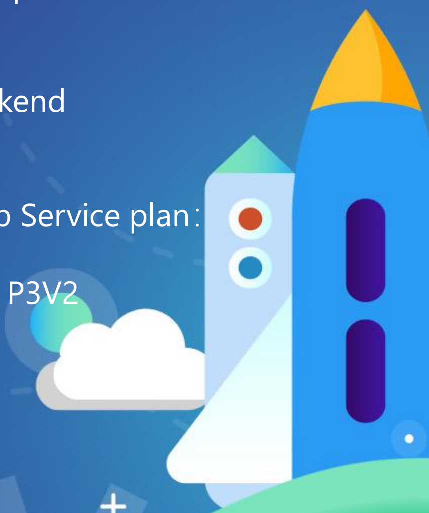
Essentials

Resource group (move) : hmedia-staging
Status
Location : China North 3
Subscription (move) : HVS-Subscription-bopc
Subscription ID [redacted]
Tags (edit)

Diagnose and solve problems
Our self-service diagnostic and troubleshooting expe
helps you identify and resolve issues with your web a

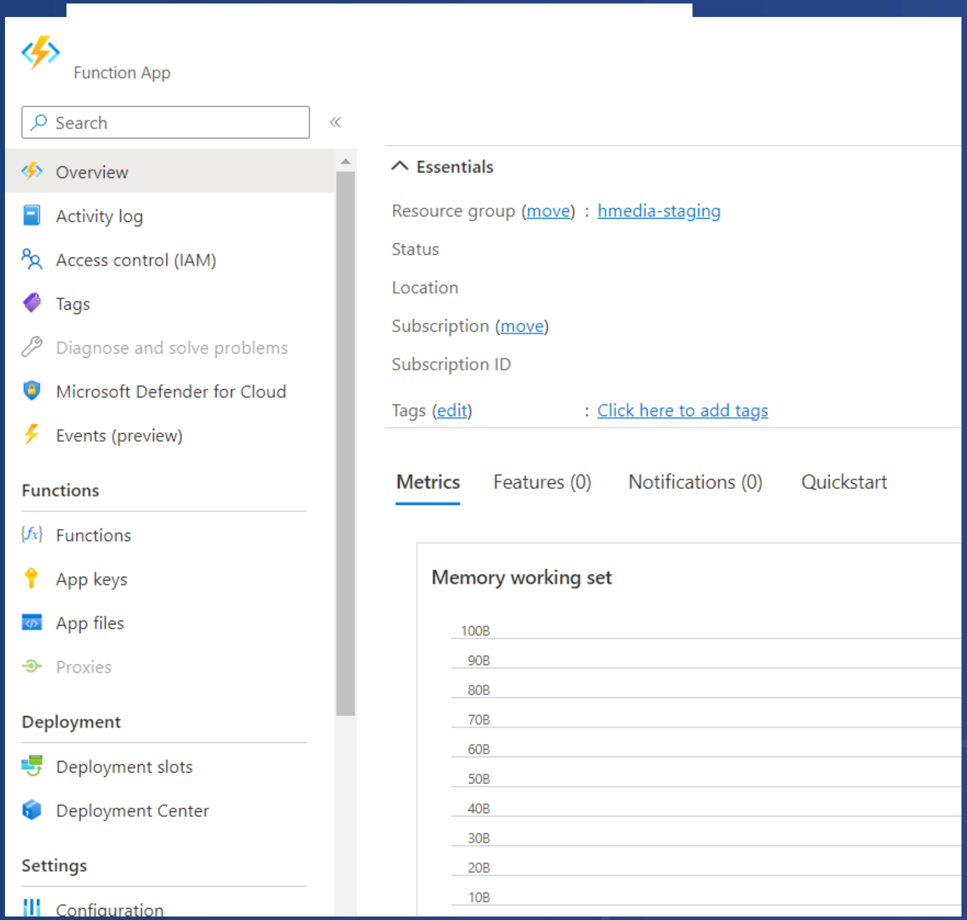
1. In the Azure portal, type "App Services" in the search box. Under "Services", select "App Services"
2. In the App Service page, select "+ Create"
3. In the Basics tab, under "Project details", make sure the correct subscription is selected, and then select "Create new" to create a new resource group
4. Set the "Instance Information" tab:
   •Under Name, type a globally unique name for your web app
   •Under Publish, select Code
   •Under Runtime stack, select .NET 6 (LTS)
   •Select "Operating System": Select Linux (note that the backend streaming API of this workshop requires Linux OS)
   •Select the Region where the instance runs: Any
5. Under App Service plan, select Create new to create a new App Service plan:
   - Type a name
   - Select Change Size to select a pricing tier, such as S3 or P3V2

6. Deploy the backend API service (next steps)



Microsoft Azure

intel


Function App

Search

Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems
Microsoft Defender for Cloud
Events (preview)

Functions
Functions
App keys
App files
Proxies

Deployment
Deployment slots
Deployment Center

Settings
Configuration

Essentials

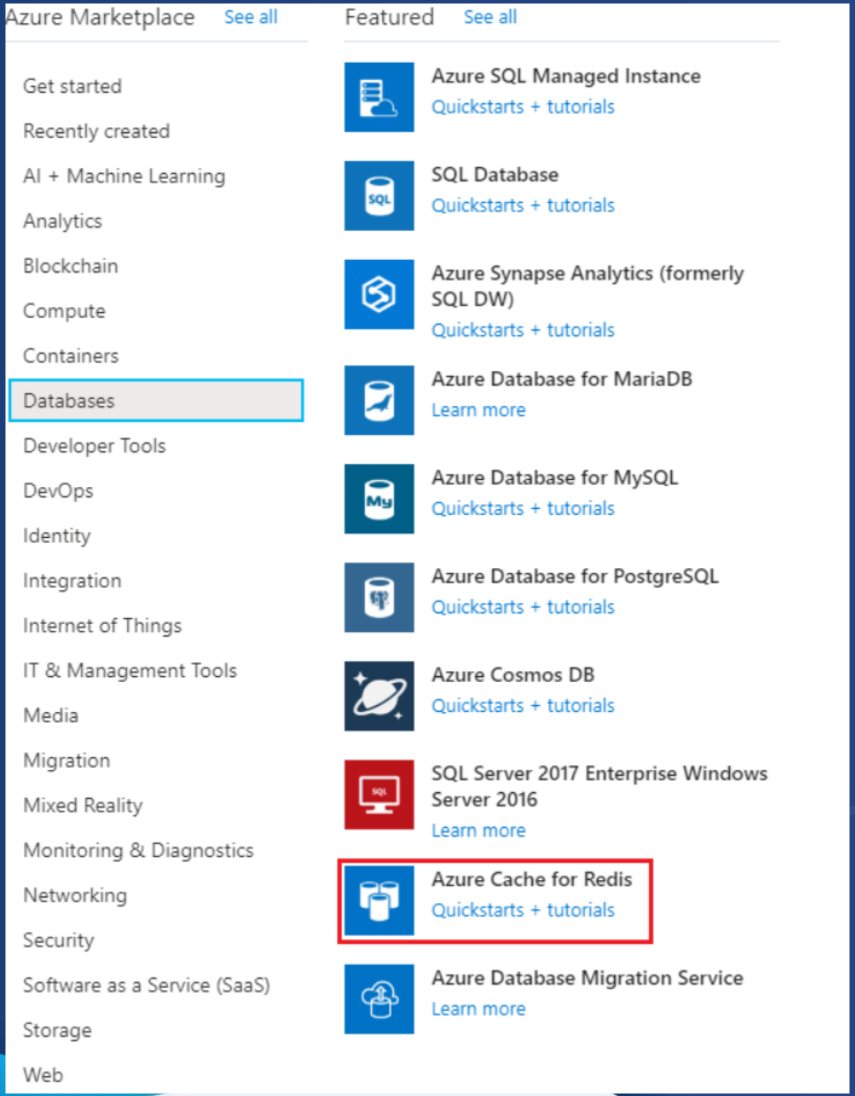
Resource group (move)	: hmedia-staging
Status	
Location	
Subscription (move)	
Subscription ID	
Tags (edit)	: Click here to add tags

Metrics | Features (0) | Notifications (0) | Quickstart

Memory working set

Create a function app service (Azure Function): A back-end API service

1. On the Azure portal menu or in the portal home page, select "Create a resource"
2. On the New page, select Compute > Function App
3. On the Basics page, set up your function app:
   - Subscription
   - Resource Group
   - Name
   - Runtime language: C# class library
   - Version: Latest
   - Operating System: Windows
   - Plan Type: Consumption (Serverless)
4. Create
5. Deploy API Service (Next Steps)


Azure Marketplace See all

Get started
Recently created
AI + Machine Learning
Analytics
Blockchain
Compute
Containers
Databases
Developer Tools
DevOps
Identity
Integration
Internet of Things
IT & Management Tools
Media
Migration
Mixed Reality
Monitoring & Diagnostics
Networking
Security
Software as a Service (SaaS)
Storage
Web

Featured See all

Azure SQL Managed Instance
Quickstarts + tutorials

SQL Database
Quickstarts + tutorials

Azure Synapse Analytics (formerly SQL DW)
Quickstarts + tutorials

Azure Database for MariaDB
Learn more

Azure Database for MySQL
Quickstarts + tutorials

Azure Database for PostgreSQL
Quickstarts + tutorials

Azure Cosmos DB
Quickstarts + tutorials

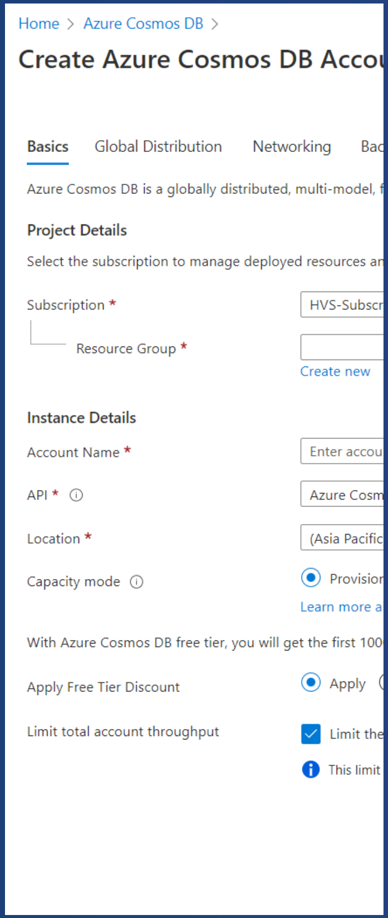
SQL Server 2017 Enterprise Windows Server 2016
Learn more

Azure Cache for Redis
Quickstarts + tutorials

Azure Database Migration Service
Learn more

Create a cache service (Azure Redis)

1. Sign in to the Azure portal and select “Create a resource”
2. On the New page, select “Databases”, and then select “Azure Cache for Redis”
3. On the New Redis Cache page, configure the settings for the new cache:
   - Subscription
   - Resource group
   - DNS Name : Unique name
   - Location
   - Cache Type: Select a pricing tier, such as "C6 or P3"
4. Next “Networking”
5. Next "Advanced", select the latest Redis version
6. Create
7. Get Redis connection string (next steps)



Home > Azure Cosmos DB >

Create Azure Cosmos DB Accou

Basics Global Distribution Networking Bac

Azure Cosmos DB is a globally distributed, multi-model, f

Project Details

Select the subscription to manage deployed resources ar

Subscription *	HVS-Subscr
Resource Group *	Create new

Instance Details

Account Name *	Enter accou
API *	Azure Cosm
Location *	(Asia Pacific
Capacity mode	[✓ Provision] Learn more a

With Azure Cosmos DB free tier, you will get the first 100

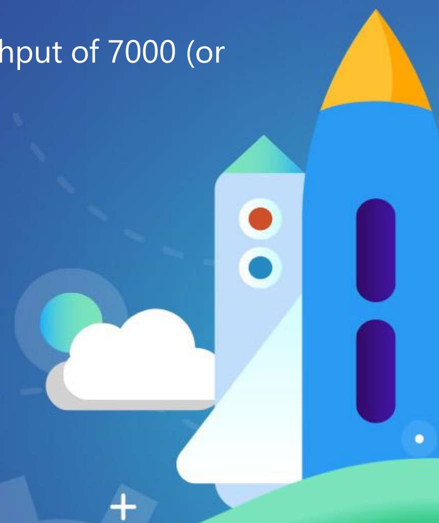
Apply Free Tier Discount	[✓ Apply]
Limit total account throughput	[✓ Limit the] This limit

Create Cosmos DB

1.In the Azure portal menu or home page, select “Create a resource”
2.Search for Azure Cosmos DB. Select Create > Azure Cosmos DB
3.On the Create Azure Cosmos DB account page, select the Create option in the Azure Cosmos DB for NoSQL section
4.Select DB API: NoSQL
5.In the Create Azure Cosmos DB account page, enter the basic settings for your new Azure Cosmos DB account:
6.subscription

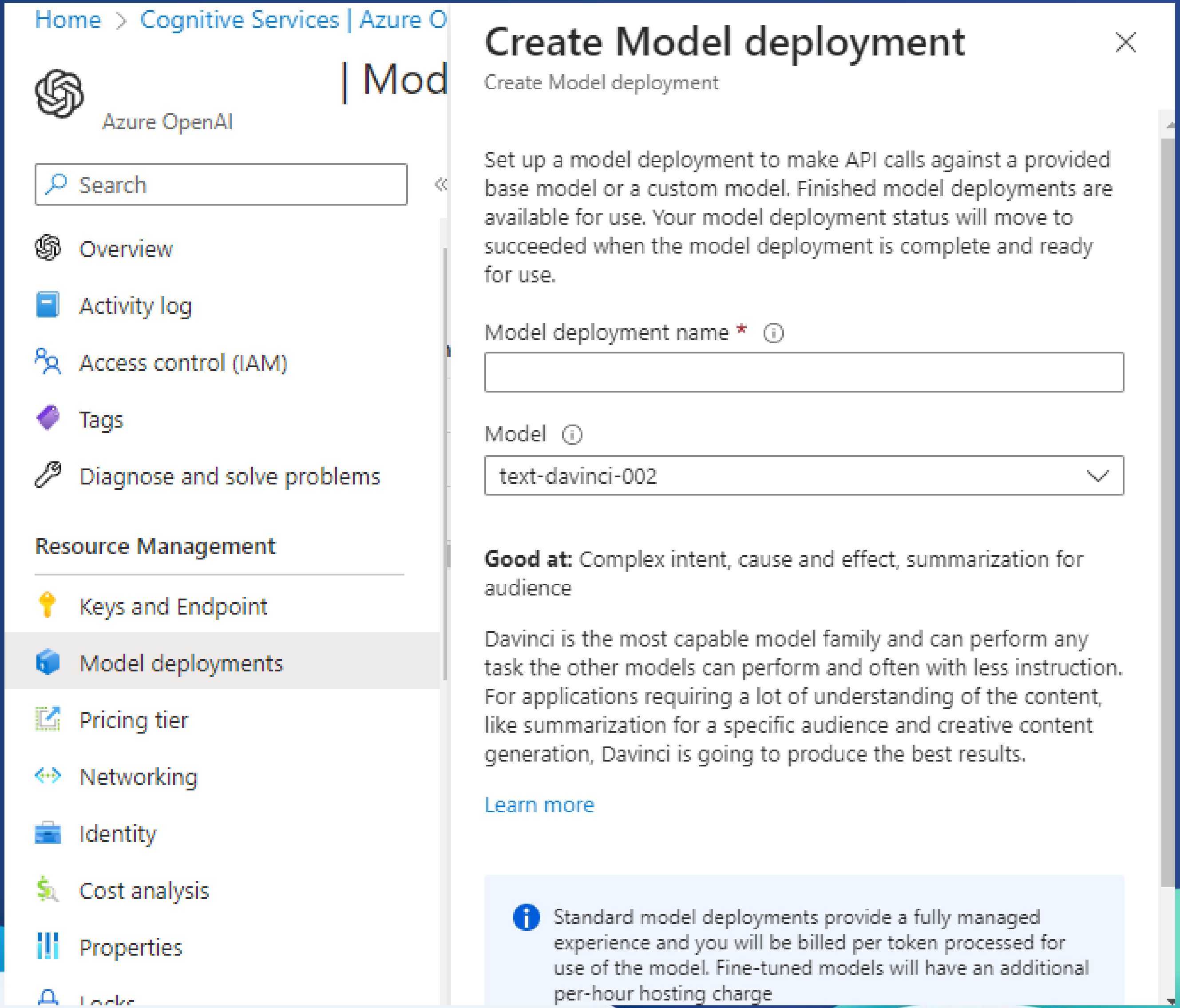
- Resource group
- Account Name: A unique name
- Location
- Capacity mode: Select Provisioned throughput to set a maximum throughput of 7000 (or select Serverless mode)

6. Next
7. Create
8. Get the database connection string (next steps)



Microsoft Azure

intel



Create Model deployment

Create Model deployment

Set up a model deployment to make API calls against a provided base model or a custom model. Finished model deployments are available for use. Your model deployment status will move to succeeded when the model deployment is complete and ready for use.

Model deployment name *

Model

text-davinci-002

Good at: Complex intent, cause and effect, summarization for audience

Davinci is the most capable model family and can perform any task the other models can perform and often with less instruction. For applications requiring a lot of understanding of the content, like summarization for a specific audience and creative content generation, Davinci is going to produce the best results.

Learn more

Standard model deployments provide a fully managed experience and you will be billed per token processed for use of the model. Fine-tuned models will have an additional per-hour hosting charge

Create Azure OpenAI

1.In the Azure portal menu or home page, select "Create a resource"
2.Search for Azure OpenAI. Select Create
3.Create a deployment model: Select text-davinci-003 (GPT3 model)
4. Get the instance in Keys and Endpoint
- API address
- Key

Microsoft Azure

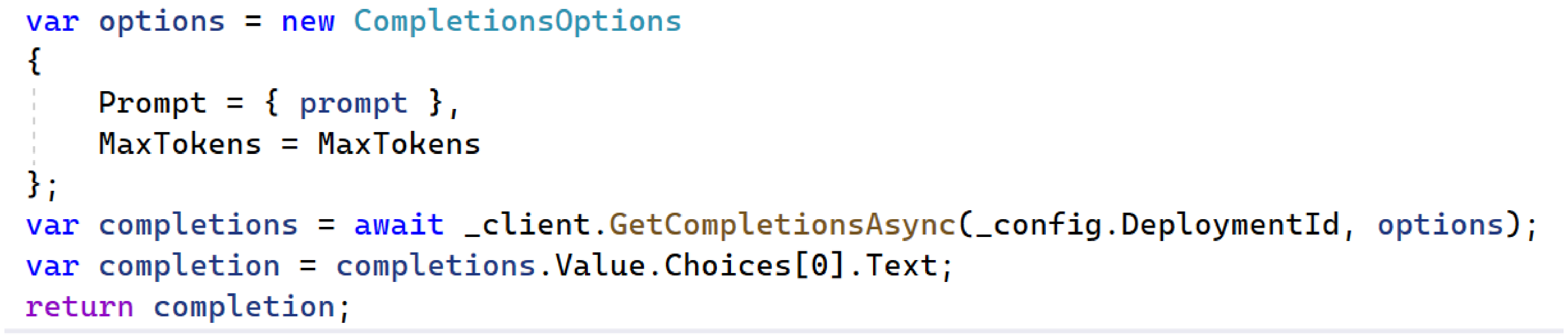
intel

Code details : About the Azure OpenAI restful API

POST https://{your-resource-name}.openai.azure.com/openai/deployments/{deployment-id}/completions?api-version={api-version}

Path parameter	type	Whether it is required	illustrate
your-resource-name	string	Yes	Azure OpenAI Resource.
deployment-id	string	Yes	Deployment instance name
api-version	string	yes	YYYY-MM-DD format

Body parameter	type	Default value	illustrate
prompt	string		Prompt words
max_tokens	int	16	Maximum number of tokens



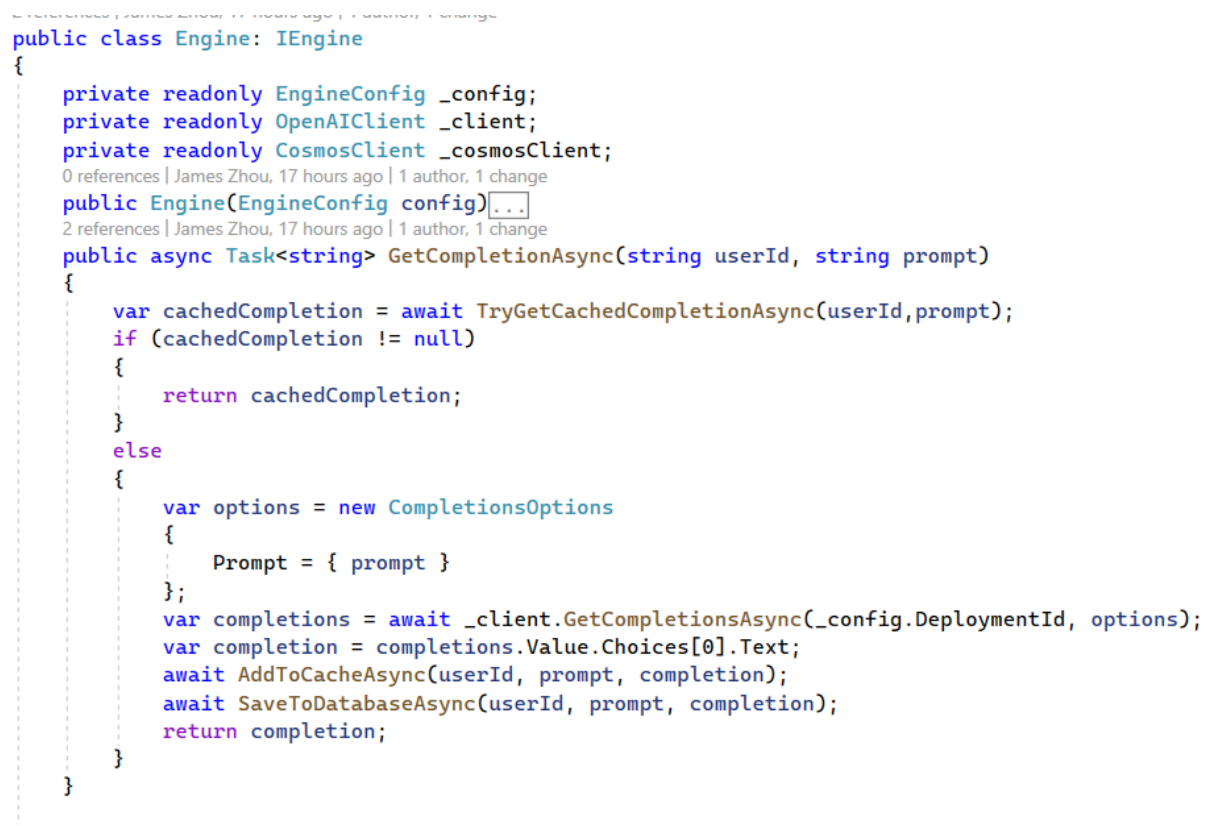
```
var options = new CompletionsOptions
{
    Prompt = { prompt },
    MaxTokens = MaxTokens
};
var completions = await _client.GetCompletionsAsync(_config.DeploymentId, options);
var completion = completions.Value.Choices[0].Text;
return completion;
```

https://learn.microsoft.com/en-us/azure/cognitive-services/openai/reference#completions

Microsoft Azure intel

Code details: About using the Azure Redis caching service

1. Reduce the frequency of calls to Azure OpenAI through application-layer caching
2. The custom context caching mechanism is weak
3. Improve application layer performance with Redis Queue



```
public class Engine: IEngine
{
    private readonly EngineConfig _config;
    private readonly OpenAIClient _client;
    private readonly CosmosClient _cosmosClient;
    0 references | James Zhou, 17 hours ago | 1 author, 1 change
    public Engine(EngineConfig config)...
    2 references | James Zhou, 17 hours ago | 1 author, 1 change
    public async Task<string> GetCompletionAsync(string userId, string prompt)
    {
        var cachedCompletion = await TryGetCachedCompletionAsync(userId,prompt);
        if (cachedCompletion != null)
        {
            return cachedCompletion;
        }
        else
        {
            var options = new CompletionsOptions
            {
                Prompt = { prompt }
            };
            var completions = await _client.GetCompletionsAsync(_config.DeploymentId, options);
            var completion = completions.Value.Choices[0].Text;
            await AddToCacheAsync(userId, prompt, completion);
            await SaveToDatabaseAsync(userId, prompt, completion);
            return completion;
        }
    }
```

About Redis Windows local development：
https://learn.microsoft.com/en-us/azure/azure-cache-for-redis/cache-development-faq
https://github.com/microsoftarchive/redis/releases

Code details: About using Cosmos DB

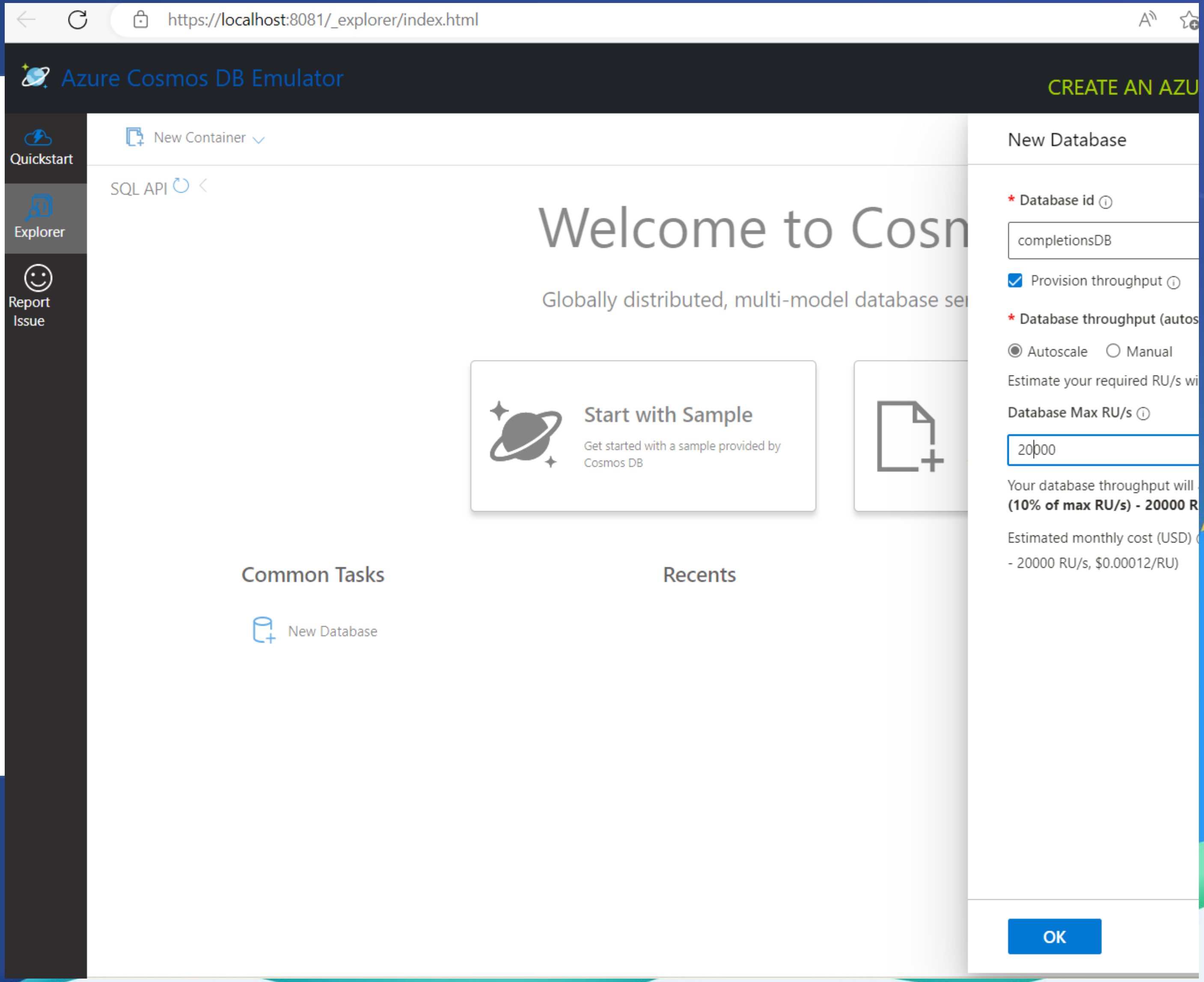
1. Session recording
2. Embeddings Store (domain knowledge base)

```
var database = _cosmosClient.GetDatabase("completionsDB");

var containerResponse = await database.CreateContainerIfNotExistsAsync(
                id: "completions",
                partitionKeyPath: "/userId",
                throughput: 400
);

await containerResponse.Container.CreateItemAsync<CompletionCacheItem>(new CompletionCacheItem
{
    UserId = userId,
    Prompt = prompt,
    Completion = completion
});
```

About local development of Cosmos DB:

https://learn.microsoft.com/en-us/azure/cosmos-db/local-emulator?tabs=ssl-netstd21

https://localhost:8081/_explorer/index.html



New Database

* Database id: completionsDB

[✓] Provision throughput

* Database throughput (autos

[● Autoscale] ○ Manual

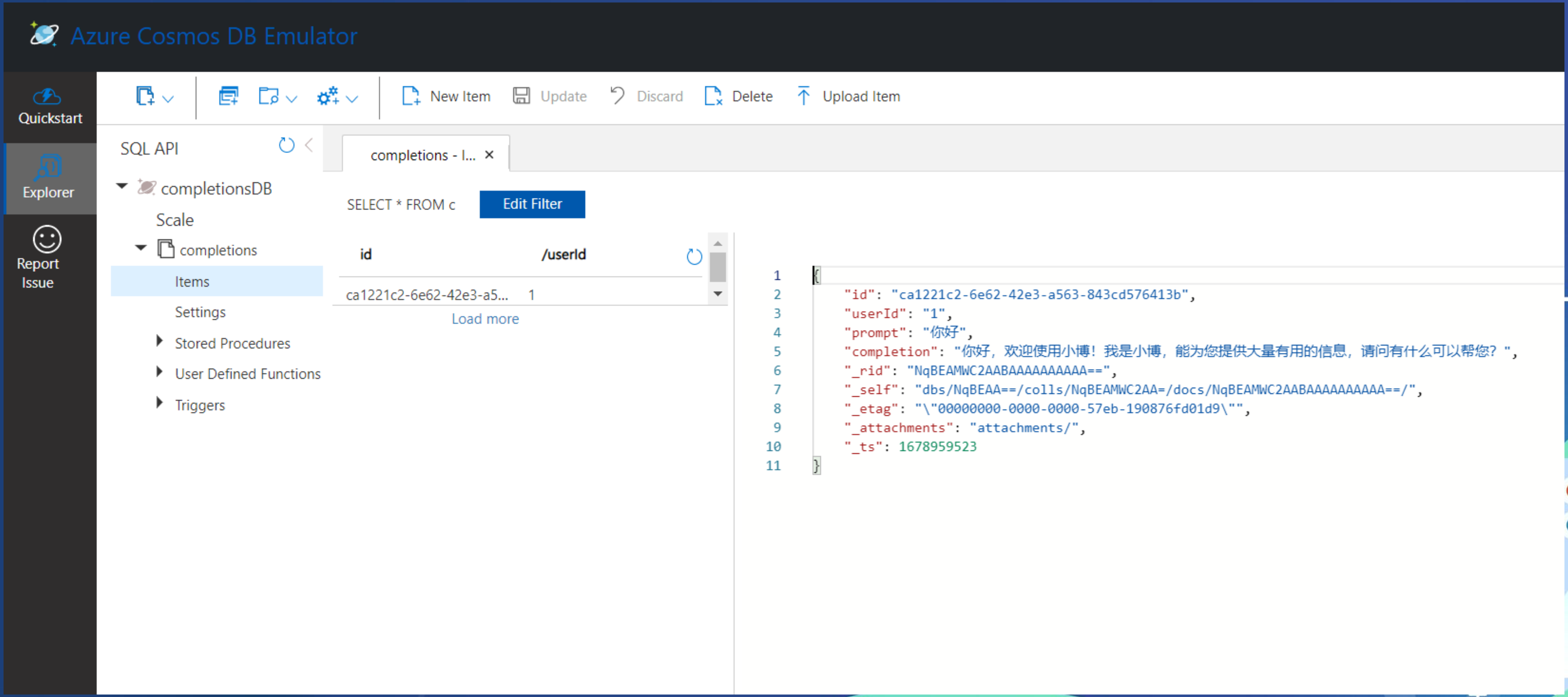
Estimate your required RU/s wi

Database Max RU/s: 20000

Your database throughput will
(10% of max RU/s) - 20000 R

Estimated monthly cost (USD)
- 20000 RU/s, $0.00012/RU)

OK



SELECT * FROM c

id	/userId
ca1221c2-6e62-42e3-a5...	1

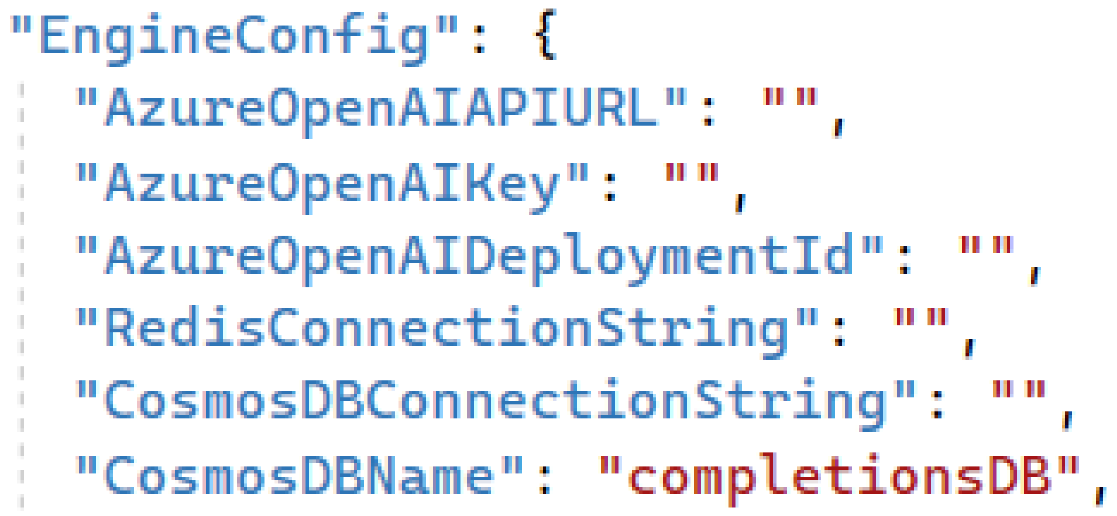
```
{
    "id": "ca1221c2-6e62-42e3-a563-843cd576413b",
    "userId": "1",
    "prompt": "你好",
    "completion": "你好，欢迎使用小博！我是小博，能为您提供大量有用的信息，请问有什么可以帮您？",
    "_rid": "NqBEAMWC2AABAAAAAAAAAA==",
    "_self": "dbs/NqBEAA==/colls/NqBEAMWC2AA=/docs/NqBEAMWC2AABAAAAAAAAAA==/",
    "_etag": "\"00000000-0000-0000-57eb-190876fd01d9\"",
    "_attachments": "attachments/",
    "_ts": 1678959523
}
```

Microsoft Azure

intel

Code: About configuration information

You must configure the following information：
AzureOpenAIAPIURL
AzureOpenAIKey
AzureOpenAIDeploymentId
RedisConnectionString
CosmosbDBConnectionString
CosmosDBName

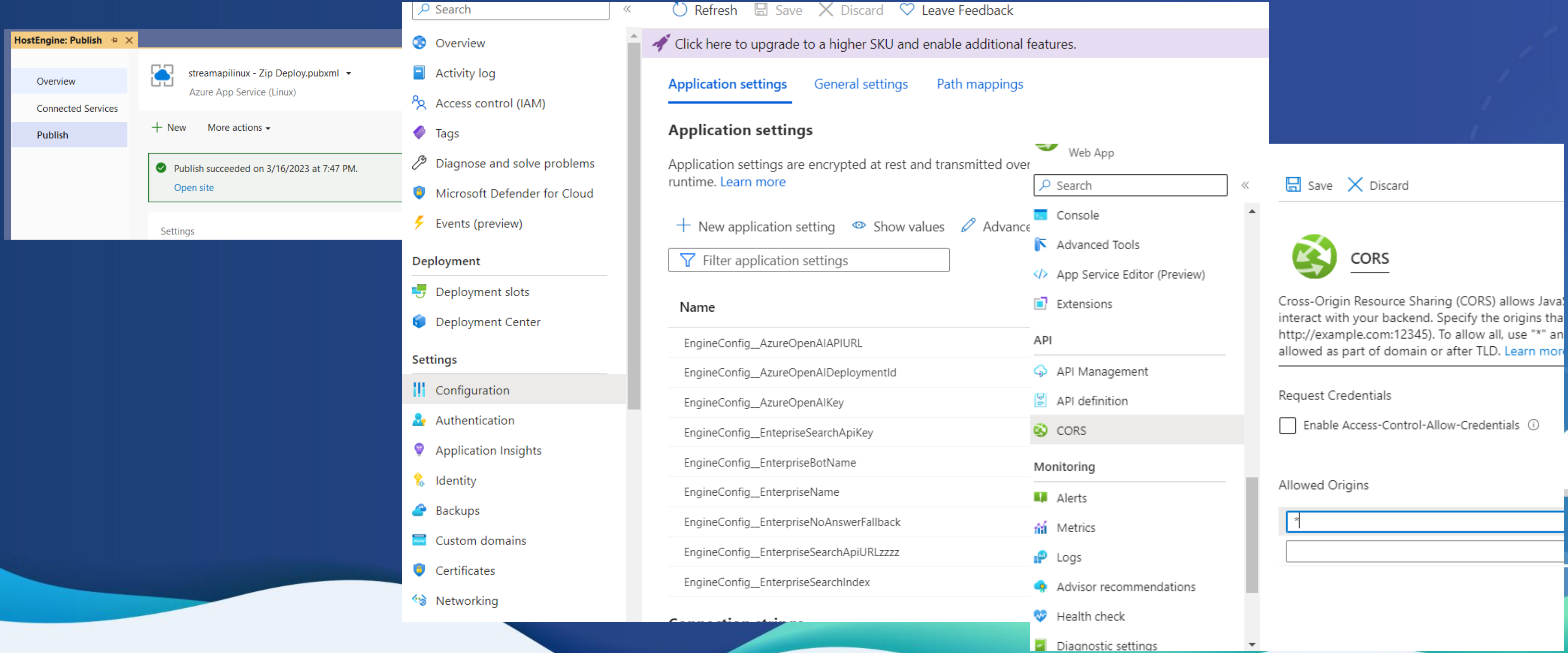


```
"EngineConfig": {
  "AzureOpenAIAPIURL": "",
  "AzureOpenAIKey": "",
  "AzureOpenAIDeploymentId": "",
  "RedisConnectionString": "",
  "CosmosDBConnectionString": "",
  "CosmosDBName": "completionsDB",
```

Microsoft Azure

intel

Deployment and Configuration: Backend Services (APIs)



HostEngine: Publish

Overview
Connected Services
Publish

streamapilinux - Zip Deploy.pubxml
Azure App Service (Linux)

New   More actions

Publish succeeded on 3/16/2023 at 7:47 PM.
Open site

Settings

Search
Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems
Microsoft Defender for Cloud
Events (preview)

Deployment
Deployment slots
Deployment Center

Settings
Configuration
Authentication
Application Insights
Identity
Backups
Custom domains
Certificates
Networking

Refresh   Save   Discard   Leave Feedback

Click here to upgrade to a higher SKU and enable additional features.

Application settings   General settings   Path mappings

Application settings

Application settings are encrypted at rest and transmitted over runtime. Learn more

New application setting   Show values   Advance

Filter application settings

Name
EngineConfig__AzureOpenAIAPIURL
EngineConfig__AzureOpenAIDeploymentId
EngineConfig__AzureOpenAIKey
EngineConfig__EntepriseSearchApiKey
EngineConfig__EnterpriseBotName
EngineConfig__EnterpriseName
EngineConfig__EnterpriseNoAnswerFallback
EngineConfig__EnterpriseSearchApiURLzzzz
EngineConfig__EnterpriseSearchIndex

Web App

Search
Console
Advanced Tools
App Service Editor (Preview)
Extensions

API
API Management
API definition
CORS

Monitoring
Alerts
Metrics
Logs
Advisor recommendations
Health check
Diagnostic settings

Save   Discard

CORS

Cross-Origin Resource Sharing (CORS) allows Java
interact with your backend. Specify the origins tha
http://example.com:12345). To allow all, use "*" an
allowed as part of domain or after TLD. Learn mor

Request Credentials

☐ Enable Access-Control-Allow-Credentials

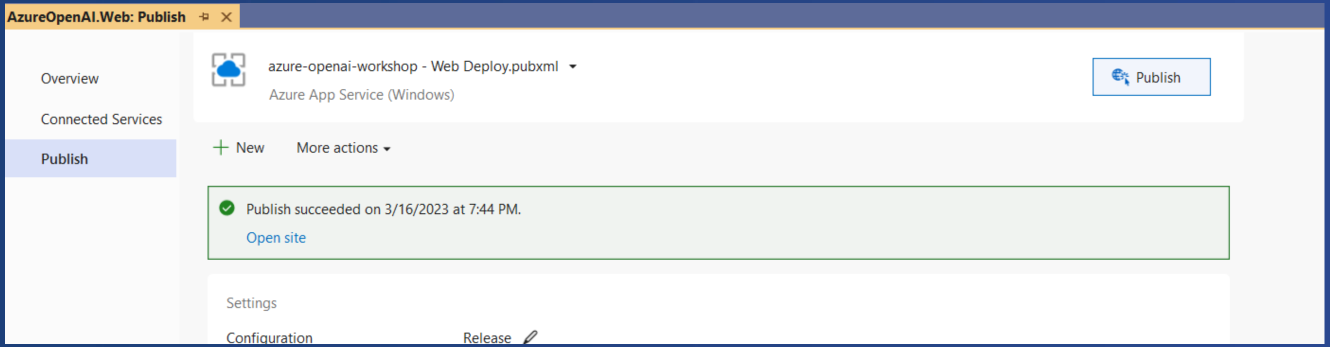
Allowed Origins

*

Microsoft Azure

intel

Deployment & Configuration: Front-End Apps (UI)


AzureOpenAI.Web: Publish

Overview
Connected Services
Publish

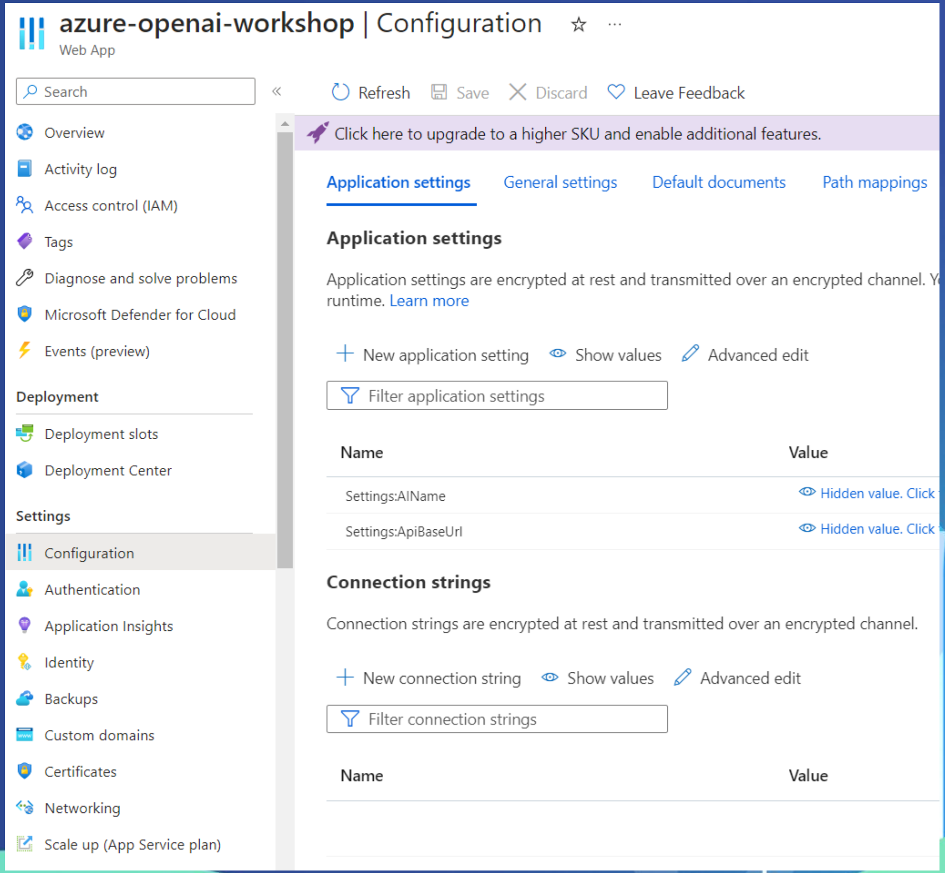
azure-openai-workshop - Web Deploy.pubxml
Azure App Service (Windows)

Publish

New
More actions

Publish succeeded on 3/16/2023 at 7:44 PM.
Open site

Settings
Configuration Release


azure-openai-workshop | Configuration
Web App

Search
Refresh Save Discard Leave Feedback

Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems
Microsoft Defender for Cloud
Events (preview)
Deployment
Deployment slots
Deployment Center
Settings
Configuration
Authentication
Application Insights
Identity
Backups
Custom domains
Certificates
Networking
Scale up (App Service plan)

Click here to upgrade to a higher SKU and enable additional features.

Application settings | General settings | Default documents | Path mappings

Application settings

Application settings are encrypted at rest and transmitted over an encrypted channel. Y
runtime. Learn more

New application setting Show values Advanced edit

Filter application settings

Name	Value
Settings:AIName	Hidden value. Click
Settings:ApiBaseUrl	Hidden value. Click

Connection strings

Connection strings are encrypted at rest and transmitted over an encrypted channel.

New connection string Show values Advanced edit

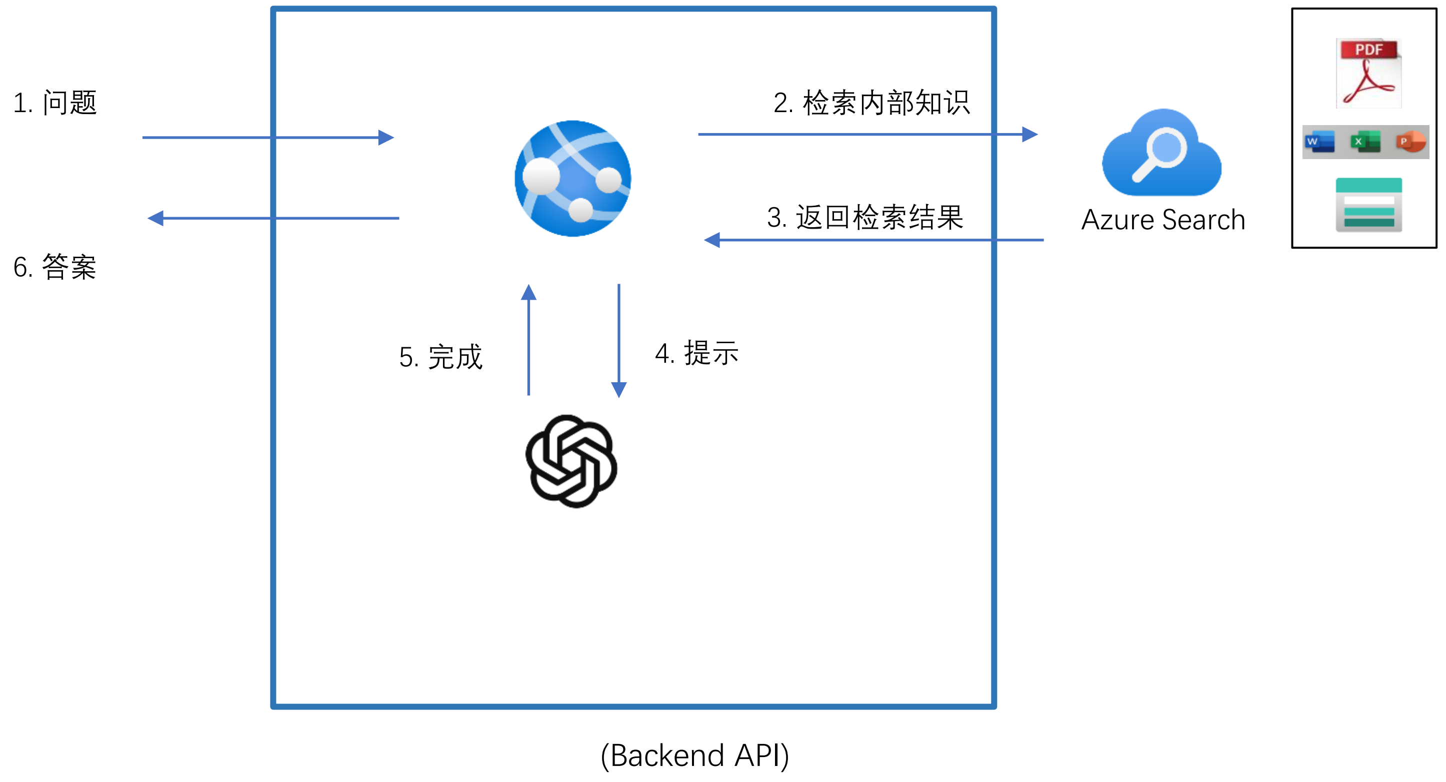
Filter connection strings

Name	Value

Microsoft Azure

intel

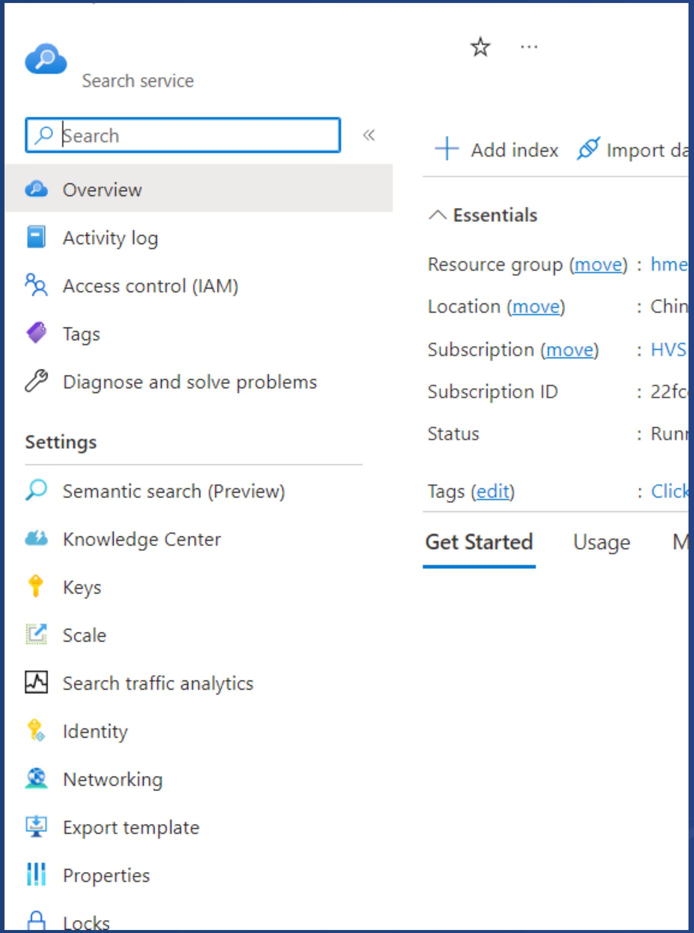
ChatGPT + enterprise knowledge base/data



Microsoft Azure

intel

Create a Cognitive Search service



Search service

Search

+ Add index   Import da

Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems

Settings

Semantic search (Preview)
Knowledge Center
Keys
Scale
Search traffic analytics
Identity
Networking
Export template
Properties
Locks

Essentials

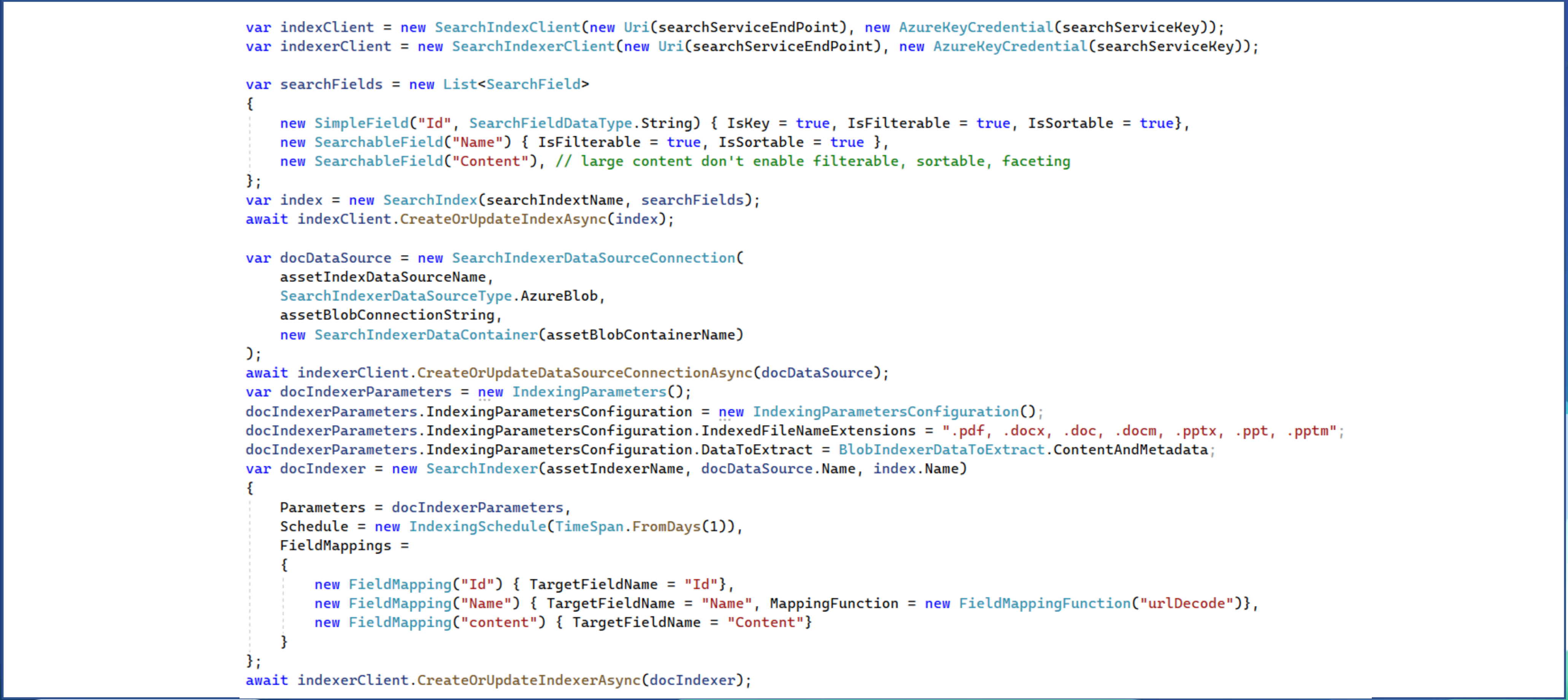
Resource group (move) : hme
Location (move) : Chin
Subscription (move) : HVS
Subscription ID : 22fc
Status : Runr
Tags (edit) : Click

Get Started   Usage   M

Microsoft Azure

intel

Create an Azure Search index

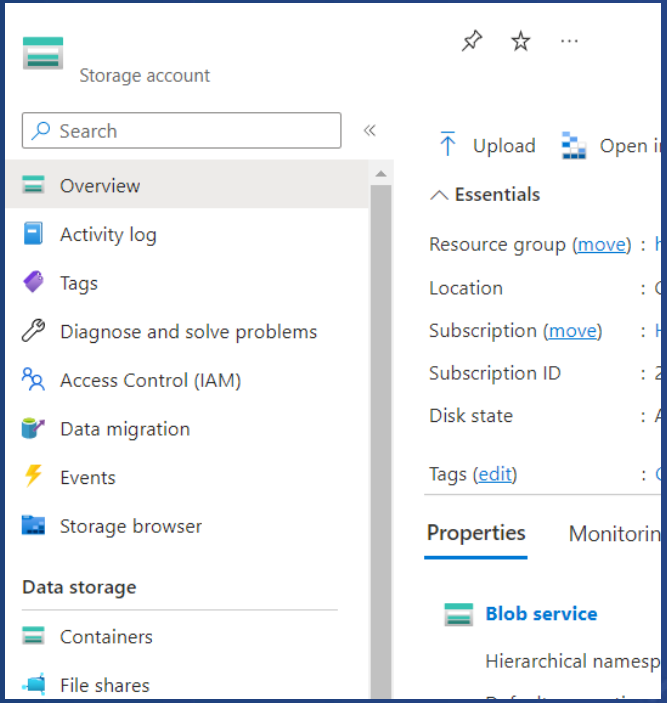


```
var indexClient = new SearchIndexClient(new Uri(searchServiceEndPoint), new AzureKeyCredential(searchServiceKey));
var indexerClient = new SearchIndexerClient(new Uri(searchServiceEndPoint), new AzureKeyCredential(searchServiceKey));

var searchFields = new List<SearchField>
{
    new SimpleField("Id", SearchFieldDataType.String) { IsKey = true, IsFilterable = true, IsSortable = true},
    new SearchableField("Name") { IsFilterable = true, IsSortable = true },
    new SearchableField("Content"), // large content don't enable filterable, sortable, faceting
};
var index = new SearchIndex(searchIndextName, searchFields);
await indexClient.CreateOrUpdateIndexAsync(index);

var docDataSource = new SearchIndexerDataSourceConnection(
    assetIndexDataSourceName,
    SearchIndexerDataSourceType.AzureBlob,
    assetBlobConnectionString,
    new SearchIndexerDataContainer(assetBlobContainerName)
);
await indexerClient.CreateOrUpdateDataSourceConnectionAsync(docDataSource);
var docIndexerParameters = new IndexingParameters();
docIndexerParameters.IndexingParametersConfiguration = new IndexingParametersConfiguration();
docIndexerParameters.IndexingParametersConfiguration.IndexedFileNameExtensions = ".pdf, .docx, .doc, .docm, .pptx, .ppt, .pptm";
docIndexerParameters.IndexingParametersConfiguration.DataToExtract = BlobIndexerDataToExtract.ContentAndMetadata;
var docIndexer = new SearchIndexer(assetIndexerName, docDataSource.Name, index.Name)
{
    Parameters = docIndexerParameters,
    Schedule = new IndexingSchedule(TimeSpan.FromDays(1)),
    FieldMappings =
    {
        new FieldMapping("Id") { TargetFieldName = "Id"},
        new FieldMapping("Name") { TargetFieldName = "Name", MappingFunction = new FieldMappingFunction("urlDecode")},
        new FieldMapping("content") { TargetFieldName = "Content"}
    }
};
await indexerClient.CreateOrUpdateIndexerAsync(docIndexer);
```

Microsoft Azure

intel

Create a Storage Account (to store enterprise knowledge base files)



Storage account

Search

Overview
Activity log
Tags
Diagnose and solve problems
Access Control (IAM)
Data migration
Events
Storage browser

Data storage

Containers
File shares

Upload   Open i

Essentials

Resource group (move) :
Location :
Subscription (move) :
Subscription ID :
Disk state :

Tags (edit) :

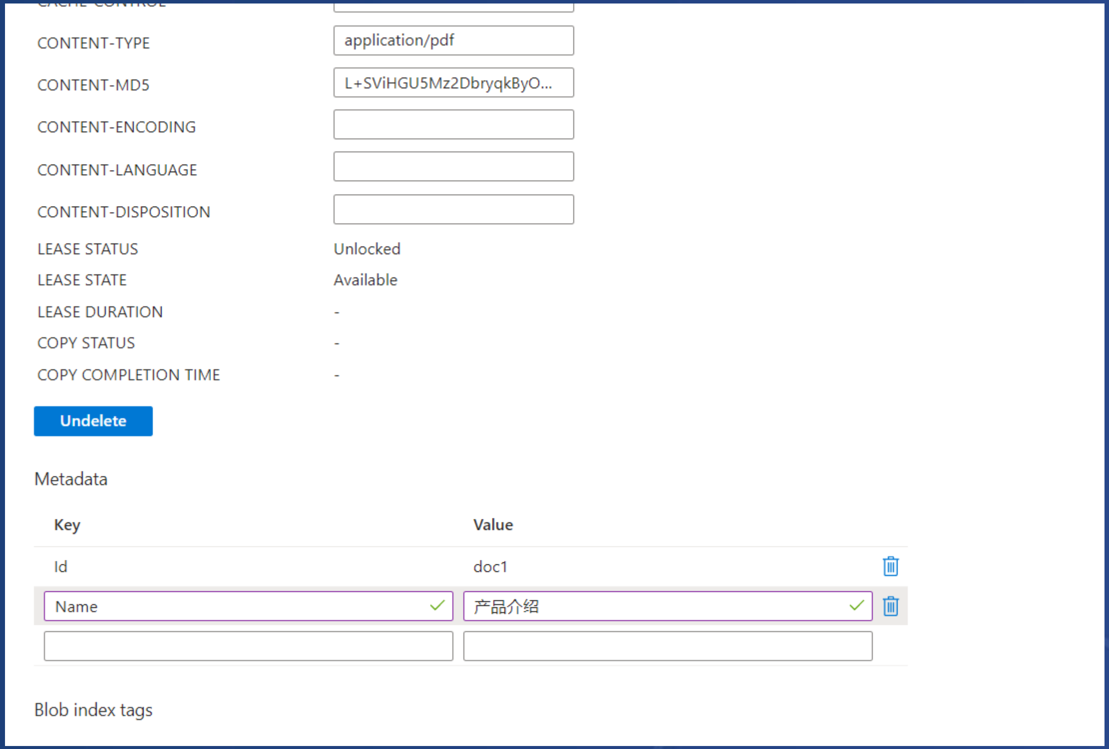
Properties   Monitorin

Blob service

Hierarchical namesp

1. Create a storage account
2. Create a container in the Blob service "workshop"

Upload a sample document (enterprise knowledge base file)



CONTENT-TYPE	application/pdf
CONTENT-MD5	L+SViHGU5Mz2DbryqkByO...
CONTENT-ENCODING	
CONTENT-LANGUAGE	
CONTENT-DISPOSITION	
LEASE STATUS	Unlocked
LEASE STATE	Available
LEASE DURATION	-
COPY STATUS	-
COPY COMPLETION TIME	-

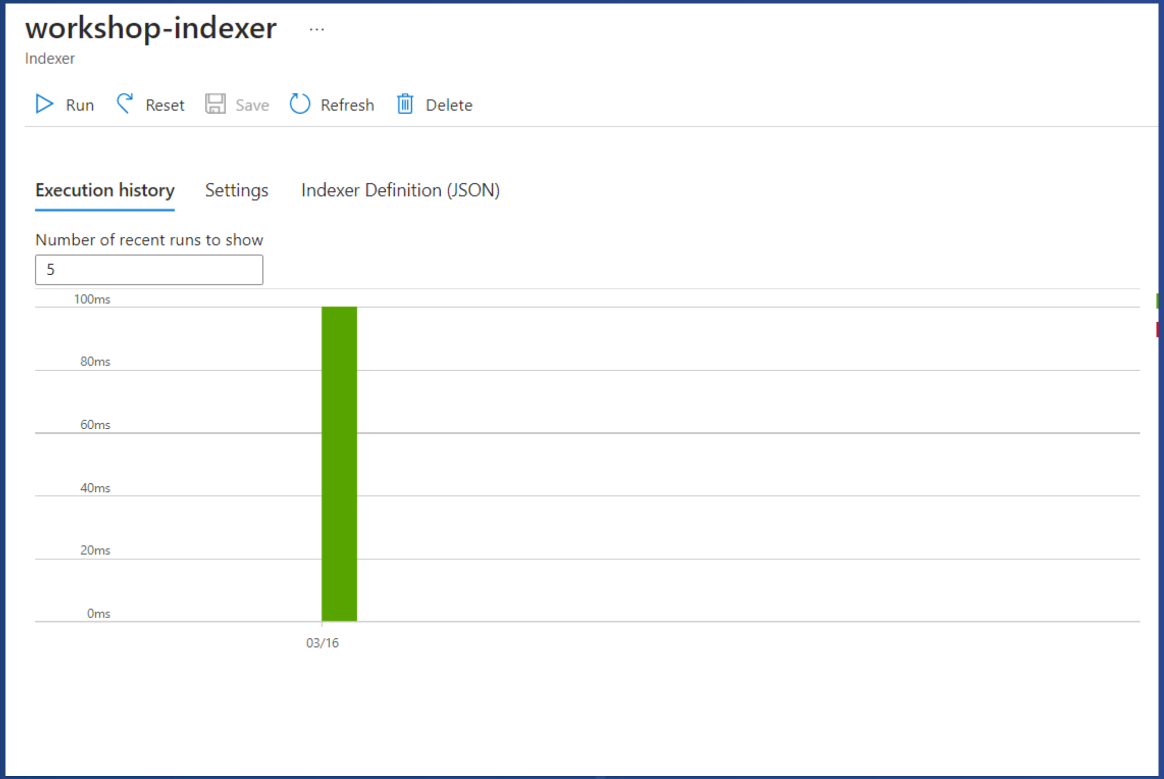
Metadata

Key	Value
Id	doc1
Name	产品介绍

Blob index tags

1. Upload the document
2. Edit the document metada:
   Id
   Name

Run the indexer

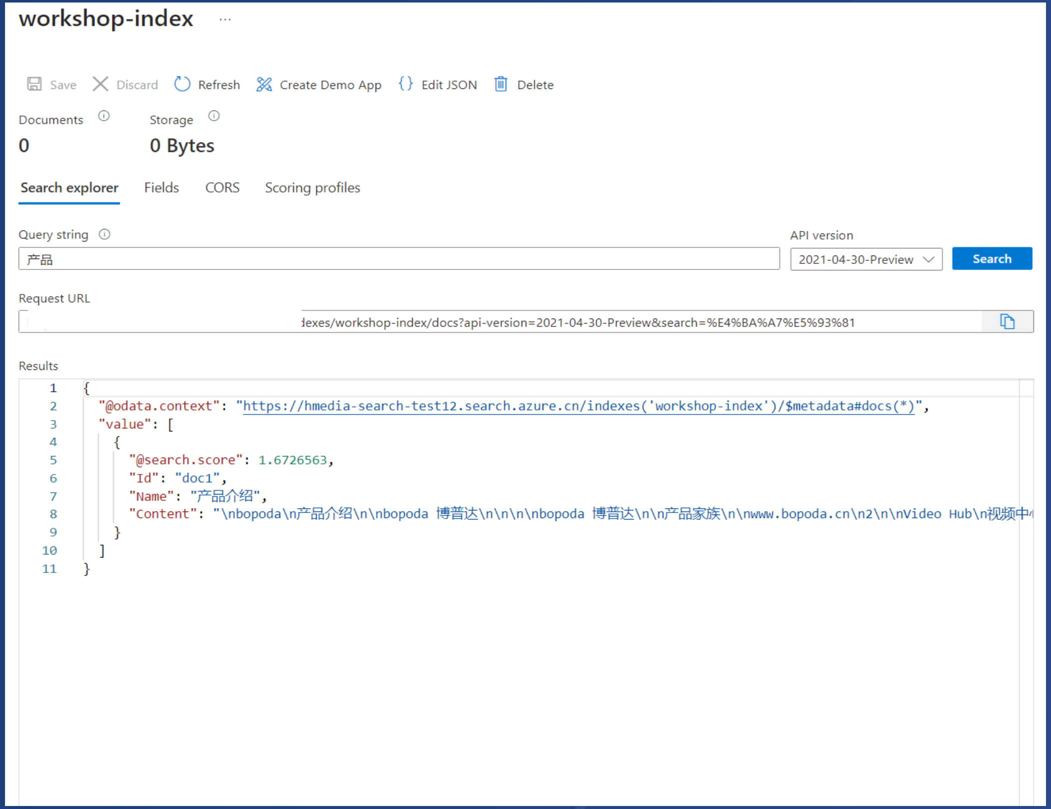


workshop-indexer ···

Indexer

Number of recent runs to show: 5

Debug indexes



Documents
0

Storage
0 Bytes

Query string: 产品

API version: 2021-04-30-Preview

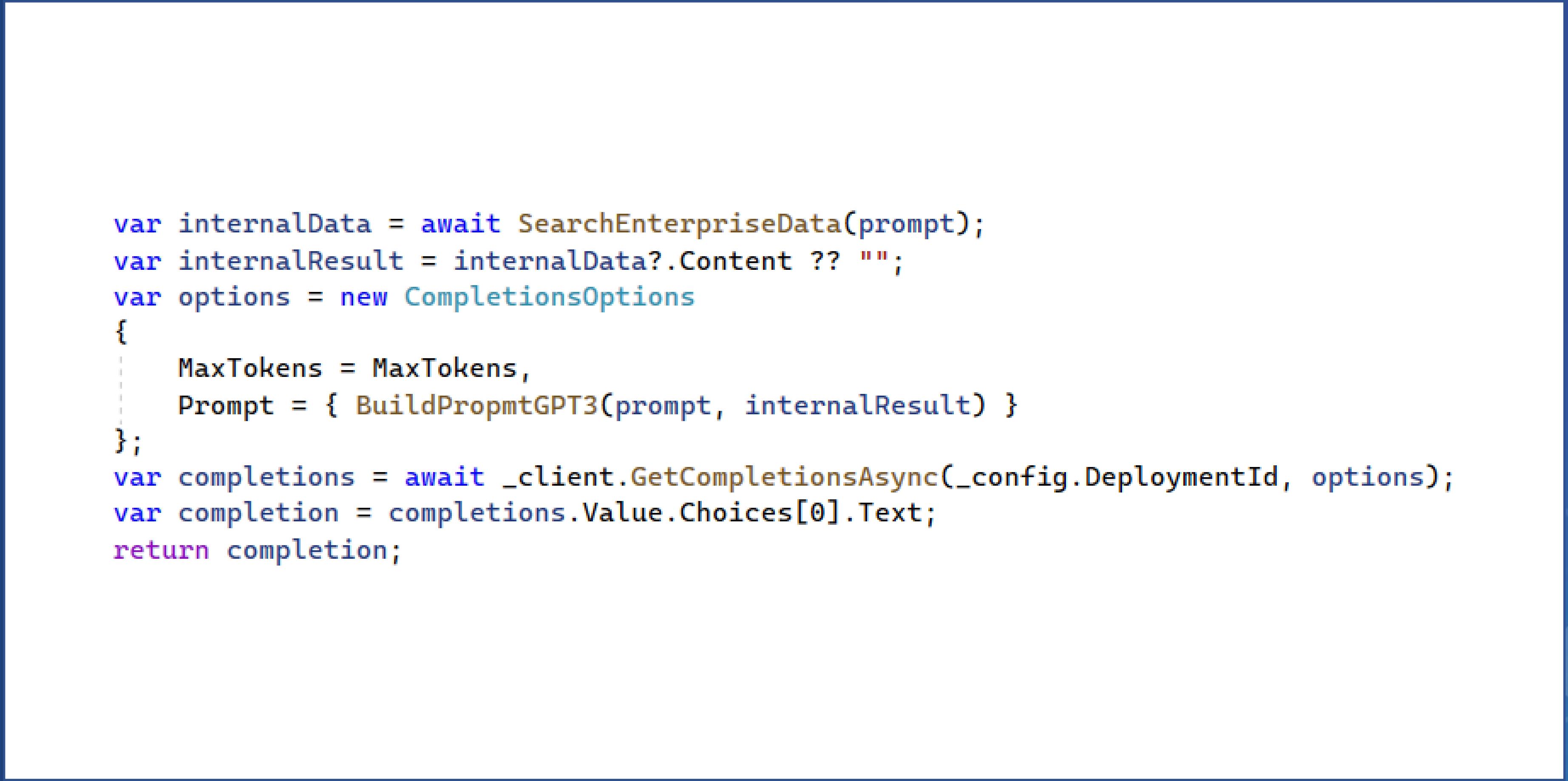
Request URL
[redacted]dexes/workshop-index/docs?api-version=2021-04-30-Preview&search=%E4%BA%A7%E5%93%81

Results

```
{
  "@odata.context": "https://hmedia-search-test12.search.azure.cn/indexes('workshop-index')/$metadata#docs(*)",
  "value": [
    {
      "@search.score": 1.6726563,
      "Id": "doc1",
      "Name": "产品介绍",
      "Content": "\nbopoda\n产品介绍\n\nbopoda 博普达\n\n\nbopoda 博普达\n\n产品家族\n\nwww.bopoda.cn\n2\n\nVideo Hub\n视频中
    }
  ]
}
```

reference：
https://learn.microsoft.com/en-us/azure/search/search-explorer

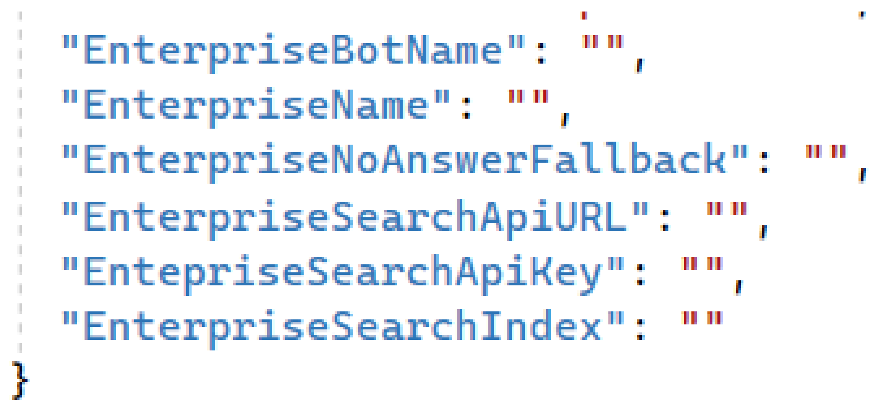
ChatGPT + enterprise knowledge base/data



```csharp
var internalData = await SearchEnterpriseData(prompt);
var internalResult = internalData?.Content ?? "";
var options = new CompletionsOptions
{
    MaxTokens = MaxTokens,
    Prompt = { BuildPropmtGPT3(prompt, internalResult) }
};
var completions = await _client.GetCompletionsAsync(_config.DeploymentId, options);
var completion = completions.Value.Choices[0].Text;
return completion;
```

Code: About configuration information

You must configure the following information：
EnterpriseBotName
EnterpriseName
EnterpriseNoAnswerFallback
EnterpriseSearchApiURL
EnterpriseSearchApiKey
EnterpriseSearchIndex



```
  "EnterpriseBotName": "",
  "EnterpriseName": "",
  "EnterpriseNoAnswerFallback": "",
  "EnterpriseSearchApiURL": "",
  "EntepriseSearchApiKey": "",
  "EnterpriseSearchIndex": ""
}
```

Microsoft Azure

intel

Thanks