

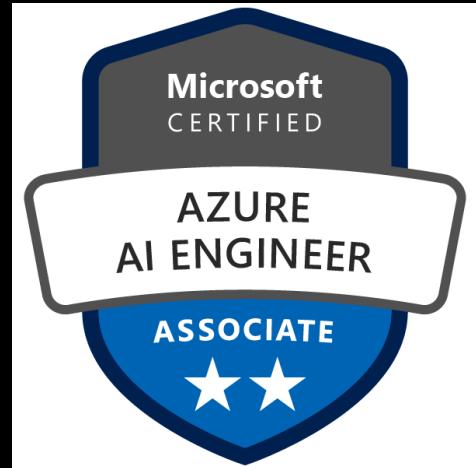
# Challenge #4 // Part 3

## Azure Cognitive Services

### Security

#### IN THIS CHALLENGE:

11. Security Intro
12. Network
13. RBAC and LOCKS
14. Azure Policies
15. Application Registration
16. Exam Sample Questions



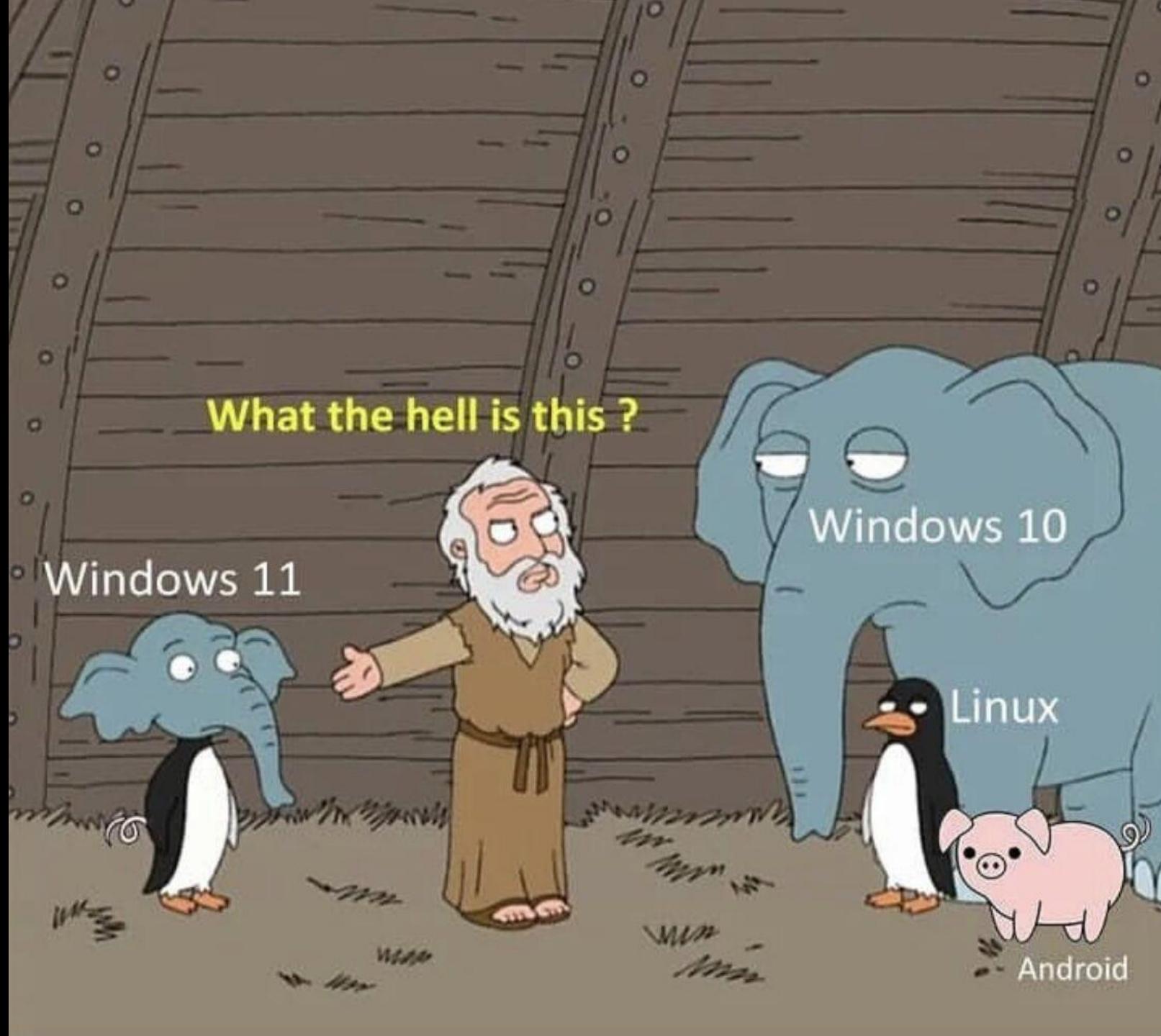
This content is based on the main requirements for AI-102 Certification



# Exam AI-102: Designing and Implementing a Microsoft Azure AI Solution

Candidates for Exam AI-102 should have subject matter expertise building, managing, and deploying AI solutions that leverage Azure Cognitive Services, Azure Cognitive Search, and Microsoft Bot Framework.

Candidates for this exam should be proficient in C#, Python, or JavaScript and should be able to use REST-based APIs and SDKs to build computer vision, natural language processing, knowledge mining, and conversational AI solutions on Azure. They should also understand the components that make up the Azure AI portfolio and the available data storage options. Plus, candidates need to understand and be able to apply responsible AI principles.



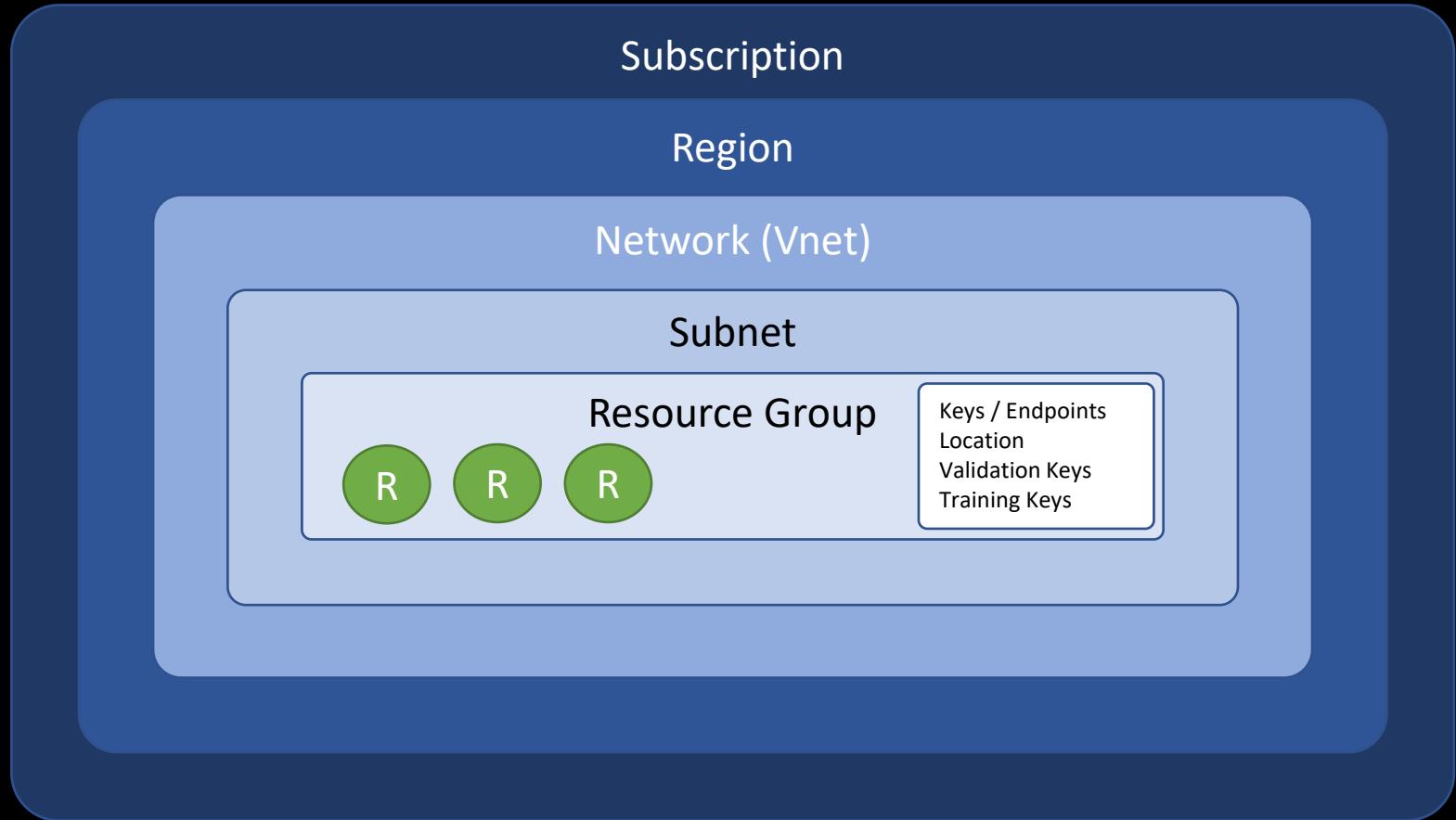
# Before we start there are some important clarifications points:



- (1) Troubleshooting is REALLY important** – It is important for you to find the bugs in your code, env, IDE, etc.
- (2) The code IS JUST a code** – There are several ways to write a code and different languages. The examples here are just one way to do it.
- (3) This IS NOT a prep course** – The main goal here is to show the practical application of the Azure Resources with a focus on Enterprise AI solutions.
- (4) You won't be graded by the challenges** but, they are an important practical component in your learning experience.

Challenge #4.11

Security Intro



The Cognitive Services is linked with the subscription

Challenge #4.12

Networking

## Azure services

Create a  
resourceCost  
Management ...

All resources



Subscriptions



Data factories



SQL databases

Quickstart  
CenterVirtual  
machines

App Services



More services

## Recent resources

Name	Type	Last Viewed
speech-ai1006	Cognitive Services	a few seconds ago
rg-caio-ai	Resource group	3 minutes ago
language-understanding-ai1006-Authoring	Cognitive Services	5 minutes ago
Free Trial	Subscription	52 minutes ago
machinelearning-ai1006	Machine learning	16 hours ago
machinelearning-caio	Machine learning	16 hours ago
cognitiveservices-caio	Cognitive Services	4 days ago
translator-caio	Cognitive Services	4 days ago
storageaccountcaio	Storage account	2 weeks ago
sql-caio-ai1	SQL database	2 weeks ago
sa-caio-ai1	Synapse workspace	3 weeks ago
df-caio-001	Data factory (V2)	4 weeks ago

speech-ai1006 - Microsoft Azure

portal.azure.com/#@caiogasparinegmail.onmicrosoft.com/resource/subscriptions/bf350b48-f641-49a2-b7e4-598ce72df8ab/resourcegroups/rg-caio-ai/providers/Microsoft.CognitiveSer... 🔒 ⭐

Microsoft Azure Upgrade Search resources, services, and docs (G+/-) ☰ 🔍 📈 🚧 🛡️ ? 🔍

Home > speech-ai1006

## speech-ai1006 | Keys and Endpoint

Cognitive Services

Search (Ctrl+ /) Regenerate Key1 Regenerate Key2

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

Resource Management

Keys and Endpoint (selected)

Encryption Pricing tier Networking Identity Billing By Subscription Properties Locks

Monitoring

Alerts

**KEY 1**  
.....

**KEY 2**  
.....

**Location** ⓘ eastus

**Endpoint** <https://eastus.api.cognitive.microsoft.com/sts/v1.0/issuetoken>

These keys are used to access your Cognitive Service API. Do not share your keys. Store them securely— for example, using Azure Key Vault. We also recommend regenerating these keys regularly. Only one key is necessary to make an API call. When regenerating the first key, you can use the second key for continued access to the service.

Show Keys

https://portal.azure.com/#home

A speech-ai1006 - Microsoft Azure +

portal.azure.com/#@caiogasparinegmail.onmicrosoft.com/resource/subscriptions/bf350b48-f641-49a2-b7e4-598ce72df8ab/resourcegroups/rg-caio-ai/providers/Microsoft.CognitiveSer... 🔒 ⭐

Microsoft Azure Upgrade Search resources, services, and docs (G+/-) ☰ 🔍 🌐 🚧 🛡️ ? 🔎

Home > speech-ai1006

## speech-ai1006 | Networking ...

Cognitive Services

Search (Ctrl+/)

Custom Domain Name is required for VNet

Firewalls and virtual networks Private endpoint connections

Save Discard Refresh Generate Custom Domain Name

Allow access from

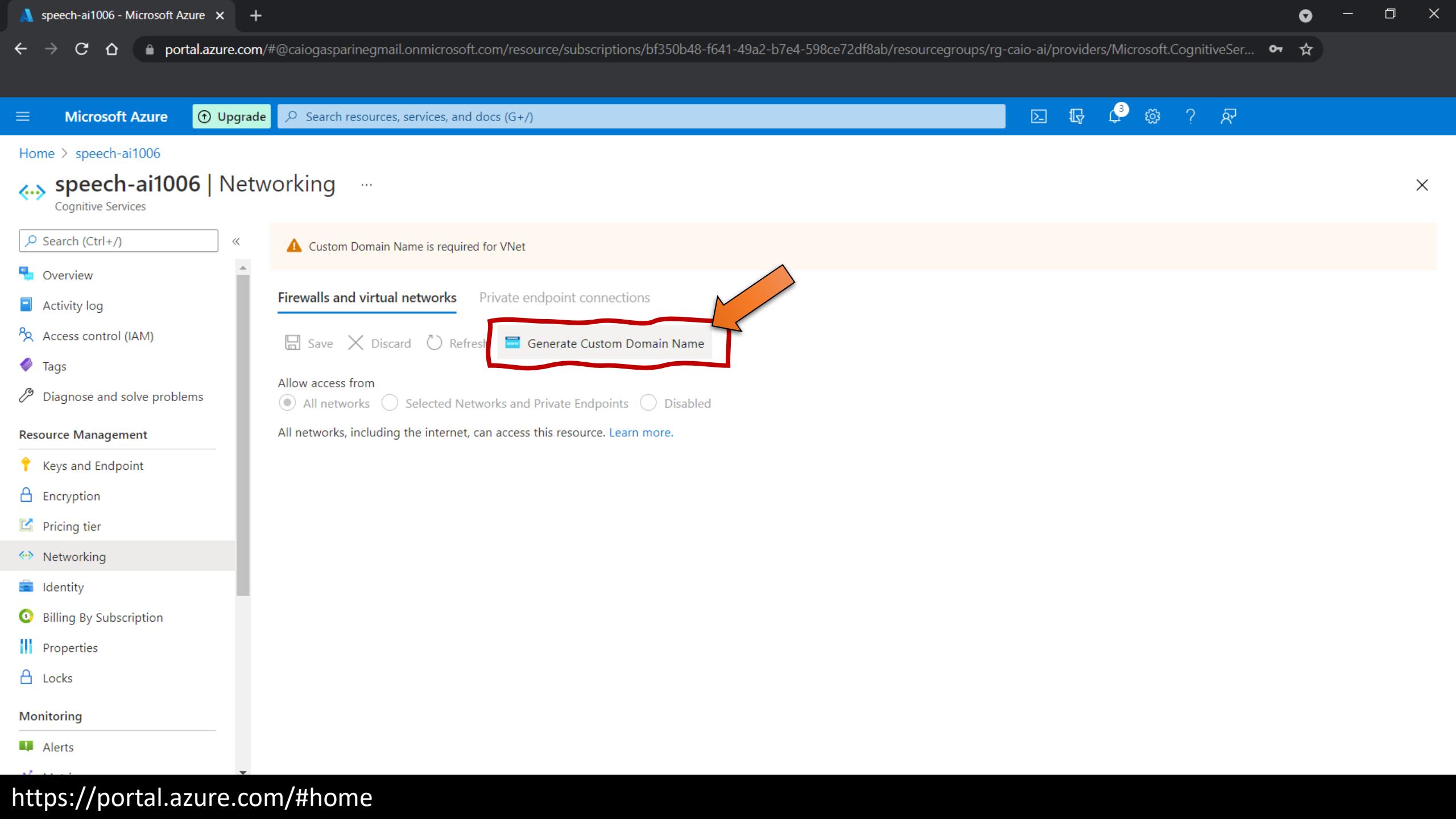
All networks  Selected Networks and Private Endpoints  Disabled

All networks, including the internet, can access this resource. [Learn more.](#)

Keys and Endpoint  
Encryption  
Pricing tier  
**Networking**  
Identity  
Billing By Subscription  
Properties  
Locks

Monitoring  
Alerts

https://portal.azure.com/#home



Generate Custom Domain Name x +

portal.azure.com/#@caiogasparinegmail.onmicrosoft.com/resource/subscriptions/bf350b48-f641-49a2-b7e4-598ce72df8ab/resourcegroups/rg-caio-ai/providers/Microsoft.CognitiveSer... 🔒 ⭐

Microsoft Azure Upgrade Search resources, services, and docs (G+/-)

Home > speech-ai1006

## speech-ai1006 | Networking ...

Cognitive Services

Search (Ctrl+/)

Custom Domain Name is required for VNet

Firewalls and virtual networks Private endpoint connections

Save Discard Refresh Generate Custom Domain Name

Allow access from

All networks  Selected Networks and Private Endpoints  Disabled

All networks, including the internet, can access this resource. [Learn more.](#)

Generate Custom Domain Name Na...

Generate Custom Domain Name

Enter value for Custom Domain Name \*

ai-1006

Save Save

https://portal.azure.com/#home

speech-ai1006 - Microsoft Azure

portal.azure.com/#@caiogasparinegmail.onmicrosoft.com/resource/subscriptions/bf350b48-f641-49a2-b7e4-598ce72df8ab/resourcegroups/rg-caio-ai/providers/Microsoft.CognitiveSer... 🔒 ⭐

Microsoft Azure Upgrade Search resources, services, and docs (G+/-)

Home > speech-ai1006

speech-ai1006 | Keys and Endpoint Cognitive Services

Search (Ctrl+ /) Regenerate Key1 Regenerate Key2

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

Resource Management

Keys and Endpoint (selected)

Encryption Pricing tier Networking Identity Billing By Subscription Properties Locks

Monitoring

Alerts

**KEY 1**  
..... 

**KEY 2**  
..... 

**Location** ⓘ eastus 

**Endpoint** <https://ai-1006.cognitiveservices.azure.com/sts/v1.0/issuetoken> 

Custom Domain Name 10:42 AM  
Custom Domain Name ai-1006 created successfully for resource speech-ai1006

https://portal.azure.com/#home

Challenge #4.13

RBAC (Role Based Access Control) and Locks

A speech-ai1006 - Microsoft Azure +

portal.azure.com/#@caiogasparinegmail.onmicrosoft.com/resource/subscriptions/bf350b48-f641-49a2-b7e4-598ce72df8ab/resourcegroups/rg-caio-ai/providers/Microsoft.CognitiveSer... 🔒 ⭐

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Home >

speech-ai1006 Cognitive Services

Search (Ctrl+ /) Delete

Help us improve Speech. Take our survey!

Essentials

Resource group (change) : rg-caio-ai API type : Speech  
Status : Active Pricing tier : Free  
Location : East US Endpoint : https://ai-1006.cognitiveservices.azure.com/sts/v1.0/issuetoken  
Subscription (change) : Free Trial Manage keys : Click here to manage keys  
Subscription ID : bf350b48-f641-49a2-b7e4-598ce72df8ab  
Tags (change) : Click here to add tags JSON View

Get Started Discover Develop Deploy

Get Started with Speech Services

The Speech service is the unification of speech-to-text, text-to-speech, speaker recognition, speech translation, and intent recognition into a single Azure subscription.

Learn More

Discover Develop Deploy

https://portal.azure.com/#@caiogasparinegmail.onmicrosoft.com/resource/subscriptions/bf3... our service in the cloud or on your

https://portal.azure.com/#home

Home > speech-ai1006

## speech-ai1006 | Identity ... X

Cognitive Services

Search (Ctrl+/)

System assigned User assigned

A system assigned managed identity is restricted to one per resource and is tied to the lifecycle of this resource. You can grant permissions to the managed identity by using Azure role-based access control (Azure RBAC). The managed identity is authenticated with Azure AD, so you don't have to store any credentials in code. [Learn more about Managed identities.](#)

Save Discard

Refresh

Got feedback?

Status i

Off On

### Resource Management

Key and Endpoint

Encryption

Pricing tier

Networking

Identity



Billing By Subscription

Properties

Locks

### Monitoring

Alerts

Microsoft Azure Upgrade Search resources, services, and docs (G+) 4 ? ?

Home > speech-ai1006

## speech-ai1006 | Identity

Cognitive Services

Search (Ctrl + /) « System assigned User assigned »

User assigned managed identities enable Azure resources to authenticate to cloud services (e.g. Azure Key Vault) without storing credentials in code. This type of managed identities are created as standalone Azure resources, and have their own lifecycle. A single resource (e.g. Virtual Machine) can utilize multiple user assigned managed identities. Similarly, a single user assigned managed identity can be shared across multiple resources (e.g. Virtual Machine). [Learn more about Managed identities.](#)

+ Add Remove Refresh Got feedback?

Name	resource group	subscription
No results		

 No user assigned managed identities found on this resource

Add user assigned managed identity

**Role based access control**  
W – R – Subscription level  
Resource Group Level Permission

<https://portal.azure.com/#home>

speech-ai1006 - Microsoft Azure +

portal.azure.com/#@caiogasparinegmail.onmicrosoft.com/resource/subscriptions/bf350b48-f641-49a2-b7e4-598ce72df8ab/resourcegroups/rg-caio-ai/providers/Microsoft.CognitiveServices/accounts/speech-ai1006/locks

Microsoft Azure Upgrade Search resources, services, and docs (G+/-) ☰ 🔍 4 🚧 ⚙️ ? 🔍

Home > speech-ai1006

## speech-ai1006 | Locks

Cognitive Services

Search (Ctrl+ /) « Add Resource group Subscription Refresh

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

Resource Management

- Keys and Endpoint
- Encryption
- Pricing tier
- Networking
- Identity
- Billing By Subscription
- Properties
- Locks**

Monitoring

- Alerts

This resource has no locks.



<https://portal.azure.com/#@caiogasparinegmail.onmicrosoft.com/resource/subscriptions/bf350b48-f641-49a2-b7e4-598ce72df8ab/resourcegroups/rg-caio-ai/providers/Microsoft.CognitiveServices/accounts/speech-ai1006/locks>

<https://portal.azure.com/#home>

speech-ai1006 - Microsoft Azure +

portal.azure.com/#@caiogasparinegmail.onmicrosoft.com/resource/subscriptions/bf350b48-f641-49a2-b7e4-598ce72df8ab/resourcegroups/rg-caio-ai/providers/Microsoft.CognitiveSer... 🔒 ⭐

Microsoft Azure Upgrade Search resources, services, and docs (G+/-) ☰ 🔍 🚧 🛡️ 🛠️ ? 🔍

Home > speech-ai1006

speech-ai1006 | Locks ...

Cognitive Services

Search (Ctrl+ /) « Add Resource group Subscription Refresh

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

Resource Management

Keys and Endpoint Encryption Pricing tier Networking Identity Billing By Subscription Properties Locks

Add lock

Lock name: no-delete Lock type: Read-only Notes: just a test

OK Cancel

Locks

**Read-Only** – Cannot be deleted and cannot be updated.

**Delete** – Cannot be deleted but can be updated.

https://portal.azure.com/#home

A speech-ai1006 - Microsoft Azure +

portal.azure.com/#@caiogasparinegmail.onmicrosoft.com/resource/subscriptions/bf350b48-f641-49a2-b7e4-598ce72df8ab/resourcegroups/rg-caio-ai/providers/Microsoft.CognitiveSer... 🔒 ⭐

Microsoft Azure Upgrade Search resources, services, and docs (G+/-) ☰ ⓘ 4 ⓘ ? ⓘ

Home >

speech-ai1006 Cognitive Services

Search (Ctrl+/)

Delete

Delete

Help us improve Speech. Take our survey!

Essentials

Resource group (change) : rg-caio-ai API type : Speech  
Status : Active Pricing tier : Free  
Location : East US Endpoint : https://ai-1006.cognitiveservices.azure.com/sts/v1.0/issuetoken  
Subscription (change) : Free Trial Manage keys : Click here to manage keys  
Subscription ID : bf350b48-f641-49a2-b7e4-598ce72df8ab  
Tags (change) : Click here to add tags

JSON View

Get Started Discover Develop Deploy

Get Started with Speech Services

The Speech service is the unification of speech-to-text, text-to-speech, speaker recognition, speech translation, and intent recognition into a single Azure subscription.

Learn More

Discover

Whether running our service in the cloud or on your

Develop

Learn the basics, check out our sample code and

Deploy

Decide on hosting options, monitor your usage and

https://portal.azure.com/#home

**Challenge #4.14**

**Azure Policy**

# What is Azure Policy?

Azure Policy helps to enforce organizational standards and to assess compliance at-scale. Through its compliance dashboard, it provides an aggregated view to evaluate the overall state of the environment, with the ability to drill down to the per-resource, per-policy granularity. It also helps to bring your resources to compliance through bulk remediation for existing resources and automatic remediation for new resources.

Common use cases for Azure Policy include implementing governance for resource consistency, regulatory compliance, security, cost, and management. Policy definitions for these common use cases are already available in your Azure environment as built-ins to help you get started.

All Azure Policy data and objects are encrypted at rest.

Home - Microsoft Azure

portal.azure.com/#home

Microsoft Azure

Upgrade

Search: pol

Azure services

Services

- Policy
- Firewall Policies
- Service endpoint policies
- PokitDok Platform
- Application gateways
- Application groups
- Application Insights
- Application Services
- Web Application Firewall policies (WAF)
- Application Change Analysis

Recent resources

Name

- speech
- rg-caio-ai1
- language
- Free Trial
- machin
- machin
- cognit
- translat

Resources

No results were found.

Didn't find what you were looking for?

- Try searching in Activity Log
- Try searching in Azure Active Directory

Searching all subscriptions. [Change](#)

Marketplace

See all

- Datree Policy
- VMware NSX - Policy Manager
- Aruba ClearPass Policy Manager (CPPM)
- Web Application Firewall (WAF)

Documentation

See all

- Quickstart: New policy assignment with portal - Azure ...
- Quickstart: New policy assignment with templates - Azure ...
- Built-in policy definitions for Azure Security Center ...
- Details of the policy assignment structure - Azure Policy ...

Resource Groups

No results were found.

Storage account

SQL database

Synapse workspace

Data factory (V2)

2 weeks ago

2 weeks ago

3 weeks ago

4 weeks ago

More services →

Services

Documentation

Resource Groups

Storage account

SQL database

Synapse workspace

Data factory (V2)

2 weeks ago

2 weeks ago

3 weeks ago

4 weeks ago

Policy - Microsoft Azure

portal.azure.com/#blade/Microsoft\_Azure\_Policy/PolicyMenuBlade/Overview

Microsoft Azure    Upgrade    Search resources, services, and docs (G+)

Home > Policy

Search (Ctrl + /)    Scope: Free Trial

Get notified of compliance state changes! Use event-based architecture to react to notifications with an Azure Function, Logic App, or any other supported event handler. Learn more <https://aka.ms/policyPlusEventGrid>

Overall resource compliance: 0% (0 out of 22)

Resources by compliance state:

- 0 - Compliant
- 0 - Exempt
- 22 - Non-compliant

Non-compliant initiatives: 1 out of 1

Non-compliant policies: 65 out of 199

LEARN MORE: [Learn about Policy](#) [Onboarding tutorial](#)

Name	Scope	Compliance state	Resource compli...	Non-Compliant Resources	Non-compliant policies
ASC Default (subscription: bf350b...)	Free Trial	Non-compliant	0% (0 out of 22)	22	65

View all

ASSIGNMENTS BY COMPLIANCE (LAST 7 DAYS)

ASC Default...

20  
15

<https://docs.microsoft.com/en-us/azure/governance/policy/overview>

ASC Default (subscription: bf350b48-f641-49a2-b7e4-598ce72df8ab) + portal.azure.com/#blade/Microsoft\_Azure\_Policy/InitiativeComplianceDetailedBlade/id/%2Fsubscriptions%2Fbf350b48-f641-49a2-b7e4-598ce72df8ab%2Fproviders%2FMicrosoft.Authorization... ☆

Microsoft Azure Upgrade Search resources, services, and docs (G+/-)

Home > Policy >

## ASC Default (subscription: bf350b48-f641-49a2-b7e4-598ce72df8ab)

Initiative compliance

View definition Edit assignment Assign to another scope Delete assignment Create Remediation Task Create exemption

Essentials

Name : ASC Default (subscription: bf350b48-f641-49a2-b7e4-598ce72df8ab) Scope : Free Trial  
Description : This is the default set of policies monitored by Azure Security Center. It was automatically assigned a... Excluded scopes : --  
Assignment ID : /subscriptions/bf350b48-f641-49a2-b7e4-598ce72df8ab/providers/Microsoft.Authorization/policyAs... Definition : Azure Security Benchmark

Selected Scopes ①

1 selected subscription

Compliance state ① Non-compliant

Overall resource compliance ① 0% 0 out of 22

Resources by compliance state ① 22

- 0 - Compliant
- 0 - Exempt
- 22 - Non-compliant

Non-compliant policies ① 65 out of 199

Groups Policies Non-compliant resources Events

Filter by group name...

Subgroup : All subgroups Compliance state : 7 selected

Name ↑↓	Compliance ↑↓	Subgroup ↑↓	Non-compliant policies ↑↓	Total policies ↑↓
<a href="#">Implement security for internal traffic</a>	Non-compliant	Network Security	13	13
<a href="#">...</a>	Non-compliant	...	10	10

<https://docs.microsoft.com/en-us/azure/governance/policy/overview>

ASC Default (subscription: bf350b48-f641-49a2-b7e4-598ce72df8ab) +

portal.azure.com/#blade/Microsoft\_Azure\_Policy/InitiativeComplianceDetailedBlade/id/%2Fsubscriptions%2Fbf350b48-f641-49a2-b7e4-598ce72df8ab%2Fproviders%2FMicrosoft.Authorizati... ☆

Microsoft Azure Upgrade Search resources, services, and docs (G+/-)

Home > Policy >

## ASC Default (subscription: bf350b48-f641-49a2-b7e4-598ce72df8ab)

Initiative compliance

View definition Edit assignment Assign to another scope Delete assignment Create Remediation Task Create exemption

Compliance state Non-compliant Overall resource compliance 0% 0 out of 22 Resources by compliance state 22 Non-compliant policies 65 out of 199

Groups Policies Non-compliant resources Events

Filter by group name... Subgroup : All subgroups Compliance state : 7 selected

Name ↑↓	Compliance ↑↓	Subgroup ↑↓	Non-compliant policies ↑↓	Total policies ↑↓
Implement security for internal traffic	✗ Non-compliant	Network Security	13	13
Enable threat detection for Azure resources	✗ Non-compliant	Logging and Threat Detection	10	10
Enable threat detection for Azure identity and access management	✗ Non-compliant	Logging and Threat Detection	10	10
Detection and analysis - create incidents based on high quality alerts	✗ Non-compliant	Incident Response	10	10
Detection and analysis - prioritize incidents	✗ Non-compliant	Incident Response	10	10
Protect applications and services from external network attacks	✗ Non-compliant	Network Security	8	8
Protect sensitive data	✗ Non-compliant	Data Protection	6	6
Review and reconcile user access regularly	✗ Non-compliant	Privileged Access	5	5

<https://docs.microsoft.com/en-us/azure/governance/policy/overview>

**Challenge #4.15**

**Application Registration**

# What is App Registration?

Azure App Registrations are an easy and powerful way to configure authentication and authorization workflows for a variety of different client types.

Applications are added to Azure AD to leverage one or more of the services it provides, including:

- (1) App authentication and authorization
- (2) User authentication and authorization
- (3) OAuth authorization services // used by Microsoft 365 and other MS applications to authorize access to API and resources

All resources - Microsoft Azure

portal.azure.com/#blade/HubsExtension/BrowseAll

Create a resource

Home

Dashboard

All services

**FAVORITES**

- All resources
- Resource groups
- App Services
- Function App
- SQL databases
- Azure Cosmos DB
- Virtual machines
- Load balancers
- Storage accounts
- Virtual networks
- Azure Active Directory**
- Monitor
- Advisor
- Security Center
- Cost Management + Bill...
- Help + support

Upgrade

Search resources, services, and docs (G+)

Refresh Export to CSV Open query Feedback Assign tags Delete

subscription == all Resource group == all Type == all Location == all Add filter

Show hidden types

No grouping List view

Type ↑↓	Resource group ↑↓	Location ↑↓	Subscription ↑↓	
Cognitive Services	rg-caio-ai	Brazil South	Free Trial	
Data factory (V2)	rg-caio-ai	Brazil South	Free Trial	
Storage account	rg-caio-ai	Brazil South	Free Trial	
i1006	Cognitive Services	rg-caio-ai	East US	Free Trial
i1006-Authoring	Cognitive Services	rg-caio-ai	West US	Free Trial
8	Storage account	rg-caio-ai	Brazil South	Free Trial
3	Application Insights	rg-caio-ai	Brazil South	Free Trial
3	Application Insights	rg-caio-ai	Brazil South	Free Trial
3	Key vault	rg-caio-ai	Brazil South	Free Trial
3	Key vault	rg-caio-ai	Brazil South	Free Trial
3	Storage account	rg-caio-ai	Brazil South	Free Trial

Azure Active Directory ★

View

Free training from Microsoft

OpenID Conn...

<https://docs.microsoft.com/en-us/azure/governance/policy/overview>



A Default Directory - Microsoft Azure +

portal.azure.com/#blade/Microsoft\_AAD\_IAM/ActiveDirectoryMenuBlade/Overview

Microsoft Azure Upgrade Search resources, services, and docs (G+)

Home > Default Directory | Overview

Overview Getting started Preview features Diagnose and solve problems

Manage Users Groups External Identities Roles and administrators Administrative units Enterprise applications Devices App registrations Identity Governance Application proxy Licenses Azure AD Connect

Switch tenant Delete tenant Create a tenant What's new Preview features Got feedback?

Azure Active Directory can help you enable remote work for your employees and partners. [Learn more](#)

## Default Directory

Search your tenant

**Tenant information**

Your role: Global administrator [More info](#)

License: Azure AD Free

Tenant ID: 362067a6-2936-460f-ae05-bf26...

Primary domain: caiogasparinegmail.onmicrosoft.com

**Azure AD Connect**

Status: Not enabled

Last sync: Sync has never run

Sign-ins: 7, 6, 5

<https://docs.microsoft.com/en-us/azure/governance/policy/overview>

Default Directory - Microsoft Azure +

portal.azure.com/#blade/Microsoft\_AAD\_IAM/ActiveDirectoryMenuBlade/RegisteredApps

Microsoft Azure Upgrade Search resources, services, and docs (G+)

Home > Default Directory

## Default Directory | App registrations

Azure Active Directory

+ New registration Endpoints Troubleshooting Refresh Download Preview features Got feedback?

Try out the new App registrations search preview! Click to enable the preview. →

Starting June 30th, 2020 we will no longer add any new features to Azure Active Directory Authentication Library (ADAL) and Azure AD Graph. We will continue to provide technical support and security updates but we will no longer provide feature updates. Applications will need to be upgraded to Microsoft Authentication Library (MSAL) and Microsoft Graph. Learn more

All applications Owned applications Deleted applications (Preview) Applications from personal account

Start typing a name or Application ID to filter these results

This account isn't listed as an owner of any applications in this directory.

[View all applications in the directory](#)

[View all applications from personal account](#)

Manage

- Users
- Groups
- External Identities
- Roles and administrators
- Administrative units
- Enterprise applications
- Devices
- App registrations
- Identity Governance
- Application proxy
- Licenses
- Azure AD Connect

<https://docs.microsoft.com/en-us/azure/governance/policy/overview>

https://portal.azure.com/#blade/Microsoft\_AAD\_IAM/ActiveDirectoryMenuBlade/Registered...

Register an application - Microsoft Azure +

portal.azure.com/#blade/Microsoft\_AAD\_RegisteredApps/CreateApplicationBlade/quickStartType//isMSAApp/

Microsoft Azure Upgrade Search resources, services, and docs (G+/)

Home > Default Directory >

## Register an application

\* Name

The user-facing display name for this application (this can be changed later).

my-new-application-registered 

Supported account types

Who can use this application or access this API?

Accounts in this organizational directory only (Default Directory only - Single tenant)  
 Accounts in any organizational directory (Any Azure AD directory - Multitenant)  
 Accounts in any organizational directory (Any Azure AD directory - Multitenant) and personal Microsoft accounts (e.g. Skype, Xbox)  
 Personal Microsoft accounts only

[Help me choose...](#)

Redirect URI (optional)

We'll return the authentication response to this URI after successfully authenticating the user. Providing this now is optional and it can be changed later, but a value is required for most authentication scenarios.

By proceeding, you agree to the Microsoft Platform Policies [↗](#)

**Register** 

my-new-application-registered - + portal.azure.com/#blade/Microsoft\_AAD\_RegisteredApps/ApplicationMenuBlade/Overview/quickStartType//sourceType/Microsoft\_AAD\_IAM/appId/ca13eebc-91b6-4f27-b665-812b2569245f... ?

Microsoft Azure Upgrade Search resources, services, and docs (G+) Cloud Help Feedback ? Preview

Home > Default Directory >

# my-new-application-registered

Search (Ctrl+ /) Delete Endpoints Preview features

Got a second? We would love your feedback on Microsoft identity platform (previously Azure AD for developer). →

**Essentials**

Display name	: my-new-application-registered	Client credentials	: Add a certificate or secret
Application (client) ID	: ca13eebc-91b6-4f27-b665-812b2569245f	Redirect URIs	: Add a Redirect URI
Object ID	: 9626c280-40b3-45ad-8ff6-a645343508de	Application ID URI	: Add an Application ID URI
Directory (tenant) ID	: 362067a6-2936-460f-ae05-bf263cebe940	Managed application in I...	: my-new-application-registered
Supported account types	: My organization only		

Welcome to the new and improved App registrations. Looking to learn how it's changed from App registrations (Legacy)? [Learn more](#) X

Starting June 30th, 2020 we will no longer add any new features to Azure Active Directory Authentication Library (ADAL) and Azure AD Graph. We will continue to provide technical support and security updates but we will no longer provide feature updates. Applications will need to be upgraded to Microsoft Authentication Library (MSAL) and Microsoft Graph. [Learn more](#) X

[Get Started](#) [Documentation](#)

**Build your application with the Microsoft identity platform**

The Microsoft identity platform is an authentication service, open-source libraries, and application management tools. You can create modern, standards-based authentication solutions, access and protect APIs, and add sign-in for your users and customers. [Learn more](#) X







my-new-application-registered - + portal.azure.com/#blade/Microsoft\_AAD\_RegisteredApps/ApplicationMenuBlade/Credentials/quickStartType//sourceType/Microsoft\_AAD\_IAM/appId/ca13eebc-91b6-4f27-b665-812b256924... ☆

Microsoft Azure Upgrade Search resources, services, and docs (G+)

Home > Default Directory > my-new-application-registered

## my-new-application-registered | Certificates & secrets

Search (Ctrl +/)

Got feedback?

Credentials enable confidential applications to identify themselves to the authentication service when receiving tokens at a web addressable location (using an HTTPS scheme). For a higher level of assurance, we recommend using a certificate (instead of a client secret) as a credential.

### Certificates

Certificates can be used as secrets to prove the application's identity when requesting a token. Also can be referred to as public keys.

Upload certificate

Thumbprint	Start date	Expires	Certificate ID
No certificates have been added for this application.			

### Client secrets

A secret string that the application uses to prove its identity when requesting a token. Also can be referred to as application password.

New client secret

Description	Expires	Value	Secret ID
No client secrets have been created for this application.			



Add a client secret - Microsoft A<sub>Z</sub> +

portal.azure.com/#blade/Microsoft\_AAD\_RegisteredApps/ApplicationMenuBlade/Credentials/quickStartType//sourceType/Microsoft\_AAD\_IAM/appId/ca13eebc-91b6-4f27-b665-812b256924... ☆

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A secret string that the application uses to prove its identity when requesting a token. Also can be referred to as app

New client secret

Description	Expires	Value
No client secrets have been created for this application.		

Add Cancel

Add a client secret

Description

Expires

secret-1

Recommended: 6 months

Recommended: 6 months

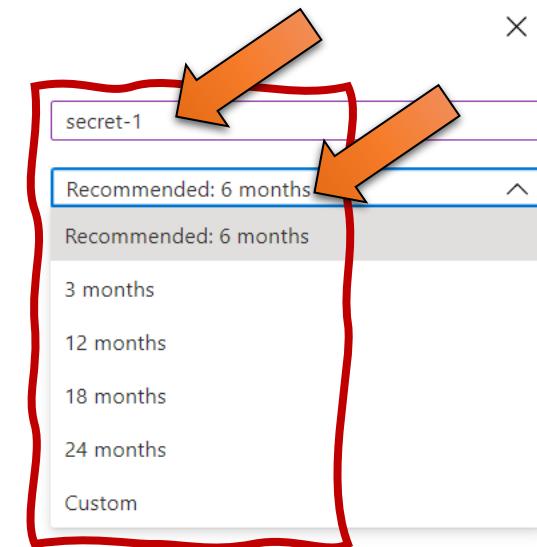
3 months

12 months

18 months

24 months

Custom



Add a client secret - Microsoft A<sub>Z</sub> +

portal.azure.com/#blade/Microsoft\_AAD\_RegisteredApps/ApplicationMenuBlade/Credentials/quickStartType//sourceType/Microsoft\_AAD\_IAM/appId/ca13eebc-91b6-4f27-b665-812b256924... ☆

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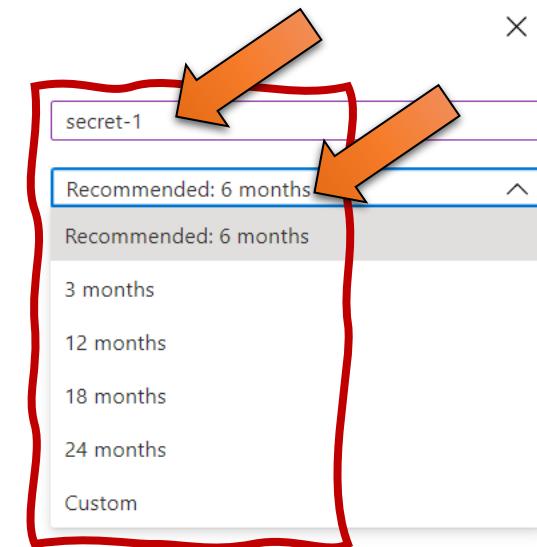
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Certificates can be used as secrets to prove the application's identity when requesting a token. Also can be referred to as public keys.

Upload certificate

Thumbprint	Start date	Expires	Certificate ID
No certificates have been added for this application.			

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A secret string that the application uses to prove its identity when requesting a token. Also can be referred to as application password.

New client secret

Description	Expires	Value	Secret ID
secret-1	12/15/2021	JHQdI6VPI59Y1VeCc2Xo9.e.o5l-y0Vq-i	4cabfe0d-f3a3-4240-ad4f-725e9e59ce44

https://portal.azure.com/#blade/Microsoft\_AAD\_RegisteredApps/ApplicationMenuBlade/Ma... <https://docs.microsoft.com/en-us/azure/governance/policy/overview>

my-new-application-registered - + portal.azure.com/#blade/Microsoft\_AAD\_RegisteredApps/ApplicationMenuBlade/CallAnAPI/quickStartType//sourceType/Microsoft\_AAD\_IAM/appId/ca13eebc-91b6-4f27-b665-812b2569245f... ☆

Microsoft Azure Upgrade Search resources, services, and docs (G+)

Home > Default Directory > my-new-application-registered

## my-new-application-registered | API permissions

Search (Ctrl + /) Refresh Got feedback?

The "Admin consent required" column shows the default value for an organization. However, user consent can be customized per permission, user, or app. This column may not reflect the value in your organization, or in organizations where this app will be used. [Learn more](#)

**Configured permissions**

Applications are authorized to call APIs when they are granted permissions by users/admins as part of the consent process. The list of configured permissions should include all the permissions the application needs. [Learn more about permissions and consent](#)

+ Add a permission  Grant admin consent for Default Directory

API / Permissions name	Type	Description	Admin consent requ...	Status
Microsoft Graph (1)				
User.Read	Delegated	Sign in and read user profile	No	...

To view and manage permissions and user consent, try [Enterprise applications](#).

API permissions

Expose an API

App roles

Owners

Roles and administrators | Pre...

Manifest

Support + Troubleshooting

Troubleshooting

[https://portal.azure.com/#blade/Microsoft\\_AAD\\_RegisteredApps/ApplicationMenuBlade/CallAnAPI/quickStartType//sourceType/Microsoft\\_AAD\\_IAM/appId/ca13eebc-91b6-4f27-b665-812b2569245f/objectId/9626c280-40b3-45ad-8ff6-a645343508de/isMSAApp//defaultBlade/Overview](https://portal.azure.com/#blade/Microsoft_AAD_RegisteredApps/ApplicationMenuBlade/CallAnAPI/quickStartType//sourceType/Microsoft_AAD_IAM/appId/ca13eebc-91b6-4f27-b665-812b2569245f/objectId/9626c280-40b3-45ad-8ff6-a645343508de/isMSAApp//defaultBlade/Overview)

<https://docs.microsoft.com/en-us/azure/governance/policy/overview>

A Request API permissions - Micros x +

portal.azure.com/#blade/Microsoft\_AAD\_RegisteredApps/ApplicationMenuBlade/CallAnAPI/quickStartType//sourceType/Microsoft\_AAD\_IAM/appId/ca13eebc-91b6-4f27-b665-812b2569245f... ☆

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The "Admin consent required" column shows the default value for an organization. However, user consent can be customized per permission, user, or app. This column may not reflect the value in your organization, or in organizations where this app will be used. [Learn more](#)

### Configured permissions

Applications are authorized to call APIs when they are granted permission to do so. Your application needs to access the API as the signed-in user.

Add a permission Grant admin consent for Default Directory

API / Permissions name	Type	Description
Microsoft Graph (1)	User.Read	Delegated Sign in and read

To view and manage permissions and user consent, try [Enterprise app](#)

API permissions

Expose an API

App roles

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Troubleshooting

[https://developer.microsoft.com/graph/docs/concepts/permissions\\_reference](https://developer.microsoft.com/graph/docs/concepts/permissions_reference)

## Request API permissions

Microsoft Graph <https://graph.microsoft.com/> Docs

What type of permissions does your application require?

Delegated permissions Your application needs to access the API as the signed-in user.

Application permissions Your application runs as a background service or daemon without a signed-in user.

Select permissions

Start typing a permission to filter these results

The "Admin consent required" column shows the default value for an organization. However, user consent can be customized per permission, user, or app. This column may not reflect the value in your organization, or in organizations where this app will be used. [Learn more](#)

Permission Admin consent required

Openid permissions

email View users' email address No

Update permissions Discard

<https://docs.microsoft.com/en-us/azure/governance/policy/overview>

Challenge #4.16

AI-102 // Sample Questions

# AI 100 / AI 102 - Sample Questions



You need to build a chatbot that meets the following requirements:

- ⦿ Supports chit-chat, knowledge base, and multilingual models
- ⦿ Performs sentiment analysis on user messages
- ⦿ Selects the best language model automatically

What should you integrate into the chatbot?

- A. QnA Maker, Language Understanding, and Dispatch
- B. Translator, Speech, and Dispatch
- C. Language Understanding, Text Analytics, and QnA Maker
- D. Text Analytics, Translator, and Dispatch

# AI 100 / AI 102 - Sample Questions



Your company wants to reduce how long it takes for employees to log receipts in expense reports. All the receipts are in English.

You need to extract top-level information from the receipts, such as the vendor and the transaction total. The solution must minimize development effort.

Which Azure Cognitive Services service should you use?

A. Custom Vision

B. Personalizer

C. Form Recognizer

D. Computer Vision

# AI 100 / AI 102 - Sample Questions



You are developing a new sales system that will process the video and text from a public-facing website.

You plan to monitor the sales system to ensure that it provides equitable results regardless of the user's location or background.

Which two responsible AI principles provide guidance to meet the monitoring requirements? Each correct answer presents part of the solution. (Choose two.)

NOTE: Each correct selection is worth one point.

- A. transparency
- B. fairness
- C. inclusiveness
- D. reliability and safety
- E. privacy and security

# AI 100 / AI 102 - Sample Questions



You have the following C# method for creating Azure Cognitive Services resources programmatically.

```
static void create_resource(CognitiveServicesManagementClient client, string
resource_name, string kind, string account_tier, string location)
{
    CognitiveServicesAccount parameters =
        new CognitiveServicesAccount(null, null, kind, location, resource_name,
new CognitiveServicesAccountProperties(), new Sku(account_tier));
    var result = client.Accounts.Create(resource_group_name, account_tier,
parameters);
}
```

You need to call the method to create a free Azure resource in the West US Azure region. The resource will be used to generate captions of images automatically.

Which code should you use?

- A. create\_resource(client, "res1", "ComputerVision", "F0", "westus")
- B. create\_resource(client, "res1", "CustomVision.Prediction", "F0", "westus")
- C. create\_resource(client, "res1", "ComputerVision", "S0", "westus")
- D. create\_resource(client, "res1", "CustomVision.Prediction", "S0", "westus")

# AI 100 / AI 102 - Sample Questions



You successfully run the following HTTP request.

```
POST https://management.azure.com/subscriptions/18c51a87-3a69-47a8-aedc-a54745f708a1/resourceGroups/RG1/providers/  
Microsoft.CognitiveServices/accounts/contosol/regenerateKey?api-version=2017-04-18  
Body{"keyName": "Key2"}
```

What is the result of the request?

- A. A key for Azure Cognitive Services was generated in Azure Key Vault.
- B. A new query key was generated.
- C. The primary subscription key and the secondary subscription key were rotated.
- D. The secondary subscription key was reset.

Accounts - Regenerate Key regenerates the specified account key for the specified Cognitive Services account.

Syntax:  
POST

```
https://management.azure.com/  
subscriptions/{subscriptionId}/re  
sourceGroups/{resourceGroupName}/providers/Microsoft.Cognitiv  
eServices/accounts/  
{accountName}/regenerateKey?  
api-version=2017-04-18
```

Reference:

<https://docs.microsoft.com/en-us/rest/api/cognitiveservices/accountmanagement/accounts/regeneratekey>

# AI 100 / AI 102 - Sample Questions



You build a custom Form Recognizer model.

You receive sample files to use for training the model as shown in the following table.

Name	Type	Size
File1	PDF	20 MB
File2	MP4	100 MB
File3	JPG	20 MB
File4	PDF	100 MB
File5	GIF	1 MB
File6	JPG	40 MB

Which three files can you use to train the model? Each correct answer presents a complete solution. (Choose three.)

NOTE: Each correct selection is worth one point.

- A. File1
- B. File2
- C. File3
- D. File4
- E. File5
- F. File6

Form Recognizer works on input documents that meet these requirements:

Format must be JPG, PNG, PDF (text or scanned), or TIFF. Text-embedded PDFs are best because there's no possibility of error in character extraction and location.

File size must be less than 50 MB.

Reference:

<https://docs.microsoft.com/en-us/azure/cognitive-services/form-recognizer/overview>

# AI 100 / AI 102 - Sample Questions



You have a Video Indexer service that is used to provide a search interface over company videos on your company's website.

You need to be able to search for videos based on who is present in the video.

What should you do?

---

A. Create a person model and associate the model to the videos.

---

B. Create person objects and provide face images for each object.

•

C. Invite the entire staff of the company to Video Indexer.

D. Edit the faces in the videos.

E. Upload names to a language model.

# AI 100 / AI 102 - Sample Questions



DRAG DROP -

You are developing a call to the Face API. The call must find similar faces from an existing list named employefaces. The employefaces list contains 60,000 images.

How should you complete the body of the HTTP request? To answer, drag the appropriate values to the correct targets. Each value may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.

NOTE: Each correct selection is worth one point.

Select and Place:

## Values

"faceListId"

"LargeFaceListId"

"matchFace"

"matchPerson"

## Answer Area

```
{  
  "faceId": "18c51a87-3a69-47a8-aedc-a54745f708a1",  
  "LargeFaceListId" : "employefaces",  
  "maxNumOfCandidatesReturned": 1,  
  "mode": "matchFace"  
}
```

# AI 100 / AI 102 - Sample Questions



DRAG DROP .

You are developing a photo application that will find photos of a person based on a sample image by using the Face API.

You need to create a POST request to find the photos.

How should you complete the request? To answer, drag the appropriate values to the correct targets. Each value may be used once, more than once, or not at all.

You may need to drag the split bar between panes or scroll to view content.

NOTE: Each correct selection is worth one point.

Select and Place:

## Values

detect  
findsimilar  
group  
identify  
matchFace  
matchPerson  
verify

## Answer Area

```
POST {Endpoint}/face/v1.0/ detect
Request Body

{
    "faceId": "c5c24a82-6845-4031-9d5d-978df9175426",
    "largeFaceListId": "sample_list",
    "largeFaceListId": "sample_list",
    "maxNumOfCandidatesReturned": 10,
    "mode": " matchPerson "
}
```

# AI 100 / AI 102 - Sample Questions



You develop a test method to verify the results retrieved from a call to the Computer Vision API. The call is used to analyze the existence of company logos in images. The call returns a collection of brands named brands.

You have the following code segment.

```
foreach (var brand in brands)
{
    if (brand.Confidence >= .75)
        Console.WriteLine($"Logo of {brand.Name} between {brand.Rectangle.X},
(brand.Rectangle.Y) and (brand.Rectangle.W), (brand.Rectangle.H)");
}
```

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

NOTE: Each correct selection is worth one point.

<https://docs.microsoft.com/en-us/azure/cognitive-services/computer-vision/concept-brand-detection>

## Answer Area

### Statements

Yes      No

The code will return the name of each detected brand with a confidence equal to or higher than 75 percent.

The code will return coordinates for the bottom-left corner of the rectangle that contains the brand logo of the displayed brands.

The code will return coordinates for the bottom-right corner of the rectangle that contains the brand logo of the displayed brands.



You are designing an AI solution that will analyze millions of pictures.

You need to recommend a solution for storing the pictures. The solution must minimize costs.

Which storage solution should you recommend?

- A. an Azure Data Lake store
- B. Azure File Storage
- C. Azure Blob storage
- D. Azure Table storage

# AI 100 / AI 102 - Sample Questions



You need to build an interactive website that will accept uploaded images, and then ask a series of predefined questions based on each image.

Which services should you use? To answer, select the appropriate options in the answer area.

NOTE: Each correct selection is worth one point.

Hot Area:

Dynamically ask questions based  
on an uploaded image:

Azure Analysis Services
Azure Bot Service
Azure Data Factory
Azure Linguistic Analysis API

Analyze and classify an image:

Bing Image Search
Bing Visual Search
Computer Vision
Video Indexer

# AI 100 / AI 102 - Sample Questions



Your company has 1,000 AI developers who are responsible for provisioning environments in Azure. You need to control the type, size, and location of the resources that the developers can provision. What should you use?

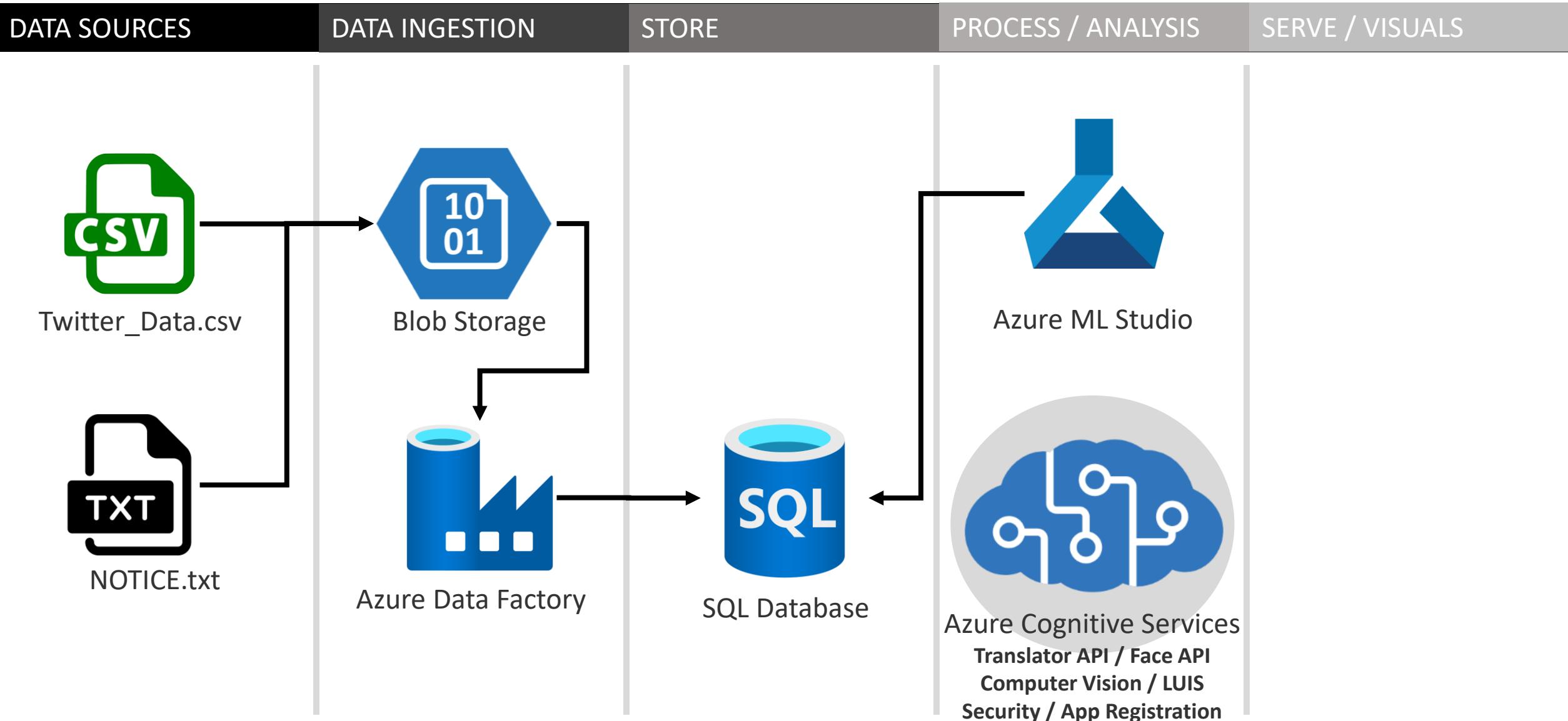
- A. Azure Key Vault
- B. Azure service principals**
- C. Azure managed identities
- D. Azure Security Center
- E. Azure Policy

When an application needs access to deploy or configure resources through Azure Resource Manager in Azure Stack, you create a service principal, which is a credential for your application. You can then delegate only the necessary permissions to that service principal.

References:

<https://docs.microsoft.com/en-us/azure/azure-stack/azure-stack-create-service-principals>

# Data Architecture so far...



# References

Official Prep Training Exam **AI-102: Designing and Implementing a Microsoft Azure AI Solution**

Azure Portal, <https://portal.azure.com/#home>

Azure **Cognitive Services**, <https://azure.microsoft.com/en-ca/services/cognitive-services/>

Azure **Machine Learning**, <https://azure.microsoft.com/en-ca/services/machine-learning/>

Azure **Machine Learning Studio**, <https://studio.azureml.net/>

**Microsoft Learn**, <https://docs.microsoft.com/en-us/learn/>

**Microsoft Learn**, Course AI-102T00: Designing and Implementing a Microsoft Azure AI Solution,

<https://docs.microsoft.com/en-us/learn/certifications/courses/ai-102t00>

**Microsoft Learn**, AI-102, <https://docs.microsoft.com/en-us/learn/certifications/azure-ai-engineer/>

**Microsoft Learn, Code Samples**, <https://docs.microsoft.com/en-us/samples/browse/>

Microsoft Official **Git Hub**, **AI-Basic examples for all APIs**, <https://github.com/MicrosoftDocs/ai-fundamentals>

Microsoft Official **Git Hub**, **Microsoft learn AI-900**, <https://github.com/MicrosoftLearning/mslearn-ai900>

Microsoft Official **Git Hub**, **Microsoft learn AI-102**, <https://github.com/MicrosoftLearning/AI-102-AIEngineer>

# Thank you! ;-)

Please e-mail me the screenshots of your final steps for each component / service to validate your bonus points.