

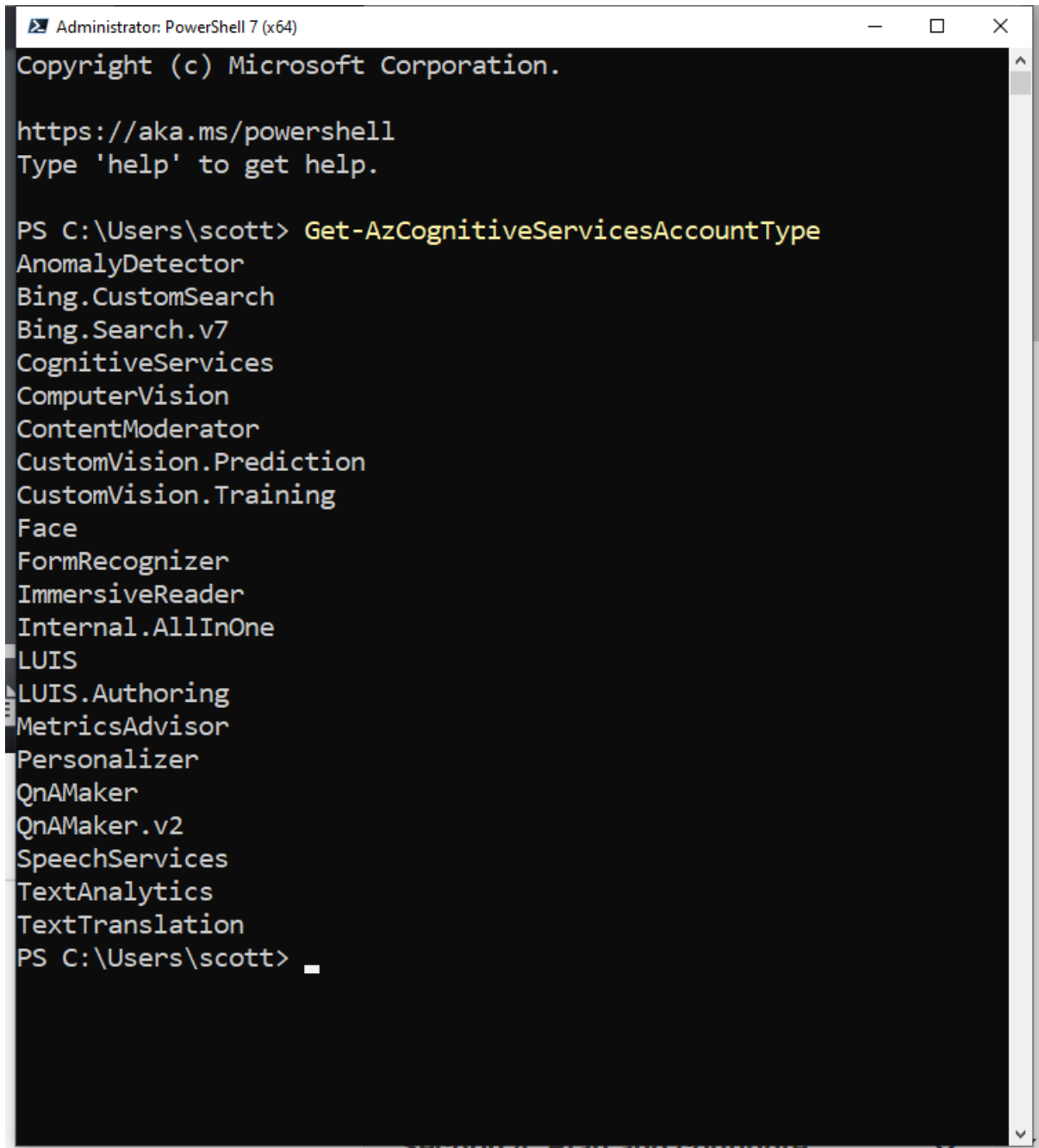
AI-102 - PowerShell, CLI, Python and C# SDK

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List Cognitive Services Types

PowerShell:

```
Get-AzCognitiveServicesAccountType
```



```
Administrator: PowerShell 7 (x64)
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https://aka.ms/powershell
Type 'help' to get help.

PS C:\Users\scott> Get-AzCognitiveServicesAccountType
AnomalyDetector
Bing.CustomSearch
Bing.Search.v7
CognitiveServices
ComputerVision
ContentModerator
CustomVision.Prediction
CustomVision.Training
Face
FormRecognizer
ImmersiveReader
Internal.AllInOne
LUIS
LUIS.Authoring
MetricsAdvisor
Personalizer
QnAMaker
QnAMaker.v2
SpeechServices
TextAnalytics
TextTranslation
PS C:\Users\scott> _
```

Create an Azure Cognitive Services Account

CLI:

```
az cognitiveservices account create \  
  --kind ComputerVision \  
  --name ComputerVisionService \  
  --sku S1 \  
  --resource-group newrgname \  
  --location westus
```

PowerShell:

```
New-AzCognitiveServicesAccount  
  -ResourceGroupName newrgname  
  -name ComputerVisionService  
  -Type ComputerVision  
  -SkuName S0  
  -Location 'WestUS'
```

Computer Vision API

Computer Vision Python SDK:

<https://docs.microsoft.com/en-us/python/api/azure-cognitiveservices-vision-computervision/azure.cognitiveservices.vision.computervision.operations.computervisionclientoperationsmixin?view=azure-python>

NOTE: There are also methods that end in “**_in_stream**” which means that you provide the image binary in the body of the request

METHODS

analyze_image - extracts features from the image, which you can specify; image provided by URL

analyze_image_by_domain - uses a specific domain to analyze an image; image provided by URL

describe_image - a description of the image in human-readable language; image provided by URL

detect_objects - detects objects it can recognize in the image, with locations; image provided by URL

generate_thumbnail - generates a thumbnail of specific width and height, based on the region of interest; uses smart cropping; image provided by URL

get_area_of_interest - a bounding box of the most important area of the image; image provided by URL

get_read_result - get the results of the read() method below

list_models - get subject domain list

read - uses OCR to find text in the image, including location; image provided by URL

recognize_printed_text - uses OCR to find text in the image, including location; image provided by URL

tag_image - generate a list of words from the image; image provided by URL

Computer Vision C# SDK:

<https://docs.microsoft.com/en-us/dotnet/api/microsoft.azure.cognitiveservices.vision.computervision.computervisionclient?view=azure-dotnet>

NOTE: There are also methods that end in “**InStreamAsync**” which means that you provide the image binary in the body of the request

METHODS

AnalyzeImageAsync - extracts features from the image, which you can specify; image provided by URL

AnalyzeImageByDomainAsync - uses a specific domain to analyze an image; image provided by URL

DescribeImageAsync - a description of the image in human-readable language; image provided by URL

DetectObjectsAsync - detects objects it can recognize in the image, with locations; image provided by URL

GenerateThumbnailAsync - generates a thumbnail of specific width and height, based on the region of interest; uses smart cropping; image provided by URL

GetAreaOfInterestAsync - a bounding box of the most important area of the image; image provided by URL

GetReadResultAsync - get the results of the read() method below

ListModelsAsync - get subject domain list

ReadAsync - uses OCR to find text in the image, including location; image provided by URL

RecognizePrintedTextAsync - uses OCR to find text in the image, including location; image provided by URL

TagImageAsync - generate a list of words from the image; image provided by URL

Custom Vision API - Prediction Classification

Custom Vision Python SDK:

<https://docs.microsoft.com/en-us/python/api/azure-cognitiveservices-vision-customvision/azure.cognitiveservices.vision.customvision.prediction.operations.customvisionpredictionclientoperationsmixin?view=azure-python>

NOTE: There are also methods that end in “**_with_no_store**” which does not save the result

METHODS

classify_image

Classify an image and saves the result.

classify_image_url

Classify an image URL and saves the result.

detect_image

Detect objects in an image and saves the result.

detect_image_url

Detect objects in an image URL and saves the result.

Custom Vision C# SDK:

<https://docs.microsoft.com/en-us/python/api/azure-cognitiveservices-vision-customvision/azure.cognitiveservices.vision.customvision.prediction.operations.customvisionpredictionclientoperationsmixin?view=azure-python>

NOTE: There are also methods that end in “**_with_no_store**” which does not save the result

METHODS

classify_image

Classify an image and saves the result.

classify_image_url

Classify an image URL and saves the result.

detect_image

Detect objects in an image and saves the result.

detect_image_url

Detect objects in an image URL and saves the result.

Custom Vision API - Training

Custom Vision Python SDK:

<https://docs.microsoft.com/en-us/python/api/azure-cognitiveservices-vision-customvision/azure.cognitiveservices.vision.customvision.training.operations.customvisiontrainingclientoperationsmixin?view=azure-python>

METHODS

create_image_regions

Create a set of image regions.

create_image_tags

Associate a set of images with a set of tags.

create_images_from_data

Add the provided images to the set of training images.

create_images_from_files

Add the provided batch of images to the set of training images.

create_images_from_predictions

Add the specified predicted images to the set of training images.

create_images_from_urls

Add the provided image URLs to the set of training images.

create_project

Create a project.

create_tag

Create a tag for the project.

delete_image_regions

Delete a set of image regions.

delete_image_tags

Remove a set of tags from a set of images.

delete_images

Delete images from the set of training images.

delete_iteration

Delete a specific iteration of a project.

delete_prediction

Delete a set of predicted images and their associated prediction results.

delete_project

Delete a specific project.

delete_tag

Delete a tag from the project.

export_iteration

Export a trained iteration.

export_project

Exports a project.

get_artifact

Get artifact content from blob storage, based on artifact relative path in the blob.

get_domain

Get information about a specific domain.

get_domains

Get a list of the available domains.

get_exports

Get the list of exports for a specific iteration.

get_image_count

Get the number of images.

get_image_performance_count

Gets the number of images tagged with the provided {tagIds} that have prediction results from training for the provided iteration {iterationId}.

get_image_performances

Get an image with its prediction for a given project iteration.

get_image_region_proposals

Get region proposals for an image. Returns empty array if no proposals are found.

get_images

Get images for a given project iteration or workspace.

get_images_by_ids

Get images by id for a given project iteration.

get_iteration

Get a specific iteration.

get_iteration_performance

Get detailed performance information about an iteration.

get_iterations

Get iterations for the project.

get_project

Get a specific project.

get_projects

Get your projects.

get_tag

Get information about a specific tag.

get_tagged_image_count

Gets the number of images tagged with the provided {tagIds}.

get_tagged_images

Get tagged images for a given project iteration.

get_tags

Get the tags for a given project and iteration.

get_untagged_image_count

Gets the number of untagged images.

get_untagged_images

Get untagged images for a given project iteration.

import_project

Imports a project.

publish_iteration

Publish a specific iteration.

query_predictions

Get images that were sent to your prediction endpoint.

query_suggested_image_count

Get a count of images whose suggested tags match given tags and their probabilities are greater than or equal to the given threshold. Returns count as 0 if none found.

query_suggested_images

Get untagged images whose suggested tags match given tags. Returns empty array if no images are found.

quick_test_image

Quickly test an image.

quick_test_image_url

Quick test an image URL.

suggest_tags_and_regions

Suggest tags and regions for an array/batch of untagged images. Returns empty array if no tags are found.

train_project

Queues project for training.

unpublish_iteration

Unpublish a specific iteration.

update_image_metadata

Update metadata of images.

update_iteration

Update a specific iteration.

update_project

Update a specific project.

update_tag

Update a tag.

Custom Vision C# SDK:

<https://docs.microsoft.com/en-us/dotnet/api/microsoft.azure.cognitiveservices.vision.customvision.training.customvisiontrainingclientextensions?view=azure-dotnet>

METHODS

CreateImageRegions

Create a set of image regions.

CreateImageTags

Associate a set of images with a set of tags.

CreateImagesFromData

Add the provided images to the set of training images.

CreateImagesFromFiles

Add the provided batch of images to the set of training images.

CreateImagesFromPredictions

Add the specified predicted images to the set of training images.

CreateImagesFromUrls

Add the provided image URLs to the set of training images.

CreateProject

Create a project.

CreateTag

Create a tag for the project.

DeleteImageRegions

Delete a set of image regions.

DeleteImageTags

Remove a set of tags from a set of images.

DeleteImages

Delete images from the set of training images.

DeleteIteration

Delete a specific iteration of a project.

DeletePrediction

Delete a set of predicted images and their associated prediction results.

DeleteProject

Delete a specific project.

DeleteTag

Delete a tag from the project.

ExportIteration

Export a trained iteration.

ExportProject

Exports a project.

GetArtifact

Get artifact content from blob storage, based on artifact relative path in the blob.

GetDomain

Get information about a specific domain.

GetDomains

Get a list of the available domains.

GetExports

Get the list of exports for a specific iteration.

GetImageCount

Get the number of images.

GetImagePerformanceCount

Gets the number of images tagged with the provided {tagIds} that have prediction results from training for the provided iteration {iterationId}.

GetImagePerformances

Get an image with its prediction for a given project iteration.

GetImageRegionProposals

Get region proposals for an image. Returns empty array if no proposals are found.

GetImages

Get images for a given project iteration or workspace.

GetImagesByIds

Get images by id for a given project iteration.

GetIteration

Get a specific iteration.

GetIterationPerformance

Get detailed performance information about an iteration.

GetIterations

Get iterations for the project.

GetProject

Get a specific project.

GetProjects

Get your projects.

GetTag

Get information about a specific tag.

GetTaggedImageCount

Gets the number of images tagged with the provided {tagIds}.

GetTaggedImages

Get tagged images for a given project iteration.

GetTags

Get the tags for a given project and iteration.

GetUntaggedImageCount

Gets the number of untagged images.

GetUntaggedImages

Get untagged images for a given project iteration.

ImportProject

Imports a project.

PublishIteration

Publish a specific iteration.

QueryPredictions

Get images that were sent to your prediction endpoint.

QuerySuggestedImageCount

Get a count of images whose suggested tags match given tags and their probabilities are greater than or equal to the given threshold. Returns count as 0 if none found.

QuerySuggestedImages

Get untagged images whose suggested tags match given tags. Returns empty array if no images are found.

QuickTestImage

Quickly test an image.

QuickTestImageUrl

Quick test an image URL.

SuggestTagsAndRegions

Suggest tags and regions for an array/batch of untagged images. Returns empty array if no tags are found.

TrainProject

Queues project for training.

UnpublishIteration

Unpublish a specific iteration.

UpdateImageMetadata

Update metadata of images.

UpdateImageMetadata

Update a specific iteration.

UpdateProject

Update a specific project.

UpdateTag

Update a tag.

Text Analytics API

Text Analytics Python SDK:

<https://docs.microsoft.com/en-us/python/api/azure-ai-textanalytics/azure.ai.textanalytics?view=azure-python>

METHODS

analyze_sentiment

Analyze sentiment for a batch of documents.

detect_language

Detect language for a batch of documents.

extract_key_phrases

Extract key phrases from a batch of documents.

recognize_entities

Recognize entities for a batch of documents.

recognize_linked_entities

Recognize linked entities from a well-known knowledge base for a batch of documents.

Text Analytics C# SDK:

<https://docs.microsoft.com/en-us/dotnet/api/azure.ai.textanalytics.textanalyticsclient?view=azure-dotnet>

NOTE: There are also methods that end in “**Async**” that operate asynchronously, methods that end in “**Batch**” that operate on a batch, and methods that end in “**BatchAsync**” that operate asynchronously on a batch.

METHODS

DetectLanguage(String, String, CancellationToken)

Runs a predictive model to determine the language the passed-in document is written in, and returns the detected language as well as a score indicating the model's confidence that the inferred language is correct. Scores close to 1 indicate high certainty in the result.

ExtractKeyPhrases(String, String, CancellationToken)

Runs a model to identify a collection of significant phrases found in the passed-in document.

RecognizeEntities(String, String, CancellationToken)

Runs a predictive model to identify a collection of named entities in the passed-in document, and categorize those entities into types such as person, location, or organization.

RecognizeLinkedEntities(String, String, CancellationToken)

Runs a predictive model to identify a collection of entities found in the passed-in document, and include information linking the entities to their corresponding entries in a well-known knowledge base.

Speech API

Speech Recognizer Python SDK:

<https://docs.microsoft.com/en-us/python/api/azure-cognitiveservices-speech/azure.cognitiveservices.speech.recognizer?view=azure-python>

METHODS

recognize_once

Performs recognition in a blocking (synchronous) mode. Returns after a single utterance is recognized. The end of a single utterance is determined by listening for silence at the end or until a maximum of 15 seconds of audio is processed. The task returns the recognition text as result. For long-running multi-utterance recognition, use `start_continuous_recognition_async` instead.

start_continuous_recognition

Synchronously initiates continuous recognition operation. User has to connect to `EventSignal` to receive recognition results. Call `stop_continuous_recognition_async` to stop the recognition.

start_keyword_recognition

Synchronously configures the recognizer with the given keyword model. After calling this method, the recognizer is listening for the keyword to start the recognition. Call `stop_keyword_recognition()` to end the keyword initiated recognition.

stop_continuous_recognition

Synchronously terminates ongoing continuous recognition operation.

stop_keyword_recognition

Synchronously ends the keyword-initiated recognition.

Speech Recognizer C# SDK:

<https://docs.microsoft.com/en-us/dotnet/api/microsoft.cognitiveservices.speech.speechrecognizer?view=azure-dotnet#methods>

StartContinuousRecognitionAsync()

Starts speech recognition on a continuous audio stream as an asynchronous operation, until StopContinuousRecognitionAsync() is called. You must subscribe to events to receive recognition results.

StartKeywordRecognitionAsync(KeywordRecognitionModel)

Configures the recognizer with the given keyword model. After calling this method, the recognizer is listening for the keyword to start the recognition. Call StopKeywordRecognitionAsync() to end the keyword initiated recognition. You must subscribe to events to receive recognition results.

StopContinuousRecognitionAsync()

Stops a running recognition operation as soon as possible and immediately requests a result based on the the input that has been processed so far. This works for all recognition operations, not just continuous ones, and facilitates the use of push-to-talk or "finish now" buttons for manual audio endpointing.

StopKeywordRecognitionAsync()

Ends the keyword initiated recognition.

Speech Synthesizer Python SDK:

<https://docs.microsoft.com/en-us/python/api/azure-cognitiveservices-speech/azure.cognitive.services.speech.speechsynthesizer?view=azure-python>

METHODS

get_voices_async

Get the available voices, asynchronously.

speak_ssml

Performs synthesis on ssml in a blocking (synchronous) mode.

speak_text

Performs synthesis on plain text in a blocking (synchronous) mode.

start_speaking_ssml

Starts synthesis on ssml in a blocking (synchronous) mode.

start_speaking_text

Starts synthesis on plain text in a blocking (synchronous) mode.

stop_speaking

Synchronously terminates ongoing synthesis operation. This method will stop playback and clear unread data in PullAudioOutputStream.

Speech Synthesizer Python SDK:

<https://docs.microsoft.com/en-us/dotnet/api/microsoft.cognitiveservices.speech.speechsynthesizer?view=azure-dotnet>

METHODS:

GetVoicesAsync(String)

Get the available voices. Added in 1.16.0

SpeakSsmlAsync(String)

Synthesize speech from SSML synchronously (returns when done synthesizing).

SpeakTextAsync(String)

Synthesize speech from plain text synchronously (returns when done synthesizing).

StartSpeakingSsmlAsync(String)

Queue speech synthesis task from SSML as an asynchronous operation.

StartSpeakingTextAsync(String)

Queue speech synthesis task from plain text as an asynchronous operation.

StopSpeakingAsync()

Stop speech synthesis.