

global.**a**inights.com

#**GlobalAI**Night

Let's create an intelligent application with Cognitive Services

#GlobalAINight

Sponsors

◀ RevDeBug



#nottsdev

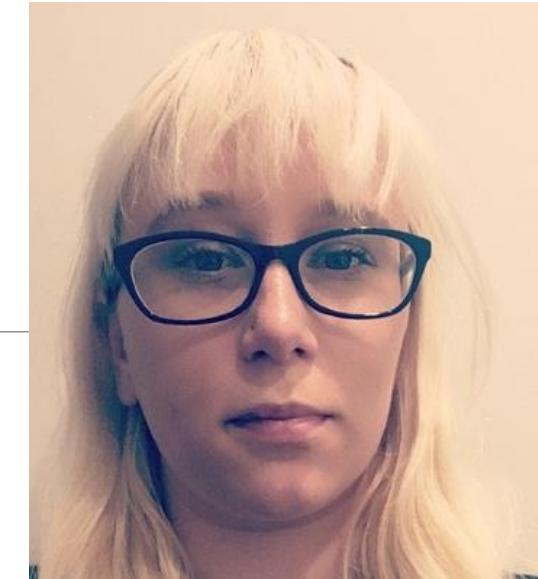
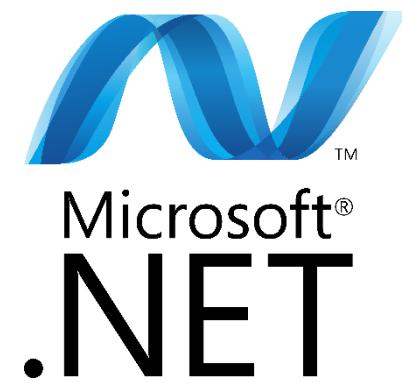


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About me



Before we start..



Azure Subscription?



Visual Studio?



Visual Studio Code?



ASP.NET Core SDK?

Azure Subscription





Visual Studio Code



Visual Studio



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```
$ dotnet --version  
2.2.401
```



.NET Core 2.2

.NET Core is a cross-platform version of .NET for building websites, services, and console apps.

② **Using Visual Studio for Mac?** Make sure you have a [compatible version](#).

Build Apps ⓘ

[Download .NET Core SDK](#)

Advanced ⓘ

[All .NET Core downloads...](#)



.NET Core 2.2

.NET Core is a cross-platform version of .NET for building websites, services, and console apps.

Run Apps ⓘ

[Download .NET Core Runtime](#)

Build Apps ⓘ

[Download .NET Core SDK](#)

[Download .NET Core SDK
\(Compatible with Visual Studio 2017\)](#)

Advanced ⓘ

[All .NET Core downloads...](#)

ASP.NET Core

<https://dotnet.microsoft.com/download>



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Get the code

<http://bit.ly/AIWorkshopNotts>

The image shows a close-up of a person's hand pointing towards a computer monitor. The monitor displays a block of Python code. The code is related to Blender's operator classes, specifically for mirroring objects. It includes logic for selecting objects based on their type and name, and for setting up mirror modifiers. The background is dark, making the bright screen stand out.

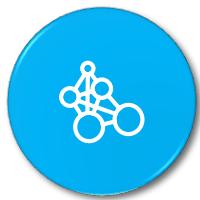
```
mirror_mod = modifier_obj
# Set mirror object to mirror
mirror_mod.mirror_object = mirror_object
if operation == "MIRROR_X":
    mirror_mod.use_x = True
    mirror_mod.use_y = False
    mirror_mod.use_z = False
elif operation == "MIRROR_Y":
    mirror_mod.use_x = False
    mirror_mod.use_y = True
    mirror_mod.use_z = False
elif operation == "MIRROR_Z":
    mirror_mod.use_x = False
    mirror_mod.use_y = False
    mirror_mod.use_z = True

# selection at the end - add
modifier_ob.select= 1
modifier_ob.select=1
context.scene.objects.active = modifier
("Selected" + str(modifier))
modifier.select = 0
bpy.context.selected_objects.append(data.objects[one.name].select)
print("please select exactly one object")
- OPERATOR CLASSES ---

types.Operator):
    X mirror to the selected object.mirror_mirror_x"
    "or X"
context):
    context.active_object is not None
```


Artificial Intelligence

"Intelligence exhibited by machines [...] mimicking functions associated with human minds"
- Wikipedia



Reasoning

Learn and form conclusions
with imperfect data



Understanding

Interpret meaning of data
including text, voice, images



Interacting

Interact with people
in natural ways

Microsoft Cognitive Services



VISION



SPEECH



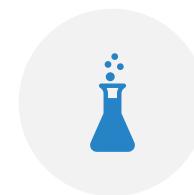
LANGUAGE



DECISION



SEARCH



LAB

Vision



Computer Vision



Face



Custom Vision



Video Indexer



Ink Recogniser
(Preview)



Form Recogniser
(Preview)

Speech



Speech Services

Speech to Text

Text to Speech

Speech Translation



Speech Recognition

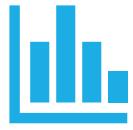


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Language



Text Analytics



QnA Maker



Translator Text



Language
Understanding



Immersive
Reader (Preview)

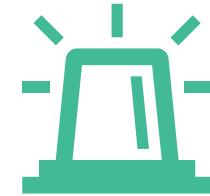
Decision



Content Moderator



Personalizer
(Preview)



Anomaly detector
(Preview)

Search

Bing Spell
Check

Bing Web
Search

Bing Visual
Search

Bing Custom
Search

Bing Entity
Search

Bing Video
Search

Bing News
Search

Bing Image
Search

Bing
Autosuggest

Bing Local
Business Search
(Preview)



Lab



Vision:

Project Gesture
Project Ink Analytics



Search:

Project Local Insights
(subscribe)
Project Event Tracking
(subscribe)
Project Answer Search
(subscribe)
Project URL Preview
(subscribe)



Language:

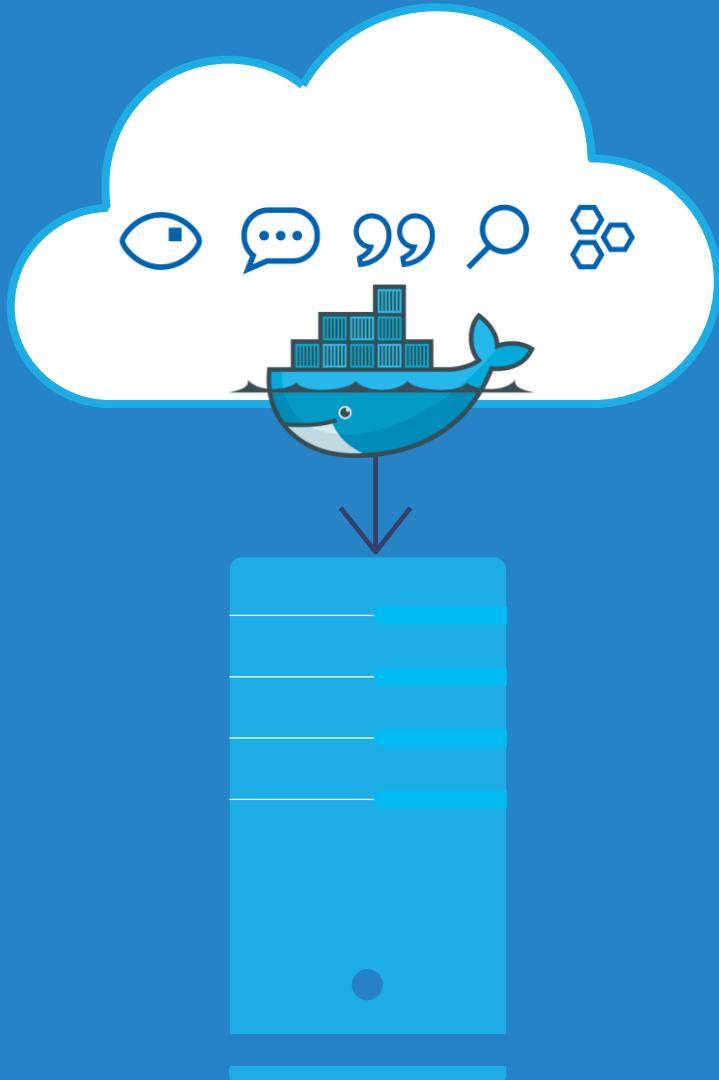
Project Conversation
Learner
Project Personality Chat



Knowledge:

Project Knowledge
Exploration
Project Academic
Knowledge (subscribe)
Project Entity Linking
Project Custom Decision

Cognitive Services Containers



No app changes & Compatible with full Cognitive Services feature-set

Support for 6 key AI capabilities:

- Key Phrase Extraction
- Language Detection
- Sentiment Analysis
- Face & Emotion Detection
- OCR / Text Recognition
- Language Understanding

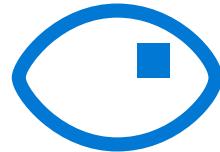
Run & manage locally, Try for free

Connect to Billing service for report back, unified billing with on-cloud and off-cloud transactions

Additional Capabilities coming soon (e.g. Speech)

What we will focus on today?





Computer Vision

ASP.NET Core



Custom Vision

customvision.ai

Azure Logic Apps

Bonus: PowerApps

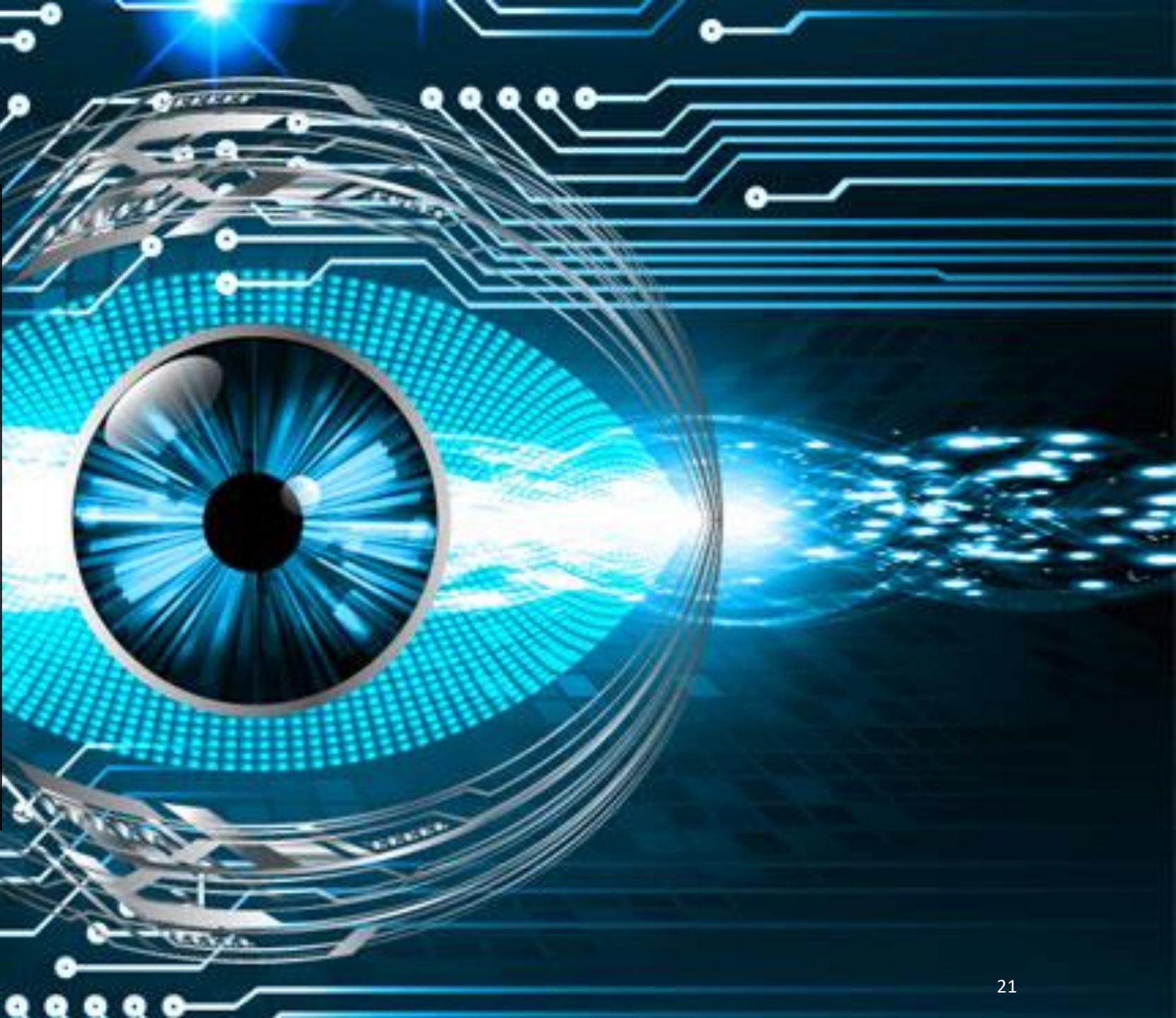


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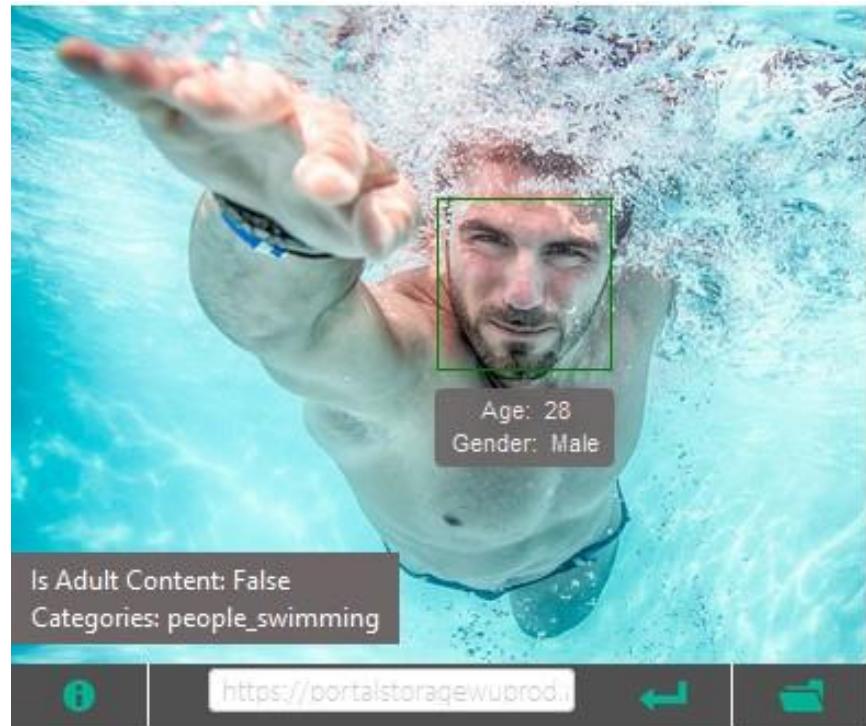
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Part 1: Computer Vision



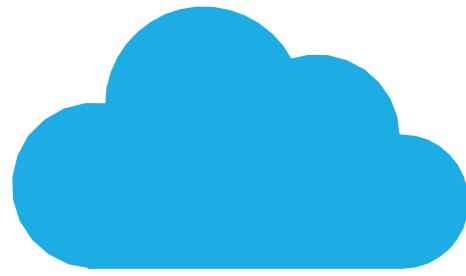




Features:	
Feature Name	Value
Description	{ "type": 0, "captions": [{ "text": "a man swimming in a pool of water", "confidence": 0.7850108693093019 }] }
Tags	[{ "name": "water", "confidence": 0.9996442794799805 }, { "name": "sport", "confidence": 0.9504992365837097 }, { "name": "swimming", "confidence": 0.9062818288803101, "hint": "sport" }, { "name": "pool", "confidence": 0.8787588477134705 }, { "name": "water sport", "confidence": 0.631849467754364, "hint": "sport" }]
Image Format	jpeg

Demo





Create Azure Computer Vision API

AI + Machine Learning > Cognitive Services

 Bing Autosuggest v7 Microsoft Give your app intelligent autosuggest options for searches	 Bing Custom Search Microsoft An easy-to-use, ad-free, commercial-grade search tool that lets you deliver the results you	 Bing Entity Search Microsoft Enrich your experiences by identifying and augmenting entity information from the web	 Bing Search v7 Microsoft Connect powerful search to your apps	 Bing Spell Check v7 Microsoft Detect and correct spelling mistakes within your app	 Computer Vision Microsoft Distill actionable information from images	 Content Moderator Microsoft Machine-assisted moderation of text and images, augmented with human review tools	 Custom Vision Microsoft Easily customize your own state-of-the-art computer vision models for your unique use case
 Face Microsoft Detect, identify, analyze, organize, and tag faces in photos	 Speaker Recognition Microsoft Use speech to identify and authenticate individual speakers	 Speech Microsoft Convert speech to text and back again, and understand its intent	 Language Understanding Microsoft Teach your apps to understand commands from your users	 QnA Maker Microsoft Distill information into an easy-to-navigate FAQ	 Text Analytics Microsoft Easily evaluate sentiment and topics to understand what users want	 Translator Text Microsoft Easily conduct automatic text translation with a simple REST API call	 Cognitive Services Microsoft Connect powerful AI to your apps
 Anomaly Detector Microsoft Use machine learning to help understand abnormal events in data	 Ink Recognizer (Preview) Microsoft Understand your user's digital ink content.	 Personalizer (Preview) Microsoft Create rich, personalized experiences for every user of your app.	 Immersive Reader (preview) Microsoft The Immersive Reader is an inclusively designed tool that implements proven techniques to				





Computer Vision

Save for later

Microsoft

Create

Do you need an API that gives you actionable information about images used in your app? The Computer Vision API gives you the tools to understand the contents of any image. Create tags identifying objects, beings, or actions present in the image, and then craft coherent sentences to describe it.

Use Computer Vision API to:

- Generate tags as well as coherent full-sentence descriptions of images
- Read printed text from images
- Read handwritten text from images
- Recognize celebrities and landmarks
- Analyze video in near real-time
- Generate a thumbnail

Useful Links

[More about Computer Vision API](#)

[Documentation](#)

[SDK](#)

[API reference](#)



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Create

Computer Vision

* Name

AINightVision

* Subscription

Visual Studio Enterprise

* Location

(Europe) North Europe

* Pricing tier ([View full pricing details](#))

F0 (20 Calls per minute, 5K Calls per month)

* Resource group

(New) AINights

[Create new](#)



Your deployment is complete



Deployment name: Microsoft.CognitiveServicesComputerVision
Subscription: [Visual Studio Enterprise](#)
Resource group: [AINights](#)

Start time: 8/31/2019, 7:56:34 PM

Correlation ID: b23643f8-0796-4fd2-b7cb-e510521df0c3

▼ Deployment details [\(Download\)](#)

^ Next steps

[Go to resource](#)



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Grab your keys

Key1 

02ea14730bc94e73814da9953d0df4b6



Endpoint 

<https://ainightvision.cognitiveservices.azure.com/>



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ASP.NET Core

Learn about the .NET platform, create your first application and extend it to the cloud.



Build Your App

[ASP.NET Core documentation](#)
[.NET application architecture](#)



Connect To The Cloud

[Publish your app to Azure](#)
[Get started with ASP.NET on Azure](#)



Learn Your IDE

[See our productivity guide](#)
[Write code faster](#)

Create ASP.NET Core project



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```
$ dotnet new -l  
Usage: new [options]
```

Options:

-h, --help	Displays help for this command.
-l, --list	Lists templates containing the specified name. If no name is specified, lists all templates.
-n, --name	The name for the output being created. If no name is specified, the name of the current directory is used.
-o, --output	Location to place the generated output.
-i, --install	Installs a source or a template pack.
-u, --uninstall	Uninstalls a source or a template pack.
--nuget-source	Specifies a NuGet source to use during install.
--type	Filters templates based on available types. Predefined values are "project", "item" or "other".
--dry-run	Displays a summary of what would happen if the given command line were run if it would result in a template creation.
--force	Forces content to be generated even if it would change existing files.
-lang, --language	Filters templates based on language and specifies the language of the template to create.

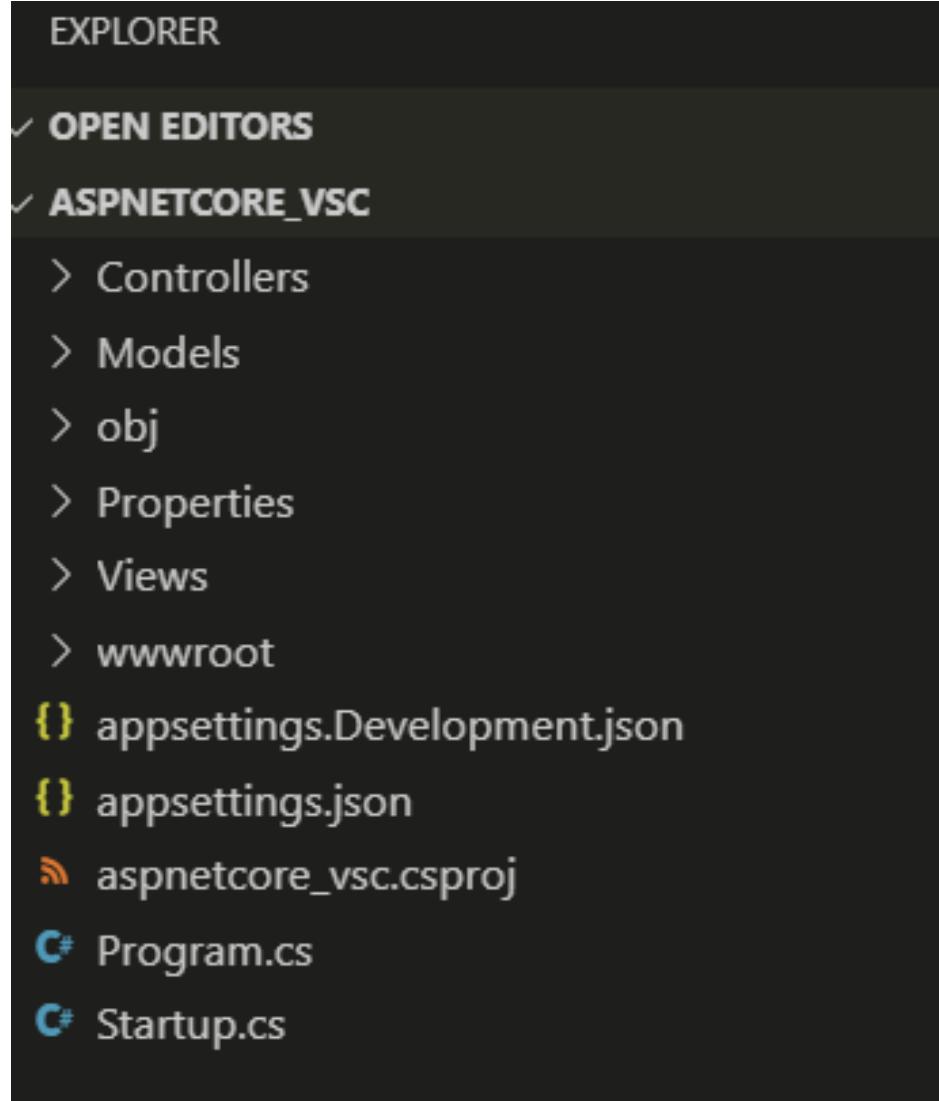
Templates

	Short Name	Language	Tags
Console Application	console	[C#], F#, VB	Common/Console
Class library	classlib	[C#], F#, VB	Common/Library
Unit Test Project	mstest	[C#], F#, VB	Test/MSTest
NUnit 3 Test Project	nunit	[C#], F#, VB	Test/NUnit
NUnit 3 Test Item	nunit-test	[C#], F#, VB	Test/NUnit
xUnit Test Project	xunit	[C#], F#, VB	Test/xUnit
Razor Page	page	[C#]	Web/ASP.NET
MVC ViewImports	viewimports	[C#]	Web/ASP.NET
MVC ViewStart	viewstart	[C#]	Web/ASP.NET
ASP.NET Core Empty	web	[C#], F#	Web/Empty
ASP.NET Core Web App (Model-View-Controller)	mvc	[C#], F#	Web/MVC
ASP.NET Core Web App	webapp	[C#]	Web/MVC/Razor Pages
ASP.NET Core with Angular	angular	[C#]	Web/MVC/SPA
ASP.NET Core with React.js	react	[C#]	Web/MVC/SPA
ASP.NET Core with React.js and Redux	reactredux	[C#]	Web/MVC/SPA
Razor Class Library	razorclasslib	[C#]	Web/Razor/Library/Razor Class Library
ASP.NET Core Web API	webapi	[C#], F#	Web/WebAPI

```
$ dotnet new mvc
The template "ASP.NET Core Web App (Model-View-Controller)" was created successfully.
This template contains technologies from parties other than Microsoft, see https://aka.ms/aspnetcore-template-3pn-210 for details.

Processing post-creation actions...
Running 'dotnet restore' on D:\Projects\ainights\aspnetcore_vsc\aspnetcore_vsc.csproj...
  Restore completed in 13.49 sec for D:\Projects\ainights\aspnetcore_vsc\aspnetcore_vsc.csproj.

Restore succeeded.
```



POST Analyze Image

POST Batch Read File

POST Describe Image

POST Detect Objects

POST Get Area of Interest

GET Get Read Operation Result

GET Get Recognize Text
Operation Result

POST Get Thumbnail

GET List Domain Specific Models

Swagger

<http://bit.ly/csswagger>

A successful response will be returned in JSON. If the request failed, the response will contain an error code and a message to help understand what went wrong.

Http Method

POST

Host

Name

Resource Name

Query parameters

maxCandidates

 Remove parameter

language

 Remove parameter

 Add parameter

Headers

Content-Type

 Remove header

Ocp-Apim-Subscription-Key



 Add header



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35

Request URL

```
https://ainightvision.cognitiveservices.azure.com/vision/v2.0/describe?maxCandidates=1&language=en
```

HTTP request

```
POST https://ainightvision.cognitiveservices.azure.com/vision/v2.0/describe?maxCandidates=1&language=en HTTP/1.1
Host: ainightvision.cognitiveservices.azure.com
Content-Type: application/json
Ocp-Apim-Subscription-Key: *****
{"url": "http://gosiaborzecka.net/static/754b95a512ad8eac56d33a3c03b957d4/8179c/helloWorld.jpg"}
```

Send

Response status

200 OK

Response latency

622 ms

Response content

```
apim-request-id: 7dbf30ba-8560-4215-8ca0-f0c0cd434be4
Strict-Transport-Security: max-age=31536000; includeSubDomains; preload
x-content-type-options: nosniff
Date: Tue, 03 Sep 2019 12:23:12 GMT
Content-Length: 240
Content-Type: application/json; charset=utf-8

{
  "description": {
    "tags": ["drawing", "shirt"],
    "captions": [
      {
        "text": "a drawing of a cartoon character",
        "confidence": 0.36338957877909212
      }
    ],
    "requestId": "7dbf30ba-8560-4215-8ca0-f0c0cd434be4",
    "metadata": {
      "width": 1600,
      "height": 463,
      "format": "jpeg"
    }
  }
}
```



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Time to create first app

Result

ImageAnalyse Home Image Analysis Privacy

Image Analysis

Image

No file chosen

Images must be up tp 4 megabytes and greater than 50x50

Result

Description

a train covered in snow

Confidence: 0.456482945603883

Original respond

```
{ "description": { "tags": [ "snow", "outdoor", "covered", "sitting", "skiing", "standing", "man", "slope", "riding", "sign", "train" ], "captions": [ { "text": "a train covered in snow", "confidence": 0.45648294560388342 } ] }, "requestId": "8cfecd35-8e87-4ca2-b136-dcff3ecaaa4e", "metadata": { "width": 4608, "height": 2592, "format": "Jpeg" } }
```

Original Image



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```
> bin
✓ Controllers
  C# HomeController.cs
✓ Models
  C# ErrorViewModel.cs
> obj
> Properties
✓ Views
  > Home
  > Shared
  ≡ _ViewImports.cshtml
  ≡ _ViewStart.cshtml
  > wwwroot
{ } appsettings.Development.json
{ } appsettings.json
  aspnetcore_vsc.csproj
C# Program.cs
C# Startup.cs
```

ASP.NET Core App (Default)

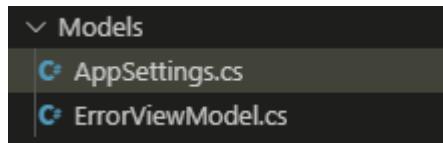


appsettings.json

```
"AppSettings": {  
    "VisionApiKey": "",  
    "VisionApiUri": ""  
},
```



AppSettings.cs



```
namespace ImageAnalyse.Models
{
    public class AppSettings
    {
        public string VisionApiKey {get; set; }
        public string VisionApiUri {get; set; }
    }
}
```

```
// This method gets called by the runtime. Use this method to add services to the container.  
0 references  
public void ConfigureServices(IServiceCollection services)  
{  
    services.Configure<CookiePolicyOptions>(options =>  
    {  
        // This lambda determines whether user consent for non-essential cookies is needed for a given request.  
        options.CheckConsentNeeded = context => true;  
        options.MinimumSameSitePolicy = SameSiteMode.None;  
    });  
  
    var appSettings = Configuration.GetSection("AppSettings");  
    services.Configure<AppSettings>(appSettings);  
  
    services.AddMvc().SetCompatibilityVersion(CompatibilityVersion.Version_2_2);
```

Startup.cs



HomeController.cs

```
using System;
using System.Collections.Generic;
using System.Diagnostics;
using System.Linq;
using System.Threading.Tasks;
using Microsoft.AspNetCore.Mvc;
using ImageAnalyse.Models;

namespace ImageAnalyse.Controllers
{
    0 references
    public class HomeController : Controller
    {
        // AppSettings

        0 references
        public IActionResult Index()
        {
            return View();
        }

        0 references
        public IActionResult Privacy()
        {
            return View();
        }

        // Image Analysis

        // Image Analysis (Post)

        [ResponseCache(Duration = 0, Location = ResponseCacheLocation.None, NoStore = true)]
        0 references
        public IActionResult Error()
        {
            return View(new ErrorViewModel { RequestId = Activity.Current?.Id ?? HttpContext.TraceIdentifier });
        }
    }
}
```

HomeController.cs

```
using Microsoft.Extensions.Options;
```

```
// AppSettings
1 reference
private readonly AppSettings _appSettings;

0 references
public HomeController(IOptions<AppSettings> appSettings){
    _appSettings = appSettings.Value;
}
```

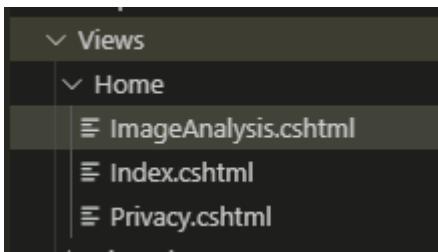


HomeController.cs

```
// Image Analysis  
0 references  
public IActionResult ImageAnalysis(){  
    return View();  
}
```



ImageAnalysis.cshtml

A screenshot of a code editor showing the content of 'ImageAnalysis.cshtml'. The code is as follows:

```
Views > Home > ImageAnalysis.cshtml
1  @{
2      ViewData["Title"] = "Image Analysis";
3  }
4  |
```

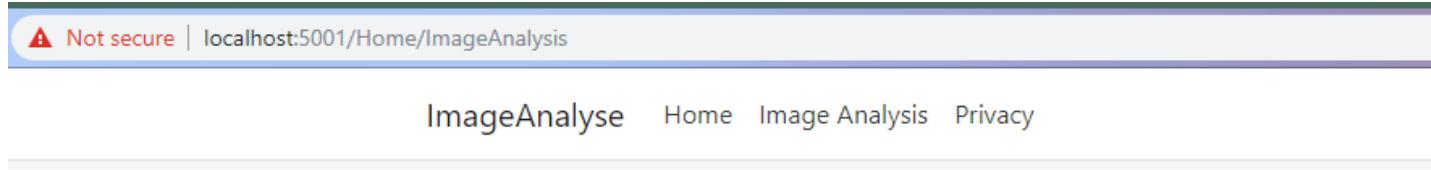
The code uses C# syntax to set the title of the view to 'Image Analysis'.

Layout.css

```
</button>
<div class="navbar-collapse collapse d-sm-inline-flex flex-sm-row-reverse">
    <ul class="navbar-nav flex-grow-1">
        <li class="nav-item">
            <a class="nav-link text-dark" asp-area="" asp-controller="Home" asp-action="Index">Home</a>
        </li>
        <li class="nav-item">
            <a class="nav-link text-dark" asp-area="" asp-controller="Home" asp-action="ImageAnalysis">Image Analysis</a>
        </li>
        <li class="nav-item">
            <a class="nav-link text-dark" asp-area="" asp-controller="Home" asp-action="Privacy">Privacy</a>
        </li>
    </ul>
</div>
```



```
dotnet run
```



Test

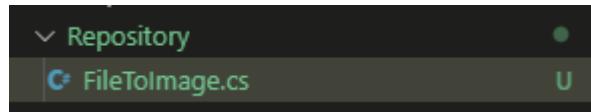


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FileToImage.cs



```
using System;
using System.IO;
using Microsoft.AspNetCore.Http;

namespace ImageAnalyse.Repository
{
    0 references
    public class FileToImage
    {
        1 reference
        private string BytesToSrcString(byte[] bytes) => "data:image/jpg;base64, " + Convert.ToBase64String(bytes);

        0 references
        public string FileToImgSrcString(IFormFile file){
            byte[] fileBytes;
            using (var stream = file.OpenReadStream()){
                using (var memoryStream = new MemoryStream()){
                    stream.CopyTo(memoryStream);
                    fileBytes = memoryStream.ToArray();
                }
            }
            return BytesToSrcString(fileBytes);
        }
    }
}
```



Home Controller.cs

```
// Image Analysis (Post)
[HttpPost]
[ValidateAntiForgeryToken]
0 references
public async Task<IActionResult> ImageAnalysis(IFormFile file)
{
    try {
        var fileToImg = new Repository.FileToImage();

        ViewData["originalImage"] = fileToImg.FileToImgSrcString(file);
        string description;
        string result;
        string confidence;

        using (var httpClient = new HttpClient()){
            string baseUri = _appSettings.VisionApiUri + "/vision/v2.0/describe";

            httpClient.BaseAddress = new Uri(baseUri);
            httpClient.DefaultRequestHeaders.Add("Ocp-Apim-Subscription-Key", _appSettings.VisionApiKey);
            HttpContent content = new StreamContent(file.OpenReadStream());
            content.Headers.ContentType = new MediaTypeHeaderValue("application/octet-stream");

            var response = await httpClient.PostAsync(baseUri, content);

            string jsonResponse = await response.Content.ReadAsStringAsync();

            var jresult = JObject.Parse(jsonResponse);

            description = jresult["description"]["captions"][0]["text"].ToString();
            confidence = jresult["description"]["captions"][0]["confidence"].ToString();
            result = jresult.ToString();
        }

        ViewData["description"] = description;
        ViewData["result"] = result;
        ViewData["confidence"] = confidence;

    } catch (Exception ex){}
}

return View();
}
```



ImageAnalysis.cshtml

```
@{
    ViewData["Title"] = "Image Analysis";
}

<h2>@ViewData["Title"]</h2>
<h3>@ViewData["Message"]</h3>
<div class="row">
    <div class="col-md-6">
        <form asp-action="ImageAnalysis" enctype="multipart/form-data">
            <div class="form-horizontal">
                <div class="form-group">
                    <label for="file">Image</label>
                    <input type="file" name="file" id="file" class="form-control" />
                    <p class="help-block">Images must be up tp 4 megabytes and greater than 50x50</p>
                </div>
                <div class="form-group">
                    <input type="submit" value="Upload" class="btn btn-primary" />
                </div>
            </div>
        </form>
    </div>
    <div class="row">
        <div class="col-md-6">
            <h4>Result</h4>
            <h5>Description</h5>
            <label>@ViewData["description"]</label>
            <br />
            <label>Confidence: @ViewData["confidence"]</label>
            <h5>Original respond</h5>
            <label>@ViewData["result"]</label>
        </div>
        <div class="col-md-6">
            <h4>Original Image</h4>
            
        </div>
    </div>

```



dotnet run

ImageAnalyse Home Image Analysis Privacy

Image Analysis

Image

No file chosen

Images must be up tp 4 megabytes and greater than 50x50

Result

Original Image

Description

Confidence:

Original respond

Result

ImageAnalyse Home Image Analysis Privacy

Image Analysis

Image

No file chosen

Images must be up tp 4 megabytes and greater than 50x50

Result

Description

a train covered in snow

Confidence: 0.456482945603883

Original respond

```
{ "description": { "tags": [ "snow", "outdoor", "covered", "sitting", "skiing", "standing", "man", "slope", "riding", "sign", "train" ], "captions": [ { "text": "a train covered in snow", "confidence": 0.45648294560388342 } ] }, "requestId": "8cfecd35-8e87-4ca2-b136-dcff3ecaaa4e", "metadata": { "width": 4608, "height": 2592, "format": "Jpeg" } }
```

Original Image



Part 2: Custom Vision

BASED ON AI NIGHTS
CONTENT

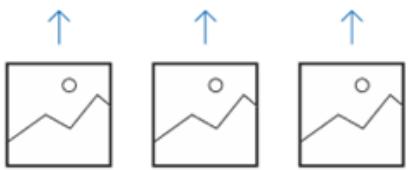
Custom Vision

A customizable web service that learns to recognize specific content in imagery



Results

Tag	Probability
daisy	99.9%
trillium	3.1%
lily of the valley	0.1%
dogwood	0.0%



Upload Images

Bring your own labeled images, or use Custom Vision to quickly add tags to any unlabeled images.



Train

Use your labeled images to teach Custom Vision the concepts you care about.



Evaluate

Use simple REST API calls to quickly tag images with your new custom computer vision model.



Filter

Add images

Delete

Tag images

Select all

Iteration

Workspace

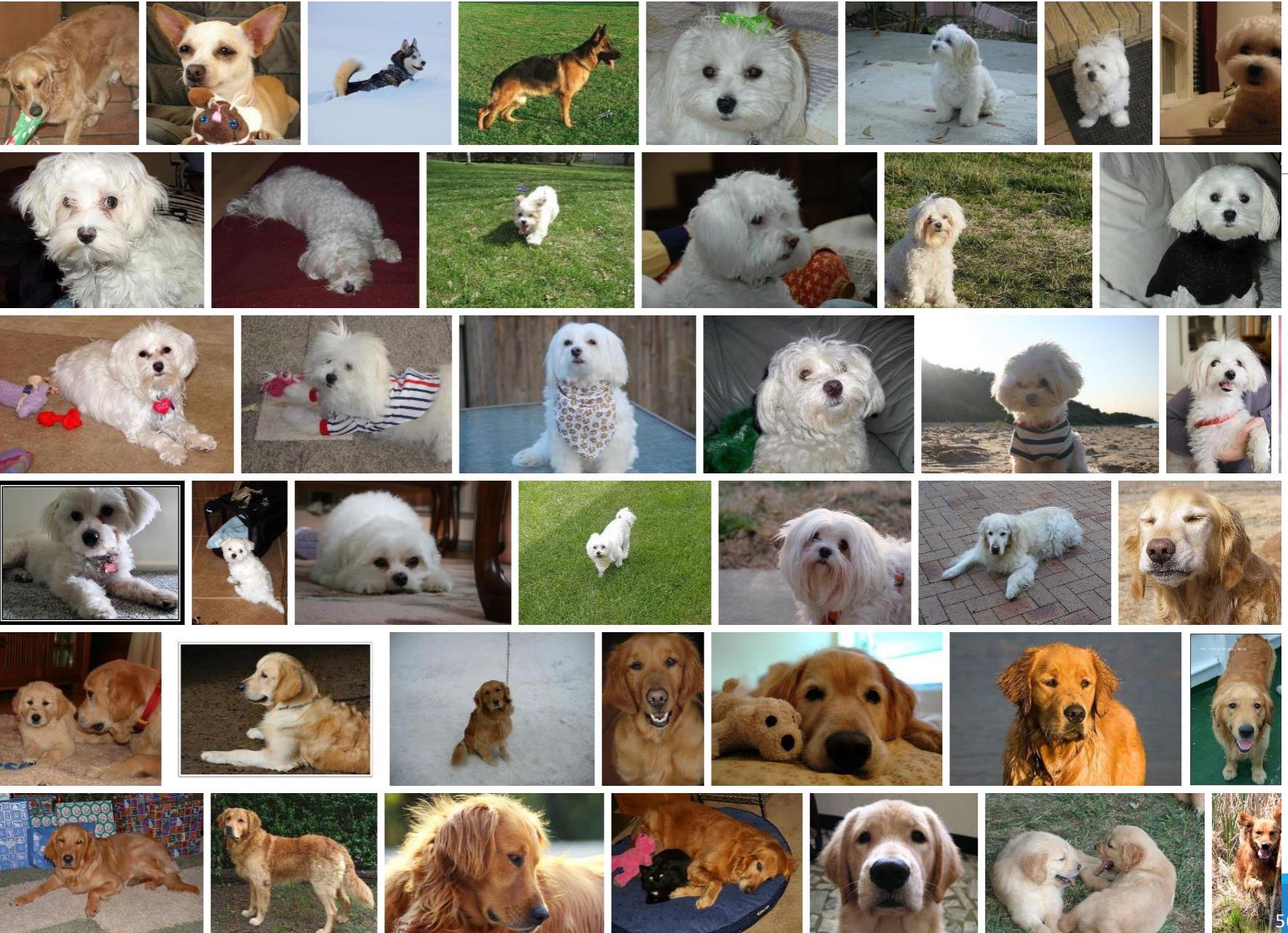
Tags

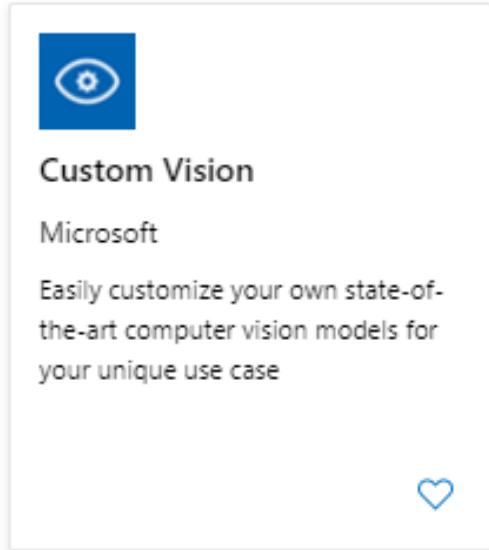
 Tagged Untagged

Showing: all tagged images

Search For Tags:

- beagle 30 ...
- bernese-mountai... 30 ...
- chihuahua 31 ...
- eskimo-dog 31 ...
- german-shepherd 31 ...
- golden-retriever 31 ...
- maltese-dog 30 ...





Custom Vision

Microsoft

Custom Vision Save for later

Microsoft

Create

Custom Vision Service makes it easy to build and refine customized image classifiers to recognize specific content in imagery. Using state-of-the-art machine learning, you can train your classifier to recognize what matters to you, like categorizing images or your products or tagging images for your website filters. Simply upload labeled images and let Custom Vision Service do the hard work.

Useful Links

[More about Custom Vision Service](#)

[Documentation](#)

[Prediction API reference](#)

[Training API reference](#)

[Pricing](#)

[Regional availability](#)

Create □ X

Custom Vision Prediction

* Name
CustomDogs ✓

* Subscription
Visual Studio Enterprise ▼

* Location
(Europe) North Europe ▼

* Prediction pricing tier ([View full pricing details](#))
F0 (2 Transactions per second, 10K Transac... ▼

* Training pricing tier ([View full pricing details](#))
F0 (2 Transactions per second, 2 Projects) ▼

* Resource group
AINights ▼

[Create new](#)

Azure





Congratulations! Your keys are ready.

Now explore the Quickstart guidance to get up and running with Custom Vision Training.

1

Grab your keys

Key1 ⓘ

786027205ec848ae9e62407f840c69df



Endpoint ⓘ

<https://northeurope.api.cognitive.microsoft.com/>



Every call to Custom Vision Training API requires a subscription key. This key needs to be either passed through the left menu.

Azure



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#NottsDev

#GlobalAINight

Resources:

[create new](#)

▼ CustomDoqs

Subscription: Visual Studio Enterprise

Resource Group: AI_Nights

Resource Kind: Custom Vision Training

Key:

786027205ec848ae9e62407f840c69df

Endpoint:

<https://northeurope.api.cognitive.microsoft.com/>

Resource Id:

/subscriptions/e910c218-9c40-4f3a-8fec-f71d21c35ebb/resourceGroups/AI_Nights/providers/Microsoft.CognitiveServices

Pricing Tier: F0

[Change Pricing Tier](#)

0 projects created; 2 remain

► CustomDoqs_Prediction

Subscription: Visual Studio Enterprise

Resource Group: AI_Nights

Resource Kind: Custom Vision Prediction

Customvision.ai



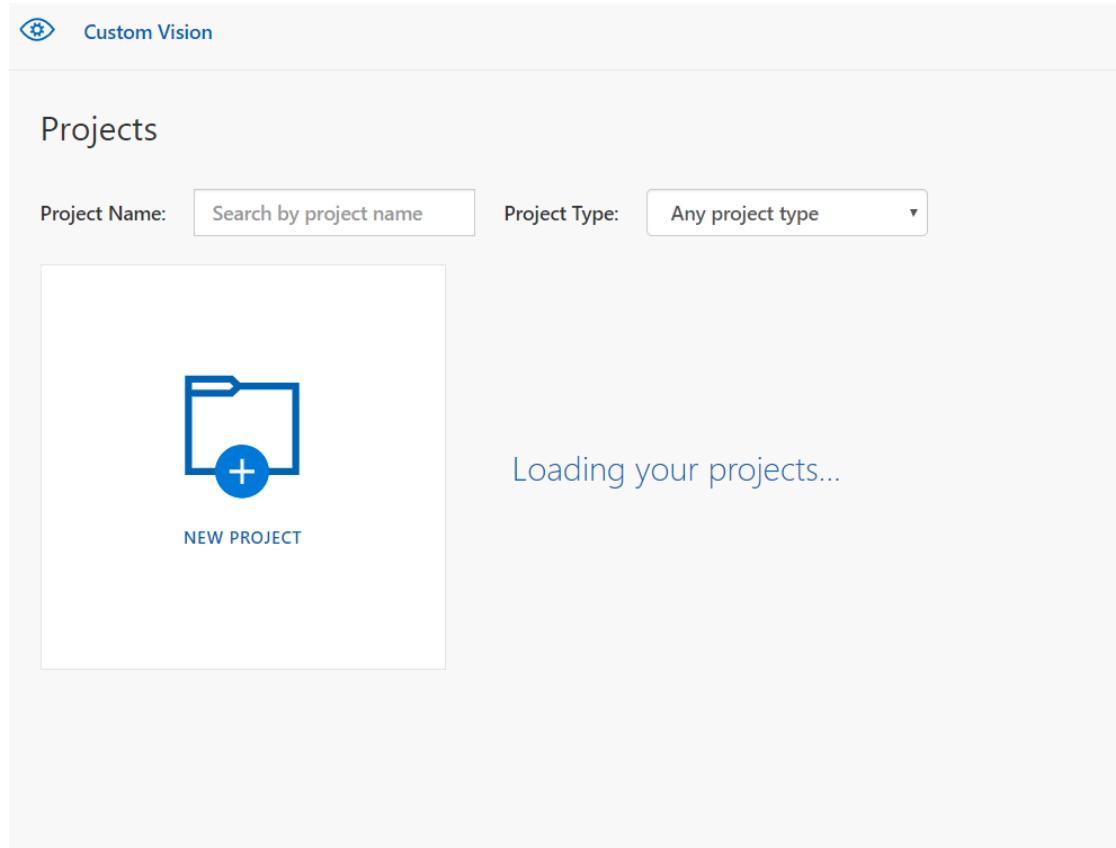
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#GlobalAINight

60

customvision.ai



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#GlobalAINight

Create new project

X

Name*

dog classifier

Description

Classification of dogs for an AI application

Resource

create new

CustomDogs [F0]

Manage Resource Permissions

Project Types (i)

- Classification
- Object Detection

Classification Types (i)

- Multilabel (Multiple tags per image)
- Multiclass (Single tag per image)

Domains: (i)

- General
- Food
- Landmarks
- Retail
- General (compact)
- Food (compact)
- Landmarks (compact)
- Retail (compact)

Customvision.ai

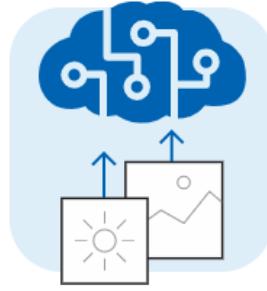


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62



Looks like you don't have any images here!

Go ahead and browse for images to upload to your project, tag them, and they will be ready to be trained.

Add images

JPG, .PNG, .BMP format, up to 6 MB per image

Customvision.ai



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Image upload



30 images will be added...

Add some tags to this batch of images...

My Tags

beagle|

Upload 30 files

Customvision.ai



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Add images

Delete

Tag images

Select all

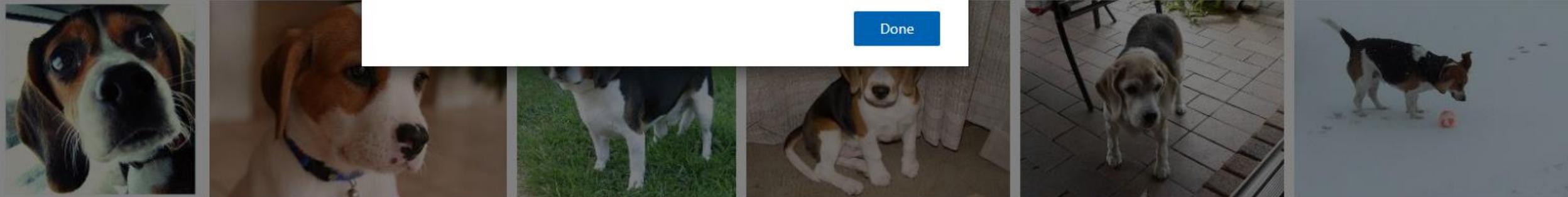
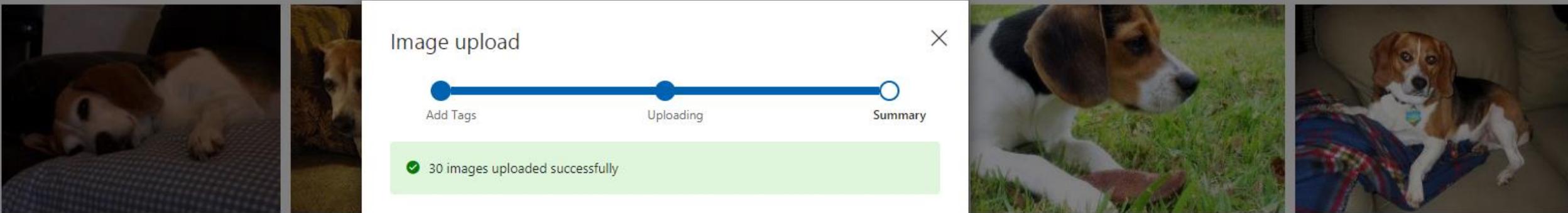


Image upload

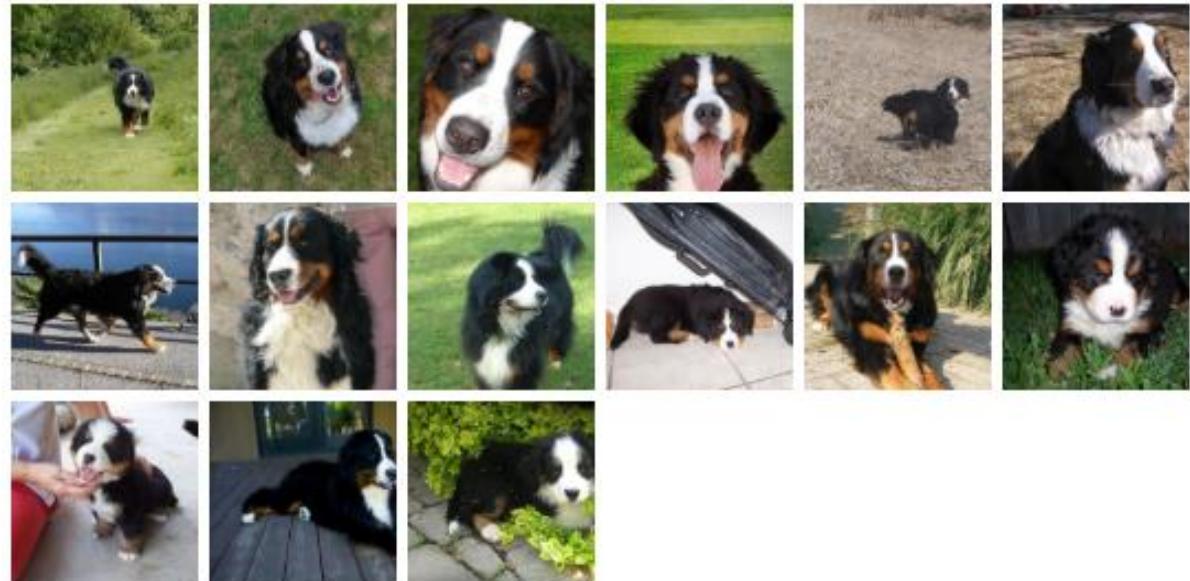
X



Add Tags

Uploading

Summary



30 images will be added...

Add some tags to this batch of images...

My Tags

bernhese-mountain-dog

Upload 30 files

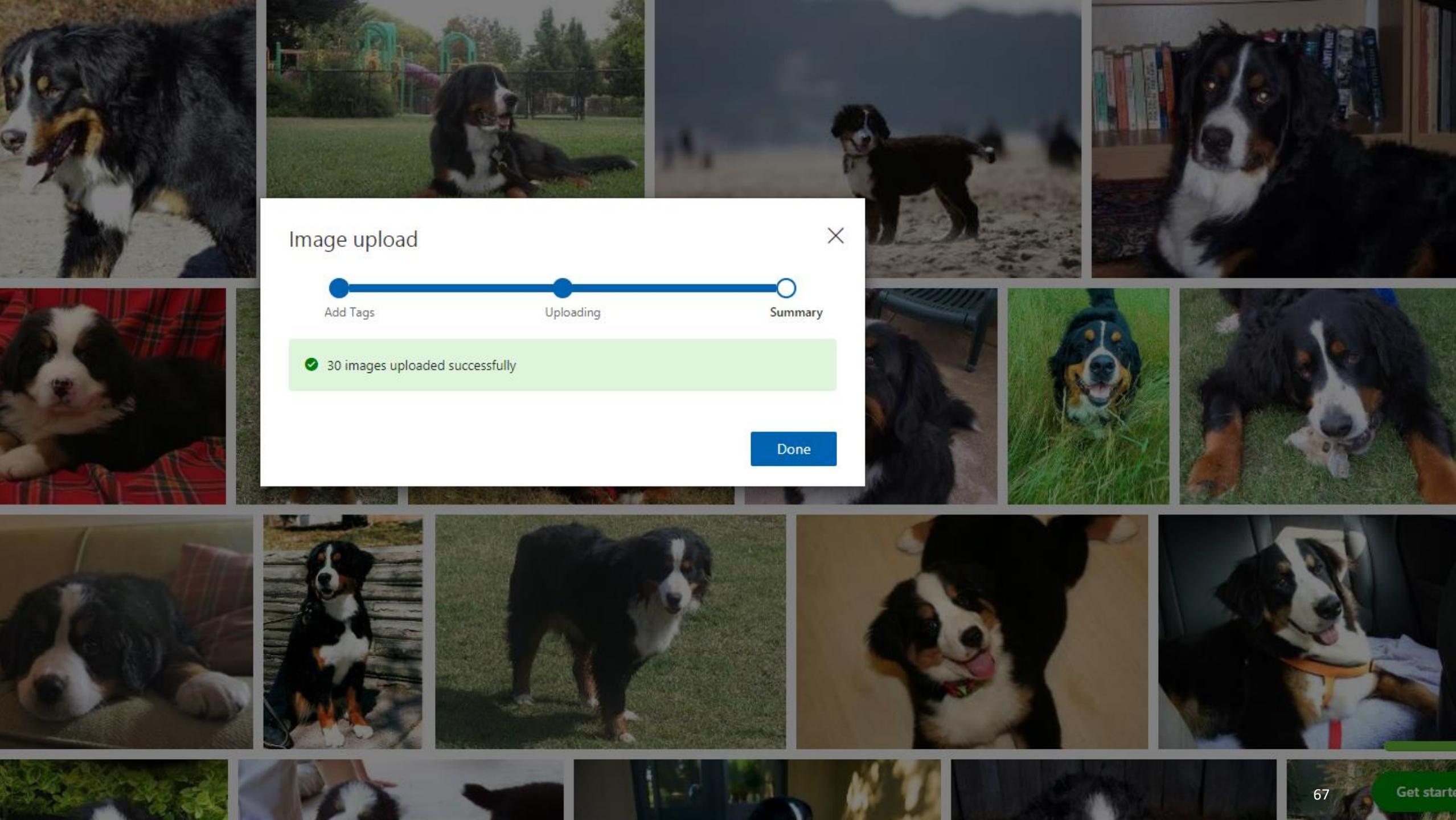


Image upload

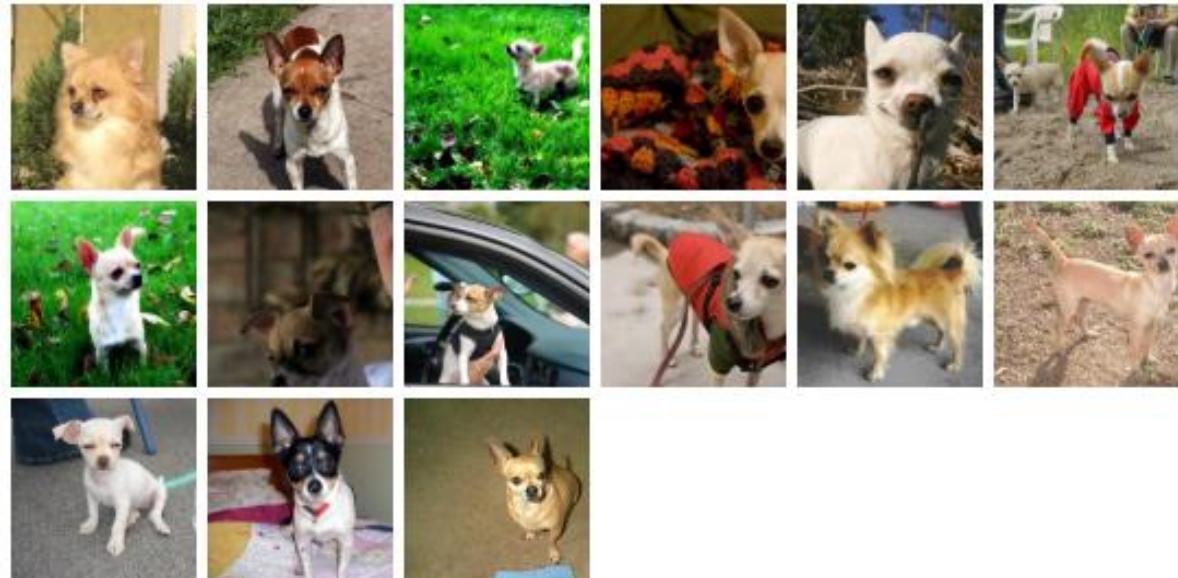
X



Add Tags

Uploading

Summary



30 images will be added...

Add some tags to this batch of images...

My Tags

chihuahua

Upload 30 files

Customvision.ai

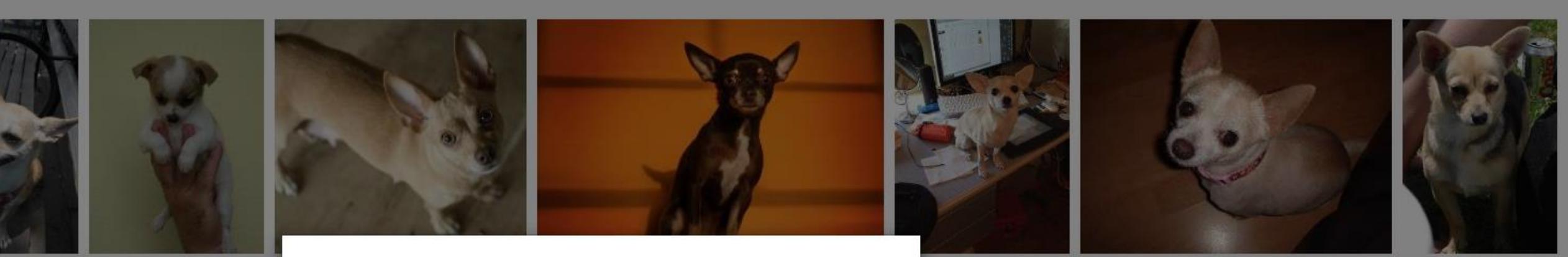


Image upload

Add Tags

Uploading

Summary

✓ 30 images uploaded successfully

Done

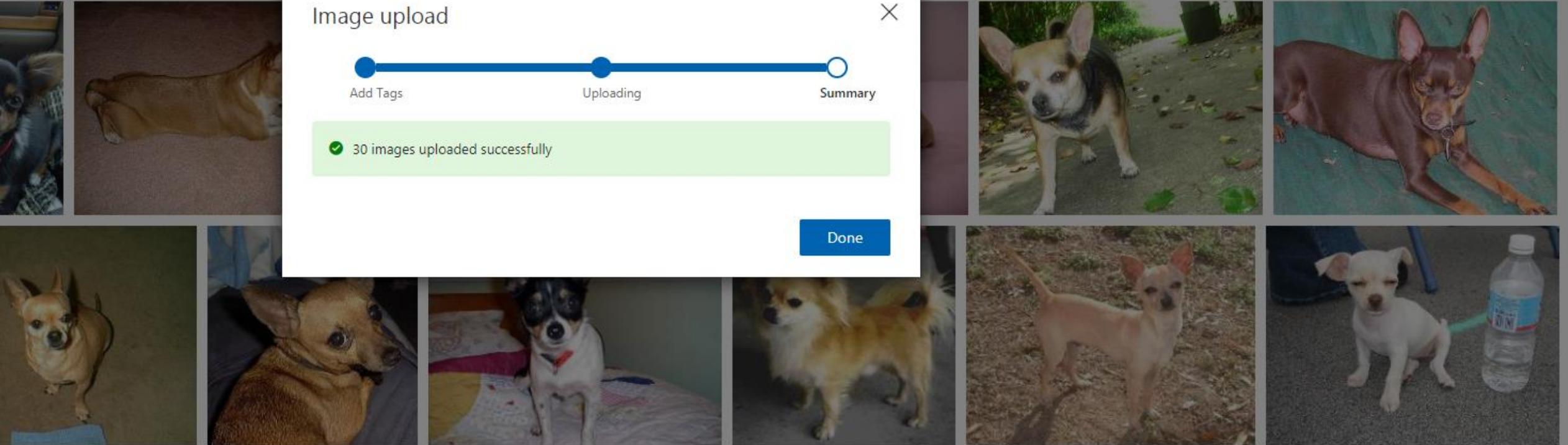


Image upload

X



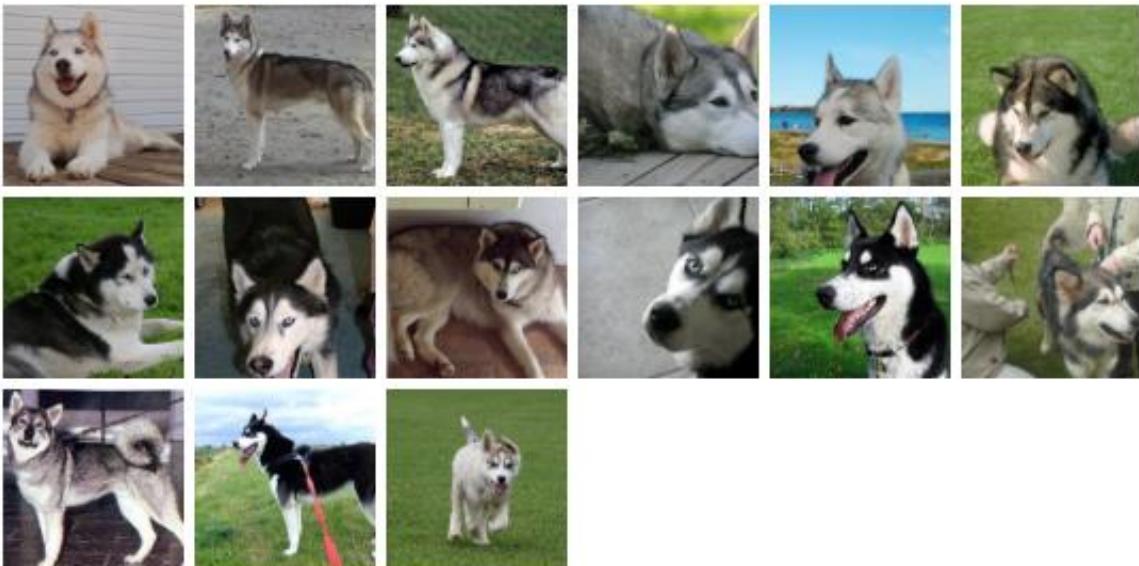
Add Tags



Uploading



Summary



30 images will be added...

Add some tags to this batch of images...

My Tags

eskimo-dog

Upload 30 files

Customvision.ai

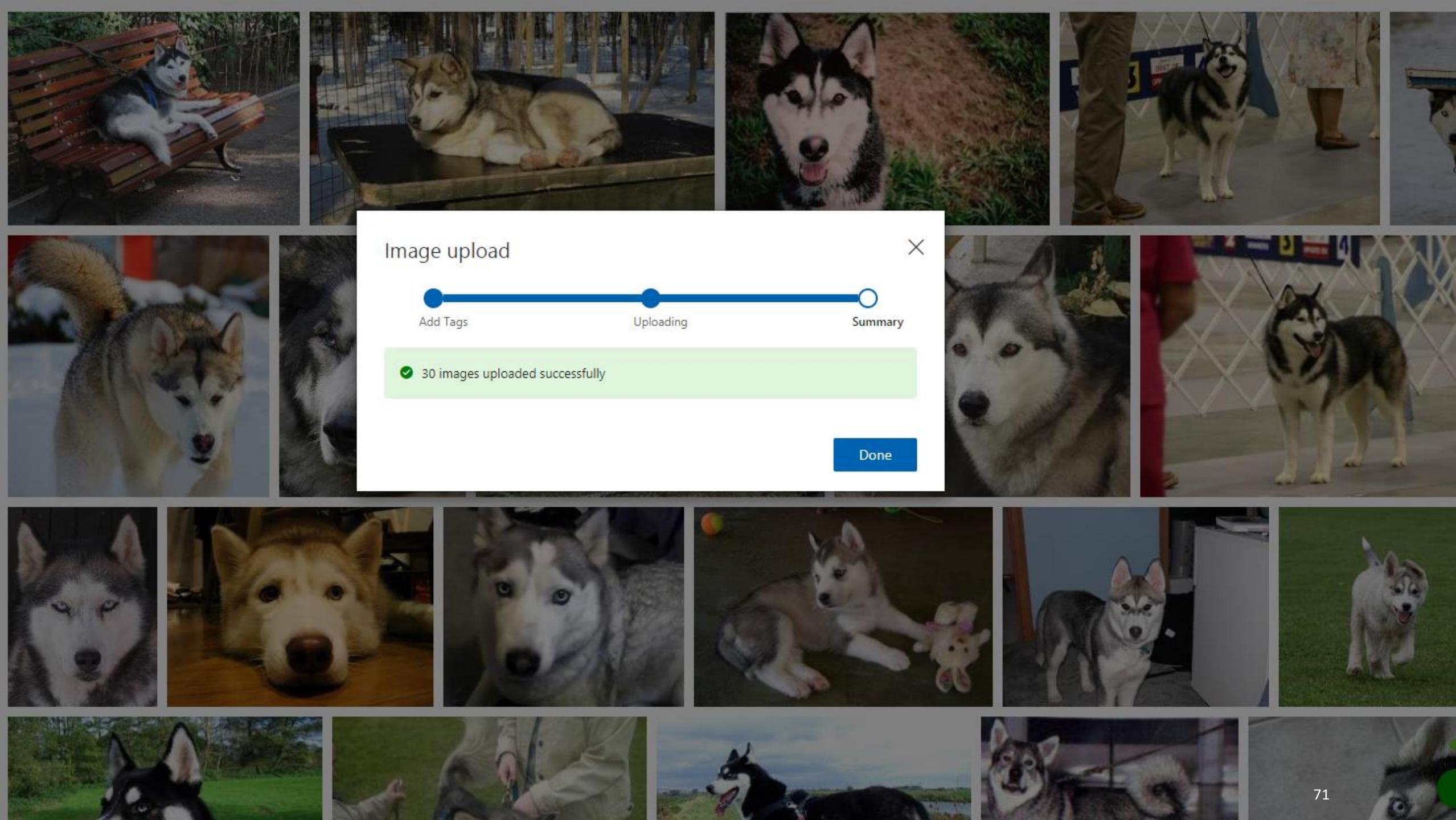


Image upload

X



Add Tags

Uploading

Summary



30 images will be added...

Add some tags to this batch of images...

My Tags

german-shepherd

Upload 30 files

Customvision.ai

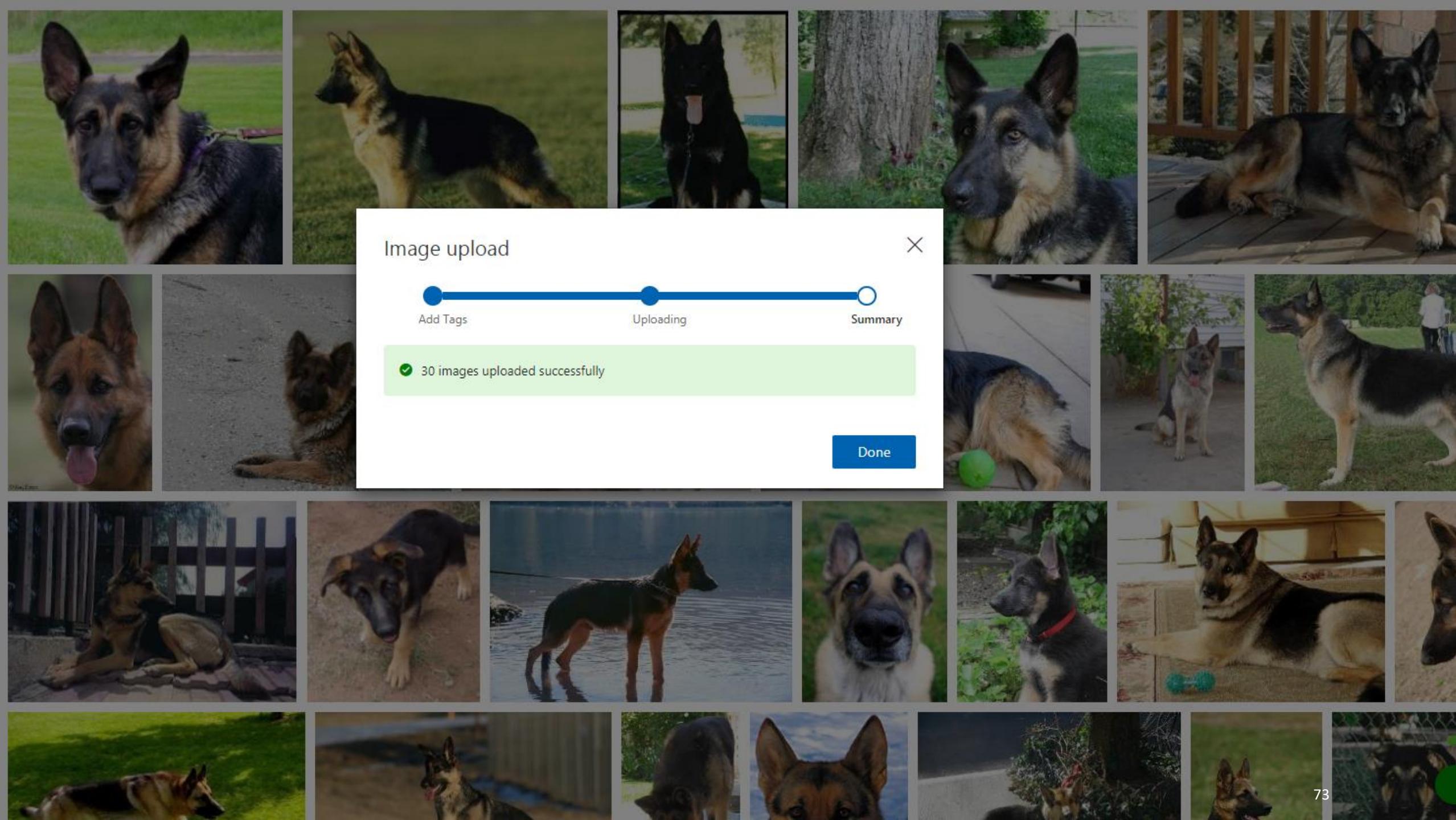


Image upload

X



Add Tags

Uploading

Summary



30 images will be added...

Add some tags to this batch of images...

My Tags

golden-retriever

Upload 30 files

Customvision.ai



Image upload

X

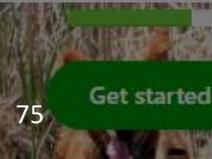
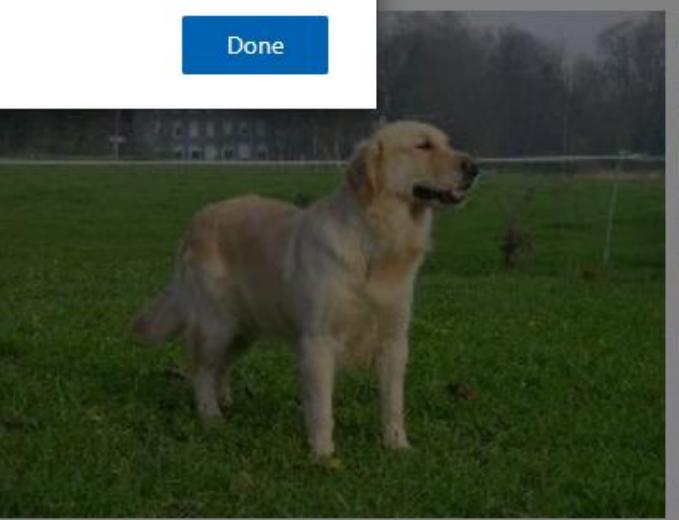
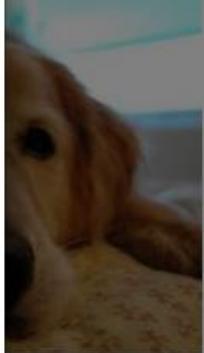
Add Tags

Uploading

Summary

✓ 30 images uploaded successfully

Done



Get started

Image upload

X



Add Tags

Uploading

Summary



30 images will be added...

Add some tags to this batch of images...

My Tags

maltese-dog

Upload 30 files

Customvision.ai

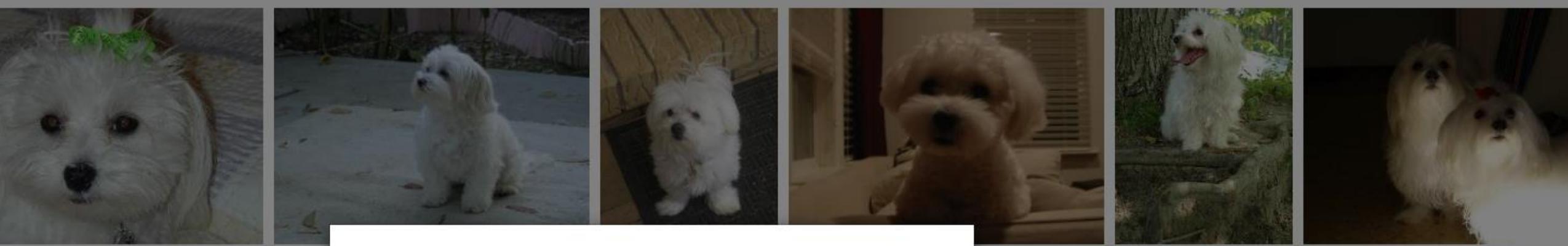


Image upload

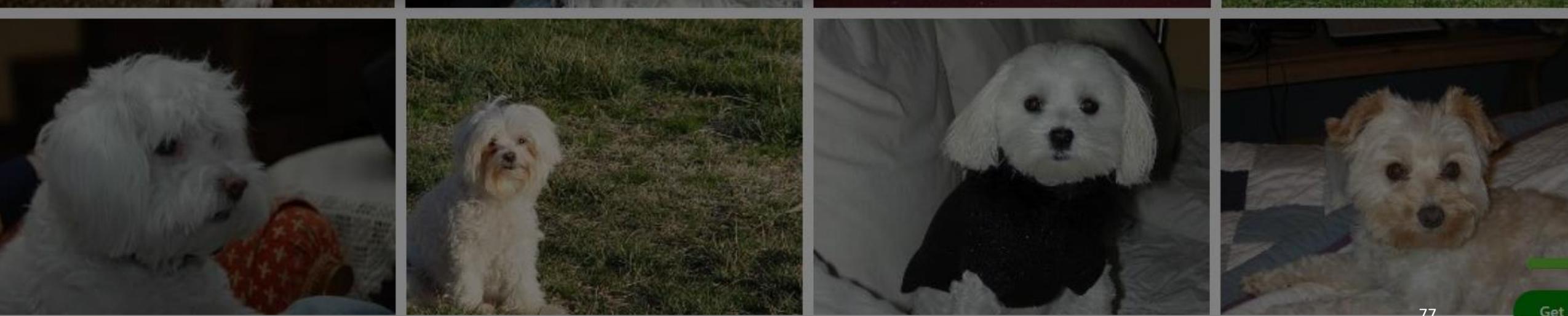
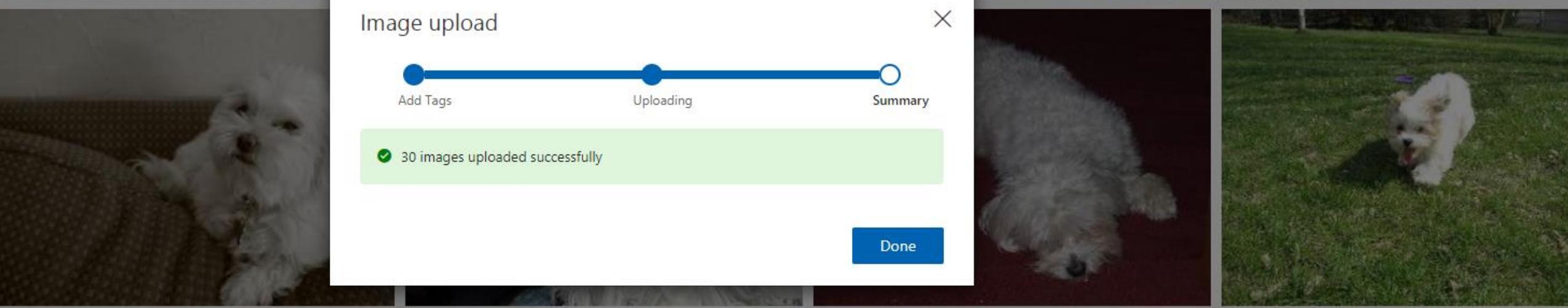
Add Tags

Uploading

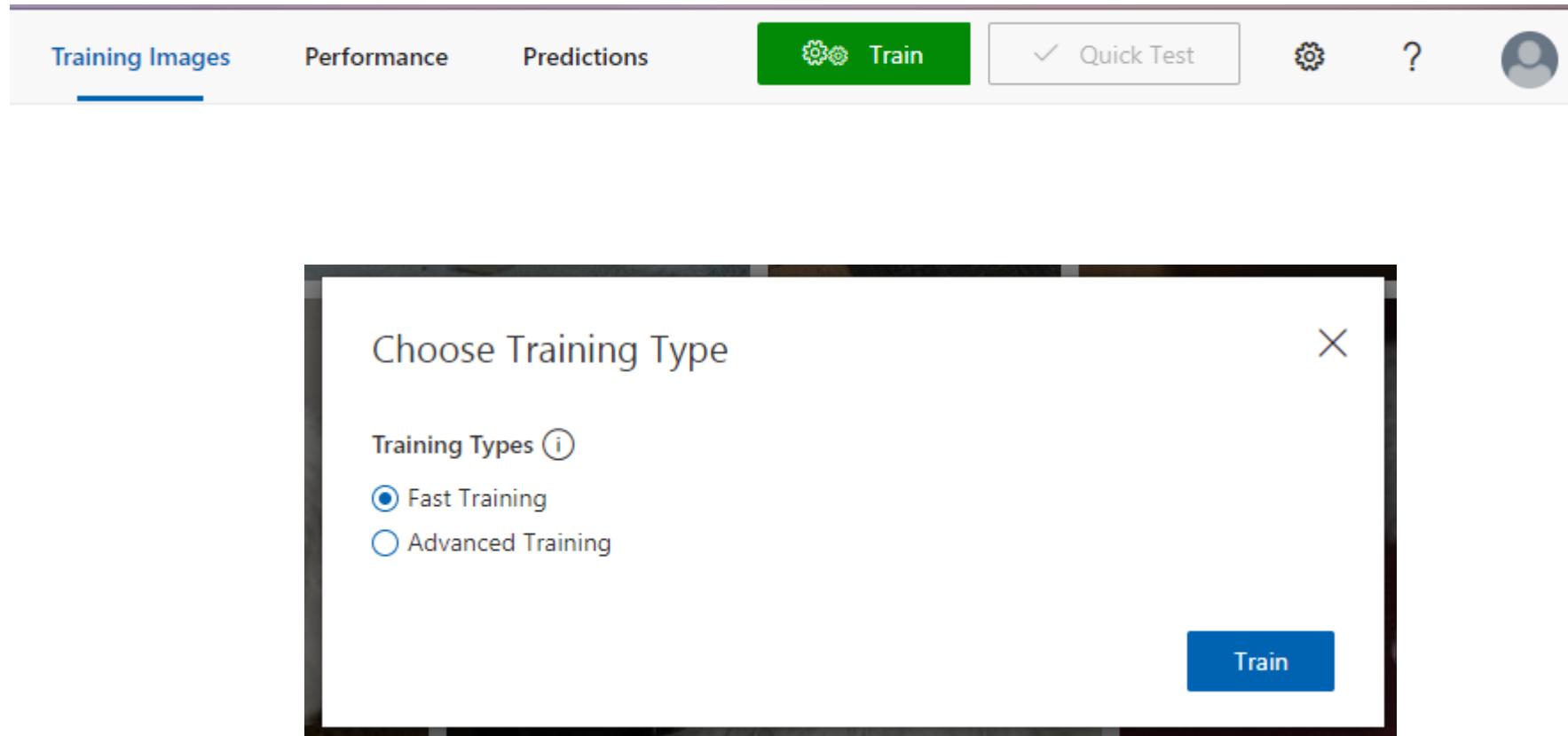
Summary

✓ 30 images uploaded successfully

Done



Customvision.ai: Train



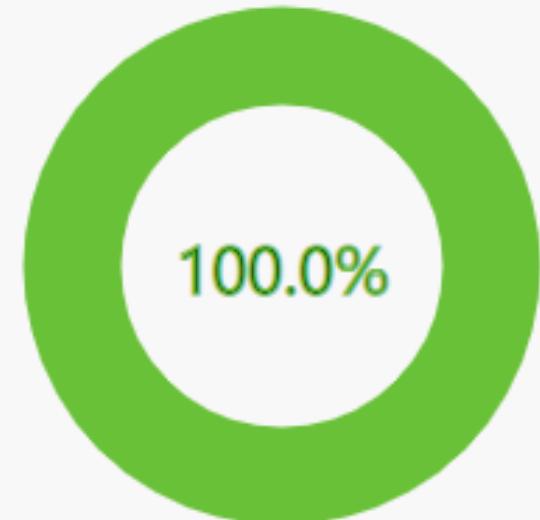
Precision ⓘ



Recall ⓘ



AP ⓘ



Customvision.ai: Performance

Performance Per Tag

Tag	Precision	▲	Recall	A.P.	Image count
maltese-dog	100.0%		100.0%	100.0%	30
golden-retriever	100.0%		100.0%	100.0%	30
german-shepherd	100.0%		100.0%	100.0%	30
eskimo-dog	100.0%		100.0%	100.0%	30
chihuahua	100.0%		100.0%	100.0%	30
bernese-mountain-dog	100.0%		100.0%	100.0%	30
beagle	100.0%		100.0%	100.0%	30

Customvision.ai: Performance



File formats accepted: jpg, png, bmp
File size should not exceed: 4mb

Using model trained in

Iteration

Iteration 1 ▾

Predictions

Tag	Probability
chihuahua	100%
beagle	0%
german-shepherd	0%
golden-retriever	0%

Customvision.ai: Test



@GosiaBorzecka

#NottsDev

#GlobalAINight



File formats accepted: jpg, png, bmp

File size should not exceed: 4mb

Using model trained in

Iteration

Iteration 1 ▾

Predictions

Tag	Probability
golden-retriever	100%
beagle	0%
german-shepherd	0%
chihuahua	0%

Customvision.ai: Test



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#GlobalAINight



File formats accepted: jpg, png, bmp
File size should not exceed: 4mb

Using model trained in

Iteration

Iteration 1 ▾

Predictions

Tag	Probability
eskimo-dog	99.9%
german-shepherd	0%
chihuahua	0%
bernese-mountain-dog	0%
...	...

Customvision.ai: Test



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dog classifier

Training Images Performance Predictions

Filter Delete Tag images

Iteration

Iteration 1

Tags

Showing: all predicted images

Search For Tags:

beagle
 bernese-mountai...
 chihuahua
 eskimo-dog



Customvision.ai: Predictions



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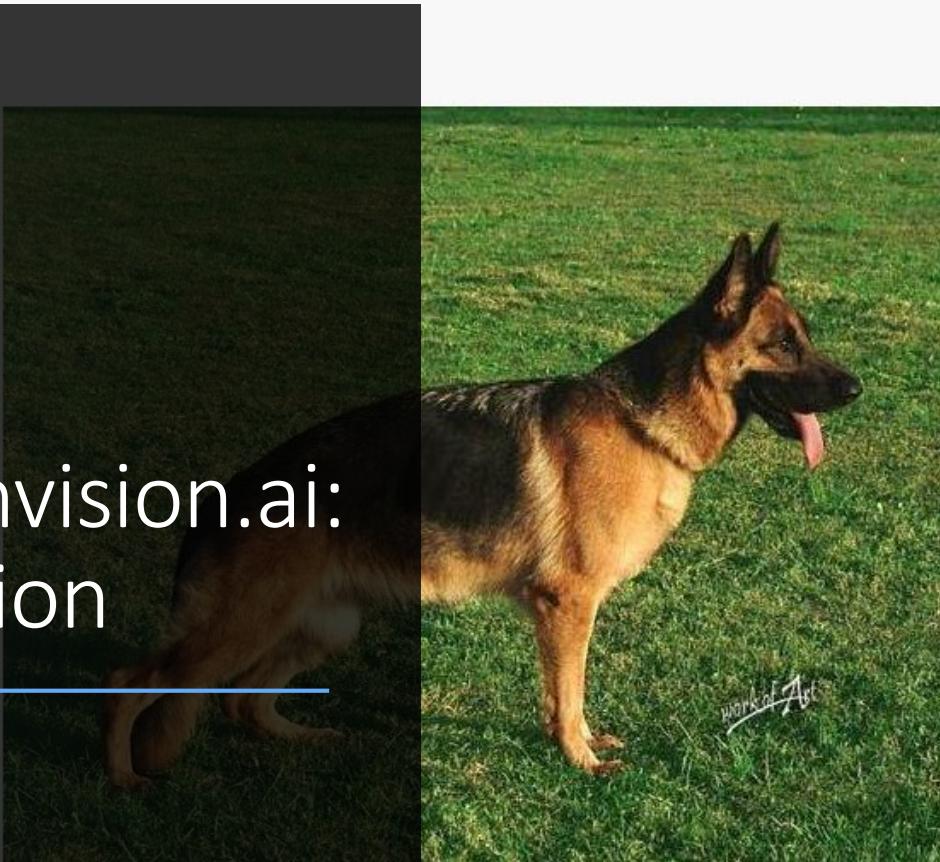
My Tags

Add a tag and press enter

Predictions

Tag	Probability
german-shepherd	99.9%
eskimo-dog	0%
golden-retriever	0%
chihuahua	0%
bernese-mountain-dog	0%
beagle	0%
maltese-dog	0%

Customvision.ai:
Prediction





My Tags

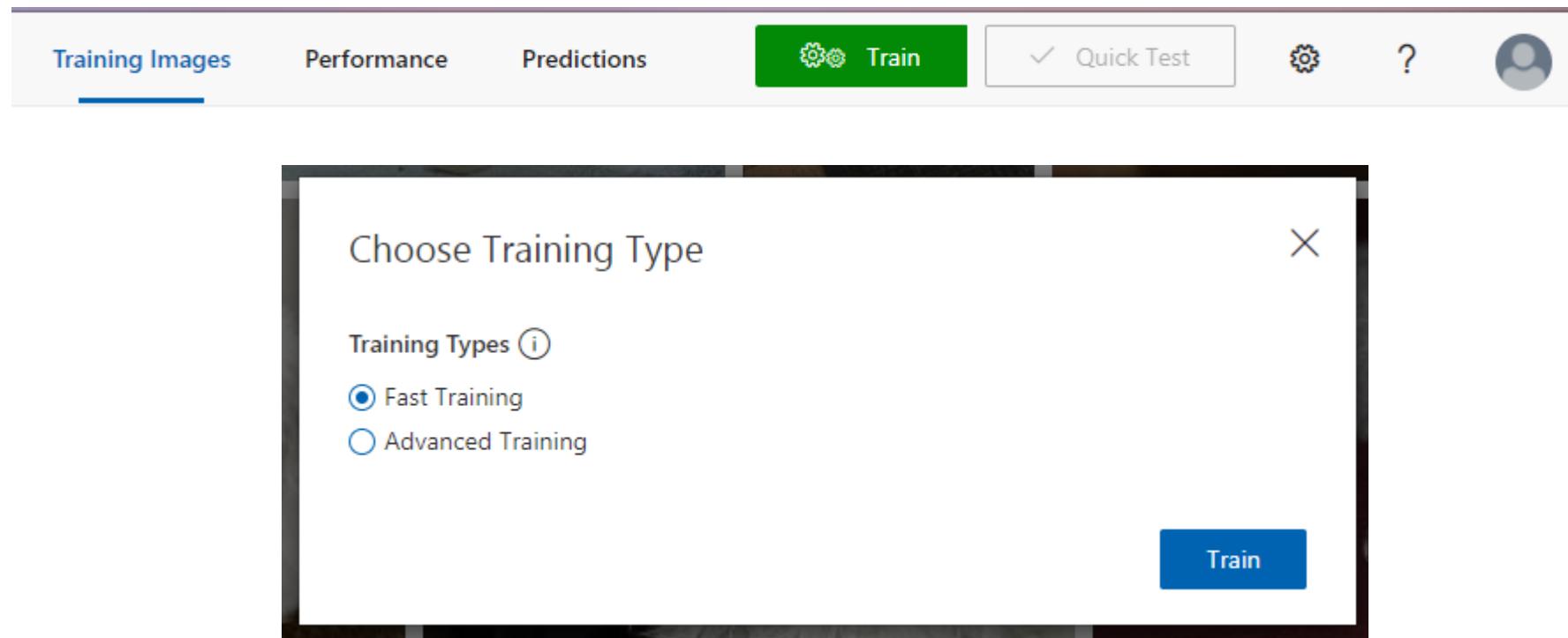
Add a tag and press enter

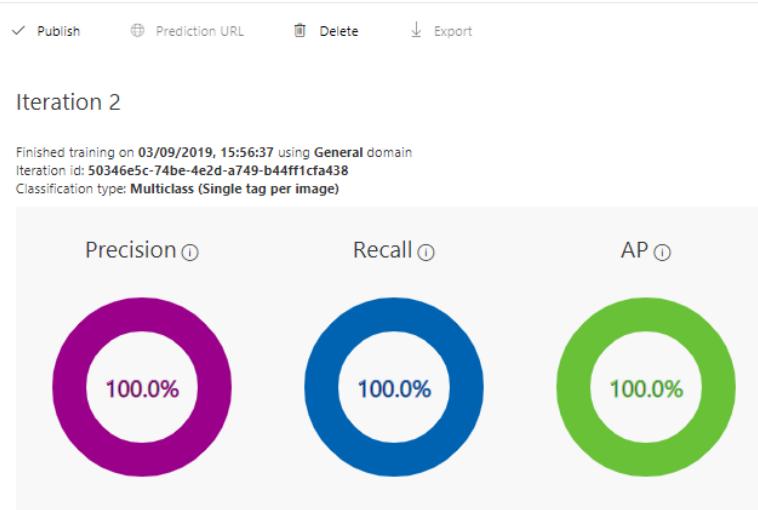
german-shepherd X

Predictions

Tag	Probability
german-shepherd	99.9%
eskimo-dog	0%
golden-retriever	0%
chihuahua	0%
berneese-mountain-dog	0%
beagle	0%
maltese-dog	0%

Customvision.ai: Train again





Performance Per Tag

Tag	Precision	Recall	A.P.	Image count
mailese-dog	100.0%	100.0%	100.0%	30
golden-retriever	100.0%	100.0%	100.0%	31
german-shepherd	100.0%	100.0%	100.0%	31
eskimo-dog	100.0%	100.0%	100.0%	31
chihuahua	100.0%	100.0%	100.0%	31
bernese-mountain-dog	100.0%	100.0%	100.0%	30
beagle	100.0%	100.0%	100.0%	30

Customvision.ai

Iteration 2

Publish Model

X

We only support publishing to a prediction resource in the same region as the training resource the project resides in.

Model name

Iteration2

Prediction resource

CustomDogs_Prediction ▾

Publish

Cancel

Customvision.ai: Publish Model

How to use the Prediction API



If you have an image URL:

```
https://northeurope.api.cognitive.microsoft.com/customvision/v3.0/Prediction/a115
```

```
Set Prediction-Key Header to: 345c73453927419793829527d6605b95
```

```
Set Content-Type Header to: application/json
```

```
Set Body to: {"Url": "https://example.com/image.png"}
```

If you have an image file:

```
https://northeurope.api.cognitive.microsoft.com/customvision/v3.0/Prediction/a115
```

```
Set Prediction-Key Header to: 345c73453927419793829527d6605b95
```

```
Set Content-Type Header to: application/octet-stream
```

```
Set Body to: <image file>
```

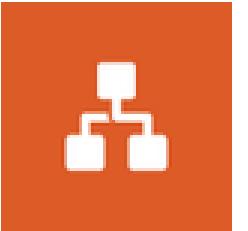
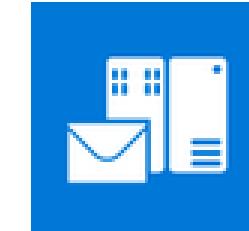
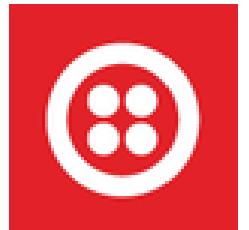
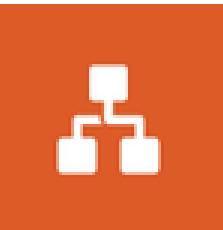
Got it!

Customvision.ai: Prediction API



Part 3: Azure Logic Apps

Integration

 AS2	 BizTalk EDIFACT	 BizTalk Rules	 BizTalk XML Validator	 BizTalk XPath Extractor	 Microsoft Connector for M...
Microsoft	Microsoft	Microsoft	Microsoft	Microsoft	Microsoft
Protocol					More
 SOAP Connector	 POP3 Connector	 HTTP Listener	 File Connector	 SFTP Connector	 SMTP Connector
Microsoft	Microsoft	Microsoft	Microsoft	Microsoft	Microsoft
Other					More
 Yammer Connector	 Twilio Connector	 SAP Connector	 BizTalk Rules	 Oracle Database Connector	 API App
Microsoft	Microsoft	Microsoft	Microsoft	Microsoft	Microsoft

Search the MarketplaceAzure Marketplace [See all](#)Featured [See all](#)

Get started

Storage account
[Quickstart tutorial](#)

Recently created

Data Box Edge / Data Box Gateway
(preview)
[Learn more](#)

AI + Machine Learning

Data Lake Storage Gen1
[Quickstart tutorial](#)

Analytics

Blockchain

Compute

Containers

Databases

Developer Tools

DevOps

Identity

Integration

Internet of Things

Media

Mixed Reality

IT & Management Tools

Networking

Software as a Service (SaaS)

Security

AltaVault AVA-c4, version 4.4.1
(preview)
[Learn more](#)Cloudian HyperCloud for Azure
(preview)
[Learn more](#)Veeam Cloud Connect for the
Enterprise (preview)
[Learn more](#)

Storage

Web

Azure: Storage account

Azure: Storage account

* Subscription Visual Studio Enterprise

* Resource group AINightz [Create new](#)

Instance details

The default deployment model is Resource Manager, which supports the latest Azure features. You may choose to deploy using the classic deployment model instead. [Choose classic deployment model](#)

* Storage account name resultsnightz ✓

* Location (Europe) North Europe

Performance Standard Premium

Account kind BlobStorage

Replication Locally-redundant storage (LRS)

Accounts with the selected kind, replication and performance type only support block and append blobs. Page blobs, file shares, tables, and queues will not be available.

Access tier (default) Cool Hot



Validation passed

Basics Advanced Tags Review + create

Basics

Subscription	Visual Studio Enterprise
Resource group	AINight
Location	(Europe) North Europe
Storage account name	resultsnights
Deployment model	Resource manager
Account kind	BlobStorage
Replication	Locally-redundant storage (LRS)
Performance	Standard
Access tier (default)	Hot

Advanced

Secure transfer required	Enabled
Allow access from	All networks
Hierarchical namespace	Disabled
Blob soft delete	Disabled

Azure: Storage account



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#GlobalAINight



Your deployment is complete



Deployment name: Microsoft.StorageAccount-20190905101850

Subscription: [Visual Studio Enterprise](#)

Resource group: [AINights](#)

✓ Deployment details [\(Download\)](#)

^ Next steps

[Go to resource](#)

Azure: Storage Account



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#GlobalAINight

Search (Ctrl+ /) «

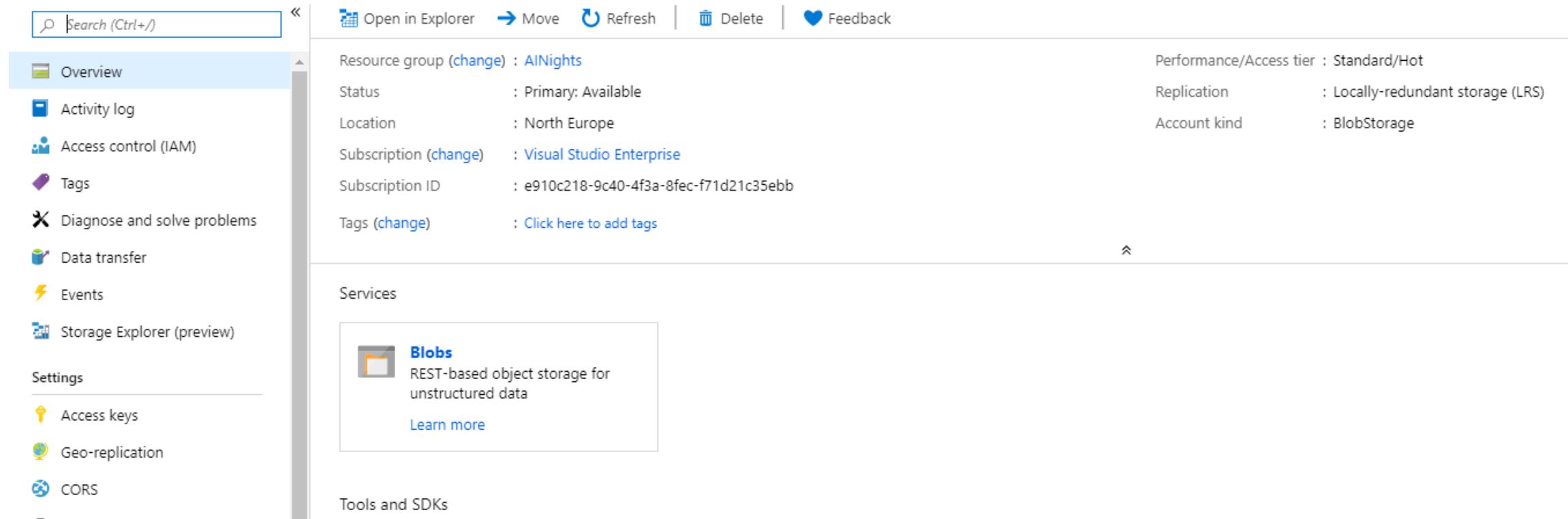
Open in Explorer Move Refresh Delete Feedback

Resource group (change) : AI_Nights Performance/Access tier : Standard/Hot
Status : Primary: Available Replication : Locally-redundant storage (LRS)
Location : North Europe Account kind : BlobStorage
Subscription (change) : Visual Studio Enterprise
Subscription ID : e910c218-9c40-4f3a-8fec-f71d21c35ebb
Tags (change) : Click here to add tags

Services

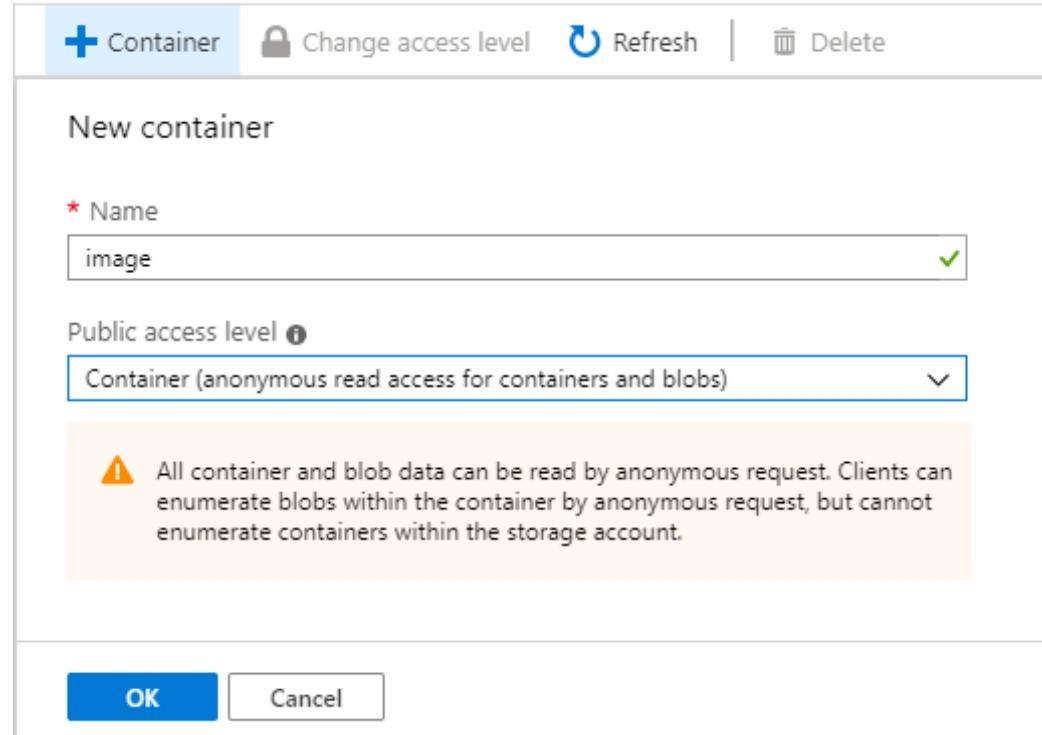
Blobs
REST-based object storage for unstructured data
[Learn more](#)

Tools and SDKs



Azure: Storage Account | Blob





Azure: Storage Account | Blob

Subscriptions « X

gosiaborzecka (Default Directory)

+ Add

Showing subscriptions in gosiaborzecka (Default Directory). Don't see a subscription? [Switch directories](#)

My role ⓘ Status ⓘ

8 selected 3 selected

Apply

Show only subscriptions selected in the [global subscriptions filter](#) ⓘ

Search to filter items...

SUBSCRIPTION	SUBSCRIPTION ID	...
Pay-As-You... 0c09a41a-fc6f-47...	...	
Visual Studi... e910c218-9c40-4f...	...	

Visual Studio Enterprise - Resource providers

Subscription

Search (Ctrl+ /)

Events

Cost Management

- Cost analysis
- Budgets
- Advisor recommendations

Billing

- Invoices
- External services
- Payment methods

Partner information

Settings

- Programmatic deployment
- Resource groups
- Resources
- Usage + quotas
- Policies
- Management certificates
- My permissions
- Resource providers

Register Unregister Refresh

event

PROVIDER	STATUS
Microsoft.EventGrid	Not Registered
Microsoft.EventHub	Not Registered

Microsoft Event Grid



[!\[\]\(b681c08a4e8a7ef86ac76f4535b19b3d_img.jpg\) Re-register](#)[!\[\]\(564ce0aa91174ed5fc0e6bdc1321bed1_img.jpg\) Unregister](#)[!\[\]\(5a0af43f4780d48f5b6795d988c33aea_img.jpg\) Refresh](#) event

PROVIDER

STATUS

Microsoft.EventGrid

 Registered

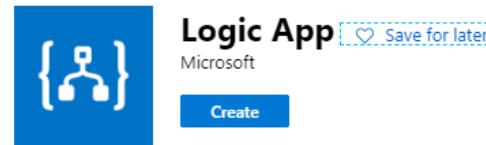
Microsoft Event Grid



@GosiaBorzecka

#NottsDev

#GlobalAINight



Logic Apps allow developers to design workflows that articulate intent via a trigger and series of steps, each invoking an App Service API app whilst securely taking care of authentication and best practices like durable execution.

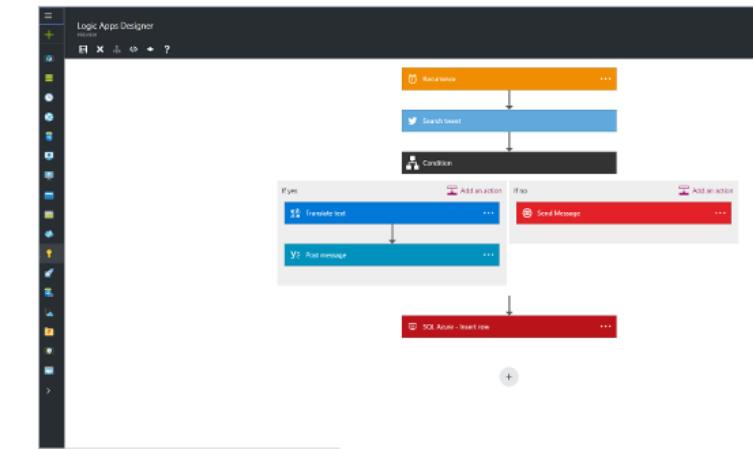
Easy to use design tools - Logic Apps can be designed end-to-end in the browser. Start with a trigger - from a simple schedule to whenever a tweet appears about your company. Then orchestrate any number of actions using the rich gallery of connectors.

Compose SaaS easily - Even composition tasks that are easy to describe are difficult to implement in code. Logic Apps make it a cinch to connect disparate systems. Want to create a task in CRM based on activity on your Facebook or Twitter accounts? Want to connect your cloud marketing solution to your on-premises billing system? Logic apps are the fastest, most reliable way to deliver solutions to these problems.

Extensibility baked in - Don't see the connector you need? Logic Apps are part of the App Service suite and designed to work with API apps; you can easily create your own API app to use as a connector. Build a new app just for you, or share and monetize in the marketplace.

Real integration horsepower - Start easy and grow as you need. Logic Apps can easily leverage the power of BizTalk, Microsoft's industry leading integration solution to enable integration professionals to build the solutions they need.

Useful Links
[Documentation](#)
[Solution Overview](#)
[Pricing Details](#)



Azure: Logic App

Logic App

Create



* Name

dogapp



* Subscription

Visual Studio Enterprise



* Resource group ⓘ

Create new

Use existing

AINights



* Location

North Europe



Log Analytics ⓘ

On

Off



You can add triggers and actions to your Logic App after creation.

Azure: Logic App



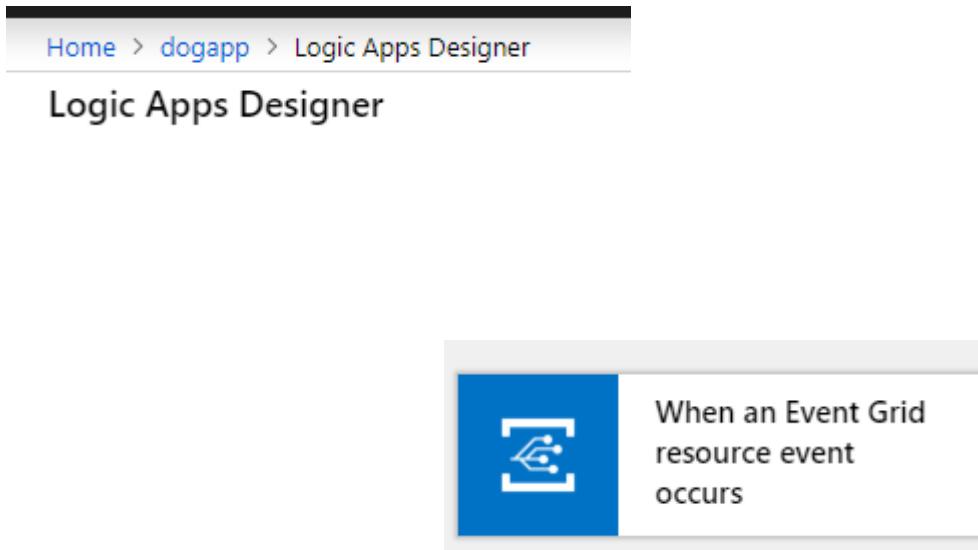
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#NottsDev

#GlobalAINight

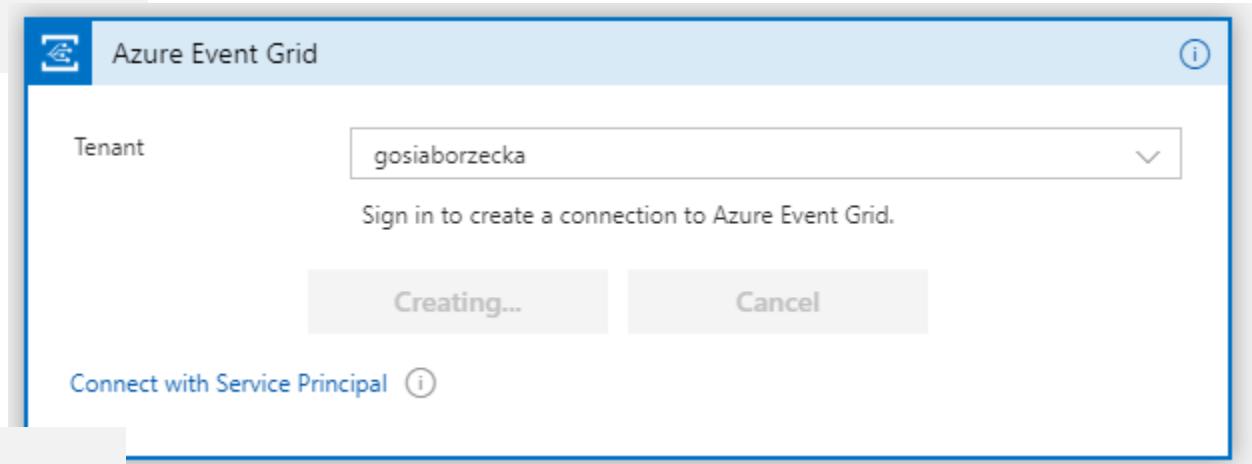
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Azure: Logic App (Event Grid)

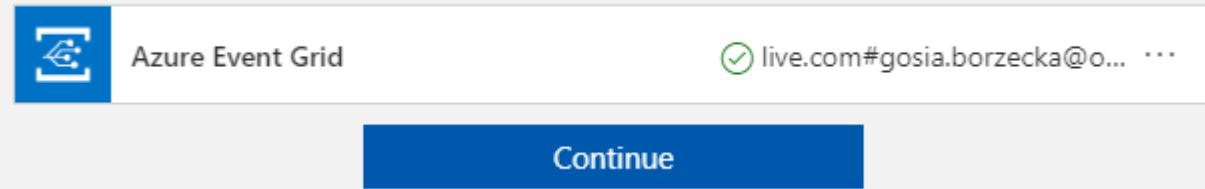


Azure: Logic App (Event Grid)

This logic app will connect to:



This logic app will connect to:



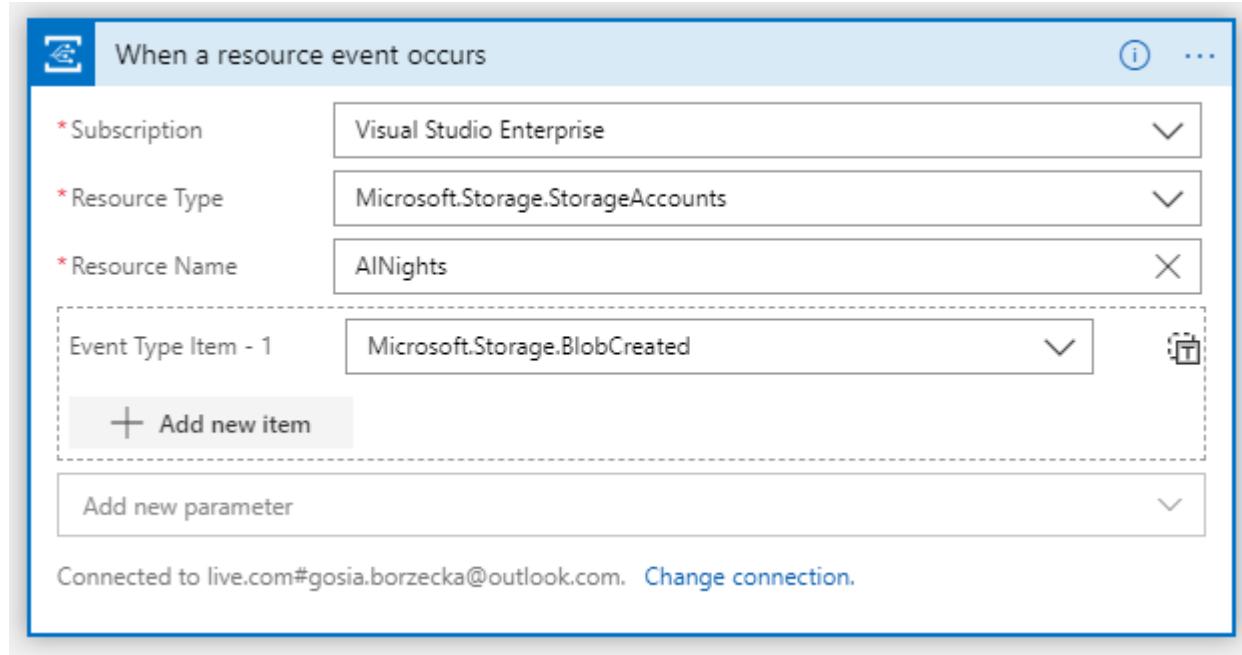
@GosiaBorzecka

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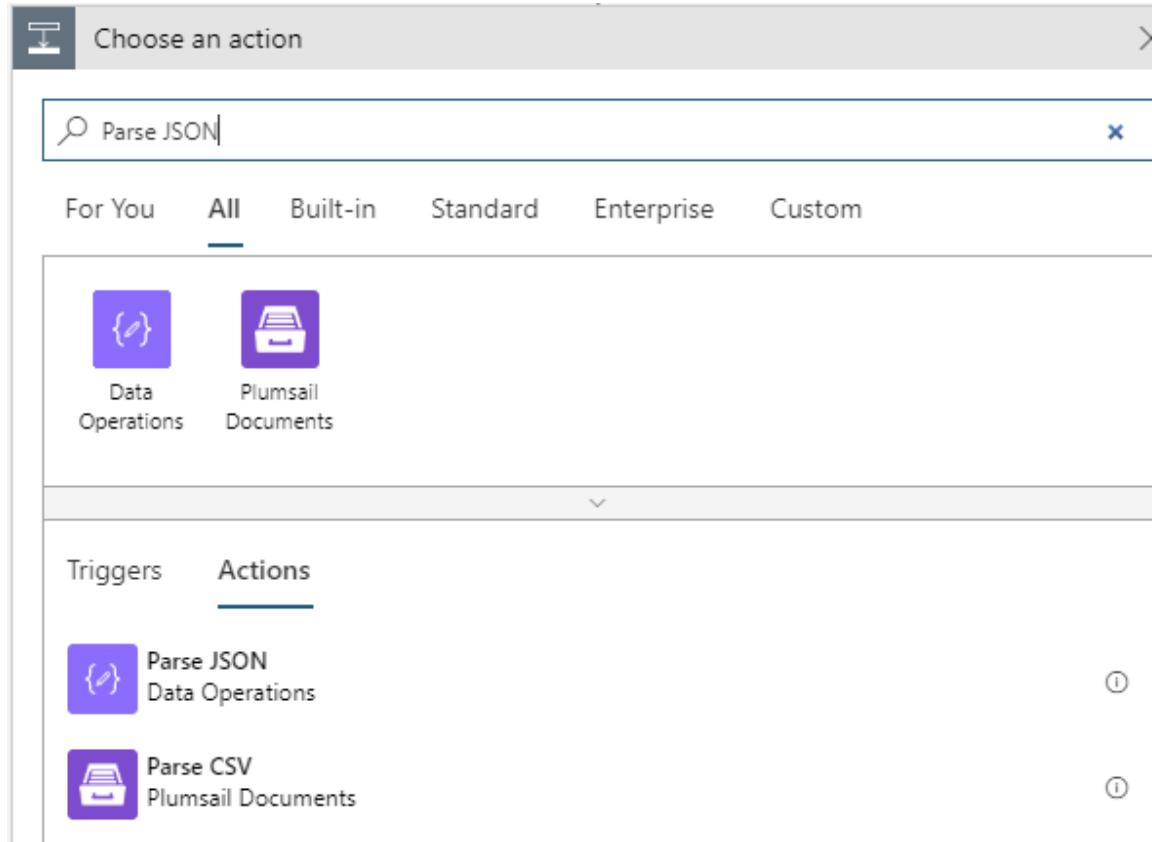
#GlobalAINight

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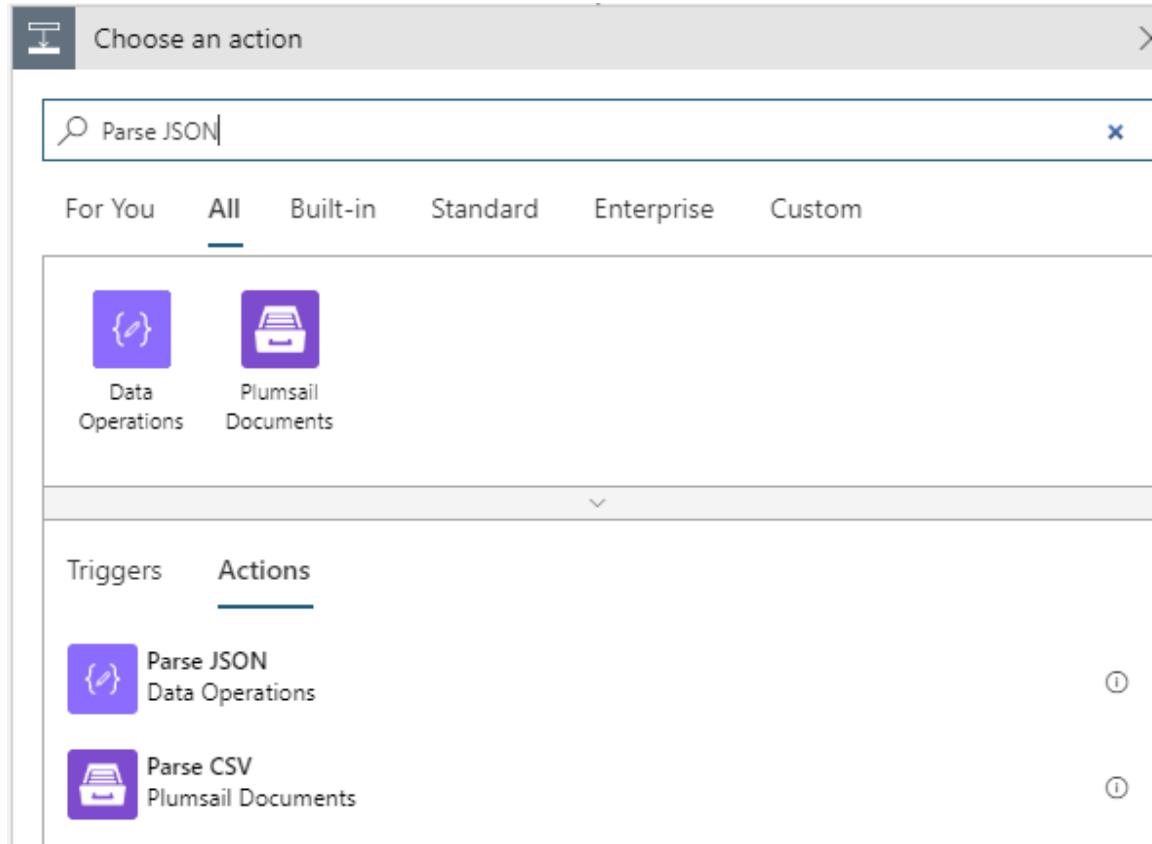
Azure: Logic App (Event Grid)



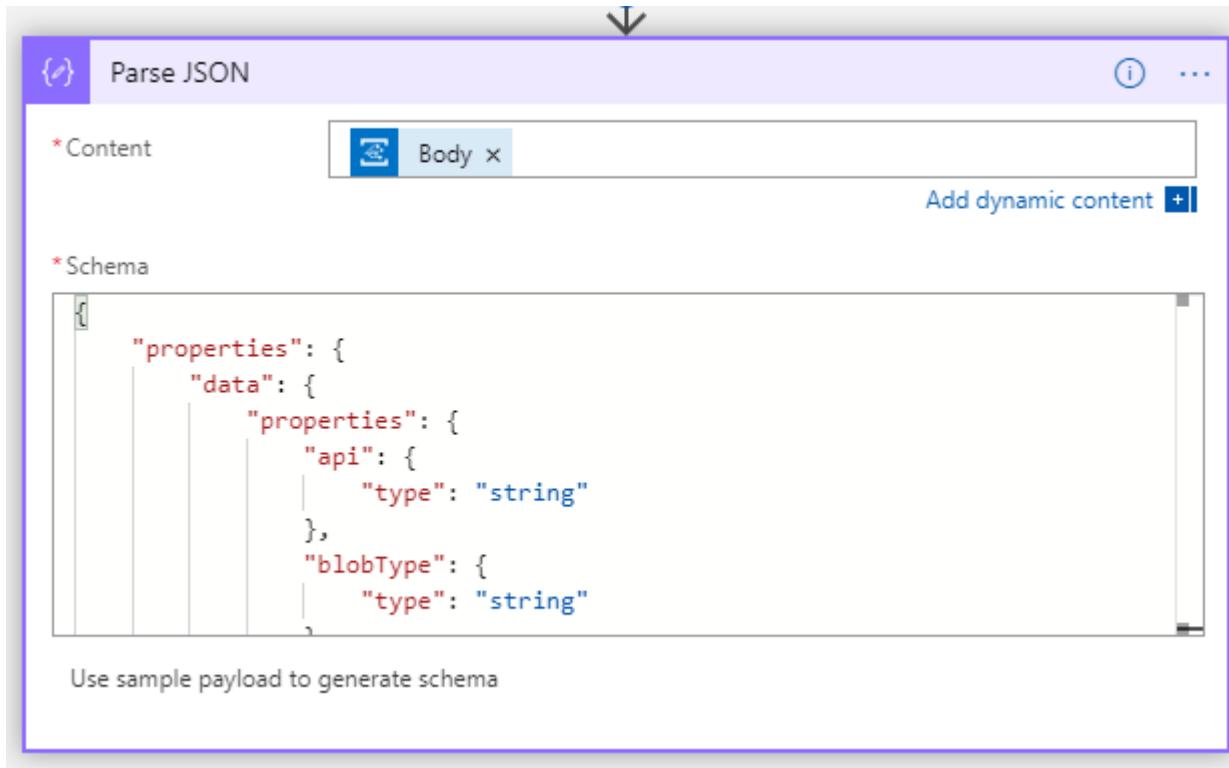
Azure: Logic App (Parse JSON)



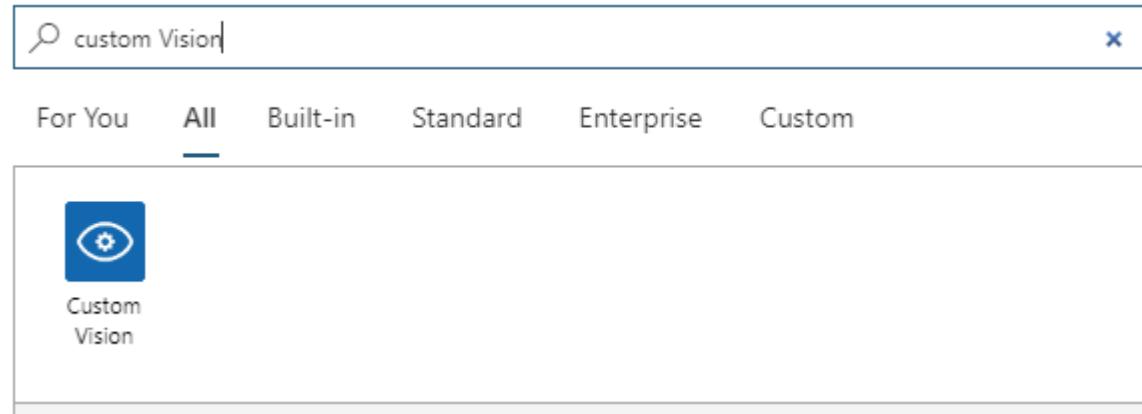
Azure: Logic App (Parse JSON)



Azure: Logic App (Parse JSON)



Azure: Logic App (Custom Vision)



Classify an image (preview)
Custom Vision



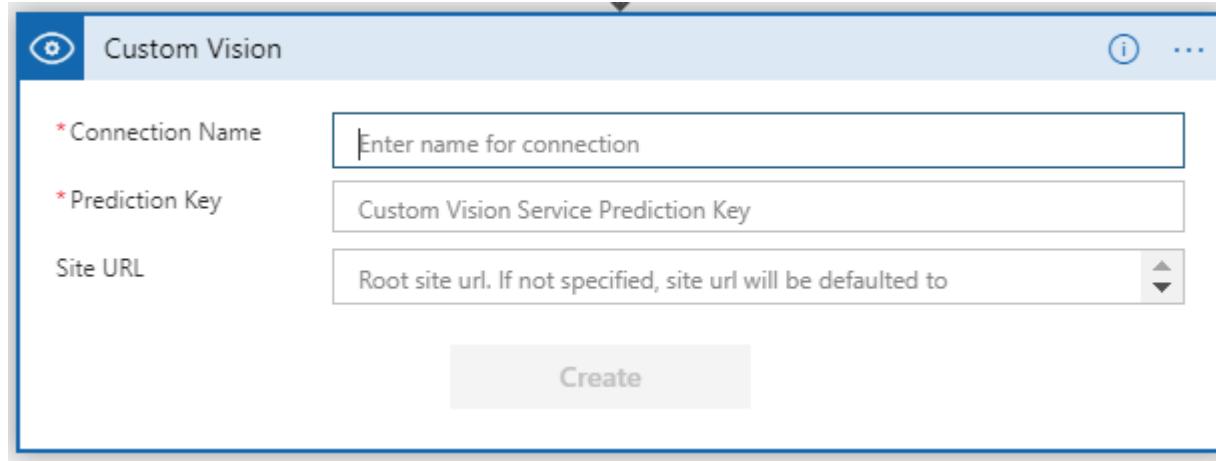
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Azure: Logic App (Custom Vision)



Customvision.ai: get information

Project Settings

General

Project Name*

Project Id

Description

Usage: ①

[214 training images uploaded; 4786 remain](#)

[7 tags created; 43 remain](#)

[2 iterations saved; 8 remain](#)

Resources:

CustomDoqs

Subscription: Visual Studio Enterprise

Resource Group: AINight

Resource Kind: Custom Vision Training

Key:

Endpoint:

Resource Id:

Pricing Tier: F0

[Change Pricing Tier](#)

[1 projects created; 1 remain](#)



How to use the Prediction API



If you have an image URL:

```
https://northeurope.api.cognitive.microsoft.com/customvision/v3.0/Prediction/a115
```

```
Set Prediction-Key Header to: 345c73453927419793829527d6605b95
```

```
Set Content-Type Header to: application/json
```

```
Set Body to: {"Url": "https://example.com/image.png"}
```

If you have an image file:

```
https://northeurope.api.cognitive.microsoft.com/customvision/v3.0/Prediction/a115
```

```
Set Prediction-Key Header to: 345c73453927419793829527d6605b95
```

```
Set Content-Type Header to: application/octet-stream
```

```
Set Body to: <image file>
```

Got it!

Customvision.ai: get information



Customvision.ai: get information

Project Settings

General

Project Name*

dog classifier

Project Id

a11574a8-2a25-4943-bcd8-6ee4079a49cf

Description

Classification of dogs for an AI application

Usage: ①

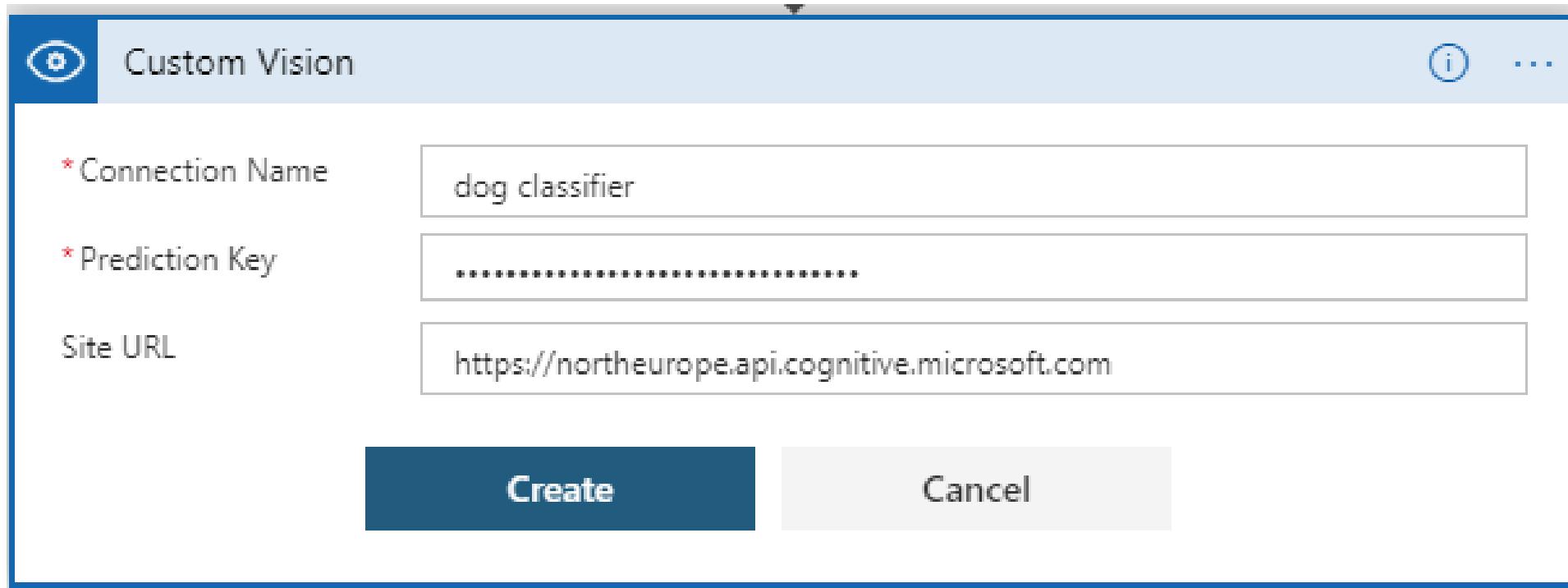
214 training images uploaded; 4786 remain

7 tags created; 43 remain

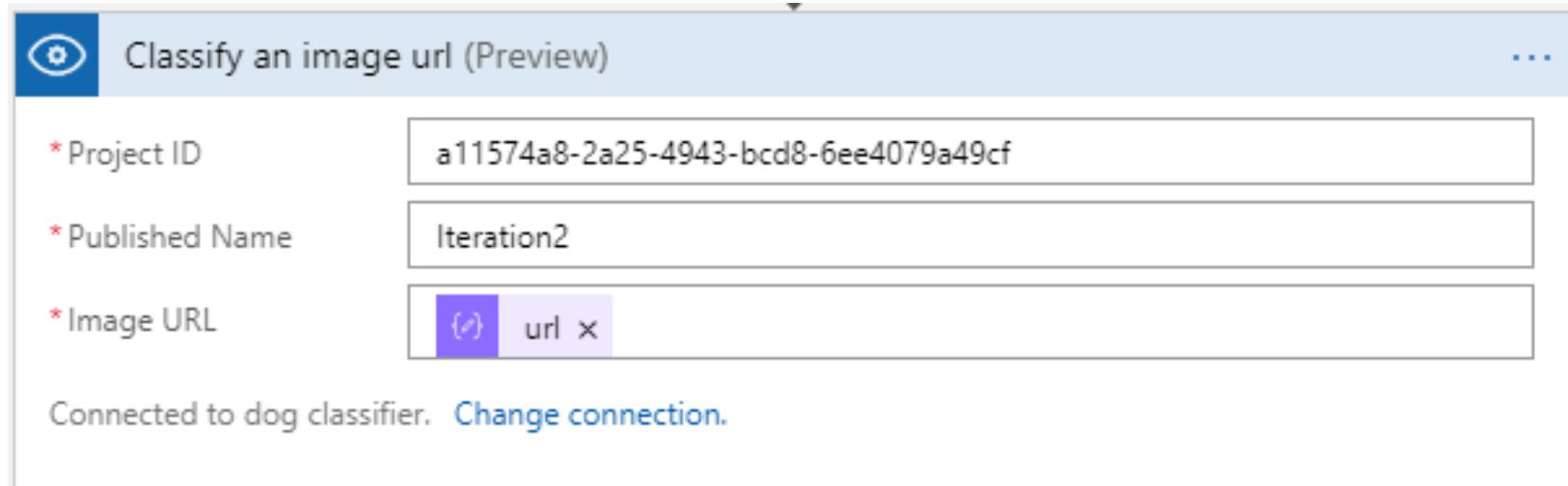
2 iterations saved; 8 remain



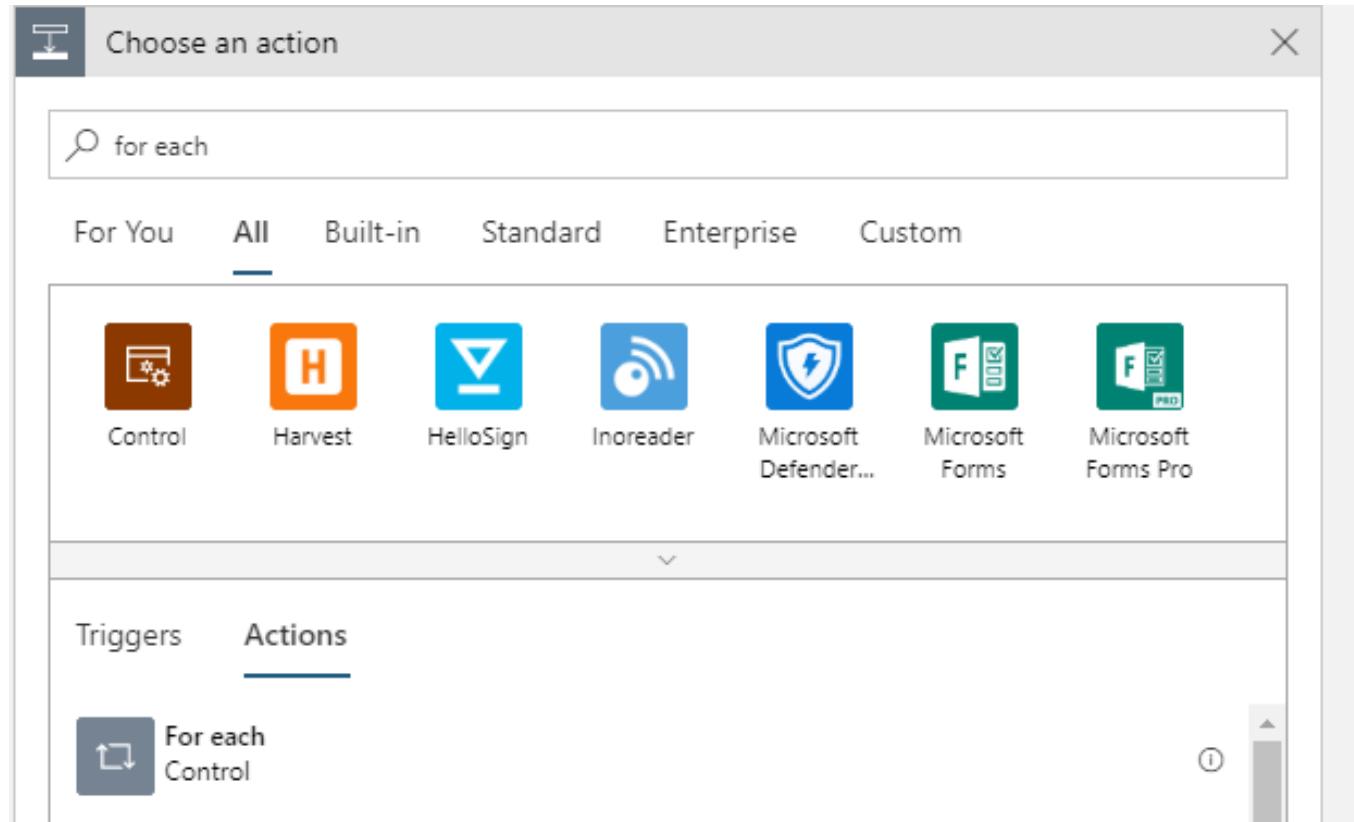
Azure: Logic App (Custom Vision)



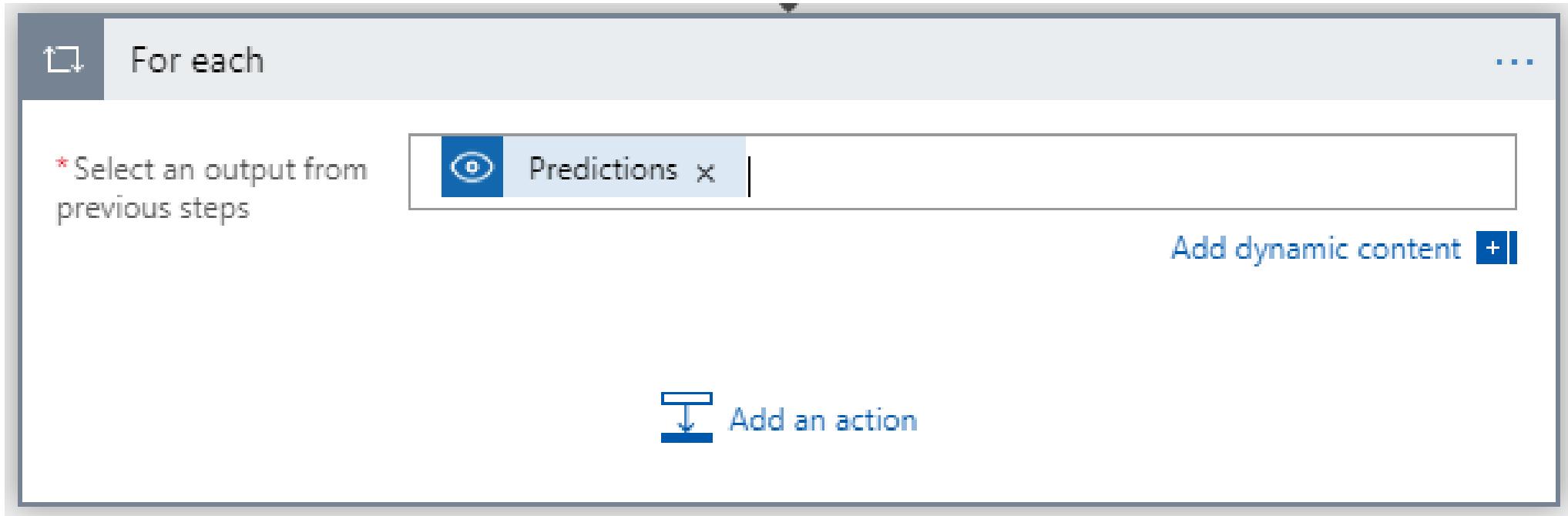
Azure: Logic App (Custom Vision)



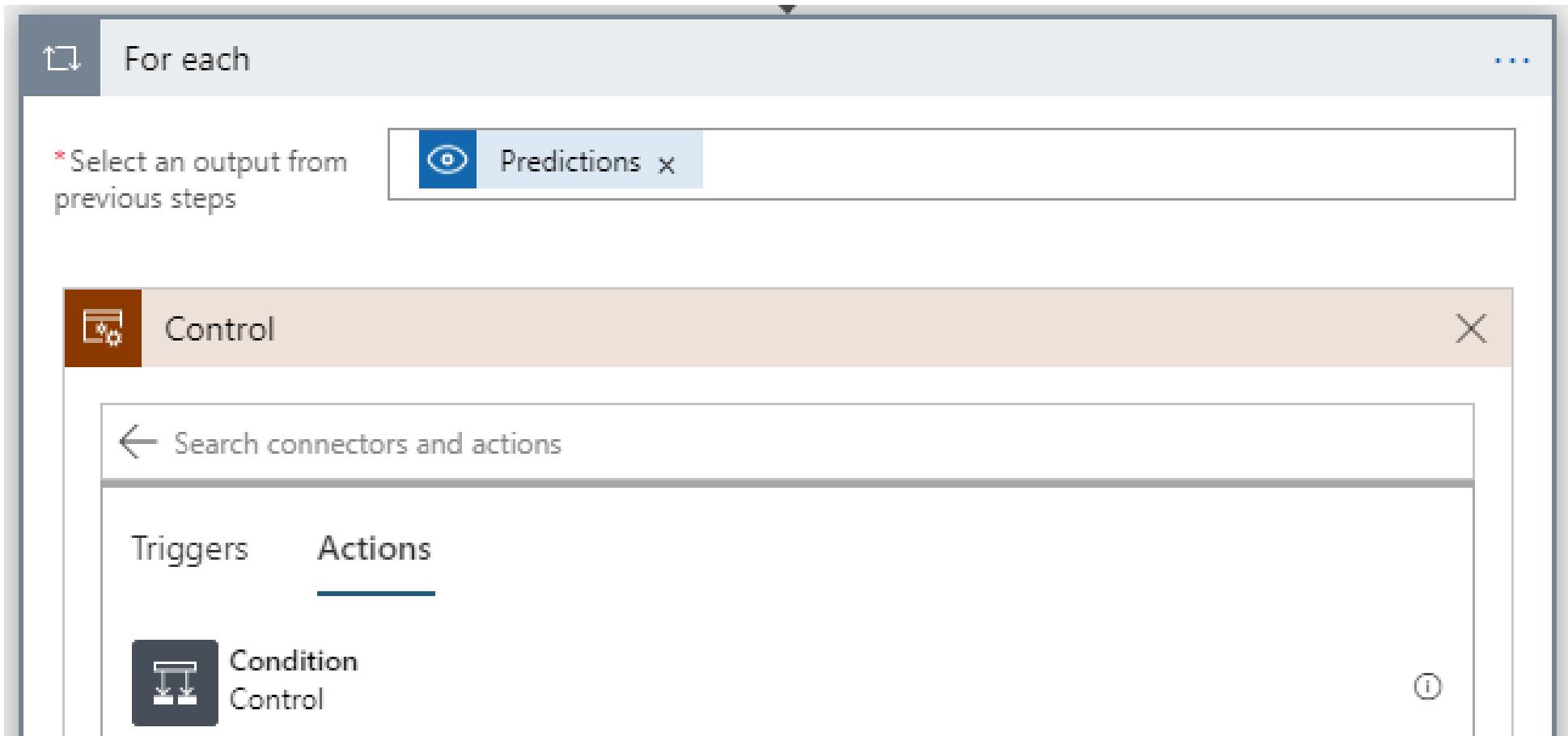
Azure: Logic App (For Each)



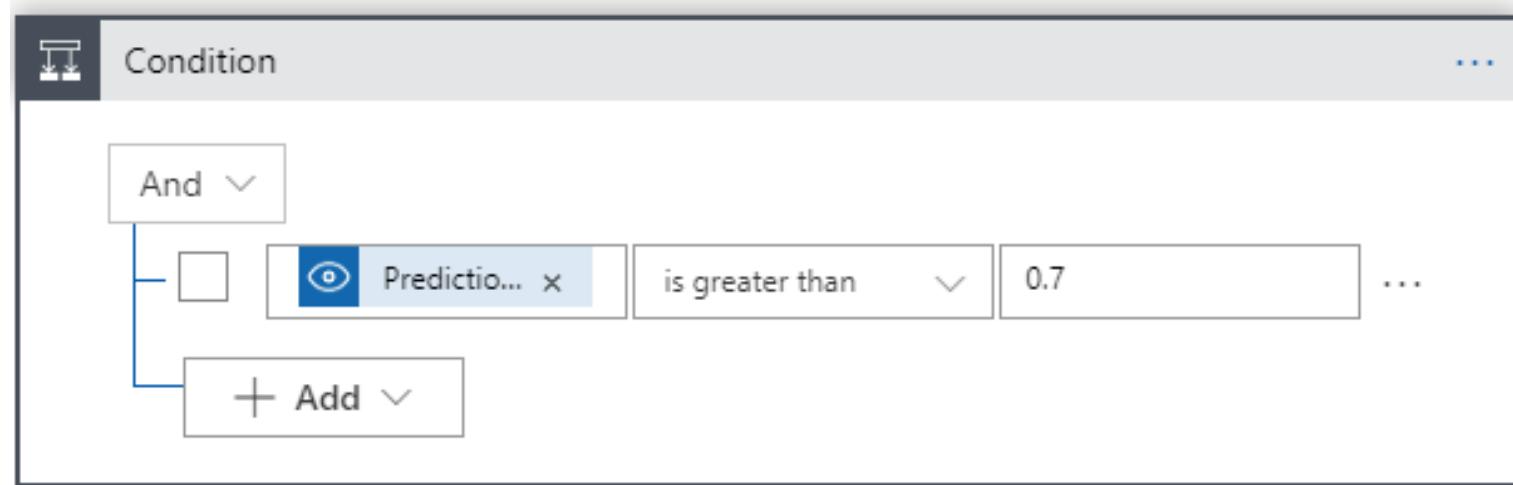
Azure: Logic App (For Each)



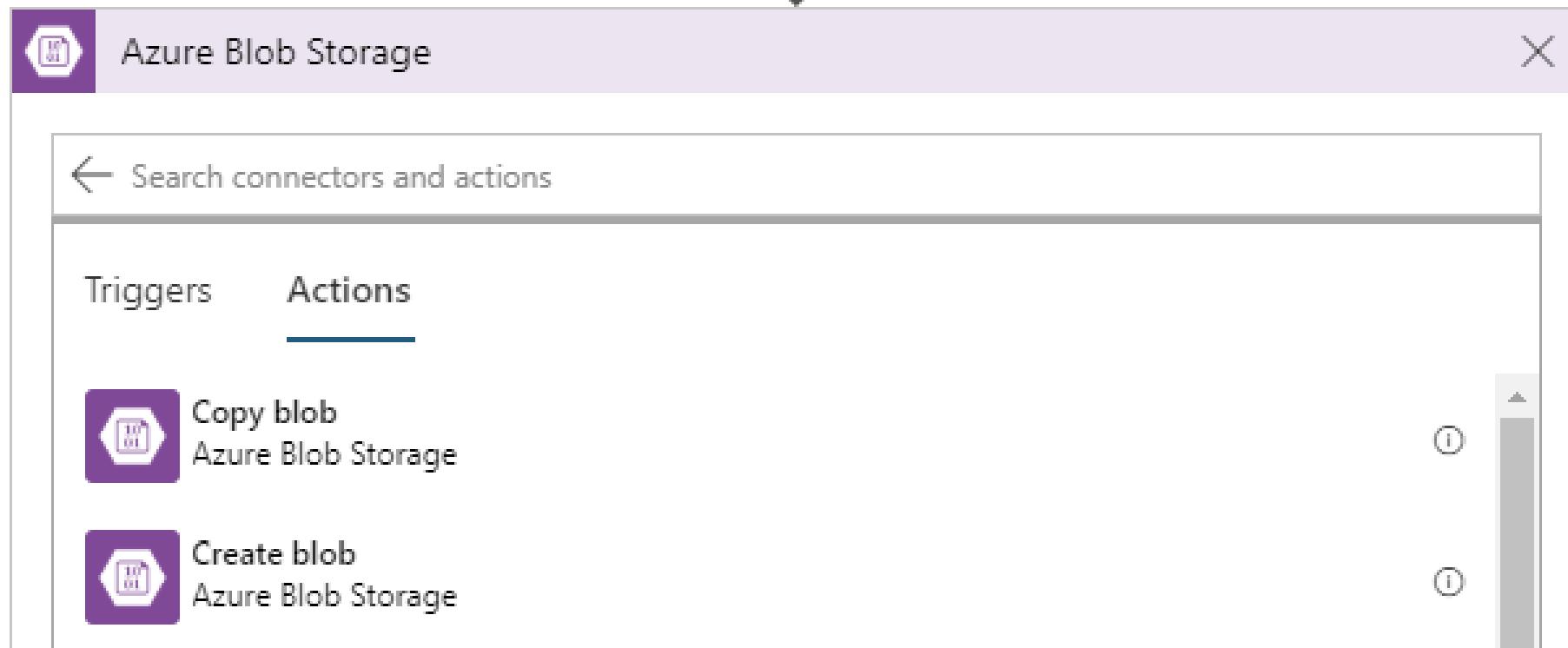
Azure: Logic App (Condition)



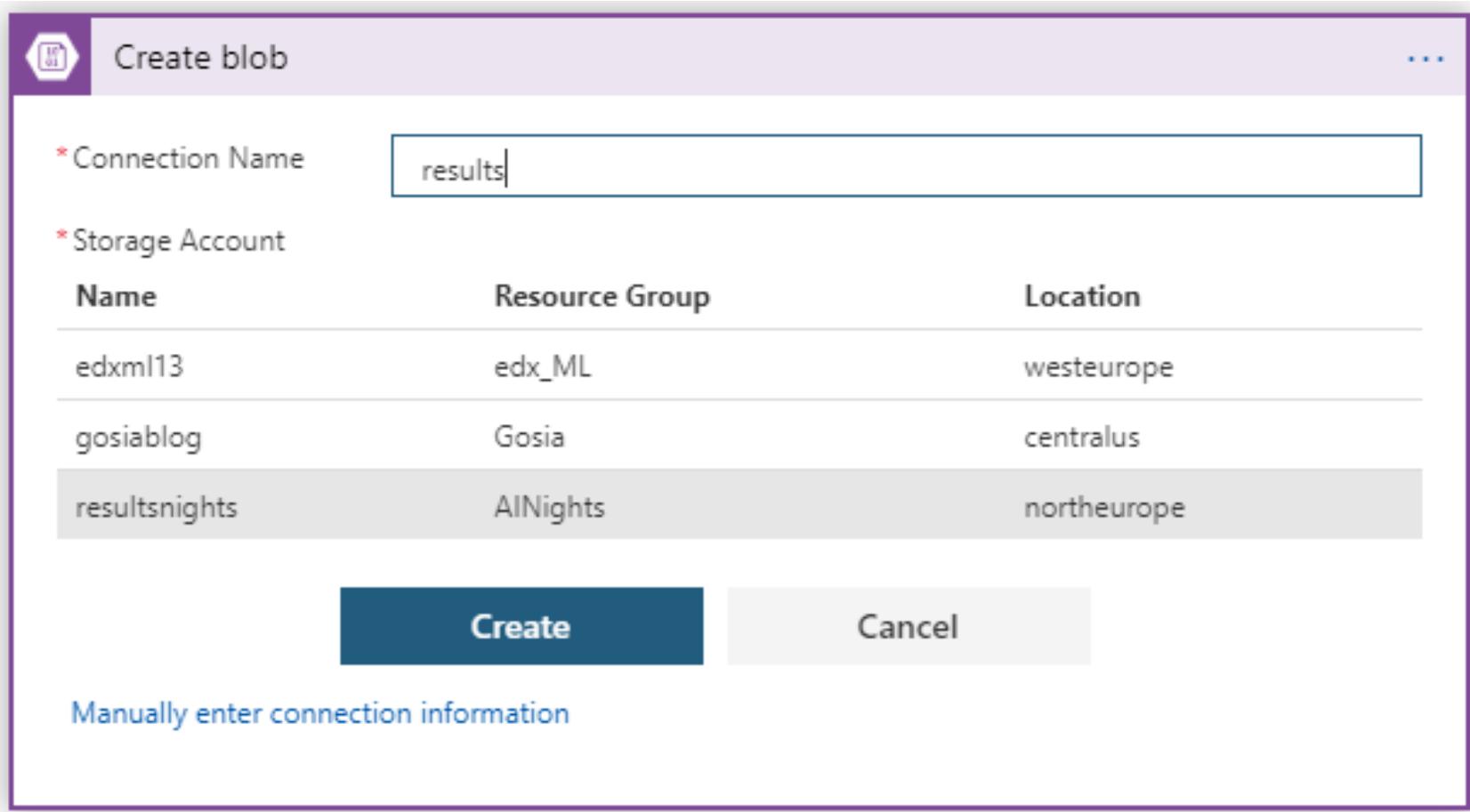
Azure: Logic App (Condition)



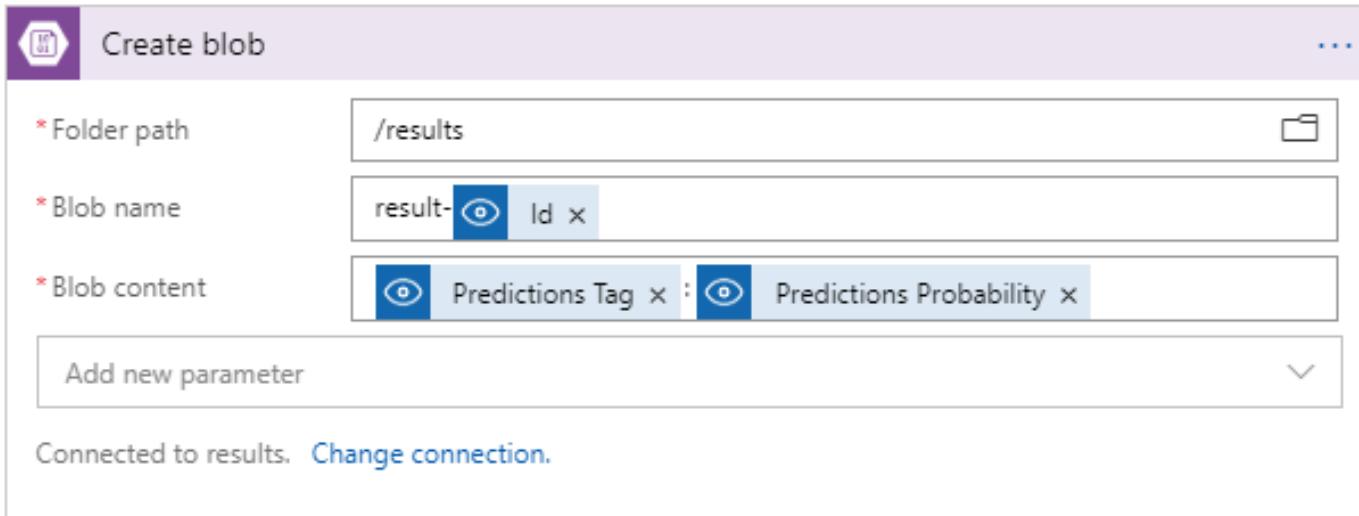
Azure: Logic App (Create Blob)



Azure: Logic App (Create Blob)



Azure: Logic App (Create Blob)



Azure: Blob (Add image)

The screenshot shows the Azure Blob container interface for the 'image' container. The left sidebar includes links for Home, Resource groups, AI Nights, resultsnights - Blobs, and image. The main area displays blob details with an 'Upload' button, search bar, and a table of existing blobs. A modal window titled 'Upload blob' is open, prompting for file selection and advanced options.

Home > Resource groups > AI Nights > resultsnights - Blobs > image

image
Container

Search (Ctrl+ /)

Upload Change access level Refresh Delete Acquire lease Break lease View snapshots Create snapshot

Authentication method: Access key (Switch to Azure AD User Account)
Location: image

Search blobs by prefix (case-sensitive)

NAME	MODIFIED	ACCESS TIER	BLOB TYPE
n02106662_22764.jpg	9/5/2019, 12:21:55 PM	Hot (Inferred)	Block blob
n02109961_4369.jpg	9/5/2019, 12:07:18 PM	Hot (Inferred)	Block blob

Upload blob
image/

Select a file

Overwrite if files already exist

Advanced

Upload



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Azure: Logic App (Result)

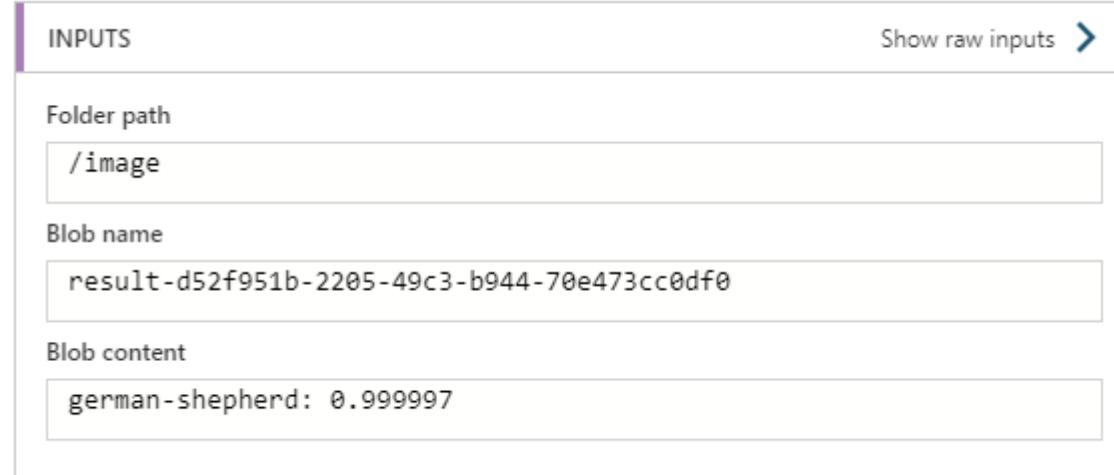
INPUTS

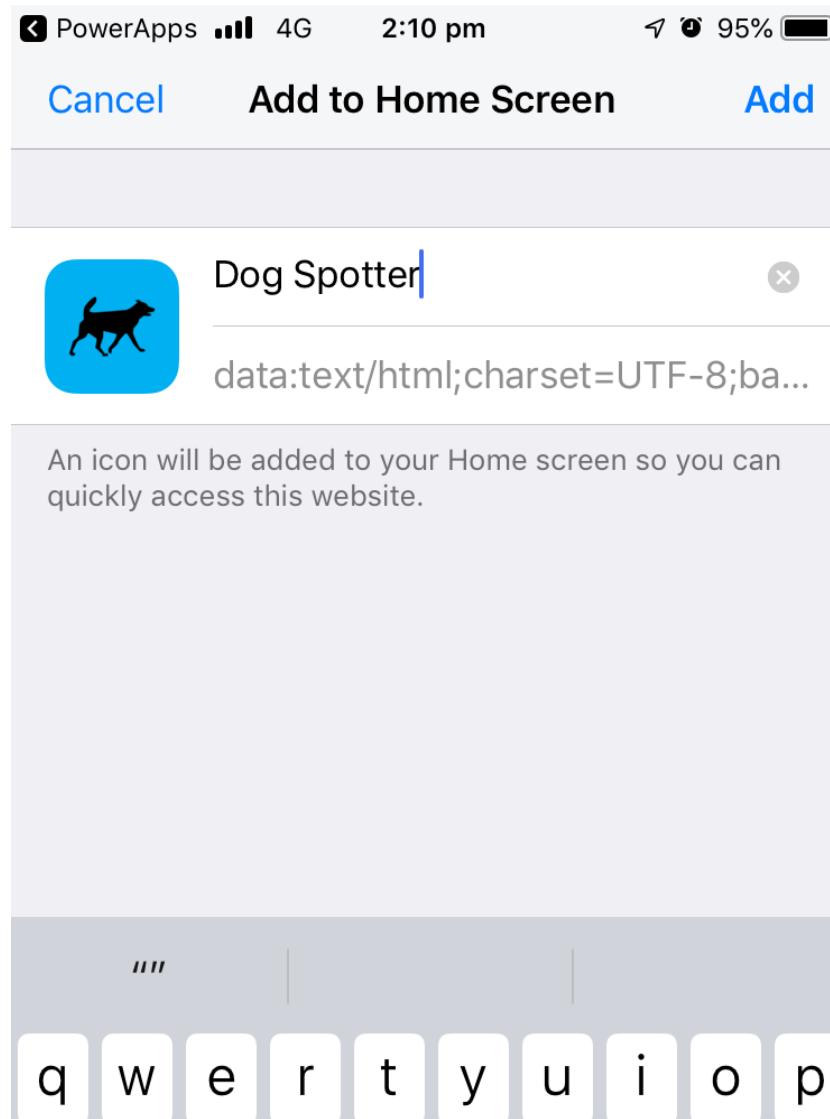
Show raw inputs >

Folder path
/image

Blob name
result-d52f951b-2205-49c3-b944-70e473cc0df0

Blob content
german-shepherd: 0.999997





Bonus content (PowerApp)

<https://github.com/amynic/AINights/blob/master/bonus-content.md>

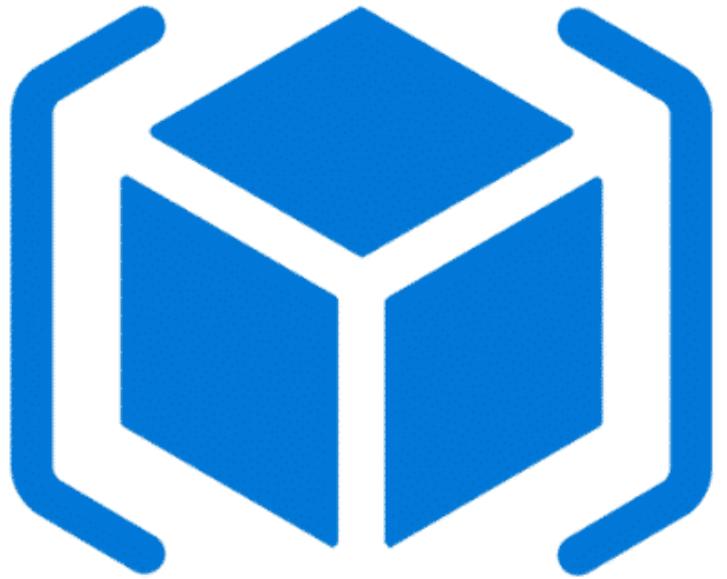


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Azure Resource Groups

REMEMBER
TO REMOVE
RESOURCES
YOU NOT
USING! ☺

Do you want to
speak?

Do you want to
be a sponsor?

Do you want to
be attendee?

Do you want to
be a
volunteer?

14.12.2019



RevDeBug

Time for prizes!



Time for prizes!

