



Microsoft Build

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//build/



Train an Image Classifier From the Command Line like the Pros do

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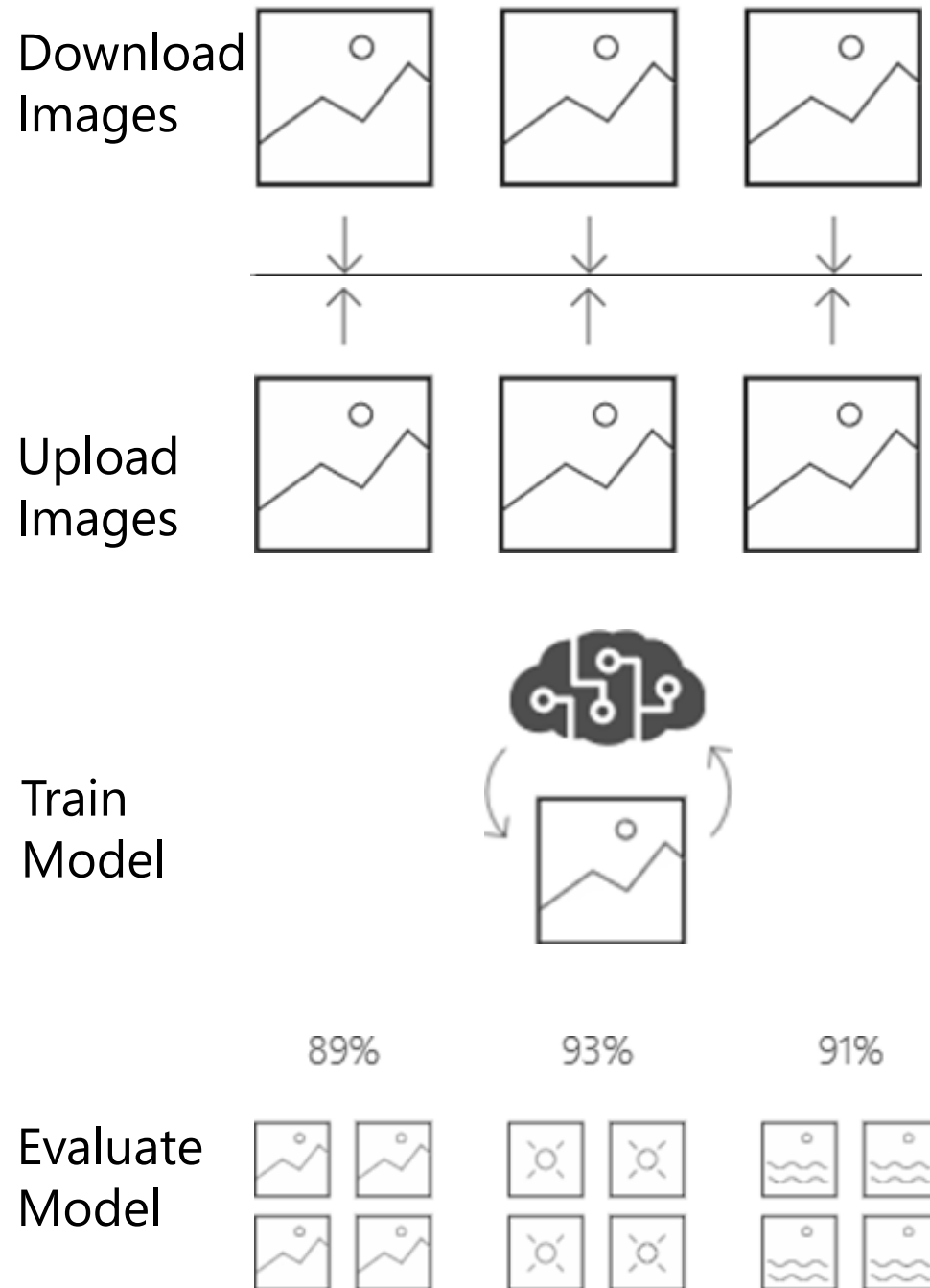
Train a custom image classifier

We are going to use the Bing API to return images for a selected subject. We will then use these images to create our own image classifier using the Microsoft Custom Vision API.

We are then going to test our Model

We are then going to build a small application to use the model.

<http://aka.ms/TrainImage>








Creating New Bing Image Search Key

To retrieve your Bing Image API key start here: <http://aka.ms/BSAPI>



Bing Search APIs v7

Includes:

-  Bing Web Search
-  Bing Image Search
-  Bing Video Search
-  Bing News Search
-  Bing Visual Search

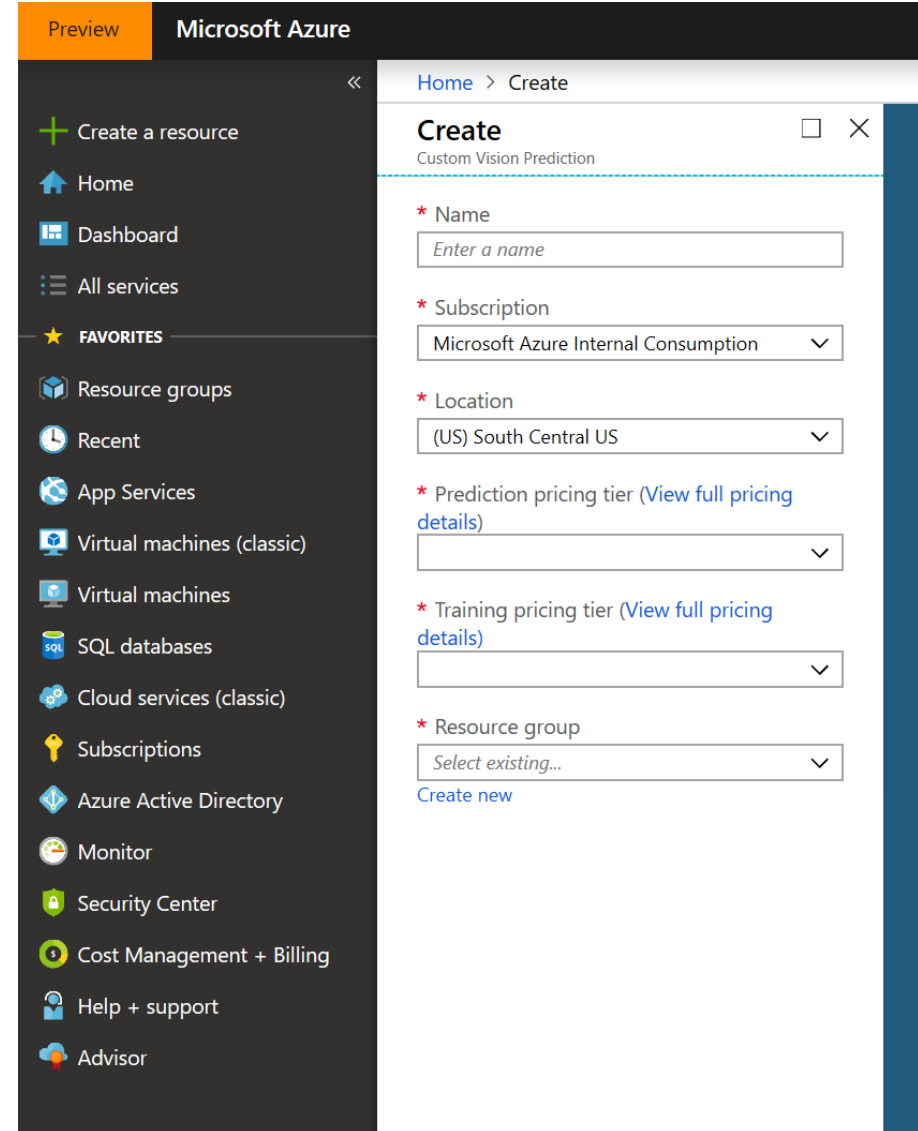
Bing Search APIs v7 includes various enhancements such as performance improvements for the Bing Web Search, new search filters for the Bing Image Search, simplified paging for the Bing Video Search and Bing Image Search, and improved error handling.

As a part of the bundle, this trial includes all the Bing Search APIs (Web, Image, Video, News, Entity Search and Visual Search), along with spelling corrections, related searches and other available answers. Bing Visual Search endpoint supports 1,000 transactions per month up to 1 per second, whereas all the other endpoints support 3,000 transactions per month, up to 3 per second. Trial keys expire after a 7-day period, after which a subscription may be purchased on the Azure portal.

Add >

Creating New CustomVision Key

To create your CustomVision Key
here: <http://aka.ms/BuildCV>



The screenshot displays the Microsoft Azure portal interface. On the left is a dark sidebar with navigation links: 'Create a resource', 'Home', 'Dashboard', 'All services', 'FAVORITES', 'Resource groups', 'Recent', 'App Services', 'Virtual machines (classic)', 'Virtual machines', 'SQL databases', 'Cloud services (classic)', 'Subscriptions', 'Azure Active Directory', 'Monitor', 'Security Center', 'Cost Management + Billing', 'Help + support', and 'Advisor'. The main area shows the 'Create' form for a 'Custom Vision Prediction' resource. The form includes fields for 'Name' (with a placeholder 'Enter a name'), 'Subscription' (set to 'Microsoft Azure Internal Consumption'), 'Location' (set to '(US) South Central US'), 'Prediction pricing tier' (with a link to 'View full pricing details'), 'Training pricing tier' (with a link to 'View full pricing details'), and 'Resource group' (set to 'Select existing...'). A 'Create new' link is visible at the bottom of the form.

Preview Microsoft Azure

Home > Create

Create
Custom Vision Prediction

* Name
Enter a name

* Subscription
Microsoft Azure Internal Consumption

* Location
(US) South Central US

* Prediction pricing tier (View full pricing details)

* Training pricing tier (View full pricing details)

* Resource group
Select existing...

Create new

Using the BingImageCLI Tool to download images

C:\Users\Admin\Desktop\TrainCustomImage\BingImageCli

```
BingImageCLI.exe -k yourkey -s "SearchTerm" -l  
ShareCommercially -p
```

C:\Users\Admin\Desktop\TrainCustomImage\BuildDemo\Images
-m 50 -fmax 4000000

Creating New Custom Vision

To retrieve your Custom Vision API key start

here: <http://www.customvision.ai>

Click Sign in

Click on the Setting Cog on the top right

Make a Note of your

Training Key

Training Endpoint

The image shows two screenshots of the Custom Vision interface. The top screenshot is the homepage, featuring a hummingbird and the text "Visual Intelligence Made Easy". It includes a "SIGN IN" button and three main steps: "Upload Images", "Train", and "Evaluate". The bottom screenshot shows the "Accounts" settings page for a "Limited trial". It displays the "Training Key" (c26 [redacted]), "Prediction Key" (90 [redacted]), "Training Endpoint", and "Prediction Endpoint". A red arrow points to the "Training Key" field, which is labeled "CustomVisionKey". At the bottom, there are buttons for "Cancel Free Trial" and "Sign up for Azure".

Microsoft Cognitive Services Custom Vision

Visual Intelligence Made Easy

Easily customize your own state-of-the-art computer vision models that fit perfectly with your unique use case. Just bring a few examples of labeled images and let Custom Vision do the hard work.

SIGN IN

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.

89% 93% 91%

Custom Vision

Accounts

Limited trial

Training Key: c26 [redacted]

Prediction Key: 90 [redacted]

Training Endpoint: https://southcentralus.api.cognitive.microsoft.com/custx

Prediction Endpoint: https://southcentralus.api.cognitive.microsoft.com/custx

3 projects created; 17 remain

0 predictions made; 1000 remain until reset

Cancel Free Trial Sign up for Azure

Using the CustomImageCLI Tool to create your Model

C:\Users\Admin\Desktop\TrainCustomImage\CustomVisionCli

CustomVisionCLI.exe -k *yourkey* -p

“C:\Users\Admin\Desktop\TrainCustomImage\Images” -n

NameofProject

Testing your CustomVision Model

C:\Users\Admin\Desktop\TrainCustomImage\CustomVisionCli

CustomVisionCLI.exe -k yourkey -p

“C:\Users\Admin\Desktop\TrainCustomImage\TestImage” -n

NameofProject -q

Creating your first .NetCore Application

Open Command windows key + R

Type in `CMD`

Go to `C:\Users\Admin\Desktop\TrainCustomImage\BuildApp`

Create a new .NetCore Application

Type in `dotnet new console --name MyAppName`

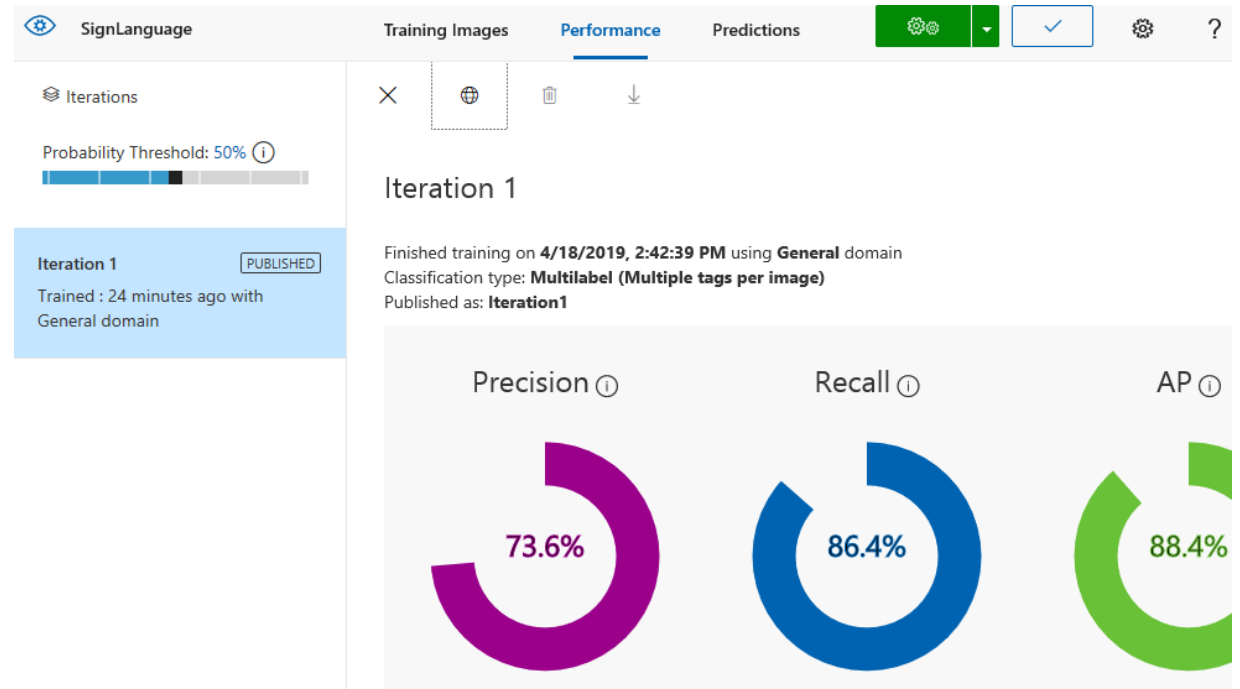
Creating your first .NetCore Application

Open the `Program.cs` file in Visual Studio Code

There are two placeholders for your `prediction URL` and `prediction key`.

You get the predication when you open the model in Custom Vision and click on the little World icon labelled predication Key.

Save the `Program.cs` to replace the `Program.cs` file in the BuildDemo folder



If you have an image file:

```
https://southcentralus.api.cognitive.microsoft.com/customvision/v3.0/Prediction/b4
```

Set `Prediction-Key` Header to : `ea`

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

Set Body to : `<image file>`

Running your first .NetCore Application

To run Program.CS simply open a command window in the program.cs root folder and run

```
dotnet run
```

Viewing JSON output formatted

To view the formatted JSON simply copy and paste the output into <https://jsonlint.com/>

```
{
  "id": "864df9c1-ee88-4c32-a4f5-f8fa1c518f7a",
  "project": "b4ea1c04-dd50-41d0-a4c1-6df74a3a54a9",
  "iteration": "c7a4e1de-752c-4e08-8f7e-af697c14cc22",
  "created": "2019-04-18T13:46:29.829Z",
  "predictions": [
    {
      "probability": 0.5133471,
      "tagId": "5321c2f6-efa8-415e-b572-3c50eaa2543b",
      "tagName": "7"
    },
    {
      "probability": 0.1453804,
      "tagId": "631870ff-7d52-4adc-81db-736551af4f2e",
      "tagName": "3"
    },
    {
      "probability": 0.11937803,
      "tagId": "fbe4c390-7457-428f-938f-27f91a1e909d",
      "tagName": "9"
    },
    {
      "probability": 0.08579584,
      "tagId": "59f96a1a-76b0-4022-b6af-d177954dde51",
      "tagName": "4"
    },
    {
      "probability": 0.07935606,
      "tagId": "f1bf9013-7029-41fc-83cb-6cb1d18c38b0",
      "tagName": "2"
    },
    {
      "probability": 0.06724764,
      "tagId": "f4498068-490d-4bc5-87de-73ca91a2a27e",
      "tagName": "6"
    },
    {
      "probability": 0.0451031923,
      "tagId": "42e76dc6-ae4c-4c2f-bad5-34b71f0a1dec",
      "tagName": "8"
    },
    {
      "probability": 0.0009882526,
      "tagId": "d34791ed-f99d-4bac-bf12-00e213aa3aab",
      "tagName": "5"
    },
    {
      "probability": 0.0006828679,
      "tagId": "ccb2497b-00aa-4bbb-bc5a-1aad311018c0",
      "tagName": "1"
    },
    {
      "probability": 0.0005408682,
      "tagId": "501e2cca-5bb2-4e08-b6c8-5d78e1c52f87",
      "tagName": "0"
    }
  ]
}
```

```
{
  "id": "864df9c1-ee88-4c32-a4f5-f8fa1c518f7a",
  "project": "b4ea1c04-dd50-41d0-a4c1-6df74a3a54a9",
  "iteration": "c7a4e1de-752c-4e08-8f7e-af697c14cc22",
  "created": "2019-04-18T13:46:29.829Z",
  "predictions": [
    {
      "probability": 0.5133471,
      "tagId": "5321c2f6-efa8-415e-b572-3c50eaa2543b",
      "tagName": "7"
    }
  ]
}
```

Demo

<http://aka.ms/TrainImage>

