Cloud Application Development

Image Recognition with IBM Cloud Visual Recognition

Phase-3

- Start building the image recognition system using IBM Cloud Visual Recognition.
- Create an IBM Cloud account, set up the Visual Recognition service, and obtain API keys.
- Design a simple web interface where users can upload images and view the AI-generated captions.

Create an IBM Cloud account, set up the Visual Recognition service, and obtain API keys.

IBM Cloud Account:

After creating the IBM Cloud Account, login with the IBMid.

Enter your IBMid then click continue.

Enter your password, then click login.

The homepage of the IBM account as follows:

Set up the Visual Recognition service, and obtain API keys.

Set up the Visual Recognition service:

Open the homepage of your IBM account.

Click on the manage.

Click on the Access(IAM).

Then click on the Service IDs.

Click on Create button, to create the service.

Enter the name and the description for the service, then click on Create button to create the service.

Visual Recognition service has been created.

Then click on the API keys, to obtain the API key for the Visual Recognition Service.

Then enter the name and the description to create the API key and click on the Create button.

The API key has been successfully created for the Visual Recognition Service.

The API key has obtained.

Visual Recognition Service document.

Open the home page of your IBM account, click on the help.

Then click on the Docs to open the document of the Visual Recognition

Click on the search button at the drop-down menu, near the user account.

Then search for the Visual Recognition.

Open the DocumentAnalytics.VisualRecognitionClassifier actions

The main page of the document as follows.

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DocumentAnalytics.VisualRecognitionClassifier actions

Last Updated: 2021-03-04

Visual Recognition Classifier is an IBM Watson service, which can be trained to classify image-based documents.

You can use the default classifier to do the classification, or you can first create and train a custom classifier by using some representative set of training data. The uploaded training data must contain at least two compressed (.zip) files, each containing sample images of a particular classes.

Once the classifier has been trained, you can give it other similar documents and classifier attempts to classify them according to its training. The Classifier returns a confidence score that is associated with the classification.

Properties and methods:

- **VisualRecogClassify**
  Classifies image by using IBM Watson Visual Recognition API.
- **VisualRecogSetCredentials**
  Sets the credentials to be used to do the classification.
- **VisualRecogSetMinConfidence**
  Sets the minimum confidence score for classification matching.
- **VisualRecogSetURL**

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- **VisualRecogClassify**
  Classifies image by using IBM Watson Visual Recognition API.
- **VisualRecogSetCredentials**
  Sets the credentials to be used to do the classification.
- **VisualRecogSetMinConfidence**
  Sets the minimum confidence score for classification matching.
- **VisualRecogSetURL**
  Updates the new URL to be used to do the classification.
- **VisualRecogTrain**
  Creates or replaces a Visual Recognition Classifier.

Parent topic:

→ Global actions

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VisualRecogClassify

Last Updated: 2021-03-04

Classifies image by using IBM Watson Visual Recognition API.

Syntax

```
bool VisualRecogClassify (string ClassifierName)
```

Parameters

string **ClassifierName** - Name of the Classifier to be used

Returns

True, if the action succeeds. Otherwise, **False**

Level

Page level.

Page level.

Details

This action identifies a page by using the Watson™ Recognition technology. This technology analyzes the image-based full page and attempts to find match within the classes that have been defined for the selected classifier. If a match is found, the Page type is populated with the ID of the category that was matched.

If a match is not found, the page type is set to "Other".

When classification is complete, a list of matches and their confidence values are stored in the "MatchingCategoryX" and "MatchingCategoryConfX" variables. The number of matches is stored in the variable "MatchingCategoriesCount".

To run classification without updating the page type, set the variable "UpdateDCOType" to "0" before calling this action. In this case, classification does not update the page type, but the variables that are mentioned above is populated.

Because this action supports image files (.jpg, .jpeg or .png) only. ConvertToJPEG must be called before using the Classify action for other types of files.

The ClassifierName can be a smart parameter.

Example

```
VisualRecogSetURL("@APPVAR(values/gen/url)")
VisualRecogSetCredentials("@APPVAR(values/adv/VRAPIKey)")
VisualRecogClassify("@APPVAR(values/gen/VRClassifierName)")
```

Note: VisualRecogSetURL action is not included if your IBM Visual Recognition token is created before May 2018.

VisualRecogSetCredentials:

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VisualRecogSetCredentials

Last Updated: 2021-03-04

Sets the credentials to be used to do the classification.

Syntax

```
bool VisualRecogSetCredentials (string APIKey)
```

Parameters

string **APIKey** can be Smart Parameters.

Returns

True, if the action succeeds. Otherwise, **False**.

Level

Batch level.

True, if the action succeeds. Otherwise, **False**.

Level

Batch level.

Details

This action sets the credentials to be used to do the classification. The APIKey can be Smart Parameters.

Example

```
VisualRecogSetURL("@APPVAR(values/gen/url)")
VisualRecogSetCredentials("@APPVAR(values/adv/VRAPIKey)")
VisualRecogClassify("@APPVAR(values/gen/VRClassifierName)")
```

Note: VisualRecogSetURL action is not included if your IBM Visual Recognition token is created before May 2018.

Parent topic:

→ DocumentAnalytics.VisualRecognitionClassifier actions

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VisualRecogSetMinConfidence

Last Updated: 2021-03-04

Sets the minimum confidence score for classification matching.

Syntax

```
bool VisualRecogSetMinConfidence (string MinScore)
```

Parameters

string **MinScore** - Minimum score for classification matching. Valid values are fractional values between zero and one (for example: 0.0 and 1.0).

Returns

True, if the parameter value is between the valid range of zero to one (0.0 and 1.0) Otherwise, **False**.

Level

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All level.

Details

When Classify searches for a classification match, a score between zero (no match) and one (a positive match) is calculated. This action sets the minimum score that a match must be considered a match. Any matches with a score less than the value specified is rejected. With this action, you can control the tolerance for documents matching an existing example.

When setting up the parameter in your application, use the decimal character from the system locale that is defined for the application in the Taskmaster Application Manager. For example, when the decimal character is a period, use a value from 0.0 to 1.0. When the decimal character is a comma, use a value in the range 0,0 - 1,0.

The MinScore can be a Smart Parameter. This action must be called before the Classify action.

Example

```
VisualRecogSetCredentials("@APPVAR(values/adv/VRAPIKey)")
VisualRecogSetMinConfidence(0.9)
VisualRecogClassify("@APPVAR(values/gen/VRClassifierName")
```

Parent topic:

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VisualRecogSetURL:

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VisualRecogSetURL

Last Updated: 2021-03-04

Updates the new URL to be used to do the classification.

Syntax

```
VisualRecogSetURL (string url)
```

Parameters

The url can be Smart Parameters

Returns

True, if the action succeeds. Otherwise, **False**

Level

Batch level.

Batch level.

Details

This action updates the new URL to be used to do the classification. IBM Visual Recognition token created after May 2018 must apply this action before VisualRecogSetCredentials().

Example

```
VisualRecogSetURL("@APPVAR(values/gen/url)")
        VisualRecogSetCredentials("@APPVAR(values/adv/VRAPIKey)")
        VisualRecogClassify("@APPVAR(values/gen/VRClassifierName)")
```

Parent topic:

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VisualRecogTrain

Last Updated: 2021-03-04

Creates or replaces a Visual Recognition Classifier.

Syntax

```
bool VisualRecogTrain (string ZIPDirectory, string Name, string deleteExisting)
```

Parameters

string **ZIPDirectory** - Directory where this action stores the zip file with the training data. The zip file has the name of the classifier. This parameter supports Smart Parameters.

string **Name** - Name to give the classifier. This name is used when you later try to classify a page. This parameter supports Smart Parameters.

string **deleteExisting** - Delete the classifier of the same name if it exists. If this flag is set to true, it deletes the classifier of the same name, if it exists. If this flag is set to false and a classifier with the same name exists, this action adds the training data to the existing classifier. This parameter supports SmartParameters. The type of this parameter is string only to support SmartParameters. Internally, it is treated as a boolean. Specify '1' for true and '0' for false. Any other value is ignored and the action is default to false.

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Level

Batch level.

Details

This action creates or replaces a Visual Recognition Classifier. Pages of the batch are used as the training data. It is expected that the batch is in a certain format. In particular, the batch needs to be divided into set documents, where the 'Type' associated with the document is class that is created in the Visual Recognition Service. All of pages in that document are treated as training data for that class. So, for example, if you wanted to train the classifier to recognize the main page and the trailing pages of a mortgage application, you would create a batch with two documents: Main_Page and Trailing_Page. Put all of the training page for the main page under the Main_Page document and the trailing pages under Trailing_Page document.

Example

```
VisualRecogSetURL("@APPVAR(values/gen/url)")
VisualRecogSetCredentials("@APPVAR(values/adv/VRAPIKey)")
VisualRecogTrain("@APPPATH(runtime)+\+..+\+ZIP","@APPVAR(values/gen/VRClassifierName)",1)
```

Parent topic:

→ DocumentAnalytics.VisualRecognitionClassifier actions

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