

Cloud Application Development

Image Recognition with IBM Cloud Visual Recognition

Phase-3

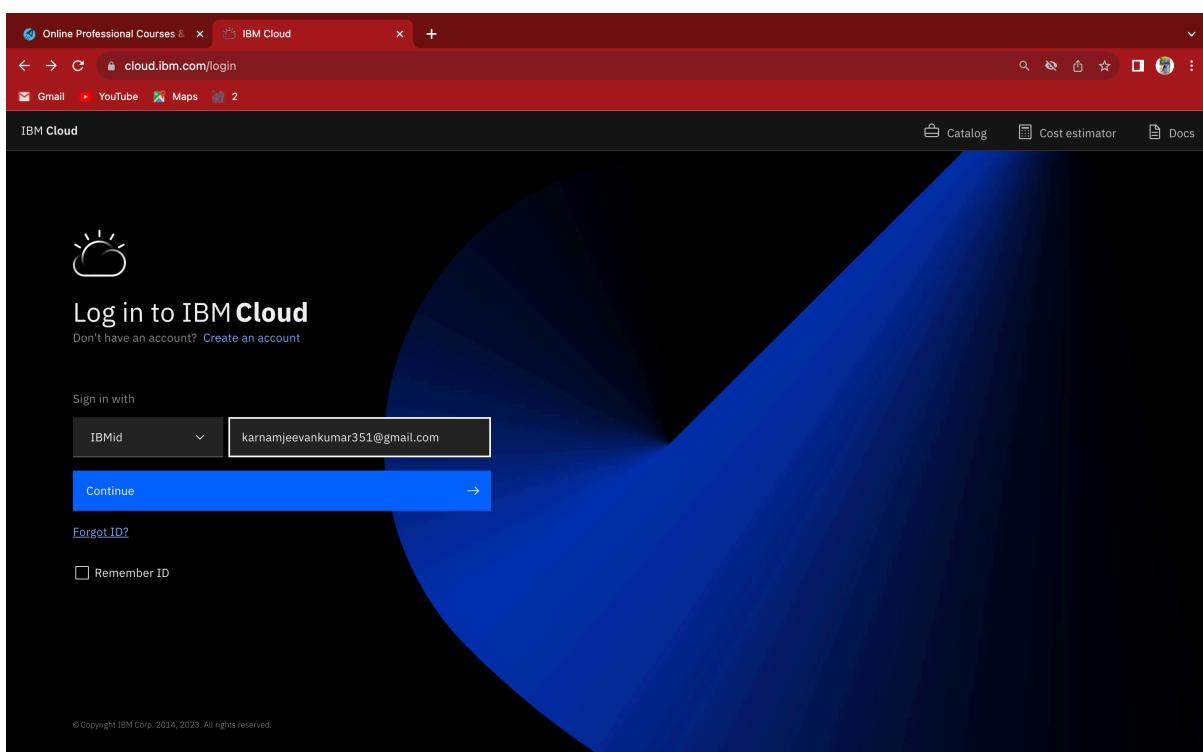
- Start building the image recognition system using IBM Cloud Visual Recognition.
- Create an IBM Cloud account, set up the Visual Recognition service, and obtain API keys.
- Design a simple web interface where users can upload images and view the AI-generated captions.

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

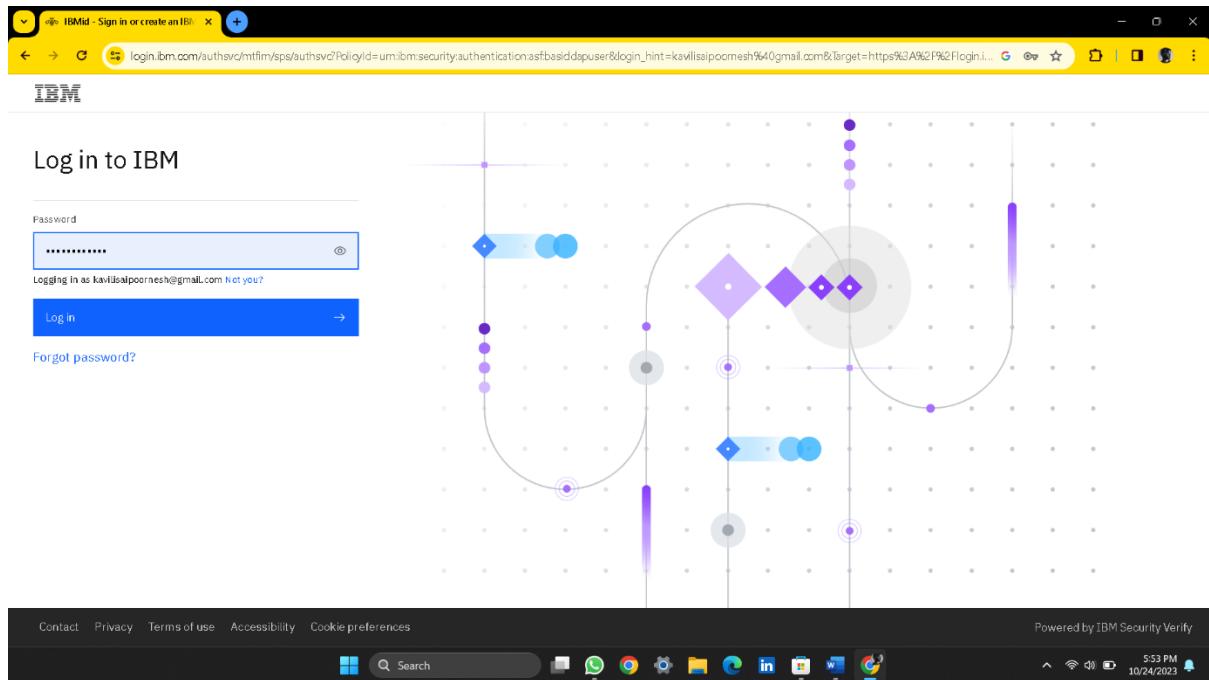
IBM Cloud Account:

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

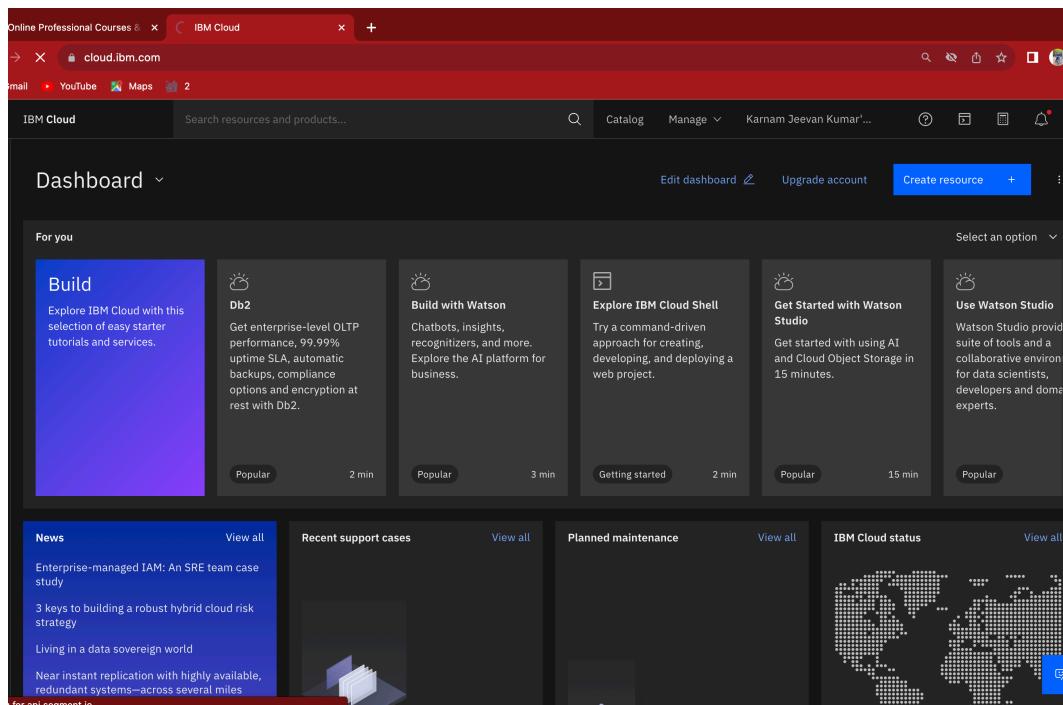
Enter your IBMid then click continue.



Enter your password, then click login.



The homepage of the IBM account as follows:



Caption

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

Set up the Visual Recognition service:

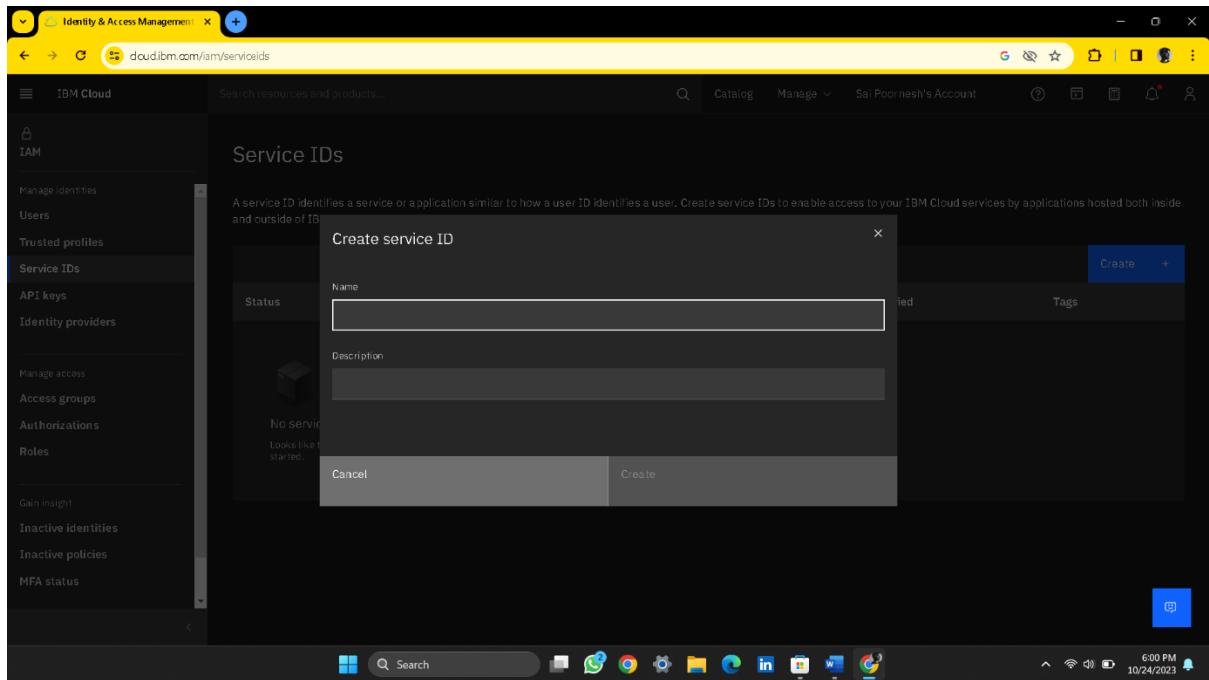
Open the homepage of your IBM account.

Click on the manage.

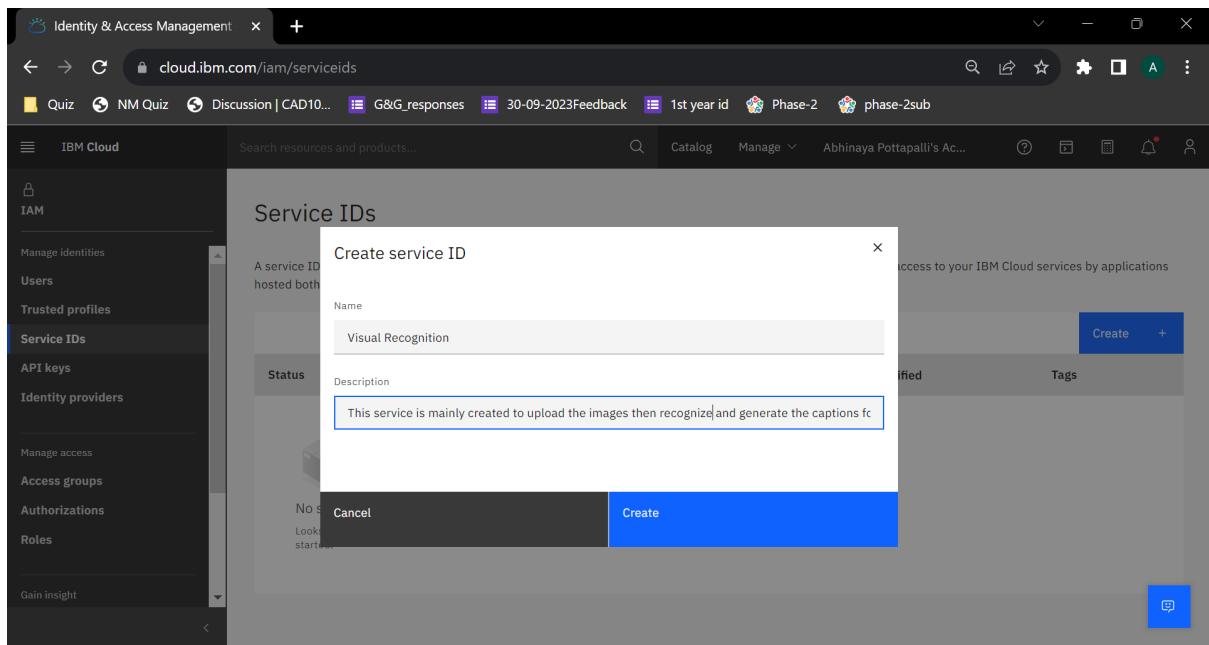
Click on the Access(IAM).

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.

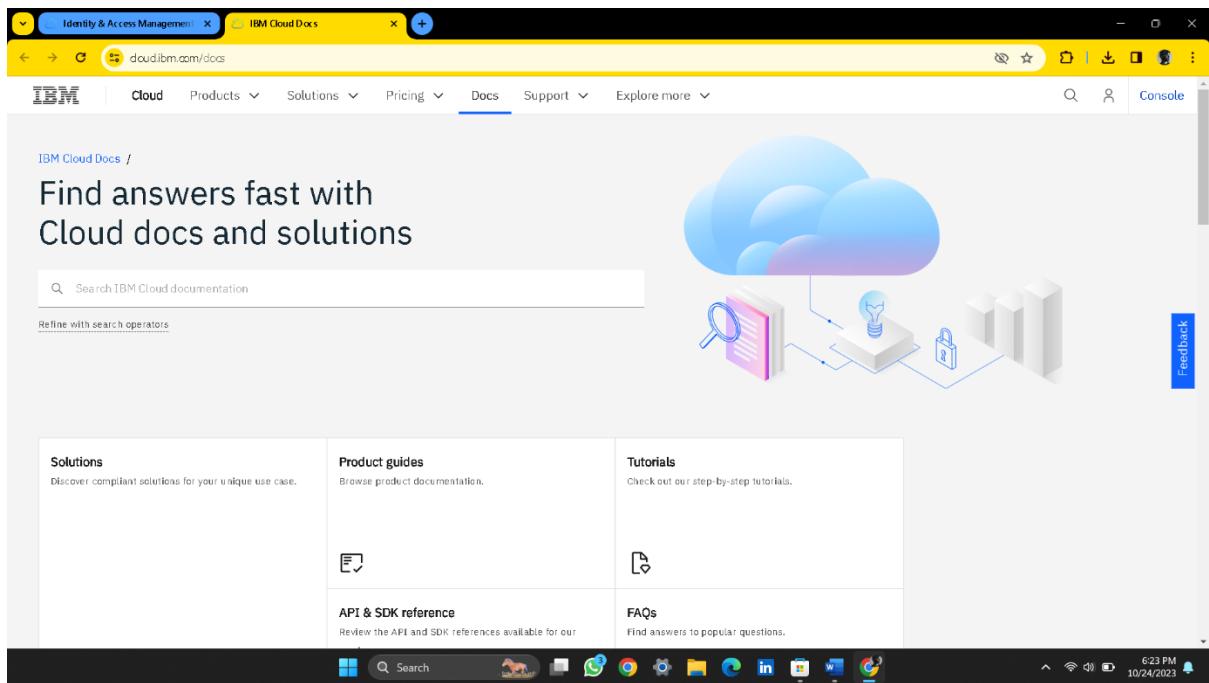
The API key has obtained.

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.

The screenshot shows the IBM Cloud Docs homepage. At the top, there's a navigation bar with links for Identity & Access Management, Cloud, Products, Solutions, Pricing, Docs (which is underlined), Support, and Explore more. Below the navigation is a search bar with the placeholder "Find answers fast with Cloud docs and solutions". A sub-search bar within it has "Visual Recognition" typed in. To the right of the search bar is a large graphic of a blue cloud with a lightbulb inside, connected to a book and a padlock. The main content area is divided into sections: "Solutions" (with a link to "Discover compliant solutions for your unique use case."), "Product guides" (with a link to "Browse product documentation."), "Tutorials" (with a link to "Check out our step-by-step tutorials."), "API & SDK reference" (with a link to "Review the API and SDK references available for our"), and "FAQs" (with a link to "Find answers to popular questions."). The bottom of the screen shows a Windows taskbar with various pinned icons like File Explorer, Edge, and Google Chrome.

Open the DocumentAnalytics.VisualRecognitionClassifier actions

The screenshot shows the IBM Search results page. The URL in the address bar is ibm.com/search?lang=en&cc=us&q=visual%20recognition. The search term "visual recognition" is highlighted in the search bar. Below the search bar is a navigation menu with tabs: All (which is selected), Products & services, Downloads, Learning, Support & documentation, and For developers. The main content area displays a single search result titled "Visual Recognition with IBM Watson". The result includes a snippet of text from a blog post: "Visual recognition with IBM Watson refers to a unique process for analyzing various kinds of images. It is worthwhile to note that the IBM Watson Visual Recognition service has been particularly developed for this purpose." Below this, there are two sections titled "DocumentAnalytics.VisualRecognitionClassifier actions", each with a link to "ibm.com/docs/en/datacap/9.1.4". The bottom of the screen shows a Windows taskbar with various pinned icons.

The main page of the document as follows.

This screenshot shows a web browser displaying the IBM Datacap Documentation. The title bar reads "Identity & Access Management" and "DocumentAnalytics.VisualRecog". The URL in the address bar is "ibm.com/docs/en/datacap/9.1.4?topic=actions-documentanalyticsvisualrecognitionclassifier&mhsrc=ibmsearch_a&mhq=visual%20recognition". The main content area is titled "DocumentAnalytics.VisualRecognitionClassifier actions". A message at the top states, "A newer version of this product documentation is available. You are viewing an older version." Below this, it says "Last updated: 2021-03-08". The content describes the Visual Recognition Classifier as an IBM Watson service for classifying image-based documents. It explains how to use the default classifier or create a custom one by providing training data. Once trained, it can classify other similar documents. The "Properties and methods:" section lists several actions:

- **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.

This screenshot shows the same IBM Datacap Documentation page as the previous one, but with a different section highlighted. The "Parent topic:" section is shown, which points to "Global actions". At the bottom of the page, there is a note about inclusive language: "While IBM values the use of inclusive language, terms that are outside of IBM's direct influence, for the sake of maintaining user understanding, are sometimes required. As other industry leaders join IBM in embracing the use of inclusive language, IBM will continue to update the documentation to reflect those changes." The copyright notice "© Copyright IBM Corporation" is also present. The footer includes links for Contact IBM, Privacy, Terms of use, Accessibility, and Cookie Preferences, along with a language selection dropdown set to English.

VisualRecogClassify:

The screenshot shows a web browser window displaying the IBM Datacap documentation for version 9.1.4. The page title is "VisualRecogClassify". The left sidebar contains a navigation tree with sections like "IBM Datacap", "Change version" (set to 9.1.4), and a "Show full table of contents" checkbox. The main content area starts with a "Syntax" section containing the code snippet: `bool VisualRecogClassify (string ClassifierName)`. Below it is a "Parameters" section with the parameter `string ClassifierName` described as "Name of the Classifier to be used". The "Returns" section states "True, if the action succeeds. Otherwise, False". The "Level" section indicates "Page level". The "Details" section provides a detailed description of the action, mentioning Watson Recognition technology, matching categories, and page types. A note at the bottom of this section states: "Note: VisualRecogSetURL action is not included if your IBM Visual Recognition token is created before May 2018." The browser status bar at the bottom right shows the date as 10/24/2023 and the time as 6:31 PM.

This screenshot shows the same documentation page for VisualRecogClassify, but the main content area is now focused on the "Details" section. It contains a detailed explanation of the action's functionality, including how it identifies pages using Watson Recognition technology and stores classification results in variables like "MatchingCategoryX" and "MatchingCategoryConfX". It also describes how to run classification without updating the page type by setting the "UpdateDCOType" variable to "0". The "ClassifierName" parameter is noted as a smart parameter. An "Example" section shows the following code snippet:

```
VisualRecogSetURL('@APPVAR(values/gen/URL)')
VisualRecogSetCredentials('@APPVAR(values/adv/VRAPIKey)')
VisualRecogClassify('@APPVAR(values/gen/VRClassifierName)')
```

A note at the bottom of this section reiterates: "Note: VisualRecogSetURL action is not included if your IBM Visual Recognition token is created before May 2018." The browser status bar at the bottom right shows the date as 10/24/2023 and the time as 6:31 PM.

VisualRecogSetCredentials:

The screenshot shows a web browser displaying the IBM Datacap documentation for version 9.1.4. The page title is "VisualRecogSetCredentials". It includes sections for Syntax, Parameters, Returns, Level, and Details. The "Syntax" section contains the code snippet: `bool VisualRecogSetCredentials (string APIkey)`. The "Parameters" section notes that `string APIKey` can be Smart Parameters. The "Returns" section states that the action succeeds if `True`, otherwise `False`. The "Level" section indicates it's at the Batch level. The "Details" section provides a note: "This action sets the credentials to be used to do the classification. The APIKey can be Smart Parameters."

This screenshot shows the same documentation page for VisualRecogSetCredentials, but the "Details" section is expanded. It reiterates the action's purpose and the Smart Parameter support for the APIKey. Below this, there is an "Example" section containing sample code: `VisualRecogSetURL("@APPVAR(values/gen/URL)")`, `VisualRecogSetCredentials("@APPVAR(values/adv/VRAPITKey)")`, and `VisualRecogClassify("@APPVAR(values/gen/VRClassifierName)")`. A note below the example states: "Note: VisualRecogSetURL action is not included if your IBM Visual Recognition token is created before May 2018." The "Parent topic" link is also visible.

VisualRecogSetMinConfidence:

The screenshot shows a web browser displaying the IBM Datacap documentation for version 9.1.4. The URL in the address bar is ibm.com/docs/en/datacap/9.1.4?topic=actions-visualrecogsetminconfidence. The page title is "VisualRecogSetMinConfidence". The content includes a brief description, syntax, parameters, returns, level, and details. The sidebar on the left lists various actions under "Documentum actions". The status bar at the bottom shows the date and time as 10/24/2023 and 6:33 PM.

VisualRecogSetMinConfidence

Last Updated: 2021-03-08

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

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

The screenshot shows a web browser window with the URL ibm.com/docs/en/datacap/9.1.4?topic=actions-visualrecogsetminconfidence. The page is titled 'Details' for the 'VisualRecogSetMinConfidence' action. The left sidebar shows a navigation tree for 'IBM Datacap' version 9.1.4, with 'VisualRecogSetURL' selected under 'VisualRecogSetCredentials'. The main content area contains a detailed description of the action, examples of its usage in JSON, and links to related topics.

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/VRAPICKey")  
VisualRecogSetMinConfidence(0.5)  
VisualRecogClassify("APPVAR(values/gen/VRClassifierName")
```

Parent topic: [DocumentAnalytics.VisualRecognitionClassifier actions](#)

VisualRecogSetURL:

The screenshot shows a web browser window with the URL ibm.com/docs/en/datacap/9.1.4?topic=actions-visualrecogseturl. The page is titled 'VisualRecogSetURL'. The left sidebar shows a navigation tree for 'IBM Datacap' version 9.1.4, with 'VisualRecogSetURL' selected under 'VisualRecogSetCredentials'. The main content area contains a detailed description of the action, syntax, parameters, returns, level, and details.

VisualRecogSetURL

Last Updated: 2021-03-08

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.

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()

The screenshot shows a web browser window displaying the IBM Documentation for the VisualRecogSetURL action in IBM Datacap 9.1.4. The page title is "VisualRecogSetURL - IBM Documentation". The left sidebar shows a navigation tree under "IBM Datacap" with "VisualRecogTrain" selected. The main content area is titled "Details" and contains the following text:

Batch level.

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/url1)")  
VisualRecogSetCredentials("@APPVAR(values/adv/VRAPIKey")  
VisualRecogClassify("@APPVAR(values/gen/VRClassifierName")")
```

Parent topic: [DocumentAnalytics.VisualRecognitionClassifier actions](#)

While IBM values the use of inclusive language, terms that are outside of IBM's direct influence, for the sake of maintaining user understanding, are sometimes required. As other industry leaders join IBM in embracing the use of inclusive language, IBM will continue to update the documentation to reflect those changes.

IBM Documentation Help

English

6:34 PM
10/24/2023

VisualRecogTrain:

Screenshot of the IBM Datacap documentation page for the `VisualRecogTrain` action.

The page title is `VisualRecogTrain - IBM Documentation`. The URL is `ibm.com/docs/en/datacap/9.1.4?topic=actions-visualrecogtrain`.

The left sidebar shows the navigation tree under `IBM Datacap`, with `VisualRecogTrain` selected. Other visible categories include `DocumentAnalytics.NaturalLanguage actions`, `Documentum actions`, `Email actions`, `Equalize actions`, `Ewsmail actions`, `Export actions`, and `ExportDB actions`.

The main content area starts with a heading `VisualRecogTrain` and a note that it was last updated on 2021-03-08. It describes the action as "Creates or replaces a Visual Recognition Classifier".

Syntax:

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

Parameters:

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

Returns:

`True`, action is successful. Otherwise, `False`.

The status bar at the bottom shows the time as 6:34 PM and the date as 10/24/2023.

Screenshot of the IBM Datacap documentation page for the `VisualRecogTrain` action, showing the `Returns` section.

The page title is `VisualRecogTrain - IBM Documentation`. The URL is `ibm.com/docs/en/datacap/9.1.4?topic=actions-visualrecogtrain`.

The left sidebar shows the navigation tree under `IBM Datacap`, with `VisualRecogTrain` selected. Other visible categories include `DocumentAnalytics.NaturalLanguage actions`, `Documentum actions`, `Email actions`, `Equalize actions`, `Ewsmail actions`, `Export actions`, and `ExportDB actions`.

The main content area starts with a heading `Returns`. It states that the action returns `True`, action is successful. Otherwise, `False`.

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 ("@APPATH(runtime)\..\..\+ZIP", "@APPVAR(values/gen/VRClassifierName"), 1)
```

Parent topic:

→ [DocumentAnalytics.VisualRecognitionClassifier actions](#)

The status bar at the bottom shows the time as 6:34 PM and the date as 10/24/2023.