



EMAIL MACHINE LEARNING USING AZURE COGNITIVE SERVICES

A feature that provides language translation and Sentiment Score Analysis for CRM email messages using Azure Cognitive Services

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Overview

The Email Machine Learning solution is an add-on feature to Dynamics 365 CRM which translates email text messages into English, and analyzes sentiment using Azure Cognitive Services. This feature enables organizations to understand customer likes, dislikes, wants, and needs.

Email Machine Learning capabilities:

1. Email Text messages language translation:
 - Translate non-English email messages into English, by using [Azure Cognitive Text Translation API](#).
2. Sentiment Analysis Score for email text messages:
 - [Azure Text Analytics API](#) returns a numeric score between 0 and 1. Scores close to 1 indicate positive sentiment, while scores close to 0 indicate negative sentiment. Sentiment score is generated using classification techniques. The input features to the classifier include n-grams, features generated from part-of-speech tags, and embedded words.

This solution is built on Dynamics 365 and also works on Dynamics CRM 2016 (Online).

About the Solution

The Email Machine Learning solution leverages the CRM Email entity. After installation, there are couple of steps to get it working:

- A. Workflow configuration providing valid **Azure Text Translator API Key** and **Text Analytics API Key**.
- B. Email form Configuration, adding related fields for the solution to display translated text and sentiment score.

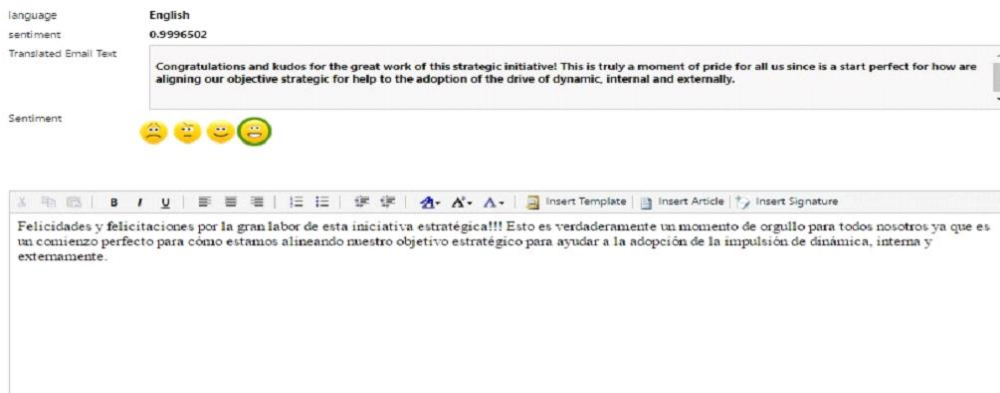
Roles in Dynamics 365 involved in this process are:

1. **System Administrator**: Perform the configuration activities.
2. **Dynamics 365 End User**: Leverages the advantage of the translating email text messages and sentimental analysis score for the email text.

End User Experience

Once the solution is installed and configured in the CRM organization, End Users can translate Foreign Language email text into English and get the Text Sentiment Analysis Score.

The example below describes a CRM email activity has been translated from Spanish to English and the Sentiment Score shown using the Smiley icon:



Email Machine Learning Administration

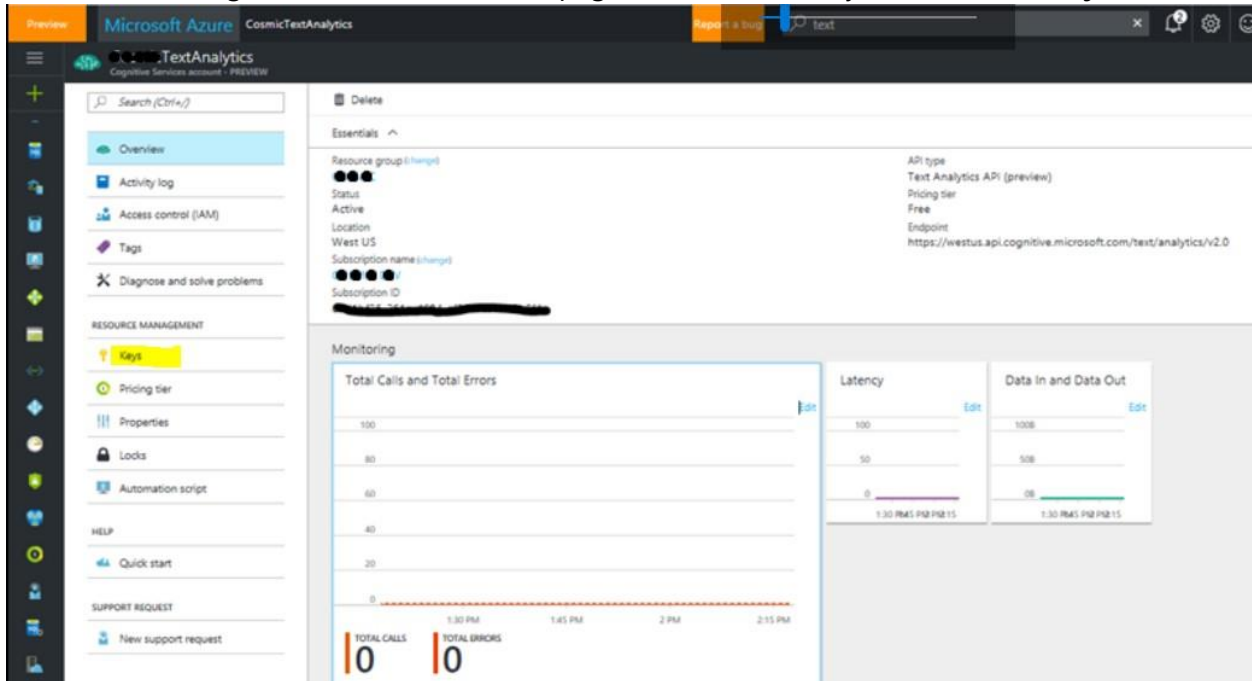
This section outlines the steps to be performed by a System Administrator to make the Solution available to end users.

Pre-requisites:

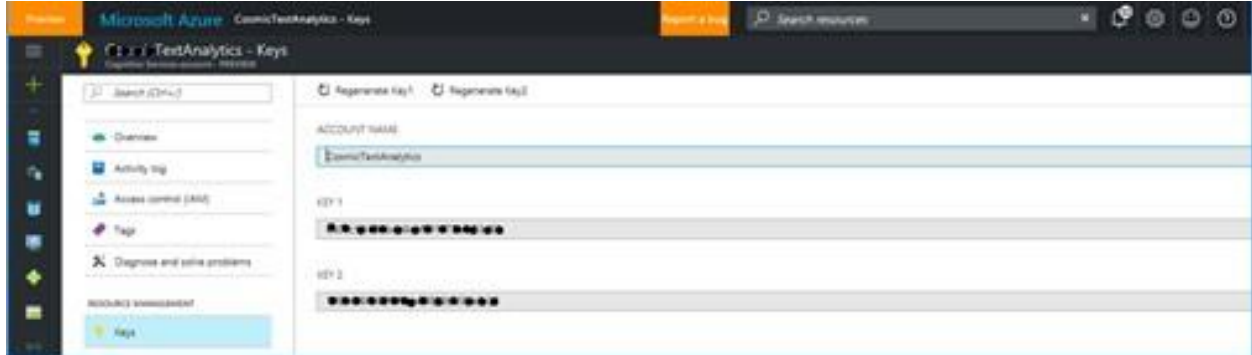
1. Valid [Azure Text Translator API](#) subscription.
2. Valid [Azure Text Analytics API](#) subscription.

Primary Configuration

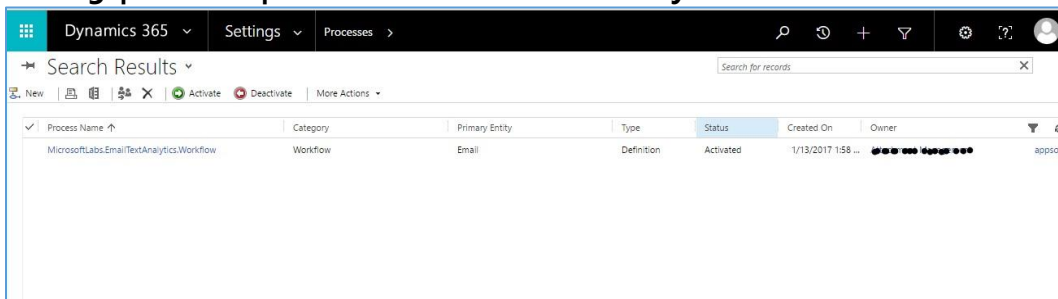
1. Retrieve the Access **Keys** for the **Azure Cognitive Services Translator API** and **Text Analytics API**. The below figure shows the Overview page for the Text Analytics API. Click "**Keys**".



2. Two Keys are provided for each API. Copy one of the Keys (either can be used) from each API. These will be used in the CRM Workflow properties.

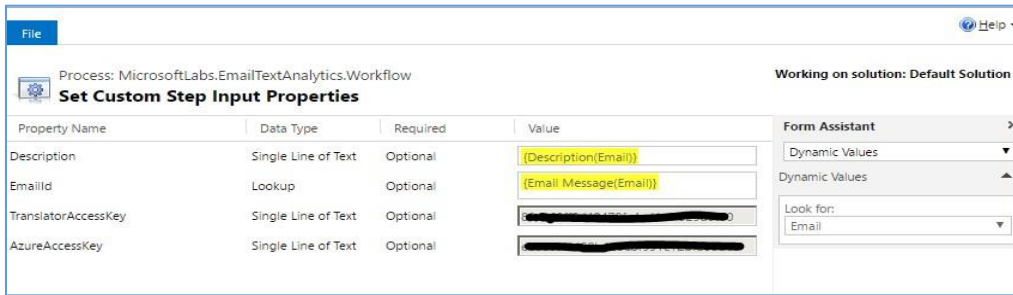


3. Open Microsoft Dynamics 365 and go to **Settings|Processes|MicrosoftLabs.EmailTextAnalytics.Workflow**



4. Set the input properties for the custom workflow. Enter the following details:
 - a. **TranslatorAccessKey**: The Key for the Azure Cognitive Text Translator API.

- b. **AzureAccessKey:** The Key for the Azure Cognitive Text Sentiment Analysis API.



5. For Email Main Form Configuration, the System Admin needs to add the following fields to the email entity main form that will store the results of the language translation and sentiment analysis score.

✓	Name	Schema Name ↑	Display Name	Type	Field Type
	msdyn_language	msdyn_language	language	Single Line of Text	Simple
	msdyn_sentiment	msdyn_sentiment	sentiment	Single Line of Text	Simple
	msdyn_translatedemailbody	msdyn_translatedemailbody	Translated Email Text	Multiple Lines of Text	Simple

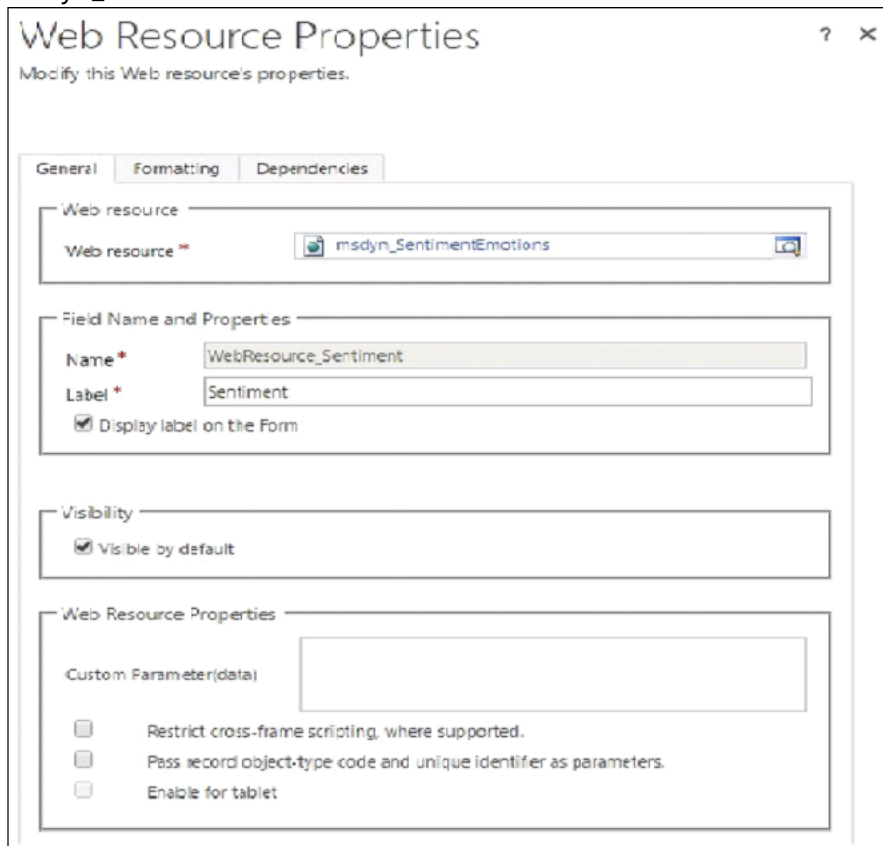
Optional Configuration

This section describes using optional HTML Web Resource which can be used to display the appropriate “smiley” icon based on the Sentiment Analysis score. A System Admin needs to add this Web Resource to the form.

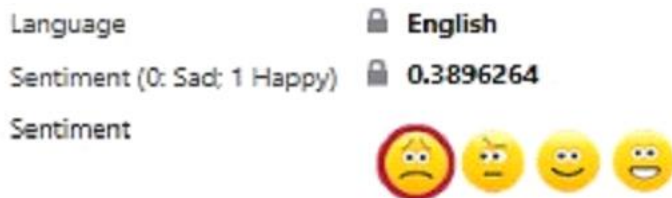
Web Resource: msdyn_SentimentEmotions.html

Steps to configure the Web Resource:

1. Edit the **Email Entity** form to create a new tab and insert the Web Resource: msdyn_SentimentEmotions.html



2. Publish all the changes made and navigate to the Email entity and open the main form. The User should be able to see the tab created for the sentiment.



Troubleshooting Steps

System Administrators can use the quick tips below for troubleshooting any reported issues:

1. Ensure Azure Cognitive service key details entered are correct.
2. Ensure the workflow steps has been registered for the particular event i.e. on create, update.
3. Make sure the changes were published: navigate to **"Customize the System"** and click **"Publish all Customizations"**.

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