

# Watson Services Guide for Developers

A look at the Watson services available on IBM Cloud

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# Watson Services

General Info



# The Basics

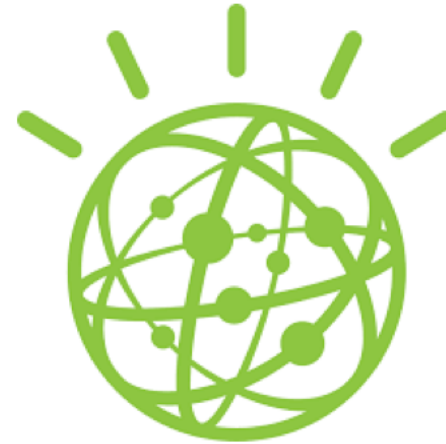
All APIs are REST based w/public endpoints

- For authentication services use either
  - An api key that is a param to each request
  - Basic authentication with an HTTPS endpoint

Each service instance is created in IBM Cloud/Watson Studio and has it's own credentials

- Credentials are available in the IBM Cloud console/Watson Studio
- For IBM Cloud apps bound to a service instance
  - Credentials available as JSON in the VCAP\_SERVICES env var

RESTful API  
GET PUT POST DELETE



# Watson API Explorer

A collection of Swagger documentation for the Watson APIs

- Test APIs calls for various services as long as you have the credentials

See the Watson API Explorer at:

<https://watson-api-explorer.mybluemix.net/>



## Watson API Explorer

A collection of Swagger documentation for the Watson APIs.

### Data Insights

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Discovery

### Language

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Watson Assistant



Language Translator



Natural Language Classifier



Natural Language Understanding



Personality Insights



Tone Analyzer

# SDK and Starter Kits

**SDKs** are wrappers around the REST API and are available for various programming languages/platforms

– Node, Java, Python, iOS and Unity SDKs available

**Starter Kits** are complete code examples that allow you to create service instances and running applications with just a click

They are both available here

<https://www.ibm.com/watson/developer-resources/>

## Watson Text to Speech Basic

[Demo](#)

Basic sample of how to use Text to Speech for streaming, low latency, synthesis of audio from text.

Lite

Web App



## Watson Assistant Basic

[Demo](#)

Simple application that demonstrates the Watson Assistant service in a chat interface simulating a...

Lite

Web App



## Watson Assistant With Discovery - Serverless

[Demo](#) [Git Repo](#)

This application shows the capabilities of Watson Assistant and Discovery services to work together...

Lite

Web App

Git Starter



## Watson News Intelligence

[Demo](#)

This starter kit demonstrates how to query news content to understand what people are saying or...

Lite

Web App



# IBM Code Patterns

Roadmaps for solving complex programming challenges.

Patterns give you a 360-degree view of the underlying code, including overviews, architecture diagrams, process flows, repo pointers, and additional reading.

Examples of Watson related code patterns

- Integrate Watson AI into Salesforce apps
- Create and deploy a scoring model to predict heartrate failure
- Deploy a Core ML model with Watson Visual Recognition

All Watson related code patterns available here

<https://developer.ibm.com/code/technologies/artificial-intelligence/>

# Service Summaries

Let's take a look at the different services



# Watson APIs in the catalog

## AI



### Watson Assistant (formerly Conversation)

Lite • IBM

Add a natural language interface to your application to automate interactions with your end users. Common applications include virtual



### Discovery

Lite • IBM

Unlock hidden value in data to find answers, monitor trends and surface patterns with the world's most advanced cloud-native insight



### Knowledge Catalog

Lite • IBM

Discover, catalog, and securely share enterprise data.



### Knowledge Studio

Lite • IBM

Build custom models to teach Watson the language of your domain.



### Language Translator

Lite • IBM

Translate text from one language to another, adapt translation models to your custom domain.



### Machine Learning

Lite • IBM

IBM Watson Machine Learning - make smarter decisions, solve tough problems, and improve user outcomes.



### Natural Language Classifier

IBM

Natural Language Classifier performs natural language classification on question texts. A user would be able to train their data and the predict



### Natural Language Understanding

Lite • IBM

Analyze text to extract meta-data from content such as concepts, entities, emotion, relations, sentiment and more.



### Personality Insights

Lite • IBM

The Watson Personality Insights derives insights from transactional and social media data to identify psychological traits



### Speech to Text

Lite • IBM

Low-latency, streaming transcription



### Text to Speech

Lite • IBM

Synthesizes natural-sounding speech from text.



### Tone Analyzer

Lite • IBM

Tone Analyzer uses linguistic analysis to detect three types of tones from communications: emotion, social, and language. This insight can



### Visual Recognition

Lite • IBM

Find meaning in visual content! Analyze images for scenes, objects, faces, and other content. Choose a default model off the shelf, or create



### Watson Studio

Lite • IBM

Embed AI and machine learning into your business. Create custom models using your own data.



# Watson Assistant

Build an AI assistant for a variety of channels, including mobile devices, messaging platforms, and even robots.

## **Features:**

Quickly build, test and deploy a bot or virtual agent

Mobile devices, messaging platforms like Slack or even on a physical robot.

A visual dialog builder to use without any coding experience required.

Languages: Brazilian Portuguese, English, French, Italian, Spanish, German, Traditional Chinese, Simplified Chinese, Dutch, Czech, Korean and Arabic.

**Input:** Input phrases for a specific workspace

**Output:** Workspace defined response based on current state

<https://www.ibm.com/watson/services/conversation-4/>

IBM

**CODE**

IBM Cloud CLI / April, 2018 / © 2018 IBM Corporation

# Visual Recognition

Quickly and accurately tag, classify and train visual content using machine learning.

## **Features:**

understands the contents of images

find human faces, approximate age and gender, and find text in images.

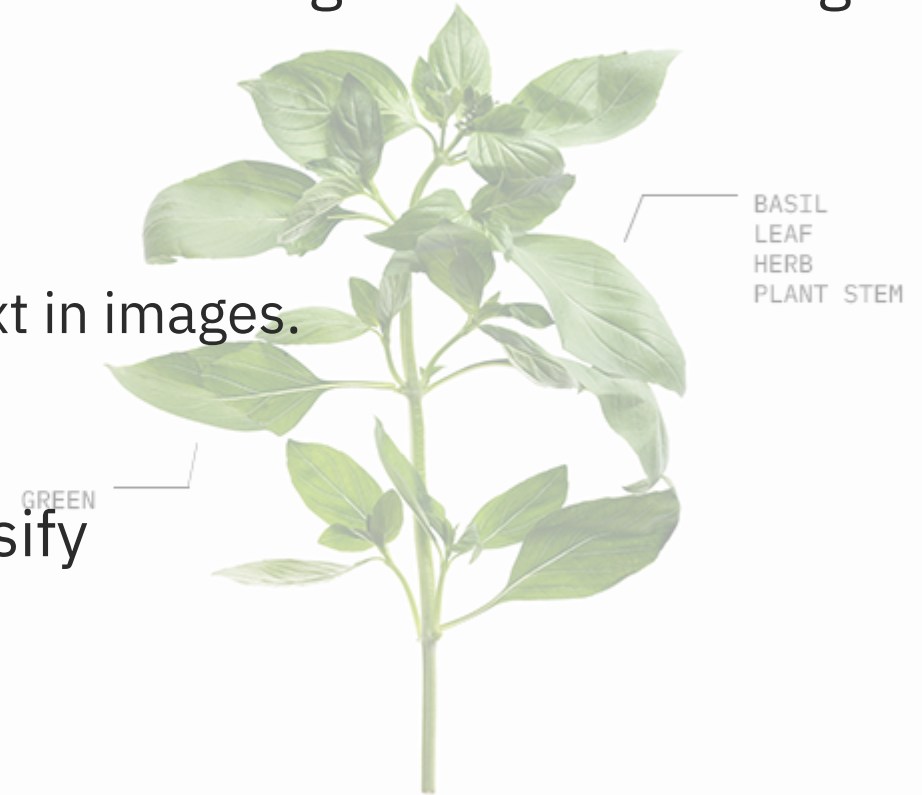
Can use existing models or create your own

**Input:** JPEG or PNG images to train model or to classify

**Output:** a set of labels and likelihood scores

**Dataset:** large number of classified pictures

<https://www.ibm.com/watson/services/visual-recognition/>



# Natural Language Understanding

Natural language processing for advanced text analysis.

## **Features:**

Extract meta-data from content such as concepts, entities, keywords, categories, sentiment, emotion, relations, semantic roles

Develop custom annotation models using Knowledge Studio

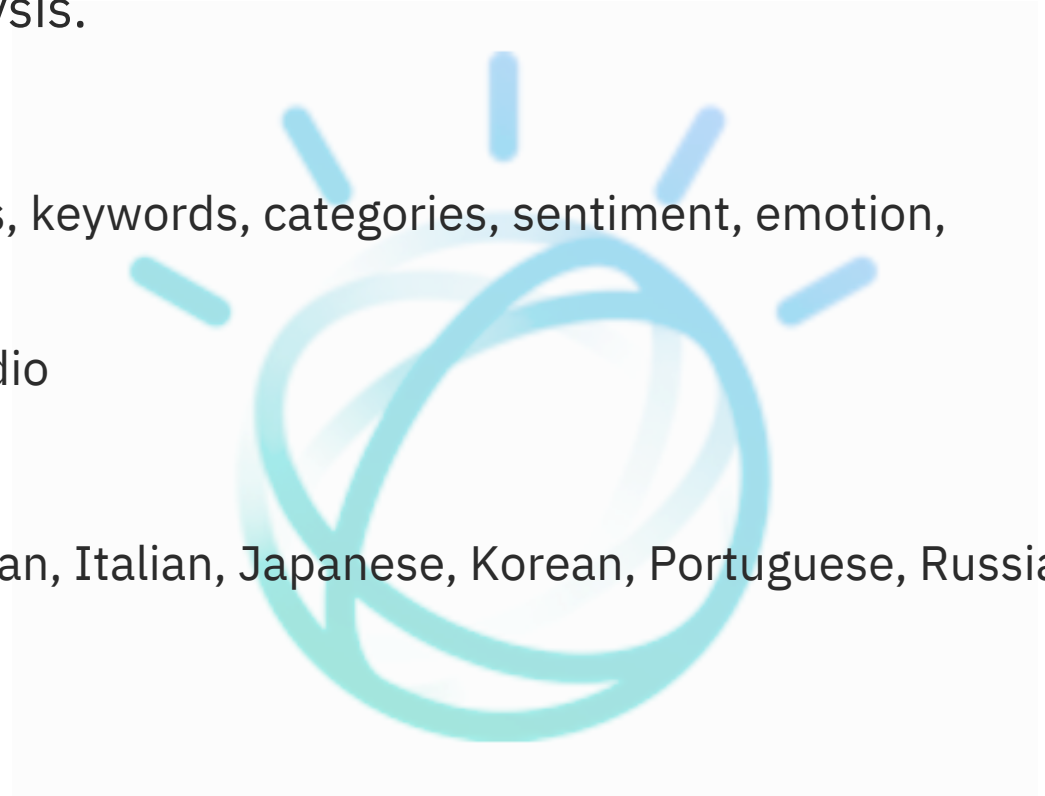
Identify industry/domain specific entities and relations

Languages: Arabic, Chinese, Dutch, English, French, German, Italian, Japanese, Korean, Portuguese, Russian, Spanish, or Swedish

**Input:** Text or URL to be analyzed

**Output:** Categories, concepts, emotion, entities, keywords, metadata, relations, semantic roles, and sentiment.

<https://www.ibm.com/watson/services/natural-language-understanding/>



# Watson Discovery

Rapidly build a cognitive search and content analytics engine.

## **Features:**

Convert, normalize and enrich unstructured data

Use a simplified query language to explore that data

Train by mapping natural language queries to specific documents

Tap into pre-enriched datasets like the Discovery News collection - 300,000 new articles and blogs added daily, sourced from more than 100,000 sources.

**Input:** Cognitive Query

**Output:** Query results

<https://www.ibm.com/watson/services/discovery/>



# Watson Speech to Text

Convert human voice into written word

## **Features:**

Use to transcribe calls to identify what is being discussed, when to escalate calls, and to understand content from multiple speakers.

Create voice-controlled applications

Customizable model to improve accuracy such as product names, sensitive subjects, or names of individuals.

**Input:** streamed or recorded audio

**Output:** text transcriptions of the recognized words

**Dataset:** intelligible English, Spanish, French, Arabic, Chinese, Japanese, or Portuguese speech

<https://www.ibm.com/watson/services/speech-to-text/>

# Watson Text to Speech

Enable computers to speak like humans

## **Features:**

converts written text into natural sounding audio in a variety of languages and voices.

Customize and control the pronunciation of specific words

Develop interactive toys for children, automate call center interactions, and communicate directions hands-free.

**Input:** Text to be converted to audio

**Output:** synthesized audio based on the input text

**Dataset:** English, Spanish, French, Italian, Portuguese, German or Japanese text

<https://www.ibm.com/watson/services/text-to-speech/>

# Watson Language Translator

Translate content into multiple languages

## **Features:**

Translates from one language to another or identifies the language of the input text

Offers multiple customizable domain-specific models

Language support:

<https://console.bluemix.net/docs/services/language-translator/translation-models.html>

**Input:** Text to be translated or identified

**Output:** Translated text or language code

<https://www.ibm.com/watson/developercloud/language-translator.html>

# Watson Natural Language Classifier

Interpret and classify natural language with confidence.

## **Features:**

Understands the intent behind text and returns a classification and confidence score

Answer questions in contact centers, chatbots etc

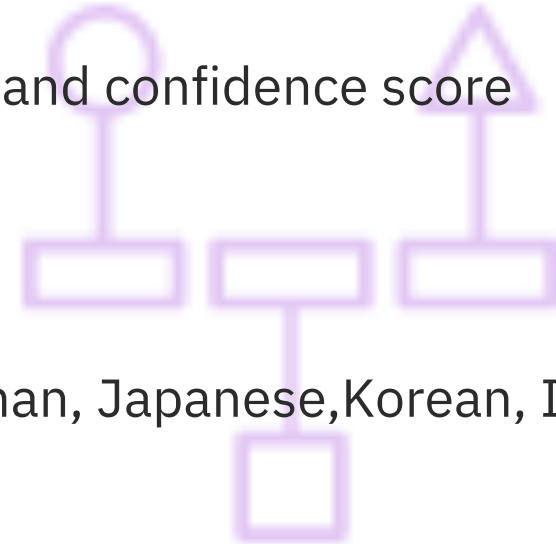
Categorize written content

Languages: English, Arabic, Brazilian Portuguese, French, German, Japanese, Korean, Italian, and Spanish.

**Input:** Trained with data mapping phrases to intents. After training phrases are input

**Output:** Intent of input phrase and confidence

<https://www.ibm.com/watson/services/natural-language-classifier/>





# Watson Personality Insights

Understand personality characteristics, needs, and values in written text

## **Features:**

extracts personality characteristics and consumption preferences based on how a person writes  
match individuals to other individuals, opportunities, and products

Characteristics include the Big 5 Personality Traits, Values, and Needs.

Needs at least 1200 words of input text

**Input:** text from an individual

**Output:** tree of social characteristics in JSON and visualizations using HTML and SVG

<https://www.ibm.com/watson/services/personality-insights/>



# Watson Tone Analyzer

Understand tone and style in written text

## Features:

Uses linguistic analysis to detect three types of tones in written text: emotions, social tendencies, and writing style.

Used to understand emotional context of conversations and communications.

Use this insight to respond in an appropriate manner.

Languages: English, French

**Input:** Text to be analyzed in JSON

**Output:** Analysis of input text in JSON

<https://www.ibm.com/watson/services/tone-analyzer/>



# Quick Reference

Some links to check out for more information



## Watson Services in Watson Studio

- <https://dataplatform.ibm.com/data/services?target=watson&context=analytics>

## Watson Services in IBM Cloud Catalog

- <https://console.bluemix.net/catalog/?category=watson>

## Watson API Explorer

- <https://watson-api-explorer.mybluemix.net/>

## Watson SDKs and Starter Kits

- <https://www.ibm.com/watson/developer-resources/>

## IBM Code Patterns – Watson related

- <https://developer.ibm.com/code/technologies/artificial-intelligence/>

## Watson Services (Docs, API docs, demo apps and tutorials)

- <https://www.ibm.com/watson/products-services/>

# Labs

<https://github.com/indrann/watson-discovery-analyze-data-breaches>

<https://github.com/indrann/watson-discovery-news-alerting>

Thanks!

