

# IBM WATSON

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# Introduction

- IBM Watson is a suite of AI technologies developed by IBM that includes natural language processing, machine learning, and computer vision capabilities.
- Watson offers a range of services such as data discovery, chatbot building, data science, and healthcare applications. It has been used in various real-world applications for diagnosing diseases, analyzing feedback, optimizing operations, and personalizing experiences.
- IBM Watson API is a powerful set of tools and services that provide developers with the ability to leverage artificial intelligence (AI) and machine learning (ML) capabilities in their applications. With a wide range of functionalities, including natural language processing, speech and audio analysis, data insights, IBM Watson API offers exciting possibilities for various industries.
- In this PowerPoint presentation, we will explore the applications, benefits, and limitations of IBM Watson API.



**IBM Watson Health**

# Applications and Use-cases

- IBM Watson API has various applications and use cases in industries like customer service, healthcare, finance, retail, and more.
- Applications of IBM Watson API include natural language processing (NLP), virtual assistants and chatbots, speech and audio analysis, image recognition, data insights and analytics, and personalized recommendations.
- IBM Watson API can be used for tasks such as sentiment analysis, language translation, speech recognition, image recognition, data visualization, and predictive analytics.
- Industries can benefit from IBM Watson API by enhancing customer experiences, improving business processes, and enabling data-driven decision making.
- IBM Watson API offers advanced capabilities but requires proper planning, data preparation, and technical expertise for optimal results.
- Despite the potential advantages, limitations such as training data requirements, language support, and customization complexity should be considered when using IBM Watson API.

# IBM Watson Assistant API

- IBM Watson Assistant API is a cloud-based service that allows developers to create and deploy conversational interfaces, such as chatbots and virtual assistants.
- Developers can use the IBM Watson Assistant API to create custom dialog flows that guide the conversation between the user and the virtual assistant. These dialog flows can include various components, such as intents and entities, that help the virtual assistant understand the user's requests and respond accordingly.
- The IBM Watson Assistant API also provides various integrations with third-party platforms, such as Facebook Messenger, Slack, and Twilio, allowing developers to deploy their virtual assistants on these platforms without the need for additional development work.

## V2 API

- The Assistant v2 API provides runtime methods your client application can use to send user input to an assistant and receive a response.
- Endpoint URLs : Identify the base URL for your service instance.
- All Watson services use Secure Sockets Layer (SSL) (or Transport Layer Security (TLS)) for secure connections between the client and server. The connection is verified against the local certificate store to ensure authentication, integrity, and confidentiality.
- If you use a self-signed certificate, you need to disable SSL verification to make a successful connection.
- To disable SSL verification for a curl request, use the --insecure (-k) option with the request.

## Advantages of IBM Watson API

1. **Diverse functionalities:** IBM Watson API offers a wide range of capabilities, including natural language processing, speech and audio analysis and more, making it versatile for various applications.
2. **Scalability and flexibility:** IBM Watson API is designed to be highly scalable and flexible, allowing developers to adapt and customize the services to their specific needs, making it suitable for businesses of different sizes and industries.
3. **Integration with IBM Watson ecosystem:** IBM Watson API seamlessly integrates with other tools and services within the IBM Watson ecosystem, providing a unified and streamlined workflow for building intelligent applications.

## Limitations of IBM Watson API

1. **Data Requirements:** IBM Watson API requires a substantial amount of data for training and customization, which can be a challenge for businesses with limited data availability or smaller datasets.
2. **Language Support:** While IBM Watson API supports multiple languages, the level of accuracy and performance may vary across different languages, which can impact its effectiveness in certain language contexts.
3. **Customization Complexity:** Customizing IBM Watson API for specific use cases may require advanced technical expertise and understanding of machine learning concepts, making it complex for businesses with limited ML expertise.



# Authentication

IBM Cloud services use IBM Cloud Identity and Access Management (IAM) to authenticate. With IBM Cloud Pak for Data, you pass a bearer token.

Your application might use more than one Watson service. You can grant access between services and you can grant access to more than one service for your applications.

For IBM Cloud services, the method to grant access between Watson services varies depending on the type of API key.

**Error handling:** Watson Assistant uses standard HTTP response codes to indicate whether a method completed successfully. HTTP response codes in the 2xx range indicate success. A response in the 4xx range is some sort of failure, and a response in the 5xx range usually indicates an internal system error that cannot be resolved by the user. Response codes are listed with the method.

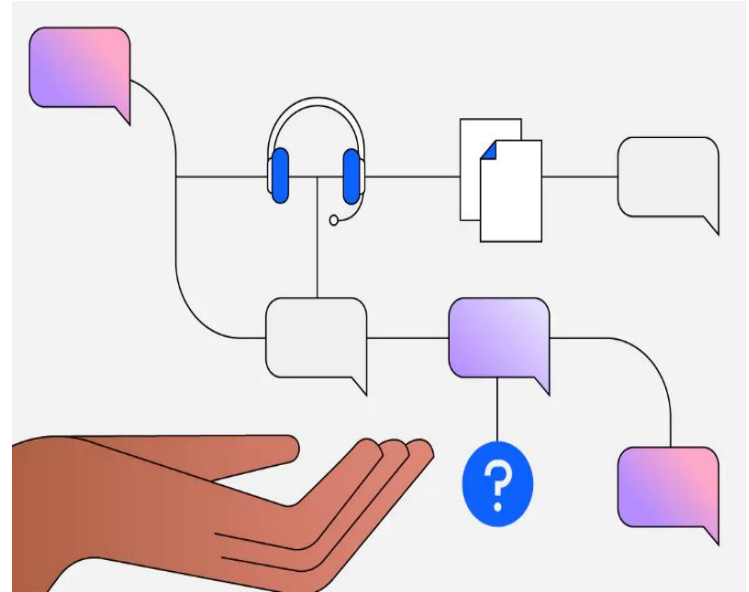
# Security and Data Protection Methods

1. IBM Watson API adheres to industry standards like GDPR, HIPAA, SOC 2, ISO 27001, and PCI DSS.
2. Follows best practices from OWASP for web application security.
3. Aligns with NIST Cybersecurity Framework.
4. IBM's privacy principles and data protection policies are followed.
5. Provides a secure and trustworthy platform for developers to build AI-powered applications.

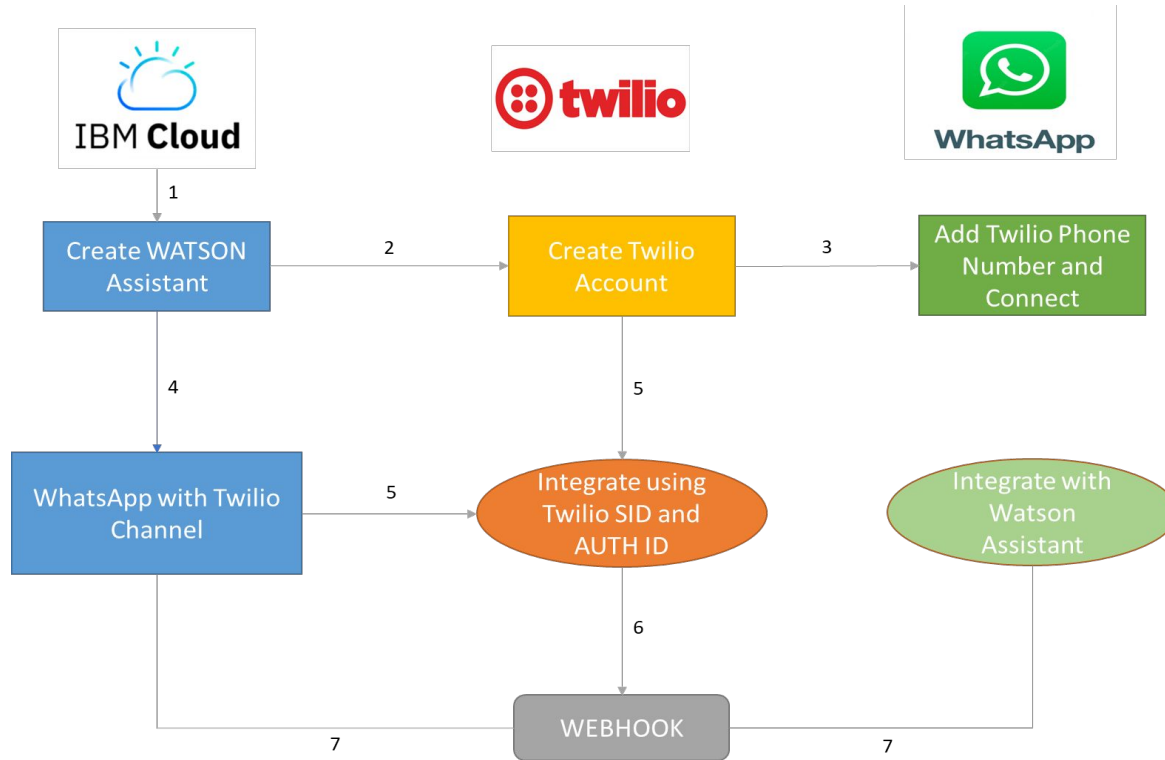
# Watson AI chatbot that's easy to use

IBM Watson Assistant is built on deep learning, machine learning, and natural language processing (NLP) models to understand questions, find or search for the best answers, and complete the user's intended action through conversational AI.

Watson also uses intent classification and entity recognition to better understand customers in context and transfer them to a human agent when needed.



# Watson Assistant API Integration with WhatsApp



# Creation of Watson Assistant

- Log in to IBM Cloud account at <https://cloud.ibm.com/login>.
- Click on the "Catalog" button at the top of the page.
- In the search bar, type "Watson Assistant" and select the service from the results.
- Select the region, organization, and space where you want to create the Watson Assistant service instance.
- Choose a pricing plan that suits your needs. The Lite plan is free and allows you to create one Watson Assistant instance.
- Click on the "Create" button.



[Catalog](#) /

## Watson Assistant

Watson Assistant lets you build conversational interfaces into any application, device, or channel.

Create

About

Type  
Service

Provider  
IBM


Last updated  
03/31/2023

Category  
AI / Machine  
Learning

Compliance  
EU Supported  
HIPAA Enabled  
IAM-enabled

### Pricing plans

Displayed prices do not include tax. Monthly prices shown are for country or location: [United States](#)

Plan	Features and capabilities	Pricing
Lite	<b>Everything you need to get started, free for as long as you need it</b> Up to 1,000 unique monthly active users (MAUs) chatting with your assistant Up to 10,000 messages per month --- Features --- - World-class conversational AI with Watson - Make your website assistant your own with Webchat - deploy Webchat in minutes, or use our fully extensible architecture - Bootstrap your assistant by using some of our prebuilt content	Free 

### Summary

Watson Assistant

Free

Plan: Lite

Sign up to create

Add to estimate

Already have an account? [Log in](#)

- Once your Watson Assistant instance is created, click on the "Launch Watson Assistant" button to open the Watson Assistant tool.

The screenshot displays the IBM Cloud Watson Assistant console interface. At the top, the browser address bar shows the URL: `cloud.ibm.com/services/conversation/crn%3Av1%3Abluemix%3Apublic%3Aconversation%3Aau-syd%3Aa%2F604725ad56c24911b6715d7f40095...`. The IBM Cloud header includes a search bar, navigation links for Catalog, Manage, and a user profile for '2621458 - LAKSHMI a...'. The main heading is 'Watson Assistant-9n', followed by a status indicator 'Active' and an 'Add tags' link. On the right, there are links for 'Details' and 'Actions...'. A left-hand sidebar under the 'Manage' section lists 'Service credentials', 'Plan', and 'Connections'. The main content area is divided into two sections. The top section, titled 'Start by launching the tool', contains a prominent blue 'Launch Watson Assistant' button, a 'Getting started tutorial' link with an external icon, and an 'API reference' link. The bottom section, titled 'Credentials', features a 'Download' button and a 'Show credentials' link with an eye icon. Below these, the 'API key:' field is masked with dots, and the 'URL:' field contains the address `https://api.au-syd.assistant.watson.cloud.ibm.com/`. A blue chat bubble icon is located in the bottom right corner of the main content area. At the very bottom, a file explorer shows 'ibm-credentials.env' and a 'Show all' button is visible on the right.

- Once your Watson Assistant is launched, enter all the required details to create a assistant/bot.

## Welcome to the new Watson Assistant



### Create your first assistant

Let's get your assistant up and running. Name your assistant, add a description, and choose a language. In following steps we'll gather more information, show you basic customizations, and give you a preview of what your assistant will look like.

Assistant name

PizzaBOT

Your assistant name will be kept internally and not visible to your customers

Description (optional)

31/128

This BOT assist to order Pizza





## Home



Welcome, you're in the new Watson Assistant!

[Learn more ▾](#)**PizzaBOT | English (US)**

This BOT assist to order Pizza

**Get started**

3 steps left 7 min

0%



- ☐ Learn about Watson Assistant  
5 min
- ☐ Explore your learning center  
Explore at your own pace, and mark as complete when you're ready
- ☐ Explore Watson Assistant features on interactive demo site  
2 min



## Home

**Create a conversation**

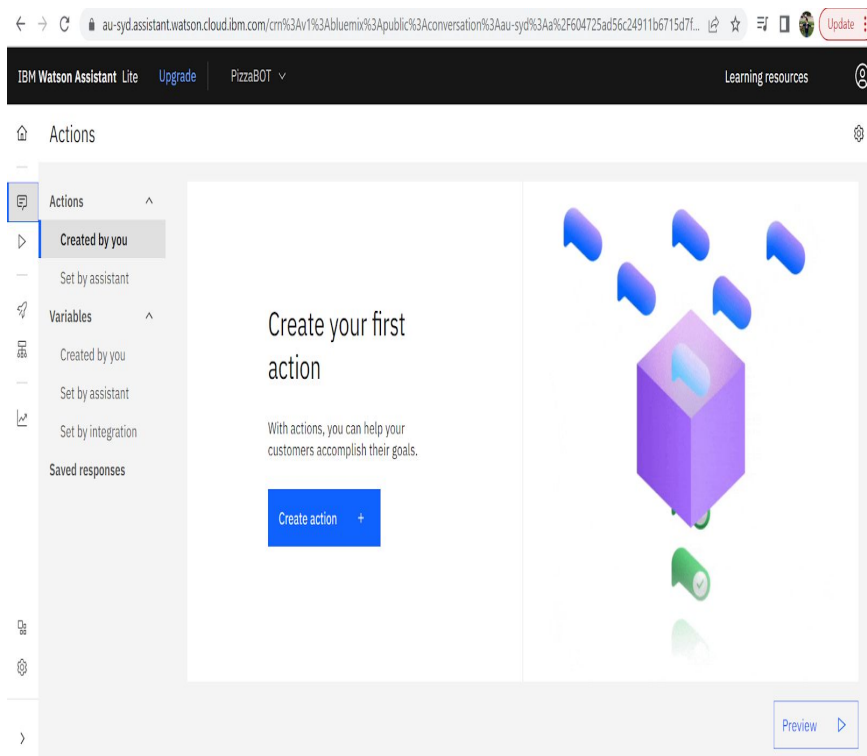
3 steps left 15 min

0%

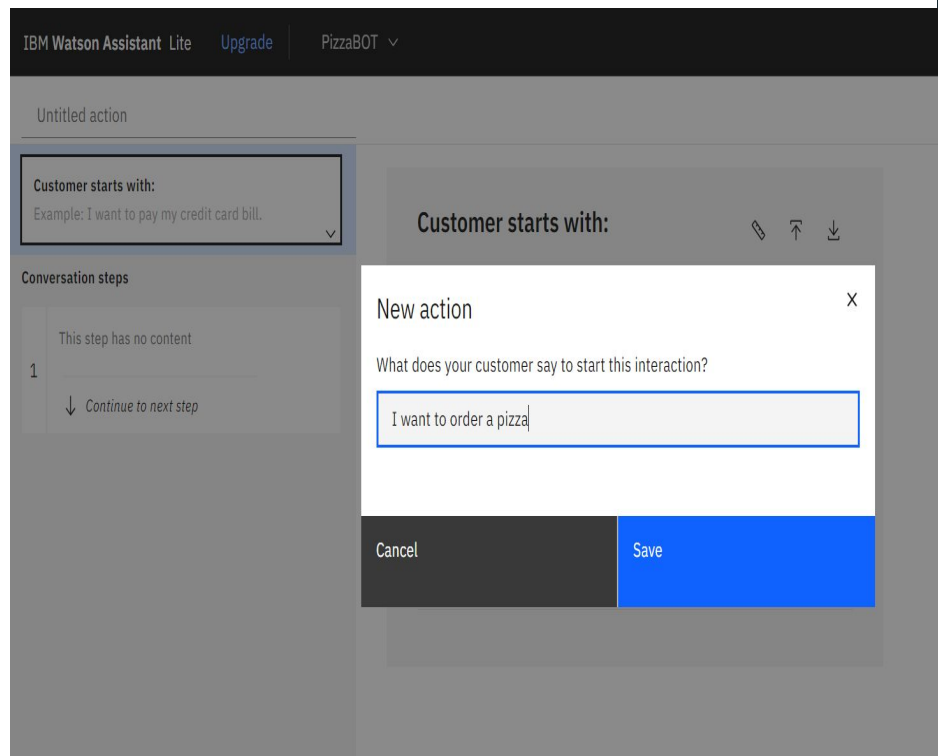


- ☐ Create your first action  
5 min
- ☐ Create steps  
5 min
- ☐ Add 5 examples  
5 min

# Creating test bot




The screenshot shows the IBM Watson Assistant console interface. The top navigation bar includes the text "IBM Watson Assistant Lite", an "Upgrade" button, and a dropdown menu for "PizzaBOT". Below the navigation bar, the left sidebar contains a list of options: "Actions", "Created by you", "Set by assistant", "Variables", "Created by you", "Set by assistant", "Set by integration", and "Saved responses". The main content area is titled "Create your first action" and features a large blue button labeled "Create action". To the right of the text, there is a 3D illustration of a purple cube with several blue speech bubbles floating around it. At the bottom right of the main content area, there is a "Preview" button with a right-pointing arrow.



The screenshot shows the IBM Watson Assistant console interface with a "New action" dialog box open. The background interface is dimmed, showing the "Untitled action" section with a "Customer starts with:" field containing the example "I want to pay my credit card bill." and a "Conversation steps" section with a single step labeled "1" containing the text "This step has no content" and a "Continue to next step" button. The "New action" dialog box has a title bar with a close button (X). The main text inside the dialog asks "What does your customer say to start this interaction?". Below this text is a text input field containing the text "I want to order a pizza". At the bottom of the dialog, there are two buttons: "Cancel" and "Save".

# Conversation steps

IBM Watson Assistant Lite Upgrade PizzaBOT ▼ Learning resources 

I want to order a pizza

Customer starts with:  
I want to order a pizza

2 0 0  
total steps end steps ⓘ re-ask steps ⓘ

Conversation steps









1 What size would like to order  
Large Duplicate  
↓ Continue to next step

2 What kind of pizza you would like to order?  
Veg Chicken + 2  
↓ Continue to next step

New step +





Step 1 is taken without conditions ▼ Set variable values [x]

Assistant says

B I         </>

What size would like to order

Large Medium Small

Edit response Edit validation    

And then

↓ Continue to next step ▼

Preview ▶

# Edit response

## Edit response



Enter a list of options or pull from a variable to generate a dynamic list of options. [Learn more](#)

☐ Dynamic ⓘ

[Add synonyms](#) +

Option 1



Large



Option 2



Medium



Option 3



Small



Option 4



# Preview

IBM Watson Assistant Lite Upgrade PizzaBOT ▼

Learning resources

I want to order a pizza

Customer starts with:  
I want to order a pizza

Conversation steps

1

What kind of pizza you would like to order?

Veg Chicken + 2

↓ Continue to next step

New step +

Customer starts with:

Enter phrases that a customer types or says to start the conversation about a specific topic. These phrases determine the task, problem or question your customer has.

The more phrases you enter, the better your assistant can recognize what the customer wants.

Enter phrases your customer might use to start

Total: 4

Enter a phrase

pizza

Place a order

Need pizza

Preview

Welcome, how can I assist you?

order

I want to order a pizza recognized

What kind of pizza you would like to order?

Veg Chicken Cheese Peperoni

Veg

There are no additional steps for this action. Add a new step or end the action.

I want to order a pizza ended

Type something...

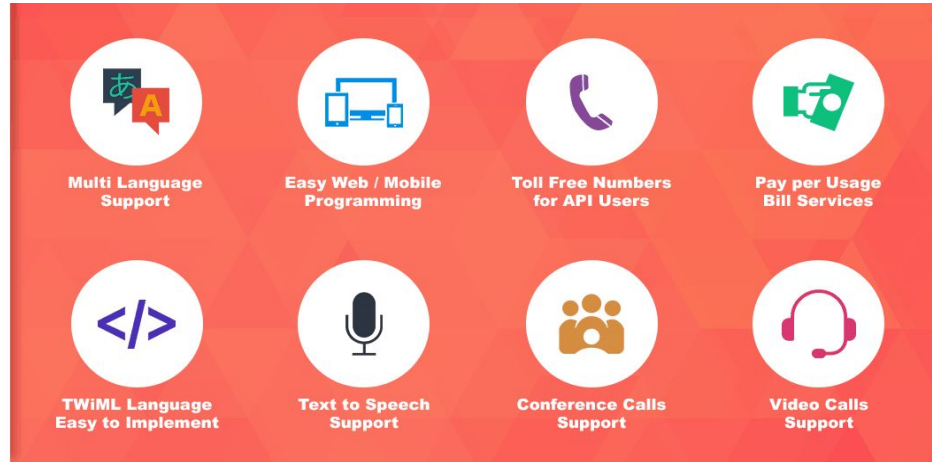
# Adding Integration

- To publish your Watson Assistant bot to customer channels, you need to add channel integrations.
- By default, Watson Assistant provides a web chat integration that allows embedding the bot in a website for customer assistance.
- Other channel integrations are available in the Integrations catalog for additional deployment options.
- To add integrations, go to the Integrations page, click the integrations icon, and scroll to see the available options.
- Watson Assistant's web chat integration is an engaging and extensible front-end client that supports rich responses like images, videos, and suggestions, and also handles live agent escalation for advanced conversational scenarios.



# Twilio

- Twilio is a cloud communications platform that provides APIs (application programming interfaces) for developers to establish communications.
- Twilio can be used to send **SMS, WhatsApp, Voice, Video, email**, and **even IoT**, across the customer journey. All you need to do is integrate its API with your software.



# Twilio WhatsApp API

- Twilio provides a WhatsApp API that enables businesses to integrate WhatsApp messaging into their customer engagement strategies. This API allows businesses to send notifications, alerts, and customer support messages over WhatsApp, as well as to receive and respond to customer messages.
- The Twilio API for WhatsApp supports a variety of message types, including text messages, images, and documents. Businesses can also use the API to automate responses to common customer inquiries and provide real-time customer support over WhatsApp.





# Twilio Account

⊕

Console

My first Twilio account

Trial: \$13.14 Upgrade

Jump to...

Account ▾ Billing ▾ RK Ritika ▾

View all accounts

Develop Monitor

> # Phone Numbers

> Messaging

> Studio

> Voice

> Conversations

Explore Products +

⊕ Docs and Support

<<


✓ Account SID and Auth token

✓ Twilio phone number

✓ Upgraded Twilio account

Upgrade your account →

[Read 3rd-party integration FAQ](#)



Invite teammates →

Talk to Sales

Connect with a Twilio expert to find out what products and plans best suit your needs.

Talk to Sales ↗

Helpful links

[How does Twilio work?](#)

Understand how to use Twilio in a 2-minute video.

[API documentation](#)

Learn the basics of Twilio APIs.

[Support help center](#)

Troubleshoot common issues.

▼ Account Info

Account SID

AC9b232e46100d0563bfec50f7d0aeb7d7

⊞

Auth Token

.....

⊞ Show

⚠ Always store your token securely to protect your account. [Learn more](#)

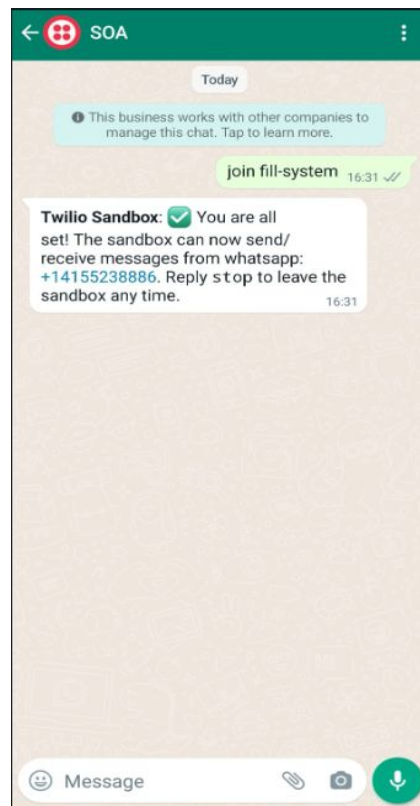
My Twilio phone number

+18449022522

⊞

# Connection to WhatsApp Sandbox

The screenshot shows the Twilio Console interface. At the top, the header includes the Twilio logo, account name 'My first Twilio account', a trial status 'Trial: \$13.14 Upgrade', and navigation links for 'Account', 'Billing', and a user profile 'Ritik'. The left sidebar has a 'Develop' tab selected, with a 'Messaging' section expanded. Under 'Messaging', the option 'Send a WhatsApp message' is highlighted. The main content area is titled 'Twilio Sandbox for WhatsApp lets you test your app in a developer environment without WhatsApp approval for your account.' Below this, there's a 'Sandbox' tab and a progress bar with four steps: 'Connect to sandbox', 'Business-Initiated message', 'User-Initiated conversation', and 'Wrap-up'. The 'Connect to sandbox' step is active. The section is titled 'Connect to WhatsApp Sandbox' and includes the instruction: 'To begin testing, connect to Twilio sandbox by sending a WhatsApp message from your device to the Twilio number.' Below this, there are two options: 'Send a WhatsApp message' (which includes the phone number '+1 415 523 8886' and a code 'join fill-system') and 'Scan the QR code on mobile' (which shows a QR code). A blue button labeled 'Open WhatsApp' is also present.



# WhatsApp Sandbox - Request and Response

**Console**  
My first Twilio account Trial: \$13.14 Upgrade

**Develop** Monitor

Phone Numbers

**Messaging**

Overview

Try it out

Send an SMS

**Send a WhatsApp message**

Services

Senders

Settings

Regulatory Compliance

Studio

Voice

Docs and Support

**To**  
whatsapp:+918971977135

**From**  
whatsapp:+14155238886

**Message Template**  
Appointment Reminders

Your appointment is coming up on {{1}}

**Body**  
Hello Ritika

**Send template message**

I didn't receive the message →

✓ **Test WhatsApp message sent.** Twilio has successfully sent your test WhatsApp message. It might take some time for the carriers to deliver your WhatsApp message based on country specific restrictions.

**Request**

curl Java Ruby PHP Python C# Node.js

Show auth token

```
curl 'https://api.twilio.com/2010-04-01/Accounts/AC9b232e4610d0563bfec50f7d0aeb7d7/Messages.json' -X POST \
--data-urlencode 'To=whatsapp:+918971977135' \
--data-urlencode 'From=whatsapp:+14155238886' \
--data-urlencode 'Body=Hello Ritika' \
-u AC9b232e4610d0563bfec50f7d0aeb7d7:[AuthToken]
```

**Response**

201 - CREATED - The request was successful. We created a new resource and the response body contains the representation.

```
{
  "body": "Hello Ritika",
  "num_segments": "1",
  "direction": "outbound-api",
  "from": "whatsapp:+14155238886",
  "date_updated": "Fri, 14 Apr 2023 21:44:04 +0000",
  "price": null,
  "error_message": null,
  "uri": "/2010-04-01/Accounts/AC9b232e4610d0563bfec50f7d0aeb7d7/Messages/SM093899fa8c3f26d4f953e7c20f47dd7e.json",
```

**SOA Business Account**

Today

This business works with other companies to manage this chat. Tap to learn more.

join fill-system 16:31 ✓✓

**Twilio Sandbox:** ✓ You are all set! The sandbox can now send/receive messages from whatsapp: +14155238886. Reply stop to leave the sandbox any time. 16:31

1 Unread Message

Hello Ritika 16:44

Message

# User Initiated Conversation

## Start an user-Initiated conversation

When your customers message you first, outside of an existing conversation window, you can reply without having to use templates. This user-initiated conversation lasts for 24 hours from when the customer sent the first message.

To test this, simply reply to the WhatsApp notification you just received on your device to start a 24-hour conversation window.

### Message from you:

From: whatsapp:+918971977135

Body: Hello

To

whatsapp:+918971977135

From

whatsapp:+14155238886

Body

Send your reply

### Request

curl

Java

Ruby

PHP

Python

C#

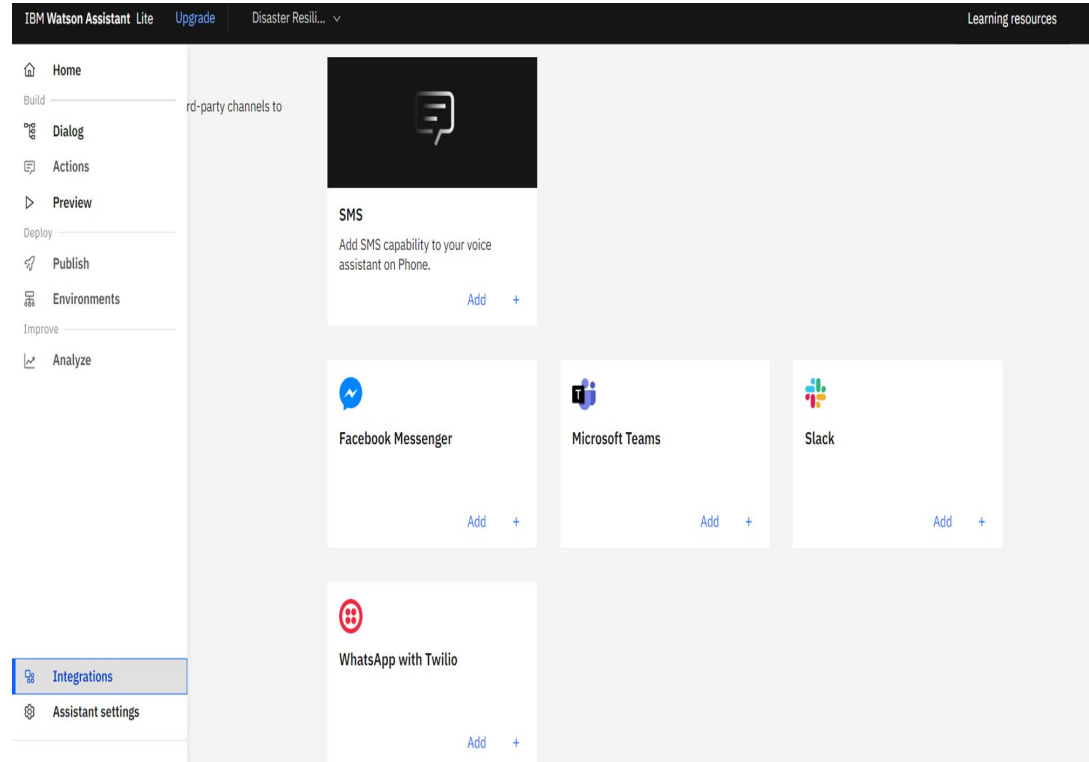
Node.js

☐ Show auth token

```
curl 'https://api.twilio.com/2010-04-01/Accounts/AC9b232e46100d0563bfec50f7d0aeb7d7/Messages.json' -X
POST \
--data-urlencode 'To=whatsapp:+918971977135' \
--data-urlencode 'From=whatsapp:+14155238886' \
-u AC9b232e46100d0563bfec50f7d0aeb7d7:[AuthToken]
```

# Integration - Watson Assistant & Twilio

1. Navigate to your Watson Assistant service in IBM Cloud.
2. Click Integrations on the left side
3. Select WhatsApp with Twilio.



# Enter Account SID

IBM Watson Assistant Lite

[Upgrade](#)

Disaster Resili... ▾

[Learning resources](#)



## WhatsApp with Twilio

Draft

Close

Next

✓ Get started

● Account SID

○ Auth token

○ Webhook

### Account SID

In your Twilio project's dashboard, refer to your project info and copy and paste the account SID value below.

Account SID

AC9b232e46100d0563bfec50f7d0aeb7d7

# Enter Auth token

IBM Watson Assistant Lite

[Upgrade](#)

Disaster Resili... ▾

[Learning resources](#)



## WhatsApp with Twilio

Draft

Close

Next

☒ Get started

☒ Account SID

☒ Auth token

☐ Webhook

### Auth token

In your Twilio project's dashboard, refer to your project info and copy and paste the auth token value below.

Auth token

.....




# Webhook automatically generated in Watson Assistant

<https://integrations.au-syd.assistant.watson.appdomain.cloud/public/twiliowhatsapp/255543e5-a625-445f-a459-e53540ade66c/message?version=2022-12-05>

IBM Watson Assistant Lite Upgrade

Disaster Resili... ▾

Learning resources 

WhatsApp with Twilio Draft

CloseFinish

Get started

Account SID

Auth token


Webhook

## Webhook

Copy the uniquely generated webhook below and provide to Twilio.  
This will allow messages to be sent and received.

Webhook

https://integrations.au-syd.assistant.watson.appdomain.cloud





# Webhook

- A webhook is a way for two different web applications to communicate with each other in real time automatically.
- In technical terms it is a user-defined HTTP callback that is triggered when a specific event occurs on an external system or service. When the event is triggered, the webhook sends a POST request to a specific URL on the receiving application, which can then take further actions based on the data that was sent.
- Webhooks are commonly used in many different types of applications, including chatbots, marketing automation, and social media integrations. They can help automate repetitive tasks, reduce manual data entry, and streamline workflows.



**1** Phone sends  
SMS to your  
**twilio** phone number

**2** **twilio** makes  
an HTTP request  
to your app

<http://yourapp.com/sms?From=4158675309&Body=hi!>



**4** **twilio**  
sends reply  
to the phone



**3** Your  
app responds  
with XML

```
<Response>
  <Sms>ahoy hoy!</Sms>
</Response>
```

# Enter the webhook URL

- When an end user sends a WhatsApp message, Twilio sends a webhook (a request to a URL that is specified) to your application. In the Sandbox, you can configure that webhook URL in the **When a Message Comes in** field:

## Try WhatsApp

Twilio Sandbox for WhatsApp lets you test your app in a developer environment without WhatsApp approval for your account.

Sandbox

[Sandbox settings](#)

### Sandbox Configuration

To send and receive messages from the Sandbox to your Application, configure your endpoint URLs. [Learn more](#)

#### When a message comes in

#### Method

POST

#### Status callback URL

#### Method

GET

Save

### Sandbox Participants

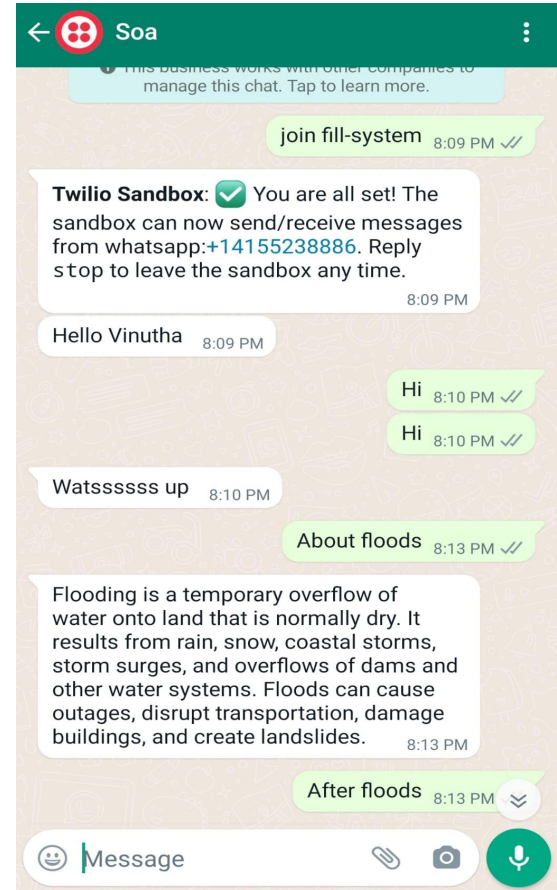
Invite your friends to your Sandbox. Use WhatsApp and send a message from your device to

+1 415 523 8886

with code **join fill-system**.

# WhatsApp demo

When customers send a WhatsApp message, Twilio sends a webhook to your application.



# Overview of the WhatsApp Platform with Twilio

- The WhatsApp Platform with Twilio is a communication tool that combines WhatsApp's popularity and Twilio's messaging capabilities.
- Businesses can use the platform to connect with customers, send automated messages, notifications, and engage in two-way conversations.
- It enhances businesses' customer communication strategy, allowing them to provide customer support, send transactional updates, and drive engagement.
- The platform aims to improve customer satisfaction by leveraging the wide reach and popularity of WhatsApp.

# Customer Service Automation

- AI-powered chatbots and virtual assistants can answer customer queries 24/7.
- Allows businesses to deliver 24/7 support without human intervention consistently.
- Improves response time, reduce errors, and provide a better customer experience.
- Chatbots are also often used by sales teams looking for a tool to support lead generation.
- Chatbots can quickly validate potential leads based on the questions they ask, then pass them on to human sales representatives to close the deal.
- Chatbots automate workflows and free up employees from repetitive tasks. A chatbot can also eliminate long wait times for phone-based customer support



# What is Watson Text to Speech?

- IBM Watson Text to Speech is an API cloud service that converts written text into natural-sounding audio in multiple languages and voices.
- It can be integrated into existing applications or used within IBM Watson Assistant for improved customer interactions.
- It enhances customer experience and engagement by providing audio options and interacting with users in their native language.
- It promotes accessibility by offering audio options for users with different abilities and prevents distracted driving by providing hands-free listening.
- It automates customer service interactions, reducing hold times and improving customer satisfaction.

# Watson Health Care Manager

IBM Watson changed the healthcare system to new heights.

- It reads the billions of medical images and data produced by the health equipments with the help of Merge. Analyze patterns of millions of similar conditions to predict the diseases.
- New drugs takes decades of analysis before it is introduced for the usage. Watson AI use the prior knowledge and analyse the effectiveness and its side effects of the drug.
- IBM partnered with Boston Children hospital in studying the pediatric rare diseases.
- Watson AI capable of analyze the genomic data(DNA).
- Text/audio read capabilities it analyze scientific literatures and records to learn in creating the patterns.
- IBM partnered with Manipal hospitals in treating the cancer patients. It helps in treating 200k patients annually.
- Watson interface with Nutrino app in providing the personalized nutrition recommendations and tracking mechanism.



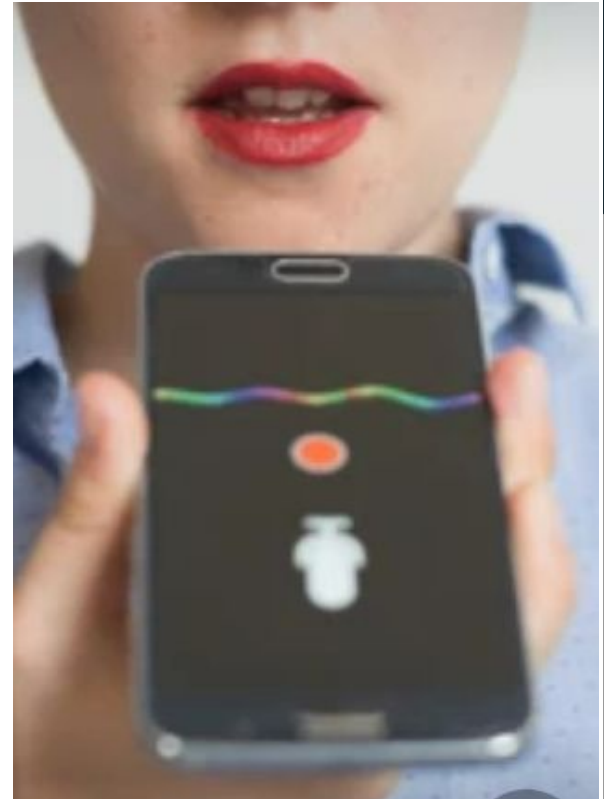
# Humana Case Study

- Used Voice Assistant to handle customer support and queries.
- Significant speech customization with seven language models and two acoustic models.
- Achieved a 90-95% sentence error rate accuracy level on key data inputs.
- Reduced workload on outsourced call centers and improved customer experience.

Speech Analyzer:

Tone: Fear, Anger, Joy & Sadness

Personality: What kind of person, habits, interests & thoughts



# Text to Speech

*Get the CURL commands with API Access key and URL*

```
curl -X POST -u "apikey:Z7vbKOUS3_5FJSBNFdVdZ9dikJVM30GIphZT8fT4nKyD" --header "Content-Type: application/json" --header "Accept: audio/flac" --data {"\"text\": \"This is text to speech test samples by LNR\"}" --output text2speech.flac
```

[https://api.us-east.text-to-speech.watson.cloud.ibm.com/instances/5621f680-42fb-4b3d-a627-73e75b892f4a/v1/synthesize?voice=en-US\\_MichaelV3Voice](https://api.us-east.text-to-speech.watson.cloud.ibm.com/instances/5621f680-42fb-4b3d-a627-73e75b892f4a/v1/synthesize?voice=en-US_MichaelV3Voice)

```
C:\Users\reddy>curl -X POST -u "apikey:Z7vbKOUS3_5FJSBNFdVdZ9dikJVM30GIphZT8fT4nKyD" --header "Content-Type: application/json" --header "Accept: audio/flac" --data {"\"text\": \"This is text to speech test samples by LNR\"}" --output text2speech.flac "https://api.us-east.text-to-speech.watson.cloud.ibm.com/instances/5621f680-42fb-4b3d-a627-73e75b892f4a/v1/synthesize?voice=en-US_MichaelV3Voice"
```

% Total	% Received	% Xferd	Average Speed	Time	Time	Time	Current
			Dload	Upload	Total	Spent	Left
100	84071	0	84018	100	53	56056	35
					0:00:01	0:00:01	--:--:-- 56272

## Output file created for the given path

```
04/06/2023 07:49 AM <DIR> OneDrive
03/14/2023 07:10 AM <DIR> Pictures
02/18/2023 06:15 PM <DIR> Postman
03/29/2023 11:15 AM <DIR> Postman Agent
03/14/2023 07:10 AM <DIR> Saved Games
03/14/2023 07:10 AM <DIR> Searches
04/08/2023 06:57 PM 108 speech
04/08/2023 07:03 PM 57,796 speech.flac
04/09/2023 11:04 PM 83,938 speech2text.flac
04/09/2023 11:06 PM 84,018 text2speech.flac
03/14/2023 07:10 AM <DIR> Videos
      7 File(s) 226,296 bytes
     31 Dir(s) 375,983,734,784 bytes free

C:\Users\reddy>
```

# Speech to Text

*Get the CURL commands with API Access key and URL*

```
curl -X POST -u "apikey:pnWv5yC2J3hYPTv_BXf6idwLXcICvpMOFuwAPTSb0RH8" --header "Content-Type: audio/flac" --data-binary @C:\Users\reddy\Downloads\audio-file.FLAC  
"https://api.us-east.speech-to-text.watson.cloud.ibm.com/instances/5870800a-f433-45eb-bfc1-0c5463574def/v1/recognize"
```

```
C:\Users\reddy>curl -X POST -u "apikey:pnWv5yC2J3hYPTv_BXf6idwLXcICvpMOFuwAPTSb0RH8" --header "Content-Type: audio/flac" --data-binary @C:\Users\reddy\Downloads\audio-file.FLAC "https://api.us-east.speech-to-text.watson.cloud.ibm.com/instances/5870800a-f433-45eb-bfc1-0c5463574def/v1/recognize"  
{  
  "result_index": 0,  
  "results": [  
    {  
      "final": true,  
      "alternatives": [  
        {  
          "transcript": "several tornadoes touched down as a line of severe thunderstorms swept through Colorado on Sunday ",  
          "confidence": 0.94  
        }  
      ]  
    }  
  ]  
}
```

# Watson resource dashboard

cloud.ibm.com/resources

IBM Cloud Search resources and products... Catalog Manage 2621458 - LAKSHMI a...

Name	Group	Location	Product	Status	Tags
Filter by name or IP address...	Filter by group or org.	Filter...	Filter...	Filter...	Filter...
Compute (0)					
Containers (0)					
Networking (0)					
Storage (0)					
Converged infrastructure (0)					
Enterprise applications (0)					
AI / Machine Learning (3)					
LNR_Speech2Text	Default	Washington DC	Speech to Text	Active	1
Text to Speech-ia	Default	Washington DC	Text to Speech	Active	—
Watson Assistant-9n	Default	Sydney	Watson Assistant	Active	—
Analytics (0)					

## References

- <https://www.ibm.com/products/watson-assistant>
- <https://developer.ibm.com/tutorials/integrating-ibm-watson-assistant-with-whatsapp/>
- <https://www.ibm.com/cloud/watson-speech-to-text>
- <https://www.twilio.com/docs/whatsapp>
- <https://www.markheath.net/post/basic-introduction-webhooks>

THANK YOU :)