Build a Watsonx AI Chatbot with Db2



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Agenda



- Overview of Watsonx Assistant
- Planning Your Assistant
- Terminology You Should Know
- Let's Build a Chatbot
- Integrate with Db2
- Next Steps

Have you ever built a chatbot?



Choose 1:

- 1. Yes, with Watsonx Assistant
- 2. Yes, with another tool
- 3. No, but we want to
- 4. No, we don't want to
- 5. No, never thought about it





Overview of Watsonx Assistant

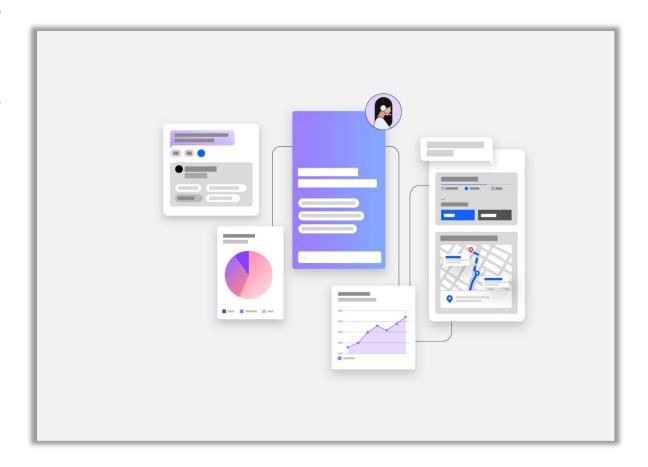
What is Watsonx Assistant?



"Conversational AI solution that empowers anyone to effortlessly build generative AI Assistants that deliver frictionless self-service experiences to customers"

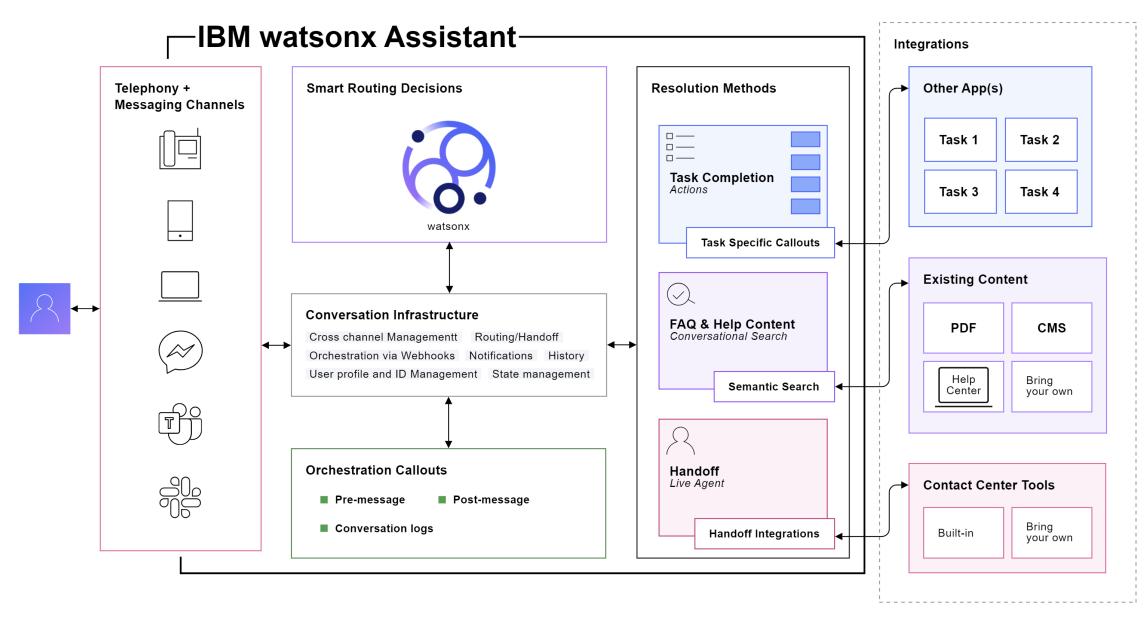
Use Watsonx Assistant to build your own branded live chatbot

- Bring the assistant to your customers, where they are
- Create AI-driven conversational flows
- Embed existing help content
- Connect to your customer service teams
- **o** Track customer engagement and satisfaction



How Does It Work?







Planning Your Assistant

Before building an assistant...



1. Select an initial channel

Where will customers use your assistant?

2. Select starting domain

 What topic domain can your assistant unify and automate?

3. Outline frequent topics

 What are the most frequent topics which are mostly informational in nature?

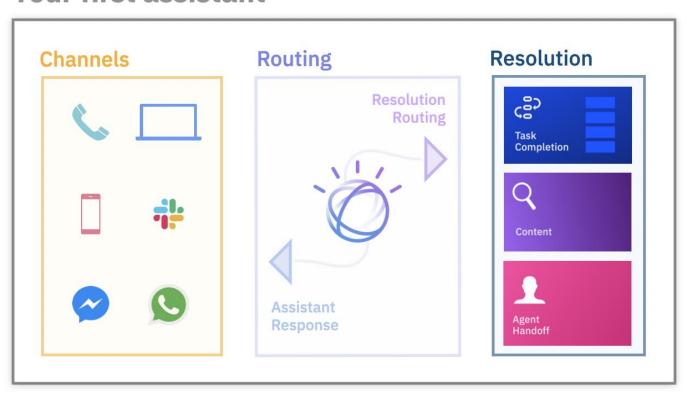
4. Collect content sources

 What help content is available to customers today?

5. Plan handoff strategy

 How should customers be routed to human agents?

Your first assistant



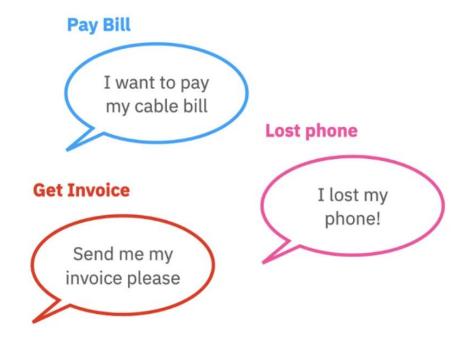


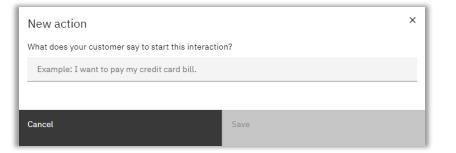
Terminology You Should Know

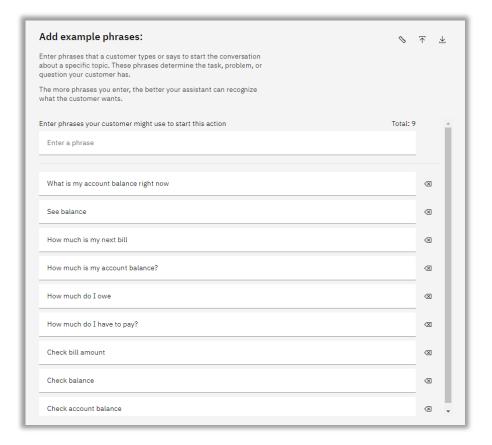
What are Actions and Phrases?

continuous innovation continuous integration

- An <u>action</u> is a problem or a task that your customer wants to resolve
- <u>Phrases</u> are what customers type or say to start an <u>action</u>
- Add multiple <u>phrases</u> to better train your assistant to recognize what customers want



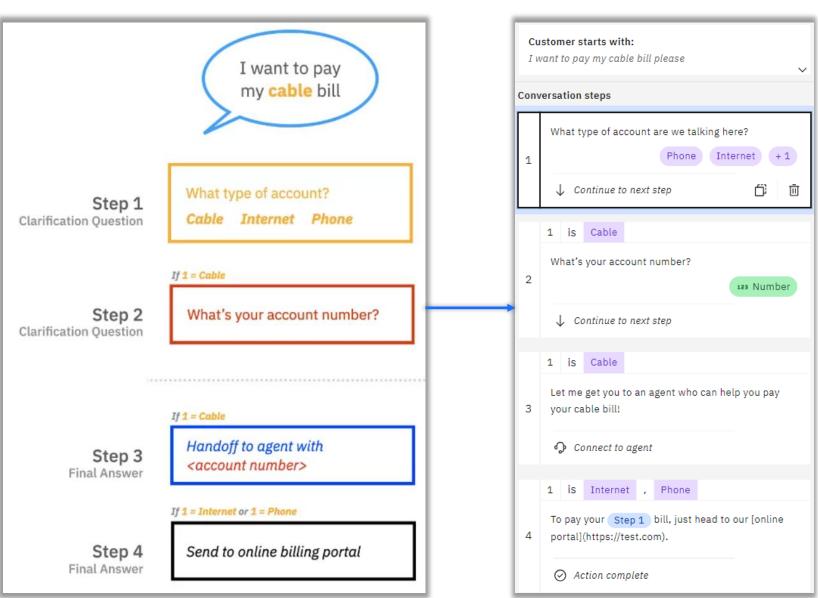




What are Steps and Conditions?

continuous innovation continuous integration

- A <u>step</u> is a back-andforth interaction between your assistant and your customer
- <u>Conditions</u> are requirements which must be met for the step to be triggered



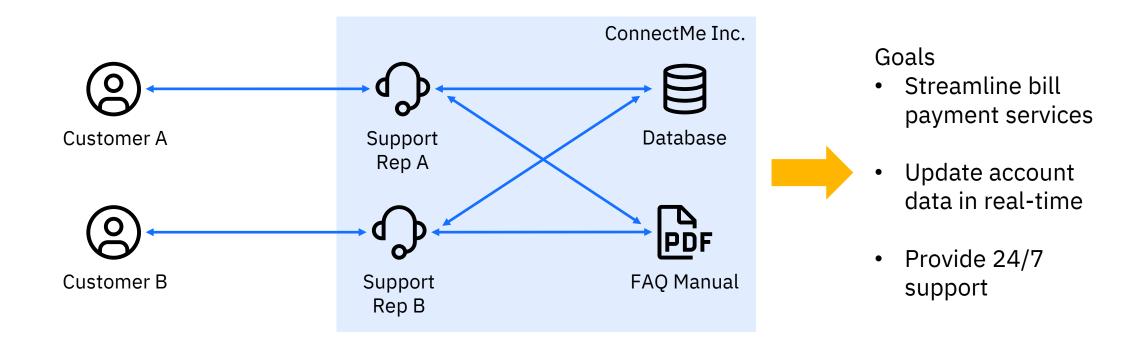


Let's Build a Chatbot

Demo Example – ConnectMe Inc.

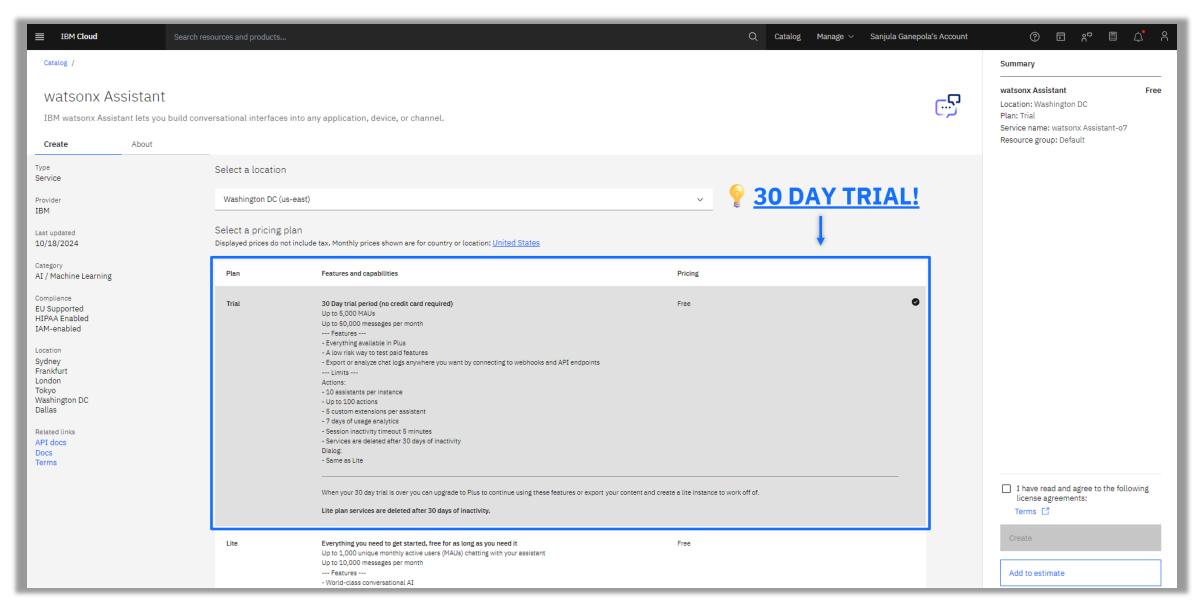


ConnectMe Inc. is a telecommunications company with cable, internet, and phone services



Create Watsonx Assistant Instance

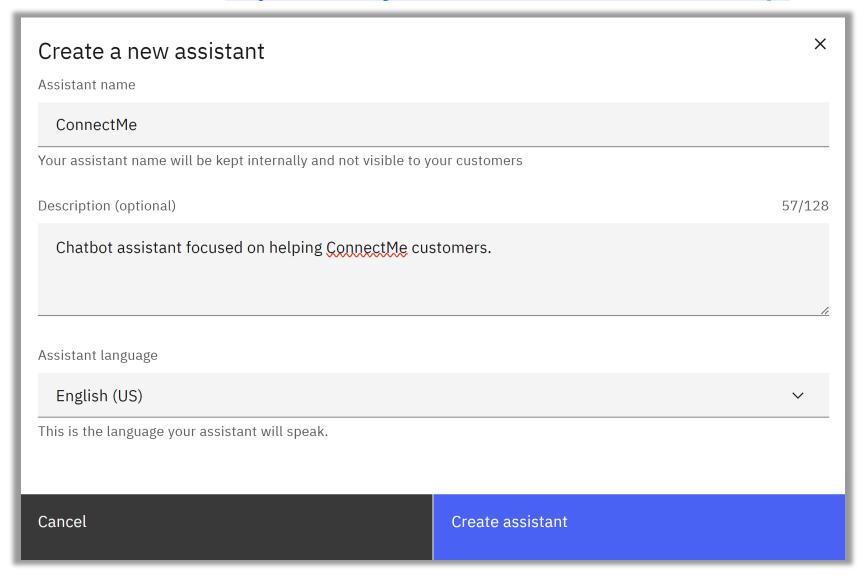




Create Watsonx Assistant

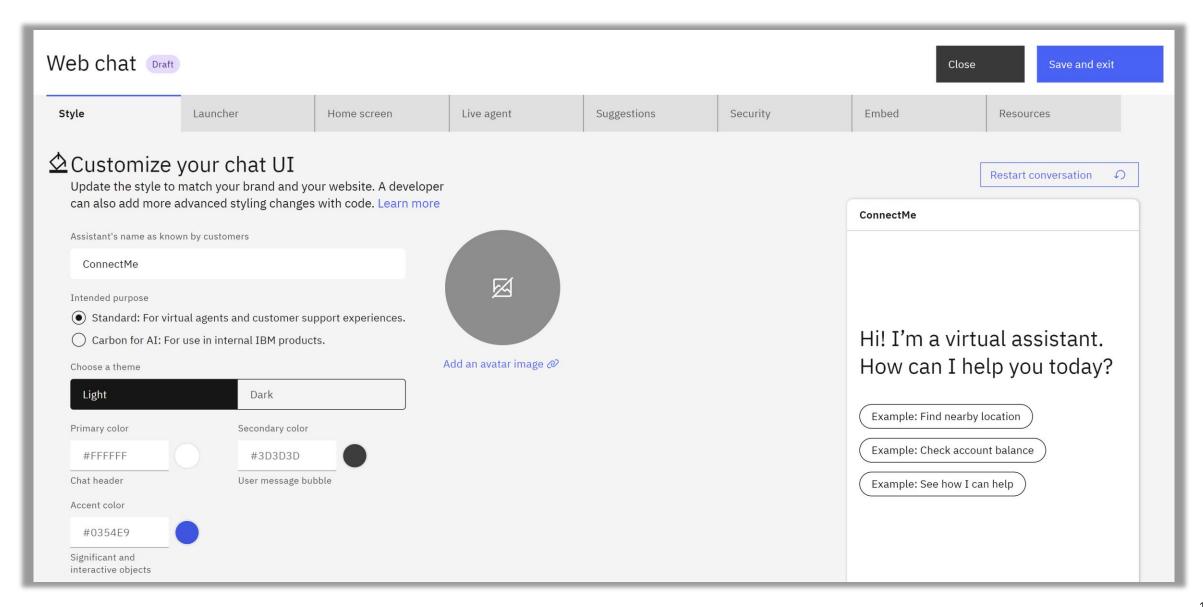


Video Demo: https://www.youtube.com/watch?v=JTcrllB82QE



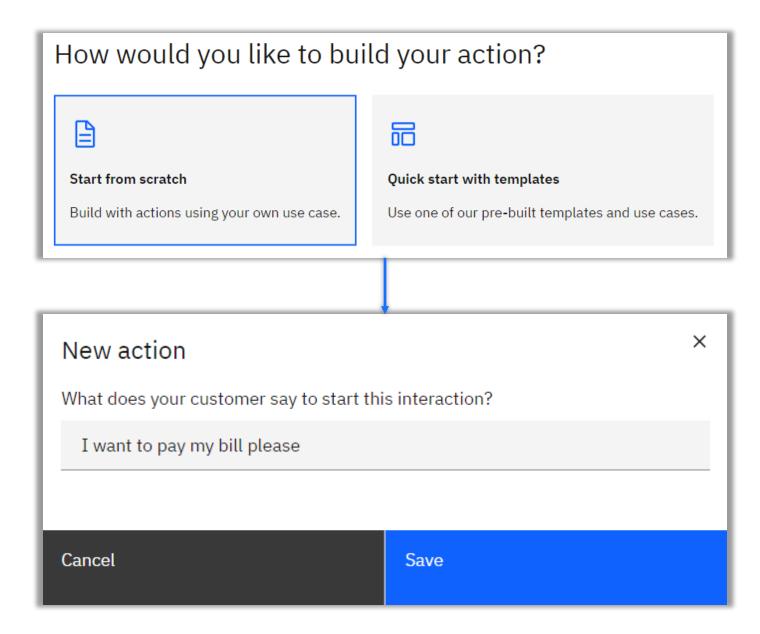
Customize Web Chat





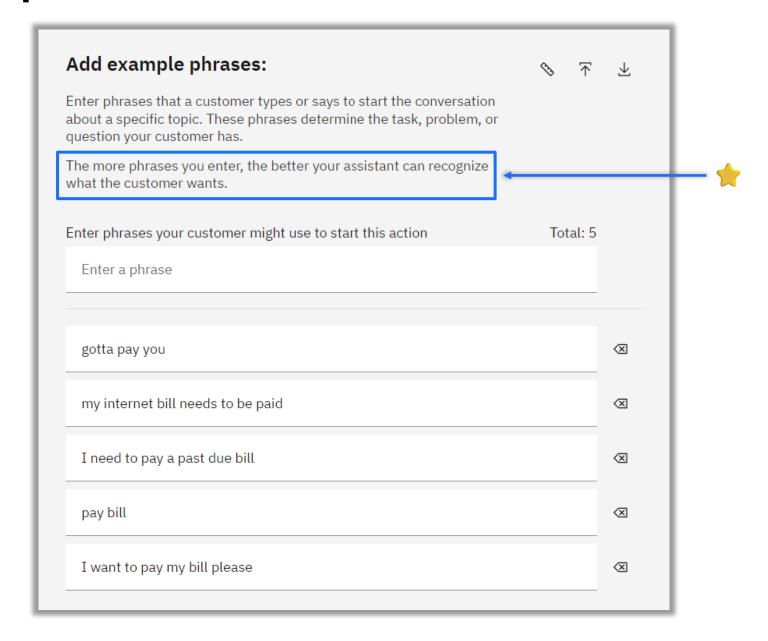
Create Action From Scratch and Set Initial Phrase





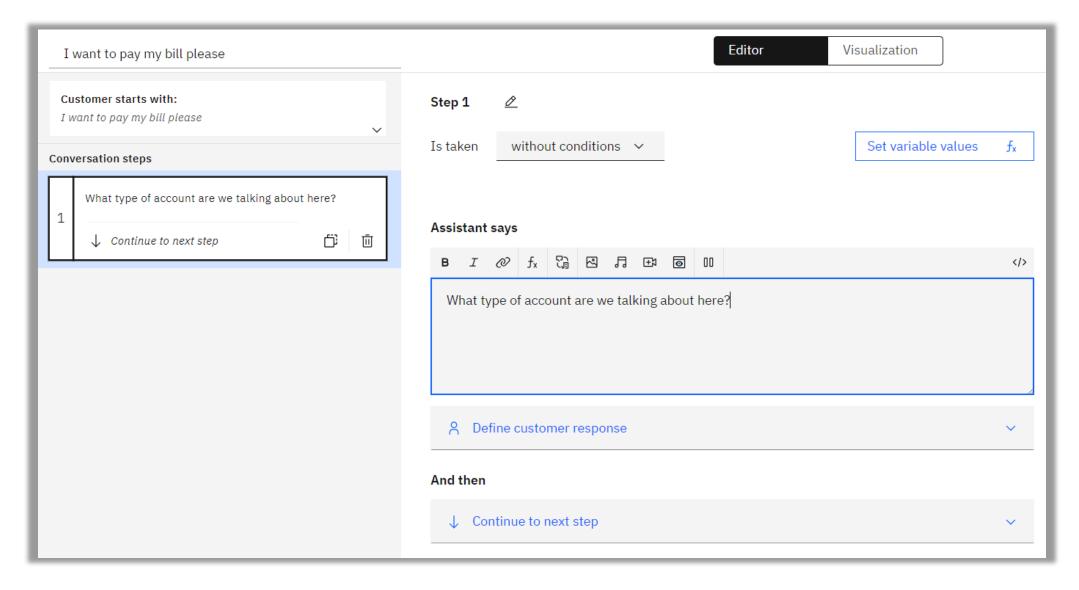
Add More Example Phrases





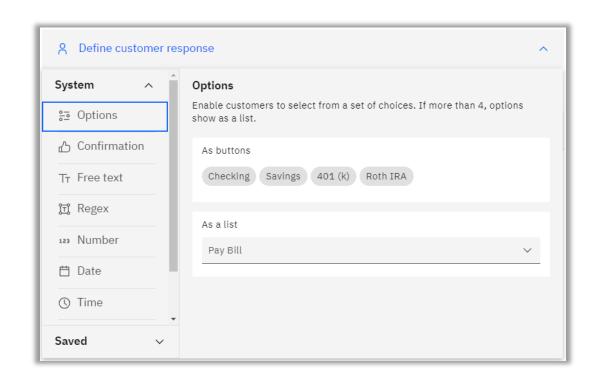
Create First Step

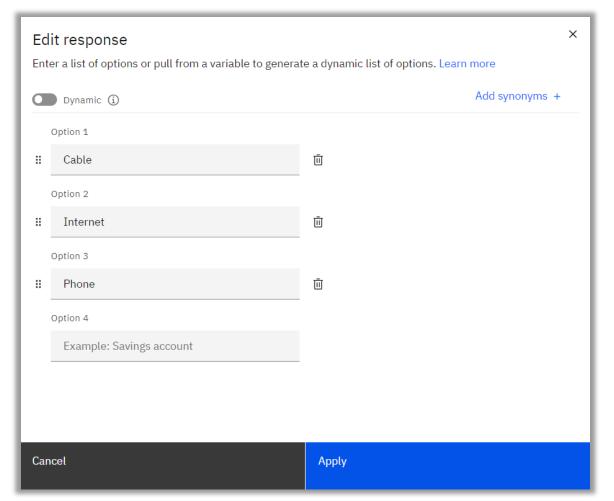




Add Custom Response Options

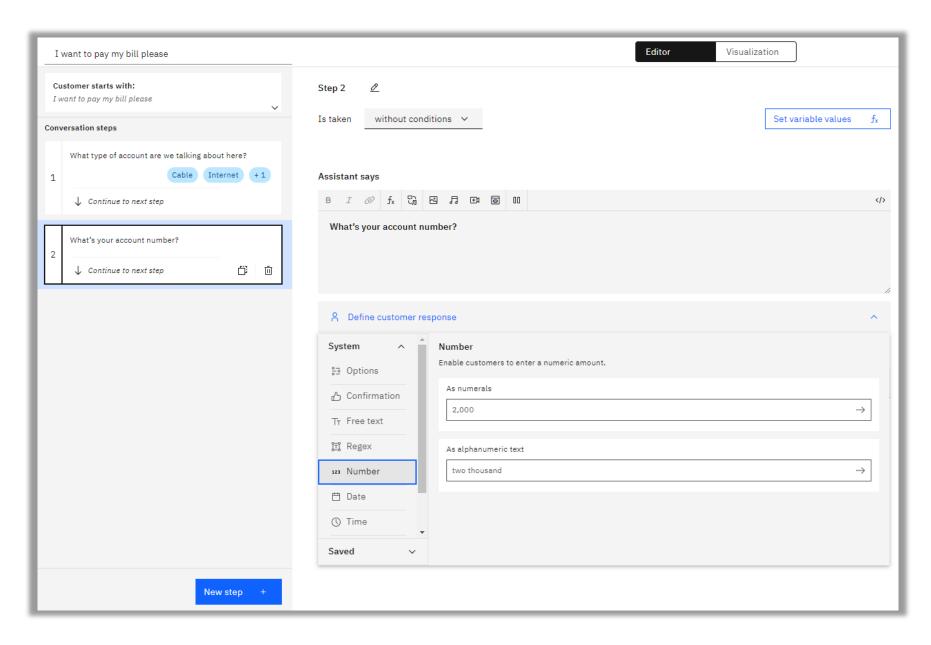






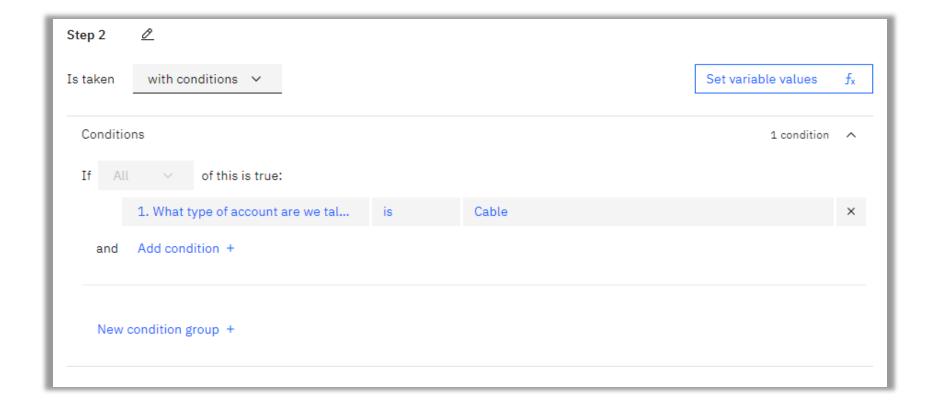
Create Another Clarification Step





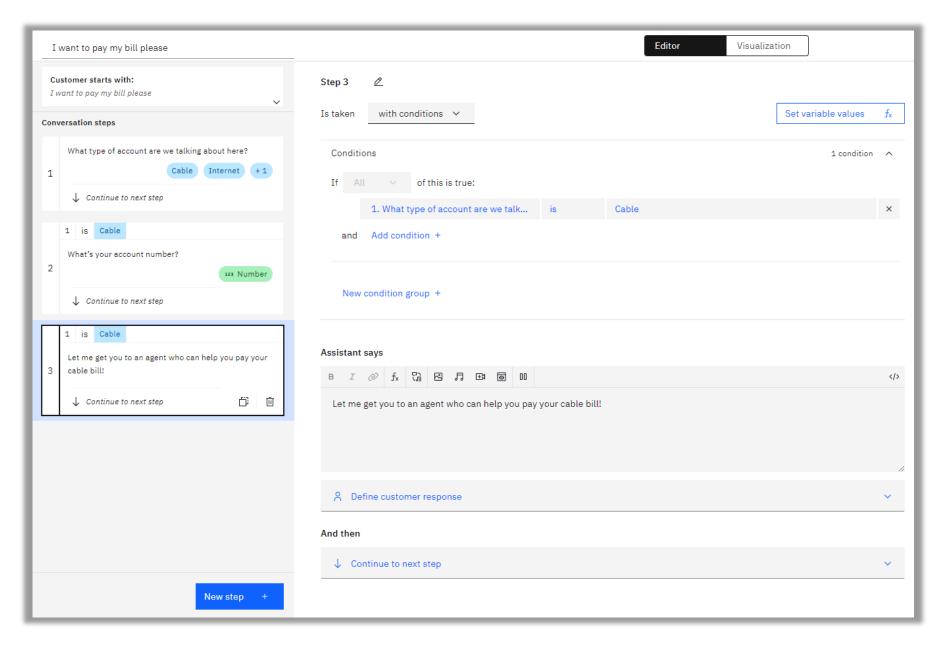
Add Condition





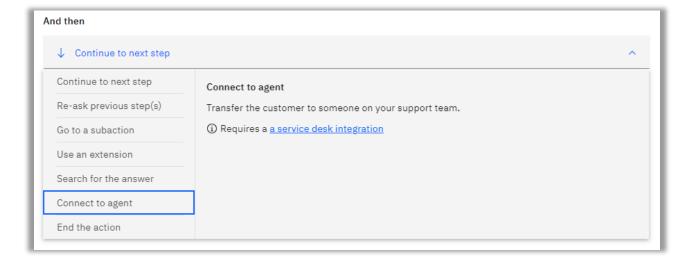
Create an Agent Handoff Step

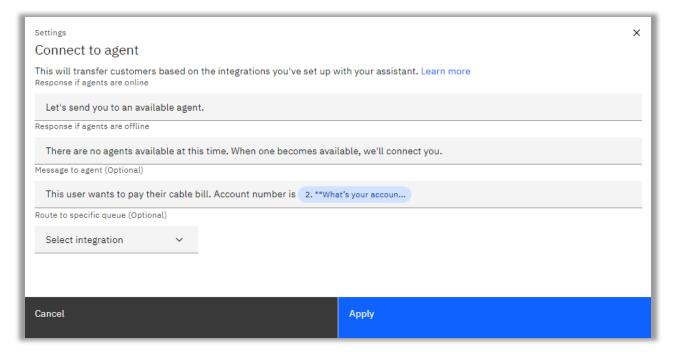




Connect to Agent

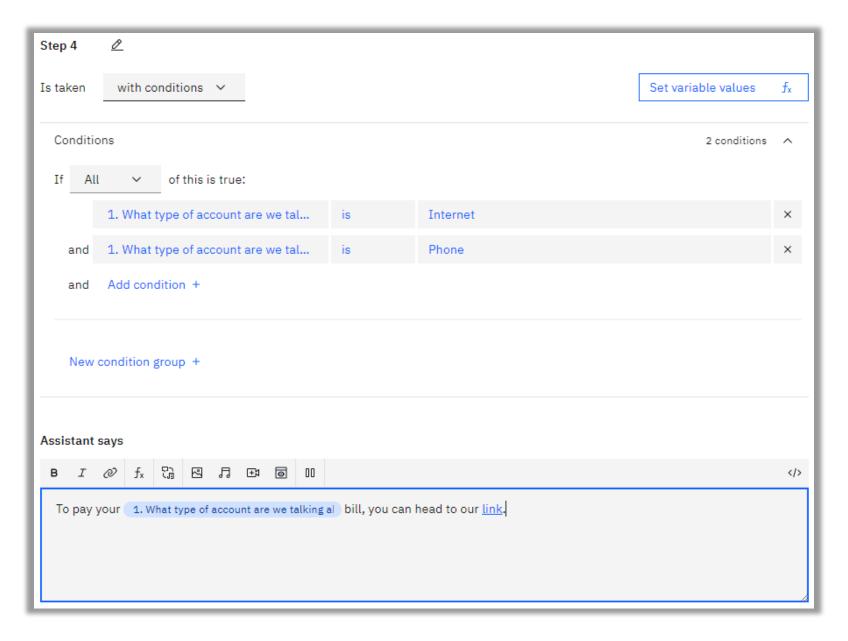






Create Final Response Step





Edit Response in JSON View



```
Assistant says
JSON view
                                                                                                    abc
        "generic": [
            "response_type": "text",
            "values": [
                "text_expression": {
                  "concat":
                       "scalar": "To pay your "
   10
   11
                       "variable": "step_919"
   13
   14
   15
                       "scalar": " bill, you can head to our [link]
   16
      (https://connectme/onlineportal.com)."
   17
```

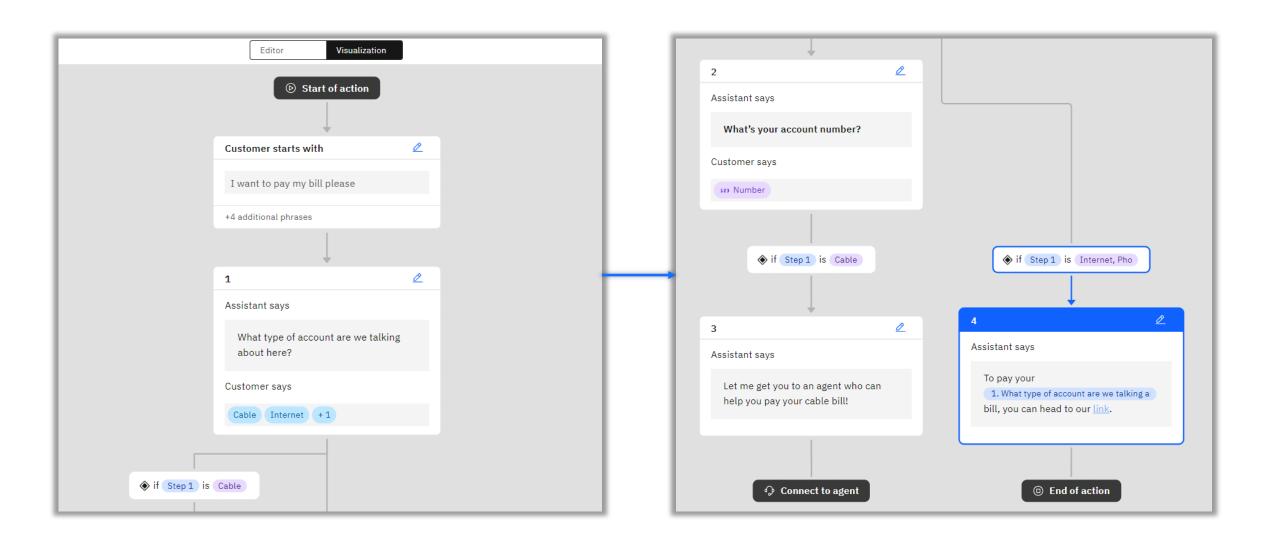
End the Action





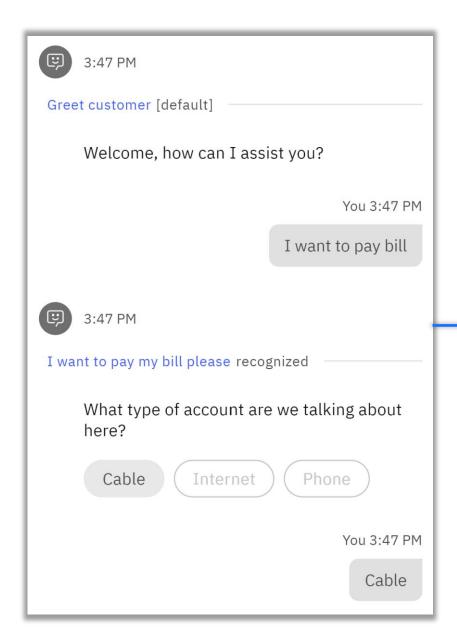
Use Visualization Tool

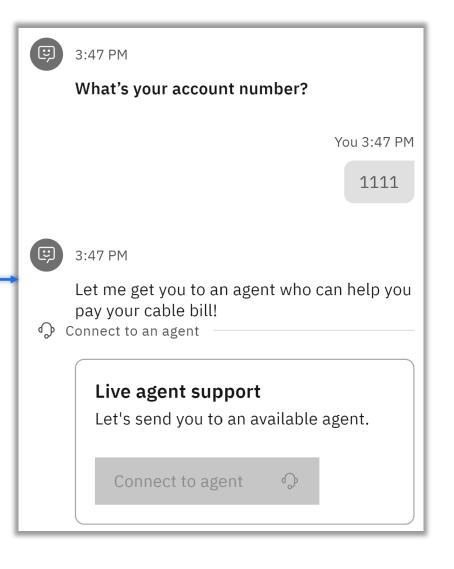




Preview Your Action









Integrate with Db2

Have you ever used Mapepire?



- 1. Yes, mapepire-java
- 2. Yes, mapepire-python
- 3. Yes, mapepire-js
- 4. Yes, more than one of the above SDKs
- 5. No, but heard of it
- 6. No, never heard of it

What is Mapepire?



Welcome to Mapepire

A cloud-friendly IBM i database access layer, built with simplicity and performance in-mind.

Find out more →

Pick your client language (i)

Super easy to use way to access Db2 for i from any application









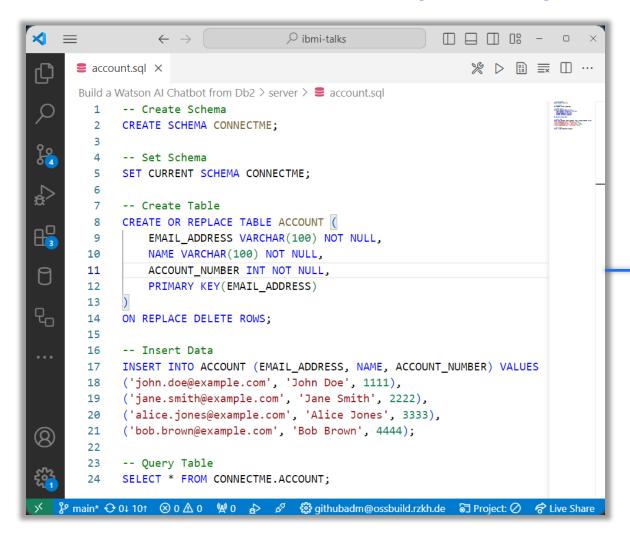




Create Table



Video Demo: https://www.youtube.com/watch?v=RmDchLsPc18



	EMAIL_ADDRESS	NAME	ACCOUNT_NUMBER
	john.doe@example.com	John Doe	1111
	jane.smith@example.com	Jane Smith	2222
	alice.jones@example.com	Alice Jones	3333
	bob.brown@example.com	Bob Brown	4444
	Loaded 4. End of data.		064241/QUSER/QZDASOINIT

Create REST Server



🖺 Server Source Code: <u>server.js</u>

```
JS server.is X
home > GITHUBADM > connectme > server > JS server.js > ♦ createSQLJob
       app.get('/accounts', async (req, res) => {
25
          // Extract and verify required query parameters
 26
          const { EMAIL_ADDRESS } = req.query;
 27
 28
          let job;
 29
           try {
 30
              // Create SQL job
 31
              job = await createSQLJob();
 32
 33
              // Execute query
 34
              const query = `SELECT * FROM CONNECTME.ACCOUNT WHERE EMAIL_ADDRESS = ?';
 35
              const parameters = [EMAIL ADDRESS];
 36
              const result = await job.execute(query, { parameters: parameters });
 37
 38
              // Check result
 39
              if (result.success && result.data.length > 0) {
 40
                  res.json({
 41
                      EMAIL ADDRESS: result.data[0].EMAIL ADDRESS,
 42
                      NAME: result.data[0].NAME,
 43
                      ACCOUNT_NUMBER: result.data[0].ACCOUNT_NUMBER,
 44
                      MESSAGE: 'Successfully retrieved account.'
 45
                  });
 46
              } else {
 47
                  res.status(500).json({
 48
                      MESSAGE: Failed to retrieve account with email address ${EMAIL ADDRESS}.
 49
 50
 51
           } catch (error) {
 52
              res.status(500).json({
 53
                  MESSAGE: 'Internal server error.'
 54
55
           } finally {
 56
              await job.close();
57
 58
      });
```

SELECT * FROM CONNECTME.ACCOUNT WHERE EMAIL ADDRESS = ?

```
JS server.js X
Build a Watson Al Chatbot from Db2 > server > JS server.js > ...
      app.put('/accounts', async (req, res) => {
 72
          // Extract and verify required body parameters
 73
           const { EMAIL_ADDRESS, NAME, ACCOUNT_NUMBER } = req.body;
 74
 75
          let job;
 76
           try {
 77
              // Create SQL job
 78
              job = await createSQLJob();
 79
 80
              // Execute query
 81
               const query = `UPDATE CONNECTME.ACCOUNT SET NAME = ?, ACCOUNT_NUMBER = ? WHERE EMAIL_ADDRESS = ?`;
 82
               const parameters = [NAME, ACCOUNT NUMBER, EMAIL ADDRESS];
 83
               const result = await job.execute(query, { parameters: parameters });
 84
 85
              // Check result
 86
              if (result.success && result.update_count === 1) {
 87
 88
                       MESSAGE: `Successfully updated account`
 89
                  });
 90
                else {
 91
                   res.status(500).json({
 92
                       MESSAGE: `Failed to update account with email address ${EMAIL ADDRESS}.`
 93
                   });
 94
 95
           } catch (error) {
 96
              res.status(500).json({
 97
                   MESSAGE: `Internal server error.`
 98
              });
 99
           } finally {
100
               await job.close();
101
102
       });
```

UPDATE CONNECTME.ACCOUNT SET NAME = ?, ACCOUNT_NUMBER = ? WHERE EMAIL_ADDRESS = ?

Create Service Commander Definition to Start Server



Service Commander

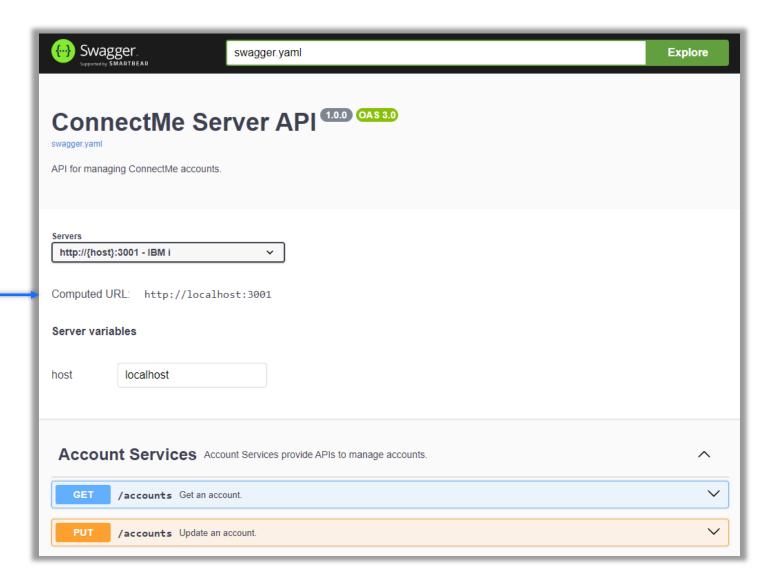
A utility for managing services and applications running on IBM i

```
## Start server
sc start connect-me.yaml
## Stop server
sc stop connect-me.yam1
## Check server status
sc check connect-me.yaml
```

Create OpenAPI Specification (in JSON format)



```
{} swagger.json X
Build a Watson AI Chatbot from Db2 > server > swagger > {} swagger.json > {} paths > {} /accounts > {} put
         "openapi": "3.0.3",
         "info": {
           "title": "ConnectMe Server API",
           "description": "API for managing ConnectMe accounts.",
           "version": "1.0.0"
         "servers": [
 10
             "url": "http://{host}:3001",
 11
             "description": "IBM i",
 12
             "variables": {
 13
               "host": {
 14
                 "default": "localhost",
                 "description": "Host name of IBM i"
 15
 16
 17
 18
 19
 20
         "tags": [
 21
 22
             "name": "Account Services",
 23
             "description": "Account Services provide APIs to manage accounts."
 24
 25
         ],
 26
         "paths": {
 27
           "/accounts": {
 28
 29
               "summary": "Get an account.",
 30
               "tags": [
 31
                 "Account Services"
 32
 33
               "parameters": [
 34
 35
                   "name": "EMAIL ADDRESS",
 36
                   "description": "The email address associated with the account.",
 37
                   "required": true,
 38
                   "in": "query",
 39
                   "schema": {
 40
                     "type": "string"
 41
 42
```



Test OpenAPI Specification





```
Curl
curl -X 'PUT' \
   'http://ossbuild.rzkh.de:3001/accounts' \
   -H 'accept: application/json' \
   -H 'Content-Type: application/json' \
   -d '{
   "EMAIL_ADDRESS": "john.doe@example.com",
   "NAME": "Jonathan Doe",
   "ACCOUNT NUMBER": 1111
Request URL
 http://ossbuild.rzkh.de:3001/accounts
Server response
Code
             Details
200
            Response body
               "MESSAGE": "Successfully updated account"
                                                                 Download
```

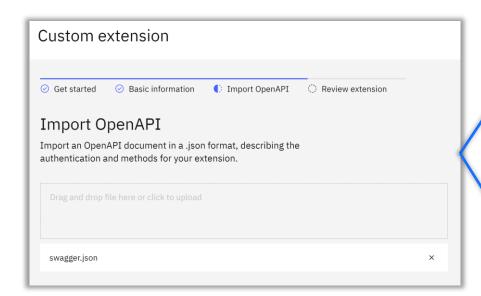
Build Custom Extension

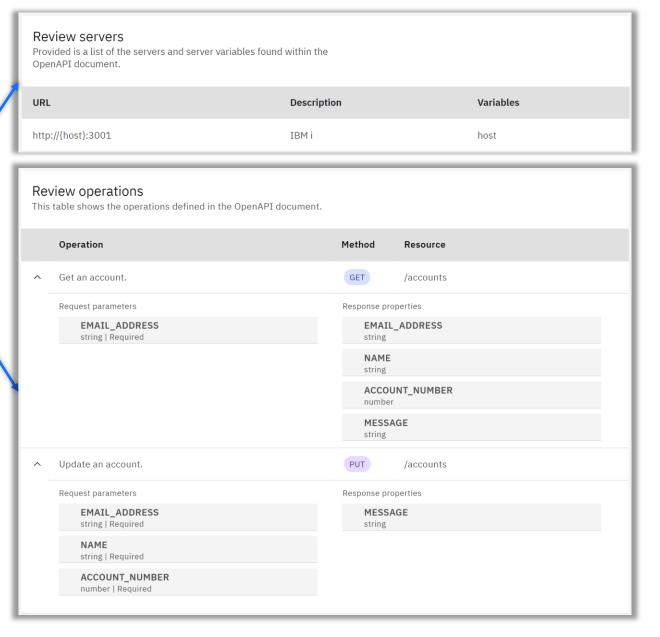


Custom extension	
	view extension
Basic information	
Having a clear name and detailed description will help provide context and clarity to what your extension does.	
Extension name	
ConnectMe Server	_
Extension description 52/12	28
This extension integrates with the ConnectMe server.	
	<u>/ı</u>

Import OpenAPI Specification

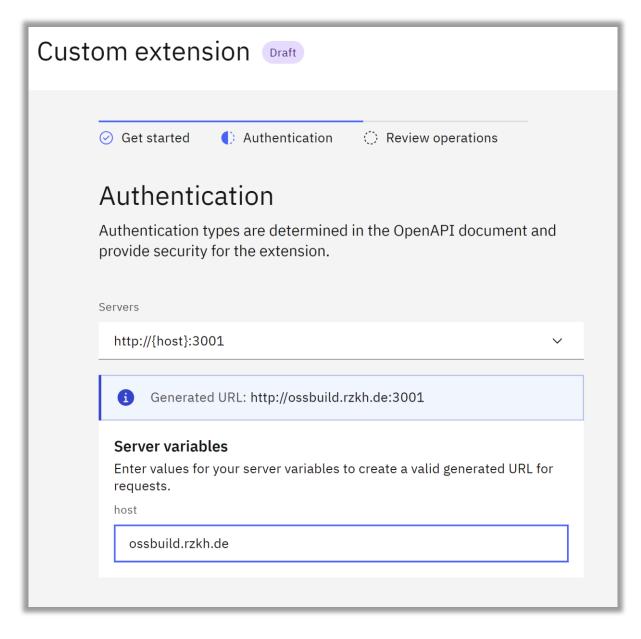






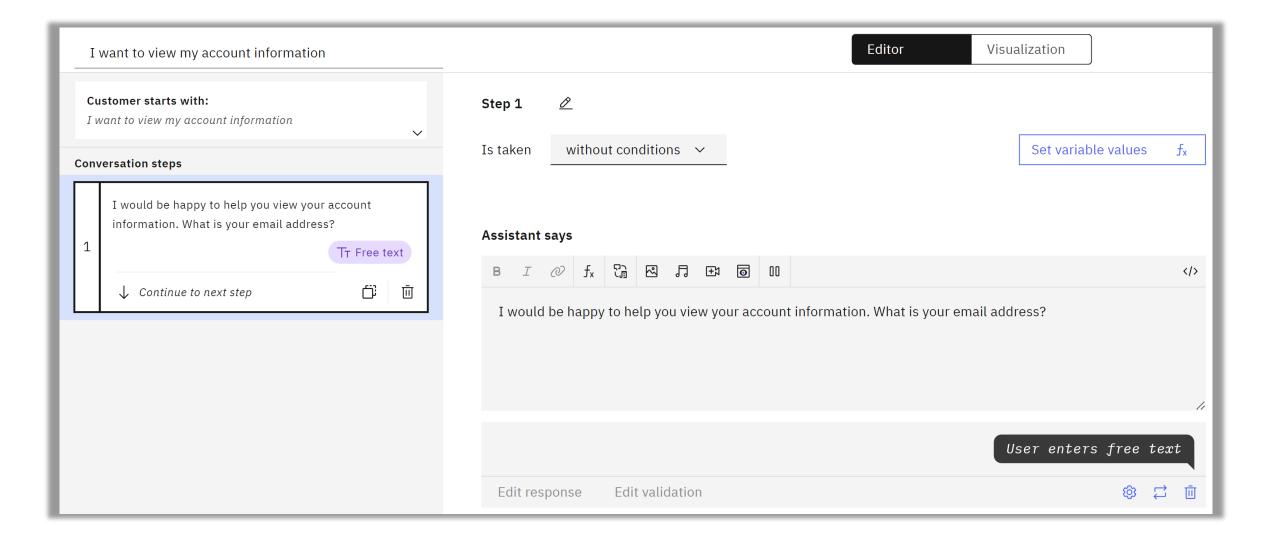
Add Extension to Watsonx Assistant





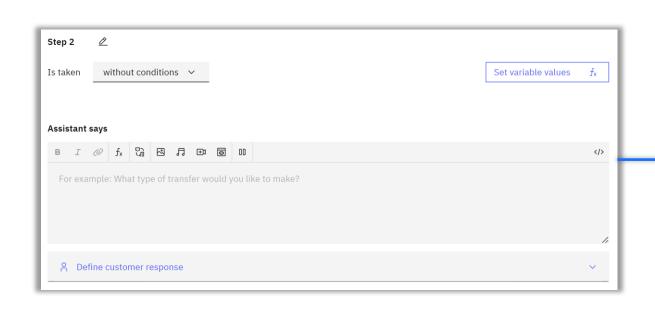
Create New Action with Initial Step

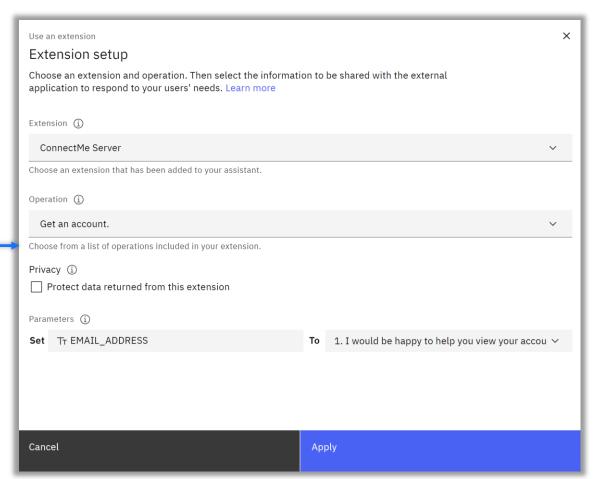




Create Step with Extension



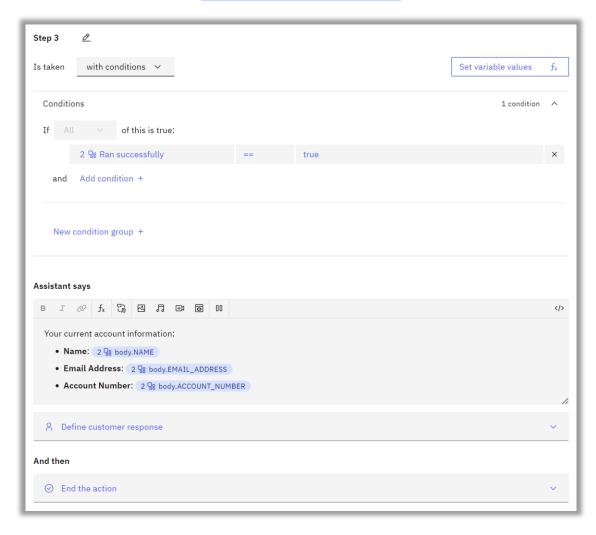




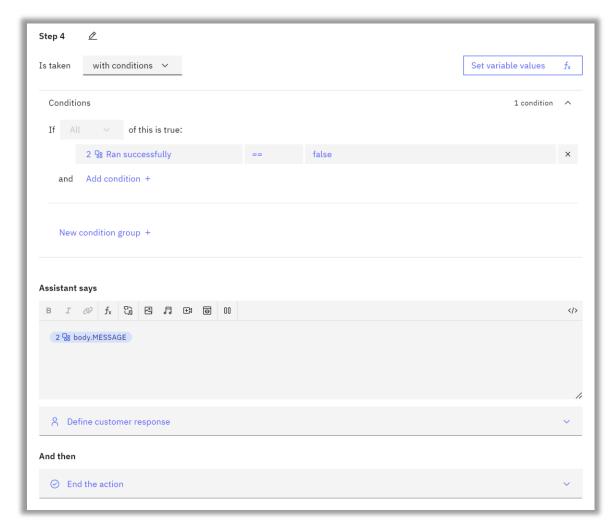
Create Success and Failure Steps



Extension Success

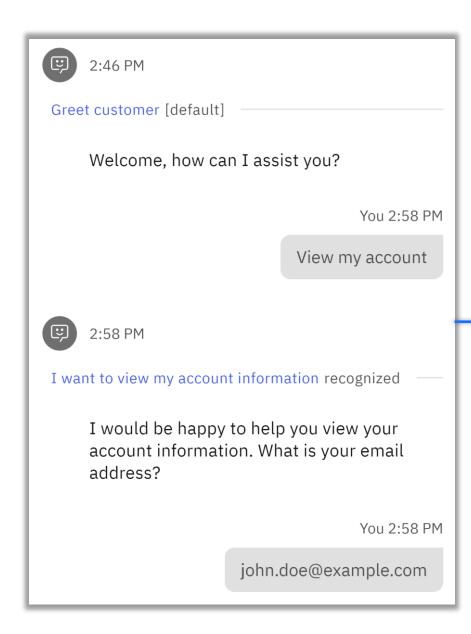


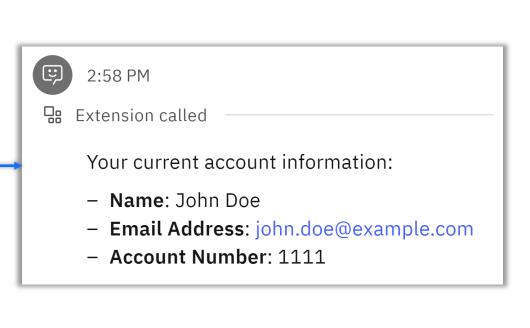
Extension Failure



Preview Your Action

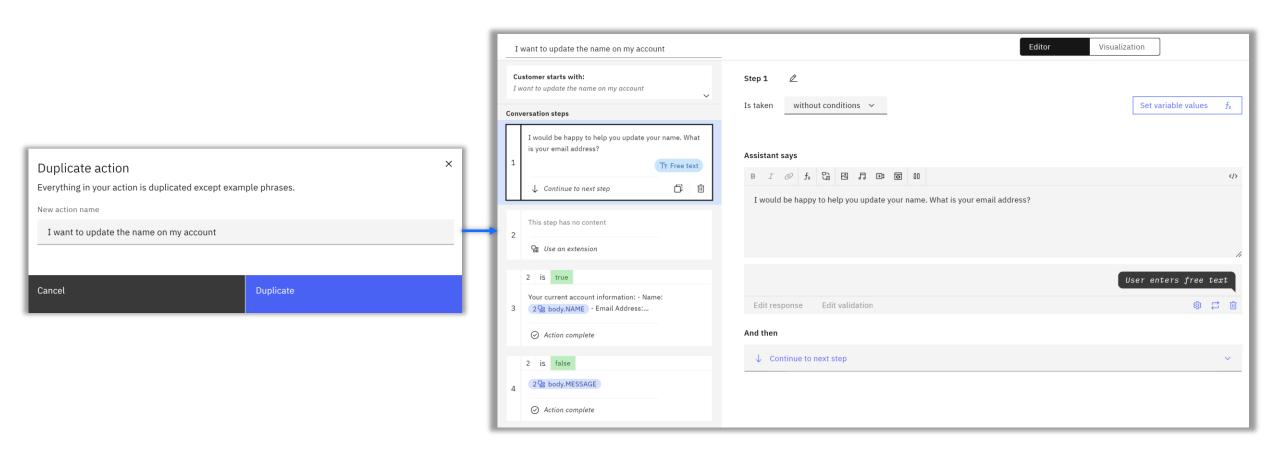






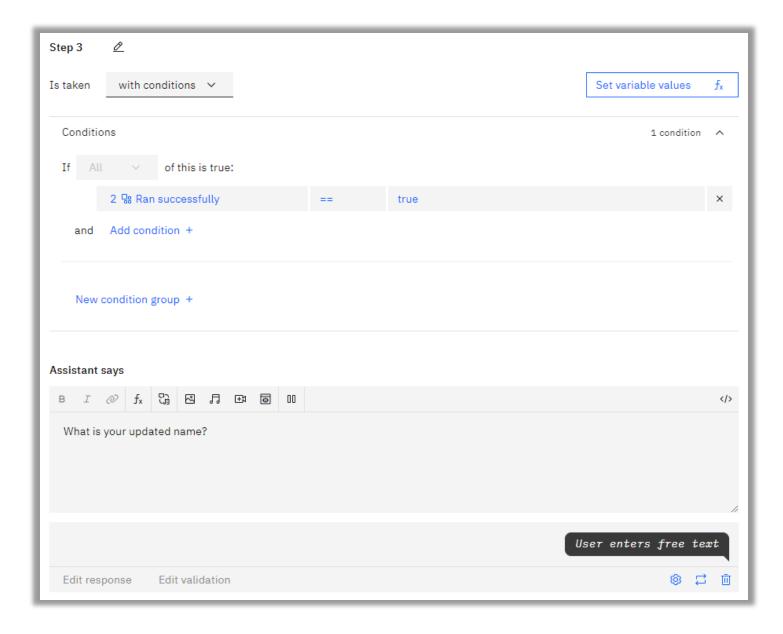
Duplicate Action and Update Phrase + Initial Step





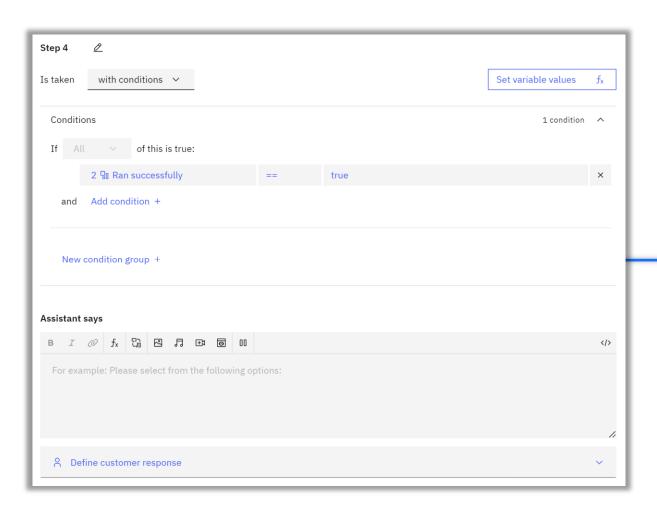
Create Clarification Step

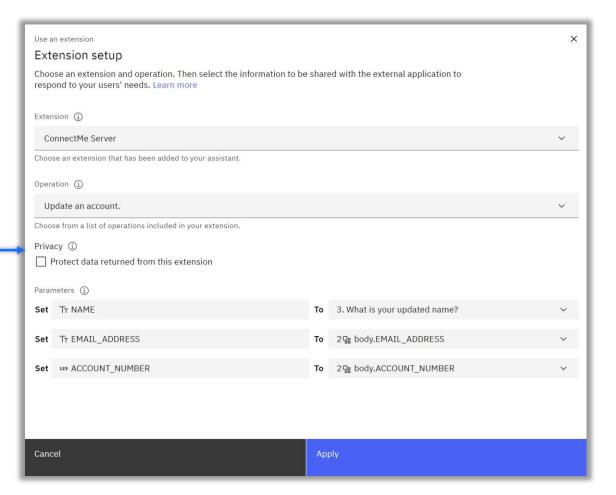




Create Step with Extension

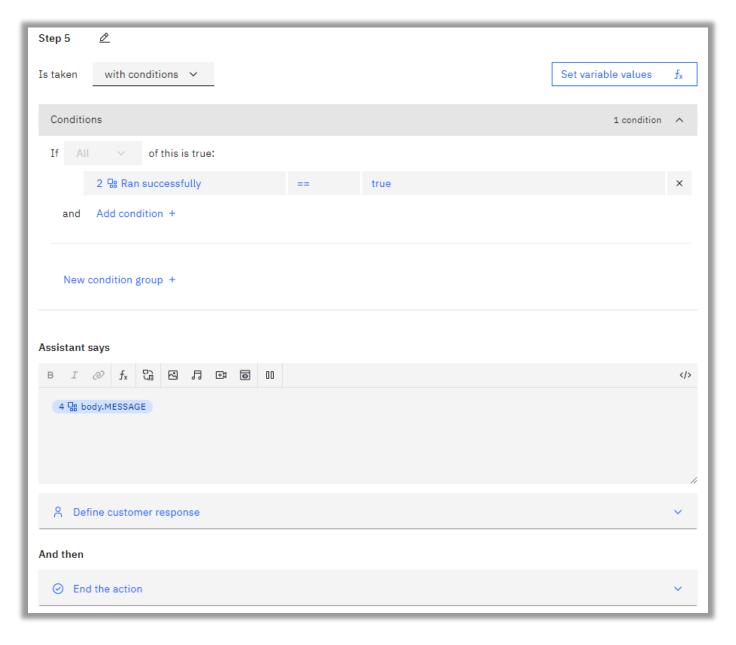






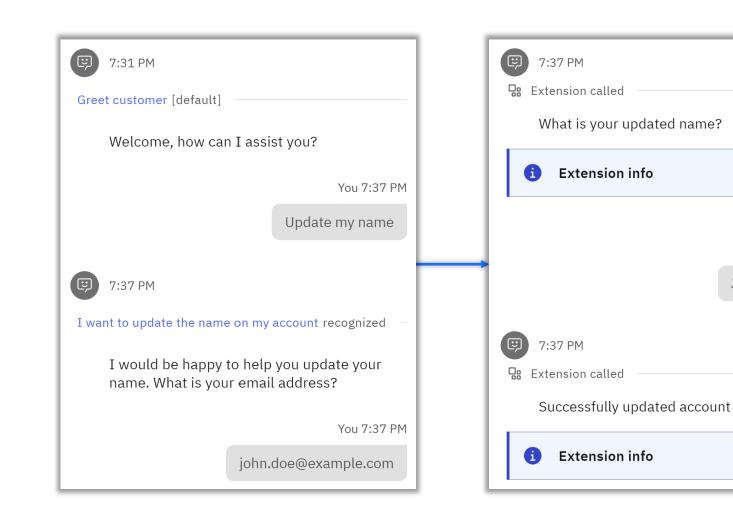
Create Final Step

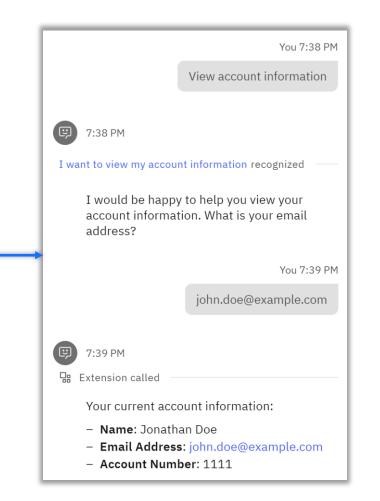




Preview Your Action







Inspect

You 7:37 PM

Jonathan Doe

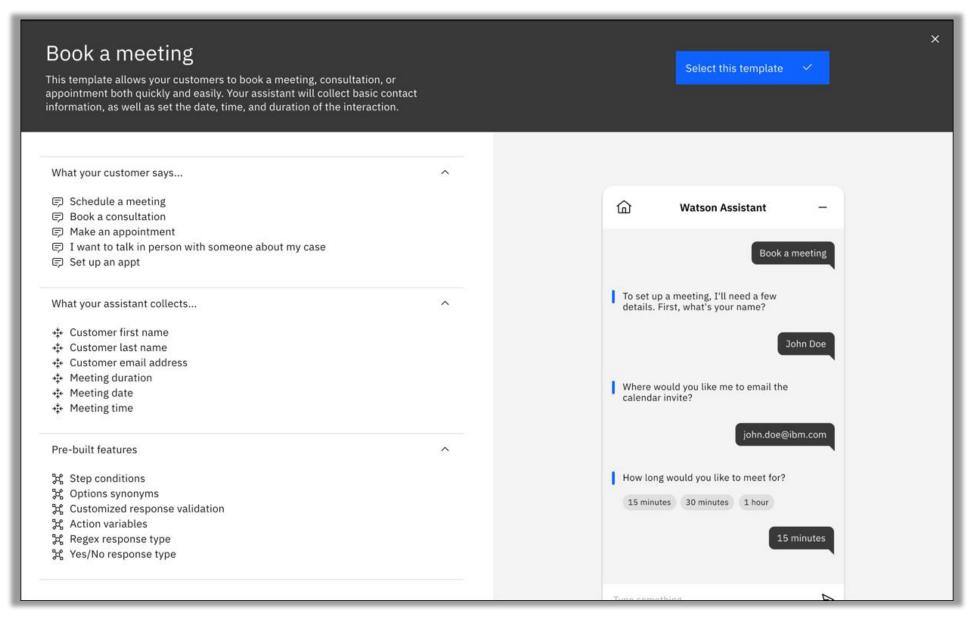
Inspect



Next Steps

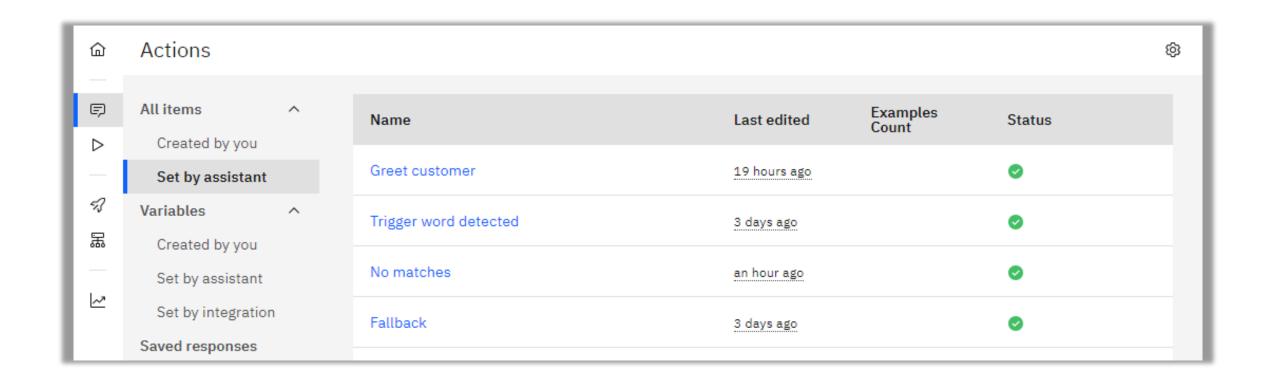
Add More Actions with Templates





Adjust Default Actions



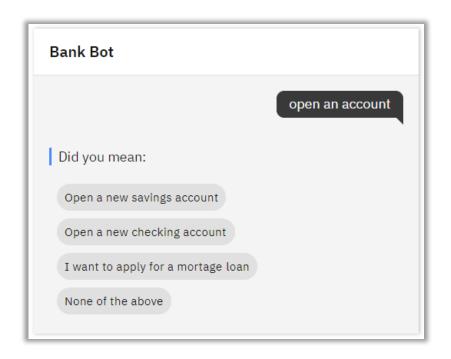


Adjust Global Settings

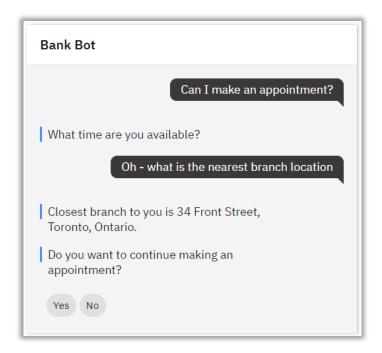


Clarifying Questions

Show options when multiple actions seem to match what the customer wants

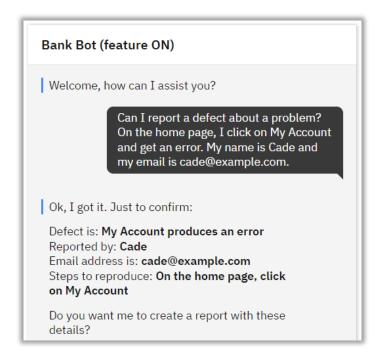


Change Conversation Topics Switch to other actions when customers ask about other topics



Intelligent Information Gathering

The assistant retrieves and uses prior inputs to streamline the conversation

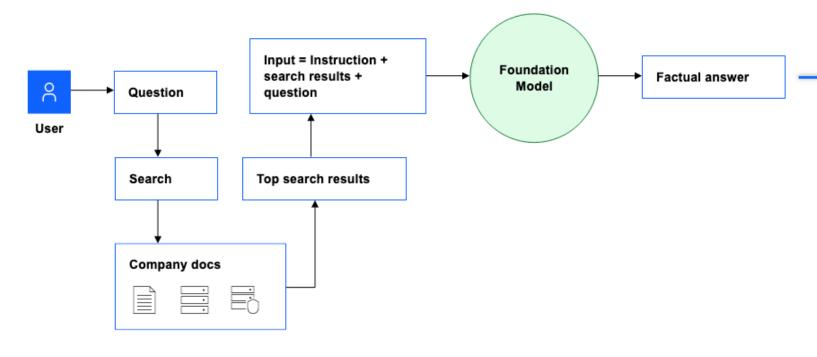


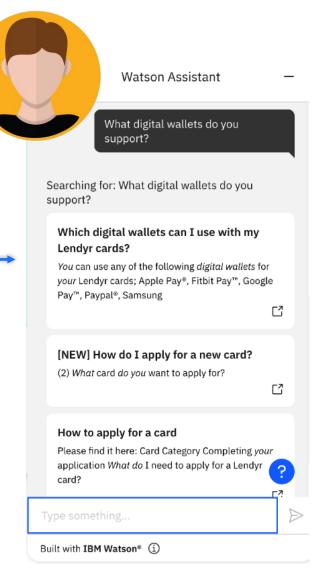
Search Integration with Watson Discovery



Search Integration

Extend the scope of what your assistant can answer by searching documents and websites.





Takeaways



01

Building a chatbot with Watsonx Assistant is easy!

02

Planning is critical and building can be an incremental process.

03

Integrating your chatbot with Db2 is as simple as creating a REST server with Mapepire.



Any Questions?

