Build a Watson AI Chatbot from 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



Overview of Watsonx Assistant

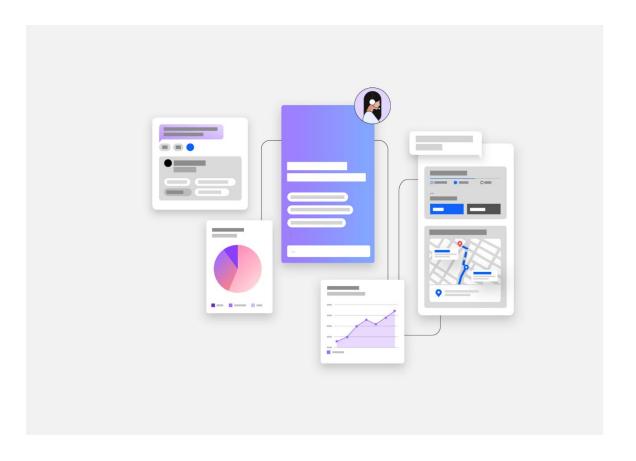
What is Watsonx Assistant?



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

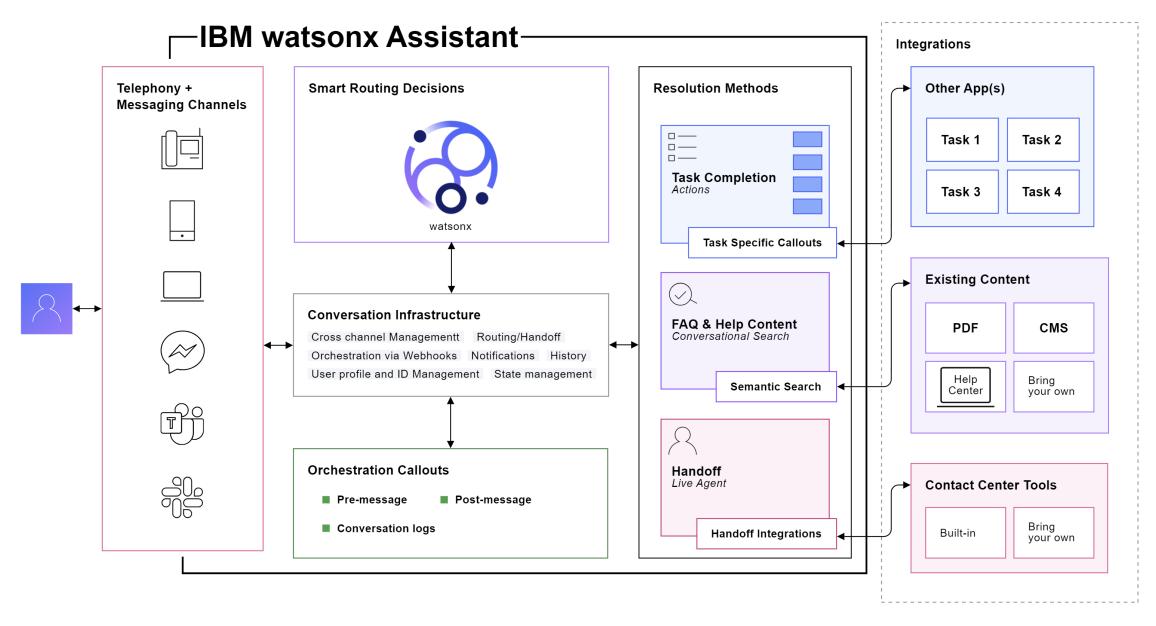
Use Watsonx Assistant to build your own branded live chatbot

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



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?

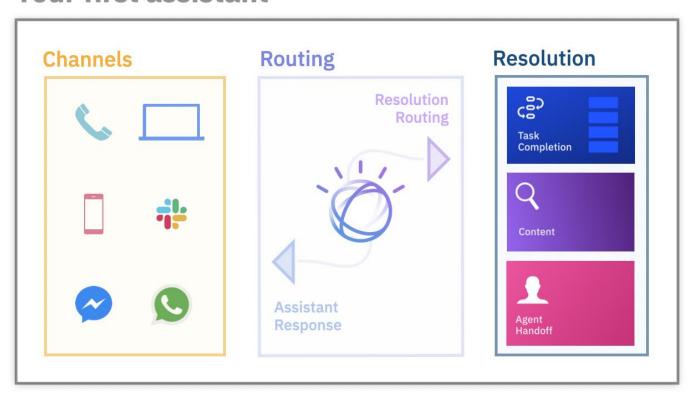
4. Collect content sources

 What help content is available to customers today?

5. Plan handoff strategy

 How should customers be routed to human agents?

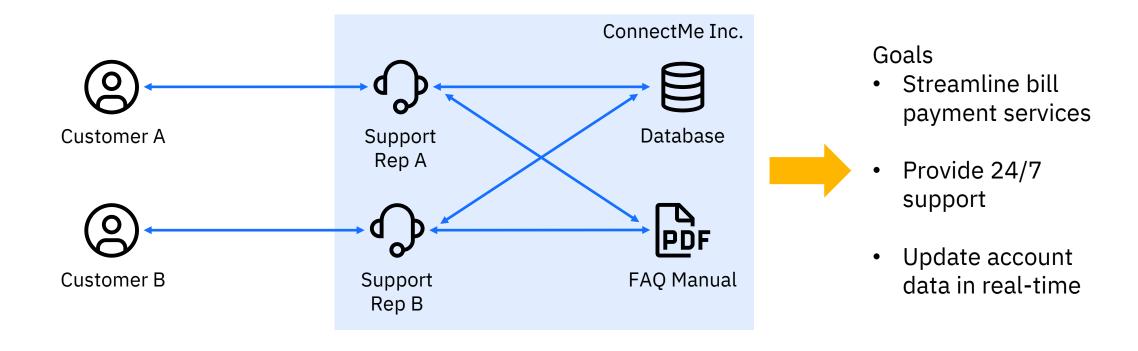
Your first assistant



Demo Example – ConnectMe Inc.



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



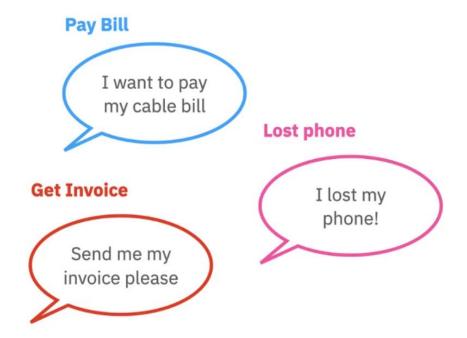


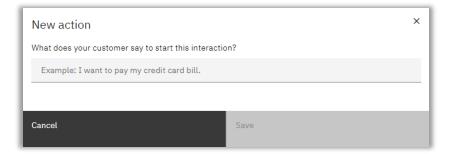
Terminology You Should Know

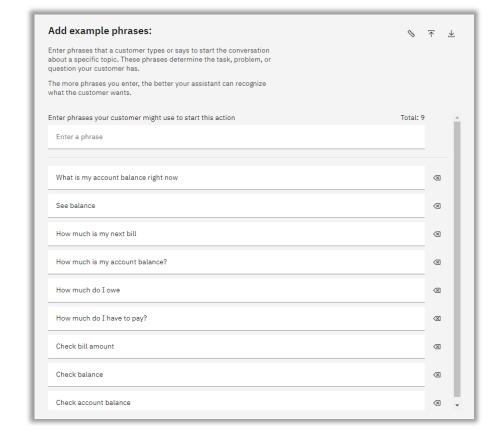
What are Actions and Phrases?

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



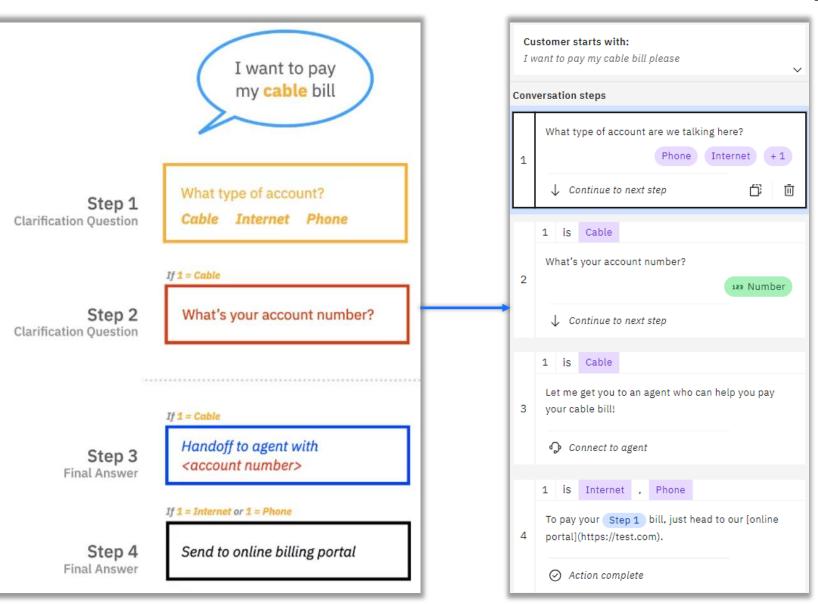




What are Steps and Conditions?

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

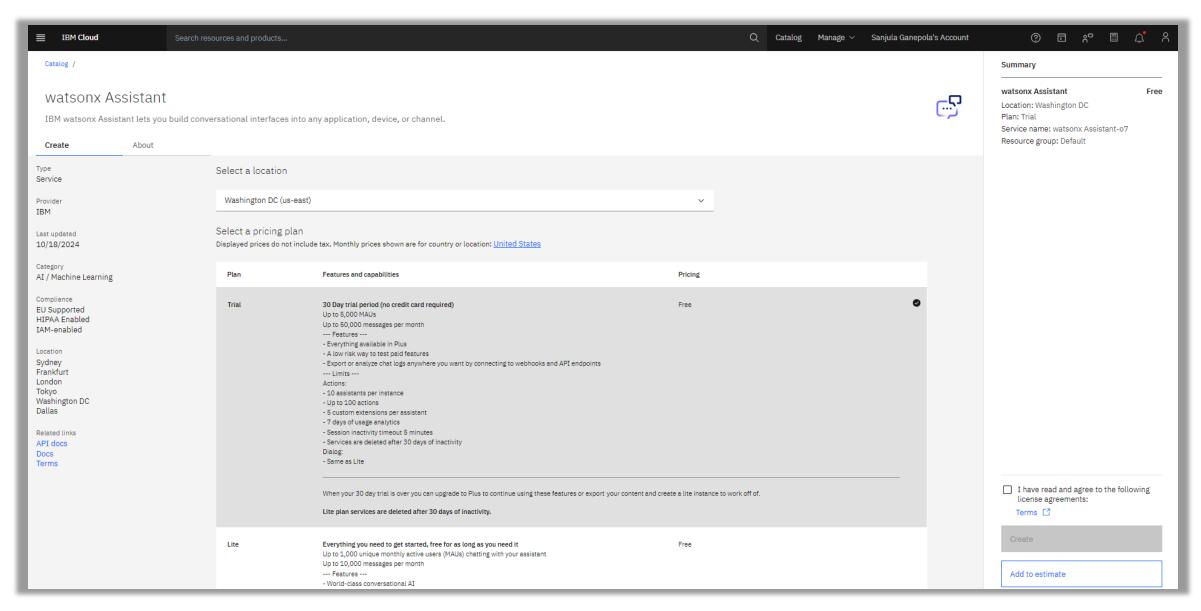




Let's Build a Chatbot

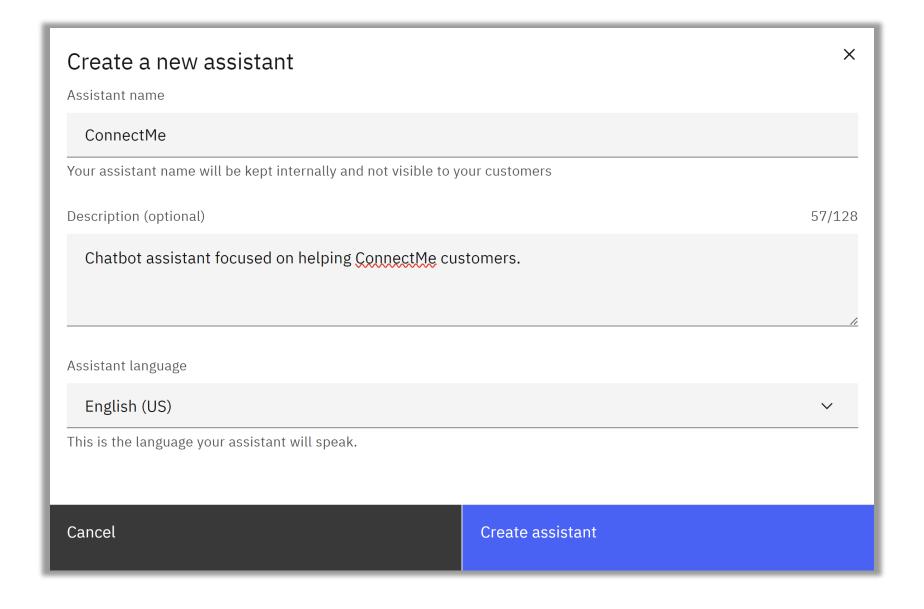
Create Watsonx Assistant Instance





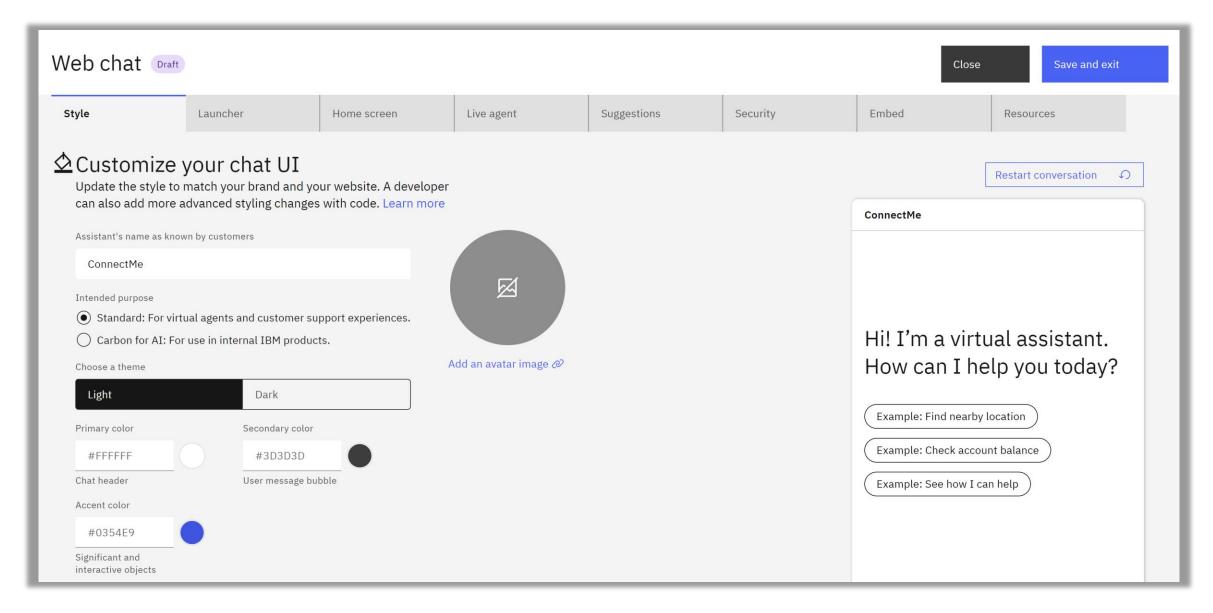
Create Watsonx Assistant





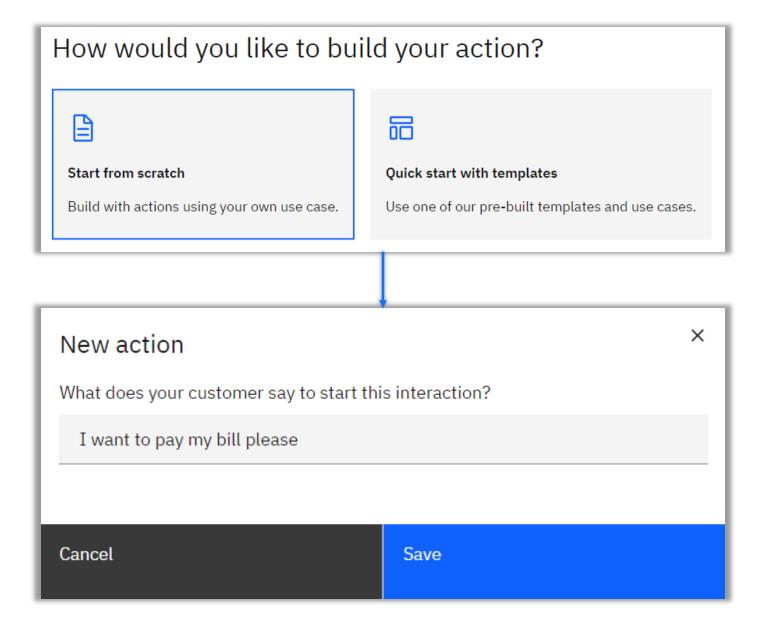
Customize Web Chat





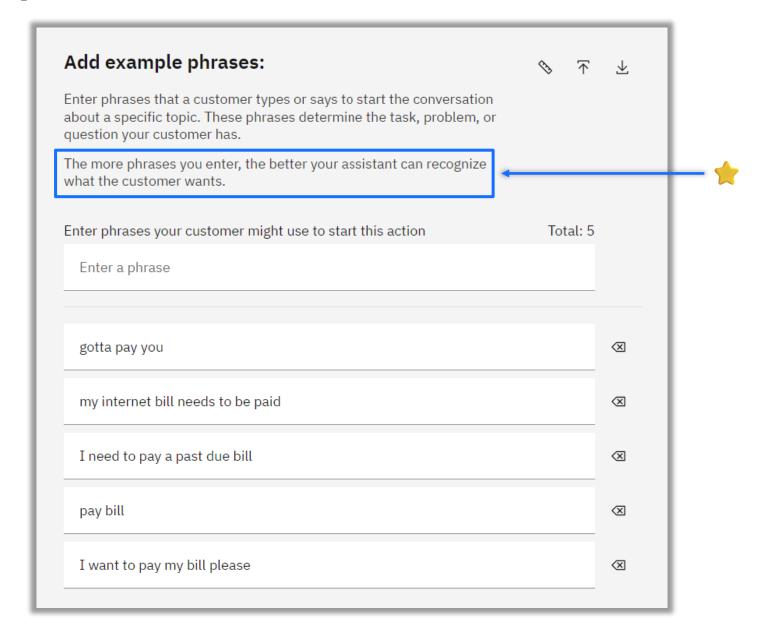
Create Action From Scratch and Set Initial Phrase





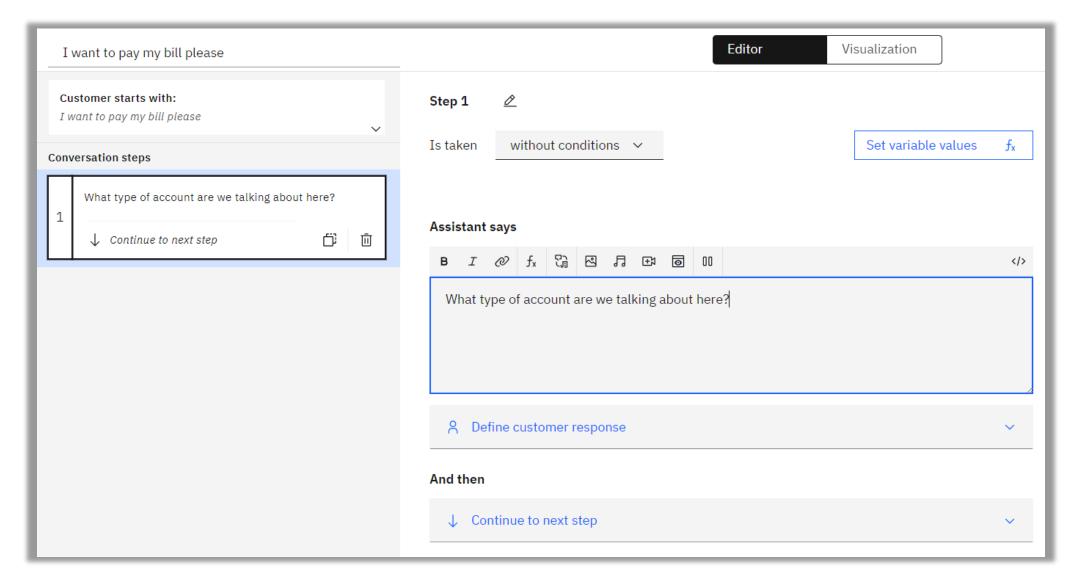
Add More Example Phrases





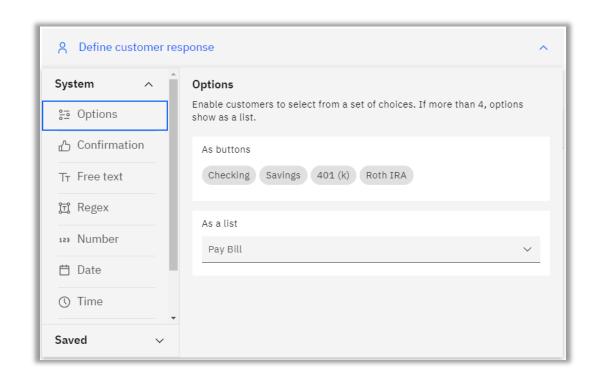
Create First Step

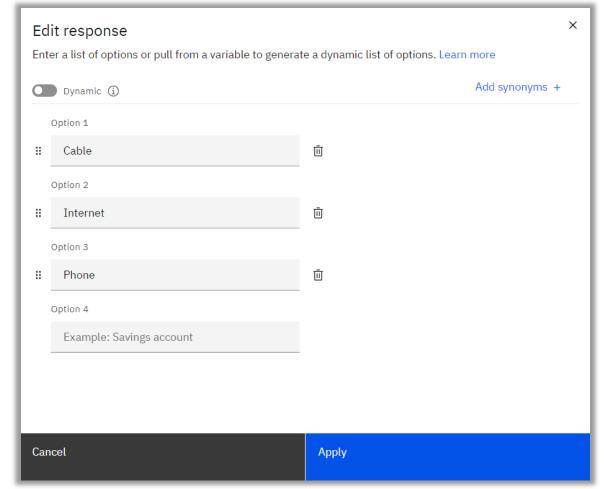




Add Custom Response Options

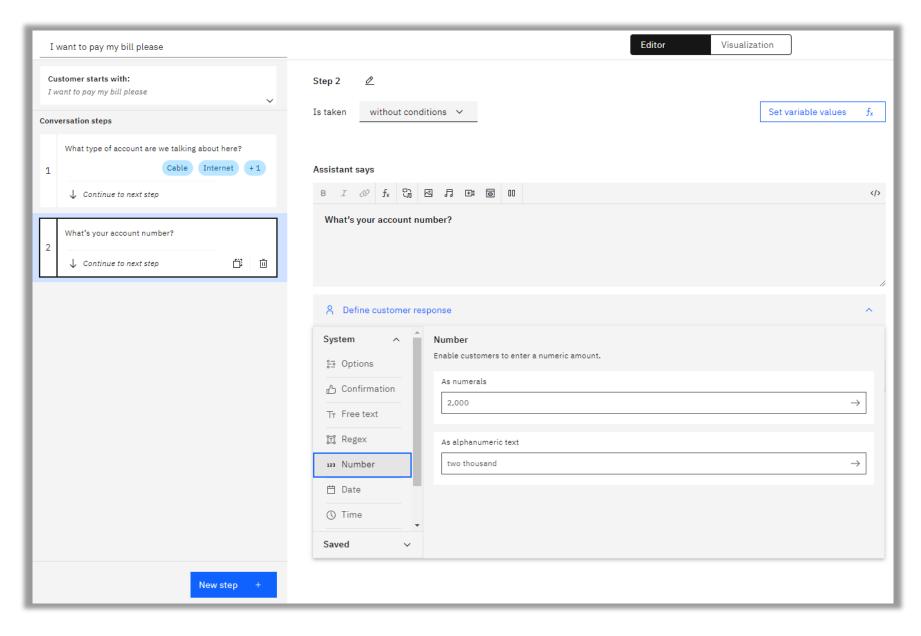






Create Another Clarification Step





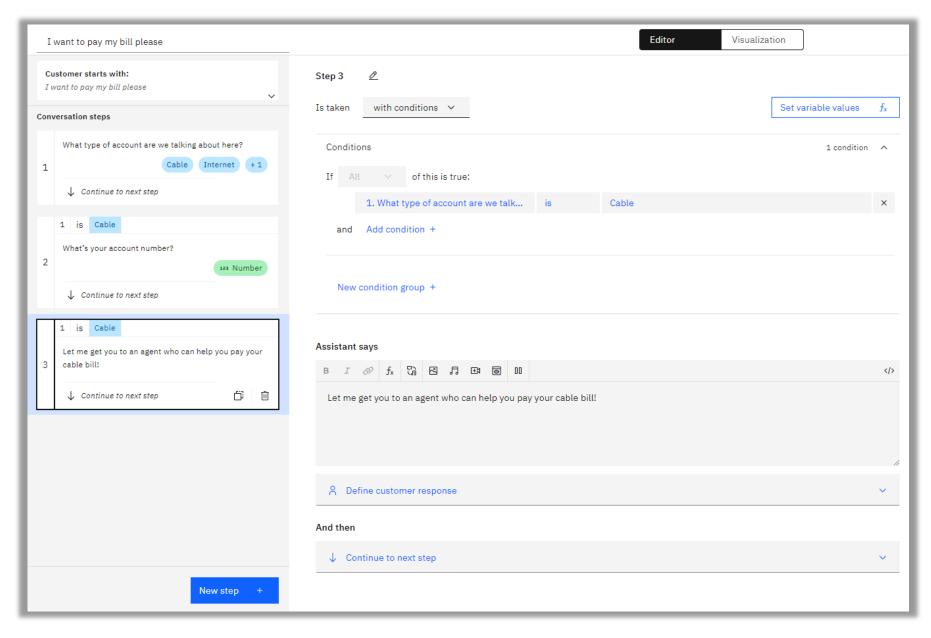
Add Condition



Step 2	<u>@</u>				
Is taken	with conditions 🗸			Set variable values	fx
Conditio	ns			1 condition	^
If All	of this is true:				
	1. What type of account are we tal	is	Cable		×
and Add condition +					
New o	condition group +				

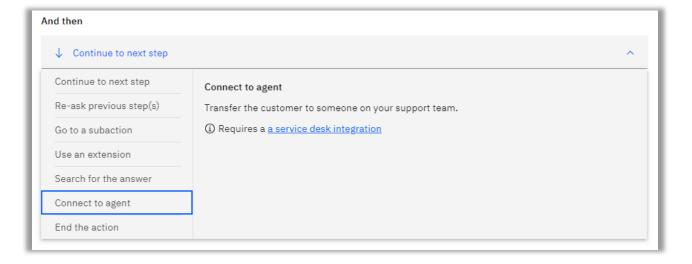
Create an Agent Handoff Step

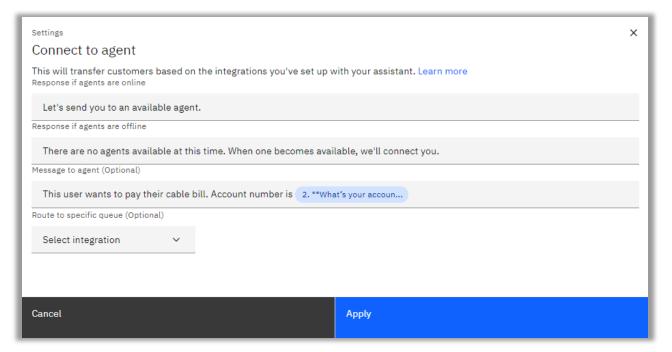




Connect to Agent

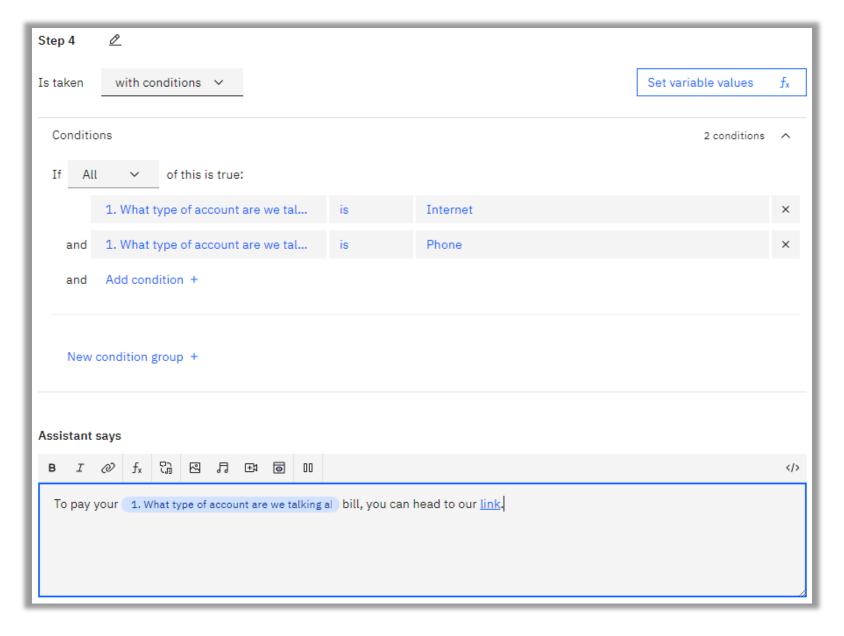






Create Final Response Step





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
```

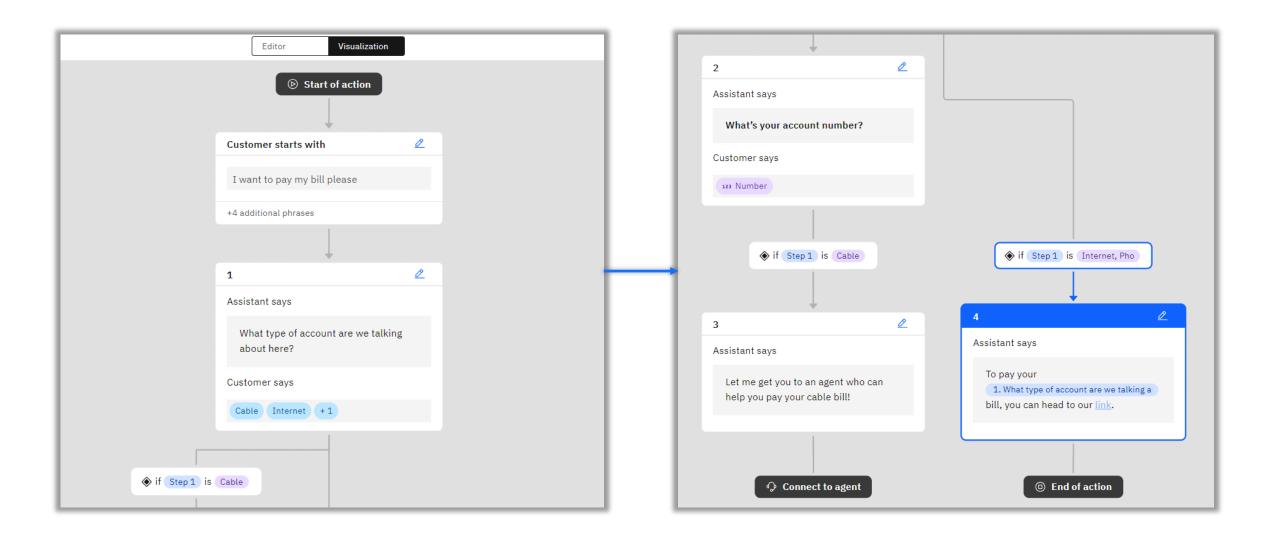
End the Action





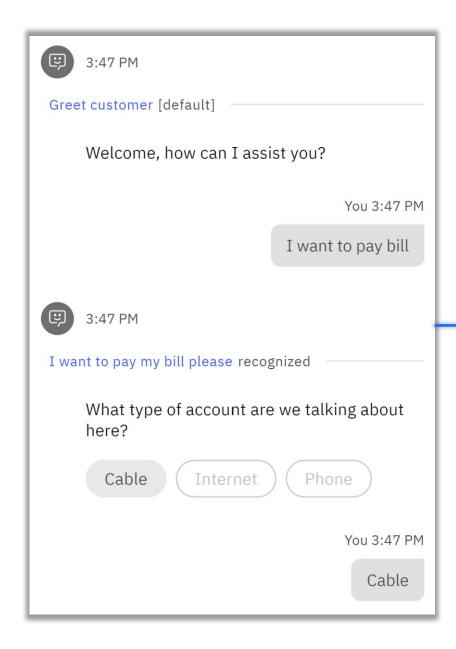
Use Visualization Tool

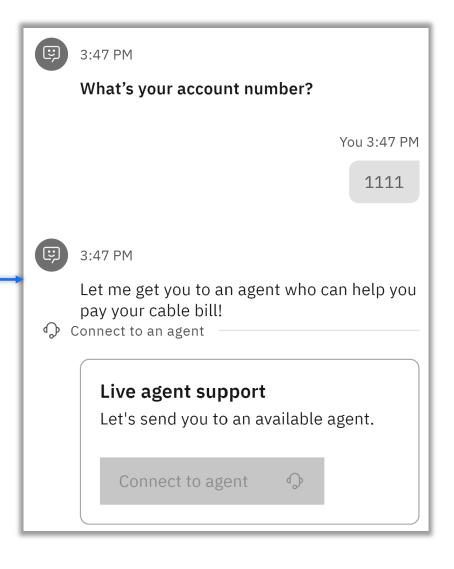




Preview Your Action





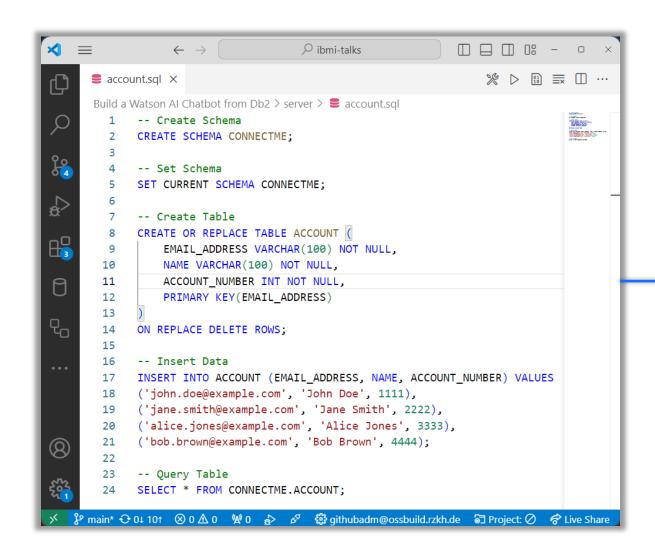




Integrate with Db2i

Create Table





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

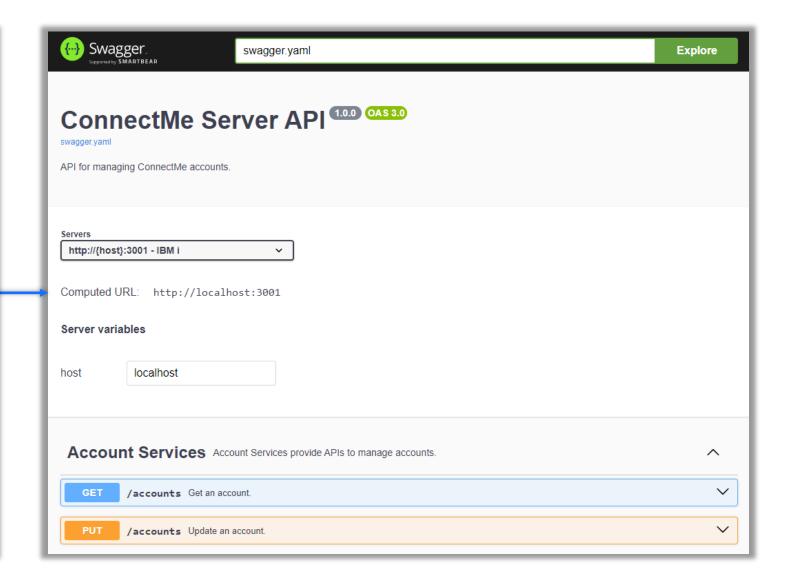
A utility for managing services and applications running on IBM i

```
## 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)

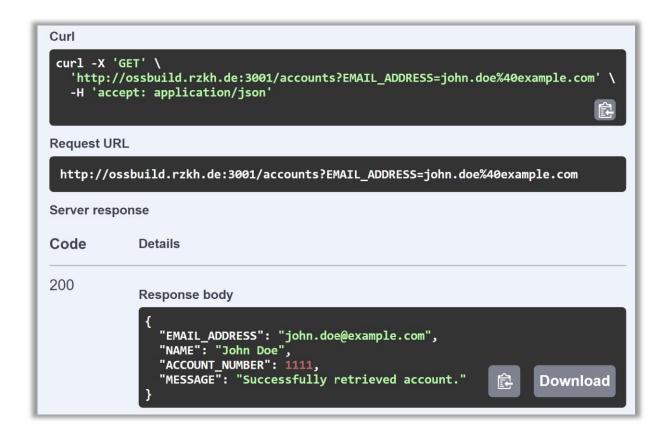


```
{} swagger.json X
Build a Watson Al Chatbot from Db2 > server > swagger > {} swagger.json > {} paths > {} /accounts > {} put
         "openapi": "3.0.3",
         "info": {
           "title": "ConnectMe Server API",
           "description": "API for managing ConnectMe accounts.",
           "version": "1.0.0"
         "servers": [
 10
             "url": "http://{host}:3001",
 11
             "description": "IBM i",
 12
             "variables": {
 13
               "host": {
 14
                 "default": "localhost",
 15
                 "description": "Host name of IBM i"
 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

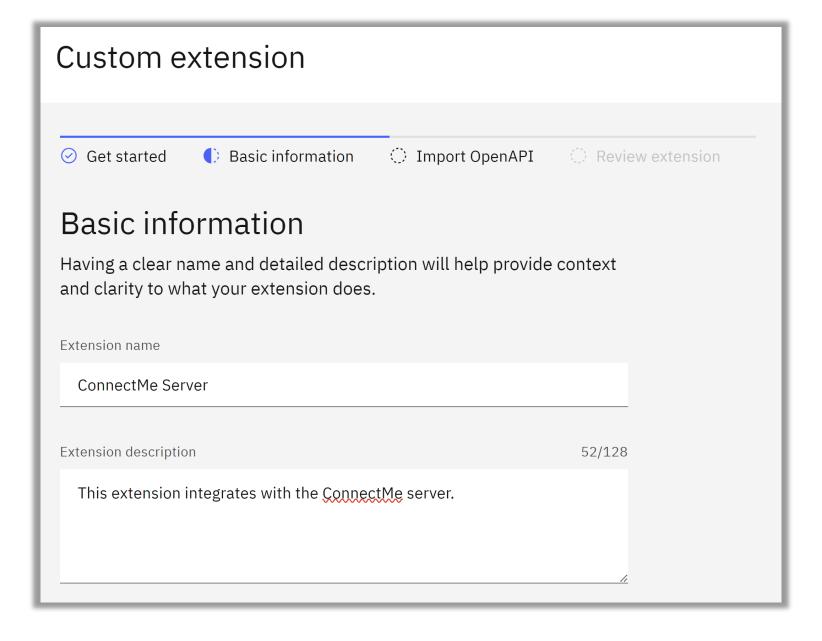




```
Curl
curl -X 'PUT' \
   'http://ossbuild.rzkh.de:3001/accounts' \
   -H 'accept: application/json' \
   -H 'Content-Type: application/json' \
   "EMAIL_ADDRESS": "john.doe@example.com",
   "NAME": "Jonathan Doe",
   "ACCOUNT NUMBER": 1111
Request URL
 http://ossbuild.rzkh.de:3001/accounts
Server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

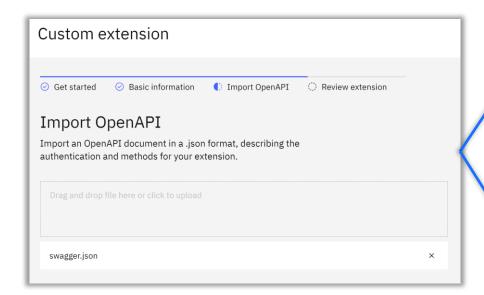
Build Custom Extension in Catelog

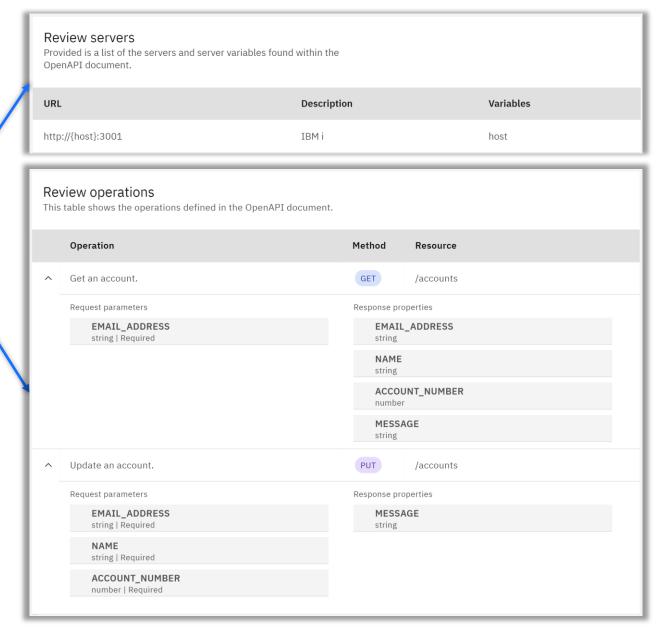




Import OpenAPI Specification

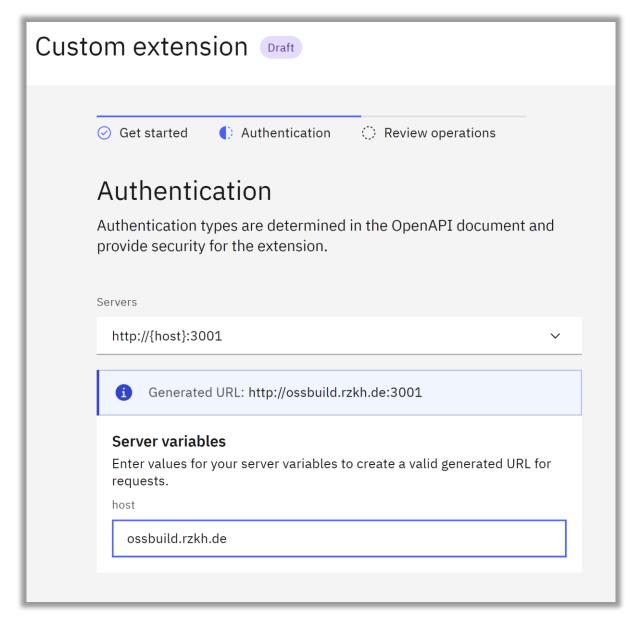






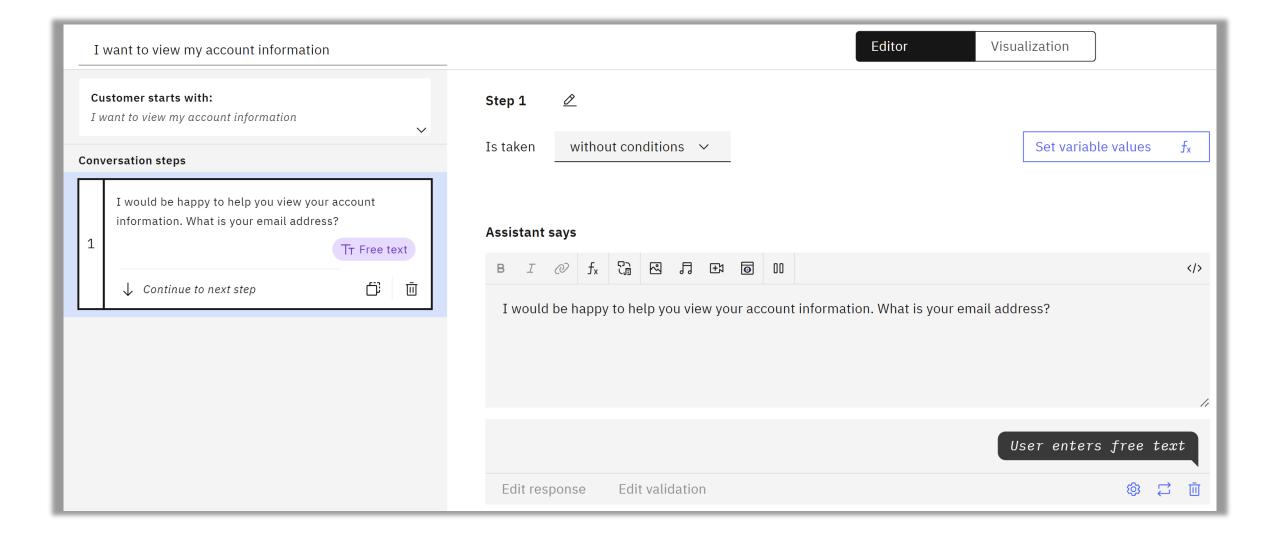
Add Extension to Watsonx Assistant





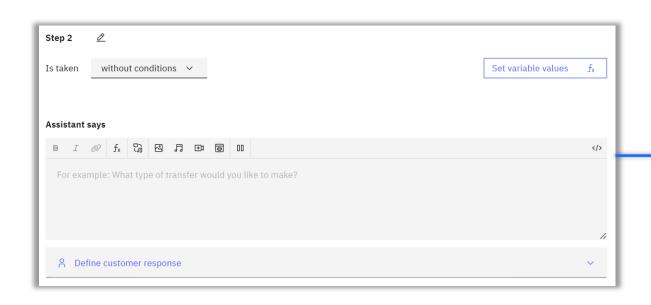
Create New Action with Initial Step

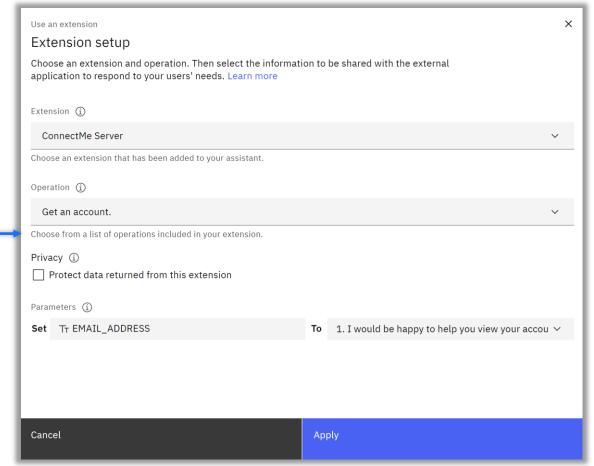




Create Step with Extension



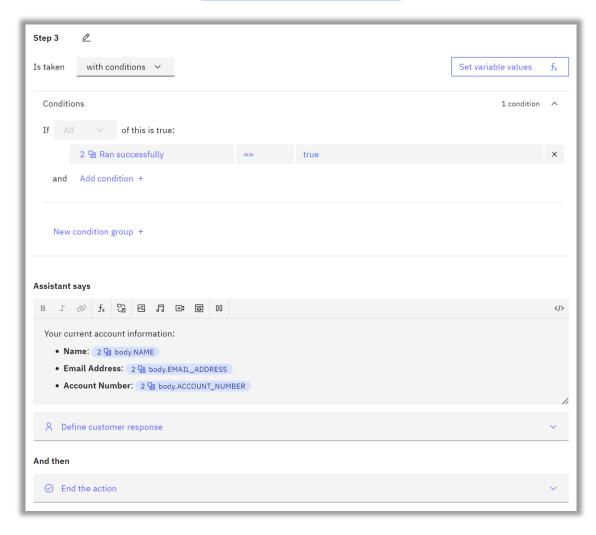




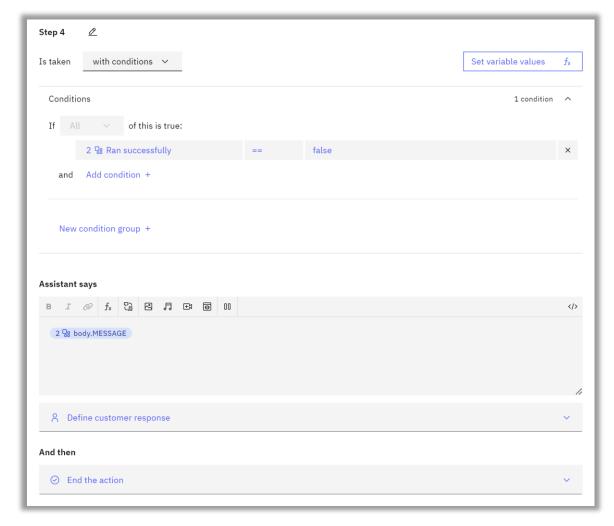
Create Success and Failure Steps



Extension Success

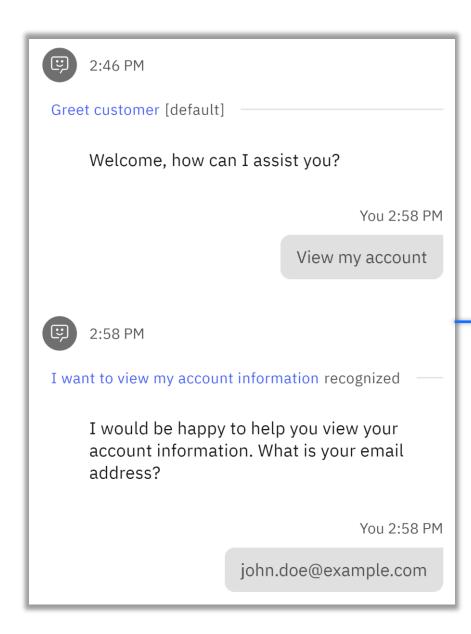


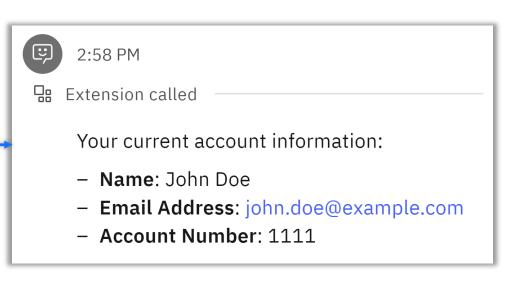
Extension Failure



Preview Your Action

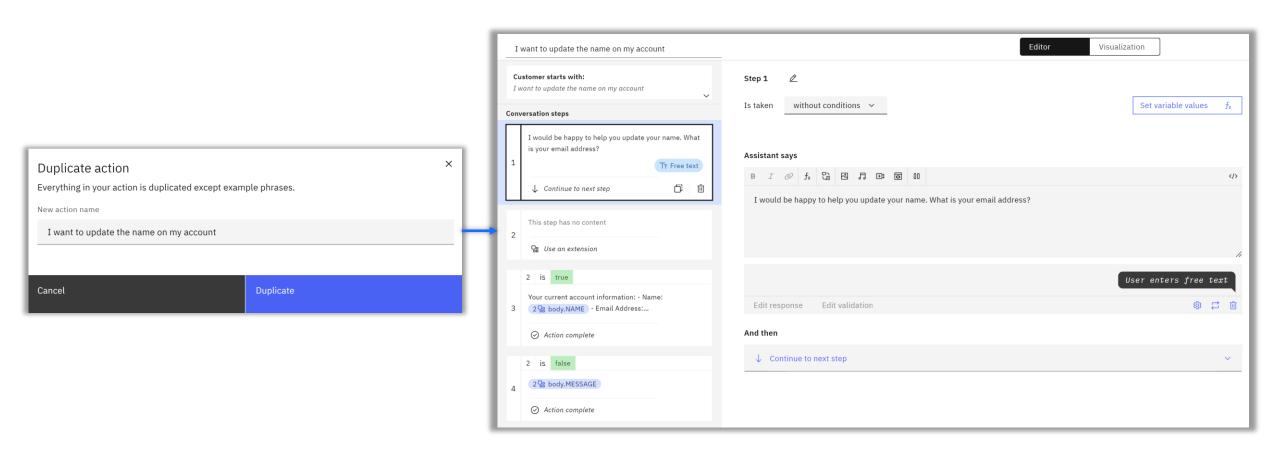






Duplicate Action and Update Phrase + Initial Step





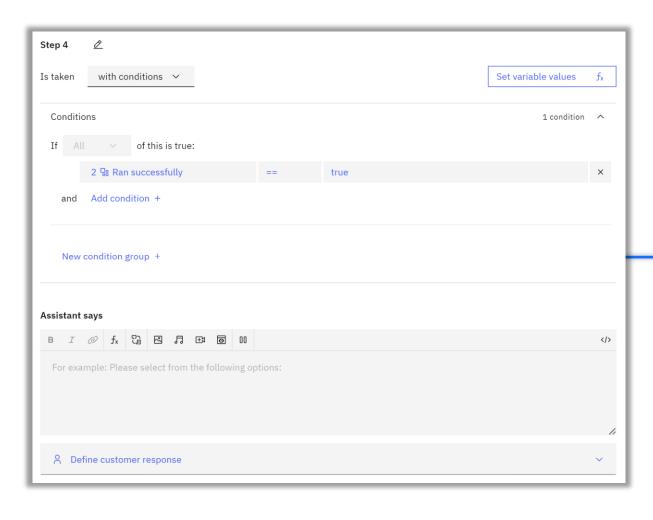
Create Clarification Step

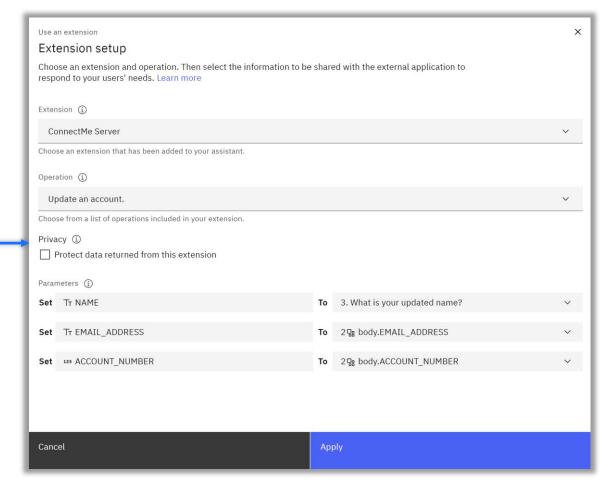


Step 3	₾					
Is taken	with conditions ∨	Set variable values	fx			
Conditio	ns	1 condition	^			
If All	v of this is true:					
	2 ™ Ran successfully == true		×			
and Add condition +						
New condition group +						
Assistant says						
в І	Ø fx C3 ⊡ ⊡ @ 00		>			
What is	your updated name?					
			h			
		ser enters free te	xt			
Edit resp	oonse Edit validation	◎ □	Ū			

Create Step with Extension







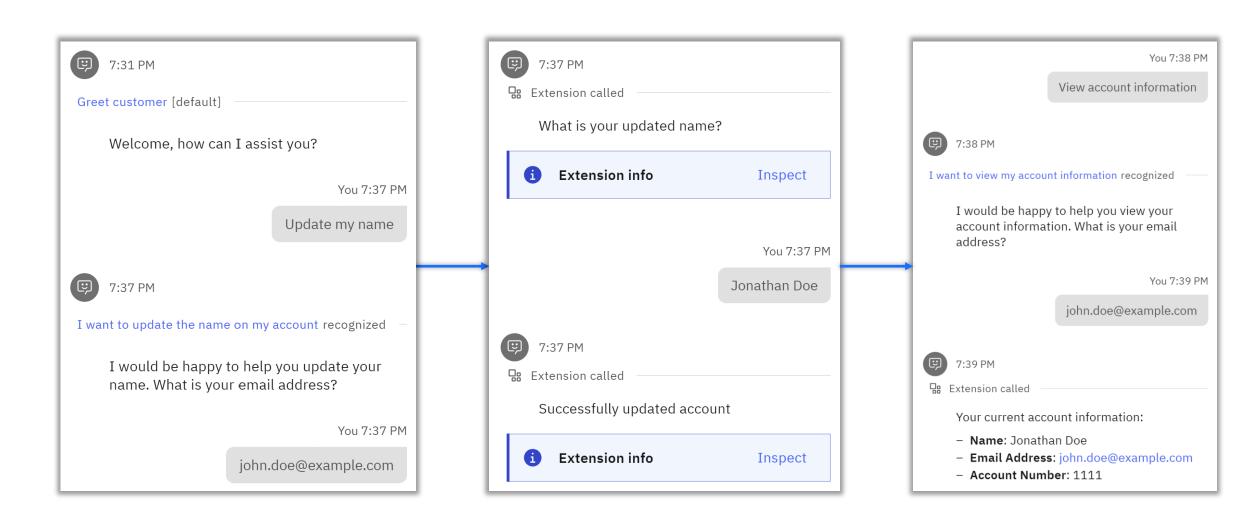
Create Final Step



Step 5 <u>@</u>						
Is taken with conditions V	fx					
Conditions 1 co						
If All v of this is true:						
2 Ran successfully == true	×					
and Add condition +						
New condition group + Assistant says						
4 ☐ body.MESSAGE						
A Define customer response						
And then						

Preview Your Action



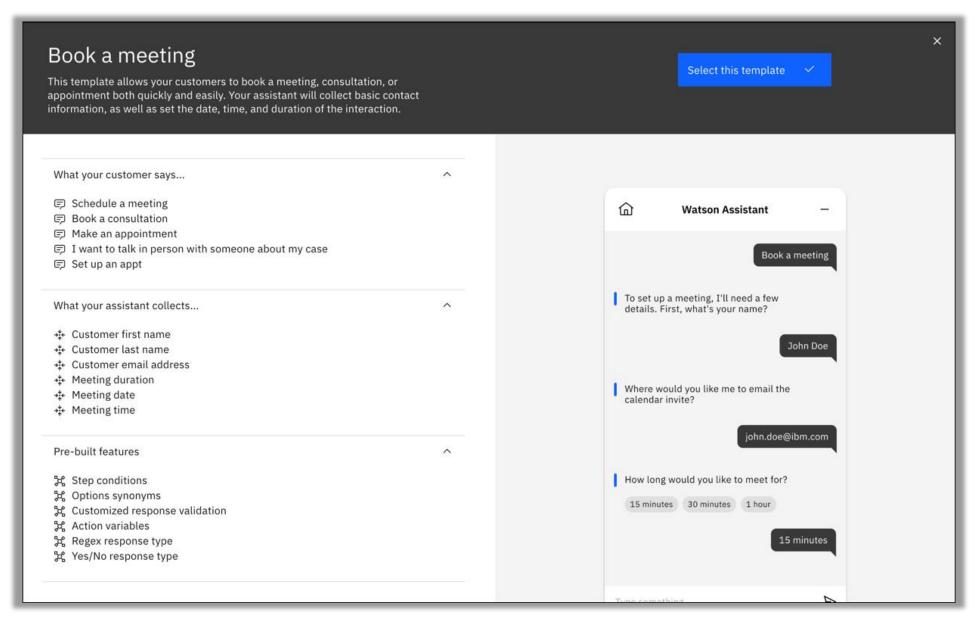




Next Steps

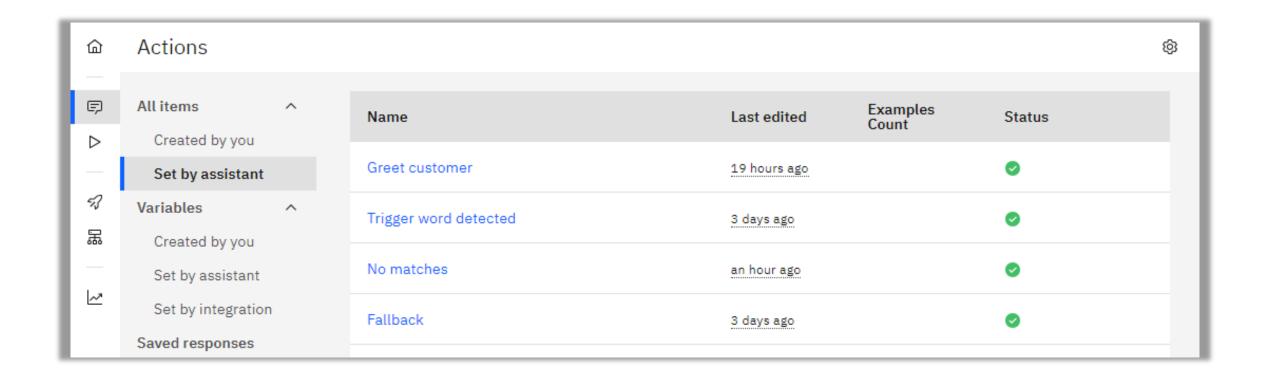
Add More Actions with Templates





Adjust Default Actions



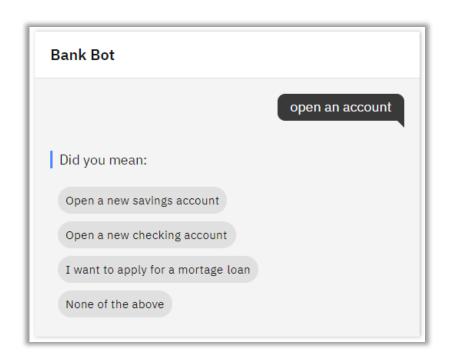


Adjust Global Settings

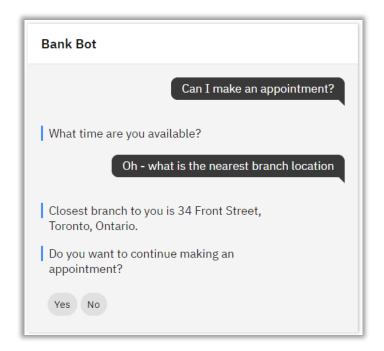


Clarifying Questions

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

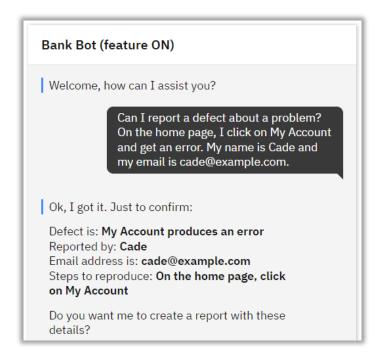


Change Conversation Topics Switch to other actions when customers ask about other topics



Intelligent Information Gathering

The assistant retrieves and uses prior inputs to streamline the conversation





Any Questions?

Important Links



IBM Watsonx Assistant

Documentation https://cloud.ibm.com/docs/watson-assistant

ConnectMe Demo Source

SQL Account Table <u>account.sql</u>

• REST Server <u>server.js</u>

OpenAPI Specification <u>swagger.json</u>

Service Commander

Documentation https://github.com/ThePrez/ServiceCommander-IBMi

For More Information



Links You Need	Twitter	#Hashtags
IBM i Home Page: https://www.ibm.com/it-infrastructure/power/os/ibm-i (find link to Forrester Study and updated IBM i Strategy Whitepaper)	@IBMSystems @COMMONug @IBMChampions	
IBM Strategy Whitepaper: https://www.ibm.com/it-infrastructure/us-en/resources/power/i-strategy-roadmap/		#PowerSystems #IBMi #IBMAIX #POWER9 #LinuxonPower #OpenPOWER #HANAonPower #ITinfrastructure #OpenSource #HybridCloud #BigData
IBM Client Success: https://www.ibm.com/it-infrastructure/us-en/resources/power/ibm-i-customer-stories/		
Support Life Cycle: https://www.ibm.com/support/lifecycle/ License Topics: https://www-	@IBMSystemsISVs @IBMiMag	
01.ibm.com/support/docview.wss?uid=nas8N1022087 Fortra IBM i Marketplace Survey https://www.fortra.com/resources/guides/ibm-i-	<u>@ITJungleNews</u> <u>@SAPonIBMi</u>	
marketplace-survey-results	<u>@SiDforIBMi</u>	

