# **Build a Watson AI Chatbot** from Db2

IBM

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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**

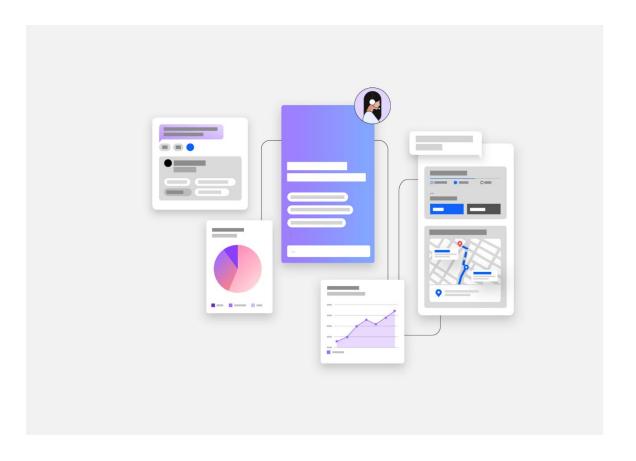
#### **What is Watsonx Assistant?**



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

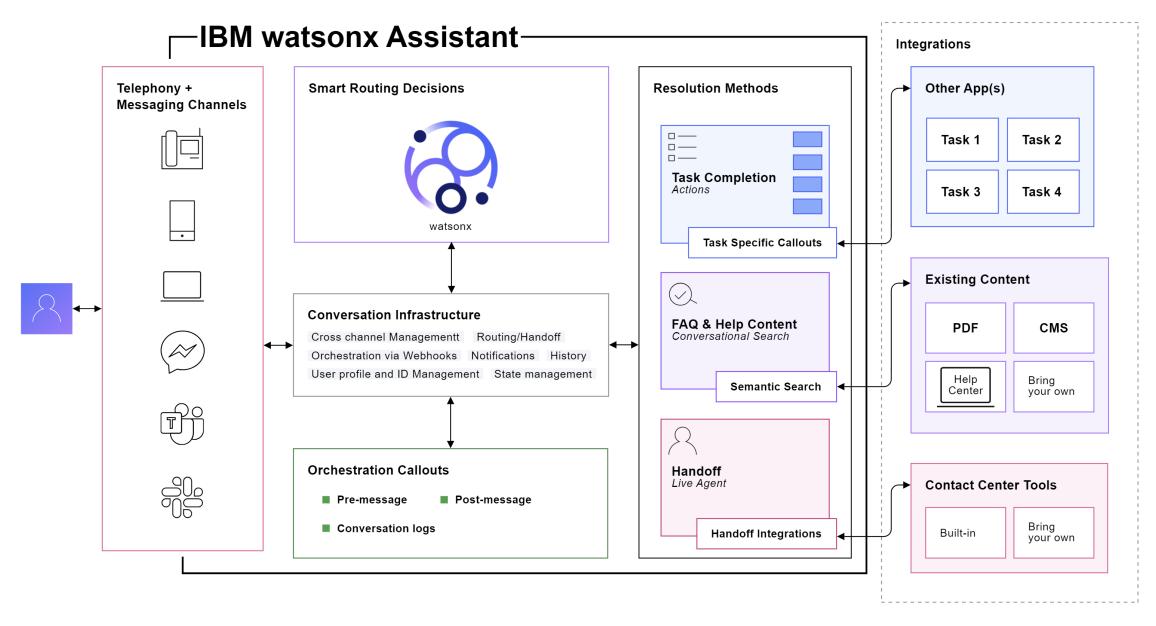
Use Watsonx Assistant to build your own branded live chatbot

- 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?

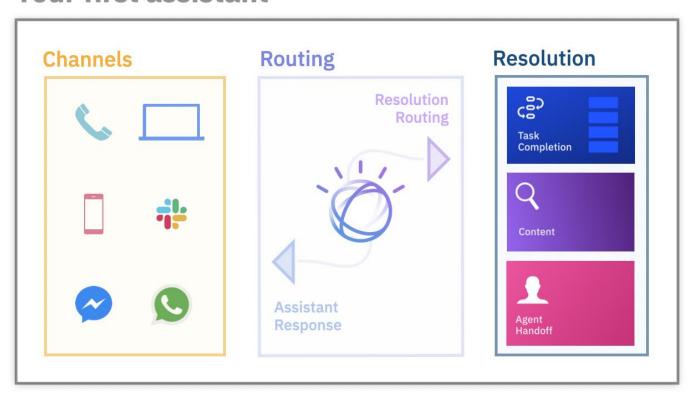
#### 4. Collect content sources

 What help content is available to customers today?

#### 5. Plan handoff strategy

 How should customers be routed to human agents?

#### Your first assistant



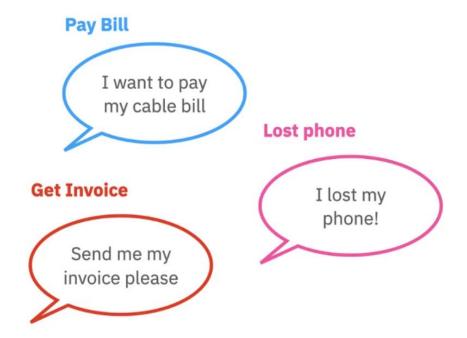


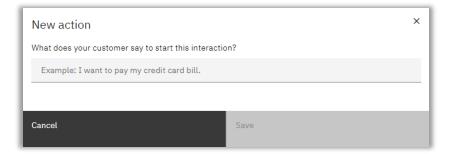
## Terminology You Should Know

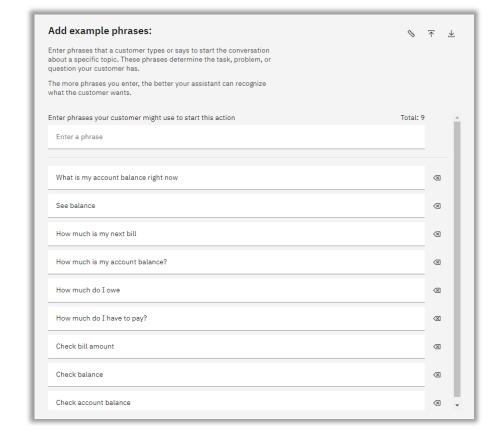
#### What are Actions and Phrases?

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



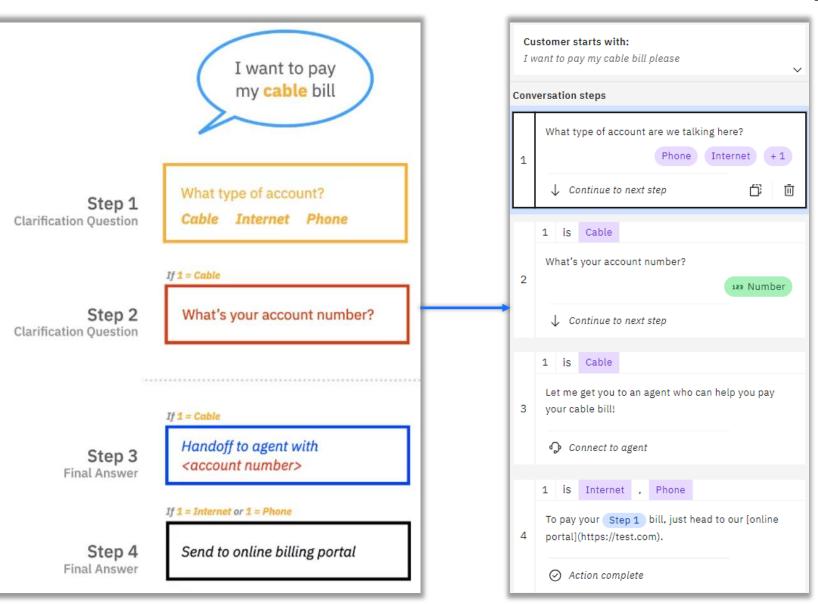




## What are Steps and Conditions?

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



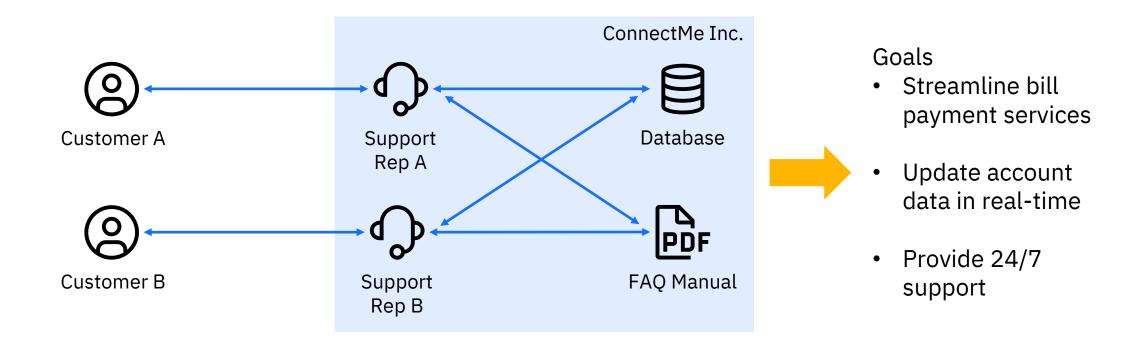


## Let's Build a Chatbot

### **Demo Example – ConnectMe Inc.**

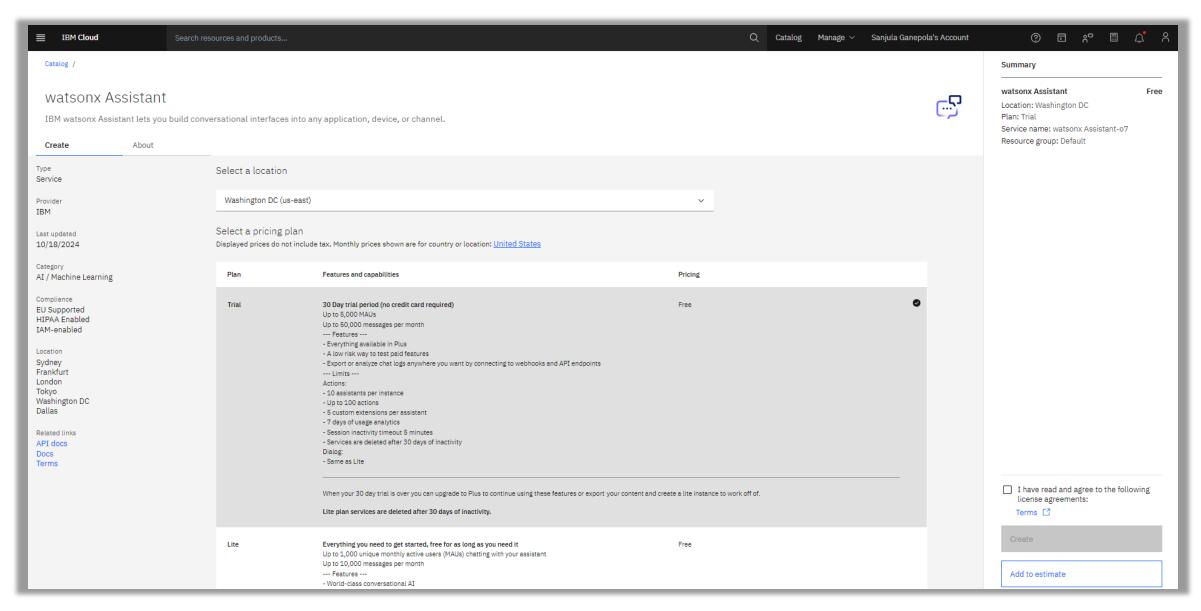


ConnectMe Inc. is a telecommunications company with cable, internet, and phone services



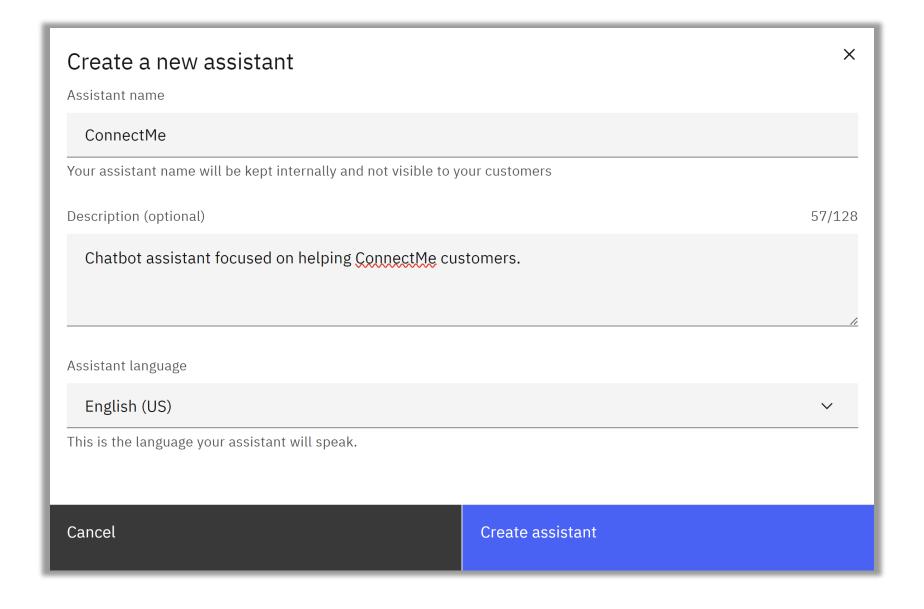
#### **Create Watsonx Assistant Instance**





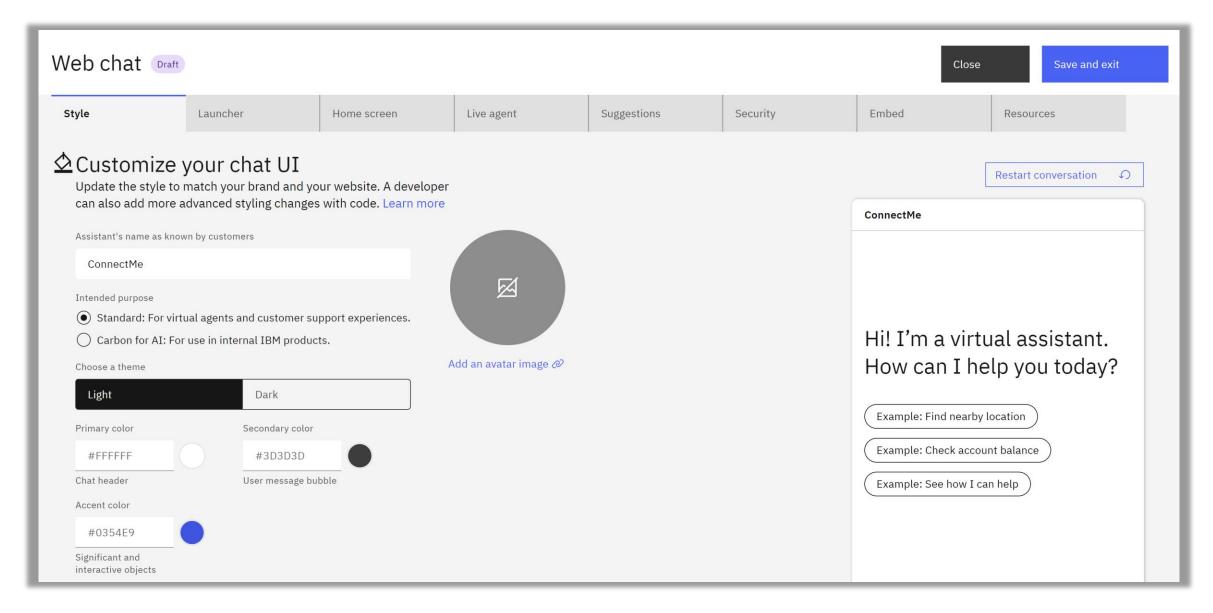
#### **Create Watsonx Assistant**





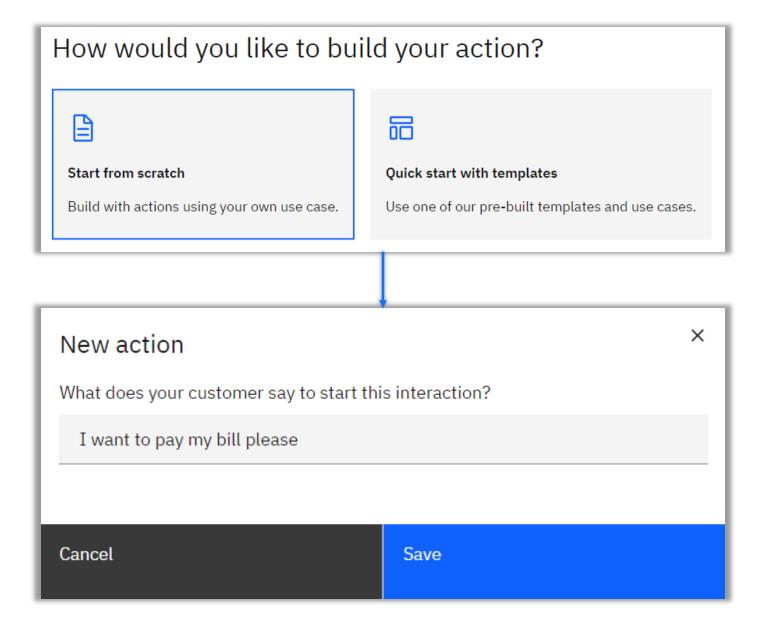
#### **Customize Web Chat**





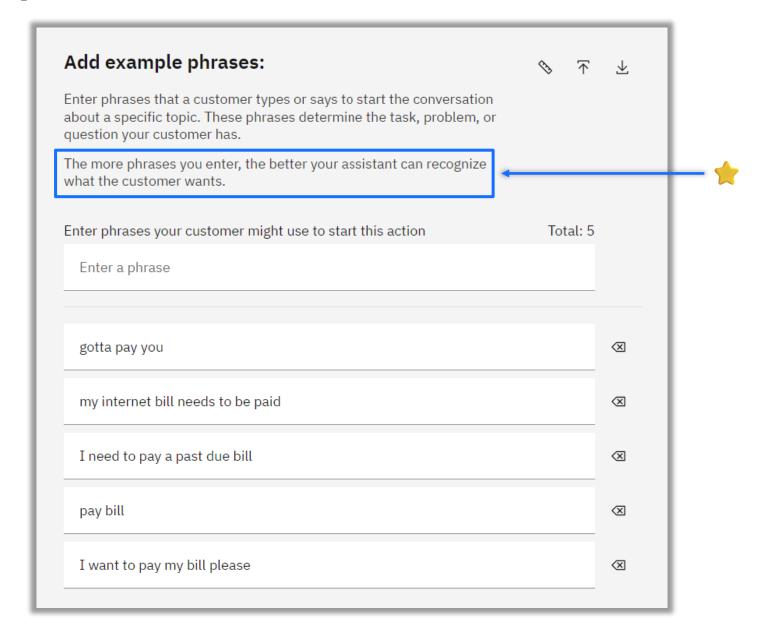
#### **Create Action From Scratch and Set Initial Phrase**





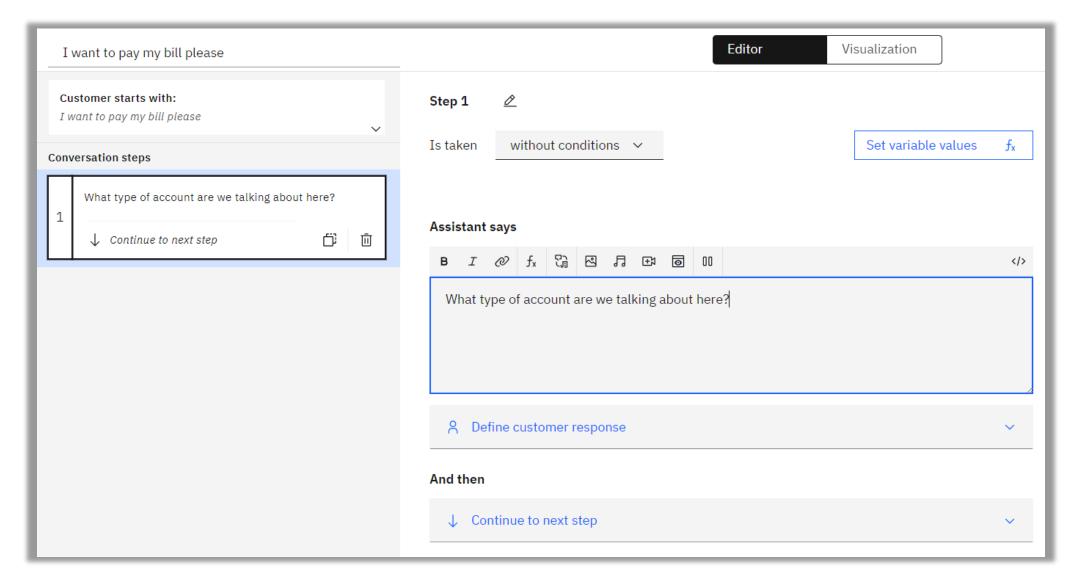
## **Add More Example Phrases**





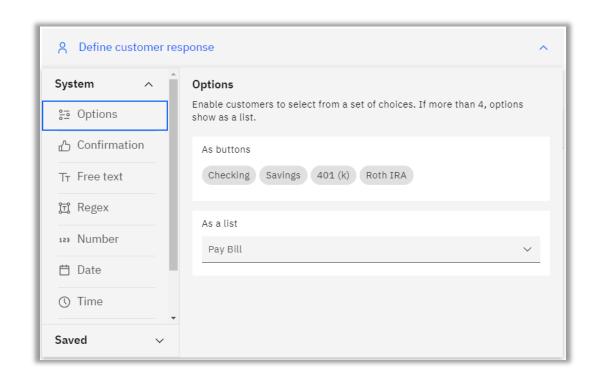
## **Create First Step**

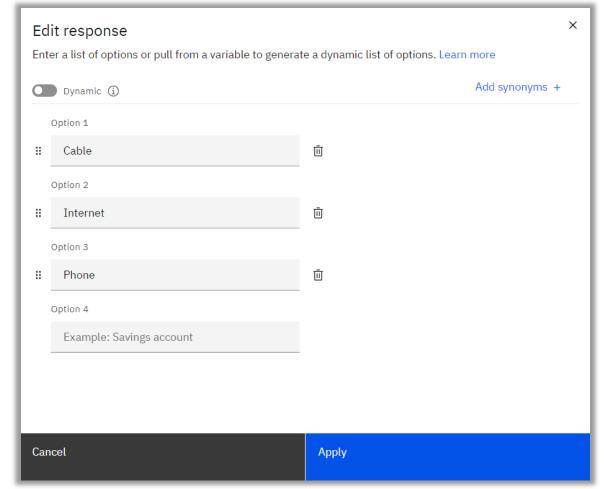




## **Add Custom Response Options**

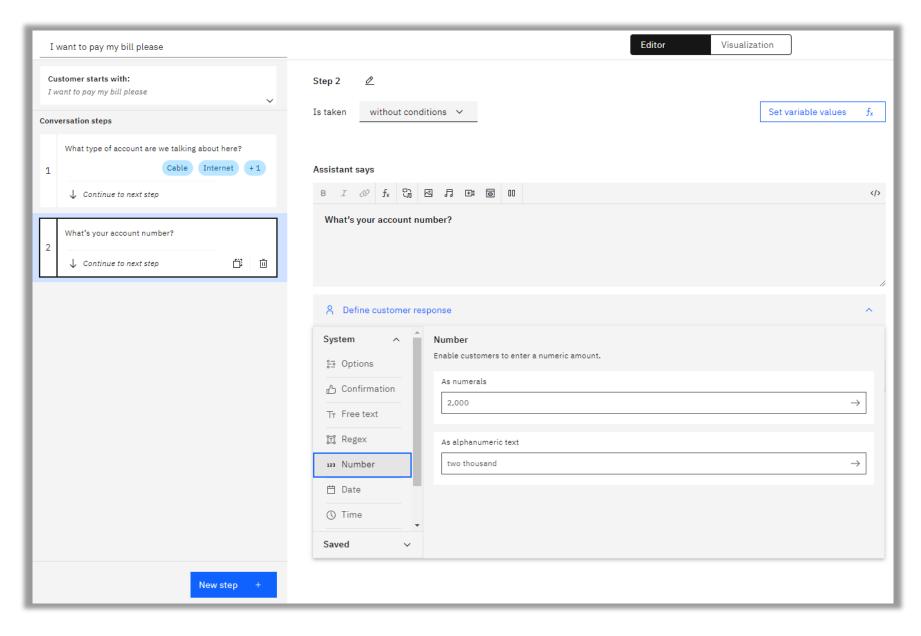






## **Create Another Clarification Step**





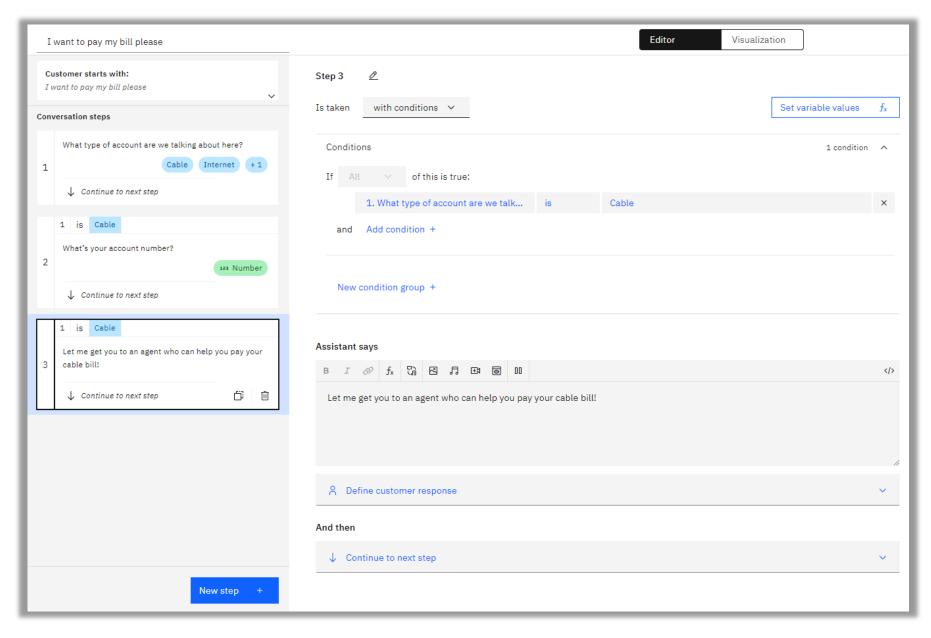
## **Add Condition**



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 +				

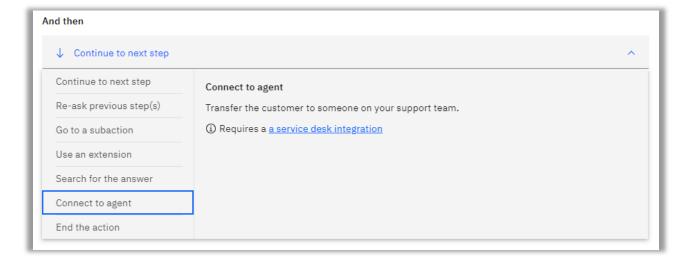
### **Create an Agent Handoff Step**

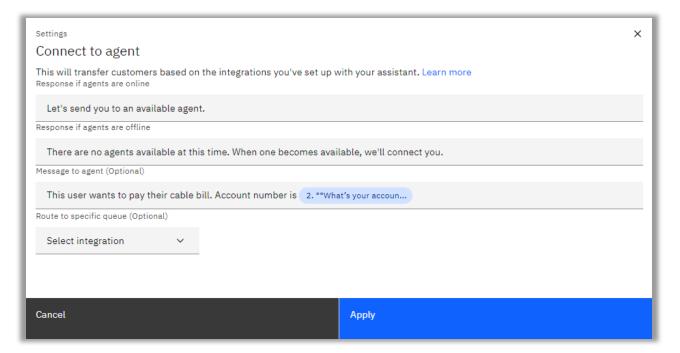




### **Connect to Agent**

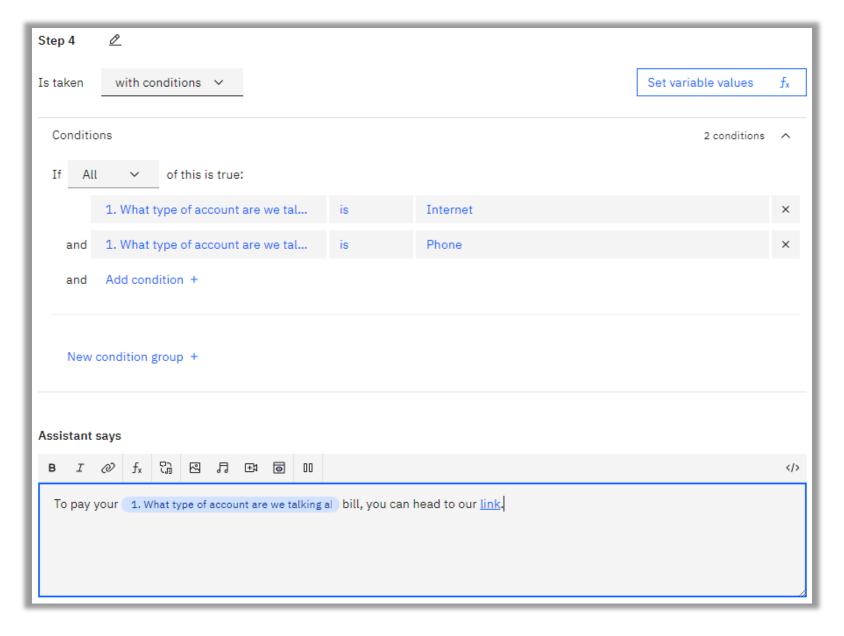






## **Create Final Response Step**





## **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
```

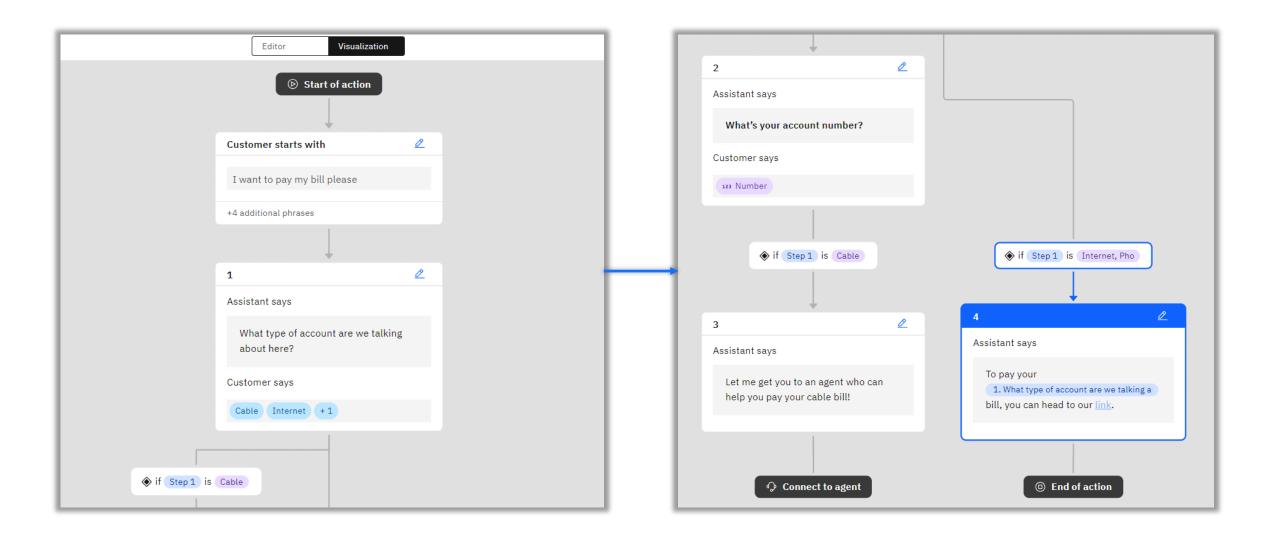
### **End the Action**





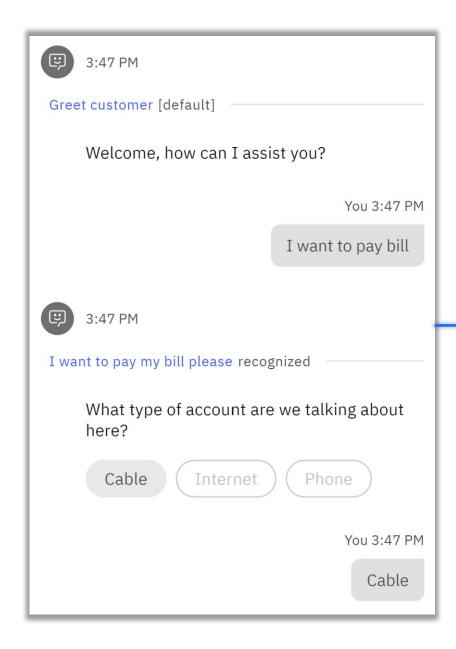
### **Use Visualization Tool**

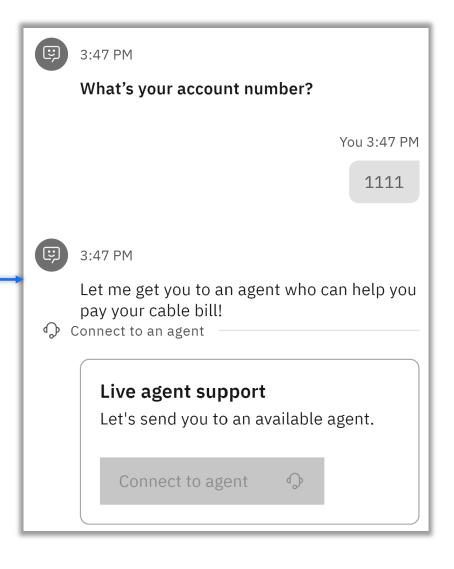




#### **Preview Your Action**





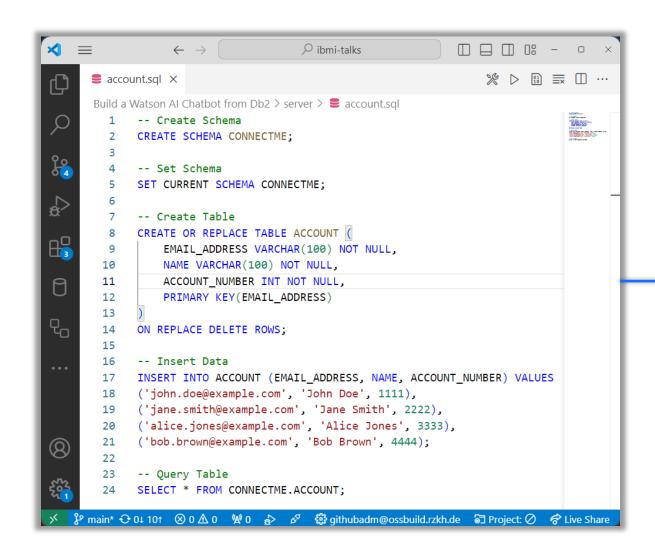




## **Integrate with Db2**

#### **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

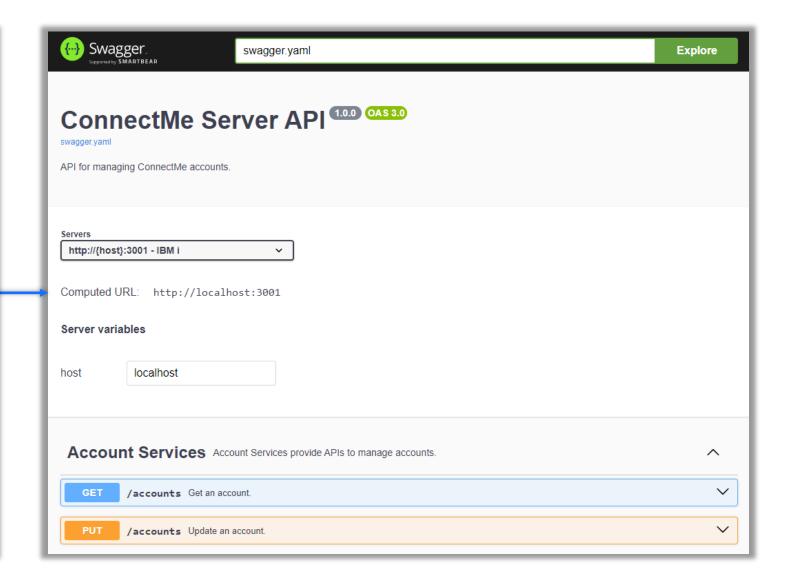
A utility for managing services and applications running on IBM i

```
## 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)**

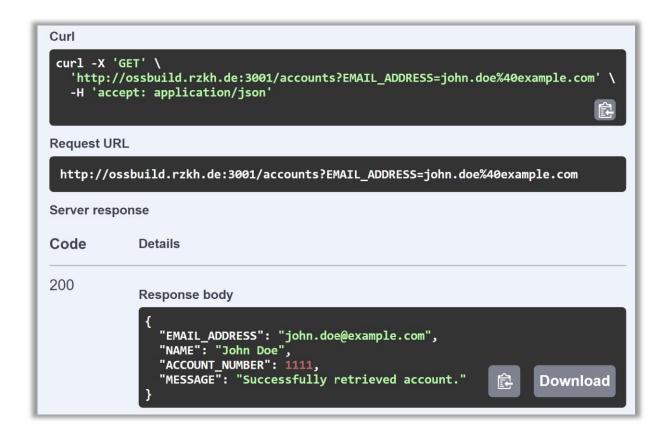


```
{} swagger.json X
Build a Watson Al Chatbot from Db2 > server > swagger > {} swagger.json > {} paths > {} /accounts > {} put
         "openapi": "3.0.3",
         "info": {
           "title": "ConnectMe Server API",
           "description": "API for managing ConnectMe accounts.",
           "version": "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**

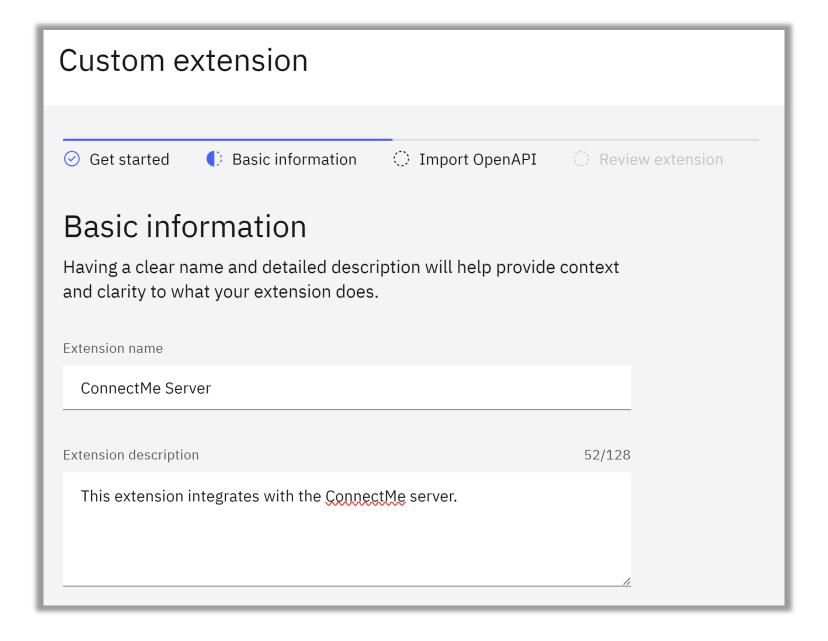




```
Curl
curl -X 'PUT' \
   'http://ossbuild.rzkh.de:3001/accounts' \
   -H 'accept: application/json' \
   -H 'Content-Type: application/json' \
   "EMAIL_ADDRESS": "john.doe@example.com",
   "NAME": "Jonathan Doe",
   "ACCOUNT NUMBER": 1111
Request URL
 http://ossbuild.rzkh.de:3001/accounts
Server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

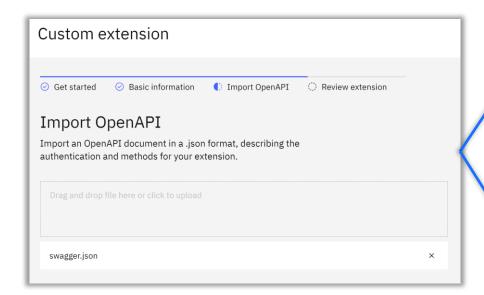
## **Build Custom Extension in Catelog**

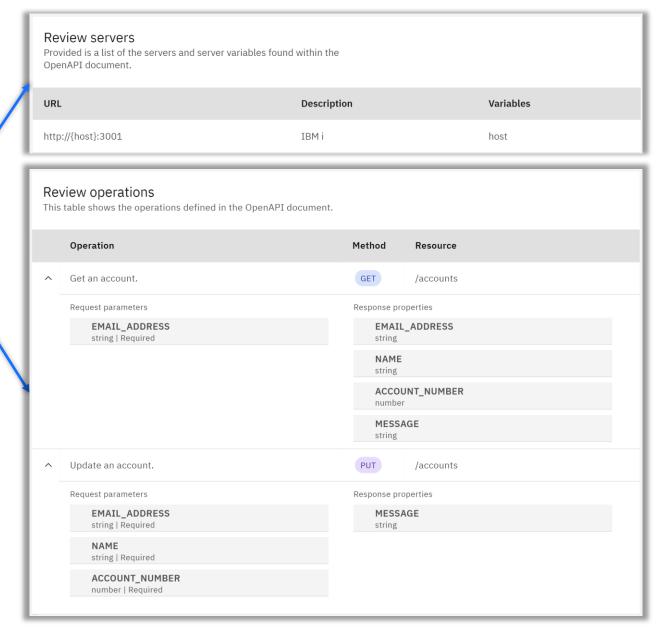




## **Import OpenAPI Specification**

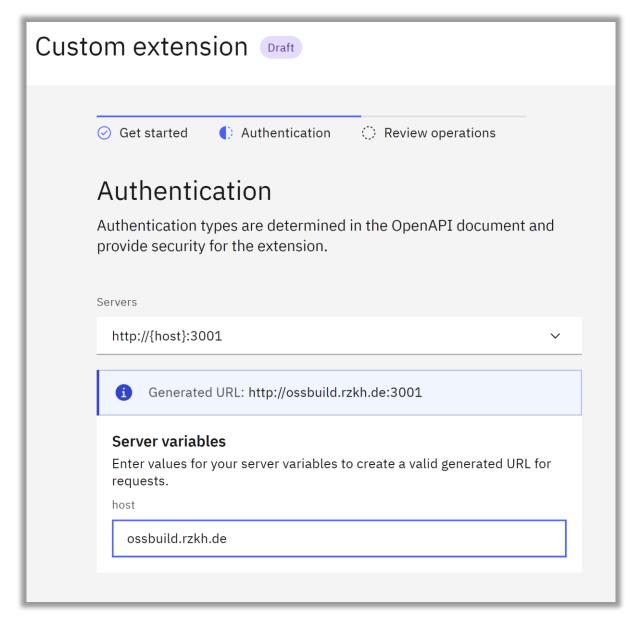






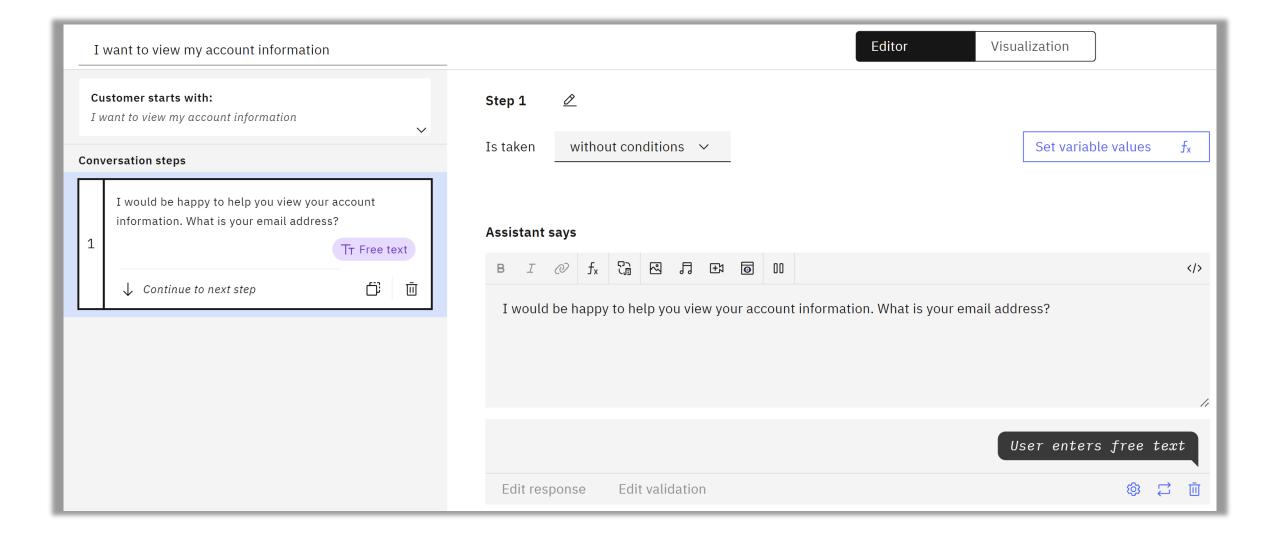
#### **Add Extension to Watsonx Assistant**





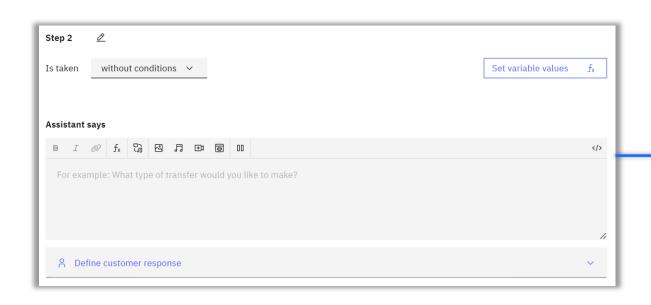
#### **Create New Action with Initial Step**

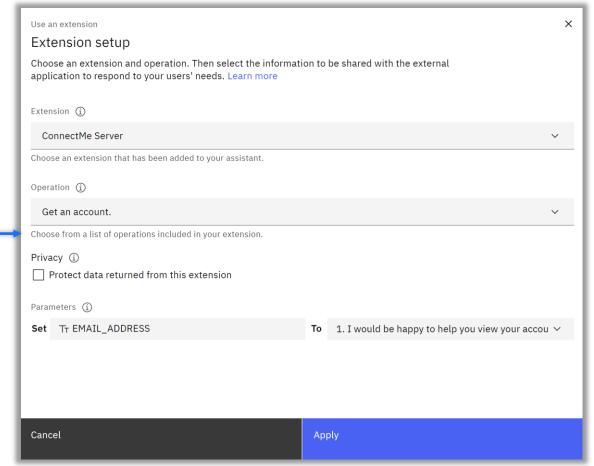




#### **Create Step with Extension**



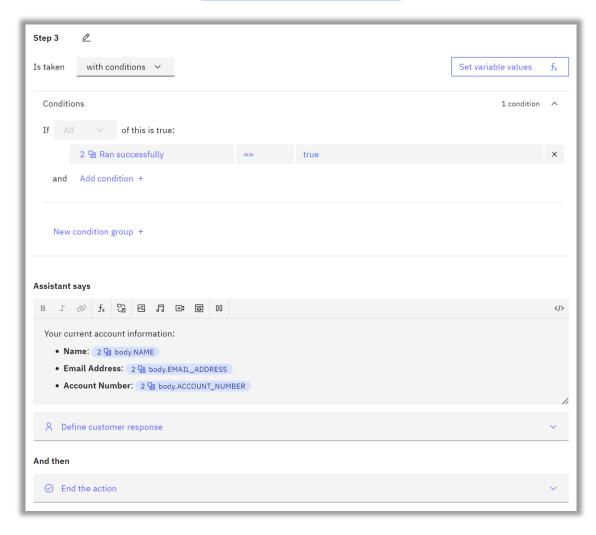




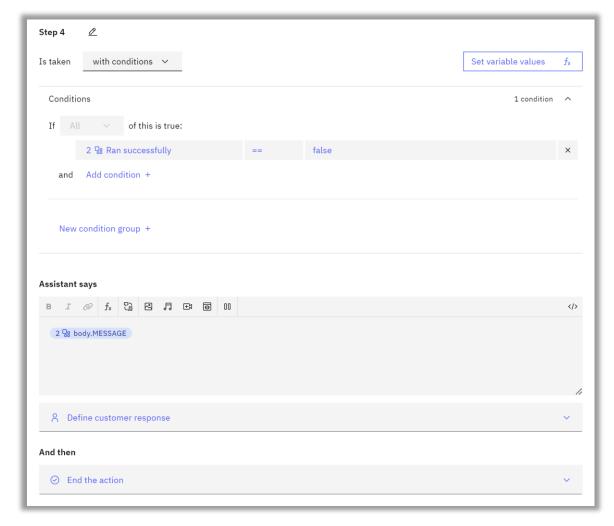
#### **Create Success and Failure Steps**



#### **Extension Success**

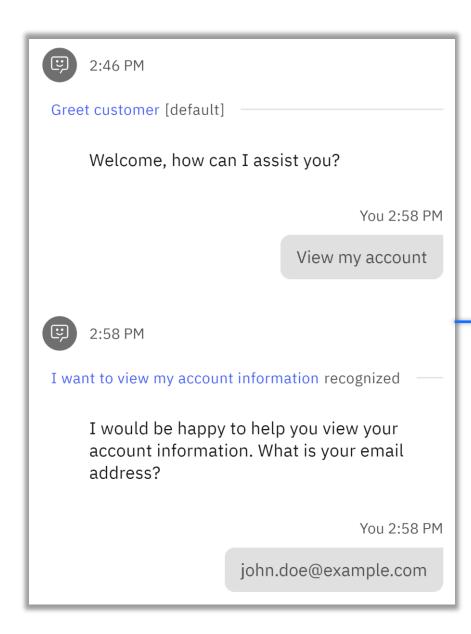


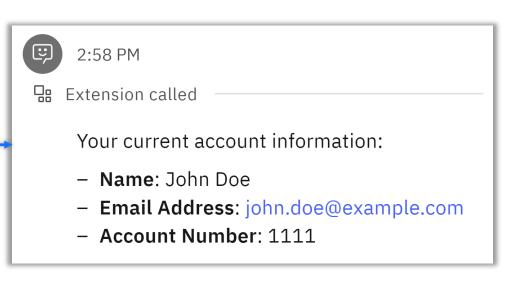
#### **Extension Failure**



#### **Preview Your Action**

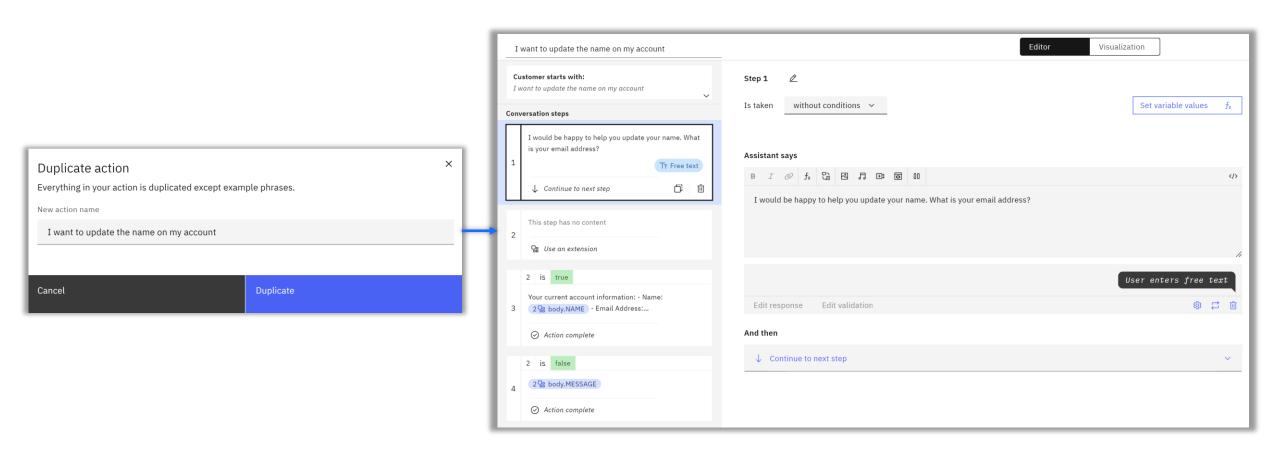






#### **Duplicate Action and Update Phrase + Initial Step**





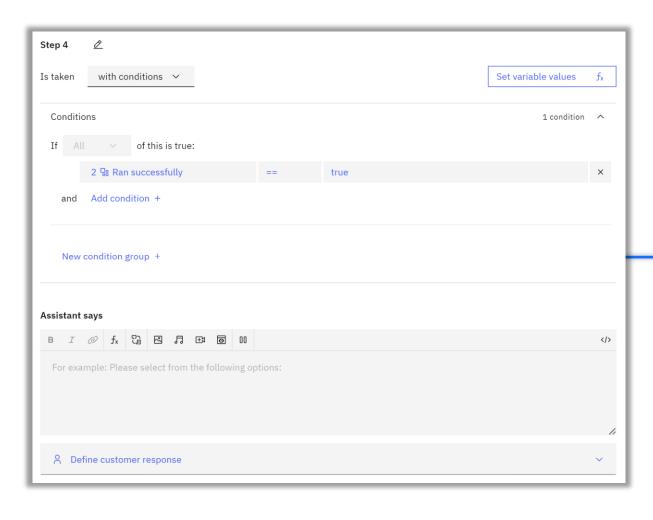
### **Create Clarification Step**

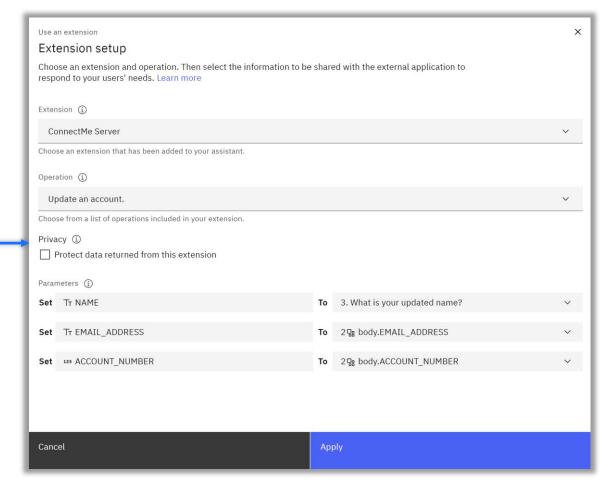


Step 3	₾				
Is taken	with conditions ∨	Set variable values	fx		
Conditions 1 condition			^		
If All	v of this is true:				
	2 ™ Ran successfully == true		×		
and Add condition +					
New condition group +					
Assistant says					
в І	Ø fx C3 ⊡ ⊡ @ 00		>		
What is your updated name?					
			h		
		ser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

#### **Create Step with Extension**







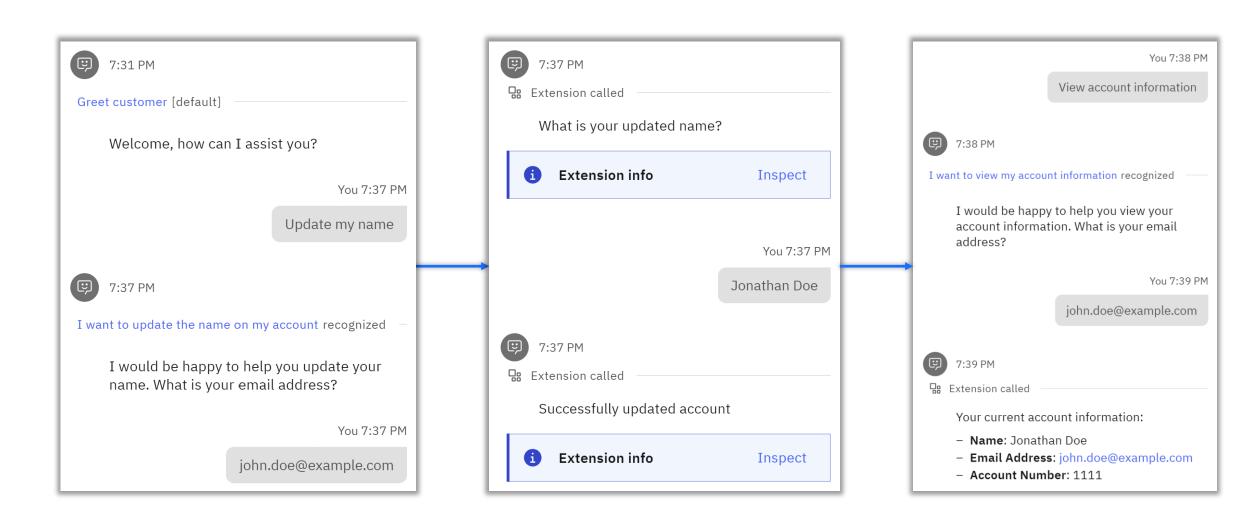
### **Create Final Step**



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

#### **Preview Your Action**



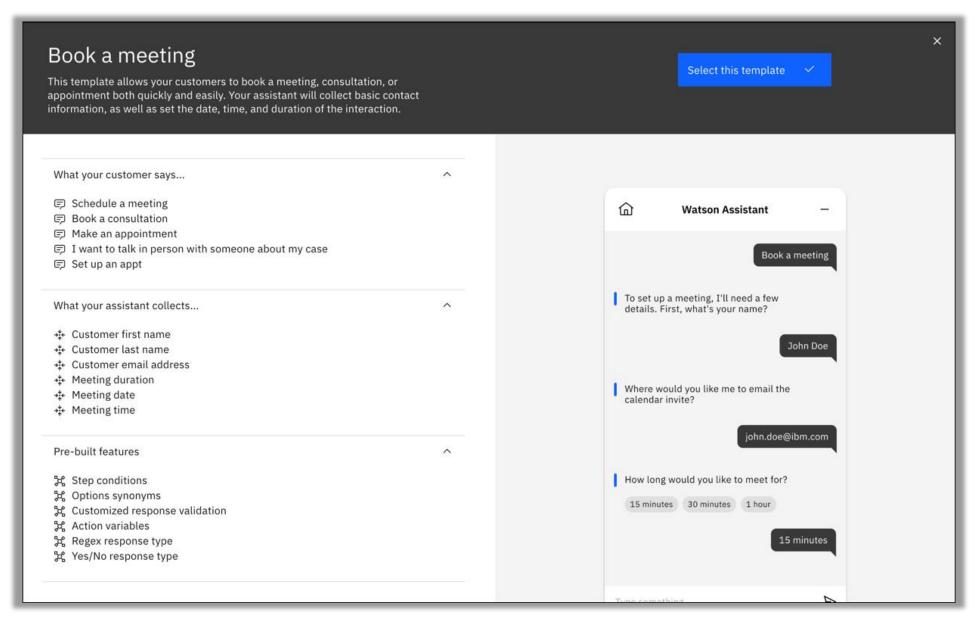




### **Next Steps**

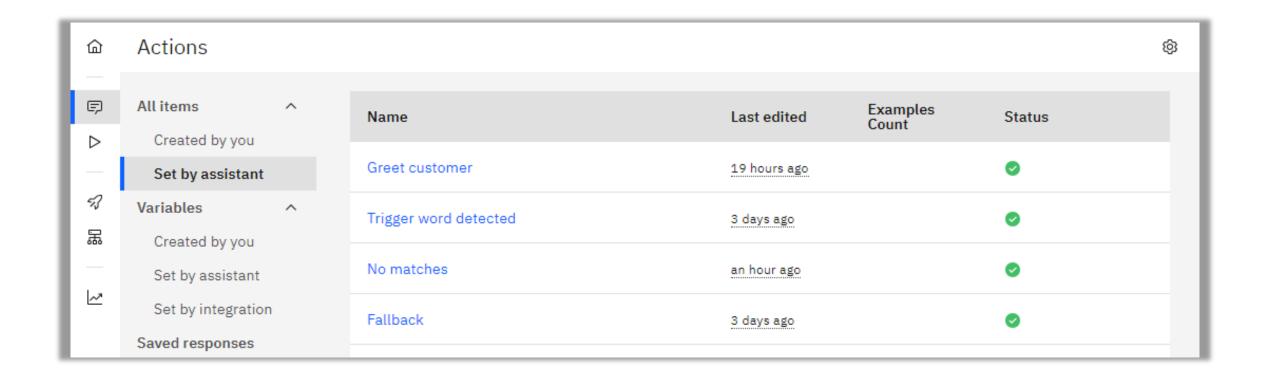
#### **Add More Actions with Templates**





#### **Adjust Default Actions**



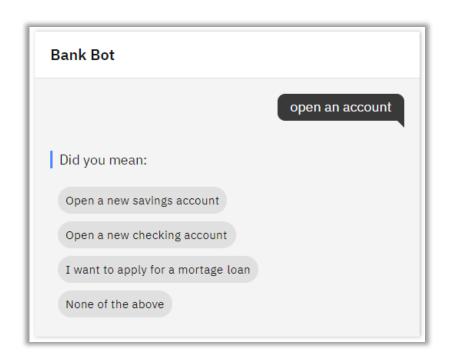


#### **Adjust Global Settings**

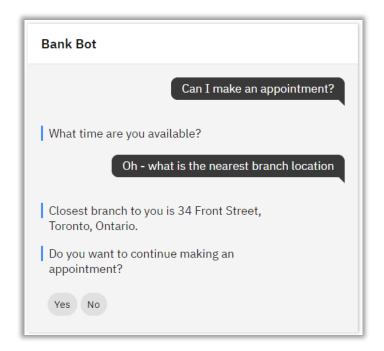


#### **Clarifying Questions**

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

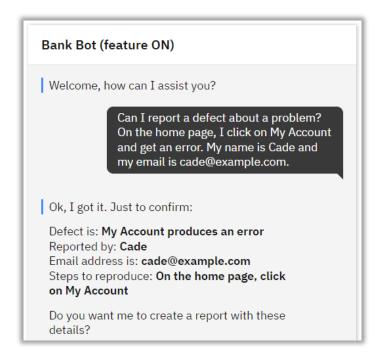


# Change Conversation Topics Switch to other actions when customers ask about other topics



#### **Intelligent Information Gathering**

The assistant retrieves and uses prior inputs to streamline the conversation

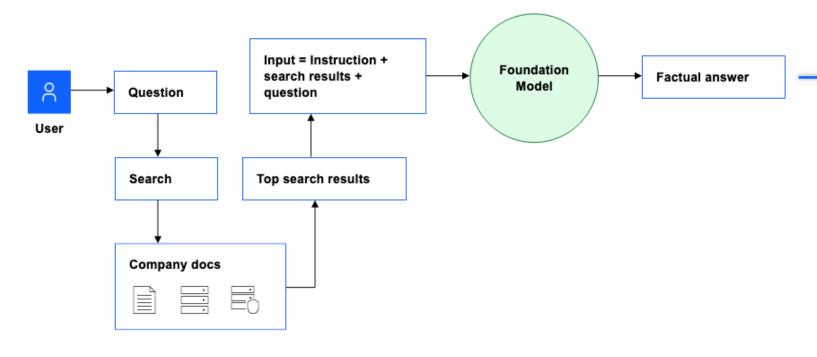


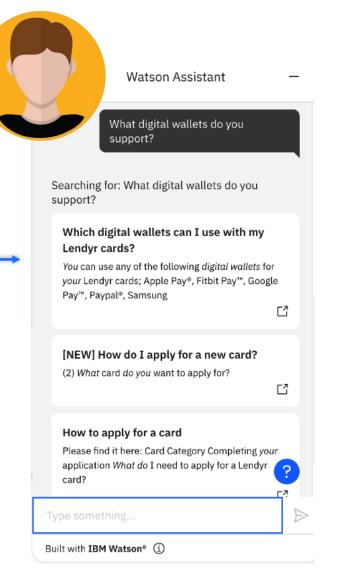
#### **Search Integration with Watson Discovery**



#### **Search Integration**

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







### **Any Questions?**





## For more information

#### **IBM Sites:**

IBM i Home Page	https://www.ibm.com/it-infrastructure/power/os/ibm-i
IBM Strategy Whitepaper	https://www.ibm.com/it-infrastructure/us-en/resources/power/i-strategy-roadmap/
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-01.ibm.com/support/docview.wss?uid=nas8N1022087
IBM i Release Life Cycle	https://www.ibm.com/support/pages/release-life-cycle
IBM i TR Wikis	IBM i Technology Updates



### For more information:

#### Blogs to follow

- <u>TechChannel You and i</u> (Steve Will)
- <u>TechChanneli-Can</u>
   (Dawn May)
- <u>TechChannel: iTalk with</u> <u>Tuohy</u>
- <u>TechChannel: OpenYour</u> <u>i with Jesse Gorzinski</u>
- IBM Db2 for i (Kent Milligian)
- IBM i Analyitics Blog (Jon Westcott Jr)
- <u>iSee with Scott and Tim</u>

#### More to follow

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#### Hashtags to Use

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