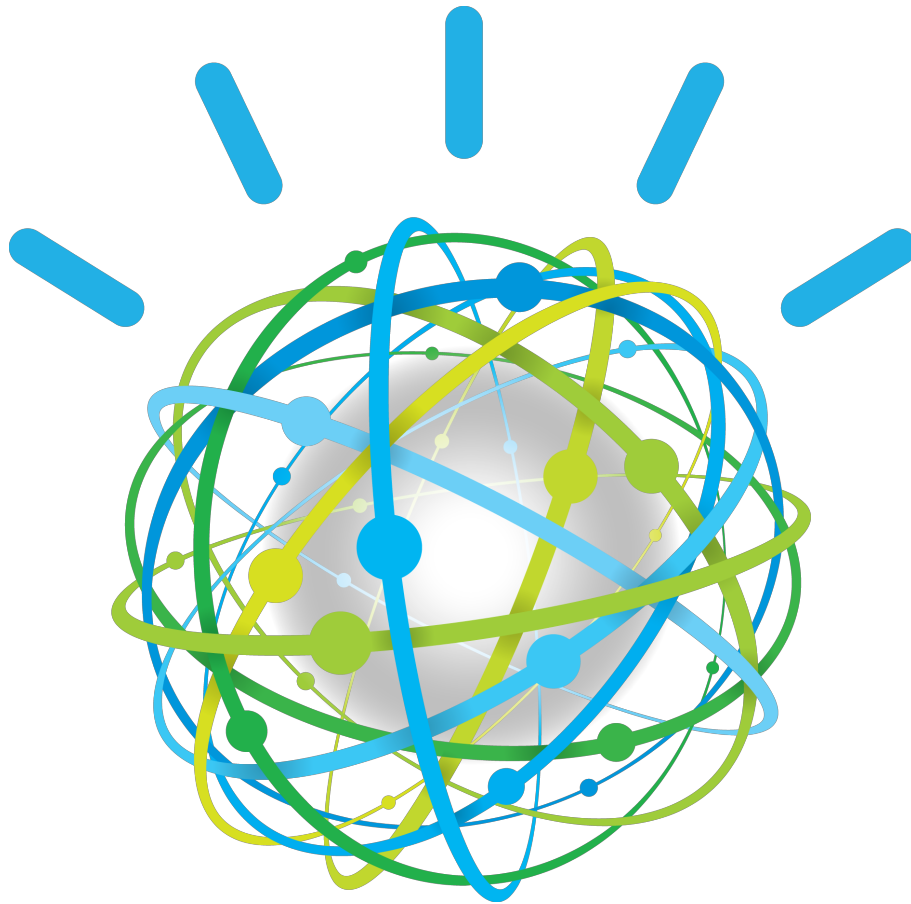


Session 5 part 2: Building a Dialog

IBM Watson Assistant



Lab Instructions

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Let's get started

1. Overview

The [IBM Watson Developer Cloud](#) (WDC) offers a variety of services for developing cognitive applications. Each Watson service provides a Representational State Transfer (REST) Application Programming Interface (API) for interacting with the service. Some services, such as the Speech to Text service, provide additional interfaces.

The [Watson Assistant](#) service combines several cognitive techniques to help you build and train a bot - defining intents and entities and crafting dialog to simulate conversation. The system can then be further refined with supplementary technologies to make the system more human-like or to give it a higher chance of returning the right answer. Watson Conversation allows you to deploy a range of bots via many channels, from simple, narrowly focused bots to much more sophisticated, full-blown virtual agents across mobile devices, messaging platforms like Slack, or even through a physical robot.

The **illustrating screenshots** provided in this lab guide could be slightly different from what you see in the Watson Assistant service interface that you are using. If there are colour or wording differences, it is because there have been updates to the service since the lab guide was created.

2. Objectives

Watson Conversation Service provides several options to manage Conditions, and possibility to have several answers to make your bot more human.

In this lab, you will:

- Learn how to use IBM Cloud Function from the dialog
- Gather information with Slots

3. Prerequisites

Before you start the exercises in this guide, you will need to complete the following prerequisite tasks:

- Session 5 part 1 – building a dialog lab Instructions
- The instructor provided you the link to get labs content. You may download each file individually.

Reminder of IBM Cloud URLs per location:

Location	URL
US	https://console.ng.bluemix.net/
UK	https://console.eu-gb.bluemix.net/
Sidney	https://console.au-syd.bluemix.net/
Germany	https://console.eu-de.bluemix.net/

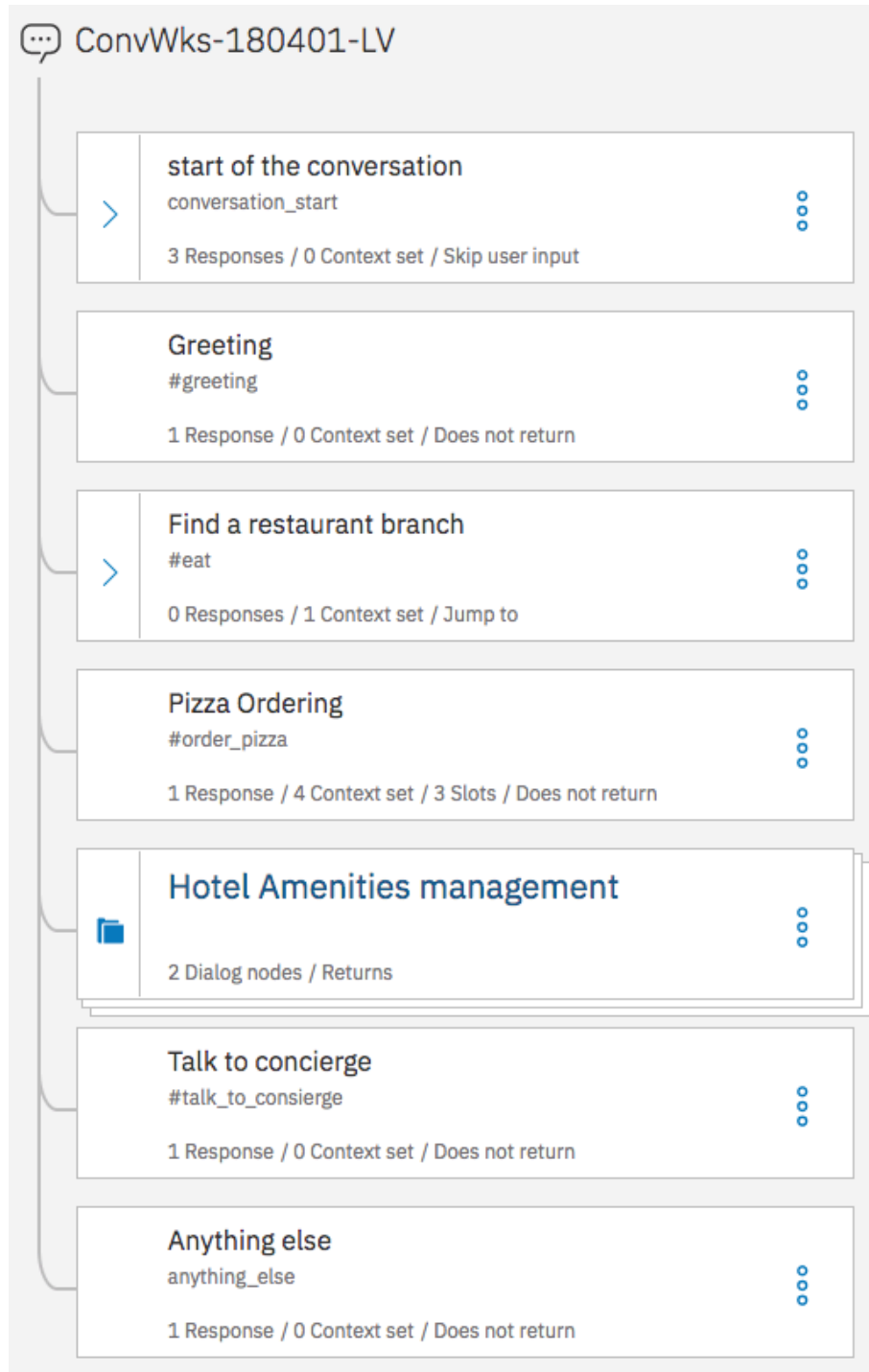
4. Scenario

Use case: A Hotel Concierge Virtual assistant that is accessed from the guest room and the hotel lobby.

End-users: Hotel customers

5. What to expect when you are done

At the end of session, you should get a more complex dialog using several conditions and answer in the same node.



Gathering information with Slots

To gather information, you have created a branch, now you can use Slots to do it and simplify your dialog.

You can think of slots as the chatbot version of a web form in which users must fill out required fields before they can submit the form. Similarly, slots prevent the flow of conversation from moving on to a new subject until the required values are provided. You are going to build a chatbot to order pizza. To do it, the chatbot must gather the size and the type of your pizza. We assume that your hotel can deliver such a service.

6. Bot Control precreated intents.

At the end of the acquisition of all information, we are going to request a validation of the order. To do this we are using 2 existing intents [#Bot_Control_Approve_Response](#) and [#Bot_control_reject_Response](#).

1. Go back to **Content Catalog** tab
2. On [Bot Control](#) row, Click Add to workspace

Intents Entities Dialog **Content Catalog**

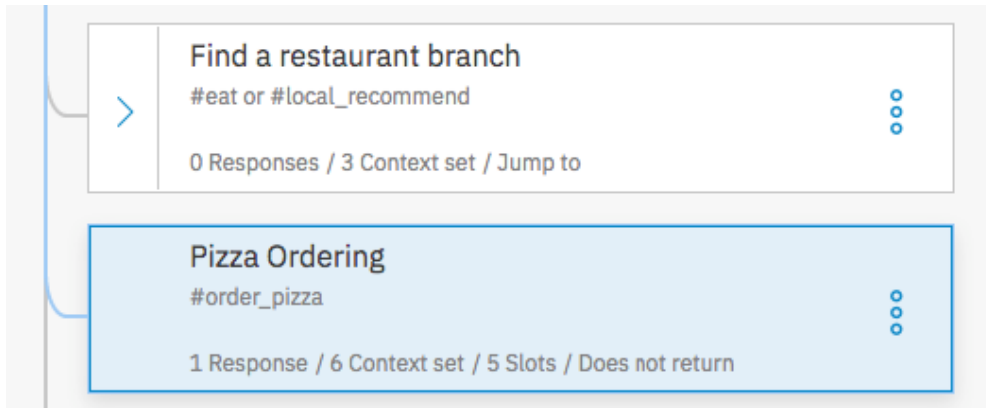
Get started faster by adding existing intents from the content catalog. These intents are trained on common questions that users may ask.

Category	Description	Intents	
Banking	Basic transactions for a banking use case.	13	+ Add to workspace
Bot Control	Functions that allow navigation within a conversation.	9	+ Add to workspace
Customer Care	Understand and assist customers with information about themselves	18	+ Add to workspace

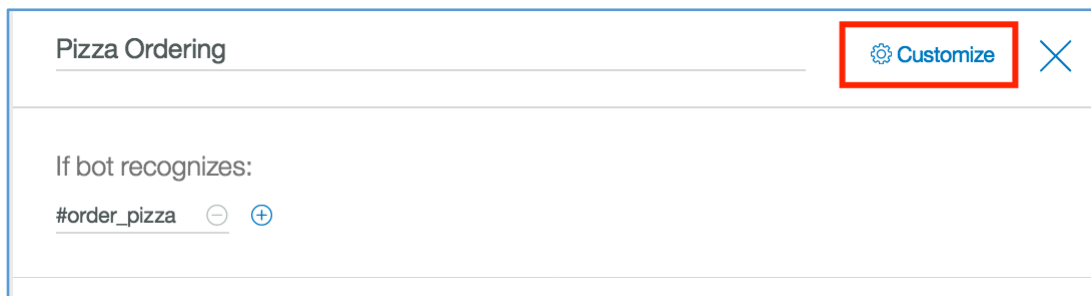
7. Add Pizza Ordering node and slots

The best should be to create a node to manage any orders, we will simplify the lab and order only pizza which can be delivered in the guestroom.

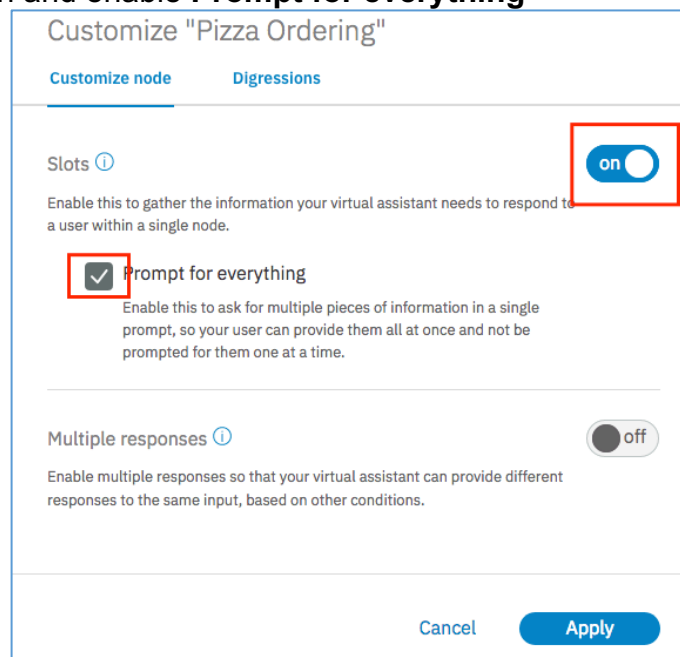
1. Go back to Dialog page
2. Add a node below **Find a restaurant branch** or **Greeting** node



3. Set `#order_pizza` as condition and *Pizza Ordering* as name
4. Click **Customize**



5. Switch **Slots** on and enable **Prompt for everything**



6. Click **Apply**
7. At the bottom of the edit page click **Add slot** 2 times
8. Fill the slots like these

Check for	Save it as	If not present, ask
@pizza_size	\$pizza_size	What size of pizza do you want?
@pizza_type	\$pizza_type	What type of pizza do you want?
@pizza_toppings.values	\$pizza_toppings	
@pizza_notoppings.values	\$pizza_notoppings	
#Bot_Control_Approve_Response #Bot_Control_Reject_Response	\$pizza_confirmed	I have you for \$pizza_size \$pizza_type \$texttoppings. Is it correct?

9. In the filed **If no slots are pre-filled, ask this first** enter : *Can you provide us the pizza size (small, medium, large) and the pizza type (vegetarian, mexicana, quatro formaggi, pepperoni, margherita)?*

Pizza Ordering
Customize ✕

If bot recognizes:

#order_pizza ⊖ ⊕

Then check for: 3 Manage handlers

	Check for	Save it as	If not present, ask	Type		
1	@pizza_size	\$pizza_size	What size of pizza do	Required	⚙️	🗑️
2	@pizza_type	\$pizza_type	What type of pizza do	Required	⚙️	🗑️
3	@pizza_toppings.val	\$pizza_toppings	Enter a prompt	Optional	⚙️	🗑️
4	@pizza_notoppings.	\$pizza_notoppings	Enter a prompt	Optional	⚙️	🗑️
5	#Bot_Control_Appr	\$pizza_confirmed	I have you for \$pizza_	Required	⚙️	🗑️

⊕ Add slot

If no slots are pre-filled, ask this first:

Can you provide us the pizza size (small, medium, large) and the pizza type (vegetarian, mexicana, qi ⊖

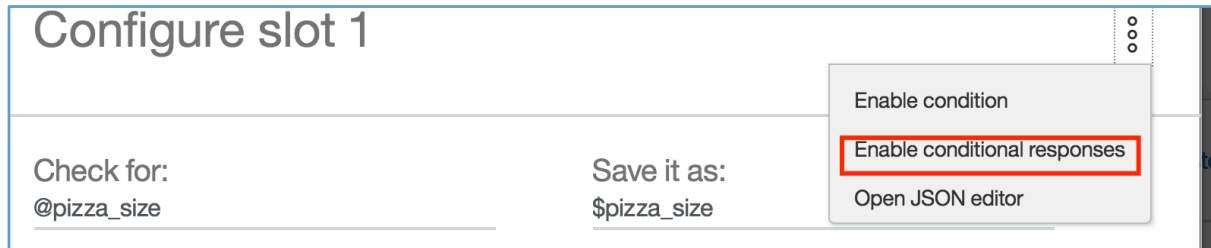
Enter a variation


8. Manage the basic order information : pizza size

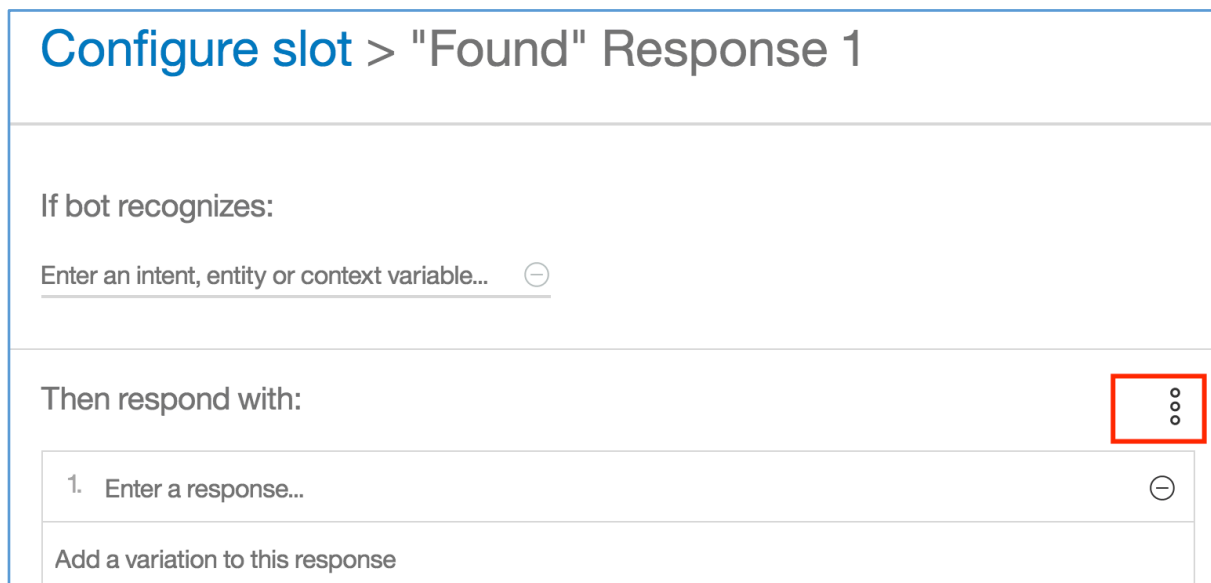
1. Click **settings/customize/edit slot** icon of the **pizza_size** slot



2. In the configure slot window, click on the 3 dots menu and select **enable conditional responses**



3. In **Found** frame, on the first row, click **edit** icon 
4. Open the context editor. (the 3 dots)



5. Fill the slot 'found' like this

Condition : *\$pizza_size:small && \$pizza_type:vegetarian*

Context variable : *pizza_size*

Context value : *null*

Respond : *Sorry, we do not serve small vegetarian pizza. Please select different type or size.*

Configure slot > "Found" Response 1

If bot recognizes:

\$pizza_size:small and *\$pizza_type:vegetarian*

Then set context:

Variable	Value	
<i>\$pizza_size</i>	<i>null</i>	<input type="checkbox"/>

Add variable

And respond with:

1. *Sorry, we do not serve small vegetarian pizza. Please select different type or size.*

The simplest response example should be just to confirm the size of the pizza. Here we illustrate the capability to check the provided value according to some other context variables.

6. Click **back**

7. In **Not found** frame, enter the respond:

condition: *true*

response: *Please provide size of the pizza, e.g small, medium or large.*

Below the first slot:



Configure slot 1 ⋮

If \$pizza_size is not present then ask: Slot is required ⓘ

What size of pizza do you want?



When user responds, if @pizza_size is...

Found:

	If bot recognizes	Respond with	
1	<u>\$pizza_size:small && \$pizza_type:ve</u>	<u>Sorry, we do not serve small vegeta</u>	 

[⊕ Add a response](#)

Not found:

	If bot recognizes	Respond with	
1	<u>true</u>	<u>Please provide size of the pizza, e.g</u>	 

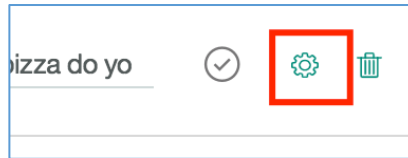
[⊕ Add a response](#)

Cancel Save

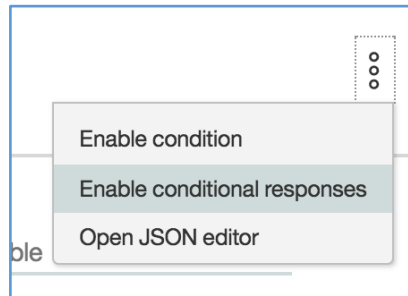
8. Click **Save**

9. Manage the basic order information : pizza type

1. Click settings icon of the **pizza_type** slot



9. In the configure slot window, click on the 3 dots menu and select **enable conditional responses**



10. In **Found** frame, on the first row, click **edit** icon



11. Open the context editor. (the 3 dots)

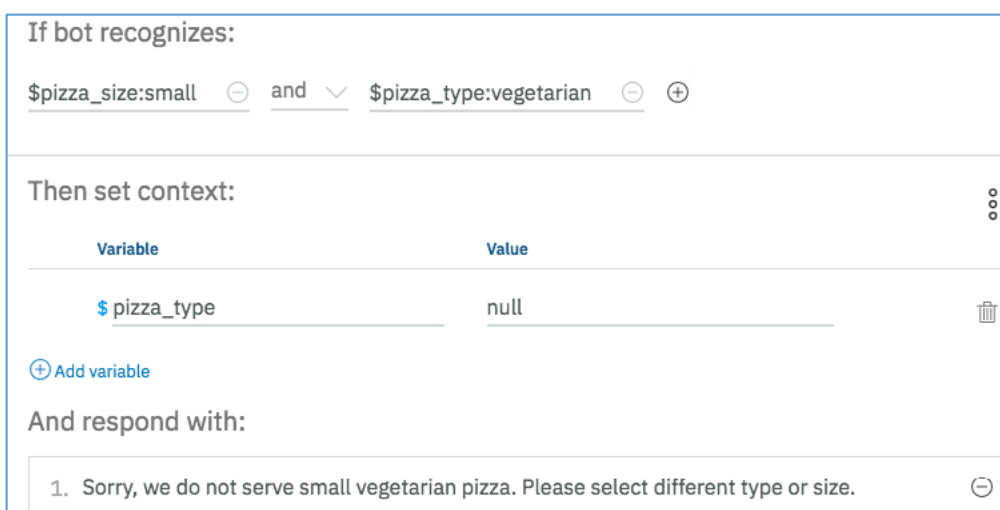
12. Fill the slot 'found' like this

Condition : *`$pizza_size:small && $pizza_type:vegetarian`*

Context variable : *`pizza_type`*

Context value : *`null`*

Respond : *`Sorry, we do not serve small vegetarian pizza. Please select different type or size.`*

A screenshot of the 'Found' frame configuration window. It is divided into three sections: 'If bot recognizes:', 'Then set context:', and 'And respond with:'.
- 'If bot recognizes:': Shows a condition '\$pizza_size:small' followed by 'and' and '\$pizza_type:vegetarian'. There are minus and plus icons next to each variable.
- 'Then set context:': Shows a table with two columns: 'Variable' and 'Value'. The first row has '\$pizza_type' in the Variable column and 'null' in the Value column. There is a trash icon to the right of the row. Below the table is a '+ Add variable' link.
- 'And respond with:': Shows a list of responses. The first response is '1. Sorry, we do not serve small vegetarian pizza. Please select different type or size.' There is a minus icon to the right of the response.

13. Click **back**

2. In the Found frame, add 3 more responses and condition like that:

Resp2 condition: *event.previous_value and event.previous_value!=event.current_value*

Resp2 response: *Ok replacing <? event.previous_value ?> with <? event.current_value ?>.*

Resp3 condition: *\$pizza_type:pepperoni*

Resp3 response: *\$pizza_type is a good choice. But be warned, pepperoni is very hot!*



Resp4 condition: *anything_else*

Resp3 response: *\$pizza_type is a good choice.*

That's the way to enrich the chatbot responses and make it more human like.

Check for: @pizza_type	Save it as: \$pizza_type
If \$pizza_type is not present then ask: Slot is required ⓘ	
What type of pizza do you want?	
When user responds, if @pizza_type is...	
Found:	
If bot recognizes	Respond with
1 <u>\$pizza_size:small && \$pizza_type:ve</u>	Sorry, we do not serve small vegeta ⚙️ 🗑️
2 <u>event.previous_value && event.prev</u>	Ok replacing <? event.previous_vali ⚙️ 🗑️
3 <u>\$pizza_type:pepperoni</u>	\$pizza_type is a good choice. But b ⚙️ 🗑️
4 <u>anything_else</u>	\$pizza_type is a good choice ⚙️ 🗑️

- 3. In **Not found** frame, enter the respond:
Resp3 condition: *true*
Resp3 response: *You can select one of the following types: margherita, pepperoni, quatro formaggi, mexicana, vegetarian*

Not found:	
If bot recognizes	Respond with
1 true	You can select one of the following t  
+ Add a response	
<p style="text-align: right;">Cancel Save</p>	

- 4. Click **Save**

10. Manage the toppings the user would like to add

1. Click **settings** icon of the **pizza_toppings** slot
2. In the configure slot window, click on the 3 dots menu and select **enable conditional responses**
3. In **Found** frame, add 2 responses and condition like that:
Resp1 condition: `$pizza_notoppings && $pizza_toppings`
Resp1 response:
Resp2 condition: `$pizza_toppings`
Resp2 response:.

Configure slot 3

Check for: @pizza_toppings.values Save it as: \$pizza_toppings

If `$pizza_toppings` is not present then ask: Slot is optional ⓘ
Enter a prompt

When user responds, if **@pizza_toppings.values** is...

Found:

	If bot recognizes	Respond with		
1	<u>\$pizza_notoppings && \$pizza_toppi</u>	<u>Enter a response...</u>	⚙️	🗑️
2	<u>\$pizza_toppings</u>	<u>Enter a response...</u>	⚙️	🗑️

⊕ Add a response

4. In **Found** frame, Click **Edit** icon for the first condition, then open the **Context editor** and fill it like this:

Resp1 context variable: *texttoppings*

Resp1 context value: *with <? \$pizza_toppings.join(',') ?> and without <? \$pizza_notoppings.join(',') ?>*

Configure slot > "Found" Response 1

If bot recognizes:

\$pizza_notoppings and \$pizza_toppings

Then set context:

Variable	Value	
<u>\$texttoppings</u>	<u>ut <? \$pizza_notoppings.join(',') ?></u>	<input type="checkbox"/>

[+ Add variable](#)

5. Click **Back**
6. In **Found** frame, Click **Edit** icon for the second condition, then open the **Context editor** and fill it like this:

Resp1 context variable: *texttoppings*

Resp1 context value: *with <? \$pizza_toppings.join(',') ?>*

Configure slot > "Found" Response 2

If bot recognizes:

\$pizza_toppings

Then set context:

Variable	Value	
<u>\$texttoppings</u>	<u>'with <? \$pizza_toppings.join(',') ?></u>	<input type="checkbox"/>

7. Click **Back**
8. Click **Save**

11. Manage the toppings the user would like to remove

1. Click **settings** icon of the **pizza_notoppings** slot
2. In the configure slot window, click on the 3 dots menu and select **enable conditional responses**
3. In **Found** frame, add 2 responses and condition like that:
Resp1 condition: *\$pizza_notoppings && \$pizza_toppings*
Resp1 response:
Resp2 condition: *\$pizza_notoppings*
Resp2 response:.

Configure slot 4 ⋮

Check for: @pizza_notoppings.values Save it as: \$pizza_notoppings

If \$pizza_notoppings is not present then ask: Slot is optional ⓘ
Enter a prompt

When user responds, if @pizza_notoppings.values is...

Found:

	<u>If bot recognizes</u>	<u>Respond with</u>		
1	<u>za_notoppings && \$pizza_toppings</u>	<u>Enter a response...</u>	⚙️	🗑️
2	<u>\$pizza_notoppings</u>	<u>Enter a response...</u>	⚙️	🗑️


4. In **Found** frame, Click **Edit** icon for the first condition, then open the **Context editor** and fill it like this:

Resp1 context variable: *texttoppings*

Resp1 context value: *with <? \$pizza_toppings.join(',') ?> and without <? \$pizza_notoppings.join(',') ?>*

Configure slot > "Found" Response 1

If bot recognizes:

\$pizza_notoppings  and  \$pizza_toppings  

Then set context:

Variable	Value	
<u>\$texttoppings</u>	<u>ut <? \$pizza_notoppings.join(',') ?></u>	

 Add variable

5. Click **Back**

6. In **Found** frame, Click **Edit** icon for the second condition, then open the **Context editor** and fill it like this:

Resp1 context variable: *texttoppings*

Resp1 context value: *without <? \$pizza_notoppings.join(',') ?>*

Configure slot > "Found" Response 2

If bot recognizes:

\$pizza_notoppings  

Then set context:

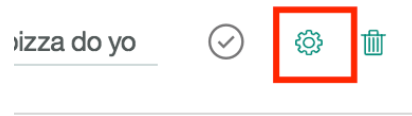
Variable	Value	
<u>\$texttoppings</u>	<u>"without <? \$pizza_notoppings.join"</u>	

7. Click **Back**

8. Click **Save**

12. Manage the confirmation

9. Click settings icon of the **pizza_confirmed** slot



10. In the configure slot window, click on the 3 dots menu and select **enable conditional responses**

11. In **Found** frame, add 2 responses and condition like that:

Resp1 condition: *#Bot_Control_Approve_Response*

Resp1 response: *Your pizza order will be finished in few minutes. Please feel free to place another order right now*

Resp2 condition: *#Bot_Control_Reject_Response*

Resp2 response: *The order has been cancelled.*

Configure slot 5

Check for: #Bot_Control_Approve_Response || # Save it as: \$pizza_confirmed

If \$pizza_confirmed is not present then ask: Slot is required ⓘ
I have you for \$pizza_size \$pizza_type \$texttoppings. Is it correct?

When user responds, if **#Bot_Control_Approve_Response** or **#Bot_Control_Reject_Response** is...

Found:

	If bot recognizes	Respond with		
1	<u>#Bot_Control_Approve_Response</u>	<u>Your pizza order will be finished in f</u>	⚙️	🗑️
2	<u>#Bot_Control_Reject_Response</u>	<u>The order has been cancelled</u>	⚙️	🗑️

⊕ Add a response

- In **Not found** frame, enter the respond:
 Resp1 condition: *true*
 Resp1 response: *Sorry, I did not understand. Can you please write yes to confirm the order or no to cancel the order all together? You can also yet change the type or size. Just say e.g. "small Margherita.*

Not found:

	If bot recognizes	Respond with	
1	<u>true</u>	<u>Sorry, I did not understand. Can yc</u>	⚙️ 🗑️

[⊕ Add a response](#)

- Click **Save**

13. Manage Handlers

You can optionally define node-level handlers that provide responses to questions users might ask during the interaction that are tangential to the purpose of the node. Right now, the handlers enable users to leave the order or get some help.

- Edit the **Pizza_ordering** node
- Click **Manage handlers**

If bot recognizes:

#order_pizza ⊖ ⊕

Then check for:

0 Manage handlers

	Check for	Save it as	If not present, ask	Type
1	<u>@pizza_size</u>	<u>\$pizza_size</u>	<u>What size of pizza do y</u>	Required ⚙️ 🗑️

You are going to add 3 handlers.

- Click twice **Add handler**

Note: to open the json editor, you must click on edit icon of the selected row then the 3 dots on the new window

4. Fill the 3 handlers as defined below (for second and third open context editor)

Handler1 condition: *#General_Agent_Capabilities*

Handler1 response: *Please provide pizza size and type, e.g large margherita, small margherita.*

Manage handlers for "Pizza Ordering" > Handler 1

If bot recognizes:

#General_Agent_Capabilities ⊖ ⊕

Then respond with:

1. Please provide pizza size and type, e.g large margherita, small margherita ⊖

Add a variation to this response

Handler2 condition: *#reset*

Handler2 response: *Resetting*

Handler2 Context 1 Variable: *pizza_size*

Handler2 Context 1 Value: *null*

Handler2 Context 2 Variable: *pizza_type*

Handler2 Context 2 Value: *null*

Manage handlers for "Pizza Ordering" > Handler 2

If bot recognizes:

#reset ⊖ ⊕

Then set context:

Variable	Value	
<i>\$ pizza_size</i>	<i>null</i>	🗑️
<i>\$ pizza_type</i>	<i>null</i>	🗑️

⊕ Add variable



And respond with:

1. Resetting ⊖




Handler3 condition: *#exit*
 Handler3 response: *exiting*
 Handler3 Context 1 Variable: *pizza_size*
 Handler3 Context 1 Value: *"no_def"*
 Handler3 Context 2 Variable: *pizza_type*
 Handler3 Context 2 Value: *"no_def"*
 Handler3 Context 3 Variable: *pizza_confirmed*
 Handler3 Context 3 Value: *false*


Manage handlers for "Pizza Ordering" > Handler 3

If bot recognizes:


#exit  

Then set context:

Variable	Value	
<i>\$ pizza_confirmed</i>	<i>false</i>	
<i>\$ pizza_size</i>	<i>"no_def"</i>	
<i>\$ pizza_type</i>	<i>"no_def"</i>	







 Add variable

And respond with:

1. *exiting* 

Then you should have

If answer to any prompt is not found and:

	If bot recognizes	Respond with		
1	<i>#General_Agent_Capabilities</i>	<i>Please provide pizza size and type, e</i>		
2	<i>#reset</i>	<i>Resetting</i>		
3	<i>#exit</i>	<i>exiting</i>		

5. Click **Save**

14. Test your Slots

1. Open **Try it out** panel and Enter successively:

*I want to order a pizza
pepperoni
A small one
Yes*

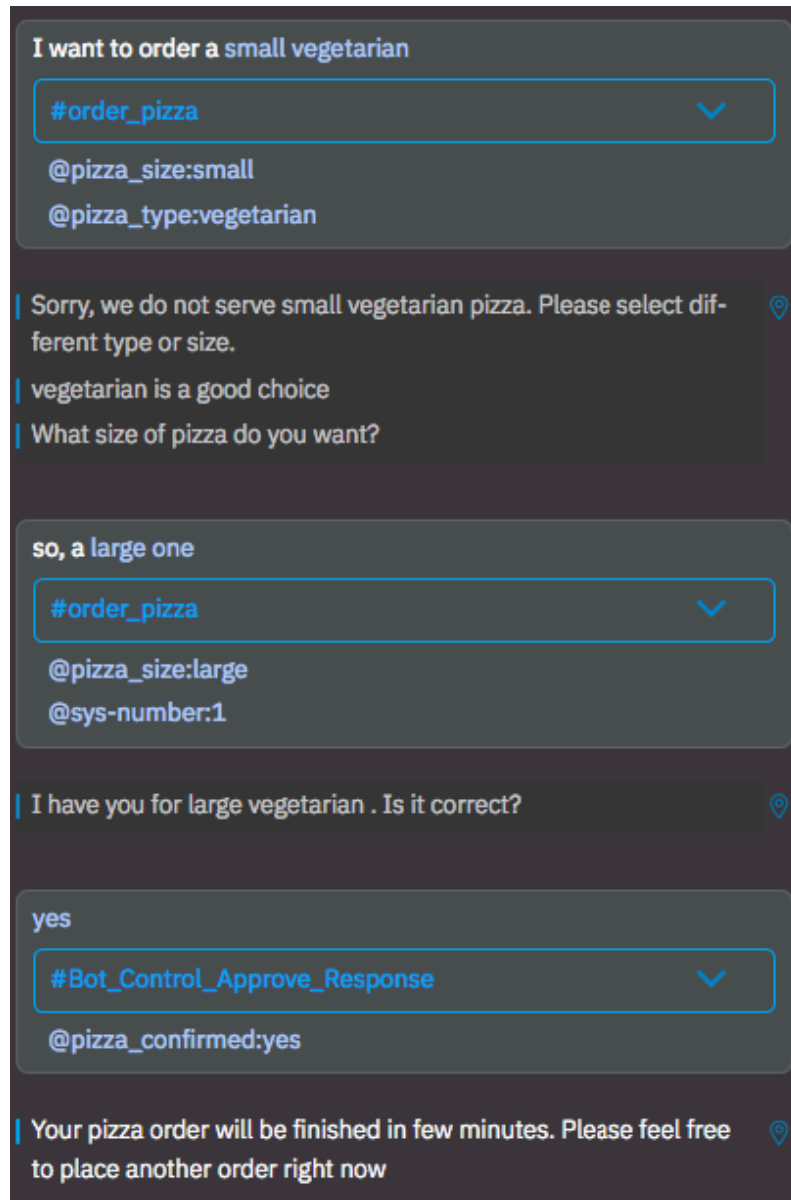
The screenshot displays a chat window with a dark background. It shows a sequence of messages and user inputs:

- Bot Message 1:** "I want to order a pizza" with a location pin icon. Below it is a slot containing "#order_pizza" and "@restaurant:pizza_restaurant".
- Bot Message 2:** "Can you provide us the pizza size (small, medium, large) and the pizza type (vegetarian, mexicana, quatro formaggi, pepperoni, margherita)?" with a location pin icon.
- User Input 1:** "pepperoni" in a slot containing "#order_pizza", "@pizza_toppings:pepperoni", and "@pizza_type:pepperoni".
- Bot Message 3:** "pepperoni is a good choice. But be warned, pepperoni is very hot!" with a location pin icon.
- Bot Message 4:** "What size of pizza do you want?" with a location pin icon.
- User Input 2:** "a small one" in a slot containing "#order_pizza", "@pizza_size:small", and "@sys-number:1".
- Bot Message 5:** "I have you for small pepperoni . Is it correct?" with a location pin icon.
- User Input 3:** "yes" in a slot containing "#Bot_Control_Approve_Response" and "@pizza_confirmed:yes".
- Bot Message 6:** "Your pizza order will be finished in few minutes. Please feel free to place another order right now" with a location pin icon.

2. Click **Clear**

3. Enter successively

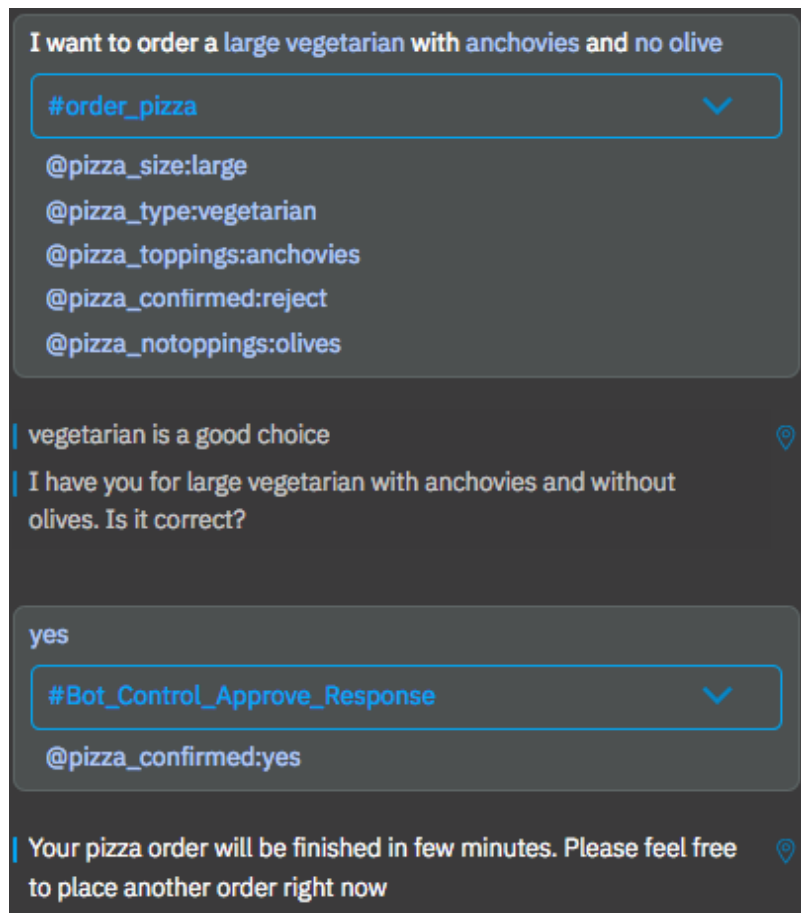
*I want to order a small vegetarian
so, a large one
Yes*



4. Click **Clear**

5. Enter successively

I want to order a large vegetarian with anchovies and no olive
Yes

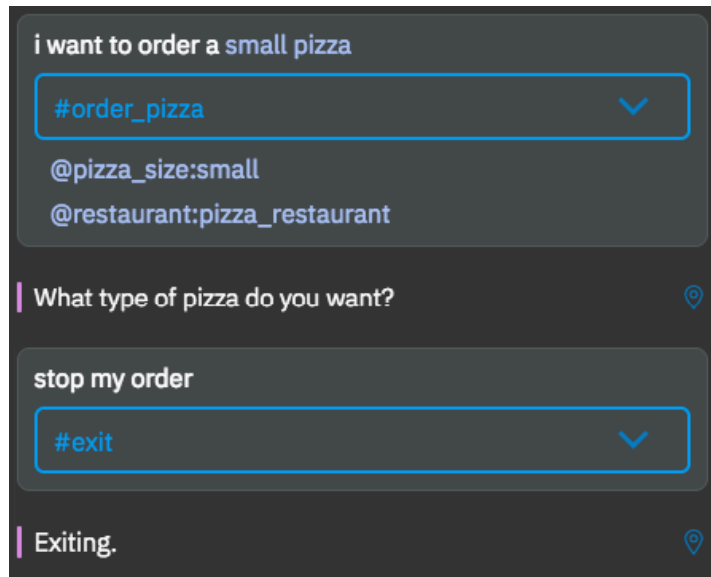


6. Click **Clear**

7. Enter successively

I want to order a small pizza

stop my order



If you open the context variable panel, you retrieve the values set by the handler. The client application has to understand that the command was cancelled. That's a possibility to stop the slot.

\$pizza_confirmed	⊖
false	
\$pizza_size	⊖
"no_def"	
\$pizza_type	⊖
"no_def"	

You can run some other tests and order a pizza by using your chatbot.

Managing nodes and folders

We can group dialog nodes together by adding them to a folder.

- It allows a dialog designer to organize content based on topics
- It is a much easier dialog tree navigation and understanding
- It allows performing of bulk setting of node settings at the folder level instead of one by one
- It is an easier separation of duties for multiple people working on the same bot

Folders have no impact on the order in which nodes are evaluated. But if a condition is specified, the service first evaluate the folder conditions to determine whether to process the nodes within it.

The nodes inherit of the digression settings of the folder.

15. Add a folder

The best should be to create a node to manage any orders, we will simplify the lab and order only pizza which can be delivered in the guestroom.

1. On the dialog tab, Select **Greeting** node and click **Add folder**
2. Name it *Hotel Amenities Management*

We don't apply neither condition nor settings, as we just want to organise our dialog.

3. Move **Hotel Hours** and **Hotel Locations** nodes in it.

The screenshot shows a dialog editor interface. On the left, a tree view shows a folder named 'Hotel Amenities Management' containing three nodes: 'Greeting', 'Hotel Hours', and 'Hotel Locations'. The 'Hotel Amenities Management' folder is highlighted. On the right, the details for the 'Hotel Amenities Management' folder are shown. It includes a search bar for 'If assistant recognizes:' and a table listing the nodes in the folder.

Dialog node name	If assistant recognizes	Children
Hotel Hours	#hotel_hours	5
Hotel Locations	#hotel_locations	0

If we make some test the behaviours of the conversation stay the same.

Understanding digressions

Digressions allow for the user to break away from a dialog branch in order to temporarily change the topic before returning to the original dialog flow. In this step, you will start to order a pizza, then digress away to ask for the restaurant's hours. After providing the opening hours information, the service will return back to the pizza ordering dialog flow.

16. Configure your digressions

We are going to configure 2 nodes and 1 folder.

4. Select **Pizza Ordering** node
5. Click on **Customize** button then go to the **Digression** tab

The screenshot shows a configuration window titled "Customize 'Pizza Ordering'". It has two tabs: "Customize node" and "Digressions". The "Digressions" tab is active. At the top, it states "Default digressions settings apply to this node". Below this, there are two main sections:

- Digressions cannot go away from this node** (checked):
 - Allow digressions away while slot filling**: A toggle switch is set to "off". Description: "Users can divert the conversation away from this node in the middle of processing slots."
 - Only digress from slots to nodes that allow returns**: An unchecked checkbox. Description: "If a user goes off topic, only nodes with digressions that allow returns will be considered."
- Digressions can come into this node** (checked):
 - Allow digressions into this node**: A toggle switch is set to "on". Description: "Users can digress to this node from other dialog flows."
 - Return after digression**: An unchecked checkbox. Description: "After this dialog flow is processed, return to the dialog flow that was previously in progress."

At the bottom right, there are "Cancel" and "Apply" buttons.

This is the default settings :

Digression cannot go away from this node

Digression can come into this node

We want to enable to go away from this node and come into this node


6. Enable this option go away from this node, don't update the second option

Customize "Pizza Ordering"

[Customize node](#) [Digressions](#)

This node has **edited** digressions settings ⓘ

✓ Digressions can go **away from** this node ⓘ


 **Allow digressions away while slot filling** **on**

Users can divert the conversation away from this node in the middle of processing slots.

Only digress from slots to nodes that allow returns

If a user goes off topic, only nodes with digressions that allow returns will be considered.

✓ Digressions can come **into** this node ⓘ

 **Allow digressions into this node** **on**

Users can digress to this node from other dialog flows.

Return after digression

After this dialog flow is processed, return to the dialog flow that was previously in progress.

[Cancel](#) [Apply](#)

7. Click **Apply**

8. Select **Hotel Amenities management** folder


9. Click on **Customize** button

Customize "Hotel Amenities management"

[Digressions](#)

Default digressions settings apply to this folder ⓘ

✓ Digressions can come **into** this folder ⓘ

 **Allow digressions into this folder** **on**

Users can digress to this folder from other dialog flows.

Return after digression

After the digression has been handled by a dialog flow within this folder, return to the dialog flow that was previously in progress.

[Cancel](#) [Apply](#)

10. Select the option **Return after digression**

11. Click **Apply**

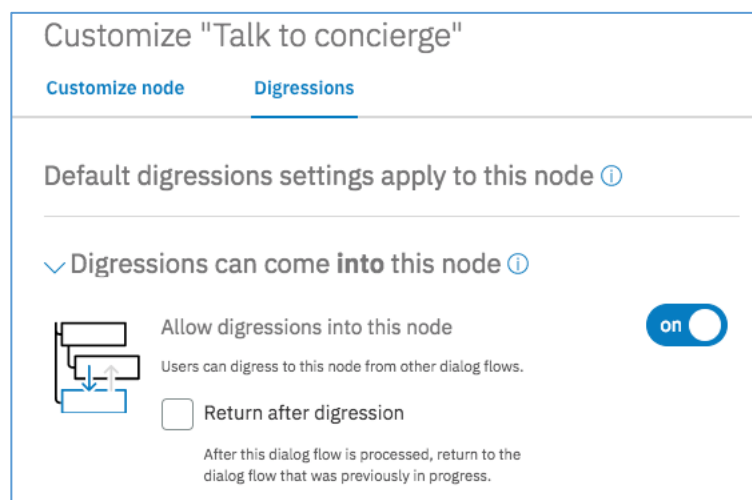
The settings will be applied to all nodes into the folder : **Hotel Locations** and **Hotel Hours**

Now, you are going to create **talk to concierge** node which requires to not return after digression.

12. Select **talk to concierge** node.

13. Click **Customize**, then go to **Digressions** tab

We keep the default digression behaviour as we want to be able to come into this node without return after digression



14. Select **Intents Confidence rate** node.

15. Click **Customize**, then go to **Digressions** tab

As this is a technical node, we don't want any digression from or to this node. We switch off the option come into this

16. Turn off the second option

Customize "Intents Confidence rate"


[Customize node](#) [Digressions](#)

This node has **edited** digressions settings ⓘ

✓ Digressions cannot go **away from** this node ⓘ

Jump to blocks digressions after this node's response
This node is configured to jump to another node or skip user input after it is processed. This will always trigger before digression occurs.

✓ Digressions cannot come **into** this node ⓘ



Allow digressions into this node off

Users can digress to this node from other dialog flows.

Return after digression

After this dialog flow is processed, return to the dialog flow that was previously in progress.

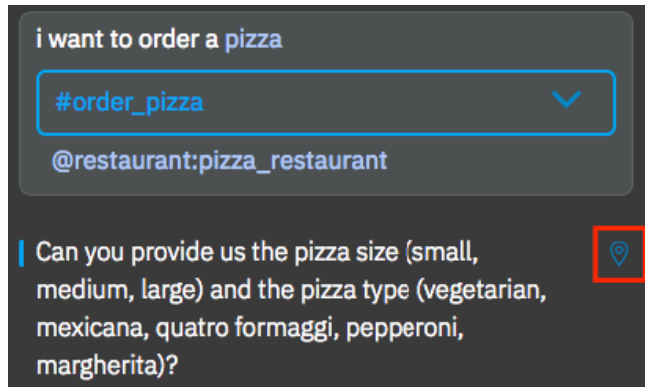
[Cancel](#) [Apply](#)

17. Click **Apply**

18. Repeat the previous steps to disable the digression for the **Anything else** node.

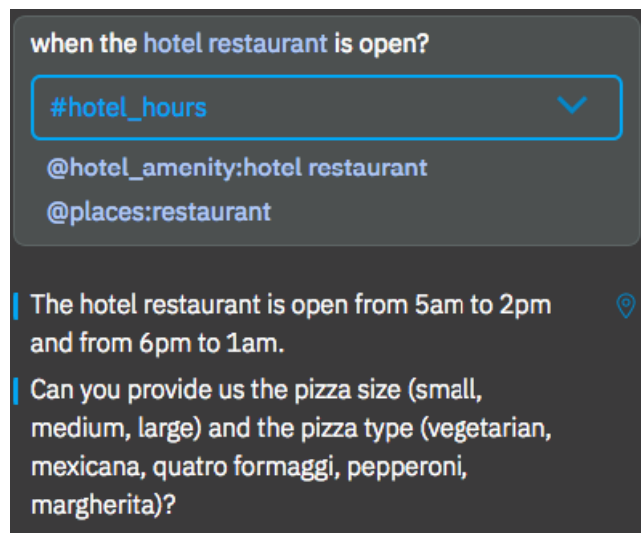
17. Test your digressions

1. Open the **Try is out** panel and click **Clear**
2. Enter : *I want to order a pizza*
3. Click on the location Icon (right to the answer)



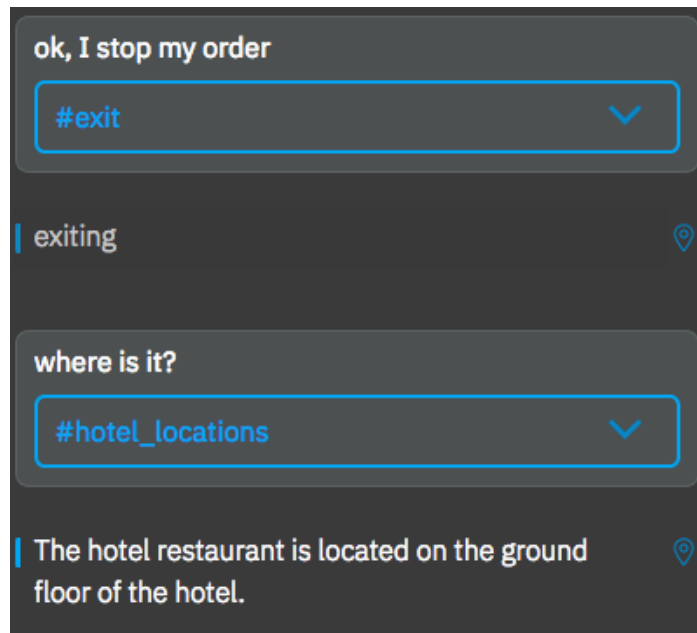
The Pizza Ordering node is highlighted, which was expected/

4. Enter : *When the hotel restaurant is open?*

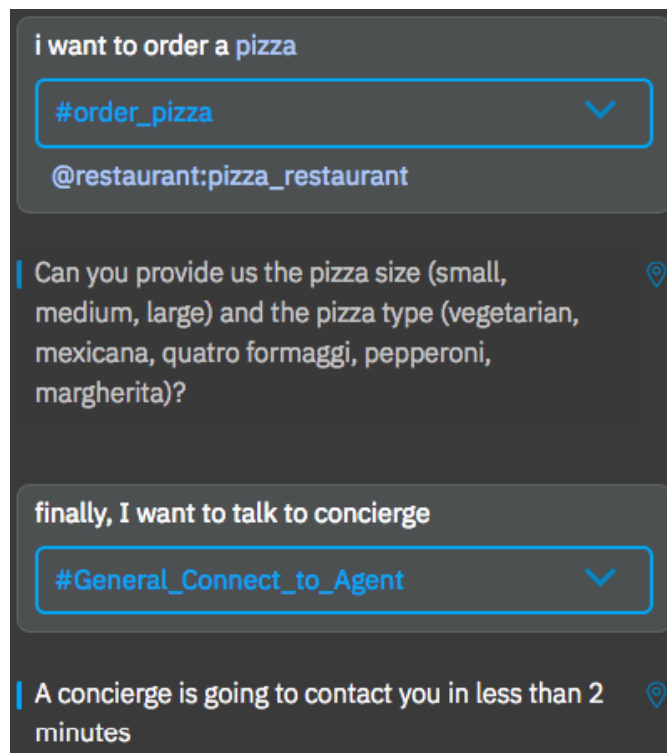


The bot digresses away from the **Pizza Ordering** node to process the **Hotel Hours** node. The service then returns to the **Pizza Ordering** node, and prompts you again for the size of pizza.

5. Enter : *ok, I stop my order* to conclude the ordering
6. Enter : *where is it?* to illustrate that the service kept the context.



7. Click **Clear**
8. Enter successively :
I want to order a pizza
finally, I want to talk to concierge



The bot digresses away from the **Pizza Ordering** node to process the **Talk to concierge** node and not returns to the **Pizza Ordering** node.

Serverless Conversation

The objective of the section is to define actions that can make programmatic calls to external applications or services and get back a result as part of the processing that occurs within a dialog turn.

You can use an external service to validate information that you collected from the user or perform calculations or string manipulations on the input which are too complex to be handled by using supported SpEL expressions and methods. Or you can interact with an external web service to get information, such as an air traffic service to check on a flight's expected arrival time or a weather service to get a forecast. You can even interact with an external application, such as a restaurant reservation site, to complete a simple transaction on the user's behalf.

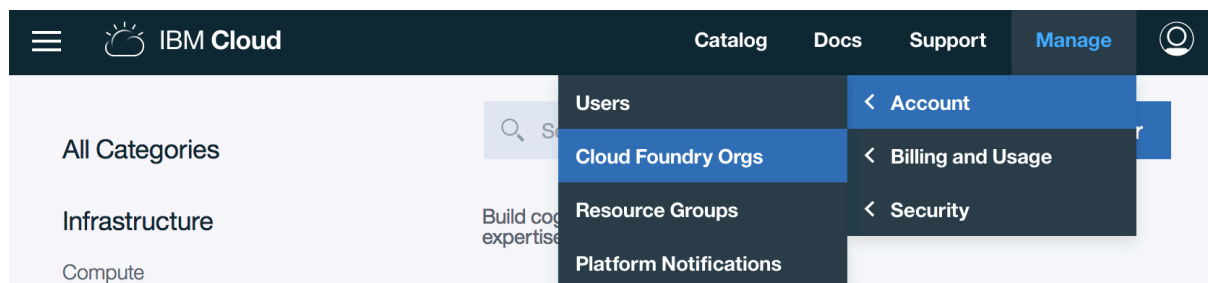
By today, you will add a new to get information about the weather forecast in Nice. We limited the location in Nice for our lab, but you can get such an information for any city around the world.

18. Create a space in US South region

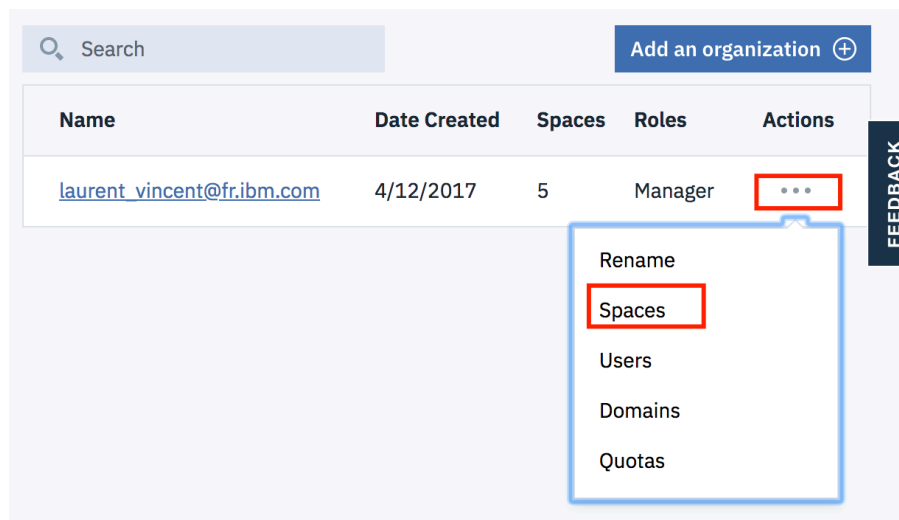
The weather service is cloud foundry service which require a space in a target region. To keep consistency, you have to create a space in US South / Dallas before being able to create a weather service in US South / Dallas.

If you have already a space in US South, select this one and move to the section 'Create a weather service', if not continue.

1. Select menu **Manage / Account / Cloud Foundry Orgs**



2. Click **Actions** of your organisation then **Spaces**



3. Click **Add a Space**
4. Select *US South / Dallas*, and give a name to your new space.

×

Create a new space

Region

US South ▾

Name

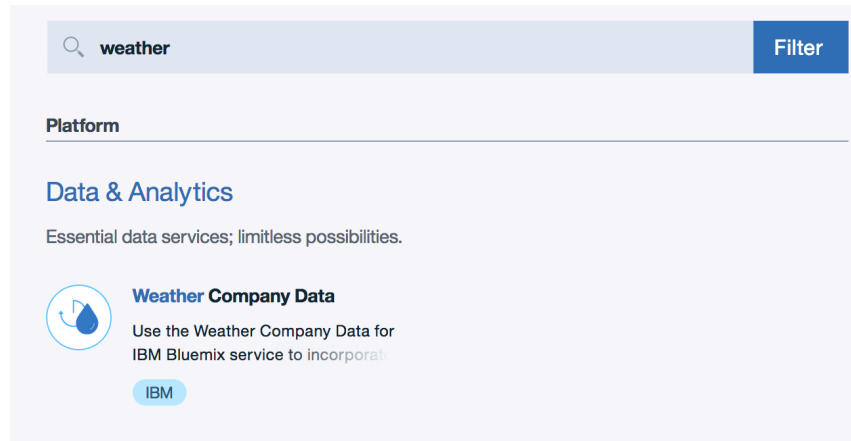
Name

Cancel Save

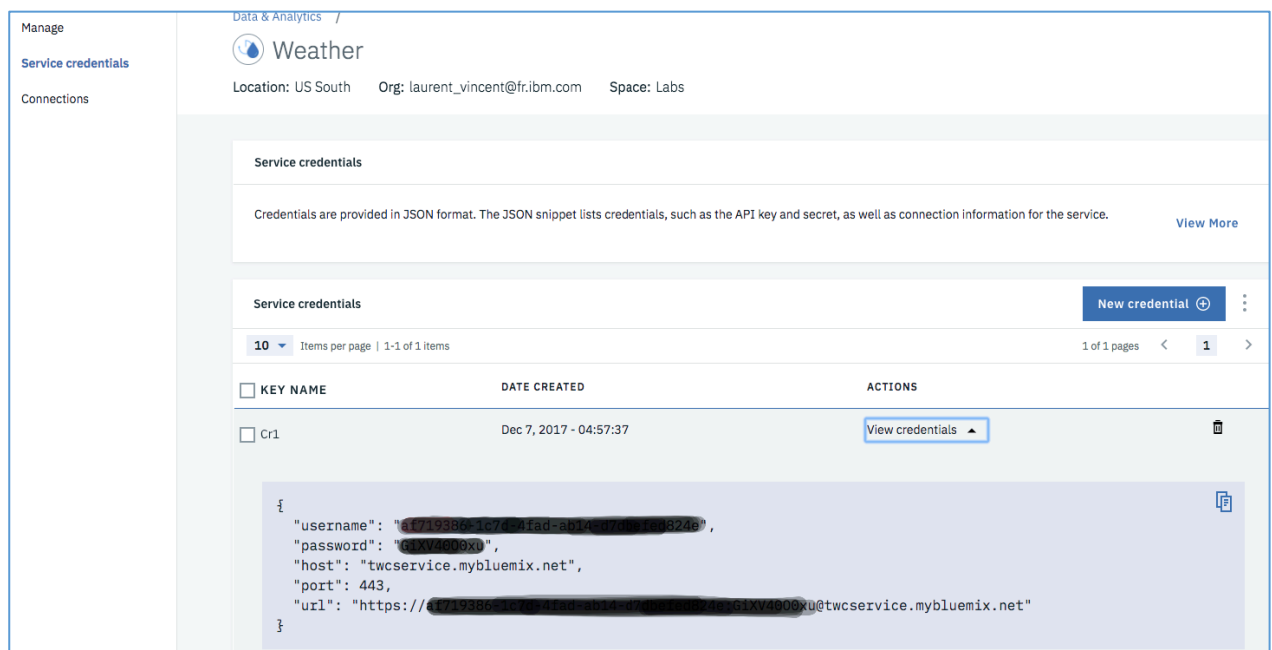
5. Click **Save**

19. Create a weather service

1. Go back to your **Dashboard**
2. Click **Create resource**
3. Look for weather service



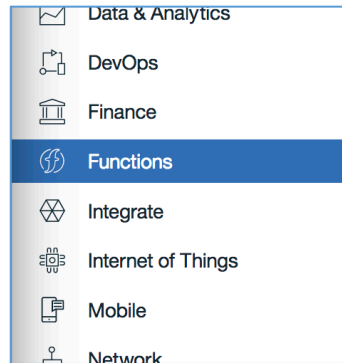
4. Click **Weather Company Data** tile.
5. Determine a name for your service and Select the region / location used for your Watson Assistant service. It should be *US South* or *Dallas*.
6. Click **Create**
7. Go to the **Service credentials** page
8. Create a new credential and copy **username** and **password** and **host**



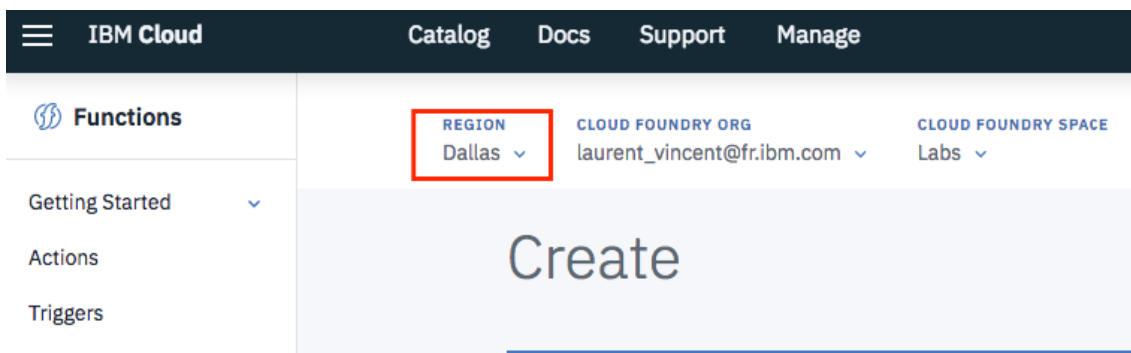
20. Instanciate a IBM Function using Weather service

You are going to create the Function called by Watson Conversation. This Function will call the Weather company service.

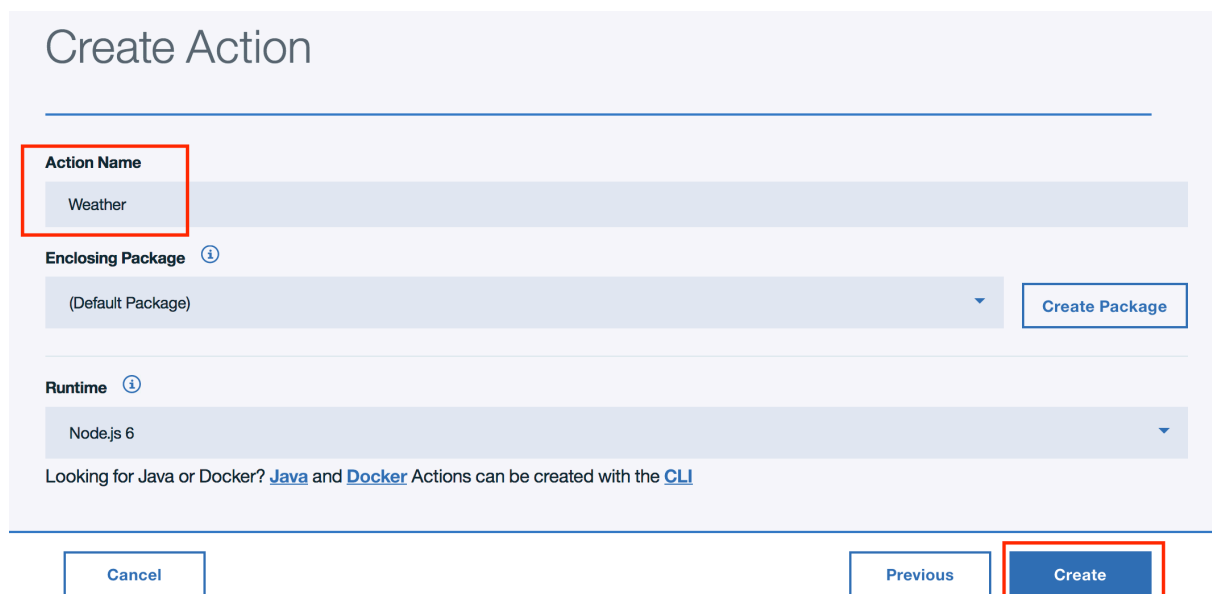
1. Click on Hamburger menu
2. Click Functions



3. Click **Start Creating**
4. Be sure to select the region used by your Watson Assistant



5. Click **Create Action**
6. Enter *Weather* as name, keep *Node.js 6*, click **Create**

A screenshot of the 'Create Action' form. The form has a title 'Create Action' and a large text input field. Below the input field are three sections: 'Action Name' with a dropdown menu set to 'Weather', 'Enclosing Package' with a dropdown menu set to '(Default Package)' and a 'Create Package' button, and 'Runtime' with a dropdown menu set to 'Node.js 6'. At the bottom of the form are three buttons: 'Cancel', 'Previous', and 'Create'. The 'Action Name' dropdown, the 'Runtime' dropdown, and the 'Create' button are highlighted with red boxes.

7. Copy / paste the code below into the Code frame of the Weather IBM Cloud Function. (the code can also be copied from the file Weather_Cloud_Function.js)

```
// Licensed to the Apache Software Foundation (ASF) under one or more contributor
// license agreements; and to You under the Apache License, Version 2.0.
```

```
var request = require('request');

/**
 * Get hourly weather forecast for a lat/long from the Weather API service.
 *
 * Must specify one of zipCode or latitude/longitude.
 *
 * @param username The Weather service API account username.
 * @param password The Weather service API account password.
 * @param latitude Latitude of coordinate to get forecast.
 * @param longitude Longitude of coordinate to get forecast.
 * @param zipCode ZIP code of desired forecast.
 * @return The hourly forecast for the lat/long.
 */

function main(params) {
  console.log('input params:', params);
  var username = params.username || '<user name>';
  var password = params.password || '<password>';
  var lat = params.latitude || '43.659';
  var lon = params.longitude || '7.192';
  var language = params.language || 'en-US';
  var units = params.units || 'm';
  var timePeriod = params.timePeriod || '10day';
  var host = params.host || '<host>';
  var url = 'https://' + host + '/api/weather/v1/geocode/' + lat + '/' + lon;
  var qs = {language: language, units: units};

  switch(timePeriod) {
    case '48hour':
      url += '/forecast/hourly/48hour.json';
      break;
    case 'current':
      url += '/observations.json';
      break;
    case 'timeseries':
      url += '/observations/timeseries.json';
      qs.hours = '23';
      break;
    case '3day':
      url += '/forecast/daily/3day.json';
      qs.hours = '23';
      break;
    default:
      url += '/forecast/daily/10day.json';
      break;
  }
}
```

```

console.log('url:', url);

var promise = new Promise(function(resolve, reject) {
  request({
    url: url,
    qs: qs,
    auth: {username: username, password: password},
    timeout: 30000
  }, function (error, response, body) {
    if (!error && response.statusCode === 200) {
      var j = JSON.parse(body);
      console.log('body:', body);
      console.log('j:', j.forecasts[0].narrative);
      var tmp = { narrative: j.forecasts[0].narrative};
      resolve(tmp);
      // resolve(j);

    } else {
      console.log('error getting forecast');
      console.log('http status code:', (response || {}).statusCode);
      console.log('error:', error);
      console.log('body:', body);
      reject({
        error: error,
        response: response,
        body: body
      });
    }
  });
});

return promise;
}

```

8. Replace `<user name>`, `<password>` and `<host>` in the source code with the username, password and host of your weather service instance.

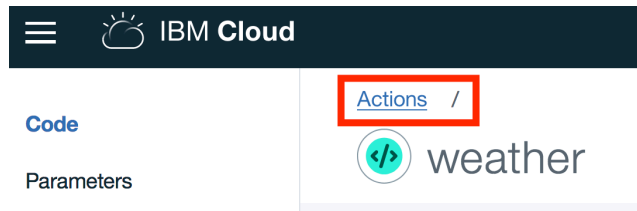
9. To test your action, click **Invoke**

The screenshot shows a workflow editor interface for an action named "weather". At the top left is a code icon and the name "weather". Below this is a "Code" section with a Node.js 6 runtime. The code is a JavaScript script that uses the 'request' library to fetch weather data from an API. The script includes a license notice and a JSDoc comment describing the function's purpose and parameters. To the right of the code editor are "Change Input" and "Invoke" buttons, with the "Invoke" button highlighted by a red box. Below the code is an "Activations" table with columns for status, name, duration, and timestamp. A single activation is shown with a green checkmark, the name "weather", a duration of "1031 ms", and a timestamp of "1/23/2018, 18:00:07". Below the activations is a "Results" section showing a JSON object with a "narrative" field containing the text "Scattered thunderstorms possible. Low 26C.", which is also highlighted by a red box. There is also a "Logs" section at the bottom.

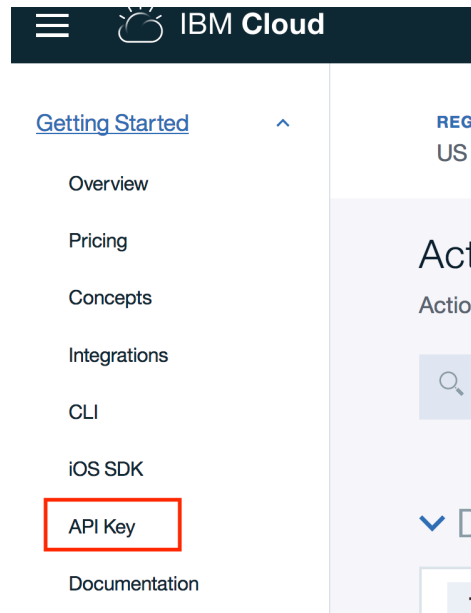
The action should return the current weather in Nice. You can imagine to provide the Hotel location to get the local weather forecast.

21. Get IBM Function credential

1. On top of the page click **Actions** /



2. Expand **Getting Started** menu and click **API Key**



3. Click **copy** icon



4. Paste it in any text editor

You should get something like this:

```
<Function User ID>:<Function Password>
```

The User ID is all characters before :

The Password is all characters after :

5. Copy also the **Current Namespace**

23. Create the weather branch

We are going to create nodes to leverage the Weather forecast provided by the weather company service via IBM Cloud Function.

1. Select the anything else node and Add a node above and fill it this

Name : *Call Weather Function*

Condition : *#weather*

2. Open the JSON editor
3. Copy Paste the code below

```
{
  "output": {},
  "actions": [
    {
      "name": "/<Your name space>/Weather",
      "type": "cloud_function",
      "parameters": {
        "latitude": "$private.location.latitude",
        "longitude": "$private.location.longitude",
        "timePeriod": "10day"
      },
      "credentials": "$private.mycredential",
      "result_variable": "context.weather"
    }
  ]
}
```

4. Replace the name space with yours

Then respond with:

```
1 {
2   "output": {},
3   "actions": [
4     {
5       "name": "/laurent_vincent@fr.ibm.com_Labs/weather",
6       "type": "cloud_function",
7       "parameters": {
8         "latitude": "$private.location.latitude",
9         "longitude": "$private.location.longitude",
10        "timePeriod": "10day"
11      },
12      "credentials": "$private.mycredential",
13      "result_variable": "context.weather"
14    }
15  ]
16 }
```

5. Add a child to **Call Weather Function** node and fill it like this:

Name: *Display weather forecast*

condition: *true*

response: *The forecast today in Nice is \$weather.narrative*

Display weather forecast Customize ✕

If bot recognizes:

true ⊖ ⊕

Then respond with:

Text Move: ^ v 🗑️

the forecast today in Nice is \$weather.narrative ⊖

Enter response variation

Response variations are set to **sequential**. Set to [random](#) | [multiline](#) ⓘ

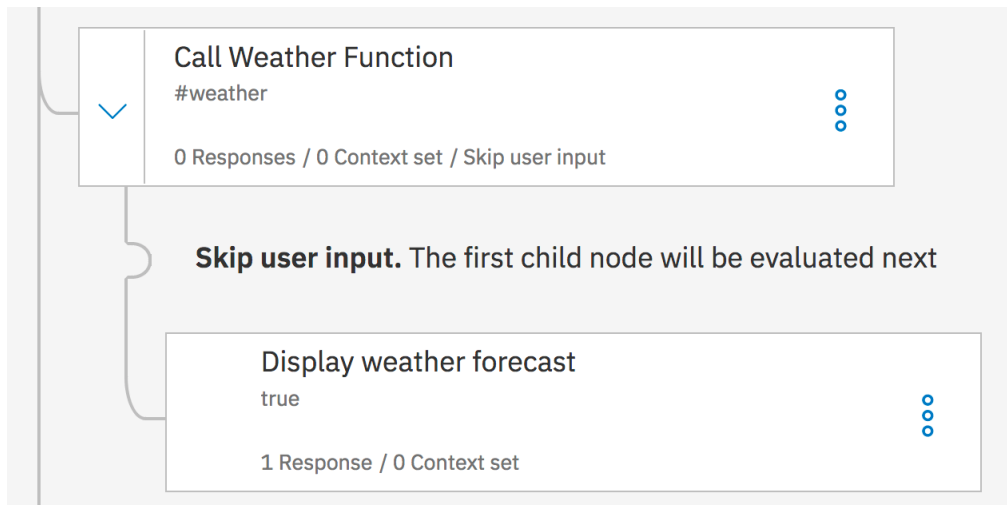
6. Return to **Call Weather Function** node and select the option **Skip user input**

And finally

Skip user input ⌵ and evaluate child nodes ⊖

7. Close the node editor
8. Return to **Call Weather Function** node and select the option **Skip user input**
9. Close the node editor

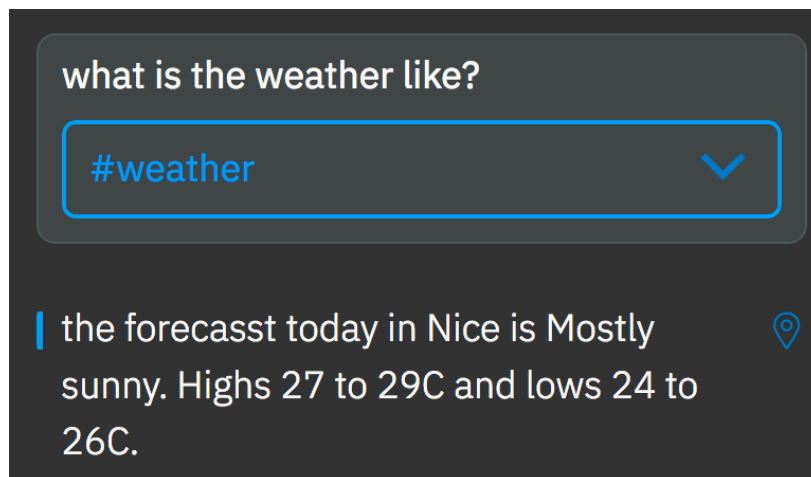
The final Weather branch should look like this:



24. Test your serverless conversation

1. Open **try it out** frame
2. Enter *What is the weather like?*

The service should display the weather forecast:



The final dialog should look like this:

