

IBM Business Automation and Digital Labor Demos and Labs

Introduction to IBM watsonx Orchestrate.

V 3.1

wxO 2024.08.29

Bu Feng Hou - houbf@cn.ibm.com
Juergen Lukas - jlukas@de.ibm.com
Paul Pacholski - pacholsk@ca.ibm.com
Zhong Tao Gao - gaozt@cn.ibm.com

Table of Contents

1 Introduction	3
1.1 IBM watsonx Orchestrate	3
1.2 Lab Scenario	3
1.2.1 Client Onboarding Use Case	3
1.2.2 IBM watsonx Orchestrate Services Upsell Solution	3
1.2.3 Solution Architecture	3
1.3 Lab Overview	5
1.4 Lab Setup Instructions	6
1.4.1 Systems, Lab Files, and Credentials	6
1.4.2 Customize the OpenAPI Files	6
1.4.3 Login to wxO	6
2 Exercise: Experience the Orchestrate "Builder" Role	8
2.1 Import Skills	8
2.2 Publish Skills to Skill Catalog	10
3 Exercise: Experience the Orchestrate "User" role	12
3.1 Add Skills from the Skill Catalog	12
3.1.1 Add the Skill You Imported – Category 1	13
3.1.2 Add the Imported Skills – Category 2	15
3.2 Test the Solution As Is	17
3.3 Enhance User Experience with a Skill Flow	20
3.3.1 Create Skill Flow	21
3.3.2 Configure Skill Flow	24
3.3.3 Enhance the Skill	26
3.4 Add Skill Flow from the Skill Catalog	32
3.5 Test the Solution with Skill Flow	33
3.5.1 Test 1 - Upsell Offer is Auto-approved	33
3.5.2 Test 2 - Upsell Offer Requires Manager's Approval	38
3.5.3 Verify the Upsell Offer Email is in the Client's Mailbox.	44
Appendix A. Overview of the "Administrator" Role	46

1 Introduction

1.1 IBM watsonx Orchestrate

IBM watsonx Orchestrate uses natural language processing to draw from a catalog of basic and advanced skills to execute your requests - in context and the correct order. No specialized training is needed. Get started in minutes using prebuilt skills designed for you and your needs. IT doesn't even have to get involved (unless they want to, of course).

To learn more about IBM watsonx Orchestrate, click [here](#). To see the technical documentation, click [here](#).

1.2 Lab Scenario

1.2.1 Client Onboarding Use Case

Focus Corp is a business services provider that offers various services for different industries. Focus Corp uses a fully automated client onboarding solution to provide onboarding services to its clients. Watch this video to see how client onboarding requests are completed: <https://ibm.box.com/v/CLIENT-ONBOARDING-USE-CASE>

1.2.2 IBM watsonx Orchestrate Services Upsell Solution

The company's quarterly services upsell initiative is critical to demand generation; however, it is increasingly difficult to manage and execute. Quarterly sales campaigns could be more efficient and effective. Completing quarterly promotions takes over ten weeks. Due to time limitations, the sales team can only include some eligible customers. Managers are looking for a faster and more effective way of launching upsell offers.

In this lab, you will build an IBM watsonx Orchestrate solution that re-imagines the quarterly promotions process. You will be re-using the existing IT assets to author an intelligent, AI-driven solution that pulls customer data from the system of record and creates targeted emails.

Note: From now on, we will use the acronym "wxO" to refer to IBM watsonx Orchestrate and "BAW" for IBM Business Automation Workflow.

1.2.3 Solution Architecture

Before we discuss solution architecture, let's introduce some key wxO programming model concepts.

1.2.3.1 What are Skills, Skill Flow, and Apps?

Skill is a wrapper around Automation (such as BAW Service Flows exposed as REST API) that enables a non-technical user to invoke it through Natural Language. Skills are packaged in Apps.

Apps are collections of related skills with the same connection information and authorization. OpenAPI import files define Apps.

Skill Flow is the linear orchestration of skills from the same or different apps. It can also be "trained" to provide a Natural Language interface. Technical Lead, IBM Business Automation and Digital Labor, SWAT

1.2.3.2 Solution Architecture

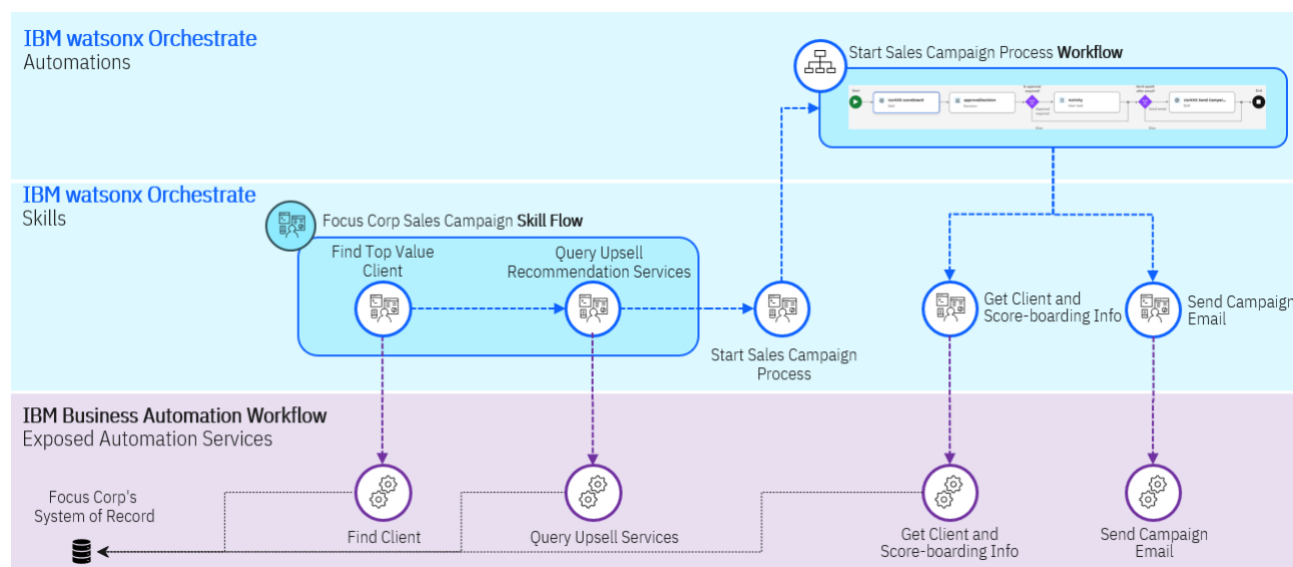


Figure 1. Upsell Campaign Solution Architecture

The user interaction starts when the sales specialist asks wxO to "start a sales campaign." This action invokes the Focus Corp Sales Campaign Skill Flow.

The first Skill in the Skill Flow retrieves a list of customers suitable for an upsell campaign from the System of Records. The second Skill suggests the appropriate upsell services. The user selects the client (from a list prepared by wxO) and specifies the upsell services (from a list prepared by wxO).

Next, the sales specialist user starts the Start Sales Campaign Process Skill based on wxO's suggestion (next best Skill). This Skill is implemented as a wxO automation (Workflow).

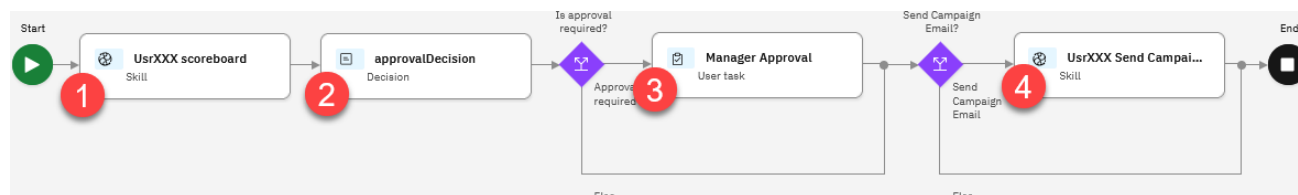


Figure 2. Sales Campaign Approval Workflow

The Workflow contains **scoreboarding (1)** (which re-uses an existing automation). Based on the risk determined by the scoreboarding and other factors, a **decision (2)** will determine if it will be auto-approved, auto-rejected, or manual **Sales Manager approval (3)** is required. In case of manual approval, the sales manager will be involved as part of the Workflow. The sales manager can use the wxO task list to look at the upsell offer, modify the upsell services, and decide to approve or reject it. Finally, the Workflow sends a **customized email (4)** specific to the selected client and upsell services, but only if the sales offer is approved.

Note that the Workflow Automation was already prebuilt and exposed as a Skill in this lab. The second wxO lab contains step-by-step instructions on how to build this Automation.

1.2.3.3 Skill Implementation

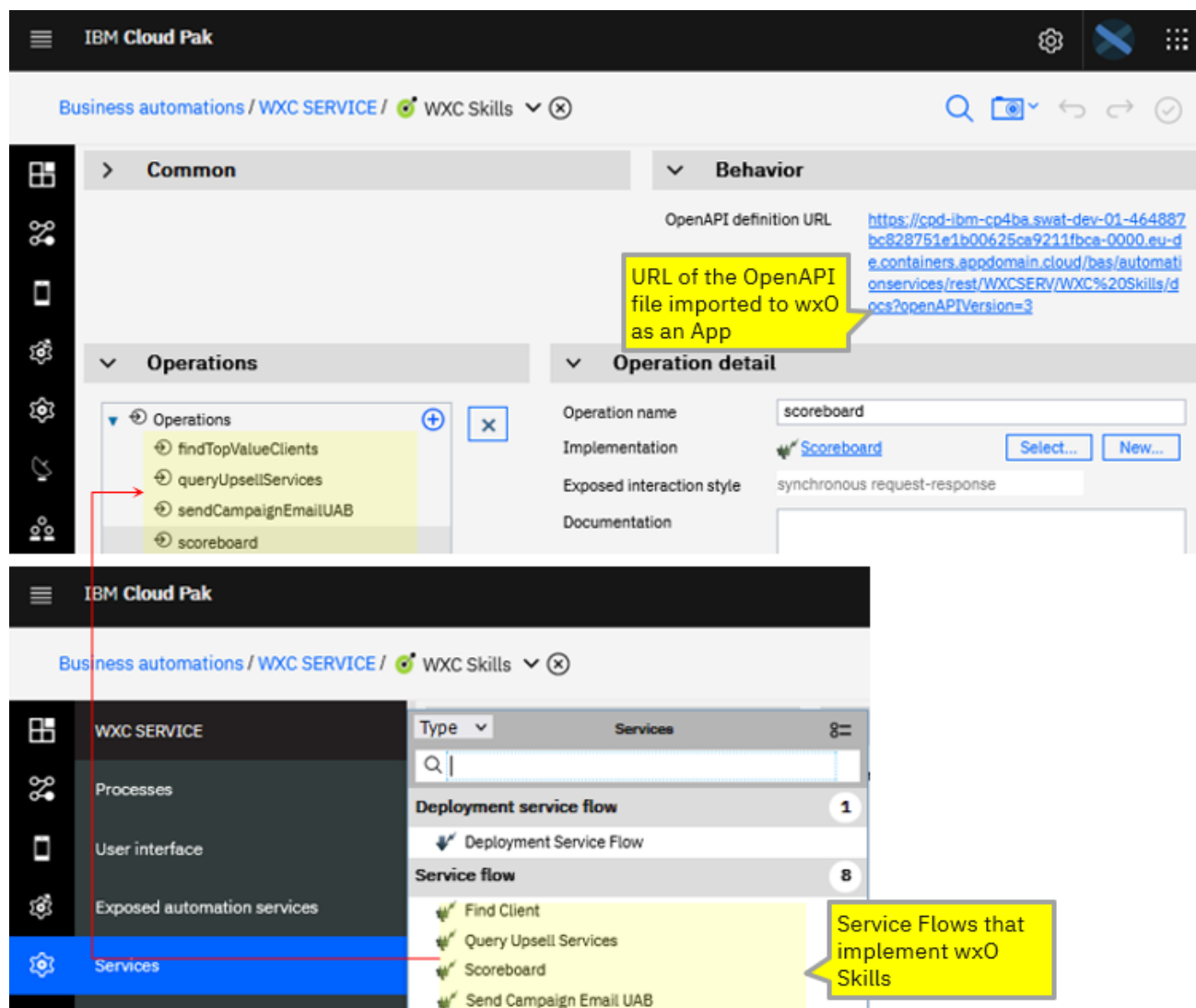


Figure 3. Service Flows that Implement wxO Skills

Skills are implemented using Service Flows authored using BAW and are exposed as operations in two OpenAPI files.

1.3 Lab Overview

This lab is structured around the three roles defined in wxO – see the details [here](#).

Role	Tasks Performed in this Lab
Builder	Import Skills Publish Skills to Skill catalog Enhance User Experience with a Skill Flow
User	Add Skills from the Skill catalog Test the Solution As Is Add Skill Flow (created by a Builder) from the Skill catalog Test the Solution with Skill Flow
Administrator	Since we don't have an admin ID available to everyone, we would like to point you to Appendix A. Overview of the "Administrator" Role to familiarize yourself with this role.

Approximate Duration of this lab: 2-3 hours

1.4 Lab Setup Instructions

1.4.1 Systems, Lab Files, and Credentials

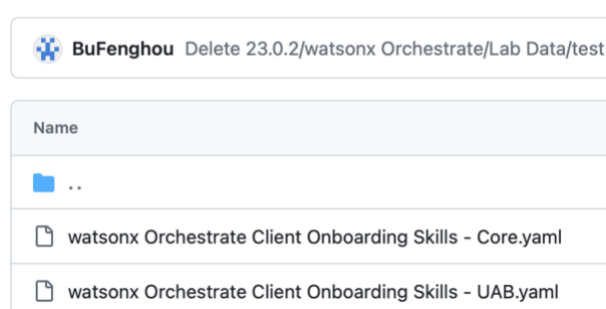
Access the Tech Jam GitHub page that lists the available systems, URLs, and login instructions. For this lab, you will need to access:

- IBM watsonx Orchestrate
- Local Mail Client

1.4.2 Customize the OpenAPI Files

Download the **watsonx Orchestrate Client Onboarding Skills - Core.yaml** file to your computer from the Lab Data folder.

[cp4ba-labs](#) / [23.0.2](#) / [watsonx Orchestrate](#) / [Lab Data](#) / 



The OpenAPI file *watsonx Orchestrate Client Onboarding Skills - Core.yaml* includes definitions of the REST call to invoke the two REST Services, which expose Service Flows authored in IBM Business Automation Workflow. You will use this file to create Skills in wxO.

Since we are using a shared wxO environment, you need to perform the steps below to ensure your Skills have unique names and to define the connection to the Server (using your **CP4BA Credentials**) where the Service Flows are running.

_1. Navigate to your desktop and use a text editor to **Open** the *watsonx Orchestrate Client Onboarding Skills - Core.yaml* file.

_2. Replace all occurrences of **UsrXXX** with **the CP4BA Credentials**, e.g., usr002.

```
openapi: 3.0.1
info:
  title: UsrXXX Client Onboarding App Core
  version: tipSnapshot
  description: UsrXXX Client Onboarding Skills Core
  x-ibm-application-id: CP4BACoreUsrXXX
  x-ibm-application-name: UsrXXX Client Onboarding App Core
  x-ibm-application-icon: >-
```

_3. **Save and close** watsonx Orchestrate Client Onboarding Skills-Core.yaml file.

1.4.3 Login to wxO

_1. In your Web Browser, open **IBM watsonx Orchestrate** (see [1.4.1 Systems, Lab Files, and Credentials](#))

_2. Enter your IBM ID and click **Continue to log in**.

Log in to IBM Watson Orchestrate

Don't have an account? [Book a demo](#)

Continue with IBMid

[Forgot ID?](#)

pacholsk@ca.ibm.com

Continue



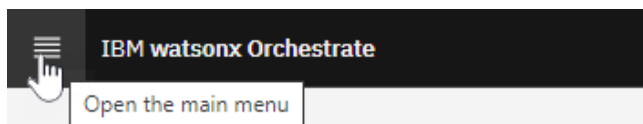
2 Exercise: Experience the Orchestrate "Builder" Role

The builder is responsible for providing and authoring the building blocks of wxO solutions. Based on the input from the end users of wxO solutions, the builder creates Skills from external services and adds them to the Skill catalog.

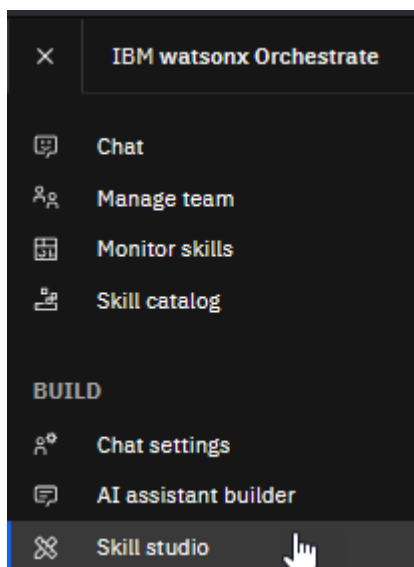
2.1 Import Skills

In this lab section, you will create Skills from the BAW services defined in the watsonx Orchestrate Client Onboarding Skills—Core.yaml file and add them to the Skill Catalog.

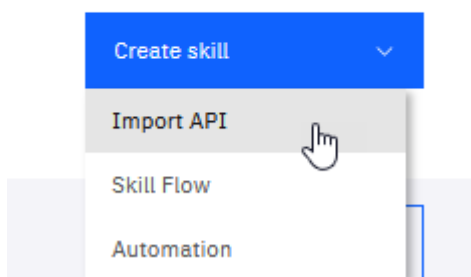
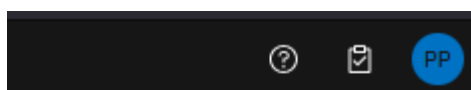
_1. Click the **Hamburger** menu.



_2. Click **Skill studio**.



_3. In the top-right, click **Create Skill > Import API**.



_4. From Choose the source, click **From a file**.

Choose the source

To discover new skills, connect to an app or refer to an OpenAPI file.

From an app

From a file


OpenAPI builder (experimental)

_5. From your desktop, drag and drop *watsonx Orchestrate Client Onboarding Skills - Core.yaml* to **drag and drop files here** or click the **upload box**.

Import a skill file

Ensure your file is in the .json, or yaml format and no larger than 50 MB.

[Drag and drop files here or click to upload](#)

 *watsonx Orchestrate Client Onboarding Skills - Core.yaml*

Make sure you see the "...good to go!" message.

watsonx Orchestrate Client Onboarding ×

The OpenAPI file or skill package is good to go! ✓

_6. In the bottom-right corner, click the **Next** button.

Cancel

Next

_7. **Select** all the skills you imported and click the **Add** button.

Choose skills

you can choose which skill to add here

2 out of 2 selected



	Skill	Description	Status
✓	UsrXXX Find Top Value Clients	Find top value clients based o...	✓ Ready to add
✓	UsrXXX Query Upsell Recommenda...	Query recommended upsell servi...	✓ Ready to add

Cancel

Add

_8. Click **X** to close the message.

✓ 2 skills were added successfully. ×

11:23:49

_9. To see only your Skills, in the *search bar*, enter **UsrXXX** (where XXX are the digits of your CP4BA Credentials user id) and hit the **Enter key**.

Q UsrXXX

Notes:

- Once published, skills will be prefixed with UsrXXX (where XXX is the user ID you used when you replaced the value in the yaml file). Also, note that the status of your skills is set to "Ready to publish."
- If you cannot find your Skill using a partial name, try entering the full skill name, i.e., UsrXXX Find Top Value Clients.

Name	Step in the process	Status	Skill type	Author	Last edited
UsrXXX Find Top Value Clients	Just 1 step away to be ready	Ready to publish	Imported	pacholsk@ca.ibm.com	March 26 2024
UsrXXX Query Upsell Recommendation Ser...	Just 1 step away to be ready	Ready to publish	Imported	pacholsk@ca.ibm.com	March 26 2024

2.2 Publish Skills to Skill Catalog

The skills in the "Ready to publish" state can be published to make them available in the skill catalog. Before publishing, we can make some changes and enhancements. Let's explore Skill enhancement and publishing.

_1. On the row with *UsrXXX Find Top Value Clients*, select the **vertical ellipses (3 dots)**, and then click **Enhance the Skill**.

Name	Step in the process	Status	Skill type	Author	Last edited	
UsrXXX Find Top Value Clients	Just 1 step away to be ready	Ready to publish	Imported	pacholsk@ca.ibm.com	March 25 2024	:
UsrXXX Query Upsell Recommendation Ser...	Just 1 step away to be ready	Ready to publish	Imported	pacholsk@ca.ibm.com	Ma	Enhance this skill Export this skill Delete this skill

_2. Examine the tabs that we can use to enhance a Skill before publishing.

[Skills and apps](#) / Enhance this skill

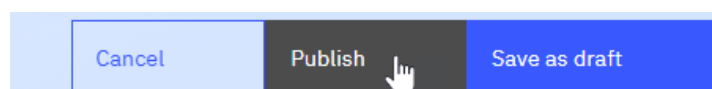
Enhance the “UsrXXX Find Top Value Clients” skill

Add details that will make people want to use this skill.

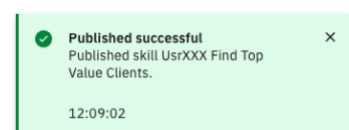
Name	Input	Output	Security	Phrases	Next best skills
Name and describe this skill in a way that tells users how it's used and why they would want to use it.					

Tab	Enhancements
Name	Name and describe this Skill in a way that tells users how it's used and why they would want to use it. The preview shows how a skill tile will appear in the skill set and the catalog.
Input	When running the Skill, wxO asks for the necessary input to get the most accurate results.
Output	wxO responds with information that corresponds to the provided input.
Security	Specify the authentication type required to use this Skill and test the connection.
Phrases	Phrases are the text your user types in the chat box to find and use a skill.
Next best Skill	Select the skills you want Watson to suggest as the next skills people could use after they use this Skill.

_3. In the bottom-right corner, click the **Publish** button.



_4. Click **X** to close the *Published successful* message.



_5. Repeat the steps above (1-3) to publish the *UsrXXX Query Upsell Recommendation Services* Skill.

UsrXXX Query Upsell Recommendation Services	Just 1 step away to be ready	Ready to publish
---	------------------------------	------------------

_6. Verify that all the skills you have imported have been published.

Name	Step in the process	Status
UsrXXX Find Top Value Clients	Ready to use	Published
UsrXXX Query Upsell Recommendation Ser...	Ready to use	Published

3 Exercise: Experience the Orchestrate "User" role

In this part of the lab, in the "User" role, you perform the following steps:

- Add Skills from the Skill Catalog
- Test the Solution As Is
- Enhance User Experience with a Skills Flow (requires "Builder" role)
- Add Skill Flow from the Skill Catalog
- Test the Solution with Skill Flow

3.1 Add Skills from the Skill Catalog

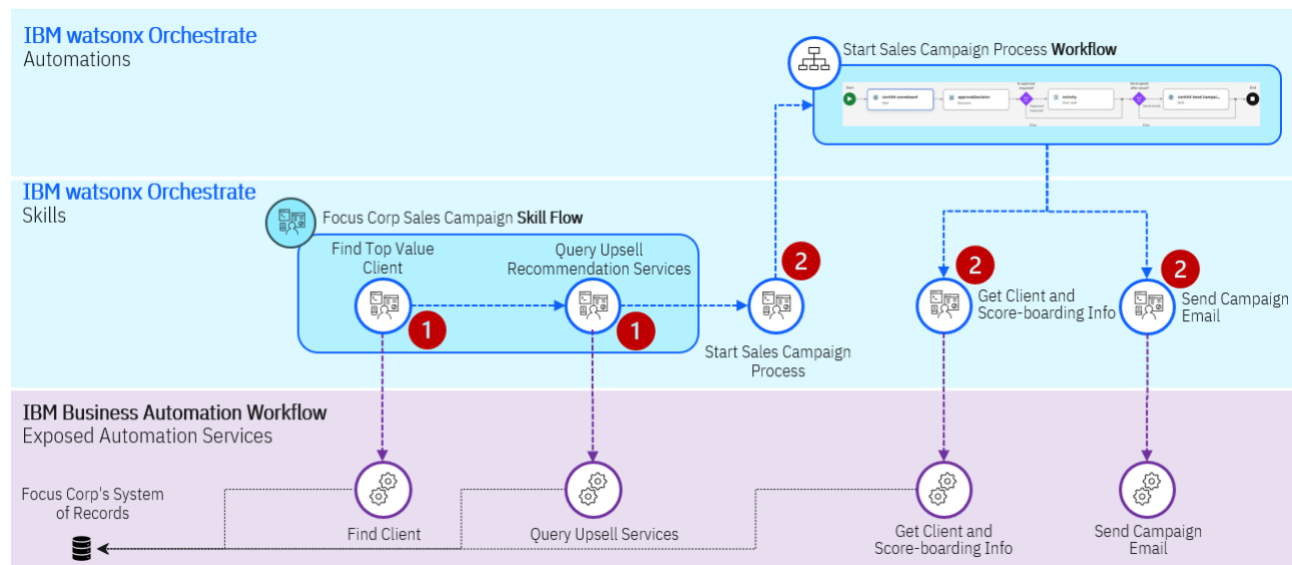
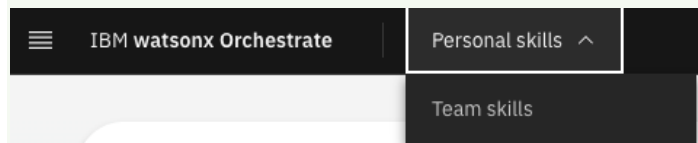


Figure 4. Skill Categories

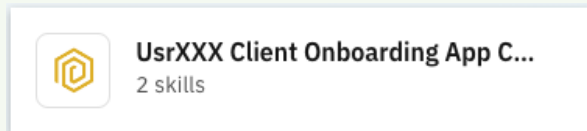
You will be adding two types of skills to your personal skill set:

- 1) The skills you just imported using the yaml file:
 - *UsrXXX Query Upsell Recommendation Services*
 - *UsrXXX Find Top Value Clients*
- 2) The Skill **we built and imported to the Skill Catalog for you:**
 - *Start Sales Campaign Process*. This Skill will launch the wxO workflow that includes the approval step and conditionally send email to customer steps. The decision to approve or reject is based on the scoreboard information and a wxO decision.
 - *Get Client and Scoreboarding Info*. This is the scoreboard skill used by the wxO Workflow. You must add it to the Skill catalog so that the wxO workflow can determine whether the offer is auto-approved, auto-rejected, or requires the manager's approval.
 - *Send Campaign Email*. This is the email skill used by the wxO Workflow. You will need to add to the Skill catalog so that the wxO workflow can use it to email the customer if the upsell offer was approved.

Note. The chat has two categories: Personal skills (skills only you can use) and Team skills (skills that all your team can use).

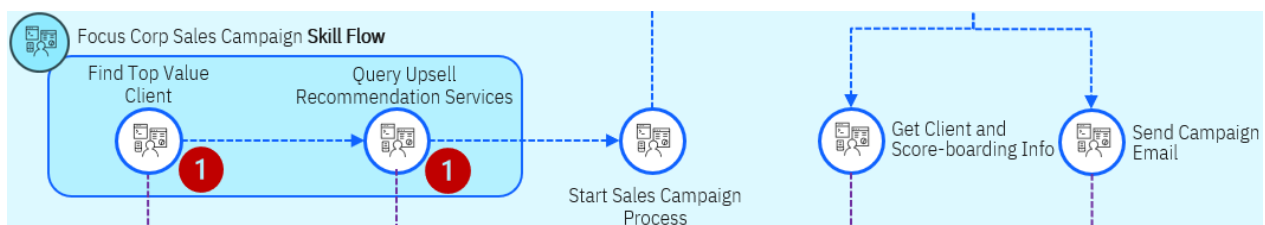


In the previous lab steps, you imported skills using the *watsonx Orchestrate Client Onboarding Skills - Core.yaml* and added them to the Skill catalog as an App.

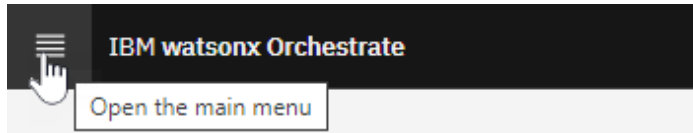


You will now add skills to Personal Skills from the Skill Catalog. Recall that you have added new Skills to the Skill Catalog in the previous part of the lab in the "Builder" role.

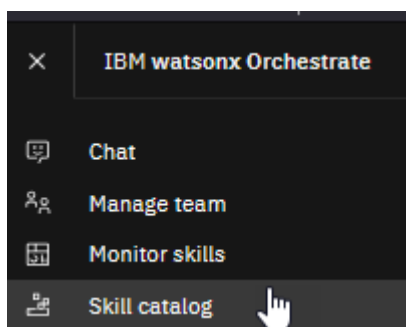
3.1.1 Add the Skill You Imported – Category 1



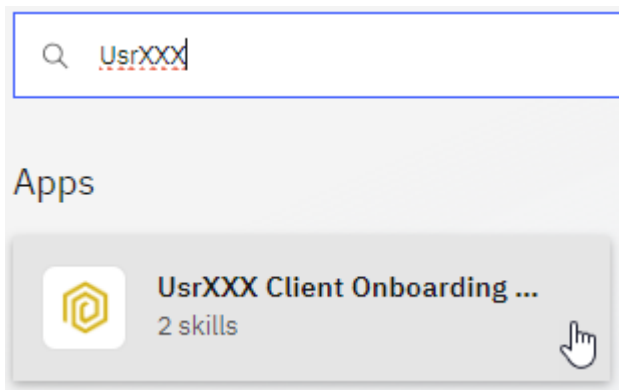
_1. Click the **Hamburger** menu.



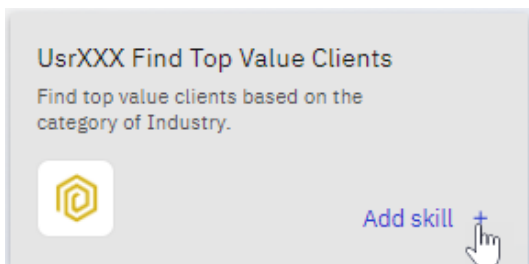
_2. Click **Skill catalog**.



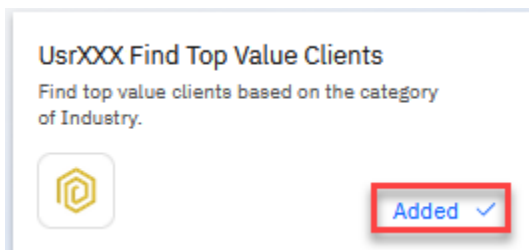
_3. In the Skill catalog, locate the **UsrXXX Client Onboarding App Core** (remember that XXX are the last three digits of your CP4BA Credentials user id) and **click on it** to open.



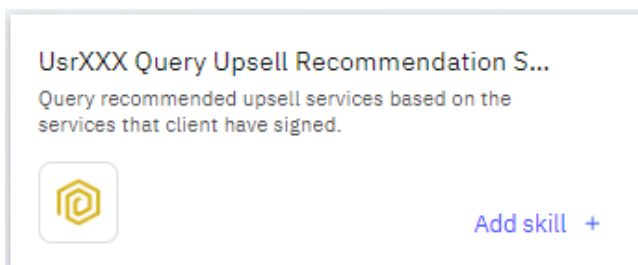
_4. Locate *UsrXXX Find Top Value Clients* Skill, and click **Add Skill +**



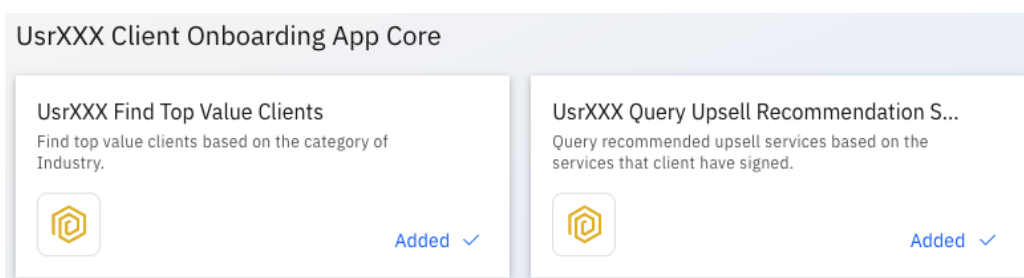
You should now see the *Added check mark* on your Skill.



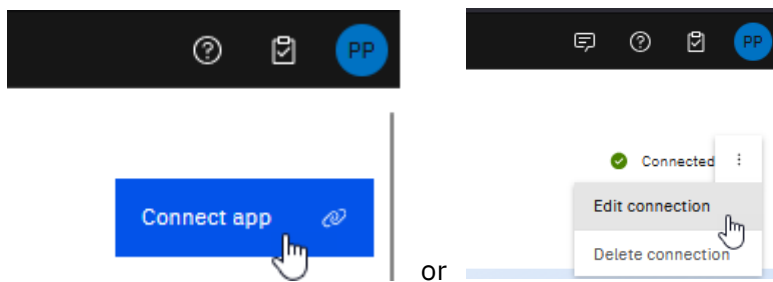
_5. Repeat the above step for the *UsrXXX Query Upsell Recommendation Services* Skill.



Make sure all Skills have the *Added check mark*.



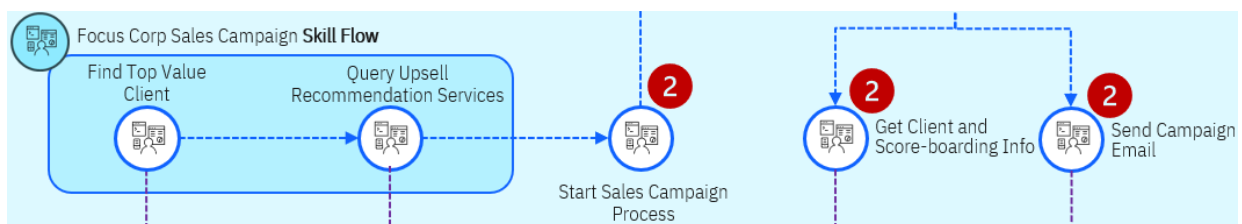
_6. To specify the security credentials for your Skills, click the **Connect app** button or **Connected > Edit Connection**



_7. For *username* and *password*, enter your **CP4BA Credentials**.

 The image shows a dialog box titled 'Connect to UsrXXX Client Onboarding App Core' with a close button (X) in the top right. It has two input fields: 'username' with the value 'usrXXX' and 'password' with masked characters '.....'. Below the password field is a note: 'If the service instance uses legacy credentials for authentication, provide the password for the specified username'. At the bottom, there are two buttons: 'Cancel' and 'Update app'. A hand cursor points to the 'Update app' button.

3.1.2 Add the Imported Skills – Category 2



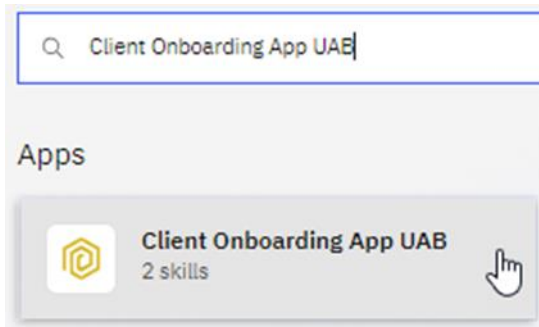
_1. Click **Skill catalog**.



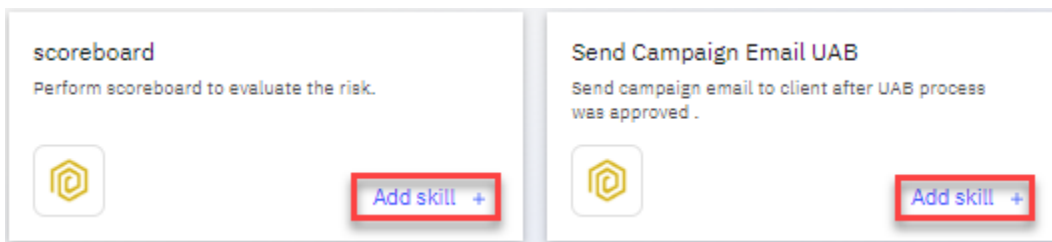
[Skill catalog](#) /

UsrXXX Client Onboarding App Core (2)

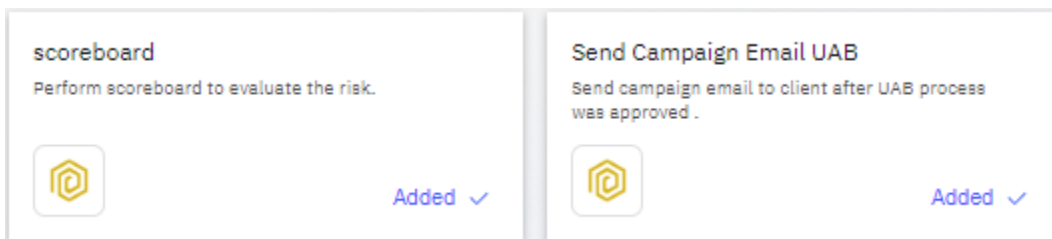
_2. Locate the **Client Onboarding App UAB** and **click on it** to open.



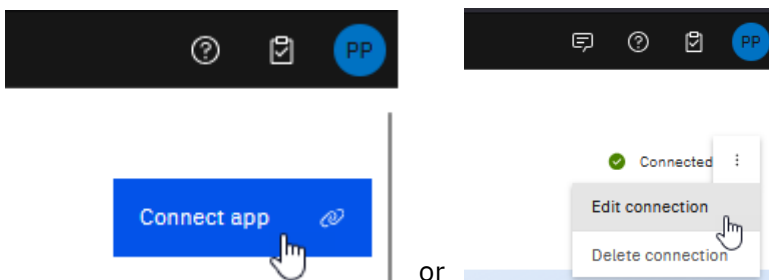
_3. Click **Add Skill +** on both skills



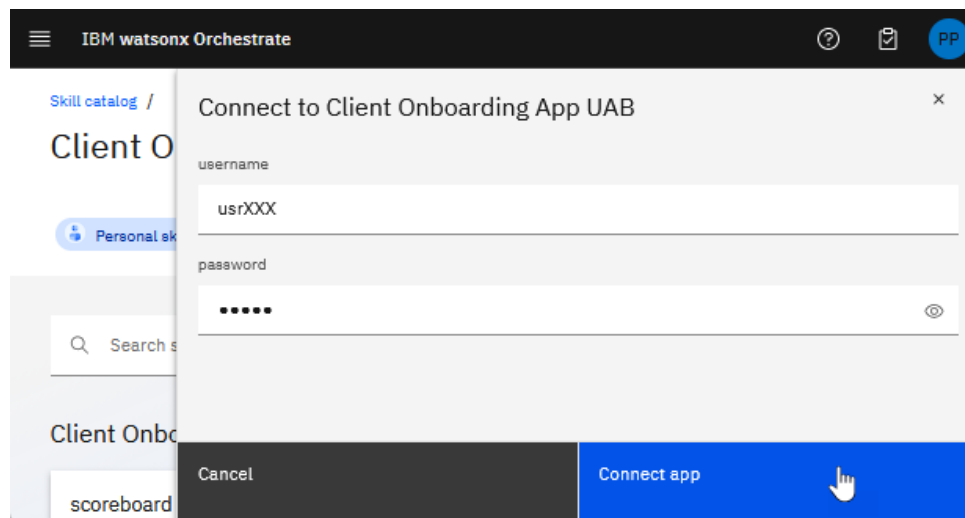
You should now see the *added checkmark* for both skills.



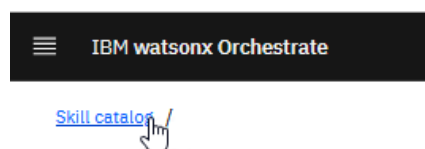
_4. To specify the security credentials for your Skills, click the **Connect app** button or **Connected > Edit Connection**



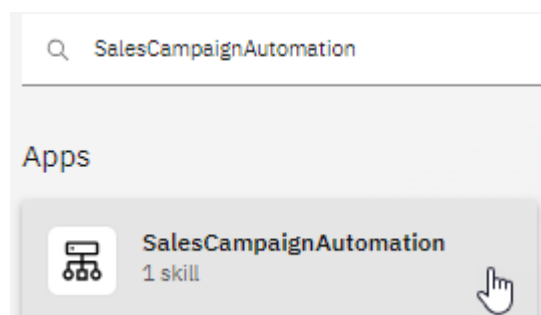
_5. For *username* and *password*, your **CP4BA Credentials**.



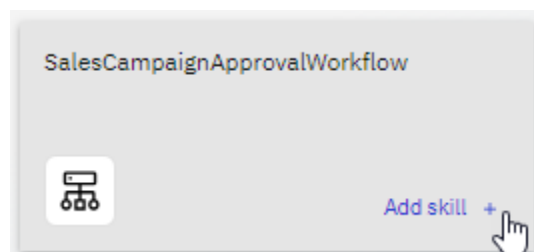
_6. Click **Skill catalog**



_7. Locate the **SalesCampaignAutomation** and **click on it** to open.



_8. Click **Add Skill +**

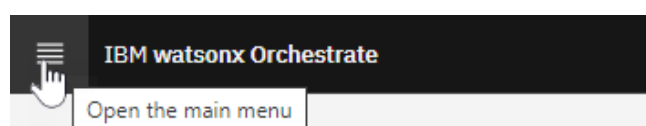


Make sure you see

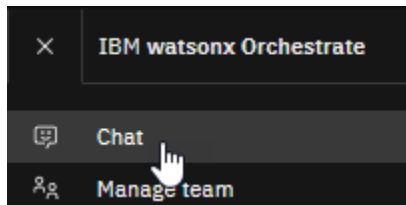
Added ✓

3.2 Test the Solution As Is

_1. Click the **Hamburger** menu.

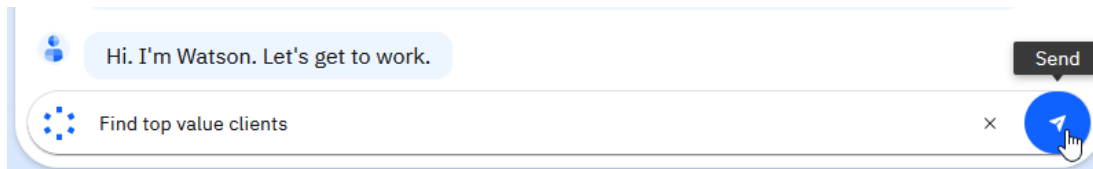


_2. Click **Chat**




_3. Enter the phrase **Find top value clients** and click **Send**

Note that the *Find Top Value Client* Skill was activated and now requests your input!



_4. Select **Finance** for *industry*; for *number_of_customers_returned*, enter **2** and click **Apply**.

Sure. Just complete this form and I'll use the UsrXXX Find Top Value Clients skill for you.

 UsrXXX Find Top Value Clients

industry *

Finance

The industry could be Finance, Telecom, Healthcare, Federal or Insurance

number_of_customers_returned *

2

How many top value clients you want to retrieve

Cancel Apply

_5. In the output returned, select **Automation Elite**, right-click, and choose **Copy**.

Top value client list that you can consider to have sales campaign

Services Requested	Annual Revenue	Industry	Country	Client Email	Client Name
External Audit;Tax Consultation	50000000	Finance	USA	june.marie@example.com	Automation Elite
Corporate Credit Card;External Audit;Tax Consultation	43892214	Finance	Australia	jim.high@example.com	Bank of Jakku

Items per page: 5 1 – 2 of 2 items 1 of 1

Suggested Enhancement: Suppose you selected Automation Elite as the target customer. You must copy the customer's name to the clipboard and supply it to the *Query Upsell Recommendation Services*.

_6. Click **UsrXXX Query Upsell Recommendation Services** for the next best action.

Select the next best action

UsrXXX Query Upsell Recommendation Services

Note. In case you wondered how wxO knew the next best action is... You can annotate the OpenAPI file to specify the next action.

```
"/queryUpsellServices" : {
  "summary" : "queryUpsellServices",
  "post" : {
    "operationId" : "queryUpsellServicesUsrXXX",
    "x-ibm-next-actions":
    [{"skill_id":"watsonx-Client-Onboarding-Skills-UsrXXX__tipSnapshot__startUpsellRequestUsrXXX",
    "utterance":"UsrXXX Start Upsell Approval Request"}],
```

Suggested Enhancement: It would be nice if the *Query Upsell Recommendation Services* Skill were invoked automatically since we always want to find out what upsell services apply to the top-value customer to whom we want to send the upsell offer!

_7. Paste **Automation Elite** for ClientName and click **Apply**.

Sure. Just complete this form and I'll use the UsrXXX Query Upsell Recommendation Services skill for you.



UsrXXX Query Upsell Recommendation Services

ClientName *

Automation Elite

Client name you want to query upsell services.

Cancel

Apply

Suggested Enhancement: The selected customer name should have been automatically passed to the *Query Upsell Recommendation Services* Skill, so we do not need to copy and paste!

_8. You will see the following response suggesting "Corporate Credit Card" and "Fraud Protection" as Upsell Services for the Client "Automation Elite."

The screenshot shows a light blue dialog box with the following content:

- Header: OK
- Icon: A yellow hexagon with a white 'G' inside.
- Title: UsrXXX Query Upsell Recommendation Services
- ClientName: Automation Elite
- Industry: Finance
- UpsellServices section (with an upward arrow icon):
 - UpsellServices: Corporate Credit Card (with a trash icon)
 - UpsellServices: Fraud Protection (with a trash icon)
- Footer: Add +

3.3 Enhance User Experience with a Skill Flow

Let's review the usability enhancements we have identified when testing the As-Is Solution:

Suggested Enhancement
<ol style="list-style-type: none"> 1. Suppose you selected Automation Elite as the target customer. You must copy the customer's name to the clipboard and supply it to the <i>Query Upsell Recommendation Services</i>. 2. It would be nice if the <i>Query Upsell Recommendation Services</i> Skill was invoked automatically since we always want to find out what upsell services apply to the top-value customer to whom we want to send the upsell offer! 3. Start Upsell Approval Request should be started automatically since this would be the next logical action.

To address the user experience enhancements we have just identified, we will create a Skill Flow combining two Skills: *Find Top Value Clients* and *Query Upsell Recommendation Services*. After finding top-value clients, Focus Corp.'s sales professional preparing an upsell campaign would next look for upsell recommendations for the client he selects.

Also, after the completion, the Skill Flow will automatically invoke the next logical Skill (*Start Sales Campaign Process*) and pass the Client name as input.

Finally, Skill Flow provides parameter mapping capabilities that address the parameter copy-and-paste issues we have identified.

The Figure below illustrates how we implemented the usability enhancements by leveraging Skill Flow parameter passing and Skill orchestration capabilities.

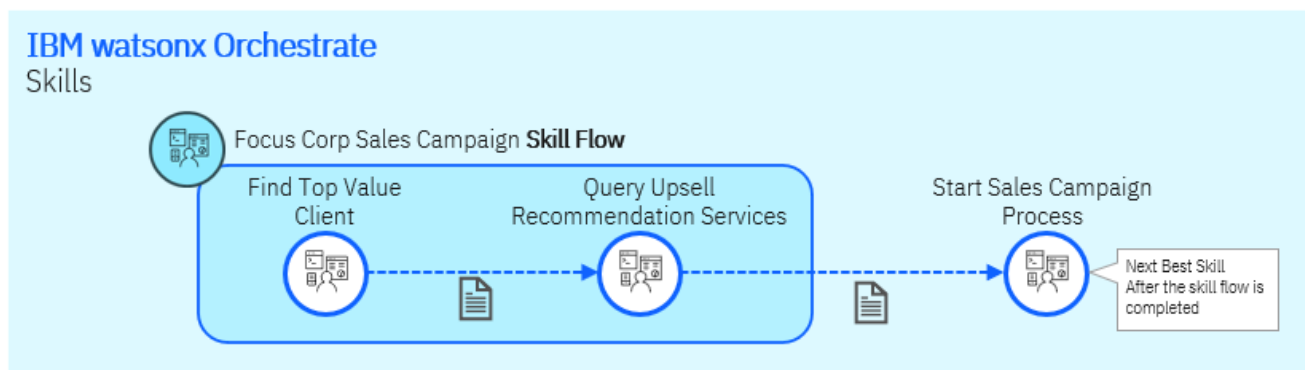
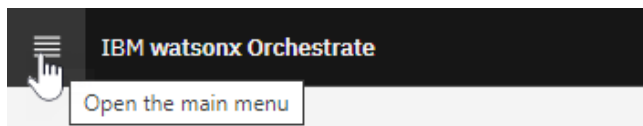


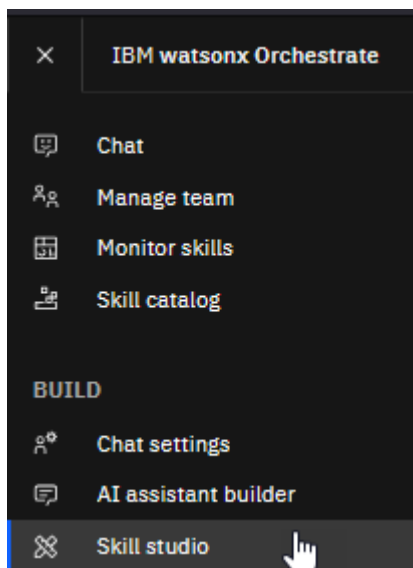
Figure 5. Skill Flow: Automated Skill orchestration and parameter passing

3.3.1 Create Skill Flow

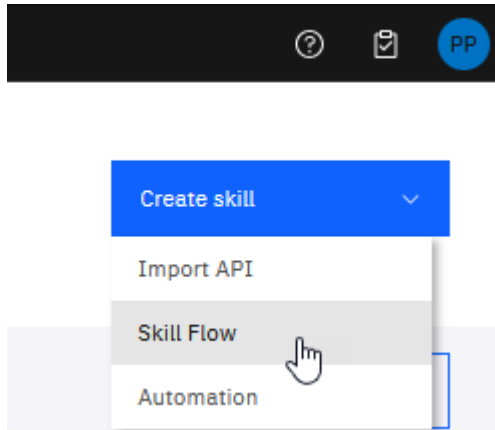
_1. Click the **Hamburger** menu.



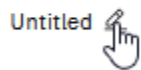
_2. Click **Skill studio**.



_3. From the **Create skill** dropdown, select **Skill Flow**.



_4. Click the **pencil icon**.



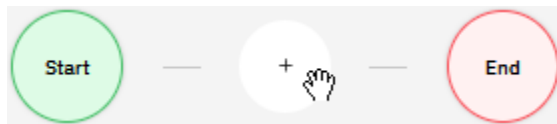
_5. For *Name*, enter **UsrXXX Focus Corp Sales Campaign Skill Flow** (remember to replace XXX with your CP4BA Credentials user id) and click **Save**.

_6. Click the **Horizontal Layout** icon.

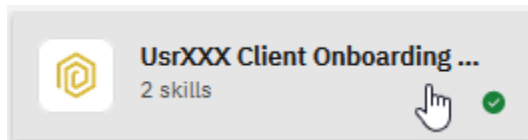
UsrXXX Focus Corp Sales C...



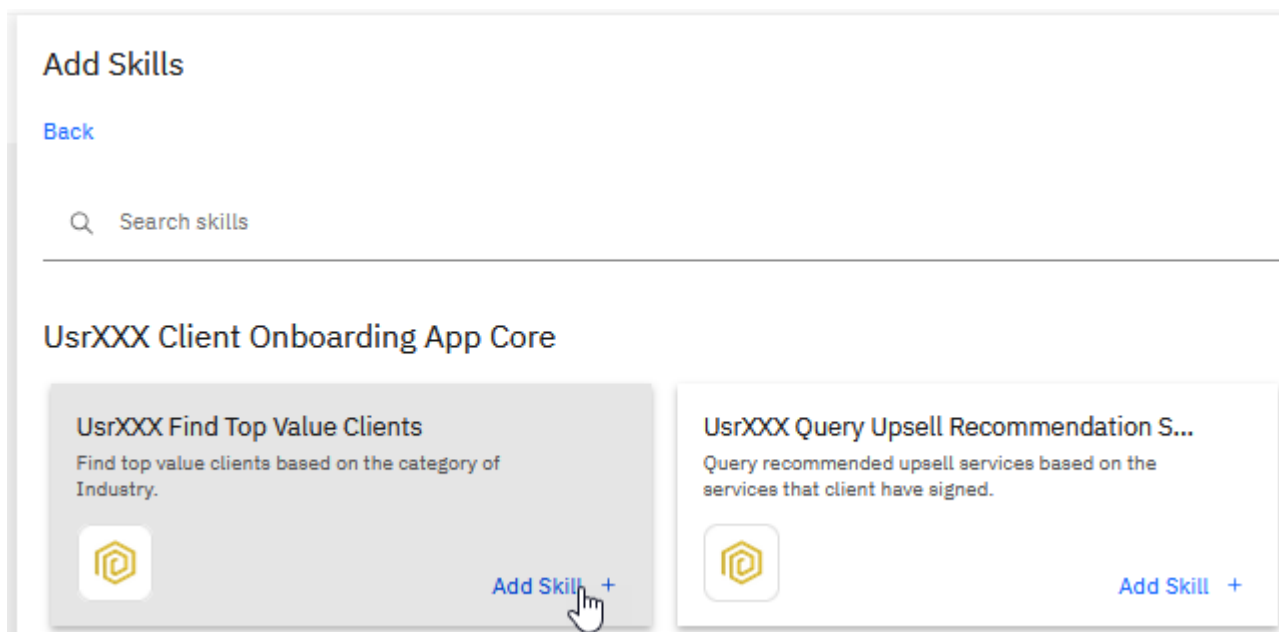
_7. Click the **+** icon to add a Skill.



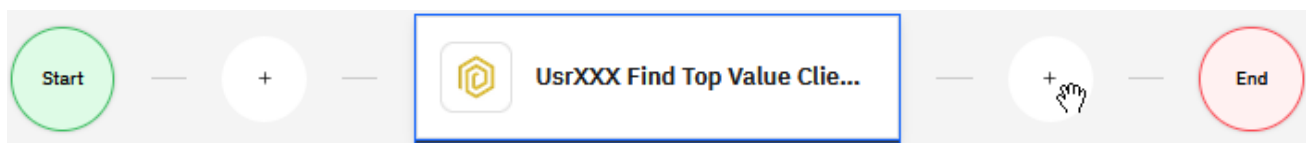
_8. In the *Add Skill* list, find the App you created (UsrXXX Client Onboarding App Core – remember XXX is your user id) and **click it**.



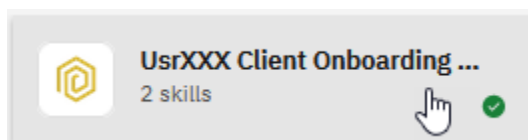
_9. On *UsrXXX Find Top Value Clients*, click **Add Skill +**



_10. Click the right **+** icon.

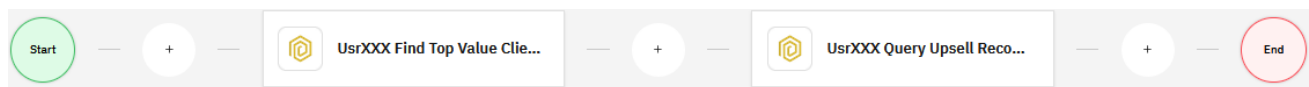


_11. Find the App you created (UsrXXX Client Onboarding App Core – remember XXX is your user id) and **click it**.



_12. On *UsrXXX Query Upsell Recommendation Services*, click **Add Skill +**

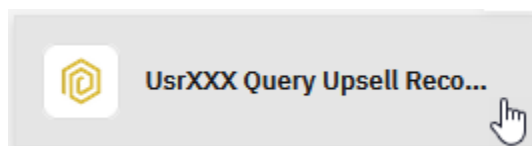
Your Skill Flow should look similar to this:



3.3.2 Configure Skill Flow

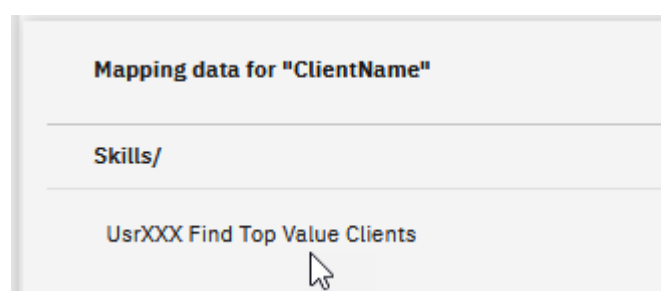
The *Find Top Value Clients* skill will return a list of top-value clients, including additional data for each client. However, the *Query Upsell Recommendation Services* skill requires only a Client Name as input. We will need to map the Client Name from the output of the *Find Top Value Clients* skill to the input of the *Query Upsell Recommendation Services* skill.

_1. Click the **UsrXXX Query Upsell Recommendation Services** Skill.

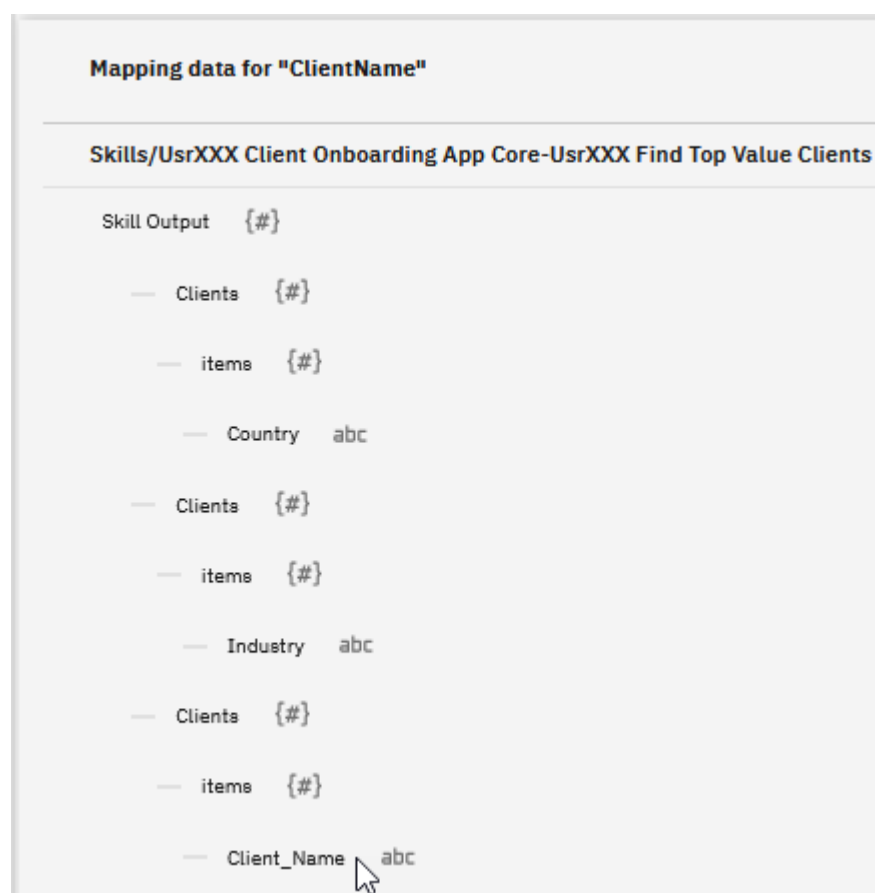


_2. In the *Input* Tab, click on the **ClientName** entry field.

_3. Click **UsrXXX Find Top Value Clients**. This is the first Skill in the Skill Flow and is the data source for this mapping.



_4. Please scroll down to find **Client_Name** and select it.



_5. You should now see *Client_Name* from *Find Top Value Clients* Skill mapped as input to *Query Upsell Recommendation Services*.

Suggested Enhancement: This will eliminate the first issue we encountered—specifically, the need to copy and paste the client name.

Client Name	Client Email	Country	Industry	Annual Revenue
Automation Elite	june.marie@example.com	USA	Finance	50000000
Bank of Jakku	jim.high@example.com	Australia	Finance	43892214

The parameter mapping feature will automatically select the client name from the *Find Top Value Clients* Skill and pass it to the *Query Upsell Recommendation Services* Skill.

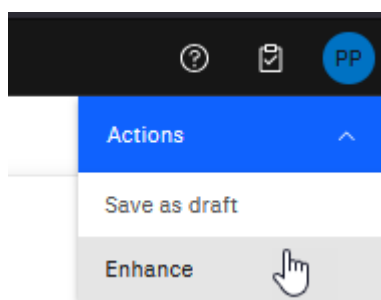
3.3.3 Enhance the Skill

You will now provide natural language phrases to launch the skill flow and define the next best Skill.

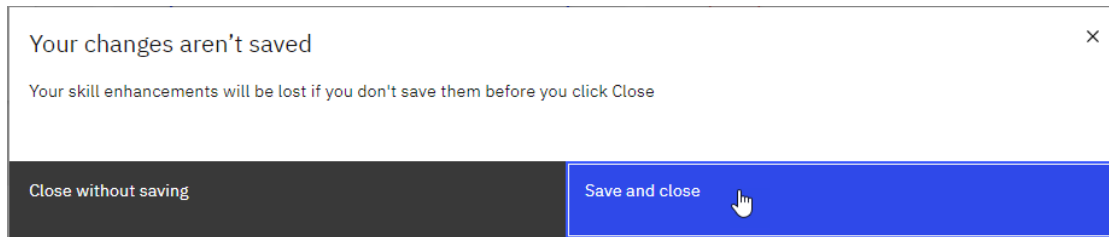
3.3.3.1 Add Phrase to Launch the Skill

Phrases are the texts you can use to find and use a skill in the chat bar. wxO can use the natural language model to determine whether the user's phrase in the UI chat box matches a specific skill. You can supply example phrases to train the natural language model. For good results, provide around 20 to 30 phrases for your Skill. You can supply less, but fewer than ten phrases limit the usability of your Skill.

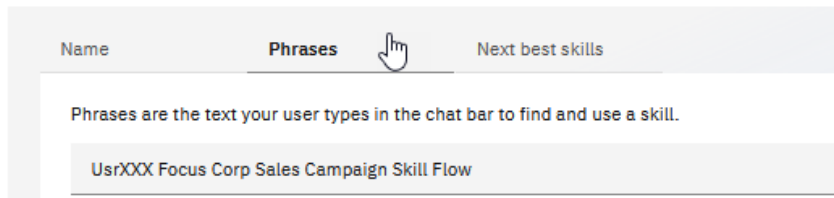
_1. In the top-right, click the **dropdown** in **Actions** and select **Enhance**.



_2. Click **Save and close**.



_3. Select the **Phrases** tab.



_4. Enter **start sales campaign** for phrase.

Note: If you want to enter multiple phrases, press enter after entering one phrase, then you can add another one.

Name	Phrases	Next best skills
Phrases are the text your user types in the chat bar to find and use a skill.		
	UsrXXX Focus Corp Sales Campaign Skill Flow	
	start sales campaign	
	Auto-generate phrases (Experimental)	

Note: Optionally, you can test the new experimental feature that auto-generates prompts for you! To do this, click the **Auto-generate phrases (Experimental)** button.

Name	Phrases	Next best skills
Phrases are the text your user types in the chat box to find and use a skill.		
	UsrXXX Focus Corp Sales Campaign Skill Flow	
	Sales Campaign	
	Auto-generate phrases (Experimental)	

In addition to the phrase you added, you should now see the autogenerated phrases!

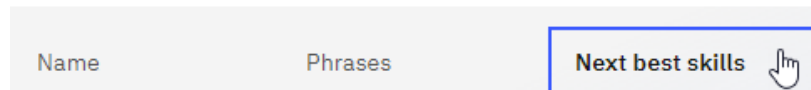
Name	Phrases	Next best skills
Phrases are the text your user types in the chat box to find and use a skill.		
	UsrXXX Focus Corp Sales Campaign Skill Flow	
	How to use the USRXXX Focus Corp Sales Campaign skill flow Usr	
	How can I get the skill flow for UsrXXX Focus Corp Sales Campaign	
	Can you help me build a flow to source talent for a sales campaign	
	UsrXXX Focus Corp Sales Campaign Skill Flow This is an example	
	usrXXX Focus Corp Sales Campaign Skill FlowusrXXX Focus Corp Sales Campaign Skill	
	Please show USRXXX Focus Corp Skill Flow	
	Sales Campaign	

3.3.3.2 Add Next Best Skill

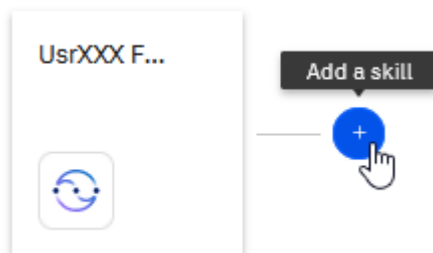
The **next best skills** feature helps users find skills to complete tasks that naturally follow the current work.

For the next best Skill, you can select the Upsell Approval Workflow skill that we have already prebuilt for you. After this Skill is completed, the next best Skill (Approval Workflow) will appear as suggestions to the users.

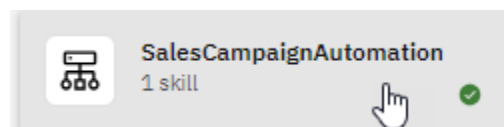
_1. Click the **Next best skills** tab.



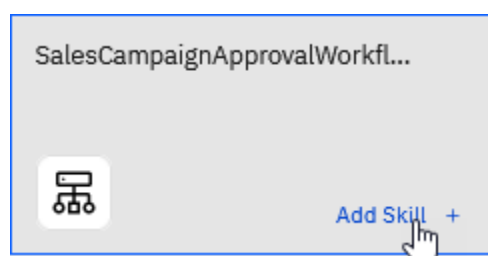
_2. Add a skill + icon



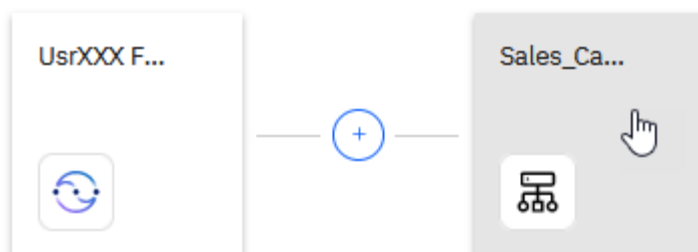
_3. Select **SalesCampaignAutomation**



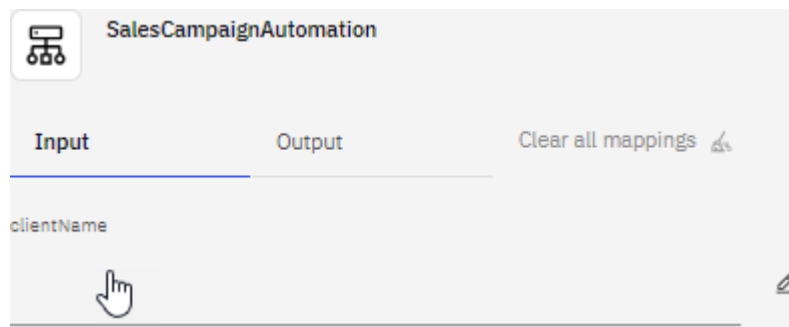
_4. Click **Add Skill +**



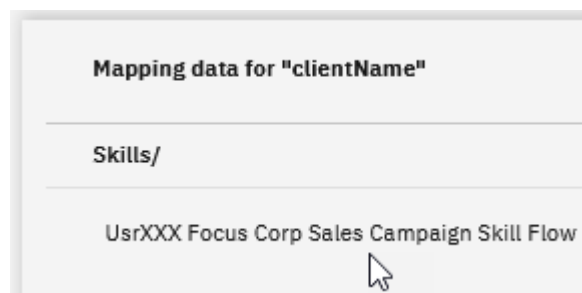
_5. Click **Sales_Ca...**



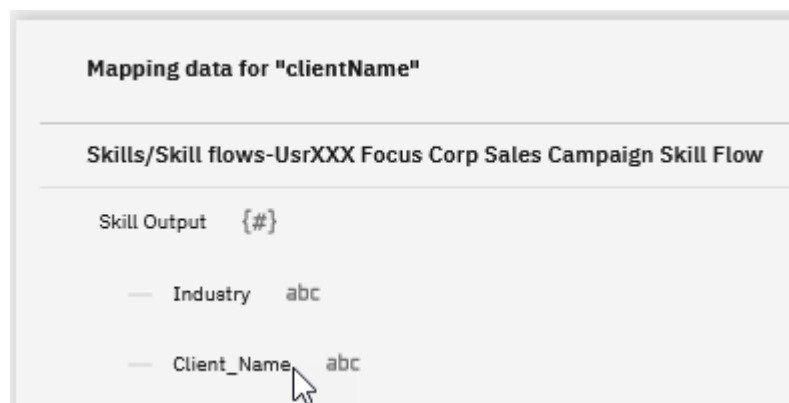
_6. Click under the **clientName** label.



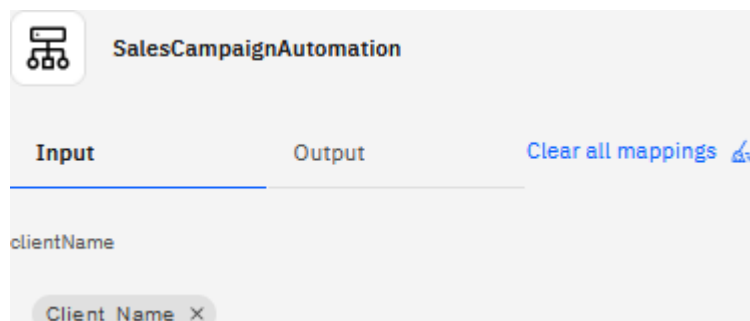
_7. Click **UsrXXX Focus Corp Sales Campaign Skill Flow**



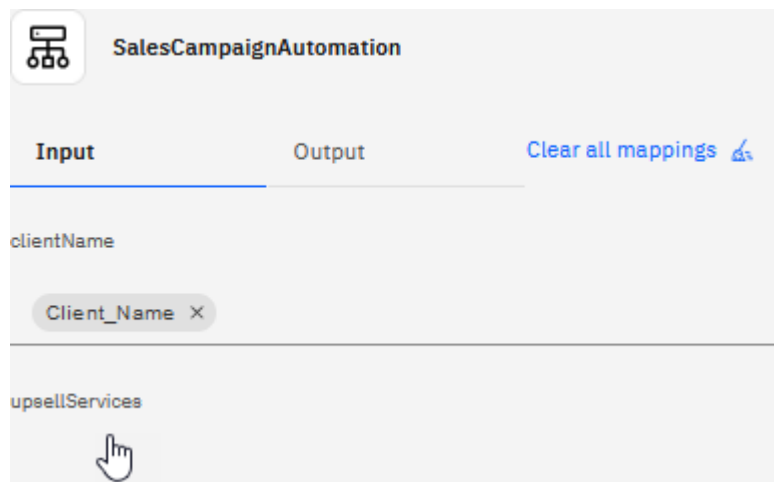
_8. Click **Client_Name**



_9. The mapping should look exactly like this:



_10. Click **below UpsellServices**



SalesCampaignAutomation

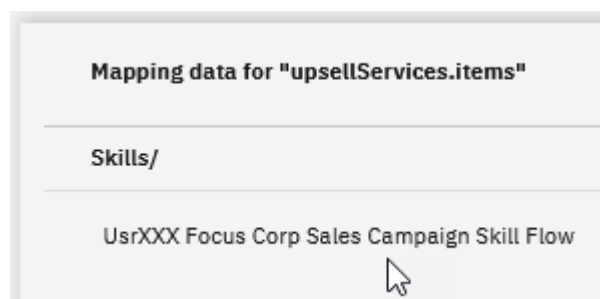
Input Output Clear all mappings

clientName

Client_Name X

upsellServices

_11. Click **UsrXXX Focus Corp Sales Campaign Skill Flow**

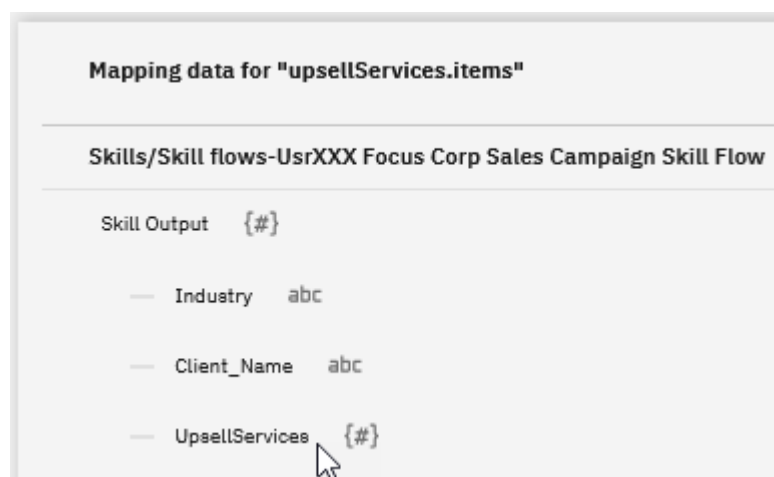


Mapping data for "upsellServices.items"

Skills/

UsrXXX Focus Corp Sales Campaign Skill Flow

_12. Click **UpsellServices**



Mapping data for "upsellServices.items"

Skills/Skill flows-UsrXXX Focus Corp Sales Campaign Skill Flow

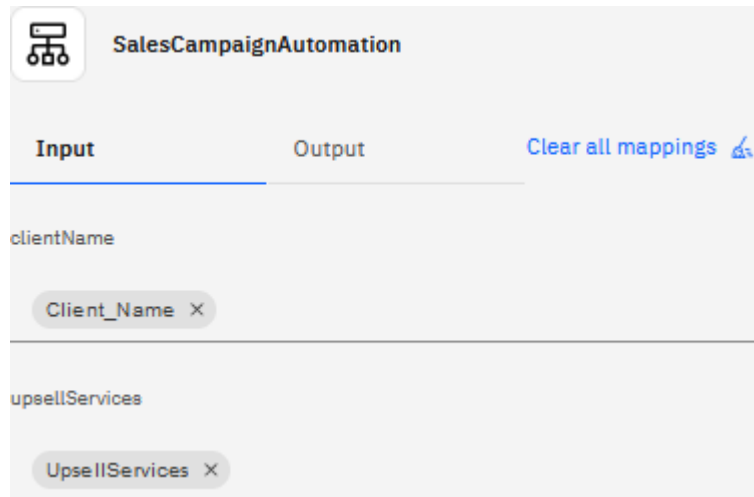
Skill Output {#}

Industry abc

Client_Name abc

UpsellServices {#}

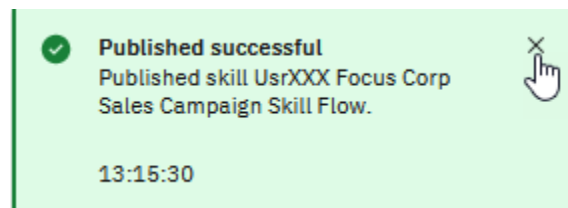
_13. The mapping should look exactly like this:



_14. Click **Publish** (bottom right corner)

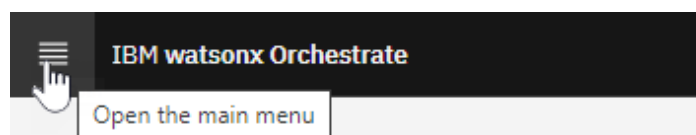


_15. Click **X** to close the Published successful confirmation message:

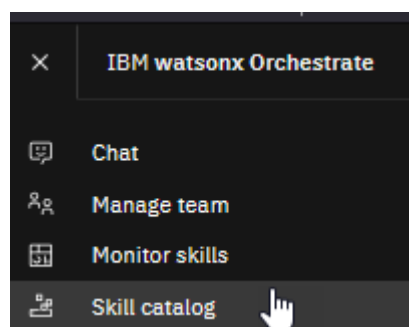


3.4 Add Skill Flow from the Skill Catalog

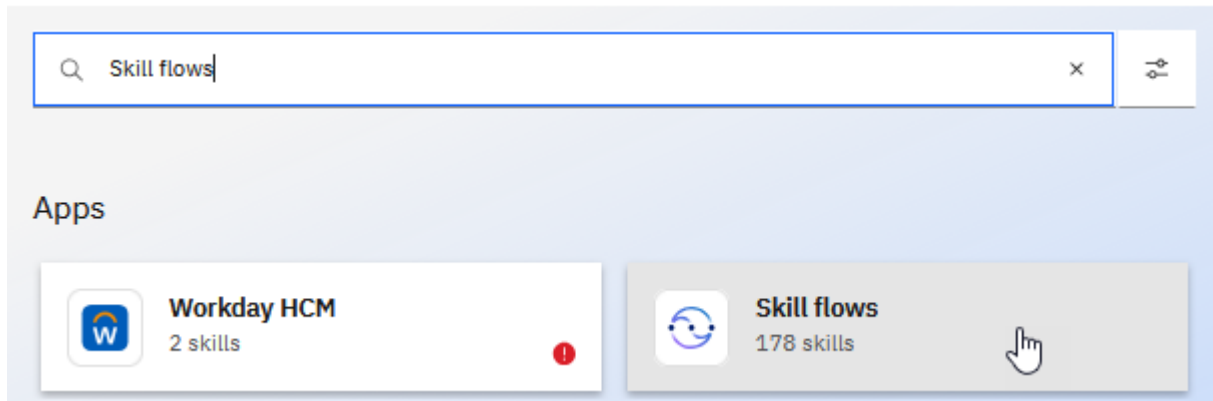
_1. Click the **Hamburger** menu.



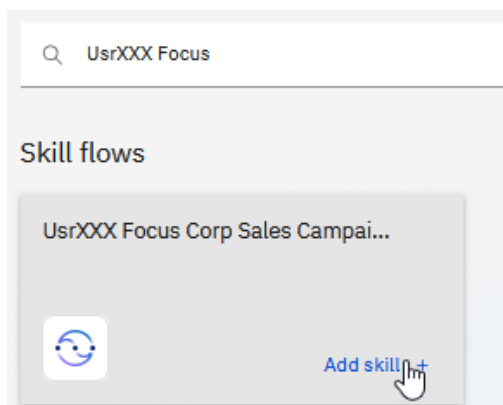
_2. Click **Skill catalog**.



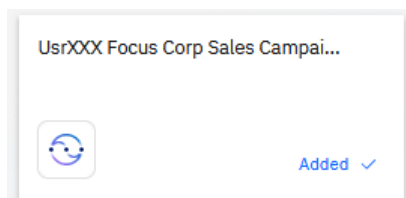
_3. In the Skill catalog, locate the **Skill flows** tile and **click on it** to open it.



_4. Locate *UsrXXX Focus Corp Sales Campaign* Skill Flow and click **Add Skill +**



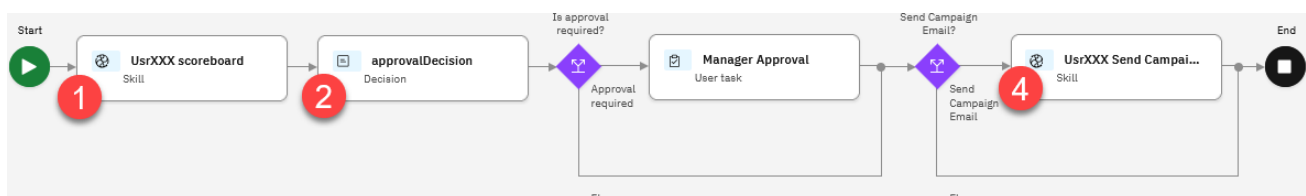
You should now see the *Added check mark* on your Skill.



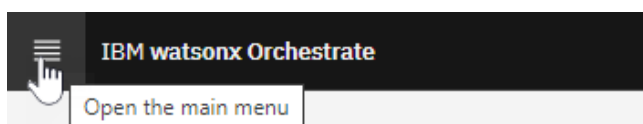
3.5 Test the Solution with Skill Flow

3.5.1 Test 1 - Upsell Offer is Auto-approved

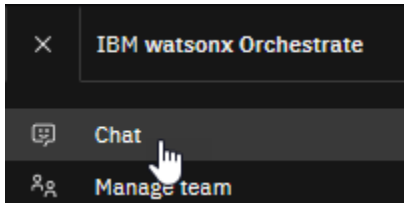
The auto-approved path is **1, 2, 4**.



_1. Click the **Hamburger** menu.



_2. Click **Chat**.



_3. Enter the **start sales campaign** phrase and press **Enter**.




_4. Select **Finance** for *industry*; for *number_of_customers_returned*, enter **2** and click **Apply**.

A screenshot of a form completion dialog box. At the top, it says 'You just need to complete this form first.' Below this is a header with a circular icon and the text 'UsrXXX Focus Corp Sales Campaign Skill Flow'. The form has two sections. The first section is labeled 'industry' and contains a dropdown menu with 'Finance' selected. Below the dropdown, it says 'The industry could be Finance, Telecom, Healthcare, Federal or Insurance'. The second section is labeled 'number_of_customers_returned' and contains a numeric input field with '2' entered. Below the input field, it says 'How many top value clients you want to retrieve'. At the bottom of the form are two buttons: 'Cancel' and 'Apply'.

_5. Use the radio button to select **Automation Elite** and click **Apply**.

OK

 UstrXXX Focus Corp Sales Campaign Skill Flow

Top value client list that you can consider to have sales campaign

Search Download Filter


Services Requested	Annual Revenue	Industry	Country	Client Email	Client Name
<input checked="" type="radio"/> External Audit;Tax Consultation	50000000	Finance	USA	june.marie@example.com	Automation Elite
<input type="radio"/> Corporate Credit Card;External Audit;Tax Consultation	43892214	Finance	Australia	jim.high@example.com	Bank of Jakku


Items per page: 5 1 – 2 of 2 items 1 of 1

Cancel Apply

Note: The action started the Skill Flow, which launched the *UstrXXX Query Upsell Recommendation Services* Skill. It will also use the parameter mapping we defined to prefill the ClientName field needed to launch the next Skill in the Skill Flow.

_6. Click **Apply** to confirm the parameter mapping.

 You just need to complete this form first.

 UstrXXX Focus Corp Sales Campaign Skill Flow

ClientName

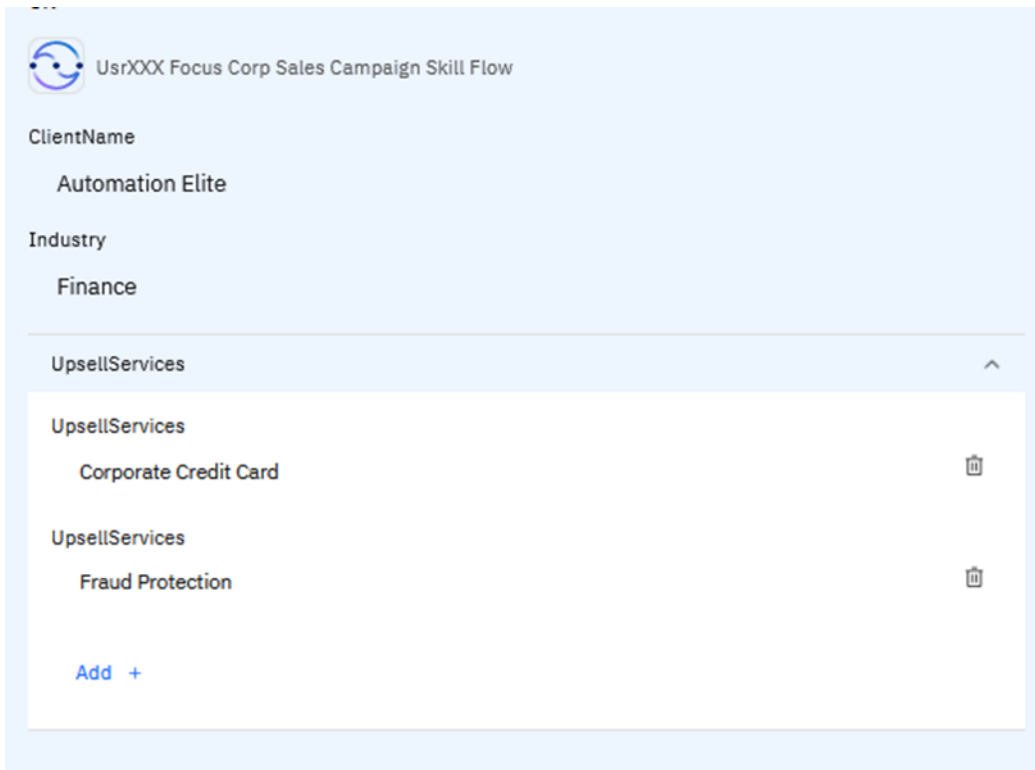
Automation Elite

Client name you want to query upsell services.

Cancel Apply

_7. You should now see the recommended upsell Services.

Note: The ClientName was automatically copied to the next Skill in the Skill Flow. You did not need to copy and paste! Also, note the upsell services returned by the *Query Upsell Recommendation Services* skill: Corporate Credit Card and Fraud Protection.





UsrXXX Focus Corp Sales Campaign Skill Flow

ClientName
Automation Elite

Industry
Finance

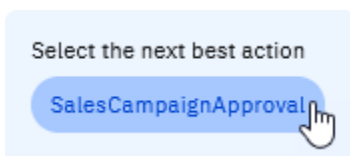
UpsellServices

UpsellServices	Corporate Credit Card	
UpsellServices	Fraud Protection	

Add +

_8. Click the **SalesCampaignApproval** button.

Note: This is the Skill you selected as the recommended **next best Skill** after completing the Skill flow.




Select the next best action

SalesCampaignApproval

_9. Click **Apply** to launch the Start Upsell Approval Request.

Note: The wxO automatically filled the output of the previous Skill (Client name, recommended upsell services) into the input fields for this Skill. wxO can do this automatically if the previous Skill's output matches the next Skill's input. At this step, you could also change (add or remove) the upsell Services that the Query Upsell Recommendations Skill recommends.



You just need to complete this form first.

 SalesCampaignApprovalWorkflow

clientName

Automation Elite

upsellServices

Corporate Credit Card	
Fraud Protection	

Add +

Cancel Apply

_10. You should see a message that wxO is working on your request...



Working on getting the results might take a while. You can continue waiting or you can ask for something else to be done.

_11. **Wait** until the "Working..." message disappears and the " Here are the results..." pane appears.

Here are the results of the SalesCampaignApprovalWorkflow skill.

1 approved

2 explanation

Auto approved. Reason: There is a low risk of payment default, and the confidence level from the predictive score is above 95.

3 clientName

Automation Elite

4 upsellServices

- upsellServices
 - Corporate Credit Card
- upsellServices
 - Fraud Protection

Add +

5 sendEmailStatus

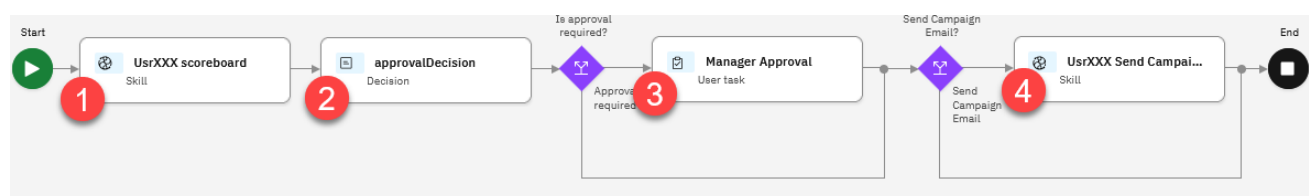
Campaign email has been send to wodemo@example.com successfully.

Let's examine the information returned by the Workflow:

- 1) The upsell offer was auto-approved.
- 2) The approval was based on the fact that the Automation Elite customer is not at high risk of default and that the confidence that the risk is low is above 95.
- 3) The client was Automation Elite.
- 4) The upsell services were approved.
- 5) Confirmation that the upsell offer email was sent to the customer.

3.5.2 Test 2 - Upsell Offer Requires Manager's Approval


The manual-approval path is **1, 2, 3, 4**.




_1. Enter the **start sales campaign** phrase and press **Enter**.

start sales campaign

_2. Select **Finance** for *industry*; for *number_of_customers_returned*, enter **3** and click **Apply**.

 You just need to complete this form first.

 usr200 Focus Corp Sales Campaign Skill Flow

industry

Finance ▼

The industry could be Finance, Telecom, Healthcare, Federal or Insurance


number_of_customers_returned

3 – +

How many top value clients you want to retrieve

Cancel Apply

_3. Use the radio button to select **Legacy Consulting** and click **Apply**.


 UsrXXX Focus Corp Sales Campaign Skill Flow

Top value client list that you can consider to have sales campaign

🔍 ⬇️ 📄

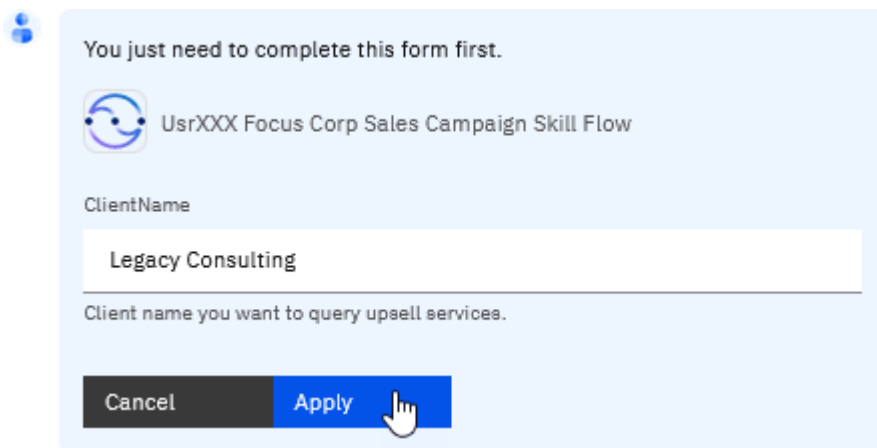
	Services Requested	Annual Revenue	Industry	Country	Client Email	Client Name
<input type="radio"/>	External Audit;Tax Consultation	50000000	Finance	USA	june.marie@example.com	Automation Elite
<input type="radio"/>	Corporate Credit Card;External Audit;Tax Consultation	43892214	Finance	Australia	jim.high@example.com	Bank of Jakku
<input checked="" type="radio"/>	External Audit;Tax Consultation;Fraud Protection	35000000	Finance	Germany	werner.foss@example.com	Legacy Consulting

Items per page: 5 ▼ 1 – 3 of 3 items 1 ▼ of 1 ◀ ▶

Cancel Apply 

Note: The action started the Skill Flow, which launched the *UsrXXX Query Upsell Recommendation Services Skill*. It will also use the parameter mapping we defined to prefill the ClientName field needed to launch the next Skill in the Skill Flow.

_4. Click **Apply** to confirm the parameter mapping.



You just need to complete this form first.

UsrXXX Focus Corp Sales Campaign Skill Flow

ClientName

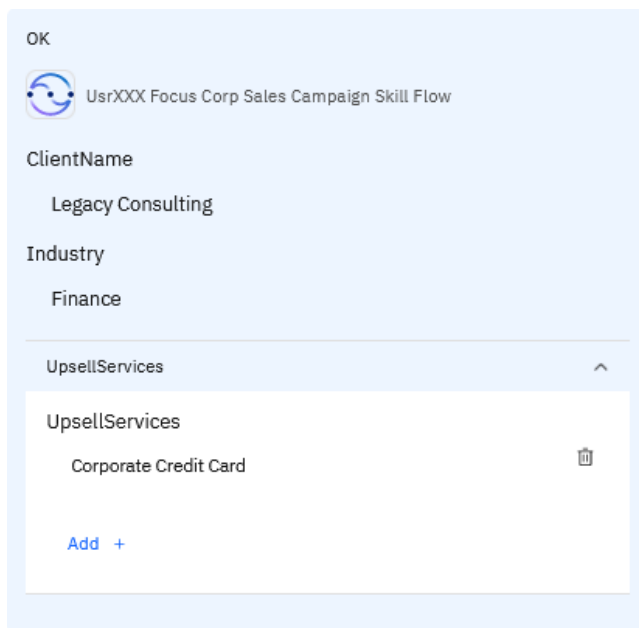
Legacy Consulting

Client name you want to query upsell services.

Cancel Apply

_5. You should now see the recommended upsell Services.

Note: The ClientName was automatically copied to the next Skill in the Skill Flow. You did not need to copy and paste! Also, note the upsell service returned by the *Query Upsell Recommendation Services* skill: Corporate Credit.



OK

UsrXXX Focus Corp Sales Campaign Skill Flow

ClientName

Legacy Consulting

Industry

Finance

UpsellServices

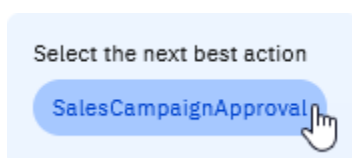
UpsellServices

Corporate Credit Card

Add +

_6. Click the **SalesCampaignApproval** button.

Note: This is the Skill you selected as the recommended next best Skill after completing the Skill Flow.



Select the next best action


SalesCampaignApproval

_7. Click **Apply** to launch the Start Upsell Approval Request.

Note: The wxO automatically filled the output of the previous Skill (Client name, recommended upsell services) into the input fields for this Skill. wxO can do this automatically if the previous Skill's output matches the next Skill's input.

At this step, you could also change (add or remove) the upsell Services that the Query Upsell Recommendations Skill recommends.

You just need to complete this form first.

 SalesCampaignApprovalWorkflow

clientName

Legacy Consulting

upsellServices

Corporate Credit Card

Add +

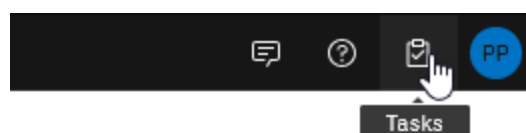
Cancel Apply

You should see a message that wxO is working on your request...



Working on getting the results might take a while. You can continue waiting or you can ask for something else to be done.

_8. Click **Tasks** icon



_9. Click **Manager Approval** to complete the approval task in the SalesCampaignApprovalWorkflow skill.

IBM watsonx Orchestrate

Tasks Workflows

Search for tasks...

Filter by: On track (1) Completed (3) Claimed Unclaimed

Email notification ☐

Task name	Priority	Status	Due on	Created on	Owner
Manager Approval	Medium	On track		May 2, 2024, 1:29 p.m.	PP

Items per page 5 1-1 of 1 items 1 of 1 page

_10. Select the **approved** checkbox in the form, then click the **+** icon to add **Fraud Protection** upsell service.

TasksWorkflows

Manager Approval

Activity

The upsell offer requires a manager's approval. Carefully review customer information, upsell services offered and scoreboard information. You can add or remove the upsell services included in this upsell offer.

☒ approved
 ☐ autoRejected

explanation

Manager approval is required. Reason: There is a high risk of payment default, and the confidence level from the predictive score is below 95.

upsellServices

Corporate Credit Card

Fraud Protection

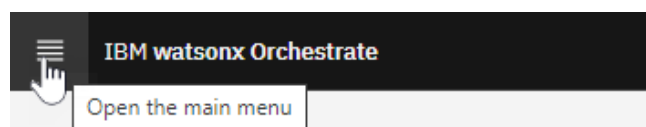
+

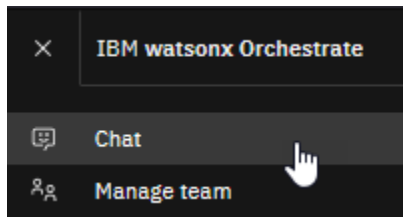
_11. Scroll to the bottom of the form and click **Submit**.

Save

Submit

_12. Click the **Hamburger** menu.



_13. Click **Chat**

You should now see the "Here are the results..." pane appears.

 A screenshot of the 'Here are the results of the SalesCampaignApprovalWorkflow skill.' pane. The pane has a light blue background. At the top, it says 'Here are the results of the SalesCampaignApprovalWorkflow skill.' followed by a small icon and the text 'SalesCampaignApprovalWorkflow'. Below this, there are several sections:

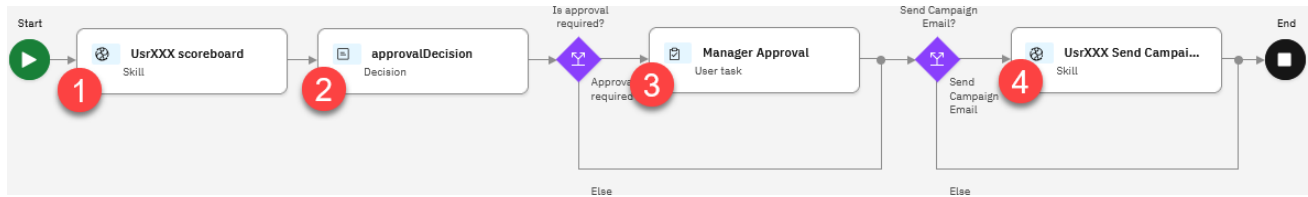
- A section with two checkboxes: 'approved' (checked) and 'autoRejected' (unchecked). A red circle with the number '1' is next to the 'approved' checkbox.
- A section labeled 'explanation' with a red circle with the number '2' next to it. The text below it says 'Manager approval is required. Reason: There is a low risk of payment default, but the confidence level from the predictive score is below 95.'
- A section labeled 'clientName' with the text 'Legacy Consulting' below it. A red circle with the number '3' is next to the text.
- A section labeled 'upsellServices' with a red circle with the number '4' next to it. Below this label, there is a list of services: 'upsellServices' (with 'Corporate Credit Card' below it) and 'upsellServices' (with 'Fraud Protection' below it). Each service has a trash icon to its right. At the bottom of this list is a blue link 'Add +'.
- A section labeled 'sendEmailStatus' with the text 'Campaign email has been send to wodemo@example.com successfully.' below it. A red circle with the number '5' is next to the text.

Let's examine the information returned by the Workflow:

- 1) A manager approved the upsell offer.
- 2) A manager's approval was required because although there was a low risk of payment default, the confidence level from the predictive score was low (below 95).
- 3) The client was Legacy Consulting.
- 4) The upsell services were approved.
- 5) Confirmation that the upsell offer email was sent to the customer.

3.5.3 Verify the Upsell Offer Email is in the Client's Mailbox.

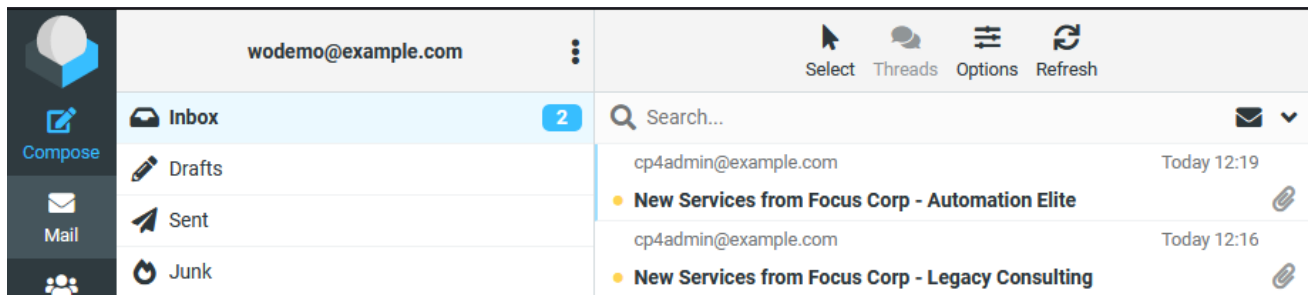
You will see two emails—one from the auto-approved (1,2,4) path and one from the manager-approval (1,2,3,4) path.



- _1. Open the **Local Mail Client** in your browser (see [1.4.1 Systems, Lab Files, and Credentials](#))
- _2. Enter your **CP4BA Credentials** and click the **LOGIN** button.



- _3. You should now see two emails.



- _4. Note that the emails are customized for each client.

New Services from Focus Corp - Automation Elite

From [focuscorp@example.com](#) on 2024-03-13 18:59
[Details](#) [Headers](#) [Plain text](#)

Hi June,

Thank you for signing Finance services including External Audit, Tax Consultation from Focus Corp., hope our services could help solve your business challenges and improve your operational efficiency.

I'm attaching a few additional services in Finance industry that you might have business requirement and have interest.

- Corporate Credit Card
 - Fraud Protection

Should you have any question or comments, please feel free to contact with us at [focuscorp@examples.com](#), thanks.

Regards,
 Focus Corp

New Services from Focus Corp - Legacy Consulting

From [focuscorp@example.com](#) on 2024-03-13 18:55
[Details](#) [Headers](#) [Plain text](#)

Hi Werner,

Thank you for signing Finance services including External Audit, Tax Consultation, Fraud Protection from Focus Corp., hope our services could help solve your business challenges and improve your operational efficiency.

I'm attaching a few additional services in Finance industry that you might have business requirement and have interest.

- Corporate Credit Card
 - Fraud Protection

Should you have any question or comments, please feel free to contact with us at [focuscorp@examples.com](#), thanks.

Regards,
 Focus Corp

Congratulations on completing the lab!

Appendix A. Overview of the "Administrator" Role

Managing teams

Teams are composed of roles: Admin, Builder, and User. Every team needs at least one Admin who first created the team.

By default, when you start using IBM watsonx Orchestrate™, you are the admin of your team of one. You need to invite a user into your team to create a team. You can invite as many team members as you have seats in your license. Of those seats, you can assign any user any of the three roles, but each role has a purpose that might limit what a user can see or do.

Three key activities:

1. Adding Users

IBM watsonx Orchestrate

Team skills

Usage Skill set **Members**

Team members (18)
These members have access to all apps and skills added to the team.

Name
MS Marco Aurelio Crepaldi Gon?alves Silva marco.crepaldi@ibm.com
RM Raul Mariano raul.mariano@ibm.com
PP PAUL PACHOLSKI pacholsk@ca.ibm.com
weijingj@cn.ibm.com

Add members X

Add members to this team.

82 seats remain (82/100)

How do you want to add members?

☒ Manually one by one

☐ Automatically in bulk

Manually add members

Email address

valid@email.com

Press Enter after each address.

Add member +

Cancel Add

2. Removing users

IBM Watson Orchestrate

Team Skills

1 seat remain (1/13)

Usage Skill sets **Members**

Team members (12)
These members have access to all apps and skills added to the team.

Q Add members +

Name	Role	Status
ThomasSchulze@de.ibm.com	Builder	Active

Remove member

3. Adding Roles to Users

The screenshot shows the IBM Watson Orchestrate interface. On the left, the 'Team Skills' page has tabs for 'Usage', 'Skill sets', and 'Members'. The 'Members' tab is active, showing a list of 12 team members. On the right, an 'Edit member' modal is open for ThomasSchulze@de.ibm.com. The modal displays the user's email, status (Active), and a role dropdown menu. The role dropdown is open, showing three options: 'Builder' (Can build skills that perform tasks), 'Admin' (Can add or remove members who can use this team skill set), and 'User' (Can use this team skill set). A red box highlights the 'Builder' option, and a hand cursor is pointing at the 'Admin' option. At the bottom of the modal are 'Cancel' and 'Save' buttons.

Name	Email
ThomasSchulze@de.ibm.com	ThomasSchulze@de.ibm.com
JYOTSNA KARUNGANNI NARAYANAN	karungan@us.ibm.com
PAUL PACHOLSKI	pacholsk@ca.ibm.com
Mithun Katti	mithun.katti@ibm.com
ZHONG TAO GAO	gaozt@cn.ibm.com
Sundeep.Anne@ibm.com	Sundeep.Anne@ibm.com
focususr090@gmail.com	focususr090@gmail.com
marco.crepaldi@ibm.com	marco.crepaldi@ibm.com
Jürgen Lukas	jlukas@de.ibm.com
Olaf.Hahn@de.ibm.com	Olaf.Hahn@de.ibm.com

Role	Description
Builder	Can build skills that perform tasks
Admin	Can add or remove members who can use this team skill set
User	Can use this team skill set

Managing team skill sets

Fundamentally, there isn't a big difference between your team skill set and your personal skill set. But only with the Admin role you can add, use, and remove skills to the team skill set like you do with your personal skill set. For more information about roles and access, see [Adding team members and defining roles](#).

Once a skill is available in the team's skill set, anyone on a team can use this Skill. To use a team skill set's Skill, the user must click the Team skill set tab on the IBM watsonx Orchestrate home page and invoke any available skills the same way as they would for any skill in any skill set.

Two key activities:

1. Adding skills to your team skill set

IBM Watson Orchestrate

Team Skills

1 seat remain (1/13)

Usage Skill sets Members

Team skills This team's skills can help you and other members accomplish tasks.

Skills (2)
The skills added to this team are available to this team's members. These skills complete related tasks for the team members so members can work more efficiently and effectively.

Manage skills

Name	App
Retrieve channels	
wastonx.ai skill for generating text	

2. Removing skills from your team skill set

IBM Watson Orchestrate

Team Skills

Usage Skill sets Members

Team skills This team's skills can help you and other members accomplish tasks.

Skills (2)
The skills added to this team are available to this team's members. These the team members so members can work more efficiently and effectively

Retrieve channels

Description
Retrieve channels from Slack

Date added
9/15/2023 3:28:10 AM



Last updated
9/15/2023 3:28:10 AM

Remove skill

Name
Retrieve channels

Monitoring team skill sets

Admin roles can view statistics about how their teams use skills and skill sets to complete tasks. The Usage tab (and the team's dashboard) is not visible to the User or Builder role.

 IBM Watson Orchestrate 

Team Skills

1 seat remain (1/13)

Usage

Skill sets

Members

All skill sets

Today

Yesterday

Last week

Last month

Custom range

08/21/2023 - 09/21/2023

Total skills used

47

↓ -68.67%

Total skills that failed

0

= 0%

Estimated total time saved

47 minutes

↓ -68.67%

Filter by: Skills

Skill	Number of times the skill was used	Member who uses this skill most	Member who uses this skill least
JL Find Top Value Clients	1	Personal skills	Personal skills
UsrXXX Find Top Value Clients	10	Personal skills	Personal skills
Focus Corp Sales Campaign	1	Team skills	Team skills
UsrXXX Start Upsell Approval Request	3	Personal skills	Personal skills

Notices and disclaimers

© 2024 International Business Machines Corporation. No part of this document may be reproduced or transmitted in any form without written permission from IBM.

U.S. Government Users Restricted Rights – use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM.

This document is current as of the initial date of publication and may be changed by IBM at any time. Not all offerings are available in every country in which IBM operates.

Information in these presentations (including information relating to products that have not yet been announced by IBM) has been reviewed for accuracy as of the date of initial publication and could include unintentional technical or typographical errors. IBM shall have no responsibility to update this information.

This document is distributed "as is" without any warranty, either express or implied. In no event, shall IBM be liable for any damage arising from the use of this information, including but not limited to, loss of data, business interruption, loss of profit or loss of opportunity. IBM products and services are warranted per the terms and conditions of the agreements under which they are provided. The performance data and client examples cited are presented for illustrative purposes only. Actual performance results may vary depending on specific configurations and operating conditions.

IBM products are manufactured from new parts or new and used parts.

In some cases, a product may not be new and may have been previously installed. Regardless, our warranty terms apply."

Any statements regarding IBM's future direction, intent or product plans are subject to change or withdrawal without notice.

Performance data contained herein was generally obtained in a controlled, isolated environments. Customer examples are presented as illustrations of how those customers have used IBM products and the results they may have achieved. Actual performance, cost, savings or other results in other operating environments may vary.

References in this document to IBM products, programs, or services does not imply that IBM intends to make such products, programs or services available in all countries in which IBM operates or does business.

Workshops, sessions and associated materials may have been prepared by independent session speakers, and do not necessarily reflect the views of IBM. All materials and discussions are provided for informational purposes only, and are neither intended to, nor shall constitute legal or other guidance or advice to any individual participant or their specific situation.

It is the customer's responsibility to ensure its own compliance with legal requirements and to obtain advice of competent legal counsel as to the identification and interpretation of any relevant laws and regulatory requirements that may affect the customer's business and any actions the customer may need to take to comply with such laws. IBM does not provide legal advice or represent or warrant that its services or products will ensure that the customer follows any law.

Notices and disclaimers (Continued)

Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products. IBM does not warrant the quality of any third-party products, or the ability of any such third-party products to interoperate with IBM's products. ***IBM expressly disclaims all warranties, expressed or implied, including but not limited to, the implied warranties of merchantability and fitness for a purpose.***

The provision of the information contained herein is not intended to, and does not, grant any right or license under any IBM patents, copyrights, trademarks or other intellectual property right.

IBM, the IBM logo, and ibm.com are trademarks of International Business Machines Corporation, registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the Web at "Copyright and trademark information" at: www.ibm.com/legal/copytrade.shtml.