IBM Cloud Pak for Business Automation Demos and Labs 2024

Introduction to IBM watsonx Orchestrate.

V 1.0

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Table of Contents

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-ONBORDING-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 are time-consuming and ineffective. Completing quarterly promotions takes over ten weeks. Due to time limitations, the sales team cannot include all 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.

1.2.3.2 Solution Architecture

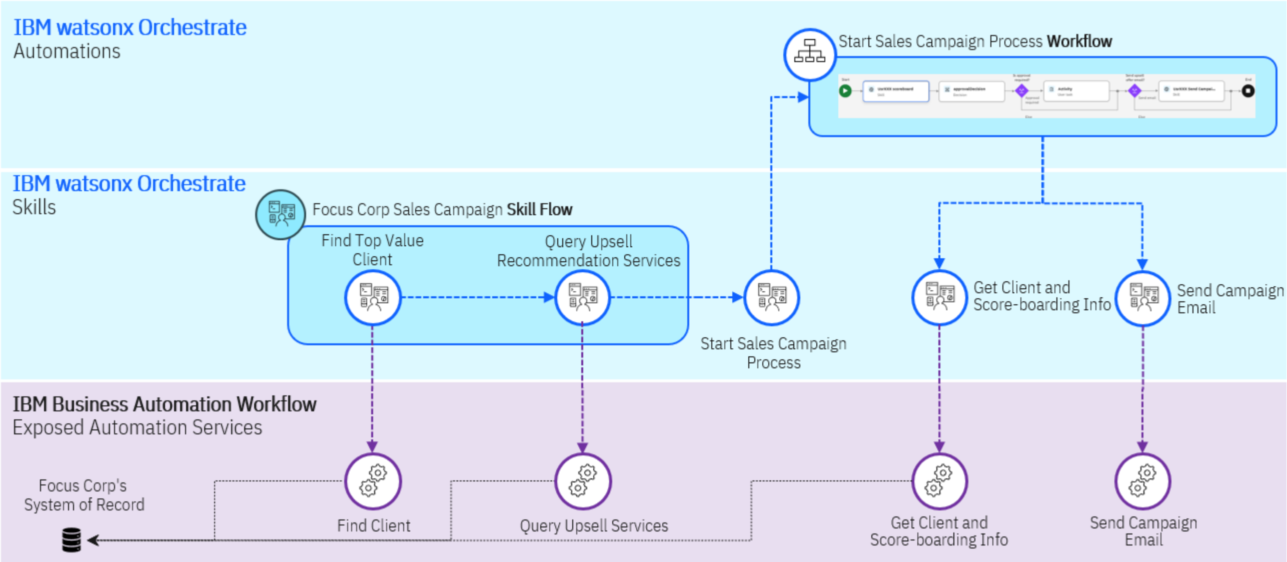


Figure 1. Upsell Campaign Solution Architecture

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). The Workflow contains scoreboarding (which re-uses an existing automation). Based on the risk determined by the scoreboarding it will be auto-approved, auto-rejected, or a manual Sales Manager approval 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 specific to the selected client and upsell services, but only if the sales offer is approved.

Note that the 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

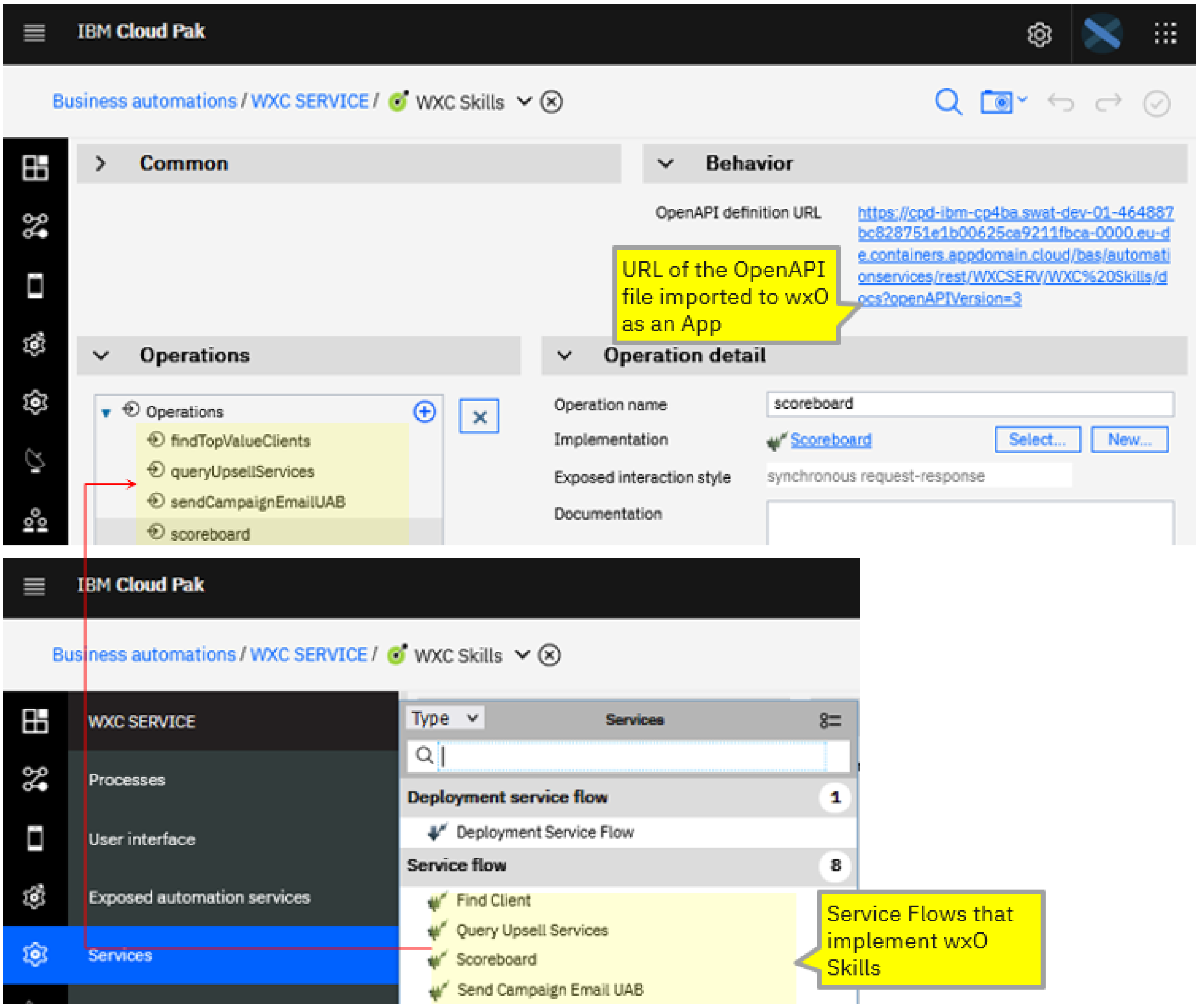


Figure 2. Service Flows that Implement wxO Skills

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 Skills Catalog Enhance User Experience with a Skill Flow
User	Add Skills from the Skills Catalog Test the Solution As Is Add Skill Flow (created by a Builder) from the Skills 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

1.4.1.1 Tech Jam Event

If you are performing this lab as part of an IBM event, access the TechJam 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**

1.4.1.2 Jam in a Box Event

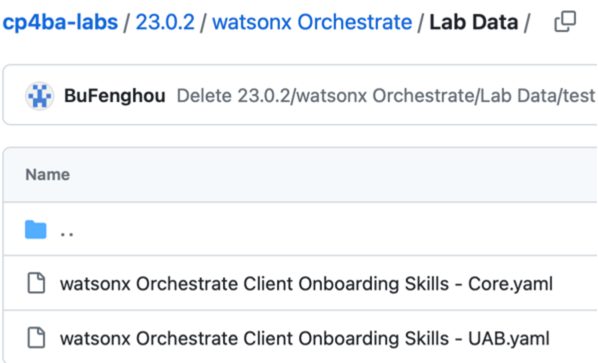
You can also do this lab as part of Jam-in-a-Box for Business Automation (starting with V23.0.1). In this case, access to an IBM watsonx Orchestrate instance is required as a prerequisite. You need a Builder or Administrator role to do all parts of the lab. If you are an IBMer or IBM Business Partner, you can look at the wxO content on Seismic to learn how to access such a wxO instance. Otherwise, you can contact your IBM representative to get access. When doing the lab as part of Jam-in-a-Box, please also carefully read the section Lab Considerations in the Jam-in-a-Box Readme.md page to guide you on the necessary access.

For this lab, you will need to access:

- **IBM watsonx Orchestrate**
- **IBM Cloudpak Dashboard**
- **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.



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 where the Service Flows are running.

_1. Use a text editor of your choice to **Open** the *watsonx Orchestrate Client Onboarding Skills - Core.yaml* file (see 1.4.1 Systems, Lab Files, and Credentials)

_2. Replace all occurrences of **UsrXXX** with **the user id you received** when registering for your 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: >-
```

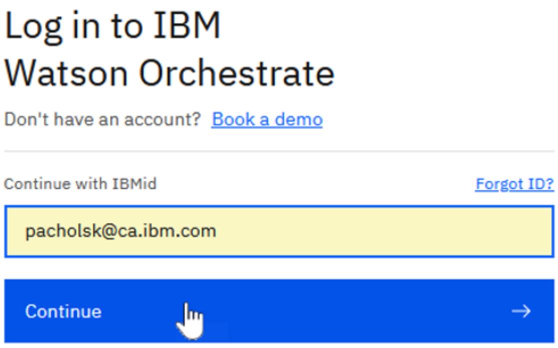
> You must change the server URL if you are doing this lab as part of Jam-in-a-Box for Business Automation. You can skip this step for the Tech Jam.
>
> Replace the placeholder **<IBM Cloudpak Dashboard URL>** with the URL of the **IBM Cloudpak Dashboard** (see 1.4.1 Systems, Lab Files, and Credentials).
>
> ```
> servers:
>   - url: >-
>       <IBM Cloudpak Dashboard URL>/bas/automationservices/rest/WXCSERV/WXC%20Skills
> security:
> ```

_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 wastsonx Orchestrate** (see 1.4.1 Systems, Lab Files, and Credentials)

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



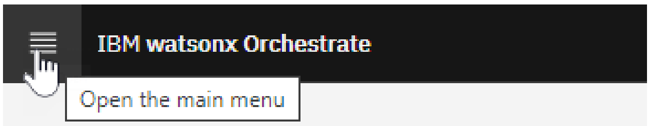
2 Exercise: Experience the Orchestrate "Builder" Role

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 Skills Catalog.

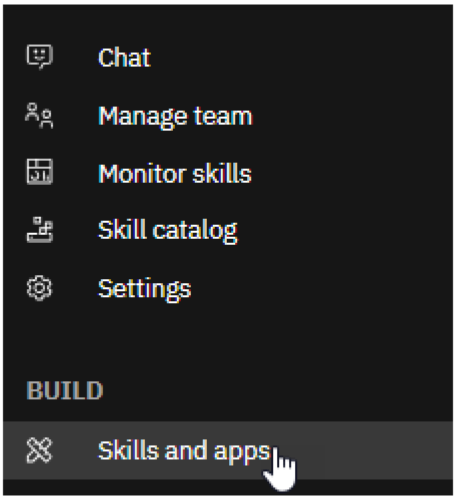
2.1 Import Skills

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.

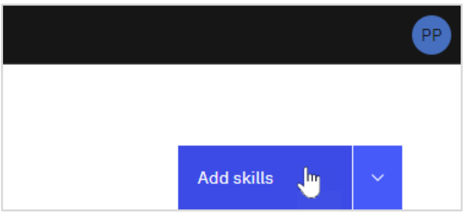
_1. Click the **Hamburger** menu.



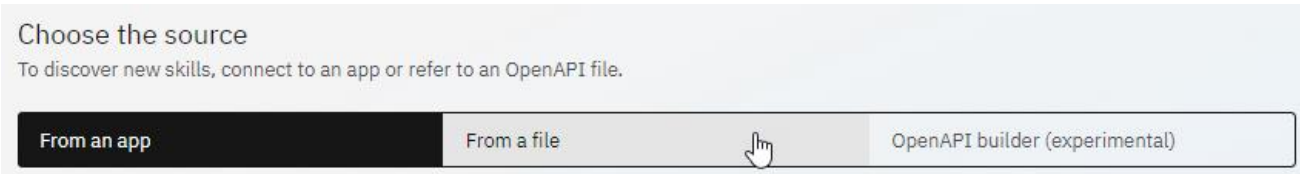
_2. Click **Skills and apps.**



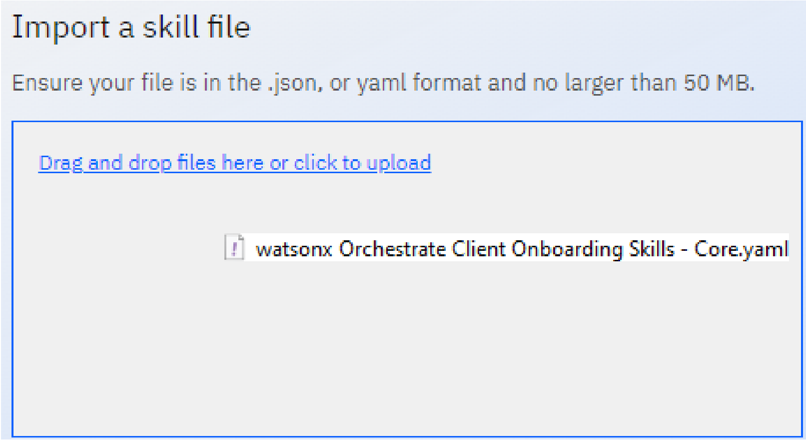
_3. In the top-right, click **Add Skills**.



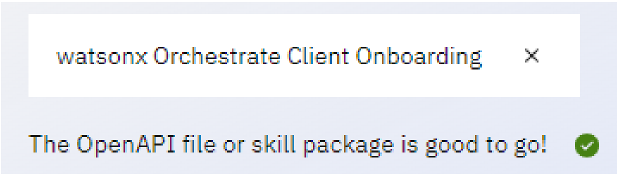
_4. From Choose the source, click **From a file.**



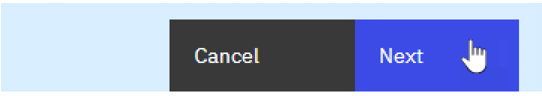
_5. From your file system, drag and drop *watsonx Orchestrate Client Onboarding Skills - Core.yaml* to **drag and drop files here** or click the **upload box**.



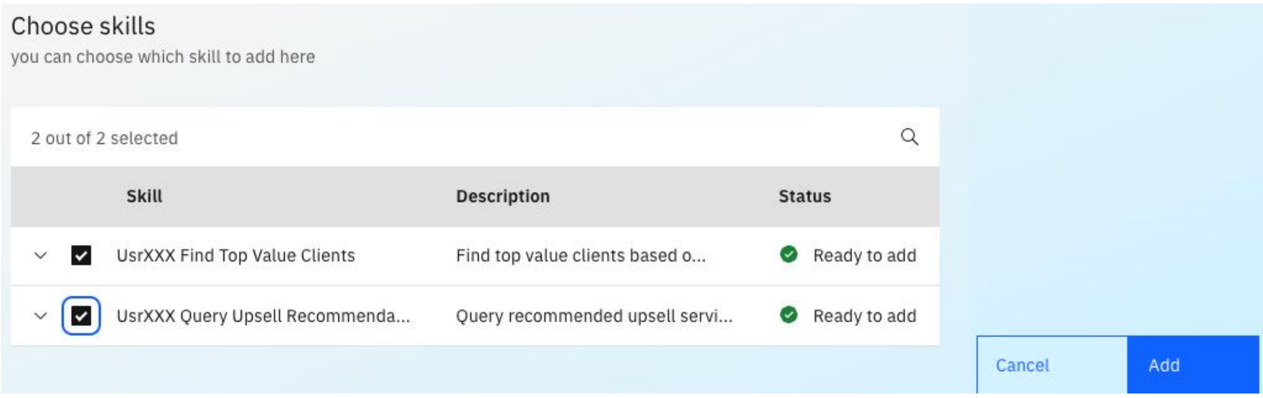
Make sure you see the *"...good to go!"* message.



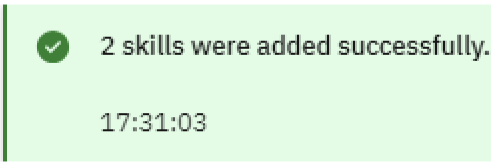
_6. In the bottom-right corner, click the **Next** button.



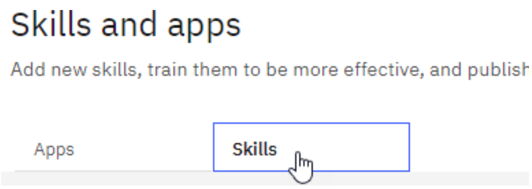
_7. **Select** all the skills you imported and click the **Add** button.



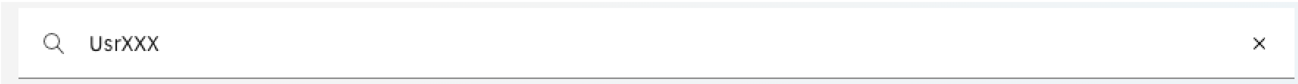
You will now see a confirmation message.



_8. Click the **Skills** tab.

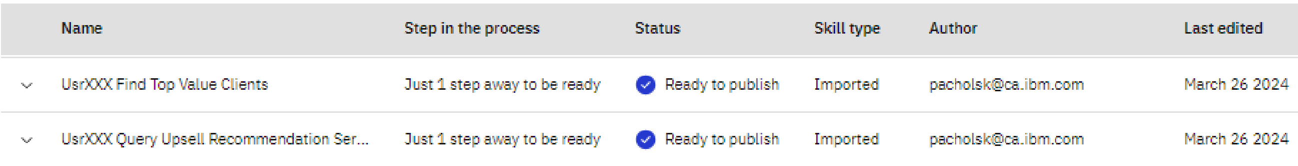


_9. To see only your Skill, in the *search bar,* enter **UsrXXX** (where XXX are the digits of your CP4BA Credentials user id) and hit the **Enter key**.

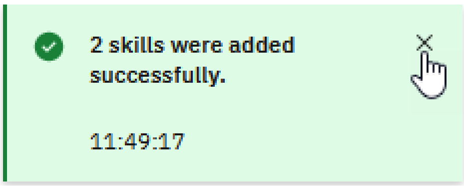


Notes:

- Your 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.



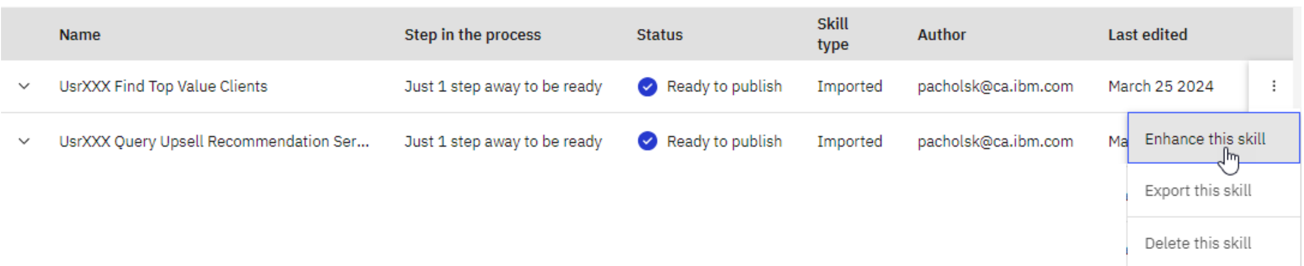
_10. Click **X** to close the message.



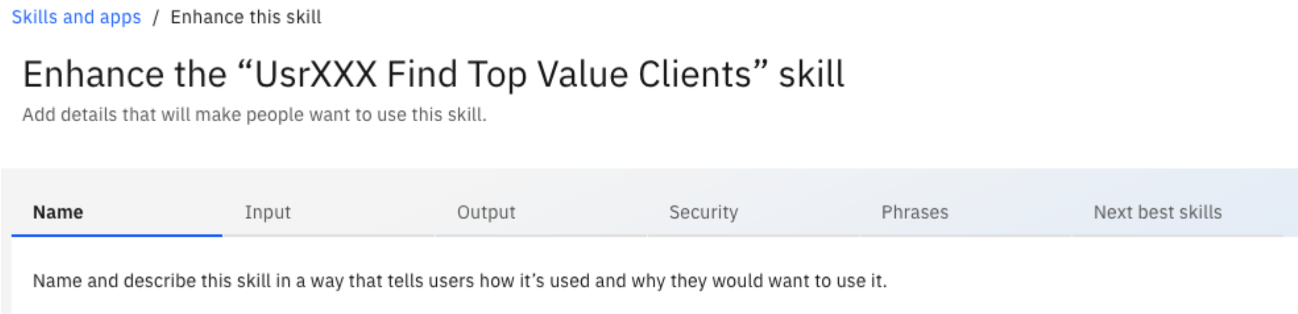
2.2 Publish Skills to Skills Catalog

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**.



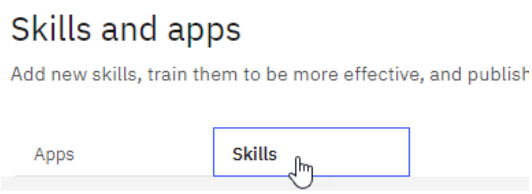
_2. Examine the tabs that we can use to enhance a Skill before publishing.



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 **Skills** tab.



_5. **Rerun the Search** to see only your skills.

UsrXXX ×

Note that the state has changed to Published.

	Name	Step in the process	Status
⌄	UsrXXX Find Top Value Clients	Ready to use	Published
⌄	UsrXXX Query Upsell Recommendation Ser...	Just 1 step away to be ready	Ready to publish

_6. Click **X** to close the message.

Published successful ×
Published skill UsrXXX Find Top Value Clients.

12:09:02

_7. Repeat the steps above (1-6) to publish the *UsrXXX Query Upsell Recommendation Ser*vices Skill.

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

_8. 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, you will experience the "User" role:

1. Add Skills from the Skill Catalog
2. Test the Solution As Is
3. Enhance User Experience with a Skills Flow (requires "Builder" role)
4. Add Skill Flow from the Skill Catalog
5. Test the Solution with Skill Flow

3.1 Add Skills from the Skill Catalog

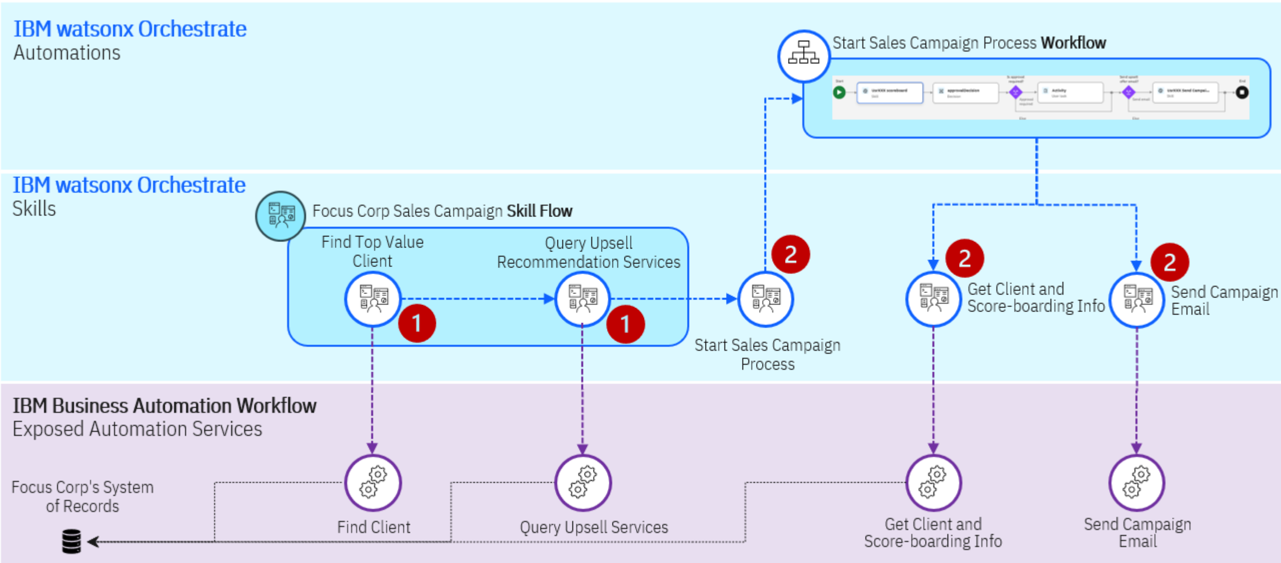
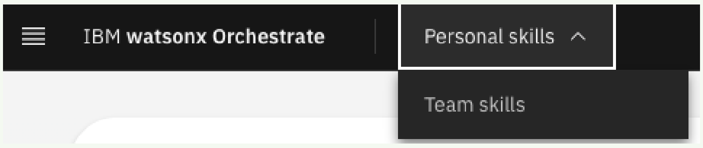


Figure 3. Skill Categories to be Added to Skills Catalog

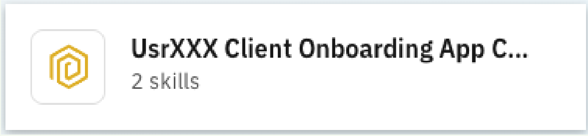
You will be adding two types of skills to your personal skill set:

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 skills 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 skills 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 of skill sets: Personal skill set and Team skill set.

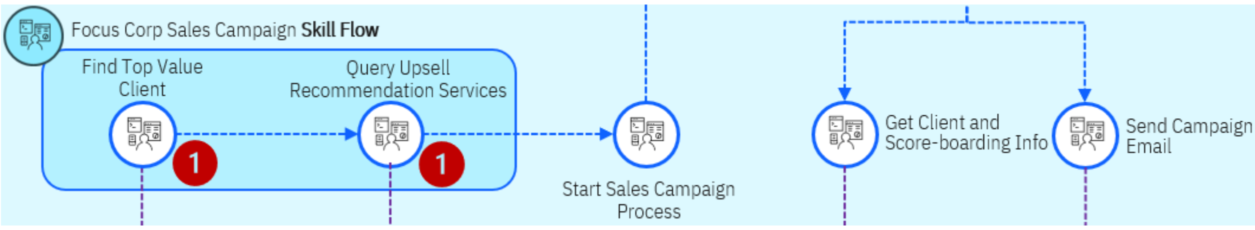


In the previous lab steps, you imported skills using the *watsonx Orchestrate Client Onboarding Skills - Core.yaml* and added them to the Skills Catalog as an App.

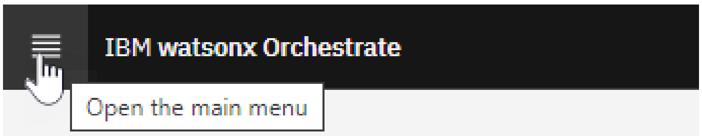


You will now add skills to Personal Skills from the Skill Catalog. Recall that you have added new Skills to the Skill Catalog in the previous part of the lab in the "Builder" role.

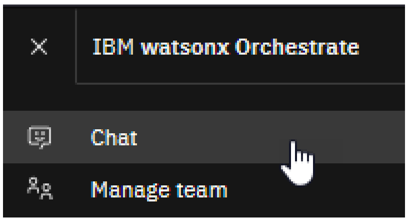
3.1.1 Add the Skill You Imported – Category 1



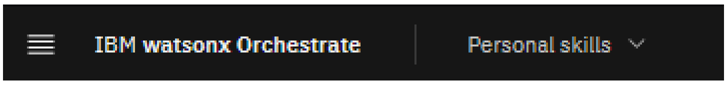
_1. Click the **Hamburger** menu.



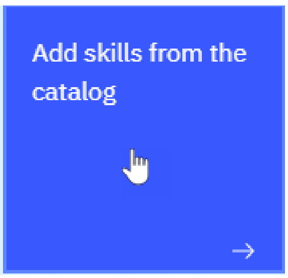
_2. Click **Chat**



_3. Ensure **Personal skills** is selected.

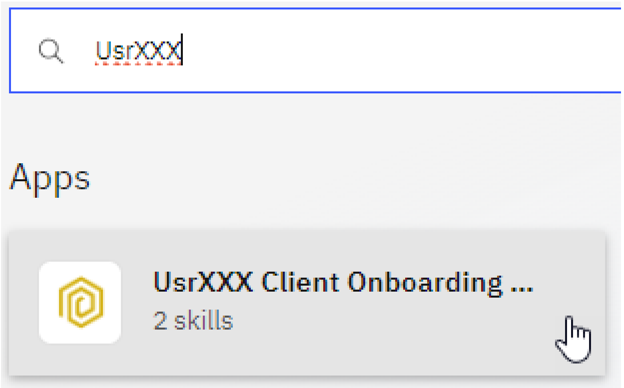


_4. Click **Add skills** from the catalog.

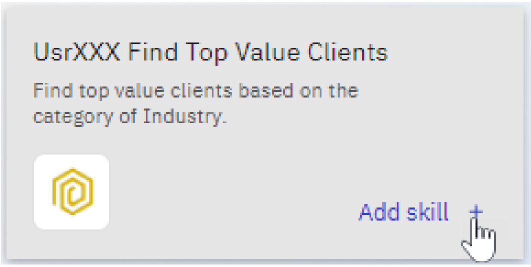


You should now see all the Apps available in the Skills Catalog.

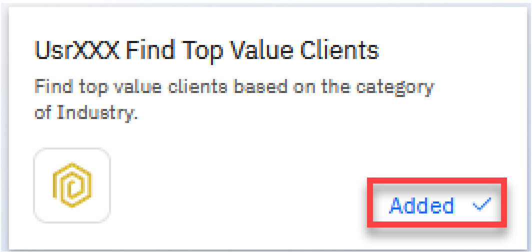
_5. Locate the **UsrXXX Client Onboarding App Core** (remember that XXX are the last three digits of your CP4BA Credentials user id) and **click on it** to open.



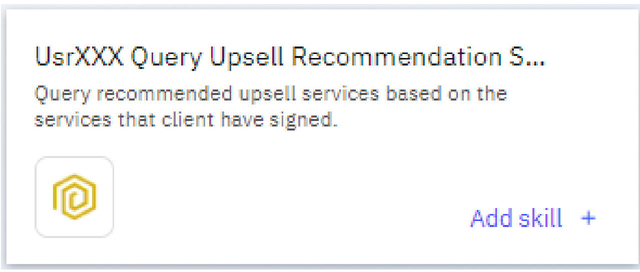
_6. Locate *UsrXXX Find Top Value Clients* Skill, and click **Add Skill +**



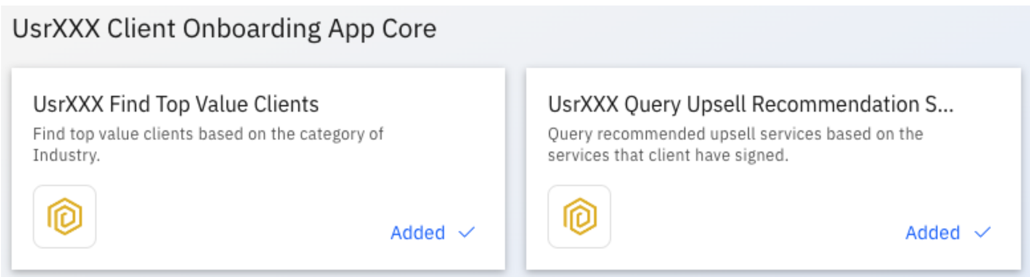
You should now see the *Added check mark* on your Skill.



_7. Repeat the above step for the *UsrXXX Query Upsell Recommendation Services* Skill.

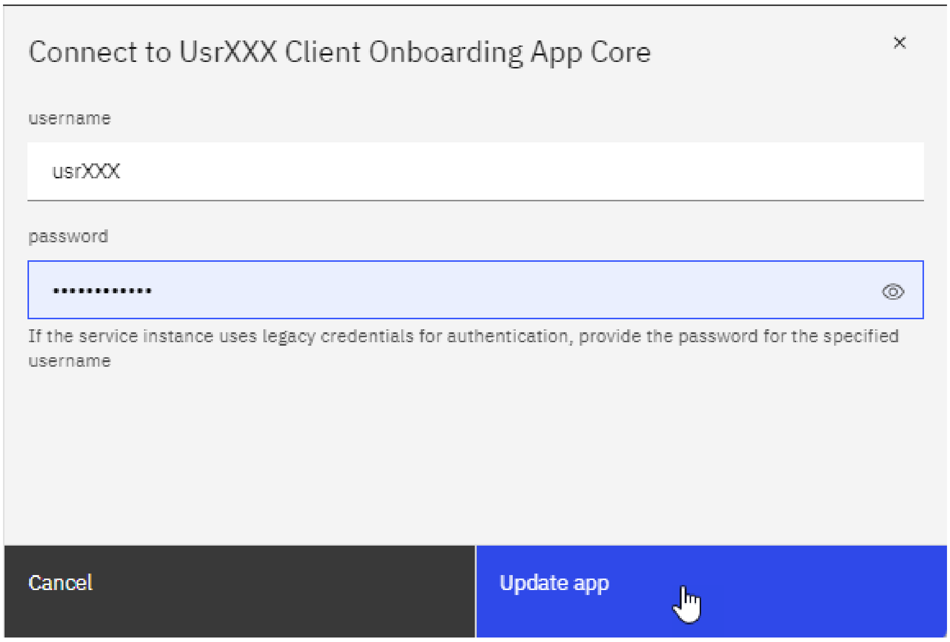


Make sure all Skills have the *Added check mark*.

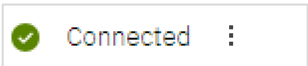


_8. In the top-right corner, click **Connect app** to specify the security credentials for your Skills.

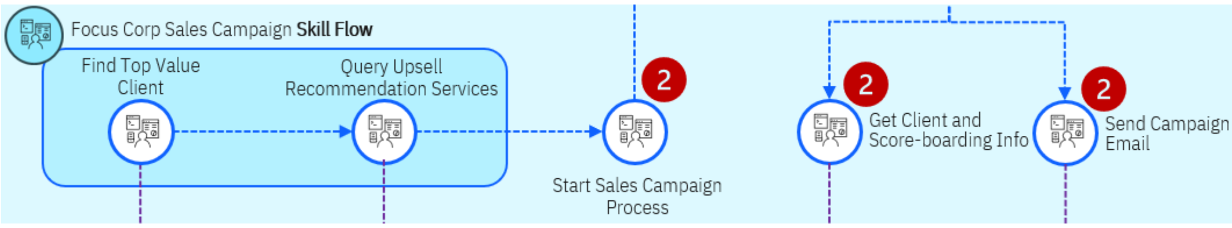
_9. For *username* and *password* enter your CP4BA Credentials (see 1.4.1 Systems, Lab Files, and Credentials).



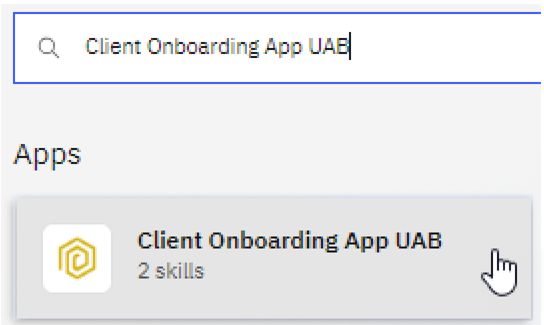
You should now see Connected in the top-right corner.



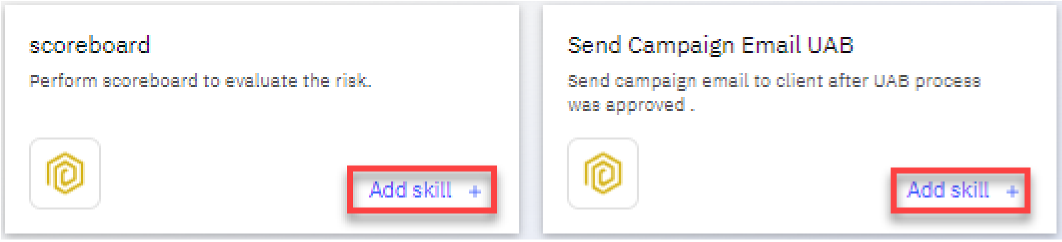
3.1.2 Add the Imported Skills – Category 2



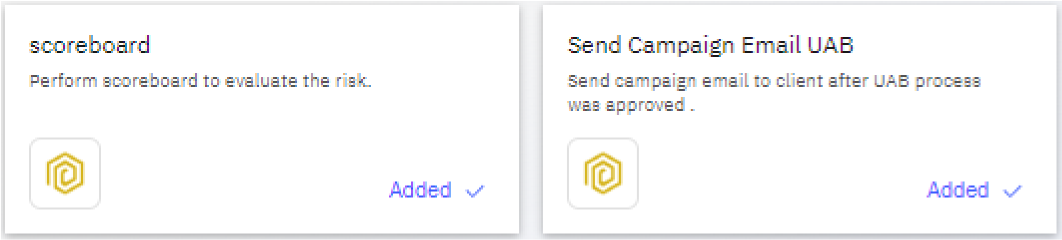
_1. Locate the **Client Onboarding App UAB** and **click on it** to open.



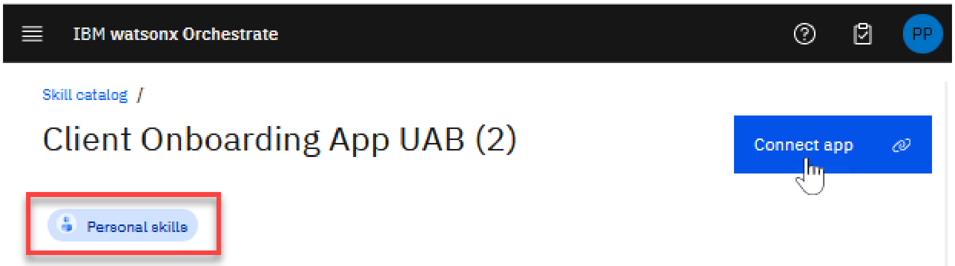
_2. Click **Add Skill +** on both skills



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

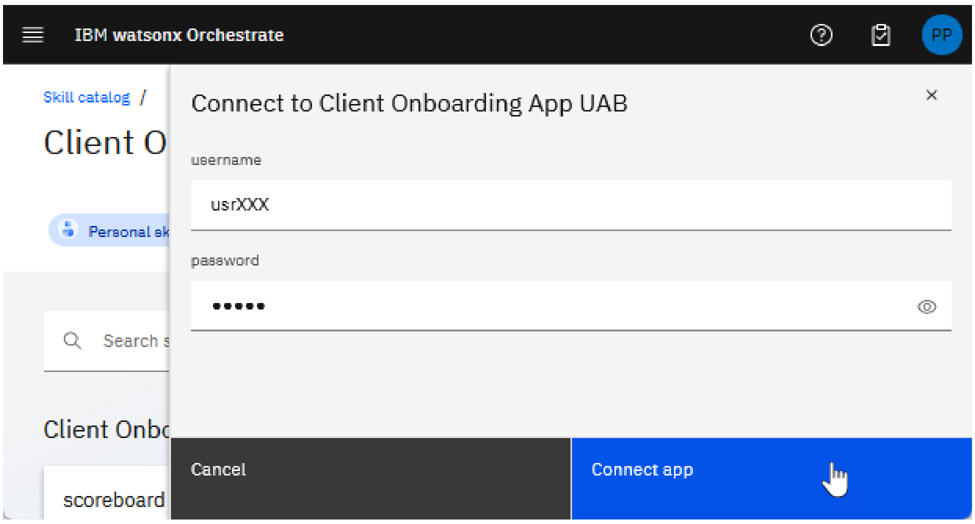


_3. In the top-right corner, click **Connect app** to specify the security credentials for your Skills.

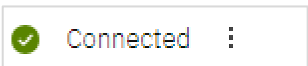


Note. In the screenshot above, note the red border outlining the Personal skills set. In the previous step, you added the two skills from the Client Onboarding App UAB to your personal skill set. Now, as they are part of your personal skill set, you will need to connect them using your own personal credentials.

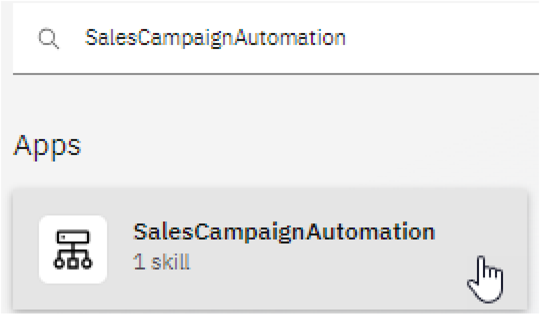
_4. For *username* and *password* enter your CP4BA Credentials (see 1.4.1 Systems, Lab Files, and Credentials).



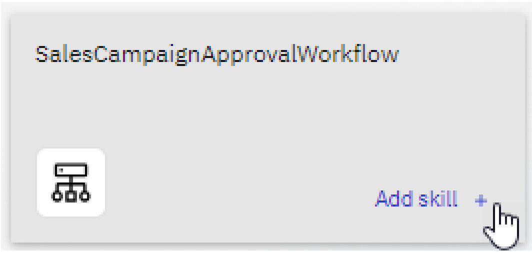
You should now see Connected in the top-right corner.



_5. Locate the **SalesCampaignAutomation** and **click on it** to open.



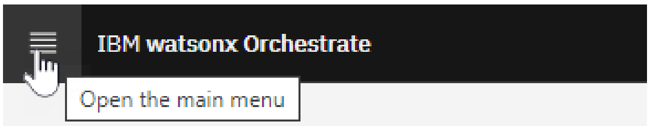
_6. Click **Add Skill +**



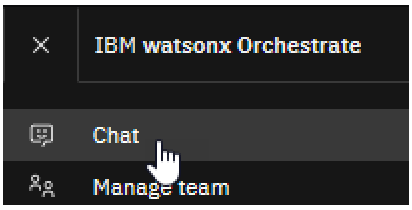
Make sure you see

3.2 Test the Solution As Is

_1. Click the **Hamburger** menu.

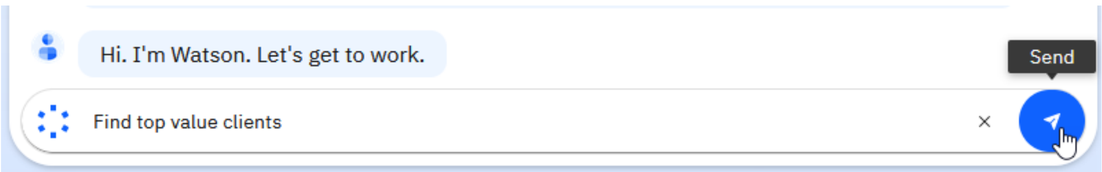


_2. Click **Chat**

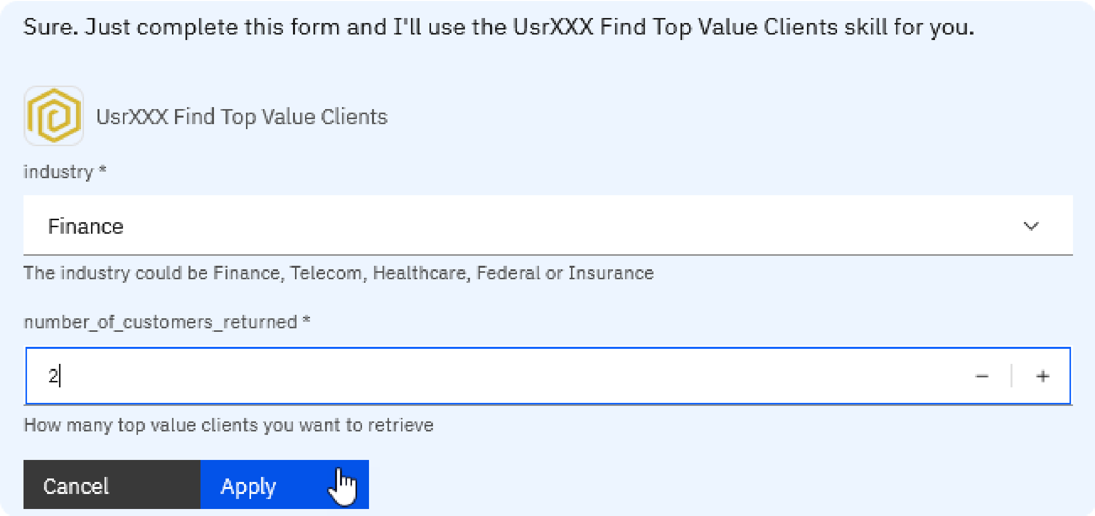


_3. Enter the phrase **Find top value clients** and click **Send**

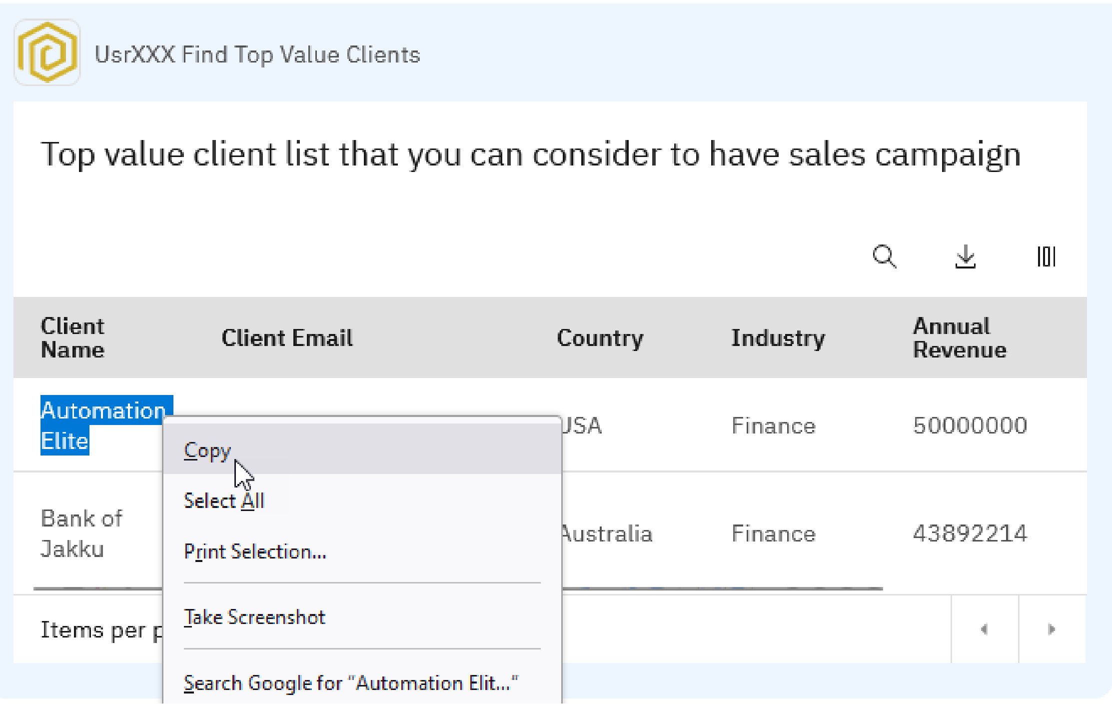
Note that the *Find Top Value Client* Skill was activated and now requests your input!



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

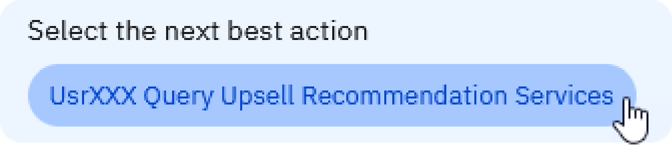


_5. In the output returned, select **Automation Elite**, right-click, and choose **Copy**.



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 the next best action **UsrXXX Query Upsell Recommendation Services**.

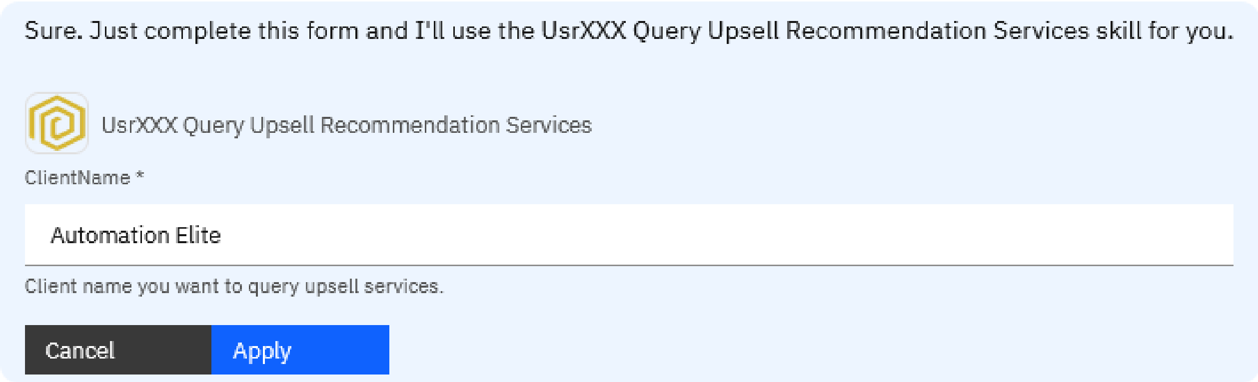


Note. In case you wondered how wxO knew the next best action is... You can annotate the OpenAPI file to specify the next action.

```
"/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"}],
```

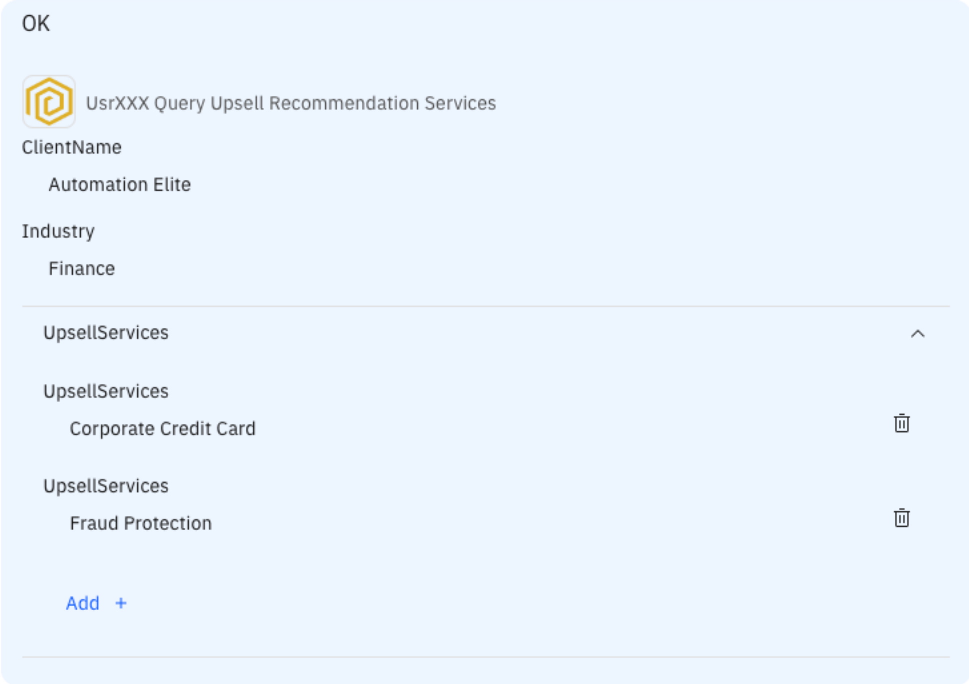
Suggested Enhancement: It would be nice if the *Query Upsell Recommendation Services* Skill were invoked automatically since we always want to find out what upsell services apply to the top-value customer to whom we want to send the upsell offer!

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



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."



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
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*.
It would be nice if the *Query Upsell Recommendation Services* 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!
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.

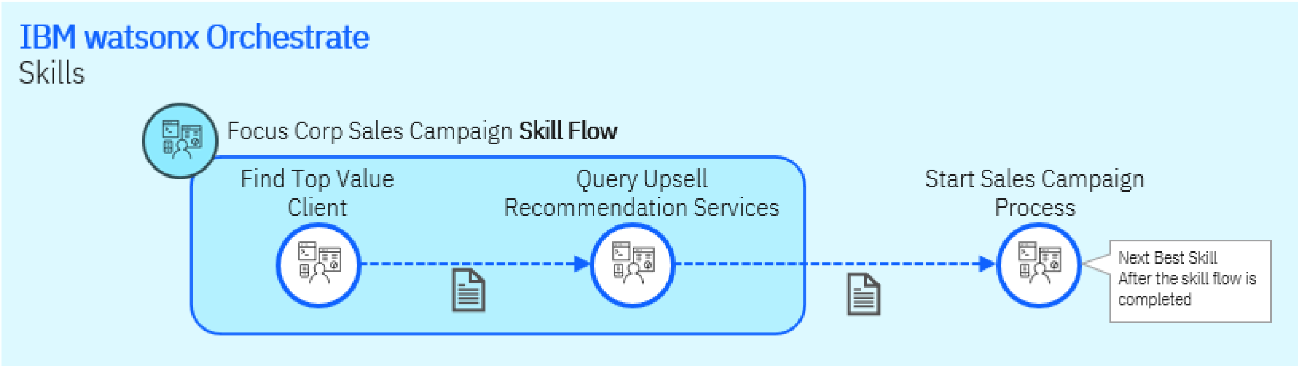
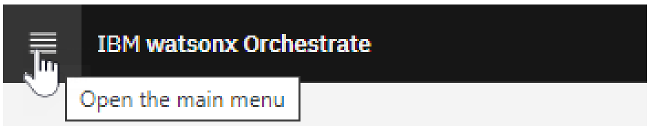


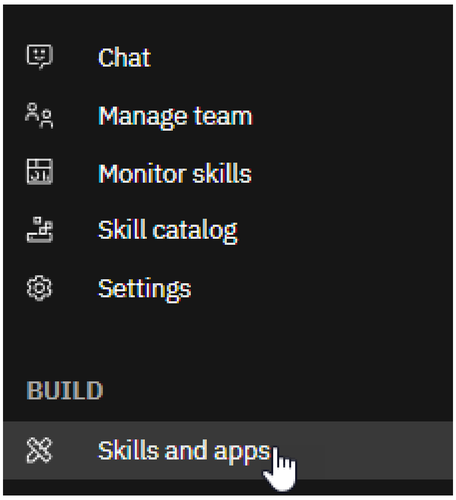
Figure 4. Skill Flow: Automated Skill orchestration and parameter passing

3.3.1 Create Skill Flow

_1. Click the **Hamburger** menu.

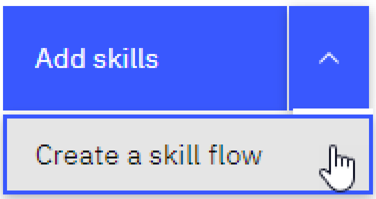


_2. Click **Skills and apps.**

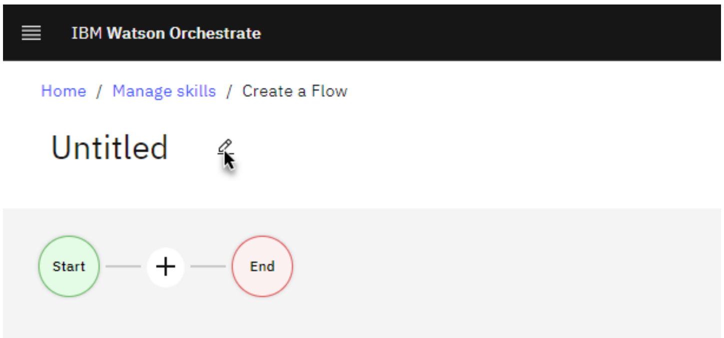


_3. In the top-right, click the **dropdown** in **Add Skills**.

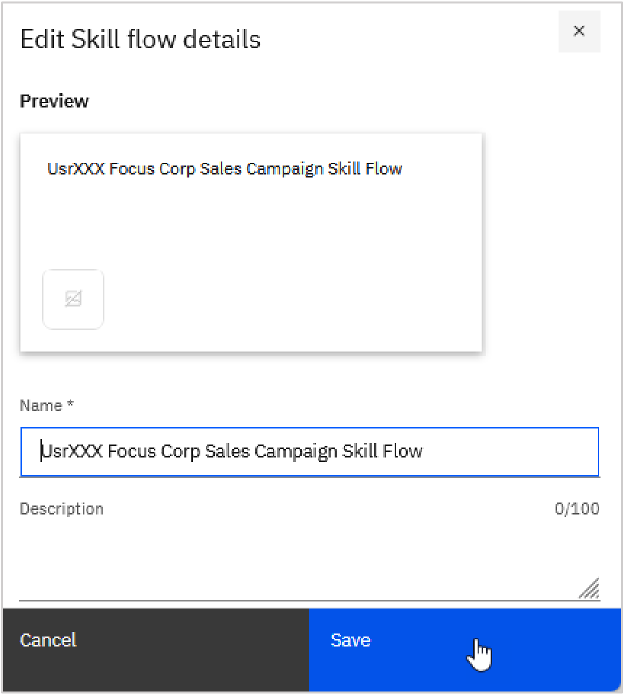
_4. Click **Create a skill flow**.



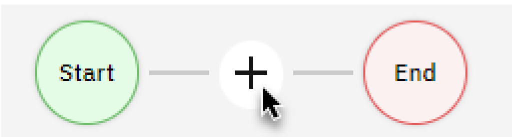
_5. Click the **pencil icon**.



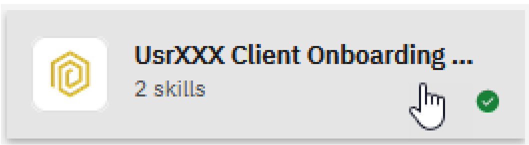
_6. For *Name*, enter **UsrXXX Focus Corp Sales Campaign Skill Flow** (remember to replace XXX with your CP4BA Credentials user id) and click **Save**.



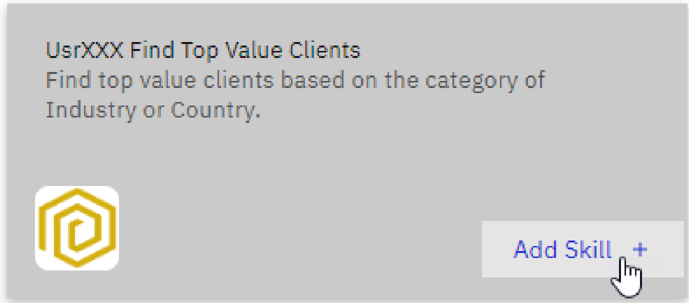
_7. Click the **+ icon.**



_8. Find the App you created (UsrXXX Client Onboarding App Core – remember XXX is your user id) and **click it.**

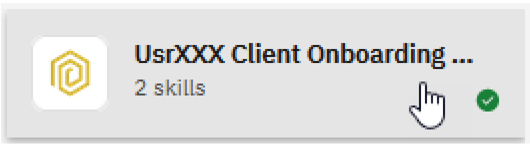


_9. On *UsrXXX Find Top Value Clients*, click **Add Skill +**

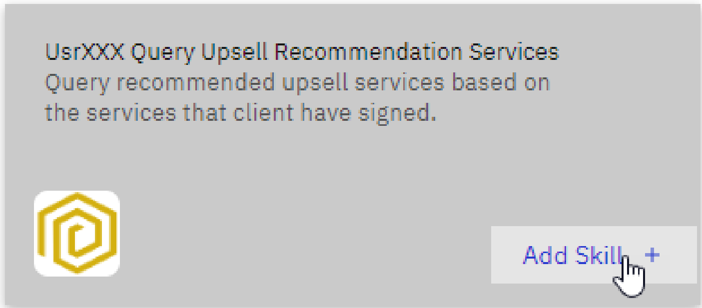


_10. Click the right **+ icon.**

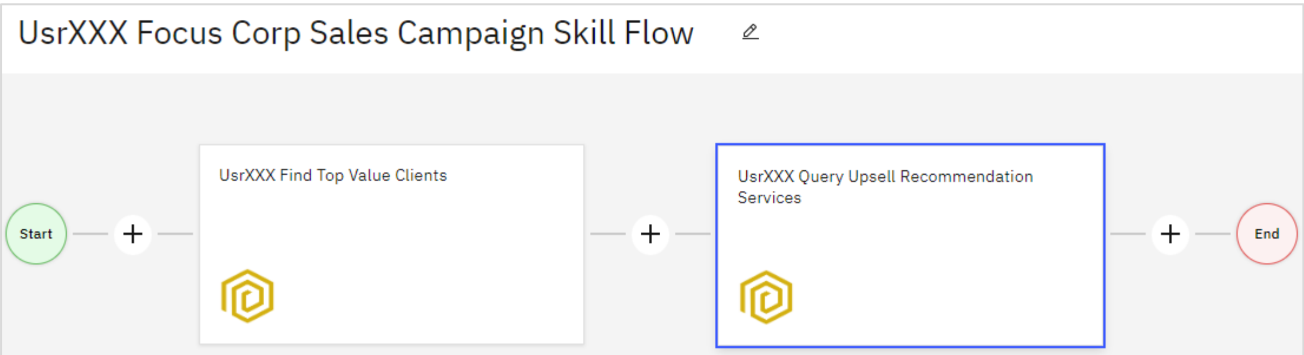
_11. Find the App you created (UsrXXX Client Onboarding App Core – remember XXX is your user id) and **click it.**



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



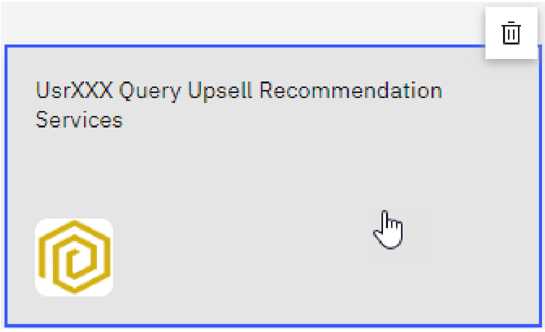
Your Skill Flow should look similar to this:



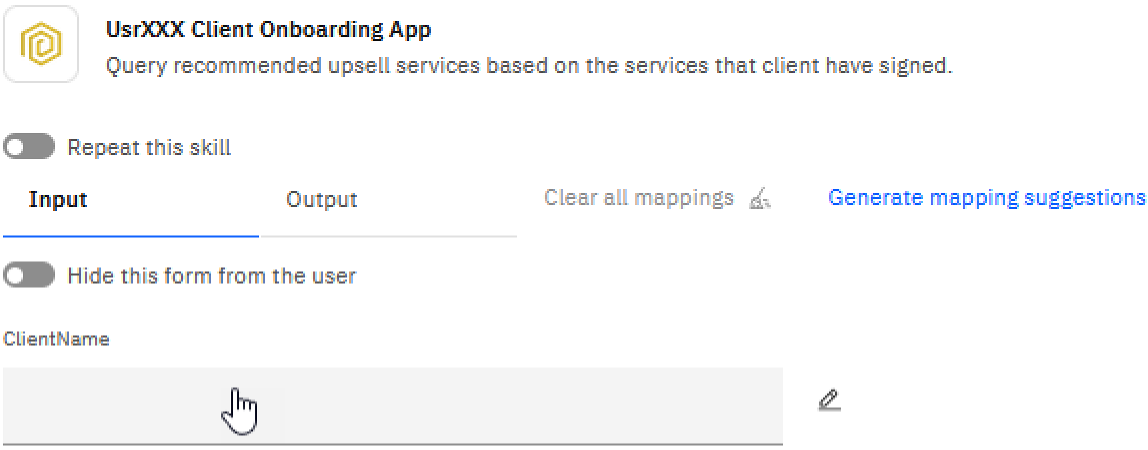
3.3.2 Configure Skill Flow

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.

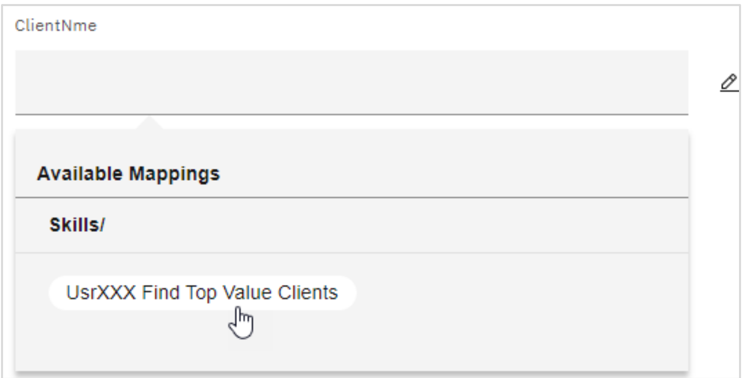
_1. Click the **UsrXXX Query Upsell Recommendation Services** Skill



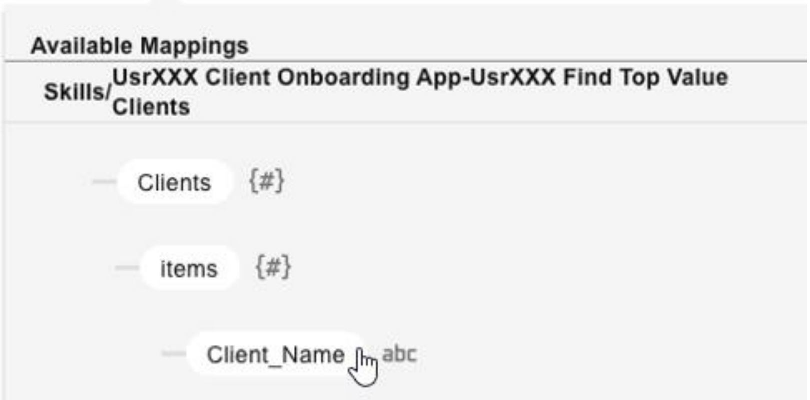
_2. In the *Input* Tab, click on the **ClientName** entry field.



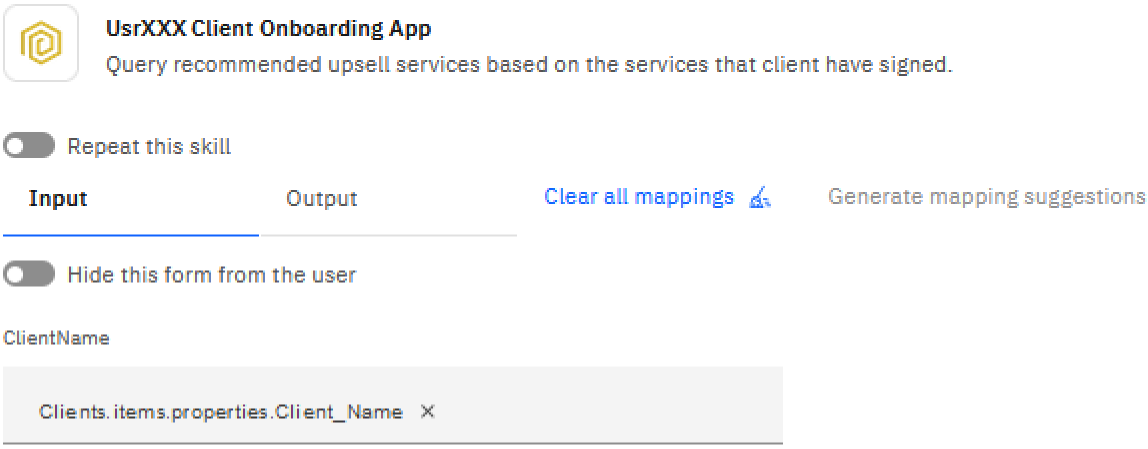
_3. Click **UsrXXX Find Top Value Clients**

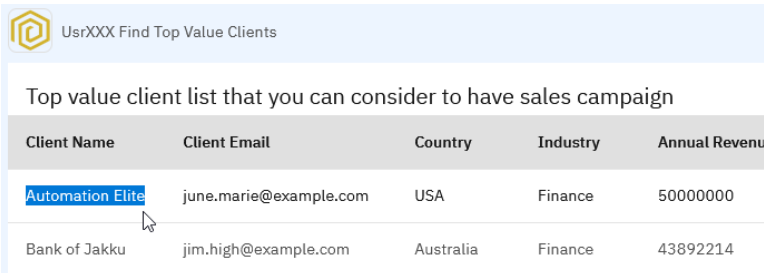


_4. Please scroll down to find **Client_Name** and select it.



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



> **Suggested Enhancement:** Note that this will eliminate the issue we encountered: The need to copy and paste the client name.
>
> 
>
>
> 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.

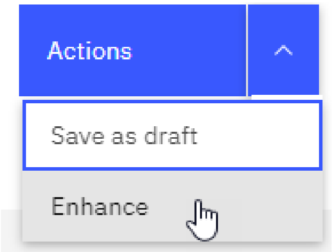
For the next best Skill, you can select the Upsell Approval Workflow skill that we have already prebuilt for you. After this Skill is completed, the next best Skill (Approval Workflow) will appear as suggestions to the users.

3.3.3.1 Add Phrase to Launch the Skill

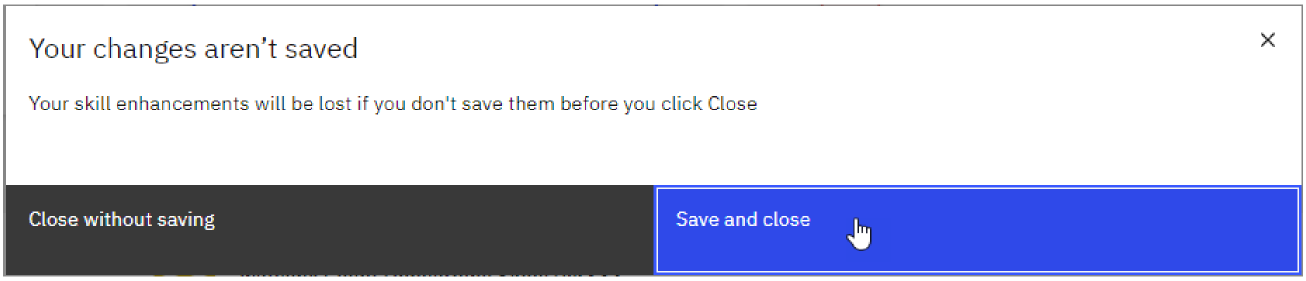
_1. In the top-right, click the **dropdown** in **Actions**.

Note: You may have to scroll up to the top to see the Actions button

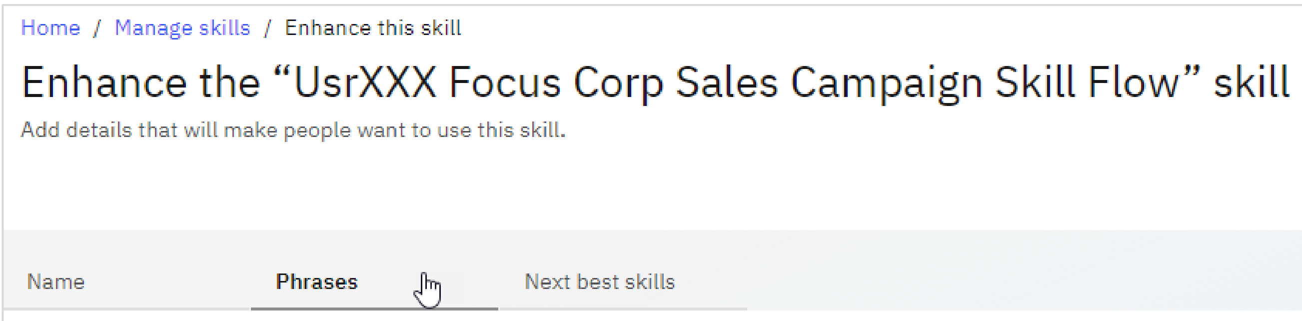
_2. Click **Enhance**.



_3. Click **Save and close**.



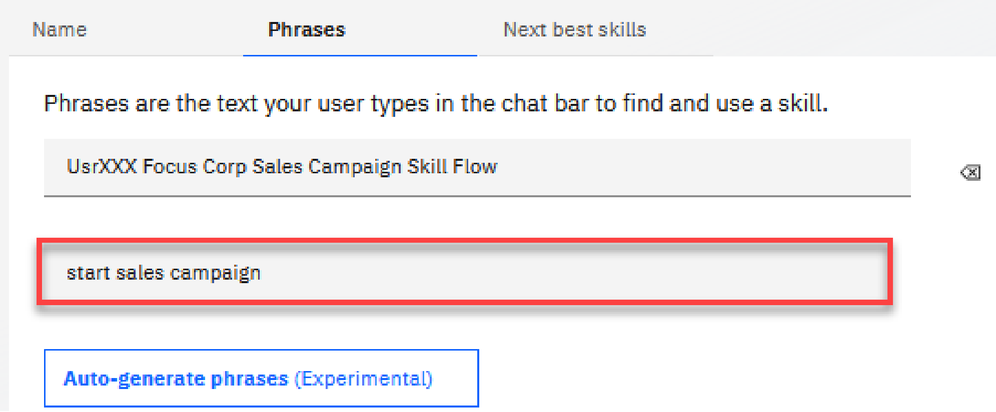
_4. Select **Phrases** tab



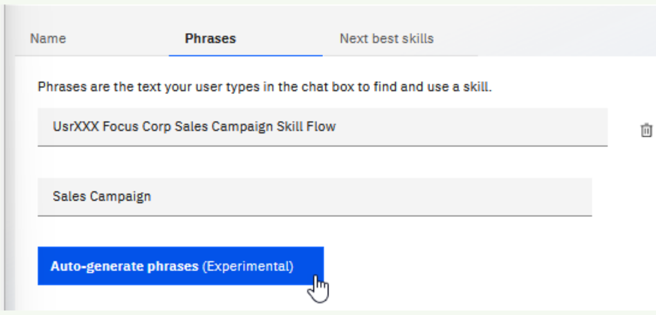
Phrases are the text your user types in the chat box to find and use a skill.

_5. Enter **start sales campaign** for phrase.

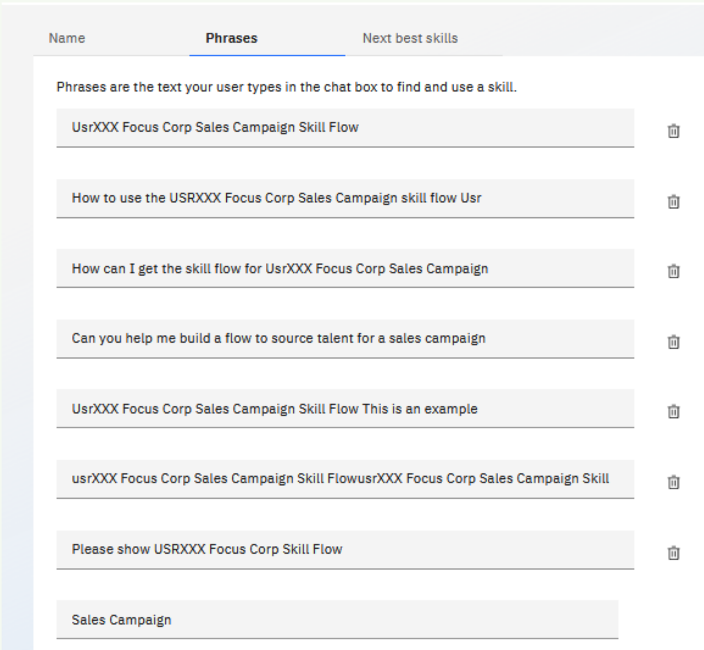
Note: If you want to enter multiple phrases, press enter after entering one phrase, then you can add another one.



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

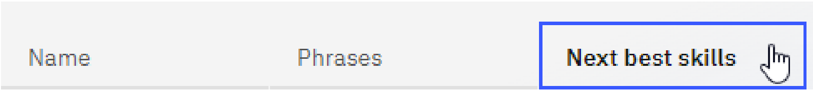


In addition to the phrase you added, you should now see the autogenerated phrases!

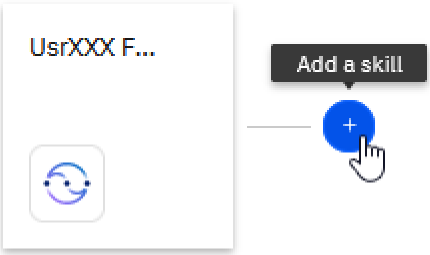


3.3.3.2 Add Next Best Skill

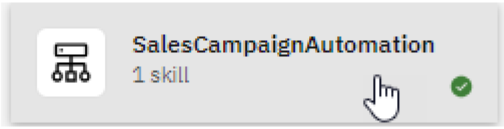
_1. Click the **Next best skills** tab.



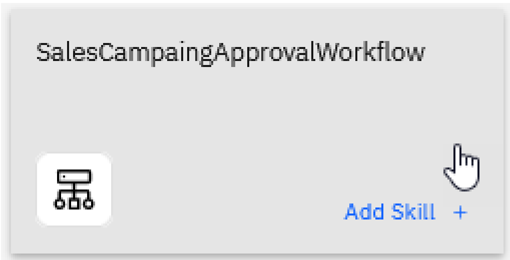
_2. Add a skill **+ icon**



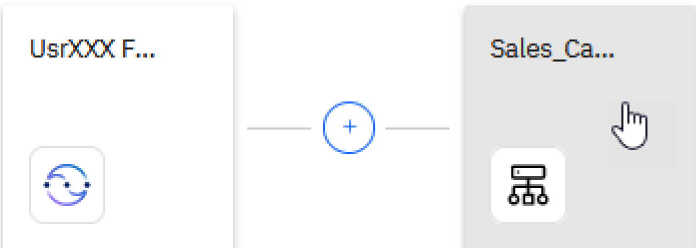
_3. Select **SalesCampaignAutomation**



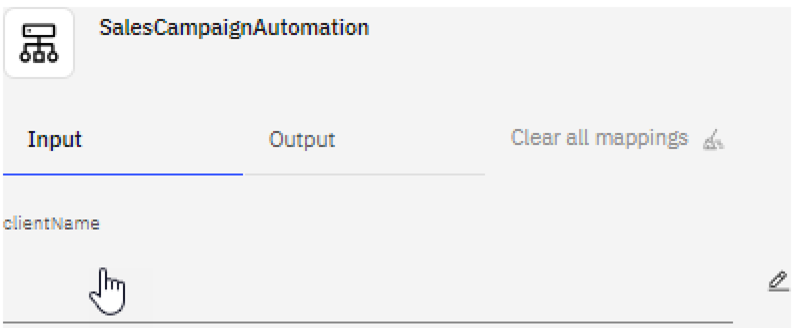
_4. Click **Add Skill +**



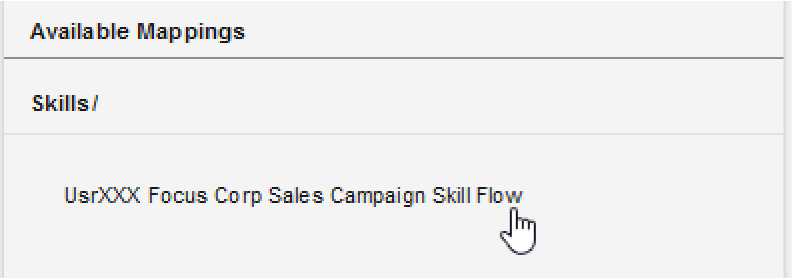
_5. Click **Sales_Ca...**



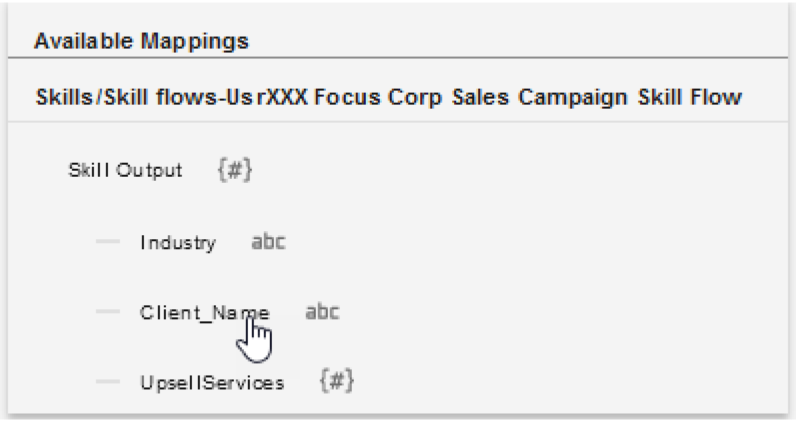
_6. Click under the **clientName** label.



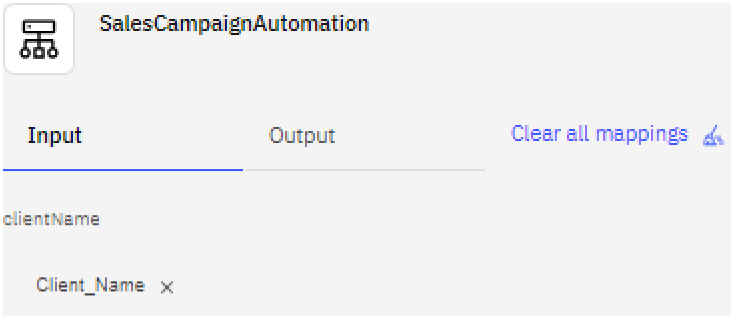
_7. Click **UsrXXX Focus Corp Sales Campaign Skill Flow**



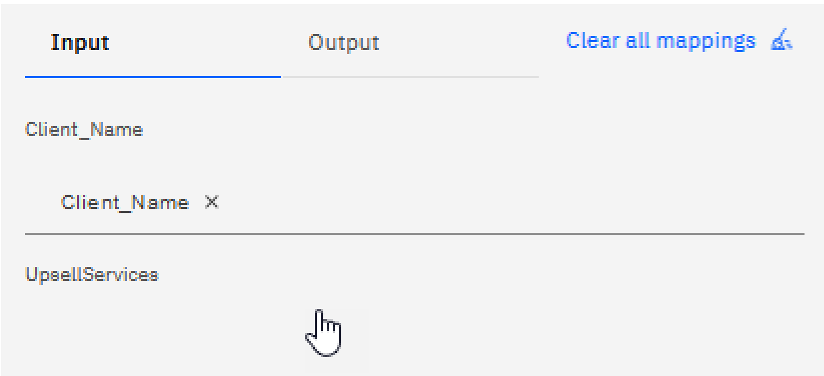
_8. Click **Client_Name**



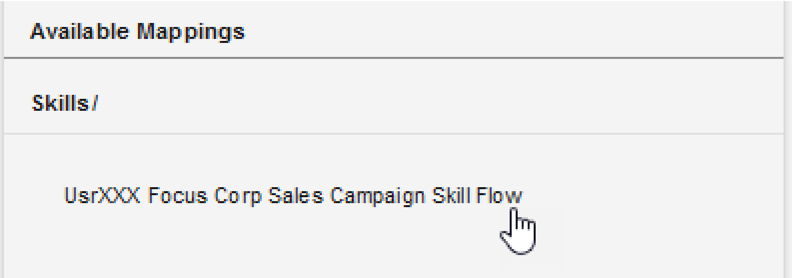
Make sure the mapping is like this:



_9. Click **below UpsellServices**

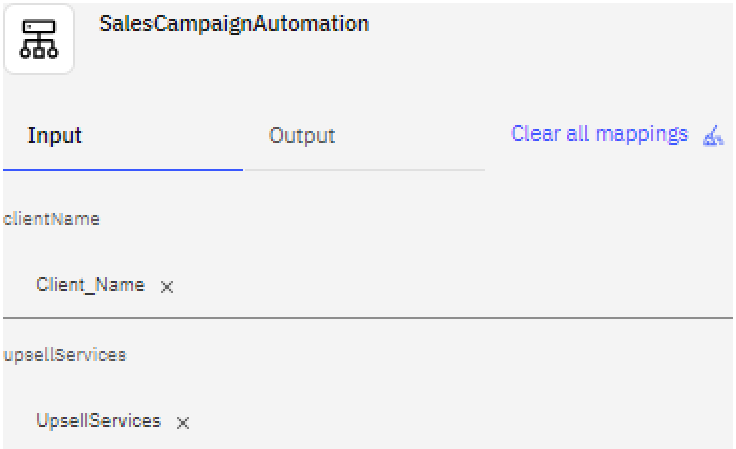


_10. Click **UsrXXX Focus Corp Sales Campaign Skill Flow**



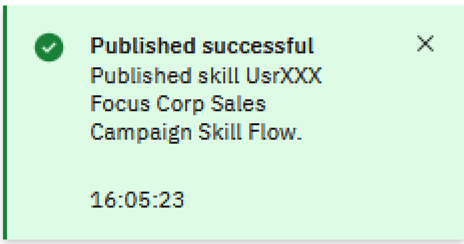
_11. Click **UpsellServices**

Make sure the mapping is like this:



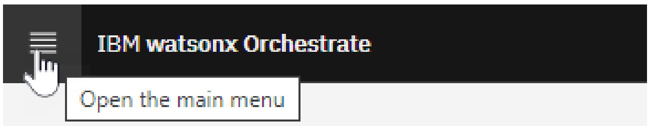
_12. Click **Publish**

You should see a confirmation message:

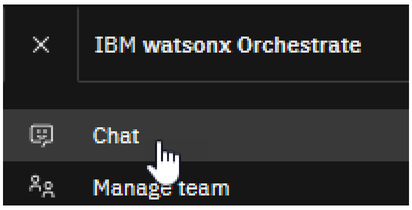


3.4 Add Skill Flow from the Skill Catalog

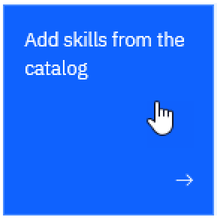
_1. Click the **Hamburger** menu.



_2. Click **Chat**

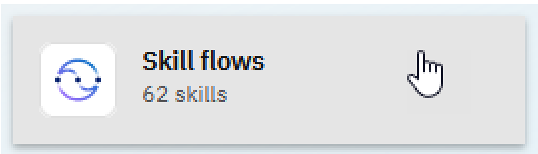


_3. Click **Add skills from the catalog**

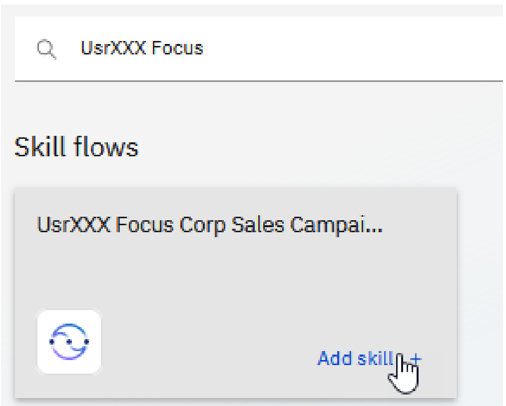


You should now see all the Apps and Skill Flows (Composite) available in the Skills Catalog.

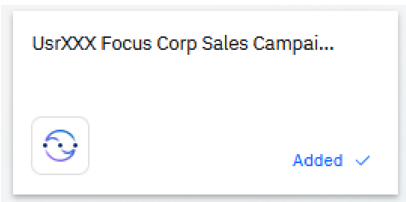
_4. Locate the **Skill flows** tile and **click on it** to open.



_5. Locate *UsrXXX Focus Corp Sales Campaign* Skill Flow and click **Add Skill +**



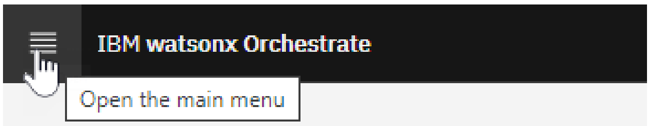
You should now see the *Added check mark* on your Skill.



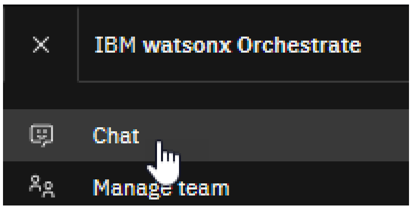
3.5 Test the Solution with Skill Flow

3.5.1 Test 1 - Upsell Offer is Auto-approved

_1. Click the **Hamburger** menu.

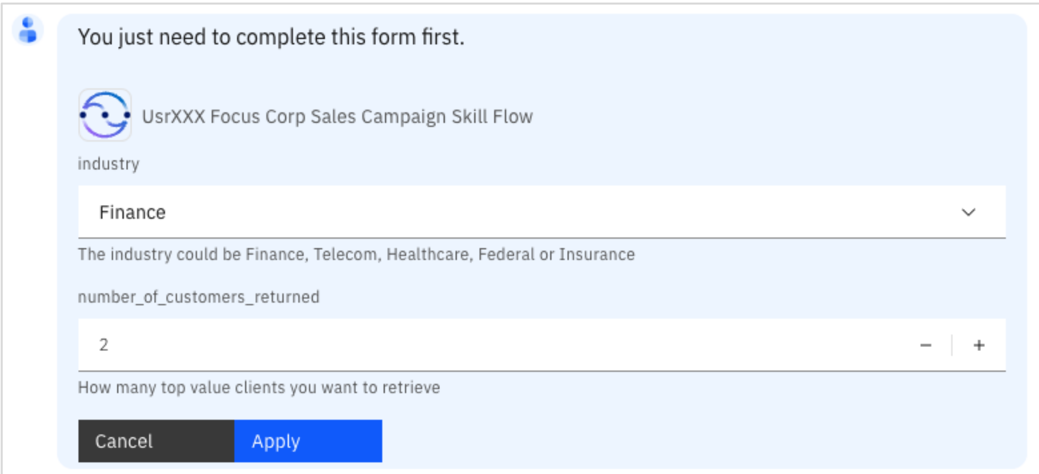


_2. Click **Chat**

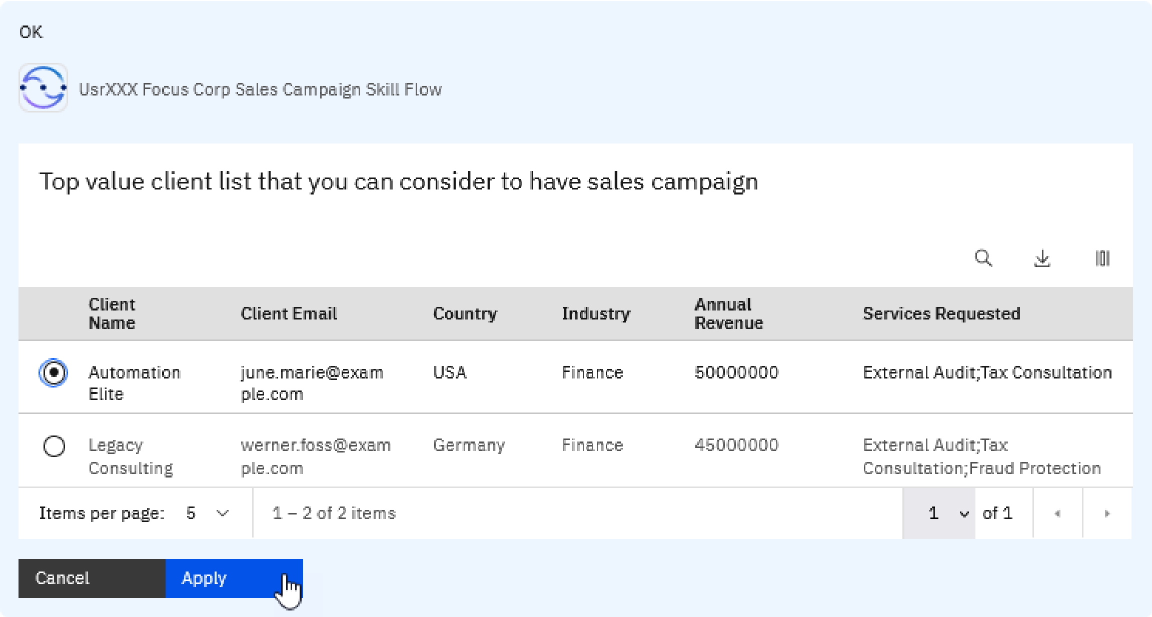


_3. Enter the **start sales campaign** phrase and press **Enter.**

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

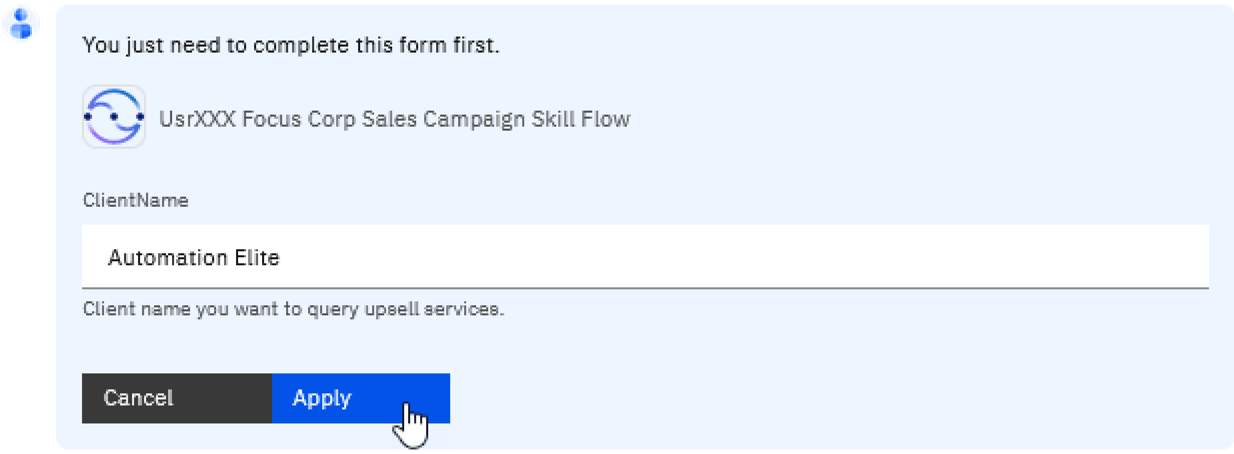


_5. Use the radio button to select **Automation Elite** and click **Apply**.



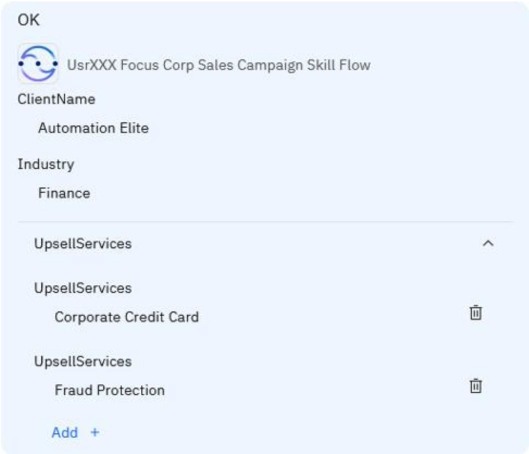
> Note: The action started the Skill Flow, which launched the *UsrXXX Query Upsell Recommendation Services* Skill. It will also use the parameter mapping we defined to prefill the ClientName field needed to launch the next Skill in the Skill Flow.

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



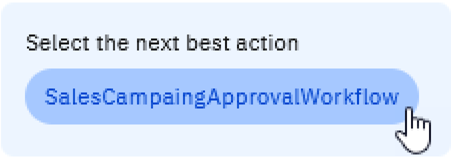
_7. You should now see the recommended upsell Services.

> 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.



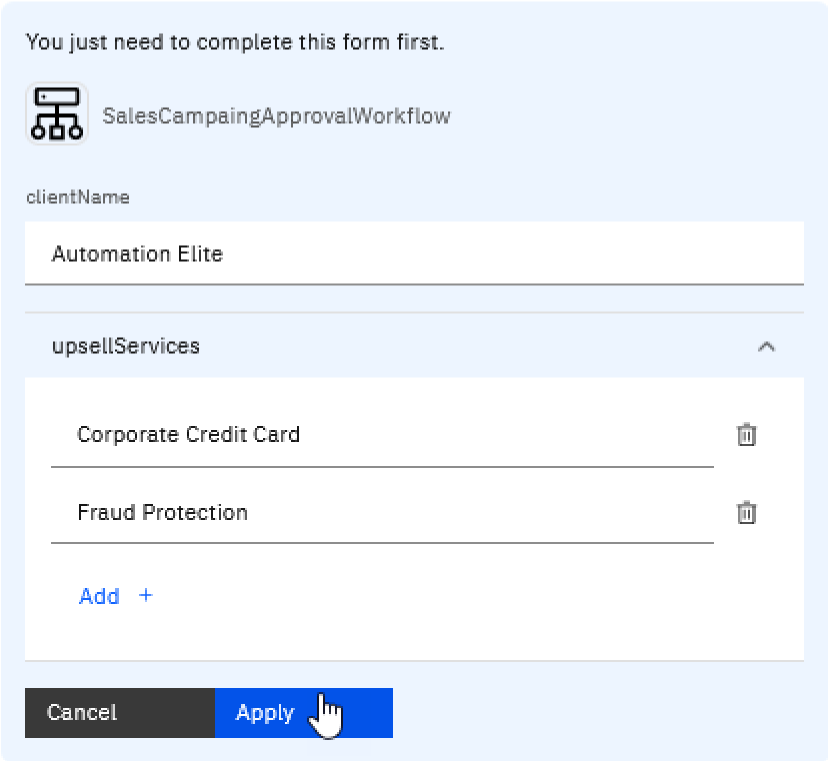
_8. Click the **SalesCampaignApprovalWorkflow** button.

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

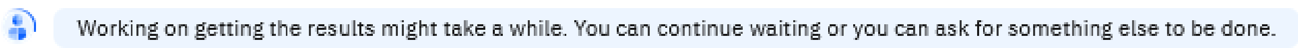


_9. Click **Apply** to launch the Start Upsell Approval Request.

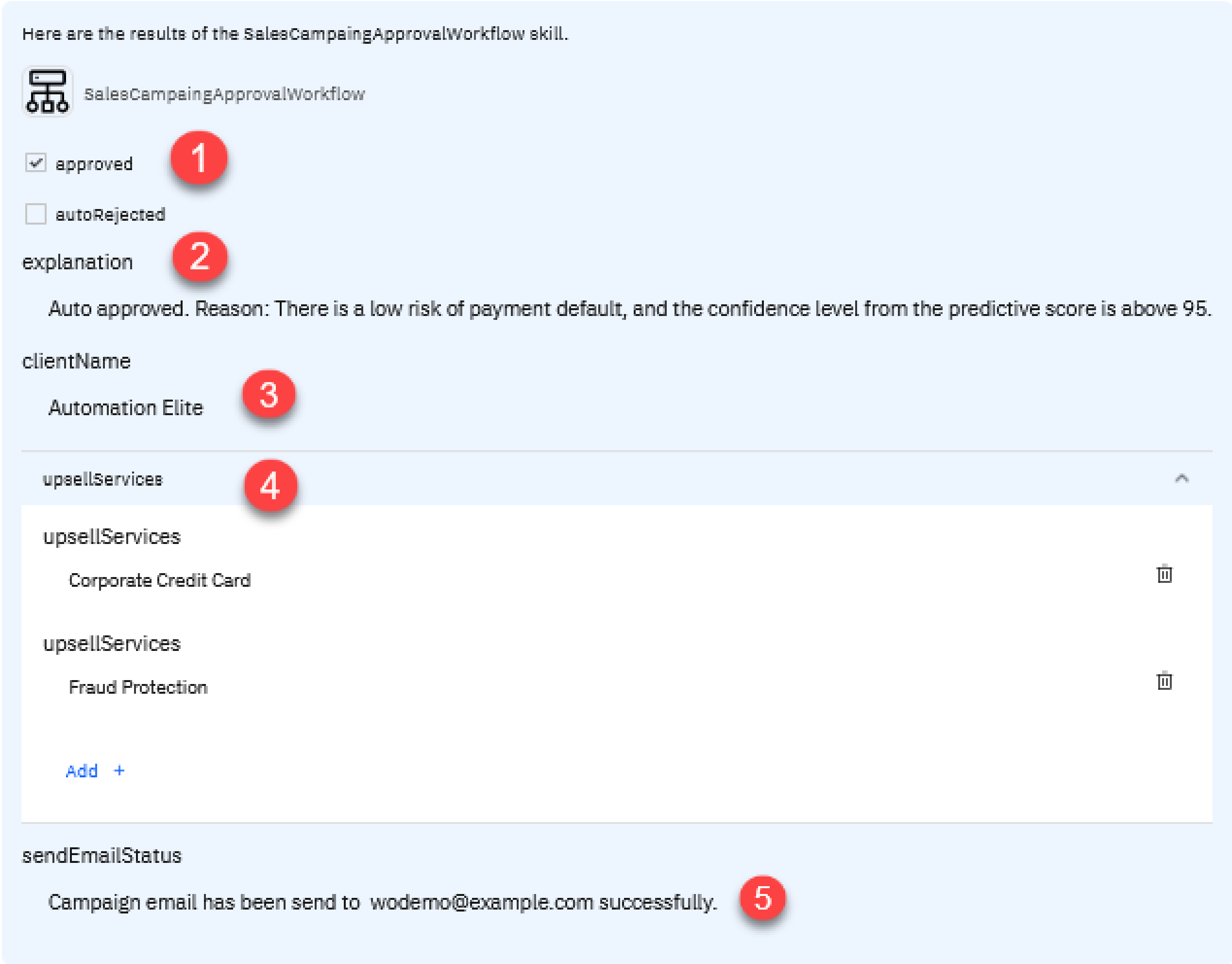
> Note: The wxO automatically filled the output of the previous skill (Client name, recommended upsell services) into the input fields for this skill. wxO can do this automatically if the previous skill's output matches the next skill's input.
>
> If you like, you could, at this step, also change (add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



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



_10. **Wait** until the "Working..." message disappears and the" Here are the results..." pane appears.



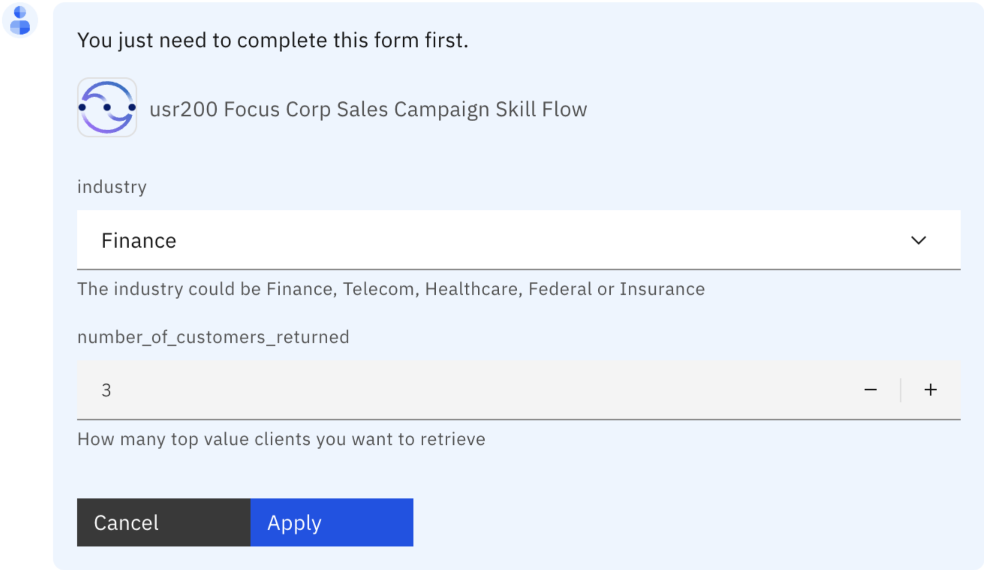
Let's examine the information returned by the Workflow:

1) The upsell offer was auto approved.
2) The reason for the approval was that the Automation Elite customer is not at high risk of default, and the confidence that the risk is low is high (99.9557).
3) The client was Automation Elite.
4) The upsell services were approved.
5) Confirmation that the upsell offer email was sent to the customer.

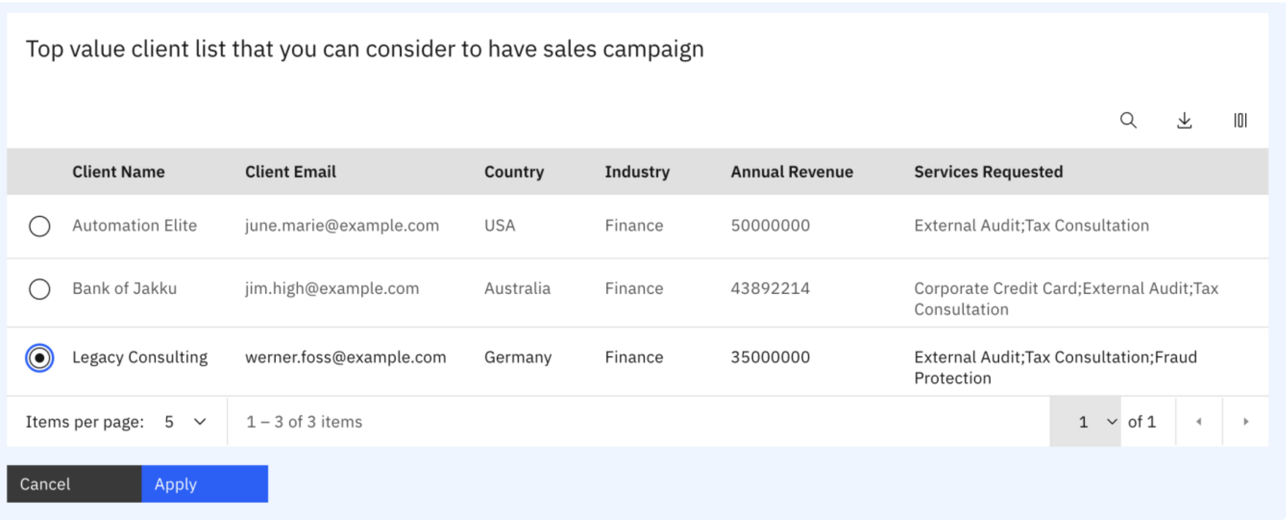
3.5.2 Test 2 - Upsell Offer Requires Manager's Approval

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

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



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


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

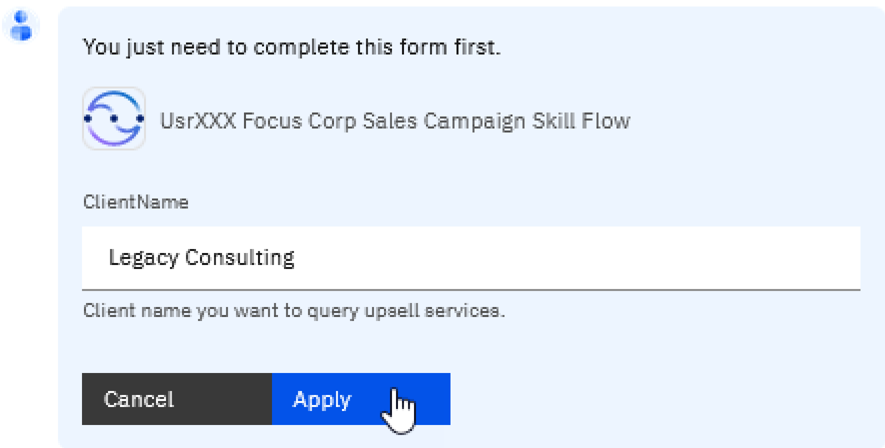
Client Name	Client Email	Country	Industry	Annual Revenue	Services Requested
Automation Elite	june.marie@example.com	USA	Finance	50000000	External Audit;Tax Consultation
Bank of Jakku	jim.high@example.com	Australia	Finance	43892214	Corporate Credit Card;External Audit;Tax Consultation
Legacy Consulting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

Items per page: 5 1 – 3 of 3 items 1 of 1

Cancel Apply

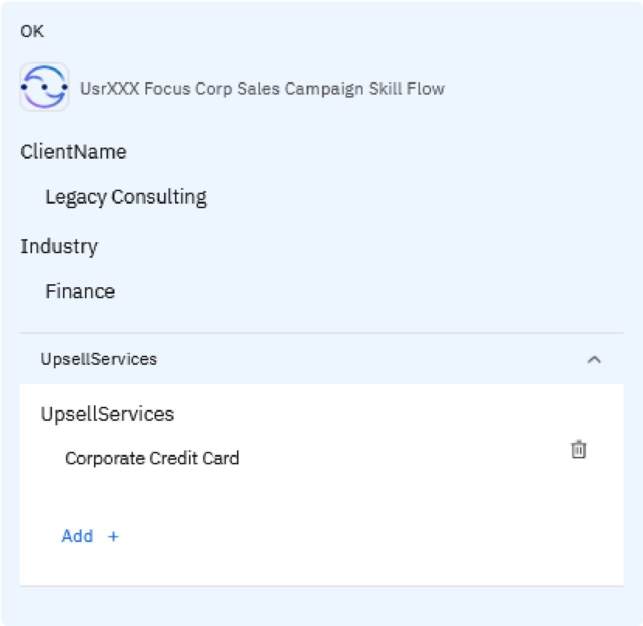
Note: The action started the Skill Flow, which launched the *UsrXXX Query Upsell Recommendation Services* Skill. It will also use the parameter mapping we defined to prefill the ClientName field needed to launch the next Skill in the Skill Flow.

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



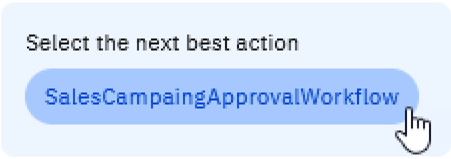
_5. You should now see the recommended upsell Services.

> 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.



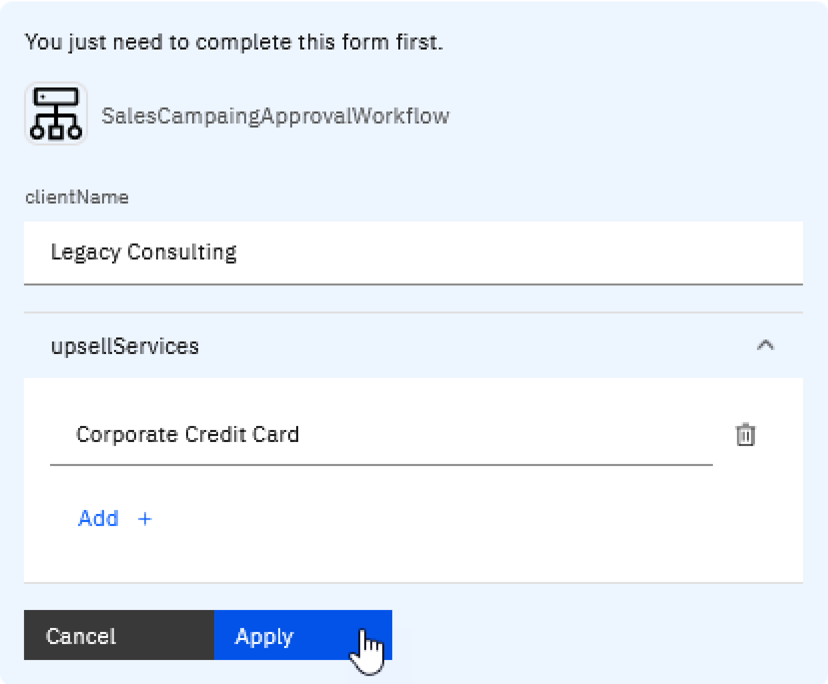
_6. Click the **SalesCampaignApprovalWorkflow** button.

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

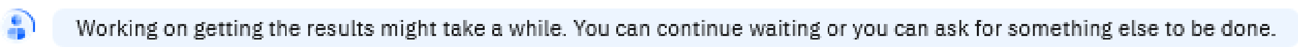


_7. Click **Apply** to launch the Start Upsell Approval Request.

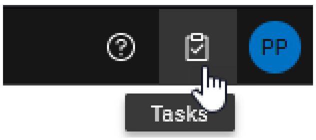
> Note: The wxO automatically filled the output of the previous Skill (Client Name, Recommended Upsell Services) into the input fields of this Skill. wxO can do this automatically if the previous Skill's output matches the next Skill's input.
>
> If you like, you could, at this step, also change (add or remove) the upsell Services that the Query Upsell Recommendations Skill recommends.



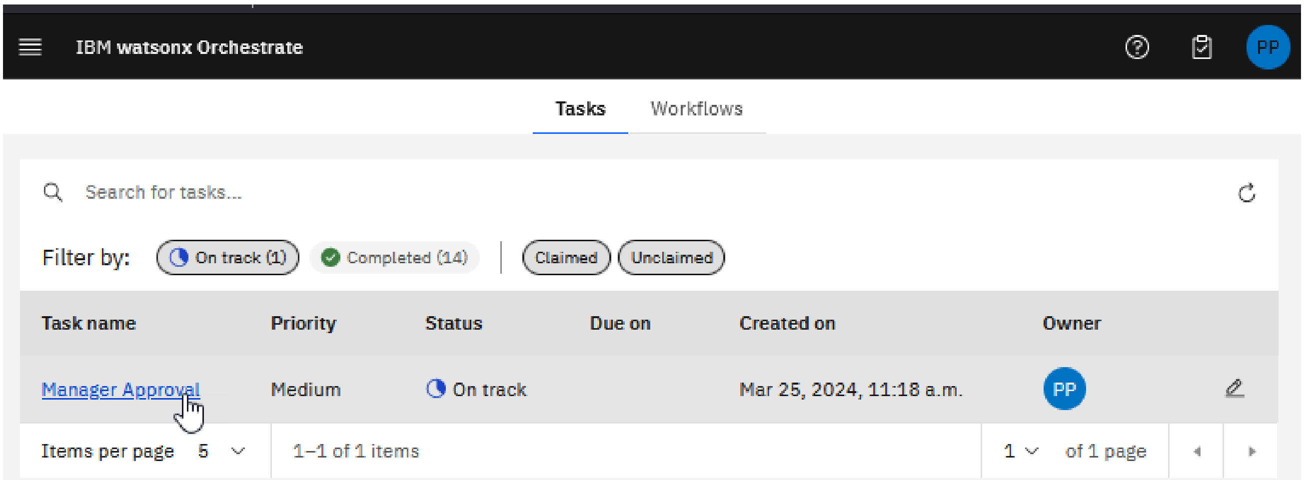
You should see a message that wxO is working on your request...



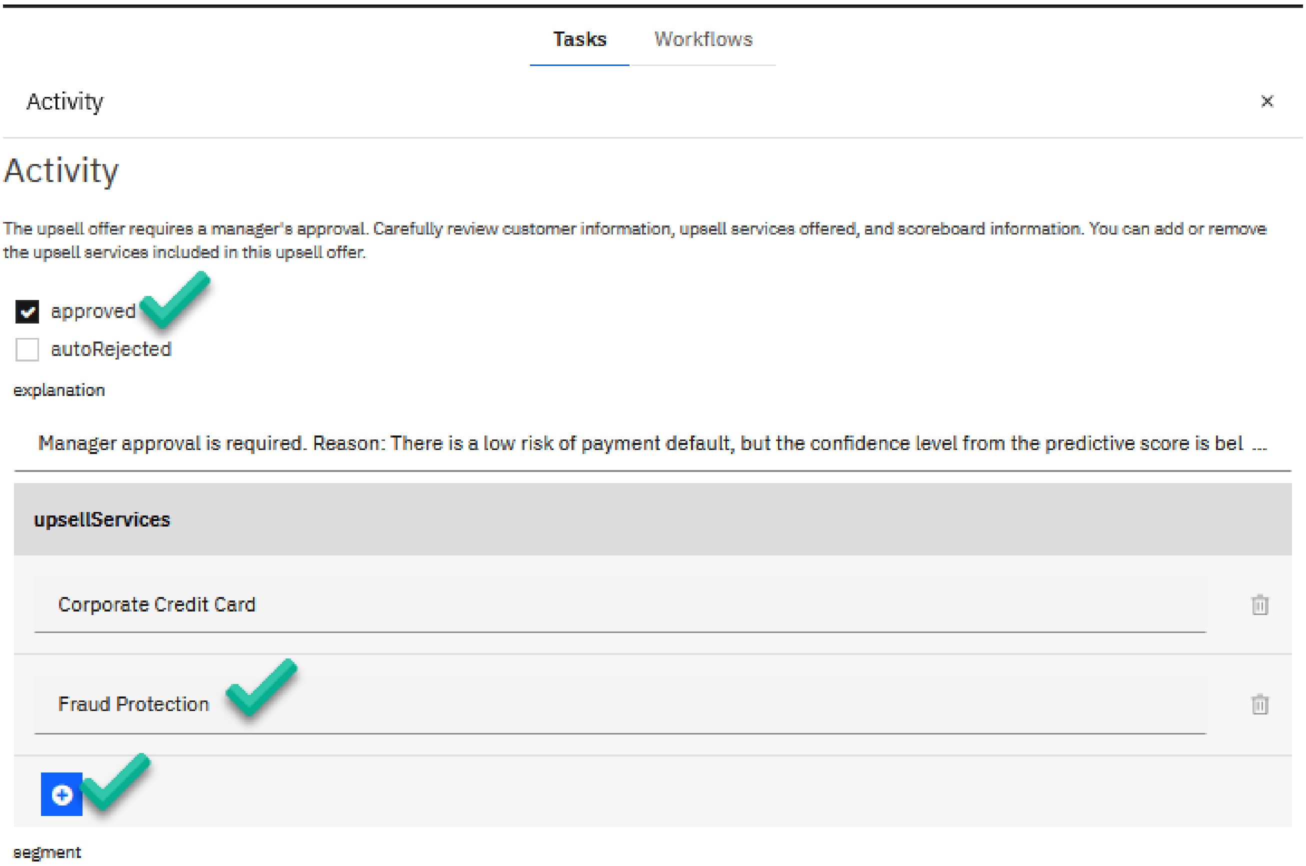
_8. Click **Tasks** icon



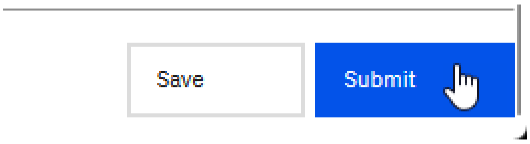
_9. Click **Manager Approval** to complete the approval task in the SalesCampaignApprovalWorkflow



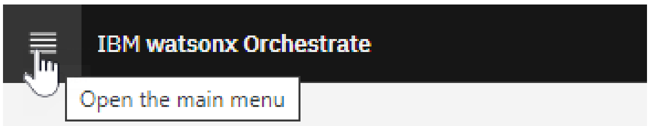
_10. Select the **approved checkbox** in the form, then click the **+ icon** to add **Fraud Protection** upsell service.



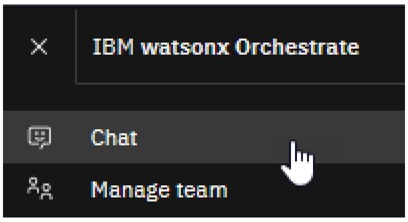
_11. Scroll to the bottom of the form and click **Submit**.



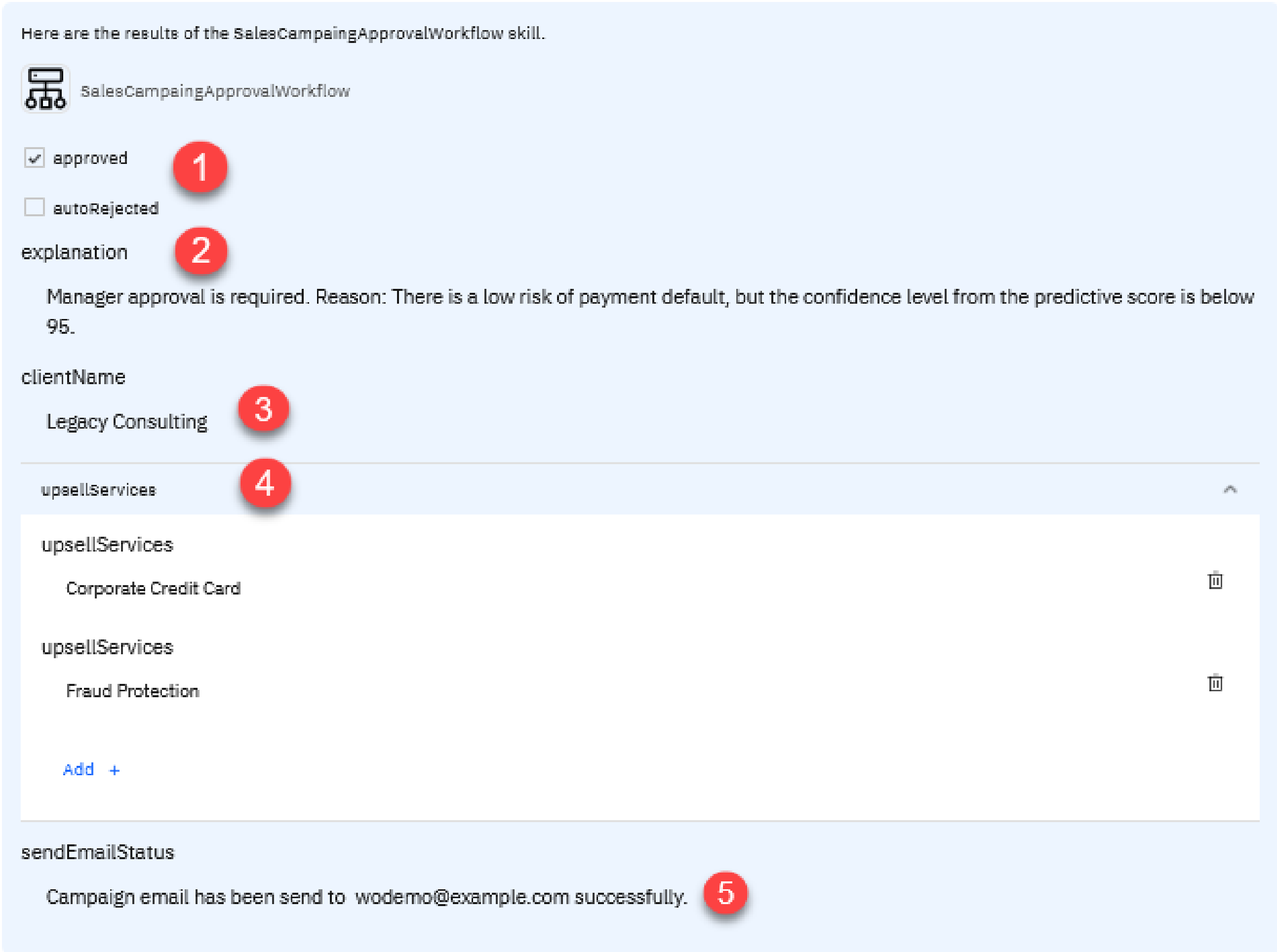
_12. Click the **Hamburger** menu.



_13. Click **Chat**



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



Let's examine the information returned by the Workflow:

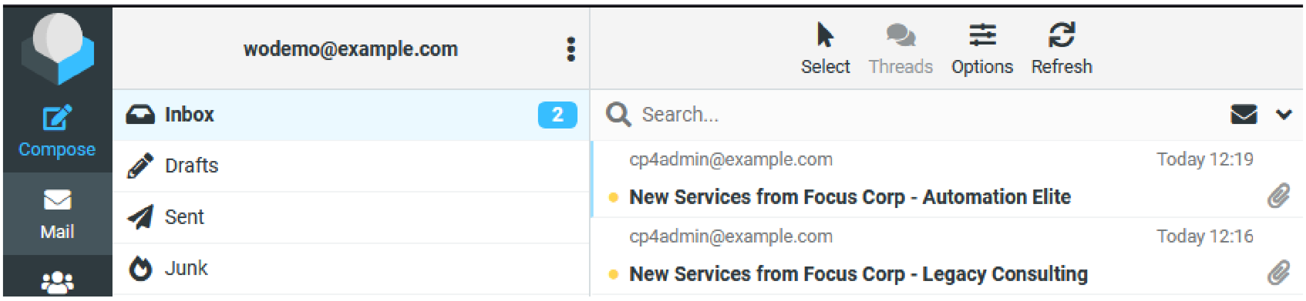
1) A manager approved the upsell offer.
2) A manager's approval was required because although there was a low risk of payment default, the confidence level from the predictive score was low (below 95).
3) The client was Legacy Consulting.
4) The upsell services were approved.
5) Confirmation that the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

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

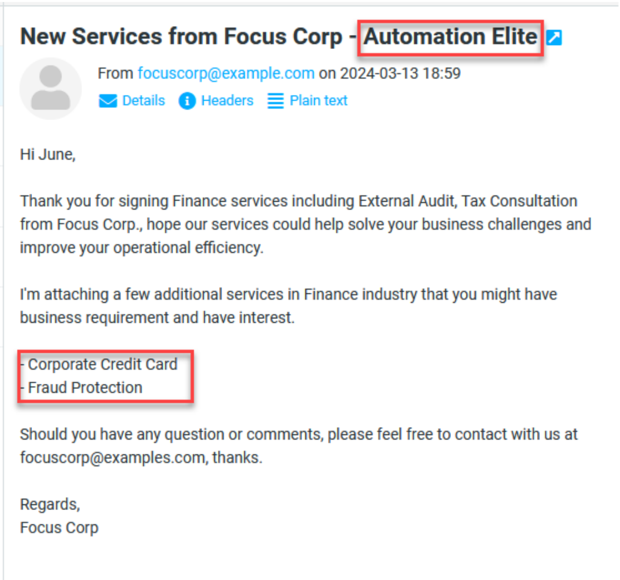
_1. Open the **Local Mail Client** in your browser (see 1.4.1 Systems, Lab Files, and Credentials)

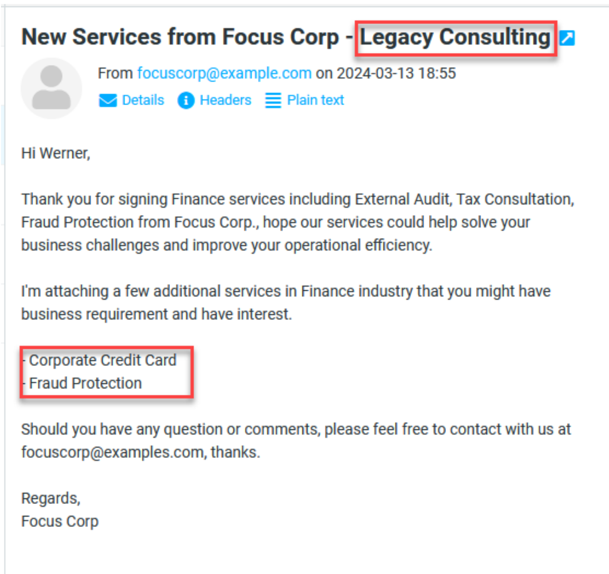
_2. Enter your CP4BA Credentials and click the **LOGIN** button.

_3. You should now see two emails.



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





Congratulations on completing the lab!

Appendix A. Overview of the "Administrator" Role

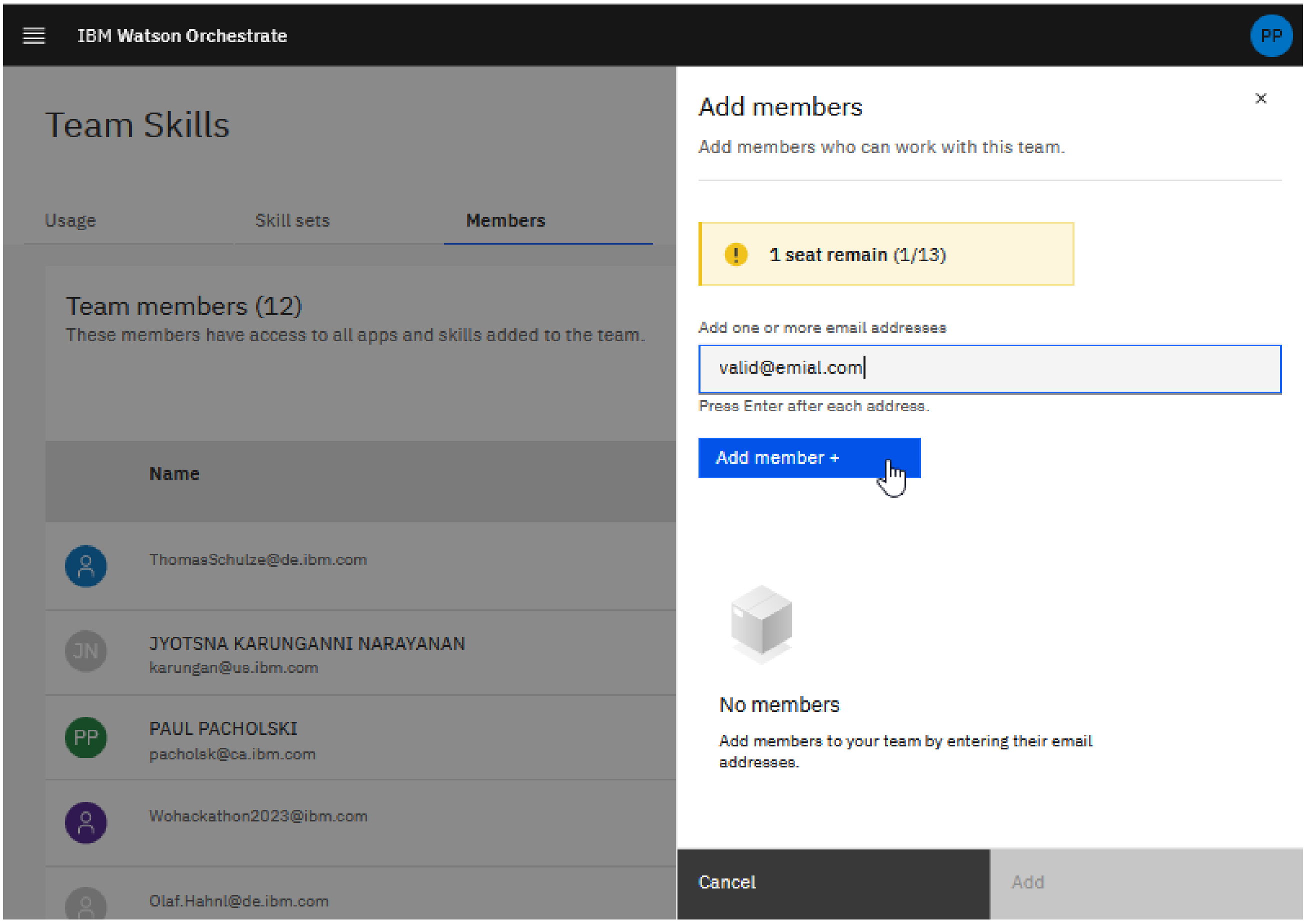
Managing teams

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

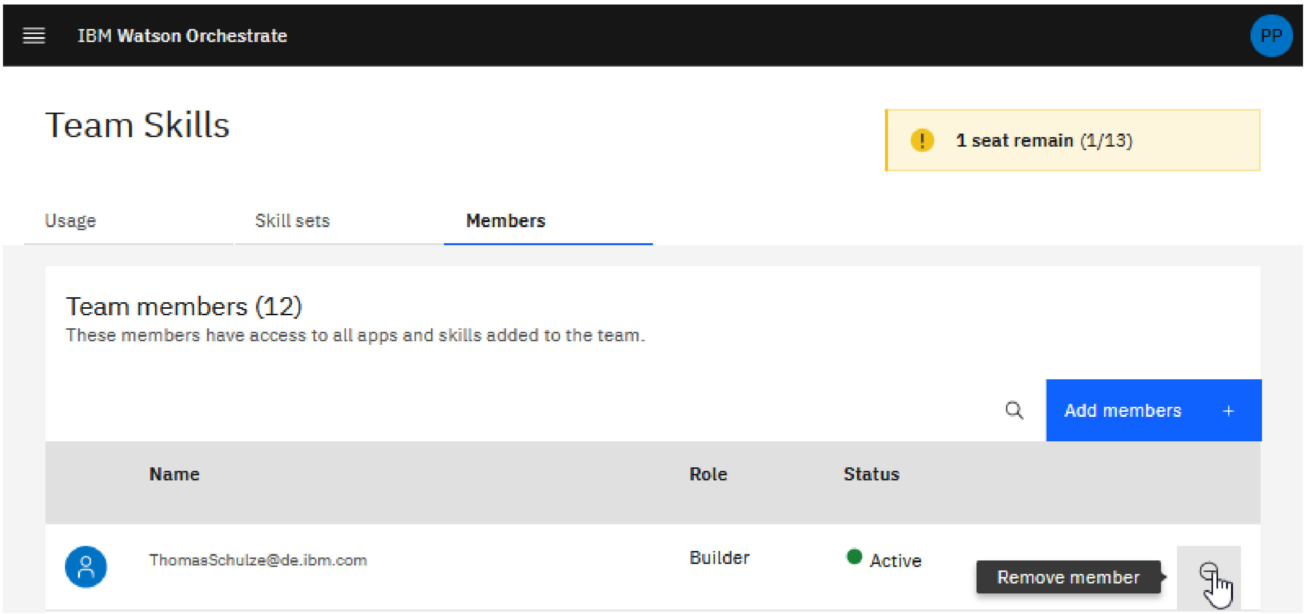
By default, when you start using IBM watsonx Orchestrate™, you are the admin of your team of one. You need to invite a user into your team to create a team. You can invite as many team members as you have seats in your license. Of those seats, you can assign any user any of the three roles, but each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

Three key activities:

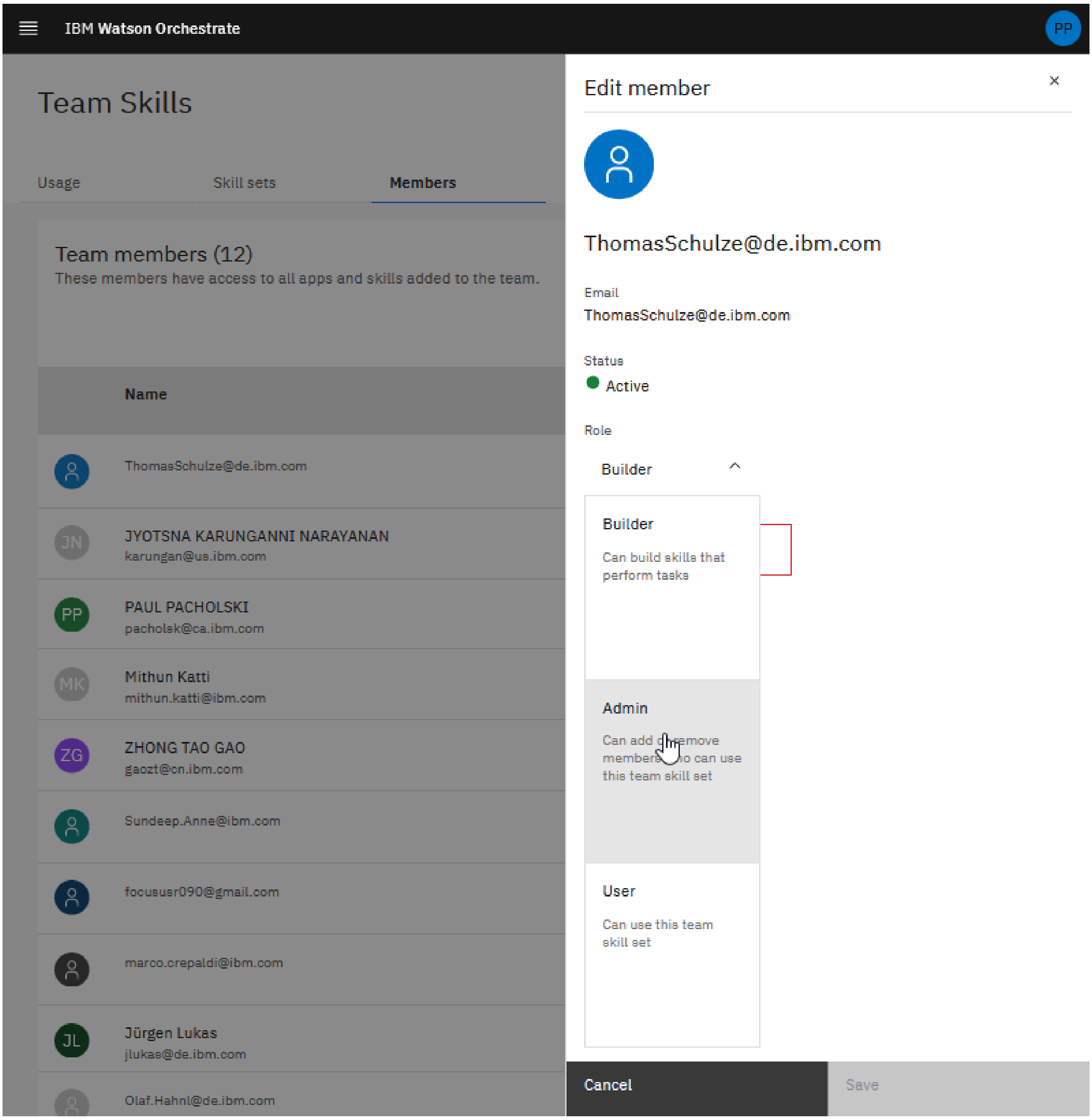
1. Adding Users



2. Removing users



3. Adding Roles to Users



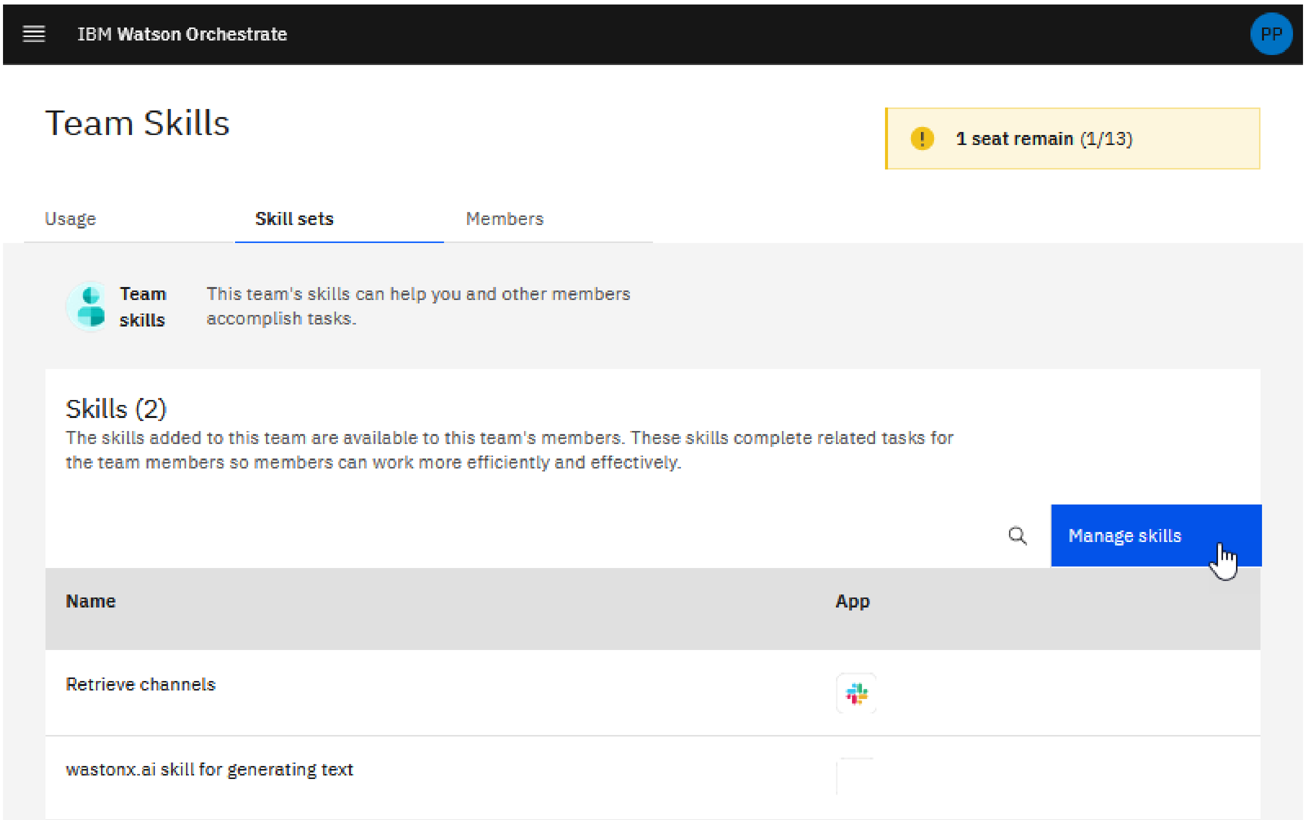
Managing team skill sets

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.

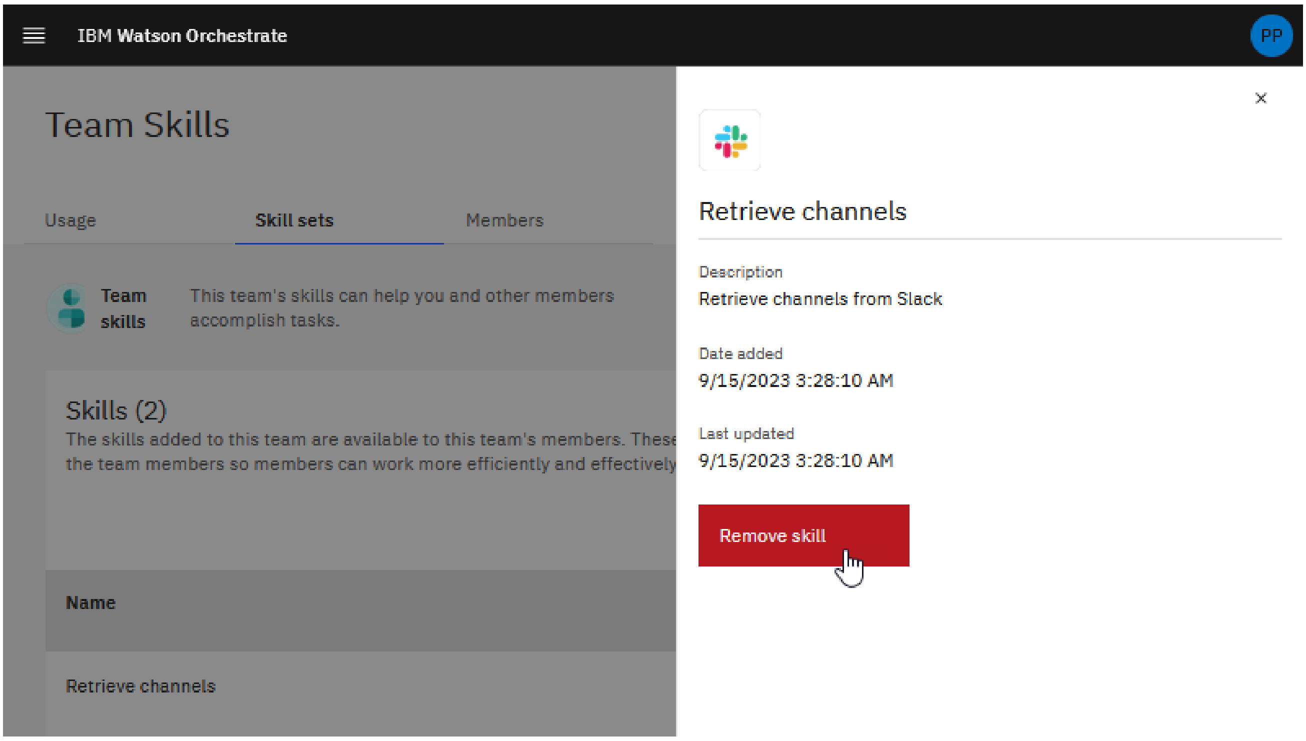
Once a skill is made available on the team skill set, anyone on a team can use this kill. To use a team skill set's Skill, the user must click the Team skill set tab on the IBM watsonx Orchestrate home page and invoke any available skills the same way as they would for any skill in any skill set.

Two key activities:

1. Adding skills to your team skill set

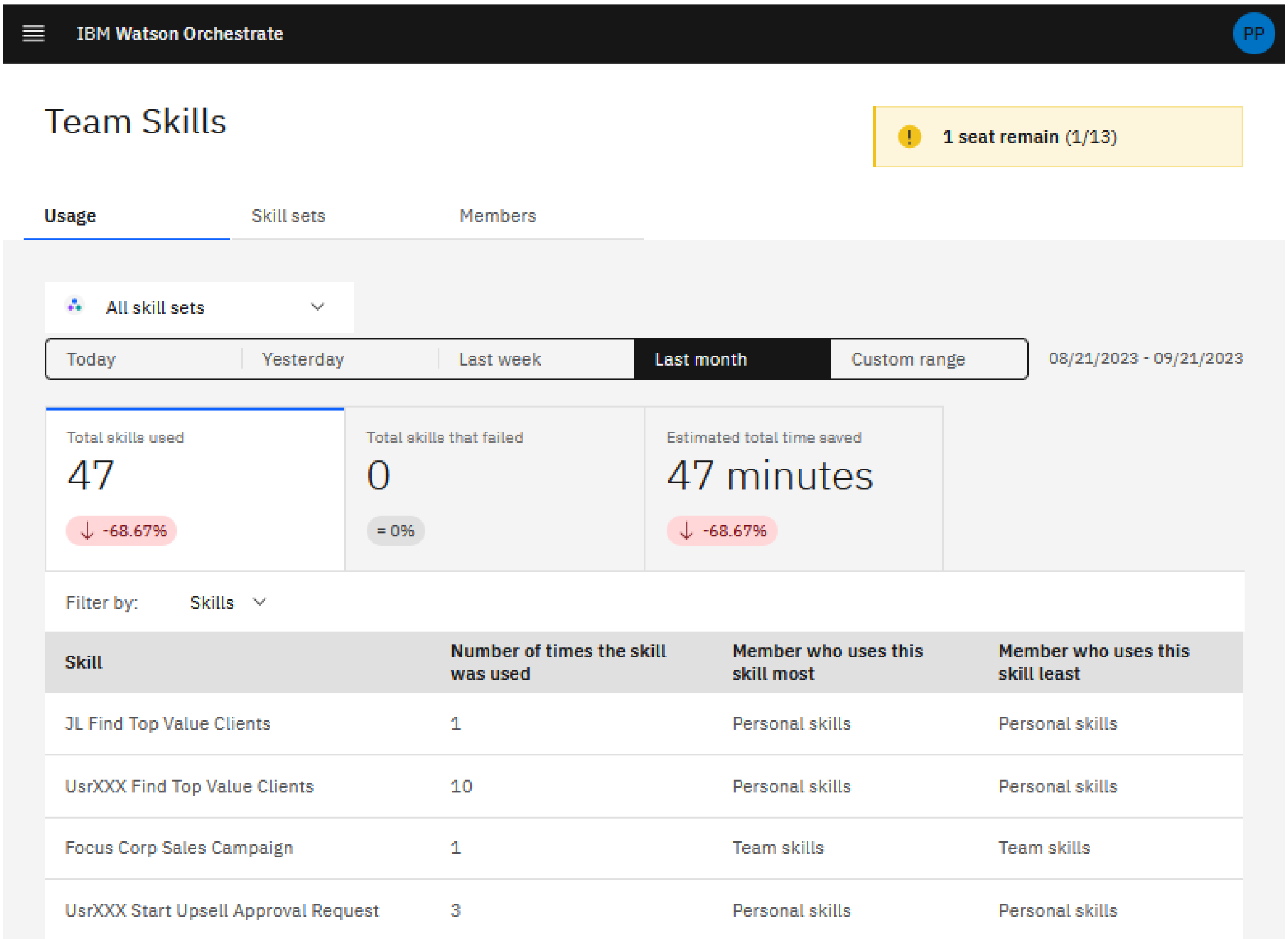


2. Removing skills from your team skill set



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.



Monitor usage

You can monitor, evaluate, and assess the performance of your skills in IBM watsonx Orchestrate. The monitoring page includes prebuilt charts that were created from your data to highlight the skills usage and how your efficiency increased by using the skills from the skill sets. You can review and compare the details in the prebuilt charts to arrive at a factual business strategy.