

IBM Cloud Pak for Business Automation Demos and Labs 2023

Introduction to IBM watsonx Orchestrate.

V 1.7

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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 onboard 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 are time-consuming and ineffective. It takes over ten weeks to complete quarterly promotions. 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 records 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. A Skill Flow can also be "trained" to provide a Natural Language interface.

1.2.3.2 Solution Architecture

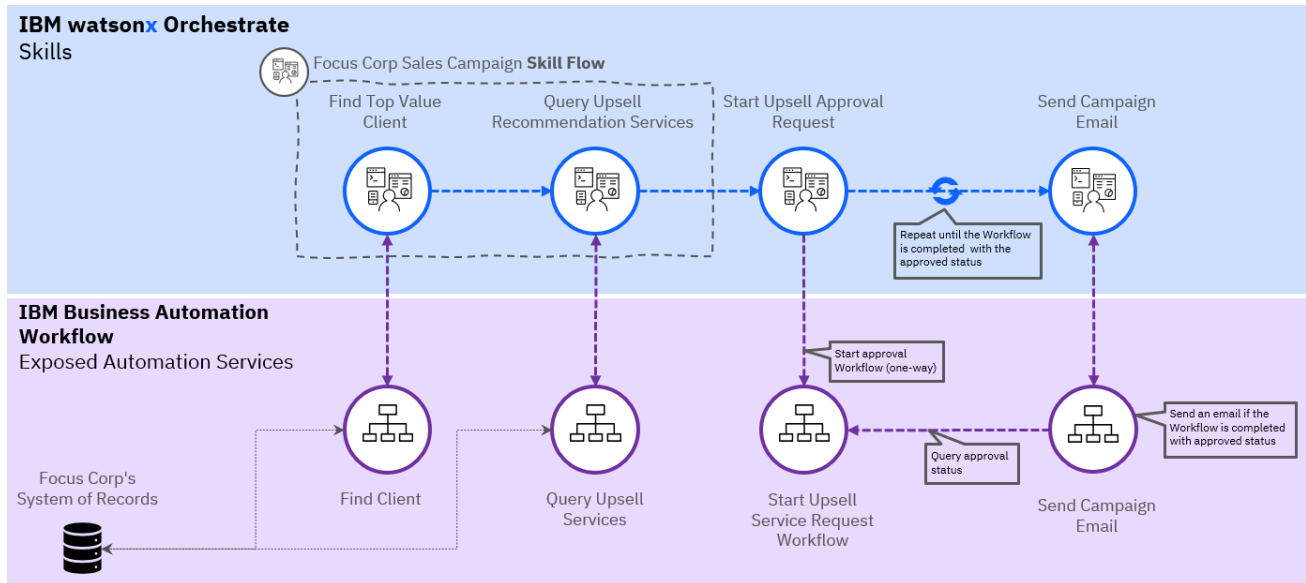


Figure 1. Upsell Campaign Solution: Skills and Services

Service Flows implement all Skills in BAW.

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, based on wxO's suggestion (next best Skill), the user starts the Submit for Approval skill. This Skill triggers a Workflow that contains the upsell offer details. The sales manager must approve it before the sales specialist can ask wxO to send an upsell offer email to the Client (Send Campaign Email to Client).

The execution of the Send Campaign Email Skill is blocked until the manager approves the upsell offer. Once the approval step in the Workflow is completed, the sales specialist can ask wxO to send the email.

1.2.3.3 Skill Implementation

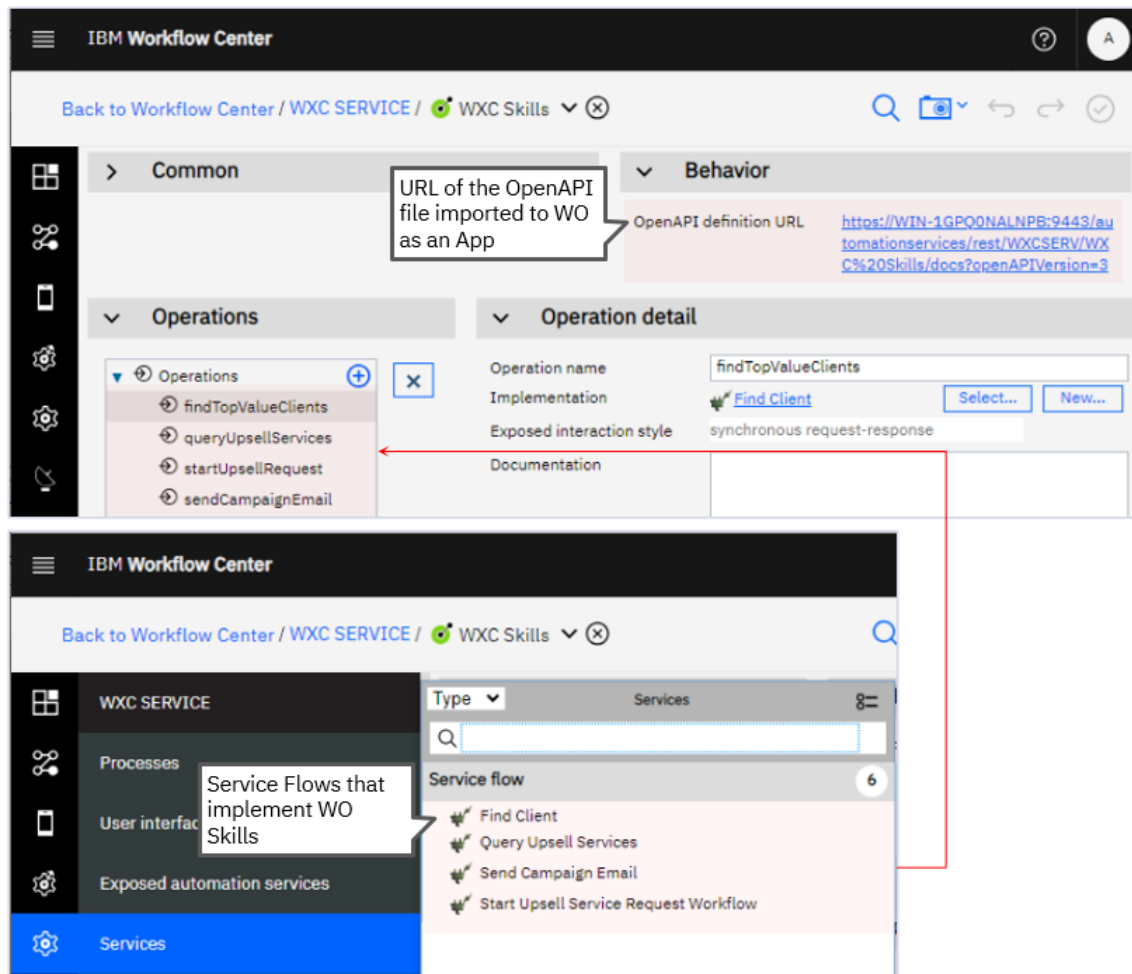


Figure 2. Service Flows that Implement wxO Skills

Skills are implemented using Service Flows authored using BAW and are exposed as operations in a single OpenAPI file.

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 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 you with this role.

Approximate Duration of this lab: 2-3 hours

1.4 Lab Setup Instructions

1.4.1 Systems, Lab Files, and Credentials

If you are performing this lab as part of an IBM event, access the document that lists the available systems, URLs, and login instructions.

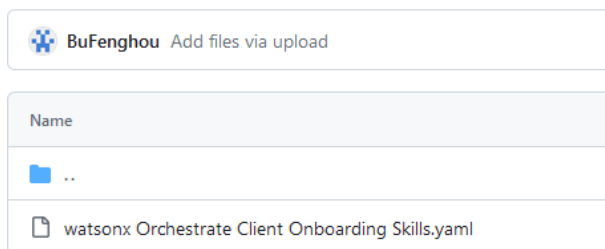
You can also do this lab as part of [Jam-in-a-Box for Business Automation](#) (starting with V23.0.1). In this case access to an IBM watsonx Orchestrate instance is required as a prerequisite. To do all parts of the lab you need to have permission as a Builder or an Admin on this wxO instance. If you are an IBMer or IBM Business Partner you can look at the wxO content on Seismic to learn how to get access to such an wxO instance. Otherwise you can reach out to your IBM representative to help you 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 give you guidance for the necessary access.

For this lab, you will need to access:

- **IBM watsonx Orchestrate**
- **IBM Workplace**
- **IBM Cloudpak Dashboard**
- **Local Mail Client**

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

[cp4ba-labs](#) / [23.0.1](#) / [watsonx Orchestrate](#) / [Lab Data](#) / 



1.4.2 Customize the OpenAPI File

The OpenAPI file *watsonx Orchestrate Client Onboarding Skills.yaml* includes definitions of the REST call to invoke the four 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, 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.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.

```

1  {
2    "openapi" : "3.0.1",
3    "info" : {
4      "title" : "UsrXXX Client Onboarding App",
5      "version" : "tipSnapshot",
6      "description": "UsrXXX Client Onboarding Skills",
7      "x-ibm-application-id": "CP4BA_UsrXXX",
8      "x-ibm-application-name": "UsrXXX Client Onboarding App",
9      "x-ibm-application-icon": "<svg xmlns='http://www.w3.org/2000/svg' xmlns:xlink='http://www.w3.org/1999/xlink'
10  },

```

3. Replace the placeholder **<IBM Cloudpak Dashboard URL>** with the URL of the **IBM Cloudpak Dashboard** (see [1.4.1 Systems, Lab Files, and Credentials](#)).

```

11  "servers" : [ {
12    "url" : "<IBM Cloudpak Dashboard URL>/bas/automationservices/rest/WXCSESV/WXC%20Skills"
13  } ],

```

4. **Save and close** *watsonx Orchestrate Client Onboarding Skills.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?](#)

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 Skills Catalog.

You will create Skills from the BAW services defined in the *watsonx Orchestrate Client Onboarding Skills.yaml* file. In this lab part, you will add them to the Skill Catalog. See Figure 3 below:

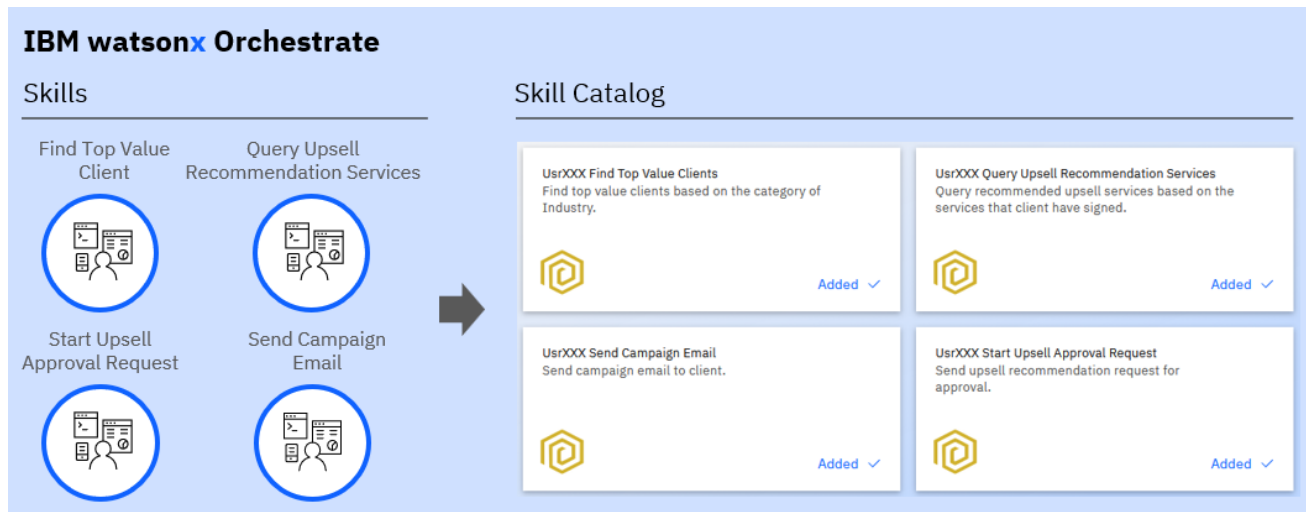
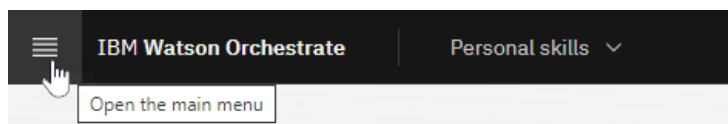


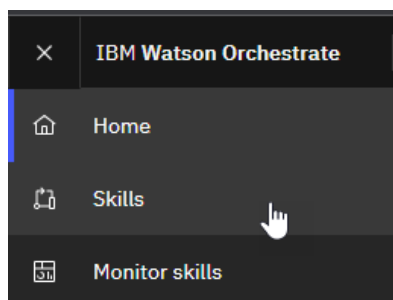
Figure 3. Skills and Skill Catalog

2.1 Import Skills

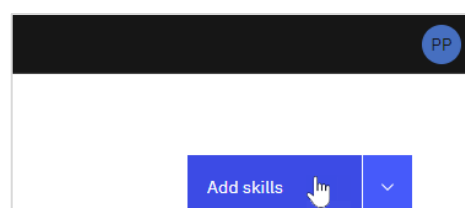
1. Click the **Hamburger** menu.



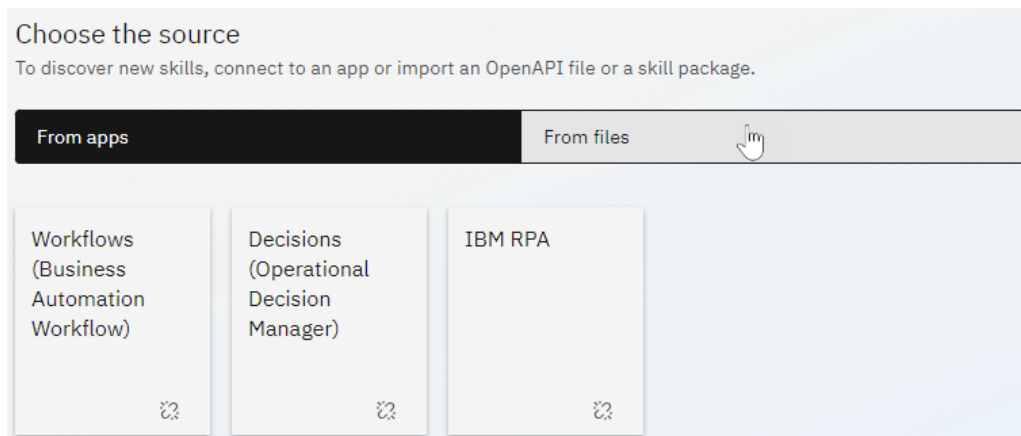
2. Click **Skills**



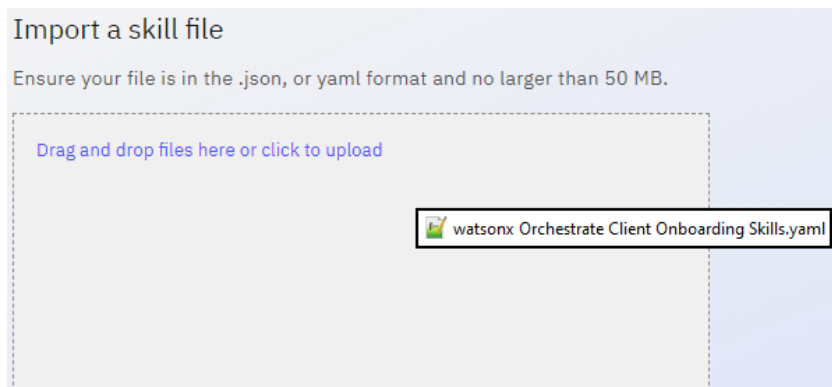
3. In the top-right, click **Add Skills**.



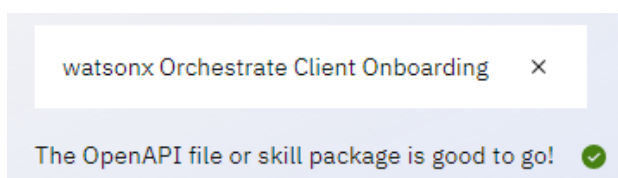
4. From Choose the source, click **From files**.



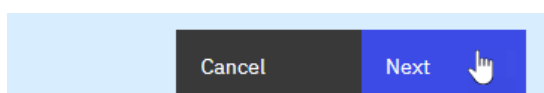
5. From your file system, drag and drop *watsonx Orchestrate Client Onboarding Skills.yaml* to **drag and drop files here** or click the **upload box**.



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



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



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

4 out of 4 selected

Skill	Description	Status
✓ <input checked="" type="checkbox"/> UsrXXX Find Top Value Clients	Find top value clients based o...	✓ Ready to add
✓ <input checked="" type="checkbox"/> UsrXXX Query Upsell Recommenda...	Query recommended upsell servi...	✓ Ready to add
✓ <input checked="" type="checkbox"/> UsrXXX Start Upsell Approval R...	Send upsell recommendation req...	✓ Ready to add
✓ <input checked="" type="checkbox"/> UsrXXX Send Campaign Email	Send campaign email to client.	✓ Ready to add

Cancel

Add

9. You will now see all the Skills, including the skills other users have published.

Note that 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."

Name	Description	Step in the process	Status	Skill type
✓ JL Find Top Value Clients	Find top value clients based o...	Ready to use	Published	Imported
✓ wastonx.ai skill for generatin...	A wastonx.ai skill for generat...	Ready to use	Published	Imported
✓ UsrXXX Find Top Value Clients	Find top value clients based o...	Just 1 step away to be ready	Ready to publish	Imported
✓ UsrXXX Query Upsell Recommenda...	Query recommended upsell servi...	Just 1 step away to be ready	Ready to publish	Imported
✓ UsrXXX Start Upsell Approval R...	Send upsell recommendation req...	Just 1 step away to be ready	Ready to publish	Imported
✓ UsrXXX Send Campaign Email	Send campaign email to client.	Just 1 step away to be ready	Ready to publish	Imported

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. In the search field, enter **UsrXXX** (where XXX are the digits of your CP4BA Credentials user id) and hit the **Enter key**.

Note: there may be hundreds of Skills to choose from!

Skills & Apps

Add new skills, train them to be more effective, and publish them to the catalog so your team can benefit from them quickly.

Q

UsrXXX

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

Name	Description	Step in the process	Status	Skill type	
✓ UsrXXX Find Top Value Clients	Find top value clients based o...	Just 1 step away to be ready	Ready to publish	Imported	:
✓ UsrXXX Query Upsell Recommenda...	Query recommended upsell servi...	Just 1 step away to be ready	Ready to publish	Imported	Enhance this skill
✓ UsrXXX Start Upsell Approval R...	Send upsell recommendation req...	Just 1 step away to be ready	Ready to publish	Imported	Delete this skill
✓ UsrXXX Send Campaign Email	Send campaign email to client.	Just 1 step away to be ready	Ready to publish	Imported	Export this skill

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

[Home](#) / [Manage skills](#) / 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.				Preview	

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.

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

Cancel	Publish	Save as draft
--------	---------	---------------

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

Note that the state has changed to Published.

✓	Start Upsell Approval Request	Send upsell recommendation req...	Ready to use	Published
---	-------------------------------	-----------------------------------	--------------	-----------

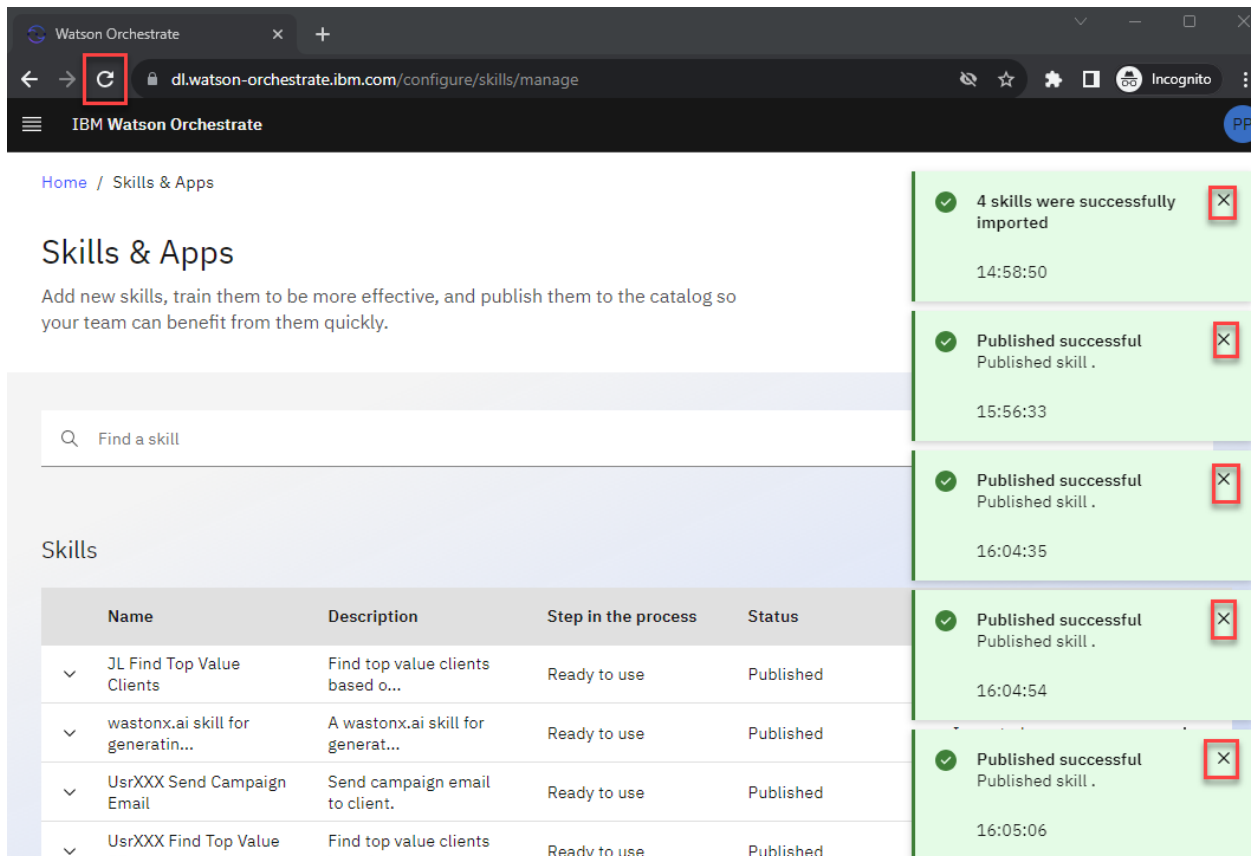
6. Repeat the above five steps to publish the remaining three Skills.

✓	UsrXXX Query Upsell Recommenda...	Query recommended upsell servi...	Just 1 step away to be ready	Ready to publish
✓	UsrXXX Start Upsell Approval R...	Send upsell recommendation req...	Just 1 step away to be ready	Ready to publish
✓	UsrXXX Send Campaign Email	Send campaign email to client.	Just 1 step away to be ready	Ready to publish

7. Verify that all the Skills you have imported are published.

✓	UsrXXX Send Campaign Email	Send campaign email to client.	Ready to use	Published
✓	UsrXXX Find Top Value Clients	Find top value clients based o...	Ready to use	Published
✓	UsrXXX Query Upsell Recommenda...	Query recommended upsell servi...	Ready to use	Published
✓	UsrXXX Start Upsell Approval R...	Send upsell recommendation req...	Ready to use	Published

8. You will see several green information pop-ups. To dismiss them, click the **X** on each pop-up or click the **browser refresh button**.



The screenshot shows the IBM Watson Orchestrate interface in a browser. The browser's address bar shows the URL `dl.watson-orchestrate.ibm.com/configure/skills/manage`. The page title is "Skills & Apps". Below the title, there is a search bar with the placeholder text "Find a skill". A table of skills is displayed, with columns for Name, Description, Step in the process, and Status. To the right of the table, there are five green pop-up notifications, each with a green checkmark and a red 'X' button in the top right corner. The notifications indicate successful imports and publications of skills.

Home / Skills & Apps

Skills & Apps

Add new skills, train them to be more effective, and publish them to the catalog so your team can benefit from them quickly.

Find a skill

Skills

Name	Description	Step in the process	Status
✓ JL Find Top Value Clients	Find top value clients based o...	Ready to use	Published
✓ wastonx.ai skill for generatin...	A wastonx.ai skill for generat...	Ready to use	Published
✓ UsrXXX Send Campaign Email	Send campaign email to client.	Ready to use	Published
✓ UsrXXX Find Top Value Clients	Find top value clients based o...	Ready to use	Published

Pop-up notifications (from top to bottom):

- 4 skills were successfully imported (14:58:50)
- Published successful Published skill . (15:56:33)
- Published successful Published skill . (16:04:35)
- Published successful Published skill . (16:04:54)
- Published successful Published skill . (16:05:06)

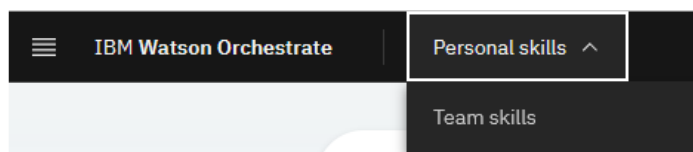
3 Exercise: Experience the Orchestrate "User" role

In this part of the lab, you will experience the "User" role:

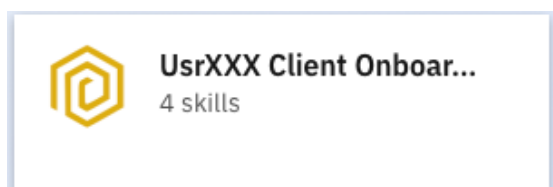
1. Add Skills from the Skill Catalog
2. Test the Solution As Is
3. Enhance User Experience with a Skills Flow (requires "Builder" role)
4. Add Skill Flow from the Skill Catalog
5. Test the Solution with Skill Flow

3.1 Add Skills from the Skill Catalog

There are two categories of skills: Personal skill sets and Team skills.

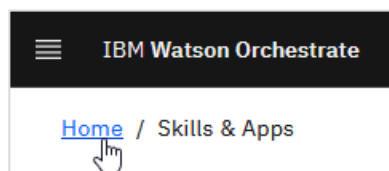


In the previous lab steps, you imported skills using the *watsonx Orchestrate Client Onboarding Skills.yaml* and added them to the Skills Catalog as an App.

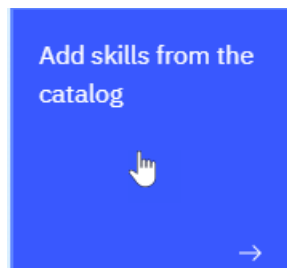


You will now add skills to Personal Skills from the Skill Catalog. Recall that you have added new Skills to the Skill Catalog in the previous part of the lab in the "Builder" role.

1. Click **Home** link

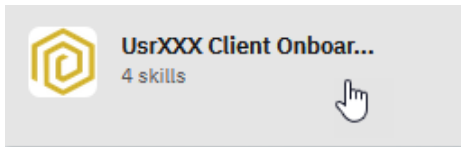


2. Click **Add skills** from the catalog.

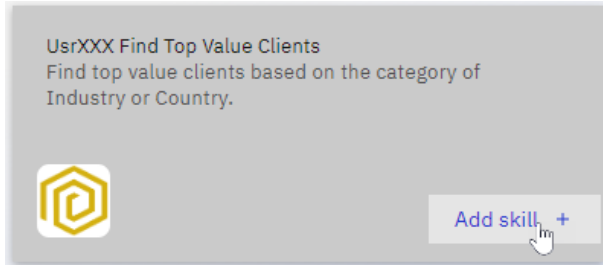


You should now see all the Apps available in the Skills Catalog.

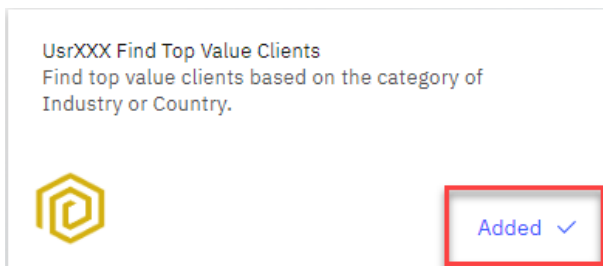
3. Locate the **UsrXXX Client Onboarding App** (remember that XXX are the last three digits of your CP4BA Credentials user id) and **click on it** to open.



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

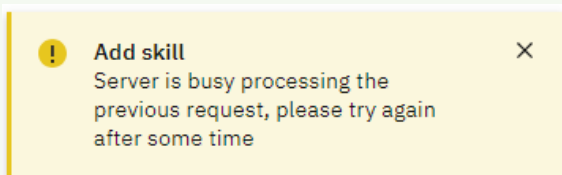


You should now see the *Added check mark* on your Skill.



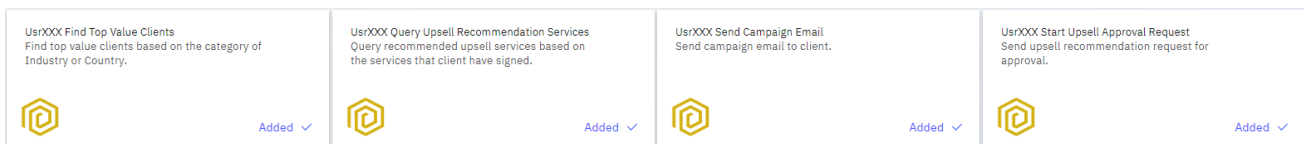
5. Repeat the above step for the other three Skills.

Note that if you click too fast, you will get this message.



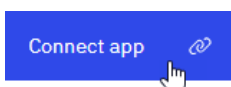
In this case, dismiss the message and repeat.

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



7. **Refresh the web page** or click **X** on all *Add skill information messages*

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



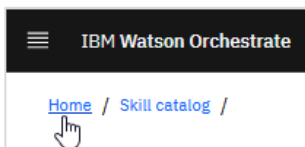
9. For *username* and *password* enter your CP4BA Credentials (see [1.4.1 Systems, Lab Files, and Credentials](#)).

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



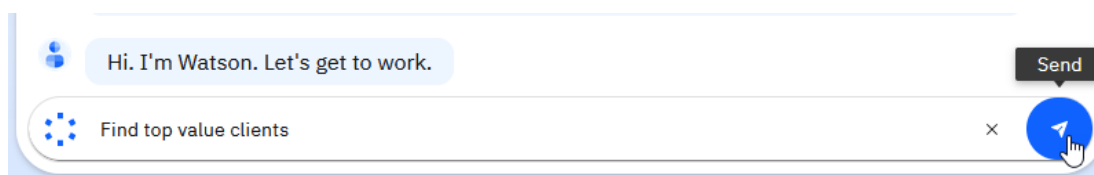
3.2 Test the Solution As Is

1. Click the **Home** link to exit the Skill catalog.




2. 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!



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

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

 UstrXXX 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

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

 UstrXXX Find Top Value Clients

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

Search Download Filter

Client Name	Client Email	Country	Industry	Annual Revenue
Automation Elite		USA	Finance	50000000
Bank of Jakku		Australia	Finance	43892214
Items per page				

Copy
Select All
Print Selection...
Take Screenshot
Search Google for "Automation Elite..."

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

5. Click the next best action **UstrXXX Query Upsell Recommendation Services**.

Select the next best action

UstrXXX 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!

6. 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!


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


OK



 UsrXXX Query Upsell Recommendation Services

ClientName
 Automation Elite

Industry
 Finance


UpsellServices 

UpsellServices
 Corporate Credit Card 

UpsellServices
 Fraud Protection 

[Add +](#)

8. wxO suggests another next best action skill:


 Select the next best action

[UsrXXX Start Upsell Approval Request](#)

At this moment, we don't want to call the next best action skill. Instead, we will focus on the suggested enhancements we have identified so far.

Let's use the wxO's **Skill Flow** feature to enhance the user experience and eliminate the issues we have encountered!

Creating a Skill flow in wxO requires the wxO Builder role.

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 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 Upsell Approval Request*) and pass the Client name and the upsell Services.

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.

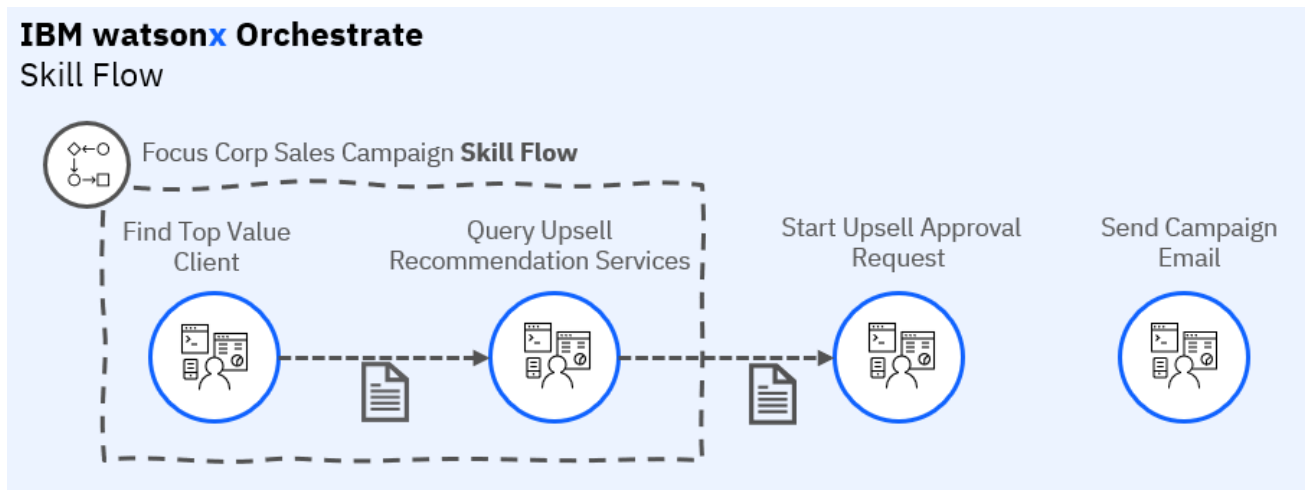
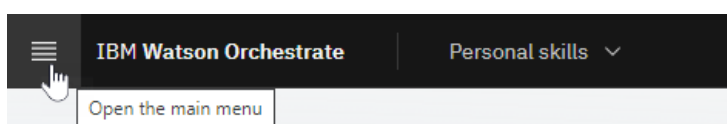


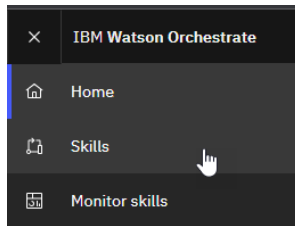
Figure 4. Skill Flow: Automated Skill orchestration and parameter passing

3.3.1 Create a Skill Flow

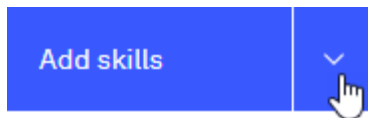
1. Click the **Hamburger** menu.



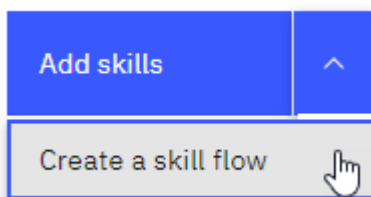
2. Click **Skills**



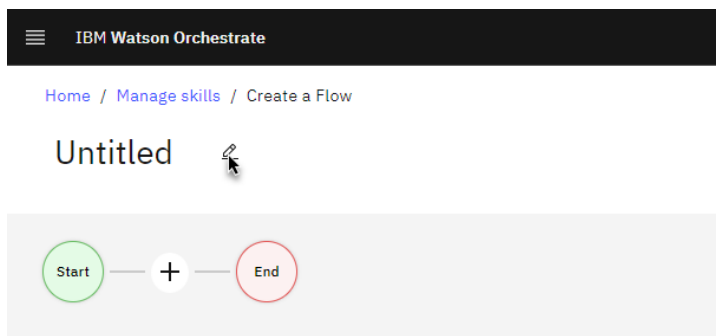
3. In the top-right, click the **dropdown** in **Add Skills**.



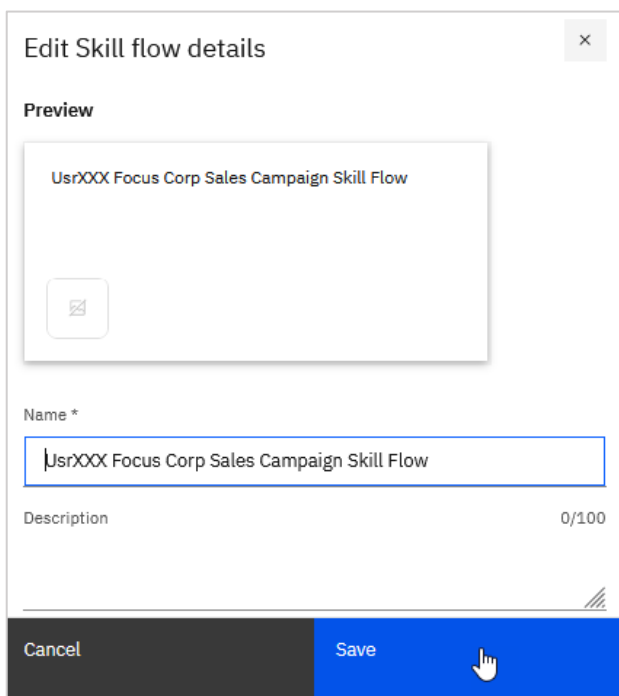
4. Click **Create a skill flow**.



5. Click the **pencil icon**.



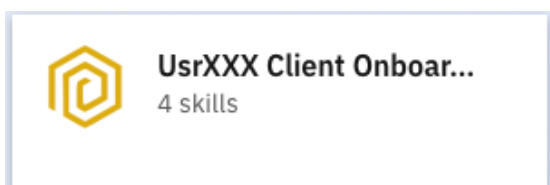
6. For *Name*, enter **UsrXXX Focus Corp Sales Campaign Skill Flow** (remember to replace XXX with your CP4BA Credentials user id) and click **Save**.



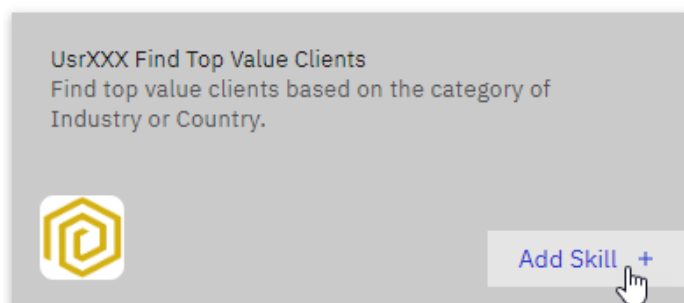
7. Click the **+** icon.



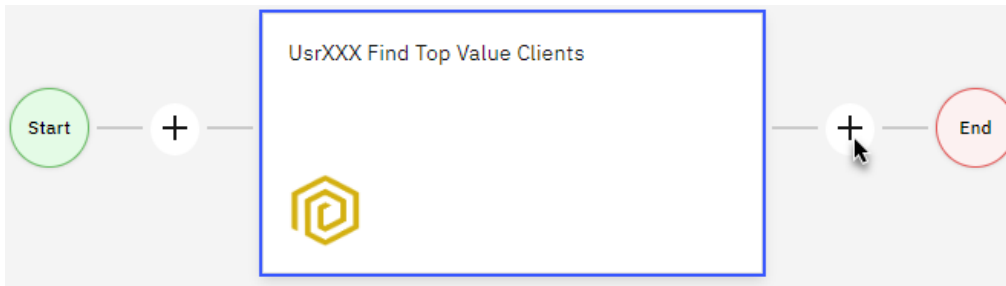
8. Find the App you created (UsrXXX Client Onboarding Skills App – remember XXX is your user id) and **click it**.



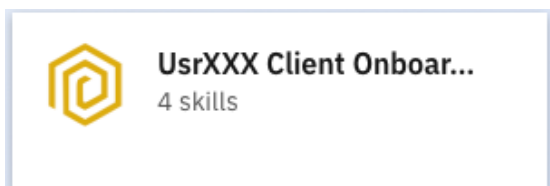
9. On *UsrXXX Find Top Value Clients*, click **Add Skill +**



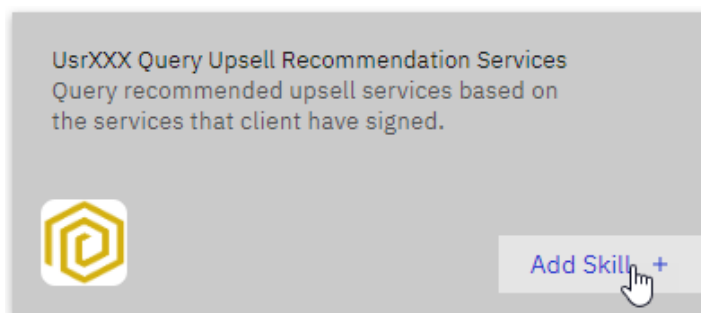
10. Click the right **+** icon.



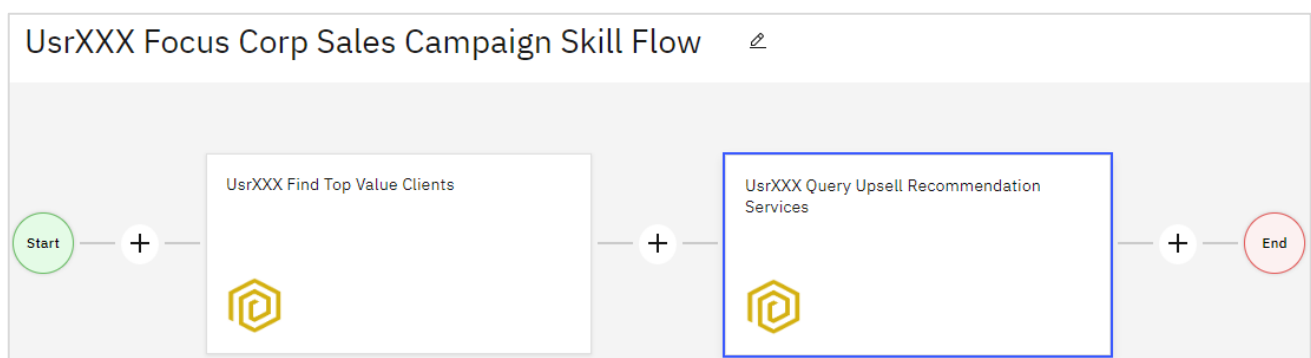
11. Find the App you created (UsrXXX Client Onboarding Skills App – remember XXX is your user id) and **click it**.



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



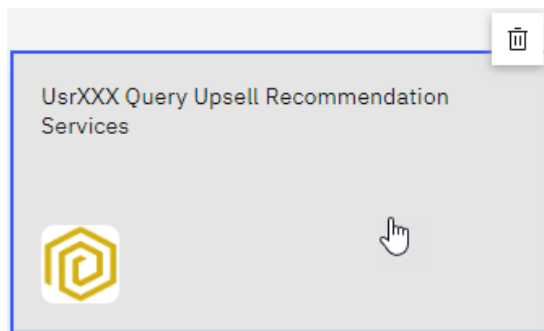
Your Skill Flow should look similar to this:




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. But 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.



 **UsrXXX Client Onboarding App**
Query recommended upsell services based on the services that client have signed.

☐ Repeat this skill

Input Output Clear all mappings  [Generate mapping suggestions](#) 


☐ Hide this form from the user

ClientName

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


ClientNme



Available Mappings

Skills/

UsrXXX Find Top Value Clients



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


Available Mappings

Skills/UsrXXX Client Onboarding App-UsrXXX Find Top Value Clients

— Clients {#}

— items {#}

— Client_Name abc



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

UsrXXX Client Onboarding App
Query recommended upsell services based on the services that client have signed.

☐ Repeat this skill

Input Output [Clear all mappings](#) [Generate mapping suggestions](#)

☐ Hide this form from the user

ClientName

Clients.items.properties.Client_Name

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

UsrXXX Find Top Value Clients

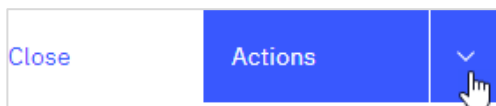
Top value client list that you can consider to have sales campaign

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

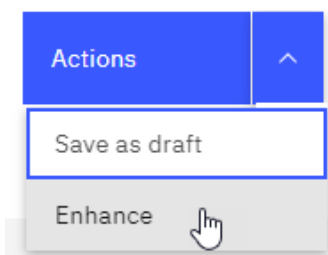
The parameter mapping feature will automatically select the client name from the *Find Top Value Clients* Skill and pass it to the *Query Upsell Recommendation Services* Skill.

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

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



6. Click **Enhance**.



7. Click **Save and close**.

Your changes aren't saved

Your skill enhancements will be lost if you don't save them before you click Close

Close without saving Save and close

8. Select **Phrases** tab

[Home](#) / [Manage skills](#) / Enhance this skill

Enhance the “UsrXXX Focus Corp Sales Campaign Skill Flow” skill


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

Name	Phrases	Next best skills

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

9. Enter **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
	<p>Phrases are the text your user types in the chat box to find and use a skill.</p> <div>UsrXXX Focus Corp Sales Campaign Skill Flow </div> <div>Sales Campaign</div> <div>Auto-generate phrases (Experimental)</div>	

Note:

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

The screenshot shows a web interface with three tabs: 'Name', 'Phrases', and 'Next best skills'. The 'Phrases' tab is active. Below the tabs, there is a text box with the instruction: 'Phrases are the text your user types in the chat box to find and use a skill.' Below this, there is a list of phrases: 'UsrXXX Focus Corp Sales Campaign Skill Flow' and 'Sales Campaign'. At the bottom, there is a blue button labeled 'Auto-generate phrases (Experimental)' with a hand cursor icon pointing to it.

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

The screenshot shows the same 'Phrases' tab interface as before, but now with several autogenerated phrases added to the list. The phrases are: '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', and 'Sales Campaign'. Each phrase has a trash icon to its right.

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

The screenshot shows the 'Next best skills' tab selected in the interface. The tabs are 'Name', 'Phrases', and 'Next best skills'. The 'Next best skills' tab is highlighted with a blue border and a hand cursor icon.






11. There may be hundreds of Skills to choose from! Click the **Magnifying Glass icon** to use the search feature.

The screenshot shows a search interface. At the top, there is a search bar with the text '0 out of 184 selected' and a magnifying glass icon. Below the search bar, there is a table with three columns: 'Apps', 'Skill', and 'Description'.

12. Enter **UsrXXX** (where XXX are the digits in your CP4BA Credentials user id) and hit the **Enter key**.

The screenshot shows the search bar with the text 'UsrXXX' entered. The search bar has a magnifying glass icon on the left and a close button (X) on the right. The text '0 out of 184 selected' is visible on the left side of the search bar.

13. Select **UsrXXX Start Upsell Approval Request** as the next best Skill and click **Publish**.

Apps	Skill	Description
▼ <input checked="" type="checkbox"/> 	UsrXXX Start Upsell Approval R...	Send upsell recommendation req...
▼ <input type="checkbox"/> 	UsrXXX Find Top Value Clients	Find top value clients based o...
▼ <input type="checkbox"/> 	UsrXXX Query Upsell Recommenda...	Query recommended upsell servi...
▼ <input type="checkbox"/> 	UsrXXX Send Campaign Email	Send campaign email to client.
▼ <input type="checkbox"/> 	UsrXXX Focus Corp Sales Campai...	

Items per page: 5 ▼ 1-5 of 386 items 1 ▼ of 78 pages ◀ ▶

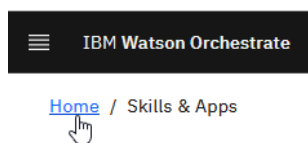
Cancel

Publish

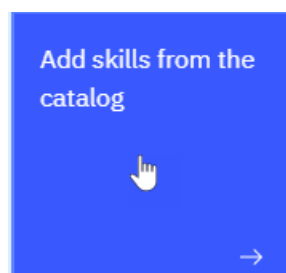
Save as draft

3.4 Add Skill Flow from the Skill Catalog

1. Click the **Home** link.

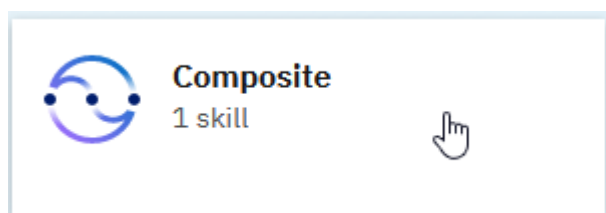


2. Click **Add skills** from the catalog.

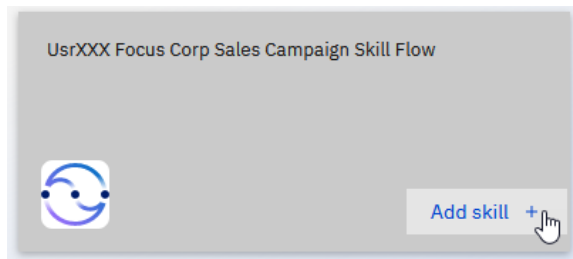


You should now see all the Apps and Skill Flows (Composite) available in the Skills Catalog.

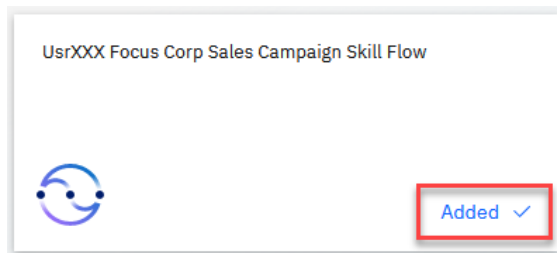
3. Locate the **Composite** tile and **click on it** to open.



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



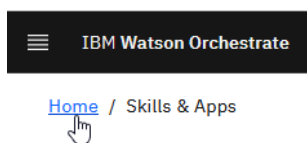
You should now see the *Added check mark* on your Skill.



3.5 Test the Solution with Skill Flow

3.5.1 Prepare the Upsell Offer

1. Click the **Home** link.



2. Enter the **sales campaign** phrase and click **Send**



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

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

OK

UsrXXX Focus Corp Sales Campaign Skill Flow

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

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

Items per page: 5 ▾ 1 – 2 of 2 items

Cancel Apply

5. Click **Apply**

Note: The Skill Flow we created in the steps above will now automatically call the *UsrXXX Query Upsell Recommendation Services* Skill as defined. It will also use the parameter mapping we defined to prefill the ClientName field of this Skill with the ClientName we chose in the previous step.

You just need to complete this form first.

UsrXXX Focus Corp Sales Campaign Skill Flow

ClientName

Automation Elite

Client name you want to query upsell services.

Cancel Apply

6. 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!

OK

UsrXXX Focus Corp Sales Campaign Skill Flow

ClientName

Automation Elite

Industry

Finance

UpsellServices ^

UpsellServices

Corporate Credit Card

UpsellServices

Fraud Protection

Add +

- Click the **UsrXXX Start Upsell Approval Request** button.

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

Select the next best action

UsrXXX Start Upsell Approval Request

- 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.

Sure. Just complete this form and I'll use the UsrXXX Start Upsell Approval Request skill for you.



UsrXXX Start Upsell Approval Request

ClientName *

Automation Elite

Client name you want to send upsell request for.

UpsellServices

Corporate Credit Card



Fraud Protection



Add +

Cancel

Apply



- Copy the **Campaign ID** to the clipboard.

Note: If the sales manager approves the offer, you need the Campaign ID to email the upsell offer to the client.

OK



UsrXXX Start Upsell Approval Request

Campaign ID

115

3.5.2 Try Sending an Upsell Offer Email to your Client.

- Type the **send campaign email** phrase and click **Send**




send campaign email



2. For *Campaign ID* enter your **Campaign ID** and click **Apply**.

Sure. Just complete this form and I'll use the UxrXXX Send Campaign Email skill for you.

 UxrXXX Send Campaign Email

Campaign ID *


115

Cancel Apply

3. Examine the reply from wxO.

You cannot send the email because the Sales manager has not yet approved your Services upsell offer!

OK

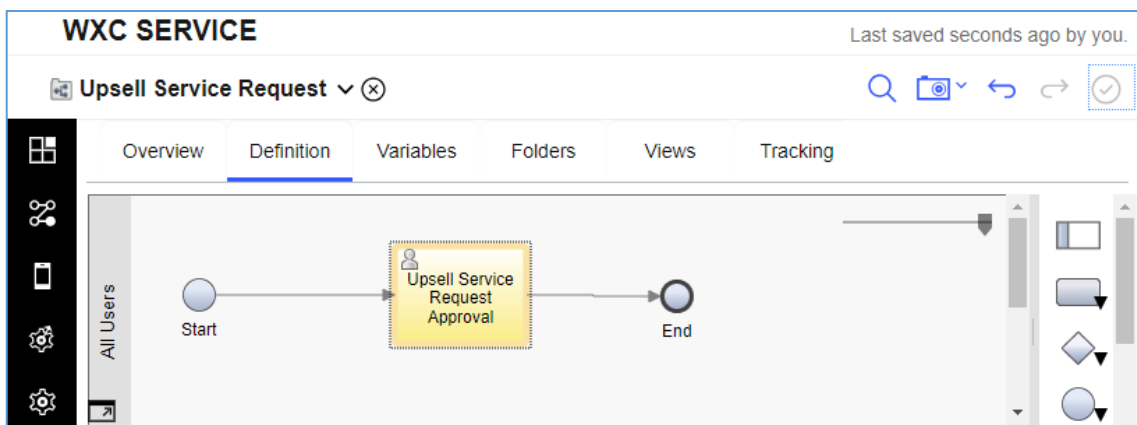
 UxrXXX Send Campaign Email

Email Sending Result

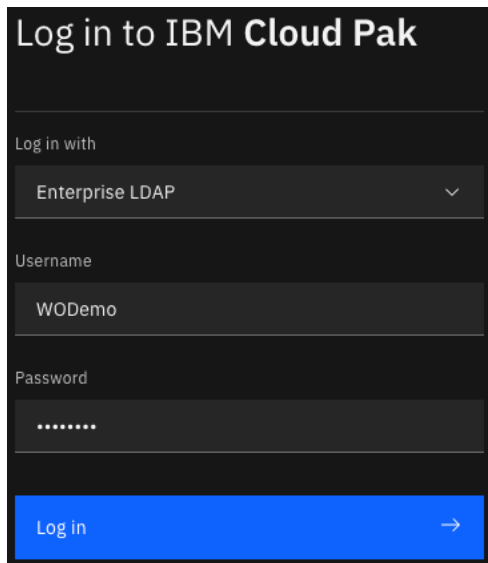
Campaign ID: 115 pending for approval.

3.5.3 Approve the Upsell Offer

The *Start Upsell Approval Request* Skill started a BAW Workflow. The Sales Manager must complete the approval task (Upsell Service Request Approval).



1. Open **IBM Business Automation Workplace** in your browser (see [1.4.1 Systems, Lab Files, and Credentials](#))
2. Select **Enterprise LDAP** for *Log in with*, enter your CP4BA Credentials, and then click the **Log in** button.



Log in to IBM Cloud Pak

Log in with

Enterprise LDAP

Username

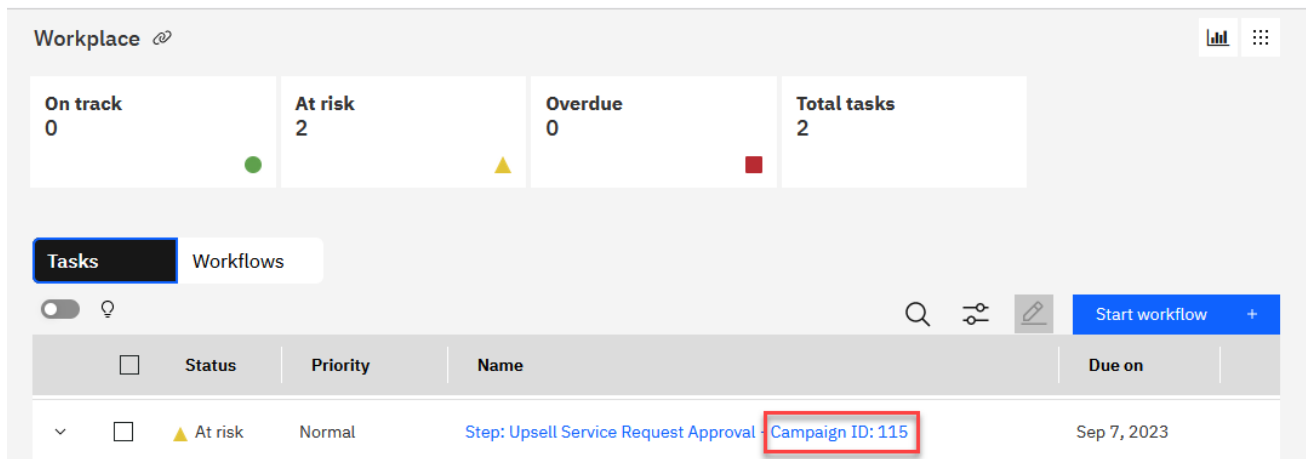
WODemo

Password

.....

Log in

3. Find the task related to your **Campaign ID**.



Workplace

On track 0

At risk 2

Overdue 0

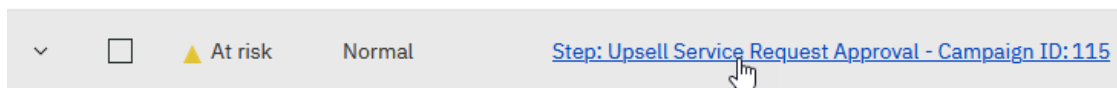
Total tasks 2

Tasks Workflows

Start workflow +

	Status	Priority	Name	Due on
▼	At risk	Normal	Step: Upsell Service Request Approval - Campaign ID: 115	Sep 7, 2023

4. Click the **task link** to claim and work with the task.



▼

At risk

Normal

[Step: Upsell Service Request Approval - Campaign ID: 115](#)

- On the *Claim task* window, click **Claim**.
- Scroll to the bottom of the form and click the **Approve Selected** button.

Note. As Sales Manager, you can make the final changes to the services upsell offer.

Services for upsell

☒ ☒ Corporate Credit Card

☒ Fraud Protection

3.5.4 Send an Upsell Offer Email to your Client.

- Switch back to the wxO environment.
- Type the **send campaign email** phrase and click **Send**

send campaign email

- For Campaign ID, enter your **Campaign ID** and click **Apply**.

Sure. Just complete this form and I'll use the UsrXXX Send Campaign Email skill for you.

UsrXXX Send Campaign Email

Campaign ID *

115

- Take a look at the reply from wxO.

Note. Since the Sales Manager approved your Services upsell offer, wxO could send the email.

OK

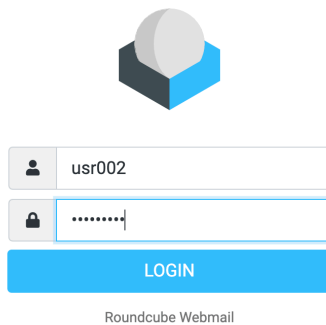
UsrXXX Send Campaign Email

Email Sending Result

Campaign ID: 115 is approved. Mail sent to june.marie@example.com.

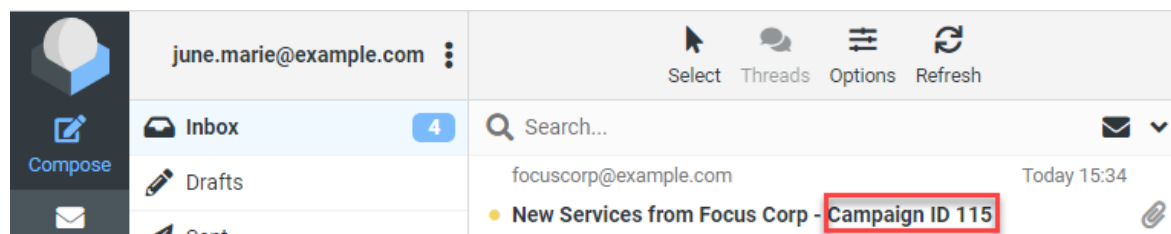
3.5.5 Verify the Upsell Offer Email is in the Client's Mailbox.

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.

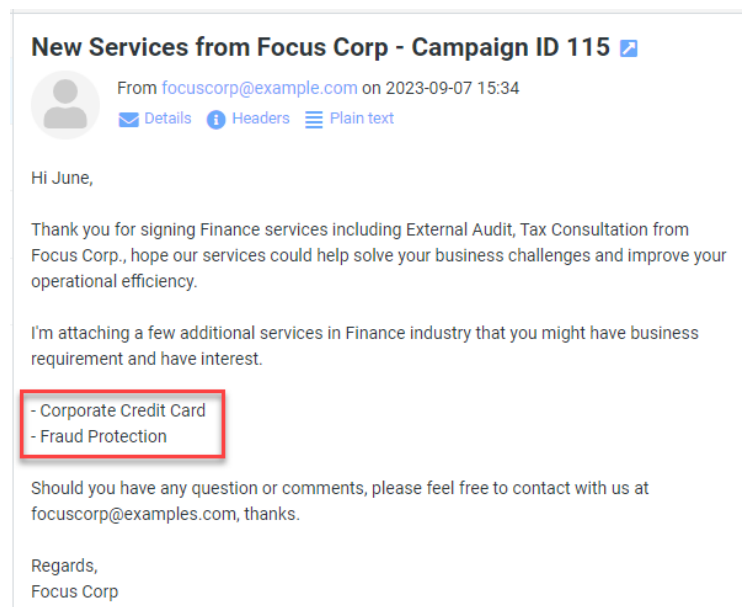


Roundcube Webmail login interface showing a username field with 'usr002', a password field with masked characters, and a blue 'LOGIN' button.

3. Verify that you have an email with your Campaign ID in the subject.



4. Click the **New Services from Focus Corp – Campaign ID XXX** email to open it.
5. Verify you see the same upsell services wxO selected for the Automation Elite 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

The screenshot displays the IBM Watson Orchestrate interface. On the left, the 'Team Skills' panel is visible with tabs for 'Usage', 'Skill sets', and 'Members'. The 'Members' tab is active, showing a list of team members with their names and email addresses. On the right, the 'Add members' dialog is open. It features a yellow warning box indicating '1 seat remain (1/13)'. Below this, there is a text input field containing 'valid@emial.com' and a blue 'Add member +' button. A 'No members' message is also present, stating 'Add members to your team by entering their email addresses.' At the bottom of the dialog, there are 'Cancel' and 'Add' buttons.

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.

 [Add members](#) +

Name	Role	Status	
 ThomasSchulze@de.ibm.com	Builder	Active	<div>Remove member</div> 

3. Adding Roles to Users

The screenshot shows the IBM Watson Orchestrate interface. On the left, the 'Team Skills' page has three tabs: 'Usage', 'Skill sets', and 'Members'. The 'Members' tab is active, showing a list of 12 team members. On the right, the 'Edit member' modal is open for the user 'ThomasSchulze@de.ibm.com'. The modal displays the user's email, status (Active), and a dropdown menu for roles. The 'Builder' role is selected, showing its description: 'Can build skills that perform tasks'. The 'Admin' role is also visible, with a description: 'Can add or remove members who can use this team skill set'. The 'User' role is also visible, with a description: 'Can use this team skill set'. 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.Ann@ibm.com	Sundeep.Ann@ibm.com
focususr090@gmail.com	focususr090@gmail.com
marco.crepaldi@ibm.com	marco.crepaldi@ibm.com
Jürgen Lukas	j Lukas@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

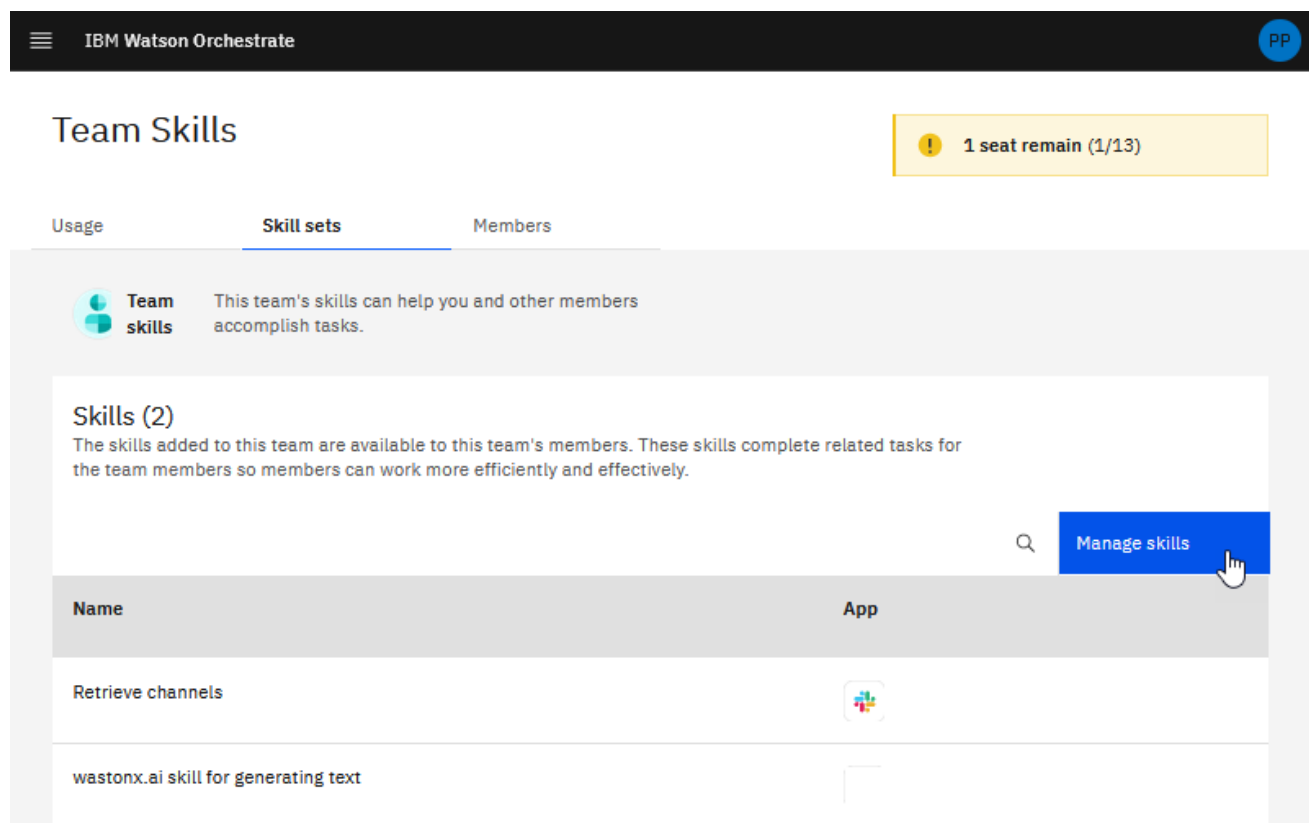
Managing team skill sets

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 made available on the team 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



The screenshot shows the IBM Watson Orchestrator interface. At the top, there's a navigation bar with the IBM Watson Orchestrator logo and a user profile icon labeled 'PP'. Below the navigation bar, the 'Team Skills' section is visible. A yellow banner indicates '1 seat remain (1/13)'. The 'Skill sets' tab is selected, showing a list of skills. A 'Manage skills' button is highlighted with a mouse cursor. The skills list includes 'Retrieve channels' and 'wastonx.ai skill for generating text'.

IBM Watson Orchestrator

Team Skills



1 seat remain (1/13)

Usage Skill sets Members

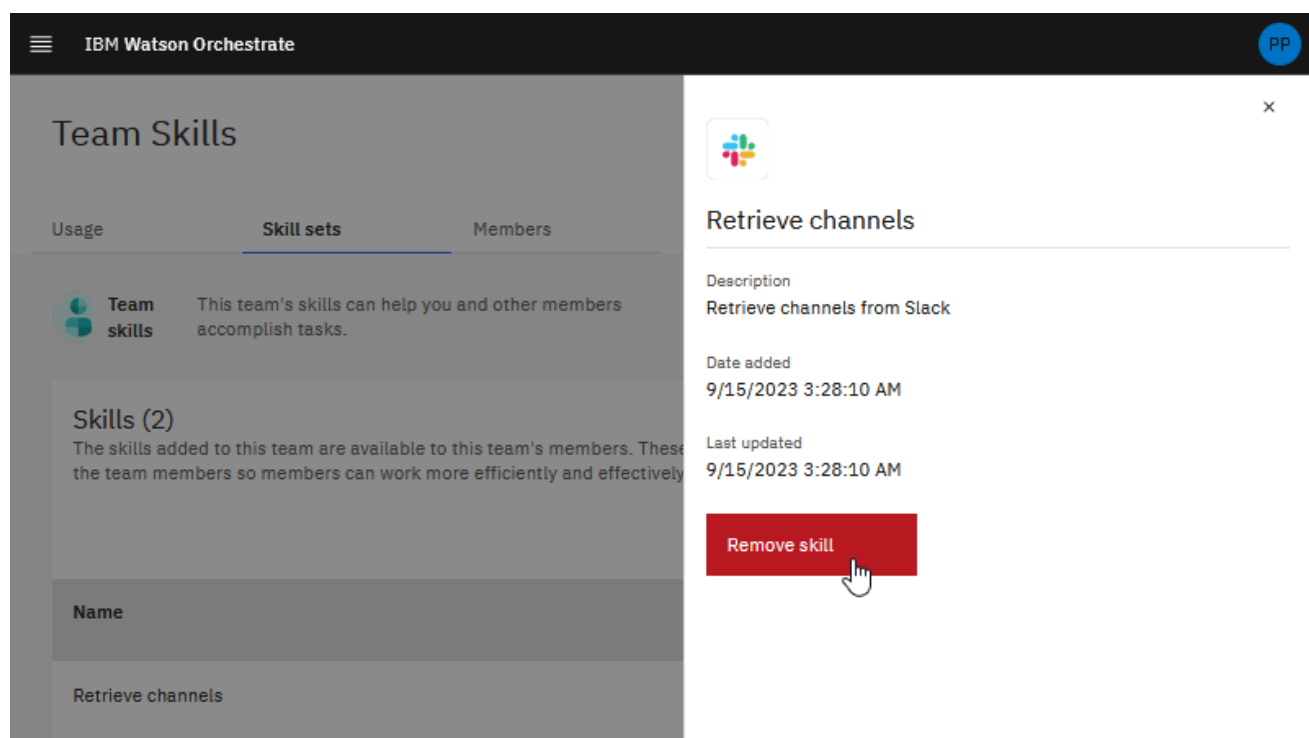
Team skills This team's skills can help you and other members accomplish tasks.

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



The screenshot shows the IBM Watson Orchestrator interface with a modal open for removing a skill. The modal displays the skill 'Retrieve channels' with its description, date added, and last updated. A 'Remove skill' button is highlighted with a mouse cursor. The background shows the 'Team Skills' page with the 'Skill sets' tab selected.

IBM Watson Orchestrator

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

TodayYesterdayLast weekLast monthCustom range08/21/2023 - 09/21/2023

Total skills used
47
↓ -68.67%

Total skills that failed
0
= 0%

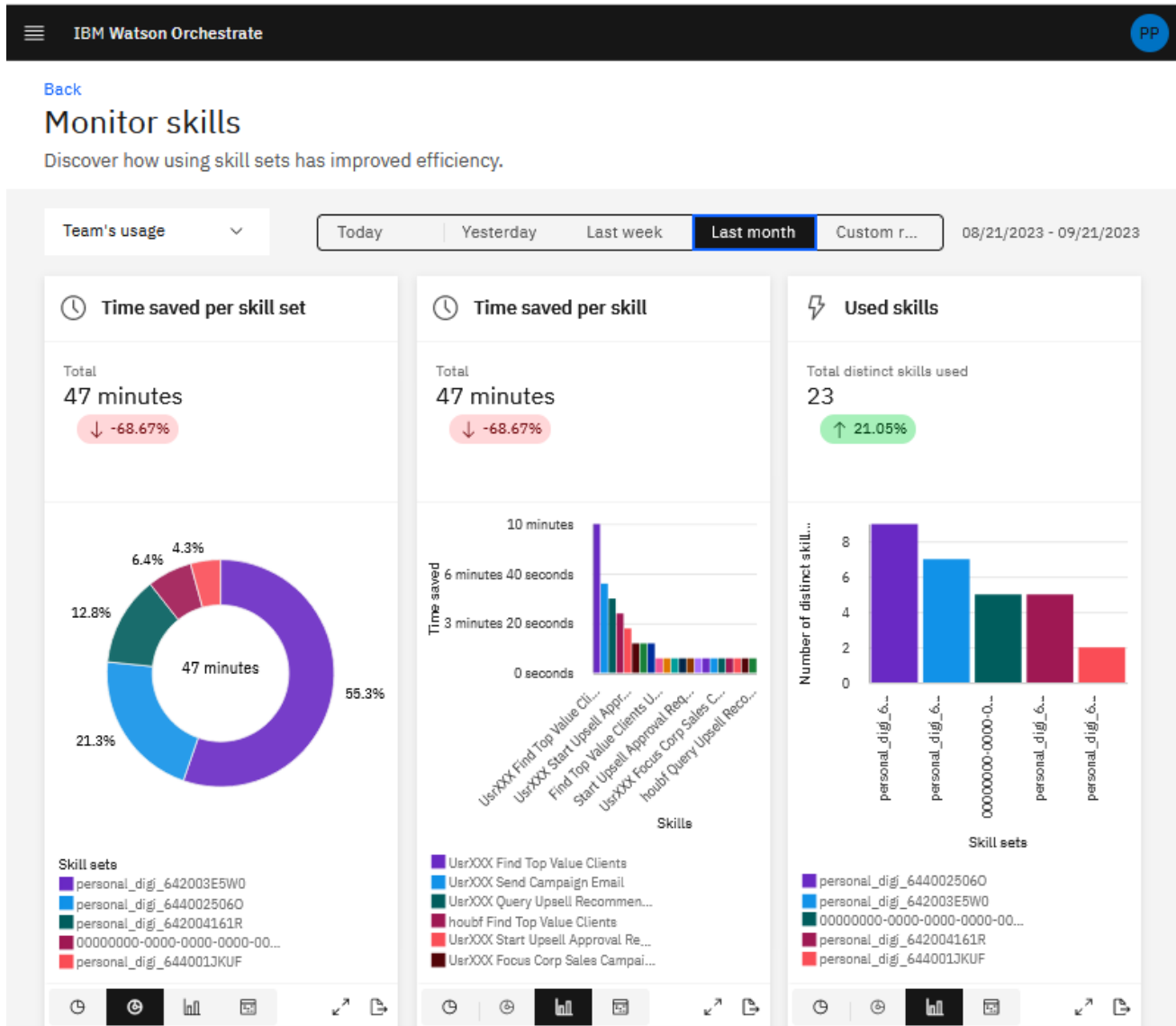
Estimated total time saved
47 minutes
↓ -68.67%

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

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.



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