

Predictive decisioning

300-level live demo preparation instructions
for Cloud Pak for Business Automation V22.0.2

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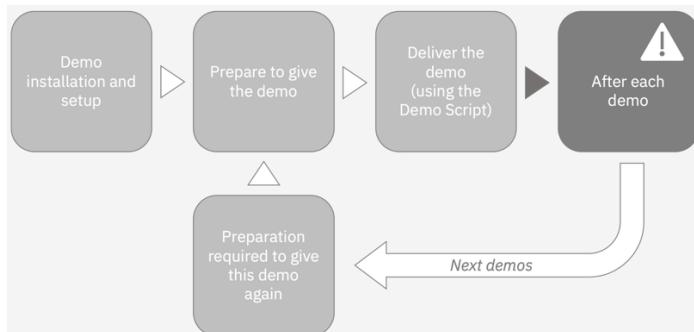
DEMO OVERVIEW

Scenario overview	This demo shows how the IBM Cloud Pak for Business Automation integrates machine learning to improve decisions. To illustrate this, a company's customer retention offer process is automated.
Demo products	Cloud Pak for Business Automation V22.0.2 , Cloud Pak for Data 4.0 (Machine learning capabilities)
Demo capabilities	Decision management, Machine learning
Demo guidance	<p>This demo script has multiple tasks that each have multiple steps. In each step, you have the details about what you need to do (Actions), what you can say while delivering this demo step (Narration), and what diagrams and screenshots you will see.</p> <p>This demo script is a suggestion, and you are welcome to customize based on your sales opportunity. Most importantly, practice this demo in advance. If the demo seems easy for you to execute, the customer will focus on the content. If it seems difficult for you to execute, the customer will focus on your delivery.</p>
Demo downloads	SkyTalk's Retention offer document.pdf SkyTalk customer loyalty data.csv SkyTalk customer value data.csv SkyTalk_call_center_application_22.0.2.twx SkyTalk-customer-retention_22.0.2.zip
How to get support	<p>Contact https://techzone.ibm.com/help regarding issues with reserving and provisioning TechZone environments and open a helpdesk ticket.</p> <p>Contact #platinumdemos-automation-support regarding issues with setting up and running this demo use case.</p>

This platinum demo uses machine learning resources that are subject to a quota. It is critical to stop depleting your machine learning quota by following the '**AFTER EACH DEMO**' steps detailed in this preparation guide unless you are practicing or presenting this demo.

The 'Preparation required to give this demo again' section details how to re-deploy the required machine learning service prior to your next demo.

The five components of the demo:



MANAGING YOUR WATSON STUDIO FREE SUBSCRIPTION

This demonstration requires Watson Studio and Watson Machine Learning subscription. If you don't have a paid subscription, you can use a Lite version (which has a limited quota). This preparation guide explains how to provision a Watson Studio account.

The Lite version entitles you to **20 free CUH** (capacity units) per calendar month. The quota resets on the first of each month.

The 20 CHU allows for **7 to 10 hours of usage**, which is measured as the total time Watson Machine Learning is deployed. To stop the clock, you must undeploy the 2 ML services (see the 'After each demo').

Assuming you undeploy after each time you give or practice the demo, we estimate that you can do the demo **five to seven** times per month without exceeding the free Watson Machine Learning limit. If you leave the 2 machine learning services deployed overnight, it will consume all your monthly limit in just 7 to 9 hours of time.

DEMO INSTALLATION AND SETUP

1 - Provision an OpenShift environment and deploy Cloud Pak for Business Automation

To run this demonstration, you will need an OpenShift environment with Cloud Pak for Business Automation 22.0.2 installed.

You have two options to get your Cloud Pak for Business Automation 22.0.2 environment.

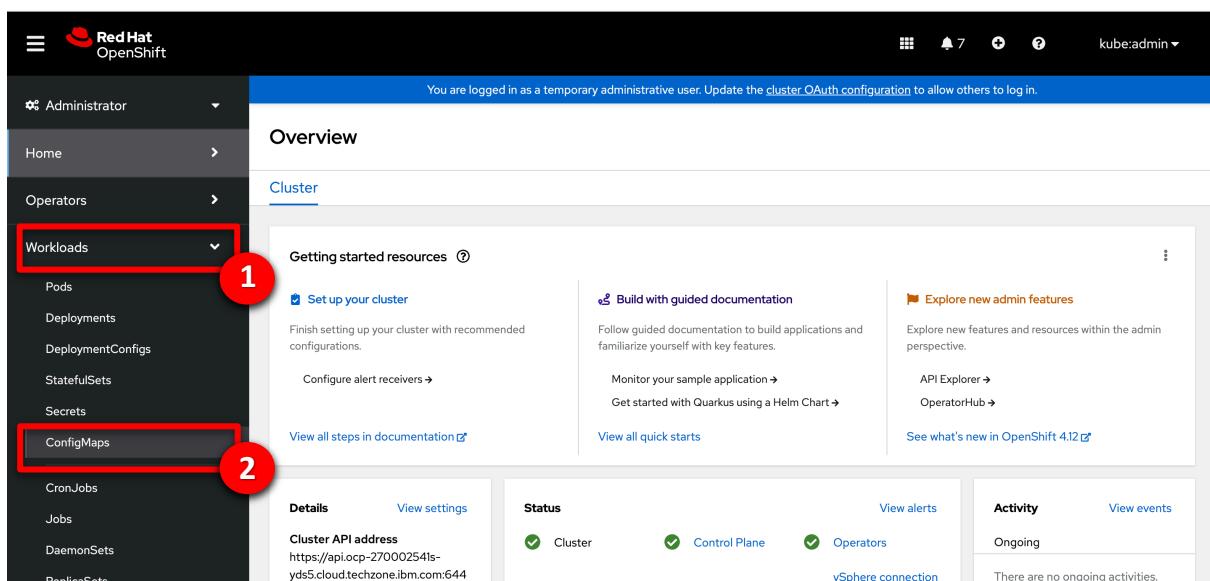
	Description	Opportunity number required?	CP4BA install type	Good for...	Useful link
1	Automatically installed Pak Installer CP4BA cluster	NO (allows Practice / Self-Education)	Automated by ITZ and DAFFY	those that don't need to build skills in CP4BA install	Pak Installer guide
2	Self-installed ITZ OpenShift cluster	NO (allows Practice / Self-Education)	Manual with step-by-step instructions	those that have skills in CP4BA install, want more control over the cluster's deployment, already have or wish to build familiarity with ITZ IPI/UPI clusters or want to use the latest CP4BA IFix version .	CP4BA deployment guide

2 - Validate your environment and bookmark your IDs / URLs

After 5-6 hours, your Cloud Pak for Business Automation should be ready.

The setup is completed when the cp4ba access information config map is created with all the URL and credentials to log in to the various installed components.

1. Log in to your OpenShift console using the credentials provided in section 1 above.
2. Expand **Workloads** (1) and click **ConfigMaps** (2).



3. Expand **Project: All Projects** (1) and click **cp4ba-starter** (2).

The screenshot shows the Red Hat OpenShift web interface. On the left, the navigation sidebar is visible with options like Home, Operators, Workloads (Pods, Deployments, DeploymentConfigs, StatefulSets, Secrets), and ConfigMaps. A red circle labeled '1' is around the 'Project: All Projects' dropdown menu. Another red circle labeled '2' is around the 'cp4ba-starter' project entry in the list.

4. Type 'access' (1). Check that the **icp4adeploy-cp4ba-access-info** (2) config map is present.

The screenshot shows the Red Hat OpenShift web interface with 'Project: cp4ba-starter' selected. In the 'ConfigMaps' section, a search bar has 'access' typed into it, indicated by a red circle labeled '1'. Below the search bar, a table lists two config maps. The first row, 'CM icp4adeploy-cp4ba-access-info', is highlighted with a red box and has a red exclamation mark icon next to it, indicating it is the target item. The second row is 'CM icp4adeploy-odm-certificates-checksum'. Both rows show a size of 10 and were created on April 13, 2023.

Note: If the file is not listed, wait five more minutes for the CP4BA deployment to be completed.

5. Click **icp4adeploy-cp4ba-access-info**.

The screenshot shows the Red Hat OpenShift web interface with 'Project: cp4ba-starter' selected. In the 'ConfigMaps' section, the 'icp4adeploy-cp4ba-access-info' config map is selected, indicated by a red box around its row in the table. The table also includes the 'icp4adeploy-odm-certificates-checksum' config map.

6. Scroll down (1) and check that all the ADS access info is there. ADS is the last element to install, so your CP4BA setup is completed once this info displays.

You are logged in as a temporary administrative user. Update the cluster OAuth configuration to allow others to log in.

Project: cp4ba-starter

Data

ADS-designer-access-info

ADS designer is accessed through Business Automation Studio, use URLs defined in 'bastudio-access-info' section.

ADS-runtime-access-info !

Runtime URL: <https://cpd-cp4ba-starter.apps.ocp-270002541s-yds5.cloud.techzone.ibm.com/ads/runtime/api/swagger-ui>

```
username: drs
password: fmb4szcv6k8j1j6p
manager username: tk1z9k8bx8cdpkj1l
manager password: xj4c5f8kfv1klj16
monitor username: vvvxc8sg9zt15sw
monitor password: k72dd5nfh8xvmq2k
```

bastudio-access-info

Cloudpak Dashboard: <https://cpd-cp4ba-starter.apps.ocp-270002541s-yds5.cloud.techzone.ibm.com>

User credentials:

7. Copy the **CP4admin username** and **password** used to log in to the various CP4BA components into a note to access later.

You are logged in as a temporary administrative user. Update the cluster OAuth configuration to allow others to log in.

Project: cp4ba-starter

Elasticsearch Password: KPIF7cfWP1
Apicurio URL: <https://iaf-system-apicurio-cp4ba-starter.apps.daffy-c4rw7grq.cloud.techzone.ibm.com>

bastudio-access-info

Cloudpak Dashboard: <https://cpd-cp4ba-starter.apps.daffy-c4rw7grq.cloud.techzone.ibm.com>
Business Automation Workplace: <https://cpd-cp4ba-starter.apps.daffy-c4rw7grq.cloud.techzone.ibm.com/icn/navigator/?desktop=workplace>
Business Automation Workflow Process Admin Console: <https://cpd-cp4ba-starter.apps.daffy-c4rw7grq.cloud.techzone.ibm.com/bas/ProcessAdmin>
Business Automation Workflow REST API Tester: <https://cpd-cp4ba-starter.apps.daffy-c4rw7grq.cloud.techzone.ibm.com/bas/bpmrest-ul>
Business Automation Process Portal: <https://cpd-cp4ba-starter.apps.daffy-c4rw7grq.cloud.techzone.ibm.com/bas/ProcessPortal>
Business Automation Case Client: <https://cpd-cp4ba-starter.apps.daffy-c4rw7grq.cloud.techzone.ibm.com/icn/navigator/?desktop=baw>
Business Automation Case Builder: <https://cpd-cp4ba-starter.apps.daffy-c4rw7grq.cloud.techzone.ibm.com/bas/CaseBuilder>

(Note: External base URL is not something you can access directly. Business Automation Workflow provides REST APIs, Web Service APIs, Operations APIs etc. The endpoints start with [http://host_name:port/\[custom_prefix/\]](http://host_name:port/[custom_prefix/]) or [https://host_name:port/\[custom_prefix/\]](https://host_name:port/[custom_prefix/]), you can use External base URL to replace host_name:port/[custom_prefix/])

Workloads

Pods

User credentials:
username: cp4admin
password: CaSsq2ewpa45K4x3kjf1

8. Copy the **URL** needed to access the various products required in this demonstration into your note to access later.

You are logged in as a temporary administrative user. Update the cluster OAuth configuration to allow others to log in.

Project: cp4ba-starter

Elasticsearch Password: KPIF7cfWP1
Apicurio URL: <https://iaf-system-apicurio-cp4ba-starter.apps.daffy-c4rw7grq.cloud.techzone.ibm.com>

bastudio-access-info

Cloudpak Dashboard: <https://cpd-cp4ba-starter.apps.daffy-c4rw7grq.cloud.techzone.ibm.com>
Business Automation Workplace: <https://cpd-cp4ba-starter.apps.daffy-c4rw7grq.cloud.techzone.ibm.com/icn/navigator/?desktop=workplace>
Business Automation Workflow Process Admin Console: <https://cpd-cp4ba-starter.apps.daffy-c4rw7grq.cloud.techzone.ibm.com/bas/ProcessAdmin>
Business Automation Workflow REST API Tester: <https://cpd-cp4ba-starter.apps.daffy-c4rw7grq.cloud.techzone.ibm.com/bas/bpmrest-ul>
Business Automation Process Portal: <https://cpd-cp4ba-starter.apps.daffy-c4rw7grq.cloud.techzone.ibm.com/bas/ProcessPortal>
Business Automation Case Client: <https://cpd-cp4ba-starter.apps.daffy-c4rw7grq.cloud.techzone.ibm.com/icn/navigator/?desktop=baw>
Business Automation Case Builder: <https://cpd-cp4ba-starter.apps.daffy-c4rw7grq.cloud.techzone.ibm.com/bas/CaseBuilder>

(Note: External base URL is not something you can access directly. Business Automation Workflow provides REST APIs, Web Service APIs, Operations APIs etc. The endpoints start with [http://host_name:port/\[custom_prefix/\]](http://host_name:port/[custom_prefix/]) or [https://host_name:port/\[custom_prefix/\]](https://host_name:port/[custom_prefix/]), you can use External base URL to replace host_name:port/[custom_prefix/])

Workloads

Pods

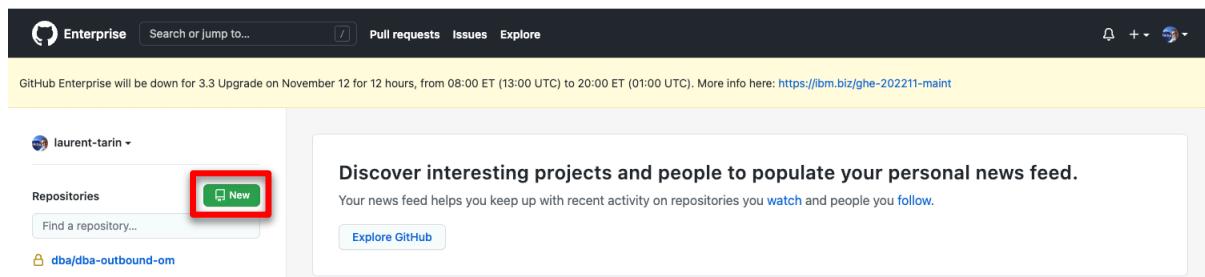
User credentials:
username: cp4admin
password: CaSsq2ewpa45K4x3kjf1

3 - Create and configure a GitHub repository

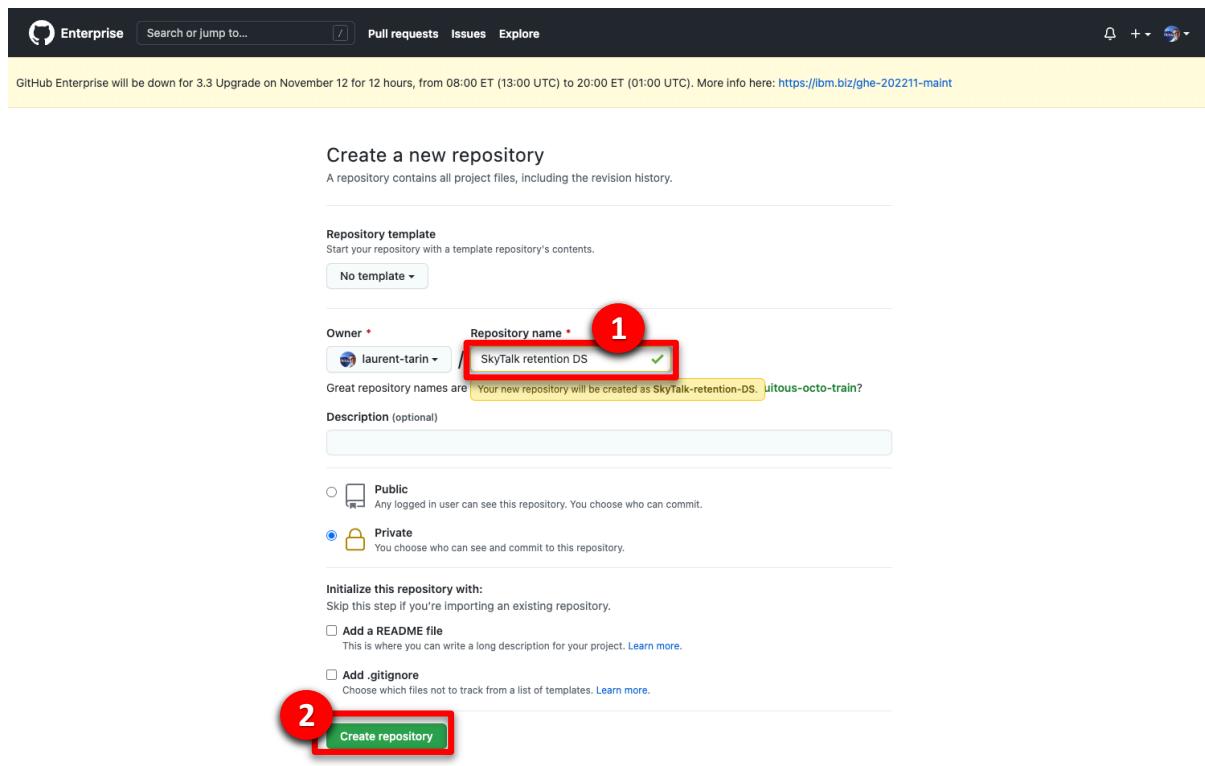
A GitHub repository is required to manage decision projects in ADS. You must create a personal Git repository. You can use, for example, <https://github.com> and create your own account. IBMers can use the IBM enterprise Git on <https://github.ibm.com>.

After logging in to GitHub:

1. Click **New** in the repository section



2. Enter '**SkyTalk retention DS**' (1) in the **Repository name** field. Click **Create repository** (2).



3. Bookmark the repository URL (to configure ADS in a future step).

A screenshot of a GitHub Enterprise interface. At the top, there's a navigation bar with links for 'Enterprise', 'Search or jump to...', 'Pull requests', 'Issues', and 'Explore'. A yellow banner at the top of the page states: 'GitHub Enterprise will be down for 3.3 Upgrade on November 12 for 12 hours, from 08:00 ET (13:00 UTC) to 20:00 ET (01:00 UTC). More info here: <https://ibm.biz/ghe-202211-maint>'. Below the banner, the repository 'laurent-tarin / SkyTalk-retention-DS' is shown as private. The 'Code' tab is selected. In the center, there's a 'Quick setup' section with a red box highlighting the repository URL 'https://github.ibm.com/laurent-tarin/SkyTalk-retention-DS.git' in the address bar.

4. Click your **profile icon** (1) and select **Settings** (2).

A screenshot of a GitHub Enterprise interface. The user profile icon is highlighted with a red circle labeled '1'. A dropdown menu is open next to it, listing options: 'Signed in as laurent-tarin', 'Set status', 'Your profile', 'Your repositories', 'Your organizations', 'Your projects', 'Your stars', 'Your gists', 'Help', 'Settings' (which is highlighted with a blue background and a red circle labeled '2'), and 'Sign out'. The 'Settings' option is the target of the second step.

5. Click **Developer settings**.

A screenshot of a GitHub Enterprise interface showing the user profile 'Laurent Tarin'. The sidebar on the left has a 'Account settings' section with various options: Profile, Account, Account security, Security log, Security & analysis, Emails, Notifications, SSH and GPG keys, Repositories, Organizations, Saved replies, Applications, and Developer settings. The 'Developer settings' link is highlighted with a red box. The main area shows the 'Public profile' settings, including fields for Name (Laurent Tarin), Profile picture (a NASA logo), Public email (laurent.tarin@fr.ibm.com), Bio (Tell us a little bit about yourself), URL, and Twitter username.

6. Expand **Personal access tokens** and click **Tokens (classic)**.

The screenshot shows the GitHub Settings page under Developer settings. The sidebar on the left has options: GitHub Apps, OAuth Apps, Personal access tokens (with a Beta button), and Fine-grained tokens. The Personal access tokens option is expanded, and the 'Tokens (classic)' tab is selected, highlighted with a red box. The main content area is titled 'Personal access tokens (classic)' with a 'Generate new token' button. A note says: 'Need an API token for scripts or testing? Generate a personal access token for quick access to the GitHub API.' Below it, another note says: 'Personal access tokens (classic) function like ordinary OAuth access tokens. They can be used instead of a password for Git over HTTPS, or can be used to authenticate to the API over Basic Authentication.'

7. Click **Generate new token**.

The screenshot shows the GitHub Enterprise Settings page under Developer settings. The sidebar on the left has options: GitHub Apps, OAuth Apps, and Personal access tokens. The Personal access tokens option is selected, highlighted with a red box. The main content area is titled 'Personal access tokens' with a 'Generate new token' button and a 'Revoke all' button. A note says: 'Tokens you have generated that can be used to access the GitHub API.' Below it, another note says: 'Personal access tokens function like ordinary OAuth access tokens. They can be used instead of a password for Git over HTTPS, or can be used to authenticate to the API over Basic Authentication.'

8. Enter “**ADS Platinum demo 22.0.2**” in the **Note** (1) and check **repo** (2).

The screenshot shows the 'New personal access token' form. The sidebar on the left has options: GitHub Apps, OAuth Apps, and Personal access tokens. The Personal access tokens option is selected. The main form has a 'Note' field containing 'ADS Platinum demo 22.0.1' (marked with a red box and circled with a red number 1). Below it is a 'Select scopes' section with a list of checkboxes. The 'repo' checkbox is checked (marked with a red box and circled with a red number 2). Other scopes listed include: repo_status, repo_deployment, public_repo, repo_invite, security_events, write_discussion, read_discussion, admin_enterprise, manage_billing_enterprise, read_enterprise, admin_pre_receive_hook, admin_gpg_key, write_gpg_key, and read_gpg_key.

9. Scroll down and click **Generate token**.

This screenshot shows the bottom part of the 'New personal access token' form, which was partially visible in the previous screenshot. It contains a large list of scope checkboxes. At the bottom of this list is a green 'Generate token' button, which is highlighted with a red box and circled with a red number 3.

10. Copy the **Personal access token** ID (it will be used in ADS).

The screenshot shows the GitHub Enterprise settings interface. The user is in the 'Developer settings' section under 'Personal access tokens'. A message at the top states: 'GitHub Enterprise will be down for 3.3 Upgrade on November 12 for 12 hours, from 08:00 ET (13:00 UTC) to 20:00 ET (01:00 UTC). More info here: <https://ibm.biz/ghe-202211-maint>'. Below this, a note says: 'Some of the scopes you've selected are included in other scopes. Only the minimum set of necessary scopes has been saved.' A red box highlights a specific token entry: '69ec84c70eed6403049bc86f74751d581d2c0214' with a copy icon. A tooltip above it says: 'Make sure to copy your new personal access token now. You won't be able to see it again!'. At the bottom, a note explains: 'Personal access tokens function like ordinary OAuth access tokens. They can be used instead of a password for Git over HTTPS, or can be used to authenticate to the API over Basic Authentication.'

4 - Create and set up a Watson Studio account

1. Go to [IBM Cloud](#).
2. Enter your IBM ID. If you do not have one, create a new one.
3. Ensure you are in your own Cloud Pak for Data instance (1). Click **Create resource** (2).

The screenshot shows the IBM Cloud dashboard. The top navigation bar includes 'IBM Cloud', a search bar, and a user profile dropdown. A red circle labeled '1' highlights the user profile dropdown. A red box labeled '2' highlights the 'Create resource' button in the top right corner of the dashboard area. The dashboard itself displays various service tiles, including 'Build', 'Get Started with Watson Studio', 'Use Visual Recognition', 'Use Knowledge Studio', 'Integrate Watson with anything', and 'Use Speech to Text'.

4. If prompted, click **Go** in the **Internal Paid Account** column.

First, let's make sure you are in the right place.

Account Type	Description	Action
Internal Paid Account	IBM owned account for development, demo, or embedded IBM offerings only. Customers will not have access to the IBM Cloud portal.	Go
Commercial Proof of Concept	For IBM Sales Teams to create an environment for a commercial customer within the IBM Cloud IaaS and/or PaaS.	Go
Manage IaaS Security with DevSecOps Organization	IBM owned account for development, demo or embedded IBM offerings only. Customers have limited access to IBM Cloud portal as resources are deployed by DevSecOps.	Go

5. Type **watson** (1) in the search field and then select **Watson Studio** (2).

Watson Assistant

Watson Discovery

Watson OpenScale

Watson Studio

Watson Knowledge Catalog

Watson Machine Learning

Analytics

6. Select the **Lite** plan (1) and a **location** (2). Read and accept **license agreements** (3). Click **Create** (4).

Watson Studio

Select a location: London (eu-gb)

Plan	Features	Pricing
Lite	1 authorized user 10 capacity unit-hours monthly limit Environment = # of capacity units required per hour <ul style="list-style-type: none"> • 1 vCPU + 4 GB RAM = 0.5 • 2 vCPU + 8 GB RAM = 1 • 4 vCPU + 16 GB RAM = 2 • 8 vCPU + 32 GB RAM = 4 • 16 vCPU + 64 GB RAM = 8 • 40 vCPU + 172 GB RAM + 1 NVIDIA V100 (1 GPU) = 68 <p>The Lite plan for Watson Studio offers everything you need to become a better data scientist or domain expert in a collaborative environment.</p> <p>Lite plan services are deleted after 30 days of inactivity.</p>	Free
Professional	Unlimited collaborators Unlimited elastic compute environments Environment = # of capacity units required per hour <ul style="list-style-type: none"> • 1 vCPU + 4 GB RAM = 0.5 • 2 vCPU + 8 GB RAM = 1 • 4 vCPU + 16 GB RAM = 2 • 8 vCPU + 32 GB RAM = 4 • 16 vCPU + 64 GB RAM = 8 • 40 vCPU + 172 GB RAM + 1 NVIDIA V100 (1 GPU) = 68 	€0.980882 EUR/Capacity Unit-Hour

I have read and agree to the following license agreements:

Create

7. Return to **IBM Cloud**.

Watson Studio-2d Active Add tags

Watson Studio in Cloud Pak for Data

Watson Studio is one of the core services in Cloud Pak for Data as a Service. Build, deploy and manage AI models, and optimize decisions on IBM Cloud Pak for Data.

Launch in IBM Cloud Pak for Data

8. Click **Create Resource**.

Dashboard

Create resource

9. Type ‘**machine**’ (1) in the search field and then select **Watson Machine Learning** (2).

The screenshot shows the IBM Cloud Catalog interface. In the search bar at the top left, the word "machine" is typed. Below the search bar, a list of services is displayed, with "Watson Machine Learning" being the first item. This service card is highlighted with a red circle labeled "2". To the left of the service cards, there is a sidebar with various service categories like Virtual Server for Classic, Watson Studio, etc. A red circle labeled "1" points to the search bar.

10. Select the **Lite** plan (1) and a **location** (2). Read and accept **license agreements** (3). Click **Create** (4).

The screenshot shows the "Create" page for the Watson Machine Learning service. On the left, there is a sidebar with service details: Type: Service, Provider: IBM, Last updated: 10/06/2022, Category: AI / Machine Learning, Compliance: HIPAA Enabled, IAM-enabled, Service Endpoint Supported, Location: London, Dallas, Frankfurt, Tokyo, and Related links: API docs, Docs, Terms. The main area has tabs for "Create" (which is selected) and "About". Under "Create", there are sections for "Select a location" (with "London (eu-gb)" selected) and "Select a pricing plan". The "Pricing" table shows the "Lite" plan selected (highlighted with a red box and circle "1"). The "Features" column lists "Service instance: 20 capacity unit-hours (CUH) included", "Capacity Type: 1 vCPU and 4 GB RAM = 0.5 capacity units required per hour", and "Auto AI: 8 vCPU and 32 GB RAM = 20 capacity units required per hour". The "Pricing" column shows "Free". On the right, there is a "Summary" section with details: Watson Machine Learning, Location: London, Plan: Lite, Service name: Watson Machine Learning-y7, Resource group: default. At the bottom, there is a checkbox "I have read and agree to the following license agreements:" (highlighted with a red arrow and circle "3") and a blue "Create" button (highlighted with a red box and circle "4").

11. Return to the IBM Cloud.

The screenshot shows the IBM Cloud interface with the 'IBM Cloud' button highlighted by a red box in the top navigation bar. The main content area displays the 'Machine Learning-nm' service, which is active. A purple brain icon is prominently displayed, and below it, the text 'Watson Machine Learning' is visible. The left sidebar has a 'Manage' section with 'Plan' and 'Connections' options.

12. Click **Create Resource.**

The screenshot shows the IBM Cloud dashboard. The 'Create resource' button, located in the top right corner of the dashboard area, is highlighted by a red box. The dashboard also features a 'Build' section and several AI-related cards: 'Get Started with Watson Studio', 'Use Visual Recognition', 'Use Knowledge Studio', 'Integrate Watson with anything', and 'Use Speech to Text'.

13. Type **Object (1) in the search field and then select **Object Storage** (2).**

The screenshot shows the IBM Cloud Catalog. A red circle labeled '1' is over the search bar containing the text 'Object'. A red circle labeled '2' is over the 'Object Storage' search result, which is highlighted. The catalog also lists other services like Bitnami Object Storage based on MinIO® and Databases for PostgreSQL. A note at the bottom states: 'Pricing might reflect internal IBM pricing, which should not be shared outside of your internal IBM Cloud account to view external pricing details.'

14. Select **IBM Cloud** (1). Choose the **Lite** plan (2) and click **Create** (3).

The screenshot shows the IBM Cloud Catalog interface. A red circle labeled '1' highlights the 'IBM Cloud' infrastructure option under 'Choose an Infrastructure'. A red circle labeled '2' highlights the 'Lite' plan under 'Select a pricing plan'. A red circle labeled '3' highlights the 'Create' button at the bottom right of the page.

15. Click the **top menu** (1) and then select **Resource list** (2).

The screenshot shows the IBM Cloud dashboard. A red arrow labeled '1' points to the top navigation bar where 'IBM Cloud' is selected. A red circle labeled '2' highlights the 'Resource list' item in the left-hand navigation menu.

16. The new services should appear. Click **Watson Studio-2d**.

The screenshot shows the 'Resource list' page. A red box highlights the 'Watson Studio-2d' service entry in the list, which includes columns for Name, Group, Location, Product, Status, and Tags. The 'Watson Studio-2d' entry is the second item in the list.

Name	Group	Location	Product	Status	Tags
Cloud Object Storage-ep	default	Global	Cloud Object Storage	Active	
Watson Studio-2d	default	London	Watson Studio	Active	
Machine Learning-mz	default	London	Watson Machine Learning	Active	

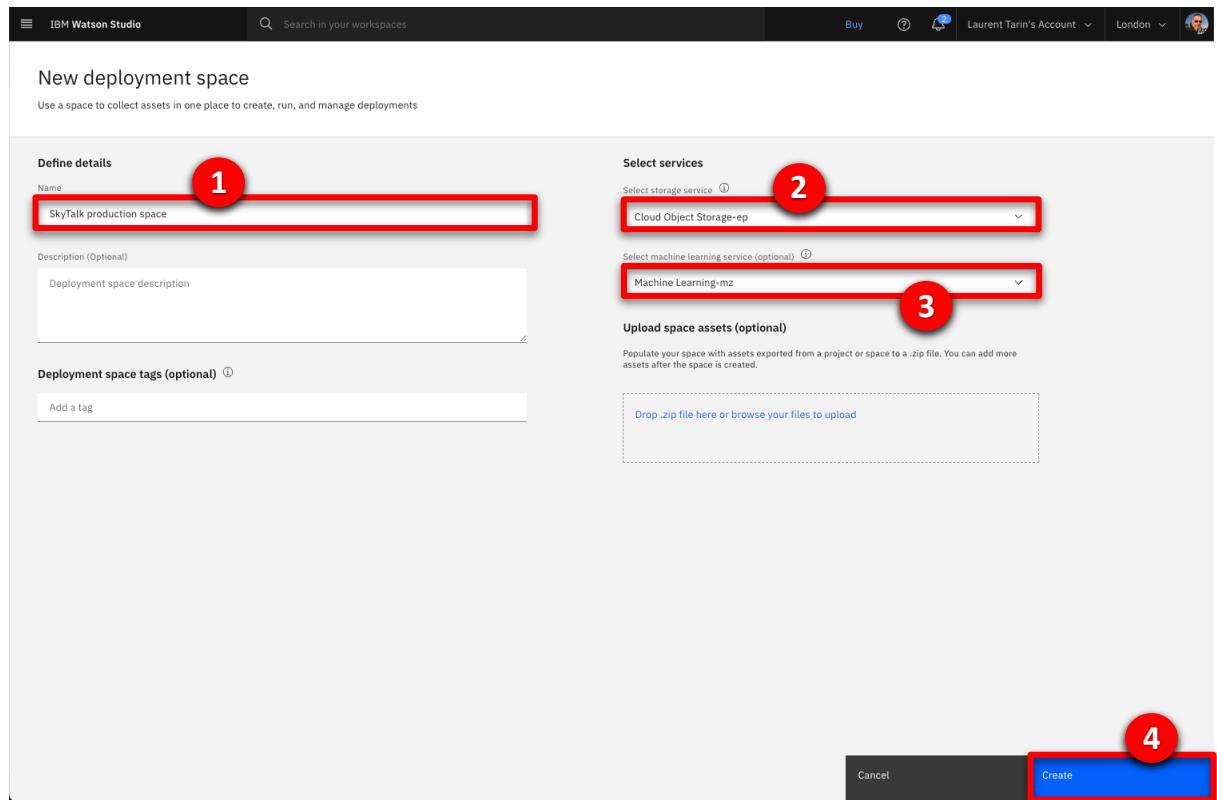
17. Click **Launch in IBM Cloud Pak for Data.**

The screenshot shows the IBM Cloud interface with the service 'Watson Studio-2d' selected. The service details page is displayed, featuring a summary section with a 'Launch in IBM Cloud Pak for Data' button highlighted by a red box. To the right, there's a diagram illustrating the architecture: 'IBM Watson Studio in Cloud Pak for Data' is shown as a central component, built on top of 'IBM Cloud Base cloud infrastructure', which in turn supports 'IBM Cloud Pak for Data Unifying platform'. Below the diagram, a note states: 'IBM Watson Studio is part of IBM Cloud Pak for Data and serves as the data science capability of the data fabric architecture.'

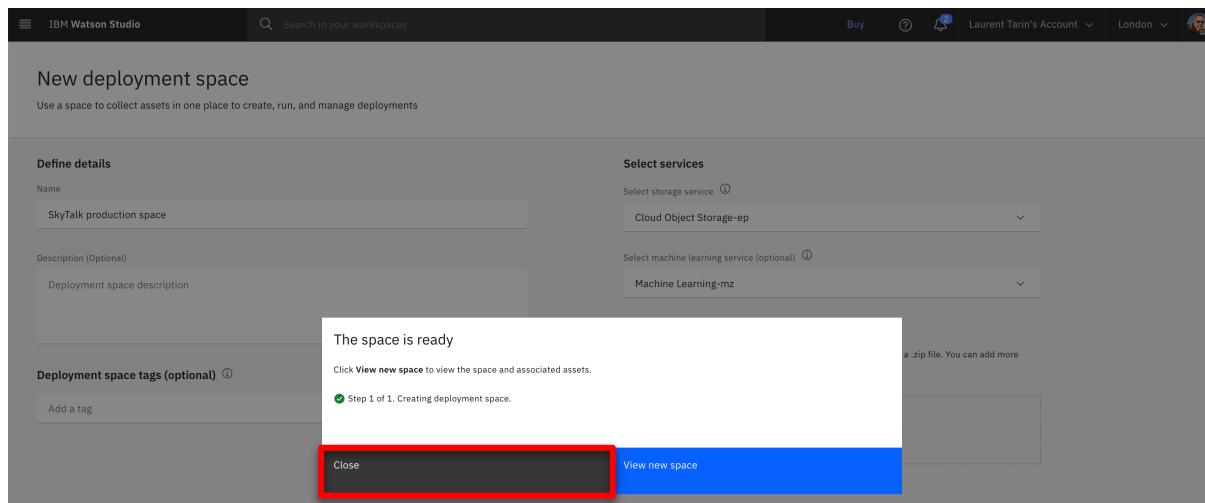
18. Click + next to **Deployments.**

The screenshot shows the IBM Watson Studio interface. The main dashboard features sections for 'Welcome, Laurent!', 'Take a tutorial', 'Work with data', and 'Learn what's new'. On the left, there's a 'Quick start' sidebar with four items: 'Build customer profiles', 'Catalog and govern data', 'Build and manage ML models', and 'Query data anywhere'. The main area contains 'Projects' (SPSS customer retention), 'New in gallery' (NOTEBOOK, Using Data Engine), 'Notifications' (two online deployment ready notifications), and 'Deployments' (a section with a '+' button highlighted by a red box). A large, stylized 3D visualization of data cubes and a screen displaying a waveform is centered in the background.

19. Name the production space '**SkyTalk production space**' (1). Select **Cloud Object Storage-xx** as the **storage service** (2). Select your **Machine Learning-xx** (3) as the machine learning service. Click **Create** (4).



20. Click **Close**.



21. Click the **IBM Watson Studio** logo at the top left corner to return to the home page.

The screenshot shows the IBM Watson Studio interface. At the top, there's a navigation bar with the Watson Studio logo, a search bar, and account information for Laurent Tarin's Account. Below the navigation is a section titled 'Deployments' with a sub-section '1 space'. There are two tabs: 'Activity' and 'Spaces', with 'Spaces' being the active tab. A filter bar allows filtering by 'All spaces' and searching for deployment spaces. A table lists one deployment space named 'SkyTalk production space' with details like last modified (Nov 8, 2022, 2:03 PM), role (Admin), and status (0 online deployments, 0 jobs). A blue button at the top right says 'New deployment space' with a '+' icon.

5 - Set up two machine learning models

The Watson Studio environment is completely set up. The three services (Watson Studio, ML, and Storage) are ready, and the deployment environment is set up. Now let's create the two prediction services using AutoAI in Watson Studio.

Ensure the two data files have downloaded prior to starting this step:

- [SkyTalk customer loyalty data.csv](#)
- [SkyTalk customer value data.csv](#)

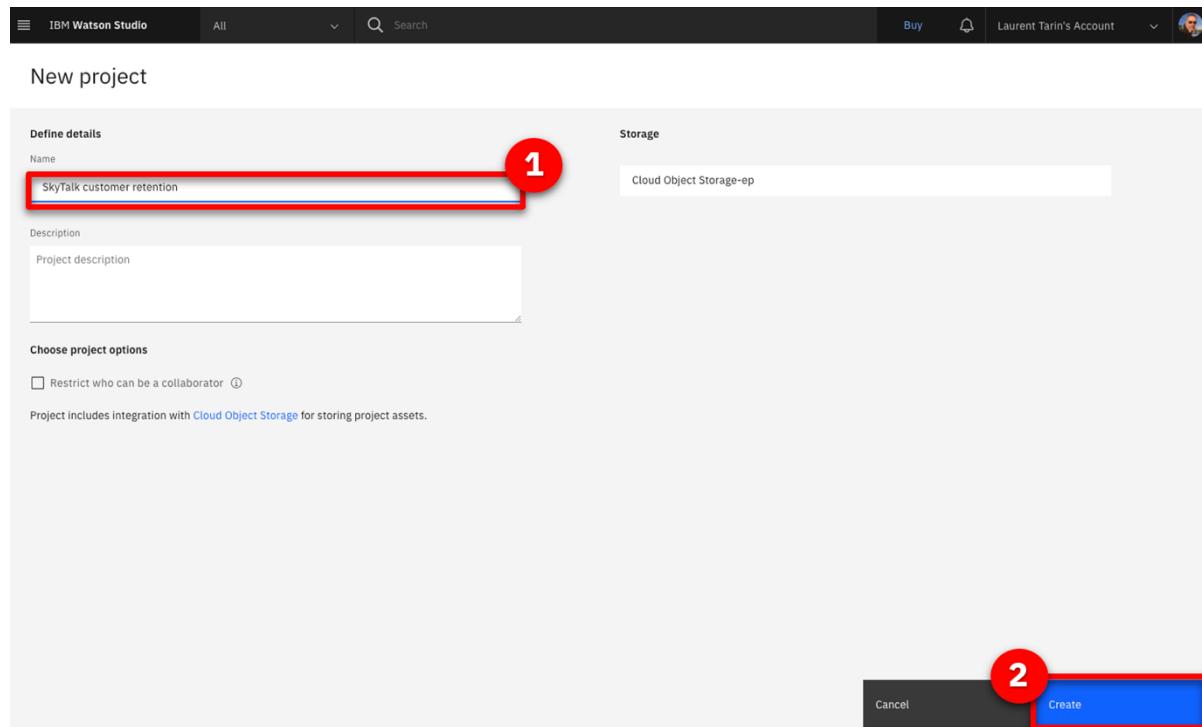
1. Click + next to **Projects**.

This screenshot shows the Watson Studio home page again. It features sections for 'Take a tutorial', 'Work with data', and 'Learn what's new'. On the right, there's a 3D visualization of data blocks. Below these are 'Quick start' and 'Notifications' sections. The 'Projects' section is prominently displayed in the center, featuring a project named 'SPSS customer retention' with a creation date of Jun 20, 2022, 11:51 AM. To the right of the 'Projects' section is a red box highlighting the '+' button used for creating a new project. Notifications on the right show an 'Online deployment ready' message for a 'CHURN' deployment in the 'SkyTalk' space.

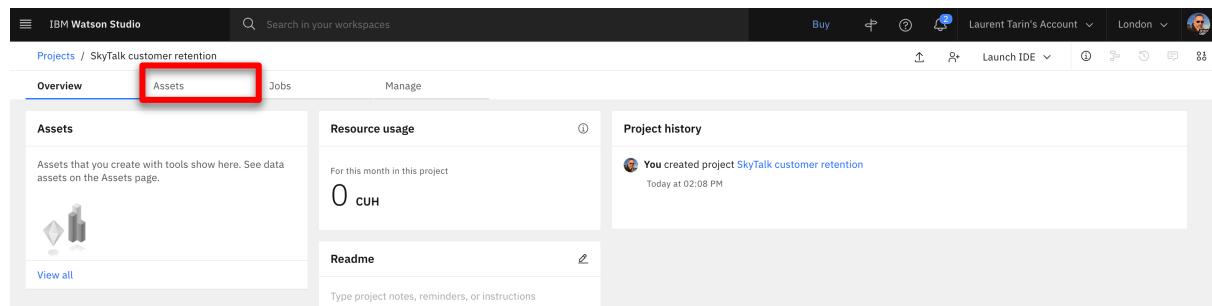
2. Select **Create an empty project**.

This screenshot shows the 'Create a project' dialog box. It has two main options: 'Create an empty project' (highlighted with a red box) and 'Create a project from a sample or file'. The 'Create an empty project' section includes an icon of a person working on a computer, a brief description about preparing data, and a 'USE TO' section listing 'Prepare and visualize data', 'Analyze data in notebooks', and 'Train models'. The 'Create a project from a sample or file' section includes an icon of a document with a plus sign, a brief description about loading existing assets, and a 'USE TO' section listing 'Learn by example', 'Build on existing work', and 'Run tutorials'.

3. Name the project '**SkyTalk customer retention**' (1) and click **Create** (2).



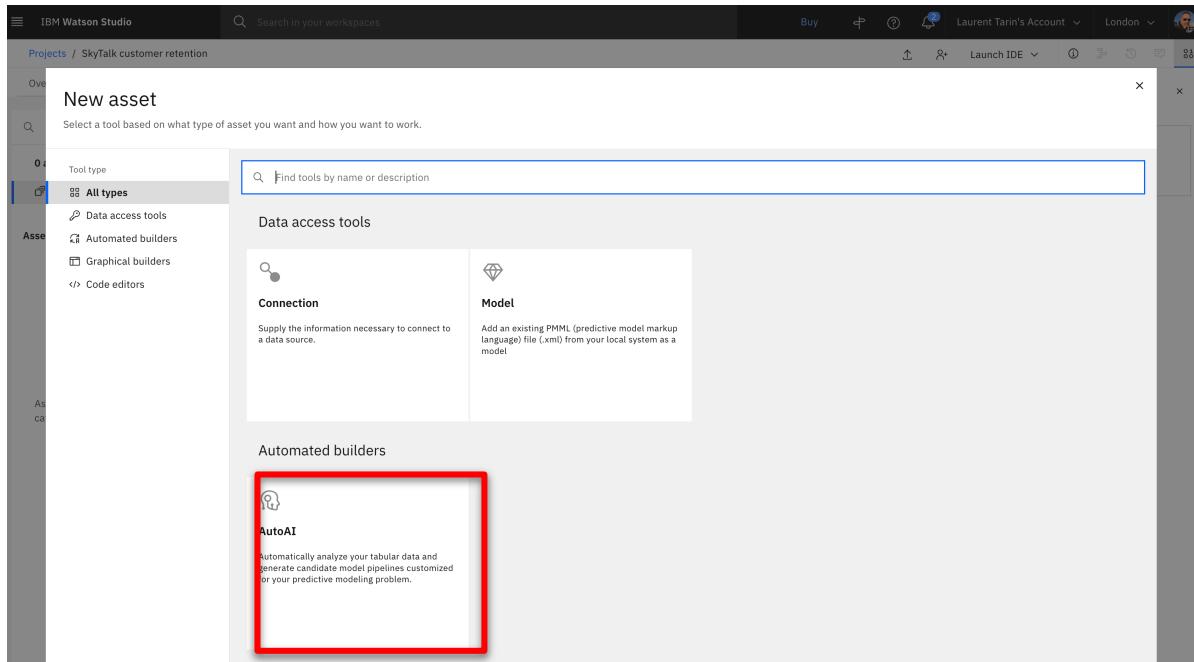
4. Click the **Assets** tab.



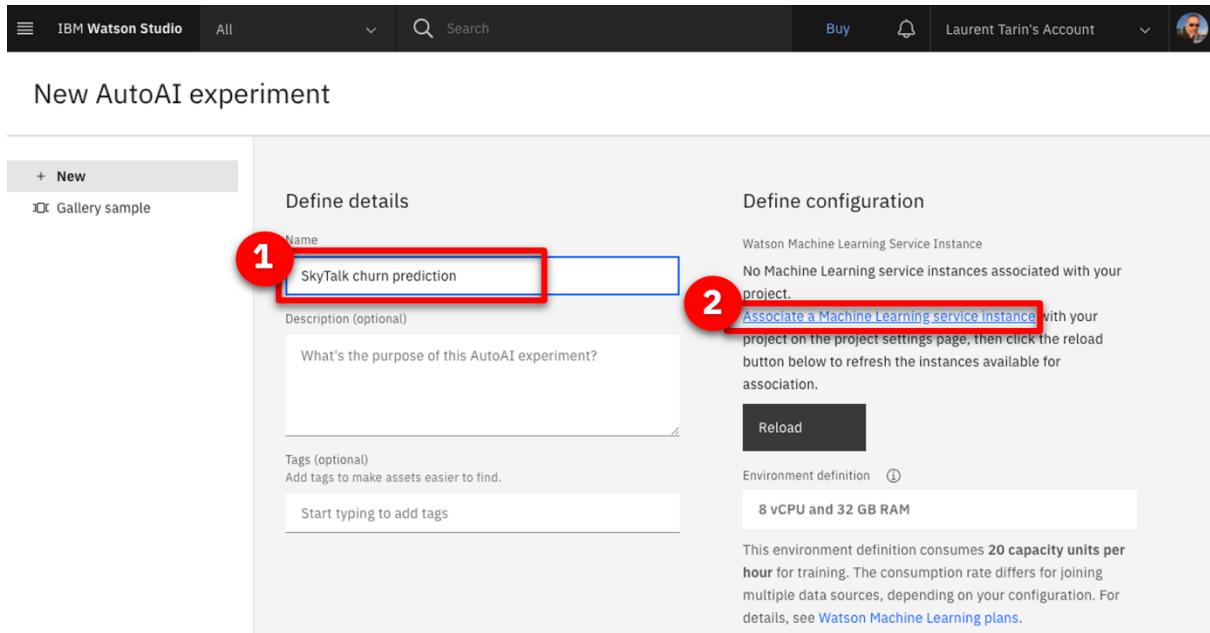
5. Click **New asset +**.



6. Select AutoAI.



7. Name the AutoAI experiment **SkyTalk churn prediction** (1) and click **Associate a Machine Learning service instance** (2).



8. Select the **Machine learning-xx** (1) service. Click **Associate** (2).

Associate service
Choose an existing or add a new service to associate with your project.

Filter by: Resource Groups ▾ 2 × Locations ▾ None ▾

Name	Type	Plan	Location	Status	Group
<input checked="" type="checkbox"/> Machine Learning-mz ⓘ	Watson Machine Learning	Lite	London	◆ Not associated	default

New service +

Cancel Associate

9. Click **Reload**.

New AutoAI experiment

+ New

Gallery sample

Define details

Name
SkyTalk churn prediction

Description (optional)
What's the purpose of this AutoAI experiment?

Tags (optional)
Add tags to make assets easier to find.
Start typing to add tags

Define configuration

Watson Machine Learning Service Instance
No Machine Learning service instances associated with your project.
[Associate a Machine Learning service instance](#) with your project on the project settings page, then click the reload button below to refresh the instances available for association.

Reload

Environment definition ⓘ
8 vCPU and 32 GB RAM

This environment definition consumes **20 capacity units per hour** for training. The consumption rate differs for joining multiple data sources, depending on your configuration. For details, see [Watson Machine Learning plans](#).

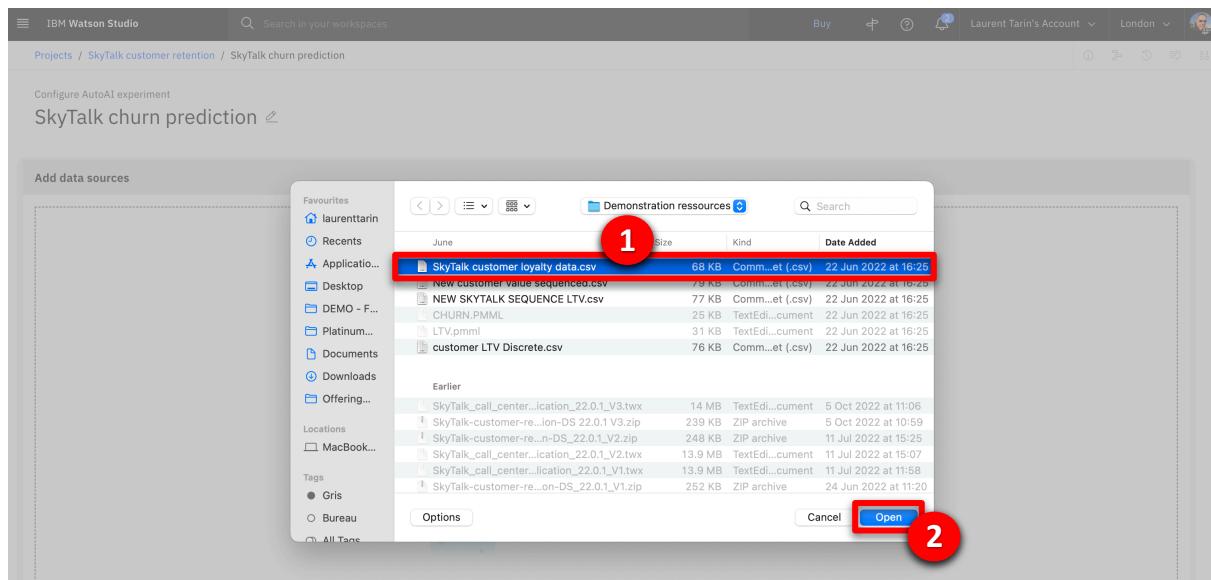
10. Click **Create.**

The screenshot shows the 'Define details' and 'Define configuration' sections of the AutoAI experiment creation interface. In the 'Define details' section, the 'Name' field is filled with 'SkyTalk churn prediction'. In the 'Define configuration' section, the 'Watson Machine Learning Service Instance' is set to 'Machine Learning-nm' and the 'Environment definition' is '8 vCPU and 32 GB RAM'. A note states: 'This environment definition consumes 20 capacity units per hour for training. The consumption rate differs for joining multiple data sources, depending on your configuration. For details, see [Watson Machine Learning plans](#)'. At the bottom right, the 'Create' button is highlighted with a red box.

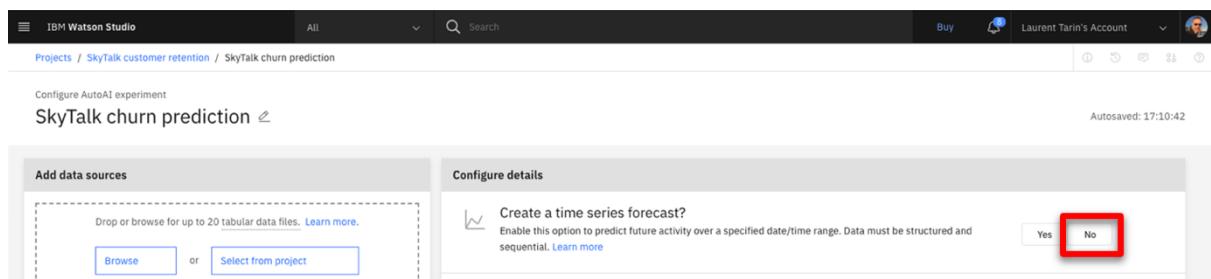
11. Click **Browse.**

The screenshot shows the 'Configure AutoAI experiment' page for the 'SkyTalk churn prediction' project. In the 'Add data sources' section, there is a placeholder text 'Drop data files here or browse for files to upload' and a note 'Add files such as tabular data (CSV)'. Below this are two buttons: 'Browse' and 'Select data from project'. The 'Browse' button is highlighted with a red box.

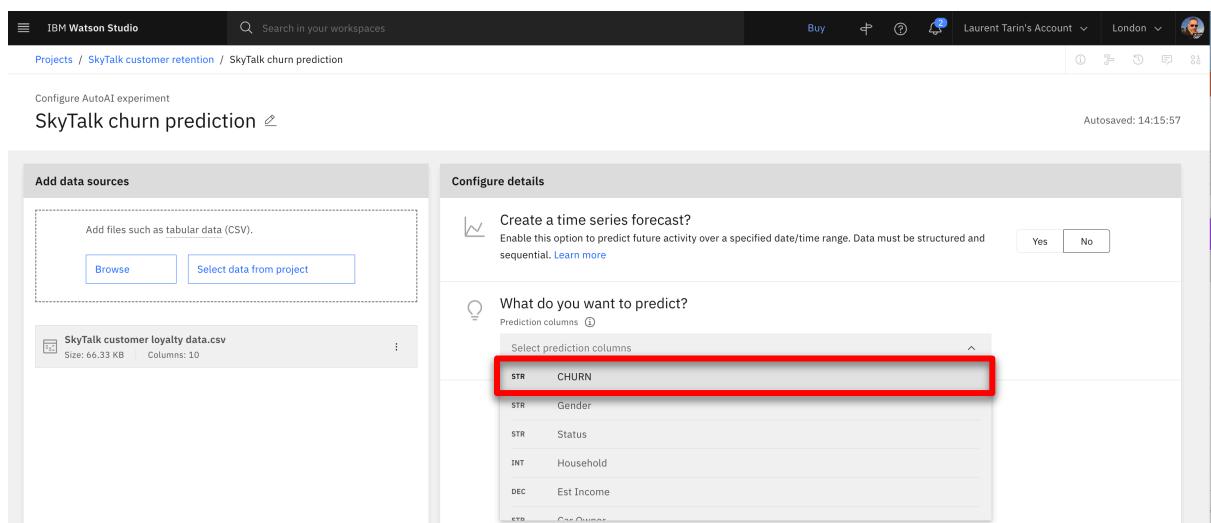
12. Select the **SkyTalk customer loyalty data.csv** file (1) and click **Open** (2).



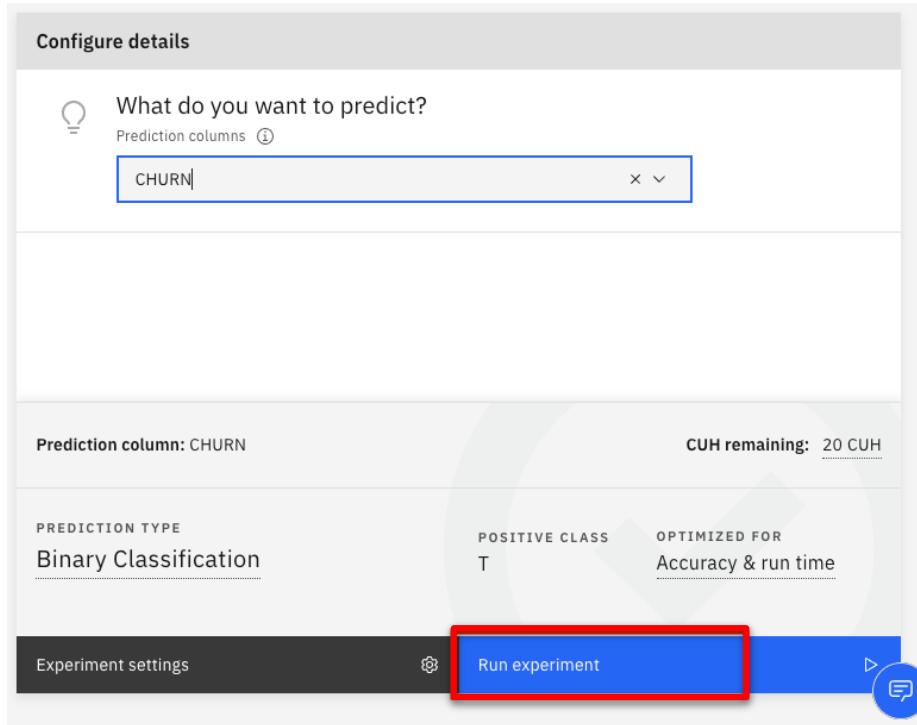
13. When prompted 'Create a time series forecast?', click **No**.



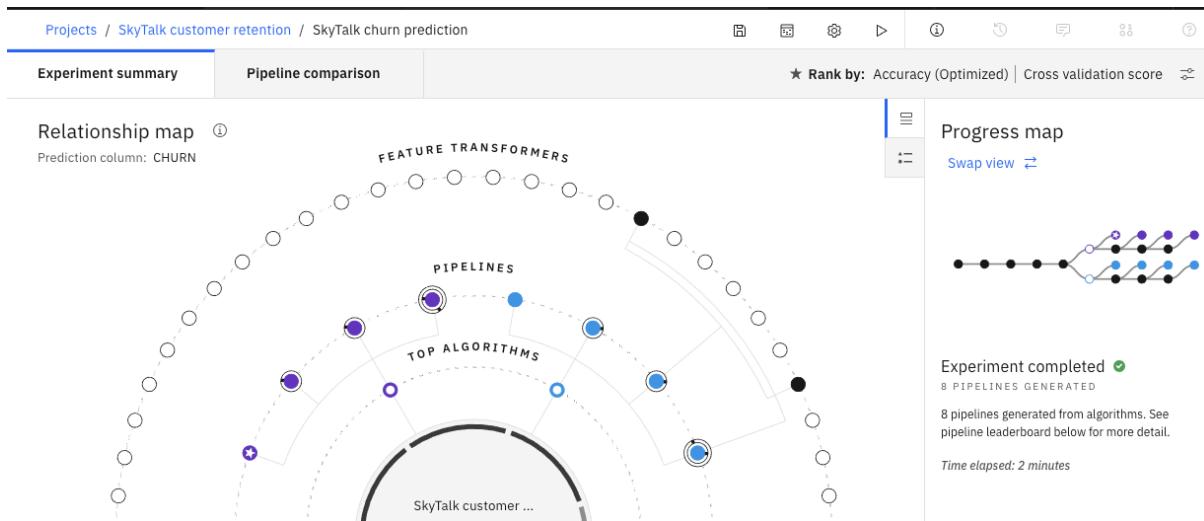
14. When prompted 'What do you want to predict?', select **CHURN**.



15. Click **Run Experiment**.



16. The tool will create 8 pipelines, which will take approximately 2 minutes.



17. Scroll down to the pipeline marked with a star in the **Pipeline leaderboard** list and click **Save as** in the corresponding row.

Rank	↑	Name	Algorithm	Accuracy (Optimized) Cross Validation	Enhancements	Build time	
★	1	Pipeline 1	<input checked="" type="radio"/> LGBM Classifier	0.938	None	00:00:01	Save as
2		Pipeline 2	<input checked="" type="radio"/> LGBM Classifier	0.938	HPO-1	00:00:14	

18. Select **Model** (1) and click **Create** (2).

Select asset type

Model 1

Create a Watson Machine Learning model asset that you can test with new data, deploy to generate predictions, and trace lineage activity.

Notebook

Create a notebook if you want to view the code that created this model pipeline or interact with the model programmatically.

Define details

Name: SkyTalk churn prediction - P1 LGBM Classifier

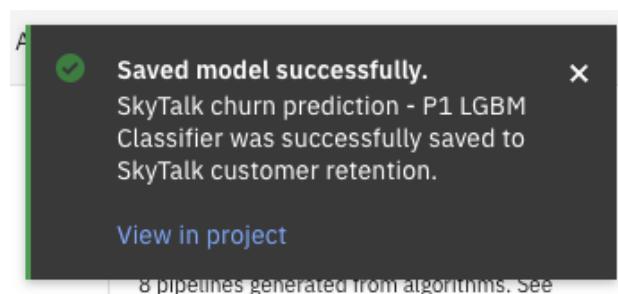
Description (optional): Enter description here

Tags: Add tags to make assets easier to find.

Add a tag

Cancel 2 Create

19. A **Saved model successfully** confirmation message appears.



20. Return to the project by clicking **SkyTalk customer retention** in the breadcrumb menu.

The screenshot shows the IBM Watson Studio interface with the 'SkyTalk customer retention' project selected in the breadcrumb menu. On the right, a success message box displays: "Saved model successfully. SkyTalk churn prediction - P1 LGBM Classifier was successfully saved to SkyTalk customer retention." Below the message, there's a "View in project" button and a small diagram of a neural network. To the right of the message, a summary box shows: "Experiment completed" with "8 PIPELINES GENERATED", "8 pipelines generated from algorithms. See pipeline leaderboard below for more detail.", and "Time elapsed: 4 minutes".

21. Click **New asset +**.

The screenshot shows the 'Assets' tab in the workspace. A red box highlights the 'New asset +' button in the top right corner of the asset list table. The table lists three assets: 'SkyTalk churn prediction - P8 Extra Trees Classifier' (Model), 'SkyTalk churn prediction' (AutoAI experiment), and 'SkyTalk customer loyalty data.csv' (CSV). The 'Import assets' button is also visible above the table.

22. Repeat steps 4.6 – 4.21 to create another model to predict Skytalk's customer lifetime value.

- When repeating step 4.7, name the AutoAI experiment '**SkyTalk lifetime value prediction**'.
- When repeating step 4.12, select the **SkyTalk customer value data (2)** file.
- When repeating step 4.14, select the **Lifetimevalue**.

23. After saving starred pipeline as the **Skytalk lifetime value prediction** model, return to the project view by clicking **SkyTalk customer retention** in the breadcrumb menu.

The screenshot shows the 'SkyTalk customer retention' project view again. A red box highlights the breadcrumb menu at the top left. A success message box displays: "Saved model successfully. SkyTalk lifetime value prediction - P1 XGB Regressor was successfully saved to SkyTalk customer retention." Below the message, there's a "View in project" button and a small diagram of a neural network. To the right of the message, a summary box shows: "Experiment completed" with "8 PIPELINES GENERATED", "8 pipelines generated from algorithms. See pipeline leaderboard below for more detail.", and "Time elapsed: 3 minutes".

The two models display and are ready to be published in the deployment space.

This screenshot shows the 'Assets' tab in the IBM Watson Studio interface. On the left, there's a sidebar with 'Asset types' categories: Data (2), Experiments (2), and Models (2). The 'Models' category is highlighted with a red box. The main area lists 'All assets' with columns for 'Name' and 'Last modified'. Two specific assets are highlighted with red boxes: 'SkyTalk lifetime value prediction - P4 LGBM Regressor Model' and 'SkyTalk churn prediction - P8 Extra Trees Classifier Model'. Both were modified 'Now' by the user.

24. Hover the mouse over the first model and click **Promote to space**.

This screenshot shows the same 'Assets' tab in IBM Watson Studio. The 'Models' category in the sidebar is again highlighted with a red box. The main list of assets includes the two previously highlighted ones. A blue box highlights the 'Publish to catalog' button for the top model. A red box highlights the 'Promote to space' button for the second model. Red arrows point from the sidebar 'Models' box to the top model and from the sidebar 'Models' box to the second model.

25. Choose the **SkyTalk production space** (1) as the **Target space** and click **Promote** (2).

This screenshot shows the 'Promote to space' dialog box. At the top, it says 'Promote to space' and provides instructions about using deployment spaces. The 'Target space' dropdown is set to 'SkyTalk production space', which is circled with a red number 1. Below it is a checkbox 'Go to the model in the space after promoting it'. The 'Selected assets (1)' section shows a table with one asset: 'SkyTalk lifetime value prediction - P4 LGBM Regressor' (Model format). The 'Select version' section has a note: 'Promoting a version of an asset to a space creates a new asset in the space, with a new asset ID.' The 'Current' version is selected. The 'Description (optional)' field is empty. At the bottom right, the 'Promote' button is highlighted with a red box and circled with a red number 2.

26. Repeat steps 24 and 25 to promote the second model.

27. Return to the IBM Watson Studio home page then click **SkyTalk production space** in the deployment space section.

The screenshot shows the IBM Watson Studio home page. At the top, there are sections for 'Learn by example', 'Work with data', and 'Extend your capabilities'. Below this is a large graphic of a search interface with cubes and a waveform. On the left, a sidebar has 'Quick navigation' with 'Projects', 'Deployments', 'Support', and 'Documentation'. The main area is titled 'Overview' with three tabs: 'Projects', 'Notifications', and 'Deployments'. The 'Deployments' tab shows a notification for 'SkyTalk production space' with a timestamp of 'Today at 03:27 PM'. A red box highlights this notification.

28. Select the **Assets** tab.

The screenshot shows the 'SkyTalk production space' page. At the top, there are tabs for 'Overview' (selected) and 'Assets' (highlighted with a red box). Below this is a summary table with 'Deployments' (0 Deployed, 0 Failed) and 'Space activity' (No notifications). A blue button 'Add to space +' is visible. The 'Assets' tab shows a table with two rows:

Name	Last modified
SkyTalk churn prediction - P8 Extra Trees Classifier Model	45 seconds ago LAURENT TARIN (You)
SkyTalk lifetime value prediction - P4 LGBM Regressor Model	1 minute ago LAURENT TARIN (You)

29. The **Assets** tab displays. The two Machine learning services are ready to be deployed.

The screenshot shows the 'SkyTalk production space' page with the 'Assets' tab selected. A red box highlights the 'Assets' tab. To the right, there is an 'Import assets' section with a file upload area and a message: 'Stay on the page until upload completes. Incomplete uploads are cancelled.' The 'Assets' table shows the same two rows as the previous screenshot.

6 - Deploy the ML models

Note: Anytime your ML services are deployed, your Machine Learning Lite subscription quota is consumed. To avoid running out of Watson ML quota, undeploy your ML services whenever you are not practicing or giving this demo.

The 'Reset the demo to its beginning state' step on this page below contains the process to undeploy the services and stop the billing process.

Redeploy your ML services approximately 15 minutes prior to practicing or giving this demo.

1. From the Watson Studio environment, select the **SkyTalk production space** deployment space.

Welcome, Laurent!

Learn by example
Step through solving a specific business problem in a sample project.

Work with data
Create a project for your team to prepare data, find insights, or build models.

Extend your capabilities
Add tools, databases, or other features by creating services instances.

Take a guided tutorial
Create a project
Create a service

Quick navigation
Projects
Deployments
Support
Documentation

Overview

Projects Notifications Deployments

SkyTalk customer retention Nov 17, 2021 03:41 PM

Online deployment ready The online deployment Lifetime value in space SkyTalk production space is ready to accept new requests. Nov 19, 2021 01:54 PM

SkyTalk production space Nov 17, 2021 03:27 PM

2. Select the **Assets** tab.

IBM Watson Studio All Search Laurent Tarin's Account

Deployments /

SkyTalk production space

Overview Assets Deployments Jobs Manage

What assets are you looking for?

Drop files here or browse for files to upload.

Stay on the page until upload completes. Incomplete uploads are cancelled.

3. Deploy the **Skytalk churn prediction** by hovering your mouse over the right side of the corresponding row, clicking the rocket icon that appears, and clicking **Deploy**.

IBM Watson Studio All Search Laurent Tarin's Account

Deployments /

SkyTalk production space

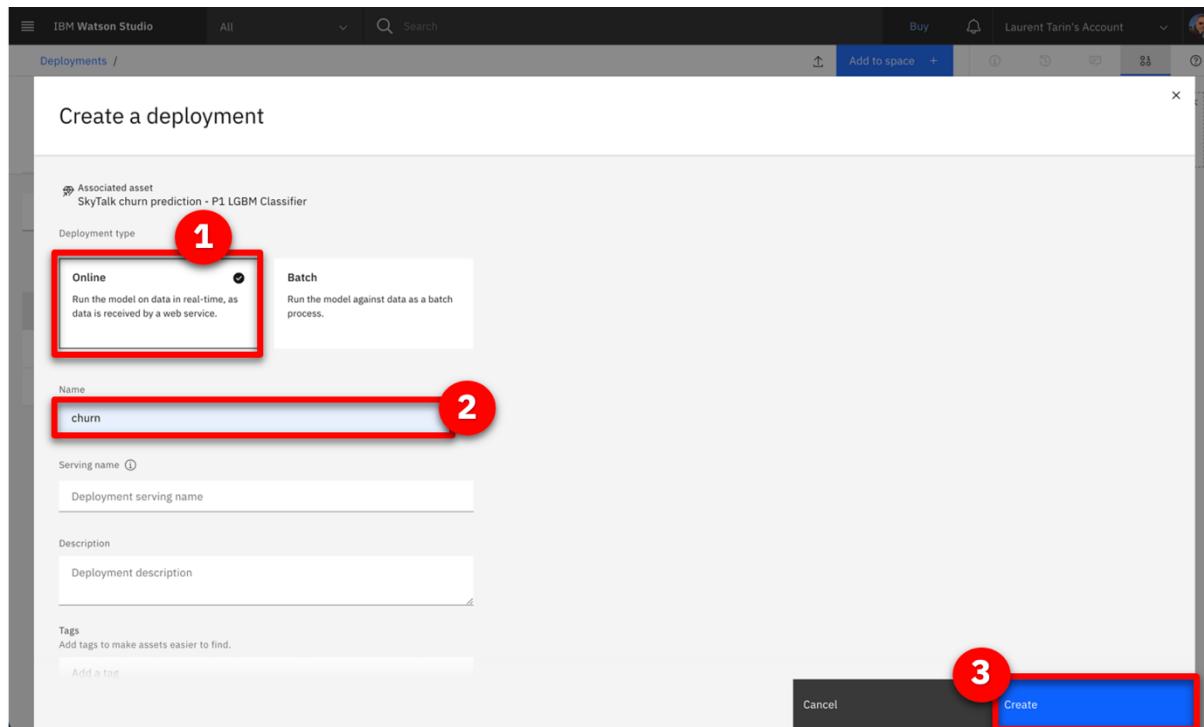
Overview Assets Deployments Jobs Manage

What assets are you looking for?

Models (2)

Name	Type	Software specification	Tags	Last modified	Action
SkyTalk churn prediction - P1 LGBM Classifier	wml-hybrid_0.1	hybrid_0.1		Nov 17, 2021 4:06 PM	Deploy
SkyTalk lifetime value prediction - P1 XGB Regress...	wml-hybrid_0.1	hybrid_0.1		Nov 17, 2021 4:05 PM	

4. Select **Online** (1), name the deployment **churn** (2), and click **Create** (3).

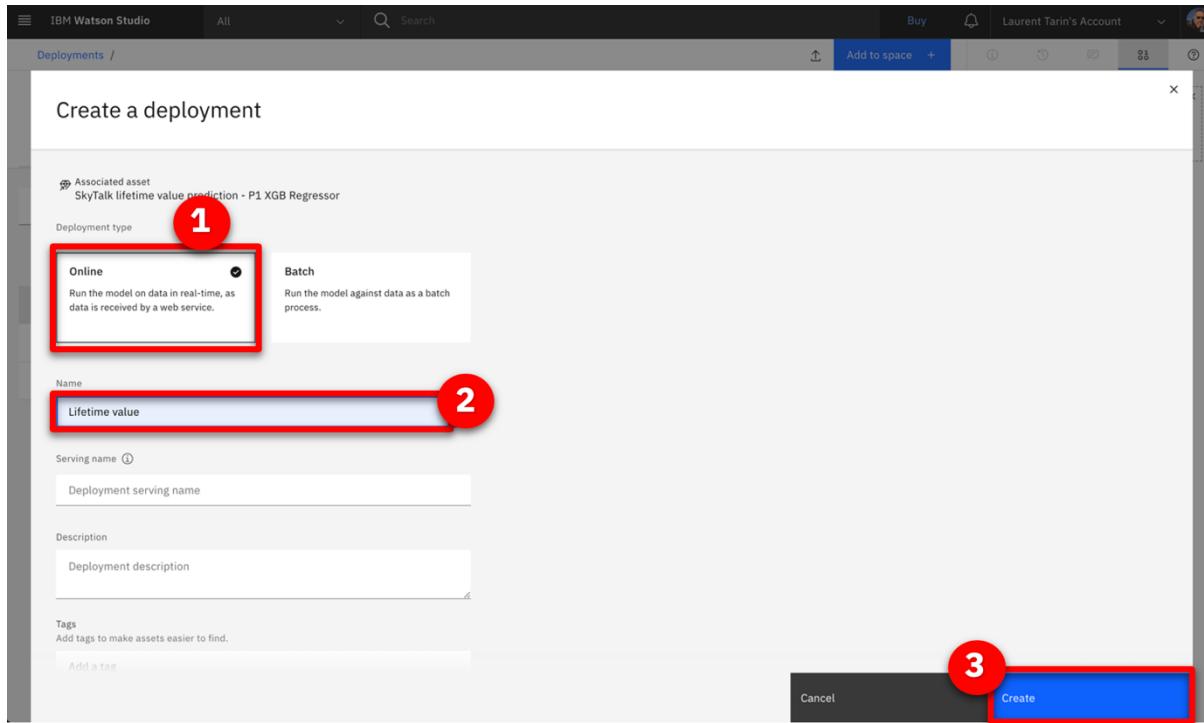


5. Deploy the **Skytalk lifetime value prediction** by hovering your mouse over the right side of the corresponding row, clicking the rocket icon that appears, and clicking **Deploy**.

The screenshot shows the 'Assets' tab in the 'SkyTalk production space'. It lists two models: 'SkyTalk churn prediction - P1 LGBM Classifier' and 'SkyTalk lifetime value prediction - P1 XGB Regress...'. The second model's row has a 'Deploy' button at the end, which is highlighted with a red rectangle and a red circle labeled '3'.

Name	Type	Software specification	Tags	Last modified
SkyTalk churn prediction - P1 LGBM Classifier	wml-hybrid_0.1	hybrid_0.1		Nov 17, 2021 4:06 PM
SkyTalk lifetime value prediction - P1 XGB Regress...	wml-hybrid_0.1	hybrid_0.1		Nov 17, 2021 4:05 PM

6. Select **Online** (1), name the deployment **Lifetime value** (2), and click **Create** (3).



7. Return to the **SkyTalk production space** using the breadcrumb menu and click the **Deployments** tab. Ensure the two services are deployed.

The screenshot shows the 'SkyTalk production space' dashboard. At the top, it says 'IBM Watson Studio' and 'All'. Below that, there's a search bar and an 'Add to space' button. The main area has tabs: 'Overview', 'Assets', 'Deployments' (which is highlighted with a red box and has a blue underline), 'Jobs', and 'Manage'. Under the 'Deployments' tab, there's a search bar with 'What deployments are you looking for?'. Below that, it says 'Deployments (2)'. A table lists two entries:

Name	Type	Status	Asset	Tags	Last modified
Lifetime value	Online	Deployed	SkyTalk lifetime value prediction - P1 XGB Regressor		Oct 12, 2021 2:47 PM
churn	Online	Deployed	SkyTalk churn prediction - P1 LGBM Classifier		Oct 12, 2021 2:46 PM

Two red arrows point to the 'Status' column for each row, highlighting the 'Deployed' status. The 'Lifetime value' entry also has a red arrow pointing to its name in the table header.

7 - Get the credentials to set up the ML provider

This section explains how to get the credentials to set up the machine learning provider in ADS.

1. In the **Deployments - SkyTalk production space**, select the **Deployments** tab (1) and click **churn** (2).

The screenshot shows the IBM Watson Studio interface. At the top, there's a navigation bar with 'IBM Watson Studio', a search bar, and an 'Upgrade' button. Below the navigation bar, the breadcrumb path shows 'Deployments / SkyTalk production space'. The main content area is titled 'SkyTalk production space' and contains tabs for 'Overview', 'Assets', 'Deployments' (which is highlighted with a red box and a red number '1'), 'Jobs', and 'Manage'. A search bar below the tabs says 'What deployments are you looking for?'. Under the 'Deployments' tab, it says 'Deployments (2)'. A table lists two entries: 'Lifetime value' (Online, Deployed) and 'churn' (Online, Deployed). The 'churn' entry is highlighted with a red box and a red number '2'.

2. Copy the first portion of the **Endpoint** URL path (the blue highlighted section in the screenshot) and save it for the upcoming ML provider configuration.

The screenshot shows the 'churn' deployment page. The breadcrumb path is 'Deployments / SkyTalk production space / SkyTalk churn prediction - P1 LG... /'. The main content area shows the deployment details: 'churn' (Deployed, Online). It has tabs for 'API reference' (which is selected) and 'Test'. Under 'API reference', there's a 'Direct link' section with an 'Endpoint' field containing the URL 'https://eu-gb.ml.cloud.ibm.com/m1/v4/deployments/1bccb4c0-fb58-4c2a-9246-3181...'. This URL is highlighted with a red box. To the right of the URL is a 'Bearer <token>' field and an 'IAM' button.

3. Click **SkyTalk product space** in the breadcrumb menu.

The screenshot shows the 'churn' deployment page again, but now the breadcrumb path includes 'SkyTalk product space' (highlighted with a red box). The rest of the interface is identical to the previous screenshot, showing the deployment details and the highlighted endpoint URL.

4. Select the **Manage** tab.

The screenshot shows the IBM Watson Studio interface. At the top, there's a navigation bar with 'IBM Watson Studio', a search bar, and a user account section. Below the navigation bar, a horizontal menu bar includes 'Deployments /' (highlighted in blue), 'Overview', 'Assets' (highlighted in blue), 'Deployments', 'Jobs', and 'Manage'. A red box highlights the 'Manage' tab. On the right side of the screen, there's a file upload area with a dashed box for dropping files, a note to stay on the page until upload completes, and a message about incomplete uploads.

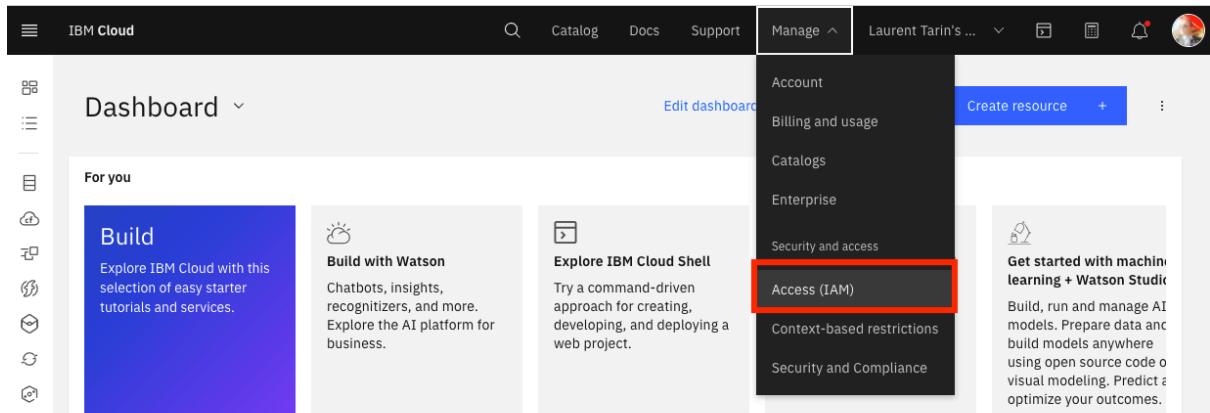
5. Copy the deployment **Space GUID** and save it for the upcoming ML provider configuration.

The screenshot shows the 'SkyTalk production space' details page in IBM Watson Studio. The left sidebar has sections for 'General', 'Access control', and 'Environments'. The main panel shows 'Space Details' with fields for 'Name' (SkyTalk production space), 'Description' (No description provided.), 'Space GUID' (374efdfd-7a04-432d-9bc1-fec6d6e56...), and 'Date created' and 'Last updated'. A red box highlights the 'Space GUID' field. To the right, there's a 'Cloud Object Storage' section with a 'Manage' button and a note about storage usage.

6. Log out and return to the IBM Cloud environment at cloud.ibm.com. Make sure you are in your personal Cloud Pak for Data instance.

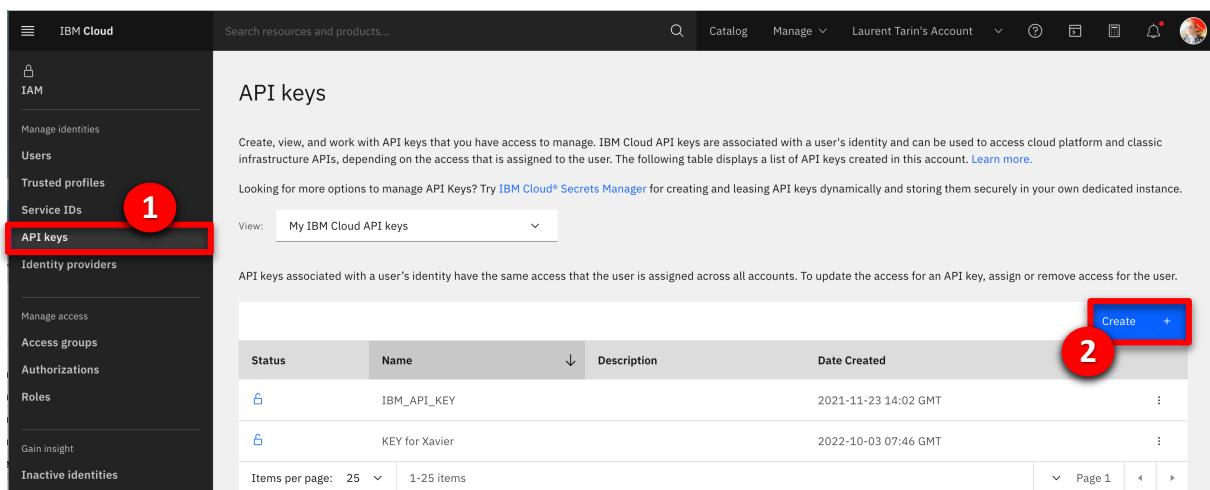
The screenshot shows the IBM Cloud dashboard. At the top, there's a navigation bar with 'IBM Cloud', a search bar, and a user account section ('Laurent Tarin's ...'). A red box highlights the user account dropdown. The main dashboard area has a 'Dashboard' section with a 'For you' grid. The first item in the grid is 'Build' with a sub-description: 'Explore IBM Cloud with this selection of easy starter tutorials and services.' Other items include 'Build with Watson', 'Explore IBM Cloud Shell', 'Visit the IBM Cloud catalog', and 'Get started with machine learning + Watson Studio'. Each item has a 'Getting started' button and a duration (e.g., 2 min, 1 min, 10 min).

7. Click the **Manage** tab and select **Access (IAM)**.



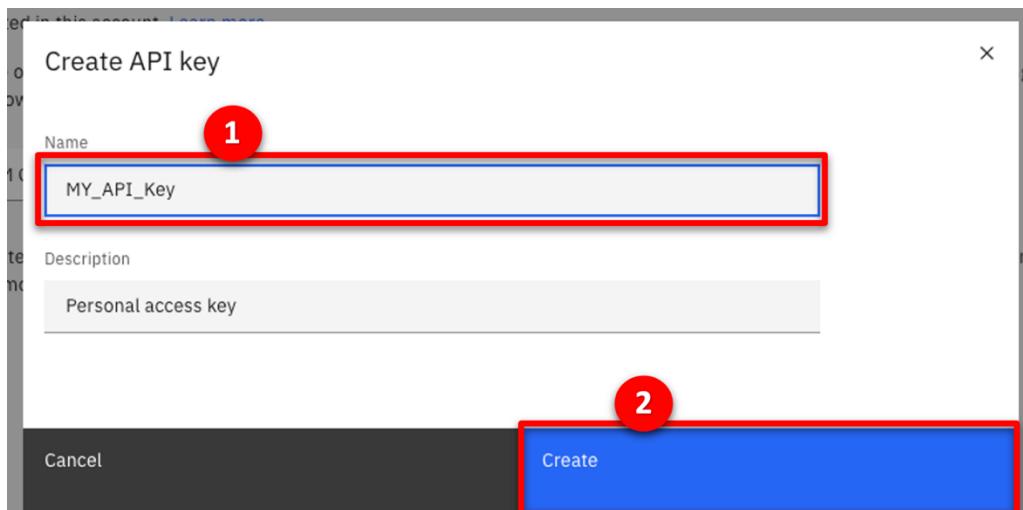
The screenshot shows the IBM Cloud dashboard. At the top, there's a navigation bar with 'IBM Cloud' on the left and 'Catalog', 'Docs', 'Support', 'Manage', and a user profile on the right. A dropdown menu labeled 'Manage' is open, showing options like 'Account', 'Billing and usage', 'Catalogs', 'Enterprise', 'Security and access', and 'Access (IAM)'. The 'Access (IAM)' option is highlighted with a red box and a red circle with the number '1'. To the right of the menu, there are several cards: 'Build', 'Build with Watson', 'Explore IBM Cloud Shell', and 'Get started with machine learning + Watson Studio'. Below the dashboard, there's a sidebar with various management sections, and a main content area with a table of API keys.

8. Click **API keys** (1) and then click **Create +** (2).



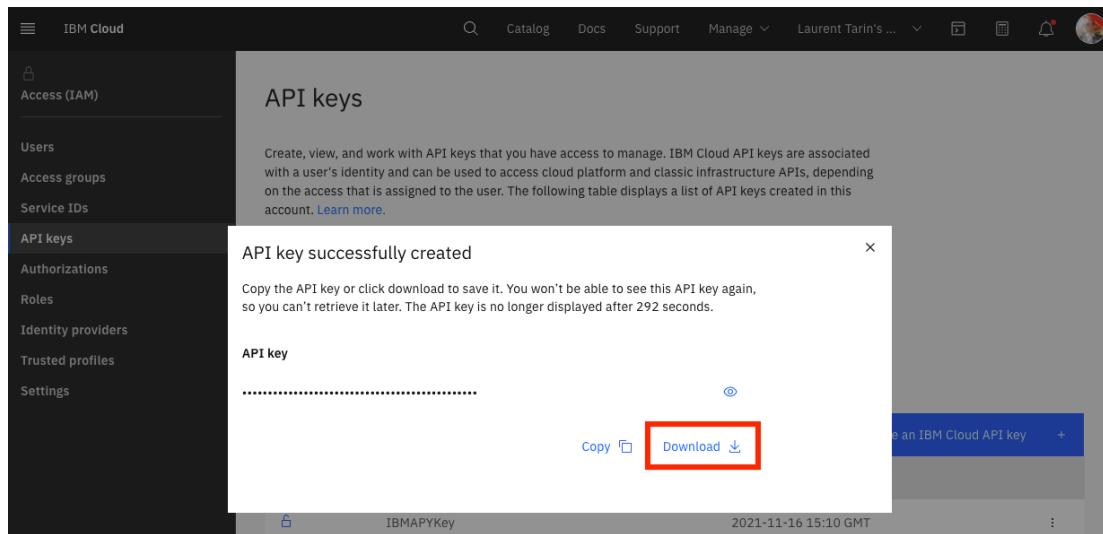
This screenshot shows the 'API keys' page under the 'Manage identities' section of the IBM Cloud interface. On the left, a sidebar lists 'API keys' (marked with a red box and a red circle with '1') and other identity-related options like 'Users', 'Trusted profiles', and 'Service IDs'. The main content area displays a table of existing API keys. The first key is named 'IBM_API_KEY' and was created on '2021-11-23 14:02 GMT'. The second key is named 'KEY for Xavier' and was created on '2022-10-03 07:46 GMT'. At the top right of the table, there's a blue 'Create +' button (marked with a red box and a red circle with '2').

9. Name the key '**MY_API_Key**' (1) and click **Create** (2).



This screenshot shows the 'Create API key' dialog box. It has a 'Name' input field where 'MY_API_Key' is typed (marked with a red box and a red circle with '1'). Below it is a 'Description' input field containing 'Personal access key'. At the bottom of the dialog, there are two buttons: 'Cancel' on the left and a large blue 'Create' button on the right (marked with a red box and a red circle with '2').

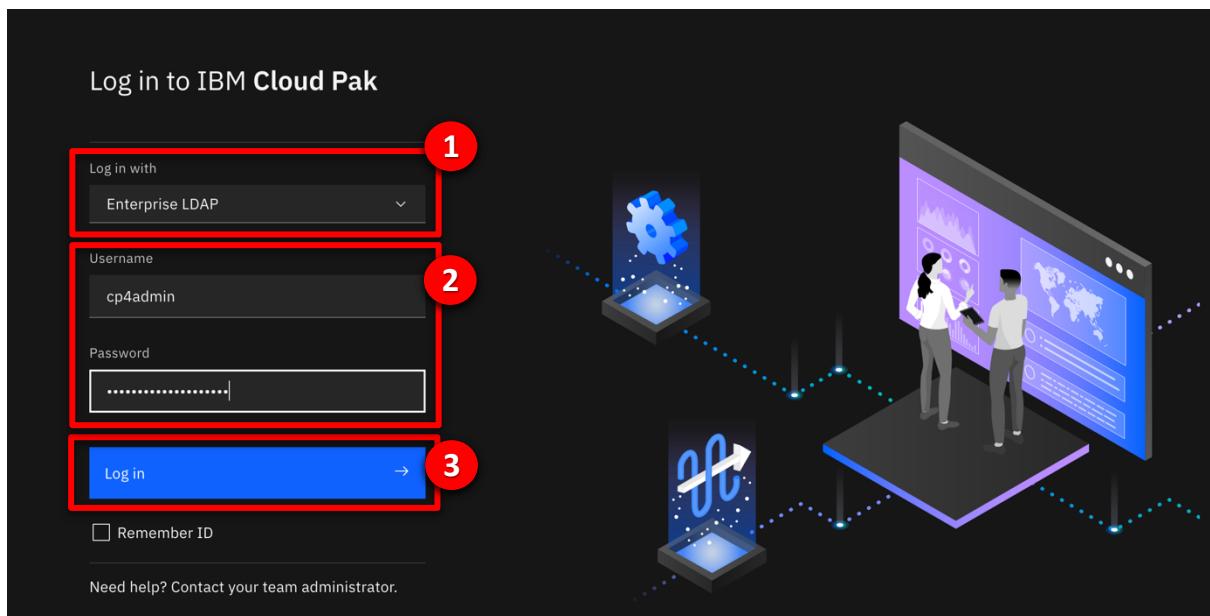
10. Click **Download** to save the **API key file** for the upcoming ML provider configuration.



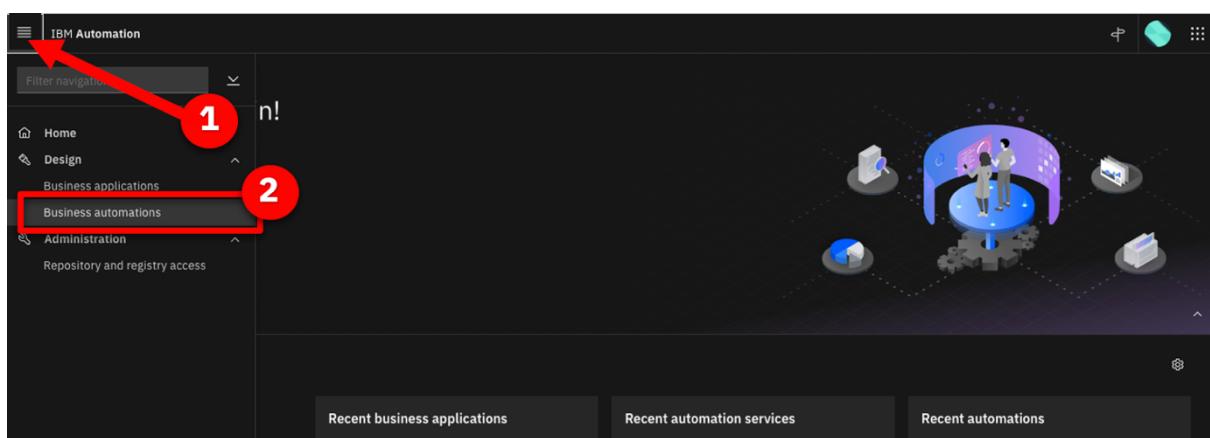
8 - Open Automation Decision Services (ADS) and import the ADS demo project

Prior to performing this step, make sure you have downloaded the [SkyTalk-customer-retention_22.0.2.zip](#) file. This file is required to set up the ADS decision service.

1. Access Cloud Pak for Business Automation using the URL saved in step 2. Select **Enterprise LDAP** in the **Log in with** drop down menu (1). Enter ‘cp4admin’ as the **Username** and the **Password** (2) from your note. Click **Log in** (3).

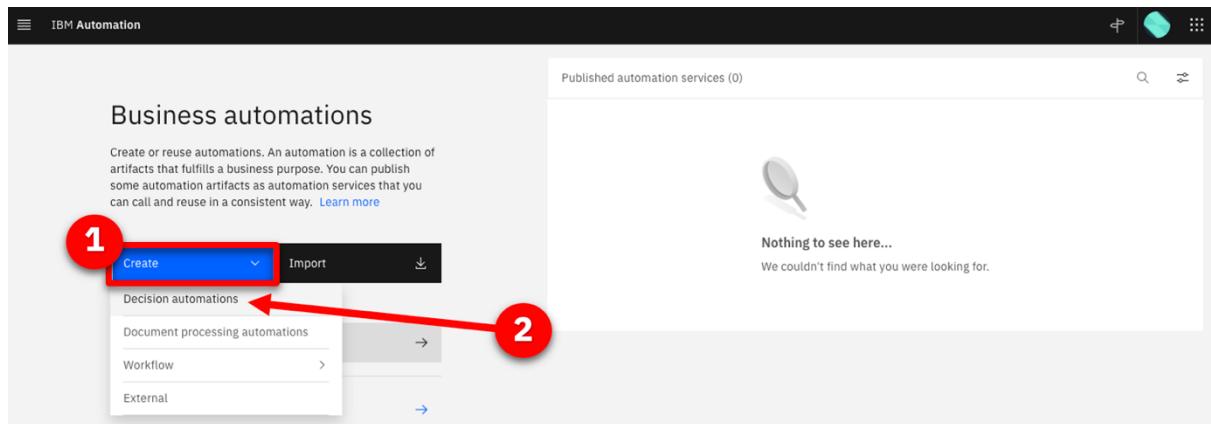


2. Expand the **top menu** (1) and click **Business automations** (2).

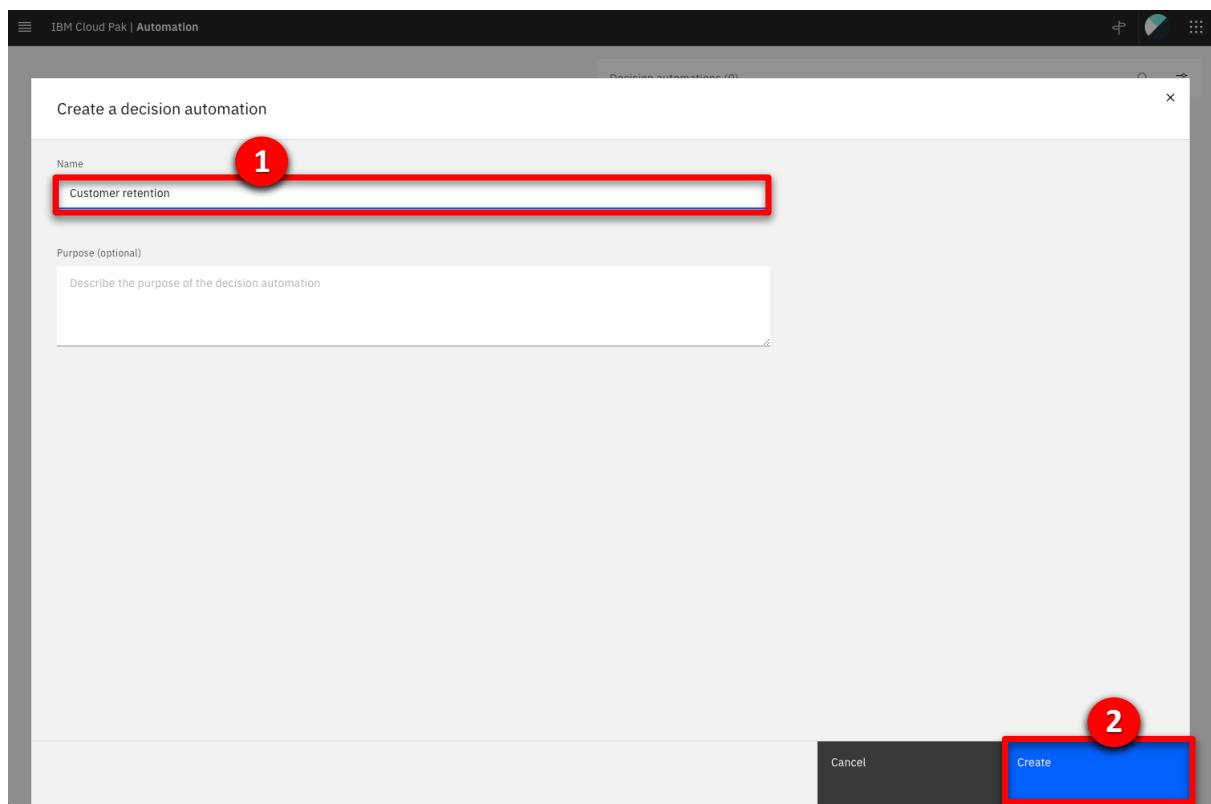


3. Pass through the privacy warning messages by clicking **advanced** and then the “**proceed...**” link.

4. Under **Business automations**, click **Create** and select **Decision automations**.



5. Name the automation '**Customer retention**' (1) and then click **Create** (2).



6. Accept any privacy checks that may appear.



Your connection is not private

Attackers might be trying to steal your information from **designer-ads-dtecp4ba.dteroks-270002541s-jqqmj-4b4a324f027aea19c5cbc0c3275c4656-0000.eu-de.containers.appdomain.cloud** (for example, passwords, messages or credit cards). [Learn more](#)
NET::ERR_CERT_AUTHORITY_INVALID

To get Chrome's highest level of security, [turn on enhanced protection](#)

[Hide advanced](#)

[Back to safety](#)

This server could not prove that it is **designer-ads-dtecp4ba.dteroks-270002541s-jqqmj-4b4a324f027aea19c5cbc0c3275c4656-0000.eu-de.containers.appdomain.cloud**; its security certificate is not trusted by your computer's operating system. This may be caused by a misconfiguration or an attacker intercepting your connection.

[Proceed to designer-ads-dtecp4ba.dteroks-270002541s-jqqmj-4b4a324f027aea19c5cbc0c3275c4656-0000.eu-de.containers.appdomain.cloud \(unsafe\)](#)

7. Close any guided tour views.

8. Click **New decision**.

The screenshot shows the IBM Cloud Pak Administration interface. In the center, there's a section titled "Customer retention". At the bottom right of this section, there is a blue button labeled "New decision" with a plus sign. The entire "New decision" button is highlighted with a red box.

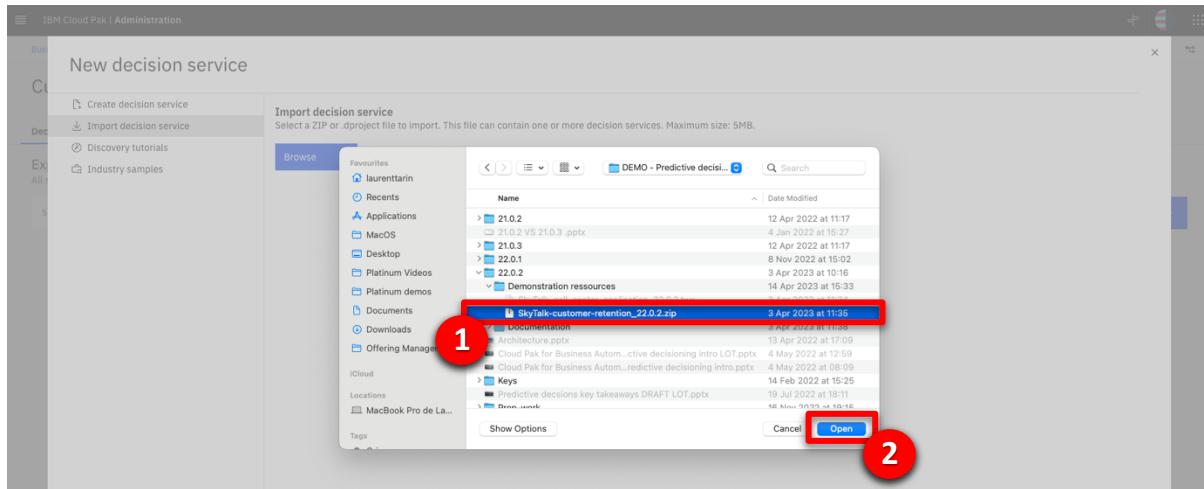
9. Click **Import decision service**.

The screenshot shows a modal dialog box titled "New decision service". On the left, there's a sidebar with options: "Create decision service", "Import decision service" (which is selected and highlighted with a red box), "Discovery tutorials", and "Industry samples". The main area of the dialog has a sub-header "Create decision service" and a sub-instruction "Create an empty decision service and build your decision.". Below this is a text input field labeled "Name" with the placeholder "Enter a name for this decision service".

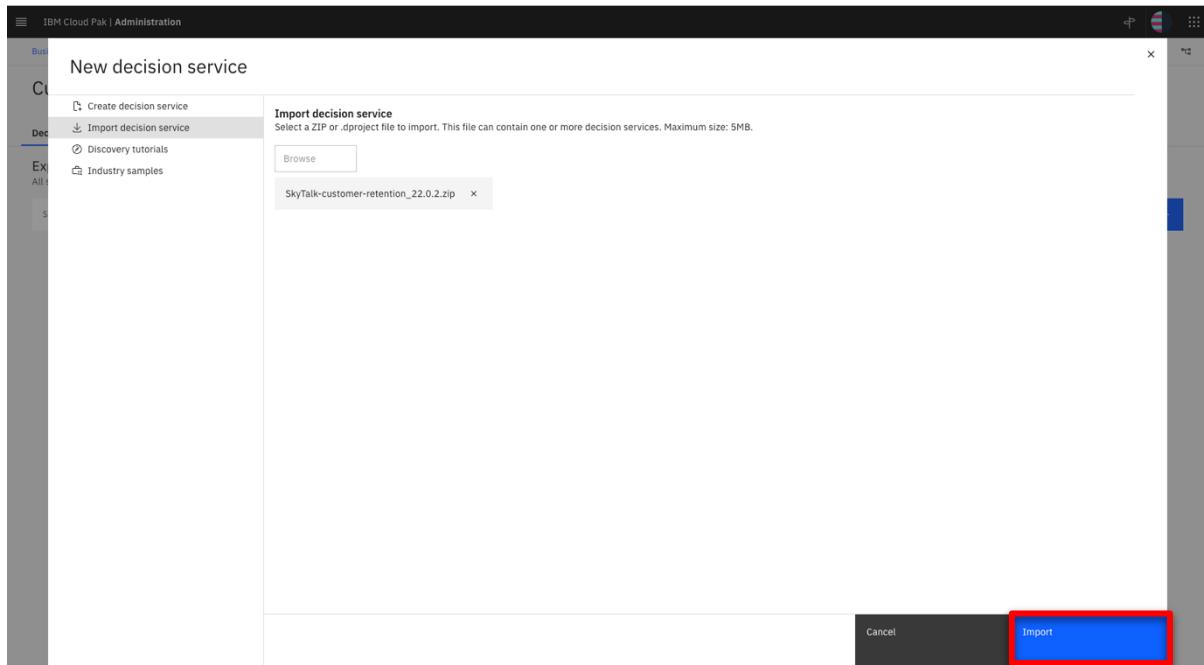
10. Click **Browse**.

The screenshot shows the same "New decision service" dialog box as the previous screenshot, but now the "Import decision service" section is active. The instructions say "Select a ZIP or .dproject file to import. This file can contain one or more decision services. Maximum size: 5MB." Below these instructions is a "Browse" button, which is also highlighted with a red box.

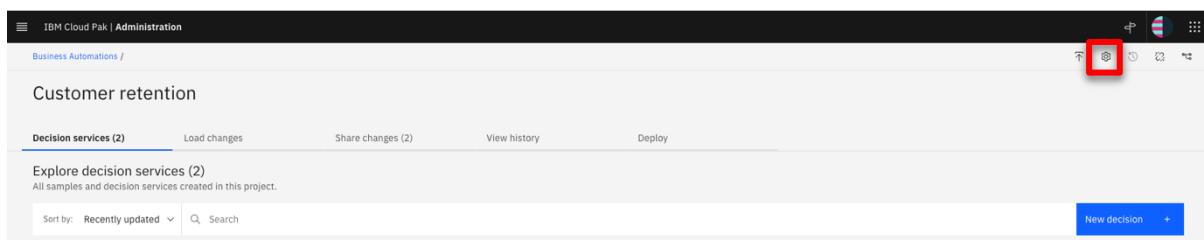
11. Select the **SkyTalk-customer-retention_22.0.2.zip** (1) file and click **Open** (2).



12. Click **Import**.



13. Configure the ADS environment by clicking on the **Settings** icon.



14. In the **Remote Git repositories** tab, paste the git **Repository URL** (1) from step 2.3. Click **API Key** (2) and enter the git **Personal access token (API key)** from step 2.10 (3). Click **Connect** (4).

15. Ensure the **Remote Git repository** status is successfully connected.

To perform the following steps, your two machine learning services must be deployed in the Watson Studio deployment environment.

16. Click the **Machine learning providers** tab to configure the machine learning provider.

17. Click **New +**.

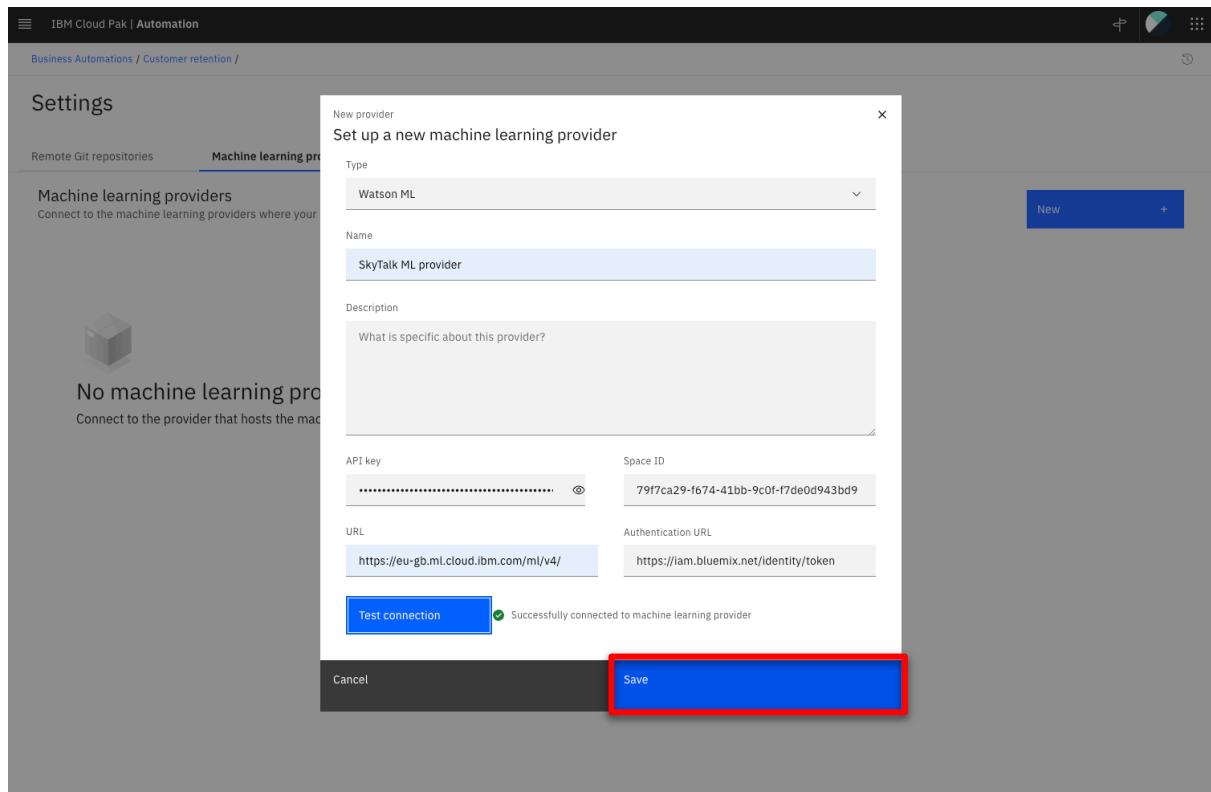
The screenshot shows the 'Machine learning providers' tab selected in the navigation bar. Below it, a list of providers is shown with a single entry: 'Machine learning providers'. To the right of this list is a blue button labeled 'New +' with a red box drawn around it.

18. Select the **Watson ML** (1) machine provider type and name the ML provider **SkyTalk ML provider** (2). Enter the **API key** (3), **Space ID** (4), and **URL** (5) from step 6.5 and click **Test connection** (6).

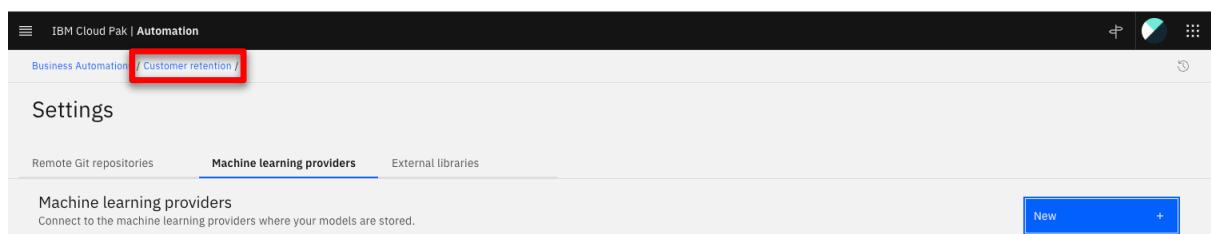
Note: The **Space ID** is the Space **GUID**.

The screenshot shows a modal dialog titled 'Set up a new machine learning provider'. Inside, the 'Type' dropdown is set to 'Watson ML' (1) and the 'Name' input field is filled with 'SkyTalk ML provider' (2). The 'Description' section is empty. In the 'API key' field (3), the value 'RXPILwa-k18Mj4jr_Cvr4kDoJXzcYm|' is entered. In the 'Space ID' field (4), the value '124bed3a-bc9d-41f6-9ecb-46cbf2d6360f' is entered. In the 'URL' field (5), the value 'https://eu-gb.ml.cloud.ibm.com/ml/v4/' is entered. At the bottom, the 'Test connection' button (6) is highlighted with a red box.

19. If the connection is successful, click **Save**.



20. Click **Customer retention** in the breadcrumb menu.



9 - Update the decision model with the deployed ML models

1. Click the **Retention ML** tile.

The screenshot shows the IBM Cloud Pak | Automation interface. At the top, there's a navigation bar with icons for search, refresh, and more. Below it, the title 'Customer retention' is displayed. Underneath, there's a section for 'Decision services (2)'. One service, 'Initial retention', is listed with a brief description. The second service, 'Retention ML', is highlighted with a red box. It also has a brief description and a 'Configure' button.

2. Click the **Customer Churn** model on the **Models** tab.

The screenshot shows the 'Models' tab in the IBM Cloud Pak | Automation interface. The 'Customer Churn' model is selected and highlighted with a red box. Other models listed are 'Customer Lifetime Value' and 'Retention offer'. Each model has a brief description below it.

3. Click **Configure**.

The screenshot shows the configuration screen for the 'Customer Churn' model. On the left, there's a sidebar with various icons. The main area shows a flowchart with components: 'Output mapping number', 'ML model invocation ML model output', 'Input mapping ML model input', 'Subscription subscription', and 'Customer customerRecord'. Arrows indicate the flow between these components. On the right, there's a panel for 'Customer Churn' with sections for 'Description (optional)', 'Machine learning model', and a 'Configure' button, which is highlighted with a red box.

4. Select **Remote machine learning model** (1) and click **Next** (2).

Configure predictive model

Choose configuration method

Remote machine learning model
Connect to a remote machine learning service to configure the invocation of a machine learning model.

Local machine learning model
Import a transparent machine learning model for local predictions.

Back Next

5. Select **SkyTalk ML provider** as the **Machine learning provider**.

Configure predictive model

Select provider

Select the provider where your deployed model is stored.

Machine learning provider

SkyTalk ML provider

New provider +

Back Next

6. Expand the **SkyTalk churn prediction model** (1), select the **churn** deployment (2), and click **Next** (3).

Configure predictive model

Select provider

Select the provider where your deployed model is stored.

Machine learning provider

SkyTalk ML provider New provider +

Select machine learning model deployment

Select the deployment you want to use to generate the predictive model.

Show deployed models only Import

ML model name	Training date	Last modified
SkyTalk lifetime value prediction - P1 XGB Regressor	10/12/2021, 2:24:10 PM	10/12/2021, 2:24:11 PM
SkyTalk churn prediction - P1 LGBM Classifier	10/12/2021, 2:24:37 PM	10/12/2021, 2:24:38 PM

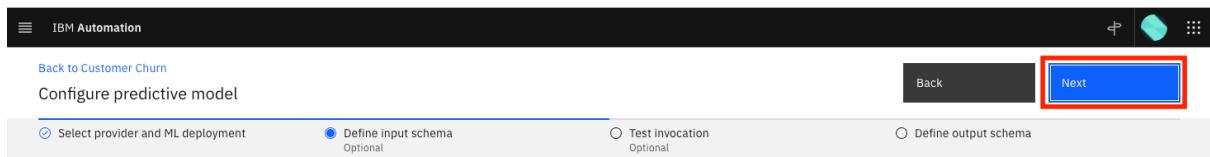
Deployment name: **churn**

Status: ready

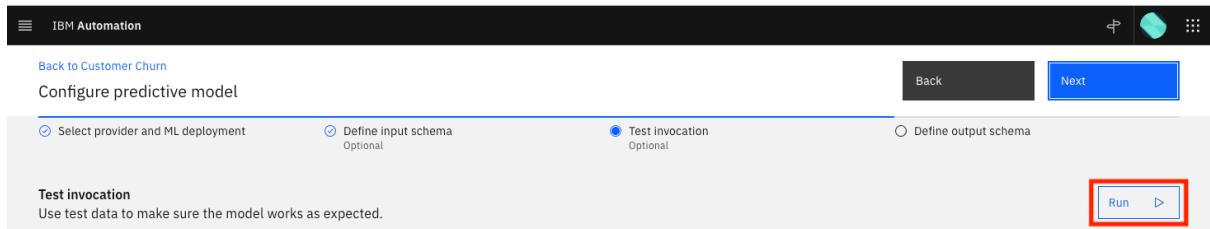
Deployment date: 10/13/2021, 9:46:07 AM

Back Next

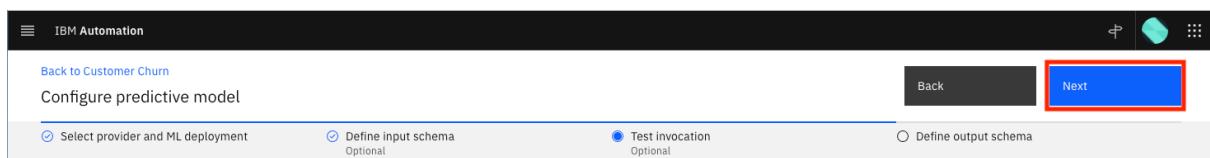
7. Click **Next.**



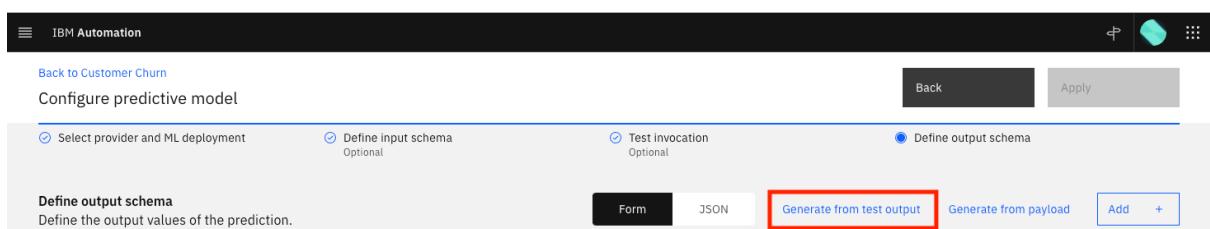
8. Click **Run to test the invocation.**



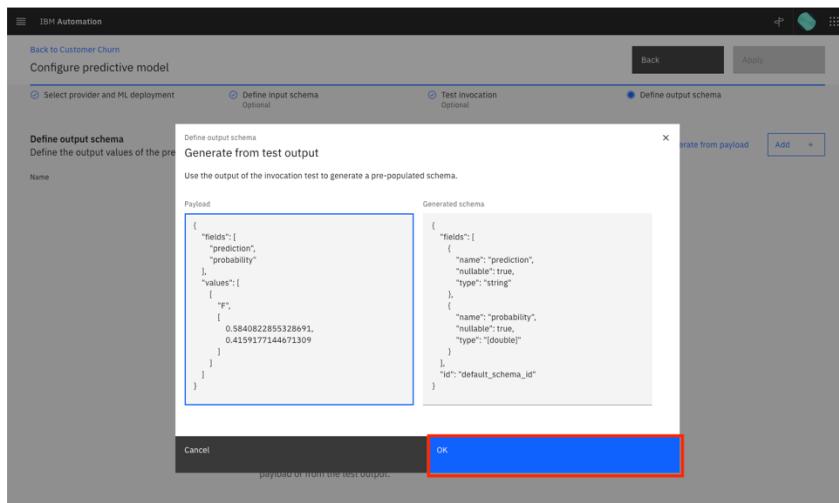
9. If the test succeeds, click **Next.**



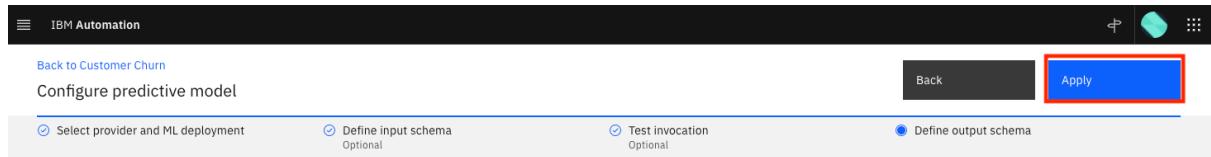
10. Click **Generate from test output.**



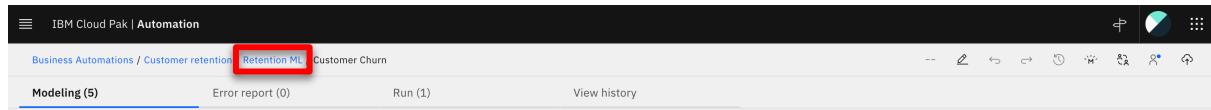
11. Click **OK.**



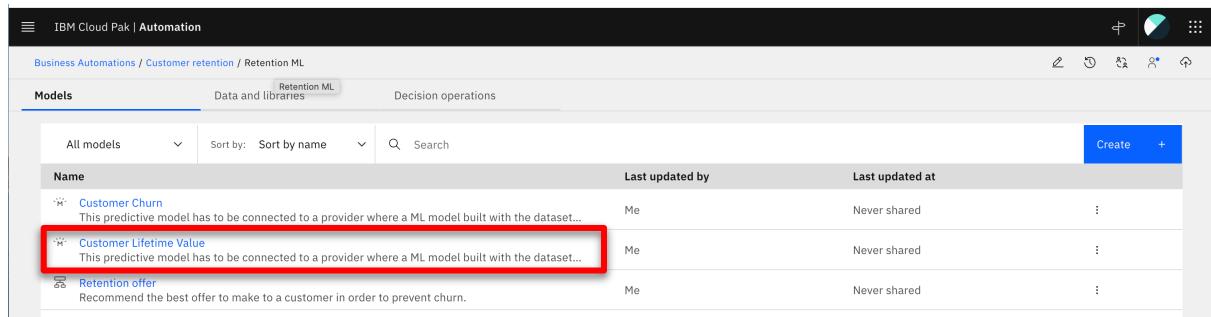
12. Click **Apply**.



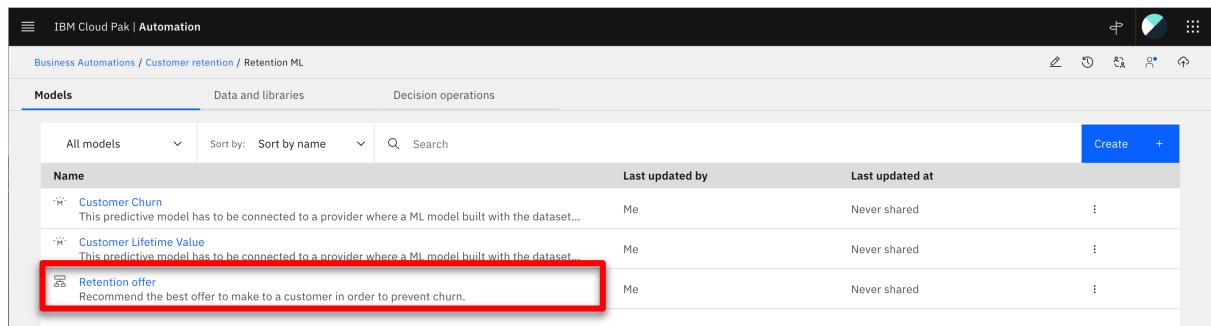
13. Click **Retention ML** in the breadcrumb menu.



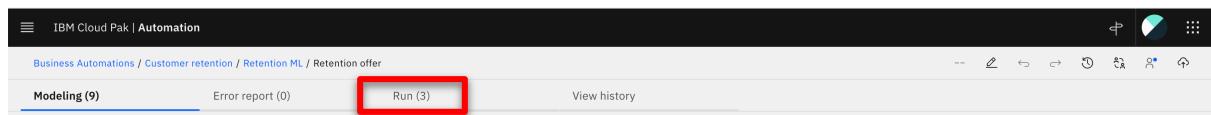
14. Click **Customer Lifetime Value** and repeat steps 8.3 - 8.13 to configure the model. When repeating step 8.6, expand the **Skytalk lifetime value prediction** ML model and select **Customer lifetime value**.



15. Click the **Retention offer** model.

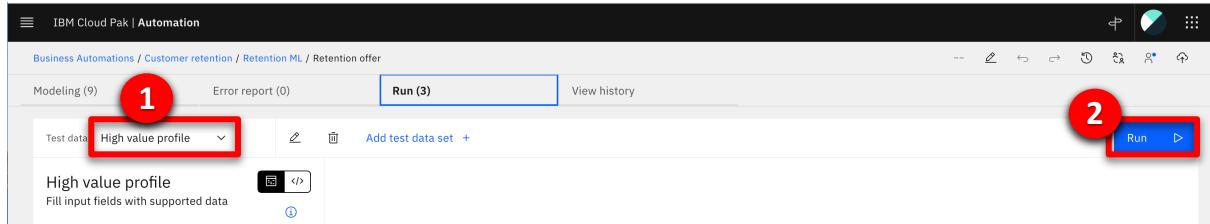


16. Select the **Run** tab.



17. Select the **High value profile** test file (1) and click **Run** (2).

The retention offer **Result** should display. Click **Run** again if you get a timeout error the first time.



Your result should match the below:

A screenshot of the IBM Cloud Pak | Automation interface showing the results of the 'High value profile' run. The top navigation and toolbar are identical to the previous screenshot. The main content area shows the 'High value profile' dropdown still selected. On the right, the 'Run (3)' tab is active. Below it, the 'High value profile' section shows input fields like 'customer', 'car_owner', 'estimated_income' (with value '38000'), and 'gender'. To the right, under 'Decision output', is a section titled 'Node Name' with 'Determine retention offer'. Under 'Result', there is a red box highlighting the JSON output:

```
{"estimated_cost":34.35,"message":"Upgrade Sarah Miller to PREMIUM with a 1"}
```

. Below the JSON is a 'Show more' link. To the right of the JSON is a 'Show JSON output' link.

10 - Deploy the decision service

1. Click **Customer retention** in the breadcrumb menu.

The screenshot shows the IBM Cloud Pak | Automation interface. The breadcrumb menu at the top indicates the current location: Business Automations / Customer retention / Retention ML / Retention offer. Below the menu, there are tabs for Modeling (9), Error report (0), Run (3) (which is highlighted in blue), and View history. A toolbar below these tabs includes buttons for Test data, High value profile, Add test data set, and Run.

2. Select the **Share changes** tab.

The screenshot shows the 'Customer retention' page. At the top, there are tabs for Decision services (2), Load changes, Share changes (2) (which is highlighted in red), View history, and Deploy. Below the tabs, a section titled 'Explore decision services (2)' lists all samples and decision services created in the project. The 'Share changes' tab is currently active.

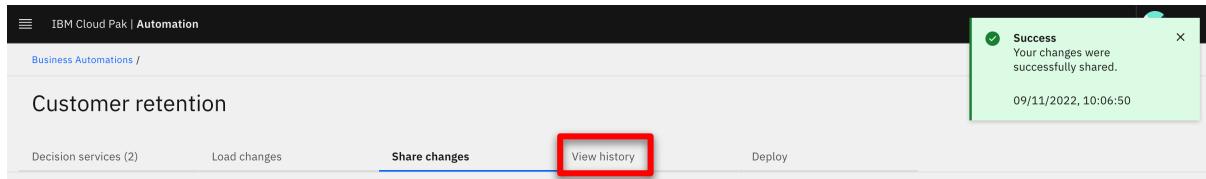
3. Click the **share all changes** box (1) and click **Share** (2).

The screenshot shows the 'Share changes' table. The first column contains checkboxes, with the first one checked and circled in red (labeled 1). The second column lists 'Decision service name' and 'Name'. The third column shows 'Updated artifacts' and 'Type'. The fourth column shows 'Details' and 'Last updated'. In the top right corner of the table, there are 'Revert changes' and 'Share' buttons. The 'Share' button is highlighted with a red circle and labeled 2.

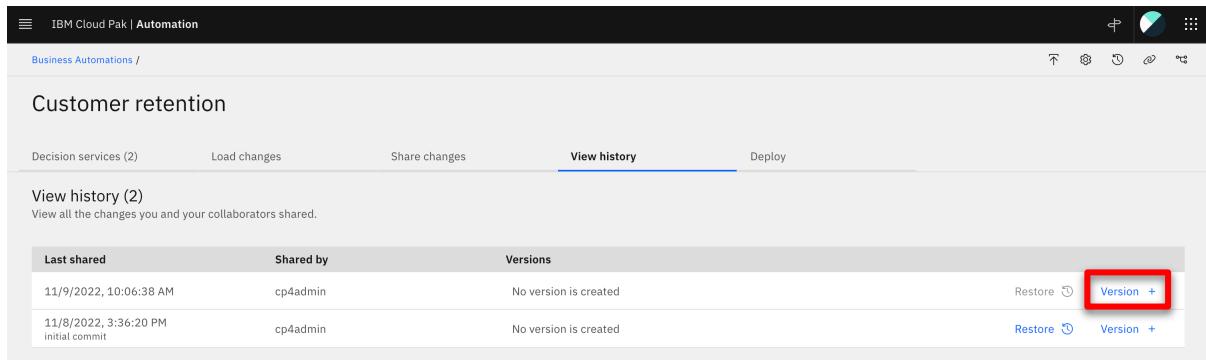
4. Click **Share** to push the updates to the git repository.

The screenshot shows the 'Share' dialog box. It contains a list of items to be shared, including 'Initial retention' and 'Retention ML'. Below this is a section for 'Describe the changes (optional)' with a text input field containing the placeholder 'Why did you make these changes?'. At the bottom of the dialog box, there are 'Cancel' and 'Share' buttons, with the 'Share' button highlighted with a red rectangle.

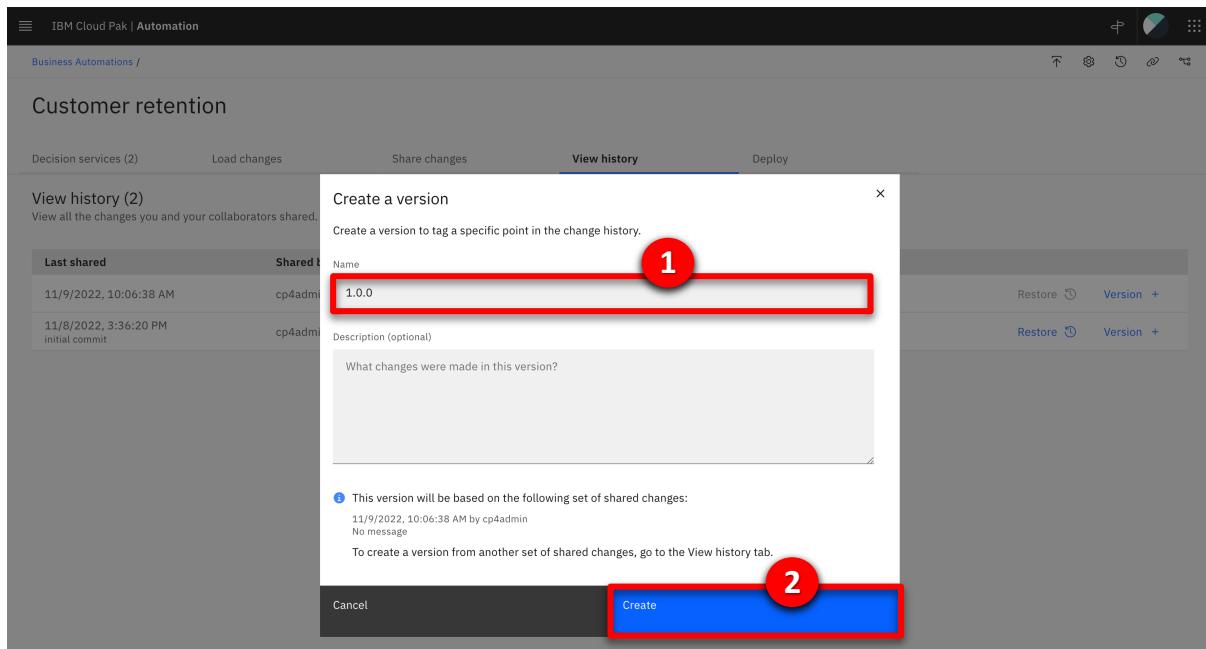
5. Click the **View history** tab.



6. Refresh the page and then click **Version +** in the latest shared history.



7. Enter version “**1.0.0**” (1) in the **Name** field and click **Create** (2).



8. Click the **Deploy** tab.

Customer retention

Decision services (2) Load changes Share changes View history Deploy

View history (2)
View all the changes you and your collaborators shared.

Last shared	Shared by	Versions
11/9/2022, 10:06:38 AM	cp4admin	1.0.0 X
11/8/2022, 3:36:20 PM initial commit	cp4admin	No version is created

Restore Version + Restore Version +

9. Expand the most recently created version (**1.0.0**) (1) and click **Deploy** (2) in the **Retention ML** row.

Customer retention

Decision services (2) Load changes Share changes View history Deploy

Deploy
Deploy a decision service. You can then publish it to the automation services catalog.

Version	Shared on	Shared by
1.0.0	11/9/2022, 10:11:09 AM	cp4admin

Decision service	Deployment status	Decision ID
Initial retention	Not deployed	-
Retention ML	Not deployed	-

Undeploy Deploy

Undeploy Deploy

Items per page: 20 1–1 of 1 items

10. Click **Deploy** to confirm.

Customer retention

Decision services (2) Load changes Share changes View history Deploy

Deploy
Deploy a decision service. You can then publish it to the automation services catalog.

Version	Shared on	Shared by
1.0.0		

Retention ML

Deploy decision service

The deployment might take a while.
You can continue to work in the application while deployment runs in the background.

Cancel Deploy

11. Wait for the deployment to finish (1). Click **Business Automations** (2) in the breadcrumb menu.

The screenshot shows the 'Customer retention' page in the IBM Cloud Pak | Automation interface. At the top, there's a breadcrumb menu with 'Business Automations /'. A red circle labeled '2' is over the 'Business Automations' part. Below it, the page title is 'Customer retention'. There are tabs for 'Decision services (2)', 'Load changes', 'Share changes', 'View history', and 'Deploy', with 'Deploy' being the active tab. Under the 'Deploy' tab, there's a section titled 'Deploy' with a sub-instruction: 'Deploy a decision service. You can then publish it to the automation services catalog.' Below this is a table:

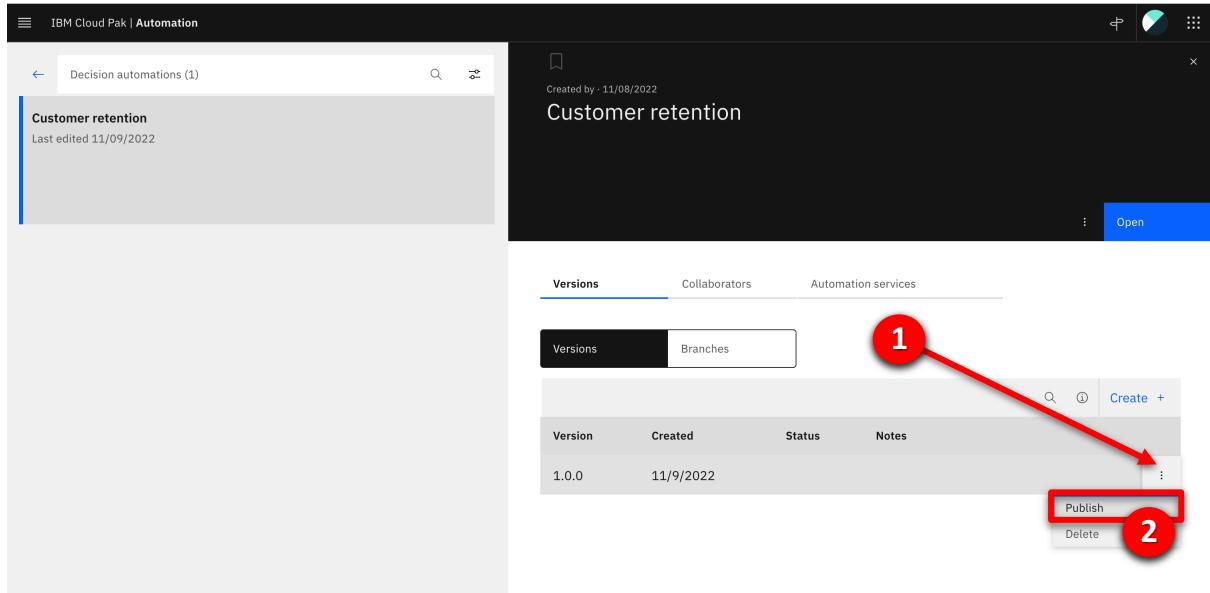
Version	Shared on	Shared by
1.0.0	11/9/2022, 10:11:09 AM	cp4admin
Decision service	Deployment status	Decision ID
Initial retention	Not deployed	-
Retention ML	<p>Deployed on 11/9/2022, 10:13:33 AM ↗ No Test executed</p> <p>1</p>	cp4admin/customer_retention/retention_ml/retentio... ↗

At the bottom, there are pagination controls: 'Items per page: 20' and '1–1 of 1 items'. On the right, there are 'Undeploy' and 'Deploy' buttons for the Retention ML row.

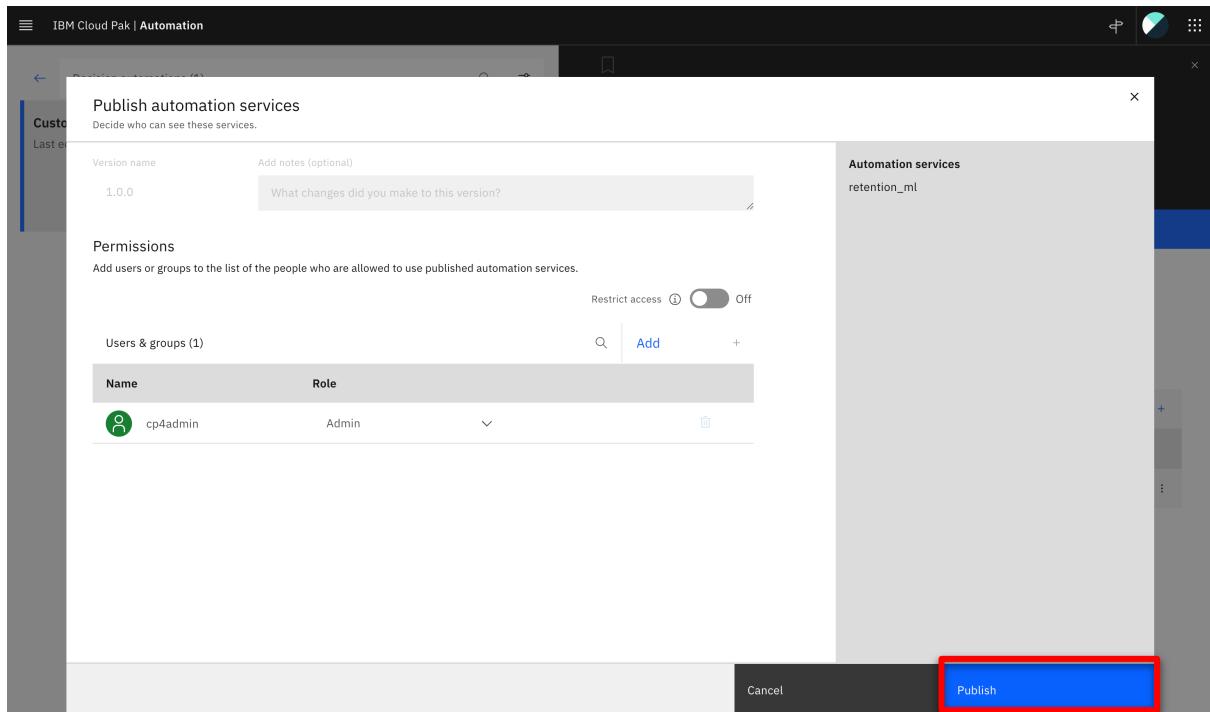
12. Select **Decision** and then click the **Customer retention** tile.

The screenshot shows the 'Business automations' page in the IBM Cloud Pak | Automation interface. At the top, there's a breadcrumb menu with 'Business Automations /'. A red circle labeled '2' is over the 'Business Automations' part. Below it, the page title is 'Business automations'. There's a brief description: 'Create or reuse automations. An automation is a collection of artifacts that fulfills a business purpose. You can publish some automation artifacts as automation services that you can call and reuse in a consistent way.' Below this is a 'Learn more' link. There are buttons for 'Create' and 'Import'. On the left, there's a sidebar with 'Published automation services' and a list: 'Decision' (with a red box around it and a red circle labeled '1'), 'Document processing', 'Workflow', and 'External'. To the right, there's a main area titled 'Decision automations (1)' with a single item: 'Customer retention' (with a red box around it and a red circle labeled '2'). Below it, it says 'Last edited 11/09/2022'.

13. The most recently deployed service displays. Wait 5 minutes and then click the **three dots** icon (1). Select **Publish** (2).



14. Click **Publish**.



Note: If the publish fails, just wait for 5 minutes and try again. Some deployment operations may be still occurring in background.

15. Ensure the service appears as **Published.**

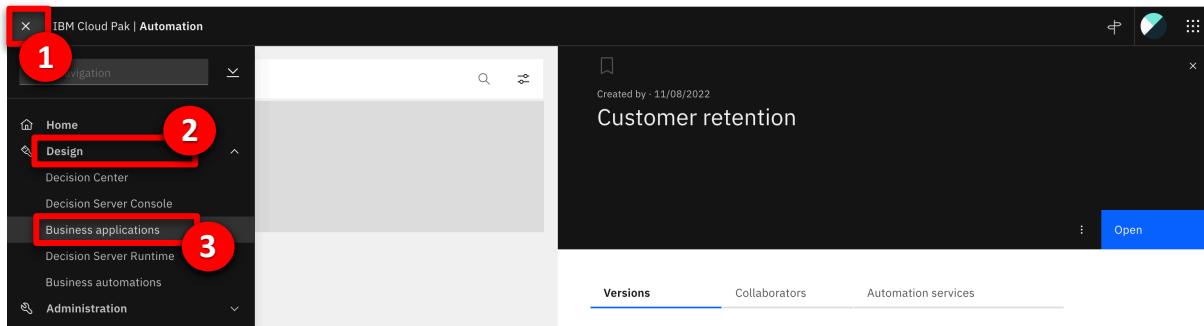
The screenshot shows the IBM Cloud Pak | Automation interface. On the left, there's a sidebar titled "Decision automations (1)" with a single item named "Customer retention" last edited on 11/09/2022. The main panel displays the "Customer retention" service details, including its creation date (11/08/2022). Below this, there are tabs for "Versions" (which is selected), "Collaborators", and "Automation services". Under the "Versions" tab, there's a table with columns: Version, Created, Status, and Notes. A single row is shown: Version 1.0.0, Created 11/9/2022, Status (highlighted with a red arrow) is "Published", and Notes are empty. There are also "Create +" and three-dot menu buttons.

Version	Created	Status	Notes
1.0.0	11/9/2022	Published	

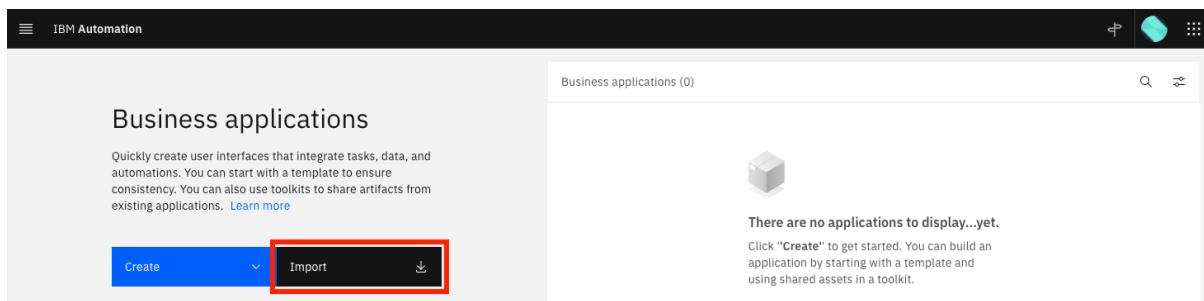
11 - Configure Application Designer and import the client application

Prior to performing this step, make sure you have downloaded the [SkyTalk_call_center_application_22.0.2.twx](#) archive file. This file is required to set-up the ADS decision service.

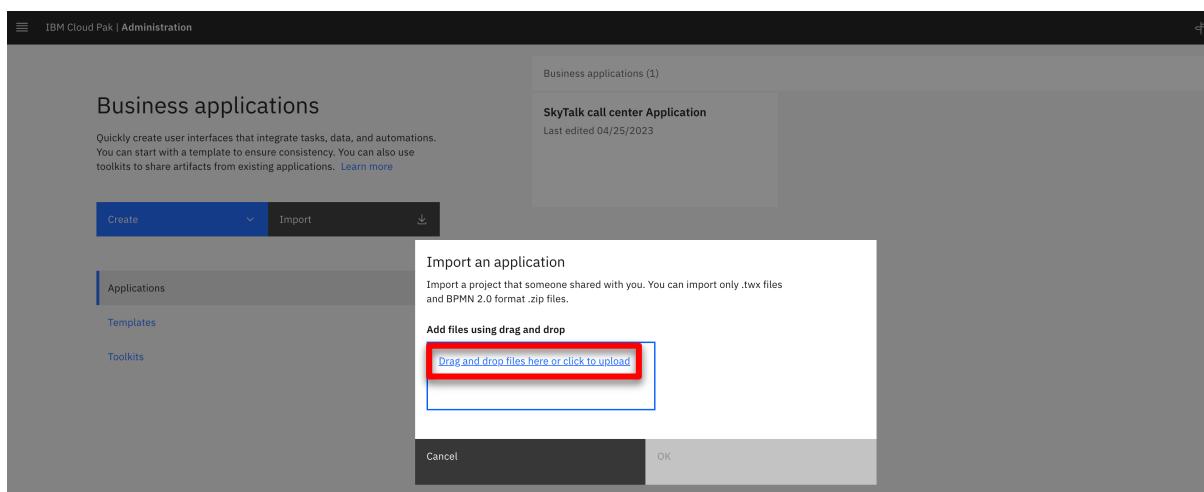
1. Expand the **top menu** (1), select **Design** (2), and then click **Business applications** (3).



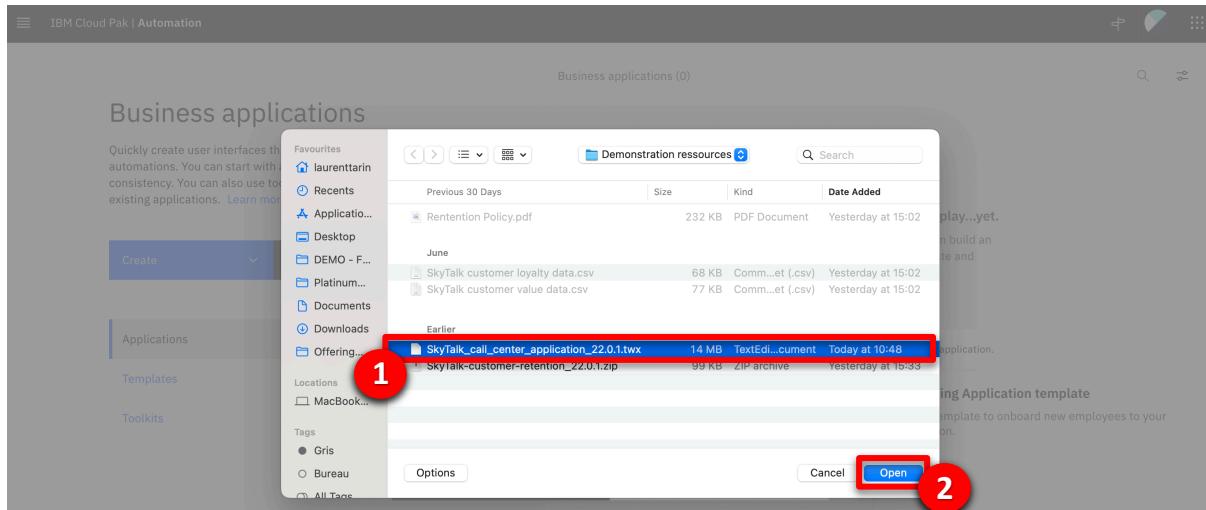
2. Click **Import**.



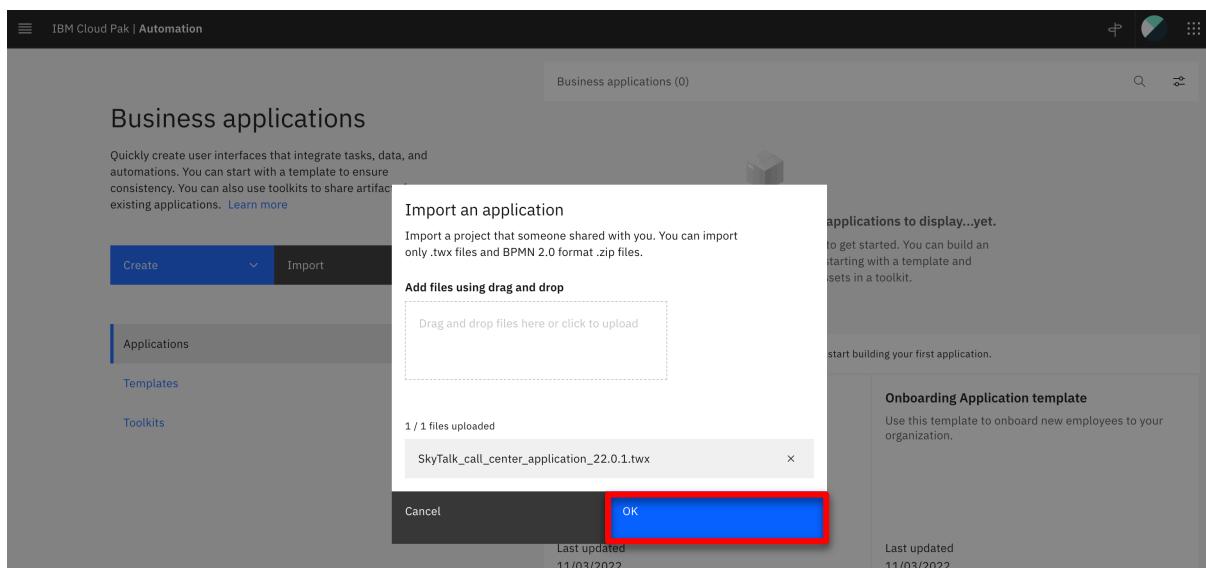
3. Click the upload link.



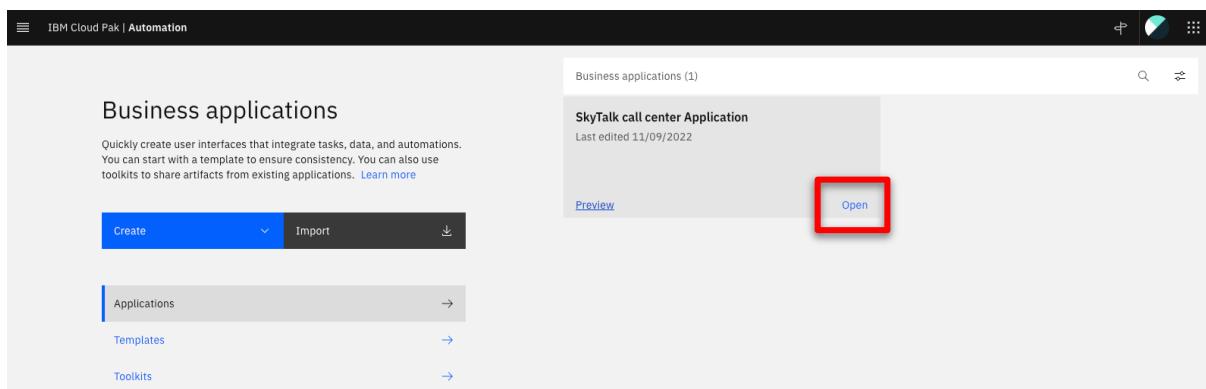
4. Select the **SkyTalk_call_center_application_22.0.2.twx** file (1) and then click **Open** (2).



5. Click **OK**.



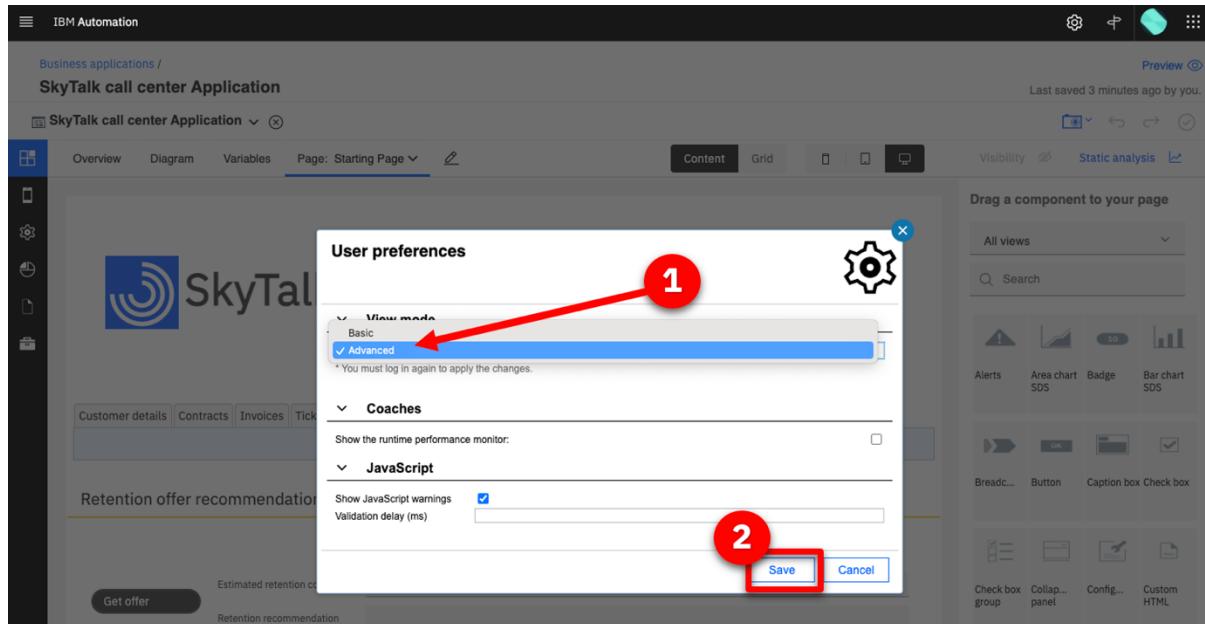
6. After the import, hover the mouse over the **SkyTalk call center Application** tile and click **Open**.



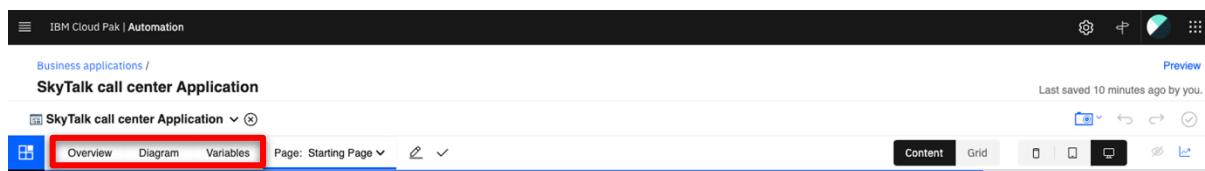
7. Click the **gear** icon.



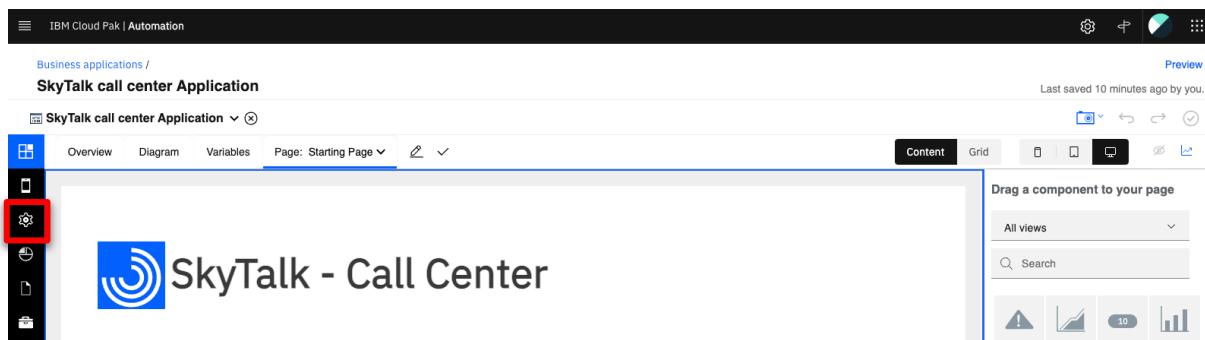
8. Set the **View mode** (1) to **Advanced**. Click **Save** (2).



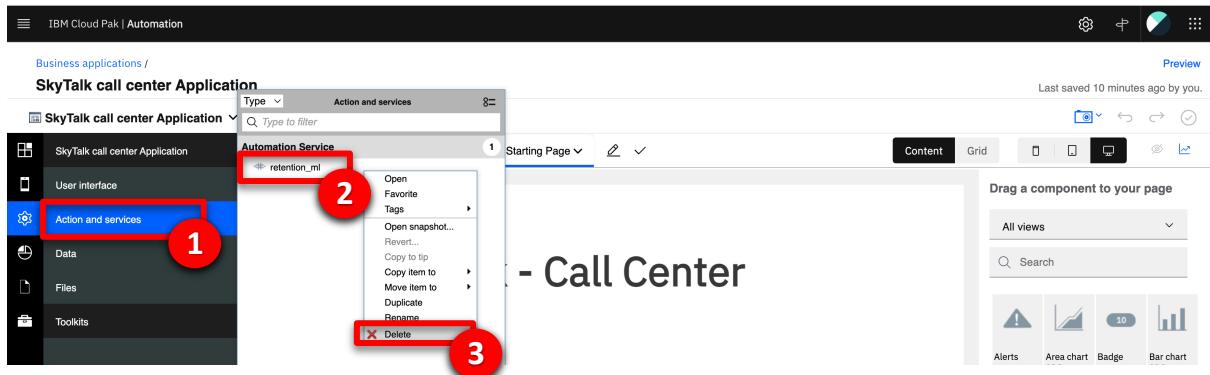
9. Refresh the page and ensure the **Overview**, **Diagram**, and **Variables** tabs are visible.



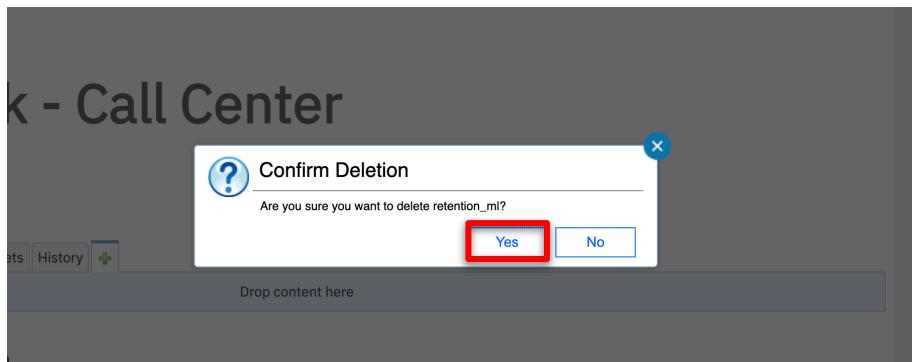
10. Click the **gear** icon on the left-hand side ribbon.



11. Click **Action and services** (1). Right-click **rentention_ml** (2) and then click **Delete** (3).



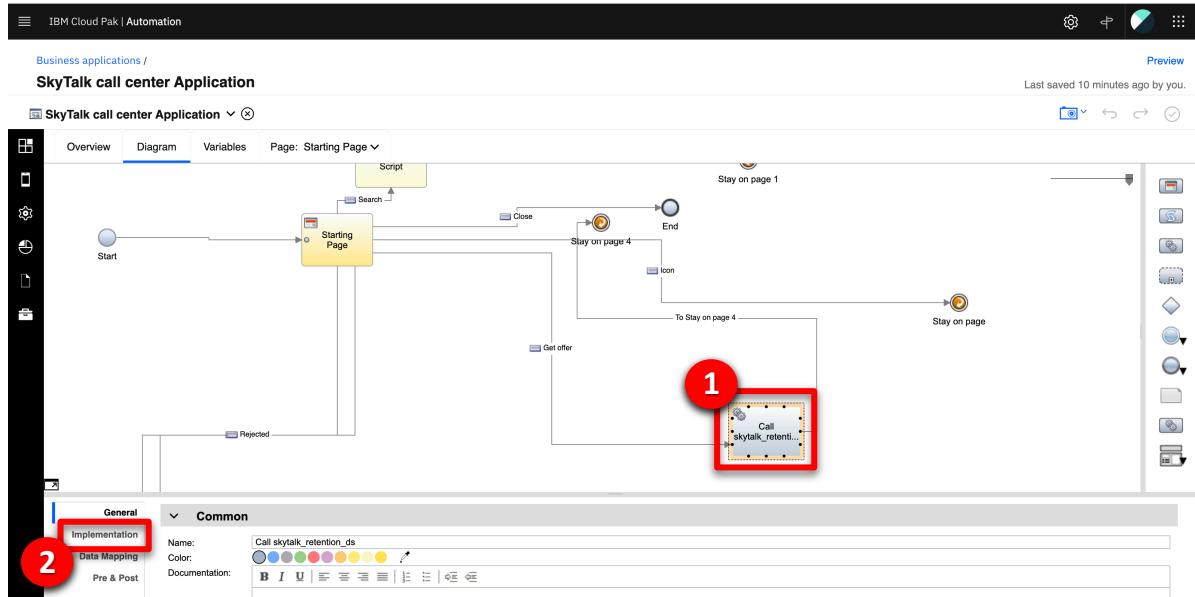
12. Click **Yes** to confirm.



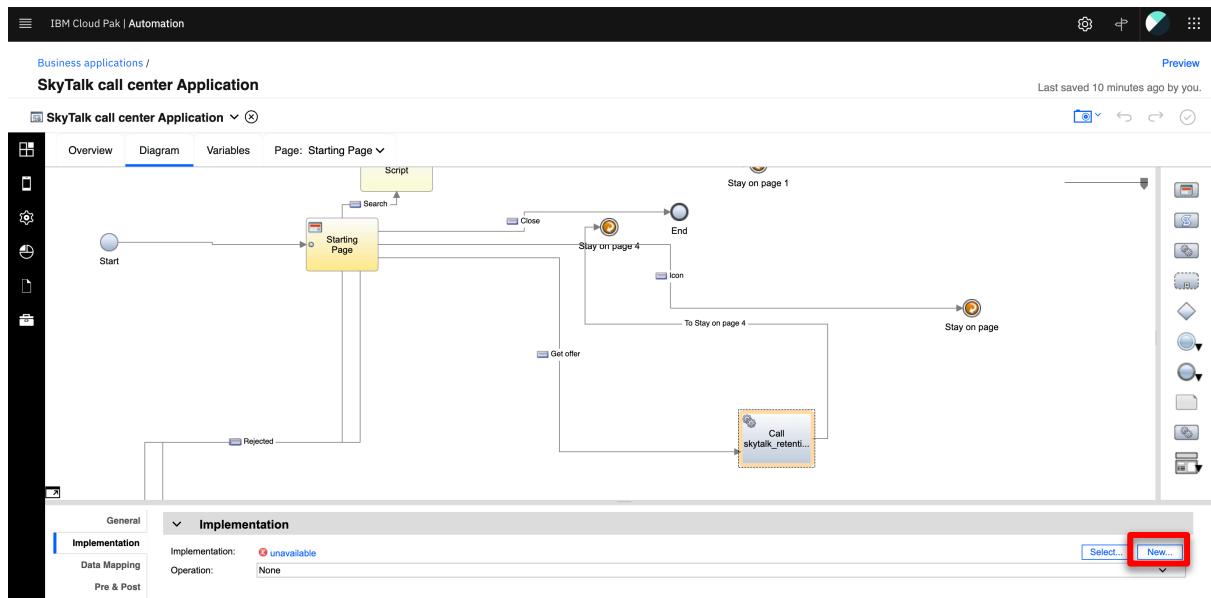
13. Click the **Diagram** tab.



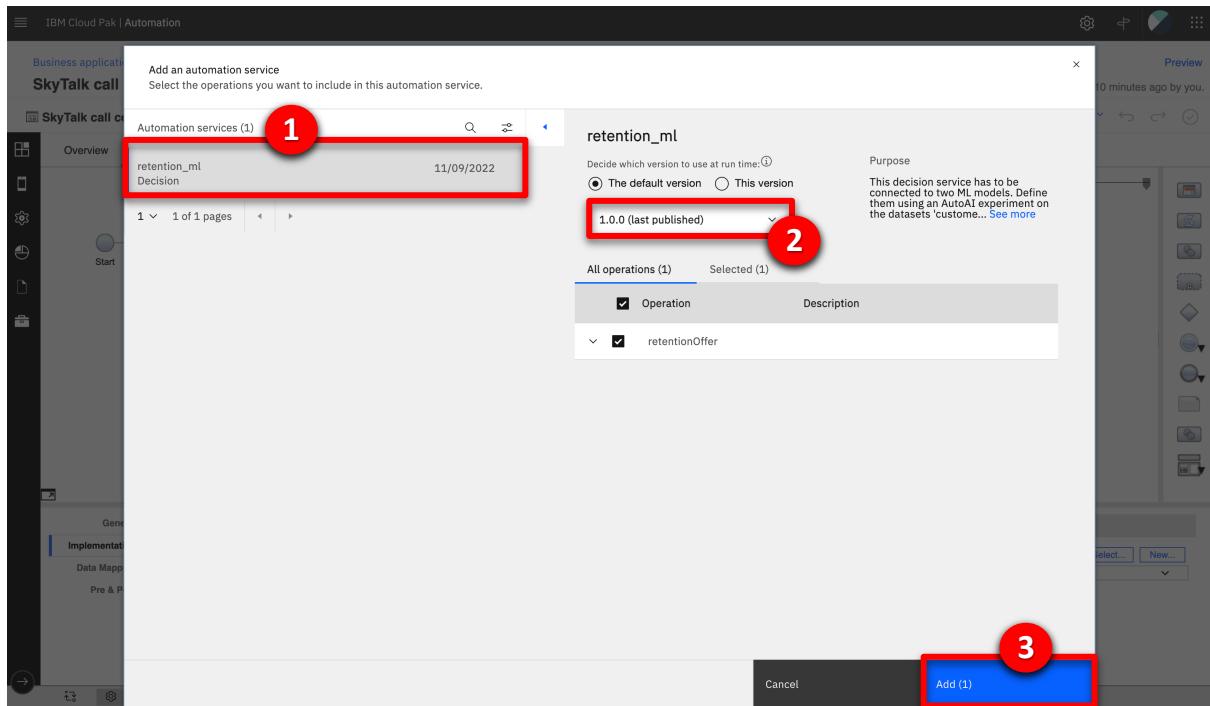
14. Select the **Call skytalk_retention_ds** node (1) and then click the **Implementation** tab (2) below the diagram.



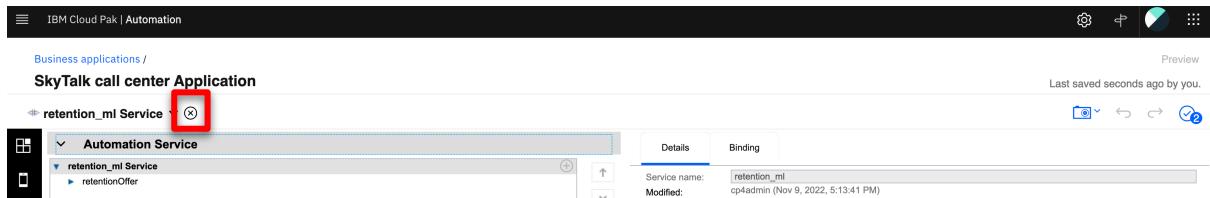
15. Click **New...**



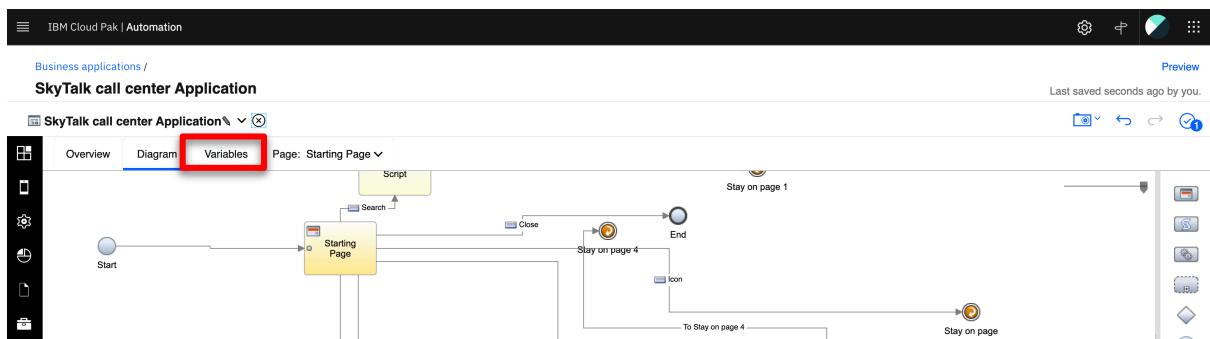
16. Click **retention_ml Decision** (1), select the most recent version (2) as the **default version to use at runtime**, and click **Add** (3).



17. Click **x** to close the **retention_ml Service** display.



18. Click the **Variables** tab at the top of the diagram.



19. Click **customer (unavailable)** in the **Data** variables list.

The screenshot shows the 'Variables' tab selected in the top navigation bar. Under the 'Data' category, the 'customer (unavailable)' variable is listed and highlighted with a red box. Other variables like 'SelectedCustomer', 'searchResult', and 'contractNumber' are also listed but not highlighted.

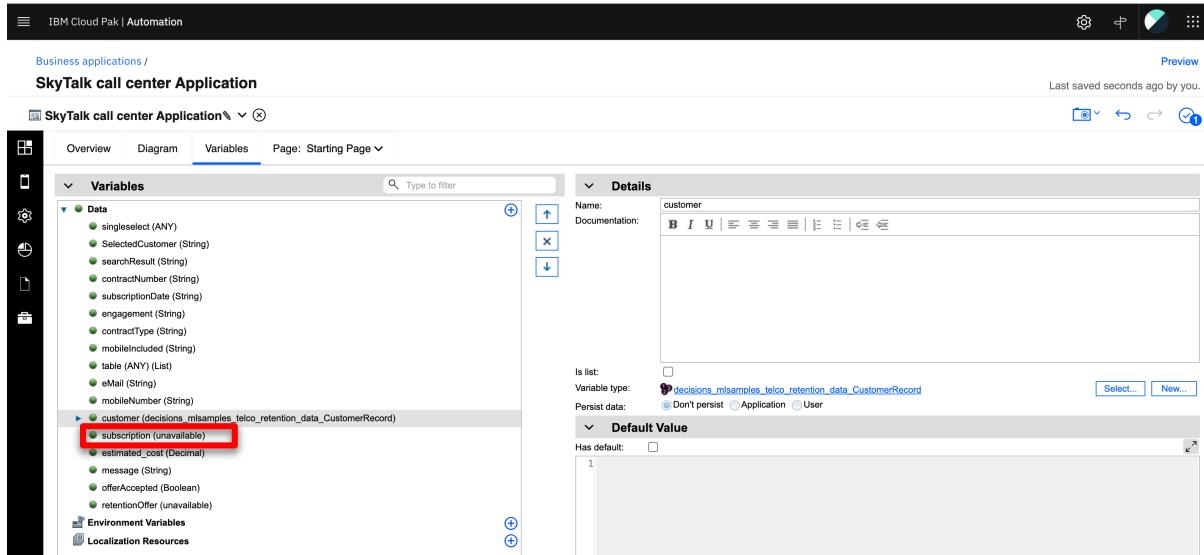
20. Click **Select...** in the **Details** pane.

The screenshot shows the 'Details' pane for the 'customer' variable. The 'Name:' field contains 'customer'. In the bottom right corner of the pane, there is a blue button labeled 'Select...'. This button is highlighted with a red box.

21. Select **decision_mlsamples_telco_retention_data_CustomerRecord** as the **Business Object**.

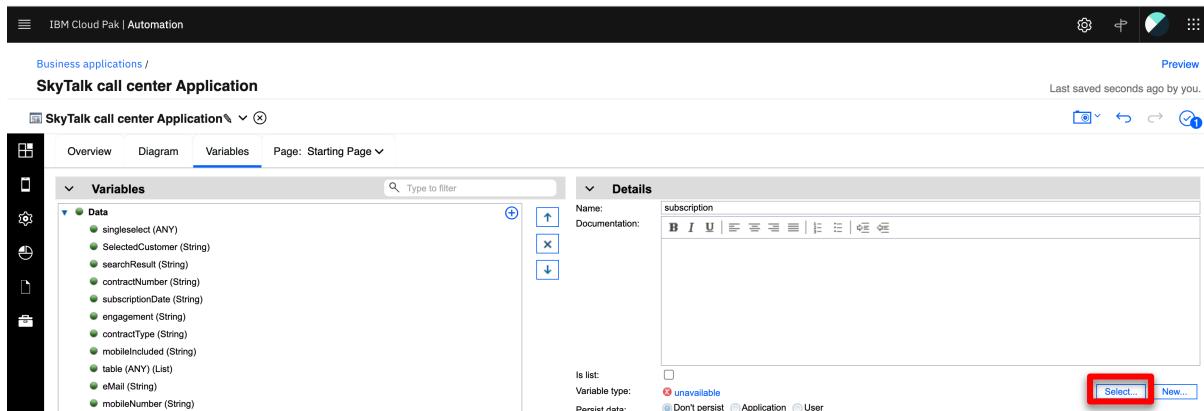
The screenshot shows the 'Details' pane for the 'customer' variable. A library search overlay is displayed, showing a list of business objects. The item 'decisions_mlsamples_telco_retention_data_CustomerRecord' is highlighted with a red box. Other items in the list include 'ANY System Data', 'Boolean System Data', 'Date System Data', 'Decimal System Data', 'Integer System Data', 'locationType', 'rate_planType', 'String System Data', and 'Time System Data'.

22. Click **subscription (unavailable)** in the **Data** variables list.



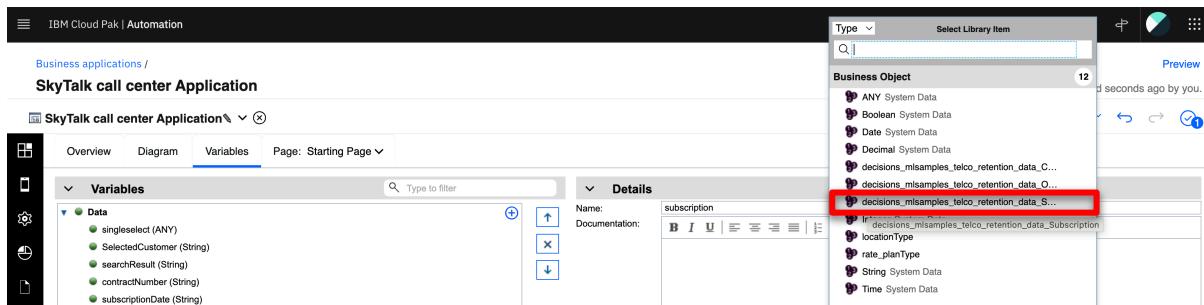
The screenshot shows the 'Variables' section of the application configuration. A variable named 'subscription (unavailable)' is selected and highlighted with a red box. The 'Details' pane shows the variable's name is 'customer' and its type is 'decisions_mlsamples_telco_retention_data_CustomerRecord'. The 'Default Value' is set to 1.

23. Click **Select...** in the **Details** pane.



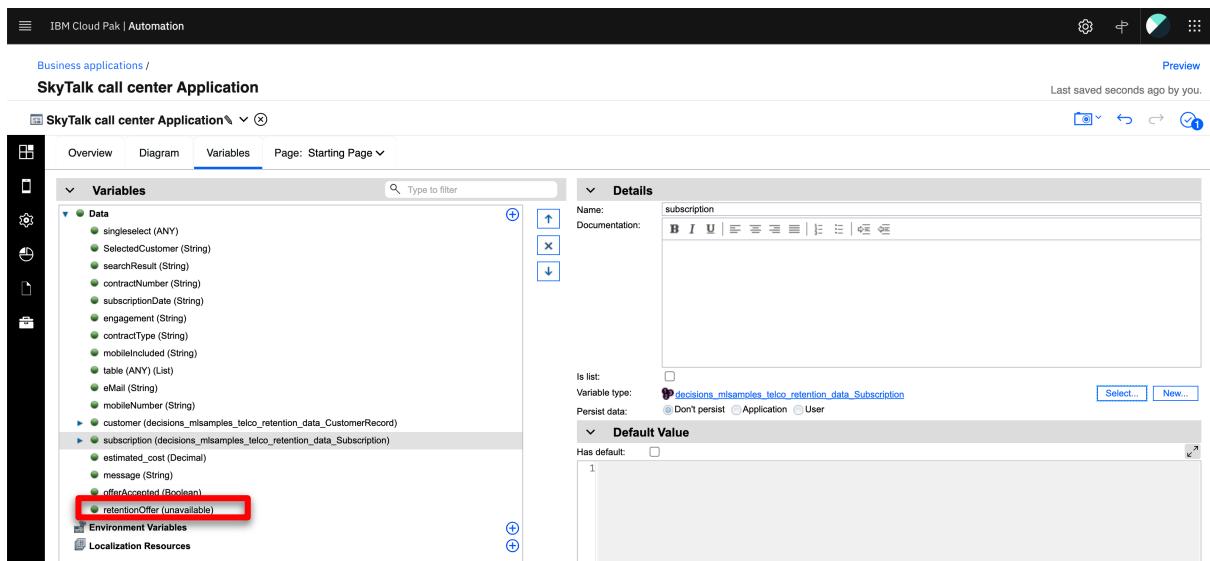
The screenshot shows the 'Variables' section again. The 'subscription (unavailable)' variable is selected. In the 'Details' pane, the 'Variable type' dropdown has a red box around the 'Select...' button, indicating it is the target for the next step.

24. Select **decision_mlsamples_telcor_etention_data_Subscription** as the **Business Object**.



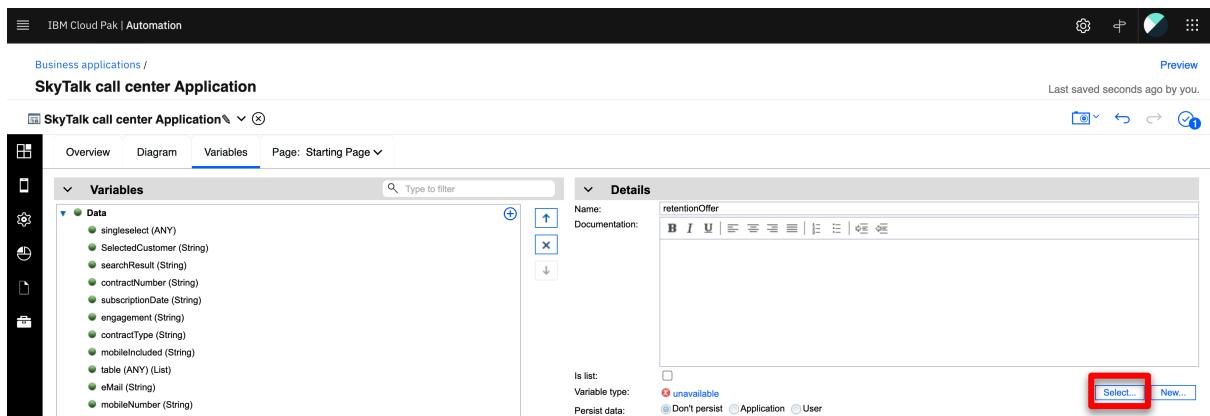
The screenshot shows the 'Variables' section. The 'subscription (unavailable)' variable is selected. In the 'Details' pane, the 'Business Object' dropdown is open, showing a list of system data types. An item in the list, 'decisions_mlsamples_telco_retention_data_Subscription', is highlighted with a red box.

25. Select **retentionOffer (unavailable)** in the **Data** variables list.



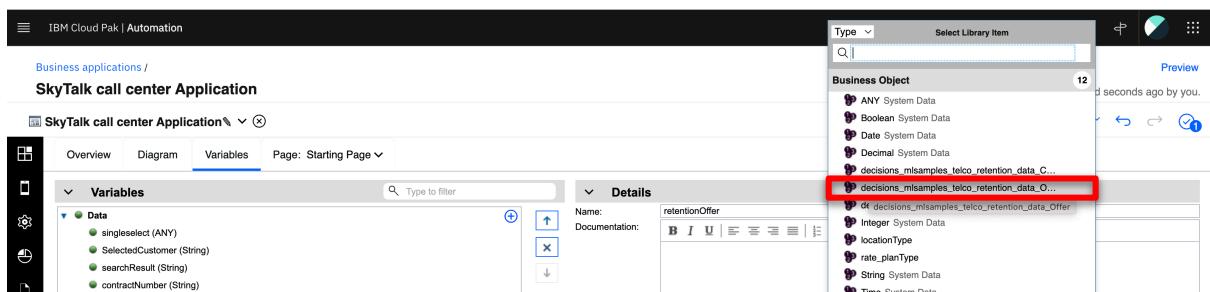
The screenshot shows the 'Variables' tab selected in the navigation bar. The 'Data' section is expanded, displaying various variables like 'singleselect (ANY)', 'SelectedCustomer (String)', etc. The 'retentionOffer (unavailable)' variable is highlighted with a red box. In the 'Details' pane, the variable is named 'subscription' and its type is listed as 'decisions_mlsamples_telco_retention_data_Subscription'. A 'Default Value' of '1' is shown.

26. Click **Select...** in the **Details** pane.



The screenshot shows the 'Variables' tab selected. The 'Data' section is expanded, and the 'retentionOffer' variable is selected. In the 'Details' pane, the variable is named 'retentionOffer' and its type is listed as 'unavailable'. A 'Select...' button is highlighted with a red box.

27. Select **decision_mlsamples_telco_retention_data_Offer** as the **Business Object**.

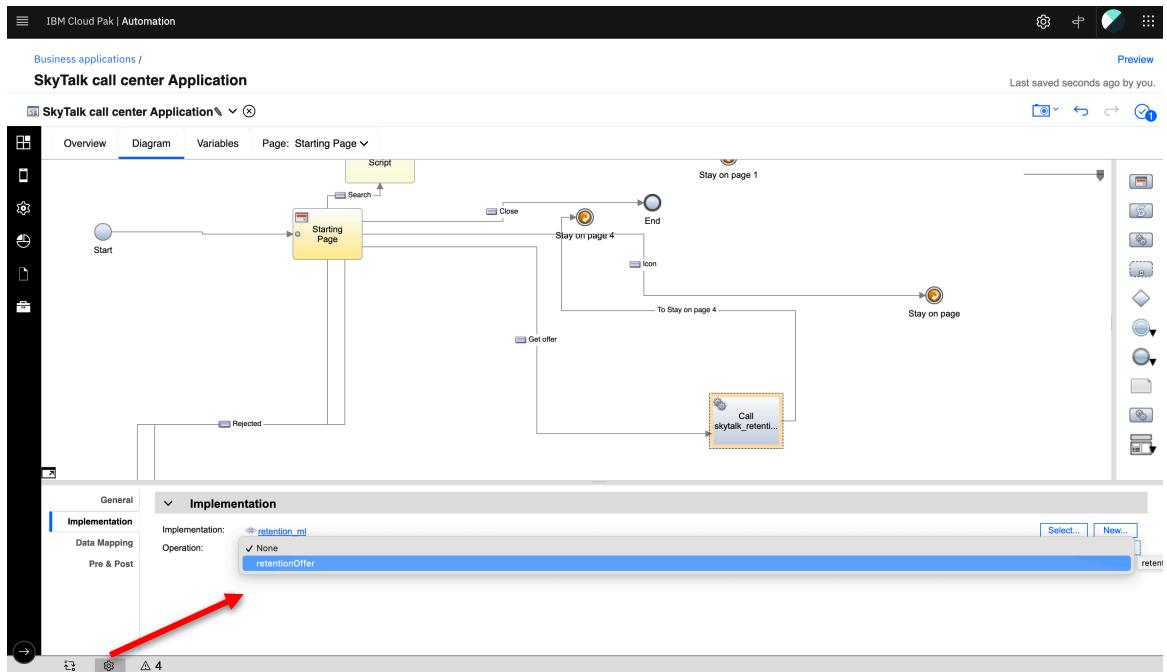


The screenshot shows the 'Variables' tab selected. The 'Data' section is expanded, and the 'retentionOffer' variable is selected. In the 'Details' pane, the variable is named 'retentionOffer'. A dropdown menu titled 'Select Library Item' is open, showing a list of 'Business Object' types. The item 'decision_mlsamples_telco_retention_data_Offer' is highlighted with a red box.

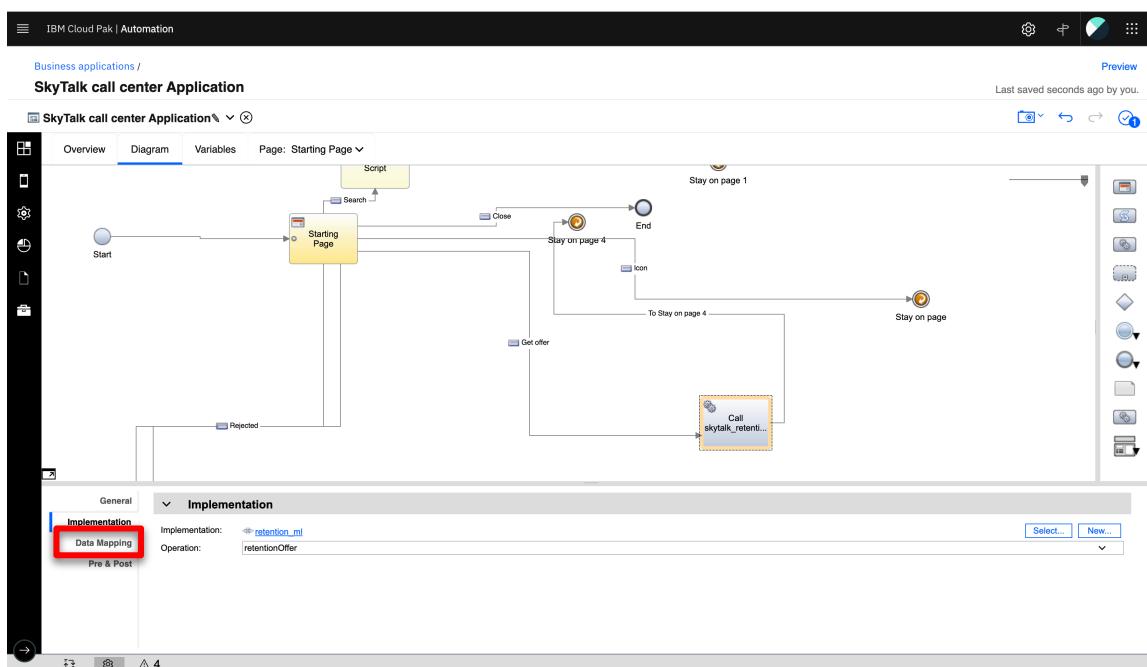
28. Click the **Diagram** tab.



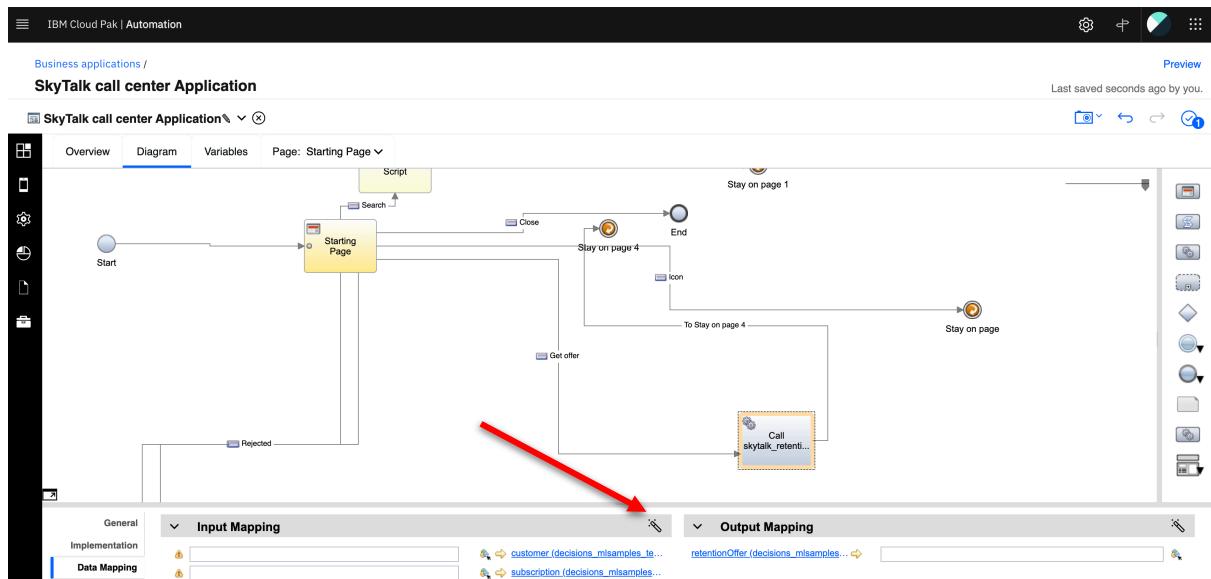
29. Select **retentionOffer** on the **Operation** selector in the **Implementation** tab below the diagram.



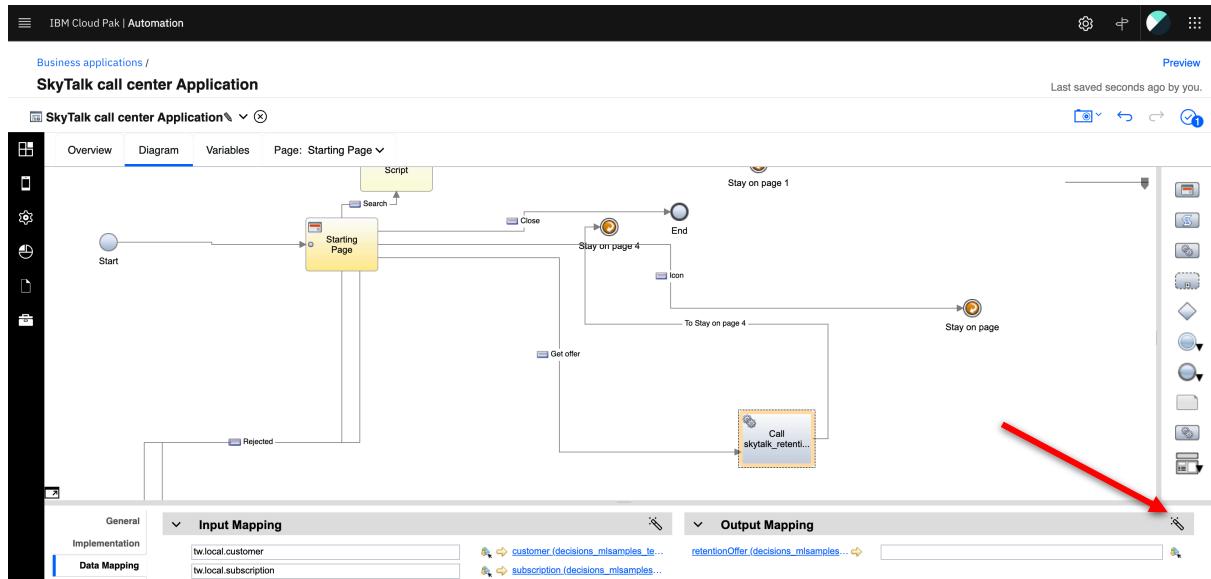
30. Click the **Data Mapping** tab below of the diagram.



31. Click the **automatic input mapping wand** icon.



32. Click the **automatic output mapping wand** icon.



33. Click **Preview**.



Note: If the preview window displays an error, wait 5 minutes and try again until the background operations are completed.

34. Enter **Sarah Miller** (1) in the **Search customer** field and click **Search** (2).

Customer details Contracts Invoices Tickets History

Search customer: Sarah Miller

1

2

No customer found

Sarah Miller

Customer information:

Gender	
Name	
Email address	
Mobile number	
Location	

Customer-provided personal data:

Age	0
Situation	
Size of household	0
Estimated income	0
<input type="checkbox"/> Car owner ?	

Subscription details:

Rate plan	
Local calls	0
Long distance calls	0
International calls	0
Usage	0
Payment method	

35. Click **Get offer**.

Customer details Contracts Invoices Tickets History

Search customer: Sarah Miller

1 customer found

1

2

Customer information:

Gender	F
Name	Sarah Miller
Email address	sMiller@glook.com
Mobile number	+1 (734) 3256 322
Location	urban

Customer-provided personal data:

Age	24
Situation	S
Size of household	1
Estimated income	38,000
<input type="checkbox"/> Car owner ?	

Subscription details:

Rate plan	Gold
Local calls	30
Long distance calls	60
International calls	40
Usage	229
Payment method	CC

Retention offer recommendation

Yearly retention cost: 0 US\$

Get offer

Retention offer details: Send Sarah Miller a customer satisfaction survey.

36. If you get a response without an error message, you are ready to demo.

Yearly retention cost: 0 US\$

Get offer

Retention offer details: Send Sarah Miller a customer satisfaction survey.

Customer response

Accepted

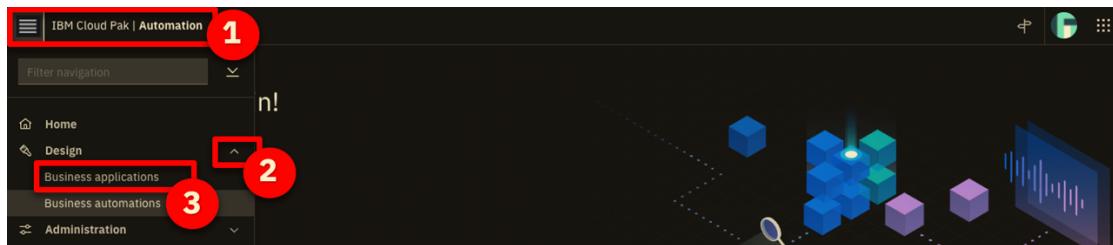
Rejected

PREPARE TO GIVE THE DEMO

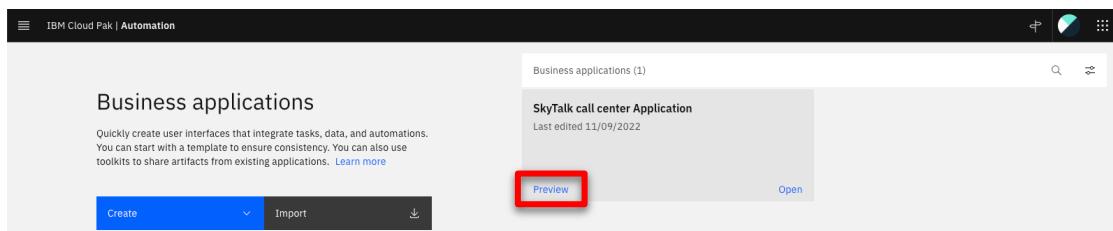
Open these resources before starting demonstration.

1 - SkyTalk call center application

1. Log in to Cloud Pak for Business Automation. Use the bookmark and credentials saved in step 2.
2. Open the **top menu** (1), expand the **Design** row (2), and click **Business applications** (3).



3. Hover the mouse over the **SkyTalk call center Application** tile and click **Preview**.



4. The **SkyTalk - Call Center** application opens.

A screenshot of the 'SkyTalk - Call Center' application. The top navigation bar includes 'Customer details', 'Contracts', 'Invoices', 'Tickets', and 'History'. The 'Customer details' tab is active. The page displays 'Customer information' (Gender, Name, Email address, Mobile number, Location) and 'Customer-provided personal data' (Age, Situation, Size of household, Estimated income, Car owner checkbox). On the right, 'Subscription details' are shown. Below, a 'Retention offer recommendation' section includes a 'Get offer' button, 'Estimated retention cost' (0), and 'Retention recommendation' (empty input field). A 'Close' button is at the bottom right.

2 - IBM Cloud Pak for Business Automation

1. Click **IBM Cloud Pak | Automation**.

The screenshot shows the 'Business applications' section of the IBM Cloud Pak for Business Automation interface. A red box highlights the top navigation bar where 'IBM Cloud Pak | Automation' is selected. Below the navigation, there's a search bar and a list titled 'Business applications (1)'. The single item listed is 'SkyTalk call center Application', with a note indicating it was last edited on 11/09/2022.

2. The **IBM Cloud Pak for Business Automation** home page opens.

The screenshot shows the main home page of the IBM Cloud Pak for Business Automation. At the top, it says 'Welcome, cp4admin!'. Below this, there's a 'Learn more' section about the IBM Cloud Paks for Automation. The central part of the page features a 3D-style illustration of a person standing on a circular platform surrounded by various icons representing different business applications. On the left, there's an 'Overview' section with a 'Quick navigation' sidebar containing a 'Links' icon. The main area has three sections: 'Recent business applications', 'Recent automation services', and 'Recent business automations', each with a list of items and a 'View all' button. At the bottom, there's a 'Support' section with links to 'Documentation' and 'Business automation documentation'.

Recent business applications	Recent automation services	Recent business automations
SkyTalk call center Application 11/09/2022 View all	retention_ml 11/09/2022 View all	Customer retention 11/09/2022 Process Portal 11/03/2022 Hiring Sample 11/03/2022 View all

3 - Watson Studio

1. Go to the [IBM Cloud environment](#) and log in using your personal credentials. Ensure you are in your Cloud Pak for Data instance.
2. Click the **Resource list** menu icon (1) and then select **Watson Studio-xx** (2).

The screenshot shows the IBM Cloud Resource list interface. A red circle labeled '1' highlights the 'Resource list' menu icon in the top-left corner. A red circle labeled '2' highlights the 'Watson Studio-xx' entry in the list of resources. The table displays columns for Name, Group, Location, Product, Status, and Tags. Two entries are visible: 'Machine Learning-en' and 'Watson Studio-k6'. Both entries have 'Default' in the Group column, 'Dallas' in the Location column, and 'Active' in the Status column.

3. Click **Launch in IBM Cloud Pak for Data**.

The screenshot shows the 'Watson Studio in Cloud Pak for Data' launch page. A red box highlights the 'Launch in IBM Cloud Pak for Data' button. The page includes sections for 'Manage' (Plan), 'Watson Studio in Cloud Pak for Data' (with a brief description), 'Details' (Active, Add tags), 'Actions...', 'Helpful links' (Documentation, Learning path, Videos), and a diagram illustrating the architecture: 'IBM Watson Studio in Cloud Pak for Data' is shown as a cube floating above a stack of cubes labeled 'IBM Cloud Pak for Data Unifying platform', which sits atop a base labeled 'IBM Cloud Base cloud infrastructure'.

4. Watson Studio opens.

The screenshot shows the IBM Watson Studio interface. At the top, there's a navigation bar with 'IBM Watson Studio', a search bar, and user information ('2453784 - Stu Leibowitz'). Below the header is a large banner with the text 'Welcome, Stu!' and three main sections: 'Learn by example', 'Work with data', and 'Extend your capabilities'. The 'Work with data' section includes links to 'Take a guided tutorial', 'Create a project', and 'Create a service'. To the right of these sections is a 3D graphic of a stack of colored cubes (blue, green, purple) with a magnifying glass over it, set against a dark background with a grid and a blue bar at the bottom.

Quick navigation

- Projects
- Deployments

Support

- Documentation
- FAQ
- Share an idea
- Support center

What's new

Deliver and integrate your data with Data

Overview

Projects

SkyTalk customer retention	Jan 28, 2022 03:39 PM
----------------------------	--------------------------

New in gallery

SAMPLE PROJECT

Train AutoAI and reference model

AUTHOR IBM	MODIFIED Feb 08, 2022
---------------	--------------------------

Watson Machine Learn

Notifications

- Online deployment ready: The online deployment **churn** in space **SkyTalk production space** is ready to accept requests. (Feb 02, 2022 04:59 PM)
- Online deployment ready: The online deployment **Lifetime value** in space **SkyTalk production space** is ready to accept requests. (Feb 02, 2022 04:59 PM)
- Online deployment ready: The online deployment **Lifetime value** in space **SkyTalk production space** is ready to accept requests. (Jan 29, 2022 09:45 AM)

Deployments

SkyTalk production space	Jan 28, 2022 03:31 PM
--------------------------	--------------------------

Feedback

4 - SkyTalk Customer retention policy.pdf

1. Click this link to open [SkyTalk's Retention offer document.pdf](#).

AFTER EACH DEMO

1 - Undeploy the two Watson Machine Learning models

1. Click the **SkyTalk production space** deployment.

The screenshot shows the IBM Watson Studio interface. At the top, there's a navigation bar with 'IBM Watson Studio', a search bar, and account information for 'Laurent Tarin's Account'. Below the header is a large central area with a dark background featuring a 3D cube visualization and text links for 'Learn by example', 'Work with data', and 'Extend your capabilities'. On the left, a sidebar has sections for 'Quick navigation' (Projects, Deployments), 'Support', and 'Documentation'. The main content area is titled 'Overview' and contains three tabs: 'Projects', 'Notifications', and 'Deployments'. The 'Deployments' tab is selected and highlighted with a red box. It lists one deployment: 'SkyTalk production space' with a timestamp of 'Nov 17, 2021 03:27 PM'.

2. Click the **Deployments** tab (1). Click the **three dots** icon in the **Lifetime value** row and select **Delete** (2).

Click **Delete** again to confirm the deletion.

NOTE: As soon as the two services are deleted, your Watson Machine Learning Lite subscription quota is not consumed anymore.

This screenshot shows the 'Deployments' page for the 'SkyTalk production space'. The top navigation bar includes 'IBM Watson Studio', a search bar, and account info for 'Laurent Tarin's Account'. A red circle labeled '1' highlights the 'Deployments' tab. The main content area shows a table of deployments with two entries: 'Lifetime value' and 'churn'. The 'Lifetime value' row has a red box around it. A red circle labeled '2' is on a context menu that appears when the three-dot icon in this row is clicked. The menu options include 'Edit configuration', 'Edit serving name', 'Replace asset', and 'Delete'. A note on the right says 'Stay on the page until upload completes. Incomplete uploads are cancelled.' There's also a file upload section with a placeholder 'Drop files here or browse for files to upload.'

3. Repeat step 2 and delete the deployment for the **churn prediction** row.

4. Click **IBM Watson Studio** to return to the Watson Studio home page.

The screenshot shows the IBM Watson Studio interface. At the top, there is a navigation bar with the "IBM Watson Studio" logo, a search bar, and account information for "Laurent Tarin's Account". Below the navigation bar, the page title is "SkyTalk production space". A horizontal menu bar includes "Overview", "Assets", "Deployments" (which is underlined in blue), "Jobs", and "Manage".

5. Click the **SkyTalk customer retention** project.

The screenshot shows the IBM Watson Studio interface with the "Projects" tab selected in the navigation bar. The main area displays a "Welcome, Laurent!" message and three sections: "Learn by example", "Work with data", and "Extend your capabilities". On the right, there is a 3D visualization of data cubes and a magnifying glass. Below this, the "Overview" section shows a grid of cards. One card for the "SkyTalk customer retention" project is highlighted with a red box. Other cards include "Online deployment ready" and "Deployment spaces".

6. Click the **Assets** tab.

The screenshot shows the "SkyTalk customer retention" project page. The "Assets" tab is selected in the top navigation bar. Below the navigation bar, there is a search bar and a horizontal menu bar with "Overview", "Assets" (selected), "Jobs", and "Manage".

7. Click the **three dots** icon in the **Churn prediction 2** AutoAI experiment row.

The screenshot shows the "Assets" page for the "SkyTalk customer retention" project. The "Assets" tab is selected. The main area displays a table of assets. One row for "Churn prediction 2" is highlighted with a red box around its three-dot menu icon. The table has columns for "Name" and "Last modified".

Name	Last modified
Churn prediction 2 AutoAI experiment	1 minute ago LAURENT TARIN (You)

8. Click **Delete**.

The screenshot shows the 'Assets' tab in the IBM Watson Studio interface. On the left, there's a sidebar with '7 assets' and 'Asset types' sections. The main area displays a table titled 'All assets' with columns for 'Name', 'Last modified', and 'Actions'. Two entries are listed:

Name	Last modified	Actions
Churn prediction 2 AutoAI experiment	1 minute ago LAURENT TARIN (You)	⋮ Delete
SkyTalk churn prediction AutoAI experiment	6 days ago LAURENT TARIN (You)	⋮ Delete

9. Click **Delete** again to confirm the removal.

A confirmation dialog box titled 'Delete asset' is overlaid on the Watson Studio interface. It contains the message 'Are you sure you want to delete the chosen asset(s)?' and two buttons at the bottom: 'Cancel' and 'Delete'. The 'Delete' button is highlighted with a red box.

2 - Reset the demo to its beginning state

1. Go to the previously opened **Cloud Pak for Automation** browser tab. Click **Customer retention**.

Welcome, cp4admin!

Learn more
Explore documentation for the IBM Cloud Paks for Automation

Overview

Recent business applications

SkyTalk call center Application	11/09/2022
View all	

Recent automation services

retention_ml	11/09/2022
View all	

Recent business automations

Customer retention	11/09/2022
Process Portal	11/03/2022
Hiring Sample	11/03/2022

2. Click **Open**.

Decision automations (1)

Customer retention
Last edited 11/09/2022

Customer retention
Created by · 11/08/2022

Open

3. Select the **Initial retention** tile.

Business Automations /

Customer retention

Decision services (2)

Explore decision services (2)
All samples and decision services created in this project.

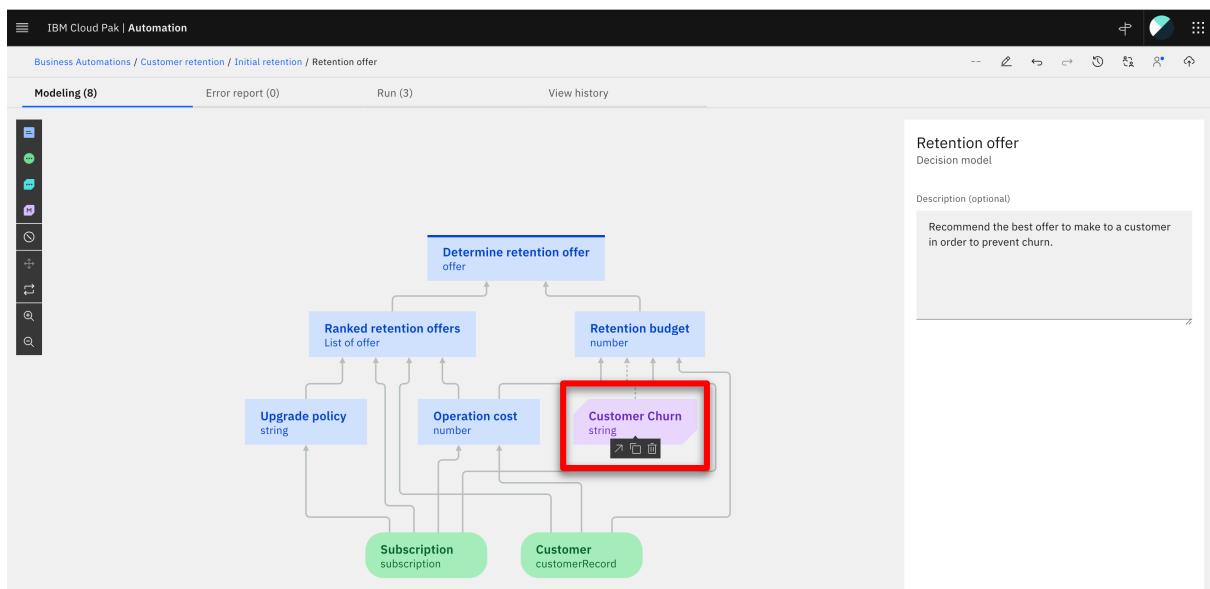
Sort by: Recently updated ▾ Q Search

Browse samples Import Create +

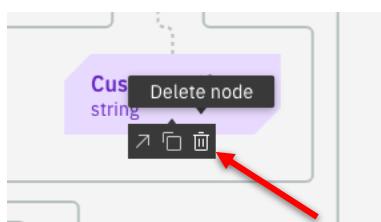
Initial retention This decision service has to be connected to two ML models. Last updated: 11/9/2022, 10:06:38 AM by cp4admin Sample Machine learning customer loyalty	Retention ML This decision service has to be connected to two ML models. Last updated: 11/9/2022, 10:06:38 AM by cp4admin Sample Machine learning customer loyalty
---	--

4. Click **Retention offer**.

5. Hover the mouse over the purple **Customer Churn** rounded box.



6. Click the **trash** icon to delete the node.



7. Click **Initial retention** in the breadcrumb navigation.

8. Click the **three dots** icon that appears when you move your cursor over the **Customer Churn** predictive model row.

Name	Last updated by	Last updated at
Customer Churn	Me	Never shared
Retention offer	cp4admin	11/9/2022, 10:06:38 AM

9. Click **Delete**.

Name	Last updated by	Last updated at
Customer Churn	Me	Never shared
Retention offer	cp4admin	11/9/2022, 10:06:38 AM

10. Click **Delete** to confirm.

Name	Last updated by	Last updated at
Customer Churn	Me	Never shared
Retention offer	cp4admin	11/9/2022, 10:06:38 AM

11. Only the **Retention offer** predictive model should remain.

Name	Last updated by	Last updated at
Retention offer	cp4admin	11/9/2022, 10:06:38 AM

PREPARATION REQUIRED TO GIVE THIS DEMO AGAIN

Before starting a new demo, you must redeploy the two ML models you previously created.

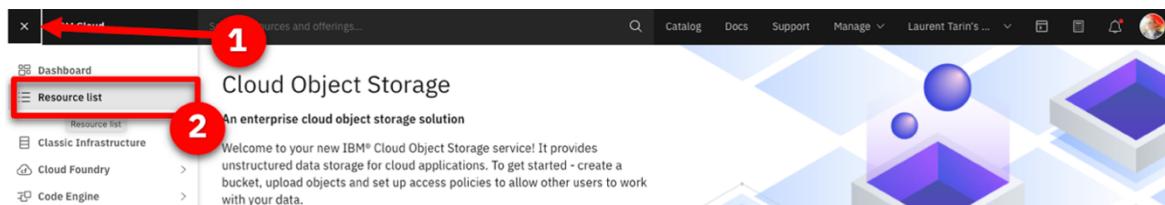
Note: Anytime your ML services are deployed, your Machine Learning Lite subscription quota is consumed. To avoid running out of Watson ML quota, undeploy your ML services whenever you are not practicing or giving this demo.

The 'Reset the demo to its beginning state' step on this page below contains the process to undeploy the services and stop the billing process.

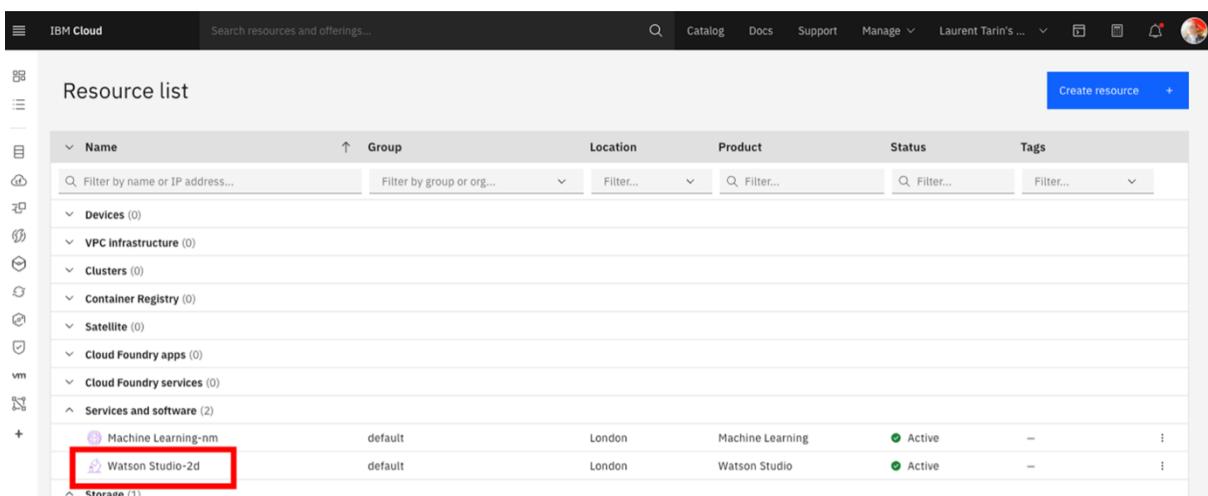
Redeploy your ML services approximately 15 minutes prior to practicing or giving this demo.

1 - Redeploy both ML Models in Watson Studio

1. Go to [IBM Cloud](#).
2. Enter your **IBM ID**. If you do not have one, create a new one.
3. Click the **top menu** (1) and then **Resource list** (2).



4. Click **Watson Studio-2d** in the software and services section.



5. Click **Launch in IBM Cloud Pak for Data**.

The screenshot shows the Watson Studio in Cloud Pak for Data interface. At the top, there's a navigation bar with 'IBM Cloud', a search bar, and various links like 'Catalog', 'Docs', 'Support', 'Manage', and a user profile. Below the navigation is a section titled 'Watson Studio in Cloud Pak for Data'. It contains a brief description of Watson Studio and its integration with Cloud Pak for Data. A prominent blue button labeled 'Launch in IBM Cloud Pak for Data' is centered, with a red box drawn around it to indicate it should be clicked.

6. From the Watson Studio environment, select the **SkyTalk production space** deployment space.

The screenshot shows the Watson Studio Overview page. On the left, there's a sidebar with 'Quick navigation' options: 'Projects', 'Deployments', and 'Support'. The main area has three columns: 'Learn by example', 'Work with data', and 'Extend your capabilities'. In the 'Work with data' column, there are links to 'Create a project' and 'Create a service'. To the right is a large, dark-themed graphic illustrating data flow. Below this is a 'Notifications' section with a green checkmark and the text 'Online deployment ready' followed by 'The online deployment Lifetime value in space SkyTalk production space is ready to accept'. Finally, there's a 'Deployments' section with a row for 'SkyTalk production space' which is highlighted with a red box.

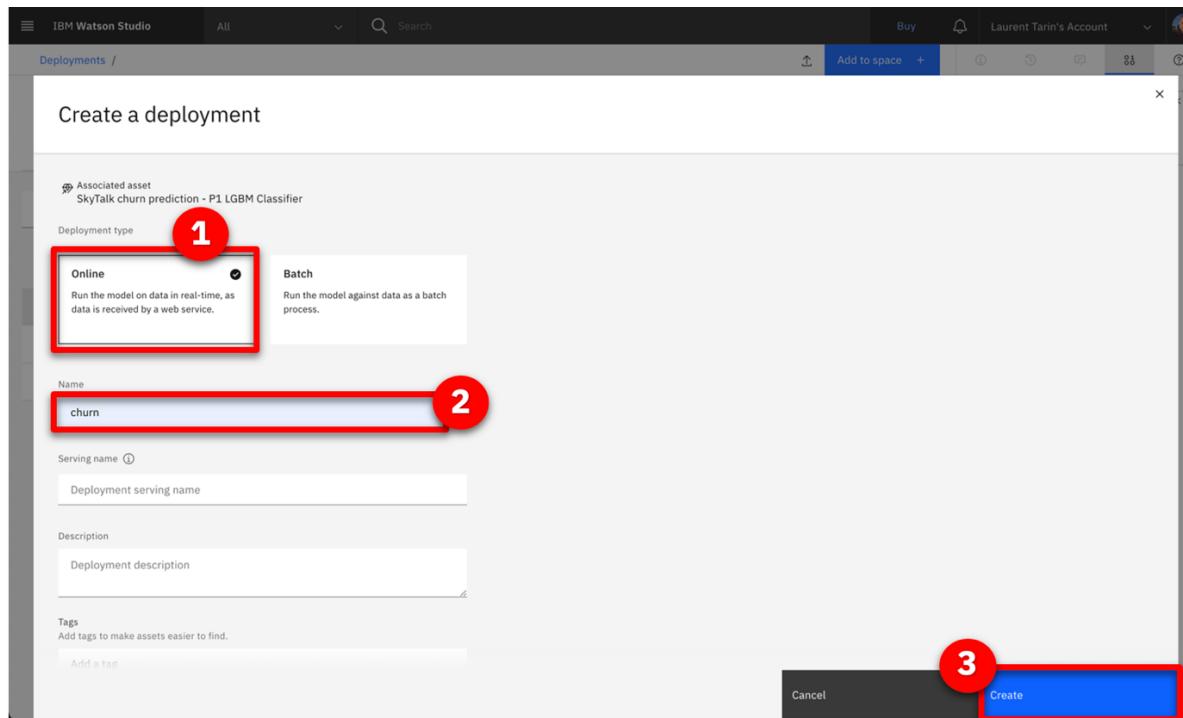
7. Select the **Assets** tab.

The screenshot shows the Watson Studio Assets tab for the 'SkyTalk production space'. The top navigation bar includes 'IBM Watson Studio', a search bar, and account information. Below the navigation is a header with tabs: 'Overview', 'Assets' (which is highlighted with a red box), 'Deployments', 'Jobs', and 'Manage'. To the right of the tabs is a file upload area with a dashed box and the text 'Drop files here or browse for files to upload.' The main content area shows a search bar with placeholder text 'What assets are you looking for?' and a table titled 'Models (2)'. The table has columns for 'Name', 'Type', 'Software specification', 'Tags', 'Last modified', and a 'Deploy' button. The first row shows 'SkyTalk churn prediction - P1 LGBM Classifier' with a 'Deploy' button highlighted with a red box.

8. Deploy the **Skytalk churn prediction** by clicking the corresponding rocket icon that appears when you hover over the right side of the row.

The screenshot shows the Watson Studio Assets tab for the 'SkyTalk production space'. The top navigation bar and tabs are identical to the previous screenshot. The main content area shows the 'Models (2)' table. The first row, 'SkyTalk churn prediction - P1 LGBM Classifier', has a 'Deploy' button highlighted with a red box. A tooltip appears over the button, showing a small rocket icon and the text 'Deploy'. The table also includes a 'Last modified' column showing 'Nov 17, 2021 4:06 PM' for both rows. The right side of the screen displays a progress message: 'Stay on the page until upload completes. Incomplete uploads are cancelled.'

9. Select **Online** (1), name the deployment **churn** (2), and click **Create** (3).



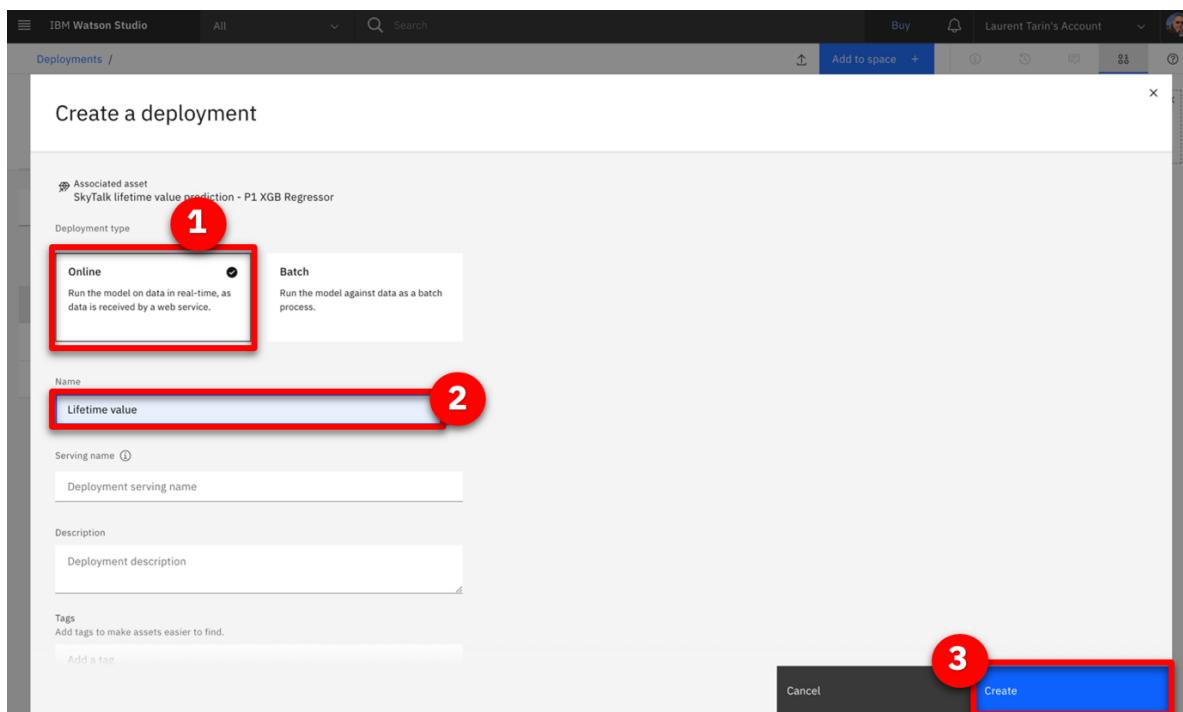
10. Deploy the **SkyTalk lifetime value prediction** by clicking the corresponding rocket icon that appears when you hover over the right side of the row.

The screenshot shows the 'Assets' tab in the 'SkyTalk production space'. At the top, there is a search bar and a file upload area with the instruction 'Drop files here or browse for files to upload.' Below the search bar, there is a 'What assets are you looking for?' input field. Under the 'Models' section, there are two rows of assets:

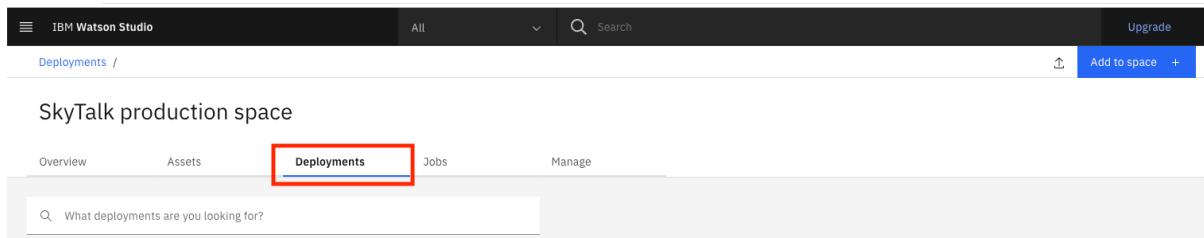
Name	Type	Software specification	Tags	Last modified
SkyTalk churn prediction - P1 LGBM Classifier	wml-hybrid_0.1	hybrid_0.1		Nov 17, 2021 4:06 PM
SkyTalk lifetime value prediction - P1 XGB Regress...	wml-hybrid_0.1	hybrid_0.1		Nov 17, 2021 4:05 PM

In the last row, there is a 'Deploy' button with a rocket icon, which is highlighted with a red box. To the right of the table, there is a note: 'Stay on the page until upload completes. Incomplete uploads are cancelled.'

11. Select **Online** (1), name the deployment '**Lifetime value**' (2), and click **Create** (3).



12. Click the **Deployments** tab. Ensure the two services are deployed.



2 - Reconnect both ML models to Automation Decision Services

1. Log in to the **Cloud Pak for Business Automation** instance using the bookmark and credentials saved during environment validation (step 2).
2. Click the recent automation **Customer retention**.

Welcome, cp4admin!

Learn more
Explore documentation for the IBM Cloud Paks for Automation

Overview

Recent business applications

SkyTalk call center Application	11/09/2022
---------------------------------	------------

Recent automation services

There are no published automation services.	
---	--

Recent business automations

Customer retention	11/09/2022
--------------------	------------

Process Portal	11/03/2022
----------------	------------

Note: You should have no deployed automation services since they have been removed after the previous demo. Otherwise, remove them as explained in the ‘After each demo’ section.

3. Click **Open**.

IBM Cloud Pak | Automation

Decision automations (1)

Customer retention
Last edited 11/09/2022

Customer retention
Created by · 11/08/2022

Open

4. Click **Retention ML**.

IBM Cloud Pak | Automation

Business Automations /

Customer retention

Decision services (2)

Explore decision services (2)
All samples and decision services created in this project.

Sort by: Recently updated ▾

Search

Browse samples Import Create

Initial retention

This decision service has to be connected to two ML models.
Define them using an AutoAI experiment o...

Last updated:
11/9/2022, 10:06:38 AM by cp4admin

Retention ML

This decision service has to be connected to two ML models.

Last updated:
11/9/2022, 10:06:38 AM by cp4admin

Sample

Machine learning customer loyalty

5. Click the **Customer Churn** model on the models tab.

The screenshot shows the 'Models' tab in the IBM Cloud Pak | Automation interface. The 'Customer Churn' model is highlighted with a red box. The table columns are 'Name', 'Last updated by', and 'Last updated at'. The 'Customer Churn' row shows it was last updated by 'cp4admin' on '11/9/2022, 10:06:38 AM'.

Name	Last updated by	Last updated at
Customer Churn	cp4admin	11/9/2022, 10:06:38 AM
Customer Lifetime Value	cp4admin	11/9/2022, 10:06:38 AM
Retention offer	cp4admin	11/9/2022, 10:06:38 AM

6. Click **Edit Configuration**.

The screenshot shows the 'Customer Churn' model configuration page. On the left, there's a flow diagram with nodes: 'Output mapping number', 'ML model invocation ML model output', 'Input mapping ML model input', 'Subscription subscription', and 'Customer customerRecord'. On the right, there's a panel with model details and an 'Edit Configuration' button, which is highlighted with a red box.

Customer Churn
Predictive model

Description (optional): This predictive model has to be connected to a provider where a ML model built with the dataset <https://github.com/ibmcp4a/automation-decision-services-samples/tree/21.0.1/samples/MLDatasets/customer> has been deployed.

Machine learning provider: SkyTalk ML provider
Machine learning model: SkyTalk churn prediction - P8 Extra Trees Classifier
Deployment: CHURN

Edit Configuration

7. Click **Next**.

The screenshot shows the 'Configure predictive model' step. It has tabs for 'Choose configuration method', 'Select provider and ML deployment', 'Define input schema', 'Test invocation Optional', and 'Define output schema'. The 'Choose configuration method' tab is selected. It shows two options: 'Remote machine learning model' (selected) and 'Local machine learning model'. The 'Next' button is highlighted with a red box.

Choose configuration method
Choose the method you want to use to configure this predictive model.

Remote machine learning model
Connect to a remote machine learning service to configure the invocation of a machine learning model.

Local machine learning model
Import a transparent machine learning model for local predictions.

Next

8. Expand the **SkyTalk churn prediction model** (1), select the **CHURN** deployment (2), and click **Next** (3).

The screenshot shows the 'Configure predictive model' step in the IBM Cloud Pak | Automation interface. A red box labeled '1' highlights the first-level expansion of the 'SkyTalk churn prediction' model. A red box labeled '2' highlights the selection of the 'CHURN' deployment from the expanded list. A red box labeled '3' highlights the 'Next' button at the top right.

Select provider
Select the provider where your deployed model is stored.

Machine learning provider: SkyTalk ML provider

Select machine learning model deployment
Select the deployment you want to use to generate the predictive model.

ML model name	Status	Training date	Last modified
SkyTalk churn prediction - P8 Extra Trees Classi...		11/8/2022, 2:34:42 PM	11/8/2022, 2:34:42 PM
Deployment name CHURN	ready	11/9/2022, 3:05:04 PM	11/9/2022, 3:05:04 PM
SkyTalk lifetime value prediction - P4 LGBM Reg...		11/8/2022, 2:33:40 PM	11/8/2022, 2:33:41 PM

Show deployed models only Upload

9. Click **Next**.

The screenshot shows the 'Configure predictive model' step in the IBM Automation interface. A red box highlights the 'Next' button at the top right.

Back to Customer Churn

Configure predictive model

Select provider and ML deployment Define input schema Test invocation Define output schema

10. Click **Run** to test the invocation.

The screenshot shows the 'Test invocation' step in the IBM Automation interface. A red box highlights the 'Run >' button.

Back to Customer Churn

Configure predictive model

Select provider and ML deployment Define input schema Test invocation Define output schema

Test invocation
Use test data to make sure the model works as expected.

Run >

11. If the test succeeds, click **Next**.

The screenshot shows the 'Configure predictive model' step in the IBM Cloud Pak | Automation interface after a successful test. A green bar at the bottom indicates 'Test succeeded'. A red box highlights the 'Next' button at the top right.

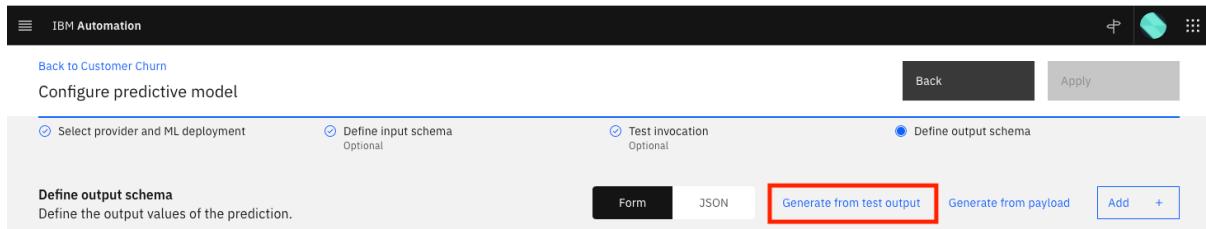
Back to Customer Churn

Configure predictive model

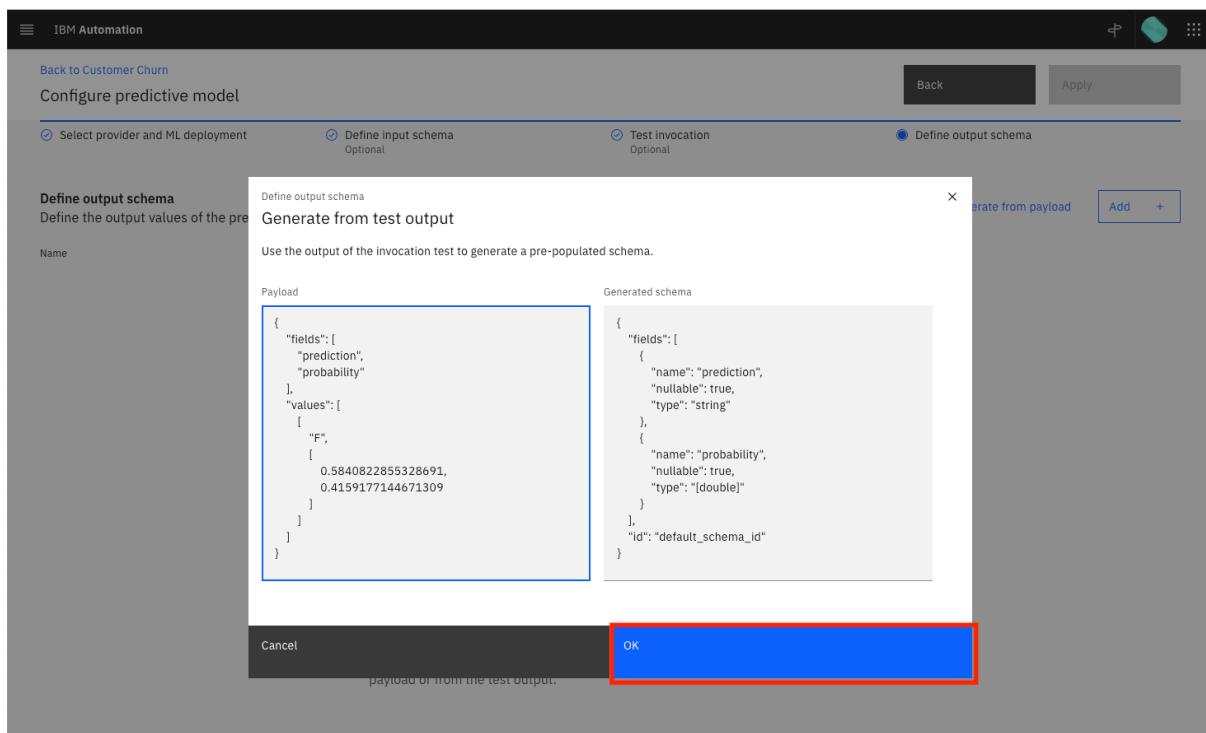
Choose configuration method Select provider and ML deployment Define input schema Test invocation Define output schema

Test succeeded You can use the test output to define the output schema.

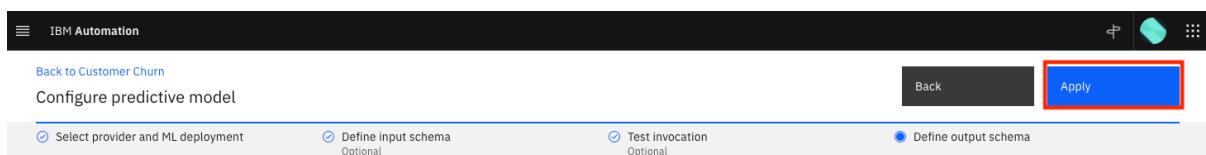
12. Click **Generate from test output.**



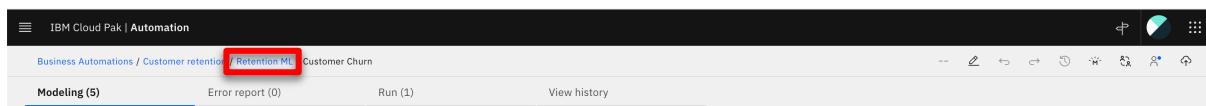
13. Click **OK.**



14. Click **Apply.**



15. Return to the **Retention ML using the breadcrumb menu.**



16. Click **Customer lifetime value** and repeat previous steps 2 - 12, expanding and selecting the **Customer lifetime value ML** model.

The screenshot shows the 'Models' tab in the IBM Cloud Pak | Automation interface. The table lists three models:

Name	Last updated by	Last updated at
Customer Churn	cp4admin	11/9/2022, 10:06:38 AM
Customer Lifetime Value	cp4admin	11/9/2022, 10:06:38 AM
Retention offer	cp4admin	11/9/2022, 10:06:38 AM

17. Click the **Retention offer** model.

The screenshot shows the 'Models' tab in the IBM Cloud Pak | Automation interface. The table lists three models:

Name	Last updated by	Last updated at
Customer Churn	cp4admin	11/9/2022, 10:06:38 AM
Customer Lifetime Value	cp4admin	11/9/2022, 10:06:38 AM
Retention offer	cp4admin	11/9/2022, 10:06:38 AM

18. Select the **Run** tab.

The screenshot shows the 'Run' tab in the IBM Cloud Pak | Automation interface. The tabs include Modeling (9), Error report (0), Run (3), and View history. The 'Run' tab is highlighted with a red box.

19. Select the **High value profile** test file (1) and click **Run** (2).

Note: The **retention offer** should display. Click **Run** again if you get a timeout error the first time.

The screenshot shows the 'Run' tab in the IBM Cloud Pak | Automation interface. The 'Test data' dropdown is set to 'High value profile' (1). The 'Run' button is highlighted with a red box (2).

Your result should match the screen below:

The screenshot shows the IBM Cloud Pak | Automation interface. The top navigation bar includes 'IBM Cloud Pak | Automation', 'Business Automations / Customer retention / Retention ML / Retention offer', and various icons for search, refresh, and user profile.

The main area has tabs for 'Modeling (9)', 'Error report (0)', 'Run (3)', and 'View history'. The 'Run (3)' tab is selected, indicated by a blue underline.

On the left, there's a sidebar titled 'High value profile' with a note 'Fill input fields with supported data'. It lists input fields: 'customer' (with 'car_owner' and an empty checkbox), 'estimated_income' (with value '38000'), and 'sender'. To the right of the sidebar, the 'Decision output' section shows a single node named 'Determine retention offer'. The 'Result' panel displays the JSON output:

```
{"estimated_cost":34.35,"message":"Upgrade Sarah Miller to PREMIUM with a 1"}
```

. A red box highlights this result panel.

3 - Redeploy the decision service

1. Click **Customer retention** in the breadcrumb menu.

The screenshot shows the IBM Cloud Pak | Automation interface. The breadcrumb menu at the top indicates the current location: Business Automations / Customer retention / Retention ML / Retention offer. Below the menu, there are tabs for Modeling (9), Error report (0), Run (3) (which is selected), and View history. A toolbar below these tabs includes buttons for Test data, High value profile, Add test data set, Run, and Deploy.

2. Select the **Share changes** tab.

The screenshot shows the Customer retention page. The navigation bar at the top has tabs for Decision services (2), Load changes, and Share changes (2) (which is selected). Below the tabs, there are buttons for View history and Deploy. The main content area is titled "Share changes" and displays a list of changes made locally with collaborators.

3. Click the **share all changes** box (1) and click **Share** (2).

The screenshot shows the Share changes page. The "Share changes" section lists several changes made locally with collaborators. A red circle labeled "1" highlights the "Share all changes" checkbox, which is checked. A red circle labeled "2" highlights the "Share" button, which is highlighted in blue. The table columns include Decision service name, Updated artifacts, Details, and Last updated.

Decision service name	Updated artifacts	Details	Last updated
Initial retention	2	Decision service updated	11/9/2022, 10:06:38 AM
Name	Type		
Retention offer	Decision model	Artifact updated	11/9/2022, 10:06:38 AM
Retention ML	2	Decision service updated	11/9/2022, 10:06:38 AM
Name	Type		
Customer Churn	Predictive model	Artifact updated	11/9/2022, 10:06:38 AM
Customer Lifetime Value	Predictive model	Artifact updated	11/9/2022, 10:06:38 AM

4. Click **Share** to push the updates to the git repository.

The screenshot shows the Share changes dialog box. It contains a table with a single row: Name (Retention offer) and Type (Decision model). Below the table is a text input field for "Describe the changes (optional)" with the placeholder "Why did you make these changes?". At the bottom of the dialog box is a "Share" button, which is highlighted in blue.

5. Select the **View history** tab.

The screenshot shows the IBM Cloud Pak | Automation interface. At the top, there's a navigation bar with 'IBM Cloud Pak | Automation' and a 'Business Automations /' breadcrumb. Below the navigation is a header titled 'Customer retention'. Underneath the header are several tabs: 'Decision services (2)', 'Load changes', 'Share changes', 'View history' (which is highlighted with a red box), and 'Deploy'. A success message box is visible in the top right corner, stating 'Success: Your changes were successfully shared.' with the date '09/11/2022, 15:17:24'.

6. Click **Version +** in the row with the deployment you just created.

This screenshot shows the 'View history' page. The title 'View history (5)' is at the top, followed by a subtitle 'View all the changes you and your collaborators shared.' Below this is a table with columns 'Last shared', 'Shared by', and 'Versions'. The first row in the table has a 'Version +' button highlighted with a red box. The table lists five entries, each with a 'Restore' link and a 'Version +' button.

Last shared	Shared by	Versions
11/9/2022, 6:12:38 PM	cp4admin	No version is created Restore Version +
11/9/2022, 3:55:51 PM	cp4admin	1.0.0 X Restore Version +
11/9/2022, 3:17:16 PM	cp4admin	No version is created Restore Version +
11/9/2022, 10:06:38 AM	cp4admin	No version is created Restore Version +
11/8/2022, 3:36:20 PM initial commit	cp4admin	No version is created Restore Version +

7. Name the version number **2.0.0** (1). Click **Create** (2).

This screenshot shows the 'Create a version' dialog box. It has a 'Name' input field containing '2.0.0' (circled with a red '1'). Below the input field is a 'Description (optional)' section with a text area and a note: 'What changes were made in this version?'. At the bottom of the dialog, there's a note: 'This version will be based on the following set of shared changes: 11/9/2022, 6:12:38 PM by cp4admin No message To create a version from another set of shared changes, go to the View history tab.' The 'Create' button at the bottom right is highlighted with a red '2'.

8. Click the **Deploy** tab.

The screenshot shows the 'Customer retention' page in the IBM Cloud Pak | Automation interface. At the top, there are tabs for 'Decision services (2)', 'Load changes', 'Share changes', 'View history', and 'Deploy'. The 'Deploy' tab is highlighted with a red box. Below the tabs, there is a section titled 'View history (5)' with a note: 'View all the changes you and your collaborators shared.' A blue line points from the text '8. Click the Deploy tab.' to the 'Deploy' tab.

9. Expand the latest version.

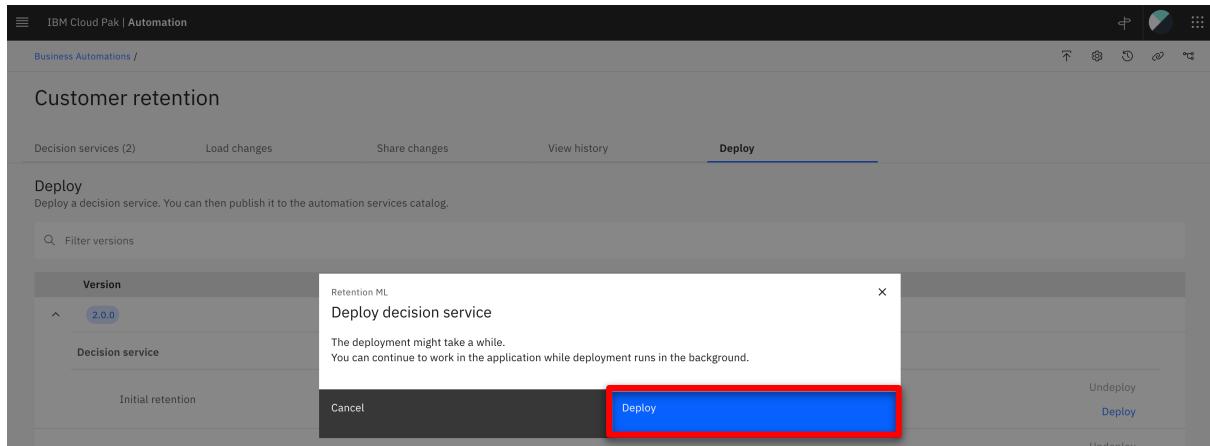
The screenshot shows the 'Customer retention' page with the 'Deploy' tab selected. Under the 'Deploy' section, it says 'Deploy a decision service. You can then publish it to the automation services catalog.' Below this is a table with columns 'Version', 'Shared on', and 'Shared by'. The table has two rows: one for version 2.0.0 (shared on 11/9/2022, 6:13:44 PM by cp4admin) and one for version 1.0.0 (shared on 11/9/2022, 4:42:42 PM by cp4admin). A red box highlights the expand arrow next to the 2.0.0 row. A blue line points from the text '9. Expand the latest version.' to the expand arrow.

10. Click **Deploy** in the **Retention ML** row.

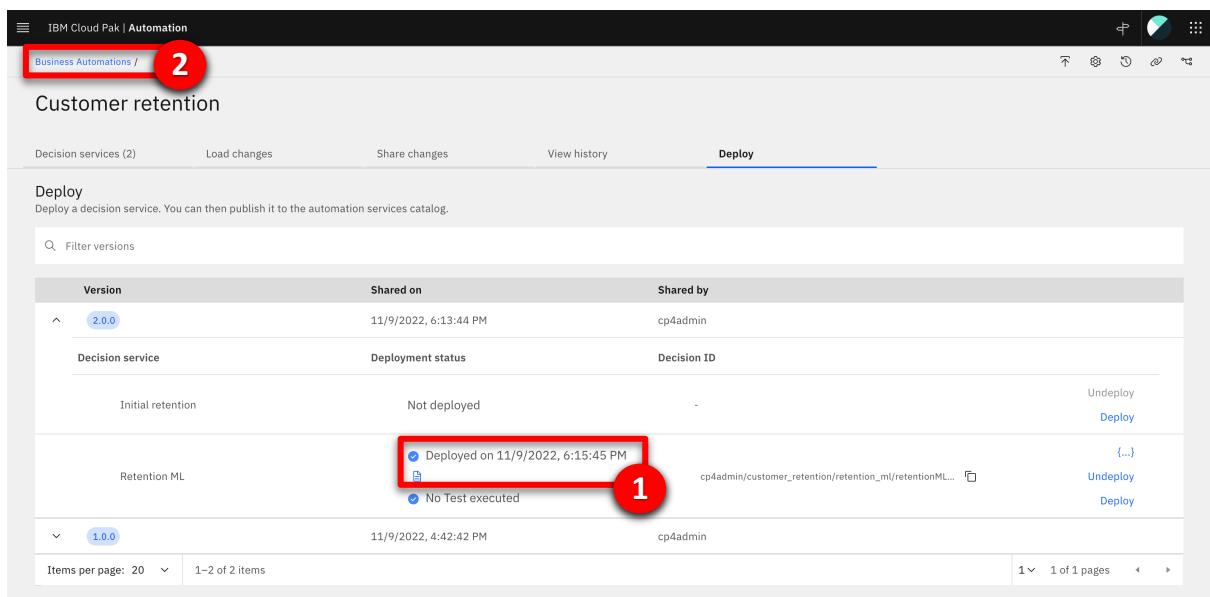
Note: Make sure you do not click the **Initial retention** decision service row.

The screenshot shows the 'Customer retention' page with the 'Deploy' tab selected. Under the 'Deploy' section, it says 'Deploy a decision service. You can then publish it to the automation services catalog.' Below this is a table with columns 'Version', 'Shared on', 'Shared by', 'Decision service', 'Deployment status', and 'Decision ID'. The table has two rows: one for 'Initial retention' (version 2.0.0, deployment status 'Not deployed') and one for 'Retention ML' (version 1.0.0, deployment status 'Not deployed'). A red arrow points to the 'Retention ML' row. A red box highlights the 'Deploy' button in the 'Retention ML' row. A blue line points from the text '10. Click Deploy in the Retention ML row.' to the 'Deploy' button.

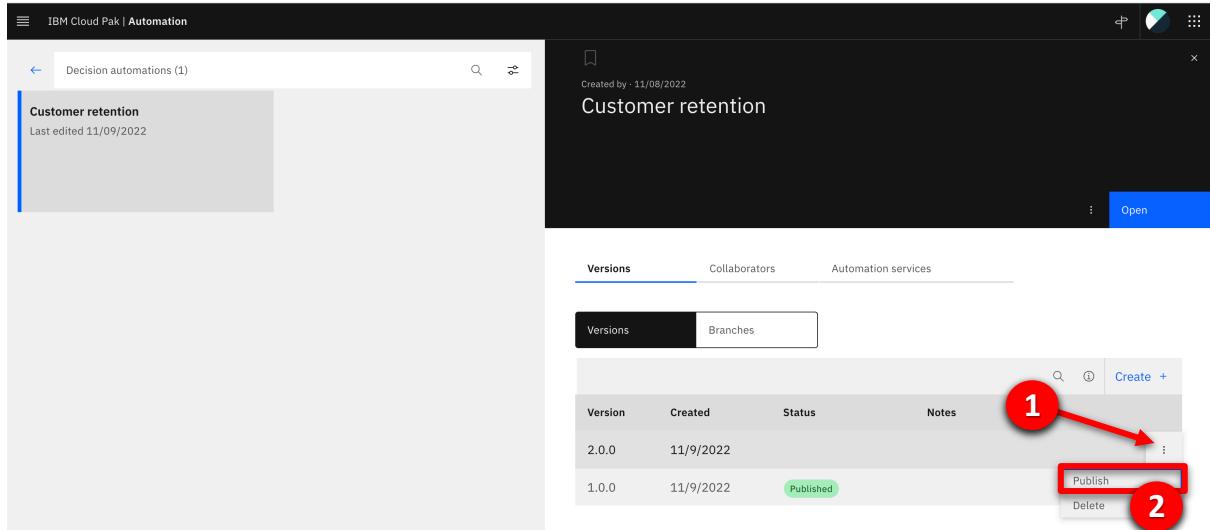
11. Click **Deploy** when prompted.



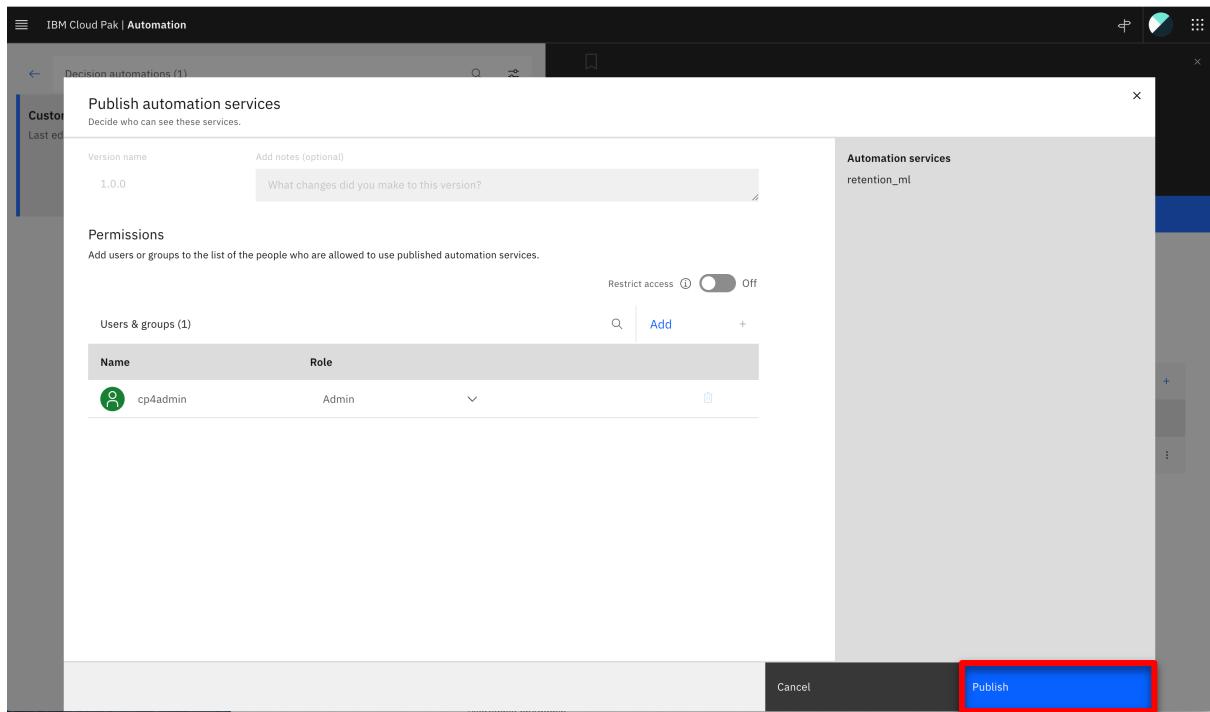
12. Wait for the deployment to finish (1). Click **Business Automations** (2).



13. The most recently deployed service displays. Click the **three dots** icon (1) and then select **Publish** (2).



14. Click **Publish**.



Note: If the service fails to publish, wait for 5 minutes and try again later.

15. Ensure the service appears as **Published.**

The screenshot shows the IBM Cloud Pak | Automation interface. On the left, there's a sidebar titled "Decision automations (1)" with a single item: "Customer retention" (Last edited 11/09/2022). The main panel displays the "Customer retention" service details, including its creation date (11/08/2022). Below this, there are tabs for "Versions", "Collaborators", and "Automation services". The "Versions" tab is selected, showing a table with two rows:

Version	Created	Status	Notes
2.0.0	11/9/2022	Published	
1.0.0	11/9/2022	Published	

A red box highlights the "Published" status for the 2.0.0 version. A blue "Open" button is located in the top right corner of the main panel.

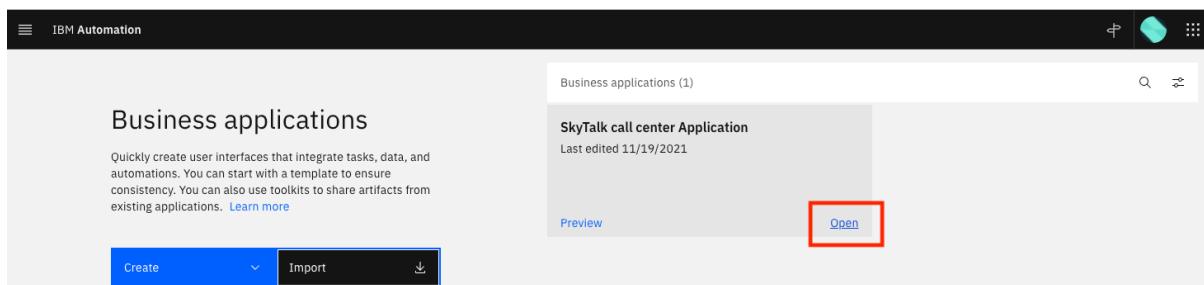
4 - Reconnect the decision services to the call center application

This step must be performed anytime a new version of the SkyTalk_rentention_DS is deployed. Make sure only the latest deployed DS is published to prevent “Data renaming issues” when reimporting the new service.

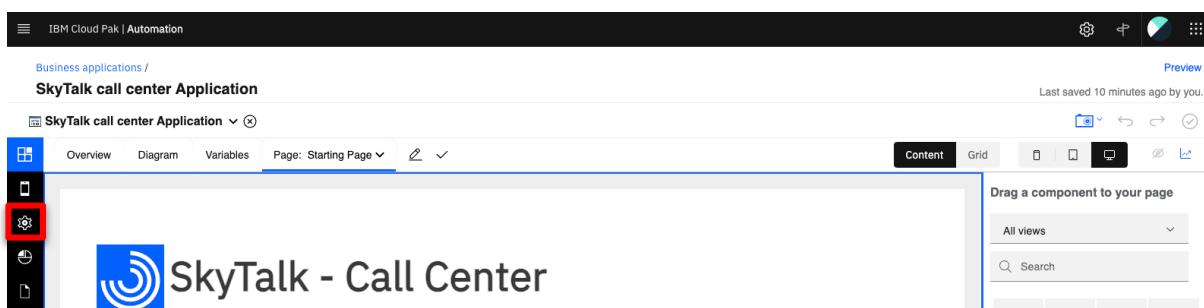
1. Log into Cloud Pak for Business Automation. Use the bookmark and credentials saved in step 1.13.
2. Open the **top menu** (1), expand the **Design** menu (2), and then **Business applications** (3).



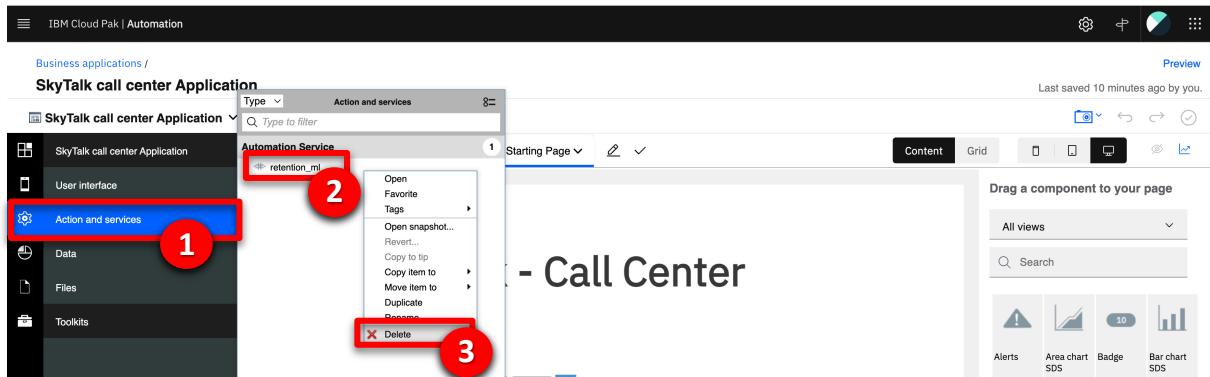
3. Hover the mouse over the **SkyTalk call center Application** tile and click **Open**.



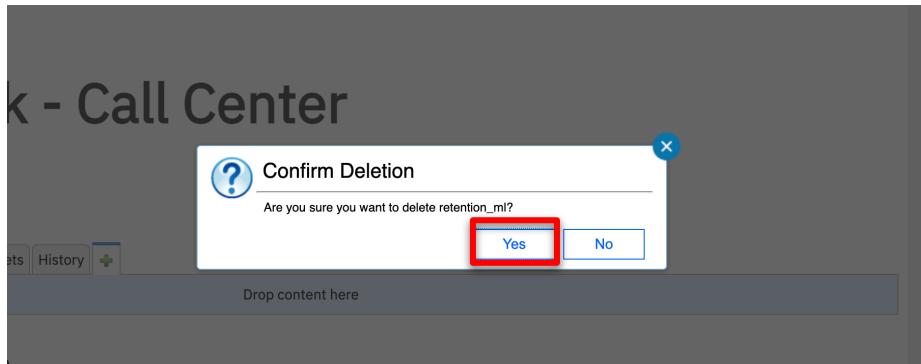
4. Click the **gear** icon in the left-hand side ribbon.



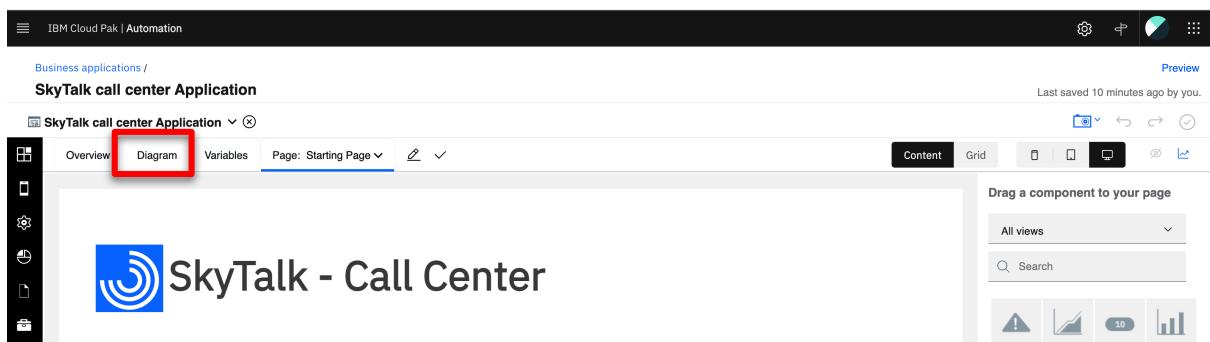
5. Click **Action and services** (1), right-click **rentention_ml** (2) and then click **Delete** (3).



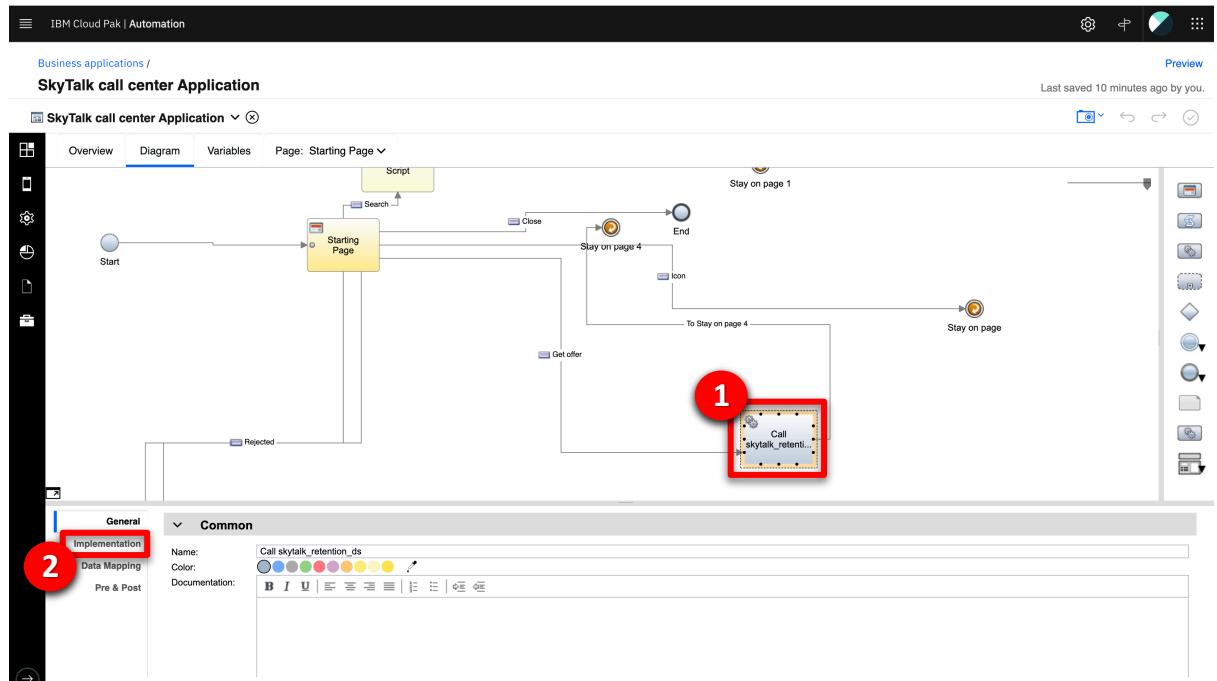
6. Click **Yes** to confirm.



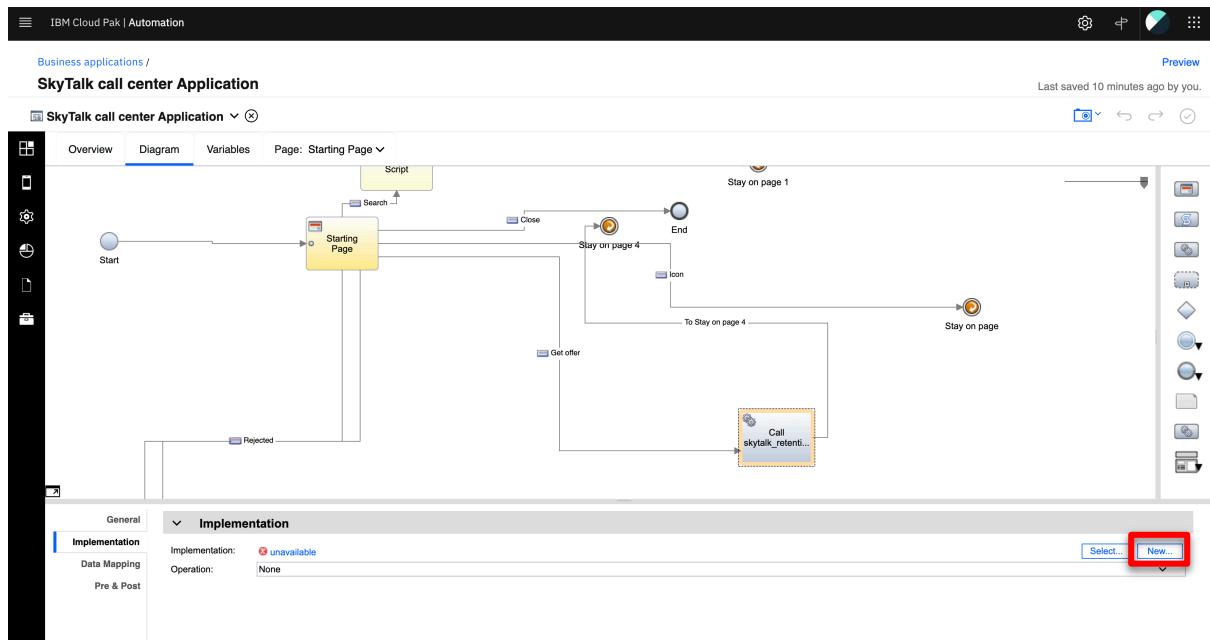
7. Click the **Diagram** tab.



8. Select the **Call skytalk_retention_ds** node (1) and click the **Implementation** tab (2) below the diagram.

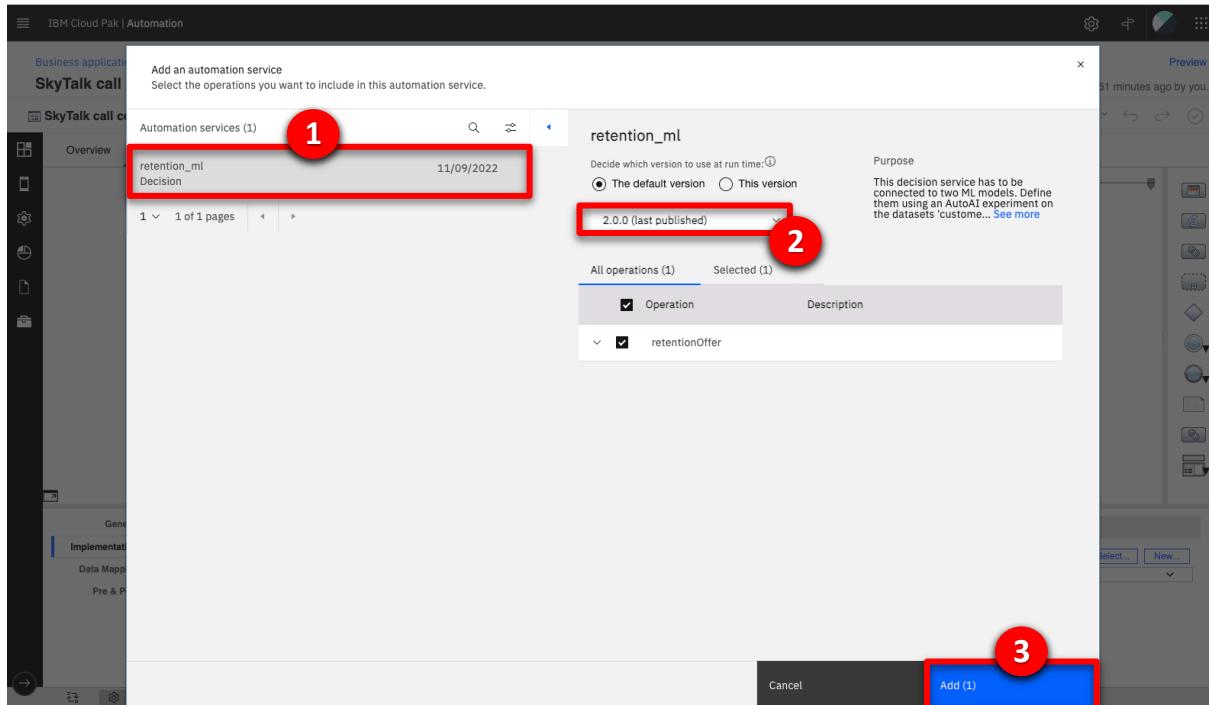


9. Click **New...**

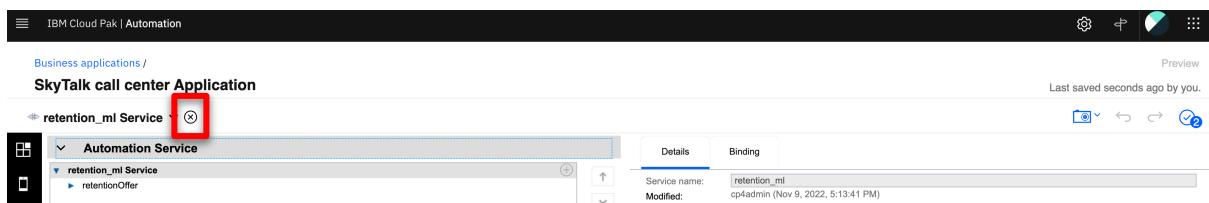


10. Click **retention_ml** (1) and select the most recently deployed version (2) as the default **version to use at runtime**. Click **Add** (3).

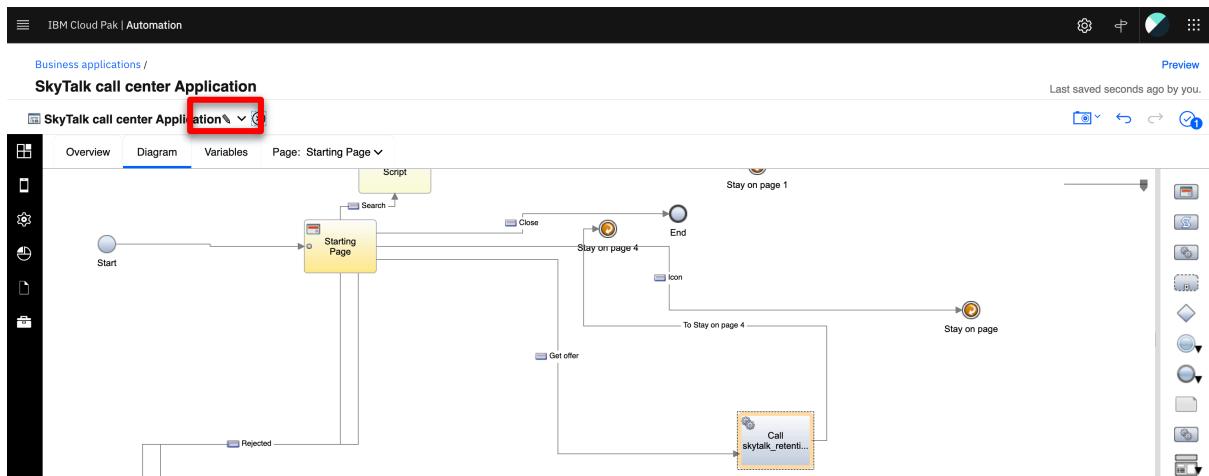
Note: Close the window if it does not close automatically after clicking the **Add** button.



11. Click **x** next to **retention_ml Service**.



12. Click the **Variables** tab.



13. Click **customer (unavailable)**.

The screenshot shows the 'Variables' tab selected in the navigation bar. On the left, there's a sidebar with icons for Overview, Diagram, Variables, and Page: Starting Page. The main area displays a list of variables under the 'Data' category. One variable, 'customer (unavailable)', is highlighted with a red box.

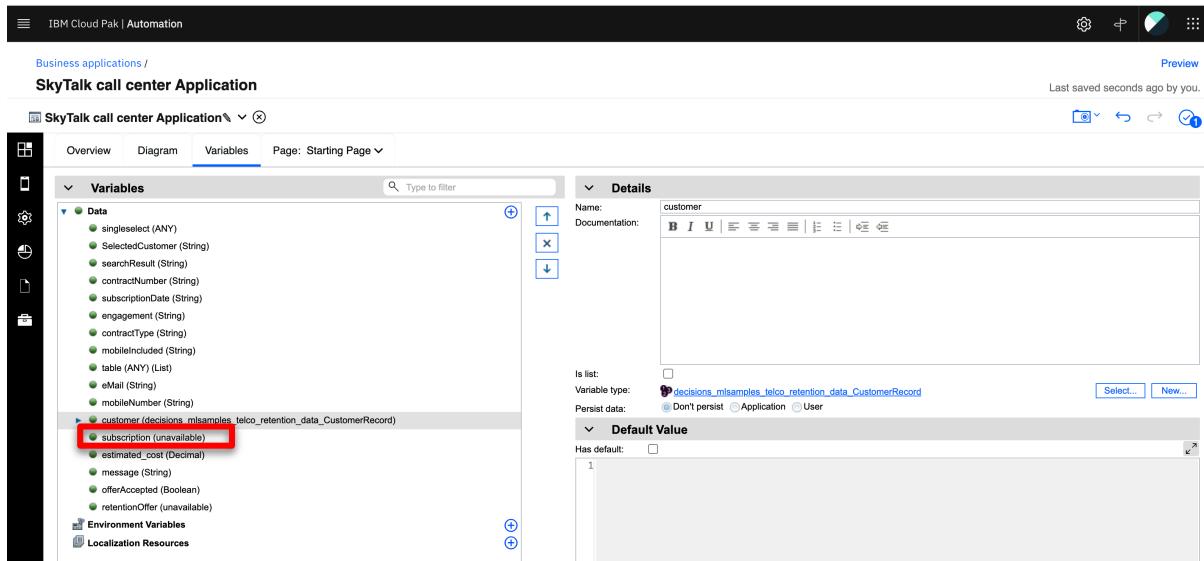
14. Click **Select...**

The screenshot shows the 'Details' view for the 'customer (unavailable)' variable. The 'Name:' field contains 'customer'. In the bottom right corner of the details panel, there is a red box around the 'Select...' button.

15. Select **decision_mlsamples_telco_retention_data_CustomerRecord** as the **Business Object**.

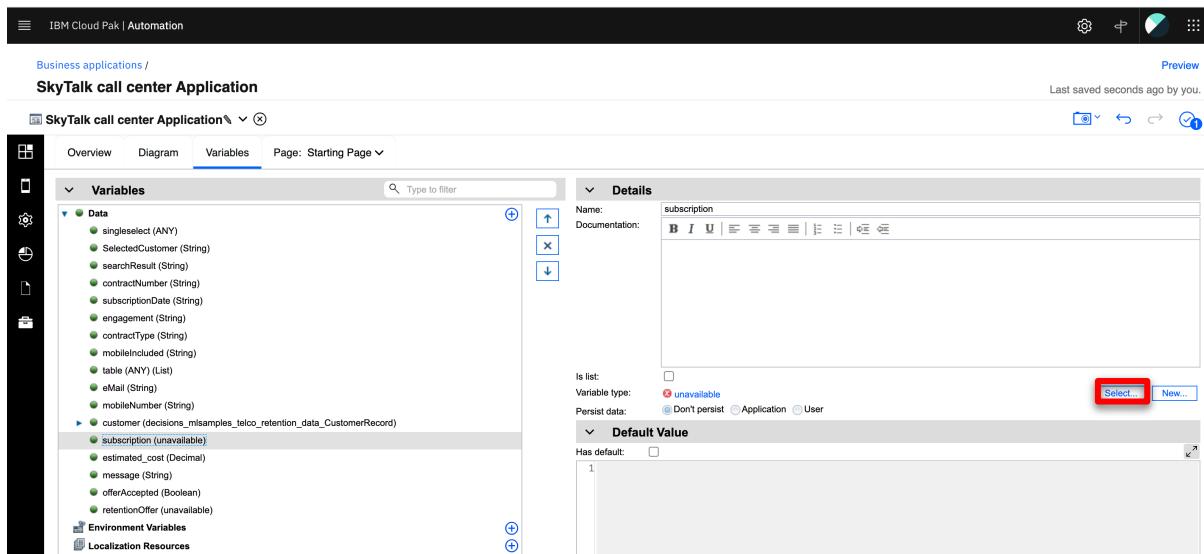
The screenshot shows the 'Details' view for the 'customer' variable. A modal window titled 'Select Library Item' is open, displaying a list of business objects. The item 'decision_mlsamples_telco_retention_data_CustomerRecord' is highlighted with a red box.

16. Click **subscription (unavailable)**.



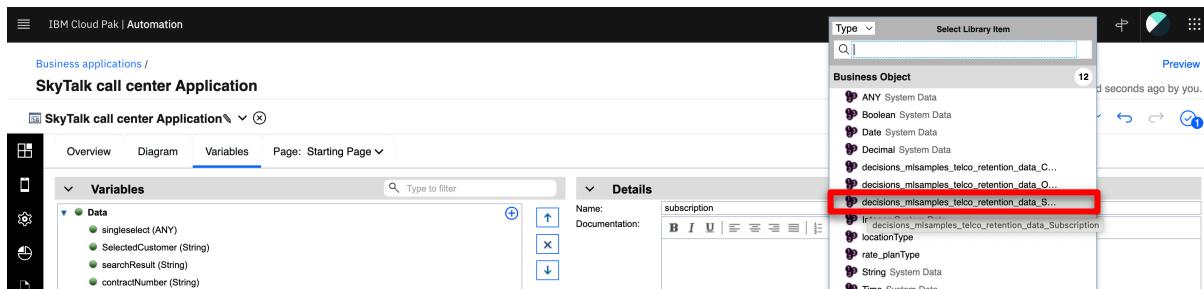
The screenshot shows the 'Variables' tab in the IBM Cloud Pak | Automation interface. The left sidebar has icons for Overview, Diagram, Variables, and Page: Starting Page. The main area has a search bar 'Type to filter'. Under 'Variables', there is a tree view with 'Data' expanded, showing various variables like 'singleselect (ANY)', 'SelectedCustomer (String)', etc., and a specific node 'customer (decisions_mlsamples_telco_retention_data_CustomerRecord)'. Below it, 'subscription (unavailable)' is highlighted with a red box. To the right is the 'Details' panel for 'subscription', which includes fields for Name (customer), Documentation, Is list (unchecked), Variable type (decisions_mlsamples_telco_retention_data_CustomerRecord), Persist data (radio buttons for Don't persist, Application, User), and a Default Value field containing '1'.

17. Click **Select...**



This screenshot is similar to the previous one but shows the 'Select...' button in the 'Variable type' section of the 'Details' panel for 'subscription' being clicked. A red box highlights the 'Select...' button.

18. Select **decision_mlsamples_telco_retention_data_Subscription** as the **Business Object**.



This screenshot shows the 'Select Library Item' dialog box open over the 'Variables' tab. The 'Business Object' section is expanded, and a red box highlights the 'decision_mlsamples_telco_retention_data_Subscription' option in the list. Other options listed include ANY System Data, Boolean System Data, Date System Data, Decimal System Data, decisions_mlsamples_telco_retention_data_C..., decisions_mlsamples_telco_retention_data_O..., and others.

19. Click **retentionOffer (unavailable)**.

The screenshot shows the 'Variables' tab in the IBM Cloud Pak | Automation interface. On the left, there's a sidebar with icons for Overview, Diagram, Variables, and Page: Starting Page. The main area has a search bar at the top. Below it, the 'Variables' section is expanded, showing a list of variables under the 'Data' category. One variable, 'retentionOffer (unavailable)', is highlighted with a red box. To the right, the 'Details' panel shows the variable's name ('retentionOffer'), documentation ('subscription'), and type ('singleselect (ANY)'). It also shows Persist data options: 'decisions_mlsamples_telco_retention_data_Subscription' (selected), 'Don't persist', 'Application', and 'User'. A 'Default Value' section shows the value '1'. At the bottom right of the 'Details' panel, there are 'Select...' and 'New...' buttons.

20. Click **Select...**

This screenshot is similar to the previous one, but the 'Select...' button in the 'Details' panel of the 'Variables' tab is now highlighted with a red box.

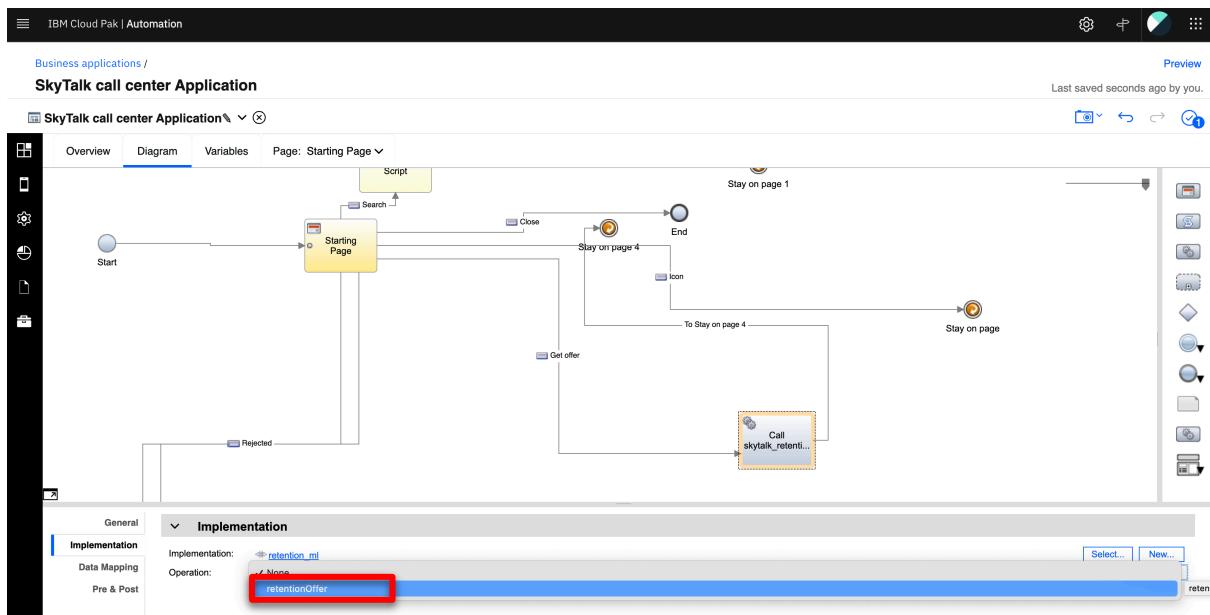
21. Select **decision_mlsamples_telco_retention_data_Offer** as the **Business Object**.

This screenshot shows the 'Variables' tab again. The 'Details' panel for the 'retentionOffer' variable now has a red box around the 'decisions_mlsamples_telco_retention_data_Offer' entry in the 'Business Object' dropdown menu. Other options like 'ANY System Data' and 'Boolean System Data' are also visible in the dropdown.

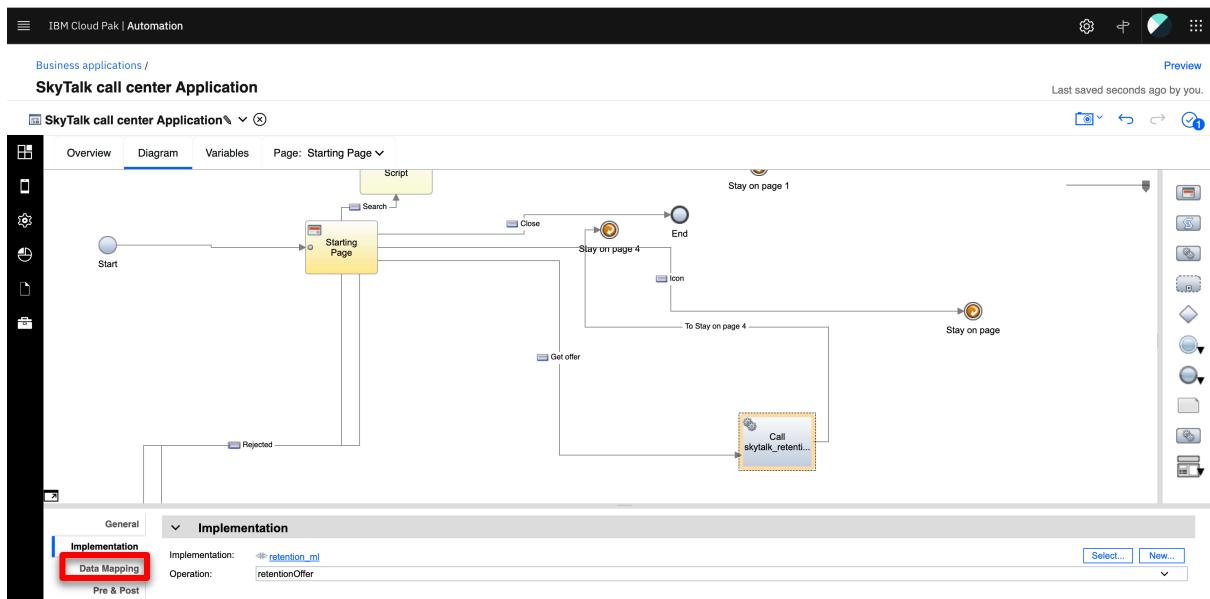
22. Click **Diagram**.



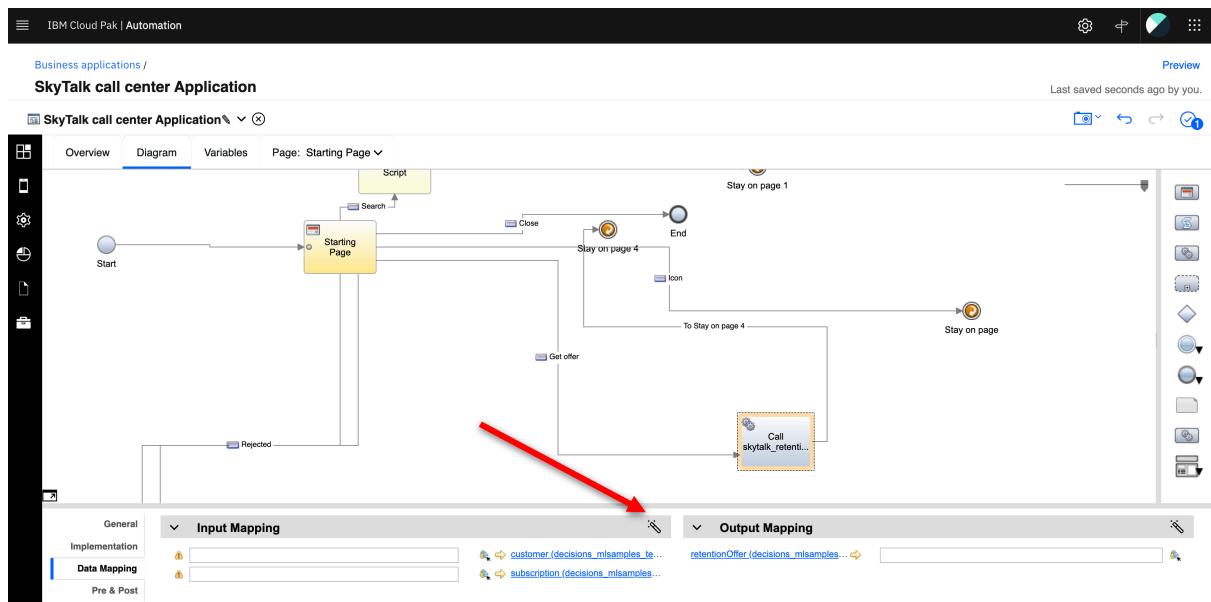
23. Select **retentionOffer** on the **Operation** selector in the **Implementation** tab below the diagram.



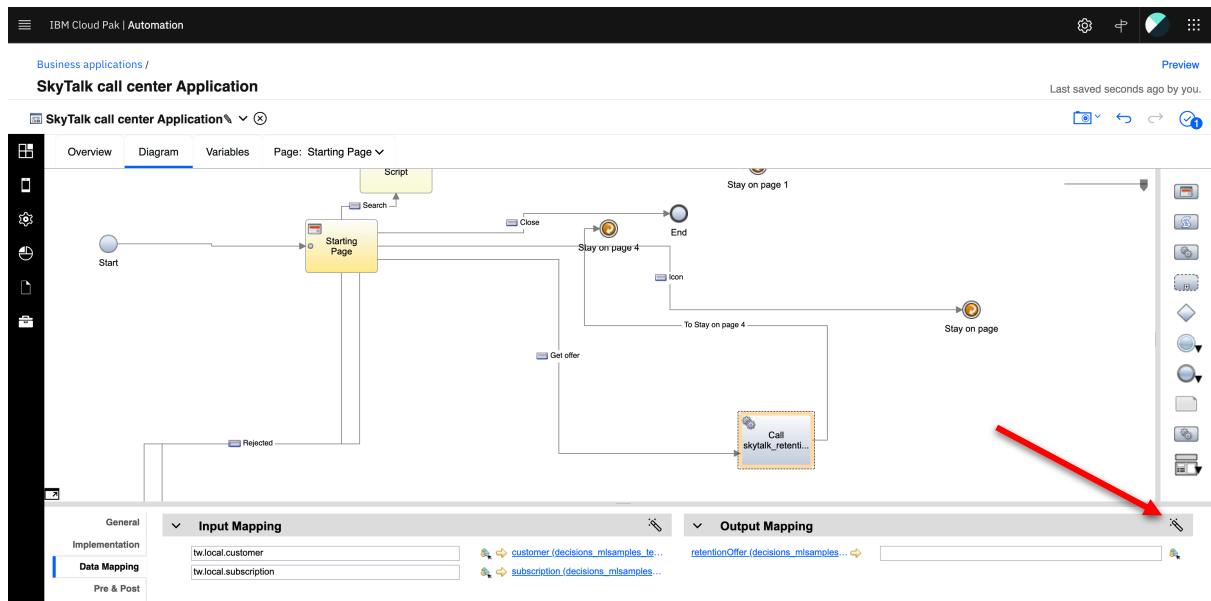
24. Click the **Data mapping** tab below the diagram.



25. Click the **automatic input mapping wand** icon.



26. Click the **automatic output mapping wand** icon.



27. Click **Preview**.



28. Enter ‘Peter Carter’ (1) in the **Search customer** field and click **Search** (2).

The screenshot shows the 'Customer details' section of the SkyTalk - Call Center interface. At the top, there is a search bar with 'Peter Carter' typed into it. To the right of the search bar is a red circle containing the number '2', which points to the 'Search' button. Below the search bar, there are three main sections: 'Customer information', 'Customer-provided personal data', and 'Subscription details'. The 'Customer information' section includes fields for Gender (M), Name (Peter Carter), Email address (pet.carter78@outRange.com), Mobile number (+33 (4) 92 96 61 61), and Location (urban). The 'Customer-provided personal data' section includes Age (49), Situation (\$), Size of household (0), and Estimated income (64,000). The 'Subscription details' section includes Rate plan (Essentials), Local calls (30), Long distance calls (40), International calls (30), Usage (90), and Payment method (CC). A red circle containing the number '1' points to the search results.

29. Click **Get offer**.

The screenshot shows the same 'Customer details' section as before, but now it includes a 'Retention offer recommendation' section at the bottom. This section displays a message: 'Offer Peter Carter a 10% discount on his current subscription'. Above this message, there is a red box around the 'Get offer' button, which is highlighted with a red circle containing the number '2'. The rest of the page remains identical to the previous screenshot.

30. The offer displays.

The screenshot shows the same 'Customer details' section and 'Retention offer recommendation' section as the previous screenshot. The 'Retention offer recommendation' section now contains the message: 'Offer Peter Carter a 10% discount on his current subscription'. This message is enclosed in a red box, which is highlighted with a red circle containing the number '2'. Below this box, there are two buttons: 'Accepted' (green) and 'Rejected' (red). A red circle containing the number '1' points to the 'Accepted' button. The rest of the page remains identical to the previous screenshots.