

Updated October 29, 2024

Welcome to the Level 4 Proof of Experience (PoX) hands-on lab for watsonx.governance, customized for Deloitte. This lab assumes that you have completed the [watsonx.governance Level 3 hands-on lab](#) and that you are comfortable using the watsonx/Cloud Pak for Data environment to work with projects, models, and Jupyter notebooks.

The purpose of this lab is to provide you with enough knowledge, information, and resources to perform a PoX for a client. The use case has been selected to be as broadly applicable as possible, but you should customize aspects of it to your client where appropriate.

Where the Level 3 lab focused on evaluating and monitoring models built in IBM's environment from the persona of an AI engineer, this lab will examine AI governance from the perspective of the broader organization. You will use the watsonx.governance console from the perspective of business stakeholders such as organization heads and risk officers. You will use the console to customize workflows, build questionnaires, assign regulatory evaluations, and more.

Working in teams

The size of the environments used in this lab has limited the number available for the hands-on lab. For this reason, you will need to work in teams of two (possibly three) for the lab. Each team will be assigned a single environment. The changes made to the environment, including the environment configuration, workflows, forms, and questionnaires in the watsonx governance console (OpenPages) affect all users of that environment.

However, beginning with the **Govern generative models** portion of the hands-on lab, teams may elect to begin working independently of one another using the single created user. If working independently, each team member will need to name all objects created (projects, deployment spaces, use cases, etc) with identifying information, such as their initials.

Use case

In this case, you will work as several members of a large international bank. You will need to oversee the creation of use cases to address business problems with AI, put in place specialized workflows, identify risks, and ensure that best practices are met in the approval process.

Getting started

This lab assumes that you have access to a fully configured watsonx.governance environment, with installed and running instances of the governance console (OpenPages), monitoring console (OpenScale), and Db2. It does **NOT** assume that your environment is equipped with graphics processing units (GPUs). For instructions on provisioning and

configuring an environment in TechZone, see the [watsonx.governance configuration lab](#). You will need the Cloud Pak for Data console URL and login credentials created in that lab.

Environment and example user

The environment for this lab has been provisioned and configured for you. You will need the Cloud Pak for Data URL and administrator password for your environment. Perform all steps as the administrator unless otherwise directed in the lab instructions.

An example user named William Deloitte has also been created to illustrate some of the access management in the environment. That example user can sign in using the following credentials:

- **Username:** complianceofficer
- **Password:** passw0rd

1. Logging into your environment

Enter the Cloud Pak for Data URL into your browser, and login as the **admin** user with the provided password to begin the lab. If you have issues obtaining your credentials or logging in, alert your lab instructor.

Customize the governance console

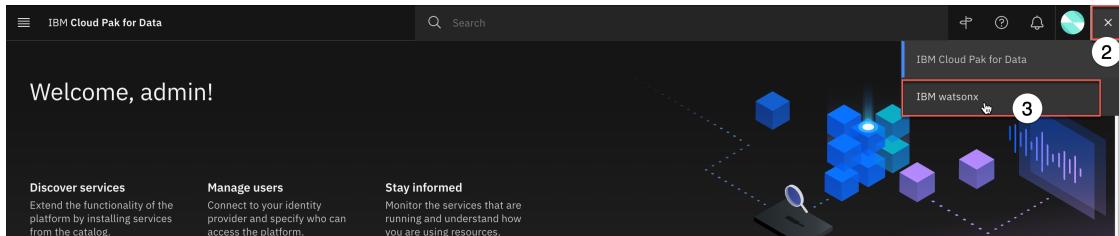
[IBM OpenPages](#) is an AI-driven, highly scalable governance, risk and compliance (GRC) solution that runs on any cloud with IBM Cloud Pak for Data. Its full capabilities are well beyond the scope of this lab. Instead, the lab will focus on the features that relate to governing models: customizable workflows and alerts, integration with Factsheets, and the ability to get an enterprise-wide view of the status of AI and machine learning initiatives. In the context of [watsonx.governance](#), the OpenPages solution is referred to as the **governance console**. However, in many locations in the user interface, you will see it being referred to as OpenPages.

The [watsonx governance](#) console can be fully customized to fit an individual organization. As part of the configuration of the lab environment, your instructors loaded sample user and organization data to more fully flesh out the business. For the first several sections of the lab, you will customize business entities, create users, and modify views and workflows to see how the solution can be customized to meet an organization's requirements. These customizations would be performed by an administrator persona, responsible for configuring the [watsonx.governance](#) solution for the organization.

1. Switch contexts

The **IBM watsonx** context offers an improved user interface and better integration for AI governance than the Cloud Pak for Data context, and offers expanded functionality such as monitoring for detached prompt templates. Some operations, such as creating a database, currently require using the **Cloud Pak for Data context**. However, for the remainder of the lab, you will use the **IBM watsonx** context.

1. Log into the Cloud Pak for Data home page using the credentials from your reservation.
2. Click on the **grid icon** in the upper right to open the context menu.
3. Click on the **IBM watsonx** menu item to change the context. A **Welcome to watsonx** popup window may open.



Context

4. Close the popup window, or click the **Take a tour** button if you wish.

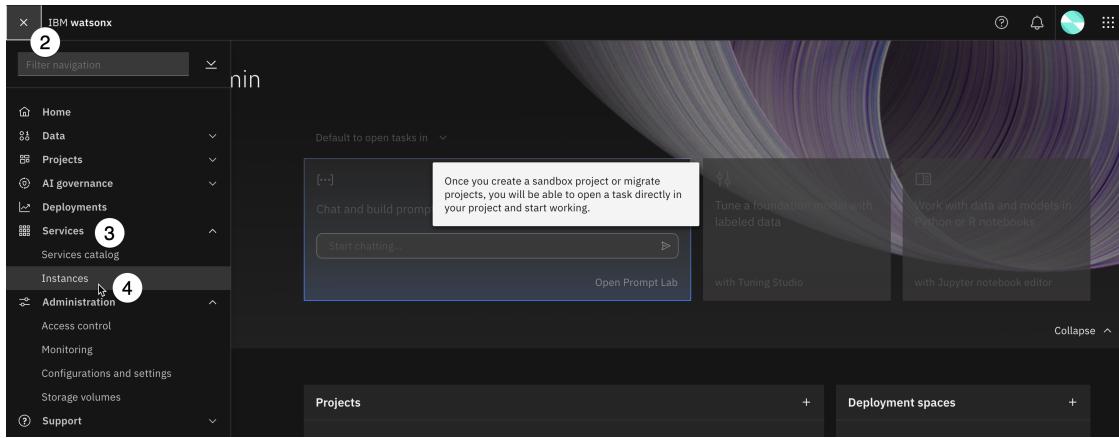
Your screen should now show IBM watsonx branding. This screen will be referred to throughout the lab as the watsonx home screen.

① **Note:** You will likely need to switch to the watsonx context every time you sign in to your environment.

2. Launch the governance console

In this section, you will launch the OpenPages service.

1. If necessary, return to the watsonx home page by clicking the **IBM watsonx** link in the upper left.
2. Click on the **hamburger menu** in the upper left.
3. Click on the **Services** item from the menu to expand it.
4. Click on **Instances** to open the **Instances** screen.



Instances

- Locate the instance of OpenPages in the table and click on the link in the **Name** column to open the instance details screen.

Name	Type	Created by	vCPU requests	Memory requests (GiB)	Data plane	Physical location	Status	Created on
cpd-database	db2oltp	admin	2.10	4.25 Gi	—	—	Green	Oct 11, 2024
openscale-defaultinstance	aios	admin	0.00	0.00 Gi	—	—	Green	Oct 8, 2024
openpagesinstance-cr	openpages	admin	4.45	12.40 Gi	—	—	Green	Oct 8, 2024

Instance details

- Scroll down to the **Access information** section, and click the **launch icon** to launch the service.

openpagesinstance-cr

Status	Running
Database configuration	
Access information	Database type Internal database
URL	https://cpd-cpd.apps.ocp-110000b3qc-p09m.cloud.techzone.ibm.com/ openpages-openpagesinstance-cr/ <div style="display: flex; align-items: center;"> 6 Launch OpenPages </div>
Size	Data storage class ocs-storagecluster-ceph-rbd

Launch OpenPages

The OpenPages services launches.

3. Update the user profile

A sample Cloud Pak for Data user has been created for you, and given access to the governance console. In this step, you will give them access to the roles and permissions they need to perform required tasks.

Note that in this example, you will provide the created user with multiple profiles that will allow them to perform all actions, in order to streamline the instructions and avoid repetitive login/logout actions to switch between user profiles.

1. Click the **gear icon** in the upper right to open the Administration view.
2. Click on the **Users and Security** menu option to expand it.
3. Click on **Users**.

The screenshot shows the IBM Watsonx Governance Console interface. At the top, there's a navigation bar with icons for home, search, and settings. Below it, a sidebar titled 'Solution Configuration' contains options like 'Users and Security' (which is expanded), 'Users', 'Domains & Groups', 'Role Templates', 'Security Rules', 'User LDAP Configuration', and 'Encryption Keystore'. The main content area is titled 'Business Entities (14)' and shows a table with columns: Name, Description, Executive Owner, Risk Appetite, In Scope, and In R. A search bar and a 'Catalysts' link are also present.

Configure users

4. Locate the **William Deloitte** created user in the table, which is alphabetized by first name. Click on the link for the created user.

The screenshot shows the 'Users' page in the IBM Watsonx Governance Console. The title bar says 'IBM Watsonx | Governance console' and 'All Users'. The main area is titled 'Users (22)' and contains a table with columns: First Name, Last Name, User Name, Email, and Enabled. The table lists several users, including 'Bob Eldridge' and 'Eric Martens'. The row for 'Eric Martens' is highlighted with a yellow background and has a circled number '4' above it. The 'Enabled' column shows values like 'True' or 'False' in small circles. A 'New User +' button is at the top right of the table.

Created user

5. Click on the **Locale and Profiles** menu item from the menu on the left to scroll down to the **Locale and profiles** section.
6. Click the **pencil icon** next to **Allowed user profiles**.

Users
complianceofficer Active

User Information

User must change password at next logon: False

User cannot change password: False

Locale and Profiles

Locale: U.S. English

Current profile: OpenPages Modules Master

Allowed user profiles: OpenPages Modules Master

Allowed group profiles: This user is not part of any group profiles

5 Locale and Profiles

Edit profiles

7. Enter **watsonx** in the **Allowed user profiles** text entry to narrow down the list of profiles.
8. Check the boxes next to all four **watsonx.governance** profiles.

User Information

Locale and Profiles

Locale: U.S. English

Current profile: OpenPages Modules Master

* Allowed user profiles:

- 7** watsonx
- watsonx-governance Modules Master
- watsonx-governance MRG Master
- watsonx-governance ORM Master
- watsonx-governance RCM Master

8 Role Assignments

Reports Access

Profiles

9. Scroll down to the **Role Assignments** section and click on the arrow to expand it.
10. Click on **Assign Roles**. The **Role Assignments** pane opens.

User Information

Locale and Profiles

Current profile: OpenPages Modules Master

Allowed user profiles: OpenPages Modules Master, watsonx-governance Modules Master, watsonx-governance MRG Master, watsonx-governance ORM Master, watsonx-governance RCM Master

Allowed group profiles: This user is not part of any group profiles

Group Memberships

9 Role Assignments

Search:

Role Source	Role Type	Role Template	Security Domain
No results			

Reports Access

10 Assign Roles

Assign roles

11. In the **Role Template** field, enter the text **mrg** to narrow down the search fields. In this context, **mrg** stands for Model Risk Governance, as you will be assigning related roles to your created user.

12. Check the box next to **MRG - All Permissions**.

The screenshot shows the 'Users' section of a governance console. On the left, the 'complianceofficer' user profile is selected, showing 'Active'. The 'Role Assignments' tab is open, displaying a list of role templates. A search bar at the top right of the list has 'mrg' typed into it. Below the search bar, a list of role templates is shown, with the 'MRG - All Permissions' checkbox checked and highlighted with a red circle labeled '12'. Other listed roles include 'MRG - AI Factsheets - API Access', 'MRG - All Data - Limited Admin', 'MRG - Model Validation', and 'MRG - Model Risk Management'. The 'Role Type' dropdown is set to 'Business Entity'.

New roles

13. Click on the **Choose** link to the right of **Security Domain**. A new panel opens with the organizational hierarchy.

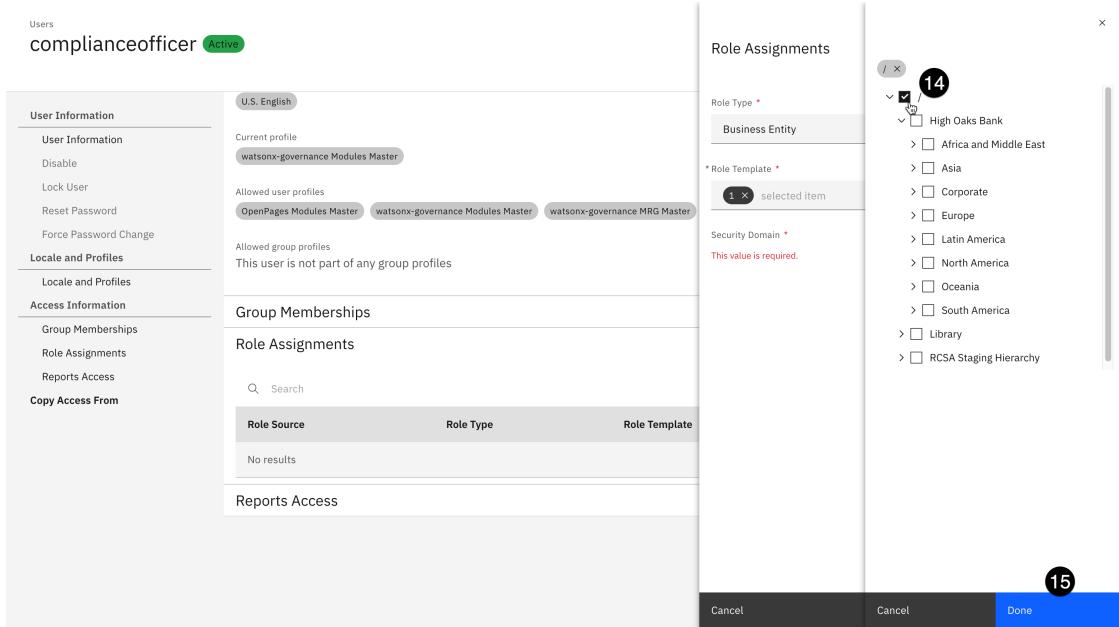
The screenshot shows the 'Users' section of a governance console. The 'complianceofficer' user profile is selected, showing 'Active'. The 'Role Assignments' tab is open, displaying a list of role templates. A search bar at the top right of the list has 'selected items' typed into it. Below the search bar, a 'Security Domain' dropdown is open, showing a single item 'High Oaks Bank'. A red circle labeled '13' is placed over the 'Choose' button to the right of the dropdown. A note below the dropdown says 'This value is required.'

Choose

Note that you can expand the hierarchy to view all the different business units in the organization, which were created when you uploaded the FastMap configuration file as you set up your environment. In this way, the governance console allows for fine-grained control over which users are allowed to access which data; you could assign your user access to only models and metrics information for specific parts of the business, for example.

14. Check the top-level box **above** the **High Oaks Bank** box to provide access to all of the relevant model risk governance data for the organization. **NOTE that you must click the box one level ABOVE High Oaks Bank** as shown in the screenshot.

15. Click **Done** to close the **Security Domain** panel.



High Oaks

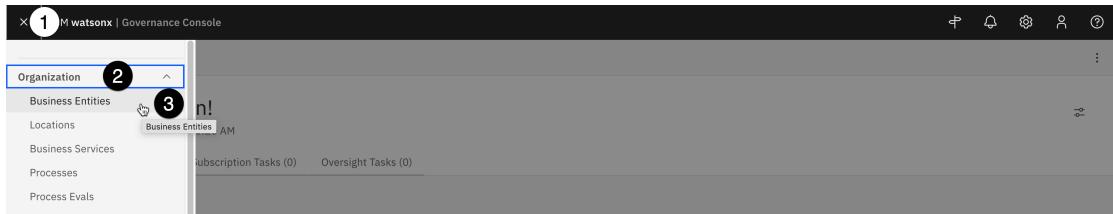
16. Click the **Add** button to add the role assignments to the user.
17. Click the **Save** button in the upper right to save the user profile changes.

5. Create a business entity

Next, you will create a **business entity**, which is an abstract representation of a business structure. In the previous step, when assigning the security domain for the created user's roles, you saw some of the organizational structure created in the setup for this lab, when you loaded a FastMap file into the governance console. That file contained the structure for the High Oaks bank organization, including a Human Resources department.

In the steps below, you will create a *Regulatory Compliance* entity beneath the *Human Resources* organization. However, when performing your Proof of Experience (PoX), allowing the client to create their own entities to mimic the structure of their organization can be a good way to engage with the client and allow them a sense of ownership over the solution you are building. Feel free to customize the steps to match their requirements.

1. From the watsonx governance console home screen, click the **hamburger menu** in the upper left.
2. Click the **Organization** menu item to expand it.
3. Click on **Business Entities**. The **Business Entities** tab opens.



Business entities

4. Type **High Oaks** in the **Search** field and press the **Return** key to narrow the list of business entities.
5. Click on the link for **High Oaks Bank** in the table to open the entity.

Business Entities (1)

Name	Description	Executive Owner	Risk Appetite	In Scope	In RCSA Scope	Tags
High Oaks Bank	A global financial institution with operations across every continent, offering a broad range of financial services, including personal banking, credit cards, mortgages, auto financing, investment advice, small business loans, and payment processing.	admin	No			

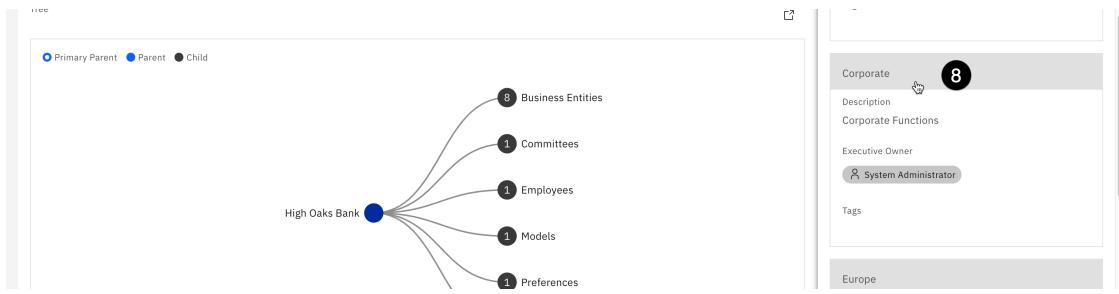
High Oaks entity

6. Scroll down to the **Business Entity Map** section of the page, which shows a tree view of the different entities beneath the High Oaks bank entity. Note that the High Oaks Bank parent entity contains a variety of children, including other business entities, employees, models, and use cases. This view is a convenient way to quickly see all the different items associated with a part of an organization.
7. Click on the **Business Entities** item in the tree view. The **Children of High Oaks Bank** view opens in a new pane on the right of the screen.



Expand tree

8. Each of the child entities is represented by a tile in the view. Scroll down to the **Corporate** entity tile and click on it. A new tab opens to display the information for the **Corporate** business entity.



Corporate tile

9. Scroll down to the **Child Business Entity** table in the **General** section of the screen and click on **Human Resources** to open a new tab for that entity.

Name	Description	Tags
Finance	Worldwide corporate finance business unit	
Human Resources	Worldwide human resources business unit	

Controls by Operating Effectiveness
Issues by Priority
No data available

No tags have been added yet.

Business Entity ⓘ

Review and update the business entity.

All Key Items (1) ▾

Name *

Human resources

Note that the **Human Resources** entity does not have any child business entities. If you scroll down to the **Business Entity Map**, you will see that it does contain models and use cases that are unique to this business entity. These sample models and use cases were loaded during the environment configuration step, when you loaded the Fastmap spreadsheet file.

10. Scroll back to the **Child Business Entity** table and click the **New Business Entity** button.

Name	Description	Tags
No results		

Controls by Operating Effectiveness
Issues by Priority
No data available

No tags have been added yet.

Business Entity ⓘ

Review and update the business entity.

All Key Items (1) ▾

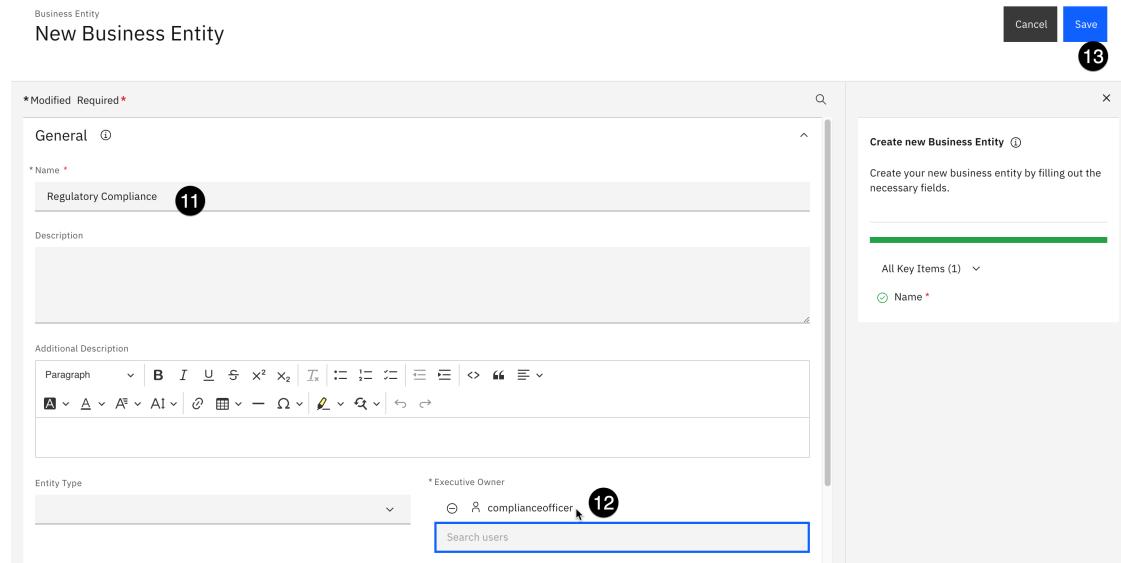
New business entity

11. Enter **Regulatory Compliance** in the **Name** field.
12. Enter **complianceofficer** in the **Executive Owner** field.

Note that the **Primary Business Entity** has been pre-populated with the **Human Resources** entity, though you can change it if you wish. Also note that the **Create new**

Business Entity progress bar on the right shows that the one required field has been completed, turning the status bar green and enabling the **Save** button.

13. Click **Save** to save the business entity.



New entity details

The Regulatory Compliance business entity has been created in the governance console, and will appear as a child of the **Human Resources** entity.

6. Create a custom field for the use case view

Watsonx.governance uses the concept of model use cases to organize machine learning and AI solutions to business problems. A model use case represents a single problem an organization is attempting to address with AI or machine learning. Many different models can be associated with a use case, whether they are in development, testing, or production phases.

There are no defined global standards for information that must be included in a use case; while there is a minimum set of information such as model metadata and performance metrics that should be present, specifics will vary widely between different industries and different organizations. The watsonx governance console is fully customizable to allow clients to tailor the forms and processes to their exact needs.

In this step, you will add a new field to the use case view. This particular example adds the **Secondary EU AI Review** field, though again you should engage with the client to allow them to choose fields or information that is relevant to them. Again, allowing the client to customize the solution can give them a sense of ownership and demonstrate value.

To add a field to the internal database, you must first enable changes to the system.

1. Click the **gear icon** in the upper right to open the **Administration** menu.

2. Click **Enable System Admin Mode** to enable changes.

Business Entities (56)

Name	Description
AI Risk Library	AI Risk Library
Africa and Middle East	Africa and Middle East
Asia	Asia
Catalogs	Library > MRG > WRC > Catalogs

Enable admin

3. A popup window will open, prompting you to confirm your choice, and notifying you that while the mode is enabled, the system will be unavailable to other users. Click the **Enable** button to confirm.
4. Click on the **gear icon** again to open the **Administration** menu.
5. Click on the **Solution Configuration** menu item to expand it.
6. Click on the **Object Types** menu item. The **Object Types** tab opens.

Business Entities (56)

Name	Description
AI Risk Library	AI Risk Library
Africa and Middle East	Africa and Middle East

Object types

7. Enter **use case** in the search field to narrow the list of object types.
8. Locate and click on **Use Case** from the table to open the **Use Case** object.

Use case type

9. Click on the **Fields** section to expand it. All the fields currently associated with model use cases are listed in their existing groups.
10. Click on **New Field** to open the **New Field** panel.

Name	Label	Description	Data Type	Required	Global Search
Additional Information	Additional Information	Additional Information	Long String	x	<input checked="" type="checkbox"/>
Application	Application	The name of the external service being integrated with.	Enumerated String	x	<input checked="" type="checkbox"/>

New field

11. You will place the field in a new grouping. Click the **New** button above the **Field Group** dropdown. The **New Field Group** panel opens.

New Field

General

Field Group *

Name *

Label

New field group

12. Enter **EU Compliance** in the **Name** field and click the **Create** button to create the grouping. The **New Field** panel updates, showing that the field is now contained in the **EU Compliance** group. Note that there is already a **Compliance** field group in the use case, and, strictly speaking, the field you are creating could go there. In this lab you are creating a new group to see how it could be done for other fields the client may want to create.

13. Enter **Secondary EU AI Review** in the **Name** field.
14. Click the **Data Type** dropdown and select **Enumerated String**. This data type will appear as a dropdown in the form. Note the other data types, including strings, integers, booleans (true/false), dates, currencies, and more.

The screenshot shows the 'General' settings panel for a new field. On the left, there are sections for 'Name', 'Description', 'Label', 'Plural Label', 'Field Groups', and 'Fields'. The 'Name' field is highlighted with a red circle containing the number 13. On the right, there are sections for 'General', 'Label', 'Description', and 'Data Type'. The 'Data Type' dropdown is highlighted with a red circle containing the number 14, and it shows 'Enumerated String' selected. A tooltip 'Enumerated String' is visible next to the dropdown.

New field details

Note that you have the option to set the field to **Required** using the toggle. However, **DO NOT** set the field to required at this time, as it will prevent approval actions from being taken. You can also set default values and descriptions.

15. Scroll to the **Enumerated String Values** section and click the **New Value** button. The **New Enum Value** panel opens.

The screenshot shows the 'EU Compliance / New Field' panel. On the left, there are sections for 'General', 'Label', 'Plural Label', and 'Global Search'. On the right, there are sections for 'Required' (set to False), 'Enumerated String Values', 'Color Palette', 'Color Values', and 'Default Value'. The 'New Value' button in the 'Enumerated String Values' section is highlighted with a red circle containing the number 15.

New enum value

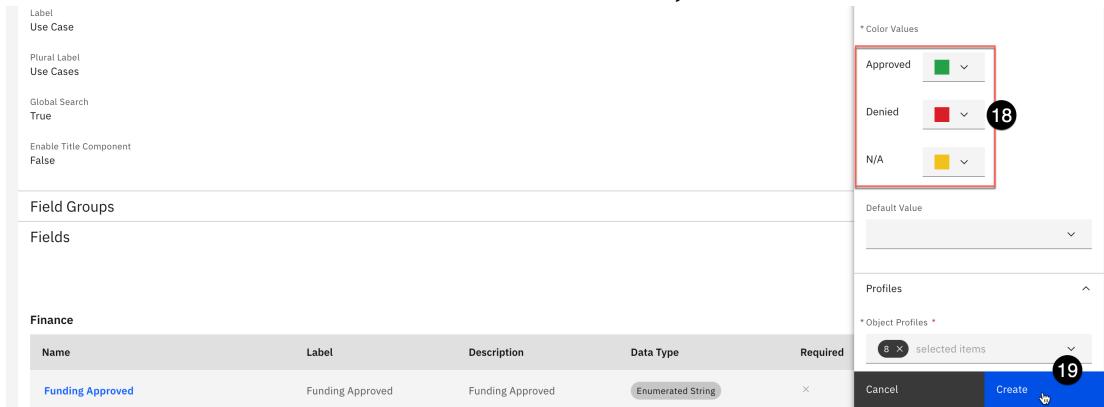
16. Enter **Approved** into both the **Name** and **Label** fields and click **Create**.
17. Repeat steps 15 and 16 to add **Denied** and **N/A** values.

Note that you can set colors for the different values, which will show on the icon badges when the form is completed.

18. Assign colors to the values using the dropdowns.

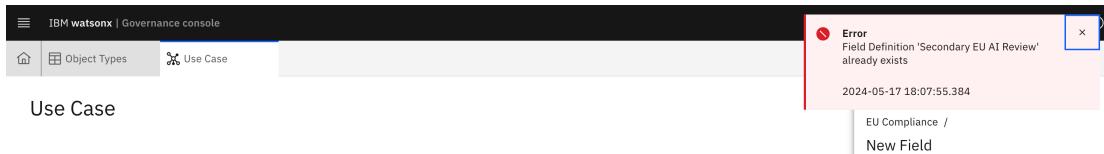
Note that you can also select which object profiles (such as the watsonx profiles you assigned to users in previous steps) are allowed to interact with the field

19. Click **Create** to add the new field to the object.



Create field

Note that, occasionally, saving the field can take longer than expected and results in a **Network error** or the error message below:



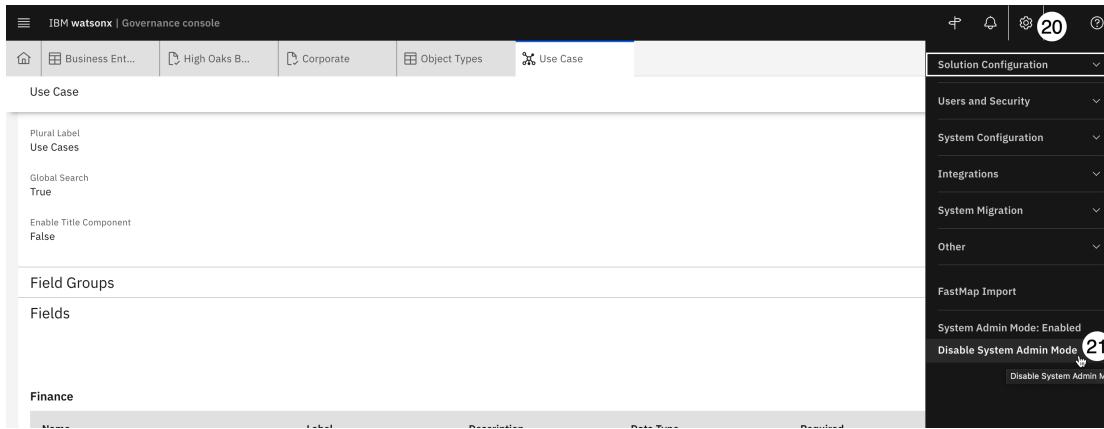
Field definition exists

If you get this message, try and save the field again. If you receive an error that the field already exists, then most likely the changes were saved successfully. Close the **New Field** panel and refresh the page, and you should see the field listed in the **Fields** section.

To allow other users to access the governance console again, you will need to disable system admin mode.

20. Click on the **gear icon** to open the **Administration** menu.

21. Click on **Disable System Admin Mode** to return the console to its normal state.



Disable admin

Once again, you will be prompted to confirm your choice. Click **Disable** to confirm.

7. Add the custom field to the use case view

In the previous section, you created a custom field. In this section, you will add that field to the view for use cases so that it can be included. Note that the system views cannot be modified; instead, you will copy the existing view, make changes to the copy, and then set your modified view as the new default.

To create a copy of a system view, you could locate the view from the inventory. However, there are hundreds of views included in the console, and it is not always clear which view corresponds with the object you wish to edit. Fortunately, there is a shortcut built into the system to identify which view is being shown.

1. Click on the **hamburger menu** in the upper left.
2. Click on the **Inventory** menu item to expand it.
3. Click on the **Use Cases** menu item. A new tab opens listing all existing use cases.

Purpose	Description	Owner	Status	Risk Level	Tags
Corporate Banking	Uses internal and external recovery data, adjusted for macro-economic impact. Uses statistical regression	Bob Eldridge	Approved for Development	Low	
Corporate bond - income rate Banking	ALM based income forecast for the HTM portfolio. Initially for the CCAR 2013 stress-test. Vendor solution	Bob Eldridge	Approved for Development	Medium	

Use cases inventory

4. Click on any use case from the list to open it.
5. Click on the **gear icon** in the upper right to open the **Administration** menu.
6. Click on the **Other** menu item to expand it.
7. Click on the **Display Debug Info** menu item.

Display debug

A link will appear beneath the name of the use case, identifying the view as **watsonx-governance-Task-Register**.

i Note: If the default view name shows as **SysView-Task-Register**, then the admin user is not using the correct profile. Follow the *5. Enable on the watsonx profiles for the admin user* instructions from the [configuration hands-on lab](#) to ensure that the watsonx profiles are assigned, and that the admin user has changed to one of those profiles.

The *Display Debug Info* option is extremely useful for determining the view that is showing on a given screen, making it easier to find and customize that view.

8. Click the link for **watsonx-governance-Task-Register** to open the view in a new tab.

View name link

A warning message appears in the top right of the new tab, informing you that this is a read-only system view and cannot be changed.

9. Click the **Copy view** button just below the warning message. The **New View** panel opens.

Watsonx-governance-Task-Register

Type: Task
State: Published

Copy view

Copy view

- Enter a name for your view in the **Name** field. Staying consistent with the Watsonx views will make it easier to locate later, so choose a name like **custom-watsonx-Task-Register**. Your text entry will be automatically mirrored in the **Label** field.

New View

Name: custom-watsonx-Task-Register (10)

Label: custom-watsonx-Task-Register

View name

- Scroll to the bottom of the **New View** panel and check the box next to **Use as default view for this object type for all profiles**.
- Click **Create** to create the view.

```

16 },
17 {
18   "locale": "en_US",
19   "value": "Use Case general view"
20 },
21 {
22   "locale": "en_CA",
23   "value": "Model Use Case general view"
24 },
25 {
26   "locale": "es_ES",
27   "value": "Vista general de caso de uso"
28 },
29 {
30   "locale": "pt_BR",
31   "value": "Visualização Geral do Caso de Uso"
32 },
33 {
34   "locale": "zh_CN",
35   "value": "用例常规视图"

```

Object type *
Use Case
 Enabled
 Use as default view for this object type for all profiles (11)

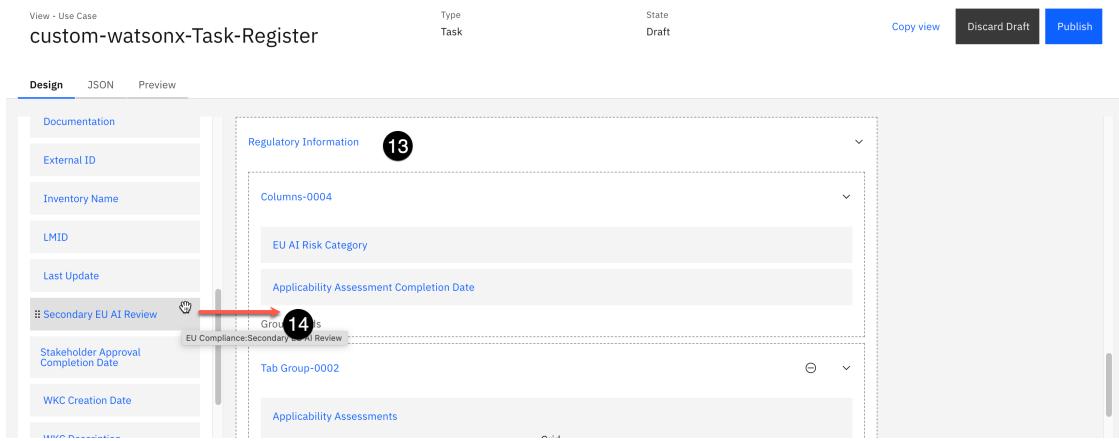
Create (12)

Use as default

When the view has finished saving, note that there is now a **Design** tab that allows you to change the design of the form in the view. Available fields that are not already included in the view are located in the left panel. The center panel shows the current layout of the view, divided into sections such as **Header**, **General**, and **Use Case Details**.

From this view, you can create new sections of the form by scrolling to the bottom of the screen and clicking the **New section** button. However, since the field you will be adding is related to government regulations, you will use the existing **Regulatory Information** section.

13. Scroll to the **Regulatory Information** section of the center panel.
14. Scroll to the **Object Fields** section of the left panel. Click and drag the **Secondary EU AI Act Review** object into the **Regulatory Information** section in the center panel beneath the **Applicability Assessment Completion Date** item.



Drag review

Next, you will need to add the **Use Case Review** fields to the view.

15. Scroll the main window to the **Use Case Details** section.
16. Scroll the left panel to the **Relationship Fields** section.
17. Click and drag the **Grid** item from the left panel into the **Use Case Details** section. The **Relationship** panel opens on the right side of the screen.



Drag grid

18. Enter **Use Case Reviews** in the **Label** field.
19. Click on the **Relationship Type** dropdown and select **Children**.
20. Click on the **Object Type** dropdown and select **Use Case Review**.

Relationship

The pending use case reviews will now show in this section of the view; however, it would be even more helpful to show their status, and the department responsible for reviewing them.

21. Scroll down to the **Fields** section and click the **Add** button. The **Fields** panel opens, showing all of the available fields for use case reviews.

Add fields

22. From the list of fields, check the box to the left of the **Approval Status** item.
23. From the list of fields, check the box to the left of the **Stakeholder Departments** item.
24. Click the **Done** button to add the new fields to the grid. The **Fields** panel closes.

Stakeholder departments

25. Click the **Done** button to finalize your changes to the grid and close the **Relationship** panel.
26. Click **Publish** in the upper right to publish your changes to the view.

Publish view

8. Disable the old view

You have successfully updated the use case view to include your new custom field. However, the new view may not show for all model use cases. In this section, you will disable the default system view, which will cause your changes to appear for all use cases.

1. Click on the **gear icon** to open the **Administration** menu.
2. Click on the **Solution Configuration** menu item.

- Click on the **Views** menu item to open a new tab listing all the views.

The screenshot shows the IBM Watsonx Governance console interface. At the top, there's a navigation bar with various icons and tabs. On the right side, a sidebar titled "Solution Configuration" is open, with a list of options: Dashboards, Views (which is highlighted with a blue background), Workflows, Calculations, Scheduler, Object Types, Profiles, and Settings. The main content area shows a view titled "View - Use Case" with the name "custom-watsonx-Task-Register". It displays basic information like Type (Task) and State (Published). Below this, there are tabs for Design, JSON, and Preview. A search bar and a header section are also visible.

Configure views

- Ensure that the **Include system views** box is checked.
- Enter **watsonx** in the search field to narrow down the results.
- Click on the **Filter by Object type** dropdown and select **Use Case** to further narrow the search results.

The screenshot shows the "Views (4)" page. At the top, there's a search bar with the text "watsonx" (circled 5). To the right, there's a "Filter by View type" dropdown (circled 6) with options like "Section template", "Signature", "Sub-Mandate", "SubSection Template", and "Use Case". A checkbox for "Include system views" is checked (circled 4). Below the filter, there's a table with columns: Published, Enabled, Default, and System. The table lists four rows: "watsonx-governance-Task-Register" (Use Case (Register)), "watsonx-governance-Admin-Register" (Use Case (Register)), "watsonx-governance-New-Register" (Use Case (Register)), and "custom-watsonx-Task-Register" (Use Case (Register)). The "Use Case" row in the filter dropdown is also highlighted.

Filter views

- Click the box next to the **watsonx-governance-Task-Register** system view.
- Click **Disable** from the context menu above the table.

Views (4)

The screenshot shows the "Views (4)" page again. A context menu is open above the table, with the "Disable" option highlighted (circled 8). In the table, the "watsonx-governance-Task-Register" row has a checked checkbox in the first column (circled 7). The table columns are: Label, Description, Object Type, View Type, Priority, Published, Enabled, Default, and System.

Disable view

You have successfully disabled the system view, ensuring that the new view with the custom field will now appear for all use cases as long as the user has the **watsonx** profiles enabled for their account. You can open an existing use case to see the new field if you wish.

Create a questionnaire

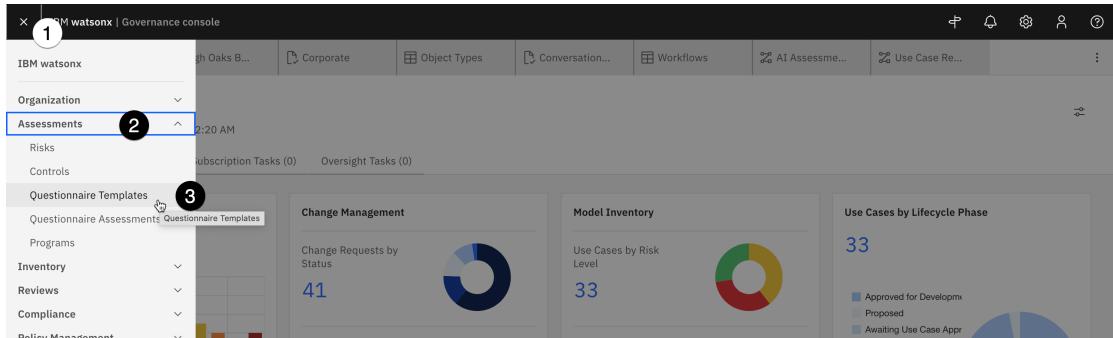
The watsonx governance console provides the ability to create and employ [questionnaires](#) to assist in the governance process. As with all elements of the governance console, questionnaires are fully customizable, and can be configured to automatically trigger further actions such as use case reviews, audits, communications, alerts, and more.

In this section of the lab, you will see how the questionnaire editor works by creating a form to edit the custom field you created in the previous step, allowing the compliance officer to fill out a form for their secondary review.

Finally, you will add the questionnaire as a part of the built-in AI assessment workflow, which will then allow you to integrate the questionnaire into the workflow for approving model use cases.

1. Create the questionnaire template

1. From the governance console, click the **hamburger menu** in the upper left.
2. Click on the **Assessments** menu item to expand it.
3. Click on the **Questionnaire Templates** menu item. Note that, depending on the current profile for your user, you may have more items listed in your menu. A new tab listing available templates opens.



Questionnaire templates

4. Click the **New** button in the upper right.

The screenshot shows the IBM Watsonx Governance console interface. At the top, there's a navigation bar with links for Object Types, Use Case, Use Cases, Agency Base..., and Questionnair... The 'Questionnair...' link is underlined, indicating it's the active page. Below the navigation is a search bar and a table titled 'Questionnaire Templates (1)'. The table has columns for Name, Description, Primary Owner, Type, Completion Required, and Tags. One row is visible, labeled 'AI Risk Identification Questionnaire' with 'System Administrator' as the primary owner and 'Classification Questionnaire' as the type. A blue 'New' button is located in the top right corner of the table area, with a circled number 4 above it.

New questionnaire template

5. In the **Name** field, enter **Secondary EU AI Act Review**.
6. Enter a description in the **Description** field.

This screenshot shows the 'New Questionnaire Template' dialog. On the left, there's a form with fields for 'Name' (containing 'Secondary EU AI Act Review' with a circled 5), 'Description' (containing 'Second-level review to determine if the use case violates the EU AI Act.' with a circled 6), and other optional fields like 'Rationale'. On the right, a validation summary window lists '2 items require attention' with a red bar at the top. It includes a dropdown for 'All Key Items (5)' and a list of items with validation icons: Name (green), Description (red), Questionnaire Scoring Method (green), Primary Owner (yellow), and Folder (yellow).

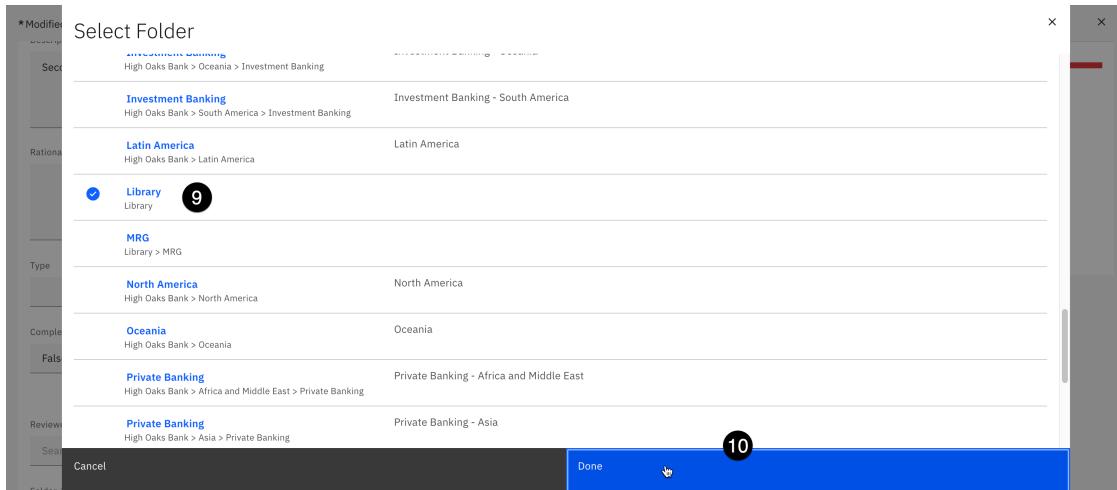
Questionnaire name

7. Enter the created **complianceofficer** user in the **Primary Owner** field.
8. Click the **Select Folder** button. The folder selection dialog opens.

This screenshot shows the 'Select Folder' dialog. It has sections for 'Primary Owner' (with a dropdown containing 'complianceofficer' circled 7) and 'Folder' (with a 'Search users' input field). At the bottom is a blue 'Select Folder' button with a circled 8.

Select folder

9. Scroll down in the table of folders and click on the **Library** folder.
10. Click the **Done** button. The dialog closes.



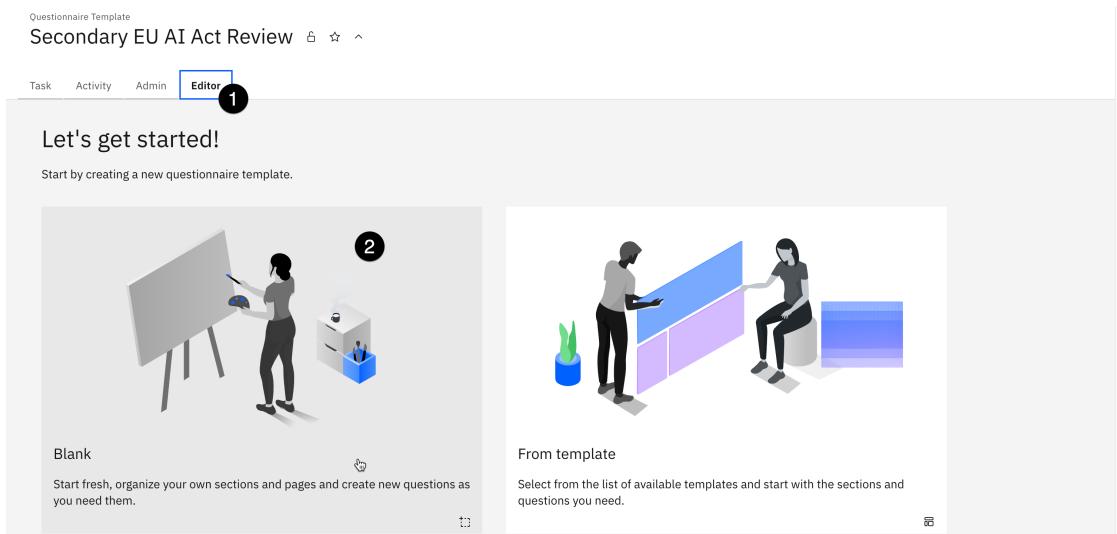
Library folder

11. Click the **Save** button in the upper right to save the new questionnaire template. The **Task** view opens.

2. Add questions

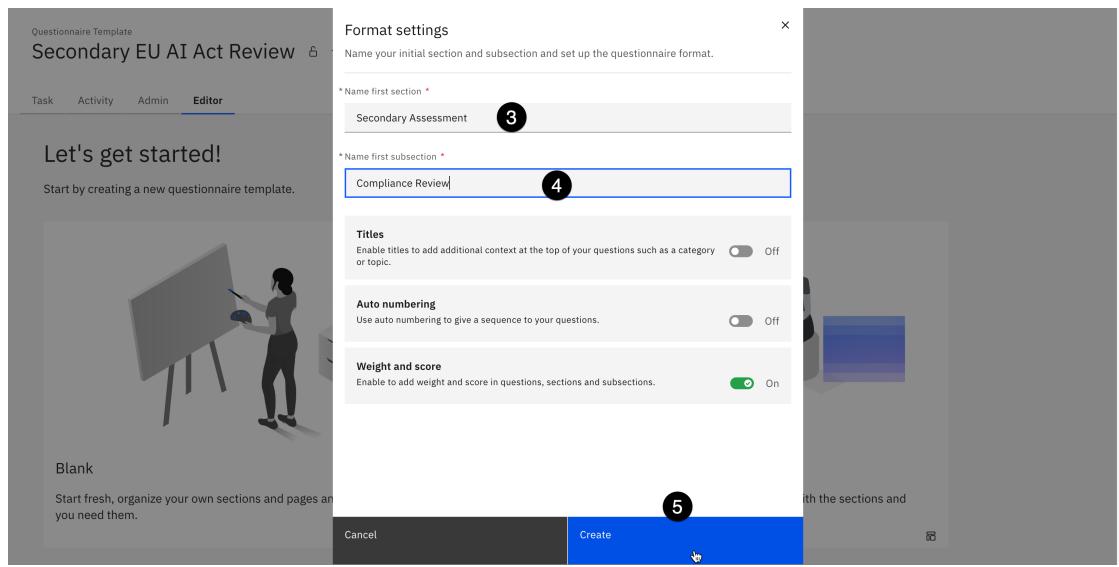
Now that the questionnaire template has been created, you may add questions to it. In this example, you will create a very simple set of questions to reflect a larger review, but when performing a Proof of Experience (PoX), it can be valuable to allow the client to create their own questions that are relevant to their organization's requirements.

1. From the questionnaire template **Task** view, click on the **Editor** tab.
2. Click on the **Blank** tile to create questions from scratch. The **Format settings** dialog opens.



Blank

3. Enter **Secondary Assessment** in the **Name first section** field.
4. Enter **Compliance Review** in the **Name first subsection** field.
5. Click the **Create** button. Note that if you receive a **Network error** message, you may need to close the current tab, return to the **Questionnaire Templates** tab, and refresh the page. From this point, the new template should appear in the list. You can click on it and switch to the **Editor** tab on the template screen.



Format settings

6. The template has been pre-populated with a default question. Click the question tile to edit it. The **Configure question** form opens.

The screenshot shows the questionnaire editor interface. On the left, a sidebar lists sections: 'Introduction', 'Secondary Assessment' (selected), and 'Compliance Review'. The main area shows the 'Secondary Assessment' section with a question titled 'Compliance Review'. The question has a 'default description *' and three options: 'Yes', 'No', and 'Not applicable'. The 'Not applicable' option is selected (radio button is checked). A circled 6 is placed over the 'Remove' icon to the right of the 'Not applicable' choice.

Edit question

7. Copy and paste the following text in the **Question** field, replacing the existing text:
After a secondary review, is this use case acceptable under the EU AI Act?
8. Click the **Remove** icon to the right of the **Not applicable** choice.

Remove NA

9. Take a moment to review the other possible actions you can take on this question. You have the ability to build display logic to determine when this question appears. You can add additional context, set up multiple choice questions, and more. Creating full in-depth questionnaires is beyond the scope of this lab, but familiarizing yourself with some of the options and allowing the client to build their own questionnaires can be helpful in a PoX.
10. When you are finished exploring, click the gray area beneath the **Configure question** panel to save your changes. At this point, you may add additional questions as you wish. When you are satisfied with the questionnaire, you may proceed with the lab.

3. Add the questionnaire to the existing AI assessments

You have just created a new type of assessment for AI models. In order to incorporate it into AI-related workflows, you will need to make further configuration changes to add it to the list of existing AI assessments.

1. Click the **gear icon** in the upper right to open the **Administration** menu.
2. Click **Enable System Admin Mode** to enable changes.

Enable admin

3. A popup window will open, prompting you to confirm your choice, and notifying you that while the mode is enabled, the system will be unavailable to other users. Click the **Enable** button to confirm.
4. Click on the **gear icon** again to open the **Administration** menu.
5. Click on the **Solution Configuration** menu item to expand it.
6. Click on the **Object Types** menu item. The **Object Types** tab opens.

Object types

7. Enter **Questionnaire Assessment** in the search field to narrow the results of the table, then click on **Questionnaire Assessment** in the table.

Label	Name	Description
Questionnaire Assessment	QuestionnaireAssessment	OpenPages GRC Object Type

Questionnaire type

8. Click on the **Fields** section to expand it.
9. Scroll down to the **watsonx-QAssessment** section and click on the entry for **AI Assessment Type**. The field information panel opens.

The screenshot shows the 'Questionnaire Assessment' screen with the 'Fields' section expanded. In the 'watsonx-QAssessment' table, the 'AI Assessment Type' row is selected, indicated by a blue border and a circled number 9. The 'Edit' button is located in the top right corner of the panel.

AI assessment type

10. In the information panel on the right, scroll down to the **Enumerated String Values** section and click on the **New Value** button.

The screenshot shows the 'Questionnaire Assessment' screen with the 'AI Assessment Type' row selected. The information panel on the right displays the configuration for 'AI Assessment Type'. The 'New Value' button is highlighted with a circled number 10.

New string value

11. Enter **Secondary EU Assessment** in both the **Name** and **Label** fields.

The screenshot shows the 'Questionnaire Assessment' screen with the 'New Enum Value' dialog open. The 'Name' field contains 'Secondary EU Assessment' and the 'Label' field also contains 'Secondary EU Assessment', both highlighted with a red box and circled with a number 11.

Enum value

12. Click the **Create** button at the bottom right.
13. Click the **Done** button to save your change to the AI Assessment object.
14. Once the changes have saved, you can turn off System Admin mode. Click the **gear icon** in the upper right to open the **Administration** menu.

15. Click **Disable System Admin Mode** menu item, then click the **Disable** button in the confirmation dialog box that opens to confirm your choice.

4. Update the AI assessment workflow

Now that you have created a new type of AI assessment, you will need to associate your assessment into the built-in workflow for AI use cases.

1. From the watsonx governance console, click the **gear icon** in the upper right to open the **Administration** window.
2. Click on the **Solution Configuration** menu item to expand it.
3. Click on the **Workflows** menu item. A new tab listing all the existing workflows opens. Note that you may receive a warning message about not having access to all of the items in the workflow; this can be ignored.

Configure workflows

4. Click on the **AI Assessment Workflow** from the table. The editor palette opens, showing the different stages of the workflow.

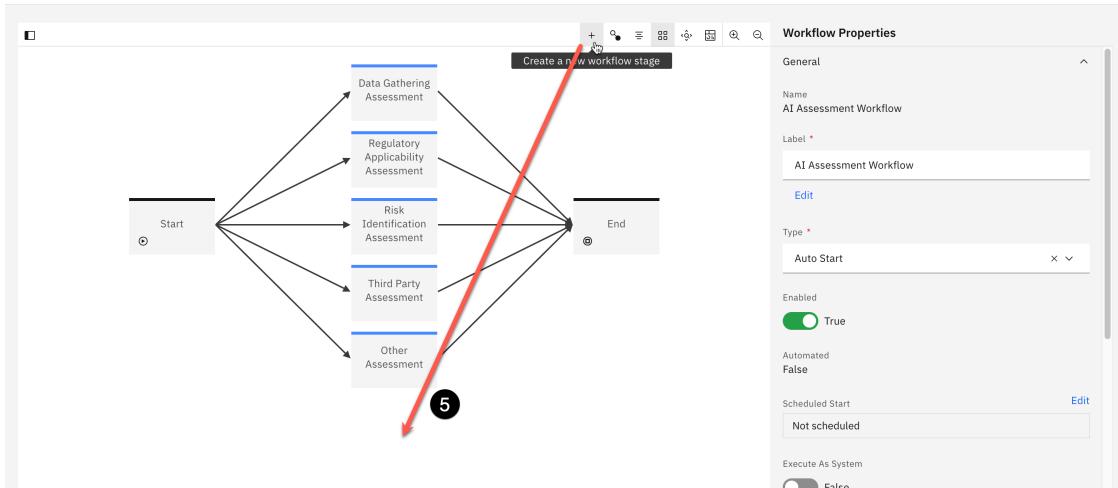
Workflows (41) [Workflow Instances](#)

Label	Name	Object Type	Version Number	Type	Automated	Published	Enabled
<input type="checkbox"/> AI Assessment Workflow	AI Assessment Workflow	Questionnaire Assessment	1	Auto Start	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> Action Item Approval Workflow	Action Item Approval Workflow	Action Item	1	Auto Start	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> FCM Certification - Business Level	Business Level SOX Certification	Business Entity	1	Manual Start	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> Challenge	Challenge	Challenge	1	Auto Start	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

AI Assessment flow

You will explore the editor in more detail in the next section, when you customize the **Use Case Request** workflow.

5. Locate the **+** icon in the upper right of the palette window. Click and drag it to beneath the **Other Assessment** box to create a new workflow stage. The **New Stage** dialog opens.



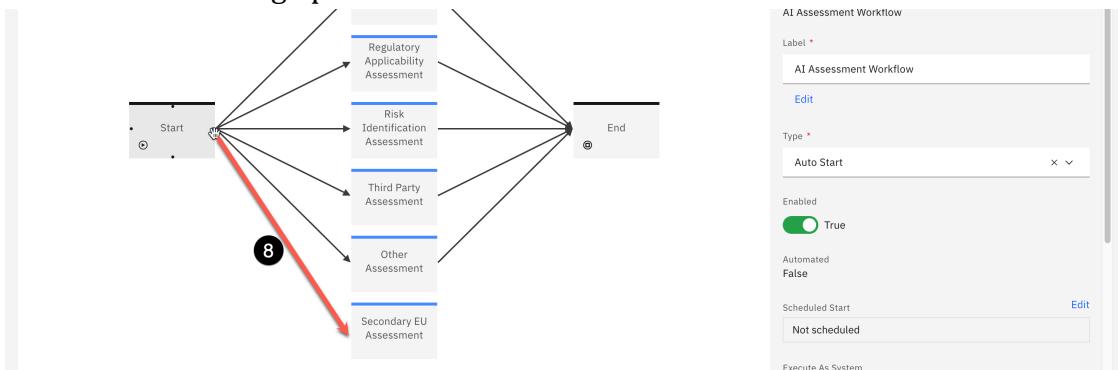
Drag step

- Enter **Secondary EU Assessment** in the **Name** field.
- Click the **Create** button to create the stage, which will now appear on the palette.



Create secondary

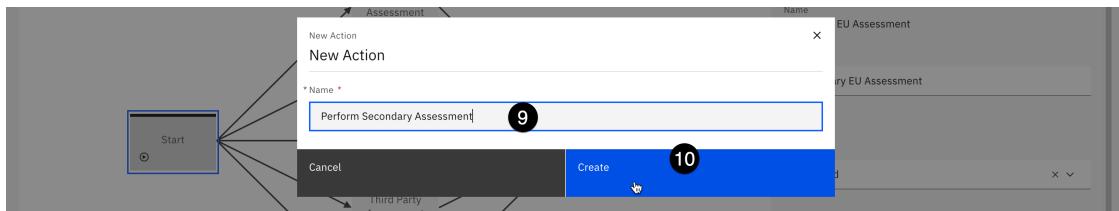
- Hover your mouse pointer over the **Start** workflow stage to make four black boxes appear on the stage border. Click and drag one of the boxes to the new **Secondary EU Assessment** stage box to create an action linking the two stages. The **New Action** dialog opens.



Drag action

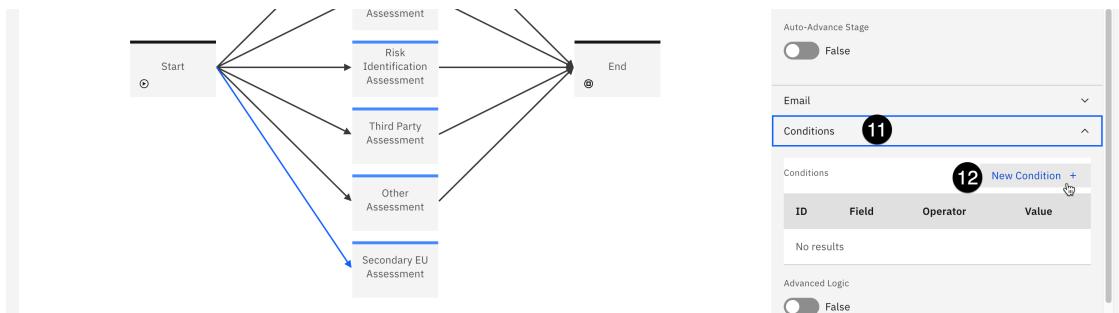
- Enter **Perform Secondary Assessment** in the **Name** field.

- Click the **Create** button to create the action and close the dialog.



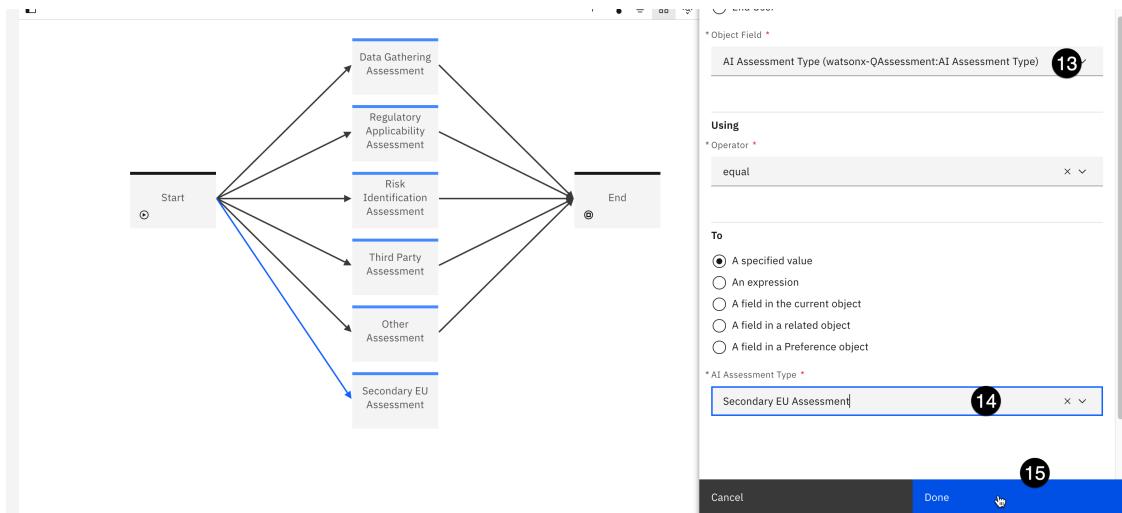
Perform action

- In the **Action Properties** panel on the right, scroll down and click on the **Conditions** section to expand it.
- Click on the **New Condition** button. The **Conditions** panel opens.



New condition

- Click on the **Object Field** dropdown and select **AI Assessment Type...** from the list.
- Click on the **AI Assessment Type** dropdown and select **Secondary EU Assessment** from the list. This value appears in this list because you added it as an *Enumerated String Value* for AI Assessment Types in the previous step.
- Click the **Done** button to save the condition. The **Condition** panel closes.



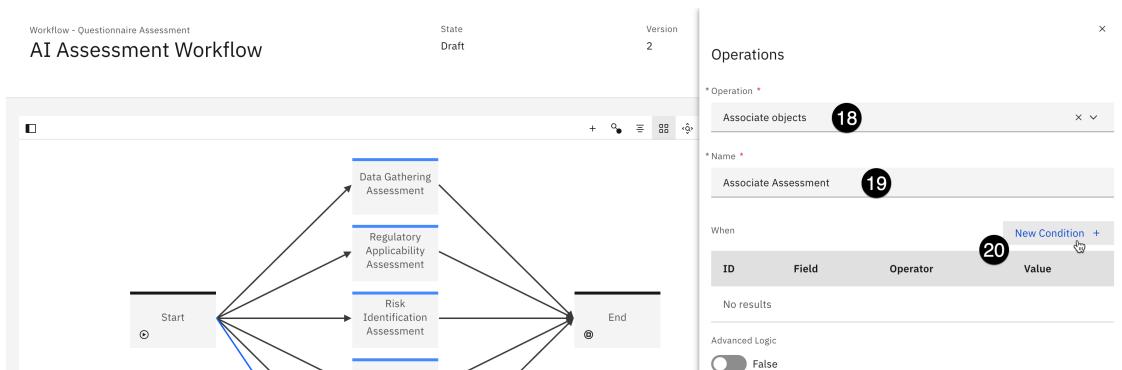
Action condition

16. In the **Action Properties** panel on the right, scroll down and click on the **Validations and Operations** section to expand it.
17. Click on the **New Operation** button. The **Operations** panel opens.



New operation

18. Click on the **Operation** dropdown and select **Associate objects** from the list.
19. Enter **Associate Assessment** in the **Name** field.
20. Click on the **New Condition** button. The **When** condition panel opens.



When

21. Click on the **Object Field** dropdown and select **AI Assessment Type....**
22. Click on the **AI Assessment Type** dropdown and select **Secondary EU Assessment**.
23. Click the **Done** button to close the **When** panel.
24. Click the **Edit** button to the right of **Object to associate**. The **Object to associate** panel opens.

The screenshot shows the 'Object to associate' panel. On the left is a workflow diagram with nodes: Start, End, and several assessment types (Applicability Assessment, Risk Identification Assessment, Third Party Assessment, Other Assessment, Secondary EU Assessment). A blue arrow points from the 'Secondary EU Assessment' node to the 'Start' node. On the right is a table for filtering objects:

ID	Field	Operator	Value
1	Questionnaire Assessment	* equal	Secondary EU Assessment

Below the table are settings for 'Advanced Logic' (set to False) and 'Execute As System' (set to False). At the bottom right is an 'Edit' button with a circled number 24.

Edit

25. Click on the **Relationship Type** dropdown and select **Direct Child** from the list.
26. Click on the **Related Object Type** dropdown and select **Questionnaire Template** from the list.
27. Click on the **New Condition** button. The **Filter By** panel opens.

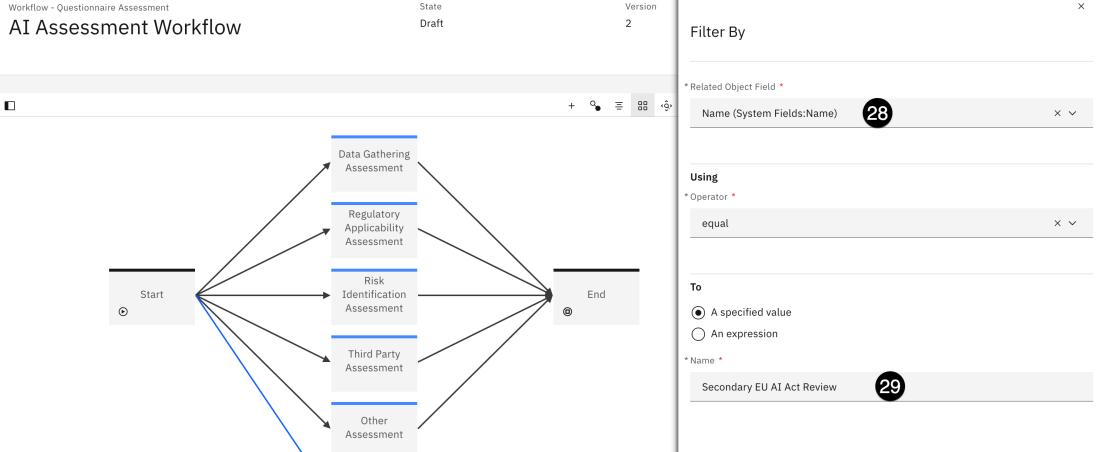
The screenshot shows the 'Object to associate' panel with the 'Filter By' table open. The table has one row:

ID	Field	Operator	Value
No results			

Below the table is an 'Advanced Logic' section. On the left is a workflow diagram similar to the previous one, with a blue arrow pointing from 'Secondary EU Assessment' to 'Start'. The top of the screen shows the workflow name 'Workflow - Questionnaire Assessment', state 'Draft', and version '2'.

Object associate

28. Click on the **Related Object Field** dropdown and select **Name...** from the list.
29. Enter the exact name of the questionnaire template you created in a previous step in the **Name** field. If you have been following the instructions, you named it **Secondary EU AI Act Review**.

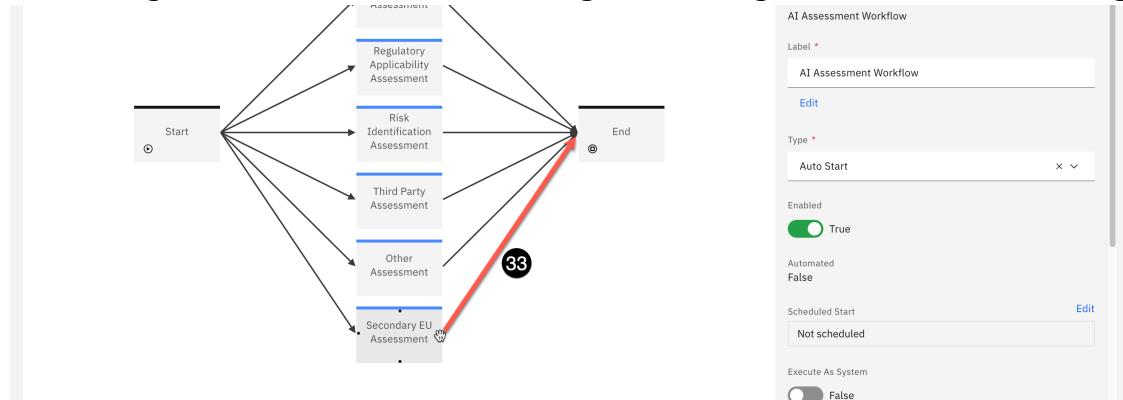


Related object

30. Click **Done** to close the **Filter By** panel.
31. Click **Done** to close the **Object to associate** panel.
32. Click **Done** to close the **Operations** panel.

You have now linked the **Start** stage and the **Secondary EU Assessment** stage using an action. To complete the process, you must link the **Secondary EU Assessment** stage to the **End** stage.

33. Hover your mouse pointer over the **Secondary EU Assessment** stage box to make four black boxes appear on the stage border. Click and drag one of the boxes to **End** stage box to create an action linking the two stages. The **New Action** dialog opens.



Drag end

34. Enter **Assessment complete** in the **Name** field and click the **Create** button to close the dialog.
35. Click the **Publish** button in the upper right of the screen to save your updates. Your new questionnaire has been added to the AI assessment workflow, and can now be integrated into the workflow for use case approval.

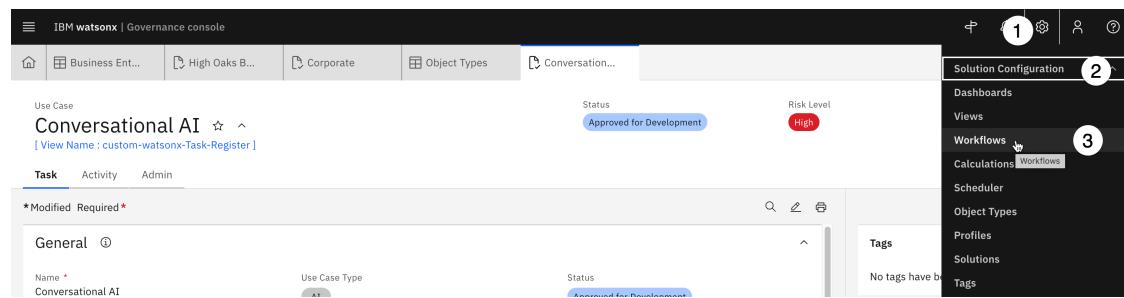
Customize the use case approval workflow

Every organization will have their own requirements and preferences when it comes to governance processes. In the governance console, a workflow represents a business process and describes the tasks involved in the process. The ability to fully configure and customize an automated workflow is one of the main differentiators for watsonx.governance. Many clients will be relying on manual processes that involve email approval chains between developers, risk assessors, and other stakeholders. Others will have attempted to awkwardly fit their existing organizational structure into pre-set approval workflows offered by some of our competitors.

In this section of the lab, you will examine the workflow for a model use case request, and customize it. In this example, if the risk assessment questionnaire from the previous section results in a use case that is prohibited under the EU AI Act, the workflow will be configured to trigger a second-level audit by the compliance officer user you created earlier in the lab. As with all aspects of this lab, engaging with your client to alter the customization to fit their particular needs is a great way to demonstrate the flexibility of the solution.

1. Create workflow stages and actions

1. From the watsonx governance console, click the **gear icon** in the upper right to open the **Administration** window.
2. Click on the **Solution Configuration** menu item to expand it.
3. Click on the **Workflows** menu item. A new tab listing all the existing workflows opens. Note that you may receive a warning message about not having access to all of the items in the workflow; this can be ignored.



Configure workflows

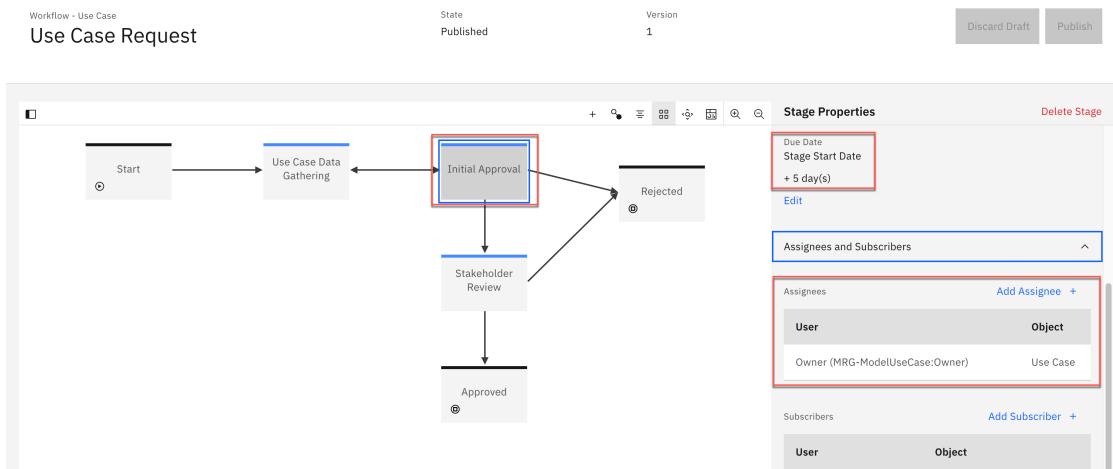
4. Locate **Use Case Request** in the table and click on it. The editor palette opens, showing the different stages of the workflow.

<input type="checkbox"/> Signature Revoke	Signature Revoke	Signature	1	Manual Start	x	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> Use Case Deployment Approval	Use Case Deployment Approval	Use Case	1	Manual Start	x	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> Use Case Development and Validation	Use Case Development and Validation	Use Case	1	Manual Start	x	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> Use Case Request	Use Case Request	Use Case	1	Auto Start	x	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> Use Case Stakeholder Review	Use Case Stakeholder Review	Use Case Review	1	Auto Start	x	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> Vendor Identified Global Issue	Vendor Identified Global Issue	Issue	1	Manual Start	x	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Items per page: 40 ▾ 1–40 of 41 items 1 ▾ of 2 pages ▶

Use case request flow

Take a moment to explore the items in the palette by clicking on them and observing the **Workflow Properties** panel on the right of the screen. For example, click on the **Initial Approval** box. Boxes represent stages of the workflow. In the properties panel, you can see that the due date of the action is set to five days after the stage start date. If you click on the **Assignees and Subscribers** section to expand it, you can see that the stage gets assigned to the use case owner.

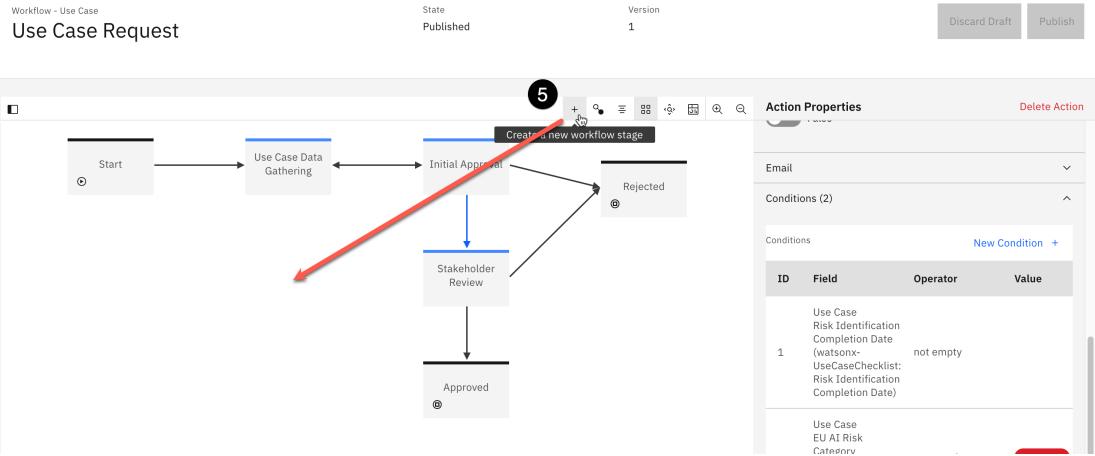


Explore stage properties

Next, click on the arrow joining the **Initial Approval** stage and the **Stakeholder Review** stage. Arrows represent actions that transition the use case between stages. Click on the **Conditions** section of the properties panel to expand it, and note that the two conditions here are being brought about this action. First, that the **Use Case Risk Identification** assessment has been completed. And second, that the **Use Case EU AI Risk Category** property generated by that questionnaire's results was not *Prohibited*. In plain language, after the use case passes initial approval, the owner would fill out the questionnaire to determine risk. If the use case is not deemed prohibited by the EU AI Act, then it can proceed to the individual stakeholder review.

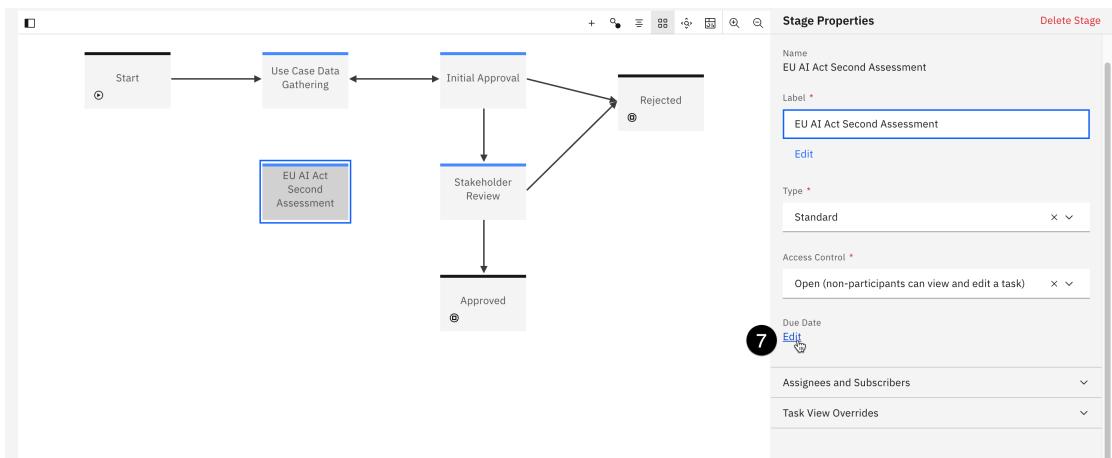
However, what if the organization wanted a second assessment in the case of a *Prohibited* result? In the steps below you will configure that as part of the workflow.

- Locate the **+ icon** on the palette toolbar, then click and drag it to the area on the palette shown below to create a new workflow stage. The **New Stage** dialog opens.



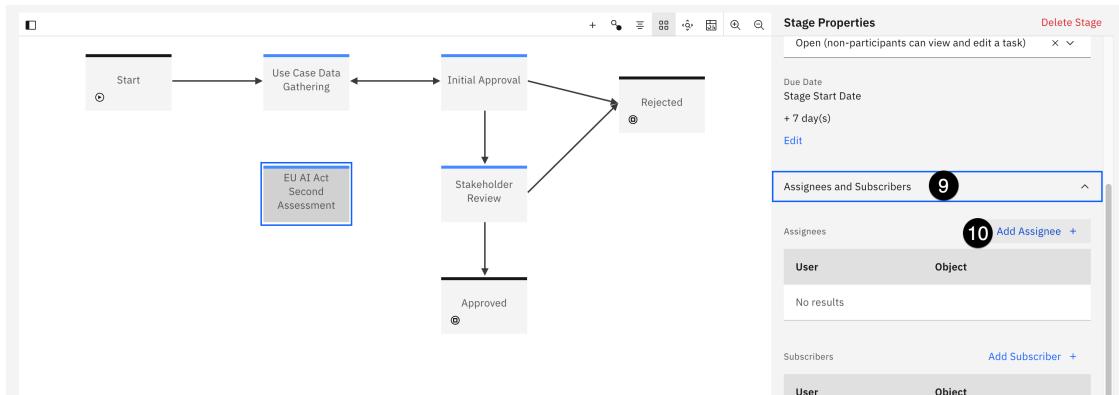
Create stage

6. Enter **EU AI Act Second Assessment** in the **Name** field and click **Create**. The stage now appears on the palette.
7. In the **Stage Properties** panel, click the **Edit** button below the **Due Date**.



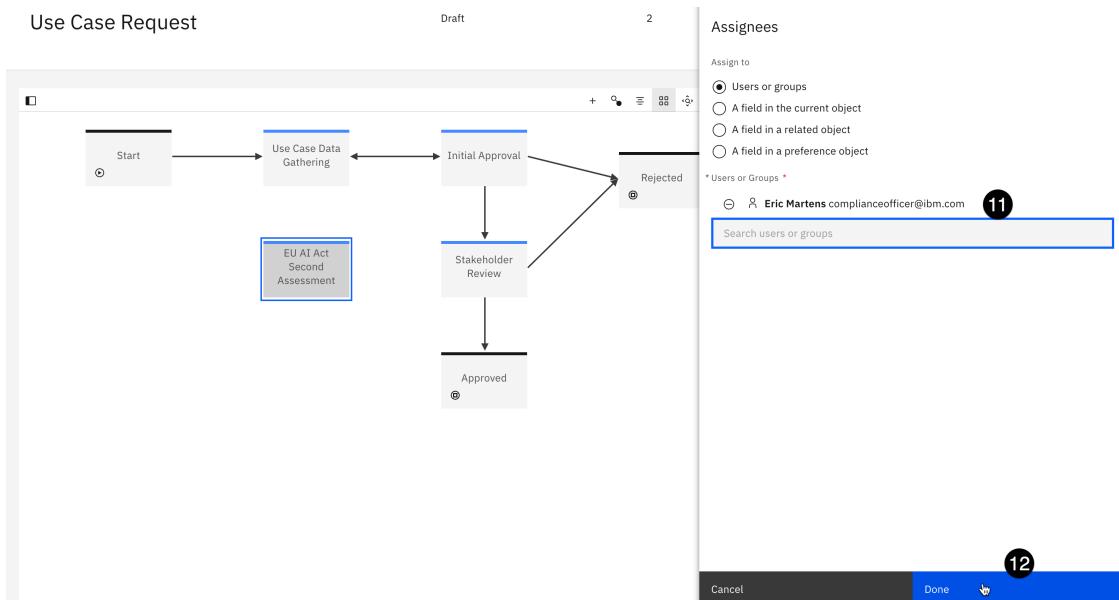
Edit due date

8. Note the different options for setting the due date, and the flexibility provided by the governance console. Set the **Number Of Days** field to **7** to give the reviewer one week to perform the action, and click **Done**.
9. In the **Stage Properties** panel, click on the **Assignees and Subscribers** section to expand it.
10. Click on the **Add Assignee** button. The **Assignees** panel opens.



Add assignee

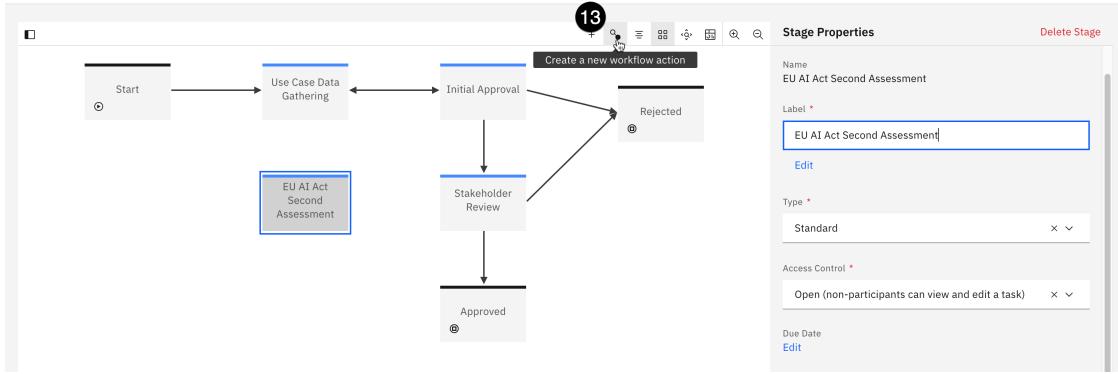
11. In the **Users or Groups** field, enter **complianceofficer** and select the user you created earlier in the lab to assign them to this task. Note that in a real-world example, you would likely have created a group of compliance officers and assigned this task to them, as opposed to one specific user.
12. Click **Done**.



Assign compliance

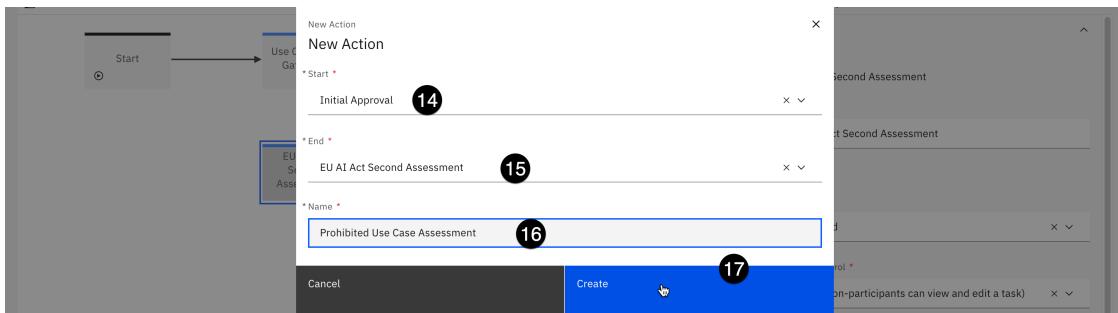
The workflow stage has been created. Next, you will add actions to trigger it.

13. Locate the **Create a new workflow action** button on the palette toolbar to the right of the **+** icon and click it. The **New Action** dialog opens.



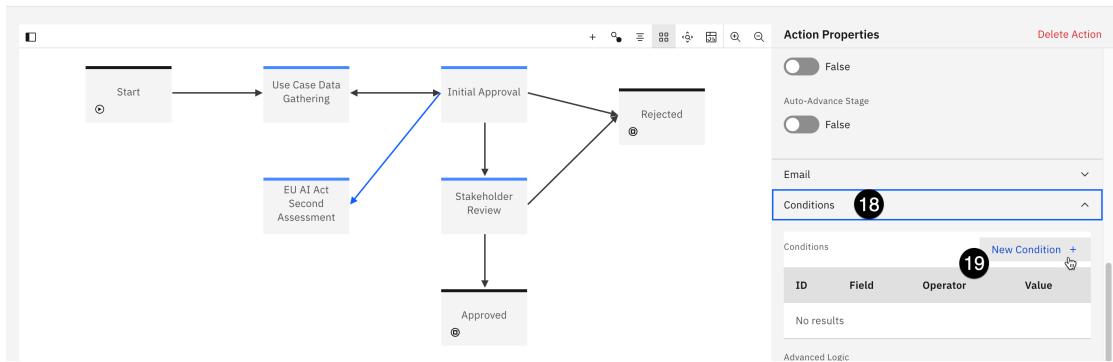
Create action

14. Click the **Start** dropdown and select the **Initial Approval** stage.
15. Click the **End** dropdown and select the **EU AI Act Second Assessment** stage you just created.
16. Enter **Prohibited Use Case Assessment** in the **Name** field. The text you enter into this field will appear as an available action in the **Actions** menu in the model use case view when the use case is in this stage.
17. Click **Create**. The action now appears as an arrow linking the **Initial Approval** stage with the **EU AI Act Second Assessment** stage.



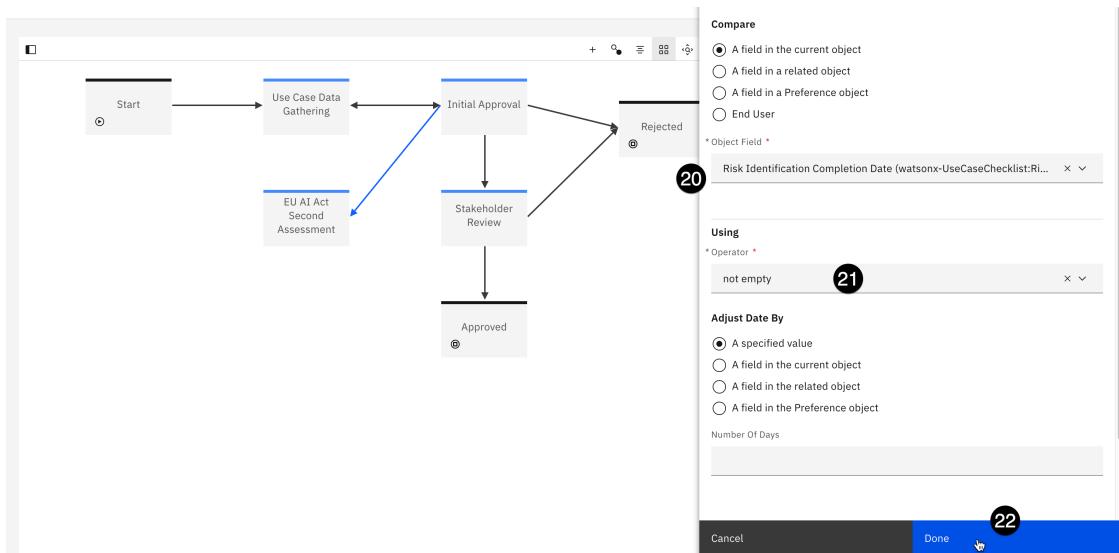
New action properties

18. In the **Action Properties** panel on the right, scroll down to the **Conditions** section and click on it to expand it.
19. Click on the **New Condition** button. The **Conditions** panel opens.



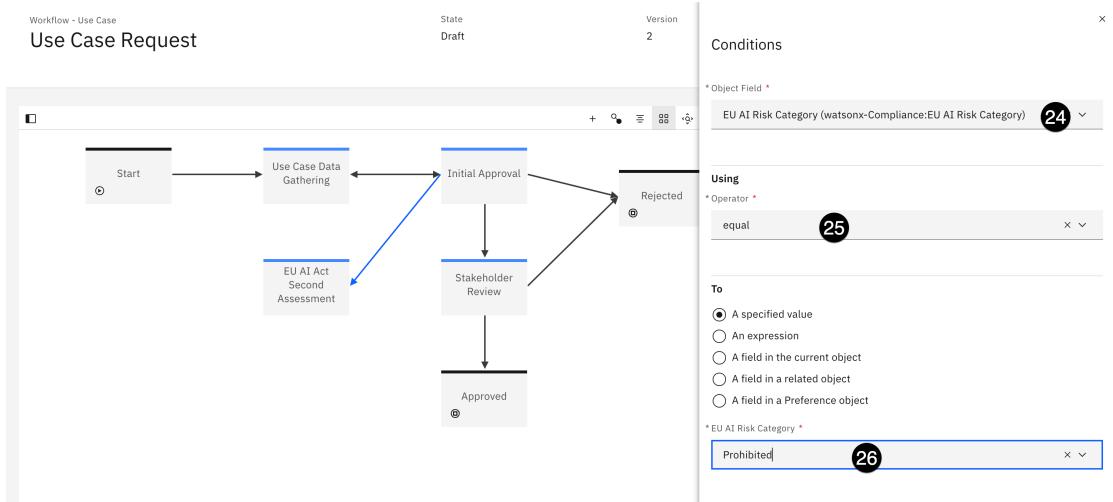
New condition

20. Click on the **Object Field** dropdown and select **Risk Identification Completion Date....**
21. Click on the **Operator** field and select **not empty** to designate that the completion date of the Risk Identification assessment has a value, meaning that the questionnaire has been filled out.
22. Click **Done** to add the condition.



Date condition

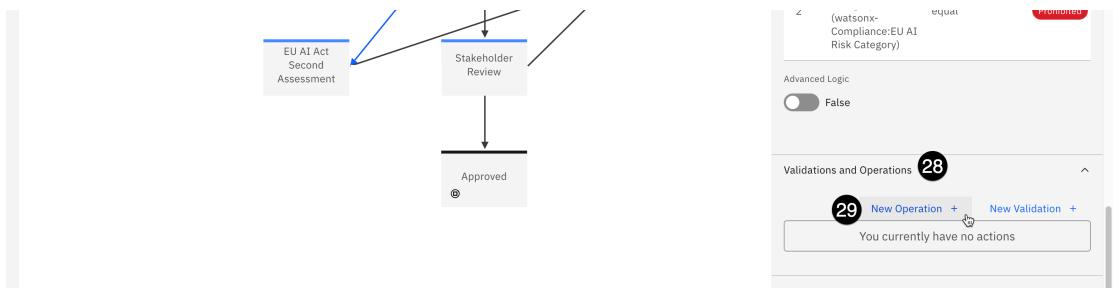
23. Click the **New Condition** button again to add a second condition.
24. Click on the **Object Field** dropdown and select **EU AI Risk Category....**
25. Click on the **Operator** dropdown and select **equal**.
26. Click on the **EU AI Risk Category** and select **Prohibited**.
27. Click **Done** to add the condition.



Prohibited condition

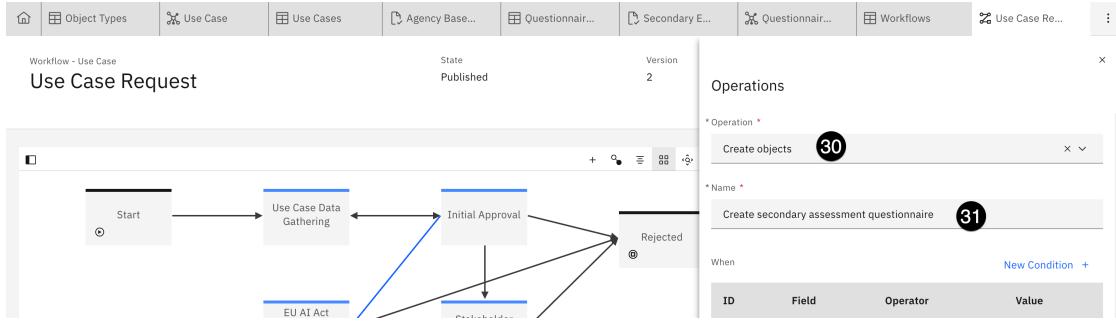
The conditions for the action have been set so that it will trigger correctly. Next, you will need the action to automatically create the questionnaire for the secondary reviewer to fill out. In previous steps, you drafted questions for the form, and added the questionnaire to the AI assessment workflow. Taking those steps allows you to insert the new questionnaire into the current use case request workflow as operations that your action can take.

28. In the **Action Properties** panel, click on the **Validations and Operations** section to expand it.
29. Click on the **New Operation** button. The **Operations** panel opens.



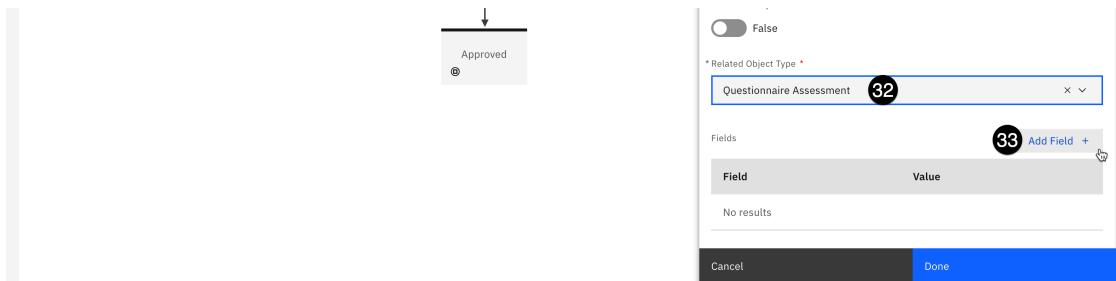
New operation

30. Click on the **Operation** dropdown and select **Create objects**.
31. Enter a description like **Create secondary assessment questionnaire** in the **Name** field.



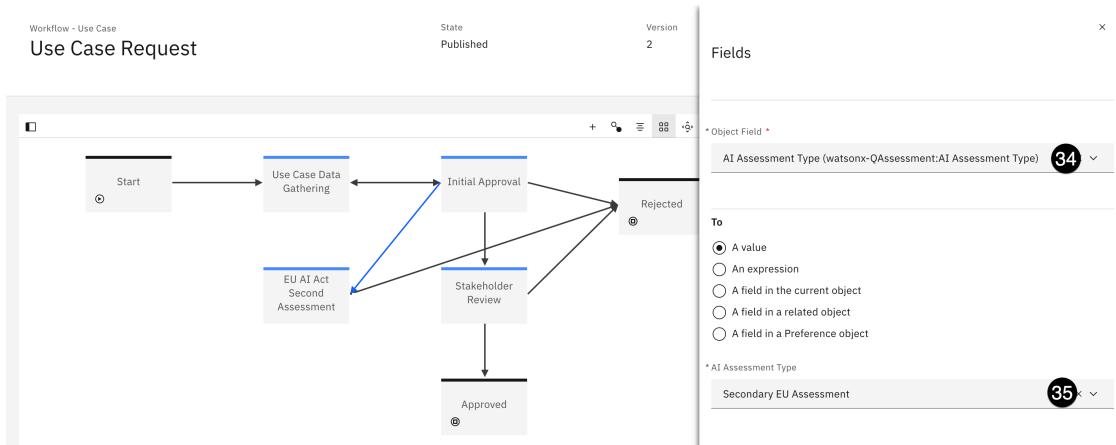
Create objects

32. Scroll to the bottom of the **Operations** panel. Click on the **Related Object Type** dropdown and select **Questionnaire Assessment**.
33. Click the **Add Field** button. The **Fields** panel opens.



Add field

34. Click on the **Object Field** dropdown and select **AI Assessment Type**....
35. Click on the **AI Assessment Type** dropdown and select **Secondary EU Assessment**. This assessment type is visible because you added it to the AI assessment workflow in the previous step.



Secondary assessment

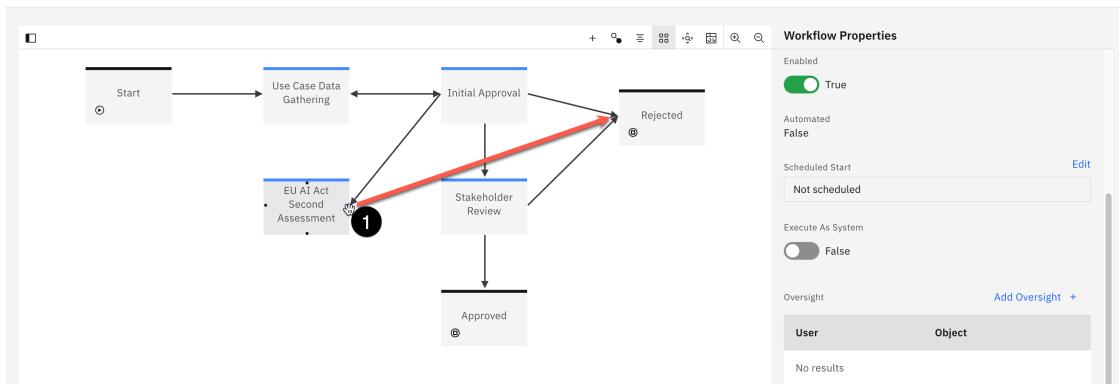
36. Click the **Done** button in the lower right to close the **Fields** panel.

37. Click the **Done** button to close the **Operations** panel.

At this point, you have created a new workflow stage, an automated action to trigger that stage, and an action to prompt a stakeholder with your newly-created questionnaire. However, the stage also needs resolution actions. The secondary reviewer must be able to either confirm the questionnaire assessment that the use case is prohibited under the EU AI Act and reject it, or overrule the questionnaire assessment and send it to the next stage of the workflow (**Stakeholder Review**).

2. Add resolution actions

1. Hover your mouse the **EU AI Act Second Assessment** stage; four black dots appear on the borders of the stage box. Click and drag one of the dots from the stage over to the **Rejected** stage on the palette to create an action linking the two. The **New Action** dialog appears.

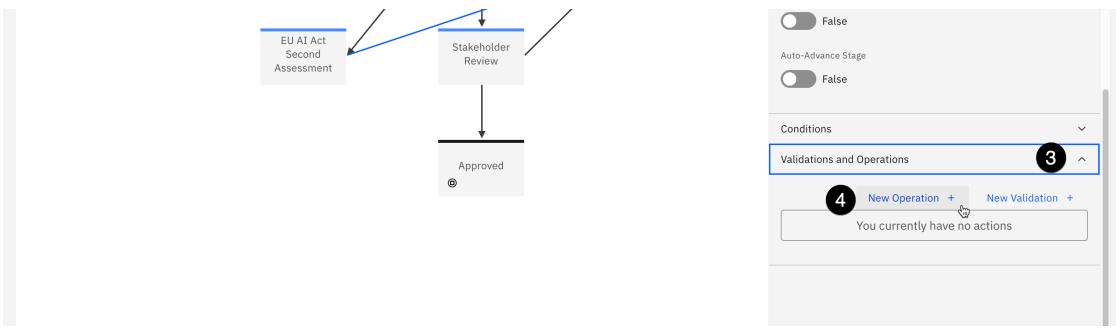


Rejected drag

2. Enter **Reject Use Case** in the **Name** field and click **Create**. This value is what will appear in the user interface for the stage owner for them to reject the use case.

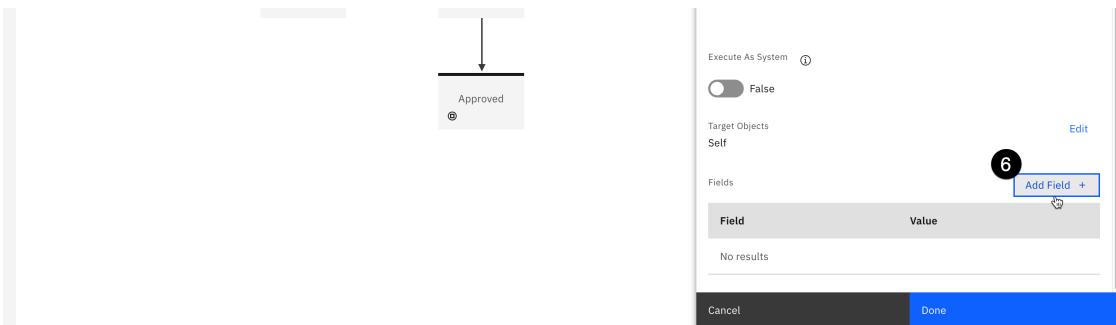
In addition to conditions, actions can also have operations assigned to them. In this example, you will set the use case status to **Rejected**.

3. In the **Action Properties** panel, scroll down the bottom and click on the **Validations and Operations** section to expand it.
4. Click on **New Operation**. The **Operations** panel opens.



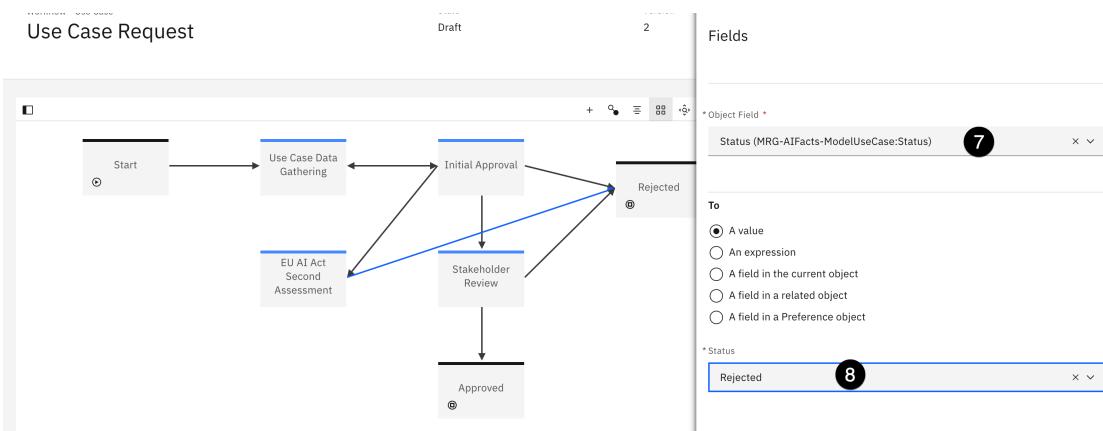
New operation

5. Enter **Set status as rejected** in the **Name** field.
6. Scroll to the bottom of the panel and click the **Add Field** button.



Add field

7. Click on the **Object Field** dropdown and select **Status (MRG-AIFacts-ModelUseCase:Status)**.
8. Click on the **Status** dropdown and select **Rejected**.



Status rejected

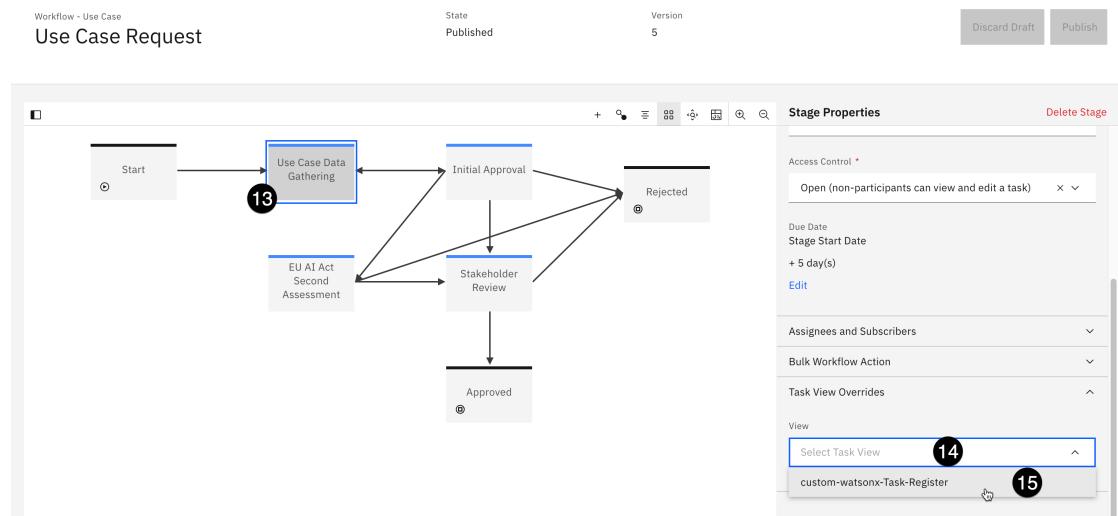
9. Click **Done** to create the field on the operation.

10. Click **Done** again to set the operation on the action. Performing the action will now update the model status.
11. Repeat step 1 above, clicking and dragging from the **EU AI Act Second Assessment** stage to the **Stakeholder Review** stage to create an action linking the two.
12. Enter **Approve to Stakeholder Review** in the **Name** field and click **Create**.

Note that the action linking the **Initial Approval** and **Stakeholder Review** stages has seven operations it performs, which you can see by clicking on it and expanding the **Validations and Operations** section of the properties panel. These operations prompt use case reviews from different departments before the final use case is approved. In a real-world example, you would duplicate these operations on the action you just created to link the **EU AI Act Second Assessment** and **Stakeholder Review** stages, since this represents the same level of approval. However, for the sake of brevity, this lab will not go over adding the operations to the new action. You may do so if you wish.

Finally, because you made changes to the default use case view, you will need to update the workflow stages, since they reference the view. Failure to update the stages will cause errors when a use case request goes through the workflow.

13. Click on the **Use Case Data Gathering** stage in the workflow. The **Stage Properties** panel opens.
14. Scroll to the bottom of the **Stage Properties** panel and click on the **Task View Overrides** section to expand it.
15. Click on the **Select Task View** dropdown and select the customized view you modified in previous steps from the list.



Task view override

16. Repeat steps 13-15 for the three other stages intermediate stages in the workflow (it is not necessary for the **Start**, **Rejected**, or **Approved** stages).

- When you are finished, click the blue **Publish** button in the upper right to publish your changes to the workflow.

Now that the use case request workflow has been modified, you will need to make one further customization to be able to approve a use case request for development.

3. Update the stakeholder review workflow

In the current workflow, the final stage before a use case request is approved for development is the **Stakeholder Review**. In a real world situation, an organization would assign this review to members of the business entity that requested the use case, risk managers, or other stakeholders. For the sake of this lab, you will assign the stakeholder review to the use case owner.

- From the watsonx governance console, click the **gear icon** in the upper right to open the **Administration** window.
- Click on the **Solution Configuration** menu item to expand it.
- Click on the **Workflows** menu item. A new tab listing all the existing workflows opens. Note that you may receive a warning message about not having access to all of the items in the workflow; this can be ignored.

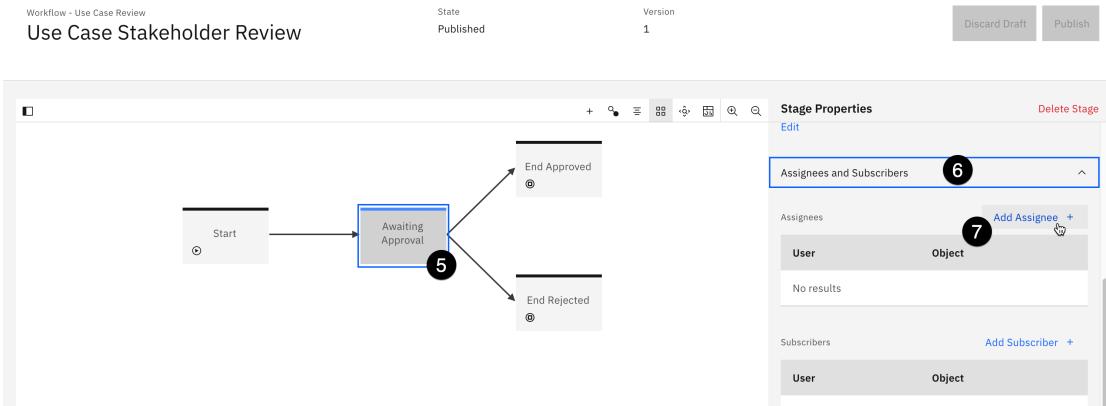
Configure workflows

- Locate and click on the **Use Case Stakeholder Review** link from the table. The workflow editor opens.

Label	Name	Object Type	Version Number	Type	Automated	Published	Enabled
<input type="checkbox"/>	Use Case Stakeholder Review	Use Case Review	1	Auto Start	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

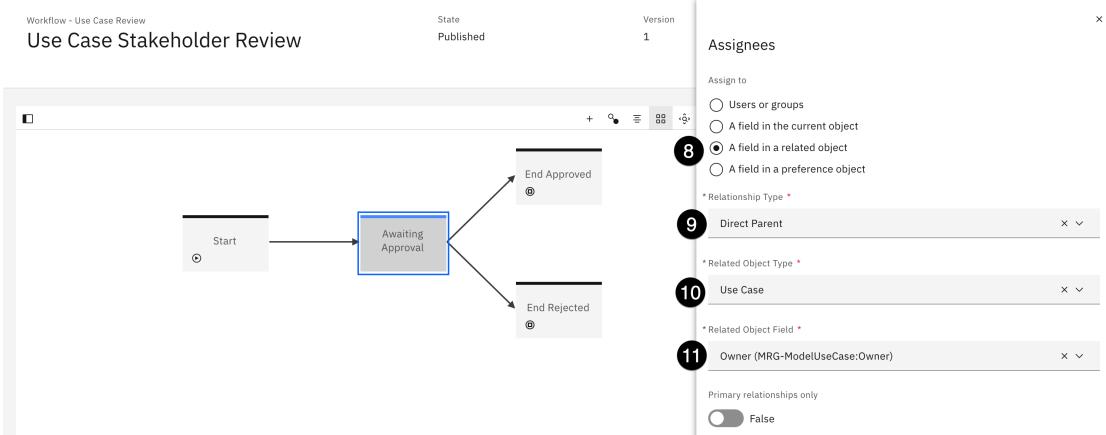
Stakeholder workflow

- Click on the **Awaiting Approval** stage of the workflow. The **Stage Properties** panel opens on the right side of the screen.
- Scroll to the bottom of the panel and click on the **Assignees and Subscribers** item to expand it.
- Click on the **Add Assignee** button. The **Assignees** panel opens.



Add assignee

- Click on the **A field in a related object** item to select it.
- Click on the **Relationship Type** dropdown and select **Direct Parent**.
- Click on the **Related Object Type** dropdown and select **Use Case**.
- Click on the **Related Object Field** dropdown and select **Owner (MRG-ModelUseCaseOwner)**.



Assignee details

- Click the **Done** button to close the **Assignees** panel.
- Click the **Publish** button to publish the changes to the workflow.

At this point in the lab, you have performed several customizations of the governance console. You have worked with user profiles, created business entities, set up custom fields, added those fields to views, experimented with questionnaires, and altered use case workflows.

The depth and configurability of the governance console is one of the major differentiators for watsonx.governance, and a successful proof of experience (PoX) should spend time highlighting these capabilities and encouraging the client to perform their own customizations based on their organization's requirements.

From this point on, the lab will focus on governing models using the workflows and processes you created and customized in the previous steps.

Govern generative models

In this section of the lab, you will go through the steps of the approval workflow you customized during the governance console configuration steps. The human resources department has received a large number of applications for open positions, and would like to use AI to summarize them to help save time for the hiring department, and process the applications more efficiently to improve the experience for the applicants.

Most use cases for generative models involve interacting with prompts and prompt templates, which help users provide clear input to a Large Language Model(LLM) by giving them a structured framework to follow, which in turn helps the model generate accurate responses.

At this point, your team may begin working individually, using either the created user account (or individual user accounts if you chose to create them). **If you begin working individually, be sure to name all created objects such as use cases, deployment spaces, projects, and more with personalized information such as your initials.**

1. Switch user personas

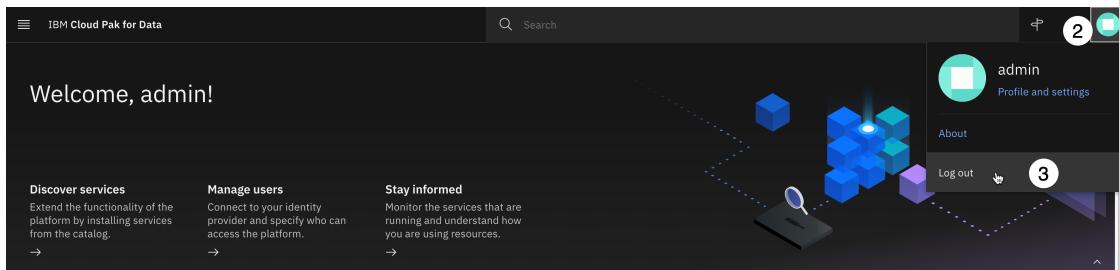
For this portion of the lab, you will switch to the user you created in the configuration portion, and have been granting access permissions. Recall that, for the sake of simplicity, you were instructed to create a single user with access to multiple pre-defined [roles](#) in Cloud Pak for Data and watsonx. While creating and managing multiple user personas and groups is beyond the scope of this lab, doing so can provide a more realistic PoX for your client, particularly if they are unfamiliar with Cloud Pak for Data, watsonx, and the level of access control and collaboration provided.

While the instructions did have you assign multiple roles to the Compliance Officer user, one role that you did **not** assign was that of administrator of the watsonx governance console (OpenPages) service. For this reason, when you log in as this user, the governance console view will have changed slightly, and you will not be able to modify views, workflows, or other aspects of the service.

Finally, it is **HIGHLY RECOMMENDED** that when logging in as the created user, you use a different browser or your browser's private/incognito mode. Previous session login

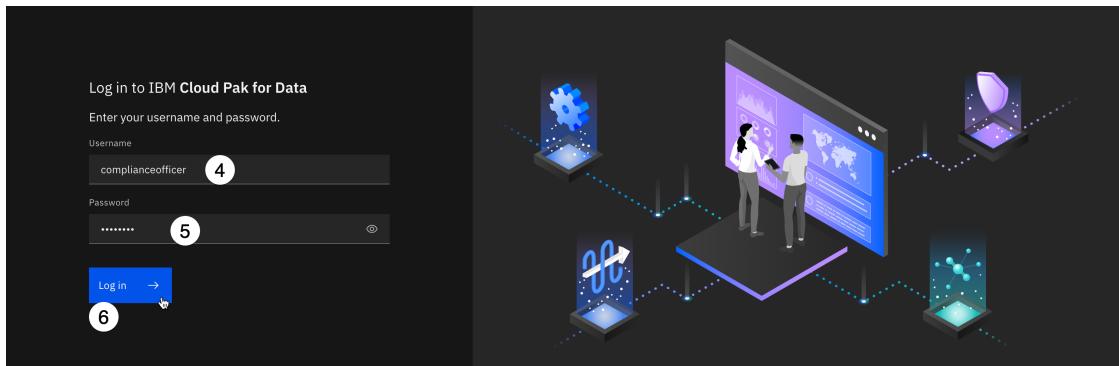
information may persist and cause repeated errors when attempting to save your work or fill out questionnaires.

1. In a private/incognito browser window, navigate to the watsonx (Cloud Pak for Data) home page. If you are asked to log in, skip ahead to step 4. If you opened the home page and are signed in, you will need to log out.
2. Click on the **avatar icon** in the upper right to open the user menu.
3. Click on the **Log out** link. When given the option to confirm, click the **Log out** button. You will be returned to the login page.



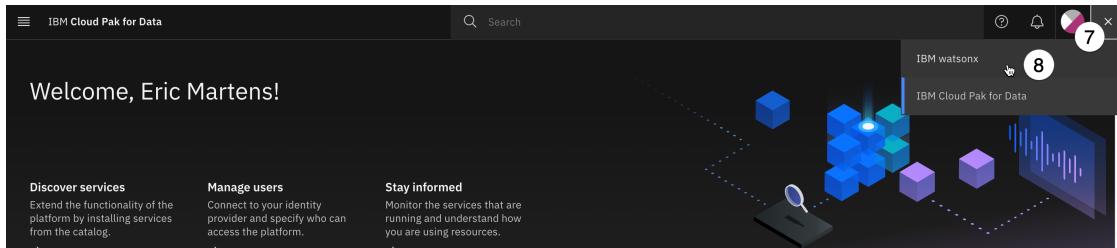
Log out

4. Enter **complianceofficer** in the username field.
5. Enter **passw0rd** in the password field.
6. Click the **Log in** button to log into Cloud Pak for Data. Close any tutorial or welcome windows that open.



Log in

7. Click on the **grid icon** in the upper right to open the context menu.
8. Click on the **IBM watsonx** menu item to change the context. A **Welcome to watsonx** popup window may open. Close the popup window, or click the **Take a tour** button if you wish.



Context

9. Click on the **hamburger menu** in the upper left to open it.
10. Click on the **Services** menu item to expand it.
11. Click on the **Instances** menu item. The **Instances** screen opens.

Instances again

12. From the **Instances** list, locate and click on the **OpenPages** instance.

Name	Type	Created by	vCPU requests	Memory requests (GiB)	Data plane	Physical location	Status	Created on
cpd-db	db2oltb	admin	2.10	4.25 Gi	-	-	green	Oct 14, 2024
openscale-defaultinstance	aios	admin	0.00	0.00 Gi	-	-	green	Oct 14, 2024
openpagesinstance-cr	12, openpages	admin	4.45	12.40 Gi	-	-	green	Oct 14, 2024

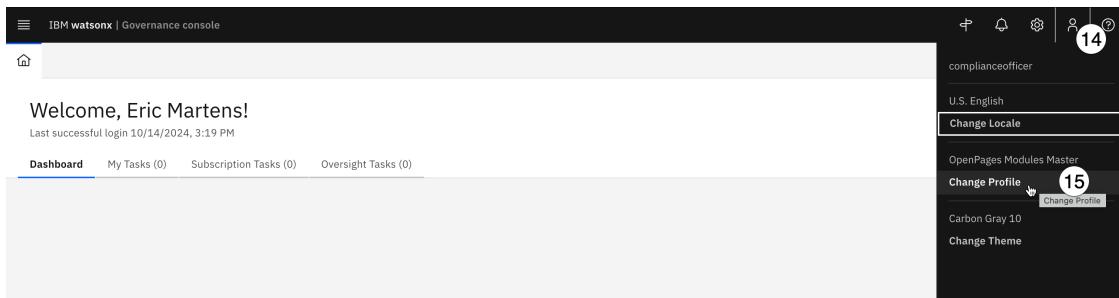
OpenPages cr

13. Scroll down to the **Access information** section of the screen and click on the **Launch** icon to launch the watsonx governance console (OpenPages).

Access information		Use dedicated nodes	False
URL	https://cpd-cpd.apps.670c7f8b9c48c677246a1646.ocp.techzone.ibm.com/open s-openpagesinstance-cr/	Node label	13
	Launch OpenPages	Data storage class	ocs-storagecluster-ceph-rbd
Size		Metadata storage class	ocs-storagecluster-cephfs
Size	Small - 8 vCPUs - supports up to 75 concurrent users	Backup storage class	ocs-storagecluster-cephfs
		Database secret name	
		Database	Db2

Launch OP

14. Once the governance console opens, you will need to switch to the correct profile to see all of the applicable fields. Click the **avatar icon** in the upper right. The **User** menu opens.
15. Click the **Change Profile** menu item. The **Select profile** dialog opens.

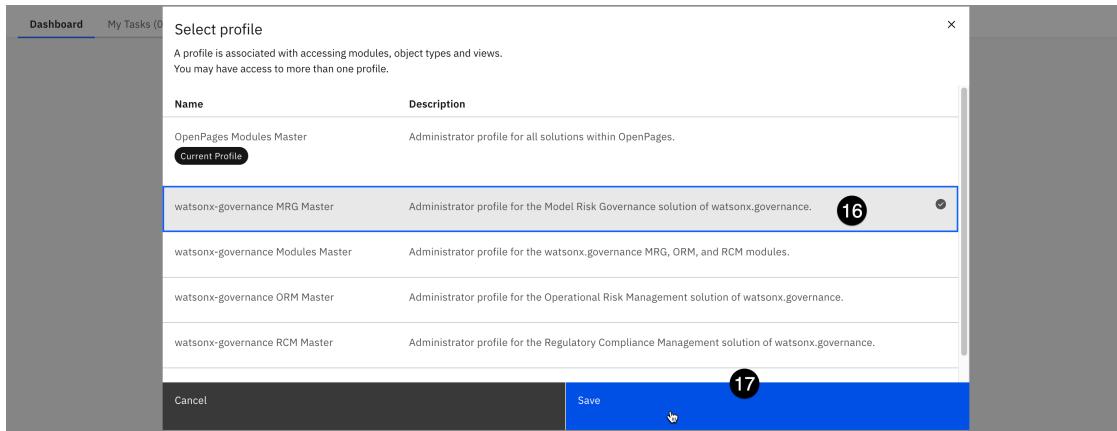


Change profile

Take a moment to review the different profile roles and descriptions available. Each of these can be customized, or new profiles created, to fit the structure and requirements of the organization. While this lab will deal primarily with the **watsonx-governance MRG Master** for governing models, pre-defined profiles also exist for regulatory compliance officers (**watsonx-governance RCM Master**) and for risk managers (**watsonx-governance ORM Master**).

16. Click on the **watsonx-governance MRG Master** profile from the list to select it.
17. Click **Save** to finalize your choice.

Note that when you return to the dashboard, it is populated with several charts displaying metrics for the sample models and use cases you loaded in the configuration step. The pre-defined roles have been created to display the information most useful for that role in their dashboards. Like all aspects of the governance console, the dashboard charts can be customized per role, or per individual user.



Select profile

2. Create a model use case

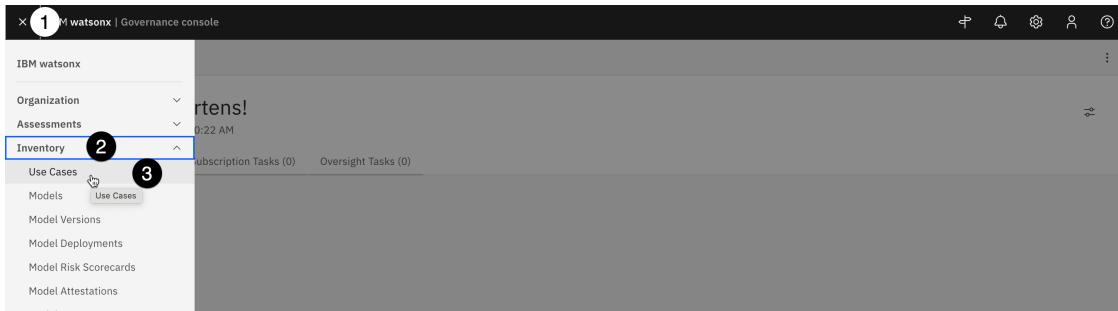
The model governance process begins with the creation of a model use case. A use case is meant to track and capture information about a collection of models and prompts that will be built to serve a particular purpose. A use case should be created whenever there is a business need requiring the use of a model (AI or non-AI) to be built. Model records should then be added as a child of the use case.

To ensure that model use cases are tracked across the entire solution, they should be created using the watsonx governance console. In the configuration lab, you turned on integration between the governance console (OpenPages) and watsonx, so any actions related to model use cases should now redirect you to the governance console interface.

Only the models that you add to use cases are tracked with AI Factsheets. You can control which models to track for an organization without tracking samples and other models that are not significant to the organization.

In a real-world scenario, this action would be performed by an organizational stakeholder who would like to request the development and implementation of a model; in this case, the manager of the human resources department, who is unable to keep up with the volume of resumes submitted for employment opportunities and would like help from an AI solution.

1. Click on the **hamburger menu** in the upper left.
2. Click on the **Inventory** menu item to expand it.
3. Click on the **Use Cases** menu item. The **Use Cases** tab opens. Note that several sample uses cases were loaded during the FastMap import step you performed in the configuration lab.



Model use cases

- Click the blue **New** button. The **New Use Case** tab opens.

Use Cases (33)
[View Name : SysView-Grid-Register]

	Name	Purpose	Description	Owner	Status	Risk Level	Tags
<input type="checkbox"/>	Agency Based LGD Estimation High Oaks Bank > North America > Corporate Banking		Uses internal and external recovery data, adjusted for macro-economic impact. Uses statistical regression	Bob Eldridge	Approved for Development	Low	<input type="checkbox"/>
<input type="checkbox"/>	Banking book HTM corporate bond - income High Oaks Bank > Europe > Corporate Banking		ALM based income forecast for the HTM portfolio, initially for the CCAR 2013 stress-test. Vendor solution using conditional scenarios and core ALM system.	Bob Eldridge	Approved for Development	Medium	<input type="checkbox"/>

New use case

Note that the **Model Use Case creation** information panel on the right of the screen offers helpful information about model use cases, as well as a list of required fields. Clicking on any of the fields in that panel will scroll the screen directly to that portion of the form, helping you quickly rectify any items needing attention.

- In the **General** section of the form, enter **Resume summarization** in the **Name** field. Note that when you enter a value in the field, the progress bar in the **Model Use Case creation** information panel updates.
- Click the **Owner** field and enter the **complianceofficer** created user into this field. Note that if you created multiple user personas in the environment configuration lab, you could choose a different user here. **DO NOT** select any of the sample users that were loaded during the system configuration import step, as they will not have associated Cloud Pak for Data accounts and will not be able to log in and work with the use case.
- Enter a description in the **Description** field.

Modified Required

General

* Name *
Resume summarization **5**

* Owner *
 complianceofficer **6**

* Description *
Summarize resumes from job applicants. **7**

* Use Case Type
 AI **8**

Use Case creation

A **use case** is meant to track and capture information about a collection of models that will be built to serve a particular purpose. A use case should be created whenever there is a business more

1 item requires attention.

All Key Items (6) ▾

Name *
 Owner *
 Purpose
 Description *

Use case general

- Click on the **Use Case Type** dropdown and select **AI**.

* Use Case Type
 AI **8**

Business Entities

4 items require attention.

All Key Items (6) ▾

Name *
 Owner *
 Purpose

AI

- All model use cases are owned by business entities, representing the part of the organization responsible for requesting the use case. In the **Business Entities** section of the form, click the **Add** button. The **Add** window opens with a list of business entities defined for the organization.

Business Entities

Primary Business Entity * Other Business Entities

Name	Description	Entity Type	Tags
No results			

Add **9**

Name *
 Owner *
 Purpose
 Description *
 Use Case Type
 Primary Business Entity *

Add entity

- Locate the **Human Resources** entity from the list and click on it to select it.
- Click **Done** to add the business entity to the use case. The **Add** window closes.

* Modifiers

Add

Foundation Models
Library > MRG > Foundation Models

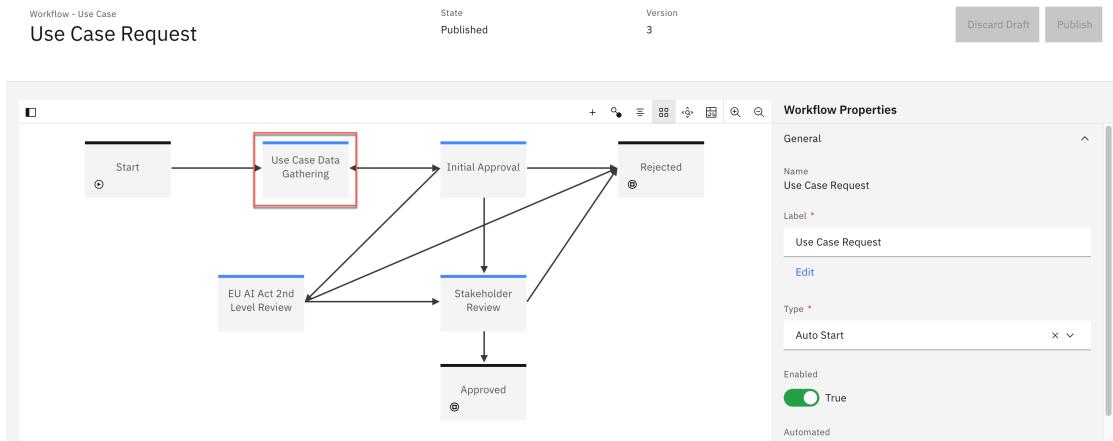
High Oaks Bank High Oaks Bank	A global financial institution with operations across every continent, offering a broad range of financial services, including personal banking, credit cards, mortgages, auto financing, investment advice, small business loans, and payment processing.	(Business)
Human Resources High Oaks Bank > Corporate > Human Resources	Worldwide human resources business unit	10 (Business)
Investment Banking High Oaks Bank > Africa and Middle East > Investment Banking	Investment Banking - Africa and Middle East	(Business)
Investment Banking High Oaks Bank > Asia > Investment Banking	Investment Banking - Asia	(Business)
Investment Banking High Oaks Bank > Europe > Investment Banking	Investment Banking - Europe	(Business)
Investment Banking High Oaks Bank > Latin America > Investment Banking	Investment Banking - Latin America	(Business)
Investment Banking High Oaks Bank > North America > Investment Banking	Investment Banking - North America	(Business)

Cancel Done 11

Add HR

12. Click the **Save** button in the upper right to save the use case.

When the use case has finished saving, the screen will reload with the view you customized in previous steps; you should see the **Secondary EU AI Review** field in the **Compliance** section of the use case. At this point, the use case has been created and is now governed by the **Use Case Request** workflow that you modified. Specifically, it is in the **Use Case Data Gathering** stage of the workflow, as shown in the screenshot below. Note that this screen is for informational purposes, and your screen will not look like this.



Use Case Data Gathering

To progress the use case through the workflow, you will now need to perform the actions specified in the **Action** items in the workflow.

3. Progress the use case to the next phase

The use case request has progressed to the data gathering stage of the workflow, and has been assigned as an action for the appropriate owner. Recall that owners of each stage of the workflow can be configured, and alerts assigned.

- Click on the **Home** icon in the upper left to return to the user's home tab.

The screenshot shows the IBM Watsonx Governance console interface. The top navigation bar has a 'Home' icon with a circled '1' over it. Below the navigation bar, the 'Use Cases' tab is active. A single task card is displayed, titled 'Resume summarization'. The card includes fields for Name (Resume summarization), Status (Proposed), Description (Use Case Data Gathering (Data gathering)), Stage (Use Case Data Gathering (Data gathering)), Due Date (5/29/2024), and Action (dropdown menu).

Home

- Note that the **My Tasks** tab now shows a new entry. Click on the tab to open it.

The screenshot shows the 'My Tasks' tab selected with a circled '2'. The page displays a welcome message: 'Welcome, Eric Martens!' and 'Last successful login 5/24/2024, 10:22 AM'. Below the message, there are tabs for Dashboard, My Tasks (1), Subscription Tasks (0), and Oversight Tasks (0). The 'My Tasks' section shows a single task entry.

My Tasks

The **My Tasks** tab shows a list of all the current tasks assigned to the user. It can be filtered by a variety of fields. At the moment, it only contains a single task, showing that the use case request is in the data gathering stage and is in need of action, along with the stage due date.

- Click on the link for the **Resume summarization** link in the table to return to the use case request tab.

The screenshot shows the 'My Tasks' tab selected with a circled '2'. The page displays a welcome message: 'Welcome, Eric Martens!' and 'Last successful login 5/24/2024, 10:22 AM'. Below the message, there are tabs for Dashboard, My Tasks (1), Subscription Tasks (0), and Oversight Tasks (0). The 'My Tasks' section shows a single task entry in a table format. The task details are: Name (Resume summarization), Type (Use Case), Workflow Name (Use Case Request), Stage (Status) (Use Case Data Gathering (Data gathering)), Criticality (Medium), and Stage Due Date (5/29/2024). The 'Resume summarization' link in the Name column is highlighted with a circled '3'.

Task table

In an earlier section of the lab, you updated the model use case review to hold a new field (Secondary EU AI Review). When performing a PoX for your client, you may wish to add other fields to this view, which may contain other required information to be filled out in

this stage. Information could include things like billing codes, additional documentation or justification, or more. In this case, you will only edit required fields specified in the information panel on the right before progressing to the next stage of the workflow.

Risk Level represents the risk to the organization should issues arise with the models used to address the requirements laid out by the use case. A full risk assessment is beyond the scope of this lab; however, because hiring and employment violations can lead to expensive litigation damage to an organization's reputation, this use case will be marked as high risk.

- In the **Risk** section of the form, click on the **pencil icon** next to the **Risk Level** field to edit it.

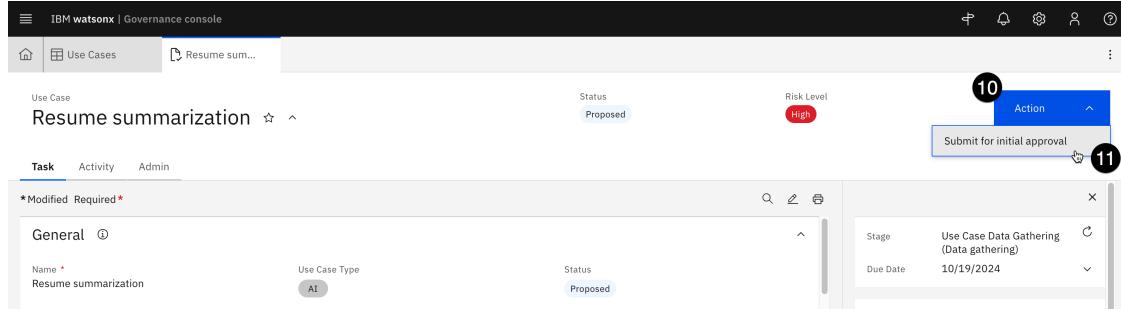
Edit risk

- Select **High** from the dropdown.
- Click on **Uses Foundation Models** in the information panel on the right to locate it in the form. The **Uses Foundation Models** dropdown opens.
- Select **Yes** in the **Uses Foundation Models** dropdown, as you will optionally use IBM Foundation models and compare them to Azure OpenAI models.
- Scroll to the **General** section, click on the **Stakeholder Departments** dropdown, and select **Model Risk** from the list. As the model progresses through the workflow, this will require a stakeholder review from the **Model Risk** department. Recall that you added use case reviews to the use case view in previous steps.

Stakeholder add

- Click the **Save** button in the upper right to save your changes.
- Once the changes have been saved, click on the **Action** button in the upper right to open the **Actions** menu.

- Click on the **Submit for initial approval** action. Note that the text of this action is defined by the **Name** field given to the action connecting the **Use Case Data Gathering** stage to the **Initial Approval** stage in the workflow. The **Submit for initial approval** confirmation dialog opens.

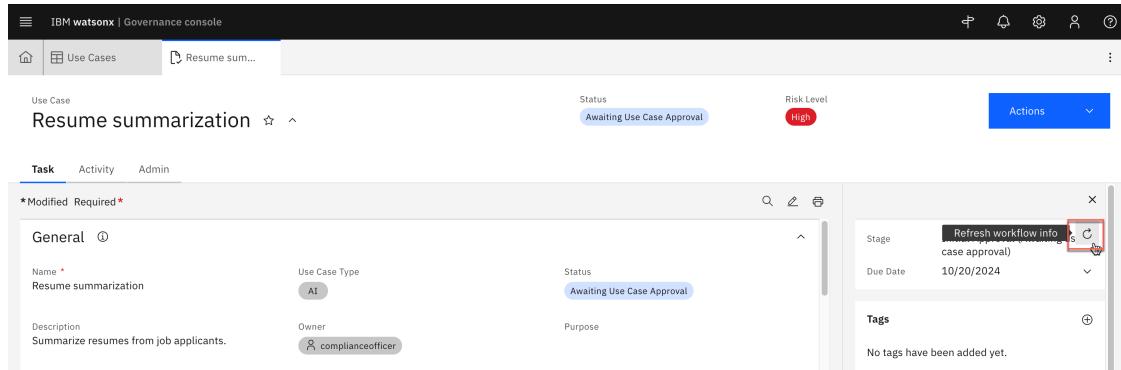


Submit initial

- Click the black **Continue** button to confirm your action, but keep the use case tab open.

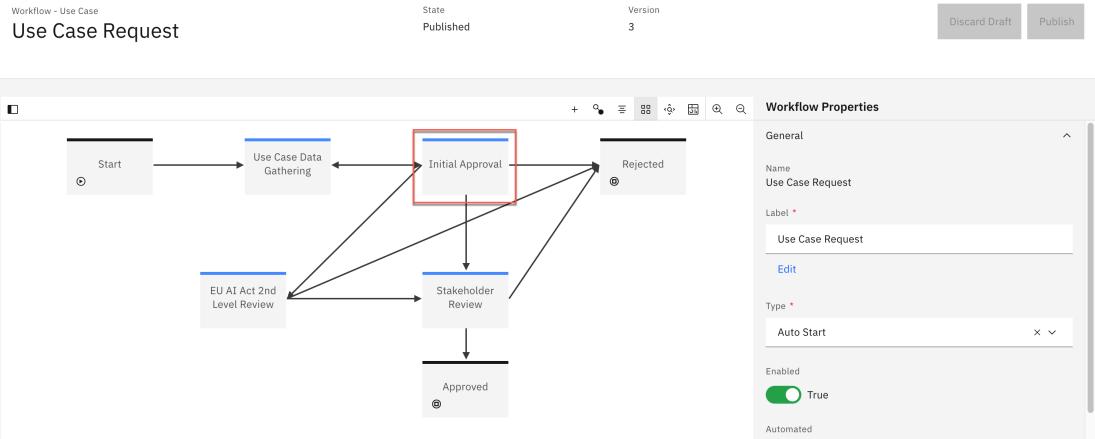
① Note: If you receive an error message saying *The Use Case view referenced in the workflow stage Initial Approval does not exist or has been deleted...*, your changes to the workflow (particularly the **Task View Override**) may not have been published. You will need to log back in as the **admin** user and ensure that the **Task View Override** field is set on each intermediate stage, and that the workflow changes are published.

If you receive a **Network error** message, your change may have been recorded, but network issues may have prevented the screen from refreshing. Try submitting again; if the error persists, click the **Refresh workflow info** button to the right of the **Stage** field in the information panel on the right. The **Stage** should progress to **Initial Approval (Awaiting use case approval)**.



Network

- When the action completes, note that the **Stage** field in the information panel on the right has updated once again to **Initial Approval**. Once again, the screen below is provided for informational purposes. The information will not appear on your screen.



Initial

Recall that, in order to progress the use case to the next stage (**Stakeholder Review**) the action in the workflow requires the risk identification questionnaire to be filled out. As that questionnaire has yet to be completed, clicking on the **Actions** menu for the use case only shows two available actions: rejecting the use case (moving it to the **Rejected** stage, or returning it to the owner (moving it back to the **Use Case Data Gathering** stage). In order to continue forward, the questionnaire must be filled out.

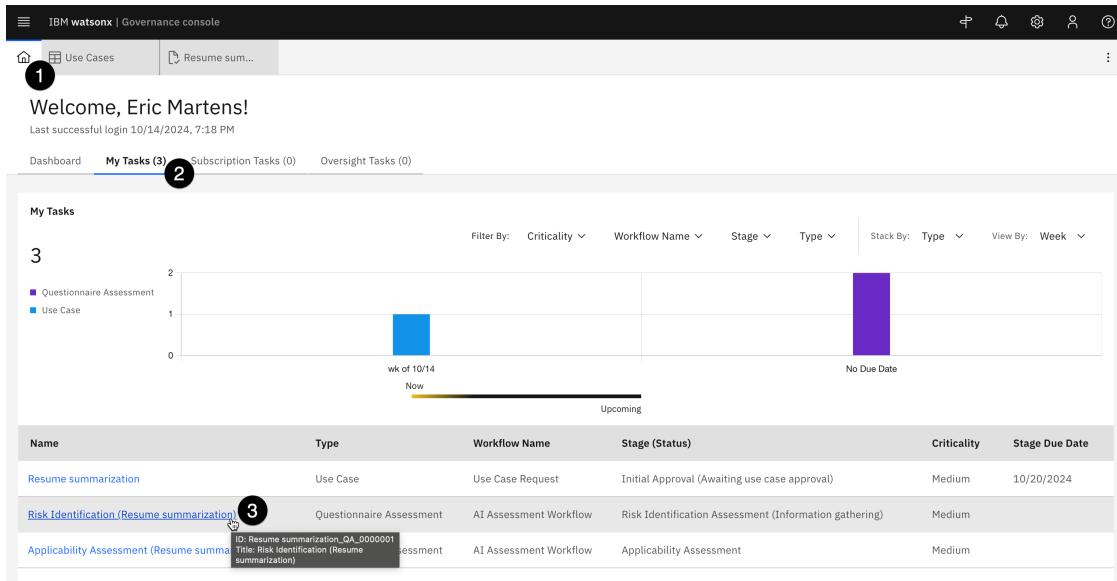
4. Identify use case risks

In this section, you will fill out the default risk assessment questionnaire included in the governance console. This questionnaire, which can be modified using the same method you used to create a questionnaire in earlier sections of the lab, has been configured to automatically associate relevant risks from IBM's AI risk atlas based on answers to the questions.

The [AI risk atlas](#) is an open source tool to help clients understand some of the risks of working with generative AI, foundation models, and machine learning models.

① Note: As mentioned when you switched user personas to the created user, if you receive frequent error messages stating that *The requested operation could not be completed*, you are likely encountering an issue with persistent session information in your browser. A browser cache clear may fix this issue, but the best way to avoid these errors is to use your browsers private/incognito mode when signed in as the created user.

1. Click on the **Home** tab.
2. Click on the **My Tasks** tab from the home screen to reopen the view of assigned tasks.
3. Click on the **Risk Identification (Resume summarization)** task from the task list. The **Risk Identification** questionnaire assessment for the use case opens.



Risk identification task

- Fill out the questionnaire for a model that will perform summarization of resumes provided by human applicants. Your answers should reflect that content will be provided by humans, and that the output will be reviewed by humans. Also specify that the model and the model training data are hosted internally, and have been screened for bias and hateful, aggressive, and profane speech (HAP). Note that the idea of this questionnaire is to identify potential risks in the model use case. Feel free to use generic answers when filling out the form, and evaluating how that changes the risks identified at later steps.

This questionnaire has been provided by IBM as a general use form for AI use cases. Many clients will want to build their own questionnaires to satisfy different legal and organizational requirements. As you saw while creating your custom questionnaire, they can easily modify existing forms, or build new ones from scratch using the editor.

Note the progress panel on the left side of the screen will show any required questions that have not been answered, and you can use it to jump between sections of the questionnaire. Your progress will also be automatically saved as you progress.

- When you have finished filling out the survey, click the **Action** button in the upper right. The **Actions** menu opens.
- Click the **Risk identification complete** button. A confirmation dialog opens.

IBM Watsonx | Governance console

Risk Identification (Resume summarization)

Assignee: [Redacted]

Stage Name: Risk Identification Assessment [Active draft]

Action: 5 Risk identification complete 6

Questionnaire Assessment

Task Activity Admin Questionnaire

View all questions

Questions completed: 47/47

Can this model be accessed externally? *

Yes

No

[Clear](#)

Risk identification complete

- Click **Submit** to submit the risk identification questionnaire.

Questions completed: 47/47

Risk identification complete

Are you sure you want to perform this action?

Progress: 100% (47 of 47)
Flagged: 0

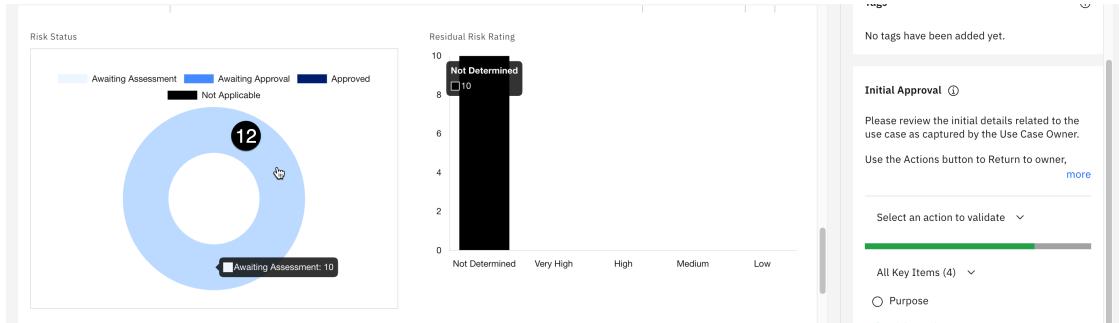
[Cancel](#) 7 [Submit](#)

Sections:

- Risk Identification
- Use Case
- Use
- Context
- Additional Risks

Risk identification complete

- Based on the questionnaire answers, the governance console now calculates and assigns certain risks to the use case. You can view these by clicking on the **Home** tab.
- Click on the **My Tasks** tab of the **Home** tab. The use case appears in the list of tasks, with the stage set to **Initial Approval**.
- Click on the use case from the task list. The use case opens in a new tab.
- Scroll down to the **Risk** section of the page. Note that the **Risk Identification Completion Date** now has a value.
- Scroll down to the **Risk Status** and **Residual Risk Rating** graphs. Based on your questionnaire answers, your charts may look different than the screen shot. Click on the **Risk Status** graph. The **Risks** tab opens.



Risk status

- Examine the table of risks. Note that each has a description, and a reference URL for more information. These risks have been populated from the [AI risk atlas](#). They also

have a **Status of Awaiting assessment**, indicating that a risk assessor must decide if they are relevant to the use case or not.

- When you are finished examining the risks, close the tab and return to the use case tab.

Next, you must perform an applicability assessment of the use case.

5. Assess applicability for the use case

In this step, fill out the applicability assessment questionnaire. As with the previous questionnaire, this form is provided by IBM, but can be fully customized by clients to fit their own needs. It is modeled after some of the requirements set forth in legislation around AI in the European Union.

- Click on the **Home** tab to switch to it. The tab should still be showing the **My Tasks** view.
- Locate and click on the **Applicability Assessment** link from the tasks table. The **Applicability Assessment Questionnaire** opens in a new tab.

The screenshot shows the IBM Watsonx Governance console interface. At the top, there's a navigation bar with icons for Home, Use Cases, and Resume summary. Below that is a header bar with the text "Welcome, Eric Martens!" and "Last successful login 10/14/2024, 7:18 PM". The main area is titled "My Tasks (2)". It features a bar chart with two bars: one blue bar labeled "Questionnaire Assessment" at position 1 and one purple bar labeled "Use Case" at position 2. The chart has a legend, a timeline from "Now" to "Upcoming", and filters for Criticality, Workflow Name, Stage, Type, Stack By, and View By. Below the chart is a table with columns: Name, Type, Workflow Name, Stage (Status), Criticality, and Stage Due Date. The first row is for "Resume summarization" (Type: Use Case). The second row, which is highlighted with a yellow background, is for "Applicability Assessment (Resume summarization)" (Type: Questionnaire Assessment). A tooltip for this row shows the ID: "ID: Resume summarization_QA_0000002" and the title: "Applicability Assessment (Resume summarization)".

Name	Type	Workflow Name	Stage (Status)	Criticality	Stage Due Date
Resume summarization	Use Case	Use Case Request	Initial Approval (Awaiting use case approval)	Medium	10/20/2024
Applicability Assessment (Resume summarization)	Questionnaire Assessment	AI Assessment Workflow	Applicability Assessment	Medium	

Applicability assessment

Take a moment to skim the text for each of the questions, and understand how potentially clients might answer them and how it affects their risk profile for adopting AI tools.

- Click on the dropdown for the first question, and check the box next to the **A deployer of AI systems that have their place of establishment or who are located within the Union**.

Questionnaire Assessment
Applicability Assessment (Resume summariza... ☆ DRAFT ^

Assignee Stage Name Action

Task Activity Admin Questionnaire

View all questions Questions completed 1/3 Sections Applicability Assessment Scope and Prohibited AI Systems

on the Union market "authorised representative" means: any natural or legal person located or established in the Union who has received and accepted a written mandate from a provider of an AI system or a general-purpose AI model to, respectively, perform and carry out on its behalf the obligations and procedures established by this Regulation.

How would you classify your organization? Review each statement and check all classifications that apply.

3 A provider placing on the market or putting into service AI systems or placing on the market general-purpose AI models in the Union, irrespectiv

A deployer of AI systems that have their place of establishment or who are located within the Union

A provider and deployer of AI systems that have their place of establishment or who are located in a third country, where the output produced by

An importer of an AI system

A distributor of an AI system

Placed on the market, put into service, or used with or without modification exclusively for military, defense or national security purposes, regardless of the type of entity carrying out those activities

Not placed on the market or put into service in the Union, where the output is used in the Union exclusively for military, defence or national security purposes

An AI system or AI model, including their output, specifically developed and put into service for the sole purpose of scientific research and development

Deployer

- In the second question tile, check the box next to the **None of the above** option.

Questionnaire Assessment
Applicability Assessment (Resume summariza... ☆ DRAFT ^

Assignee Stage Name Action

Task Activity Admin Questionnaire

View all questions Questions completed 2/3 Sections Applicability Assessment Scope and Prohibited AI Systems

1.1.1. Excluded AI Systems
The AI System has been developed or will be used for the following purposes:

Review each statement and check all answers that apply. *

Placed on the market, put into service, or used with or without modification exclusively for military, defense or national security purposes, regardless of the type of entity carrying out those activities

Not placed on the market or put into service in the Union, where the output is used in the Union exclusively for military, defence or national security purposes

An AI system or AI model, including their output, specifically developed and put into service for the sole purpose of scientific research and development

Deployers who are natural persons using AI systems in the course of a purely personal non-professional activity

AI systems released under free and open source licences unless they are placed on the market or put into service as high-risk AI systems, or an AI system that falls under Prohibited AI Practices (Article 5) or Transparency Obligations (Article 50)

Research, testing and development activity regarding AI systems or models prior to being placed on the market or put into service

4 None of the above

Attachment Activity

None

- In the third question tile, select the **No** option.

At this point, the questionnaire will add extra questions based on your answers. Continue to fill out the questions for the resume summarization use case, taking into account that the model will not perform classification, facial or image recognition, biometric data, individual risk assessments, or other potentially harmful acts.

When you have completed the questions, the **Category Assessment** section of the form will populate.

- Click on the **Category Assessment** section to view it.

Questionnaire Assessment
Applicability Assessment (Resume summariza... ☆ ⓘ ^

Assignee Stage Name Action

Questionnaire

Task Activity Admin Questionnaire

View all questions Questions completed 9/21

Sections Applicability Assessment

- Scope and Prohibited AI Systems
- Category Assessment**

6 Category Assessment

Attachment Activity

1.1.8. **Exploitative Techniques**
Does the AI System include the placing on the market, putting into service or use of an AI system that:
exploits any of the vulnerabilities of a person or a specific group of persons due to their age, disability or a specific social or economic situation, with the objective, or the effect, of materially distorting the behaviour of that person or a person belonging to that group in a manner that causes or is reasonably likely to cause that person or another person significant harm? *

Yes No

Clear

Category assessment

- Most of the assessments will not apply; however, for question 2.1.5, select **Yes** to reflect that the AI system will be used to analyze and filter job applications.

Questionnaire Assessment
Applicability Assessment (Resume summariza... ☆ ⓘ ^

Assignee Stage Name Action

Questionnaire

Task Activity Admin Questionnaire

View all questions Questions completed 14/21

Sections Applicability Assessment

- Scope and Prohibited AI Systems
- Category Assessment**

7 Risk Category

Comment Attachment Activity

2.1.5. **Employment, Workers Management and Access to Self-employment**
The AI system is intended to be used:
for recruitment or selection of natural persons, notably to place targeted job advertisements, to analyse and filter job applications, and to evaluate candidates. *

Yes No

Clear

2.1.6. **Employment, Workers Management and Access to Self-employment**

Filter

- When you have finished answering all the questions, click on the **Action** button to open the actions menu.
- Click on the **Applicability assessment complete** menu item.

The screenshot shows the IBM Watsonx Governance console interface. At the top, there's a navigation bar with icons for Home, Use Cases, Resume summarization, Applicability ..., and other system settings. Below the navigation is a header for 'Questionnaire Assessment' and 'Applicability Assessment (Resume summariz...)'.

In the center, there's a form titled 'Questionnaire'. It has tabs for Task, Activity, Admin, and Questionnaire, with 'Questionnaire' currently selected. On the left, a sidebar shows 'Questions completed' (21/21) and sections like 'Applicability Assessment' (Scope and Prohibited AI Systems), 'Category Assessment' (Risk Category), and 'Risk Category'.

The main content area contains a question labeled '2.1.12. Administration of Justice and Democratic Processes'. The question asks: 'The AI System is intended to be used: for influencing the outcome of an election or referendum or the voting behaviour of natural persons in the exercise of their vote in elections or referenda (excluding AI systems that do not directly expose natural persons to their output, such as tools used to organise, optimise or structure political campaigns from an administrative or logistical point of view). *'. There are 'No' and 'Yes' radio buttons, with 'No' selected. Below the question are buttons for Comment, Attachment, and Activity.

At the top right, there are buttons for Stage Name (Applicability Assessment), Save draft, Action, and a dropdown menu. A callout bubble labeled '8' points to the 'Action' button, and another callout bubble labeled '9' points to the 'Save draft' button.

Assessment done

- Click on the **Submit** button to confirm your choice. Your action may take a few moments to save, and the screen may not update. However, you may proceed with the lab.

You have now completed two assessments regarding the model use case, which have been used to both automatically identify possible risks associated with using AI and helped insure regulatory compliance. Next, you will individually assess the risks identified by the questionnaires, which have been automatically added to the use case.

6. Assess individual risks

The questionnaires you completed have been constructed to automatically add various risks to the use case, based on the answers provided. Clients looking to use a similar process can use this questionnaire template as a model for creating their own, customized to their individual use cases.

In this section, you will assess individual risks. For the sake of time, you will only perform a single in-depth assessment, to see how this is handled in the governance console.

- Click on the **Home** tab. The **My Tasks** tab should still be open on the page, showing a single task remaining.
- Click on the **Resume summarization** link from the task list. The use case request opens.

The screenshot shows the IBM Watsonx Governance console dashboard. At the top, there's a header with the title "IBM Watsonx | Governance console" and various navigation icons. Below the header, a banner displays a welcome message: "Welcome, Eric Martens!" followed by "Last successful login 10/14/2024, 7:18 PM". The main content area is titled "My Tasks (1)". A summary bar indicates 1 Use Case. Below the bar is a table with one row:

Name	Type	Workflow Name	Stage (Status)	Criticality	Stage Due Date
Resume summarization	Use Case	Use Case Request	Initial Approval (Awaiting use case approval)	Medium	10/20/2024

Last task

3. Scroll down to the **Risk** section of the use case and click on an entry from the **Risks** table to open it.

The screenshot shows the "Risks" section of a use case. On the left is a table listing three risks:

Name	Description	Inherent Risk Rating	Residual Risk Rating	Status	Tags
Data bias (MOD_0000000_RIS_0000001)	Historical, representational, and societal biases present in the data used to train and fine tune more	Not Determined	Not Determined	Awaiting Assessment	
Data poisoning (MOD_0000000_RIS_0000002)	Data poisoning is a type of adversarial attack where an adversary or malicious insider more	Not Determined	Not Determined	Awaiting Assessment	
Data usage (MOD_0000000_RIS_0000006)	Laws and other restrictions can limit or prohibit the use of some data for specific AI use cases.	Not Determined	Not Determined	Awaiting Assessment	

On the right, a detailed view for the first risk entry ("Data bias") is shown. It includes fields for "case approval" (Due Date: 10/20/2024), "Tags" (No tags have been added yet), and "Initial Approval" (with a note: "Please review the initial details related to the use case as captured by the Use Case Owner. Use the Actions button to Return to owner, more").

Risk

4. Scroll down to the **Related Content** section of the page, and note that the risk can be associated with mitigating controls, processes, or other issues. Take a moment to inspect some of the other sections on the page, including **Internal Audit Risk Rating**, and note how risks can be customized based on the threat they pose to a client's business.
5. Click on the **Action** button in the upper right to open the actions menu.
6. Click on the **Start model risk assessment** button to begin assessing the risk. The risk assessment form opens. If you look at the task list on your home tab, you will also see the assessment there.

Start risk assessment

7. Scroll down to the **Risk Assessment** portion of the page and click on the **information** icon next to the session header to open the **Field Guidance** window. Take a moment to read the descriptions of what each field represents.

Field guidance

8. Close the **Field Guidance** window by clicking the **X** button in the upper right corner of the popup.
9. Click on the **edit icon** for each field and assign a rating.

Assign rating

10. Click on the **edit icon** for the **Mitigation strategy** field and enter text representing how the organization could mitigate this particular risk.

General

Risk Assessment

- * Inherent Impact: Medium
- * Mitigation Strategy: (Step 10)
- * Residual Impact: Medium

- * Inherent Likelihood: Low
- * Residual Likelihood: Low

- * Inherent Risk Rating: Low
- * Residual Risk Rating: Low

Monitoring & Mitigation

following data:

- Inherent Impact and Likelihood
- Residual Impact and Likelihood
- Control Details

Select an action to validate: All Key Items (7) Mitigation Strategy Inherent Impact Inherent Likelihood

Mitigation strategy

- Click the **Save** button to save your changes.

Data acquisition (MOD_0000000_RIS_00000007)

Task Activity Admin

*Modified Required *

Risk Assessment

- * Inherent Impact: Medium
- * Mitigation Strategy: Review all data acquired with legal department.
- * Residual Impact: Medium

- * Inherent Likelihood: Low
- * Residual Likelihood: Low

- * Inherent Risk Rating: Low
- * Residual Risk Rating: Low

following data:

- Inherent Impact and Likelihood
- Residual Impact and Likelihood
- Control Details

Select an action to validate: All Key Items (7) Mitigation Strategy

Save mitigation

- Click on the **Action** button in the upper right to open the actions menu.
- Click on the **Assessment Complete** button to finish the risk assessment.

Data acquisition (MOD_0000000_RIS_00000007)

Task Activity Admin

*Modified Required *

Risk Assessment

- Inherent Impact: Medium
- Inherent Likelihood: Low
- Inherent Risk Rating: Low

following data:

- Inherent Impact and Likelihood
- Residual Impact and Likelihood
- Control Details

Assessment complete

- When asked to confirm your choice, click on the **Continue and close tab** button.
- Return to the use case view, either by clicking on the tab or locating it from the **My tasks** section of your **Home** tab.
- Scroll down to the **Risks** section, and note that the **Inherent Risk Rating**, **Residual Risk Rating**, and **Status** have been updated in the table.

You may repeat this process for as many of the risks as you wish before proceeding. For the sake of brevity, the next steps show you how to change the status of multiple risks at once.

17. Click on the **Launch Grid page** button at the top of the **Risks** table. The grid page opens.

Name	Description	Inherent Risk Rating	Residual Risk Rating	Actions
Data bias (MOD_0000000_RIS_0000001) High Oaks Bank > Corporate > Human Resources	Historical, representational, and societal biases present in the data used to train and fine tune more	Not Determined	Not Determined	Awaiting Assessment
Data poisoning (MOD_0000000_RIS_0000002) High Oaks Bank > Corporate > Human Resources	Data poisoning is a type of adversarial attack where an adversary or malicious insider more	Not Determined	Not Determined	Awaiting Assessment
Data usage (MOD_0000000_RIS_0000006) High Oaks Bank > Corporate > Human Resources	Laws and other restrictions can limit or prohibit the use of some data for specific AI use cases. more	Not Determined	Not Determined	Awaiting Assessment
Data acquisition (MOD_0000000_RIS_0000007) High Oaks Bank > Corporate > Human Resources	Laws and other regulations might limit the collection of certain types of data for specific more	Low	Low	Approved 16
Data usage rights (MOD_0000000_RIS_0000008) High Oaks Bank > Corporate > Human Resources	Terms of service, copyright laws, or other rules restrict the ability to use certain data for more	Not Determined	Not Determined	Awaiting Assessment
Output bias (MOD_0000000_RIS_0000021)	Generated model content might unfairly represent certain more	Not Determined	Not Determined	Awaiting Assessment

Please review the initial details related to the use case as captured by the Use Case Owner.

Use the Actions button to Return to owner, [more](#)

Submit for stakeholder review ▼

1 item requires attention.

All Key Items (5) ▼

- Purpose
- Risk Level
- Use Case Type
- Uses Foundation Models *

Key Items for this Action

⚠ Risks

Launch grid

18. Check the box to the left of all the risks still marked with the **Awaiting Assessment** status. Note that you may need to scroll the window to check them all.
19. Click the **Bulk Update** button at the top of the table. The **Bulk Update** panel opens.

9 items selected									
	Name	Description	Owner	Domain	Inherent Risk Rating	Residual Risk Rating	Status	Reference URL	Tags
<input checked="" type="checkbox"/>	Data acquisition (MOD_0000000_RIS_0000007) High Oaks Bank > Corporate > Human Resources	Laws and other regulations might limit the collection of certain types of data for more	compliance officer	Model governance	Low	Low	Approved	Risk Atlas (Data acquisition)	
<input checked="" type="checkbox"/>	Data bias (MOD_0000000_RIS_0000001) High Oaks Bank > Corporate > Human Resources	Historical, representational, and societal biases present in the data used to train and more	System Administrator	Model governance	Not Determined	Not Determined	Awaiting Assessment	Risk Atlas (Data bias)	
<input checked="" type="checkbox"/>	Data poisoning (MOD_0000000_RIS_0000002) High Oaks Bank > Corporate > Human Resources	Data poisoning is a type of adversarial attack where an adversary or malicious more	System Administrator	Model governance	Not Determined	Not Determined	Awaiting Assessment	Risk Atlas (Data poisoning)	
<input checked="" type="checkbox"/>	Data usage rights (MOD_0000000_RIS_0000008) High Oaks Bank > Corporate > Human Resources	Terms of service, copyright laws, or other rules restrict the ability to use certain more	System Administrator	Model governance	Not Determined	Not Determined	Awaiting Assessment	Risk Atlas (Data usage rights)	
<input checked="" type="checkbox"/>	Data usage (MOD_0000000_RIS_0000006) High Oaks Bank > Corporate > Human Resources	Laws and other restrictions can limit or prohibit the use of some data for specific AI more	System Administrator	Model governance	Not Determined	Not Determined	Awaiting Assessment	Risk Atlas (Data usage)	
<input checked="" type="checkbox"/>	Decision bias (MOD_0000000_RIS_0000026) High Oaks Bank > Corporate > Human Resources	Decision bias occurs when one group is unfairly advantaged over another more	System Administrator	Model governance	Not Determined	Not Determined	Awaiting Assessment	Risk Atlas (Decision bias)	
<input checked="" type="checkbox"/>	Hallucination (MOD_0000000_RIS_0000028) High Oaks Bank > Corporate > Human Resources	Hallucinations occur when models produce factually inaccurate or untruthful more	System Administrator	Model governance	Not Determined	Not Determined	Awaiting Assessment	Risk Atlas (Hallucination)	

Bulk update

20. Click on the **Add a field** dropdown and select the **Inherent Risk Rating** item from the list. A dropdown for **Inherent Risk Rating** appears in the panel.

Inherent risk rating

21. Repeat the previous step to add **Residual Risk Rating** and **Status** to the panel.
22. Click on the dropdowns and select risk ratings and a status. Note that to progress the use case, you **must** select either **Approved** or **Not Applicable** in the **Status** dropdown.

Bulk fields

23. Click the **Update** button at the bottom of the panel.
24. When asked to confirm your bulk update, click the **Confirm** button. The update will run, and may take a few minutes to complete depending on how many risks were updated.
25. When the update completes, click the **X** button to close the **Bulk Update Report** popup. The **Risks** table will refresh, showing the new values.

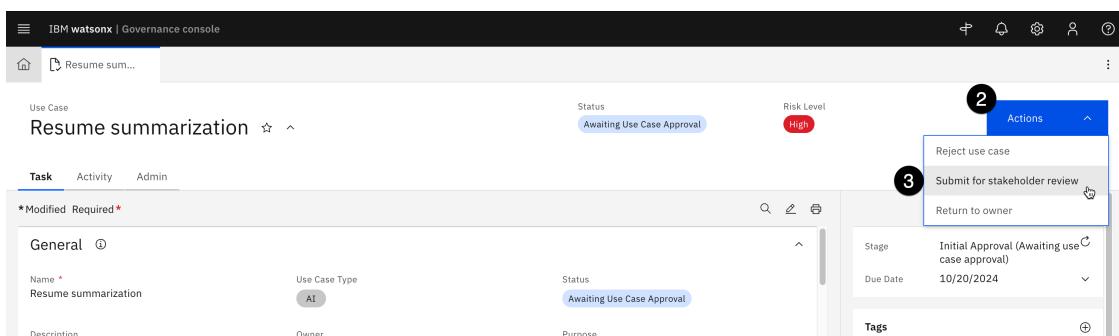
Bulk update

The risk assessments are now complete. You can progress the use case to the next phase.

7. Approve the use case for development

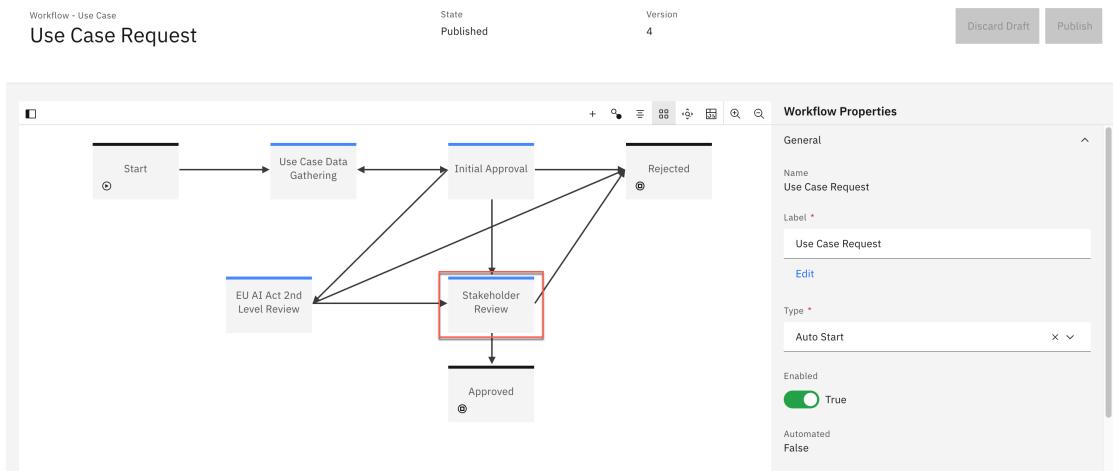
Now that the risks have been identified and assessed, the use case can be approved for the next stage of the lifecycle.

1. Return to the use case view, either by clicking on the tab or locating it from the **My tasks** section of your **Home** tab.
2. The use case is now ready to be progressed to the next stage of the workflow. Click on the **Actions** button in the upper right. The **Actions** menu opens.
3. Click on the **Submit for stakeholder review** menu option. A confirmation dialog opens.



Stakeholder review

4. Click on the **Continue** button to confirm your choice. The use case progresses to the **Stakeholder Review** stage. Once again, the graphic below is informational, and will not be shown on your screen.



Stakeholder review

5. Once the use case view refreshes, scroll to the **Use Case Details** section of the page. The view has been updated to show that the stakeholder departments you identified in the **Use Case Data Gathering** stage have been assigned a use case review; the status shows as **Awaiting Approval**.

6. Click on the name of the required review. The **Use Case Review** tab opens.

The screenshot shows the 'Use Case Details' page with the 'Stakeholder Review' tab selected. The review is titled 'Resume summarization-Review-00004' and is marked as 'Awaiting Approval'. The Model Risk department is assigned. The review has a due date of 10/20/2024 and no tags have been added yet.

Open review

At this point in the process, the model risk department would review the use case, including the answers provided in the risk identification questionnaire. Note that links to the questionnaires have been provided in the **Use Case Assessments** section of the page, for easy access.

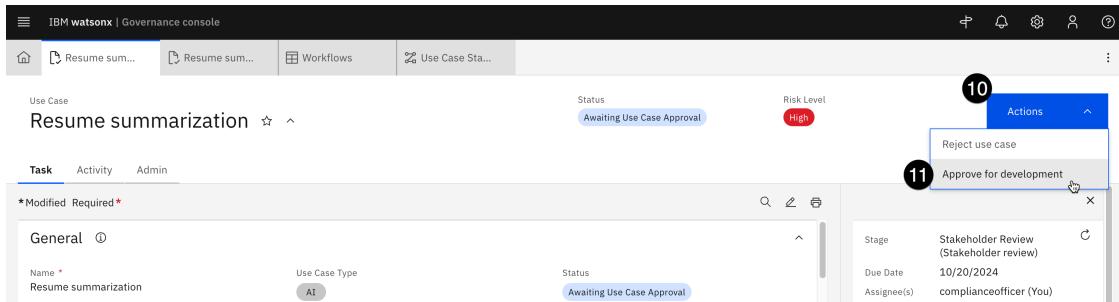
7. Click on the **edit icon** for the **Approval Status** field and set it to **Approved**.

The screenshot shows the 'Stakeholder Review' form. The 'Approval Status' field is being edited, changing from 'Approved' to 'Not Determined'. A review comment is present, and the 'Review Comment' section is expanded.

Approval status

Note that you can also identify the review, and add comments as necessary.

8. Click on the **Save** button to save the status change.
9. Return to the **Resume summarization** use case by clicking on its tab. Note that the **Approval Status** of the use case review by the Model Risk department has been updated. If you assigned any other stakeholder departments to the use case, perform those reviews now.
10. Click on the **Actions** button once more. The **Actions** menu opens.
11. Click on the **Approve for development** menu item to approve the use case. A confirmation dialog opens.



Approve for dev

12. Click the **Continue** button to confirm your choice. The **Status** field changes to **Approved for Development**.

If you click on the **Action** button again to progress the use case to the next stage of its lifecycle, you will receive an error stating that the use case view for the relevant workflow stage has been removed; because you disabled the default system use case view, to clear this error you would need to also set the **Task View Override** on the stages of the **Use Case Development and Validation** workflow to use the new, updated view. However, for the purposes of this lab, the focus will shift away from progressing the use case view to the development and monitoring of models. Feel free to update the workflow and continue progressing the use case through the different phases if your client would like to see the entire process.

At this point in the lifecycle, the model use case has been created, reviewed for risks, and approved by the various stakeholders. Personas involved are mostly non-technical, from the business user who requested the model to the risk and compliance officer who evaluated it. Next, the model would be developed by teams of data scientists and AI engineers. The following steps of the lab will take actions from the point of view of those personas.

8. Create the prompt template

In this case, the AI engineers have elected to work with the Azure OpenAI service on a prompt template to summarize the resumes.

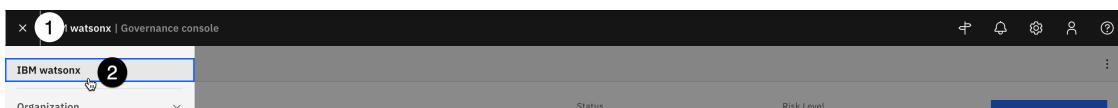
THESE EVALUATIONS ARE NOT INTENDED TO SHOW THE RELATIVE STRENGTHS OF THE OPENAI OR AZURE PLATFORMS, AND SHOULD NOT BE PRESENTED AS SUCH. The prompt used in this lab is fairly simple, and in a real-world scenario would be tuned and optimized for the individual use case. The evaluations here are presented to show how the watsonx.governance platform can collect facts and metrics for hybrid environments with models deployed on any platform.

Watsonx.governance supports the evaluation of third-party generative models via a method known as **detached prompt templates**, which are generative AI models not hosted on the same platform as the watsonx.governance service. At the time of writing, working with detached prompt templates is done through the use of Jupyter notebooks.

To begin, you will need to gather credentials used by the notebook. From watsonx, you will need the base Cloud Pak for Data URL, as well as the username and password of the created user. You will also create an API key for the user.

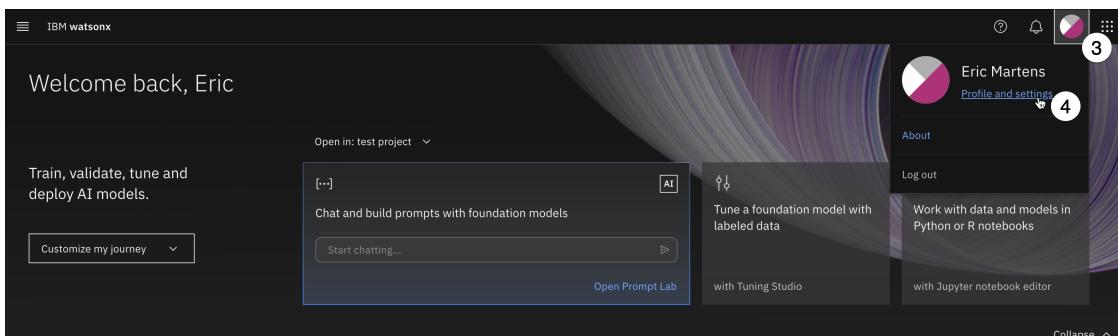
For Azure, you will need the API Endpoint, API key, name of the deployed model, Client ID, and Client Secret. Instructions on finding these are in the **Getting Microsoft Azure credentials** section of the [configuration hands-on lab](#).

1. From the watsonx governance console, click on the **hamburger menu** in the upper left.
2. Click on the **IBM watsonx** menu item. The watsonx home page opens in the watsonx context (as opposed to the Cloud Pak for Data context).



Get watsonx

3. Click on the **avatar icon** in the upper right to open the user menu.
4. Click on the **Profile and settings** item from the menu. The user profile screen opens.



Profile settings

5. Click on the **API key** button in the upper right. The API key menu opens.
6. Click on the **Generate new key** menu item. The **Generate new API key?** dialog window opens.

API key

7. Click the red **Generate** button to confirm API key creation. Note that, as the warning states, generating a new key will invalidate any existing keys you have.
8. Click the **Copy** button to copy your new key to the clipboard. Paste it into a text file for later use in the notebook, where it will represent the **CPD_API_KEY** value.

Copy key

9. Once you have pasted the key into a text file, click the **Close** button to close the window.
10. Click on the **hamburger menu** in the upper left.
11. Click on the **Projects** menu item to expand it.
12. Click on the **All projects** menu item. The **Projects** screen opens.

All projects

13. Click on the **New project** button. The **Create a project** screen opens.

14. Give your project a Name.

Create a project

Start with a new, blank project or select from where to import an existing project.

+ New

Local file

Git integrated

Define details

Name

Azure resume summarization **14**

Description (optional)

What's the purpose of this project?

Project name

15. Click the **Create** button. Your project will be created.
16. Click on the **Assets** tab.
17. Click on the **New asset** button. The **What do you want to do?** window opens.

IBM Watsonx

Projects / Azure resume summarization

Overview Assets **16** Jobs Manage

Import assets + New asset **17**

Find assets

0 asset All assets **17**

All assets

Asset types

Upload data files

Drop data files here or browse for files to upload

New asset

18. Locate and click on the **Work with data and models in Python or R notebooks** tile.

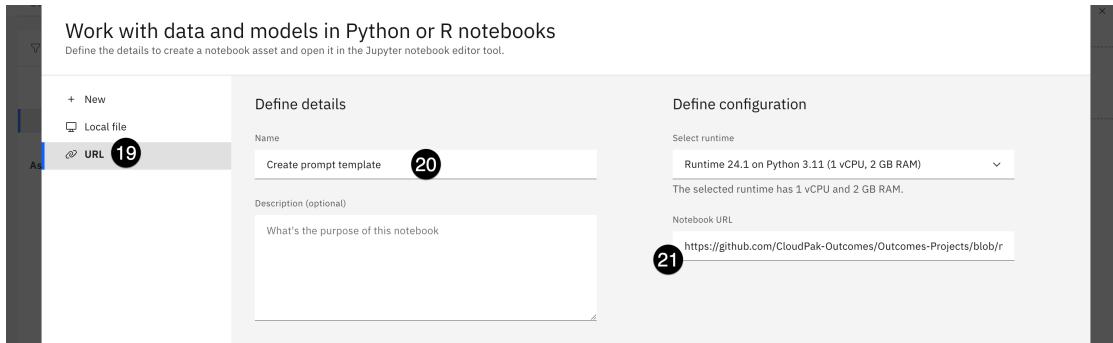
Work with models ⓘ

	Build machine learning models automatically with AutoAI		Chat and build prompts with foundation models with Prompt Lab		Work with data and models in Python or R notebooks with Jupyter notebook editor 18		Train models on distributed data with Federated Learning
--	--	--	--	--	--	--	---

Notebooks

19. Click on the **URL** option.
20. Give your notebook a **Name**.
21. Copy and paste the following URL into the **Notebook URL** field:

https://github.com/CloudPak-Outcomes/Outcomes-Projects/blob/main/watsonx-governance-14/notebooks/create_prompt_template.ipynb



Create notebook

22. Click the **Create** button. Your notebook will be created.
23. Scroll down to the first code cell and edit the string values. Your **CPD_URL** will be the base URL for the environment you are using, in the format specified by the notebook. Your **CPD_USERNAME** will be the name of the created user (**complianceofficer** if you have followed the lab instructions exactly). The **CPD_API_KEY** is the API key you generated in a previous step for the created user.

The Azure credentials will be provided by your lab instructor.

```
[1]: import os
from rich import print
from IPython.display import display, Markdown

CPD_URL = "https://cpd-cpd.apps._____ocp.techzone.ibm.com/"
CPD_USERNAME = "complianceofficer"
CPD_API_KEY = "<EDIT THIS>"

AZURE_OPENAI_ENDPOINT = "<EDIT THIS>"
AZURE_OPENAI_DEPLOYMENT_NAME = "<EDIT THIS>"
AZURE_CLIENT_ID = "<EDIT THIS>"
AZURE_CLIENT_SECRET = "<EDIT THIS>"
AZURE_TENANT_ID = "<EDIT THIS>"

PROJECT_ID = os.environ.get('PROJECT_ID', "<YOUR_PROJECT_ID>")
print(f"Your project id is '{PROJECT_ID}'")
```

Code cell

24. Run through the code cells in the notebook one at a time. The notebook will connect to the OpenAI model, use it to perform resume summarization on sample resumes, and finally save the prompt template to your project. It will also save the summaries to a CSV file in your project that you will use to evaluate the template's performance.
25. Click on the link to navigate to the newly-created Factsheet for the prompt template.

```
prompt_details=prompt_template,
detached_information=detached_information
)
project_pta_id = pta_details.to_dict()["asset_id"]
print(f"Detached Prompt template ID: '{project_pta_id}'")
2024/10/16 04:56:22 INFO : _____ Detached Prompt Creation Started _____
2024/10/16 04:56:23 INFO : The detached prompt with ID 49b467aa-fed6-4c6f-8436-8840050f1b5f was created successfully in container_id e3e72d81-22f0-4029-8729-a2d511de97ae.
Detached Prompt template ID: '49b467aa-fed6-4c6f-8436-8840050f1b5f'

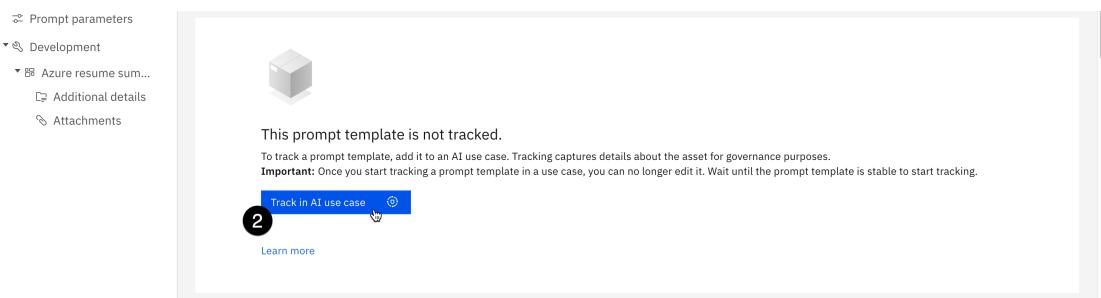
[12]: factsheets_url = f"({CPD_URL.strip('/')}wx/prompt-details/{project_pta_id}/factsheet?context=wx&project_id={PROJECT_ID}"
display(Markdown(f"[Click here to navigate to the published factsheet in the project]({factsheets_url}))")
Click here to navigate to the published factsheet in the project
```

Notebook output

9. Track the prompt in the use case

Next, you will associate the prompt template with the use case that you took through the approval process.

1. Close the **Learn about your AI asset** window that appears.
2. Click on the **Track in AI use case** button. The **Track in AI use case** window opens. The table of AI use cases has been populated from the watsonx governance console, including the **Resume summarization** use case you created.



Track

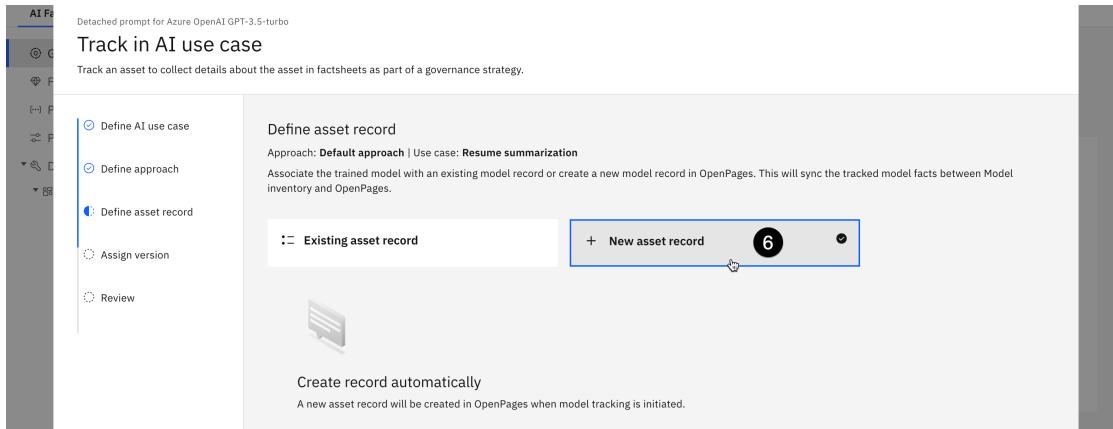
3. Select the **Resume summarization** use case from the list.

The screenshot shows the 'Track in AI use case' window with the 'Define AI use case' tab selected. On the left, a sidebar lists steps: 'Define AI use case', 'Define approach', 'Define asset record', 'Assign version', and 'Review'. The main area shows a table of AI use cases with the following data:

Name	Status	Owner	Inventory	Risk level
Resume summarization	Approved	AD admin	High Oaks Bank Model Use Cases	▲ High
Finance News Analysis	Approved	AD admin	High Oaks Bank Model Use Cases	■ Low
Executive summary generation	Approved	AD admin	High Oaks Bank Model Use Cases	■ Low
Customer Attrition	Approved	AD admin	High Oaks Bank Model Use Cases	◆ Medium

Resume case

4. Click on the **Next** button. The **Define approach** screen opens.
5. Click on the **Next** button to accept the default approach. The **Define asset record** screen opens.
6. Click on the **New asset record** tile to specify that you would like to create a new model in the governance console inventory.

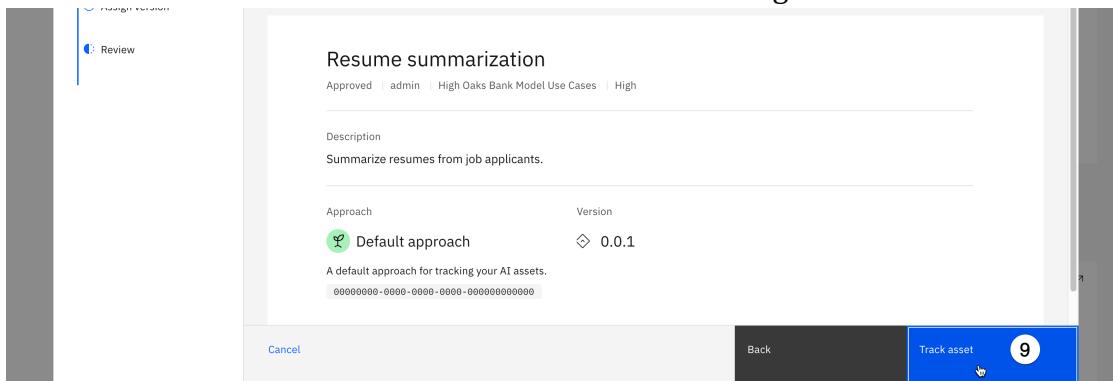


New asset record

7. Click on the **Next** button. The **Assign version** screen opens.
8. Click on the **Next** button. The **Review** screen opens.

Note the warning at the top of the screen; once you begin tracking the template in an AI use case, you can no longer edit it.

9. Click on the **Track asset** button to enable tracking for the model.



Track final

① **Note:** Occasionally, slow network conditions may result in an error message at this point telling you that the model is already being tracked. In this case, the tracking request has typically succeeded. Clicking the **Cancel** button to return to the Factsheet and then refreshing the page will show the model as being tracked within the use case.

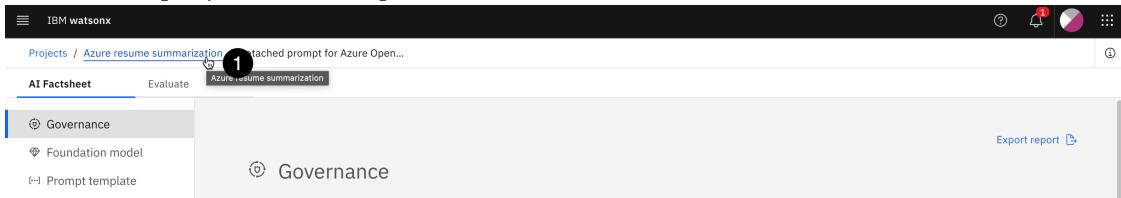
10. Take a moment to review the Factsheet. Note that it contains metadata on the type of model, provider, task, and prompt.

The model has been created in the project, and is being tracked as part of a use case. Next, you will deploy the model to a space for evaluation.

10. Deploy the model to a space

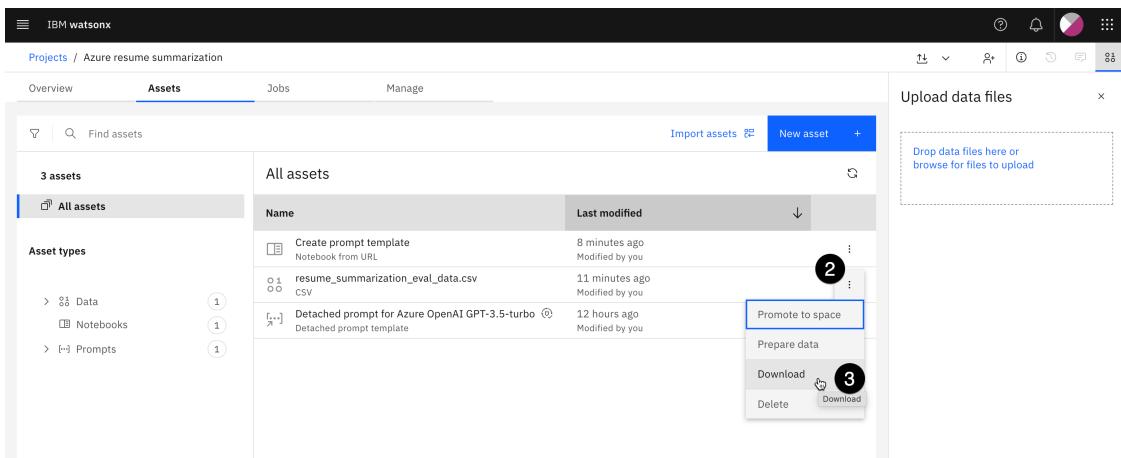
The model is now listed as an asset in your project. In this step, you will download the output to use in an evaluation, and promote the model to a space.

1. Click on your **project name** from the breadcrumb trail at the top of the Factsheet. The project screen opens.



Project breadcrumb

2. From the **Assets** tab, click on the **three vertical dots** to the right of the **resume_summarization_eval_data.csv** file to open the context menu.
3. Click on the **Download** menu item to download the file to your machine.



Download evaluation file

4. From the **Assets** tab, click on the **three vertical dots** to the right of the **Detached prompt template...** to open the context menu.
5. Click on the **Promote to space** menu item. The **Promote to space** window opens.

The screenshot shows the Azure AI studio interface with the 'Assets' tab selected. There are two assets listed: 'Detached prompt for Azure OpenAI GPT-3.5-turbo' and 'Create prompt template'. A context menu is open over the second asset, with steps 4 and 5 highlighted.

Promote

- Click on the Target space dropdown and select **Create a new deployment space**. The **Create a deployment space** window opens.

The screenshot shows the 'Promote to space' dialog box. It includes fields for 'Target space' (with 'Create a new deployment space' selected), 'Selected assets (1)' (listing 'Detached prompt for Azure OpenAI...'), and a 'Description (Optional)' text area.

New space

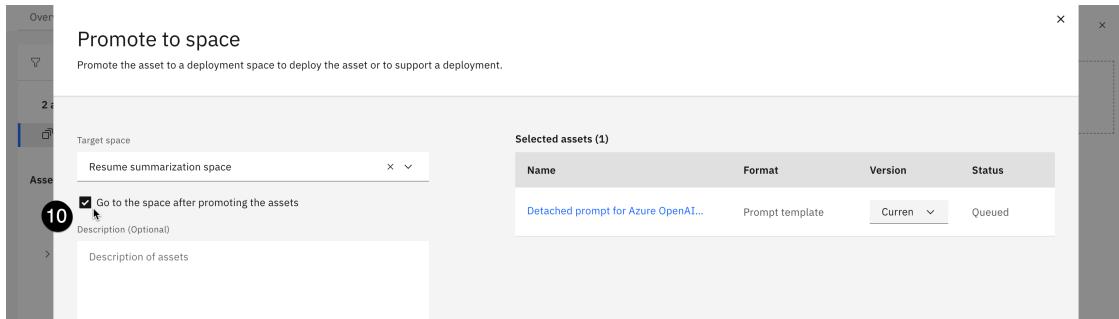
- Give your space a **Name**.
- Click on the **Deployment stage** dropdown and select **Development**.

The screenshot shows the 'Create a deployment space' dialog box. It includes fields for 'Name' (set to 'Resume summarization space'), 'Description (Optional)', 'Deployment stage' (set to 'Development'), and 'Deployment space tags (optional)'.

New space details

9. Click on the **Create** button to create the space. When creation is completed, close the notification window to return to the **Promote to space** window.

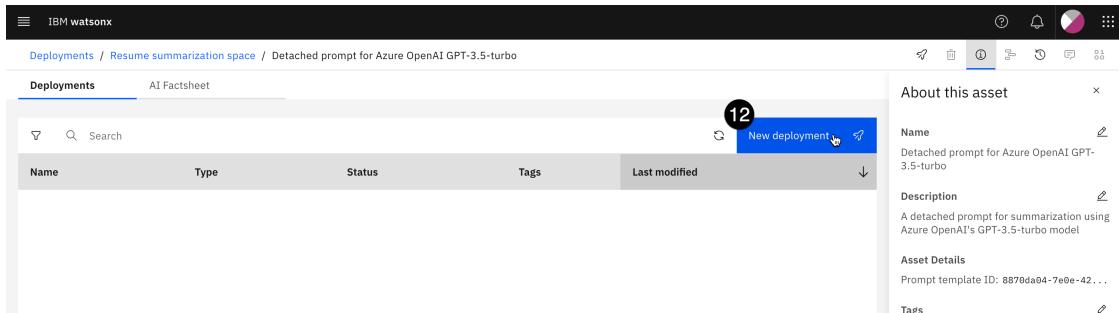
10. Check the box to the left of **Go to the space after promoting the assets**.



Go to space

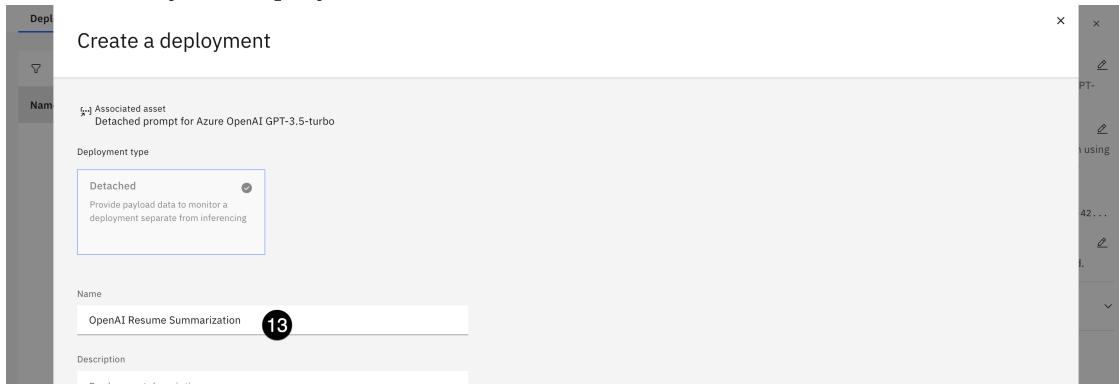
11. Click on the **Promote** button to promote the model. The model will be created in the new space.

12. Click on the **New deployment** button. The **Create a deployment** screen opens.



New deployment

13. Give your deployment a **Name**.



Deployment name

14. Click on the **Create** button to create the deployment.

The prompt is now available as a REST endpoint. It can also be evaluated.

11. Evaluate the model

In this step, you will evaluate the model for quality.

1. Click on the link for your newly-created deployment. The deployment summary screen opens.

The screenshot shows the IBM WatsonX interface. In the top navigation bar, it says 'IBM WatsonX' and has links for 'Deployments', 'Resume summarization space', and 'Detached prompt for Azure OpenAI GPT-3.5-turbo'. Below this is a toolbar with icons for search, refresh, and more. The main area is titled 'Deployments' and 'AI Factsheet'. It lists one deployment: 'OpenAI Resume Summarization' (marked with a circled '1'), which is 'Detached' and 'Deployed'. It was last modified 41 seconds ago by Eric Martens (You). To the right is a sidebar titled 'About this asset' with sections for 'Name' (Detached prompt for Azure OpenAI GPT-3.5-turbo), 'Description' (A detached prompt for summarization using Azure OpenAI's GPT-3.5-turbo model), 'Asset Details' (Prompt template ID: 8870da04-7e0e-42...), and 'Tags' (Add tags to make assets easier to find).

Deployment link

2. From the **Evaluations** tab, click on the **Evaluate** button. The **Associate a service instance** popup appears.

The screenshot shows a modal window titled 'Run an evaluation job'. It contains instructions: 'Click Evaluate to choose dimensions to evaluate and select data.' Below this is a large blue 'Evaluate' button, which is highlighted with a circled '2' and a cursor icon pointing at it.

Evaluate

3. Click on the **Associate a service instance** button to associate a machine learning service with the space. The **Evaluate a prompt template** window opens. By default, the prompt will be evaluated for generative AI quality and model health. However, you can configure the acceptable thresholds for these metrics.
4. Click on the **Advanced settings** button. The configuration window for the evaluation metrics opens.

The screenshot shows the 'Evaluate prompt template' interface. On the left, a sidebar lists steps: 'Select dimensions' (highlighted in blue), 'Select test data', 'Map variables', and 'Review and evaluate'. The main area is titled 'Select dimensions to evaluate' with a sub-instruction: 'These dimensions are based on the prompt template task type. Learn more'. A table lists two dimensions: 'Generative AI Quality' and 'Model health', each with a checkbox. A button labeled 'Advanced settings' with a gear icon is at the top right. A circled number '4' is in the top right corner.

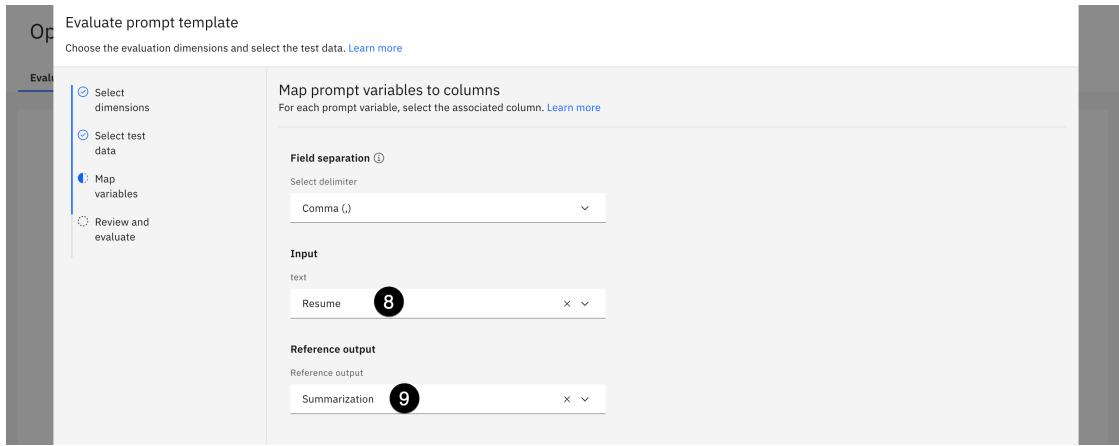
Advanced settings

5. Take a moment to review the different thresholds for quality and model health on this screen. When you are finished, click the **Save** button if you made any changes, or click the **Cancel** button to return to the **Select dimensions to evaluate** screen.
6. Click on the **Next** button to advance to the **Select test data** screen.
7. Drag and drop the *resume_summarization_eval_test_data.csv* file you downloaded from your project in the previous step into the appropriate area on the screen, or click the **Browse** button and browse to the file. If you were unable to generate the file, you can [download a version of it from GitHub](#). The **Map prompt variables to columns** window opens when the file finishes uploading.

The screenshot shows the 'Select test data' screen. It features a large central area with a 'Drop a file here or browse for a file to upload' placeholder and a 'Browse' button below it. A small icon of a person at a computer is positioned between the placeholder and the button. A circled number '7' is in the bottom right corner.

Browse

8. Click on the **text** dropdown in the **Input** section and select **Resume**.
9. Click on the **Reference output** dropdown and select **Summarization**.



Prompt variables

10. Click on the **Next** button. The **Review** window opens.
11. Click on the **Evaluate** button to run the evaluation, which can take several minutes to complete. Note that the evaluation may fail due to slow network conditions. These failures can frequently be fixed by re-running the evaluation with the same file.
12. Click on the **arrow** icon to open an expanded view of the metrics.

OpenAI Resume Summarization Deployed Detached

Evaluations **AI Factsheet**

Generative AI Quality - Text summarization

Alerts triggered 14

Metric	Score	Violation
Rouge	44.54	35.46

Feedback ▼

Arrow

13. Take a moment to review the metrics that have been calculated. For more information on the individual metrics, see the [watsonx.governance documentation](#).
14. Click on the **AI Factsheet** tab, and note that the model's Factsheet now contains the model's metadata as well as the evaluation results.

12. View the metrics in the governance console

Now that the metrics have been calculated, they can be viewed in the governance console. The watsonx service automatically updates the model's records in the governance console with the metrics information, allowing stakeholders to be sure that they are viewing the latest data.

1. Scroll to the bottom of the Factsheet and click on the **More details** button. A more detailed version of the AI Factsheet opens, showing the model's position in the lifecycle, links to the development project, deployment spaces, and more.

More details

2. From the **Governance** section, click on the **View details** button. The AI use case screen opens.

View details

3. Scroll down to the **General information** section and click on the **Open in Governance Console** link. The watsonx governance console opens in a new tab and loads the model use case entry.

Name: Resume summarization

Status: Approved (System, Oct 14, 2024)

Description: Summarize resumes from job applicants.

Owner: admin

Risk level: High

Inventory: High Oaks Bank Model Use Cases

Tags: Add tags to this AI use case. (3)

Purpose: What is the purpose of this AI use case?

Supporting documentation: Please enter a URL pointing to external documentation.

About this AI use case

Name: Resume summarization

Description: Summarize resumes from job applicants.

Owner: admin

Status: Approved (System, Oct 14, 2024)

Risk level: High

Inventory: High Oaks Bank Model Use Cases

Tags: Add tags to this AI use case.

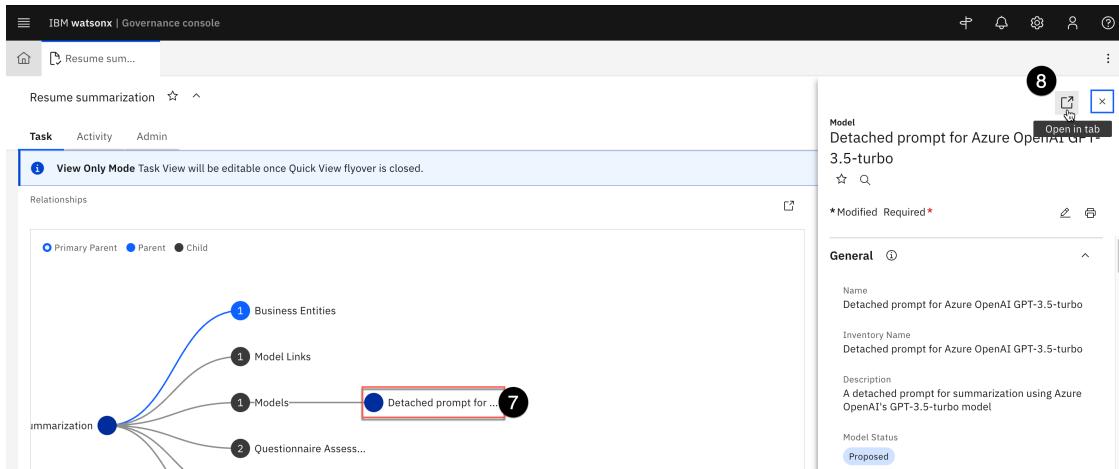
[Open in console](#)

4. Scroll down to the **Performance Monitoring** section of the page. This section contains an overview of the metrics generated by the evaluation you ran in the previous step. The **Metrics in Breach** table shows all of the metrics whose values fell below the minimum acceptable thresholds.
5. Scroll down to the **Relationships** section of the screen. Note that the **Resume summarization** parent node has one listed **Model** as child nodes.
6. Click on the circle for the **Models** node to expand it.



Models

7. The resume summarization model you created and assigned to the use case is listed here. Click on it. The **Model** information panel opens on the right, showing the model details.
8. Click on the **Open in tab** button at the top right of the panel. The model will open in a new tab in the governance console.



Open in tab

9. Scroll down to the **Associations** section of the window and click on the **Deployments** tab. Note that the tab contains a link to the deployment of the model that you created in a previous step.

At this point in the lab, you have created a questionnaire and customized a governance workflow. Acting as a stakeholder, you have proposed a model for development, and gone through the governance process. You have then deployed and evaluated a third-party model. Throughout the entire process, you have seen how the model metrics and metadata are automatically tracked and surfaced in a variety of locations, allowing risk managers, AI engineers, and other business stakeholders to collaborate on implementing generative AI projects.

Next, you will use that same governance model for predictive AI projects.

Govern predictive models

While much of the industry focus has been on ChatGPT and generative AI, the vast majority of models solving real-world business problems in production are traditional predictive machine learning models. Most organizations would significantly benefit from a governance solution for their predictive models, particularly given the increased regulatory environment.

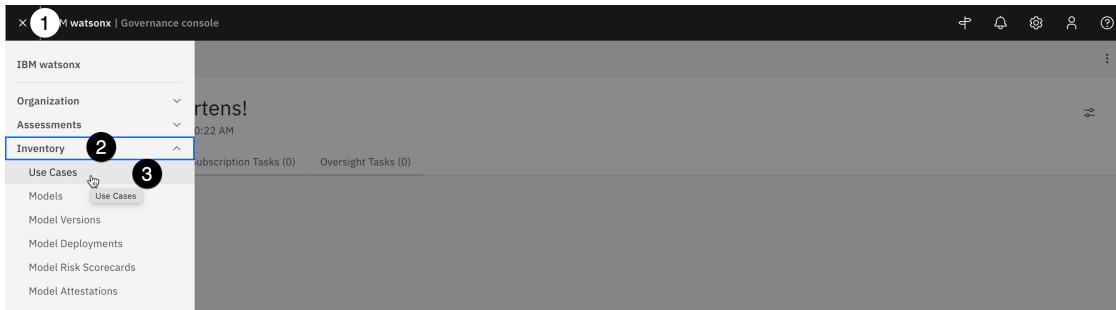
In this section of the lab, you will evaluate a model that makes hiring recommendations for the HR department, which is running on Amazon SageMaker.

1. Create a hiring model use case

As discussed in the generative model section, model governance starts with a use case request.

1. Signed in as the **complianceofficer** user in the watsonx governance console, click on the **hamburger menu** in the upper left.
2. Click on the **Inventory** menu item to expand it.

- Click on the **Use Cases** menu item. The **Use Cases** tab opens.



Use cases

- Click on the **New** button on the right. The **New Use Case** tab opens.

Use Cases (33)
[View Name : SysView-Grid-Register]

Name	Purpose	Description	Owner	Status	Risk Level	Tags
Agency Based LGD Estimation High Oaks Bank > North America > Corporate Banking		Uses internal and external recovery data, adjusted for macro-economic impact. Uses statistical regression	Bob Eldridge	Approved for Development	Low	
Banking book HTM corporate bond - income High Oaks Bank > Europe > Corporate Banking		ALM based income forecast for the HTM portfolio, initially for the CCAR 2013 stress-test. Vendor solution using conditional scenarios and core ALM system.	Bob Eldridge	Approved for Development	Medium	
Black model for TD derivatives		Black I linear-Nonlinear model on TR process				

New use case

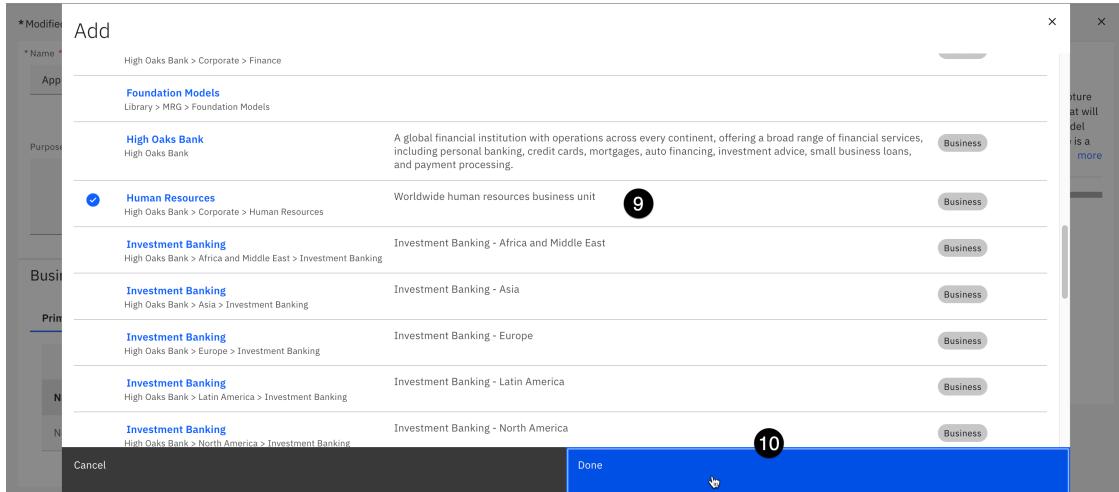
- Enter **Application screening** into the **Name** field.
- Enter **complianceofficer** into the **Owner** field.
- Enter **Screen applications for positions** or similar text in the **Description** field.

The screenshot shows the 'New Use Case' creation dialog. It has a header 'New Use Case' and two tabs: 'General' and 'Business Entities'. The 'General' tab is active. It contains fields for 'Name' (with a placeholder 'Application screening' circled with a number 5), 'Owner' (with a dropdown showing 'complianceofficer' circled with a number 6), and 'Description' (with the text 'Screen applications for positions.' circled with a number 7). There are also sections for 'Purpose' and 'Business Entities'. On the right side, there's a sidebar with information about model use cases and a 'Model Use Case creation' section. At the bottom, there are 'Cancel' and 'Save' buttons.

Use case details

- Scroll down to the **Business Entities** section and click the **Add** button. The **Add** dialog opens.
- Locate the **Human Resources** entity from the list and click on it.

- Click **Done** to add the entity and close the dialog.



HR entity

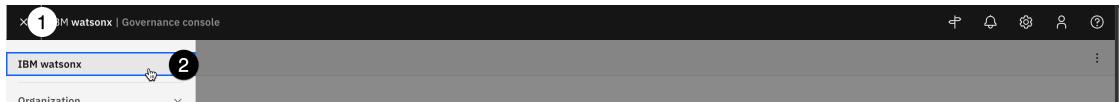
- Click the **Save** button in the upper right to save the use case information.

In a real-world scenario, you would now follow the same process you used for the generative model use case as described in [3. Progress the use case to the next phase](#) and [4. Identify use case risks](#) to approve the model use cases for the predictive models. You may do so now if you wish, or you may continue on with the lab.

2. Open the watsonx monitoring dashboard

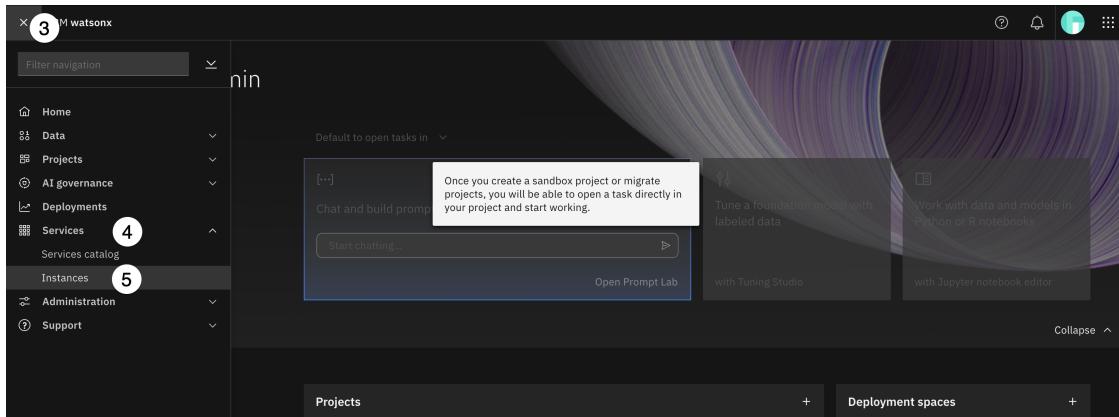
You can add Amazon SageMaker as a model provider from the watsonx monitoring (OpenScale) dashboard.

- From the governance console, click on the **hamburger menu** in the upper left.
- Click on the **IBM watsonx** menu item. The watsonx home screen opens.



HR entity

- Click on the **hamburger menu** in the upper left.
- Click on the **Services** menu item to expand it.
- Click on the **Instances** menu item. The **Instances** screen opens.



HR entity

6. Locate the **openscale-defaultinstance** item in the table, and click on the **three vertical dots** to the right of it to open the context menu.
7. Click on the **Open** menu item. The watsonx monitoring dashboard opens.

The screenshot shows the 'Instances' page. At the top, there are filter options: 'Type' (dropdown), 'Status' (dropdown), 'Data plane' (dropdown), and 'Physical location' (dropdown). Below the filters is a search bar with placeholder text 'Find instances'. A 'New instance' button is located at the top right. The main area is a table with the following columns: Name, Type, Created by, vCPU requests, Memory requests (GiB), Data plane, Physical location, Status, and Created on. There are three rows of data:

Name	Type	Created by	vCPU requests	Memory requests (GiB)	Data plane	Physical location	Status	Created on
cpd-database Service instance for db2oltp-17...	db2oltp	admin	2.10	4.25 Gi	—	—	Green	Oct 29, 2024
openscale-defaultinstance IBM Watson OpenScale	aios	admin	0.00	0.00 Gi	—	—	Green	Oct 29, 2024
openpagesinstance-cr OpenPages Instance	openpages	admin	4.45	12.40 Gi	—	—	Green	Oct 29, 2024

To the right of the third row, a context menu is open with the following options: 'Open' (highlighted with a blue box and number 7), 'View details', 'Open', 'Manage access', and 'Delete'. Above the table, a note says 'Last updated: 10/29/2024 10:28 PM'.

HR entity

3. Add the SageMaker model to the dashboard

1. From the watsonx monitoring (OpenScale) Insights dashboard, click on the **Configure** button. The **System setup** screen opens.

The screenshot shows the 'Insights dashboard'. At the top, there is a title 'Insights dashboard' and a 'Refresh' button. To the right, there is a 'Need help?' link and a 'Configure' button (numbered 1). Below the title, there is a summary section with the following counts: Deployments monitored (3), Quality Alerts (1), Fairness Alerts (3), Drift v2 Alerts (--), Drift Alerts (--), Global explanation Alerts (--), and Custom Alerts (--). At the bottom, there are filter options: 'Filter by Tags' (dropdown), 'Alert type' (dropdown), 'Machine learning provider' (dropdown), 'Sort by' (dropdown), and 'Severity' (dropdown).

Configure dashboard

2. From the **Required** section in the left panel, click on **Machine learning providers**.

3. Click on the **Add machine learning provider** button.

The screenshot shows the 'System setup' page in IBM Watsonx. On the left, a sidebar lists 'Required' and 'Optional' sections: Database, Machine learning providers (which is selected and highlighted in blue), Users & roles, Metric groups, Metric endpoints, Batch support, and Integrations. In the main area, under 'Machine learning providers', there is a table with two rows. Each row contains a 'Description' column with the text 'Watson Machine Learning service-provider-space-f...', a 'Name' column with 'Watson Machine Learning' and 'service-provider-space-f...', and a 'Description' column. At the top right of the table is a blue button labeled 'Add machine learning provider' with a '+' sign. A large black circle with the number '2' is drawn around the 'Machine learning providers' link in the sidebar. A smaller black circle with the number '3' is drawn around the 'Add machine learning provider' button.

Add ml

4. Click the **Edit** button for the **Machine learning providers** to edit the provider name.

The screenshot shows the 'System setup' page in IBM Watsonx. The sidebar is identical to the previous screenshot. In the main area, under 'Machine learning providers', there is a table with one row. The row contains a 'Description' column with 'Watson Machine Learning service-provider-space-f...', a 'Name' column with 'Watson Machine Learning' and 'service-provider-space-f...', and a 'Description' column. To the right of the table, there is a blue button labeled 'Edit'. A large black circle with the number '4' is drawn around the 'Edit' button.

Edit name

5. Enter **SageMaker development** in the text field and click the **Apply** button.
6. Click on the **Edit** button in the **Connection** tile. The **Connection** panel opens.
7. Click on the **Service provider** dropdown. Note the different pre-built connectors available, including Microsoft Azure ML Studio and Microsoft Azure ML Service. Select **Amazon SageMaker** from the list.

The screenshot shows the 'System setup' page under the 'Machine learning providers' section. The 'Connection' tab is selected, showing 'SageMaker development'. A dropdown menu for 'Service provider' lists several options: 'Watson Machine Learning (V2)', 'IBM SPSS Collaboration & Deployment Services', 'Custom Environment', **Amazon SageMaker** (marked with a circled '7'), 'Microsoft Azure ML Studio', and 'Microsoft Azure ML Service'. The 'Amazon SageMaker' option is highlighted.

Sagemaker

Enter your SageMaker credentials, which will be provided by your lab instructor.

8. In the **Access key ID** field, enter the **AWS_ACCESS_KEY_ID** value from your reservation.
9. In the **Secret access key** field, enter the **AWS_SECRET_ACCESS_KEY** value from your reservation.
10. In the **Region** field, enter the **Region** value from your reservation.

The screenshot shows the 'SageMaker development' configuration page. It includes sections for 'Description', 'Pre-production environments', 'Production environments', and a note about batch deployments requiring a custom service provider. On the right, there are fields for 'Access key ID' (containing 'AKIA4MTWG6TWGVEFZGWJ' with a circled '8'), 'Credential values' (set to 'Enter manually'), 'Secret access key' (redacted with a circled '9'), 'Region' (set to 'us-west-1' with a circled '10'), and 'Environment type' (radio button selected for 'Pre-production').

AWS keys

11. Click on the **Save** button to save the SageMaker service as a machine learning provider for watsonx.governance.
12. Click on the **Insights dashboard** button to return to the dashboard.

The screenshot shows the Watson OpenScale System setup interface. On the left, there's a sidebar with a dashboard icon, a 'System setup' title, and a note about connecting to databases, machine learning providers, and integrated services. Below this are sections for 'Required' (Database, Machine learning providers, Users & roles) and 'Optional' (Metric groups, Metric endpoints, Batch support, Integrations). The 'Machine learning providers' section is expanded, showing three listed providers: 'Amazon SageMaker SageMaker development', 'Watson Machine Learning service-provider-space-f...', and 'Watson Machine Learning service-provider-space-f...'. A blue button at the bottom right of this section says 'Add machine learning provider'.

Dashboard button

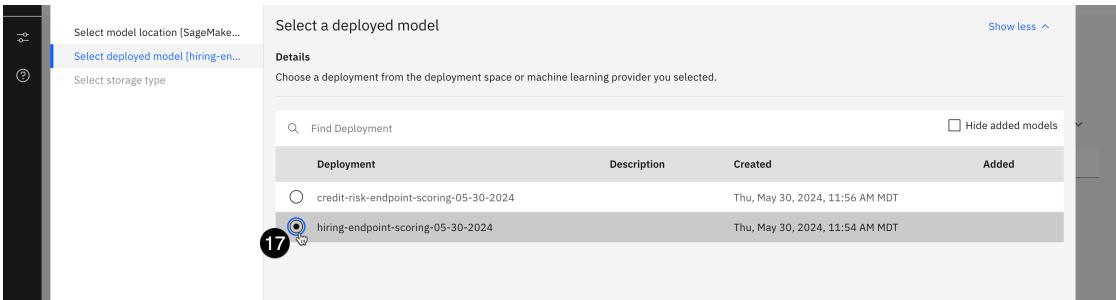
13. Click on the **Add to dashboard** button. The **Select a model deployment** window opens.
14. In the **Select model location** section, click on the **Machine learning Providers** button. A list of providers appears.
15. Click on the **SageMaker development** provider from the list.

The screenshot shows the 'Select model location' window. On the left, there are tabs for 'Select model location [SageMake...]' (selected), 'Select deployed model', and 'Select storage type'. The main area has a 'Details' section with a note to browse deployment spaces or machine learning providers. Below this is a table titled 'Deployment spaces' with a 'Machine learning Providers' tab selected. The table includes columns for Name, Machine learning Provider, Space name, and Environment type. A search bar at the top of the table says 'Find machine learning providers'. The first row in the table is highlighted with a blue circle and the number '15'.

Name	Machine learning Provider	Space name	Environment type
SageMaker development	Amazon SageMaker	-	Pre-production
service-provider-space-fbd60854-e251-4d63-b72d-64813e985452	Watson Machine Learning	application screening development	Pre-production
service-provider-space-fbd60854-e251-4d63-b72d-64813e985452	Watson Machine Learning	application screening development	Pre-production

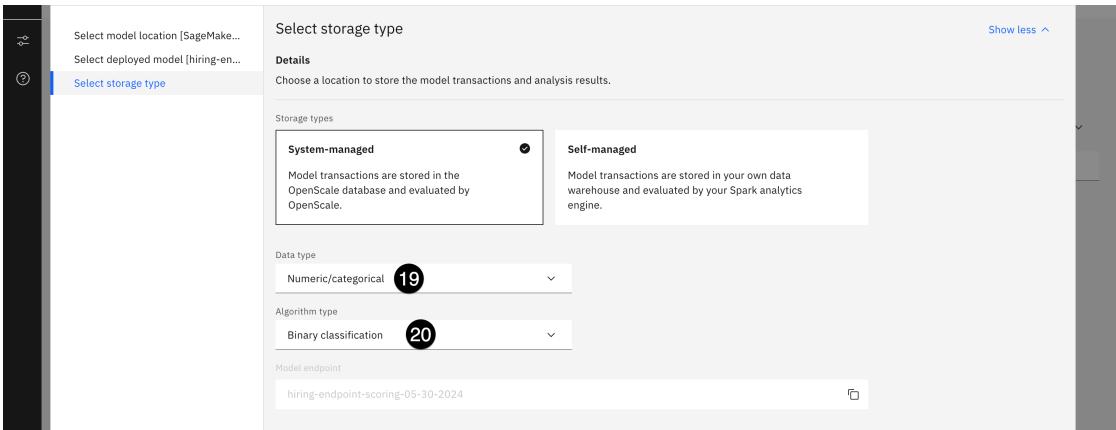
Select SageMaker

16. Click on the **Next** button. The monitoring service will query the SageMaker service using the credentials you provided to get a list of deployed model endpoints.
17. Click on the **hiring-endpoint-scoring...** deployment from the list.



Hiring endpoint

18. Click on the **Next** button. The **Select storage type** window opens.
19. Click on the **Data type** dropdown and select **Numeric/categorical** from the list.
20. Click on the **Algorithm type** dropdown and select **Binary classification** from the list.



Binary classification

21. Click on the **View summary** button.
22. Click on the **Save and continue** button to add the deployed model to the dashboard. The **Configure hiring-endpoint...** screen opens.

4. Configure the SageMaker monitors

Next, you will configure the SageMaker model information and monitors.

1. Leave the **Configuration method** set to **Manual setup** and click on the **Next** button. The **Specify training data** window opens.
2. Click the link to browse to the [hiring_training_data.csv](#) file you downloaded to your machine earlier to train the AutoAI model. The same file was used to train the SageMaker model.

- Click on the **Select delimiter** dropdown and select the **Comma (,)** option from the list.
- Click the **Next** button. The monitoring service reads the CSV file. The **Select the feature columns and label column** screen opens.
- Check the **Label / Target** box for the **HIRED** column.
- Check the box in the table header row to select the remaining columns as features.

Select the feature columns				Selected features 18
Features (19)	Type	Categorical	Label / Target	
<input type="checkbox"/> HIRED	ss	<input type="checkbox"/>	<input checked="" type="checkbox"/> 5	
<input checked="" type="checkbox"/> Age	ss	<input type="checkbox"/>	<input type="checkbox"/>	
<input checked="" type="checkbox"/> BusinessTravel	ss	<input type="checkbox"/>	<input type="checkbox"/>	
<input checked="" type="checkbox"/> Education	ss	<input type="checkbox"/>	<input type="checkbox"/>	
<input checked="" type="checkbox"/> RelevantEducationLevel	ss	<input type="checkbox"/>	<input type="checkbox"/>	
<input checked="" type="checkbox"/> JobLevel	ss	<input type="checkbox"/>	<input type="checkbox"/>	
<input checked="" type="checkbox"/> MaritalStatus	ss	<input type="checkbox"/>	<input type="checkbox"/>	
<input checked="" type="checkbox"/> NumCompaniesWorked	ss	<input type="checkbox"/>	<input type="checkbox"/>	

Items per page: 25 1 - 19 of 19 items

Label feature

- Scroll to the bottom of the table and check the **Categorical** box for the **IsFemale** feature.
- Click on the **Next** button. The monitoring service queries the model to determine the structure of its output. The **Select model output** screen opens.

<input checked="" type="checkbox"/> YearsAtCurrentCompany	ss	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> RelevantExperience	ss	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> JobType	ss	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> SalaryExpectation	ss	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> IsFemale	ss	<input checked="" type="checkbox"/> 7	<input type="checkbox"/>

Items per page: 25 1 - 19 of 19 items

Cancel Back Next 8 Score

Is female

- Check the **Prediction** box for the **predicted_label** field.
- Check the **Probability** box for the **score** field.

Select model output

Details

From the model output data, select the column that contains the prediction generated by the deployed model. Select the prediction probability column which contains the model's confidence in the prediction.

Select the prediction and probability column(s)

Features (2)	Type	Prediction	Probability
score	○	<input type="checkbox"/>	<input checked="" type="checkbox"/> 10
predicted_label	○	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Probability

11. Click on the **View summary** button.
12. Click on the **Finish** button to finalize your configuration.

In the next steps, you will configure individual model monitors.

5. Configure explainability and fairness

Next, you will configure the explainability service and the fairness monitor.

1. In the **Explainability** section, click **General settings**.

application screening - dev

Model info

- Model details (selected)
- Endpoints
- Explainability
 - General settings (circled)
 - SHAP
 - LIME (enhanced)
- Evaluations
- Fairness
- Quality

Model details

Description

Provide information about the training data and deployed model output to prepare WatsonX for monitoring and providing explanations for model transactions.

Reconfigure model

Configuration package

Package file
(File name is not available)

Training data label

Label column
HIRED

General settings

2. Click the **Edit** button in the **Explanation method** tile. WatsonX.governance offers two different algorithms to explain predictions: LIME (Local Interpretable Model-Agnostic explanations), and SHAP (SHapley Additive exPlanations).
3. Click the **Next** button to use the LIME method. The **Controllable features** panel opens.
4. You can designate certain features of the model as controllable, and can subsequently choose to include or exclude features that you cannot control when running an analysis. Use the switches to adjust controllable features as you wish, then click the **Save** button to save your choices.
5. From the **Evaluations** section in the left panel, click on **Fairness**.
6. Click on the **Edit** button in the **Configuration** tile.

Configure OpenScale evaluation settings

application screening - dev

Evaluation

Model info

- Model details
- Endpoints

Explainability

- General settings
- SHAP
- LIME (enhanced)

Evaluations

- Fairness **5**
- Quality
- Drift v2
- Drift
- Generative AI Quality
- Model health

Fairness

Description

The Fairness monitor checks your deployments for biases. It tracks when the model shows a tendency to provide a favorable (preferable) outcome more often for one group over another. You will specify which values represent favorable outcomes, select the features to monitor for bias (for example, Age or Sex), and specify the groups to monitor for each selected feature.

Configuration

To select a configuration type, click the edit icon.

Favorable outcomes

To select the favorable outcomes, click the edit icon.

Sample size

To select the minimum sample size, click the edit icon.

Edit

Fairness config

- The **Configure manually** configuration type has been selected. Click on the **Next** button.

To monitor fairness, you need to identify favorable and unfavorable outcomes, as well as monitored and reference groups. In this particular model, **1** represents a hiring recommendation, and is a favorable outcome. **0** represents a no-hire recommendation, and is unfavorable.

- Use the checkboxes to mark **0** as **Unfavorable** and **1** as **Favorable**.

Configure OpenScale evaluation settings

application screening - dev

Evaluation

Model info

- Model details
- Endpoints

Explainability

- General settings
- SHAP
- LIME (enhanced)

Evaluations

- Fairness **5**
- Quality

Select the favorable outcomes

Description

For each group, Watson OpenScale will calculate the percentage of transactions that receive a favorable outcome.

Select the values that represent favorable (preferable) outcomes. You can also add a value manually if it is not included in the list.

Values	Favorable	Unfavorable
0	<input type="checkbox"/>	<input checked="" type="checkbox"/> 8
1	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Add value

Favorable

- Click on the **Next** button. The **Sample size** screen opens.

- Enter **100** in the **Minimum sample size** field. This will allow you to calculate evaluations without needing more than 100 rows of data.

- Click on the **Next** button. The **Metrics** screen opens.

Multiple metrics are available for measuring fairness. Two of them (**Disparate impact** and **Statistical parity difference**) can be calculated at runtime strictly from data being submitted to the model. The others require feedback (ground truth) data. More information on the metrics can be found in the [watsonx.governance documentation](#).

- Click on the **Next** button.

13. The standard threshold for disparate impact is 80%, though it can be adjusted to meet specific requirements. Click on the **Next** button. The **Select the fields to monitor** screen opens.
14. IBM Watson has analyzed the data and recommended different fields to monitor, including **Age**, **TotalWorkingYears**, and **YearsAtCurrentCompany**. For the purposes of this lab, uncheck each of those fields.
15. Scroll down in the table on the right and check the box to the left of the **IsFemale** item.

Fields	Recommended	Type
<input type="checkbox"/> Age	<input type="radio"/>	
<input type="checkbox"/> TotalWorkingYears	<input type="radio"/>	
<input type="checkbox"/> YearsAtCurrentCompany	<input type="radio"/>	
<input type="checkbox"/> BusinessTravel		
<input type="checkbox"/> Education		
<input type="checkbox"/> InterviewScore		
<input checked="" type="checkbox"/> IsFemale		
<input type="checkbox"/> JobLevel		
<input type="checkbox"/> JobType		

Is Female

16. Click on the **Next** button.

In this model, females are denoted with a **1** in the **IsFemale** feature column, while males are denoted with a **0**. Note that in a real-world example, you would use the indirect bias detection feature.

20. Click the **Add value** button to add the 0-0 range to the table.
21. Enter **1** in both text entry boxes and click **Add value** to add the 1-1 range to the table.
22. Click the checkboxes to designate the **0** value (0-0 range, males) as **Reference** group and the **1** value (1-1 range, females) as the **Monitored** group.

Monitored

23. Click the on **Next** button.
24. Note that you have the option to set different thresholds for each fairness monitor. Click on the **Save** button to save your fairness configuration.

6. Configure quality and drift

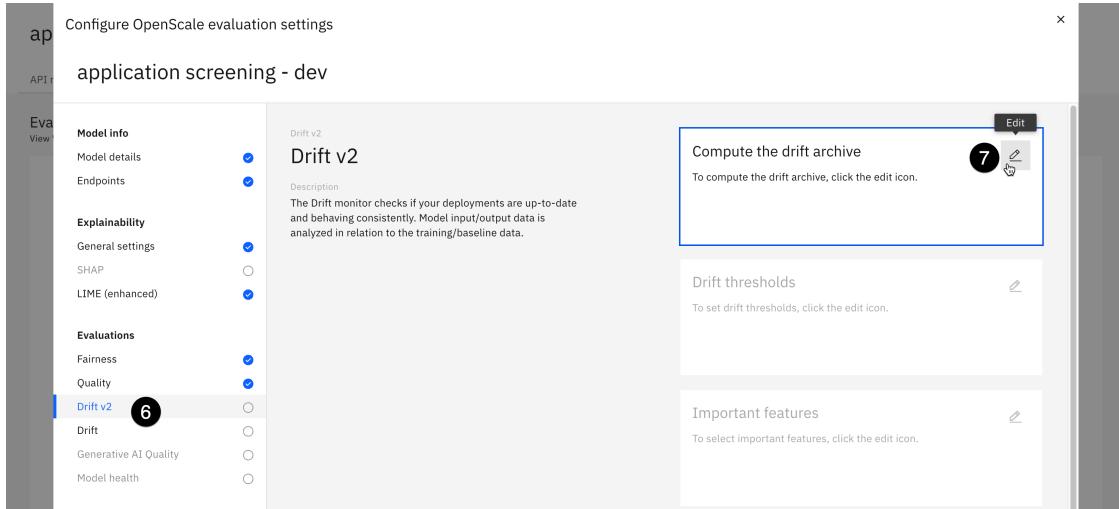
Next, you will configure the quality and drift monitors. Drift refers to the degradation of model performance due to changes in data or changes in relationships between input and output.

1. From the **Evaluations** section on the left, click on the **Quality** item.
2. Click on the **Edit** icon in the **Quality thresholds** tile.

Edit quality

3. Over a dozen quality metrics are automatically calculated by watsonx.governance. You can find more information on each of them in the [documentation](#). Click on the **Next** button to accept the default thresholds.

4. Enter **100** in the **Minimum sample size** field.
5. Click on the **Save** button to save your configuration.
6. From the **Evaluations** section on the left, click on the **Drift v2** item.
7. Click on the **Edit** icon in the **Compute the drift archive** tile.



Edit drift

8. Because you uploaded the training data earlier when configuring the monitors, you now have the option to let Watson OpenScale compute the necessary statistics to measure drift. Click on the **Next** button.
9. Leave the default drift thresholds set to their default values. Click on the **Next** button. The **Important features** screen opens.
10. When developing the model in AutoAI, you identified the features that had the greatest impact on the model's output. Locate those features in the list and check the boxes to the left of them to mark them as important.
11. Once all of the important features have been identified, click on the **Next** button to continue. The **Most important features** screen opens.

model. For example, a small amount of drift in an important feature may have a bigger impact on the model than a moderate amount of drift in a less important feature.

Note: When SHAP is configured, the important features are automatically detected using the model's global explanation. As SHAP is not configured, you must indicate the important features manually.

Select from list

Select up to 100 important features.

Upload list

Generate a global explanation and upload the list of important features as a json file. Some snippets/examples to extract this information for popular ML frameworks has been provided on this [wiki](#).

Features (18)

	Feature	Type
<input type="checkbox"/>	Age	0.1
<input type="checkbox"/>	BusinessTravel	0.1
<input type="checkbox"/>	Education	0.0
<input checked="" type="checkbox"/>	InterviewScore	0.1
<input type="checkbox"/>	IsFemale	0.0
<input type="checkbox"/>	JobLevel	0.0
<input type="checkbox"/>	JobType	0.0
<input type="checkbox"/>	MaritalStatus	0.1
<input type="checkbox"/>	NumCompaniesWorked	0.0

Back Next

Identify important

12. Check the box to the left of the most important feature to identify it.
13. Click on the **Next** button to continue.
14. Leave the **Minimum sample size** value set to its default and click the **Save** button. Watson OpenScale begins training the drift model in the background. This process can take up to five minutes. Once it has finished, the monitors will be fully configured and the model can be evaluated.
15. Click on the **X** button in the upper right to close the evaluation settings window.

7. Evaluate the SageMaker model

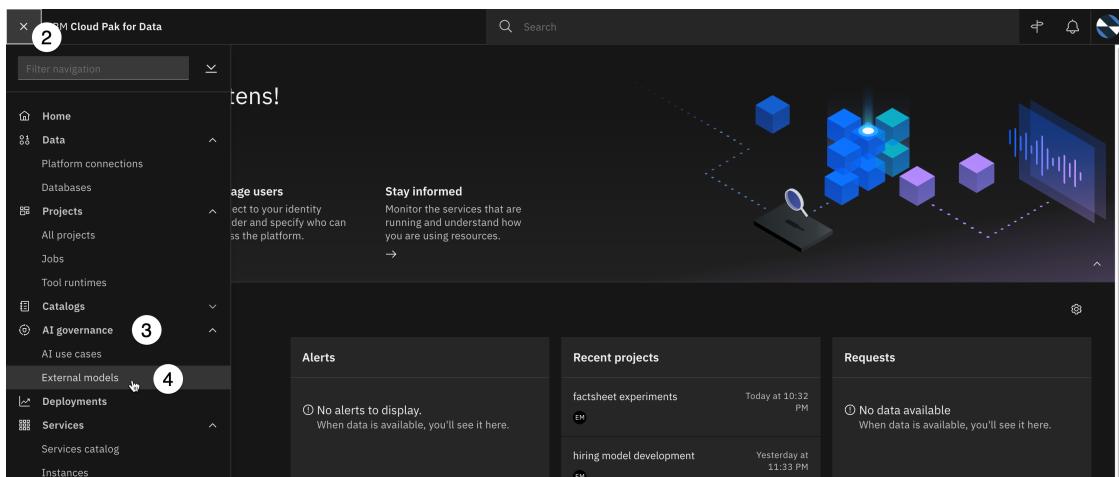
1. Return to the **Insights dashboard** for the monitoring service.
2. Click on the tile for the **hiring-endpoint-scoring** model.
3. Click on the **Actions** button to open the **Actions** menu.
4. Click on **Evaluate now** from the list of actions.
5. Click on the **Import** dropdown and select **from CSV file**.
6. Click the link to browse to the [hiring_evaluation_data.csv](#) file you used to evaluate the AutoAI model.
7. Click on the **Upload and evaluate** button to begin the evaluation. Note that the evaluation can take up to five minutes to complete.
8. When the evaluation has finished, take a moment to review the results. Compare the evaluations for this model with the AutoAI model.

8. Link the SageMaker model to the use case

Now that the SageMaker model has been evaluated, it will appear in the **External models** page found in the **AI governance** menu. However, the model entry defaults to the **admin** user as the owner. In order to add it to the use case, you will need to log in as the **admin** to add it to the use case.

Again, due to issues with watsonx governance console sessions, it is **HIGHLY ADVISED** that you use a different browser or a browser window running in private/incognito mode when changing users.

1. Log into the Cloud Pak for Data home screen as the **admin** user that you used to do the configuration steps.
2. Click on the **hamburger menu** in the upper left.
3. Click on the **AI governance** menu item to expand it.
4. Click on the **External models** menu item. The **External models** screen opens.



External models

5. Locate the external hiring model in the list and click on the **three vertical dots** to the right of the model. The context menu opens.
6. Click on the **Track in AI use case** menu item from the context menu. The **Track in AI use case** window opens.

Context track

- Locate the **Application screening** use case in the list and check the circle to the left of the use case name to select it.

Define use case

- Click on the **Next** button. The **Define approach** window opens.
- Click on the **Next** button to accept the default approach. The **Define asset record** window opens.
- Click on the **New asset record** tile to create a new record for the model in the inventory and the governance console.

New asset record

- Click on the **Next** button. The **Assign version** window opens.

The versions listed here refer to there already being a model defined for this particular use case; the AutoAI version of the model was created as version 1.0.0. Therefore, this model is seen as an iteration on the AutoAI model, with version numbers changing to reflect that. Choose the version change as desired or leave it set to **Patch change**.

12. Click on the **Next** button. The **Review** window opens.
13. Click on the **Track asset** button to begin tracking the asset in the use case.

9. View the model metrics in the use case

For this step, you will once again sign in as the created user (**NOT** the admin), and open the watsonx governance console (OpenPages).

1. Return to the governance console, signed in as the created user, and click on the **hamburger menu** in the upper left corner.
2. Click on the **Inventory** menu item to expand it.
3. Click on the **Use Cases** menu item. The **Use Cases** tab opens.

Purpose	Description	Owner	Status	Risk Level	Tags
Corporate Banking	Uses internal and external recovery data, adjusted for macro-economic impact. Uses statistical regression	Bob Eldridge	Approved for Development	Low	
ALM based income forecast for the HTM portfolio, initially for the CCAR 2013 stress-test. Vendor solution		Bob Eldridge	Approved for Development	Medium	

Use cases inventory

4. Click on the **Application screening** use case from the list.
5. Scroll down to the **Performance Monitoring** section. Note that the metrics for both models are combined here, organized into breach status for major categories such as quality, fairness and more. You can explore the metrics in detail, clicking into each to find more information.

Note that you can also view the model metrics, and the updates made to the model lifecycle, in the model Factsheet. The Factsheet can be found in the **AI use cases** page of the **AI governance** section of Cloud Pak for Data.

Metrics data is generated by the watsonx.governance monitoring service (OpenScale), and automatically written to the Factsheet, then automatically updated in the governance console. In this way, data is always kept in sync and stakeholders automatically receive the most current information in the format that is most useful for them.

Conclusion

Congratulations, you have completed the watsonx.governance Level 4 proof of experience (PoX) hands-on lab. In this extensive lab, you saw how the governance console could be configured to meet the individual needs of an organization, and how it helps define, automate, and enforce best practices in approval workflows.

You saw how to create questionnaires, and how those questionnaires can be used to perform actions like associating risks with model use cases or prompting additional reviews.

You then created a pair of model use cases, and took them through the approval process.

Next, you oversaw the model lifecycle, including metrics gathering, for a generative models on Microsoft Azure. You then did the same for predictive models on Amazon SageMaker and Watson Machine Learning. You saw how the metrics evaluations of those models were automatically updated in multiple platforms, from Factsheets to the governance console, to provide the right information to the right stakeholder at the right time without any additional effort from data science teams, or any reliance on manual processes.

Your feedback is essential to the improvement of this course. Please feel free to provide that on the course page, or directly to the course author. Thank you for your time, and happy selling.

Troubleshooting

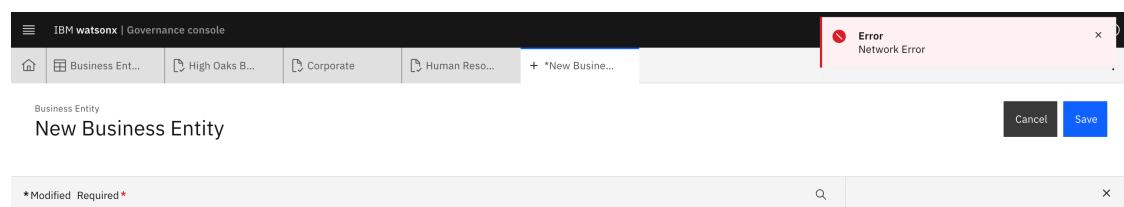
The following issues may appear as you run through the lab. This section will grow over time based on user feedback.

1. Governance console Save button disabled

When editing entities in the governance console, occasionally the **Save** button will be disabled. The most common cause is that some relevant information in the form is missing, which may or may not be called out in the progress panel on the right. Ensure that all required fields (denoted with a red asterisk) have been filled out.

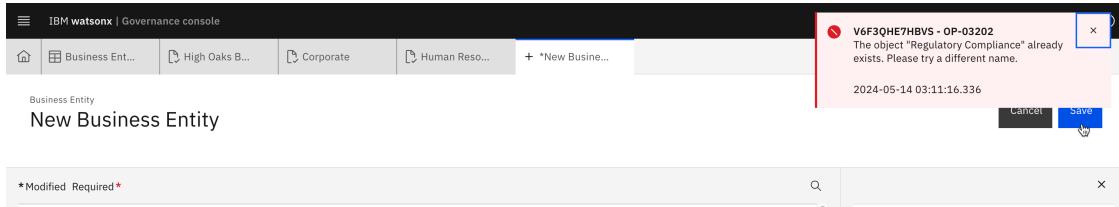
2. Governance console errors

Occasionally, creating new entities or altering existing ones may result in network errors like the one below when attempting to save:



Network error

In most cases, re-trying the action will resolve the problem. In some cases when creating a new entity, you will receive an error stating that the entity already exists, in which case it likely saved successfully:



Object exists

Typically, the object has been created successfully, but the action took longer than expected, which generated the failure message. In these cases, you can ignore the message and proceed. In rare cases, you will need to delete and then re-create the entity.

3. Requested operation could not be completed in the governance console

The most frequent cause of this error is incorrectly persisted browser session information when switching between the admin user and the created user in the governance console. For this reason, it is **HIGHLY RECOMMENDED** that you use your browser's private/incognito mode when signing in as the created user.