IBM Cloud Pak for Business Automation Demos and Labs 2022

Introduction to IBM Business Automation Workflow

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1 Introduction

1.1 IBM Business Automation Workflow

Organizations often require workflows that are unstructured, require knowledge workers, implement straight-through processes, integrate documents with the workflows and provide system of records. IBM Business Automation Workflow is software that combines business process management and case management capabilities in a single integrated workflow solution to provide these capabilities. It unites information process, and users to provide a 360-degree view of work to help drive more successful business outcomes.

Using the case feature, you can create unstructured workflows that can be triggered using documents and maintain the case information in a system of record for auditability. You do this in the IBM Case Builder.

Using the process features, you can implement the activities in the unstructured workflows as structured tasks that can be both straight-through and require human intervention when required. The process feature also allows developers to create UIs for the end users working on a workflow. You do this in the IBM Process Designer.

Additional information about IBM Business Automation Workflow can be found here.

1.2 Lab Overview

In this lab, you will learn how to create a sample Workflow automation project for the client onboarding scenario. It covers how to build a Workflow project that includes both case and process features and will help you learn more about how the Case Builder and Process Designer integrate. As a part of the lab, you will perform the following exercises:

- **Create the Client Onboarding solution** - In this exercise, you will learn how to create a Workflow solution. You will do this by creating the initial framework of the client onboarding solution in the Case Builder.
- **Create the Client Onboarding Request case type** - In this exercise, you will learn more about case types. A case type identifies the activities, content, views, etc. that are required to manage the case. Using the Case Builder, you will add a case type to the solution created in the previous exercise that will handle the client onboarding request. You will then use the Process Designer to create a custom UI that shows the details of an existing case.
- **Adding activities to the Client Onboarding Request case type** - In this exercise, you will learn how to create and implement activities in a case type. You will do that by creating some of the activities that are required for the Client Onboarding Request case type in the Case Builder. Then, using the Process Designer, you will implement the details of these activities.

Approximate Duration: 3-4 hours

1.3 Lab Setup Instructions

1. If you are performing this lab as a part of an IBM event, access the document that lists the available systems and URLs along with login instructions. For this lab, you will need to access **IBM Business Automation Studio**.

2. Download the **Legacy Consulting - Banking Information.pdf** from the Lab Data folder onto your computer.

2 Exercise: Create the Client Onboarding solution

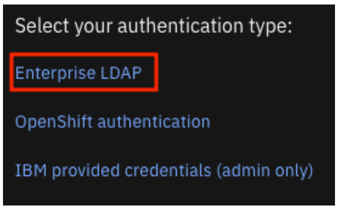
2.1 Introduction

In this exercise, you will learn how to create a Workflow solution that includes case features. You will do this by creating the initial framework of the client onboarding solution in the Case Builder. The initial framework will define the roles (e.g., Account Manager & Client Rep), the properties (e.g., Client name & approval status) and the documents required (e.g, Client documents & utility bill).

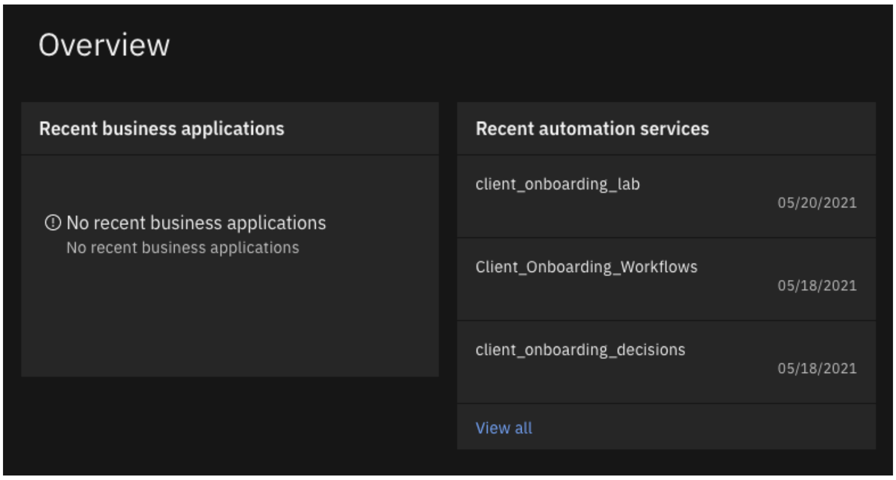
2.2 Exercise Instructions

2.2.1 Create the solution in IBM Business Automation Studio

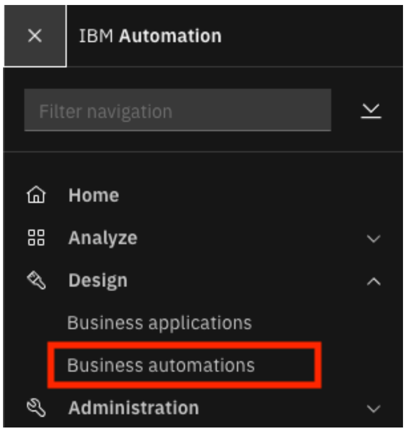
1. In your browser, login to IBM Business Automation Studio using the Enterprise LDAP option.



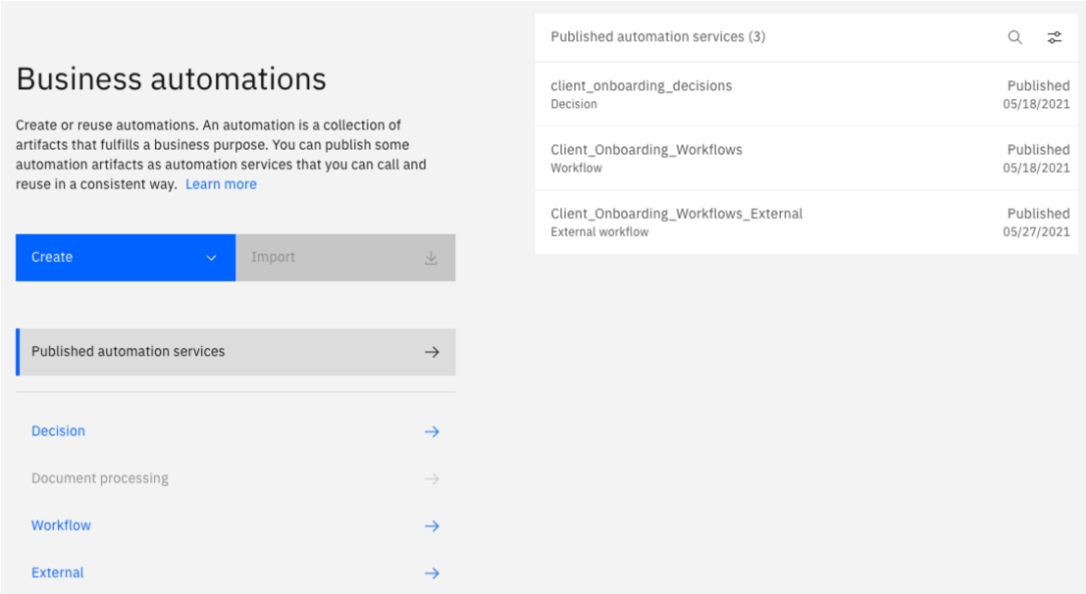
The homepage contains cards that showcase recent artifacts across all installed Cloud Paks in the system. For IBM Cloud Pak for Business Automation, the recent business applications and automation services are shown.



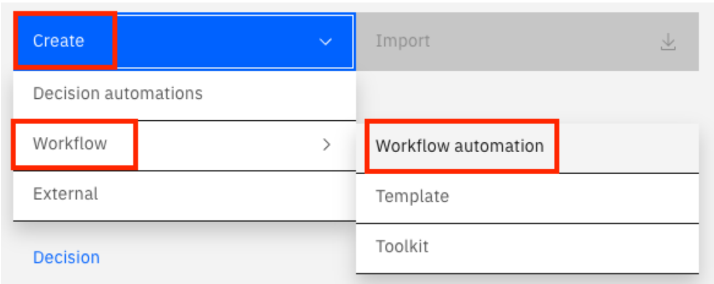
2. In the top-left corner, click on the hamburger menu icon and select **Design → Business automations** to access the automation repository.



This brings up the Business automations page where you can create or reuse automations from different capabilities of IBM Cloud Pak for Business Automation. If a capability is not installed on the system, it will be greyed out. At this point, you may see a dialog for a guided tour and you can choose to go through it now or do it later.



3. Click on **Create → Workflow → Workflow automation**.



4. Check the **Includes case features** checkbox.

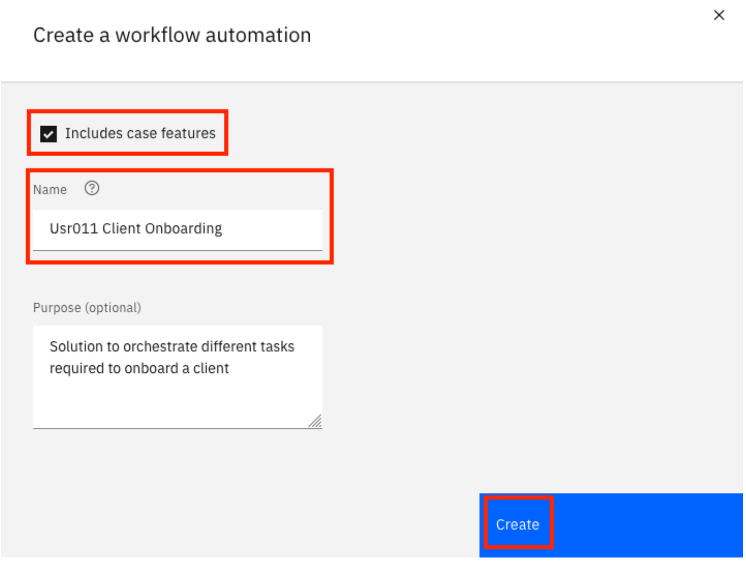
   Note: As a best practice, you should include the case features when you want to create a Workflow automation project that contains unstructured activities, is content intensive (i.e., activities triggered by documents) and/or requires persistence (i.e., a permanent system of record). When you create a Workflow automation project with case features, you can design your solution in the Case Builder and implement the activities of the case in the Process Designer.

   Historically, a case solution would be required to access the Case Builder and a process application would be required to access the Process Designer. However, with Business Automation Workflow, when you create a Workflow automation project with case features, a case solution is created along with a hidden Process Application for the case and process integration to work seamlessly. This is important to understand from an operations standpoint as processes are not systems of records and require regular cleanup.

5. In the **Name** field, enter ***UsrNNN* Client Onboarding** where *usrNNN* is your username.

6. Provide an optional purpose.

7. Click on **Create**.

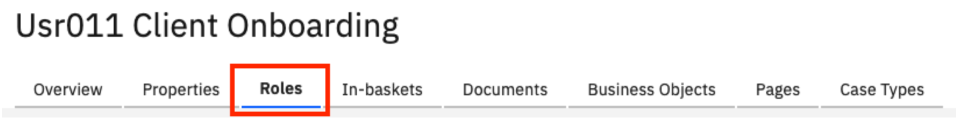


This launches the Case Builder where you can [define your case management solution](). Note that the Case Builder may take a few seconds to load.

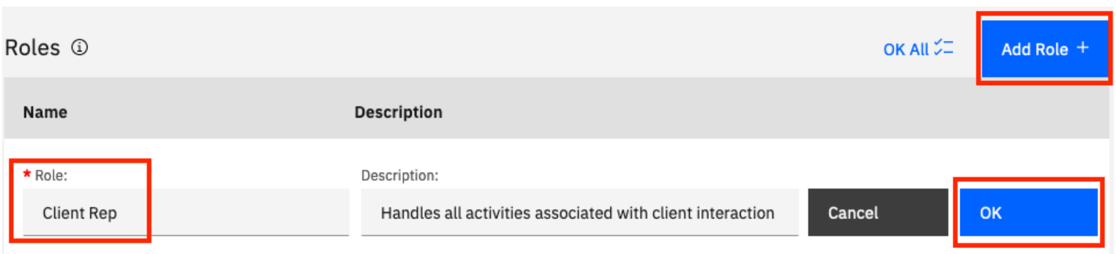
2.2.2 Create roles in the solution

[Roles]() are the different personas/teams that are required as part of the client onboarding solution i.e., Client Rep & Account Manager.

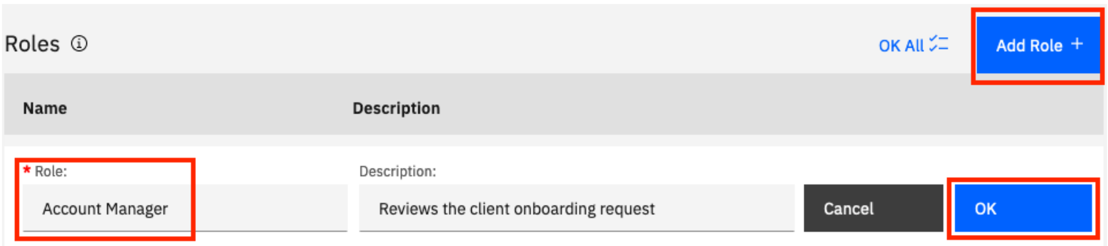
1. Click on the **Roles** tab.



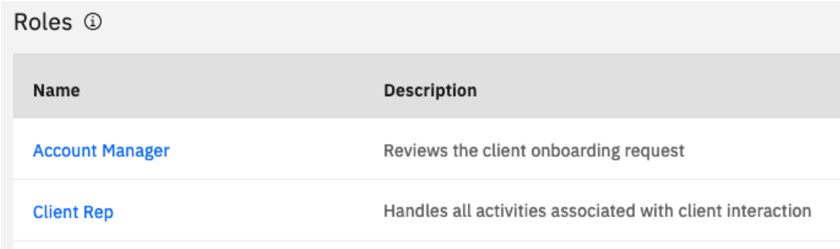
2. Click on **Add Role+** in the upper-right corner.
3. In the **Role** field, enter **Client Rep**.
4. Provide an optional description.
5. Click on **OK**.



6. Repeat the steps before to add another role called **Account Manager**.

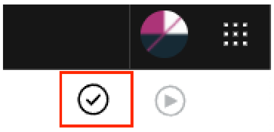


You should now have 2 roles defined in your solution:


Roles

Name	Description
Account Manager	Reviews the client onboarding request
Client Rep	Handles all activities associated with client interaction

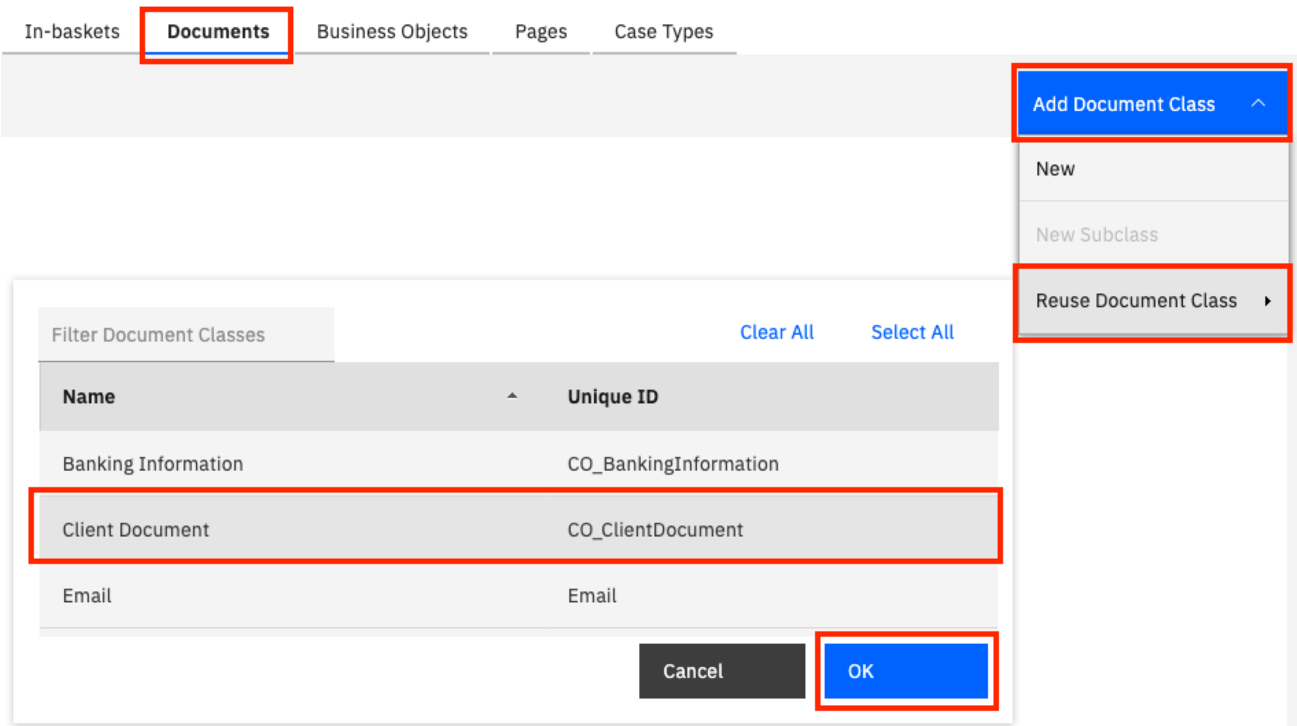
7. Click on **Save** in the upper-right corner.



2.2.3 Add document classes to the solution

Next, we will add document classes that are required as a part of the solution. Document classes help you organize and classify the documents that belong to a case and can contain custom properties. The document classes required for this solution are **Client Document** and **Utility Bill**. These classes have already been defined in the environment and can be re-used in the solution. This is to avoid creating multiple document classes with the same name.

1. Click on the **Documents** tab.
2. Click on **Add Document Class → Reuse Document Class**.
3. Select the **Client Document** class.
4. Click on **OK.**



5. Repeat the previous steps to add the existing **Banking Information** and **Utility Bill** document classes.

Note: You can use Ctrl/Command to select multiple documents at once.

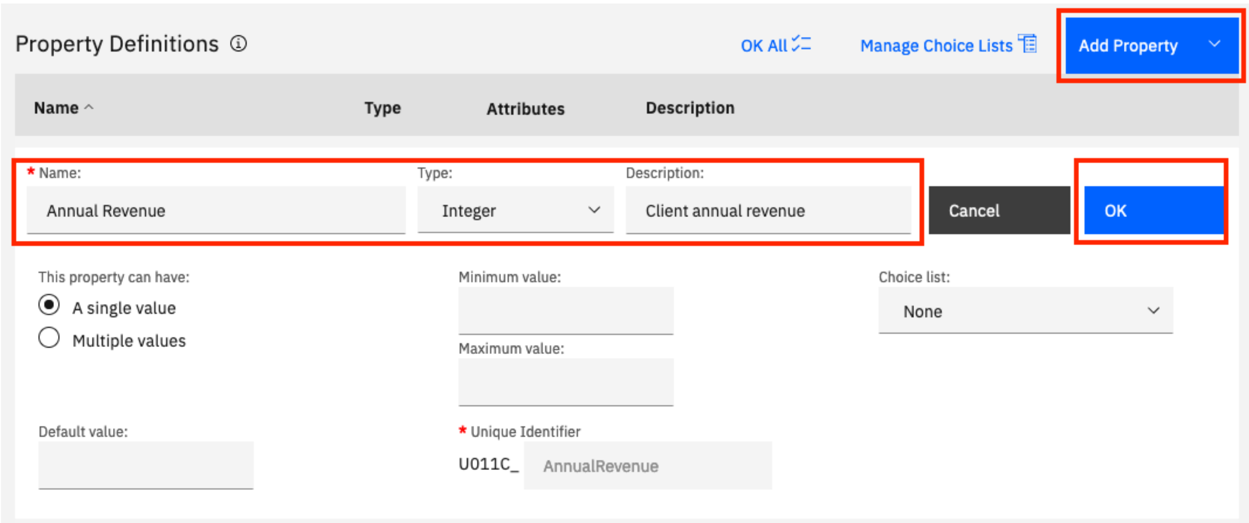
You should now have two document classes defined in your solution:

6. Click on **Save**.

2.2.4 Create properties in the solution

Next, we will add some of the properties required for this solution. Properties are artifacts that can be reused within the solution at various levels to define things such as names, dates, approval status, amounts, etc.

1. Click on the **Properties** tab.
2. Click on **Add Property → New**.
3. In the **Name** field, enter **Annual Revenue**.
4. For the **Type** field, select **Integer**.
5. Provide an optional description.
6. Click on **OK**.

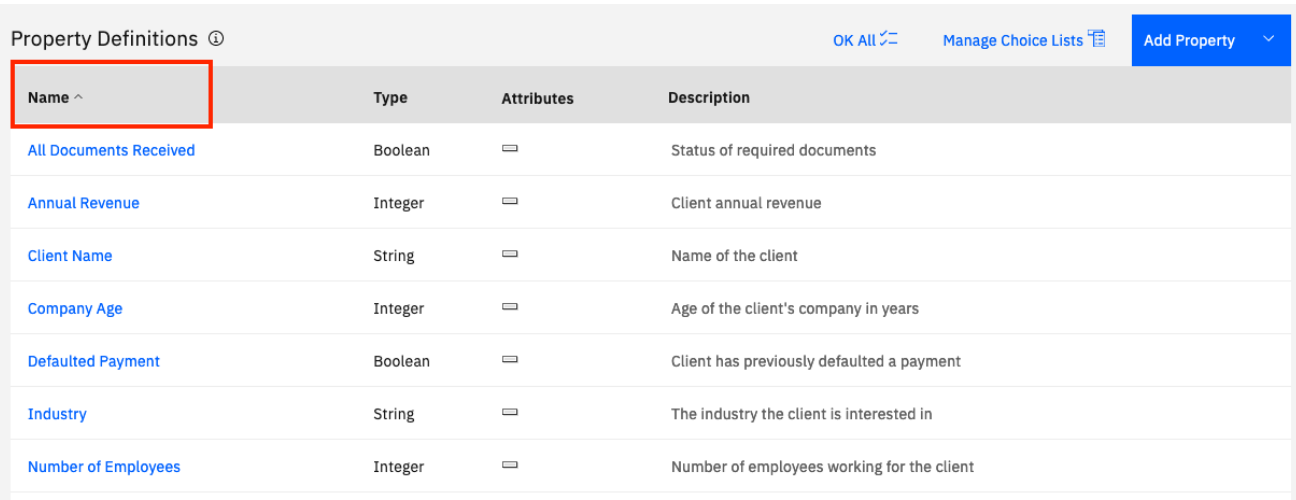


7. Similarly, add the following 6 properties:

Name	Type	Optional Description
Client Name	String	Name of the client
Company Age	Integer	Age of the client’s company in years
Defaulted Payment	Boolean	Client has previously defaulted a payment
Number of Employees	Integer	Number of employees working for the client
Industry	String	The industry the client is interested in
All Documents Received	Boolean	Status of required documents

8. Click on the column header **Name** to sort the list of properties alphabetically.

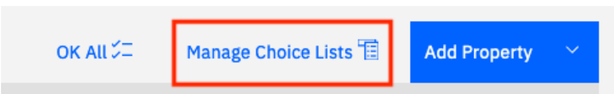
You should now have the following list of 7 property definitions:



Note: In the current solution, we have only used simple types such as String**,** Boolean, etc. However, you can configure a property to be of type **Business Object** which allows you to create more complex types with nested properties.

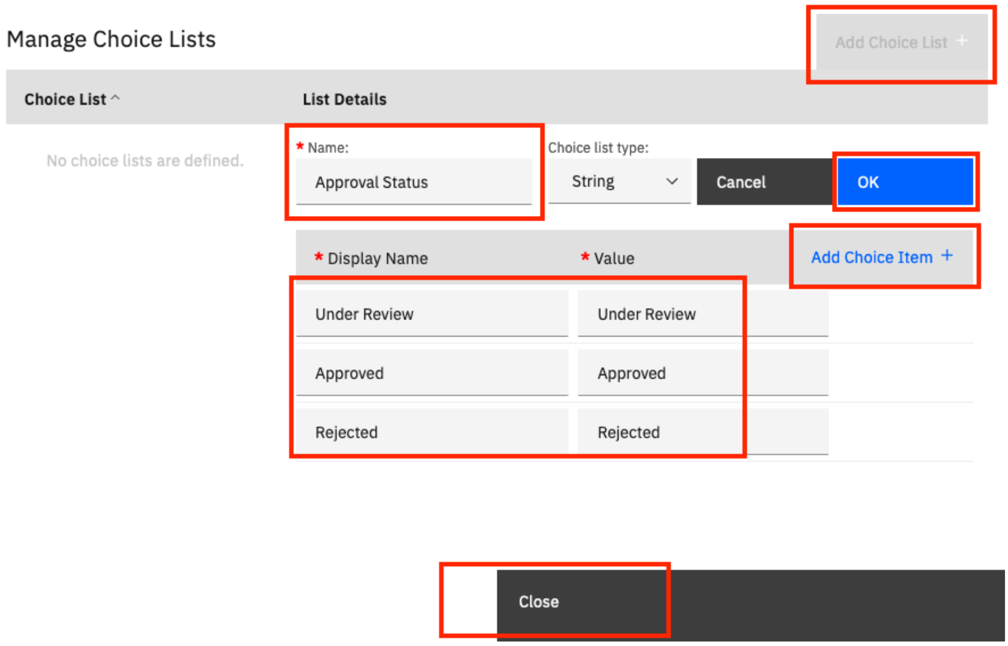
Next, we need to add a property to hold the status of the approval. The approval status can either be **Under Review**, **Approved** or **Rejected**. To do this, we will add a choice list.

9. Click on **Manage Choice Lists**.



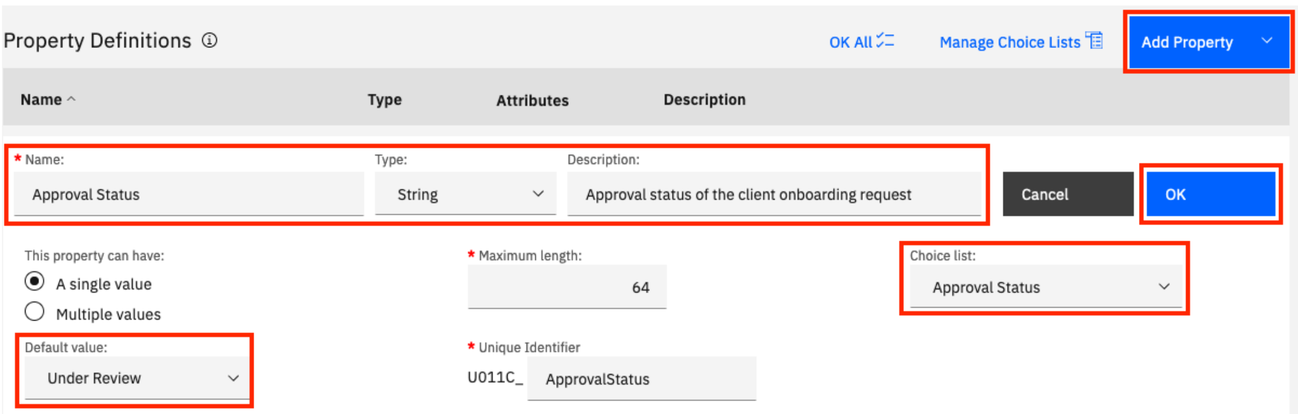
10. In the dialog, click on **Add Choice List+**.
11. In the **Name** field, enter **Approval Status**.
12. Enter **Under Review** for both the **Display Name** and **Value**.
13. Click on **Add Choice Item+**.
14. Enter **Approved** for both the **Display Name** and **Value**.
15. Click on **Add Choice Item+**.

16. Enter **Rejected** for both the **Display Name** and **Value**.
17. Click on **OK**.
18. Click on **Close**.



Next, we will add a property that uses this choice list.

19. Click on **Add Property → New**.
20. In the **Name** field, enter **Approval Status**.
21. Enter an optional description.
22. For the **Choice List** field, select **Approval Status**.
23. For the **Default value** field, select **Under Review**.
24. Click on **OK**.

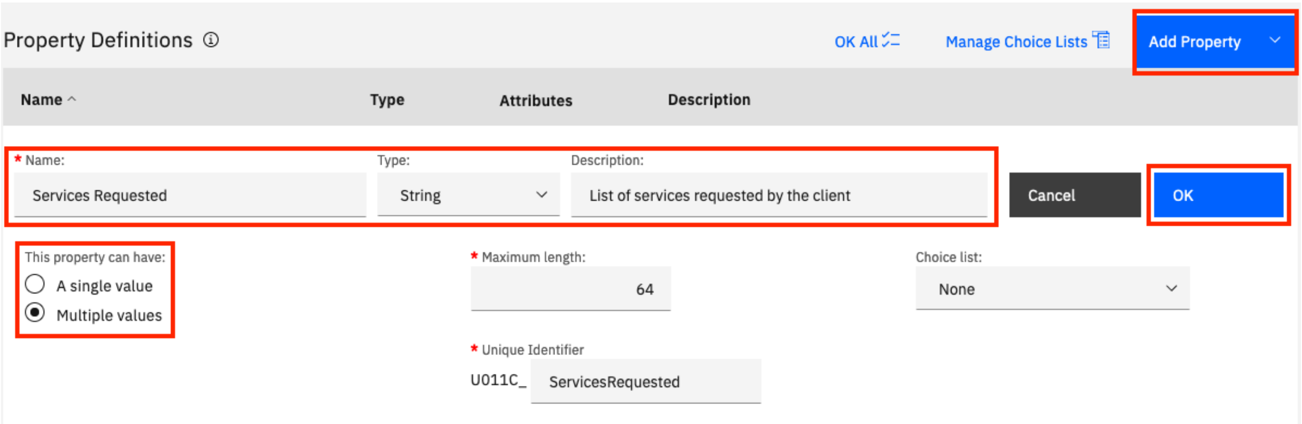


We will now add the last property for this exercise, to contain the list of services requested by the client.

25. Click on **Add Property → New**.
26. In the **Name** field, enter **Services Requested**.
27. Provide an optional description.

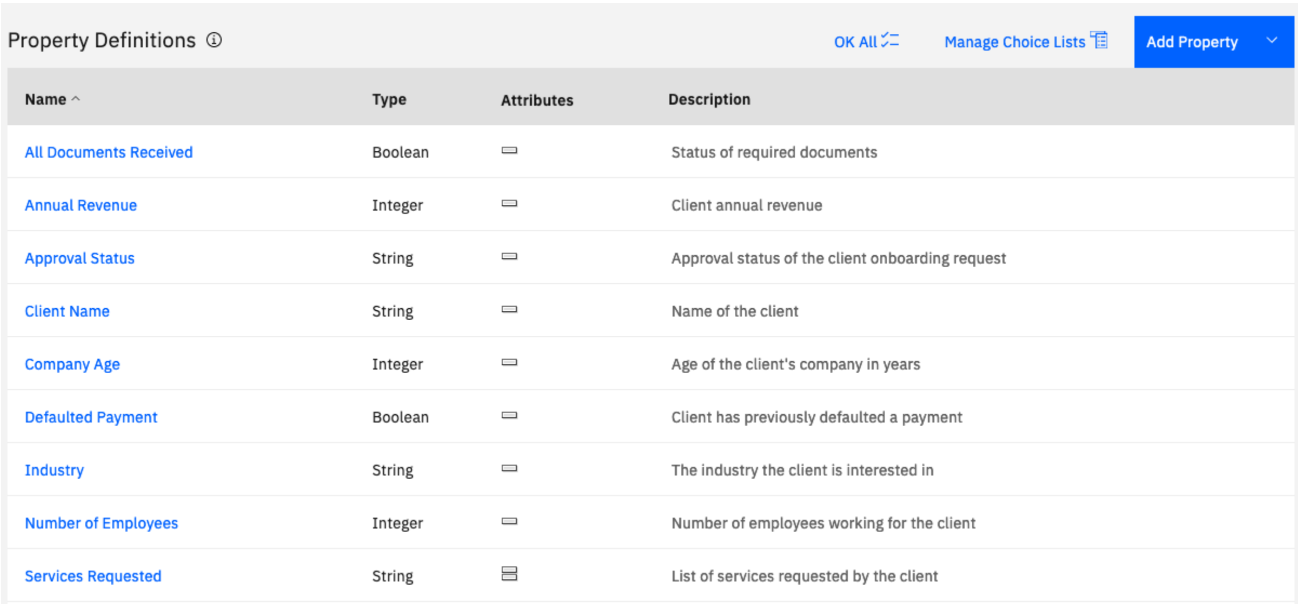
28. For the **This property can have** field, select the **Multiple values** option.

29. Click on **OK**.



30. Click on the column header **Name** to sort the list of properties alphabetically.

Your list of property definitions should now look as follows:



Name	Type	Attributes	Description
All Documents Received	Boolean		Status of required documents
Annual Revenue	Integer		Client annual revenue
Approval Status	String		Approval status of the client onboarding request
Client Name	String		Name of the client
Company Age	Integer		Age of the client's company in years
Defaulted Payment	Boolean		Client has previously defaulted a payment
Industry	String		The industry the client is interested in
Number of Employees	Integer		Number of employees working for the client
Services Requested	String		List of services requested by the client

31. Click on **Save**.

This concludes exercise 1. In this exercise, we setup the framework necessary to create a case solution. In the next exercise, we will use the various properties, roles, etc. to create a [case type](#) for the solution.

3 Exercise: Create the Client Onboarding Request Case Type

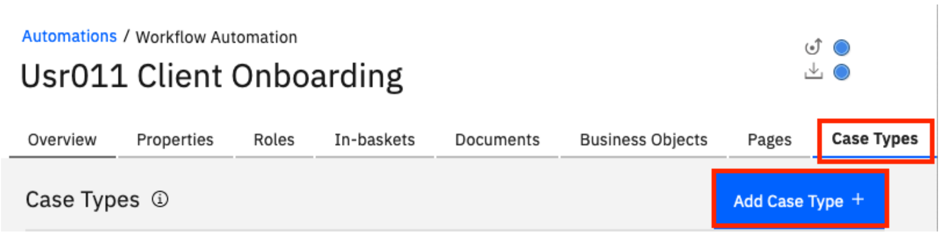
3.1 Introduction

In this exercise, you will learn more about [case types](). A case type identifies the activities, content, views, etc. that are required to manage the case. Using the Case Builder, you will add a case type to the solution created in the previous exercise that will handle the client onboarding request. You will then use the Process Designer to create a custom UI that shows the details of an existing client onboarding case request.

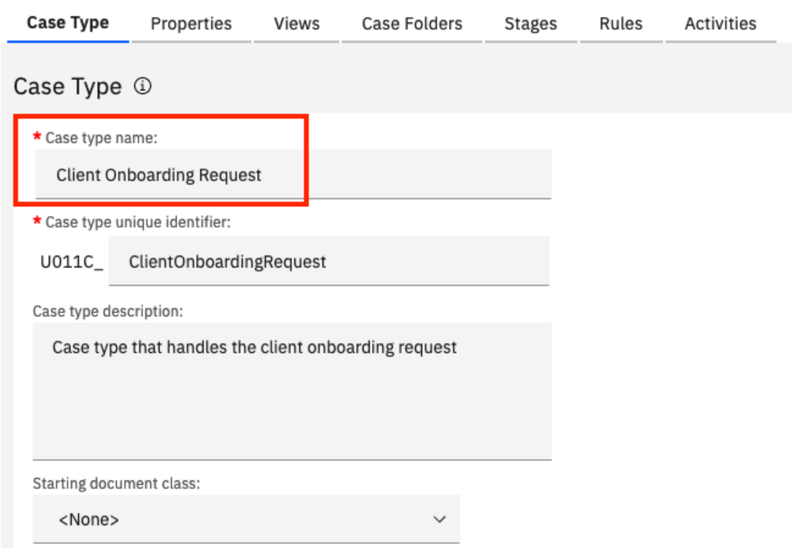
3.2 Exercise Instructions

3.2.1 Create the case type

1. Open the ***UsrNNN* Client Onboarding** Workflow project if not already open.
2. Click on the **Case Types** tab.
3. Click on **Add Case Type+**.



4. In the **Case type name** field, enter **Client Onboarding Request**.
5. Provide an optional description.



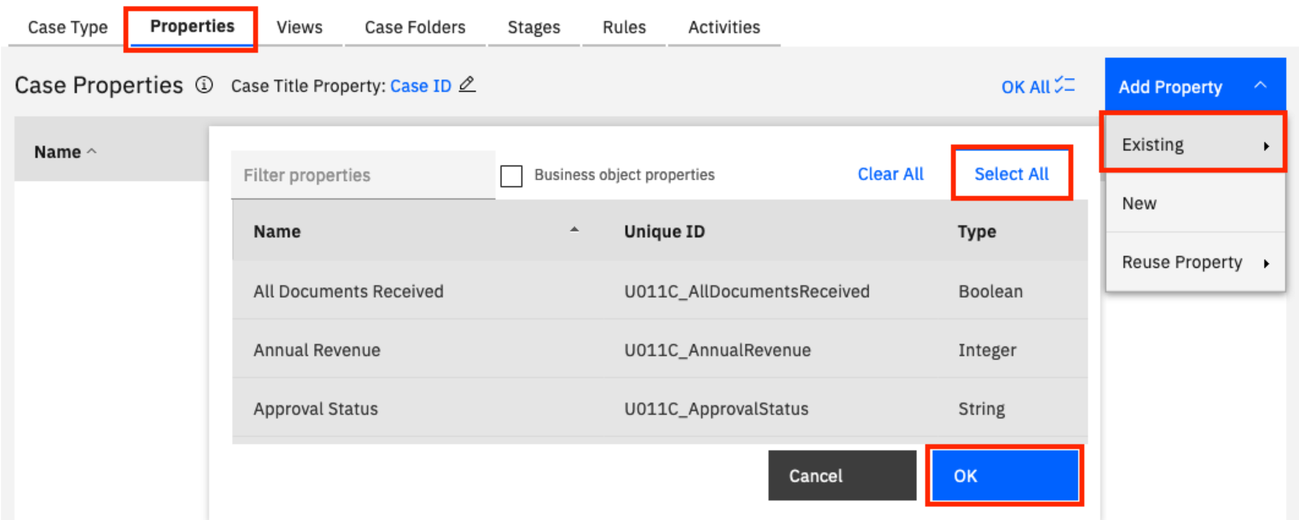
6. Click on **Save**.

   We will leave the **Starting document class** as **<None>** but it’s an important field to note. This field allows the case to be triggered automatically when a document of the selected class is added to the content repository backing the Workflow server. This has several use cases like - starting a mortgage application case if a mortgage application form is uploaded, starting an insurance claim request if a picture of a car is submitted. In this lab, we will start the client onboarding request using the JavaScript API.

3.2.2 Add properties to the case type

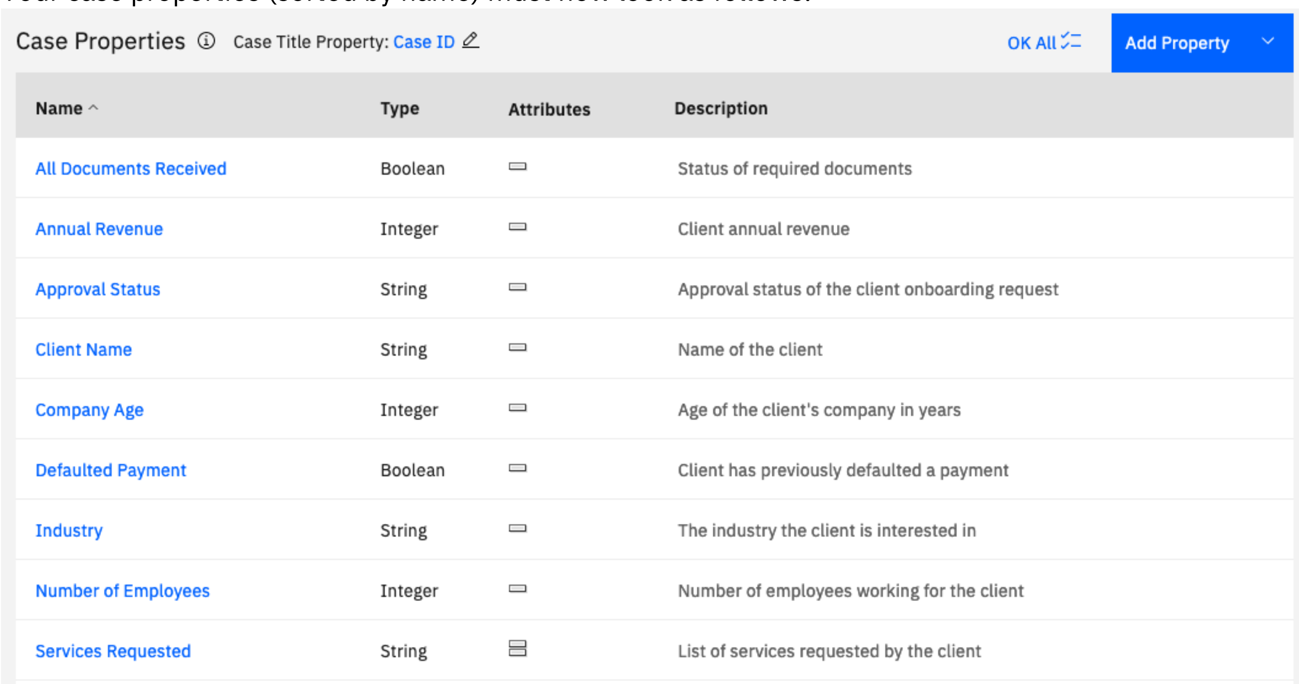
Next, we will add properties to the case type.

1. Click on the **Properties** tab.
2. Click on **Add Property → Existing → Select All**.
3. Click on **OK**.



4. Click on **OK All**.

Your case properties (sorted by name) must now look as follows:



Name	Type	Attributes	Description
All Documents Received	Boolean		Status of required documents
Annual Revenue	Integer		Client annual revenue
Approval Status	String		Approval status of the client onboarding request
Client Name	String		Name of the client
Company Age	Integer		Age of the client's company in years
Defaulted Payment	Boolean		Client has previously defaulted a payment
Industry	String		The industry the client is interested in
Number of Employees	Integer		Number of employees working for the client
Services Requested	String		List of services requested by the client

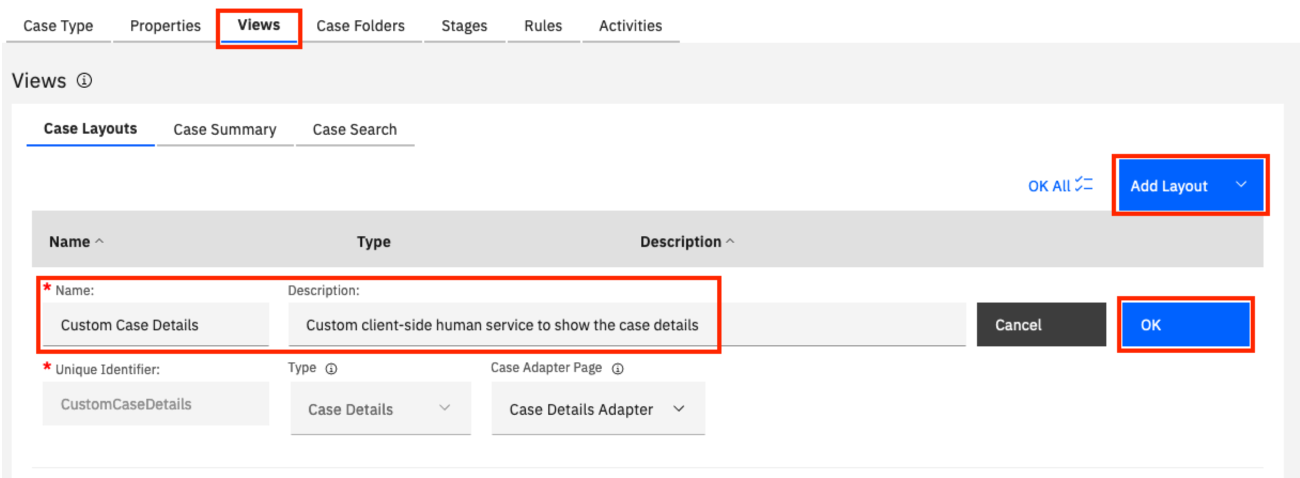
5. Click on **Save**.

3.2.3 Create a custom UI for the case details view

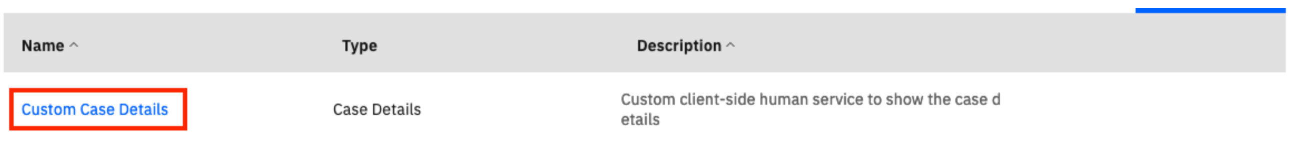
Each case type has a case details view. This view allows users to see the details of a case like the summary, properties, activities, comments, documents, etc. In the latest release, you can define this view as a Client-side human service which offers enhanced flexibility in terms of UI design.

1. Click on the **Case Type** tab.
2. Click on **New Case Details layout** at the bottom.

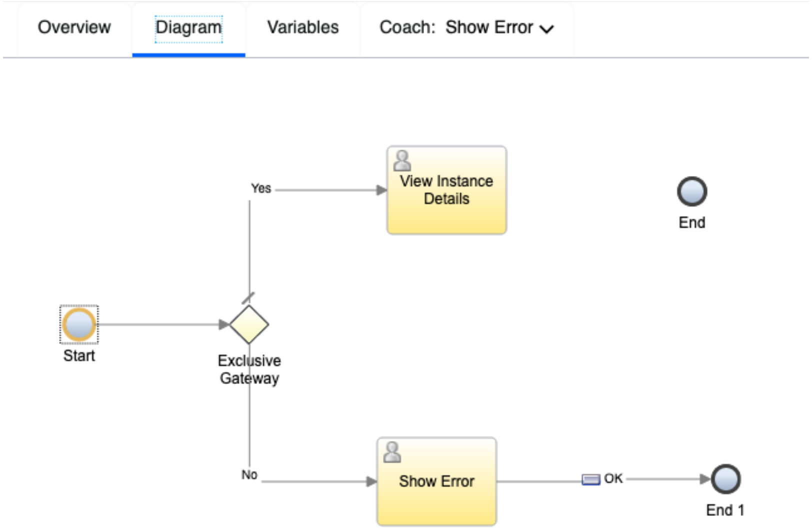
3. In the **Name** field, enter **Custom Case Details**.
4. Provide an optional description.
5. Click on **OK**.



6. Click on **Save**.
7. Click on **Custom Case Details** to modify its design.



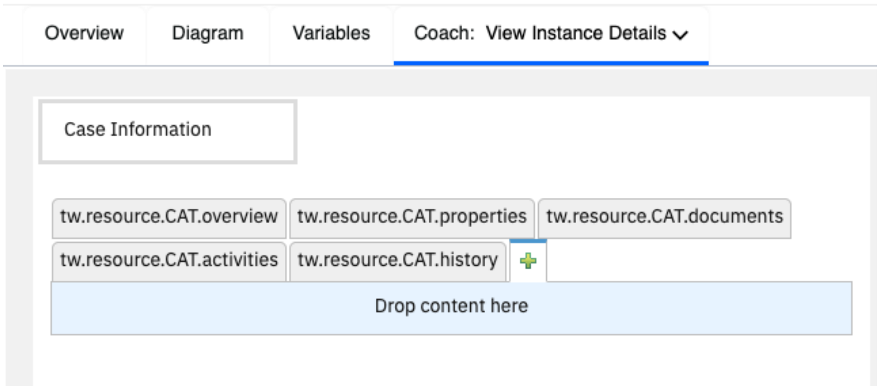
This opens a new window in IBM Process Designer which contains the following diagram.



The default diagram consists of two coaches – **View Instance Details** & **Show Error**. Coaches contain the UI of an activity and each human service can contain multiple coaches. As we are customizing the UI for the case details, we will now edit the **View Instance Details** coach.

8. Select **Coach → View Instance Details** at the top.

This shows the editor for the coach where you can create the UI to be shown when a user looks at the details of a case. A default UI already exists using out-of-the-box views (e.g., case comments, documents, activities, etc.) that can be modified.

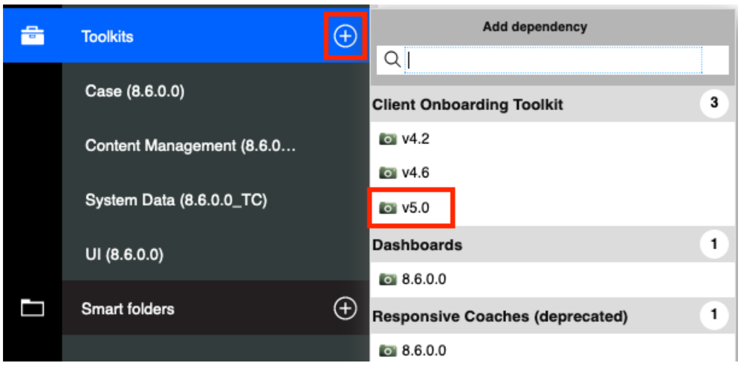


To modify this UI, we will first add a pre-built toolkit dependency to the current project. Toolkits contain shared artifacts that can be reused by other projects. The toolkit contains user interfaces built using the **View** artifact that can be reused in the client onboarding project.

To learn more about how to create a toolkit and reusable user interfaces like a view, look at **Exercise 1** of the **Introduction to Business Automation Application** lab.

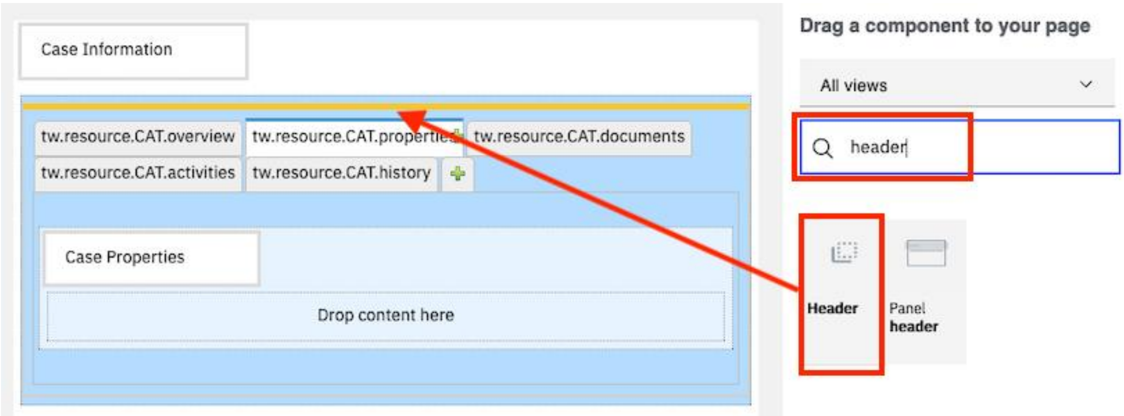
9. In the library pane on the left, click on the **+** button next to **Toolkits** (you will have to hover on it to see the **+** button) and select the latest version the of the **Client Onboarding Toolkit** (it might differ from the one shown in the screenshot).

Note: If you don't see the library pane on the left, close the window showing the Process Designer and open it again by clicking on **Custom Case Details**.

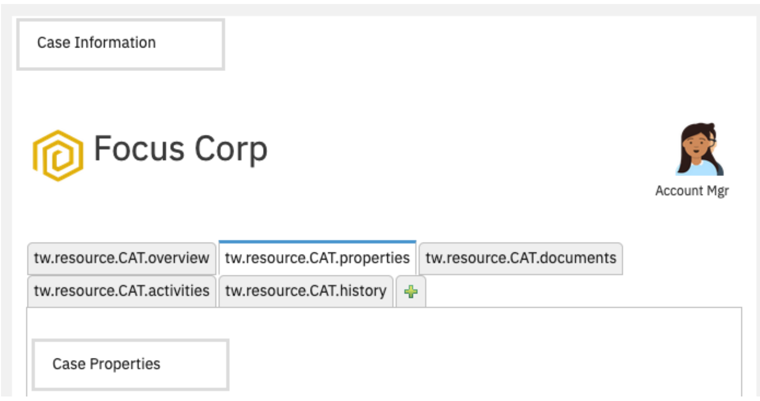


Note: The latest version in your environment may differ from the screenshot.

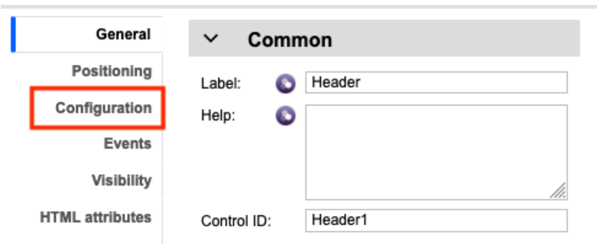
10. Back in the Coach editor, search for **header** in the right-hand side palette.
11. Drag and drop the **Header** view above the tabs in the editor.



Your UI should now look as follows:

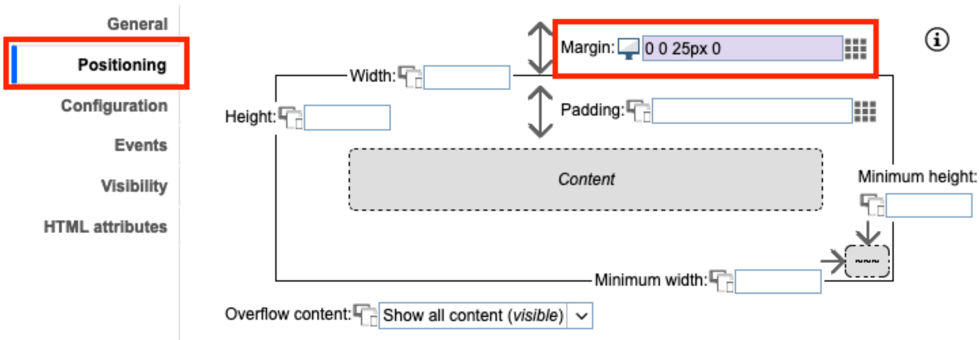


12. Click on the **Header** view just added to the UI.
13. In the **Properties** pane at the bottom, select **Configuration**.

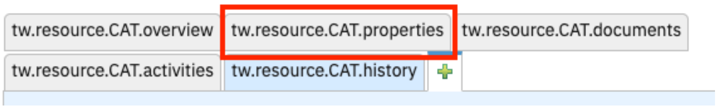


14. For the **Account Manager Visibility** field, select **None**.
15. For the **Client Rep Visibility** field, select **Same as parent**.

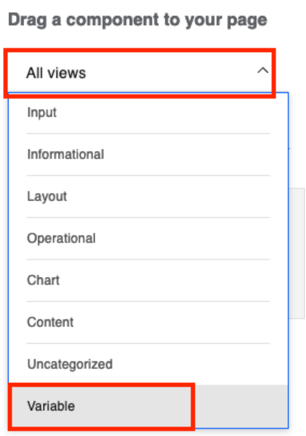
    This will hide the Account Manager persona from the header and show the Client Rep one.
16. Click on the **Positioning** tab.
17. In the **Margin** field, enter **0 0 25px 0**.



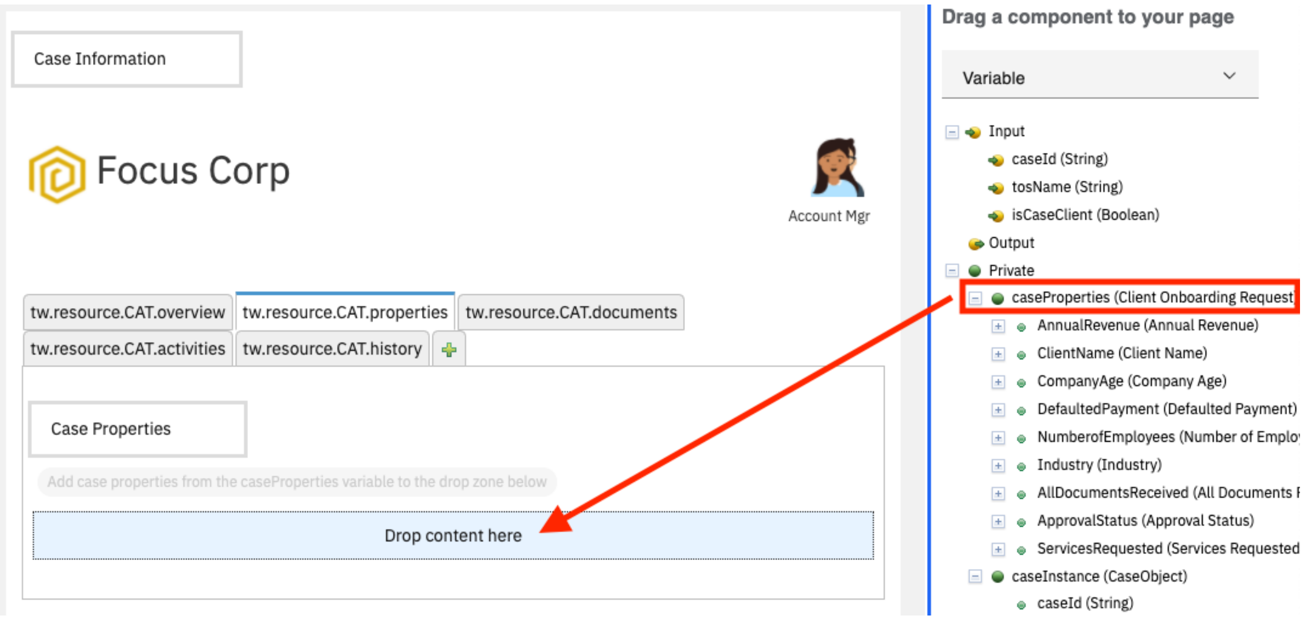
    This is to add a bottom margin to the header.
18. Click on the **tw.resource.CAT.properties** tab in the editor.



    The **tw.resource.CAT.properties** label means that when the UI is generated, the actual label will be retrieved from a resource file **CAT** based on the user's locale. Resource files provide a way to create a UI for different languages.
19. In the right-hand side palette, switch the dropdown selection from **All Views** to **Variables**.

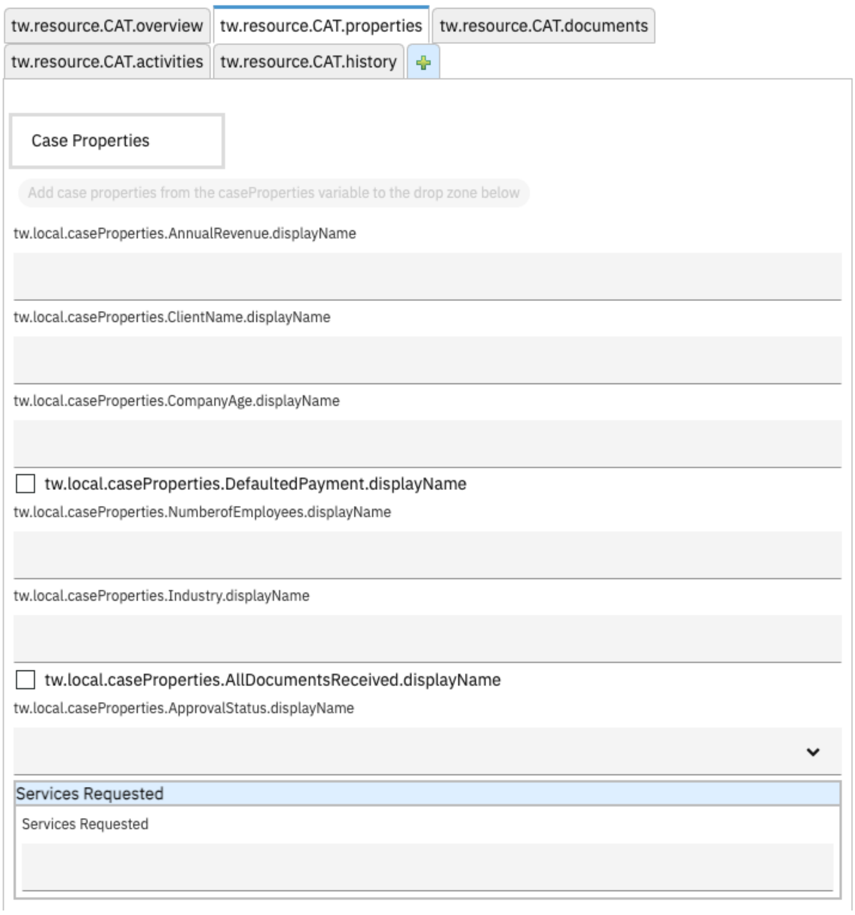


20. Drag and drop the **caseProperties** variable onto the editor where it says **Drop content here**.



Once you have added that, you should see the UI for the case properties automatically created.

Note: The case properties are automatically added to the Process Designer as a content object property. This allows users to use the case properties like any other variable in the Process Designer.



Note: The case properties can be filtered out in the **Variables** tab of the Client-side human service if you don't want to see them to be included in the editor view.

21. Optionally, rearrange the views in the editor by dragging and dropping them in the order you want.

    With that you've successfully created a custom UI for the case details page.

22. Click on the **Finish Editing** button.

    Note: In the Case Builder, you click on the **Save** button to save your changes. In the Process Designer, your changes are automatically saved. When you close the editor for an artifact or if your browser crashes, your changes are preserved. You only need to click the **Finish Editing** button to make the artifact available to others for editing as an artifact can only be edited by one person at a time. You can still have other users working on other artifacts in the same Workflow solution in parallel.

    In this case, we click on the **Finish Editing** button as we are about to close the Process Designer window and it tells the browser that there are no changes left to be made.

23. Close the Process Designer window to show the Case Builder again.

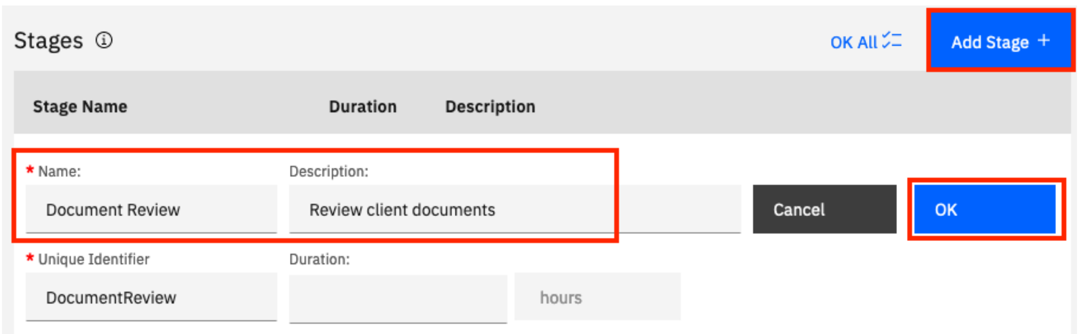
3.2.4 Add stages to the case type

You can define stages to represent the lifecycle of a case. The first stage starts automatically when the case is started. We will add two stages for this case – **Document Review** & **Scoreboarding**.

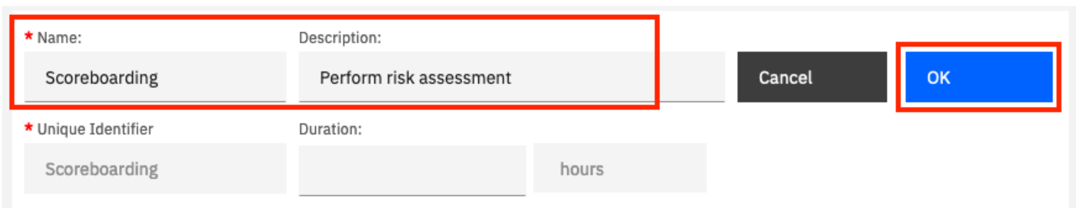
1. Back in the Case Builder, click on the **Stages** tab.

2. Click on **Add Stage +**.
3. In the **Name** field, enter **Document Review**.
4. Provide an optional description.
5. Click on **OK**.

6. Similarly, add another stage called **Scoreboarding**.

You should now have the following 2 stages:

Stages ⓘ

Stage Name	Duration	Description
Document Review		Review client documents
Scoreboarding		Perform risk assessment

When the **Document Review** stage completes, the **Scoreboarding** stage will begin automatically. In the next exercise, you will define activities that get start automatically when a specific stage begins. You can define multiple activities that start in parallel when a stage begins. A case stage can only be started if the previous stage has completed.

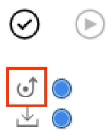
Note: As a part of the low-code Javascript APIs, developers can also disable/skip certain stages depending on the case.

7. Click on **Save**.

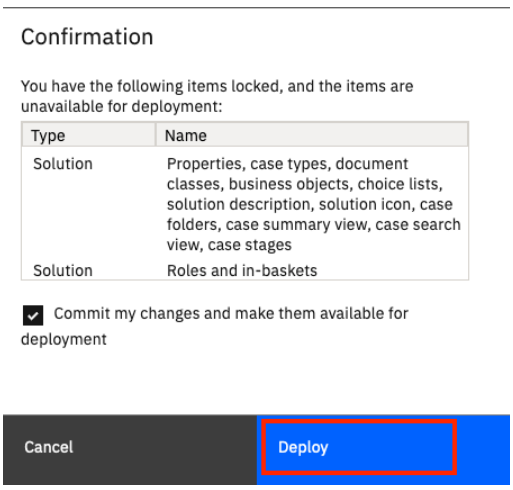
3.2.5 Deploy and test the solution

This completes creating the framework for the Case type. We will now deploy the solution so that we can test the customized UI.

1. Click on the **Deploy** button in the upper-right corner.



2. In the confirmation dialog, click on **Deploy**.



Confirmation

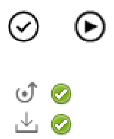
You have the following items locked, and the items are unavailable for deployment:

Type	Name
Solution	Properties, case types, document classes, business objects, choice lists, solution description, solution icon, case folders, case summary view, case search view, case stages
Solution	Roles and in-baskets

☑ Commit my changes and make them available for deployment

Cancel | Deploy

Once the solution is deployed and reloaded, you should see the status update in the upper-right corner with two green checkmarks.

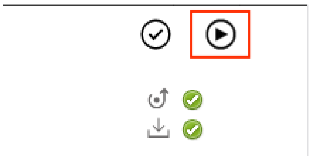


Next, we will add the user you are working with to the roles defined in the previous exercise. There are two ways to do this:

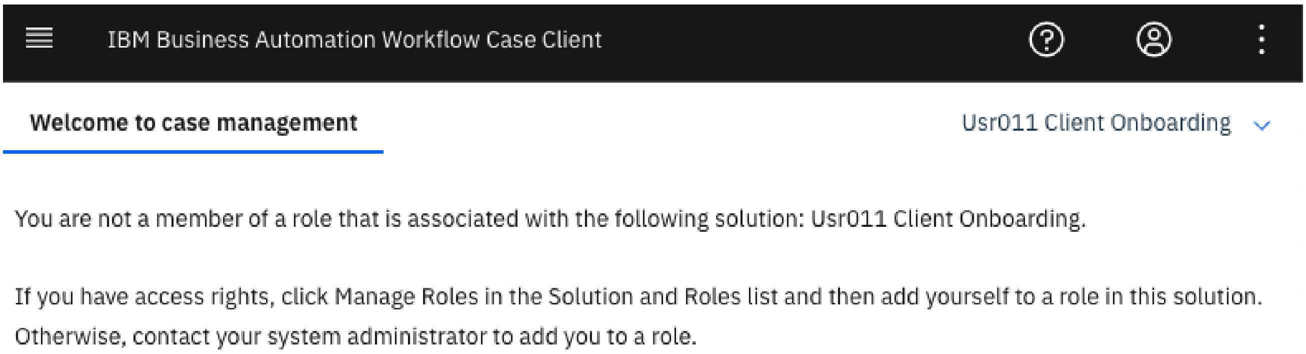
1. Create a security configuration using the Case administration client.
2. Manage the roles in the Case Client.

The first approach is typically used for production systems. As we are testing our solution, we will use the second approach.

3. Click on the **Test** button in the upper-right corner.

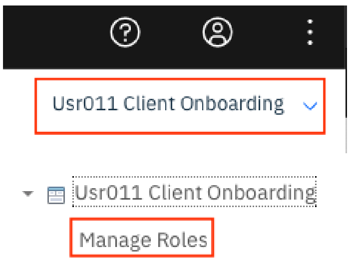


This launches a new window with the Case Client. This is a client used by case workers to complete their work for each case. In newer releases, the case workers can also use Workplace to access their work. Workplace allows knowledge workers to see tasks from both Case and Process (BPM) capabilities in a single unified place. If you want to see what Workplace looks like, you can perform the end-to-end scenario lab.



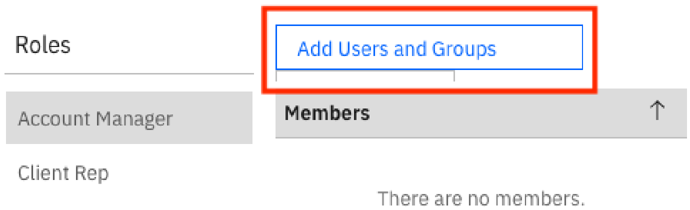
Note: It may take a few seconds for the entire page to load.

4. In the upper-right corner, click on ***UsrNNN* Client Onboarding → Manage Roles** for your Workflow automation project.

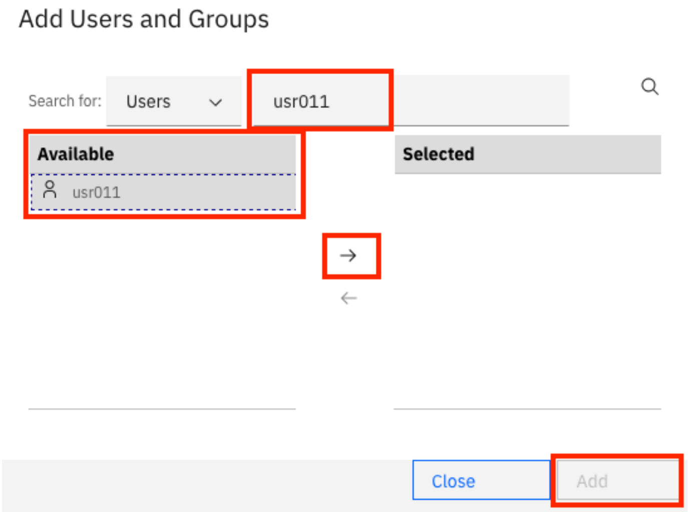


This brings up another window to manage the role memberships.

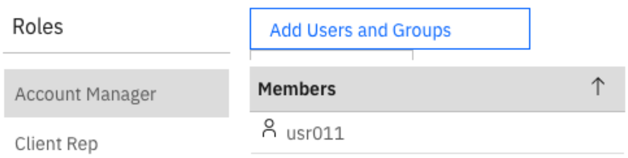
5. Click on **Add Users and Groups**.



6. In the search field, enter ***usrNNN*** where usrNNN is your username.
7. Click on the username and then the → button.
8. Click on **Add**.

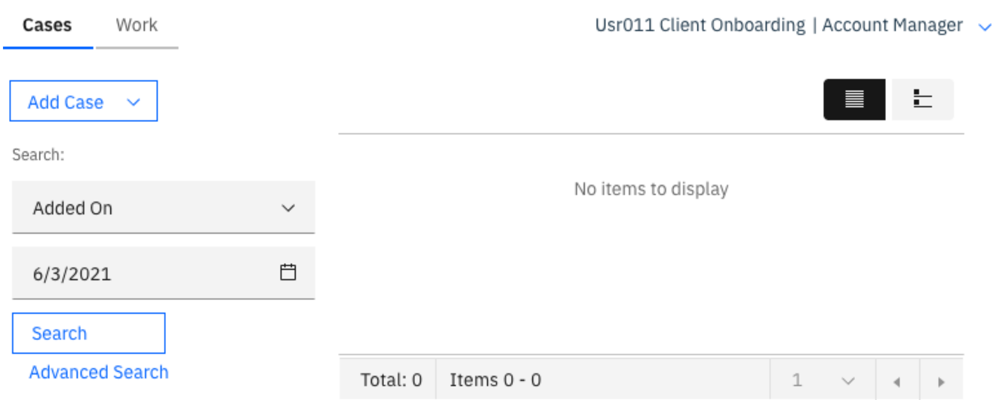


You should now see the user added as a member to the role.



9. Click on the **Client Rep** role.
10. Add the ***usrNNN*** user to this role just like you did before.
11. Click on **Save** in the bottom-right corner.

This will refresh the Case Client with the following screen:

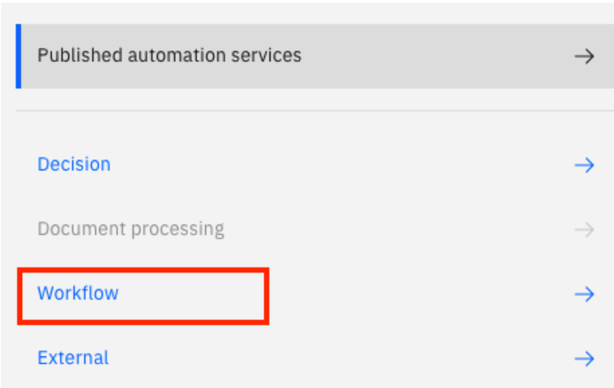


We can use the **Add Case** button here to add and test the case we just created but we will be testing this case often throughout the lab. To do this we will create a Process in the Process Designer that uses the [JavaScript API to start a case](). We will create a new Process in the same Workflow project, but this Process can be a part of any other project as well.

3.2.5.1 Using JavaScript API to start a case

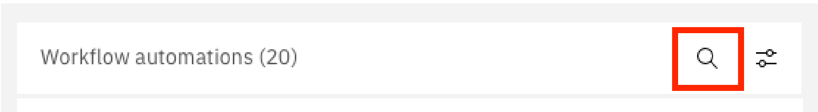
1. Minimize the Case Client window to go back to the Case Builder. We will come back to the Case Client after starting a new case.
2. Click on **Automations** in the upper-left corner.

3. Click on **Workflow**.

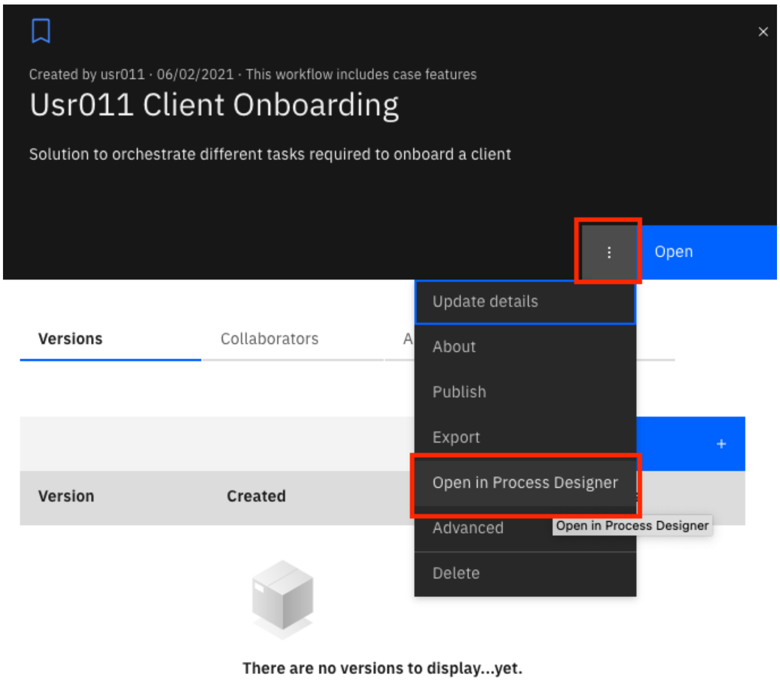


4. Click on your Workflow project ***UsrNNN* Client Onboarding**. Do **NOT** click on **Open** but on the tile itself as this will re-open the Case Builder.

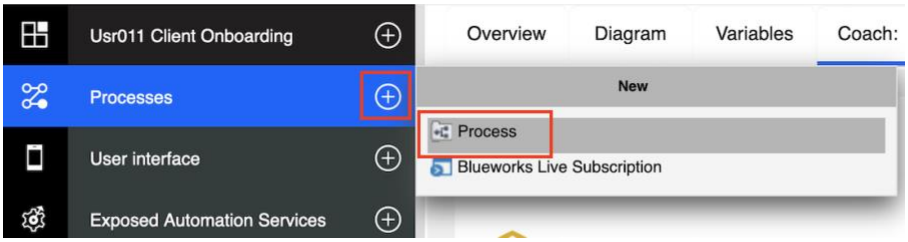
   Hint: You can use the search by clicking on the **search** icon the upper-right corner.



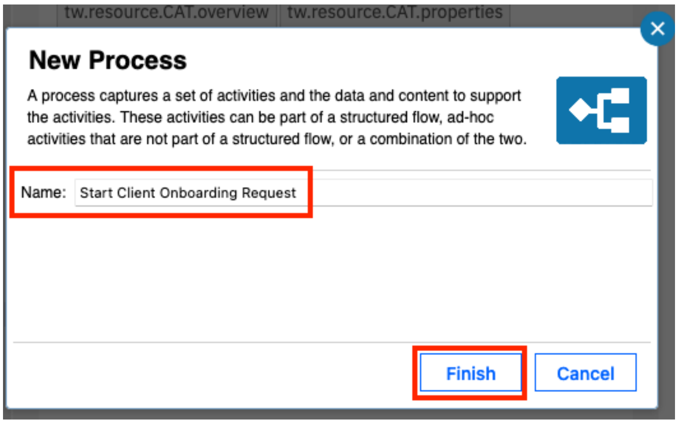
5. Click on the **3-dot menu** next to the open button and select **Open in Process Designer**.



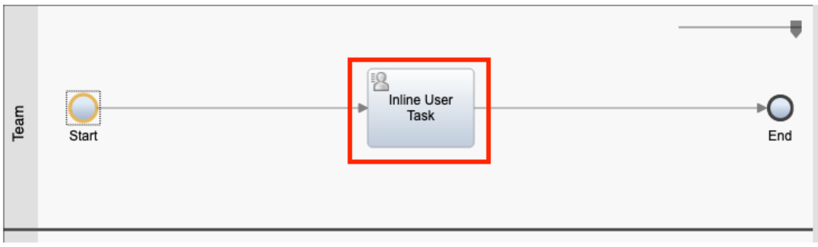
6. In the library pane on the left, hover over **Processes** and click on **+** and select **Process**.



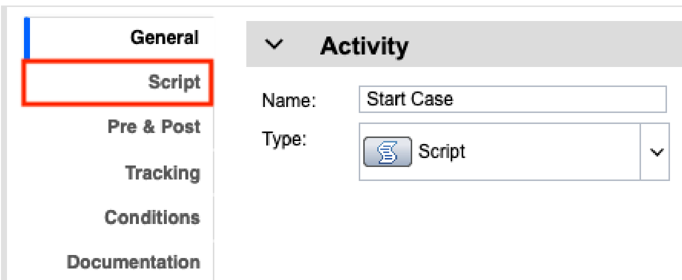
7. In the **Name** field, enter **Start Client Onboarding Request**.
8. Click on **Finish**.



9. In the Process that opens, click on the **Inline User Task** node.



10. In the **Properties** pane on the bottom, in the **General** tab, under the **Activity** section, select **Script** for the **Type** field (where it currently says Inline User Task).
11. In the **Name** field, enter **Start Case**.
12. Click on the **Script** tab.



13. Copy & paste the following script:

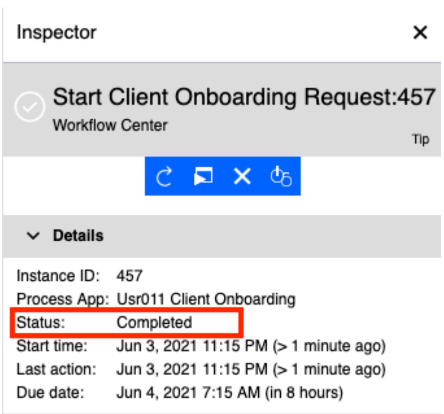
```
// Create a new Client Onboarding Request case
// The record object holds the properties of the case
var newCaseProperties = new tw.object.Record();

// Fetch the arocnym of the Workflow project
// This can be used to generate the prefix of the Case properties
var prefix = tw.system.model.processApp.acronym + "_";

// Set property values for the properties defined in the case
// Client
newCaseProperties.setPropertyValue(prefix + "ClientName", "Legacy Consulting");

// Client Additional Info
newCaseProperties.setPropertyValue(prefix + "AnnualRevenue", 4500000);
newCaseProperties.setPropertyValue(prefix + "CompanyAge", 14);
newCaseProperties.setPropertyValue(prefix + "DefaultedPayment", true);
newCaseProperties.setPropertyValue(prefix + "NumberofEmployees", 75);

// Client Services
newCaseProperties.setPropertyValue(prefix + "Industry", "Healthcare");
var servicesRequested = new tw.object.listOf.String();
servicesRequested[0] = "Mental Health Care";
newCaseProperties.setPropertyValue(prefix + "ServicesRequested", servicesRequested);

// Reviewed Documents
newCaseProperties.setPropertyValue(prefix + "AllDocumentsReceived", false);

// Create Case using the JavaScript API
tw.system.currentProcessInstance.createCase(prefix + "ClientOnboardingRequest",
newCaseProperties, null, true);
```

Look at the comments of the code for further explanation on each line.

14. Click on the **Run** button in the upper-right corner to run this process and start the case.

Note: You don't need to save your changes. Clicking on the run button saves all the changes.

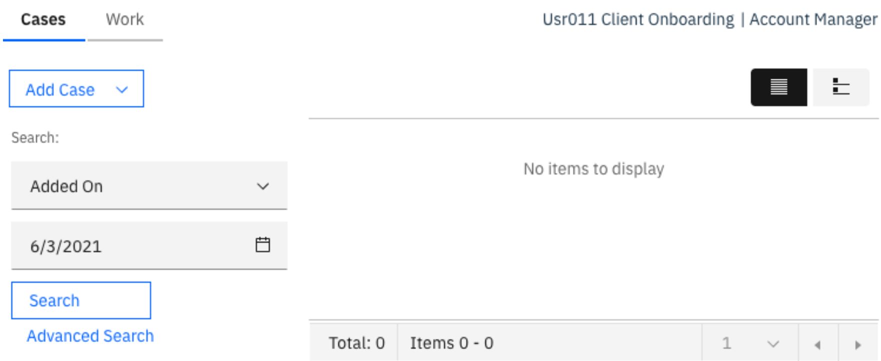
The Inspector view will then show up with **Status** set to **Completed**.



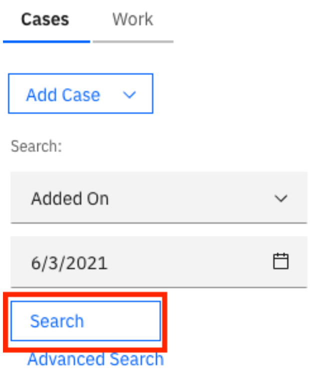
Note: If you get an error at this point, compare the property names in the code to the properties you defined in the case solution.

15. Go back to the window containing the **Case Client**.

    If you can't find the window or accidentally closed it, open your Workflow project, and click on the Test button again in the Case Builder.



16. Click on **Search** in the search field.

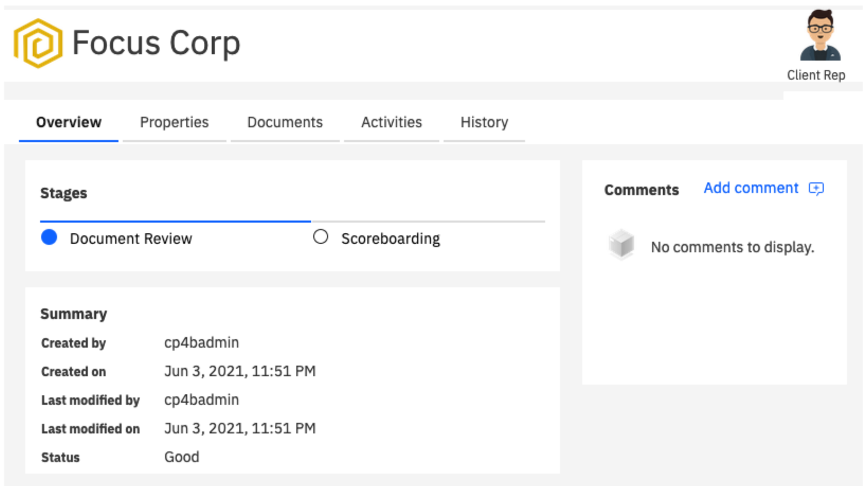


    You should now see a Case in the **Working** state. If you have multiple cases from multiple attempts before, click on the latest one.

Title	Added On	Case State	Modified By	Modified On
U011C_ClientOnboardingRequest_000000100001	6/3/2021, 11:15 PM	Working	cp4badmin	6/3/2021, 11:15 PM

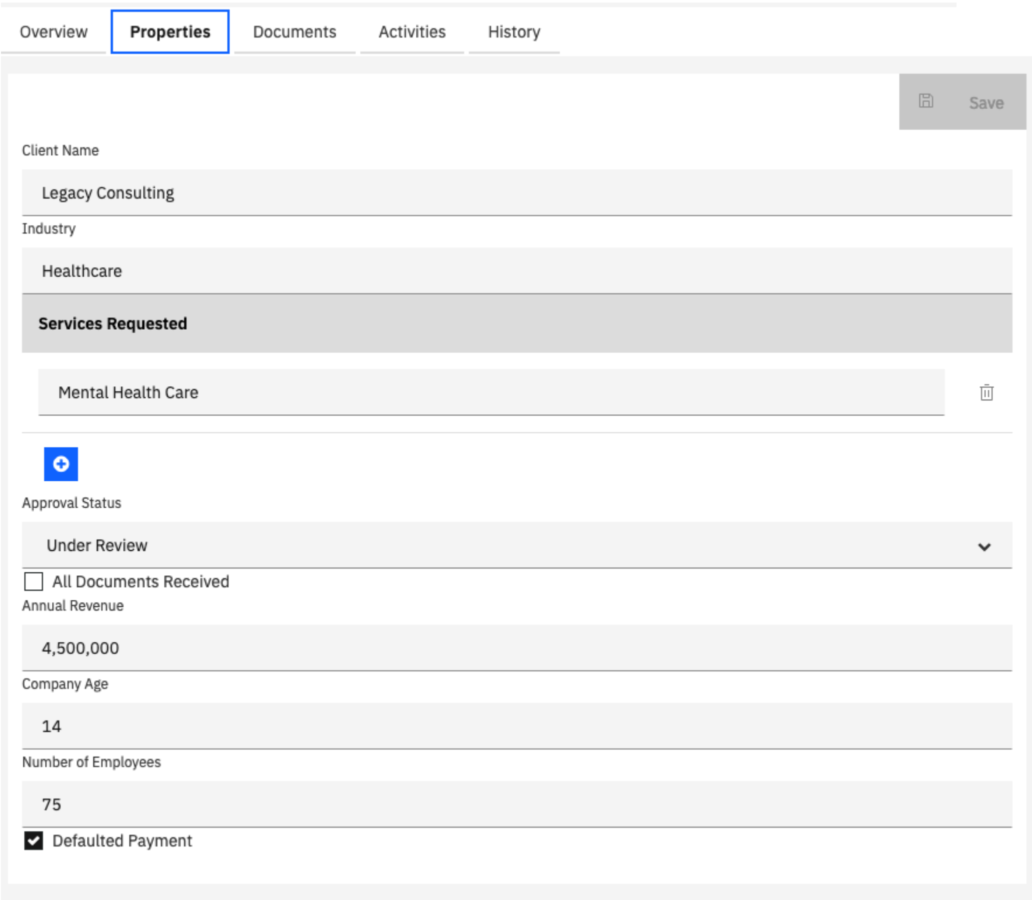
17. Click on the **Title** of the case to open the case details.

    The customized UI should now open.



18. Click on the **Properties** tab.

    The properties from the script must now be visible in the UI.

    Note: You might see the properties in a different order based on your optional customization.

19. Click on the **Activities** tab.

    This tab shows that there are no activities. We will add some activities in the next exercise. Keep the Case Client open for future test runs.

20. Click on the **Close** button in the upper-right corner to close the case details page.

4 Exercise: Adding activities to the Client Onboarding Request Case Type

4.1 Introduction

In this exercise, you will learn how to create and implement activities in a case type. You will do that by creating some of the activities that are required for the Client Onboarding Request case type in the Case Builder. Then, using the Process Designer, you will implement the details of these activities.

We will create and implement 3 activities as a part of this exercise:

1. **Initialize Request**: This activity will verify if there are documents to be received from the client. If there are, it will end the activity and wait for client documents. If all client documents are received, it will complete the **Document Review** stage which in turn will automatically start the **Scoreboarding** stage.
2. **Review Client Documents**: This activity will be started when a client document is filed to the case. The activity will contain a human service to manually review the client document that will be completed by the **Client Rep**.
3. **Scoreboarding**: This activity will be started once the **Scoreboarding** stage is started. It will call out to an artificial intelligence backed Decision service to get a risk assessment. If the confidence of this decision service is low, a human service to manually review the client onboarding request will be started that will be completed by the **Account Manager**. The Decision service is pre-built. If you want to learn how to call out to a Decision service from Workflow, look at the **Consume & Publish Automation Services in Workflow** lab.

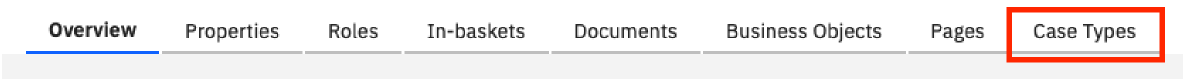
4.2 Exercise Instructions

4.2.1 Create new activities

1. Open the **UsrNNN Client Onboarding** Workflow automation project in Case Builder.

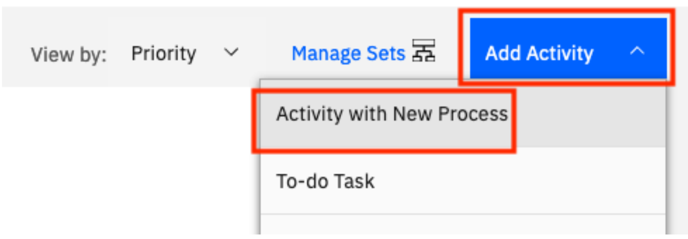
   To do this you can go to **IBM Business Automation Studio**, click on **Business automations** in the hamburger menu in the upper-left corner, select the **Workflow** capability and click **Open** for your Workflow automation project.

2. Click on the **Case Types** tab.



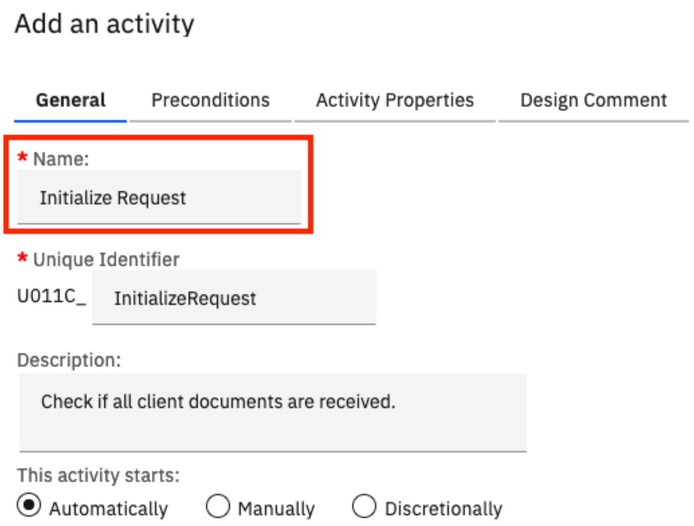
3. Open the **Client Onboarding Request** case type.
4. Click on the **Activities** tab.

5. Click on **Add Activity → Activity with New Process**.

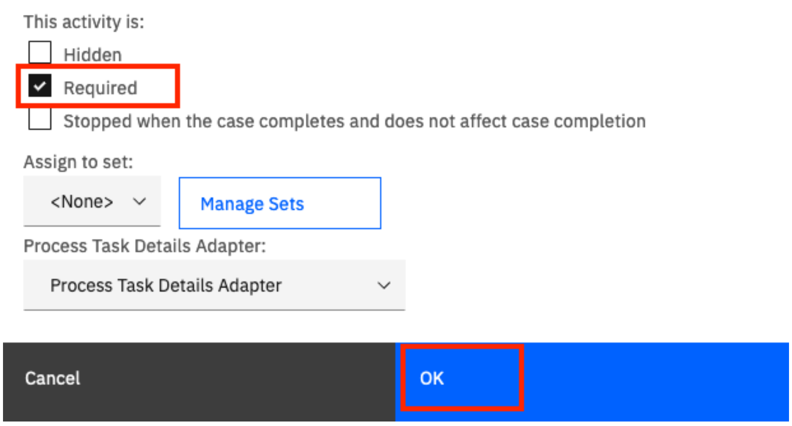


This brings up a dialog that allows you to create an activity with an implementation in the Process Designer. In scenarios where a user may already have an existing implementation in another Workflow project that they want to reuse, they can select Activity with Existing Process.

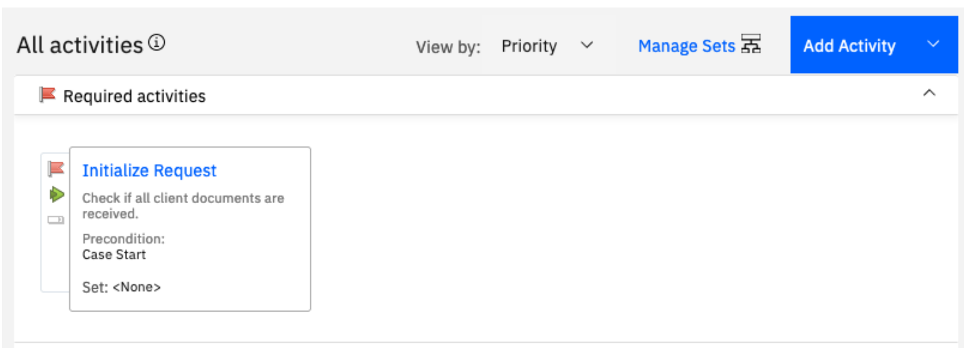
6. In the **Name** field, enter **Initialize Request**.
7. Provide an optional description.



8. For the **This activity is** field, select **Required**.
9. Click on **OK**.



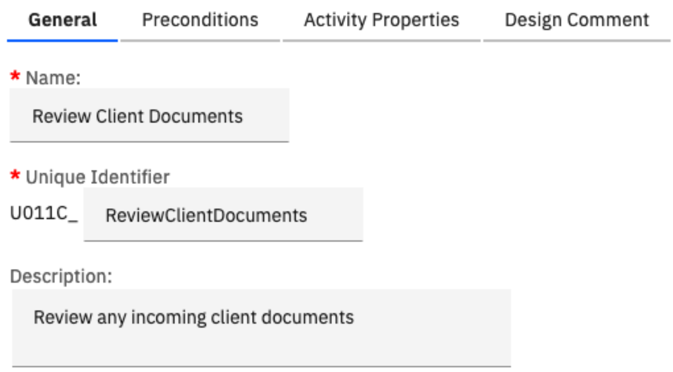
You should now see an activity added to a section of required activities.



Next, we will add the **Review Client Documents** activity.

10. Click on **Add Activity → Activity with New Process**.

11. In the **Name** field, enter **Review Client Documents**.
12. Provide an optional description.

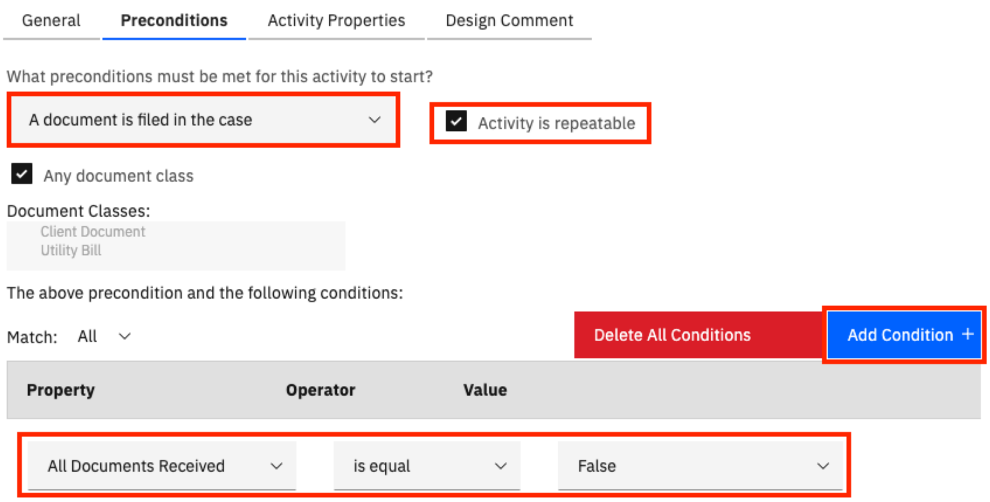


13. Click on the **Preconditions** tab.
14. In the dropdown, select the **A document is filed in the case** option.

    This ensures that the activity is started when a document is filed in the case.
15. Check the **Activity is repeatable** checkbox.

    This ensures that a new instance of the activity is started each time a client document is filed to the case.
16. Click on **Add Condition +**.
17. In the **Property** field, select **All Documents Received**.
18. In the **Value** field, select **False**.

    This ensures that the activity is not started after all client documents are received even if a new document is accidentally filed to the case. You can see here that a case activity with a precondition on a document class can also have a precondition on a property value at the same time.

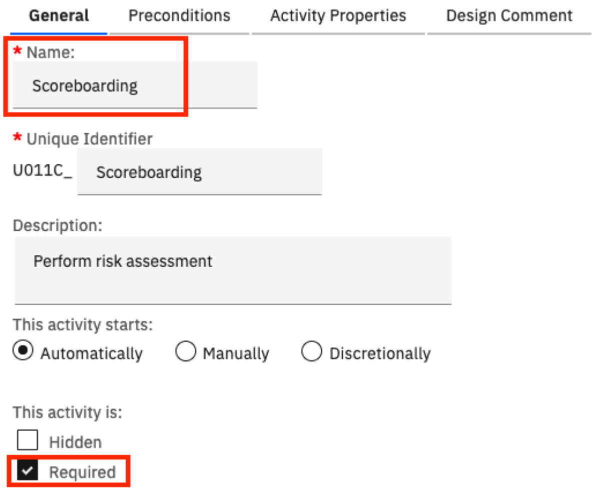


19. Click on **OK**. This adds the activity to the optional activities section as it won't be required in all cases.
20. Click on **Save**.

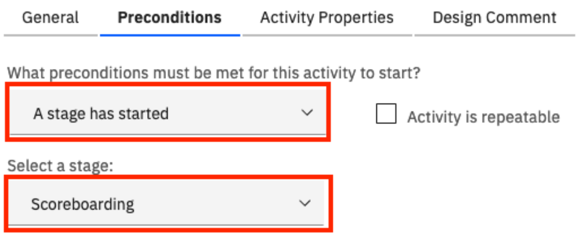
Next, we will add the **Scoreboarding** activity.

21. Click on **Add Activity → Activity with New Process**.

22. In the **Name** field, enter **Scoreboarding**.
23. Provide an optional description.
24. In the **This activity is** field, select **Required**.



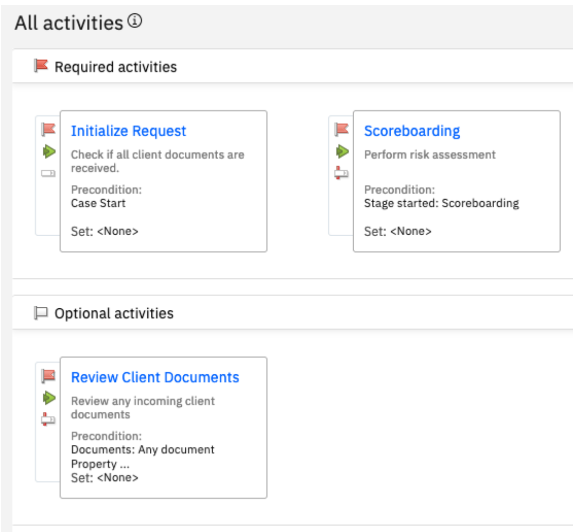
25. Click on the **Preconditions** tab.
26. Select **A stage has started** as the precondition.
27. In the **Select a stage** field, select **Scoreboarding**.



Note: You can create multiple optional/required activities that start in parallel when a certain stage has started. This is one of the benefits of using the case features as it allows you to create unstructured activities and define their lifecycles using stages.

28. Click on **OK**.

You should now have 3 activities in your activities tab as follows:



29. Click on **Save**.

30. Click on the **Deploy** button in the upper-right corner to re-deploy the solution.

31. In the confirmation dialog, click on **Deploy**.

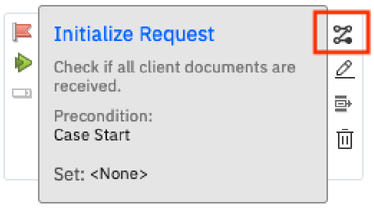
32. Verify that two green checkmarks show once the solution reloads.

Now, we will implement the process for each activity.

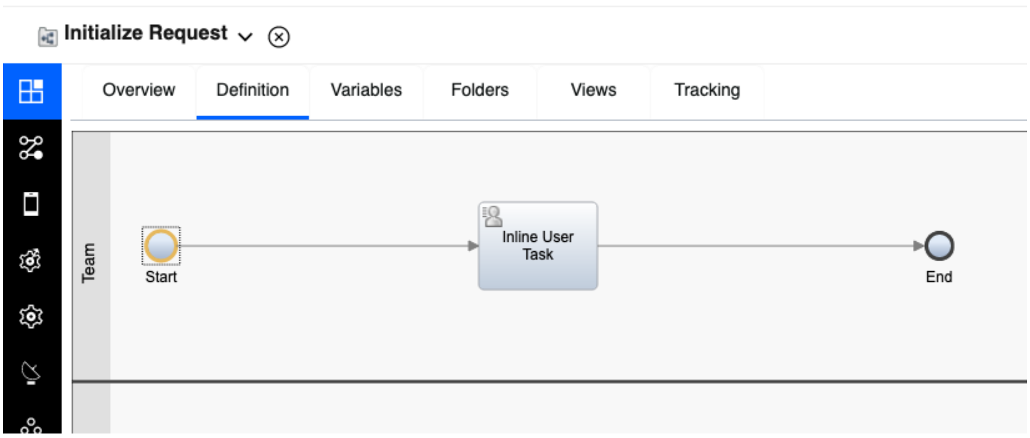
4.2.2 Implement the Initialize Request activity

As mentioned in the exercise introduction, the **Initialize Request** activity will check if all client documents are received. If they are, it will complete the current stage – **Document Review**.

1. Click on the **Case Types** tab.
2. Open the **Client Onboarding Request**.
3. Click on **Activities**.
4. Hover over **Initialize Request** and click on the **Open IBM Process Designer** icon.



This opens the IBM Process Designer with the **Initialize Request** Process.

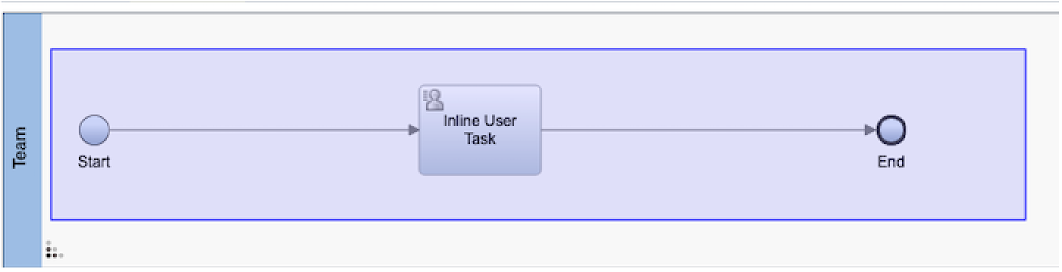


The Process contains two lanes **Team** and **System**. Team lanes can be assigned to specific roles and all activities (human services) in that lane will be assigned to that role. Activities (non-human services) in the system lane are performed by the system.

As described in the exercise introduction, the process needs to verify if all client documents are received. If the documents are received, it will complete the current stage - **Document Review**.

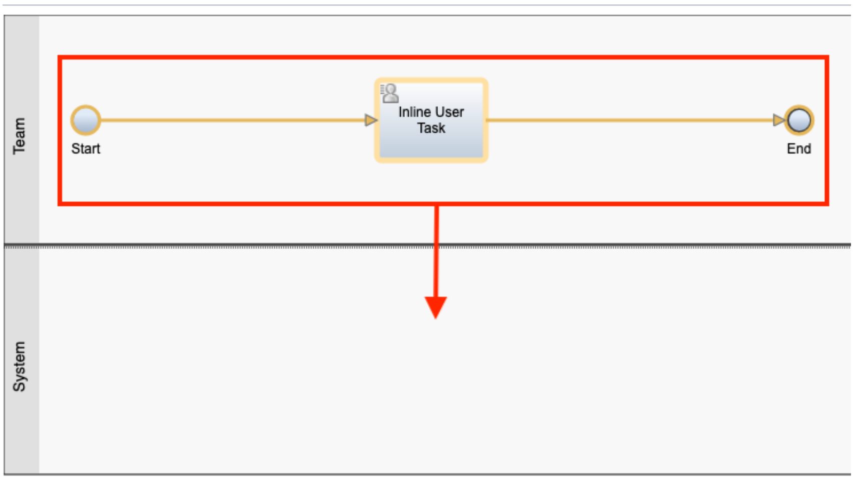
If not, it will end the process without completing the current stage and the case will wait for client documents to be uploaded. To do this, we will create a reusable service flow that can be used in other processes.

5. In the diagram, drag and move your mouse to cover the area of all nodes.

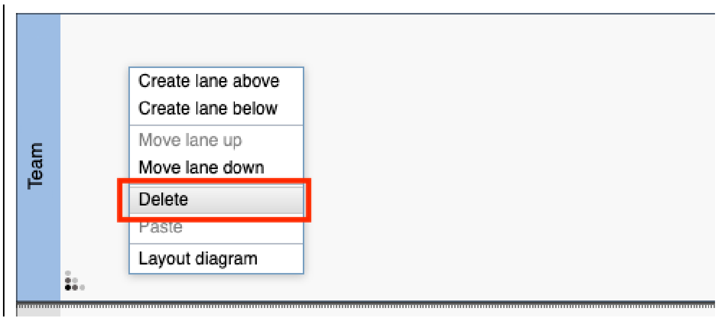


6. Drag the nodes from the **Team** lane to the **System** lane.

   We do this because this activity contains no human services and is a straight through process to be performed by the system.

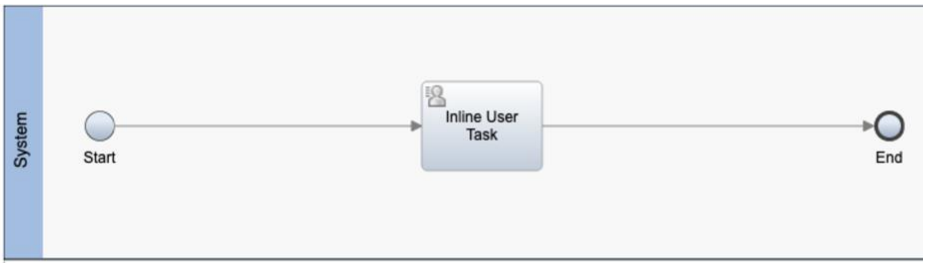


7. Right click anywhere on the **Team** lane and select **Delete.**



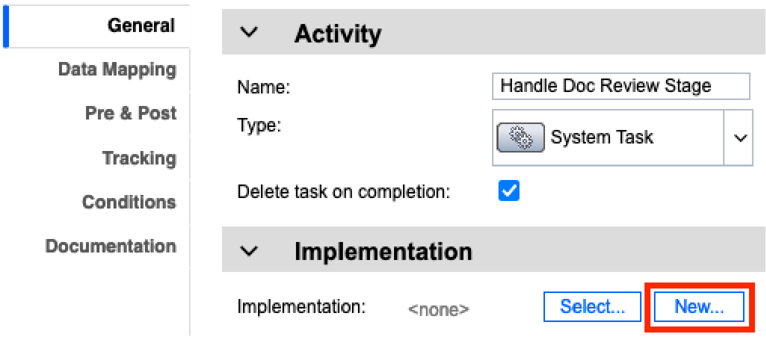
8. Click on **Yes** in the confirm deletion dialog.

   Your diagram should now look as follows:

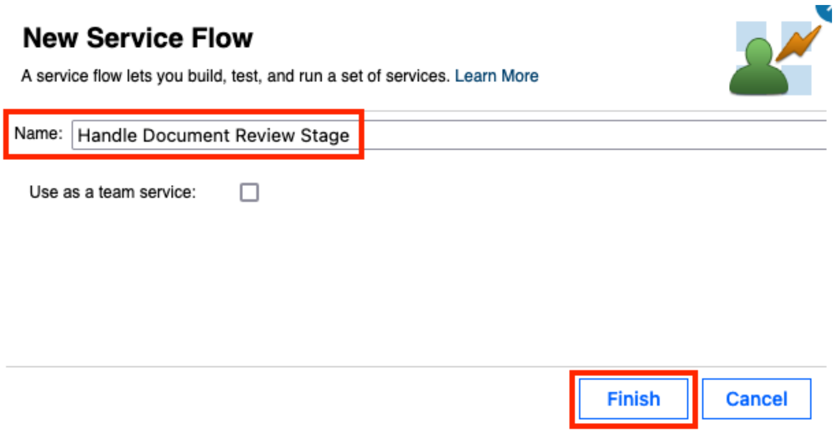


9. Click on the **Inline User Task** node.
10. In the properties pane on the bottom, in the **General** tab, select **System Task** as the activity type.
11. In the **Name** field, enter **Handle Doc Review Stage**.
12. Click on the **New** button under **Implementation**.

    We will create a service flow here that adds a comment to the case and completes the current stage. It will only do this if all documents are received.



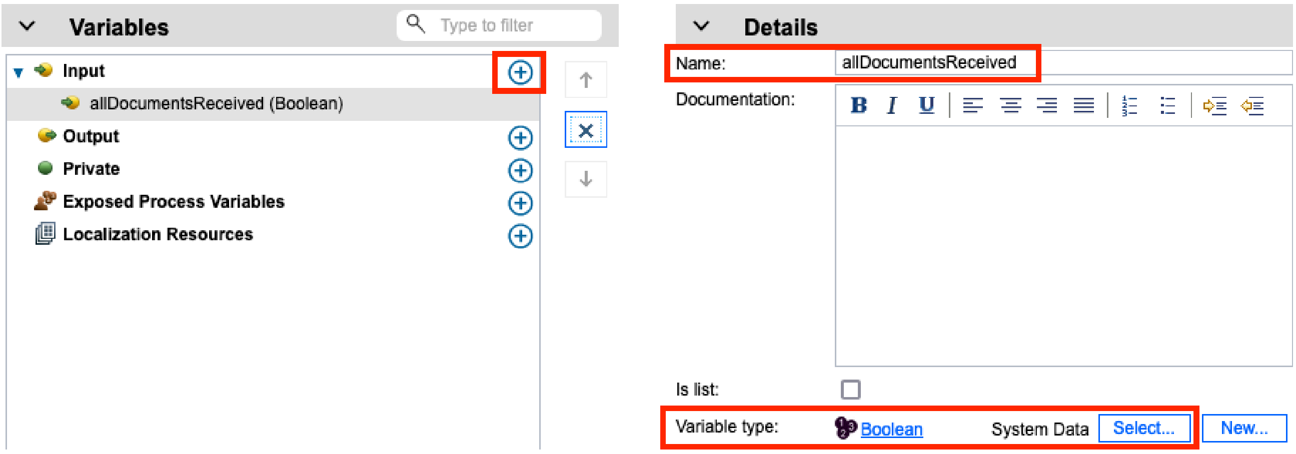
13. In the **Name** field, enter **Handle Document Review Stage**.
14. Click on **Finish**.



This opens the service flow editor with a default diagram:

15. Click on the **Variables** tab at the top.
16. Click on the **+** button next to **Input**.
17. In the **Name** field, enter **allDocumentsReceived**.

18. In the **Variable type** field, click on **Select** and select **Boolean**.



19. Switch back to the **Diagram** tab at the top.

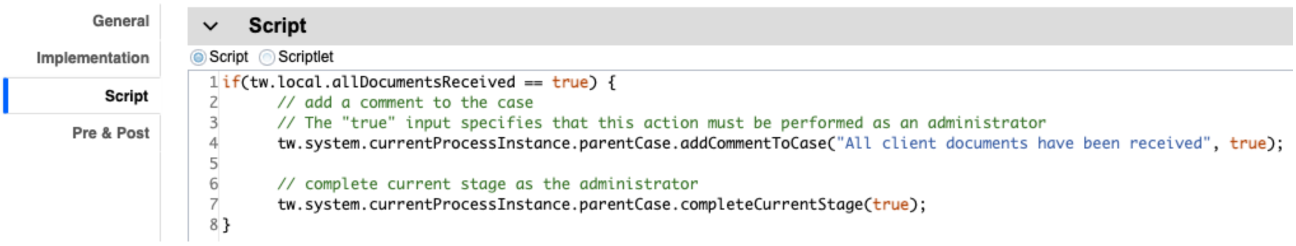
20. In the palette on the right-hand side, click on the **arrow** for **Activity**.

21. Drag and drop the **Script Task** onto the line connecting the **Start** and **End** nodes.

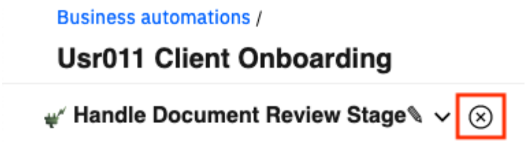
22. Enter the following script in the **Script** tab at the bottom:

```
if(tw.local.allDocumentsReceived == true) {
  // add a comment to the case
  // The "true" input specifies that this action must be performed as an administrator
  tw.system.currentProcessInstance.parentCase.addCommentToCase("All client documents
have been received", true);

  // complete current stage as the administrator
  tw.system.currentProcessInstance.parentCase.completeCurrentStage(true);
}
```

The comments in the code explain each line. Focus particularly on the 'tw.system.currentProcessInstance.parentCase' part as it provides a way to access Case functions from the Process Designer including actions like disabling a Case stage.



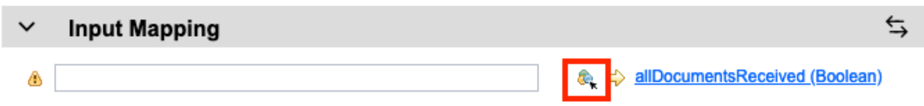
23. Switch to the **General** tab.
24. In the **Name** field, enter **Handle Doc Review Stage**.
25. In the top-left corner, close the **Handle Document Review Stage** service flow editor.



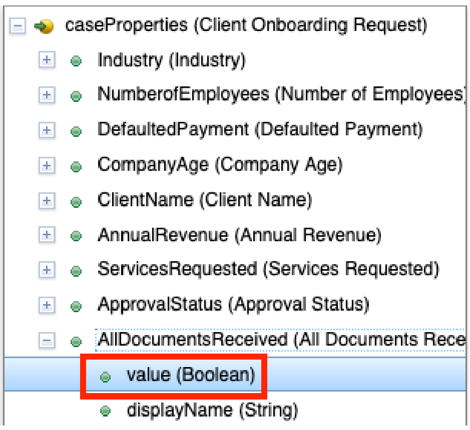
26. In the properties pane of the **Handle Doc Review Stage** system task, click on the **Data Mapping** tab.

    In this tab, we can see the input variable defined in the service flow implementation.

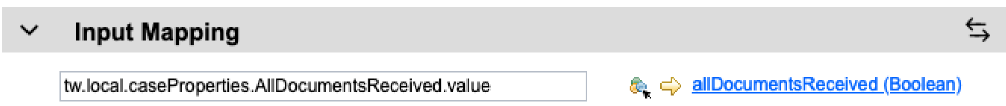
27. Click on the variable picker icon for the **allDocumentsReceived** variable.



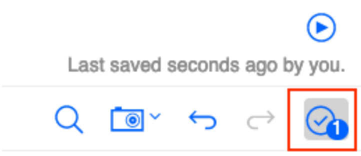
28. Expand **caseProperties → AllDcoumentsReceived** and select **value**.



    The **Input Mapping** section should now look as follows:



29. Click on **Finish editing** icon in the top-right corner.

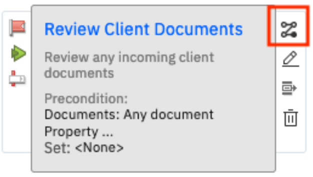


30. Close the Process Designer window.

4.2.3 Implement the Review Client Documents activity

As mentioned in the exercise introduction, the **Review Client Documents** activity will be triggered when a new client document is filed to the case. The **Client Rep** will then be able to review the document.

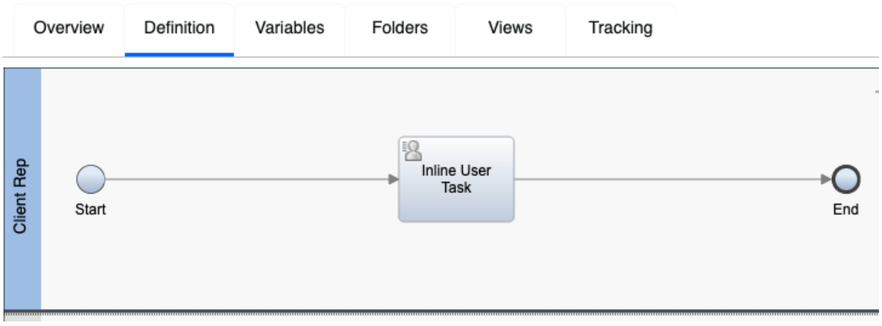
1. Go back to the list of activities in the Case Builder.
2. Hover over **Review Client Documents** and click on the Open Process Designer icon.



As mentioned in the exercise introduction, in this exercise we will add a human service to manually review the client document and this human service will be completed by the client rep.

3. Click on the empty space in the **Team** lane.
4. In the properties pane on the bottom, enter **Client Rep** as the name of the lane.
5. For the **Default lane team** field, click on **Select** and select the **Client Rep** team.

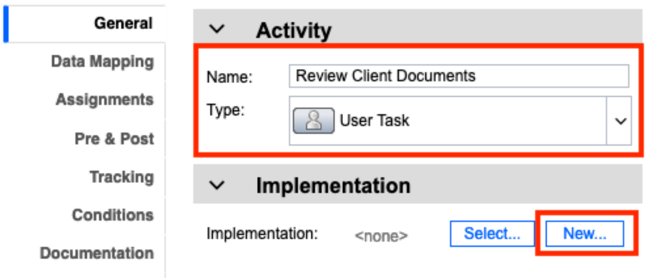
Your diagram should now look as follows:



6. Click on the **Inline User Task** node.

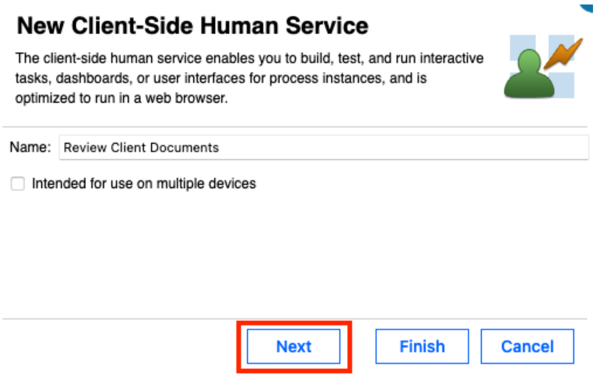
   Note: The inline user task node allows Process developers to quickly create prototype UIs. In our case, we will create a customized UI for the client rep to review the client documents.

7. In the properties pane on the bottom, in the **General** tab, select **User Task** as the activity type.
8. In the name field, enter **Review Client Documents**.
9. Click on **New** for the **Implementation** field.

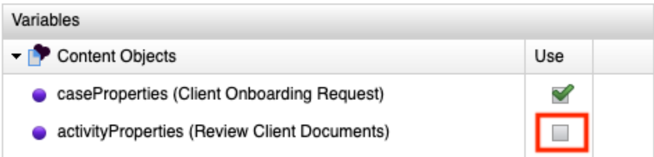


This brings up the wizard to create a new Client-side human service that we can customize the UI for.

10. Click on the **Next** button.



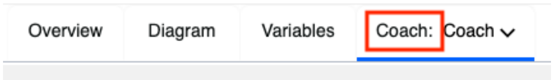
11. Uncheck the **activityProperties** checkbox as we have only defined case properties.



12. Click on **Finish**.

    This opens the Client-side human service editor.

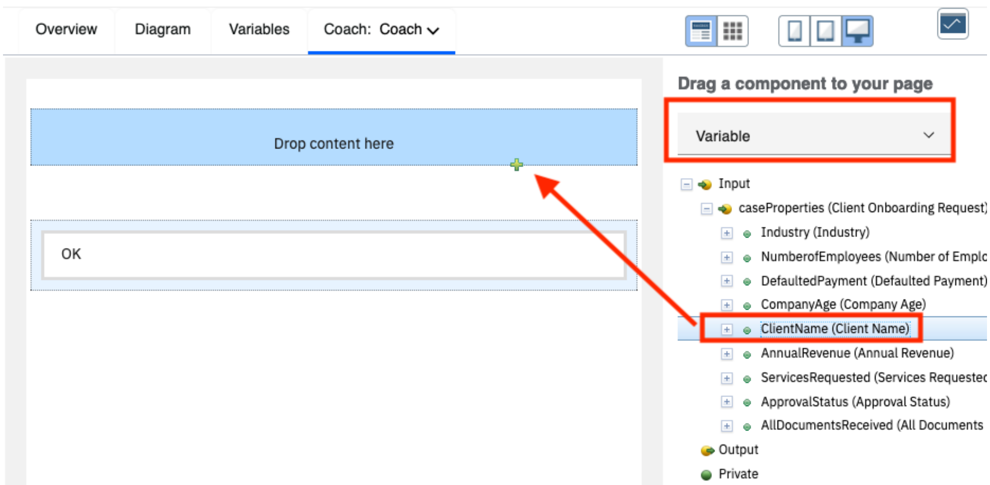
13. Click on the **Coach** tab at the top.



    In this UI, we want to add the client name, a view that shows the list of documents filed to the case and the checkbox that lets the user select if all client documents are received.

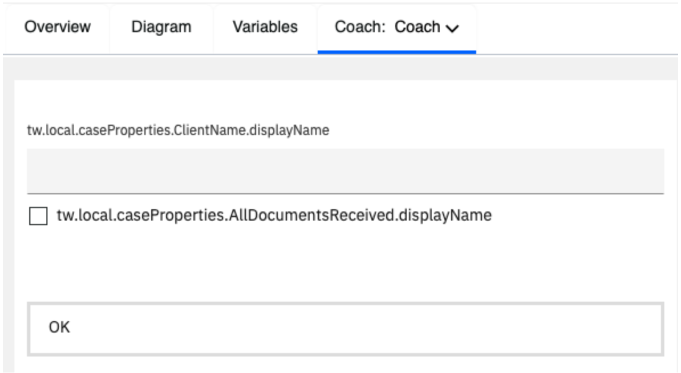
14. In the right-hand side palette, select **Variable** from the dropdown.

15. Drag and drop the **ClientName** variable onto the editor where it says **Drop content here**.

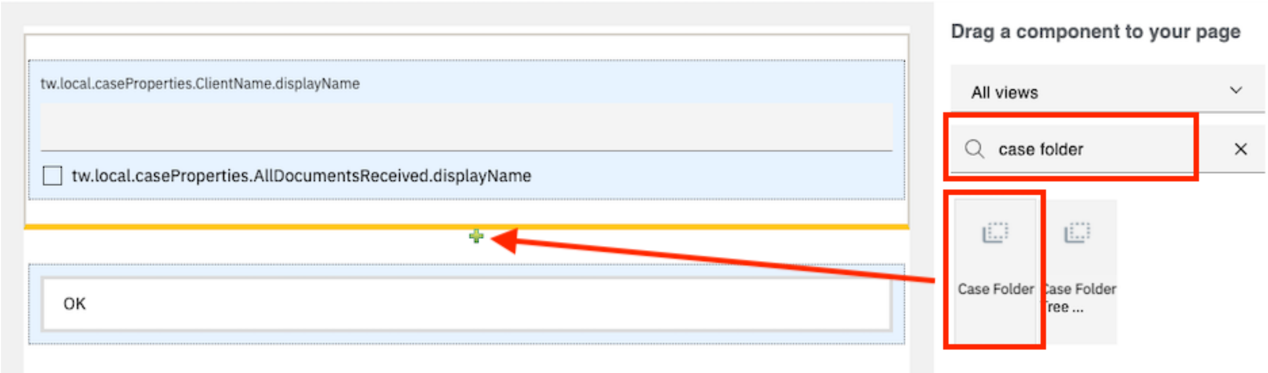


16. Similarly, drag and drop the **AllDocumentsReceived** variable below the client name field.

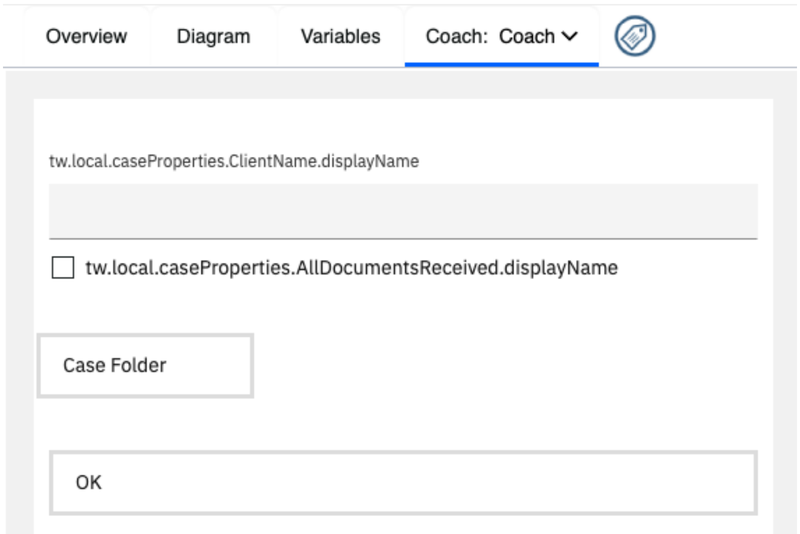
    Your editor should now look as follows:



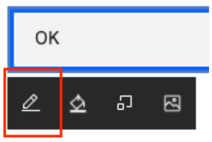
17. In the right-hand side palette, select **All views** and search for the **Case Folder** view.
18. Drag and drop the **Case Folder** view below the **All documents received** field in the editor.



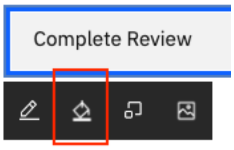
    Your editor should now look as follows:



19. Select on the **OK** button in the editor.
20. Click on the **Edit** icon.



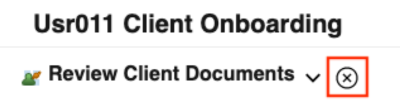
21. Change the name of the button to **Complete Review**.
22. Select the **Complete Review** button.
23. Click on the **Select color** icon.



24. Select the **dark blue** color.

    Your button should now look as follows:

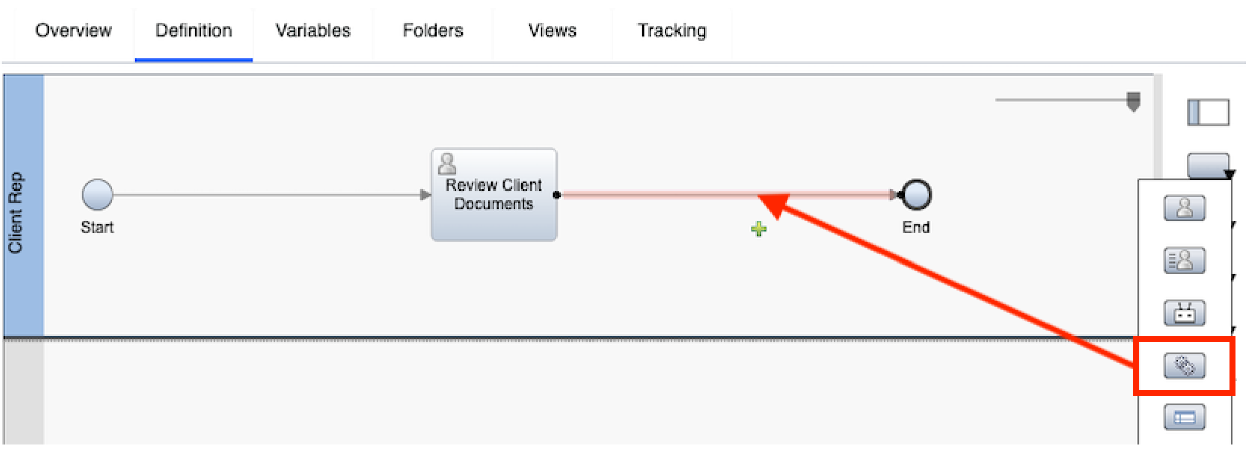
25. Optionally, add the **Header** view at the top of this UI like we did before for the Case Details page.
26. Close the **Review Client Documents** editor using the **x** button in the top-left corner.



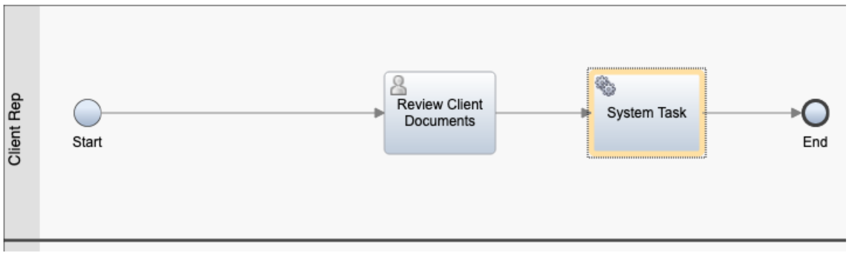
This should bring you back to the **Review Client Documents** Process. We now need to add a system task here to complete the current stage if all client documents are received. We can reuse the service flow created before to do that.

27. Click on the dropdown for the **Activity** node in the right-hand side palette.

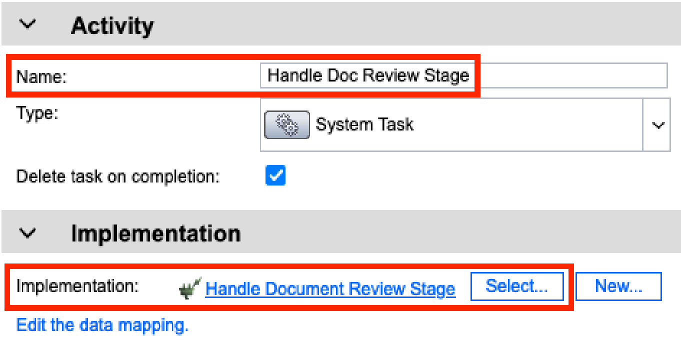
28. Drag and drop the **System Task** activity onto the line connecting **Review Client Documents** and the **End** node.



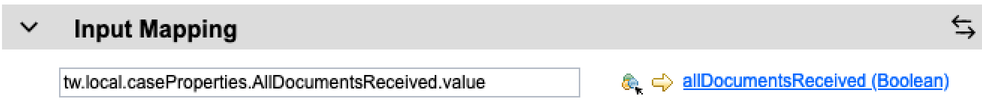
Your diagram should now look as follows:



29. In the **General** tab, enter the name **Handle Doc Review Stage**.
30. Under the **Implementation** section, click on **Select** and select **Handle Document Review Stage**.



31. Click on **Edit the data mapping**.
32. For the **allDocumentsReceived** variable select the **caseProperties → AllDocumentsReceived → value** variable.



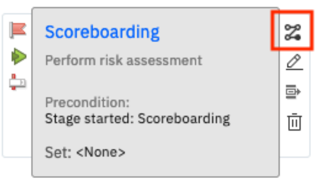
33. Click on the **Finish editing** button in the upper-right corner.

34. Close the Process Designer window.

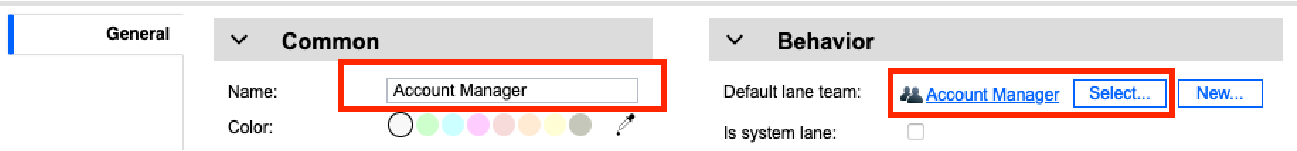
4.2.4 Implement the Scoreboarding activity

Next, we will implement the **Scoreboarding** activity. As described in the introduction of this exercise, the scoreboarding activity will call an intelligent decision service to perform risk assessment. If the confidence of the AI model behind the decision service is low, we will start a human service where the account manager can manually review the client onboarding request.

1. Back in the Case Builder, hover over the **Scoreboarding** activity and click on the **Open IBM Process Designer** icon.



2. Click on the empty space in the Team lane.
3. In the property pane at the bottom, update the Team lane name and default lane team to **Account Manager**.

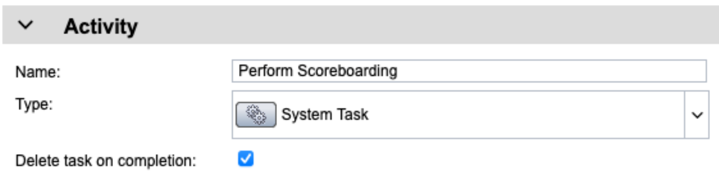


The case roles and process teams are automatically synchronized between the Case Builder and Process Designer which allows for easy integration between Case and Process within Workflow.

Note: If you want to assign a user task in a lane directly to a specific user, you can do that using the assignment configuration property of the activity. This is how the client onboarding end-to-end scenario assigns a task directly to the user performing the activities instead of assigning it to the whole team.

First, we will need to call the intelligent decision service that performs the scoreboarding.

4. Select the **Inline User Task** node.
5. In the properties pane, in the **General** tab, change the activity type to **System Task** and update its name to **Perform Scoreboarding**.



6. Under **Implementation**, click on the **Select** button and select the **Perform Scoreboarding** service flow.

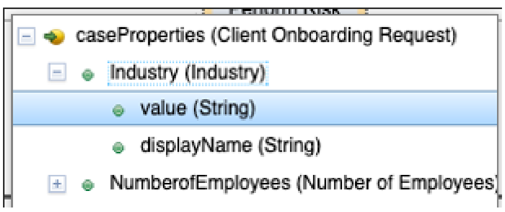
   If you want to learn how to consume a decision service in workflow, please look at the **Consume & Publish Automation Services in Workflow** lab.

7. Switch the **Data Mapping** tab.

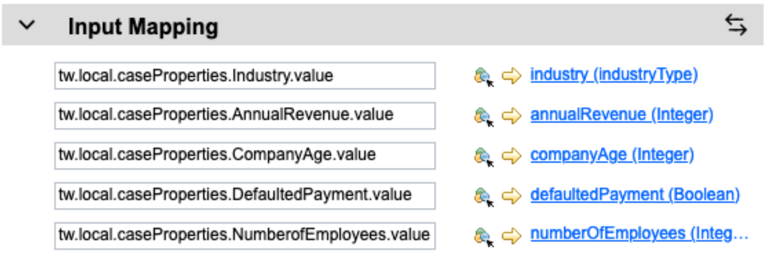
   The data mapping tab shows the inputs and outputs of the selected service implementation.

8. Click on the variable picker for the industry input variable.

9. Select the **caseProperties → Industry → value** variable.

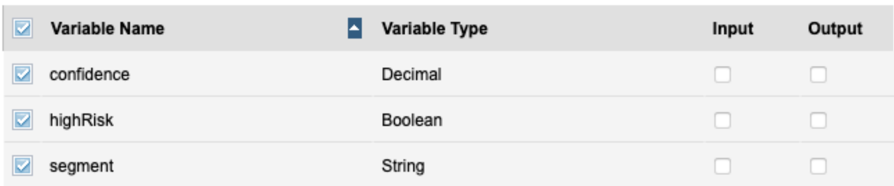


10. Similarly, map all input variables to their matching case properties.



11. For the Output Mapping section, click on the **Auto-map** icon.

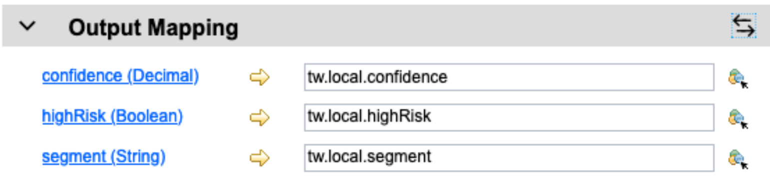
This brings up the variable creation wizard.



In this wizard you can select which of the auto-created variables will be an input and/or output for the **Scoreboarding** process. In our scenario, we only need to use these variables within the process, which is why we leave the input/output checkboxes unchecked.

12. Click on **Finish**.

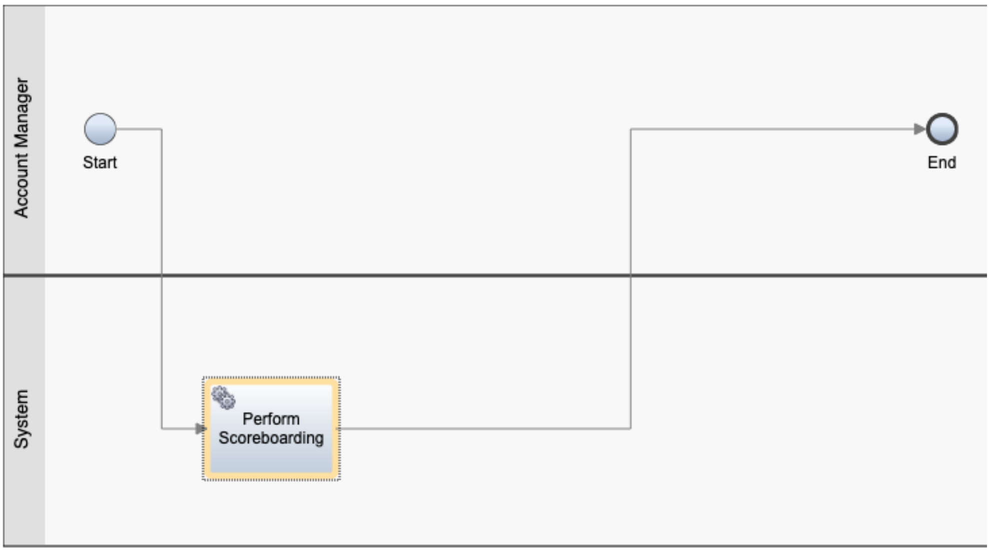
The output mapping section should now have variable values automatically filled in.



This completes the configuration for the Perform Scoreboarding activity. Next, we need to move it to the **System** lane as it is a system activity.

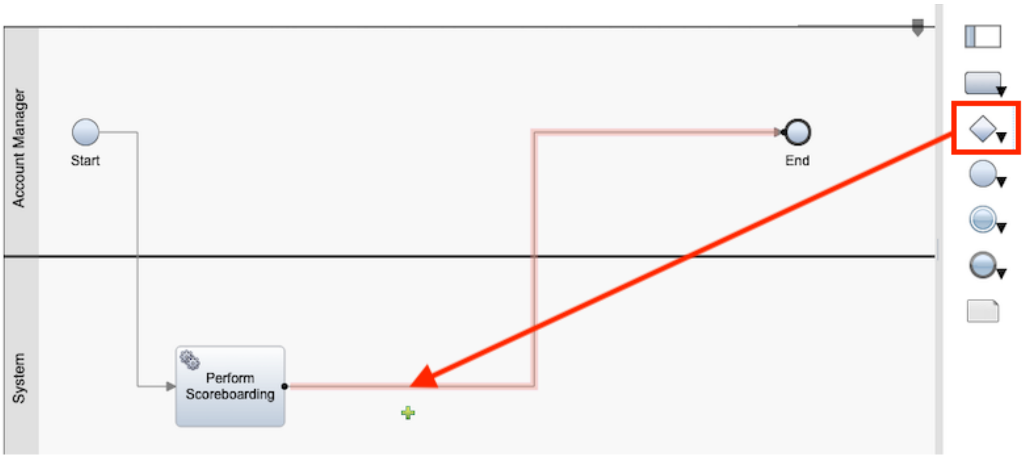
13. Drag and drop the **Perform Scoreboarding** activity from the **Account Manager** lane to the left side of the **System** lane.

    Your diagram should now look as follows:

    Next, we need to add a gateway to decide whether the next activity should be a human service or not.

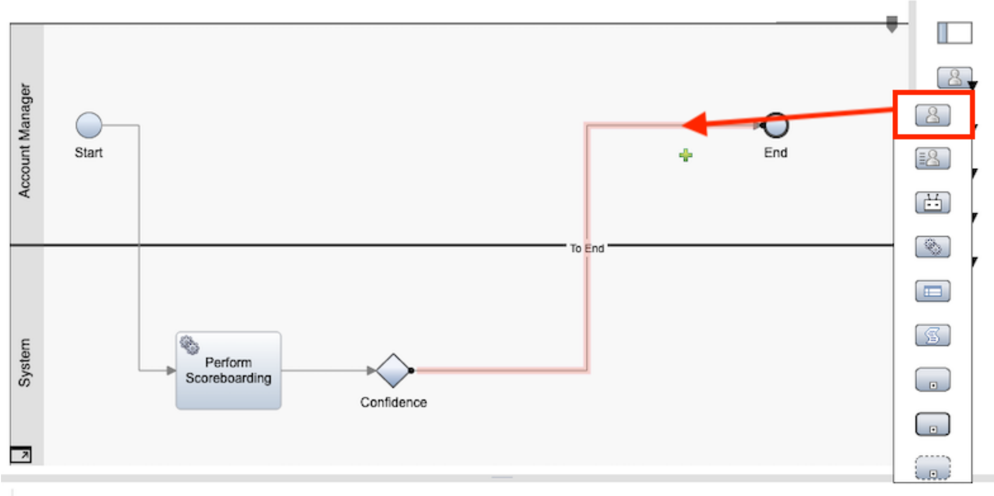
14. Drag and drop a gateway to the right of the Perform Scoreboarding system activity.

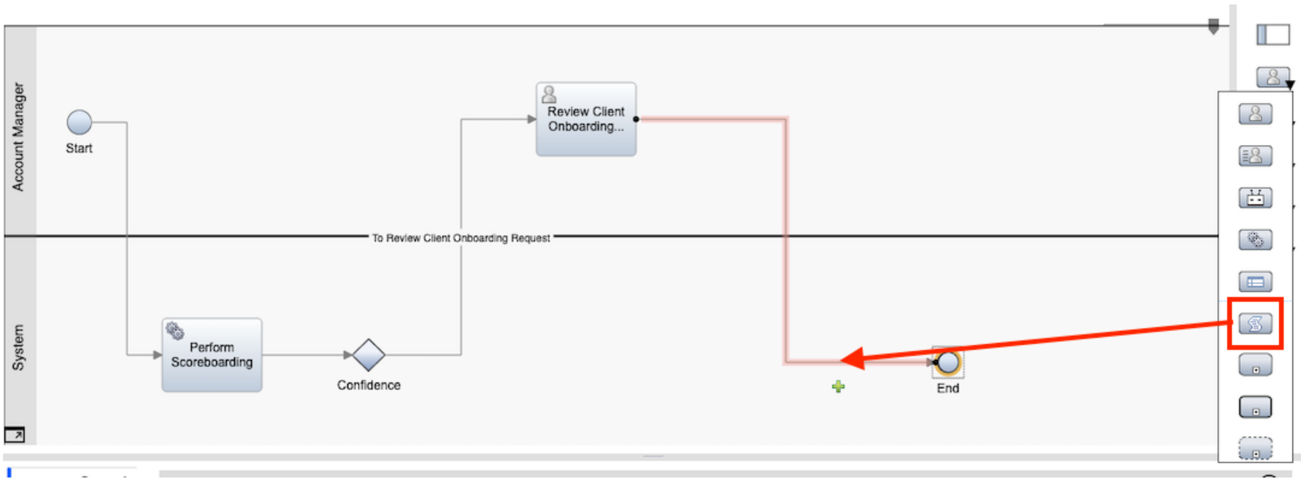
15. In the properties tab at the bottom, in the **General** tab, rename the gateway to **Confidence**.
16. Click on the dropdown for the **Activity** node in the right-hand side palette.

17. Drag and drop a **User Task** to the left of the **End** node in the **Account Manager** lane.



18. Rename the **User Task** to **Review Client Onboarding Request**.
19. Move the **End** node to the System lane by dragging it there.
20. Drag a **Server Script** activity to the left of the **End** node in the **System** lane.

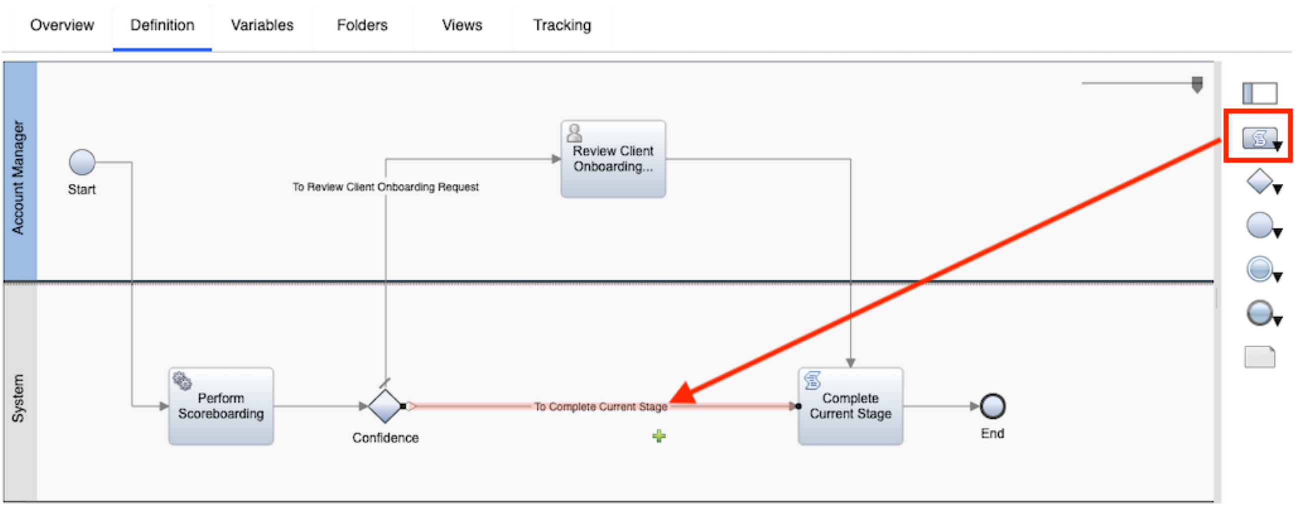


21. Rename the **Script Task** to **Complete Current Stage**.
22. In the **Script** tab, enter the following script:

```
// Complete the Scoreboarding stage
tw.system.currentProcessInstance.parentCase.completeCurrentStage(true);
```

23. Connect the **Confidence** gateway to the **Complete Current Stage** script task.

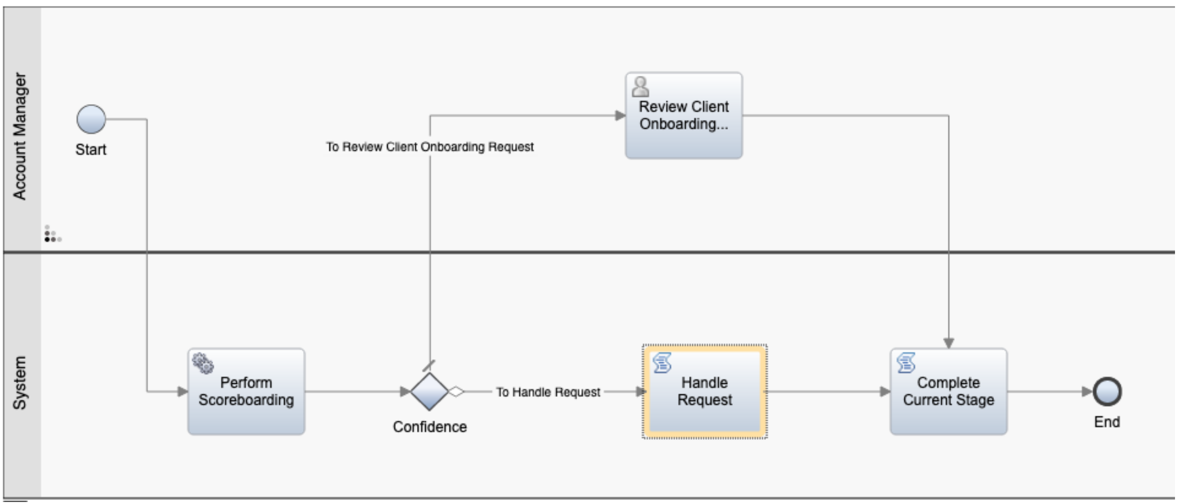
24. Drag and drop another Script task onto the line connecting the **Confidence** gateway and **Complete Current Stage** script task.



25. Rename the script task to **Handle Request** and enter the following script:

```
// For high-confidence decisions, automatically approve or reject
// the request based on the risk
if(tw.local.highRisk) {
  tw.local.caseProperties.ApprovalStatus.value = "Rejected";
} else {
  tw.local.caseProperties.ApprovalStatus.value = "Approved";
}
```

Your diagram should now look similar to the following:

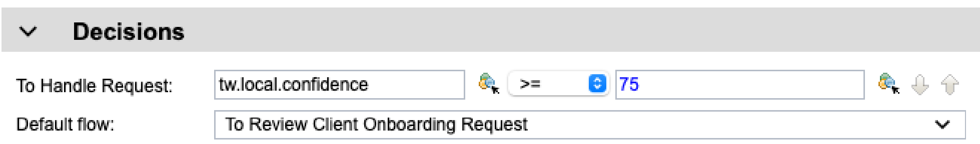


26. Click on the **Confidence** gateway.

27. In the properties pane on the bottom, in the **General** tab, under the **Decisions** section, select the **confidence** variable using the variable picker.

28. In the **operation** field, select the **>=** operator.

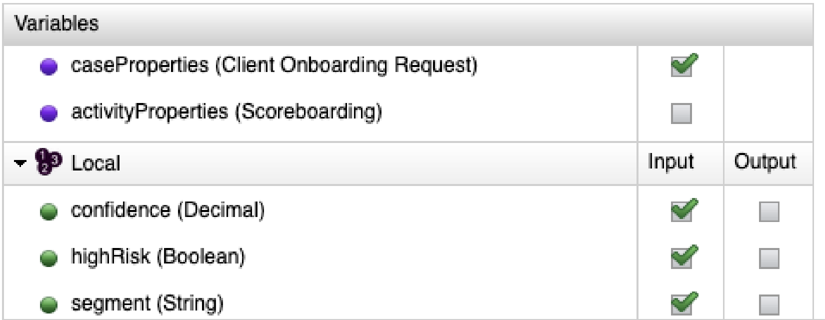
29. In the **value** field, enter **75**.



What this means is that after the decision service is invoked, if the confidence is greater than or equal to 75%, the scoreboarding stage will automatically complete without human intervention and the client onboarding request will be approved or denied based on the risk level.

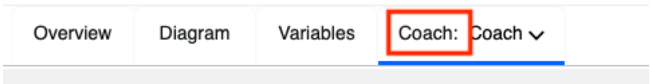
Next, we will add the UI for the **Review Client Onboarding Request** human service.

30. Click on the **Review Client Onboarding Request** user task.
31. In the properties pane, in the **General** tab, under the **Implementation** section, click on **New**.
32. In the new Client-side human service wizard, click on **Next**.
33. In the variable selector, **uncheck activityProperties**.
34. Also **uncheck** the **output** for **all local variables**.



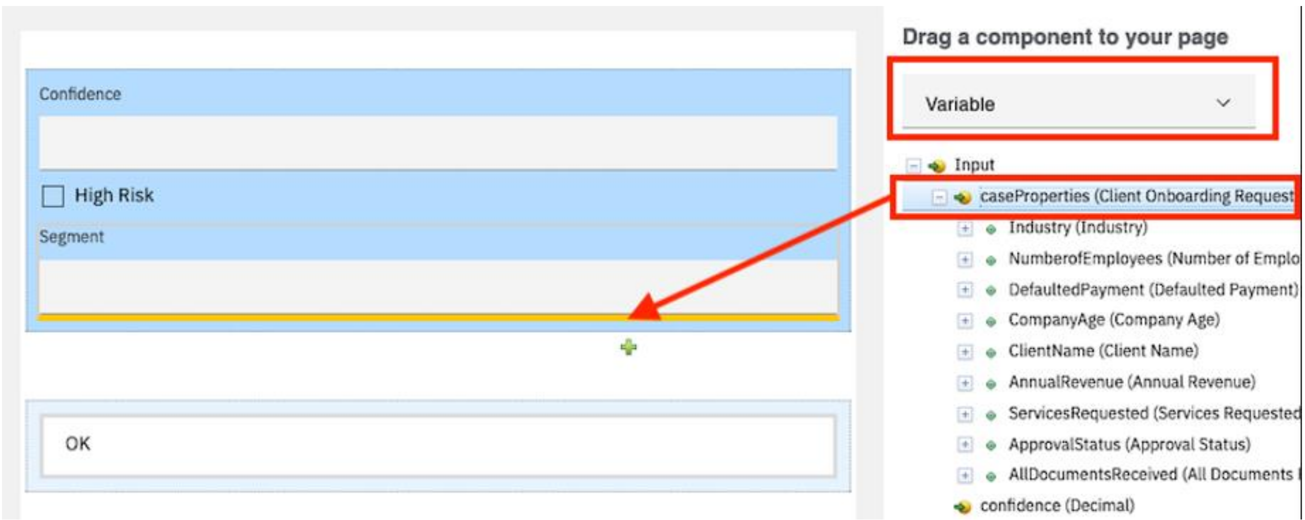
We require the local variables to be inputs to the human service as the UI will display their values. Output variables are only required if the values are updated and need to be fed back to the Process.

35. Click on **Finish**.
36. Click on **Coach**.



A default UI with the local variables is already created.

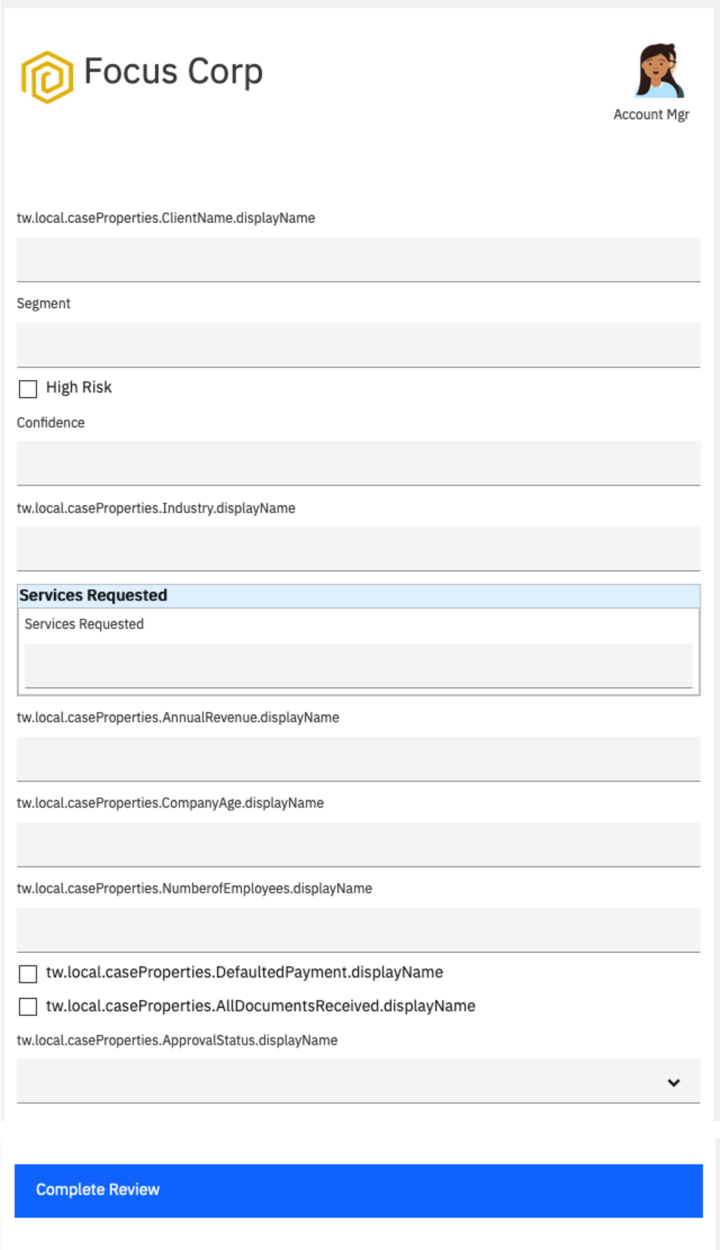
37. In the right-hand side palette, select the **Variable** option.
38. Drag and drop the **caseProperties** variable below the **segment** field in the editor.



39. Optionally, rearrange the views in the editor by dragging and dropping them in the order you want.
40. Optionally, add the **Header** view to the top of the editor.

41. Rename the **OK** button at the bottom to **Complete Review** and change its color to **dark blue**.

    Your UI should look like the screenshot below (it may vary slightly based on the optional steps you completed):

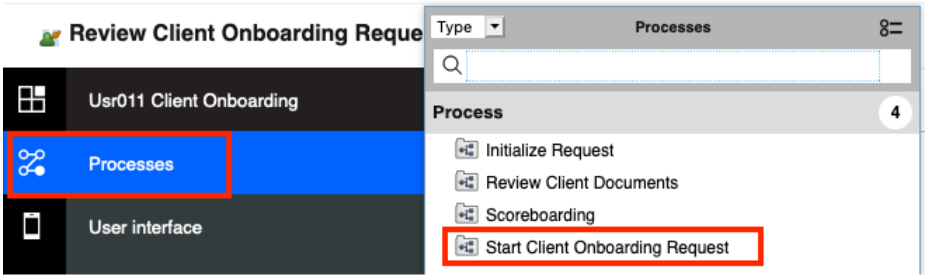


42. Click the **Finish editing** button.

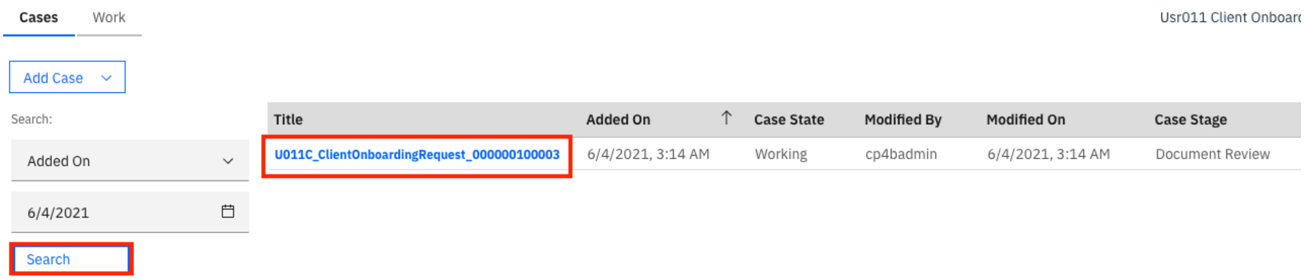
4.2.5 Test the final solution

We are now done with building the solution. Next, we will test the case and the activities created by starting the case using sample values.

1. In the library pane on the left, select **Processes → Start Client Onboarding Request**.

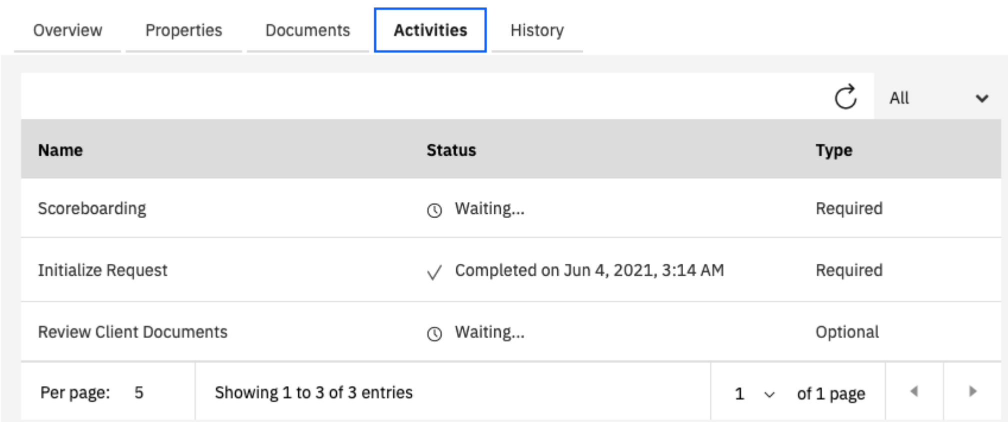


2. Click on the **Run** button in the upper-right corner to start a new case using the sample values we created previously.
3. Go back to the Case Client window that was open earlier. If you have closed it, you can access it again by clicking the **Test** button in the Case Builder for your project. Keep the Process Designer open for future test runs.
4. In the Case Client, click on the **Search** button to search for cases added.
5. Verify that the **Stage** (last column) in the search results is **Document Review**.
6. Click on the **Title** for the latest case to open the case details UI.



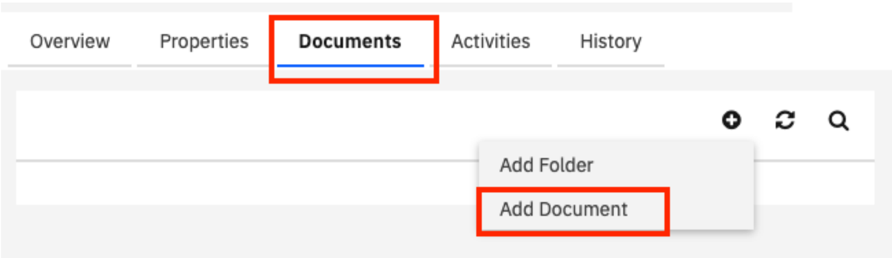
7. In the Case Details UI, click on the **Activities** tab.

   You will see the **Initialize Request** task was **Completed** and the other two tasks are Waiting.

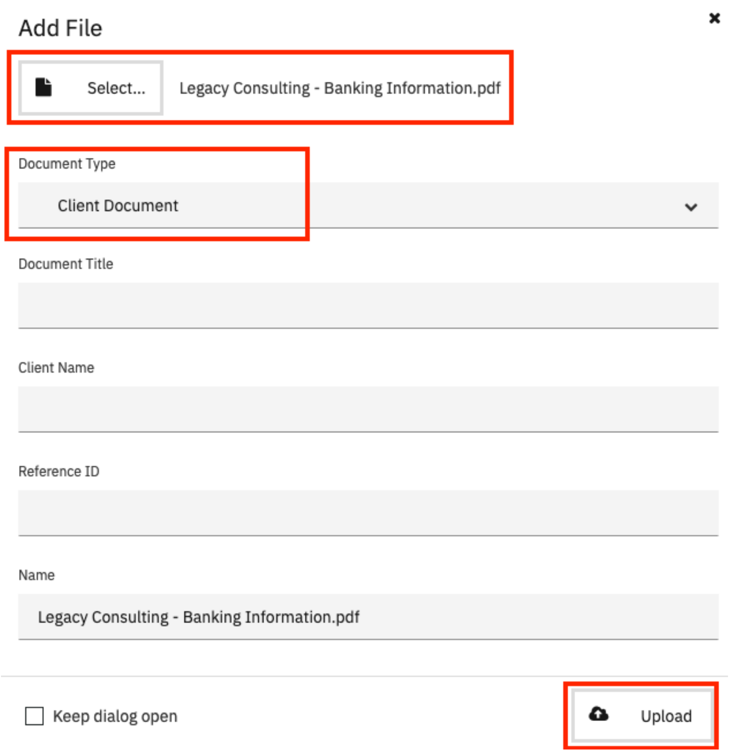


   This means that the case is waiting for client documents to be uploaded to the case folder. Typically, this can happen in several ways. In the Client Onboarding end-to-end scenario, we upload the document to the case folder after it has been captured by IBM Automation Document Processing (ADP). For this lab, we will add a document to the case folder manually.

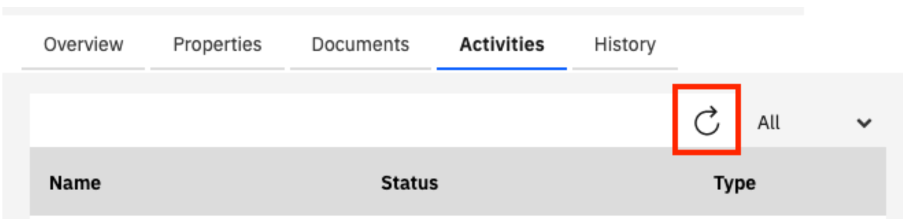
8. Click on the **Documents** tab.
9. Click on the **+** button to add a document and select **Add Document**.



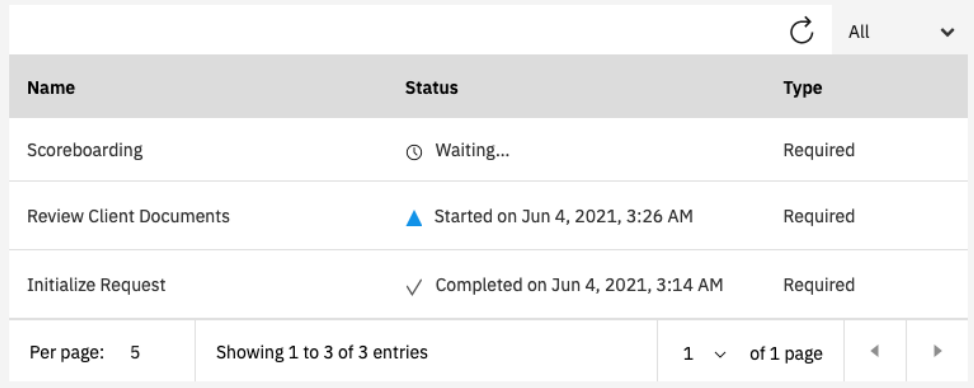
10. In the **Add File** dialog, select **Client Document** as the **Document Type**.
11. Click on **Select** and pick the **Legacy Consulting - Banking Information.pdf** file downloaded as a part of the lab setup instructions.
12. Click on **Upload**.



13. Click on the **Activities** tab.
14. Click on the **Refresh** icon.

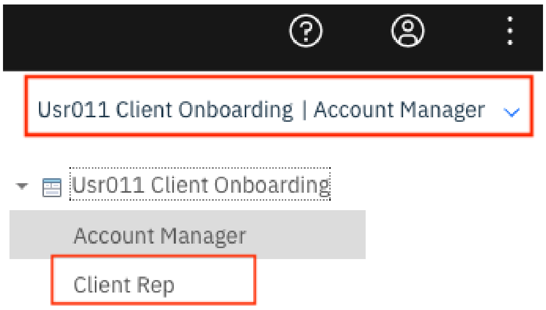


You will notice that the **Review Client Documents** activity has now started as its precondition was that a client document be filed to the case.

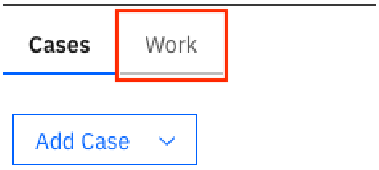


Next, we will assume the role of a Client Rep to review the document added.

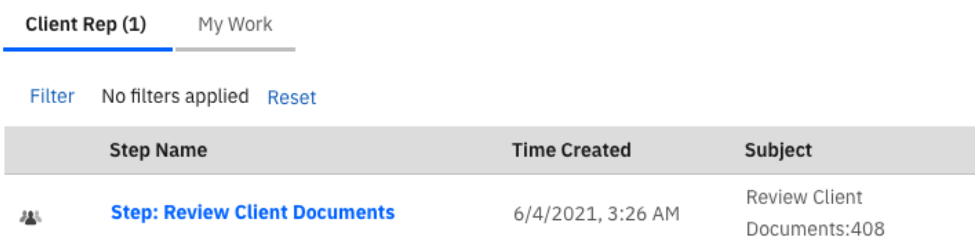
15. Click on the **UsrNNN Client Onboarding | Account Manager** dropdown in the upper-right corner and select the **Client Rep** role.



16. Once the role is switched, click on the **Work** tab.



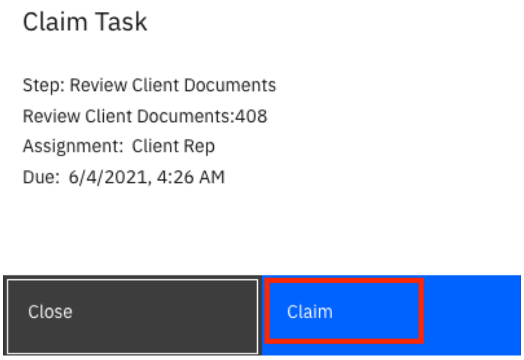
17. The **Client Rep** task list should now have a new task – **Step: Review Client Documents**.



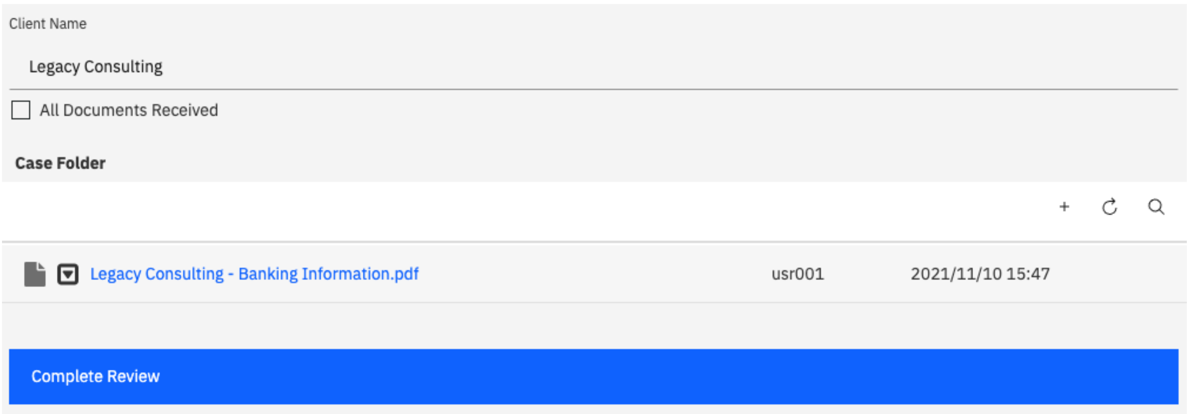
18. Click on the task name to open it.

    As the task is assigned to the **Client Rep** role, you will need to claim it as **usrNNN**.

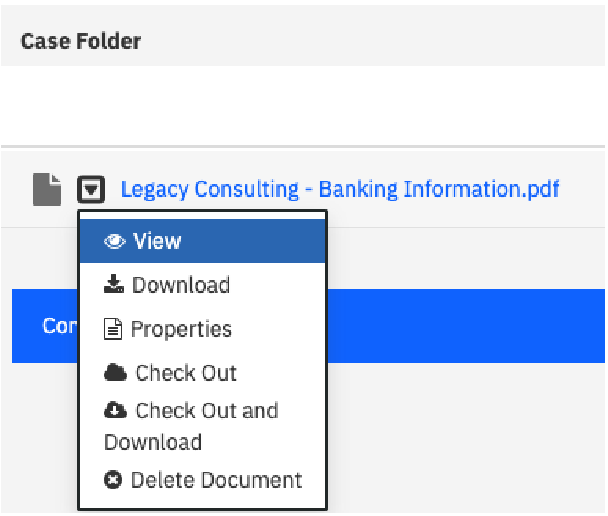
19. Click on the **Claim** button.



The UI for the task should now open as follows:



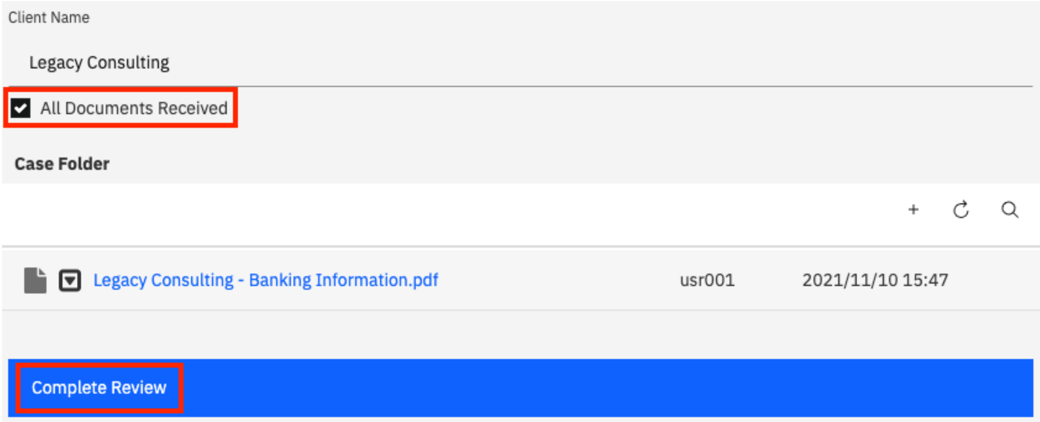
20. Click on the dropdown next to the document name and click on **View** to view the document.



This opens the document in a new tab.

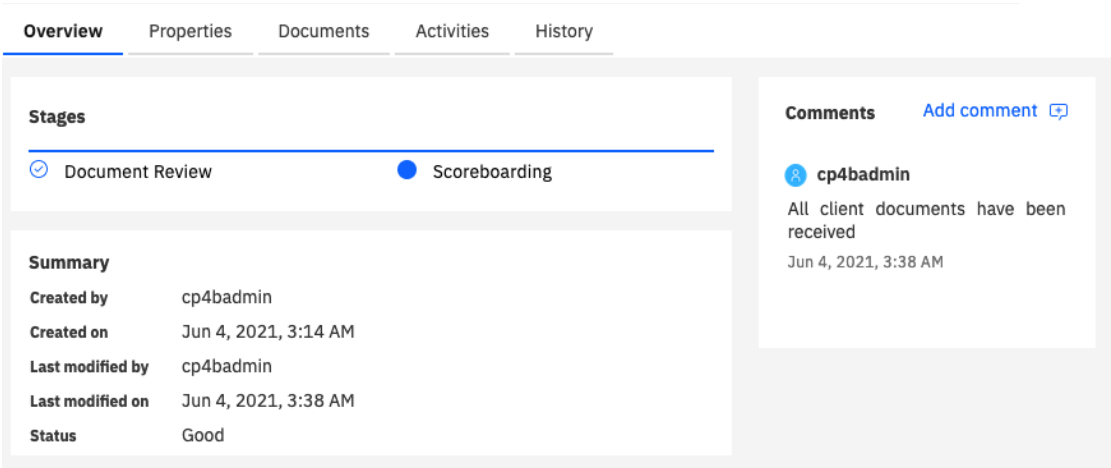
21. Close the tab that contains the document.
22. Check the **All Documents Received** checkbox.

23. Click on **Complete Review** to complete the task.



24. Switch back to the **Cases** tab on top.
25. Click on **Search** to search for cases.
26. Verify that the **Stage** for the latest case is now set to **Scoreboarding**.
27. Click on the title of the case to open the case details.

    The overview page should look as follows:

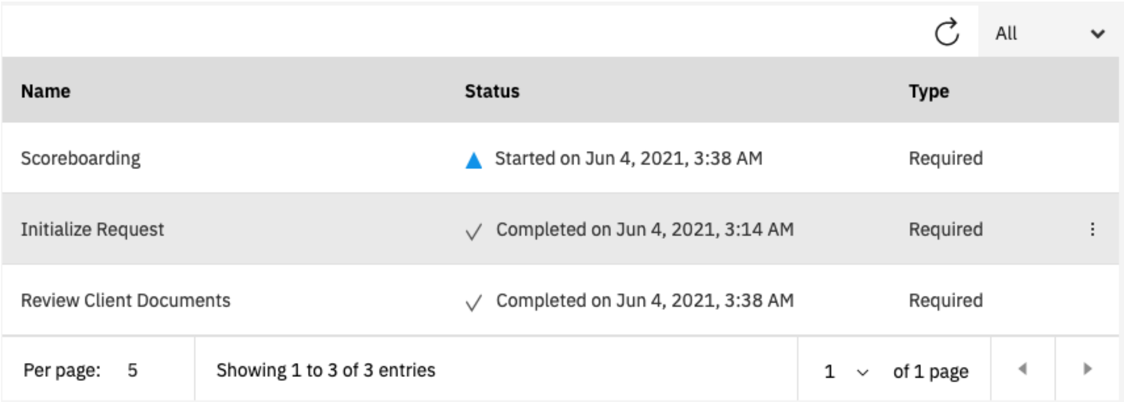


As you can see the comment that we added as a part of the JavaScript code has now been added to the case and the stage is set to **Scoreboarding**. The comment was made by the admin user as it's a part of the JavaScript API that uses an admin user.

Depending on the security configuration, anyone with access to a case can add comments to the Case using the out-of-the-box Case comments view included as a part of the default case details UI.

28. Click on the **Activities** tab.

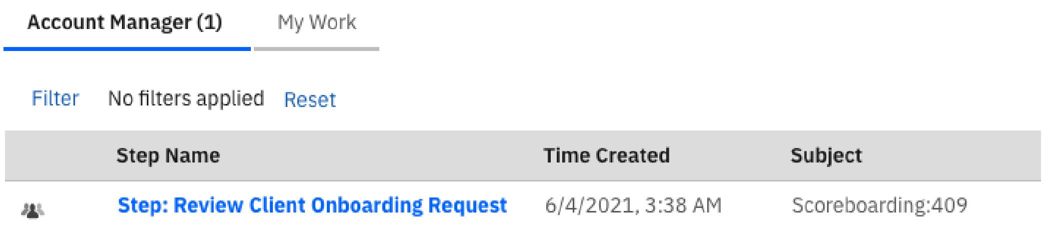
    The **Review Client Documents** activity should now be marked **Completed** and the **Scoreboarding** activity should be **Started**.



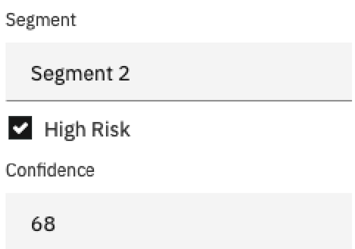
    The Scoreboarding activity would have completed automatically if the confidence of the decision service was high. We will switch back to the **Account Manager** role next to review the client onboarding request manually.

29. Switch the role in the upper-left corner to **Account Manager**.
30. Click on the **Work** tab at the top.

    There should be a new activity **Step: Review Client Onboarding Request** for the **Account Manager**.



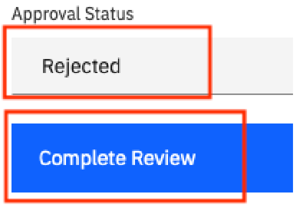
31. Click on the title of the task, then claim it to open it.
32. The UI should show the risk assessment values:



    The **confidence** here is **68** which is lower than our threshold of **75** which is why a manual review as required. The decision service also marked this request as high risk and classified the client as **Segment 2**.

33. For the **Approval Status** field, select **Rejected**.

34. Click on **Complete Review**.



35. Click on the **Cases** tab at the top.
36. Click on **Search** to search for cases.
37. The latest case should now have a **Case State** and **Case Stage** of **Complete**.

Title	Added On ↑	Case State	Modified By	Modified On	Case Stage
U011C_ClientOnboardingRequest_000000100003	6/4/2021, 3:14 AM	Complete	cp4badmin	6/4/2021, 3:46 AM	Completed

38. Optionally, click on the title of the case to see the details of the completed case.

We have now tested the path of the client onboarding request where human intervention was required. We now need to test the path where the request is processed automatically i.e., all client documents have been received and the decision service returns a high confidence.

39. Go back to the Process Designer. If you have closed it, you can re-open it by selecting the Workflow project in IBM Business Automation Studio and using the 3-dot menu to open it again.
40. Click on the **Start Case** script task in the **Start Client Onboarding Request** Process.
41. Modify the **annual revenue** in line 14 to **50000000**.
42. Modify the **company age** in line 15 to **8**.
43. Modify the **defaulted payment** in line 16 to **false**.
44. Modify the **number of employees** in line 17 to **1200**.
45. Modify the **industry** in line 20 to **Finance**.
46. Modify the **services requested** in line 22 to **Corporate Credit Card**.
47. Modify the **all documents received** in line 26 to **true**.

    Note: The line numbers may be slightly different for you if the copy/paste of the script changed the formatting of the code.

Your script should look as follows:

Script

This editor uses **standard JavaScript syntax**. Press **Ctrl-space** while typing to receive assistance with the script syntax and contents.

```
// Create a new Client Onboarding Request case
// The record object holds the properties of the case
var newCaseProperties = new tw.object.Record();

// Fetch the arocnym of the Workflow project
// This can be used to generate the prefix of the Case properties
var prefix = tw.system.model.processApp.acronym + "_";

// Set property values for the properties defined in the case
// Client
newCaseProperties.setPropertyValue(prefix + "ClientName", "Legacy Consulting");

// Client Additional Info
newCaseProperties.setPropertyValue(prefix + "AnnualRevenue", 50000000);
newCaseProperties.setPropertyValue(prefix + "CompanyAge", 8);
newCaseProperties.setPropertyValue(prefix + "DefaultedPayment", false);
newCaseProperties.setPropertyValue(prefix + "NumberofEmployees", 1200);

// Client Services
newCaseProperties.setPropertyValue(prefix + "Industry", "Finance");
var servicesRequested = new tw.object.listOf.String();
servicesRequested[0] = "Corporate Credit Card";
newCaseProperties.setPropertyValue(prefix + "ServicesRequested", servicesRequested);

// Reviewed Documents
newCaseProperties.setPropertyValue(prefix + "AllDocumentsReceived", true);

// Create Case using the JavaScript API
tw.system.currentProcessInstance.createCase(prefix + "ClientOnboardingRequest", newCaseProperties, null, true);
```

48. Click on the **Run** button to start a case with the updated sample values.

    As before, the changes will automatically be saved on clicking **Run**.

49. Go back to the Case Client.

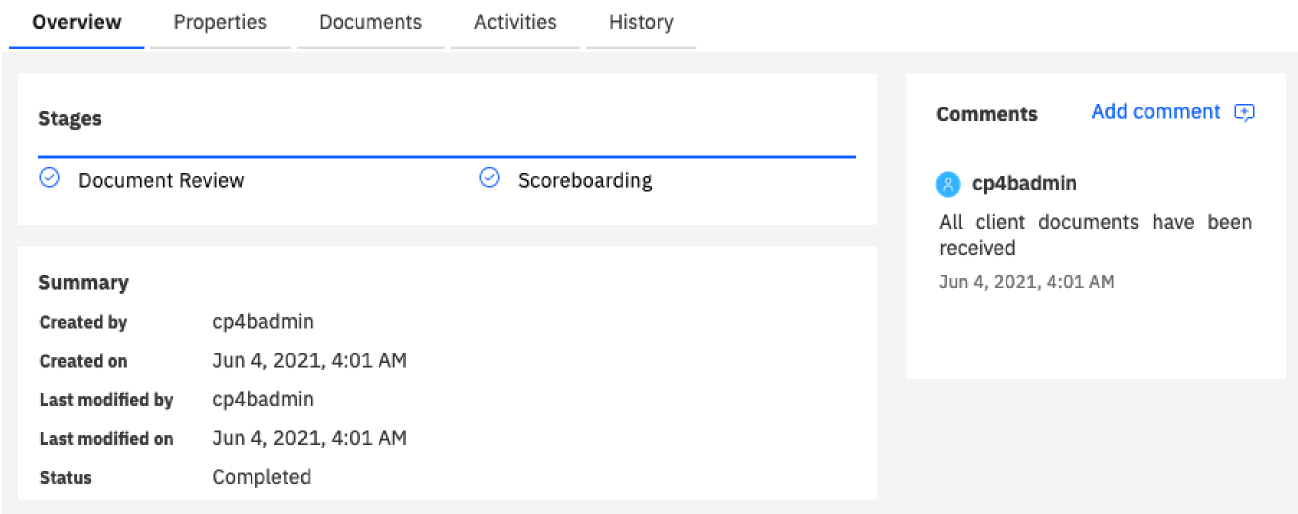
50. In the **Cases** tab, click on **Search** to search for cases.

    The latest case should be marked completed as no human intervention was required.

Title	Added On ↑	Case State	Modified By	Modified On	Case Stage
U011C_ClientOnboardingRequest_000000100003	6/4/2021, 3:14 AM	Complete	cp4badmin	6/4/2021, 3:46 AM	Completed
U011C_ClientOnboardingRequest_000000100004	6/4/2021, 4:01 AM	Complete	cp4badmin	6/4/2021, 4:01 AM	Completed

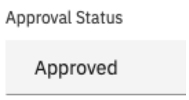
51. Click on the **title** of the latest case to open it.

The overview page should show the completed stages and the comments added automatically.



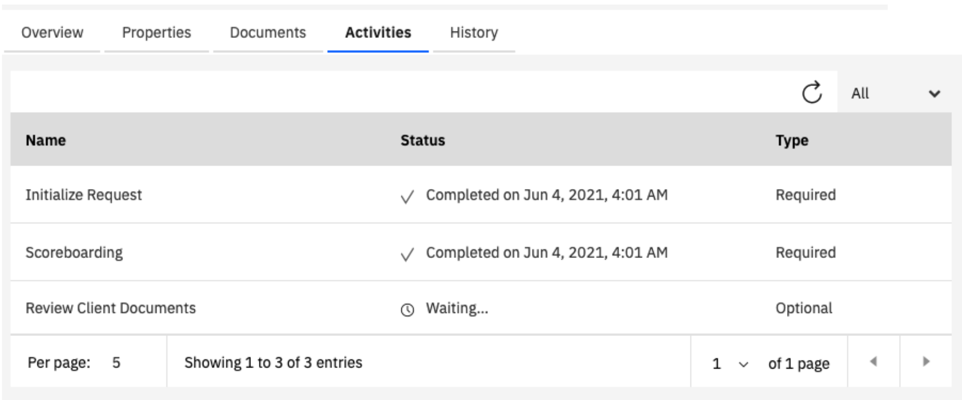
52. Click on the **Properties** tab.

The **Approval Status** should have **Approved** selected.



53. Click on the **Activities** tab.

The **Initialize Request** & **Scoreboarding** activities should be marked **Completed** and the optional **Review Client Documents** activity is in **Waiting** state as a manual review was not required.



That concludes the testing of the solution built. In the client onboarding end-to-end scenario, a bot is called after a client is approved/rejected to update legacy systems. If you are interested to learn more about IBM Robotic Process Automation and how Workflow can call a bot, please look at the **IBM Robotic Process Automation** lab.

Congratulations on completing the Introduction to Business Automation Workflow lab!