Oracle® Financial Services Data Foundation Cloud Service for Banking

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1

Process Modeller

The Process Modeller page displays existing pipelines along with their details such as: process ID, process name, process description, version, instance, application, and last modified date, and last modified by. For example, Type: Run.

To execute the process run, perform the following steps:

1. On the Oracle Financial Services Data Foundation Cloud for Banking home page, click the **Process Orchestration** from the LHS menu.
2. Click + to create a new pipeline.
3. Click the process name link to launch and edit the pipeline.
4. Launch the process in a new window.
5. Delete a pipeline.
6. Click the **Menu** button and do the following for each pipeline:
7. View a process flow.
8. Copy a process flow.
9. Monitor the pipeline in the **Process Flow Monitor** window.
10. Execute a pipeline.
11. Apply a filter condition to a Run pipeline.
12. Use the **Search** grid to search for a pipeline by providing a keyword containing the process ID, process name, or description.
13. Click the **Reset** icon to reset the search fields.
14. You can narrow down your search results by additionally selecting the **Pipeline Filter** options to filter pipelines based on pipeline type. **Example**: To view only **Run Pipelines**, click inside the **Pipeline Filter** list, and select **Run Pipeline**. Remove the other pipeline types if already selected and click **Search**.
15. You can also sort the pipelines on this page based on the **Process ID**, **Process Name**, or **Application**.
16. Click the **Sort By** drop-down and select the sort criterion.
17. Click to go to the **Process Monitor** window.

2

Canvas and Components

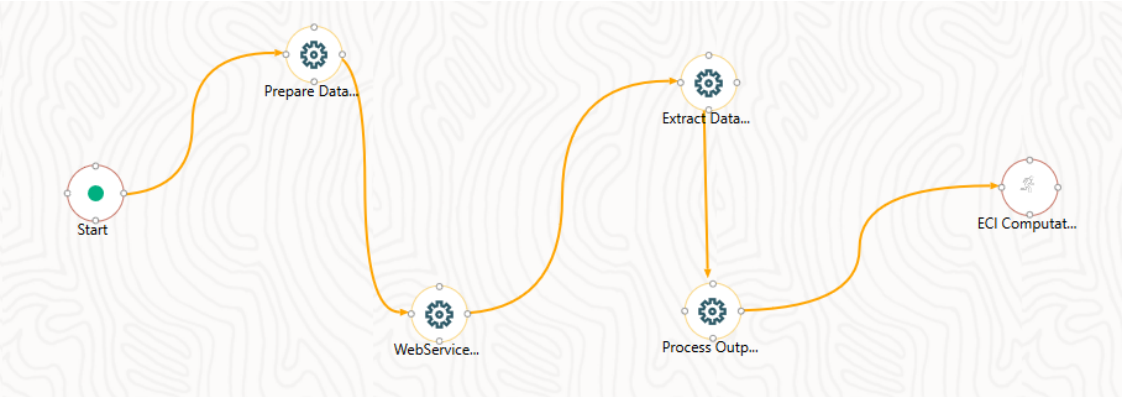
The Process Flow tab has a toolbar and canvas. The canvas is used to design the process flow with the LHS toolbar consisting of Tools, Activities, and Widgets. Drag these components and drop them into the canvas, connect them, and configure each component to design your process flow.

3
Service Task

A Service Task invokes an application component (for example, activity to invoke a business rule to calculate a certain threshold). It is an automatic task that gets triggered in the process flow and is typically used to execute the business logic that is defined through an **Execution Rule** type application rule.

Service Tasks are used to invoke an External Model Service through stored procedures and functions.

Figure 3-1 An Example: Service Tasks Flow



3.1 How to Use a Service Task

1. On the **Process Flow** page, expand the toolbar on the left, click and drag the **Service Task** icon under **Activity** on to the canvas.
2. Double-click the **Service Task** component on the canvas to display the configuration window with the **Activity** tab selected.

3.2 Activity Tab

1. **Activity ID** is auto-populated and you can mouse-over the **i** icon to view it.
2. By default, the activity ID is populated in the name field. You can enter your own **Activity Name** and **Activity Description**.
3. Select **Status** and **Outcomes** options as required.
4. Click the tick mark icon to save.
5. Click anywhere outside the configuration window to close it.

3.3 Implementation Tab

1. Click the **Implementation** tab on the left in the configuration window.
2. Click the search icon to select the **Execution Rule** that has to be executed for this activity. The **Participant Details** window is displayed with all **Application Rules** of type **Execution Rule** available in your process.

   For more information on how to define an Application Rule, see the Application Rules section.

   - Click the name link of the Application Rule to view its details.
   - Select the required rule and click **Ok**.
   - Click outside the window to return to the configuration window.
3. Add **Parameters** you want to pass to the Execution Rule.
   - Click **+** next to **Parameters**. The **Participant Details** window is displayed.
   - Select the **Data Fields** to which you want to pass the value. This list displays all data fields for the current process or package.
   - Select the **Parameter Type**. Choose **Static** if you want to pass a static value to the selected data field. Enter the **Value**. Choose **Dynamic** to pass the value during the execution of the workflow.
   - The parameters you added are displayed under the **Parameters** in the **Implementation** tab.
4. Select the **Pre Rule**, which is the Application Rule you want to execute before executing the Execution Rule. Click the corresponding search icon to select the Application Rule that you want to set as the pre rule.
5. Select the **Post Rule**, which is the Application Rule you want to execute after executing the Execution Rule. Click the corresponding search icon to select the Application Rule that you want to set as the post rule.
6. Click **Save**.
7. Click anywhere outside the configuration window to close it.

3.4 Transition

The Transition component is used to control the flow between various components in the Process Flow. Transition connects two activities and the flow is configured based on a Conditional Expression or Decision Rule.

3.5 Gateways

A split refers to a condition where an incoming transition is split into multiple transitions. In merge, multiple incoming transitions are merged into a single transition. Splitting and merging of activities are modeled through gateways. A gateway can be Sequential, Parallel, or Multi Choice.

- **Parallel Gateway**: A Parallel Gateway is used when you have multiple transitions or flows that should be executed in parallel.
- **Sequential Gateway**: A Sequential Gateway is used when you have multiple transitions or flows that should run in sequence.

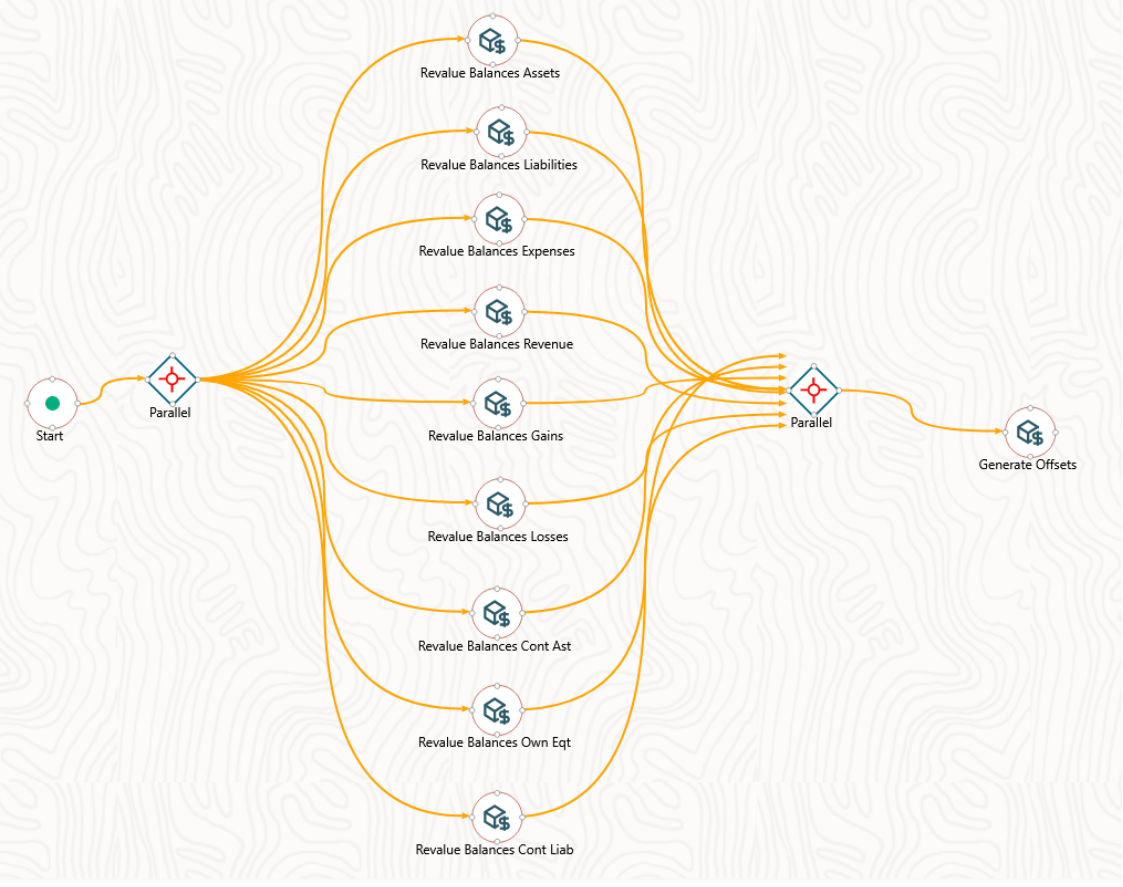
- **Multi Choice Gateway**: A Multi Choice Gateway is used when you must execute multiple transitions or flows based on the Decision Rule.

> **Note:**
>
> If you use a Parallel or Multi Choice Gateway in your pipeline, ensure that after all the activities are added to these gateways, they are merged or closed again with a Parallel or Multi Choice Gateway, respectively. If there is no more activity to be performed after the Parallel or Multi Choice Gateway, it is mandatory to add an empty service task activity. Otherwise, the status is not updated correctly and the next activity execution does not happen.

3.5.1 Executing Parallel Tasks

A Parallel Gateway is used to execute multiple tasks in parallel. In the usual flow, tasks are executed sequentially.

Figure 3-2 Executing Parallel Tasks flow



In the example shown, when the Parallel Gateway is invoked, all the OFSAA components that are placed between Parallel Gateways, are executed simultaneously. After all components are executed, the execution moves to the next activity in the Process Flow.

> **Note:**
>
> In case if any one of the task fails as part of parallel gateway, the other ongoing parallel tasks executions are completed. The status of the activities get updated appropriately even though one or more activities fail.

Table 3-1 PMF Run Pipeline Design

Do's for a Gateway (Parallel and Multichoice)	Dont's for a Gateway (Parallel and Multichoice)
Ensure to begin and end with the same gateway during run pipeline design.	A parallel gateway cannot exist within another parallel gateway.
Ensure to add a service task if a parallel gateway is the last executing activity.	Multiple transitions are not supported for any activity in a run pipeline. Therefore, you must only use a parallel gateway.
Tasks which start from a parallel gateway must end in the successive closing parallel gateway.	
Execution of a pipeline will begin from the **Start** activity. Therefore, the transition cannot be stopped for this activity.	

3.5.2 How to Use Parallel Gateways

This section explains how to design parallel tasks using Parallel Gateways. For example, executing the Reconciliation widget in parallel for different rules.

1. Create a process in the Process Modeller canvas.
2. On the **Process Flow** page, you will see a **START** activity is already present on the canvas. This activity indicates the beginning of the process.
3. From the LHS menu, under **Transition**, click and drag a **Parallel Gateway** widget on to the canvas.
4. Connect the **START** activity with this **Parallel Gateway** widget.
5. Drag and drop the widgets representing the tasks that run in parallel on to the canvas. Example: add multiple Reconciliation widgets on to the canvas.
6. Connect the Parallel Gateway widget with each of these widgets representing tasks that must run in parallel. This represents the beginning of the transition.
7. Drag and drop another Parallel Gateway widget on to the canvas.
8. Connect each of the Reconciliation widgets to this newly added Parallel Gateway widget. This represents the end of the transition.
9. Configure the Reconciliation widgets based on your requirement.
10. Proceed in this manner to create your pipeline with one or multiple parallel tasks.
11. Click **Save**.

3.6 Connector

A Connector helps connect two activities with a different path (other than the default), in case the default path is overlapping an existing flow.

3.7 Widgets

Widgets are used to execute Connectors, Data Service, and Event Posting.

3.7.1 How to Use a Widget

1. On the **Process Flow** page, expand the toolbar on the left, click and drag the required widget icon under **Widget** on to the canvas.
2. Double-click the widget to open the configuration window for the widget. The **Activity** tab is selected.
3. Enter the **Activity Name** and **Activity Description**.
4. Specify the **Dynamic Parameters** for the widget.

3.7.2 Dynamic Parameters for Widgets

- RUN DQ RULE
- SCD
- HIERARCHYRESAVE
- Connectors
- DataService
- EventPosting
- BICCRetrieval
- Adjustment
- ExchangeRates
- DQReportingEngine
- Reconciliation
- BalanceComputation
- AmountTranslation
- Analytics Parent Child Relation

3.7.3 SCD (Slowly Changing Dimensions)

> **Note:**
>
> If you have entered the **Full Load** parameter as **YES**, you can load snapshot data for master tables and execute SCD process with additional parameters.
> In case, when you have entered the **Full Load** parameter as **YES** and if the load is incremental and does not contain all the nodes, those nodes are retired by default.
>
> When entered as **NO**, you can load incremental data for master tables and execute SCD process with additional parameters. The incremental data load for master tables is supported.
> The retired dimensions can be brought back as part of subsequent SCD load by updating the Closed Flag column to null or 'N'.

Current behavior of Disabled Nodes:

- The Closed Flag attribute is not supported for the Product Processor (PP) accounts.
- A new node in the Stage Master table with Closed Flag 'Y' is supported and will be ignored during SCD load.

To configure this widget, complete the following steps:

1. On the **Process Flow** page, from the LHS menu, expand **Widget** and drag and drop this widget on to the canvas.
2. Double-click the widget on the canvas. The configuration window is displayed with the **Activity** tab selected.
3. Under **Dynamic Parameters**, configure the settings described in the following table.
4. Click the tick mark icon to save your changes. To close the configuration window, click anywhere outside the window on the canvas.

Table 3-2 Dynamic Parameters for SCD Description

Property	Description
Datastore Name	Refers to the name of the Information Domain. By default, the Information Domain to which you are connected is selected.
Name	Select the name of the required dimension table.
Full Load	If you have entered the **Full Load** parameter as **YES**, you can load snapshot data for master tables and execute SCD process with additional parameters. When entered as **NO**, you can load incremental data for master tables and execute SCD process with additional parameters.
Execution Venue	Enter name of the Execution Venue. This field is case-sensitive and must be unique. For example, logical name “R_DF” is not allowed if a name “R_DF” exists. Ensure that there are no special characters such as `, {,},”, ‘, ~, <,>, /, \, and multiple spaces.

Table 3-2 (Cont.) Dynamic Parameters for SCD Description

Property	Description
Effective Date	Enter the start date from when the data is valid.

3.7.4 RUN DQ RULE

To configure this widget, complete the following steps:

1. On the **Process Flow** page, from the LHS menu, expand **Widget** and drag and drop this widget on to the canvas.
2. Double-click the widget on the canvas. The configuration window is displayed with the **Activity** tab selected.
3. Under **Dynamic Parameters**, configure the settings described in the following table.
4. Click the tick mark icon to save your changes. To close the configuration window, click anywhere outside the window on the canvas.

Table 3-3 Dynamic Parameters for RUN DQ RULE Description

Property	Description
Datastore Name	Refers to the name of the Information Domain. By default, the Information Domain to which you are connected is selected.
DQ Group Name	Select the required DQ group.

Table 3-3 (Cont.) Dynamic Parameters for RUN DQ RULE Description

Property	Description
Rejection Threshold	Enter the maximum number of errors in absolute value that a Data File can have despite which the Data Load will be marked successful. This is part of the property specification for the load to table option. When the erroneous record count exceeds the Rejection Threshold value, the data loading task will fail and the inserted values will be rolled back for that table. Inserts for the previous tables will not be reverted. Rejection Threshold will be applied to each of the target tables individually in a batch. **Note:** The Rejection Threshold value should be a number which is considered as percentage of records. For example, if you have entered the value as 10, it is considered as 10 % of the entire records. **Note:** The Threshold limit is not applicable for duplicate Data Quality Check. By default, the **Rejection Threshold** is considered as **100** when no input is added. When the Rejection Threshold is set as 100 or blank, the whole data file will be loaded irrespective of the number of errors.
Additional Parameters	Enter any additional parameters for the Run DQ Rule filtering criteria for execution in the pattern: Key#Data type#Value; Key#Data type#Value; and so on. **NOTE**: In case these additional parameters are not specified, the default value is taken as NULL. Except the standard place holders $MISDATE and $RUNSKEY, all additional parameters for DQ execution should be mentioned in single quotes. For example, STG_EMPLOYEE.EMP_CODE = '$EMPCODE'.

Table 3-3 (Cont.) Dynamic Parameters for RUN DQ RULE Description

Property	Description
Fail if Threshold Breaches	By default, the **Fail If Threshold Breaches** is considered as **TRUE** when no input is added. When threshold breaches and the **Fail If Threshold Breaches** field is set to **TRUE**, the job will abort and the failure records are not inserted in the DQ Result tables. When threshold breaches and the **Fail If Threshold Breaches** is set to **FALSE**, the job will proceed further and the failure records will be inserted in the DQ Result tables.
Stop Insert on Threshold Breach	This is applicable only when **Fail if Threshold Breaches** is set to **FALSE**. When **Stop Insert on Threshold Breach** is set to **Y**, only the invalid records based on rejection threshold are inserted in the DQ Result tables. If set to **N**, all the invalid records are inserted. By default, it is set to **N**.
Rule Exec Connection	To establish a connection for DQ execution, enter the Rule Execution Connection as **STAGE**.
Result Store Connection	To store the Data Quality execution results, enter the Result Store Connection as **PREPROCESS**.
Batch on Fail	Leave this parameter blank.
Micro service Id	Enter the Micro Service ID.

3.7.5 HIERARCHYRESAVE

To configure this widget, complete the following steps:

1. On the **Process Flow** page, from the LHS menu, expand **Widget** and drag and drop this widget on to the canvas.
2. Double-click the widget on the canvas. The configuration window is displayed with the**Activity** tab selected.
3. Under **Dynamic Parameters**, configure the settings described in the following table.
4. Click the tick mark icon to save your changes. To close the configuration window, click anywhere outside the window on the canvas.

Table 3-4 Dynamic Parameters for HIERARCHYRESAVE

Property	Description
Entity	Select one or multiple entities. Use the **Include all or Exclude all** icons to include or exclude all the entities respectively.
Hierarchy	Select one or multiple hierarchies. Use the **Include all or Exclude all** icons to include or exclude all the hierarchies respectively.

Table 3-4 (Cont.) Dynamic Parameters for HIERARCHYRESAVE

Property	Description
Load type	Select the Load Type: • Resave - Existing data is replaced with the freshly populated data. • Refresh - Freshly populated data is added to the existing data.

3.7.6 Connectors

To configure this widget, complete the following steps:

1. On the **Process Flow** page, from the LHS menu, expand **Widget** and drag and drop this widget on to the canvas.
2. Double-click the widget on the canvas. The configuration window is displayed with the **Activity** tab selected.
3. Under **Dynamic Parameters**, configure the settings described in the following table.
4. Click the tick mark icon to save your changes. To close the configuration window, click anywhere outside the window on the canvas.

Table 3-5 Dynamic Parameters for Connectors

Property	Description
Connector Name	Select the required connector from the drop-down list. The selected connector loads the data as mapped in the staging tables of the ledger into DFCS.
Variables	Enter the required variables.

3.7.7 DataService

To configure this widget, complete the following steps:

1. On the **Process Flow** page, from the LHS menu, expand **Widget** and drag and drop this widget on to the canvas.
2. Double-click the widget on the canvas. The configuration window is displayed with the **Activity** tab selected.
3. Under **Dynamic Parameters**, configure the settings described in the following table.
4. Click the tick mark icon to save your changes. To close the configuration window, click anywhere outside the window on the canvas.

Table 3-6 Dynamic Parameters for DataService

Property	Description
Variables	Enter the required variables.
DataService Name	Select the required Data Service from the drop-down list.

3.7.8 DQReportingEngine

To configure this widget, complete the following steps:

1. On the **Process Flow** page, from the LHS menu, expand **Widget** and drag and drop this widget on to the canvas.
2. Double-click the widget on the canvas. The configuration window is displayed with the **Activity** tab selected.
3. Under **Dynamic Parameters**, configure the settings described in the following table.
4. Click the tick mark icon to save your changes. To close the configuration window, click anywhere outside the window on the canvas.

Table 3-7 Dynamic Parameters for DQReportingEngine

Property	Description
DQ Reporting Rule	Select the DQ Reporting Rule from the Run DQ rule job that you wish to use for validation of the data.

> **Note:**
>
> Post execution, you should perform a fresh execution from the PMF pipeline. It is not recommended to perform a re-run operation once the execution is complete.

3.7.9 Reconciliation

To configure this widget, complete the following steps:

1. On the **Process Flow** page, from the LHS menu, expand **Widget** and drag and drop this widget on to the canvas.
2. Double-click the widget on the canvas. The configuration window is displayed with the **Activity** tab selected.
3. Under **Dynamic Parameters**, configure the settings described in the following table.
4. Click the tick mark icon to save your changes. To close the configuration window, click anywhere outside the window on the canvas.

Table 3-8 Dynamic Parameters for Reconciliation

Property	Description
Rule Name	Select the Rule Name to apply during execution for reconciling transactions and generating statements.

3.8 Design a Pipeline

In FINANCIAL SERVICES DATA FOUNDATION CLOUD SERVICE FOR BANKING, pipelines are used to design and execute the sequence of tasks, either FINANCIAL SERVICES DATA FOUNDATION CLOUD SERVICE FOR BANKING tasks or external tasks, to derive a well-

defined outcome. This flow is defined by using various FINANCIAL SERVICES DATA FOUNDATION CLOUD SERVICE FOR BANKING components available in the component toolbar

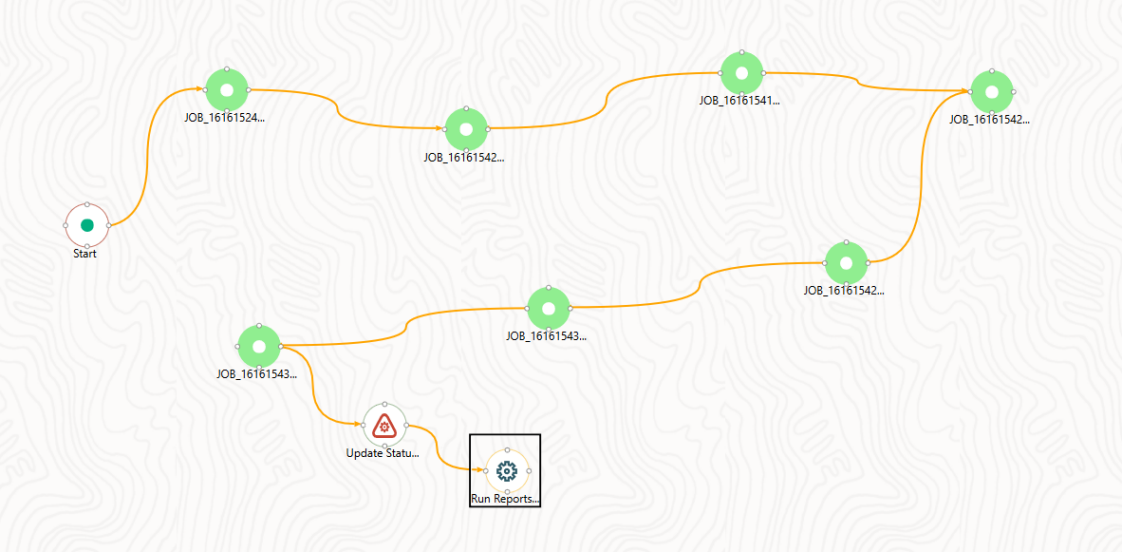
Using the Process Modeller, you can orchestrate a Run Pipeline using Data Pipelines Modelling.

3.8.1 Run Pipeline

A Run Process is used to create a Run Definition in the Rule Run Framework (RRF). A Run Pipeline is the visual representation of the Run enabled through Process Orchestration.

An Example of Run Pipeline

Figure 3-3 Run Pipeline Example



3.8.2 Creating a Run Pipeline

1. Click the **Add** button in the **Process Modeller Summary** page.
2. Enter a **Process Name** and **Process Description**. The **Process ID** is a unique system-generated value.
3. Select the appropriate package from the **App Package ID** drop-down.
4. Select **Run Pipeline** from the **Type** drop-down list.
5. Select the service that you want to connect to from the **Service ID Workspace** drop-down list.

   The list displays all the services that are mapped to the DFCS Service.
6. Click the **Accept** icon to save the entered details.

   The Process Flow canvas is displayed.
7. By default, the START activity appears on the canvas indicating the beginning of the process.
8. Drag and drop components from the toolbar on the left. You can drag and drop service tasks, gateways, connectors, and widgets on the canvas.

9. To connect one component with an other, right-click the source component and choose **Start Link**. Next, click on the destination component and click **End Link**. Alternatively, if you drag and drop a component on another component on the canvas, the two components will be linked.
10. Proceed to link all the components per your requirement.
11. Click **Save**.

3.8.3 Creating and Executing a Custom DQ Run Pipeline

1. Click the **Add** button in the **Process Modeller Summary** page.
2. Enter a **Process Name** and **Process Description**. The **Process ID** is a unique system-generated value.
3. Select the **App Package ID** as **Data Foundation** from the drop-down.
4. Select **Run Pipeline** from the **Type** drop-down list.
5. Select the service that you want to connect to from the **Service ID Workspace** drop-down list.

   The list displays all the services that are mapped to the DFCS Service.
6. Click the **Tick mark** icon to save the entered details.

   The Process Flow canvas is displayed.
7. By default, the START activity appears on the canvas indicating the beginning of the process.
8. Drag and drop the **RUN DQ Rule** process widget.
9. To connect one component with an other, right-click the source component and choose **Start Link**. Next, click on the destination component and click **End Link**. Alternatively, if you drag and drop a component on another component on the canvas, the two components will be linked.
10. Proceed to link all the components per your requirement.
11. Double click the **RUN DQ Rule** process widget to enter the details. For more information on the parameters, see RUN DQ RULE section.
12. Click **Save**.
13. Execute the Custom DQ Run Pipeline. For more details on how to execute a pipeline, see Run Pipeline.

3.9 Additional Functionalities

This section describes how to manage pipelines including tasks such as viewing, modifying, copying, or deleting pipelines.

3.9.1 Modifying a Pipeline

This option enables you to modify a pipeline. To modify a pipeline, complete the following steps:

1. On the **Process Modeller** window, search for the pipeline and click the pipeline name. The **Process Flow** tab is displayed.
2. Modify the process flow, definition, application rules, or data fields as required.

> **Note:**
>
> If you try to delete a component in the Business Pipeline that is used as a Sub Pipeline, a confirmation message is displayed. After you confirm the deletion, an alert is displayed with the list of the Business Pipelines where the Sub Pipeline is used. Click **OK** again to delete the component.

3.9.2 Viewing a Pipeline

Use this option to view the workflow of an existing business process.

From the **Process Modeller** window, click the more information icon (the three vertical dots icon) to view the sub-menu and select **View**. The Process Flow of the selected pipeline is displayed.

3.9.3 Copying a Pipeline

Use the copy option to quickly create a new business process based on an existing process by updating the process flow or other required details.

To copy a business process, complete the following steps:

1. From the **Process Modeller** window, click the more information icon (the three vertical dots icon) to view the sub-menu of the selected pipeline and select **Copy**.
2. In the **Process Details** window, enter a unique **Process ID**, **Process Name**, and **Process Description**. If you select the same **App Package ID**, then **Data Fields** and **Application Rules** are also copied.
3. Click **Save**.

3.9.4 Deleting a Pipeline

Use this to delete a Business Pipeline or Run Pipeline.

To delete a pipeline, complete the following steps:

1. From the **Process Modeller** window, click the delete icon corresponding to the pipeline you want to delete.
2. A confirmation window is displayed. If you wish to delete the process, click **Confirm**.

   If this pipeline is used as a Sub Pipeline in another Business Pipeline, an alert is displayed with the list of Business Pipelines where it is used.

> **Note:**
>
> You cannot delete the pipeline, if it is already triggered.

3.10 Data Fields

Data Field, also known as a process variable, enables Process Pipelines access and store information from external sources. Often, the process flow is based on the value of this information. In other cases, this information is the result of running tasks in the pipeline.

3.10.1 Add a Data Field

1. On the **Process Modeller** page, click the pipeline to which you want to add a Data Field.
2. Select **DataFields** from the header to display the **Data Fields** window.
3. Click the + icon to display the **Addition of Data Field** window.
4. Provide the details described in the following table and click the tick mark icon to save the details:

Table 3-9 Data Field Details Description

Field Name	Description
Data Field Code	Enter the Variable Name/Code, which will be used to read or write into this variable. This field is non-translatable.
Data Field Description	Enter a brief description.
Data Field Type	Select the Data Field Type.
Initial Value	Enter the initial value for the data.
Is Mandatory	Applies to the **AOM** Data Field Type. **Yes** is the default selection for AOM. Select **No** if you do not want this parameter to be displayed as Execution Parameter for the Run pipeline.
Scope	Select the scope of the Data Field. Options are: • **Process** - To use the Data Field only in the current process. • **Package** - To use the Data Field across all the processes in the package.

3.10.2 System Data Fields

Some data is tracked internally by FINANCIAL SERVICES DATA FOUNDATION CLOUD SERVICE FOR BANKING using a predefined set of Data Fields such as Status. You can access these activity instance attributes in the same way you access Regular Data Objects, but you cannot assign them new values.

3.11 Executing Run Pipeline

After creating your Run pipeline, your next step is to execute it. To execute a Run pipeline, complete the following steps:

1. From the **Process Modeller Summary** page, click the menu button corresponding to Run pipeline you want to execute and select **Execute Run**.
2. The **Execution** window is displayed.
3. Select the **Execution Type**, **Object ID**, and **Application Params (in JSON format)** and click **Execute**.

The execution is triggered using the selected FIC MIS DATE. The RUNSKEY is generated and inserted into the “DIM_RUN” table. For the RUNSKEY generated, the corresponding user-selected parameters are inserted into the “RUN_EXE_PARAMETERS” table.

You can use the Process Flow Monitor to view the status of the execution as the Run pipeline is executed.

3.12 PMF Dashboard

When there are multiple pipelines running in parallel, monitoring the processes to find out if they have executed successfully or otherwise, information about the tasks within pipelines that have completed, failed, canceled, and running yet becomes important.

The Process Modeling Framework (PMF) Dashboard displays granular level execution details of all PMF processes belonging to Loader components and Data Quality executions within a environment (tenancy). Only authorized users belonging to the Accounting Foundation Admin Group or Accounting Foundation Operations User Group will have access to the PMF Dashboard. For each PMF process, these authorized users can drill down and view the related activities and further into the events recorded for each activity along with information such as the timestamp, event messages, and event error codes. This information aids you to gauge the progress made by each task. You also have the option to monitor a pipeline and view it on the PMF canvas.

Navigation to the PMF Dashboard page is through the PMF Dashboard icon on the Process Modeller page. On the dashboard page, you can view detailed information about the processes that have run and the details of the events (activities) that have occurred during the execution of the tasks.

You have options to filter the activities and tasks: for example, completion status, Process ID, or execution date. You can also export the results as a report to an Excel or CSV format.

3.12.1 View and Filter PMF Dashboard

The PMF Dashboard displays detailed, drill-down information about the processes that have run and the details of the events (activities) that have occurred during the execution of the tasks. You can use the filters provided to quickly search and locate a PMF Process that has run regardless of whether process completed or failed.

> **Note:**
>
> The PMF Dashboard supports wildcard search where you can search for objects without having to provide the complete activity name, process name, or instance ID. In addition, the search feature is case-agnostic; you can type the search strings in upper or lower case.

To view and filter the PMF Dashboard:

1. From the **DFCS Home** page, select **Process Orchestration**.

   The **Process Modeller** page is displayed.

2. Click the **PMF Dashboard** icon on the header. The **PMF Dashboard** page appears and displays the PMF processes that have run.

3. You can filter the PMF dashboard to quickly search for a PMF process you are interested in. Note that the search is case-sensitive. The following filter options are available:

   - **Process Status**: Select one or multiple statuses to filter the PMF dashboard. For example: to see all processes that have failed, click **Process Status** under the search bar and select **Failed** to view a list of all the processes that have failed.

- **Process Name**: Enter the process name.
- **Process ID**: Enter the process ID.
- **Process Instance ID**: Enter the process Instance ID.
- **More Filters**: Select from one of the multiple options available.
- **Execution Date**: Select a time period or a date range based on the time zone in which the user is logged in.

The dashboard is refreshed and the PMF process(es) matching your filter criteria are displayed.

4. You can drill-down each PMF process to view the activities (tasks) that have been defined for that process. Use the additional filters to filter activities based on **Activity**, **Event Parameters**, **Event Message**, and **Event Error Code**. To apply a filter, click inside the search bar, select the filter, and press Enter.
5. Each PMF process has the following information:
   - **Process Instance ID**: The unique system-generated value that identifies the process instance.
   - **Data Source ID**: The Data Source ID of the process.
   - **Run Params**: The input parameters provided to execute this process.
   - **As Of Date**: The As of date.
   - **Run Skey**: The unique number created for each instance.
   - **Start Time**: Start time of the process execution.
   - **End Time**: End time of the process execution.
   - **Duration**: Duration of the process execution.
   - **Status**: Indicates if the process has completed, failed, was canceled, or is still running.
   - **Monitor**: Click this icon to view the progress of this process on the PMF canvas.
6. Click the PMF process link to drill down and display the activities associated with this process. The associated activities (for example: SCD, Connectors, Run DQ Rule, and so on) are displayed. For each activity, the following information is available:
   - **Component**: The component type.
   - **Start Time**: Start time of the activity execution.
   - **End Time**: End time of the activity execution.
   - **Duration**: Duration of the activity execution.
   - **Status**: Indicates if the activity has completed, failed, was canceled, or is still running.
7. Click the activity name link to drill down further and view details of the events within this activity. For example: if the activity is an **Insert Connector**, the following event information is displayed:
   - **Timestamp**: The latest record is displayed on top.
   - **Number of error records**: The number of error records.
   - **Event**: The event that is being recorded.
   - **Number of records loaded**: The number of records that were loaded.
   - **Event message**: Status of the event completion.

3.12.2 Exporting PMF Dashboard Report

You can also export the PMF dashboard contents as a report in Excel or CSV formats. Here again you have options to filter the data that is exported.

To export contents of the PMF Dashboard into a report:

1. On the **PMF Dashboard** page, use the filters to select the PMF process(es) and the activities within the PMF process(es) you are interested in.
2. Click **Export**.
3. Choose the format for your report (Excel or CSV).
4. You need to apply at least one filter criteria to export the report as there is a limit to the number of records you can export. To filter the contents to export to your report, click the **With Filter** option and select the filter criteria from the search box.
5. Click **Export** and save the report file to a local directory. The report will contain details of the selected process(es), activities within the process, and the tasks within the events.

> **Note:**
>
> The export file can contain a maximum of 6500 records (rows) only. Hence it is recommended to use at least one filter when exporting the contents of the Dashboard to a report.

3.13 PMF Email Notification

Use this feature to configure the email notifications for package/process or user level.

The PMF Email Notification page enables you to send Email notifications for indicating the status (completion or failure) of a PMF process. This will permit pushed notification of users via email with failure/completion status for taking timely and necessary actions.

3.13.1 PMF Email Notification at Package or Process Level

Use this feature to set Email notification at package/process level.

To set the PMF Email notification at Package/Process level:

1. From the **Financial Services Data Foundation Cloud Service for Banking** Home page, select **Data Pipelines**.

   The **Process Modeller** page is displayed.
2. Click the **PMF Email** icon on the header. The **PMF Email Notification** page appears and displays the Package and Process Level email notifications.

   You must be mapped to FINANCIAL SERVICES DATA FOUNDATION CLOUD SERVICE FOR BANKING ADMNGRP user group to view the PMF Email icon on the header.
3. Click the plus icon and select the Package radio button and the package IDs for which the email notifications has to triggered.
4. Click **Apply**.

   The selected packages are displayed.

5. Click **Add User** and select the **User** or **User Group** to whom the email notifications to be shared.

   You should add users at package level and not at the process level.

6. Click **Apply** and **Save**.

3.13.2 PMF Email Notification at User Level

Use this feature to set Email notification at user level.

To set the PMF Email notification at User level:

1. From the **DFCS Home** page, select **Data Pipelines**.

   The **Process Modeller** page is displayed.

2. Click the **PMF Email** icon on the header. The **PMF Email Notification** page appears and displays the Package and Process Level email notifications.

3. Click the plus icon and select the User/User Group radio button and the users or groups to receive the email notifications.

   You should add users at package level and not at the process level.

4. Click **Apply**.

   The selected User/User Groups are displayed.

5. Click **Add Package** and select the Package or Process for which the email notifications has to triggered

6. Click **Apply** and **Save**.

3.13.3 PMF Email Notification Template

Use this page to configure the email notification messages for package/process or user level.

To configure the PMF Email notification messages:

1. From the **DFCS Home** page, select **Data Pipelines**.

   The **Process Modeller** page is displayed.

2. Click the **PMF Email** icon on the header. The **PMF Email Notification** page appears and displays the Package and Process Level email notifications.

   You must be mapped to DFCSADMNGRP user group to view the PMF Email icon on the header.

3. Click **Template** option next to Email Notification at the bottom of the page.

   The Email Notification template is displayed. By default, the following variables are added to the message body:

   - Tenant-Id
   - Run-Sk
   - Process-Id
   - Object-Id
   - Task-Status
   - As-Of-Date
   - Entity-Name

- Process-End-Time
- Entity-Id
- Title
- locale
- Process-Start-Time
- Entity-Type
- Process-Name
- Process-Instance-Id
- Received-On

4. You can remove the variables from the Template body to be displayed in the email based on your requirements.

   The Template you configure is at global level and not at the user group or package/process level.

> **Note:**
>
> Forwarding the email will send all the parameters available and do not retain the template.

3.14 Process Monitor

Use the Process Monitor to monitor the current stage of a process. After integrating with a service, a workflow is invoked. After it is invoked, the workflow goes through all the defined stages. Using the Process Monitor, you can view all the stages of the workflow such as current stages, stages to follow, if any, and finished.

Your user group must be mapped to the function role WFMACC (Workflow Monitor Access) to access the Process Monitor window. For the list of the PMF Roles, see the Process Modeling Framework Roles section.

1. On the **Process Modeller** page, click the **Process Monitor** icon on the header to view the Process Monitor page. All workflows that are invoked from the service are displayed along with details such as **Entity Name**, **Entity ID**, **Process Name**, **Process Description**, **MIS Date**, **Execution Start Time**, **Last Execution Time**, **Last Updated By**, and **Status**.

To monitor only a selected pipeline, on the Process Modeller summary page, click the menu button corresponding to that pipeline and select **Process Flow Monitor**. The execution details are displayed.

Click the menu button corresponding to the selected pipeline to view options to:

- **Resume**: To resume a Run pipeline.
- **Re-run**: To execute a Run pipeline again irrespective of the previous execution status.
- **Abort**: To abort an ongoing Run pipeline

> **Note:**
>
> In case of Disaster recovery (DR) after switch over to the secondary site, the processes that are in running status should be aborted and resume to proceed further.

To return to the Process Modeller page, click the Process Modeller icon on the header of the Process Monitor page.

Use the **Search** field to search for a specific pipeline by providing a keyword from either the Process ID, Process Name, or Process Description of the process you are looking for and click **Search**.

3.14.1 Process Monitor

From the **Process Monitor** window, click the Entity ID link corresponding to the process you want to monitor.

The status of the activity is represented as: **Completed**, **Failed**, **Cancelled** or **Running** .

You can also set auto-refresh in the header. Select **Enabled** in **Auto Refresh**, enter a value from 1 to 10 in **Refresh Interval (In Min)** and then click **Apply**.

3.14.1.1 Viewing Activity Execution Logs

Use this feature to view logs of the execution of each activity from the Process Monitor window.

To view Activity Execution Logs:

1. From the Process Monitor page, click the process which you want to monitor. The canvas displaying the workflow along with the status is displayed. On the canvas, double-click an activity to view the **Activity Execution** window. The activity details are displayed.
2. Click the **Execution Logs** button to view the Activity Execution Log.

   The Log Viewer window shows all the execution stages (successful and failed) of the selected activity if it is already executed.

   The **Batch Run ID** and **Process ID** fields show the information for the previously selected parameters in the activity configuration.

   > **Note:**
   >
   > Use the **Search** field to search within the execution log.

   The information available is segregated in to sequence, timestamp, severity, and message.

   You can sort by Ascending or Descending Order by clicking the Up and Down Arrows in the Header Row.

   - Sequence depicts the order of the log messages generated during execution.
   - Timestamp shows the date and time of the generation of the log message.
   - Severity shows labels such as Info to show the type of message, which helps determine if any intervention is required.

- Message displays the log message generated.

> **Note:**
>
> The information in the Log Viewer window is specific to the selected Process Orchestration activity such as a widget or transition.

3.15 Abort Run Pipeline

You can abort a Run Pipeline that is in the process of execution.

To abort a Run pipeline, complete the following steps:

- From the **Process Monitor** window, click the menu icon corresponding to the Run pipeline that is being executed that you want to abort and click **Abort**.

3.16 Resume Run Pipeline

You can resume a Run Pipeline which has not been executed successfully or which has been explicitly interrupted, or canceled, or put on hold during the Execution process. By resuming a Run pipeline, you can continue its execution directly from the point of interruption or failure and complete executing the remaining tasks.

To resume a Run Pipeline

- From the **Process Monitor** page, click the menu icon corresponding to the Run pipeline you want to resume and click **Resume**.

3.17 Re-run Run Pipeline

You can re-run a Run pipeline that was previously executed, irrespective of the previous execution state.

To re-run a Run pipeline, complete the following step:

- From the **Process Monitor** page, click the menu icon corresponding to the Run pipeline you want to re-run and click **Re-Run**.

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